



Calabogie Peaks Resort
2022 Annual Monitoring Report

Section 53 Certificate of Approval No.: 0522-98MLKK

Greater Madawaska, ON

Prepared for:
Calabogie Peaks Resort

Prepared by:
Azimuth Environmental
Consulting, Inc.

March 2023

AEC 17-328



Environmental Assessments & Approvals

March 31, 2023

AEC 17-328

Calabogie Peaks Resort
30 Barrett Chute Road
Calabogie, ON
K0J 1H0

Attention: Paul Murphy, President

**Re: 2022 Annual Monitoring Report
Calabogie Peaks Resort, Calabogie, ON
30 Barrett Chute Rd. Calabogie, Ontario
Certificate of Approval No.: 0522-98MLKK**

Dear Mr. Murphy:

As per Condition 5.0 of the above-noted Certificate of Approval (CofA), Azimuth Environmental Consulting, Inc. (AEC) has prepared an annual report on the septic system monitoring programs conducted at Calabogie Peaks Resort (CPR) in 2022.

It is our professional opinion that the Peat bed septic system at CPR is operating efficiently. No major problems with the system have been encountered this year. The sewage system, which was designed for a daily peak flow 43,920 Lpd (one module), is only processing on average about 7,800 L/day (<20% of design) for 2022. The flows were slightly higher in 2022. These data suggest that the system is not being taxed. The peat bed was last inspected in 2020 and no issues were identified (i.e., wet, clogging, biomass accumulation, breakouts, etc.) that would suggest non-performance.

The most recent ground water results confirm no impact to the environment. It is noted that the monitoring program was modified in 2021 to include sampling of the effluent before discharging to the peat bed. This included the installation of a monitoring well immediately adjacent the peat bed subsurface disposal system (PBSSDS) however should be changed to the holding tank prior to the PBSSDS.

As part of an Environmental Compliance Approval (ECA) amendment which is currently under review by the Ministry of the Environment Conservation and Parks (MECP)

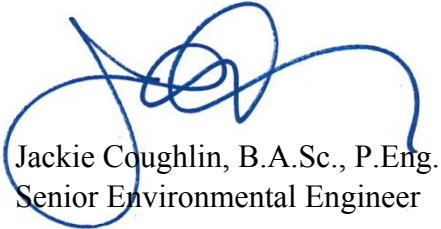


Permissions Branch, Azimuth has recommended that the point of compliance be changed to the discharge location to the peat bed rather than at the monitoring wells. Azimuth has also recommended to change the CofA objectives for C-BOD₅ and TSS from 5 mg/L to 10 mg/L which is more in keeping with a conventional Class IV system. The above recommendations have been discussed and agreed upon by the MECP Ottawa District office and the Eastern Regional Technical Support Section.

If you have any comments or questions, please contact the undersigned.

Yours truly,

AZIMUTH ENVIRONMENTAL CONSULTING, INC.



Jackie Coughlin, B.A.Sc., P.Eng.
Senior Environmental Engineer



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1.0 INTRODUCTION

Calabogie Peaks Resort (CPR) is situated at the municipal address of 30 Barrett Chute Road and is located approximately 6 km west of the community of Calabogie, ON (Figure 1). CPR is a four-season resort that includes golfing and skiing activities both of which are situated either beside and/or on Dickson Mountain (Base Mountain).

As shown on Figure 3, current facilities at CPR include:

- Calabogie Peaks Hotel ("Main hotel");
- an eight (8) unit condominium building ("The Cedars");
- a ten (10) unit condominium building ("The Pines");
- an 8 unit (2-fourplexes) Townhouse building ("the Oaks")
- the ski lodge with pub ("The Ski Lodge");
- a three (3) bed accommodation unit ("O'Brien's Bunkhouse");
- a two (2) bed accommodation unit ("First Tracks"); and
- various outbuildings and "the Garage/ maintenance building"; and
- Juniper Ridge (future development lands).

The peat bed subsurface disposal system (PBSSDS) operates under the Ministry of the Environment, Conservation and Parks (MECP) CofA No. 2256-5F9KU9 and has an approved design capacity of 131,760 L/day (43,290 L/day per module). The system consists of large septic tank at the Hotel and the Cedars, and the secondary effluent is pumped through a common forcemain to a centralized dosing chamber, where the effluent is then evenly dosed to each peat module. Currently, only one third (one module) of the PBSSDS has been constructed.

Condition 8.0 of the CofA includes a specific list of monitoring requirements, which are to be discussed in this report. These requirements include:

- (a) a tabulation of all monitoring and analytical results obtained during the reporting period, including sampling/monitoring locations and dates, and comparison to the effluent objectives outlined in Condition 6;
- (b) a tabulation of daily volumes of effluent from the sewage works disposed of during the reporting period, and a tabulation of the daily volumes of water used at the site during the reporting period, also including sewage volumes pumped from the holding tank;
- (c) a tabulation of the volumes of sludge accumulated within the sewage works on a quarterly basis, a tabulation of the sludge pumped out of the sewage works on a



quarterly basis, along with documentation on sludge generation, transportation and ultimate disposal at the receiver's site;

- (d) a description of any operating problems encountered at the site and the mitigative measures taken during the reporting period.
- (e) A summary of all system maintenance undertaken during the reporting period;
- (f) A summary of complaints received during the reporting period and any steps taken to address the complaints;
- (g) A summary of all spills or abnormal discharge events; and
- (h) any other information the *District Manager* requires from time to time

2.0 BACKGROUND

CPR is developing site plan applications for strategic expansion of the resort facilities. The first couple of phases are expected to be built out in the next 3-5 years with the first phase to include the construction of new residential units. Under the existing Certificate of Approval, the sewage works have an approved capacity of 131,478Lpd (existing and future) however is only processing on average about 15,000 Lpd, therefore additional hydraulic capacity exists within the system to accommodate some additional development.

In order to support the expansion, the PBSSDS was inspected in 2020 to confirm the condition of the peat bed, the details of which are provided in the 2020 Annual report (Azimuth, 2022). The short term plan includes an expansion of the existing system, re-rating the peat bed system, as it operates at flows below its hydraulic capacity, the construction of the additional peat bed modules which are already approved through the existing CofA, and the connection of The Pines and The Oaks building to the centralized system.

The peat bed system will eventually be replaced with a new centralized tertiary treatment system to serve future phases. Once constructed, the new tertiary treatment system will facilitate the re-use of treated effluent for snow making. At this time, new wastewater collection mains have been installed at Base Mountain, although these are not yet in use.

2.1 Peat Bed Subsurface Disposal System

As identified above, sewage disposal at the site is handled through the use of a 3 module peat- based subsurface sewage treatment system with a rated capacity 131,760Lpd (43,290 L/day per module) of which only one module has been constructed. The components of the system include:



- one (1) central dosing station having a volume of approximately 8.6m³, including a duplex alternating pump system with submersible pumps with dosing alternating between the three peat filter modules;
- one (1) three compartment 65,634 L septic tank serving the hotel that discharges to the PBSSDS;
- One (1) two compartment 20,600L septic tank serving the Cedars with gravity flow to a concrete pump chamber that discharges to the PBSSDS via the centralized 8,600L dosing chamber.
- Three (3) peat *modules* comprised of a specifically engineered peat (*Sphagnum* spp.) with a pH range between 3.5-4.5 and a von post decomposition rating of approximately H4. Each module consists of two (2) filter cells having a peat filter surface area of 732 m² and a overall design capacity of 43,920 L/day.

3.0 ANALYTICAL MONITORING DATA

3.1 Effluent and Flow Objectives

The MECP under Section 6 of the CofA stipulate that "best efforts" are to be used to operate the sewage treatment facilities with the goal that the concentration objective for those parameters listed in the CofA (Table 3) are not to be exceeded in the effluent from the sewage works.

Best efforts, in part, include ground water sampling to assess potential risks to ground water and/ or surface water (Calabogie Lake) from the PBSSDS as well as ongoing maintenance, regular pump outs and monitoring of the sewage flows.

3.2 Effluent and Ground Water Sampling

As detailed under Condition 5.6 of the CofA, quarterly "grab samples" of the effluent from the sewage works are to be collected from monitoring wells installed immediately downgradient of the peat filters (i.e., MW-2, -3 and -4). The analytical suite required for each sample is to include, at a minimum: 5-day carbonaceous biochemical oxygen demand (C-BOD₅), total suspended solids (TSS), total phosphorus (TP), total ammonia (Ammonia + Ammonium) Nitrogen (TAN), nitrate (NO₃), nitrite (NO₂), Fecal Coliforms (*E.coli*), and Total Coliforms (TC).

In addition, as detailed under Condition 5.8 of the CofA, quarterly "grab samples" are to be collected from upgradient (MW-1) and downgradient monitoring wells (MW-2, -3 and -4). The analytical suite required for each sample is to include, at a minimum: cBOD₅, TP, TAN, NO₃, NO₂, dissolved organic carbon (DOC), chloride, *E.coli* and TC. It should be noted that the monitoring program was modified in late 2021 to include effluent sampling from a new effluent well that was installed immediately adjacent the PBSSDS



however we are recommending that the effluent sample be taken from the holding tank prior to the PBSSDS which would provide a better assessment of the effluent quality.

A summary of the results for the effluent well is provided in Table 1 and the up/ down gradient monitoring well results are provided below in the Tables 2 and 3.

Table 1 - Summary of Effluent Monitoring Results

Date	TAN	TP	BOD ₅	TSS	NO ₂	NO ₃	CL	DOC	TC (CFU/100mL)	E.coli (CFU/100 mL)
19-May-22	0.025	<0.02	<1	4	<0.1	0.70	80	1.8	0	0
03-Aug-22	0.025	< 0.020	<1	4	<0.10	0.70	80	1.8	0	0
13-Oct-22	< 0.020	< 0.020	2	19	<0.10	0.34	41	17.8	0	0
20-Dec-22	< 0.020	0.05	<1	52	< 0.10	0.33	35	1.4	0	0

All concentrations in mg/L unless otherwise specified

Table 2 - Summary of Monitoring Well Results

Date	Parameter	TAN	TP	BOD ₅	TSS	NO ₂	NO ₃	CL	DOC	TC	E.Coli
	Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	cfu/100mL	cfu/100mL
	CoA "Best Efforts"	1 mg/L	1 mg/L	5 mg/L	5 mg/L						
19-May-22	Well 1	0.04	0.03		9	<0.10	0.71	78	1.9	0	0
	Well 2	0.03	< 0.020		3	<0.10	0.71	80	2.1	0	0
	Well 3	0.03	0.03		7	<0.10	0.72	81	1.8	0	0
	Well 4	0.02	0.03		14	<0.10	0.71	78	2.2	0	0
3-Aug-22	Well 1	< 0.020	0.04	3.0	87	<0.10	0.44	62	2.1	0	0
	Well 2	< 0.020	0.05	3.0	72	<0.10	0.45	62	2.2	0	0
	Well 3	< 0.020	0.10	2.0	79	<0.10	0.46	64	2.3	0	0
	Well 4	0.04	< 0.020	2.0	222	<0.10	0.47	63	2.2	0	0
13-Oct-22	Well 1	< 0.020	< 0.020	3.0	14	<0.10	0.35	45	17.6	0	0
	Well 2	< 0.020	< 0.020	<1	7	<0.10	0.33	38	1.8	0	0
	Well 3	< 0.020	< 0.020	2.0	18	<0.10	0.32	33	1.7	0	0
	Well 4	< 0.020	< 0.020	6.0	11	<0.10	0.34	37	1.8	0	0
20-Dec-22	Well 1	< 0.020	0.58	3.0	123	<0.10	0.37	37	1.5	0	0
	Well 2	< 0.020	0.09	1.0	37	<0.10	0.37	37	1.3	0	0
	Well 3	< 0.020	0.06	2.0	42	<0.10	0.35	36	1.5	0	0
	Well 4	< 0.020		4.0	41	<0.10	0.36	36	1.5	0	0

All concentrations in mg/L unless otherwise specified

Table 3 - Summary of Average Monitoring Well Results

Well No.	TAN	TP	BOD ₅	TSS	NO ₂	NO ₃	CL	DOC	TC	E.Coli
Well 1	0.02	0.16	2.3	58.3	< 0.10	0.47	55.50	5.78	0	0
Well 2	0.01	0.04	1.3	29.8	< 0.10	0.47	54.25	1.85	0	0
Well 3	0.01	0.05	1.5	36.5	< 0.10	0.46	53.50	1.83	0	0
Well 4	0.02	0.01	3.0	72.0	< 0.10	0.47	53.50	1.93	0	0

All concentrations in mg/L unless otherwise specified

With the exception of one sampling event at MW-4 in October, the C-BOD₅ concentration at each monitoring well and the effluent well was below the 5mg/L objective however an objective of 5 mg/L is considered stringent when compared to the industry standard for inground Class IV septic system. Overall, the result for the effluent



well did not vary significantly when compared to the monitoring wells and suggest good treatment through the PBSSDS.

With the exception of two effluent events, TSS was above the 5mg/L objective. It is noted that a TSS objective of 5mg/L is also considered stringent for an inground Class IV system. The observed range for TSS (<3 to 222 mg/L) in the monitoring wells shows the highest variability compared to the other parameters. It should be noted that the sampling protocols are not appropriate to represent this parameter as it occurs in the system effluent. Suspended solids (other than potentially some colloids) do not migrate with ground water because the overburden soils act as a graded sand filter. Normally, TSS is applied on the effluent going into a bed to ensure that the bed does not become plugged. The water quality samples are not field filtered and any elevated result would reflect the entrainment of overburden material from the monitor construction, and do not reflect suspended solids in the system effluent. The average TSS concentration at the effluent well was 19.8 mg/L. The results for the effluent well compared to the up gradient and down gradient monitoring wells are slightly lower but overall do not vary significantly confirming the above.

The average concentrations for TAN (<0.02 to 0.04 mg/L) and total phosphorus (<0.02 to 0.58mg/L) at the monitoring wells are well below the CofA concentration objective of 1mg/L suggesting good treatment through the subsurface disposal bed. The results for the effluent well compared to the monitoring wells did not vary significantly for either parameter.

The nitrate concentration for the effluent and monitoring wells ranged between 0.32 mg/L to 0.72 mg/L, which is below the CofA criteria. Nitrate was higher in the spring and summer compared to fall and winter at all locations. Nitrate in the effluent well did not vary significantly when compared to the monitoring wells. There is no nitrate concentration objective specified in the CofA for the effluent well, however the results confirm that risks to shallow ground water are low.

Nutrients such as total phosphorus and total ammonia (TAN or NH₃-N) caused by wastewater are detrimental to surface water and nitrate (as nitrogen) is the main parameter of concern in drinking water. Neither TP nor TAN is considered a contaminant of concern from a ground water perspective, but can be used as a tool to determine if a septic signature is present and the extent of treatment within the disposal bed itself. The expectation is that once the NH₃-N is converted to nitrate, the nitrate concentrations in the shallow subsurface would move with the shallow ground water regime and would be significantly reduced by nitrification and other attenuation processes (i.e., denitrification, biological uptake, dilution). The monitoring data have



demonstrated that the PBSSDS is working effectively and despite having TSS above its objective; risks to ground and/ or surface water are low which is in keeping with 'best efforts' required by the CofA.

These historical data suggest that the objectives for BOD₅ and TSS are too stringent for an inground facility, such as CPR. In fact, the objectives could be less stringent since there are no drinking water wells down gradient of the bed and any contaminants would be filtered during travel to the lake, such that these receivers would ultimately be protected.

In light of this information, the average results for BOD₅ are well within acceptable levels for an inground system and suggest that the septic bed is not causing an environmental impact therefore "best efforts" have been achieved. It is inappropriate to have a TSS for ground water and therefore this criteria should be applied at the distribution box coming into the peat bed if possible. Based on the analytical results, it is our opinion that 'best efforts' are being practiced and are successful at protecting the natural environment; no additional work is required to further improve effluent quality.

4.0 EFFLUENT DISCHARGE MONITORING

As per Condition 5.5 of the CofA, readings from the water and effluent flow meters are to be recorded on a daily basis. A comparison of the water and sewage data since 2014 indicates that the sewage flows are between 43% and 64% of water demand (Appendix B).

Of note, a new drinking water system at CPR was commissioned in December 2019 and consists of a communal water treatment system (CWTS) supplied by two existing drilled wells. The CPR water treatment system is classified as a year-round non-municipal residential water works facility and is regulated under O.Reg 170/03 (as amended). The MECP granted CPR a Drinking Water System Number (No.: 260097058) in August 2020. A Responsibility Agreement is in place that covers the CWTS as well as the sewage works.

Based on a review of the 2022 sewage data, sewage generation varied between 1,829 Lpd and 24,045 Lpd with an average of ~7,786 Lpd (Table 2, Appendix B). Historically the average daily flows are typically about 13,000 Lpd but would appear to be lower over the past couple of years due to the overall usage of the resort. The data illustrates that the effluent volumes are well within the 43,920 Lpd average daily calendar monthly flow limit stipulated in the CofA for one peak bed module.



5.0 SYSTEM MAINTENANCE / OPERATIONS

CPR retain the services of a licensed sewage contractor to conduct periodic maintenance, daily operational inspections of the septic system, and pump-outs (Valley Wide Pumping and Haulage Services). There were no problems with the system in 2022 and no maintenance and/ or repairs were required.

5.1 Complaints

There were no complaints received during the 2022 operating season.

5.2 Spills or Abnormal Discharge Events

There were no spills or abnormal discharge events during the 2022 operating season.

6.0 SUMMARY

It is our professional opinion that the Peat bed septic system at CPR is operating efficiently. There were no problems with the system in 2022 and no maintenance and/ or repairs were required.

The sewage system, which was designed for a daily peak flow 43,920 Lpd (one module), is only processing on average about 7,786 L/day (<20% of design flow). The flows were slightly higher in 2022 compared to the previous year but would typically be around 13,000Lpd based on the historical data. The data suggest that the system is not being taxed. No issues were identified (i.e., wet, clogging, biomass accumulation, breakouts, etc.) that would suggest non-performance of the PBSSDS.

The most recent effluent (Table 1) and ground water monitoring results (Table 2 and 3) confirm no impact to the environment. Based on the analytical results, it is our opinion that 'best efforts' are being practiced and are successful at protecting the natural environment; no additional work is required to further improve effluent quality.

The historical data suggest that the objectives for BOD₅ and TSS are too stringent for an inground facility, such as CPR. In fact, the objectives could be less stringent since there are no drinking water wells downgradient of the bed and any contaminants would be filtered during travel to the lake, such that these receivers would ultimately be protected.

As part of an ECA amendment which is currently under review by the MECP Permittances Branch, Azimuth has recommended that the point of compliance be changed to the discharge location to the peat bed rather than at the monitoring wells. Azimuth has also recommended to change the CofA objectives for C-BOD₅ and TSS from 5 mg/L to 10 mg/L which is more in keeping with a Class IV system. The above



recommendations have been discussed and agreed upon by the MECP Ottawa District office and the Eastern Regional Technical Support Section. The amendment also includes re-rating the capacity of the peak bed to accommodate the first phase of the master plan expansion pending MECP approval.



APPENDICES

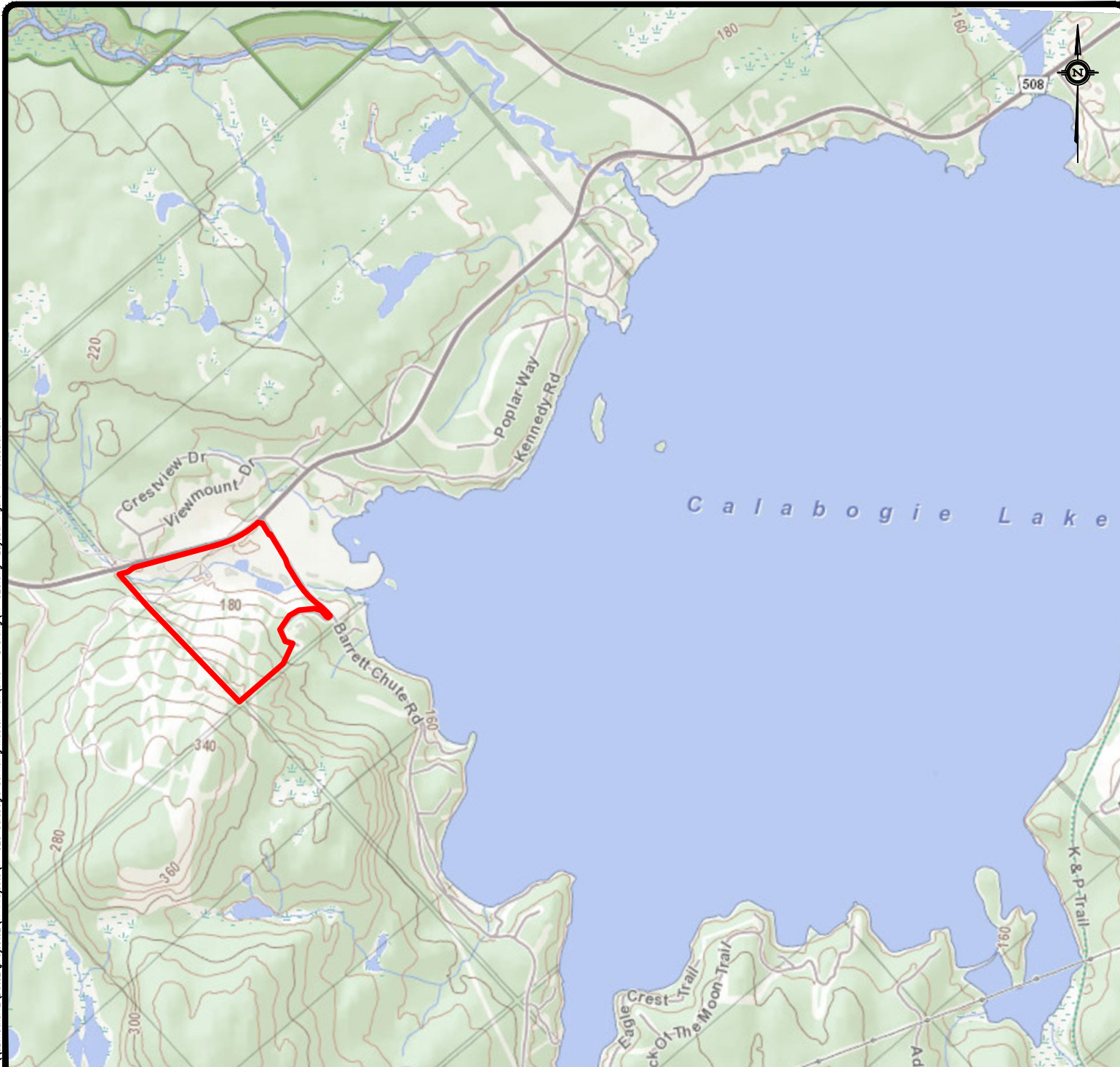
- Appendix A: Figures**
 - Appendix B: Water and Effluent Flow Data**
 - Appendix C: CofA Permit**
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APPENDIX A

Figures

Plotted by: MCCARTNEY on December 21, 2018 at 2:11pm
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LEGEND:
— *Approx. Property Boundary*

A regional map showing the location of the study area. A red dot is placed on the map near the town of Renfrew. Other nearby towns labeled include Cobden, Eganville, Amprior, and Lanark. The map shows a network of roads and water bodies.

REG MAP

250m 0 750m
HORIZONTAL SCALE 1: 25,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Study Area Location

Calabogie Peaks Resort,
Calabogie, ON

DATE ISSUED: December 2018	Figure No.
CREATED BY: JLM	
PROJECT NO.: 17-328	
REFERENCE: MNR	1



LEGEND:

- Approx. Property Boundary
- 5m Contour
- 1m Contour
- ▤ Wetland (LIO)
- Watercourse (LIO)
- Culvert (LIO)

N

60m 0 120m
HORIZONTAL SCALE 1:4,000

AZIMUTH ENVIRONMENTAL CONSULTING, INC.

Topography and Drainage

Calabogie Peaks Resort,
Calabogie, ON

DATE ISSUED: <i>December 2018</i>	Figure No.
CREATED BY: <i>JLM</i>	2
PROJECT NO.: <i>17-328</i>	
REFERENCE: <i>MNRF</i>	

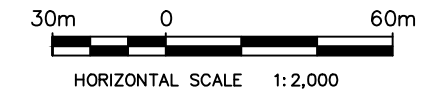
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LEGEND:

- Approx. Property Boundary
- Watercourse (LIO)
- Existing Septic Systems
- Monitoring Well Locations
- Production Well Locations (W-1)
- Backup Well Locations (W-2)

Note: the PBSSDS is located on the Golf course land owned by CPR



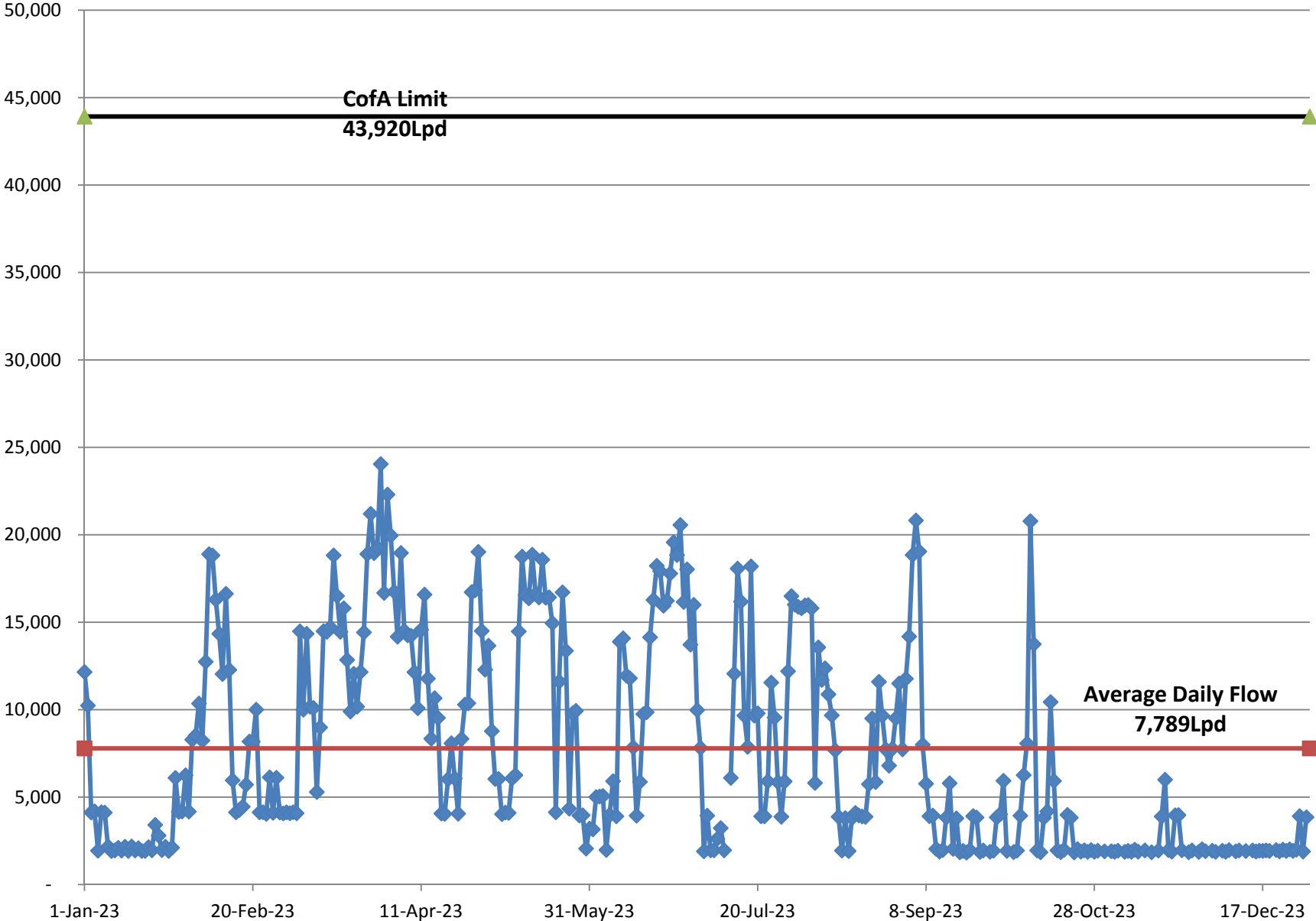
Site Plan

Calabogie Peaks Resort,
Calabogie, ON

DATE ISSUED:	December 2018	Figure No. 3
CREATED BY:	JLM	
PROJECT NO.:	17-328	
REFERENCE:	MNRF	

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Calabogie Peaks Resort: 2022 Sewage Flow Data





APPENDIX B

Water and Effluent Flow Data

TABLE B-1 HISTORICAL WATER CONSUMPTIONS AND SEWAGE FLOW DATA

Calabogie Peaks Resort Private Sewage Works

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Monthly Water Data													
2014	258,460	321,634	354,506	350,006	232,019	282,190	453,461	521,935	284,200	272,439	237,700	244,205	3,812,754
2015	467,622	356,214	458,503	410,443	308,595	411,443	511,211	308,340	183,668	303,578	385,398	197,867	4,302,880
2016	349,203	375,561	376,246	198,794	258,399	349,355	267,291	312,019	323,355	356,211	452,847	265,929	3,885,210
2017	618,682	449,245	480,000	208,664	211,365	289,019	313,242	408,009	322,281	303,559	204,892	358,405	4,167,364
2018	477,123	479,179	414,767	328,260	252,164	366,003	536,842	495,384	400,049	276,911	420,291	814,576	5,261,550
2019	672,153	367,946	394,470	259,200	311,220	270,900	340,200	434,700	278,945	254,229	55,440	513,778	4,153,181
2021	308,857	479,853	738,498	811,654	537,528	237,406	471,638	448,710	475,935	342,488	284,204	493,745	5,630,516
2022	460,623	643,791	706,064	457,295	533,363	421,205	488,604	450,940	448,899	505,165	335,015	375,754	5,826,719
Avg	451,590	434,178	490,382	378,040	330,582	328,440	422,811	422,505	339,666	326,823	296,974	408,032	4,630,022
Average Daily Water Data													
2014	8,474	10,545	11,623	11,476	7,607	9,252	14,868	17,113	9,318	8,932	7,793	8,007	
2015	15,332	11,679	15,033	13,457	10,118	13,490	16,761	10,110	6,022	9,953	12,636	6,487	
2016	11,449	12,313	12,336	6,518	8,472	11,454	8,764	10,230	10,602	11,679	14,847	8,719	
2017	20,285	14,729	15,738	6,841	6,930	9,476	10,270	13,377	10,567	9,953	6,718	11,751	
2018	15,643	3,249	13,599	10,763	8,268	12,000	17,601	16,242	13,116	9,079	17,780	26,707	
2019	22,038	12,064	12,933	8,498	10,204	8,882	11,154	14,252	9,146	8,335	1,818	16,845	
2021	10,126	15,733	24,213	26,612	17,624	7,784	15,464	14,712	15,604	11,229	9,318	16,188	
2022	15,102	21,108	23,150	14,993	17,487	13,810	16,020	14,785	14,718	16,563	10,984	12,320	
Avg	15,061	12,922	16,078	12,395	10,839	10,769	13,863	13,853	11,137	10,715	9,737	13,378	
C of A Max		360,000											
Monthly Peat Bed Wastewater Volume													
2014	170,149	159,172	170,149	164,660	170,149	164,660	170,149	170,149	164,660	170,149	164,660	170,149	2,008,854
2015	170,149	159,172	170,149	164,660	170,149	164,660	170,149	170,149	149,450	110,544	152,691	176,035	1,927,957
2016	142,609	109,477	156,583	165,304	195,960	138,307	136,064	96,094	107,223	274,551	137,418	191,890	1,851,479
2017	476,488	256,266	372,638	142,370	138,600	202,500	209,700	266,400	225,000	211,500	139,500	225,900	2,866,862
2018	221,400	326,700	387,900	282,264	155,121	278,179	298,358	310,738	245,124	242,648	164,654	252,552	3,165,638
2019	255,600	198,000	212,850	140,400	216,900	181,800	221,400	301,500	182,977	180,692	-	-	
2021	135,498	224,197	403,347	515,193	330,899	116,873	119,176	113,855	244,594	186,710	79,604	205,281	2,675,226
2022	104,274	245,263	393,680	369,478	326,530	346,404	254,065	267,916	166,189	123,463	54,224	50,304	2,701,788
Avg	209,521	209,781	283,412	243,041	213,038	199,173	197,383	212,100	185,652	187,532	127,536	181,730	2,456,829
Average Daily Peat Bed Wastewater Volume													
2014	5,579	5,219	5,579	5,399	5,579	5,399	5,579	5,579	5,399	5,579	5,399	5,579	5,489
2015	5,579	5,219	5,579	5,399	5,579	5,399	5,579	5,579	4,900	3,624	5,006	5,772	5,268
2016	4,676	3,589	5,134	5,420	6,425	4,535	4,461	3,151	3,516	9,002	4,506	6,291	5,059
2017	15,623	8,402	12,218	4,668	4,544	6,639	6,875	8,734	7,377	6,934	4,574	7,407	7,833
2018	7,259	10,711	12,718	9,255	5,086	9,121	9,782	10,188	8,037	7,956	5,398	8,280	8,649
2019	8,380	6,492	6,979	4,603	7,111	5,961	7,259	9,885	5,999	5,924			5,716
2021	4,443	7,351	13,225	16,892	10,849	3,832	3,907	3,733	8,019	6,122	2,610	6,731	7,309
2022	3,419	8,041	12,908	12,114	10,706	11,358	8,330	8,784	5,449	4,048	1,778	1,649	7,382
Avg	6,870	6,878	9,292	7,969	6,985	6,530	6,472	6,954	6,087	6,149	4,182	5,958	6,588
C of A Max		43,920	Average Daily Flow										
WW as a % of Water													
2014	66%	49%	48%	47%	73%	58%	38%	33%	58%	62%	69%	70%	53%
2015	36%	45%	37%	40%	55%	40%	33%	55%	81%	36%	40%	89%	45%
2016	41%	29%	42%	83%	76%	40%	51%	31%	33%	77%	30%	72%	48%
2017	77%	57%	78%	68%	66%	70%	67%	65%	70%	70%	68%	63%	69%
2018	46%	68%	94%	86%	62%	76%	56%	63%	61%	88%	39%	31%	60%
2019	38%	54%	54%	54%	70%	67%	65%	69%	66%	71%			
2021	44%	47%	55%	63%	62%	49%	25%	25%	51%	55%	28%	42%	48%
2022	23%	38%	56%	81%	61%	82%	52%	59%	37%	24%	16%	13%	46%
Avg	46%	48%	58%	64%	64%	61%	47%	50%	55%	57%	43%	45%	53%

SUMMARY OF 2022 SEWAGE FLOW DATA
Calabogie Peaks Resort Private Sewage Works

Date	Daily Sewage Volume (Lpd)
1-Jan-23	12,154
2-Jan-23	10,238
3-Jan-23	4,121
4-Jan-23	4,183
5-Jan-23	1,934
6-Jan-23	4,139
7-Jan-23	4,113
8-Jan-23	2,179
9-Jan-23	1,916
10-Jan-23	1,951
11-Jan-23	2,100
12-Jan-23	1,943
13-Jan-23	2,161
14-Jan-23	1,925
15-Jan-23	2,179
16-Jan-23	1,951
17-Jan-23	2,083
18-Jan-23	1,925
19-Jan-23	1,925
20-Jan-23	2,135
21-Jan-23	1,960
22-Jan-23	3,413
23-Jan-23	2,800
24-Jan-23	1,969
25-Jan-23	2,161
26-Jan-23	1,925
27-Jan-23	2,109
28-Jan-23	6,099
29-Jan-23	4,156
30-Jan-23	4,183
31-Jan-23	6,248
1-Feb-23	4,174
2-Feb-23	8,286
3-Feb-23	8,523
4-Feb-23	10,351
5-Feb-23	8,234
6-Feb-23	12,740
7-Feb-23	18,891
8-Feb-23	18,821
9-Feb-23	16,293
10-Feb-23	14,341
11-Feb-23	12,040
12-Feb-23	16,625
13-Feb-23	12,276
14-Feb-23	5,959
15-Feb-23	4,130
16-Feb-23	4,270
17-Feb-23	4,454
18-Feb-23	5,714
19-Feb-23	8,181
20-Feb-23	8,181
21-Feb-23	10,001
22-Feb-23	4,130
23-Feb-23	4,139
24-Feb-23	4,043
25-Feb-23	6,134
26-Feb-23	4,104
27-Feb-23	6,108
28-Feb-23	4,121
1-Mar-23	4,069

SUMMARY OF 2022 SEWAGE FLOW DATA
Calabogie Peaks Resort Private Sewage Works

Date	Daily Sewage Volume (Lpd)
2-Mar-23	4,130
3-Mar-23	4,078
4-Mar-23	4,139
5-Mar-23	4,078
6-Mar-23	14,481
7-Mar-23	10,001
8-Mar-23	14,341
9-Mar-23	10,168
10-Mar-23	10,098
11-Mar-23	5,294
12-Mar-23	8,986
13-Mar-23	14,490
14-Mar-23	14,455
15-Mar-23	14,718
16-Mar-23	18,821
17-Mar-23	16,503
18-Mar-23	14,455
19-Mar-23	15,803
20-Mar-23	12,845
21-Mar-23	9,896
22-Mar-23	12,049
23-Mar-23	10,176
24-Mar-23	12,154
25-Mar-23	14,420
26-Mar-23	18,900
27-Mar-23	21,201
28-Mar-23	18,953
29-Mar-23	19,259
30-Mar-23	24,045
31-Mar-23	16,678
1-Apr-23	22,304
2-Apr-23	19,959
3-Apr-23	16,748
4-Apr-23	14,175
5-Apr-23	18,961
6-Apr-23	14,508
7-Apr-23	14,254
8-Apr-23	14,228
9-Apr-23	12,145
10-Apr-23	10,080
11-Apr-23	14,569
12-Apr-23	16,581
13-Apr-23	11,778
14-Apr-23	8,339
15-Apr-23	10,658
16-Apr-23	9,529
17-Apr-23	4,060
18-Apr-23	4,043
19-Apr-23	6,029
20-Apr-23	8,076
21-Apr-23	6,064
22-Apr-23	4,051
23-Apr-23	8,330
24-Apr-23	10,290
25-Apr-23	10,369
26-Apr-23	16,721
27-Apr-23	16,826
28-Apr-23	19,023
29-Apr-23	14,499
30-Apr-23	12,285

SUMMARY OF 2022 SEWAGE FLOW DATA
Calabogie Peaks Resort Private Sewage Works

Date	Daily Sewage Volume (Lpd)
1-May-23	13,659
2-May-23	8,776
3-May-23	6,038
4-May-23	6,038
5-May-23	4,025
6-May-23	4,121
7-May-23	4,095
8-May-23	6,073
9-May-23	6,256
10-May-23	14,473
11-May-23	18,751
12-May-23	16,555
13-May-23	16,371
14-May-23	18,865
15-May-23	16,616
16-May-23	16,415
17-May-23	18,576
18-May-23	16,406
19-May-23	16,424
20-May-23	14,945
21-May-23	4,130
22-May-23	11,611
23-May-23	16,713
24-May-23	13,370
25-May-23	4,340
26-May-23	9,791
27-May-23	9,931
28-May-23	3,946
29-May-23	3,964
30-May-23	2,056
31-May-23	3,200
1-Jun-23	3,150
2-Jun-23	5,005
3-Jun-23	5,031
4-Jun-23	5,066
5-Jun-23	1,978
6-Jun-23	3,981
7-Jun-23	5,915
8-Jun-23	3,903
9-Jun-23	13,886
10-Jun-23	14,079
11-Jun-23	11,944
12-Jun-23	11,795
13-Jun-23	7,849
14-Jun-23	3,938
15-Jun-23	5,871
16-Jun-23	9,748
17-Jun-23	9,861
18-Jun-23	14,140
19-Jun-23	16,275
20-Jun-23	18,226
21-Jun-23	17,920
22-Jun-23	15,943
23-Jun-23	16,231
24-Jun-23	17,789
25-Jun-23	19,574
26-Jun-23	18,839
27-Jun-23	20,563
28-Jun-23	16,161
29-Jun-23	18,025

SUMMARY OF 2022 SEWAGE FLOW DATA
Calabogie Peaks Resort Private Sewage Works

Date	Daily Sewage Volume (Lpd)
30-Jun-23	13,720
1-Jul-23	15,995
2-Jul-23	9,975
3-Jul-23	7,814
4-Jul-23	1,899
5-Jul-23	3,938
6-Jul-23	1,960
7-Jul-23	1,960
8-Jul-23	2,625
9-Jul-23	3,229
10-Jul-23	1,960
11-Jul-23	
12-Jul-23	6,099
13-Jul-23	12,058
14-Jul-23	18,069
15-Jul-23	16,179
16-Jul-23	9,660
17-Jul-23	7,875
18-Jul-23	18,191
19-Jul-23	9,660
20-Jul-23	9,791
21-Jul-23	3,903
22-Jul-23	3,903
23-Jul-23	5,906
24-Jul-23	11,550
25-Jul-23	9,546
26-Jul-23	5,854
27-Jul-23	3,876
28-Jul-23	5,898
29-Jul-23	12,198
30-Jul-23	16,494
31-Jul-23	16,004
1-Aug-23	15,881
2-Aug-23	15,794
3-Aug-23	15,960
4-Aug-23	15,986
5-Aug-23	15,803
6-Aug-23	5,810
7-Aug-23	13,563
8-Aug-23	11,699
9-Aug-23	12,364
10-Aug-23	10,876
11-Aug-23	9,678
12-Aug-23	7,674
13-Aug-23	3,876
14-Aug-23	1,943
15-Aug-23	3,798
16-Aug-23	1,916
17-Aug-23	3,806
18-Aug-23	4,095
19-Aug-23	3,955
20-Aug-23	3,894
21-Aug-23	3,876
22-Aug-23	5,740
23-Aug-23	9,503
24-Aug-23	5,863
25-Aug-23	11,594
26-Aug-23	9,660
27-Aug-23	7,735
28-Aug-23	6,799

SUMMARY OF 2022 SEWAGE FLOW DATA
Calabogie Peaks Resort Private Sewage Works

Date	Daily Sewage Volume (Lpd)
29-Aug-23	7,770
30-Aug-23	9,511
31-Aug-23	11,498
1-Sep-23	7,735
2-Sep-23	11,769
3-Sep-23	14,184
4-Sep-23	18,848
5-Sep-23	20,825
6-Sep-23	19,049
7-Sep-23	7,998
8-Sep-23	5,766
9-Sep-23	3,911
10-Sep-23	3,946
11-Sep-23	2,039
12-Sep-23	1,881
13-Sep-23	1,978
14-Sep-23	3,833
15-Sep-23	5,793
16-Sep-23	2,039
17-Sep-23	3,789
18-Sep-23	1,846
19-Sep-23	1,925
20-Sep-23	1,829
21-Sep-23	1,978
22-Sep-23	3,911
23-Sep-23	3,833
24-Sep-23	1,864
25-Sep-23	1,951
26-Sep-23	
27-Sep-23	1,873
28-Sep-23	1,934
29-Sep-23	3,841
30-Sep-23	4,025
1-Oct-23	5,933
2-Oct-23	1,925
3-Oct-23	
4-Oct-23	1,855
5-Oct-23	1,943
6-Oct-23	3,938
7-Oct-23	6,256
8-Oct-23	8,068
9-Oct-23	20,781
10-Oct-23	13,746
11-Oct-23	1,951
12-Oct-23	1,846
13-Oct-23	3,824
14-Oct-23	4,183
15-Oct-23	10,439
16-Oct-23	5,924
17-Oct-23	1,951
18-Oct-23	1,855
19-Oct-23	1,986
20-Oct-23	3,981
21-Oct-23	3,824
22-Oct-23	1,838
23-Oct-23	2,030
24-Oct-23	1,881
25-Oct-23	1,960
26-Oct-23	1,873
27-Oct-23	1,969

SUMMARY OF 2022 SEWAGE FLOW DATA
Calabogie Peaks Resort Private Sewage Works

Date	Daily Sewage Volume (Lpd)
28-Oct-23	1,873
29-Oct-23	1,934
30-Oct-23	
31-Oct-23	1,899
1-Nov-23	
2-Nov-23	1,908
3-Nov-23	1,873
4-Nov-23	1,934
5-Nov-23	
6-Nov-23	1,873
7-Nov-23	1,925
8-Nov-23	1,873
9-Nov-23	1,995
10-Nov-23	1,881
11-Nov-23	
12-Nov-23	1,951
13-Nov-23	
14-Nov-23	1,846
15-Nov-23	
16-Nov-23	1,943
17-Nov-23	3,894
18-Nov-23	5,994
19-Nov-23	1,969
20-Nov-23	1,881
21-Nov-23	3,964
22-Nov-23	3,973
23-Nov-23	1,960
24-Nov-23	
25-Nov-23	1,846
26-Nov-23	1,951
27-Nov-23	
28-Nov-23	1,864
29-Nov-23	2,021
30-Nov-23	1,908
1-Dec-23	
2-Dec-23	1,934
3-Dec-23	1,873
4-Dec-23	
5-Dec-23	1,934
6-Dec-23	1,873
7-Dec-23	1,969
8-Dec-23	
9-Dec-23	1,899
10-Dec-23	1,951
11-Dec-23	
12-Dec-23	1,916
13-Dec-23	
14-Dec-23	1,951
15-Dec-23	1,890
16-Dec-23	1,934
17-Dec-23	1,925
18-Dec-23	1,951
19-Dec-23	1,925
20-Dec-23	
21-Dec-23	1,978
22-Dec-23	1,899
23-Dec-23	1,995
24-Dec-23	1,925
25-Dec-23	2,013
26-Dec-23	1,925

SUMMARY OF 2022 SEWAGE FLOW DATA
Calabogie Peaks Resort Private Sewage Works

Date	Daily Sewage Volume (Lpd)
27-Dec-23	1,995
28-Dec-23	3,911
29-Dec-23	1,890
30-Dec-23	3,850
31-Dec-23	
Average	7,786
MIN	1,829
MAX	24,045



APPENDIX C

CofA



AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 0522-98MLKK

Issue Date: June 18, 2013

Calabogie Peaks Inc.
30 Barrett Chute Rd
Greater Madawaska, Ontario
K0J 1H0

Site Location: Calabogie Peaks Resort
30 Barrett Chute Rd Calabogie
Greater Madawaska Township, County of Renfrew
K0J 1H0

Proposed Works
Never
Constructed
Not required for
Festival

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:

a sewage holding tank system (grey water) for use during seasonal cooking events at the Calabogie Peaks Resort located in Calabogie, Ontario, consisting of the following:

PROPOSED WORKS

HOLDING TANK

- A 9,000 L pre-cast concrete holding tank for grey water generated from seven (7) cooking stands/kiosks, each equipped with a temporary sink and grease trap, collecting wash water from washing pots, utensils and hands (with black water disposed off via portable toilets and taken off site), designed to provide a minimum four (4) day retention time for an estimated daily sewage generation of 2,100 L/day, equipped with a high level audio and visual alarm set to activate 0.3 m below the invert of the inlet, providing approximately 2,100 L of storage after the high-level alarm signal activation, also provided with an adequately sized vent outfitted with a charcoal filter, lockable access hatch, and pump-out connection.

PREVIOUS WORKS

A peat based subsurface sewage treatment system, having a rated capacity of 131,760 L/day, consisting of the following:

SEPTIC TANKS

A septic tankage system consisting of six (6) septic tanks, each with an internal pump station:

- Resort Centre Hotel, 65,634 L septic tank;
- Timeshare (proposed), 21,600 L septic tank;
- Future Timeshare, 86,400 L septic tank;
- Future Commercial, 45,000 L septic tank;
- Timeshare (existing), 21,200 L septic tank;
- Other existing/proposed, 90,000 L septic tank.

with discharge of sanitary sewage from each internal septic tank pumping station to the central dosing chamber through a common forcemain.

CENTRAL DOSING STATION

- one (1) central dosing station having a volume of approximately 8.6 m³, including a duplex alternating pump system with submersible non-clog pumps discharging a minimum of three quarters of the distribution pipe volume in 15 minutes or less, with each pump dosing between 346 and 388 L/min. depending on the number of cells in operation, the pumps controlled by four (4) float switches and alarm systems installed in the chamber, with doses alternating between the three peat filter modules, using an alternator in the control panel, with doses directed to one module at a time using a solenoid valve control;

PEAT FILTER MODULES

- three (3) peat modules, containing *sphagnum spp.* milled and screened peat, having a pH of between 3.5 and 4.5, a von Post decomposition rating of approximately H4, having a moisture content of approximately 50% to 70% at the time of placement, with placement to occur in lifts and compacted to a bulk density in the range of 125 to 150 kg/m³;

- with each complete module to be designed with a maximum daily capacity of 43,920 L/day, with construction to occur in stages as required to follow the actual growth of the development, or replace existing systems as necessary, with each treatment module to contain two (2) filters each having a total filter surface area of approximately 732 m², with each filter to contain four (4) distribution pipe cells, with each cell consisting of six (6) runs of 100 mm diameter perforated pipe and 25 mm pressure pipe with orifices, with the orifices sized and spaced to improve distribution of flow over the peat filter surface, with the perforated pipe spaced 0.9 m apart and 0.8 m from the outer berms or adjacent cells, with the distribution pipe surrounded with clear stone to distribute the flow to the peat media and to prevent the peat from entering the perforations in the pipe, with the distribution piping covering between 0.3 and 0.6 m depth of peat (variable due to surface grading);

- with the final grade of the peat surface to be approximately 5 cm. plus sod above the surrounding fill mound height, with the extra peat thickness to accommodate settling and erosion of the peat that occurs over the first year of operation, with the peat surface to be covered with peat sod to ensure protective cover of the acidic peat soils;

- with effluent flow to occur through 0.75 m of peat before dispersing into the unsaturated and saturated underlying native sandy soils.

MISCELLANEOUS

- all other controls, electrical equipment, instrumentation, piping, valves and appurtenances essential for the proper operation of the aforementioned sewage Works;

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

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

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

"BOD 5 " means five day biochemical oxygen demand measured in an unfiltered sample;

"CBOD 5 " means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;

"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*;

" District Manager" means the District Manager of the Ottawa District Office of the Ministry;

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

"EPA" means the Environmental Protection Act , R.S.O. 1990, c.E.19, as amended;

"Grab Sample" means an individual sample of at least 1000 millilitres collected in an appropriate container at a randomly selected time over a period of time not exceeding 15 minutes;

" 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.

" Owner" means Calabogie Peaks Inc. and includes its successors and assignees;

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

"Previous Works " means those portions of the sewage works previously constructed and approved under a certificate of approval or environmental compliance approval;

"Proposed Works " means the sewage works described in the *Owner's* application, this *Approval* and in the supporting documentation referred to herein, to the extent approved by this *Approval*;

"Works" means the sewage works described in the *Owner's* application and this *Approval* and includes both *Proposed Works* and *Previous Works*.

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, 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. EXPIRY OF APPROVAL

(1) The approval issued by this *Approval* will cease to apply to those parts of the *Works* which have not been constructed within five (5) years of the date of this *Approval*.

3. CHANGE OF OWNER

(1) The *Owner* shall notify the *District Manager* 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 *District Manager*;

(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 *District Manager*;

(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 *District Manager* and the *Director*.

4. CONSTRUCTION

(1) The *Owner* shall ensure that the construction of the proposed *Works* is supervised by a Licensed Installer as defined in the Ontario Building Code or a Professional Engineer, as defined in the Professional Engineers Act.

(2) The *Owner* shall ensure that the final location of the proposed *Works* is selected in order to maintain the minimum clearance requirements stipulated in the *Ontario Building Code*.

(3) Upon construction of the proposed *Works*, the *Owner* shall prepare a statement, certified by a Licensed Installer or a Professional Engineer, that the proposed *Works* are constructed in accordance with this *Approval*, and shall submit to the *District Manager* the written statement along with "as

constructed" drawings.

5. MONITORING AND RECORDING

PROPOSED WORKS

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

(1) The *Owner* shall ensure that accurate records are kept for the quantities of sewage being disposed from the holding tank including recording of date and quantity of sewage being pumped out each time and calculation of daily sanitary sewage generation rate at the site (L/d) based on the amount of sewage being pumped out of the holding tank and the number of collection days. The *Owner* shall also keep invoices from the septic hauler on file at the site;

PREVIOUS WORKS

The *Owner* shall continue with the previously specified monitoring program for the *Previous Works* as outlined below:

(2) 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.

Flow Monitoring :

(3) The *Owner* shall install, maintain and operate flow measuring devices, calibrated at regular intervals not exceeding one year to ensure their accuracy to within plus or minus 5% of actual rate of flow within the range of 10% to 100% of the full scale reading of the measuring devices, in order to measure and record:

(a) the effluent from the sewage *Works*, measured by means of flow measurement devices installed at appropriate locations after the central dosing tank and before the peat filters;

(b) the water usage at the Calabogie Peaks Resort Complex, measured by means of flow measurement devices installed where water for the property is taken;

(4) The *Owner* shall ensure that daily quantities of effluent from the sewage *Works* are measured by means of the calibrated flow measurement device(s) and results recorded.

(5) The *Owner* shall ensure that daily quantities of water usage at the Calabogie Peaks Resort Complex are be measured by means of calibrated flow measurement device(s) installed as per subsection (4), and results recorded.

Effluent Monitoring :

(6) The *Owner* shall ensure that samples are collected of the effluent from the sewage *Works* at the frequency specified, by means of the specified sample type and analyzed for each parameter listed and all results recorded:

Frequency	Quarterly (means once every three months)
Sample Type	Grab
Location	From monitoring well(s) installed immediately

	downgradient of the peat filters, at location(s) agreed with the <i>District Manager</i>
Parameters	CBOD5, Total Suspended Solids, Total Phosphorus, Total Ammonia (Ammonia + Ammonium) Nitrogen, Nitrates, Nitrites, Dissolved Organic Carbon (DOC), Fecal Coliforms, Total Coliforms, Chloride

Groundwater Receiver Monitoring

(7) The *Owner* shall maintain the groundwater monitoring program established under the Approval Number 2256-5F9KU9, issued April 11, 2002 for the *Previous Works* as required by the *District Manager*.

(8) The groundwater samples are to be collected at the frequency specified, by means of the specified sample type and analyzed for each parameter listed and all results recorded:

Table 2 - Groundwater Monitoring	
Frequency	Quarterly (means once every three months, with samples collected during the first week of each quarter)
Sample Type	Grab
Location	upgradient and downgradient groundwater monitoring well(s)
Parameters	CBOD5, Total Ammonia (Ammonia + Ammonium) Nitrogen, Nitrates, Nitrites, Total Phosphorus, Dissolved Organic Carbon (DOC), Fecal Coliforms, Total Coliforms, Chloride, Static water level measurements

(9) 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; and

(c) the publication "Standard Methods for the Examination of Water and Wastewater" (22nd edition), as amended from time to time by more recently published editions.

(10) The *Owner* shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the monitoring activities required by this *Approval*.

(11) The measurement frequencies specified in this Condition with respect to any parameter are minimum requirements which may be modified by the *District Manager* in writing from time to time.

6. EFFLUENT AND FLOW OBJECTIVES

(1) The *Owner* shall use best efforts to operate the *Previous Works* with the objective that the concentrations of the materials named below as effluent parameters are not exceeded in the effluent being discharged from the sewage works.

Table 3 - Effluent Objectives	
Effluent Parameter	Concentration Objective (milligrams per litre unless otherwise indicated)
CBOD5	5
Total Suspended Solids	5
Total Ammonia (Ammonia + Ammonium) Nitrogen	1
Total Phosphorus	1

(2) The *Owner* shall ensure that the *Average Daily Flow* of effluent from the *Previous Works*, does not exceed 131,760 L/d for any period of time greater than one (1) calendar month.

→ or 43,920 L/d per module

7. OPERATIONS AND MAINTENANCE

(1) The *Owner* shall ensure that at all times, the *Works* and related equipment and appurtenances which are installed or used to achieve compliance with this *Approval* are properly operated and maintained, and leaks and spills are prevented;

(2) The *Owner* shall have a valid agreement for pump out of the holding tank and transport of the sewage with a hauler who is in possession of a Waste Management Systems Approval at all times during operation of the *Proposed Works*. The *Owner* shall ensure that the holding tank is pumped out at the end of each three day cooking event as minimum.

(3) The *Owner* shall ensure that for the *Previous Works*, sewage sludge accumulations within the septic tanks and central dosing station are pumped out on a regular basis by a licensed hauler, and disposed of at a facility approved for the treatment and disposal of sewage sludge.

(4) The *Owner* shall ensure that a Spill Contingency Plan is in place for the sewage holding tank at the site. The plan must contain, as a minimum the following: spill clean-up material (i.e.- absorbents, shovels, gloves, etc.), as well as a notification procedure to follow in the event of a spill;

(5) The *Owner* shall ensure that appropriate mitigative measures are taken should any objectionable odour be generated from the *Works*.

(6) The *Owner* shall update the existing operations manual within six (6) months of the issuance of this *Approval* to include the operation of the *Proposed Works*, and maintain the operations manual current and retain a copy at the location of the *Works* for the operational life of the *Works*. Upon request, the *Owner* shall make the manual available to *Ministry* staff. The manual shall include, but not necessarily be 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 Ministry's local office; and

(f) procedures for receiving, responding and recording public complaints, including recording any follow-up actions taken.

(7) Within six (6) months of the issuance of this *Approval*, the *Owner* shall ensure that a complete set of as-built drawings showing the works "as constructed" is prepared. 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*.

(8) The *Owner* shall ensure that the drainage operations in the peat filter modules are visually observed on a monthly (once every month) basis for any breakouts during the peak operational period (April 1 to October 31). In the event that a breakout is observed from a peat module, the *Owner* shall ensure that the sewage discharge to the module is discontinued and the incident immediately reported verbally to the *District Manager*, followed by a written report within one (1) week. The *Owner* shall ensure that during the time remedial actions are taking place the sewage generated at the site shall not be allowed to discharge to a surface water body or to the environment, and safely collected and disposed off through a licensed waste hauler to an approved waste disposal site.

(9) The *Owner* shall maintain a logbook to record the results of Operation and Maintenance activities specified in the above subclauses, and shall keep the logbook at the site and make it available for inspection by the *Ministry* staff.

(10) The *Owner* shall retain for a minimum of three (3) years from the date of their creation, all records and information related to or resulting from the monitoring and recording activities required by this *Approval*.

8. REPORTING

(1) At least, one week prior to the start up of the operation of the *Proposed Works*, the *Owner* shall notify the *District Manager* (in writing) of the pending start up date.

(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, 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 *District Manager* 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 prepare, and submit to the *District Manager*, a performance report, on an annual basis. Each annual report shall be submitted within ninety (90) calendar days following the completion of the calendar year being reported upon. The reports shall contain the following information in a format acceptable to the *District Manager*:

- (a) a summary and interpretation of all monitoring and analytical results obtained during the reporting period, including sampling/monitoring locations and dates, and a comparison to the effluent objectives outlined in Condition 6, including an overview of the success and adequacy of the *Works*;
- (b) a tabulation of daily volumes of effluent from the sewage *Works* disposed of during the reporting period, and a tabulation of the daily volumes of water used at the site during the reporting period, also including sewage volumes pumped from the holding tank, date, hauler's name and disposal site.
- (c) a tabulation of the volumes of sludge accumulated within the sewage *Works* on a quarterly basis, a tabulation of the sludge pumped out of the sewage *Works* on a quarterly basis, along with all documentation on sludge generation, transportation and ultimate disposal at the receiver's site.
- (d) a description of any operating problems encountered and corrective actions taken.
- (e) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the *Works*;
- (f) a summary of any complaints received during the reporting period and any steps taken to address the complaints;
- (g) a summary of all spills or abnormal discharge events; and
- (h) any other information that the *District Manager* requires from time to time.

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, when the *Works* are constructed, the *Works* will meet the standards that apply at the time of construction to ensure the ongoing protection of the environment.
3. Condition 3 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.
4. Condition 4 is included to ensure that the works are constructed, and may be operated and maintained such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented.
5. Condition 5 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 design objectives specified in the *Approval* and that the *Works* does not cause any impairment to the receiving watercourse.

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.

7. Condition 7 is included to require that the *Works* be properly operated, maintained, and equipped such that the environment is protected. As well, the inclusion of an operations manual, maintenance agreement with the manufacturer for the treatment process/technology and a complete set of "as constructed" drawings 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 information 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 work.

8. Condition 8 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.

The following Items form Schedule "A" of the *Approval*:

Proposed Works

1. Application for Approval of Municipal and Private Sewage Works submitted by Mr. Kaleb Iakew, P.Eng. of Kollaard Associates Inc. dated April 25, 2013 and received on May 13, 2013 for a Proposed Class V (holding tank) for seasonal events.

Previous Works

2. Application for Approval of Municipal and Private Sewage Works dated May 5, 2001 and May 9, 2002, along with supporting documentation including a report by Simmering Associates Ltd., design drawings and correspondence between MOE and Simmering Associates Ltd.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 2256-5F9KU9 issued on April 11, 2002

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
2 St. Clair Avenue West, Floor
12A
Toronto, Ontario
M4V 1L5

*** 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) 314-4506 or 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 18th day of June, 2013

Edgardo Tovilla
Director
appointed for the purposes of Part II.1 of
the *Environmental Protection Act*

FP/
c: District Manager, MOE Ottawa
Kaleb Iakew, Kollaard Associates Inc.