

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 2257-ADZNND

Issue Date: May 26, 2017

The Regional Municipality of Halton
1151 Bronte Rd
Oakville, Ontario
L6M 3L1

Site Location: Acton Waste Water Treatment Plant (WWTP)
202 Churchill Rd S
Halton Hills, Regional Municipality of Halton
L7J 2J7

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:

alternation, extension, usage and operation of municipal sewage works in accordance with Section 53 of OWRA for the treatment of sanitary sewage and disposal of effluent to Black Creek via a Sewage Treatment Plant (Acton WWTP) as follows:

Rated Capacity of Sewage Treatment Plant:

- Prior to completion of construction of all Proposed Works: 4,545 m³/d;
- Upon completion of construction of all Proposed Works: 5,200 m³/d;
- Upon completion of Phase I of the Total Phosphorus Offset Program: 5,600 m³/d;

Proposed Works

Flow Distribution Chamber

- one (1) influent distribution chamber, equipped with coarse bubble aeration system and baffles;
- manually operated weir gates for flow splitting to existing Plant B and new Plant C;

Plant C - design average daily flow: 3,733 m³/d

Primary Treatment - Peak Daily Flow Rate: 10,562 m³/d

- two (2) 22.5 m x 5.6 m x 4.22 m SWD primary clarifiers, equipped sludge and scum removal mechanisms;
- two (2) raw sludge pumps (one standby), each rated at 10 L/s at 23 m total dynamic head (TDH);
- one (1) scum pump rated at 10 L/s at 22 m TDH;
- one (1) primary clarifier unwatering pump rated at 21 L/s at 12 m TDH;

Secondary Treatment - Peak Hourly Flow Rate: 550.8 m³/h

Biological Treatment

- two (2) three-pass 24.2 m x 9.1 m x 5.68 m SWD aeration tanks, each partitioned into three anoxic zones at front and an aerobic zone, equipped with fine bubble aeration systems;
- one (1) submersible mixer in each anoxic zone;
- three (3) blowers (one standby), each rated at 1,530 Nm³/hr at 59 kPa;
- one (1) sluice gate controlling the discharge of primary effluent for step feed, with one (1) channel directing the discharge into the end of second pass and one (1) channel directing the discharge just beyond the anoxic zone in the first pass;

Secondary Sedimentation

- two (2) 27 m x 9.7 m x 4.0 m SWD secondary clarifiers, equipped with sludge and scum removal mechanisms;
- three (3) return activated sludge (RAS)/wasted activated sludge (WAS) pumps (one standby), each rated at 21 L/s at 12 m TDH;
- two (2) scum pumps, each rated at 10 L/s at 23 m TDH;

Tertiary Filtration - Peak Hourly Flow Rate: 826 m³/h

- six (6) concrete filter cells in which one (1) is constructed without modulus in Phase I and five (5) cells, each with a Peak Hourly Flow Rate of 165.2 m³/h, are equipped with four (4) 4.65 m² modules;
- two (2) air compressors (one standby);
- two (2) backwash pumps, each rated at 30 L/s at 15 m TDH;

Supplementary Treatment

Phosphorus Removal System

- reconfiguration of existing pumps for dual point chemical addition to flow distribution chamber, Plant B secondary clarifier inlets and Plant C aeration tank outlets;
- two (2) additional chemical feed pump, rated at 400 mL/s at 69 m TDH;

UV Disinfection - Peak Hourly Flow Rate: 1058.8 m³/h

- two (2) 8.95 m x 0.407 m x 0.83 m SWD channels, equipped with UV disinfection systems;

Effluent Pumping Station

- one (1) 6 m x 3 m x 2.9 m SWD wet well with a capacity of 20 m³;
- four (4) effluent sewage pumps (one standby), each rated at 99.4 L/s at 6.5 m TDH;
- one (1) bypass sewer with a sluice gate installed on the bypass pipe;

Final Effluent Measuring and Sampling Point

- final effluent flow metering device located at 600 mm outfall sewer following the effluent pumping station;
- an automatic sampler for sampling the Final Effluent at sump following UV disinfection;

Effluent Outfall

- a 600 mm diameter effluent sewer discharging to Black Creek terminating at a reinforced concrete headwall;

Sludge Stabilization

- one (1) 572 m³ digester designed to operate as either a primary or secondary digester;
- two (2) sludge recirculation pumps (one standby), each rated at 9.5 L/s at 7.9 m TDH;
- three (3) digester mixing pumps (one standby);
- one (1) 45 m³ sludge hopper allowing for filling of trucks to reduce liquid level in the secondary digester;

Standby Power

- one (1) 250 kW standby diesel generator set in spill containment area, with one (1) 2,250 L fuel tank;

Previous Works

Influent Sewer

- a 600 mm diameter influent sewer from MH3 discharging to Preliminary Treatment;

Preliminary Treatment System

Screenings - Peak Instantaneous Flow Rate: 235.2 L/s

- two (2) mechanical bar screens with 6 mm bar openings, each with a Peak Instantaneous Flow Rate of 117.6 L/s;
- two (2) screenings conveyor/washer/compactors;
- one (1) bypass channel for screen and girt removal;

Girt Removal - Peak Hourly Flow Rate 760.7 m³/h

- one (1) 3 m diameter x 3.86 m deep vortex grit removal tank;
- one (1) girt slurry pump rated at 12 L/s;
- one (1) girt classifier;

Flow Distribution Chamber

- a flow splitter manhole to Plant A and Plant B;
- one (1) Parshall flume for Plant B inflow measurement;

Influent Sampling Point

- an automatic sampler for sampling the Influent at right outside of headworks building;

Plant A - design average daily flow: 1,100 m³/d (to be decommissioned)

Sewage Pumping Station

- two (2) submersible pumps (one standby), each rated at 1,200 m³/d, discharging to Plant A;

Primary Sedimentation

- one (1) 2.44 m SWD primary clarifier;

Secondary Treatment

Biological Treatment

- two (2) square bottom aeration tanks having a combined volume of 439 m³ and equipped with jet aeration;
- one (1) air blower, rated at 37 kW;

Secondary Sedimentation

- two (2) secondary clarifiers, equipped with sludge and scum removal mechanisms;
- four (4) RAS pumps;

Plant B - design average daily flow: $3,445 \text{ m}^3/\text{d}$ (to be re-rated to $1,867 \text{ m}^3/\text{d}$)

Primary Sedimentation - Peak Daily Flow Rate: $4,758 \text{ m}^3/\text{d}$

- one (1) $3.66 \text{ m} \times 15.24 \text{ m} \times 2.67 \text{ m}$ SWD primary clarifier and one (1) $4.25 \text{ m} \times 15.24 \text{ m} \times 2.67 \text{ m}$ SWD primary clarifier, each with a Peak Daily Flow Rate of $2,379 \text{ m}^3/\text{d}$, equipped sludge and scum removal mechanisms;
- two (2) primary/scum sludge pumps (one standby), each rated at 3.7 L/s ;

Secondary Treatment - Peak Hourly Flow Rate $253.5 \text{ m}^3/\text{h}$

Biological Treatment

- four (4) $8.53 \text{ m} \times 8.53 \text{ m} \times 2.59 \text{ m}$ SWD aeration tanks, equipped with fine bubble aeration system;
- two (2) air blowers (one standby), each rated at $33.9 \text{ m}^3/\text{min}$ at 38 kPa ;

Secondary Sedimentation

- two (2) $6.1 \text{ m} \times 25.3 \text{ m} \times 3.66 \text{ m}$ SWD secondary clarifiers, equipped with sludge and scum removal mechanisms
- three (3) RAS pumps (one standby), each rated at 24 L/s at 11 m TDH ;

Tertiary Treatment (to be decommissioned)

- two (2) shallow-bed sand filters, each with a Peak Flow Rate of $6,705 \text{ m}^3/\text{d}$;
- three (3) backwash pumps, one (1) rated at $900 \text{ m}^3/\text{d}$ and two (2) rated at $3,500 \text{ m}^3/\text{d}$;

Supplemental Treatment

Phosphorus Removal System

- one (1) 27.3 m^3 chemical storage tank;
- four (4) metering pumps (one standby), each rated at $100\text{-}500 \text{ L/h}$;

Flocculation System

- polymer addition downstream of the primary alum dosage point;

UV Disinfection (to be decommissioned)

- a UV disinfection system consists of two banks, each with three (3) modulus;

Final Effluent Outfall (to be decommissioned)

- a 450 mm diameter effluent sewer discharging to Black Creek;

Sludge Management

- one (1) 10.7 m diameter x 6.7 m depth primary anaerobic digester with gas mixing;
- one (1) 8.2 m diameter x 6.7 m depth secondary digester;
- sludge loading station;
- five (5) 6.1 m x 14.3 m sludge drying beds;

Standby Power

- one (1) 300 kW standby diesel generator set in spill containment area, with one (1) 4,500 L fuel tanks;

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 submitted supporting documents listed in Schedule A.

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

1. "Annual Average Effluent Concentration" means the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar year;
2. "Annual Average Daily Effluent Flow" means the cumulative total Final Effluent discharged during a calendar year divided by the number of days during which Final Effluent was discharged that year;
3. "Annual Average Daily Effluent Loading" means the value obtained by multiplying the Annual Average Effluent Concentration of a contaminant by the Annual Average Daily Effluent Flow over the same calendar year;
4. "Annual Average Daily Influent Flow" means the cumulative total sewage flow of Influent to the Sewage Treatment Plant during a calendar year divided by the number of days during which sewage was flowing to the Sewage Treatment Plant that year;

5. "Approval" means this entire document and any schedules attached to it, and the application;
6. "BOD5" (also known as TBOD5) means five day biochemical oxygen demand measured in an unfiltered sample and includes carbonaceous and nitrogenous oxygen demands;
7. "Bypass" means diversion of sewage around one or more unit processes within the Sewage Treatment Plant with the diverted sewage flows being returned to the Sewage Treatment Plant treatment train upstream of the Final Effluent compliance sampling point, and discharging to the environment through the approved Final Effluent outfall;
8. "CBOD5" means five day carbonaceous (nitrification inhibited) biochemical oxygen demand measured in an unfiltered sample;
9. "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;
10. "*E. coli* " refers to the thermally tolerant forms of *Escherichia* that can survive at 44.5 degrees Celsius;
11. "EPA" means the *Environmental Protection Act* , R.S.O. 1990, c.E.19, as amended;
12. "Equivalent Equipment" means an alternate equipment set that meets the design requirements and performance specifications of an equipment set to be substituted;
13. "Event" means an action or occurrence, at a given location within the Works that causes a Bypass or Overflow. An Event ends when there is no recurrence of Bypass or Overflow in the 12-hour period following the last Bypass or Overflow. Overflows and Bypasses are separate Events even when they occur concurrently;
14. "Final Effluent" means effluent that are discharged to the environment through the approved Final Effluent outfall, including all Bypasses, that are required to comply with the effluent limits stipulated in the Approval for the Sewage Treatment Plant at the Final Effluent compliance sampling point;
15. "Geometric Mean Density" is the n th root of the product of n numerical Single Sample Results over the period specified;
16. "Influent" means flows to the Sewage Treatment Plant through the collection system, excluding all process return flows;
17. "Limited Operational Flexibility" (LOF) means the protocol which the Owner shall follow in order to undertake any pre-approved minor modification in this Approval;
18. "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;
19. "Monthly Average Effluent Concentration" means the arithmetic mean of all Single Sample Results of

the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month;

20. "Monthly Average Daily Effluent Flow" means the cumulative total Final Effluent discharged during a calendar month divided by the number of days during which Final Effluent was discharged that month;
21. "Monthly Average Daily Effluent Loading" means the value obtained by multiplying the Monthly Average Effluent Concentration of a contaminant by the Monthly Average Daily Effluent Flow over the same calendar month;
22. "Overflow" means a discharge to the environment from the Works at a location other than the approved Final Effluent outfall or into the outfall downstream of the Final Effluent compliance sampling point;
23. "Owner" means The Regional Municipality of Halton and its successors and assignees;
24. "OWRA" means the *Ontario Water Resources Act* , R.S.O. 1990, c. O.40, as amended;
25. "Peak Daily Flow Rate" (also referred to as maximum daily flow or maximum day flow) means the largest volume of flow to be received during a one-day period for which the sewage treatment process unit or equipment is designed to handle;
26. "Peak Hourly Flow Rate" (also referred to as maximum hourly flow or maximum hour flow) means the largest volume of flow to be received during a one-hour period for which the sewage treatment process unit or equipment is designed to handle;
27. "Peak Instantaneous Flow Rate" means the instantaneous maximum flow rate as measured by a metering device for which the sewage treatment process unit or equipment is designed to handle;
28. "Previous Works" means those portions of the Works that have been constructed previously;
29. "Proposed Works" means those portions of the Works that are to be constructed;
30. "Rated Capacity" means the Annual Average Daily Influent Flow for which the Sewage Treatment Plant is designed to handle;
31. "Sewage Treatment Plant" means the entire sewage treatment and effluent outfall facility;
32. "Single Sample Result" means the attribute of a parameter in the Final Effluent discharged on any day, as measured by a probe, analyzer or in a composite or grab sample, whichever is required;
33. "Water Supervisor" means the Water Compliance Supervisor for the Safe Drinking Water Branch (SDWB) for the Toronto, York-Durham, and Halton-Peel offices of the Ministry; and
34. "Works" means the sewage works described in the Owner's application, and this Approval, and includes Proposed Works, Previous Works and modifications made under Limited Operational Flexibility.

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

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

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

(2) Except as otherwise provided by these terms and conditions, the Owner shall design, construct, operate and maintain the Works in accordance with this Approval.

(3) Where there is a conflict between a provision of any document 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 A, the document bearing the most recent date shall prevail.

(4) This Approval is granted based upon a review of the Works in the context of its effect on the environment, its process performance and general principles of wastewater engineering. The review did not include a consideration of the architectural, mechanical, electrical or structural components and minor details of the Works except to the extent necessary to review the Works.

2. CHANGE OF OWNER

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

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

- a. change of address of Owner;
- b. change of Owner, including address of new 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. B.17* , as amended, shall be included in the notification;
- 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. C.39* , as amended, shall be included in the notification.

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

- a. change of address of Operator;
- b. change of Operator, including address of new Owner or operating authority.

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

(5) The Owner shall ensure that all communications made pursuant to this condition refer to the number at the top of this Approval.

3. COMPLETION OF THE PROPOSED WORKS

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

(2) One (1) week prior to commissioning of the Proposed Works, the Owner shall notify the Water Supervisor, in writing, of the pending start up date. The notification shall include a statement, certified by a Professional Engineer, that the Proposed Works are constructed in accordance with this Approval.

(3) Within one (1) year of completion of construction of the Proposed Works, a set of record drawings of the Works shall be prepared or updated. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the Works for the operational life of the Works.

(4) In the event that completion and commissioning of any portion of the Proposed Works is anticipated to be delayed beyond five (5) years of issuance of this Approval, the Owner shall submit to the Director an application of extension to the Approval, at least twelve (12) months prior to the end of the period. The application for extension shall include the reason(s) for the delay, whether there is any design change(s) and a review whether the standards applicable at the time of Approval of the Works are still applicable at the time of request for extension, to ensure the ongoing protection of the environment.

(5) A set of record drawings of the Works shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at the Works for the operational life of the Works.

4. BYPASSES

(1) Any Bypass is prohibited, except:

- a. in an emergency situation when a structural, mechanical or electrical failure that causes a temporary reduction in the capacity of the Sewage Treatment Plant or in unexpected and/or unavoidable circumstance(s) that are likely to result in personal injury, loss of life, health hazard,

basement flooding, severe property damage, equipment damage or treatment process upset;

- b. where the Bypass is a direct and unavoidable result of a planned maintenance procedure or other circumstance(s), the Owner having notified the Water Supervisor at least fifteen (15) days prior to the occurrence of Bypass, including an assessment of the potential adverse effects on the environment and the anticipated duration of the Bypass and the mitigation measures, and the Water Supervisor has given written consent of the Bypass.

(2) For any Bypass Event, the Owner shall immediately notify the Spills Action Centre (SAC). This notice shall include, at a minimum, the following information for each Event:

- a. the date and time of the Bypass;
- b. the location of the Bypass and the treatment process(es) bypassed;
- c. the reason(s) for the Bypass;
- d. the disinfection status of the Bypass.

(3) After each Bypass Event, the Owner shall collect and record the following information:

- a. the duration of the Bypass Event;
- b. the measured or estimated volume of Bypass;
- c. the impact of the Bypass on the quality of the Final Effluent.

(4) For any Bypass Event, the Owner shall collect sample(s) of the Final Effluent, representative of the Event, at the Final Effluent compliance sampling point, and analyze for all effluent parameters outlined in Compliance Limits condition. These samples shall be of the same type as the regular samples required in the Monitoring and Recording condition and shall follow the same protocols specified in the Monitoring and Recording condition. If the Bypass occurs within 48 hours prior to a scheduled regular sample, then the scheduled regular sample may be omitted for that one time only.

(5) The Owner shall submit a summary report of the Bypass Event(s) to the Water Supervisor on a quarterly basis, no later than each of the following dates for each calendar year: February 15, May 15, August 15, and November 15. The summary reports shall be in an electronic format, which shall contain, at a minimum, the types of information set out in Subsections (2), (3) and (4).

5. OVERFLOWS

(1) Any Overflow is prohibited, except

- a. in an emergency situation when a structural, mechanical or electrical failure that causes a temporary reduction in the capacity of the Sewage Treatment Plant or in unexpected and/or

unavoidable circumstance(s) that are likely to result in personal injury, loss of life, health hazard, basement flooding, severe property damage, equipment damage or treatment process upset;

- b. where the Overflow is a direct and unavoidable result of a planned maintenance procedure or other circumstance(s), the Owner having notified the Water Supervisor at least fifteen (15) days prior to the occurrence of the Overflow, including an assessment of the potential adverse effects on the environment and the anticipated duration of the Overflow and the mitigation measures, and the Water Supervisor has given written consent of the Overflow.

(2) For any Overflow Event, the Owner shall immediately notify the Spills Action Centre (SAC) and the local Medical Officer of Health. This notice shall include, at a minimum, the following information for each Event:

- a. the date and time of the Overflow;
- b. the location of the Overflow and the receiver;
- c. the reason(s) for the Overflow;
- d. the level of treatment the Overflow has received and disinfection status of same.

(3) After any Overflow Event, the Owner shall collect and record the following information:

- a. the duration of the Overflow Event;
- b. the measured or estimated volume of the Overflow;
- c. the impact of Overflow on the receiver.

(4) For each Overflow Event, the Owner shall collect samples, representative of the Event, consisting of a minimum of two (2) grab samples of the Overflow, one at the beginning of the Event and one approximately near the end of the Event, and have them analyzed for effluent parameters outlined in Effluent Limits condition. For raw sewage and primary treated effluent Overflow, BOD5 shall be monitored instead of CBOD5.

(5) The Owner shall submit a summary report of the Overflow Event(s) to the Water Supervisor on a quarterly basis, no later than each of the following dates for each calendar year: February 15, May 15, August 15, and November 15. The summary report shall be in an electronic format, which shall contain, at a minimum; the types of information set out in Subsections (2), (3) and (4).

6. DESIGN OBJECTIVES

(1) The Owner shall use best efforts to design, construct and operate the Works such that the design objectives named below as effluent parameters are consistently achieved in the Final Effluent from the Sewage Treatment Plant. The Owner shall design and operate the Sewage Treatment Plant in accordance

with the following objectives for the Final Effluent:

- a. Final Effluent concentration:

**Concentration Objectives
prior to completion of construction of all Proposed Works**

Final Effluent Parameter	Objective	Averaging Calculator
CBOD5	2.0 mg/L	Annual Average Effluent Concentration
Total Suspended Solids	3.0 mg/L	Annual Average Effluent Concentration
Total Phosphorus	0.2 mg/L	Monthly Average Effluent Concentration
Total Ammonia Nitrogen	1.0 mg/L	Monthly Average Effluent Concentration
<i>E. coli</i>	100 organisms per 100 mL	Monthly Geometric Mean Density
pH	between 6.5 - 8.5 inclusive	Single Sample Result

**Concentration Objectives
upon completion of construction of all Proposed Works**

Final Effluent Parameter	Objective	Averaging Calculator
CBOD5	2.0 mg/L	Monthly Average Effluent Concentration
Total Suspended Solids	3.0 mg/L	Monthly Average Effluent Concentration
Total Phosphorus	0.1 mg/L	Monthly Average Effluent Concentration
Total Ammonia Nitrogen	0.5 mg/L (May 1 to Nov 30) 1.0 mg/L (Dec 1 to April 30)	Monthly Average Effluent Concentration
<i>E. coli</i>	100 organisms per 100 mL	Monthly Geometric Mean Density
pH	between 6.5 - 8.5 inclusive	Single Sample Result

- b. Final Effluent 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.

- c. The Annual Average Daily Influent Flow is within the Rated Capacity of the Sewage Treatment Plant.

(2) The Owner shall make an assessment of the issues and recommendations for pro-active actions if any is required under the following situations and include in the annual report to the Water Supervisor:

- a. when any of the design objectives is not achieved consistently;
- b. when the Annual Average Daily Influent Flow reaches 80% of the Rated Capacity.

7. COMPLIANCE LIMITS

(1) The Owner shall operate and maintain the Sewage Treatment Plant such that the following compliance limits are met in Final Effluent:

a. Final Effluent concentration:

**Concentration Limits
prior to completion of construction of all Proposed Works**

Final Effluent Parameter	Limit (maximum permissible value unless otherwise indicated)	Averaging Calculator
CBOD5	5.0 mg/L	Annual Average Effluent Concentration
Total Suspended Solids	5.0 mg/L	Annual Average Effluent Concentration
Total Phosphorus	0.3 mg/L	Monthly Average Effluent Concentration
Total Ammonia Nitrogen	2.0 mg/L (May 1 to Nov 30) 4.0 mg/L (Dec 1 to April 30)	Monthly Average Effluent Concentration
<i>E. coli</i>	150 organisms per 100 mL	Monthly Geometric Mean Density
pH	between 6.0 - 9.5 inclusive	Single Sample Result

**Concentration Limits
upon completion of construction of all Proposed Works**

Final Effluent Parameter	Limit (maximum permissible value unless otherwise indicated)	Averaging Calculator
CBOD5	5.0 mg/L	Monthly Average Effluent Concentration
Total Suspended Solids	5.0 mg/L	Monthly Average Effluent Concentration
Total Phosphorus	0.2 mg/L	Monthly Average Effluent Concentration
Total Ammonia Nitrogen	2.0 mg/L (May 1 to Nov 30) 4.0 mg/L (Dec 1 to April 30)	Monthly Average Effluent Concentration
<i>E. coli</i>	150 organisms per 100 mL	Monthly Geometric Mean Density
pH	between 6.0 - 9.5 inclusive	Single Sample Result

b. Final Effluent loading:

**Loading Limits
prior to completion of construction of all Proposed Works**

Final Effluent Parameter	Limit (maximum permissible value unless otherwise indicated)	Averaging Calculator
CBOD5	22.7 kg/d	Annual Average Daily Effluent Loading
Total Suspended Solids	22.7 kg/d	Annual Average Daily Effluent Loading
Total Phosphorus	1.36 kg/d	Annual Average Daily Effluent Loading
Total Ammonia Nitrogen	9.1 kg/d (May 1-Nov 30) 18.2 kg/d (Dec 1-Apr 30)	Monthly Average Daily Effluent Loading

**Loading Limits
upon completion of construction of all Proposed Works**

Final Effluent Parameter	Limit (maximum permissible value unless otherwise indicated)	Averaging Calculator
Total Phosphorus	0.56 kg/d	Annual Average Daily Effluent Loading

8. OPERATION AND MAINTENANCE

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

(2) The Owner shall prepare/update the operations manual for the Works within six (6) months of completion of construction of the Proposed Works, that includes, but not necessarily limited to, the following information:

- a. operating procedures for routine operation of the Works;
- b. inspection programs, including frequency of inspection, for the Works and the methods or tests employed to detect when maintenance is necessary;
- c. repair and maintenance programs, including the frequency of repair and maintenance for the Works;

- d. procedures for the inspection and calibration of monitoring equipment;
- e. a Spill Prevention and Contingency Plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills and any other abnormal situations, including notification of the Water Supervisor;
- f. procedures for receiving, responding and recording public complaints, including recording any followup actions taken.

(3) The Owner shall maintain the operations manual up-to-date and retain a copy at the location of the Works for the operational life of the Works and upon request, make the manual available to Ministry staff.

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

9. MONITORING AND RECORDING

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

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

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

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

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

Influent - Influent sampling point

Parameters	Sample Type	Frequency
BOD5	Composite	Monthly
Total Suspended Solids	Composite	Monthly
Total Phosphorus	Composite	Weekly
Total Kjeldahl Nitrogen	Composite	Weekly

Final Effluent - Final Effluent sampling point

Parameters	Sample Type	Frequency
CBOD5	Composite	Monthly
Total Suspended Solids	Composite	Monthly
Total Phosphorus	Composite	Weekly
Total Ammonia Nitrogen	Composite	Weekly
<i>E. Coli</i>	Grab	Weekly
pH	Grab	Weekly
Temperature	Grab	Weekly

Definitions and preparation requirements for each sample type are included in document (4)(b) referenced below.

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

- 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;
- b. the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), PIBS 2724e02, as amended;
- c. the publication "Standard Methods for the Examination of Water and Wastewater", as amended.

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

(6) The Owner shall monitor and record the flow rate and daily/hourly quantity of the following sewage streams with an accuracy to within plus or minus 15 per cent (+/- 15%) of the actual flowrate:

- a. Influent by continuous flow measuring devices and instrumentations/pumping rates;
- b. Final Effluent by continuous flow measuring devices and instrumentations/pumping rates.

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

10. LIMITED OPERATIONAL FLEXIBILITY(MINOR MODIFICATIONS TO THE WORKS)

(1) The Owner may make modifications to the Works in accordance with the protocol "Limited Operational Flexibility Criteria for Modifications to Sewage Works ", included as Schedule B of this Approval, subject to the following:

- a. the modifications shall conform with the Ministry's publication "Design Guidelines for Sewage Works 2008", as amended; and
- b. the modifications shall not impact on the performance of any process or other equipment in the Works or result in deterioration in the Final Effluent quality
- c. a "Notice of Modifications to Sewage Works" (included in Schedule B) describing the proposed modifications under Limited Operational Flexibility shall be completed and submitted to the Water Supervisor at least thirty (30) days prior to the scheduled implementation date.

(2) The following modifications are NOT permitted as part of Limited Operational Flexibility:

- a. Modifications that involve addition or extension of process tankages or that may result in an increase in the treatment capacity of a process;
- b. Modifications that involves relocation of the effluent outfall or any discharge location or that may require reassessment of the impact to the receiver or environment;
- c. Modifications that involves a change in technology of a treatment process or that may involve reassessment of the treatment train process design and/or hydraulic profile;
- d. Modifications that requires changes to be made to the Emergency Response, Spill Reporting and Contingency Plan; and
- e. Modifications pursuant to an order issued by the Ministry.

(3) The Owner shall complete a Notice of Modifications describing any proposed modifications under Limited Operational Flexibility to the Works and submit it to the Water Supervisor at least thirty (30) days prior to the scheduled implementation date.

11. REPORTING

(1) The Owner shall report to the Water Supervisor orally as soon as possible any non-compliance with the compliance limits, and in writing within seven (7) days of non-compliance.

(2) In addition to the obligations under Part X of the *Environmental Protection Act*, the Owner shall, within fifteen (15) working days of the occurrence of any reportable spill or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the Water Supervisor describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.

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

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

- a. a summary and interpretation of all Influent monitoring data, including sewage characteristics, flow rates and a comparison to the values used in the design of the Works;
- b. a summary and interpretation of all Final Effluent monitoring data and a comparison to the compliance limits condition, including an overview of the success and adequacy of the Works;
- c. a description of any operating problems encountered and corrective actions taken;
- d. a summary of all maintenance carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;
- e. a summary of any effluent quality assurance or control measures undertaken in the reporting period;
- f. a summary of the calibration and maintenance carried out on all Influent and Final Effluent monitoring equipment;
- g. a description of efforts made and results achieved in meeting the design objectives condition;
- h. 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;
- i. a summary of any complaints received during the reporting period and any steps taken to address the complaints;
- j. a summary of all Bypasses, Overflows, reportable spills or abnormal discharge events;
- k. a copy of all Notice of Modifications submitted to the Water Supervisor as a result of Schedule B, Section 1, with a status report on the implementation of each modification;
- l. a report summarizing all modifications completed as a result of Schedule B, Section 3.

12. TOTAL PHOSPHORUS OFFSET PROGRAM

(1) The Owner shall implement the Total Phosphorus (TP) Offsets Program, as detailed in the document: “Phosphorus Offsets Program for Acton Wastewater Treatment Plant” prepared by Cole Engineering Group Limited dated February 17, 2016 with the 2017 updated list of 14 offset projects and including any future updates to the program, as approved by the ministry in accordance with the schedule stipulated in Subsections (1)a and (1)b. This program as drafted in the above document includes implementation of fourteen (14) urban stormwater retrofit projects intended to achieve an annual

reduction of 96.8 kg of Total Phosphorus loading into Black Creek. The TP Offset Verification Program described in condition (2) below may require implementation of additional offset projects to achieve the target reduction.

- a. Within five (5) years of this Approval, the Owner shall complete implementation of Phase I of the program which includes a sufficient number of urban stormwater retrofit projects in the program intended to achieve an annual reduction of at least 51 kg/yr of TP loading to Black Creek;
- b. Within ten (10) years of this Approval, the Owner shall complete implementation of all urban stormwater retrofit projects in the program intended to achieve an annual reduction of 96.8 kg/yr of TP loading to Black Creek.

(2) The Owner shall implement the TP Offset Verification Monitoring Program described in the Memorandum for "Acton WWTP ECA and Verification Monitoring Program Overview" dated April 26, 2017, prepared by Hutchinson Environmental Science Ltd. This monitoring program is intended to verify the efficiencies of those projects described in subsection (1) that utilize OGS and Jellyfish in removing TP from stormwater. The program shall include monitoring the performance of at least two projects identified in Subsection (1) above, one (1) using OGS and one (1) using Jellyfish following installation of the selected projects. Implementation of the TP Offset Verification Monitoring Program shall be completed within three (3) years of this Approval.

(3) Within one (1) year of completion of the TP Offset Verification Monitoring Program required under subsection (2), the Owner shall prepare and submit a report to the Water Supervisor containing the findings of the verification monitoring program, including conclusions about the ability of the projects to meet their intended removal efficiencies and recommendations if additional projects need to be implemented to achieve the target TP Offset.

(4) The Owner shall prepare and submit status and progress reports on the Total Phosphorus Offsets Program to the Water Supervisor on an annual basis that includes the following:

- a. progress update on the implementation of the offset projects, including status of implemented projects (i.e. report to include details on such items as: if proper maintenance is being implemented; if/when inspection by a Qualified Person occurred, which may include a Professional Engineer, a licensed agent of the manufacturer, or a representative of the Owner that has received proper training and certification from the manufacturer for performing such inspections; etc.) and updates on implementation schedules for outstanding projects;
- b. any proposed changes to the program, including identification of new projects, if any are required as a result of the findings of the verification monitoring program.

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

1. Condition 1 is imposed to ensure that the Works are constructed and operated in the manner in which they were described 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.

2. Condition 2 is included to ensure that the Ministry records are kept accurate and current with respect to approved Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.
3. Condition 3 is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction, to ensure the ongoing protection of the environment. It also ensure that the Works are constructed in accordance with the Approval and that record drawings of the Works "as constructed" are updated and maintained for future references.
4. Condition 4 is included to indicate that Bypass is prohibited, except in circumstances where the failure to Bypass could result in greater injury to the public interest than the Bypass itself. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Bypass Events.
5. Condition 5 is included to indicate that Overflow of untreated or partially treated sewage to the receiver is prohibited, except in circumstances where the failure to Overflow could result in greater injury to the public interest than the Overflow itself. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Overflow Events.
6. Condition 6 is imposed to establish non-enforceable effluent quality objectives which the Owner is obligated to use best efforts to strive towards on an ongoing basis. These objectives are to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs and before the compliance limits of Condition 7 are exceeded.
7. Condition 7 is imposed to ensure that the effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements thus minimizing environmental impact on the receiver and to protect water quality, fish and other aquatic life in the receiving water body.
8. Condition 8 is included to require that the Works be properly operated, maintained, funded, staffed and equipped such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented. As well, the inclusion of a comprehensive operations manual governing all significant areas of operation, maintenance and repair is prepared, implemented and kept up-to-date by the Owner and made available to the Ministry. Such a manual is an integral part of the operation of the Works. Its compilation and use should assist the Owner in staff training, in proper plant operation and in identifying and planning for contingencies during possible abnormal conditions. The manual will also act as a benchmark for Ministry staff when reviewing the Owner's operation of the Works.
9. Condition 9 is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the effluent limits specified in the Approval and that the Works does not cause any impairment to the

receiving watercourse.

10. Condition 10 is included to ensure that the Works are operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider. These Conditions are also included to ensure that a Professional Engineer has reviewed the proposed modifications and attests that the modifications are in line with that of Limited Operational Flexibility, and provide assurance that the proposed modifications comply with the Ministry's requirements stipulated in the Terms and Conditions of this Approval, MOE policies, guidelines, and industry engineering standards and best management practices.
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 Approval, so that the Ministry can work with the Owner in resolving any problems in a timely manner.
12. Condition 12 is included to ensure that a Total Phosphorus Offsets Program is implemented to achieve a target credited annual reduction of 48.2 kg/year of Total Phosphorus loading into Black Creek by eliminating or mitigating point source total phosphorus inputs in urban sectors in the community of Acton adjacent to Black Creek.

Schedule A

1. Application for Approval of Municipal and Private Sewage Works, April 25, 2016 and accompanying transmittal form submitted by Dave Andrews of the Regional Municipality of Halton, dated May 18, 2016, including Design Details, Maps & Drawings, and Environmental Study all prepared by Cole Engineering Group Limited.

Schedule B

Limited Operational Flexibility Criteria for Modifications to Municipal Sewage Works

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

1.1 Sewage Pumping Stations

- a. Alter pumping capacity by adding or replacing equipment where new equipment is located within an existing sewage treatment plant site or an existing sewage pumping station site, provided that the modifications do not result in an increase of the sewage treatment plant Rated Capacity and the existing flow process and/or treatment train are maintained, as applicable.
- b. Forcemain relining and replacement with similar pipe size where the nominal diameter is not greater than 1,200 mm.

1.2 Sewage Treatment Process

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

be considered under this provision: pumps, screens, grit separators, blowers, aeration equipment, sludge thickeners, dewatering equipment, UV systems, chlorine contact equipment, bio-disks, and sludge digester systems.

1.3 Sewage Treatment Plant Outfall

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

1.4 Sanitary Sewers

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

1.5 Pilot Systems

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

2. Sewage works that are exempt from section 53 of the OWRA by O. Reg. 525/98 continue to be exempt and are not required to follow the notification process under this Limited Operational Flexibility.
3. Normal or emergency operational modifications, such as repairs, reconstructions, or other improvements that are part of maintenance activities, including cleaning, renovations to existing approved sewage works equipment, provided that the modification is made with Equivalent Equipment, are considered pre-approved.
4. The modifications noted in section (3) above are not required to follow the notification protocols under Limited Operational Flexibility, provided that the number of pieces and description of the equipment as described in the Approval does not change.

Notice of Modification to Sewage Works

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

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

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

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

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

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 4451-85TKMD issued on June 8, 2010.

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

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

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

The Notice should also include:

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

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

This Notice must be served upon:

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

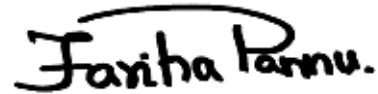
AND

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

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

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

DATED AT TORONTO this 26th day of May, 2017



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

RY/
c: DWMD Supervisor, MOECC Halton-Peel
Rekha Chetlur, Registration and Compliance Section, MOECC Drinking Water Programs Branch – IMBS
Andrew Moreton, Cole Engineering Group Ltd.