Ontario

Ministry of the Environment
Ministère de l'Environnement

AMENDED CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE SEWAGE WORKS
NUMBER 0595-8D2SAQ
Issue Date: February 10, 2011

City of Ottawa
800 Green Creek Dr
Ottawa, Ontario, K1J 1A6

Site Location: Robert O. Pickard Environmental Centre
800 Green Creek Dr
Ottawa City, K1J 1A6

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

Upgrading of the Robert O. Pickard Environmental Centre (ROPEC) for the collection, transmission, treatment and disposal of domestic sewage, located at the above site location, rated at the capacities mentioned below and consisting of the following *Works*:

Robert O. Pickard Environmental Centre (Rated Capacity)	
Average Daily Flow	545,000 m^3/d
Peak Flow Rate (Instantaneous)	15.77 m^3/s

PROPOSED WORKS

Chlorination / Dechlorination System

- removal and relocation of the existing final effluent concrete weir wall and associated weir plates in Chlorine Contact Tanks 1, 2 and 3;
- one (1) new dechlorination building;
- three (3) dedicated chemical feed systems, one for each Chlorine Contact Tank, each comprising of a duty and standby dechlorinating dosing pump at approximately 75 LPH max output;
- two (2) dechlorination chemical storage tanks with a capacity of approximately 32,750L each;
- two (2) chemical vapour scrubbing tanks of approximately 2,646L each;
- three (3) effluent sampling pumps, one for each Chlorine Contact Tank, with a design flow rate of approximately 2.23 L/s each;
- three (3) chemical diffusion systems, one in each Chlorine Contact Tank;
- in each of the three (3) Chlorine Contact Tanks, one (1) Total Residual Chlorine analyzer to be installed immediately upstream of the dechlorination chemical injection diffuser, to provide continuous analytical data to the SCADA system in order to calculate the Total Residual Chlorine concentration;
- in each of three (3) Chorine Contact Tanks, one (1) on-line analyzer for sulphite concentration of the final effluent, to be installed at the outlet of the Chlorine Contact Tanks, to provide continuous analytical

data to the SCADA system;

- 130m long cast-in-place concrete utility trench to accommodate effluent water pipe and prefabricated perfluoroalkoxy (PFA) tubing bundles for the delivery of sodium hypochlorite solution for the disinfection of secondary effluent; and
- 270m long cast-in-place concrete utility trench to accommodate electrical cables and prefabricated stainless steel tubing bundles for the delivery of sodium bisulfite solution for the dechlorination of disinfected effluent.

installation of all associated appurtenances, piping, electrical, instrumentation and control systems necessary to operate the above-mentioned *Proposed Works*.

all in accordance with the following submitted supporting documents:

1. Application for Approval of Sewage Works dated November 18, 2010, with cover letter submitted by Dave Robertson, C.E.T. of Stantec Consulting Ltd, Consulting Engineers, dated November 23, 2010;

2. A document entitled "Robert O. Pickard Environmental Centre Dechlorination Facility Design Basis Memorandum" dated October, 2010 and prepared by Stantec Consulting Ltd;

3. A set of engineering drawings entitled "Robert O. Pickard Environmental Centre Dechlorination Facility", contract No. ISB09-2047, dated October 24, 2010 and prepared by Stantec Consulting Ltd;

4. A letter dated January 20, 2011 from Dave Robertson, C.E.T. of Stantec Consulting Ltd to Youssouf Kalogo, P.Eng., of the Ontario Ministry of the Environment (MOE); and

5. A letter dated February 7, 2011 from Dave Robertson, C.E.T. of Stantec Consulting Ltd to Youssouf Kalogo, P.Eng., of the MOE.

Anaerobic Digesters

- Replacement of two (2) existing gas boosters with three (3) larger gas boosters to serve the six (6) existing digesters.

installation of all associated appurtenances, piping, electrical, instrumentation and control systems necessary to operate the above-mentioned *Proposed Works*.

all in accordance with the following submitted supporting documents:

1. Application for Approval of Municipal and Private Sewage Works signed July 22, 2004 under a transmittal letter of CH2M HILL Canada Ltd. dated July 23, 2004 along with a Preliminary Design report prepared by CH2M HILL Canada Ltd. dated July 2004.

EXISTING WORKS

The *Existing Works* consist of the following:

1. Pumping Stations

a) Raw Sewage Pumping Station

A pumping station servicing the Ottawa Interceptor Sewer (OIS) and Orleans-Cumberland Collector (OCC), with firm station pumping capacity, based on four of six pumps operating, of 852,000 m^3/d and consisting of the following:

- one (1) wet well split into two with each well equipped with the following:

  - one (1) mechanically cleaned course bar screen;

- two (2) variable speed pumps, each pump rated at 213,000 m^3/d at a TDH of 22 m; and
- one (1) fixed speed pump rated at 213,000 m^3/d at a TDH of 22.8 m.

- two (2) conduits, each conduit equipped with in-line flow measurement, directing flow to the Screening and Degritting Facility.

- a high-level emergency overflow pipe, complete with isolation gate and chlorination piping, connecting the pump station influent structure to the plant outfall for emergency relief.

- ancillary systems including four (4) hot water boilers for heating of treatment plant buildings and tunnels.

b) South Ottawa Tunnel Pump Station/Riser Shaft

A pumping station servicing the South Ottawa Tunnel (SOT) with firm station pumping capacity, based on three of three pumps operating, of 129,000 m^3/d and consisting of the following:

- one (1) wet well containing three submersible variable speed pumps, two pumps rated at a maximum capacity of 30,000 m^3/d and one pump at a maximum capacity of 69,000 m^3/d;

- an integral riser shaft with isolation gate converting the SOT to a submerged gravity flow collector;

- two (2) conduits directing flow to the Screening and Degritting Facility; and

- three (3) flow measurement devices, one at the discharge end of each pump.

2. Screening and Degritting Building

A screening and degritting facility receiving discharge from the South Ottawa Tunnel, Greens Creek Collector by gravity, and the Raw Sewage Pumping Station, consisting of the following:

- six (6) mechanically cleaned bar screens each rated at 227,000 m^3/d;

- ten (10) covered aerated grit tanks each rated at 136,250 m^3/d; and

- an interconnecting channel between the Raw Sewage Pumping Station and the Screening and Degritting Facility equipped with a bypass weir, which redirects influent around the Screening and Degritting Facility to the downstream Primary Clarifiers in the event that the bar screens become inoperative and unable to pass flow.

3. Primary Clarification

a) Primary Clarifiers

Primary clarifiers include the following:

- fifteen (15) concrete-covered clarifiers having the following dimensions:

  - three (3) 2-bay clarifiers with length 60.2 m, width 10.5 m, and S.W.D. 3.1 m;
  - three (3) 2-bay clarifiers with length 61.0 m, width 10.5 m, S.W.D. 3.1 m;
  - six (6) 2-bay clarifiers with length 61.0 m, width 11.3 m, S.W.D. 3.4 m; and

  - three (3) 4-bay clarifiers with length 60.4 m, width 22.9 m, S.W.D. 3.4 m.

- each clarifier equipped with rotating slotted-pipe scum removal equipment, chain and flight sludge removal equipment, and a dedicated sludge pump with a rated capacity of 1.5 L/s at a TDH of 30 m and

a maximum capacity of 6.5 L/s.

- a sludge transfer station, receiving flow from the clarifier sludge pumps, consisting of a 14 m^3 two-cell covered sludge transfer tank complete with a negative pressure ventilation system exhausting through an odour control unit, three variable speed primary sludge transfer pumps, each rated at 24 to 40 L/s at TDH of 42 to 48 m, and discharging to one of the two force mains leading to the anaerobic digesters.

b) Scum Handling System

The scum handling facilities consist of the following:

- four (4) stainless steel primary scum collection tanks, receiving scum from the primary clarifiers, each with a capacity of approximately 9 m^3 and each tank equipped with a grinder and a scum transfer pump rated at 4.7 L/s at a discharge pressure of 200 kPag;
- one (1) scum concentrator tank, receiving flow from the scum transfer pumps, having a surface area of 10 m^2 (5 m long x 2 m wide), complete with chain and flight surface skimmer discharging to a concentrated scum tank, and underflow/overflow weir arrangement for discharge of concentrator subnatant to the plant sewer system; and
- one (1) 1.2 m^3 capacity covered stainless steel concentrated scum tank equipped with a concentrated scum transfer pump, rated at 3.2 L/s at a discharge pressure of 820 kPag, and discharging to a line with individual connections to each of anaerobic digesters. A negative pressure ventilation system, connected to the concentrated scum tank, exhausts through an odour control unit.

4. Aeration Tanks

Aeration tanks consist of the following:

- eight open tanks arranged in two trains of four tanks, each tank comprising of three passes and each pass 80.5 m long, 7.6 m wide, and S.W.D. 6.47 m for a total volume of 11,350 m^3 per tank, and each tank equipped with fine bubble diffused air system; and
- three (3) blowers, each rated at 37,400 m^3/hr at 82 kPag.

5. Secondary Clarifiers

Sixteen (16) clarifiers, each having a diameter of 55.3 m and S.W.D. of 4.0 m, arranged in two trains of 8 clarifiers, each rated for a peak overflow rate of 85,156 m^3/d, and each clarifier equipped with a sludge withdrawal mechanism sized to accommodate a withdrawal rate of 133 % of average day flow.

6. Return and Waste Activated Sludge Pump Stations

Return and waste activated sludge pumping stations comprise of two (2) trains of eight secondary clarifiers with each train equipped with a Return and Waste Activated Sludge Pumping Station, and each pumping station equipped with:

- three (3) return activated sludge (RAS) pumps, each rated at 131,250 m^3/d with a firm RAS capacity, based on two of three pumps operating, of 262,500 m^3/d or 100% recycle at plant average design flow rate;
- three (3) waste activated sludge (WAS) pumps, each rated at 2,225 m^3/d with a firm WAS capacity of 4,450 m^3/d based on two of the three pumps operating;
- three (3) chemical feed pumps for the purpose of phosphorous removal, each rated at 40-1,250 L/hr with a firm capacity of 2,500 L/hr based on two of the three pumps operating; and

- four (4) chemical storage tanks, each with a capacity of 70 m^3 and capable of storing Alum, Ferric Chloride, or Ferrous Chloride.

7. Anaerobic Digestion

Anaerobic digestion facilities include the following:

Anaerobic Digesters

Four (4) fixed roof concrete digesters each 33.5 m in diameter and 10.0 m S.W.D, two (2) fixed roof concrete digesters each 25.0 m in diameter and 38.9 m in height, and a digester control building containing a digester gas mixing system, recirculation pumps and sludge heat exchangers, transfer pumps, and dewatering centrifuge feed pumps.

Waste Gas Burner

One (1) waste gas burner for the purpose of combusting digester gas in excess of Cogeneration equipment and East Boiler Plan equipment requirements. The waste gas burner has a tip diameter of 250 mm and height of 6.1 m above grade with the system rated for 91,000 m^3/day of digester gas.

Cogeneration System

A cogeneration facility consisting of three (3) internal combustion engine driven generator sets firing either natural or digester gas. Each engine is rated at 810 kW of electrical power and 930 kW of thermal power with thermal energy recovered for use in the plant heating system.

8. Sludge Thickening and Dewatering Building

A Sludge Thickening and Dewatering Building housing equipment utilized for WAS thickening, dewatering of digested sludge, and receipt of hauled waste as follows:

- sludge thickening process consisting of seven (7) WAS thickening centrifuges, each rated at 1,900 m^3/d with associated ancillary equipment, WAS tanks with mixers, thickened WAS tanks, and thickened WAS screw conveyor system;
- digested sludge dewatering process consisting of six (6) digested sludge dewatering centrifuges, each rated at 518 m^3/d with associated ancillary equipment, polymer make-up and metering system, sludge cake storage hoppers, and truck loading system;
- septage unloading facility consisting of two (2) receiving tanks and two pumps, each rated at 1,580 m^3/d; and
- ancillary systems including four (4) hot water boilers for heating and sludge digestion.

9. Chlorination / Effluent Water Pumping Station

Disinfection and Effluent Water Pumping Station consist of the following:

- four (4) lined concrete chemical storage tanks with a total storage volume of 204 m^3;
- six (6) chemical metering pumps as follows:

- one (1) pump at 650 L/hr;

- two (2) pumps at 350 L/hr; and
- three (3) pumps at 1,800 L/hr;

  - three (3) concrete contact tanks providing a total contact volume of 10,850 m^3;

  - four (4) effluent water pumps as follows:

- two (2) pump at 40 L/s each; and
- two (2) pumps at 80 L/s each; and

  - two (2) automatic effluent water strainers.

10. Maintenance Building

An equipment storage/maintenance building housing offices, washrooms, lunch room, electrical, mechanical and instrumentation shops, unloading areas and storage area.

11. Electrical Substations

Two (2) electrical substations with Substation 1 consisting of two 5,000 kVA transformers and two 2,000 kVA transformers, and Substation 2 consisting of two 5,000 kVA transformers, both substations equipped with switchboards and galvanized dead-end structures.

12. Standby Power for Main Sewage Pumping Station

A building adjacent to Substation 1 housing three 1,600 kW diesel driven generators.

13. Supervisory Control and Data Acquisition System (SCADA)

A SCADA system comprising of a central control facility containing computers, consoles and other computer equipment and remote processing units (RPU's) located throughout the plant for process control and data collection, together with all necessary appurtenances.

14. Tunnels

Tunnels for piping, services and personnel, interconnecting preliminary, primary, secondary and biosolids processing areas.

15. Roads/Drainage

A primary ring road connected by secondary roads between treatment unit areas, and an overland drainage system comprising of swales and concrete lined ditches draining to a retention pond, with controlled discharge to Ottawa River.

16. Appurtenances and Controls

All associated appurtenances, piping, heating and ventilation, electrical, instrumentation, and control systems necessary to operate the above-mentioned *Works*.

all in accordance with previous documents, plans and specifications submitted with the previous application(s)

for sewage works 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*" means the arithmetic mean of the concentrations of all samples taken in the twelve consecutive month period;

"*Annual Average Loading*" 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 sewage flow 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;

"*By-pass*" means any discharge from the *Works* that does not undergo any treatment or only undergoes 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;

"*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*;

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

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

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

"*Geometric Mean Density*" is the n^{th} root of the product of multiplication of the results of n number of samples over the period specified;

"*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;

"*Owner*" means The City of Ottawa 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;

"*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 Works* 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

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

(2) The approval issued by this *Certificate* will cease to apply to those parts of the Proposed Anaerobic Digesters which have not been constructed by **December 31, 2011**.

3. CHANGE OF OWNER

(1) The *Owner* shall notify the *District Manager* and the *Director*, in writing, of any of the following changes **within 30 days** of the change occurring:

(a) change of *Owner*;

(b) change of address of the *Owner*;

(c) change of partners where the *Owner* is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the *District Manager*;

(d) change of name of the corporation where the *Owner* is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Informations 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 **one (1) year** of the *Substantial Completion* of the *Proposed Works*, a set of as-built drawings showing the *Works* "as constructed" shall be prepared. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be retained at thelocation of the *Works* for the operational life of the *Works*.

(3) Upon the *Substantial Completion* of the *Proposed Works*, the *Owner* shall have in their possession a complete set of operations and maintenance manuals.

5. BY-PASSES

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

(a) the *Peak Flow Rate (Instantaneous)* would exceed 15.77 cubic metres per second;

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

(c) 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*.

(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 9 .

(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 and/or reason for *By-pass* pursuant to subsection (1), and the reasons for the occurrence.

(4) The *Owner* shall, in the event of a *By-pass* event pursuant to subsection (1), disinfect the by-passed effluent, whenever the bypass occurs, prior to it reaching the receiver such that the receiver is not negatively impacted.

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 in Table 1 as effluent parameters are not exceeded in the effluent from the *Works*.

Table 1 - Effluent Objectives	
Effluent Parameter	**Concentration Objective** (milligrams per litre unless otherwise indicated)
CBOD5	15.0
Suspended Solids	15.0
Total Phosphorus	1.0
Total Residual Chlorine (TRC)	Non-detect(1)
Residual Sulphite	>0.1
E. Coli(2)	200 CFU/100 mL (Monthly *Geometric Mean Density*)

(1) "Non-detect" means that the measured value shall be below the Method Detection Limit of 0.01 mg/L for TRC.

(2) Upon on installation of the dechlorination system, year-round disinfection shall be conducted, every year.

(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 inclusive, at all times;

(b) operate the *Works* within the *Rated Capacity* and the *Peak Flow Rate* of the *Works*;

(c) operate the *Works* according to the capacity of the plants and the component process units; and

(d) 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 10 a summary of the efforts made and results achieved under this Condition, if the concentration objectives are not met.

7. EFFLUENT LIMITS

(1) The *Owner* shall operate and maintain the *Works* such that the concentrations and waste loadings of the materials named in Table 2 as effluent parameters are not exceeded in the effluent from the *Works*.

Table 2 - Effluent Limits		
Effluent Parameter	**Annual or Monthly Average Concentration**(1) (milligrams per litre)	**Annual Average Loading** (kilograms per day)
CBOD5	25.0(2)	13,625
Suspended Solids	25.0(2)	13,625
Total Phosphorus	1.0(3)	545
Total Residual Chlorine	0.02(3)	Not Applicable
Dissolved Oxygen	2.0(3)	Not Applicable
E. Coli	200 CFU/100 mL (4) (Monthly *Geometric Mean Density*)	-

(1) Except *E. Coli*, which is Monthly *Geometric Mean Density*.
(2) Annual average concentration.
(3) Monthly average concentration.
(4) Upon on installation of the dechlorination system, year-round disinfection shall be conducted, every year.

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

(a) The *Annual Average Concentration* of *CBOD5* and Suspended Solids as named in Column 1 of Table 2 of subsection (1) shall not exceed the corresponding maximum allowable average concentration set out in Column 2 of Table 2 in subsection (1).

(b) The *Monthly Average Concentration* of Total Phosphorus as named in Column 1 of Table 2 of subsection (1) shall not exceed the corresponding maximum allowable average concentration set out in Column 2 of Table 2 in subsection (1).

(c) The *Annual Average Loading* of *CBOD5*, Suspended Solids, and Total Phosphorus as named in Column 1 of Table 2 of subsection (1) shall not exceed the corresponding maximum allowable average loading set out in Column 3 of Table 2 in subsection (1).

(d) The *Monthly Geometric Mean Density* of E-Coli as named in Column 1 of Table 2 of subsection (1) shall not exceed the corresponding maximum allowable density set out in Column 2 of Table 2 in subsection (1).

(e) The pH of the effluent shall be maintained within 6.0 to 9.5 , at all times.

(f) The *Monthly Average Concentration* of Dissolved Oxygen named in Column 1 of Table 2 of subsection (1) shall not be lower than the corresponding minimum concentration set out in Column 2 in Table 2

(3) Paragraphs (a) to (e) of subsection (2) shall apply upon the date of issuance of this *Certificate*.

(4) The effluent limits for CBOD, Suspended Solids, Total Phosphorus and E. Coli set out in Table 2 of subsection (1) shall apply upon the date of issuance of this *Certificate*.

(5) The effluent limits for Total Residual Chlorine and Dissolved Oxygen set out in Table 2 of subsection (1) shall apply upon *Substantial Completion* of the Proposed Chlorination / Dechlorination System.

(6) Only those monitoring results collected during the corresponding time period shall be used in calculating

the *Annual* or *Monthly Average Concentrations* and *Monthly Average Loading* for this *Certificate*.

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 ensure that adequate back-up equipment and material are kept on hand, maintained and kept in good repair for immediate use in the event of upset conditions and equipment breakdowns in the sewage works and spills of raw, partially treated sewage, sludge and chemicals, and that plant personnel are trained in their use and the methods and procedures to be employed.

(3) The *Owner* shall update the operations manual that includes, but not necessarily limited to, the following information:

(a) operating procedures for routine operation of the *Works*;

(b) inspection programs, including frequency of inspection, for the *Works* and the methods or tests employed to detect when maintenance is necessary;

(c) repair and maintenance programs, including the frequency of repair and maintenance for the *Works*;

(d) procedures for the inspection and calibration of monitoring equipment;

(e) a spill prevention control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills and any other abnormal situations, including notification of the *District Manager*; and

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

(4) The *Owner* shall maintain the operations and maintenance manuals 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.

(5) 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 *Certificate* are to be taken at a time and 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, monthly means once every month and weekly means once every week, at a minimum.

(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:

Table 3 - Raw Sewage Monitoring
(Samples to be collected at the head of the inlet works)

Parameters	Sample Type	Minimum Frequency
CBOD5	24-hr composite	Monthly
Suspended Solids	24-hr composite	Monthly
Total Kjeldahl Nitrogen	24-hr composite	Monthly
Total Phosphorus	24-hr composite	Weekly

Table 4 - Effluent Monitoring
(Samples to be collected at the outlet of the disinfection facilities or at the outfall sewer as close as possible to the treatment plant)

Parameters	Sample Type	Frequency
CBOD5	24-hr composite	Monthly
Suspended Solids	24-hr composite	Monthly
Total Phosphorus	24-hr composite	Weekly
Total Ammonia Nitrogen	24-hr composite	Monthly
Total Residual Chlorine	Grab	Weekly
Dissolved Oxygen	Grab/Probe	Weekly
Residual Sulphite	Grab	Weekly
E. Coli	Grab	Weekly
pH	Grab/Probe	Monthly
Temperature	Grab/Probe	Monthly

(Note: Definitions for grab and composite samples are included in one or more documents below. 24-hour composite sample means a time-composite sample and constitutes of an integrated sample made up of blending 24 hourly aliquots taken by refrigerated autosampler, which are obtained at an hourly frequency having same sample volume).

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

(a) the Ministry's Procedure F-10-1, “Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;

(b) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (January 1999), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions; and

(c) the publication "Standard Methods for the Examination of Water and Wastewater" (20th edition), as amended from time to time by more recently published editions.

(5) The temperature and pH of the effluent from the *Works* shall be determined in the field at the time of sampling for Total Ammonia Nitrogen. The concentration of unionized 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 (unionized). For the purposes of determining concentration of unionized ammonia, single representative values of temperature and pH obtained through a probe shall be considered complementary to the 24-hour composite total ammonia nitrogen sample.

(6) The sampling locations in subsection (3) above may be changed or abandoned and new locations added if, in the opinion of the *District Manager*, it is necessary to do so to ensure representative samples are being collected.

(7) The *Owner* shall install and maintain (a) continuous flow measuring device(s), to measure the flowrate of the effluent from the *Works* with an accuracy to within plus or minus ten per cent (+/- 10%) of the actual flowrate for the entire design range of the flow measuring device, and record the flowrate at a daily frequency.

(8) 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*.

10. REPORTING

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

(2) **Ten (10) days** 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.

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

(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 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 maintenance carried out on 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 field equipment;

(f) a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 6, if the concentration objectives are not met;

(g) 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;

(h) a summary of any complaints received during the reporting period and any steps taken to address the complaints;

(i) a summary of all *By-pass*, spill or abnormal discharge events; and

(j) any other information the *District Manager* requires from time to time

11. APPROVAL SUBJECT TO FINAL DRAWINGS

The *Owner* shall not construct any portion of the *Proposed Works* or allow its commencement, until detailed design drawings, specifications and an engineer's report containing detailed design calculations for the *Works* have been submitted to and approved by the *Director*.

12. REVOCATION OF EXISTING APPROVALS

(1) The descriptions of the approved works and conditions of approval in this *Certificate* apply in place of all the 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 Condition 12(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 Condition 12(1) above, shall form part of this *Certificate*.

(3) Where an existing Certificate of Approval referred to in Condition 12(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 authorized to carry out work pursuant to this *Certificate* the existence of this *Certificate*.

2. Condition 2 is included to ensure that, when the *Works* are constructed, the *Works* will meet the standards that apply at the time of construction to ensure the ongoing protection of the environment.

3. Condition 3 is included to ensure that the *Ministry* records are kept accurate and current with respect to the approved

works and to ensure that subsequent owners of the *Works* are made aware of the *Certificate* and continue to operate the *Works* in compliance with it.

4. Condition 4 is included to ensure 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 to the Ottawa River 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 the Ottawa River 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 River.

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 design objectives and effluent limits specified in the *Certificate* and that the *Works* does not cause any impairment to the receiving River.

10. Condition 10 is included to provide a performance record for future references, to ensure that the *Ministry* is made aware of problems as they arise, and to provide a compliance record for all the terms and conditions outlined in this *Certificate,* so that the *Ministry* can work with the *Owner* in resolving any problems in a timely manner.

11. Condition 11 is included due to the provisional nature of the supporting documentation submitted by the *Owner* with the application for approval. The *Director* has only approved the *Works* in principle, and this condition will ensure that, in accordance with the provisions of the Ontario Water Resources Act, prior to the commencement of construction of any part of the *Works*, the *Director* will have the opportunity to review detailed design drawings, specifications and an engineer's report containing detailed design calculations for the *Works*, in order to determine the *Proposed Works'* capability to comply with the *Ministry*'s requirements stipulated in the terms and conditions of the *Certificate*.

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. 2659-64TPYC issued on December 2, 2004

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 10th day of February, 2011

Ian Parrott, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

YK/
c: District Manager, MOE Ottawa
Dave Robertson, Stantec Consulting