


**AMENDED CERTIFICATE OF APPROVAL
 MUNICIPAL AND PRIVATE SEWAGE WORKS**

NUMBER 7399-7YTUGW

Issue Date: December 22, 2009

The Corporation of the Township of Havelock-Belmont-Methuen
 1 Ottawa Street East, Post Office Box, No.10
 Havelock, Ontario
 K0L 1Z0

Site Location: Havelock Water Pollution Control Plant
 Lot 4 & 5, Concession 9
 Havelock-Belmont-Methuen Township, County of Peterborough

You have applied in accordance with Section 53 of the Ontario Water Resources Act for approval of:

municipal sewage treatment works for a *Rated Capacity* of 1,200 cubic metres per day (m³/day) and *Peak Flow Rate* of 3,000 cubic metres per day (m³/day) serving the Township of Havelock-Belmont-Methuen through the transmission, treatment and subsequent disposal of sanitary sewage to Plato Creek, consisting of the following:

PROPOSED WORKS

The *Proposed Works* encompass construction of a new tertiary treatment plant at the site adjacent to the existing sewage treatment works located at 719 Old Norwood Road, Havelock, ON (NAD83: UTM Zone 18 T: 270901m E, 4922818 m N), including:

Inlet Distribution Chamber

- one (1) interceptor manhole between existing MH 129 and MH 130 to direct flow to the wastewater treatment plant;
- one (1) 375 mm diameter gravity inlet sewer;

Raw Sewage Pumping Station

- one (1) 3.50 m by 3.51 m by 4.80 m deep in ground wet well structure;
- two (2) submersible pumps to provide a firm capacity of 35 L/s to accommodate peak flow. Each pump has a rated capacity of 35 L/s at a TDH of 8 m. The pumps are operated on an ultrasonic level control system connected to the plant Supervisory Control and Data Acquisition (SCADA) system. Firm capacity is based on one pump operating duty and one standby;
- one (1) 375 mm diameter bypass sewer to outfall manhole discharging to Plato Creek;

Septage and Hauled Waste Receiving Facility

- one (1) grinder on the line between the inlet connection valve and septage storage tank;
- one (1) magnetic flow meter on the line between the inlet connection valve and septage storage tank;
- one (1) 6.00 m by 4.20 m by 4.20 m deep septage storage tank;
- one (1) constant speed submersible pump to provide a firm capacity of 5 L/s at a TDH of 7 m, for transfer of septage to the raw sewage pumping station;

- one (1) magnetic flow meter on the line between the septage storage tank and raw sewage pumping station;

Headworks

A new headworks building, including:

- two (2) parallel channels (one duty, one standby);
- one (1) bar screen with 50 mm opening on the standby channel, having a flow capacity of 3,000 m³/day;
- one (1) fine screening with 6 mm openings c/w inclined auger on the duty channel, having a flow capacity of 3,000 m³/day;
- two (2) 400 mm by 1100 mm by 6200 mm long horizontal constant velocity grit removal channels c/w sutor weirs to provide velocity control, one on each channel;
- one (1) influent splitter chamber downstream of the grit chambers and upstream of the sequencing batch reactors;

Sequencing Batch Reactors

The sequencing batch reactor (SBR) system consists of two (2) reactors with a combined average day flow capacity of 1,200 m³/day and a peak flow capacity of 3,000 m³/day. Automated SCADA controls will be used to balance operations between the two (2) reactors, on a time cycle basis. Each reactor is equipped with the following equipment:

- one (1) 21.5 m by 6.5 m by 5.5 m deep reactor;
- one (1) fine bubble aeration system, c/w tubular membrane fine bubble diffusers;
- one (1) submersible waste sludge pump with a rated capacity of 2 L/s at a TDH of 7 m;
- one (1) decanter assembly c/w trough, downcomer and discharge pipe;
- one (1) PLC control panel to provide automatic control and monitoring of equipment in the SBR;

Aeration

- four (4) blowers, two duty on the SBR, one duty on the digester and one standby (common for SBR and digester), each are rated for 416 m³/hr at 53.8 kPa;

Equalization Tank

- one (1) 9.00 m by 5.00 m by 4.65 m deep equalization tank;
- three (3) submersible transfer pumps, two duty one standby, each with a rated capacity of 14 L/s at a TDH of 8 m;

Filter

- three (3) continuous upflow sand filter modules each with a filtration area of 4.65 m² and associated coagulant feeding system;
- one (1) duplex reciprocating type air compressor to provide 13.25 m³/hr at 241 kPa of air for sand cleaning inside the filter;
- one (1) magnetic flow meter to measure discharge from the filters;

Chemical Addition

A coagulant (alum) storage and addition system for phosphorus removal, located in the chemical storage room, including:

- one (1) alum bulk storage tank, 6300 litres;
- three (3) metering pumps (two duty and one standby), each pump paced with the sewage flow, for dosing coagulant into the SBR's inlet pipe;
- two (2) metering pumps (one duty one standby), each pump paced with the sewage flow, for dosing coagulant into the filter's influent channel;

UV Disinfection

- two (2) banks of low pressure, high intensity UV lamps arranged in series, with each bank containing 6 UV modules per bank each containing 4 lamps, each bank with a rated capacity of 35 L/s;
- one (1) level control weir;

Aerobic Digester

A two stage aerobic sludge digester to provide total system sludge capacity of 45 days. Primary aerobic sludge digestion tank includes the following:

- one (1) 8.0 m by 6.6 m by 5.5 m deep, with a total effective volume of 258 m³ tank;
- one (1) aeration system, with membrane diffusers;

Secondary aerobic sludge digestion tank includes the following:

- one (1) 8.0 m by 2.1 m by 5.5 m deep, with a total effective volume of 82 m³;
- one (1) aeration system, with membrane diffusers;
- one (1) telescopic supernatant decant assembly c/w downcomer and static pipe;
- two (2) submersible sludge transfer pumps, one duty one standby, each with a rated capacity of 5.5 L/s at a TDH of 12 m;

Biosolids Holding Tank

- one (1) biosolids holding tank, to provide effective volume of 1,575 m³ c/w mixing system;
- one (1) dry pit sludge loading pumps with a rated capacity of 5.5 L/s at a TDH of 12 m;

Standby Power

- one (1) 150 kW diesel generator set, with a 24 hour fuel storage tank. The fuel tank is located within a containment area;

Outfall

- one (1) 375 mm diameter outfall sewer running from the UV channel to the existing lagoon discharge manhole (MH 134);

Other

- an Operation and Control Building to house office, lab, MCC, blowers, chemical system, UV and Filter process;
- new roadway access to the plant;
- installation of Supervisory Control and Data Acquisition (SCADA) system, electrical, mechanical, and controls for an operable system;

- installation of underground utilities to suit the new plant;
- upgrade of associated utilities, drainage, communication systems and landscaping;

EXISTING WORKS

Sanitary Sewers

- sanitary sewers on McLean Avenue, King Street, Donald Street, Matheson Street, Alexander Street, Colonge Street, Ontario Street, Ottawa Street (Hwy 7), Princess Street, Oak Street West, Norwood Road, Concession Street (Hwy 30), Union Street, Quebec Street, Oak Street East, Victoria Street, Orange Street, Hill Lane, Park Street, William Street and Mary Street;

Sanitary Sewage Pumping Station

- 2.4 m x 1.8 m sewage chamber located on the south side of Ottawa Street at the intersection of Mill Lane equipped with an influent bar screen basket;
- a prefabricated pump chamber, equipped with two (2) sewage pumps (one standby), each rated at 31 L/s at 25.6 m TDH;
- a 250 mm dia. forcemain discharging to the inlet distribution chamber of the waste stabilization pond;
- a standby generator building equipped with a 50 kW diesel generator set;

Waste Stabilization Pond/Lagoon

- a 7.8 hectare surface area waste stabilization pond with a rated capacity of 741 m³/day, with two cells having a total storage volume of approx. 135,820 m³ at an operating depth of 1.83 m, with provisions for batch dosing of chemical for phosphorus removal prior to seasonal discharge, to be abandoned and decommissioned as part of the *Proposed Works*;

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

all in accordance with the following submitted supporting documents:

1. Application for Approval of Municipal and Private Sewage Works dated August 29, 2008, received September 2, 2008;
2. Document entitled, "Havelock Wastewater Treatment Plant Upgrades, Design Report", prepared by Genivar, dated August 15, 2008;
3. Set of engineering drawings entitled, "Township of Havelock-Belmont-Methuen, Havelock Wastewater Treatment Plant, Contract No. 01-08, dated August, 2008."
4. Document entitled, "Havelock Wastewater Treatment Plant Upgrades, Addendum to 1997 Environmental Study Report for the Havelock Water Pollution Control Facility," prepared by Genivar, dated July 8, 2008 including the following as Appendices:

Appendix A: Document entitled, "Report, Assimilative Capacity Study of Plato Creek, Associated with a Proposed New Water Pollution Control Facility for the Village of Havelock, Ontario," prepared by Jacques Whitford, dated January 19, 2007;

Appendix B: Correspondence with the Ministry of the Environment including confirmation of proposed effluent quality limits.

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5. Two separate E-mails (including attachments) dated November 19, 2008, and an E-mail dated November 6, 2008 from Mina Yousif of Genivar to Fariha Pannu of the *Ministry*, respectively providing further design information and confirmation that no Part II Order request received during Environmental Assessment review period.

6. Application for Approval of Municipal and Private Sewage Works dated November 30, 2009 and received on December 3, 2009, to amend the existing Certificate of Approval No. 0655-7LHT5R, issued November 27, 2008 to change the sampling location for Raw Sewage from the Interceptor manhole prior to the Sewage Pumping Station as specified in Table 8 of the Certificate of Approval No. 0655-7LHT5R to the Raw Sewage Pumping Station as specified in this amended Certificate of Approval.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

"*Act*" means the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended;

"*Annual Average Concentration*" with regards to *Existing Works* means the arithmetic mean of the *Seasonal Average Concentrations* of a contaminant in the effluent calculated for any particular calendar year;

"*Annual Average Loading*" with regards to *Existing Works* means the value obtained by multiplying the *Annual Average Concentration* of a contaminant by the *Average Daily Flow* over the same calendar year;

"*Average Daily Flow*" means the cumulative total influent flow, including raw sewage and septage, to the sewage works during a calendar year divided by the number of days during which sewage was flowing to the sewage works that year;

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

"*By-pass*" means any discharge from the *Works* that does not undergo any treatment or receives only partial treatment before it is discharged to the environment;

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

"*Certificate*" means this entire certificate of approval document, issued in accordance with Section 53 of the *Act*, and includes any schedules;

"*COD*" means chemical 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 any *Ministry* employee appointed by the Minister pursuant to section 5 of the *Act*;

"*Discharge Season*" with regards to *Existing Works* means either the Spring discharge period commencing after the liquid surface in the lagoon has become free of ice cover, terminating within 45 days thereafter or the Fall discharge period commencing not earlier than October 15 and terminating not later than November 30 in which discharge of effluent from the *Works* is permitted;

"*District Manager*" means the District Manager of the Peterborough District Office of the *Ministry*;

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

"*Existing Works*" means those portions of the sewage works previously approved or constructed, and existing on-site on the date of issuance of this *Certificate*;

"*Geometric Mean Density*" is the nth root of the product of multiplication of the results of n number of samples over the period specified;

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"*Ministry*" means the Ontario Ministry of the Environment;

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

"*Owner*" means The Corporation of the Township of Havelock-Belmont-Methuen and includes its successors and assignees;

"*Peak Flow Rate*" means the maximum rate of sewage flow for which the plant or process unit was designed;

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

"*Rated Capacity*" means the *Average Daily Flow* for which the *Works* are approved to handle;

"*Regional Director*" means the Regional Director of the Eastern Region of the *Ministry*;

"*Seasonal Average Concentration*" with regards to *Existing Works* means the arithmetic mean of all *Daily Concentrations* of a contaminant in the effluent sampled or measured, or both, during a *Discharge Season*;

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

"*Works*" means the sewage works described in the *Owner's* application, this *Certificate* and in the supporting documentation referred to herein, to the extent approved by this *Certificate* and includes both *Existing* and *Proposed Works*.

You are hereby notified that this 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 *Certificate* 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 *Certificate*, the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this *Certificate*.
- (3) Where there is a conflict between a provision of any submitted document referred to in this *Certificate* and the Conditions of this *Certificate*, the Conditions in this *Certificate* shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.
- (4) Where there is a conflict between the listed submitted documents, 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 requirements of this *Certificate* are severable. If any requirement of this *Certificate*, or the application of any requirement of this *Certificate* to any circumstance, is held invalid or unenforceable, the application of such requirement to other circumstances and the remainder of this *Certificate* shall not be affected thereby.

2. EXPIRY OF APPROVAL

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

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*; and

(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 *Certificate*, and a copy of such notice shall be forwarded to the *District Manager* and the *Director*.

4. UPON THE SUBSTANTIAL COMPLETION OF THE WORKS

(1) Upon the *Substantial Completion* of the *Proposed Works*, the *Owner* shall prepare a statement, certified by a Professional Engineer, that the works are constructed in accordance with this *Certificate*, and upon request, shall make the written statement available for inspection by Ministry personnel.

(2) Within six (6) months of the *Substantial Completion* of the *Proposed Works*, a set of as-built drawings showing the works "as constructed" shall be 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*.

5. BY-PASSES

(1) Any *By-pass* of sewage from any portion of the *Works* is prohibited, except where:

(a) it is necessary to avoid loss of life, personal injury, danger to public health or severe property damage;

(b) the *District Manager* agrees that it is necessary for the purpose of carrying out essential maintenance and the *District Manager* has given prior written acknowledgment of the *By-pass*; or

(c) the *Regional Director* has given prior written acknowledgment of the *By-pass*.

(2) The *Owner* shall collect at least one (1) grab sample of the *By-pass* and have it analyzed for the parameters outlined in Condition 7 using the protocols in Condition 10.

(3) The *Owner* shall maintain a logbook of all *By-pass* events which shall include, at a minimum, the time, location, duration, quantity of *By-pass*, the authority for *By-pass* pursuant to subsection (1), and the reasons for the occurrence.

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 *Works*

Effluent Objectives for the *Existing Works*

Table 1 shall apply until three (3) months after the date of commencement of the operation of the *Proposed Works*:

Table 1 - Effluent Objectives for the Existing Lagoon	
Effluent Parameter	Concentration Objective (milligrams per litre)
Column 1	Column 2
<i>CBOD₅</i>	20.0
Total Suspended Solids	20.0
Total Phosphorus	0.4
Hydrogen Sulphide	0.5

Effluent Objectives for the *Proposed Works*

Table 2 shall apply after three (3) months of the date of commencement of the operation of the *Proposed Works*:

Table 2 - Effluent Objectives for the Proposed Tertiary Treatment Plant	
Effluent Parameter	Concentration Objective (milligrams per litre except <i>E. coli</i>)
Column 1	Column 2
<i>CBOD₅</i>	6.6
Total Suspended Solids	6.6
Total Phosphorus	0.1 0.2
- Dry Season (July to October) - Wet Season (November to June)	
Total Ammonia Nitrogen (Ammonia Nitrogen + Ammonium Nitrogen)	2.0 3.3
- Summer (May to October) - Winter (November to April)	
<i>E. Coli</i>	133 counts/100 mL (monthly <i>Geometric Mean Density</i>)

(2) The *Owner* shall use best efforts to:

- (a) maintain the pH of the effluent from the *Works* within the range of 6.5 to 8.5 at all times;
- (b) operate the works within the *Rated Capacity* of the *Works*; and
- (c) ensure that the effluent from the *Works* 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.

(3) The *Owner* shall include in all reports submitted in accordance with Condition 11 a summary of the efforts made and results achieved under this Condition.

7. EFFLUENT LIMITS

(1) The *Owner* shall design, construct, operate and maintain the *Works* such that the concentrations of the of the materials named below as effluent parameters are not exceeded in the effluent from the *Works* as follows:

Effluent Limits for the *Existing Works*

Table 3 shall apply until three (3) months after the date of commencement of the operation of the *Proposed Works*:

Table 3 - Effluent Limits for the Existing Lagoon		
Effluent Parameter	Average Concentration (milligrams per litre unless otherwise indicated)	Average Waste Loading (kilograms per day unless otherwise indicated)
Column 1	Column 2	Column 3
<i>CBOD₅</i>	25.0	n/a
Total Suspended Solids	25.0	n/a
Total Phosphorus	0.5	135
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

(a) For the purposes of determining compliance with and enforcing Table 3:

(i) The *Seasonal Average Concentration* of a parameter named in Column 1 of Table 3 shall not exceed the corresponding maximum concentration set out in Column 2 of Table 3.

(ii) The *Annual Average Loading* of a parameter named in Column 1 of Table 3 shall not exceed the corresponding maximum waste loading set out in Column 3 of Table 3.

(b) The *Owner* shall operate the *Works* such that discharge is conducted on a semi-annual discharge basis with the effluent being discharged in the spring and the fall as follows:

spring: discharge commencing after the liquid surface in the lagoon has become free of ice cover, terminating within 45 days thereafter, and

fall: discharge commencing not earlier than October 15 and terminating not later than November 30.

Effluent Limits for the *Proposed Works*

Table 4 shall apply after three (3) months of the date of commencement of the operation of the *Proposed Works*:

Table 4 - Effluent Limits for the Proposed Tertiary Treatment Plant		
Effluent Parameter	Average Concentration (milligrams per litre unless otherwise indicated)	Average Loading (kilograms per day unless otherwise indicated)
Column 1	Column 2	Column 3
CBOD ₅	10	12
Total Suspended Solids	10	12
Total Phosphorus	0.14	0.17
- Dry Season (July to October)	0.3	0.36
- Wet Season (November to June)		
Total Ammonia Nitrogen (Ammonia Nitrogen + Ammonium Nitrogen)	3.0	n/a
- Summer (May to October)	5.0	
- Winter (November to April)		
Acute Lethality to Rainbow Trout and <i>Daphnia magna</i>	non-acutely lethal	n/a
<i>E. Coli</i>	200 counts/100 mL (monthly <i>Geometric Mean Density</i>)	n/a
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times		

(a) For the purposes of determining compliance with and enforcing Table 4:

(i) The *Monthly Average Concentration* of CBOD₅, total suspended solids, total phosphorus and total ammonia nitrogen as named in Column 1 of Table 4 shall not exceed the corresponding maximum concentration set out in Column 2 of Table 4.

(ii) The *Monthly Average Loading* of CBOD₅ total suspended solids, and total phosphorus as named in Column 1 of Tables 4 shall not exceed the corresponding maximum loading set out in Column 3 of Tables 4.

(iii) The monthly *Geometric Mean Density* of *E. Coli* as named in Column 1 of Table 4 shall not exceed the corresponding maximum density set out in Column 2 of Table 4.

(iv) The pH of the effluent shall be maintained within the limits outlined in Tables 4 at all times.

(b) Only those monitoring results collected during the corresponding time period shall be used in calculating the *Monthly Average Concentration*, *Monthly Average Loading*, and monthly *Geometric Mean Density* for this *Certificate*.

(c) If the effluent is acutely lethal to rainbow trout or *Daphnia magna*, the *Owner* must, as a minimum, carry out the following:

(i) Review the effluent quality, plant operations around the time of the toxicity event and all data available regarding plant operations and effluent quality, and undertake an investigation to determine the cause or source of the toxicity;

(ii) Upon determination of cause or source of acute lethality to rainbow trout or Daphnia magna, the *Owner* shall determine and implement appropriate control measures to achieve non-acutely lethal effluent and time lines for the implementation of identified control measures. The *Owner* shall submit the proposed control measures and implementation time lines for approval to the *District Manager*.

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 *Certificate* 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 *Certificate* and the *Act* 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 prepare an operations manual prior to the commencement of operation of the *Proposed Works* that includes, but is 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 *District Manager*; 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 *Works* 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. SPECIAL CONDITION - SEPTAGE LOADING RATES FOR CO-TREATMENT

The *Owner* shall operate and maintain the *Works* such that the design peak day septage flow of 35 cubic metres per day for co-treatment at the *Works* is not exceeded.

10. MONITORING AND RECORDING

(1) The *Owner* shall carry out the following monitoring program for the *Existing Works* until the commencement of the operation of the *Proposed Works*:

Monitoring Program for the *Existing Works*

- (a) All samples and measurements taken for the purposes of this *Certificate* 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.

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

- (i) 3/discharge period means once at the beginning, middle and end of each discharge period;
- (ii) Monthly means once every month;

(c) 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:

Table 5 - Raw Sewage Monitoring	
Frequency	Monthly
Sample Type	Grab or Composite
Parameters	CBOD ₅ , Total Suspended Solids, Total Phosphorus

Table 6 - Effluent Monitoring - during Discharge Season		
Parameters	Sample Type	Frequency
CBOD ₅	Grab or Composite	3/Discharge Season
Total Suspended Solids	Grab or Composite	3/Discharge Season
Total Phosphorus	Grab or Composite	3/Discharge Season
Total Ammonia Nitrogen	Grab or Composite	3/Discharge Season

Table 7 - Lagoon Content - within 2 weeks prior to discharge		
Parameters	Sample Type	Frequency
CBOD ₅	Grab or Composite	One/cell
Total Suspended Solids	Grab or Composite	One/cell
Total Phosphorus	Grab or Composite	One/cell
Total Ammonia Nitrogen	Grab or Composite	One/cell
Total Kjeldahl Nitrogen	Grab or Composite	One/cell
Hydrogen Sulphide	Grab or Composite	One/cell
Dissolved Oxygen	Grab or Composite	One/cell
pH	Grab or Composite	One/cell

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

Monitoring Program for the *Proposed Works*

(a) All samples and measurements taken for the purposes of this *Certificate* 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.

(b) For the purposes of this Condition, the following definitions apply:

- (i) Daily means once each day;
- (ii) Weekly means once each week;
- (iii) Monthly means once every month; and
- (iv) Quarterly means once every three months.

(c) 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:

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Table 8 - Raw Sewage Monitoring (Sampling point at the Raw Sewage Pumping Station)		
Parameters	Sample Type	Frequency
<i>BOD</i> ₅	Composite*	Monthly
<i>COD</i>	Composite*	Monthly
Total Suspended Solids	Composite*	Monthly
Total Phosphorus	Composite*	Monthly
Total Kjeldahl Nitrogen	Composite*	Monthly
pH	Grab / Probe	Monthly
Temperature	Grab / Probe	Monthly

* 24-hour composite sample or composite of three grab samples, taken at time intervals of at least two hours over an eight-hour sampling period.

Table 9 - Monitoring of Septage* (Samples of septage added to the Septage Receiving Station)	
Frequency	Monthly
Sample Type	Grab
Parameters	<i>BOD</i> ₅ , <i>COD</i> , Total Solids, Total Suspended Solids, Total Phosphorus, Total Kjeldahl Nitrogen

* Representative samples of the septage shall be collected for analysis on a monthly basis, subject to seasonal availability of the septage requiring co-treatment.

Table 10 - Final Effluent Monitoring (Samples to be collected at the disinfection unit)		
Parameters	Sample Type	Frequency
<i>CBOD</i> ₅	Composite*	Weekly
Total Suspended Solids	Composite*	Weekly
Total Phosphorus	Composite*	Weekly
Total Ammonia (Ammonia + Ammonium) Nitrogen	Composite*	Weekly
Un-ionized Ammonia	Calculated**	Weekly
Nitrite	Composite*	Monthly
Nitrate	Composite*	Monthly
<i>E. Coli</i>	Grab	Weekly
Acute Lethality to Rainbow Trout and <i>Daphnia magna</i>	Grab	Quarterly
Alkalinity	Composite*	Monthly
pH	Grab / Probe	Daily
Temperature	Grab / Probe	Daily
Copper	Composite*	Monthly***
Lead	Composite*	Monthly***

* SCADA-controlled 24-hour, discrete composite sample.

** Calculated based on results of effluent total ammonia nitrogen concentration, temperature and pH monitoring.

*** Sampling to be conducted for a period of 1 year unless directed by the *District Manager* to continue beyond this time period.

(3) 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; and

(d) the Environment Canada publications "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" (July 1990) and "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Daphnia magna" (July 1990), as amended from time to time by more recently published editions.

(4) The temperature and pH of the effluent from the *Works* shall be measured in the field on a fresh grab sample collected on the day 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).

(5) The *Owner* shall install and maintain a continuous flow measuring device(s), to measure the flowrate of the raw sewage being conveyed to and through the *Works* with an accuracy to within plus or minus fifteen per cent (+/- 15%) of the actual flowrate for the entire design range of the flow measuring devices, and record the flowrate at a daily frequency.

(6) The *Owner* shall install and maintain a continuous flow measuring device, to measure the flowrate and quantity of septage added to the *Works* for co-treatment, with an accuracy to within plus or minus fifteen per cent (+/- 15%) of the actual flowrate for the entire design range of the flow measuring device, and record the flowrate and volume added at a daily frequency.

(7) 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 *Certificate*.

11. REPORTING

(1) At least one (1) 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) At least ten (10) days prior to the date of a planned *By-pass* being conducted pursuant to Condition 5 the *Owner* shall notify the *District Manager* (in writing) of the pending start date, and as soon as possible for an unplanned *By-pass*, in addition to an assessment of the potential adverse effects on the environment and the duration of the *By-pass*.

(3) The *Owner* shall report to the *District Manager* or designate, any exceedence of any parameter specified in Condition 7 verbally, as soon as reasonably possible, and in writing within seven (7) days of the exceedence.

(4) In addition to the obligations under Part X of the Environmental Protection Act, the *Owner* shall, within 10 working days of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass, overflow 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.

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

(6) The *Owner* shall prepare and submit to the *District Manager*, a performance report, on an annual basis, within ninety (90) days following the end of the period being reported upon. The first such report shall cover the first annual period following the commencement of operation of the *Works* and subsequent reports shall be submitted to cover successive annual periods following thereafter. 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 Condition 7, 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;
- (f) a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6.
- (g) a tabulation of the quantity of septage added to the *Works* for co-treatment during the reporting period;
- (h) a summary of chemical characterization data for samples of septage collected in accordance with Table 9 in Condition 10 during the reporting period;
- (i) a tabulation of the volume of sludge generated in the reporting period, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;
- (j) a summary of any complaints received during the reporting period and any steps taken to address the complaints;
- (k) a summary of all *By-pass*, overflow, spill or abnormal discharge events; and
- (l) any other information the *District Manager* requires from time to time.

12. REVOCATION OF EXISTING APPROVALS

(1) The descriptions of the approved *Works* and conditions of approval in this *Certificate* apply in place of all existing descriptions and conditions in the Certificates of Approval under the Ontario Water Resources Act for sewage works which are part of the *Works* approved by this *Certificate*.

(2) Notwithstanding subsection (1) above, the original applications for approval, including design calculations, engineering drawings and reports prepared in support of the existing Certificate(s) of Approval whose descriptions of the approved *Works* and conditions are now replaced pursuant to subsection (1) above, shall form part of this *Certificate*.

(3) Where an existing Certificate of Approval referred to in subsection (1) above applies to *Works* in addition to the *Works* approved by this *Certificate*, it shall continue to apply to those additional *Works*.

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 *Certificate* 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

CONTENT COPY OF ORIGINAL

authorized to carry out work pursuant to this *Certificate* the existence of this *Certificate*.

2. Condition 2 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.
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 *Certificate* and continue to operate the *Works* in compliance with it.
4. Condition 4 is included to ensure that the *Works* are constructed in accordance with the approval and that record drawings of the *Works* “as constructed” are maintained for future references.
5. Condition 5 is included to indicate that by-passes of untreated sewage or only partially treated sewage to the receiving watercourse is prohibited, save in certain limited circumstances where the failure to *By-pass* could result in greater injury to the public interest than the *By-pass* itself where a *By-pass* will not violate the approved effluent requirements, or where the *By-pass* 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 *By-pass* 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 Plato Creek 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, inclusion ensures that 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 ensure that the *Works* are operated within the design capacity, including septage co-treatment capability and capacity.
10. Condition 10 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 and effluent limits specified in the *Certificate* and that the *Works* does not cause any impairment to the receiving watercourse.
11. Condition 11 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 *Certificate*, so that the *Ministry* can work with the *Owner* in resolving any problems in a timely manner.
12. Condition 12 is included to stipulate that this *Certificate* replaces all previous approvals for the *Works* being the subject of this *Certificate*, and that the existing approvals remain in force for the purpose of any *Works* which are not subject to this *Certificate*.

This Certificate of Approval revokes and replaces Certificate(s) of Approval No. 0655-7LHT5R issued on November 27, 2008 which revoked and replaced Certificate(s) of Approval No. 8771-6AQSCM issued on April 27, 2005.

CONTENT COPY OF ORIGINAL

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, 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 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the 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.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

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, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Director
Section 53, *Ontario Water Resources 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) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 22nd day of December, 2009

Mansoor Mahmood, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

FP/
c: District Manager, MOE Peterborough
Bruce Bonner, P.Eng., D.M. Wills Associates Limited