



**THE CORPORATION OF THE MUNICIPALITY OF TEMAGAMI
SPECIAL COUNCIL MEETING
AGENDA**

Thursday, March 22, 2018, 3:00 P.M.

Welcome Center

An audio recording of the Open Session of this meeting is being made and will be available through the Municipal Website as a public service to further enhance access to municipal government services and to continue to promote open and transparent government. As a visitor, your presence may be recorded and your name and address may be revealed during certain parts of the Council meeting.

Pages

1. PURPOSE OF THIS SPECIAL MEETING

1. For Council to hear a presentation from EXP and to discuss options for addressing the MOECC's requirements for the Temagami North lagoon; and
2. To address matters in Closed Session as authorized by Section 239 of the Municipal Act, 2001, as amended, which pertain to subsections (2)(b) Personal matters about identifiable individuals, including municipal employees and (2)(d) Labour relations or employee negotiations regarding personal matters and employment of administrative personnel.

2. CALL TO ORDER AND ROLL CALL

3. ADOPTION OF THE AGENDA

Draft Motion:

BE IT RESOLVED THAT the Special Council Meeting Agenda dated March 22, 2018 be adopted as presented / amended.

4. DECLARATION OF CONFLICT OR PECUNIARY INTEREST AND GENERAL NATURE THEREOF

5. DELEGATIONS/ PRESENTATIONS

5.1 Presentation by EXP regarding Temagami North Lagoon

Draft Motion:

BE IT RESOLVED THAT the presentation by EXP regarding the Temagami North Lagoon be received.

6. UNFINISHED BUSINESS

6.1 MOECC re May 25 deadline

Draft Motion:

BE IT RESOLVED THAT MOECC Council receive correspondence from the MOECC regarding the May 25 deadline for Temagami North Lagoon - Condition 12 of ECA Requirements; AND FURTHER THAT

7. CLOSED SESSION

1

3

24

Draft Motion:

BE IT RESOLVED THAT this Special Council meeting proceed in camera at p.m., under section 236 of the Municipal Act. 2001 as amended, in order to address matters pertaining to:
(2)(b) Personal matters about identifiable individuals, including municipal employees and
(2)(d) Labour relations or employee negotiations regarding personal matters and employment of administrative personnel.

8. **ADJOURNMENT**

Draft Motion:

BE IT RESOLVED THAT this meeting adjourn at p.m.



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Temagami North Sewage Treatment Plant

History

- May 25/15 ECA # 9498-9V7J5Y was issued to the town of Temagami. The application for this ECA was prepared and applied for by the Engineering Group of OCWA.
- Under Item 12 of this ECA
“ Installation of an Effluent Disinfection System, it stated”

Within eighteen (18) months of the issuance date of this approval, the Owner shall submit an application to the Director for the installation of an effluent disinfection system for the Works along with a detailed design drawing, specifications and design calculations for the Proposed Works for approval by the Director.

In OCWA's reporting letter of September 23rd, 2015, they made several observations regarding the intention behind Condition 12 of the new ECA.

1. This condition (12) was added to address the high E. Coli levels in the Lagoon effluent, especially during the winter season which was likely due to short-circuiting of the Lagoon
2. The installation of a disinfection system generally follows the MOECC policies to meet the Coli effluent limits consistently to minimize potential impact to the natural biota, drinking water and recreational use of the receiver. The installation of a disinfection system is also an expensive undertaking.
3. Further, we (OCWA) recommend the Municipality should apply for the Ontario Community Infrastructure Fund or Small Communities Fund for sludge removal at the Lagoon, which could potentially reduce short-circuiting and aid the E. Coli issues.
4. They (OCWA) recommend the Municipality decide expeditiously how it intended to move forward with Condition 12 of the ECA taking into consideration that the preparation of the two reports will take time to complete.

Mitigation of Item 12

- As a result of the direction given in the ECA, the Municipality directed OCWA to approach the Ministry and propose a study be conducted as to the impact on the receiver by the lagoon and if disinfection was required.
- Agreement was reached with the MOECC to conduct a Surface Water Impact Study and prepare a preliminary design brief to address the issue.

- Report #1 - a detailed surface water impact assessment (dispersion modeling) of E. Coli to the receiving lake.
- Report #2 - a preliminary design brief of the existing sewage works which identifies potential causes of E. coli issues.

Following the advice of OCWA's Engineering Group, The Municipality of Temagami issued RFP PW-RFP-001-2016 to prospective consultants, to undertake and complete these assignments.

EXP was the successful proponent and the contract was awarded March 2017.

Extension to Condition 12

- In Stefanos Habtom, of the MOECC, email of August 2015, he indicated that if more time was required, the proponent could request an extension of the eighteen (18) months provided under Condition 12 of the ECA.
- As part of EXP's assignment, application was made an extension of the requirement date was adjusted to May 25, 2018. (ECA # 1975-AN3RZW) dated June 21, 2017

New ECA

- On June 21/17 a new ECA #1975-AN3RZW, applied for by EXP, on behalf of the Municipality, was issued.
- Under Item 13 of the new ECA
“ Installation of an Effluent Disinfection System, it stated”

Before May 25, 2018, the Owner shall submit an application to the Director for the installation of an effluent disinfection system for the Works along with a detailed design drawing, specifications and design calculations for the Proposed Works for approval by the Director.

Report #1

Surface Water Impact Study

- Sampling was initiated in May 2017 and was completed in August 2017
- Sample results indicated the lagoon was having an effect on Net Lake
- Report was completed and delivered to the Municipality and the MOECC.
- This finding brought Item 13 back in play.

OCIF Application

- OCIF criteria indicated funding was available to the Town of Temagami with applications required to be submitted by September 27th, 2017.
- Following the recommendation in OCWA's Reporting Letter, an OCIF Application was submitted to the funding agency. Part of the application was the SWIS report (Report #1), Sewage Treatment Plant Proposal & Drawings (Report #2)
- Funding for the project was denied.

Issues Surrounding Disinfection of the Existing Facility

- There is no footprint for construction of a disinfection facility nor any way to bypass the lagoon during construction.
- The lagoon would need to be dredged.
- In order to take the lagoon off line to dredge, it may require portable treatment equipment as well as significant temporary structural changes.

Estimated Costs for Lagoon Rehabilitation and Disinfection

- Lagoon sludge removal with on site storage (Geotubes) approximately \$1M
- Preparation for new discharge structure approximately \$0.5M (sheet piling or a berm constructed into lagoon)
- UV disinfection approximately \$0.4M (close vessel UV units (2))
- New blower building with upgrades MCC and ferric sulphate storage approximately \$0.4M
- Engineering, Contract Administration, Site Supervision and ECA application \$0.15M
- Total estimated costs: **\$2.45M**



Temagami North Waste Water Treatment Plant Proposal

Rationale for Full Treatment

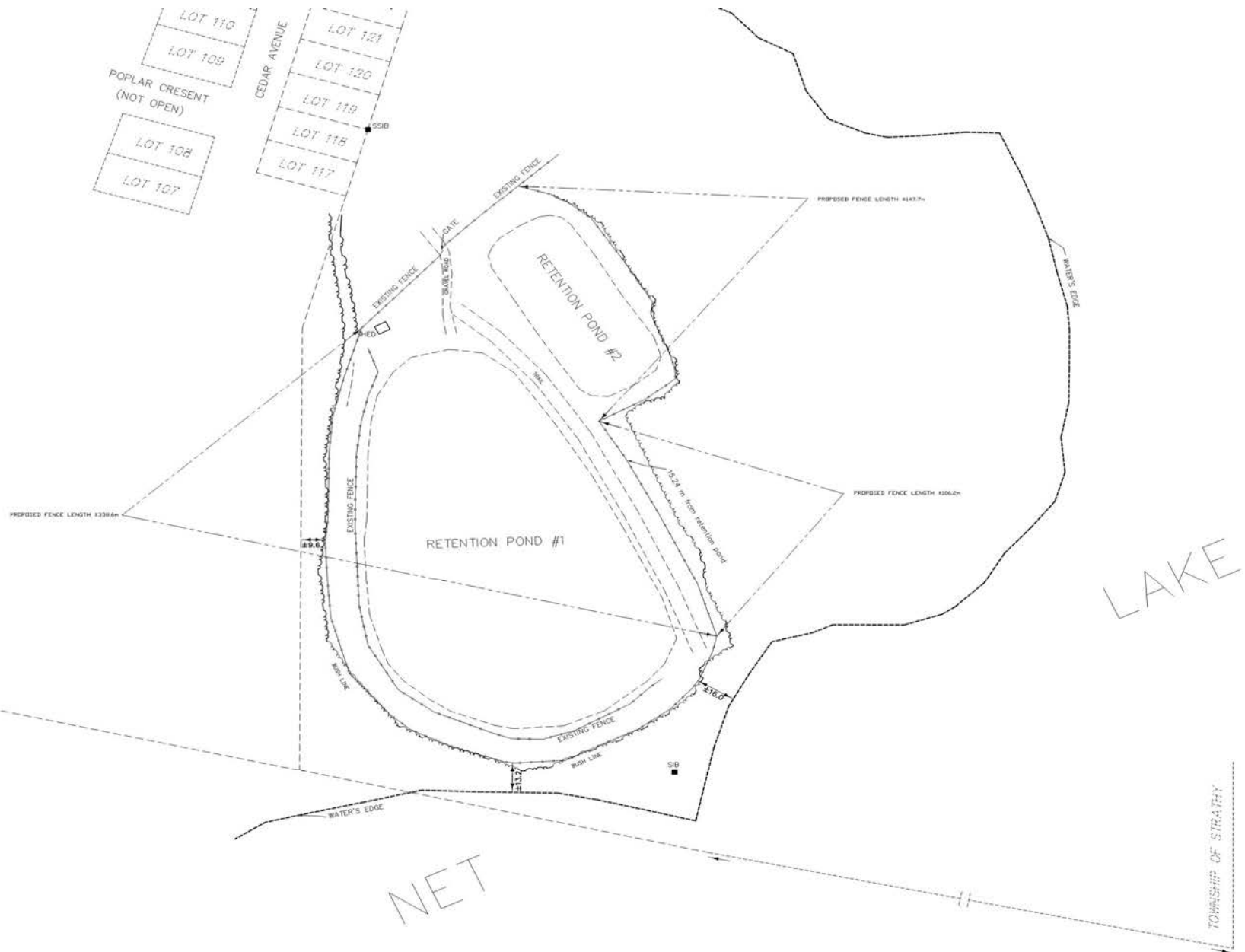
- Full treatment would comply with the intent of the new ECA issued June 21st, 2017.
- Remove the present requirement for ferric addition, including all controls and appurtenances (pH Control)
- Ensure the effluent discharge from the works into Net Lake meets the Ministry's effluent quality requirements.



Proposed Solution

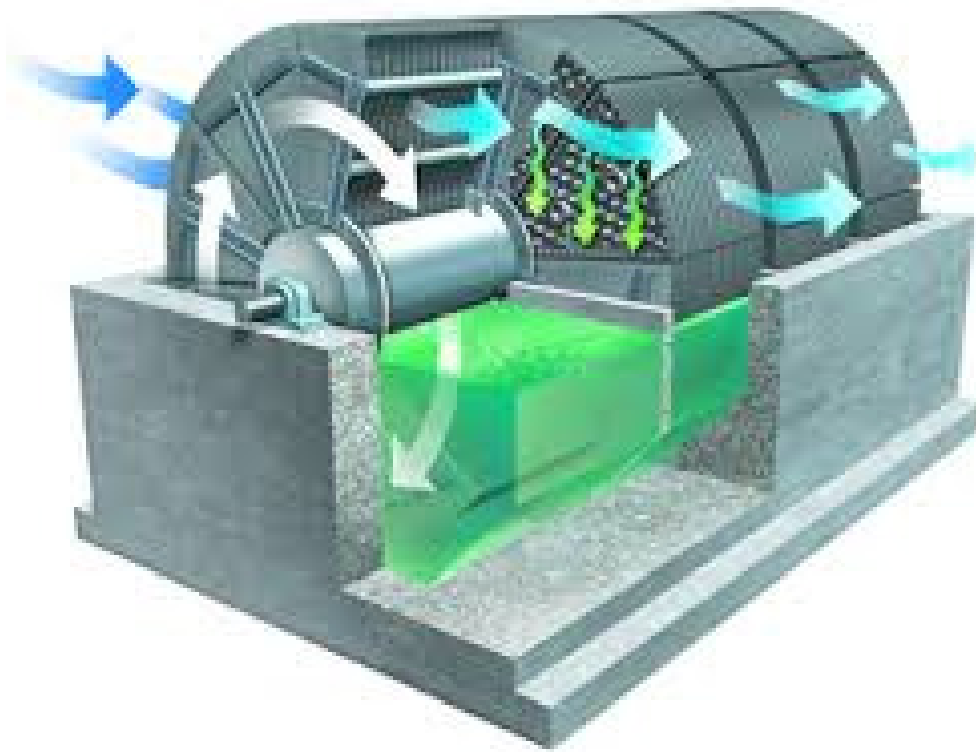
Rotating Biological Contactor

- Biofilms, which are biological growths, become attached to the discs and assimilate the organic materials in the wastewater.
- Aeration is provided by the rotating action, which exposes the media to the air after contacting them with the wastewater, facilitating the degradation of the pollutants being removed. The degree of wastewater treatment is related to the amount of media surface area and the quality and volume of the inflowing wastewater.



Proposed Solution

- RBC (Rotating Biological Contactor)



Facility Components

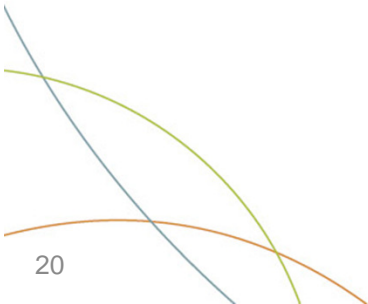
- A building to house the RBC's
- Bar screens and grit channels for primary treatment
- RBC units
- Clarifier
- Polishing pond (existing)
- Open Channel UV disinfection
- Discharge structure

Installation Representation

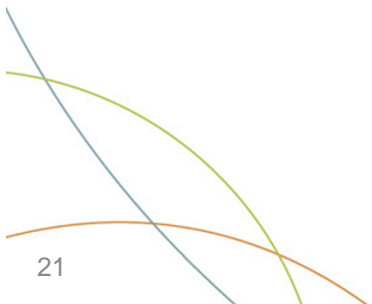
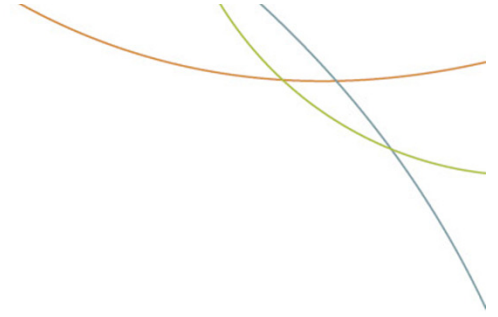


EXP'S Concerns

- Timelines are too tight to meet the May 25, 2018 deadline
- There is no simple solution
- The MOECC does not appear to be receptive to an extension to the time line



Questions?



From: Duquette, Lori (MOECC) <Lori.Duquette@ontario.ca>
Sent: Thursday, March 1, 2018 10:13 AM
To: Elaine Gunnell; Patrick Cormier
Cc: Michael Del Monte; Shawn Sadler
Subject: Temagami North Lagoon - Condition 12 of ECA requirements
Attachments: Temagami North Lagoon ECA 1975-AN3RZW.pdf; NWL-01601031 Temagami North Lagoon surface water impact summary report FINAL.pdf; Ministry's Technical Support Temagami North Lagoon Exp study 2017 comments.pdf

Elaine and Patrick,

As you may be aware Exp Services Inc. sent the Ministry the Surface Water Impact Assessment of the Temagami North Lagoon in December 2017 as part of actions required by Environmental Assessment and Permissions Division in lieu of compliance with condition 13 of ECA # 1975-AN3RZW. The study has been reviewed by the Northern Region Technical Support Section. Attached is a memo identifying their assessment of the report and recommended actions.

Condition 13 of ECA # 1975-AN3RZW for the Temagami North Lagoons requires the following actions:

Before May 25, 2018, the Owner shall submit an application to the Director for the installation of an effluent disinfection system for the Works along with a detailed design drawings, specifications and design calculations for the Proposed Works for approval by the Director.

However, Environmental Assessment and Permissions Division has permitted the municipality to do the following in lieu of simply complying with the actions required by condition 13 of the ECA:

1. complete a surface impact assessment study of the receiving surface water;
2. submit the study to Tech Support for review and recommendations
3. Before the deadline in condition 13 (i.e. May 25, 2018), submit an application to Environmental Assessment and Permissions Division for amendment of the existing ECA including:
 - a) the Tech Support review and recommendations;
 - b) detailed design brief of the existing sewage works; and
 - c) design specification for an effluent disinfection system if required based on the completed study.

As the completion of the surface water assessment and submission of the report to the Ministry for review by the North Region Technical Support Section were the first two steps in the actions required to be completed, the municipality must ensure that all of the actions required by item 3 noted above are completed prior to the ECA deadline of May 25, 2018.

Please do not hesitate to contact me if you have any questions.

Regards,

Lori Duquette, Water Inspector/Provincial Officer Badge # 812 | Drinking Water and Environmental Compliance Division – North Bay Office | **Ontario Ministry of the Environment and Climate Change** | 191 Booth Road, Unit 16 & 17, North Bay, Ontario, P1A 4K3 | ph: 705-495-3804 or 1-800-609-5553 | fax: 705-497-6866 | lori.duquette@ontario.ca

January 19th 2018

MEMORANDUM

TO: Lori Duquette, Senior Environmental Officer, North Bay Office

FROM: Rod Sein, Surface Water Specialist, Northern Region

RE: North Temagami Lagoon EXP 2017 study Net Lake

This memo addresses the October 26th, 2017 Surface Water Impact Assessment-Temagami North Lagoon final report prepared by exp Services Inc. The exp report was requested by MOECC to support the request of the Municipality to remove condition 12 of the ECA regarding the installation of an *E. coli* disinfection system for treatment of the final effluent prior to discharge into Net Lake. *E.coli* disinfection is generally not required in properly operating lagoon systems. The 2008 Sewage Design Guideline document recommends two criteria for *E.coli* counts in final effluent. The monthly geometric mean counts should not exceed 200 organisms per 100mL in any STP discharge. This may be relaxed if the effluent is shown to cause no *“adverse effects on downstream beneficial water uses.”* In the case where there is combined sewage overflows, and *“where the sewage discharge affects swimming and bathing beaches and other areas where there a health concerns”* the effluent must be disinfected and counts cannot exceed 1000 organisms per 100 mL. The PWQO for *E.coli* is 100 organisms per 100mL.

Background

The ECA specifies monthly sampling for *E.coli* in the final effluent. Prior to 2006, more than one sample was collected enabling a geometric mean to be calculated. In 2011, extremely elevated *E. coli* counts were measured in the final effluent during the winter months, (January-April). In years preceding and after 2011, *E. coli* counts of this magnitude were sporadic in nature however counts did exceed 1000 organisms per 100 mL 12X and over 200 organisms per 100mL 40X. Elevated counts were mostly

observed during the winter months. Counts of this magnitude strongly suggest that the lagoon is not operating properly.

Jan. 2006	38,000
Jan. 2011	83,200
Feb. 2011	220,000
Mar. 2011	70,000
Apr. 2011	60,000
Jan. 2012	2,400
Feb. 2013	19,400
Jan. 2014	1,600
Jan.2017	5600
Mar.2017	2700
Dec.2017	2700

The effluent discharges into Net Lake which is a recreational water body.

In addition to reviewing the exp report, I examined lagoon *E. coli* data for the period 2002-2017 in conjunction with weather data from the closest station located at Earlington airport.

Receiving waters

Net Lake (759 ha., mean depth 8.1m maximum depth 42.7m) has two main basins, west and east that are separated by a narrows. There is a public beach in the east basin as well as a municipal drinking water intake. The intake is located approximately 500m north of the lagoon's outfall. Both of these features are upstream of the lagoon's discharge as the lake flows in a southwesterly direction into Cassels Lake. The exp study was requested so that the impact of the lagoon's effluent on Net Lake could be determined. The following comments pertain to the report and address the conclusions and recommendations contained therein.

1. A total of 15 discrete sites within Net Lake were sampled by exp staff during the months of May-August 2017. One water sample was collected at each site. *E.coli* counts were all well below PWQO. The highest count (53 organisms per 100mL) was found at a background location located in the narrows between the two basins of the lake.
2. A model (WASP 8) was used to simulate *E.coli* dispersion from the outfall by using a conservative tracer. This is a commonly used approach. The results of the model were somewhat predictive of nearfield counts but did not accurately predict bacteria counts in the background station.
3. No in situ monitoring was used to supplement the model therefore there is uncertainty as to the behavior of the outfall plume from the lagoons.
4. *E.coli* counts from May-August were very low (5 organisms per 100mL). Since there is only one data point from the lagoon *E.coli* variability is unknown. If counts remained low throughout May-August then the higher counts observed upstream at background station 2 are likely from another source as mentioned.

5. Since the high effluent counts typically occur in the winter, the only sector of the population that may be at risk would be ice-fishers in the near field of the outfall. However this would have to involve both the presence of high *E. coli* counts in the lake water as well as the consumption of this contaminated raw lake water. Since no winter sampling has occurred when the *E. coli* counts were highest (>1000) the impact of these high counts on Net Lake remains unknown.
6. In my analysis of the *E.coli* and weather data, I discovered a positive correlation between summer total precipitation and winter *E. coli* counts. This does provide some insight into the sporadic nature of the elevated counts (years with more summer rain may lead to higher *E. coli* in the winter...less rain lower counts). It may suggest that short circuiting of the effluent is occurring, but there are certainly other factors, both physical and environmental that may contribute to the high variability observed in *E.coli* counts e.g. Ice cover, snowfall, runoff.
7. Based on my assessment of the historic data from the municipality, the lagoon cannot consistently produce *E. coli* counts that are within provincial guidelines during the winter months. As discussed above the reasons may be related to summer rainfall and effluent short circuiting.

Recommendations

1. Since short circuiting of the effluent may be occurring, an assessment of the lagoons is necessary. Dredging maybe required to provide better mixing and more detention time of the effluent.
2. I would like to see an increase the monitoring frequency of *E. coli* to weekly so that bacterial variability can be assessed.
3. Since the highest *E. coli* counts occur in the winter months, winter monitoring of conditions under the ice would help to assess bacterial water quality near the lagoon outfall.
4. Use of in situ techniques to map outfall dispersion would be beneficial (e.g. dye study).

Rod Sein



RS/rs/

Municipality of Temagami

Surface Water Impact Assessment – Temagami North Lagoon

Type of Document:

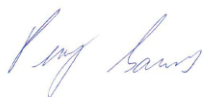
Final Report

Project Name:

Surface Water Impact Assessment – Temagami North Lagoon

Prepared By:

exp Services Inc.
885 Regent Street
Sudbury, ON P3E 5M4
Canada
T: 705.674.9681
F: 705.674.5583
www.exp.com



Perry Sarvas, P.Geo.
Project Manager, Earth & Environmental
Sudbury, ON

Date Submitted:
2017-10-26



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1 Introduction

Exp Services Inc. (**exp**) was retained by the Municipality of Temagami (“the Municipality”) to provide a detailed surface water assessment report of E. coli from the Temagami North Lagoon to the receiving lake (Net Lake). The report is required to address the potential removal of Condition 12 of the Temagami North Lagoon’s Environmental Compliance Approval (“ECA”), which stipulates the installation of a disinfection system for the sewage works.

The surface water impact assessment was based on surface water quality monitoring and dispersion modelling.

2 Scope of Investigation

The following was undertaken to complete the scope of work for this project:

2.1 Data Review and Consultation

Exp attended meetings in person or via telephone. Meeting participants included Municipality personnel and personnel from the Ministry of Environment and Climate Change (MOECC). The objective of the meeting was to establish information requirements and expectations of the MOECC and to gather information for the study.

Exp reviewed the following information on the Temagami North Lagoon and Net Lake, as provided by the Municipality and other sources:

- Amended Environmental Compliance Approval Number 9498-9V7J5Y for the Temagami North Lagoon.
- Effluent discharge sample data from the Temagami North Lagoon.
- A preliminary E. coli dispersion estimation from Ontario Clean Water Agency (OCWA).
- A letter from OCWA dated September 23, 2015 concerning Condition 12 of the ECA.
- Net Lake mean level and flow data for hydrot stations 02DC010 and 02JE028 from Environment Canada data.
- Net Lake Broad-scale Fisheries Monitoring Bulletin from Ontario Ministry of Natural Resources and Forestry (ONRF), generated March 4, 2016.
- Net Lake bathymetry map by ONRF, generated from survey data obtained August 1970.
- Net Creek Dam compliance monitoring graph, 2014. From Matabitchuan River Water Management Plan Standing Advisory Committee 2014 Annual Report.
- Temagami North Drinking Water System 2015 Annual/Summary Report by OCWA.

2.2 Surface Water Monitoring

Exp conducted a surface water monitoring program of Net Lake in the vicinity of the Temagami North lagoon. A total of six surface water monitoring locations were established in Net Lake. Drawing 1 shows the surface water monitoring locations, which included two background monitoring locations upstream of the lagoon (Background-1 and Background-2), a station at the location of Temagami North drinking water system intake, (DW) a station adjacent to the lagoon outlet (Lagoon), a station in the central part of east Net Lake downstream of the lagoon (NL), and a station in Outlet Bay upstream of the Net Creek Dam outflow (OB).

Exp conducted monitoring on May 4, June 15, July 13 and August 9, 2017. Field monitoring included measurements of water temperature, dissolved oxygen and conductivity at each monitoring station. Water samples were collected at either one, two or three depth intervals at each station (depending on water depth): 1 m below water surface, 3 m below water surface and 1 m above lake bottom. The samples were collected using a Van Dorn sampler. The water samples were submitted to AGAT Laboratories for analysis of E. coli, total phosphorus

and pH. Information on sampling locations and specifications are provided in Table 2.1. Field measurements and analytical results are provided in Appendix B.

2.3 Preparation of Dispersion Model

Exp developed a preliminary dispersion model for the Temagami North Lagoon outflow into Net Lake.

For the numerical dispersion model, the US-EPA Water Quality Analysis Simulation Program (WASP) was used. **Exp** used the WASP8 version. This model is a dynamic compartment-modeling program for aquatic systems which allows for investigation of 1, 2, and 3 dimensional systems and a number of pollutant types. WASP allowing for time varying processes of advection, dispersion, point and diffuse mass loading and boundary exchange. WASP8 has a pre-processor, a data processor, and a graphical post-processor that enable the modeler to run WASP and evaluate model results both numerically and graphically.

The WASP8 system consists of two stand-alone computer programs, DYNHYD5 and WASP8. The hydrodynamics program, DYNHYD5, simulates the movement of water while the water quality program, WASP6, simulates the movement and interaction of pollutants within the water. The basic principle of both the hydrodynamics and water-quality program is the conservation of mass. The water volume and water-quality constituent masses being studied are tracked and accounted for over time and space using a series of mass balancing equations. The hydrodynamics program also conserves momentum, or energy, throughout time and space.

For Temagami North Lagoon outflow to Net Lake, **exp** used WASP8's Advanced Toxicant model type with Euler solution for fluid flow. A conservative "Tracer Solid" was used to simulate the dispersion of e. coli. We selected the Kinematic Wave hydrodynamic flow option to simulate advective flow. Kinematic Wave simulated one-dimensional flow wave propagation and resulting variations in flow, depths and velocities for the model system. A total of seven (7) segments were constructed; however, one segment (N.Net Lake) was not incorporated into the flow simulation. Three flow systems were incorporated into the model, including Main Flow from the west and northwest parts of Net Lake, North Flow from the northeast section of Net Lake and Lagoon, which simulated lagoon outflow into Net Lake. Outflow for the model was established at a boundary at the Downstream segment.

The model was run for the time interval between January 15, 2014 and July 15, 2016. Net Lake outflow input data for this time period was based on Environment Canada measurements at the Net Creek Dam HYDAT station. Temagami North Lagoon outflow and E. coli. input data for this time period was based on data provided by the Municipality.

A schematic of the model segments and input parameters for the WASP8 model are provided in Appendix C.

3 Findings

3.1 Net Lake Hydrology and Lagoon Outflow

Net Lake is part of the Matabitchuan River System, which is controlled due to the presence of the Ontario Power Generation Inc. Matabitchuan Generating Station. The Matabitchuan River Water Management Plan dictates operational plans and activities, including control and monitoring at the three dams: the Net Lake Dam, the North Milne Dam and the Rabbit Lake Dam.

MNRF (2016) state that Net Lake has a surface area of 759 hectares, a maximum depth of 42.7 m and an average depth of 8.1 m. Net Lake has a large catchment, with numerous streams discharging into the north, west and south sides of the lake. Outflow is at the southeast end of Net Lake into Net Creek, which is controlled by the Net Creek Dam. The Matabitchuan River Water Management Plan dictates that the Net Creek Dam control the water level at a maximum of 297.05 m above mean sea level (asl), a minimum of 295.30 m asl between the fall and spring and a summer minimum of 296.16 m asl. Net Creek discharges to Cassels Lake approximately 500 m downstream of the Net Creek Dam.

Between 2010 and 2015, average outflow at the Net Creek Dam was just under 5 cubic metres per second (m^3/s). During this period, the minimum monthly average flow was $0.25 \text{ m}^3/\text{s}$ and the maximum monthly average flow was $26.6 \text{ m}^3/\text{s}$. Seasonal high flows were in the spring and seasonal low flows were in the summer.

The Temagami North Lagoon outflows to the south-central part of Net Lake, approximately 600 m east of the Highway 11 bridge. The lagoon is downstream of the west and northwest parts of Net Lake, and upstream of the northeast and east parts of Net Lake. The lagoon is approximately 5 km upstream of the Net Creek Dam.

Between 2010 and 2016, average outflow at the Temagami North Lagoon was $0.0036 \text{ m}^3/\text{s}$. During this period, the minimum monthly average flow was $0 \text{ m}^3/\text{s}$ and the maximum monthly average flow was $0.024 \text{ m}^3/\text{s}$. Seasonal high flows were in the winter and seasonal low flows were in the fall.

Between 2010 and 2016, the average E. coli. level in the Temagami North Lagoon effluent was 5,500 cfu/100 mL. However, this average appears to be skewed by unusually high levels in the winter and spring of 2011. When these levels are removed from the dataset, the average E. coli. level in the Temagami North Lagoon effluent was 457 cfu/100 mL. During this period, the minimum monthly average E. coli. level effluent was 5 cfu/100 mL and the maximum monthly average E. coli. level effluent was 220,000 cfu/100 mL. Seasonal high e. coli. Levels were in the winter and seasonal low E. coli levels were in the summer.

The Temagami North Drinking Water System's facilities are located approximately 0.3 km north of the lagoon. The water intake for the drinking water system is located in the northeast part of Net Lake, approximately 0.5 km upstream of the lagoon outflow point. OCWA (2016) stated that the intake is located 10 m below the low water level of the lake. The system is approved for the taking of water at a maximum of $460 \text{ m}^3/\text{day}$ and a maximum rate of 456 L/minute. E. coli. was not detected in a total of fifty-two (52) raw water samples from the drinking water system in 2015.

3.2 Surface Water Monitoring Results

Analytical results and field measurements for the Net Lake surface water monitoring are provided in Appendix B. Analytical results for E. coli, total phosphorus and pH are presented graphically in Figures B.1 and B.2.

E. coli. was detected in the water samples immediately downstream of the Temagami North Lagoon outflow. The Lagoon-S, Lagoon-M and Lagoon-D stations detected E. coli at least once in the four sampling events.

However, E. coli was also detected consistently in the samples from Background-2, which is located approximately 500 m west (and supposedly upstream) of the lagoon. Additionally, E. coli. was detected in water samples from all locations (except the NL location) in the August 9 water samples. This included the highest E. coli level – 53 CFU/mL in the deep sample from Background 2. This results appears to be anomalous.

Total phosphorus generally ranged between 0.005 mg/L and 0.015 mg/L in the water samples, with no apparent pattern related to the lagoon outflow. The highest total phosphorus level of 0.029 mg/L was recorded in the June 15 sample from Background-2S.

The pH levels generally ranged between 7.10 and 7.60 in the water samples, with no apparent pattern related to the lagoon outflow. The highest pH level of 7.68 was recorded in the June 15 sample from OB-D and the lowest pH level of 6.51 was recorded in the May 4 sample from Background-2S.

3.3 Dispersion Model Output

As described in Section 2.3, a conservative tracer was used to simulate the dispersion of e. coli. in the WASP8 model. The tracer was loaded to the Lagoon model segment based on monthly average E. coli concentrations in raw effluent and lagoon outflows from 2014 to 2016. Output from the WASP8 model is provided in Appendix C. The modelled tracer concentrations in the Lagoon, CentralNetLake, Downstream and Upstream segments are shown graphically in Figure C.1 to Figure C.4.

The model output showed tracer concentration in the Lagoon segment fluctuating between 0.1 mg/L and 9.5 mg/L. The Upstream model segment showed the tracer to essentially be not be present (consistently <0.2 mg/L). Further downstream from the Lagoon tracer loadings, the model segment CentralNetLake showed the tracer to fluctuate between 0.1 mg/L and 1.75 mg/L. In the Downstream segment, the tracer fluctuated between 0.1 mg/L and 1.6 mg/L.

4 Summary and Discussion

The findings of this study indicate that the Temagami North Lagoon is discharging to Net Lake, and that the dispersion of effluent appears to be influenced by a complex hydrodynamic system.

Data on the Temagami North Lagoon show that average outflow was 0.0036 m³/s between 2010 and 2016, ranging between 0 and the maximum monthly average flow was 0.024 m³/s. Seasonal high flows were in the winter and seasonal low flows were in the fall. During this time period, the average E. coli. level in raw effluent was 5,500 cfu/100 mL ranging between a minimum monthly average of 5 cfu/100 mL and a maximum monthly average of 220,000 cfu/100 mL. Seasonal high e. coli. levels were in the winter and seasonal low E. coli levels were in the summer.

Water quality monitoring in May, June, July and August 2017 showed E. coli. consistently detected in samples closest to the Lagoon outflow. However, E. coli was also consistently detected in samples from the Background-2 station, which was 500 m west (and technically upstream) of the lagoon outflow. E. coli was also detected in multiple locations in the August samples, including stations in northeast Net Lake (again, technically upstream of the lagoon outflow).

Utilizing the US-EPA WASP8 modeller, a dispersion model for Net Lake downstream of the lagoon was constructed. A conservative tracer was used to simulate E. coli dispersion. The model showed a dispersion pattern that had tracer concentration fluctuating between 0.1 mg/L and 9.5 mg/L immediately downstream of the lagoon outflow, fluctuating between 0.1 mg/L and 1.75 mg/L in the central segment of the model and fluctuating between 0.1 mg/L and 1.6 mg/L in the downstream boundary segment of the model.

The WASP8 model output showed tracer concentration fluctuation (between 0.1 mg/L and 9.5 mg/L) in the Lagoon segment. These results are somewhat similar to the E. coli. fluctuations in the water samples from the Lagoon monitoring station on Net Lake ("non-detect" to 10 CFU/100 mL).

However, model outputs for other segments do not correlate with the 2017 water quality monitoring results from Net Lake, including the persistence presence of E. coli. in Background-2 samples, the detection of E. coli. in the northeast part of Net Lake (Background-1 and DW stations) and the high E. coli. count in the August sample from the west end of Net Lake. These results suggest that other potential sources of E. coli. may be contributing to water quality in Net Lake. However, the E. coli levels at the Background-2 station may also be attributable to eddies, backflow, calm-water dispersion or other hydrodynamic patterns in Net Lake. It is possible that the Temagami North lagoon may be the source of E. coli at Background-2.

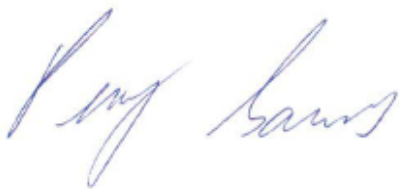
5 Conclusions

The preliminary findings indicate that outflow from the Temagami North Lagoon is impacting Net Lake and E. coli. is being dispersed downstream of the lagoon.

A more rigorous study, including a more detailed field monitoring program, is required to characterize the hydrodynamics of Net Lake downstream of the lagoon. This characterization is necessary in order to properly simulate the dispersion of E. coli. in Net Lake.

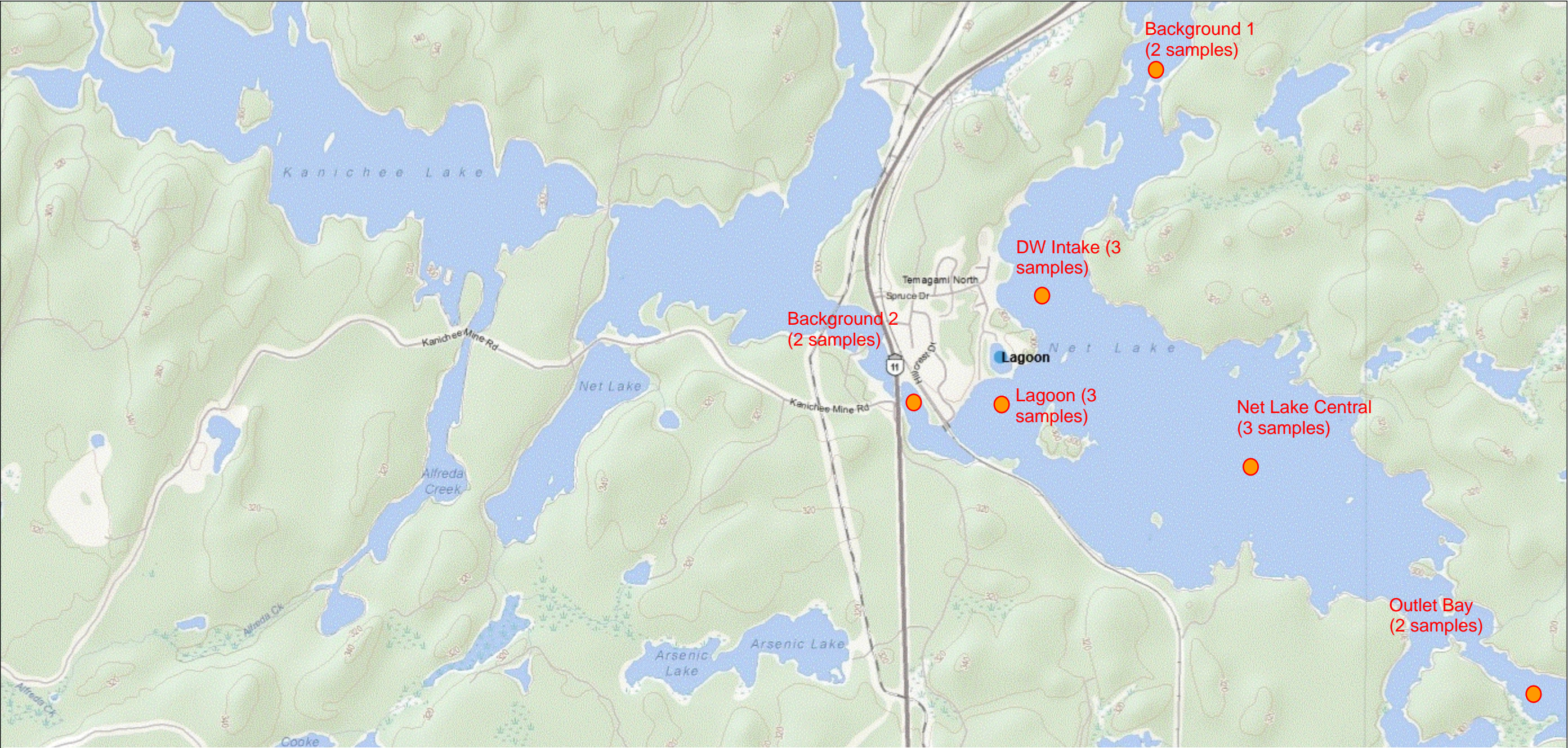
Yours truly,

exp Services Inc.



Perry Sarvas, P.Geo.
Senior Hydrogeologist
Earth & Environmental

Appendix A – Drawings



Legend

Building as Symbol

Building to Scale

Airport

Helicopter \ Hospital Helicopter

Seaplane Base

Ferry Route

Trail Head \ Trail

Railway \ Train Station

Railway with Bridge

Railway with Tunnel

Road (Major -> Minor)

Winter Road

Road with Bridge

Road with Tunnel

Primary, Kings or 400 Series Highway

Secondary Highway

Tertiary Highway

District, County, Regional or Municipal Road

Toll Highway

One Way Road

Road with Permanent Blocked Passage

Road with Address Ranges

Hydro Line, Communication Line or Unknown Transmission Line

Natural Gas Pipeline, Water Pipeline or Unknown Pipeline

Spot Height

Index Contour

Contour

Wooded Area

Wetland

Waterbody

Waterbody Elevation

Watercourse

Falls

Rapids

Rapids \ Falls

Rocks

Lock Gate

Dam \ Hydro Wall

Dam \ Hydro Wall

Provincial \ State Boundary

International Boundary

Upper Tier \ District Municipal Boundary

Lower Tier \ Single Tier Municipal Boundary

Lot Line

Indian Reserve

Provincial Park

National Park

Conservation Reserve

Military Lands

exp Services Inc.

Sudbury Branch
t: +1.705.674.4401 | f: +1.705.674.5583
885 Regent Street
Sudbury, ON P3E 5M4
Canada



www.exp.com

• BUILDINGS • EARTH & ENVIRONMENT • ENERGY •
• INDUSTRIAL • INFRASTRUCTURE • SUSTAINABILITY •

PROJECT TITLE AND LOCATION:

MONITORING LOCATIONS – AUGUST 2016
MERRICK WASTE DISPOSAL SITE
NORTH BAY, ON
CITY OF NORTH BAY

PROJECT NO.:

SUD-00003358-AE

SCALE:

AS SHOWN

DATE:

APRIL 2017

DWN.:

JN

CHKD.:

PS

FIGURE:

A.5

0 1.2 km

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Projection: Web Mercator



Appendix B – Monitoring Results

Analytical results from Net Lake monitoring stations, May to August 2017

Sample Description	Background-1S	Background-1B	Background-2S	Background-2B	DW-S	DW-M	DW-D	Lagoon-S	Lagoon-M	Lagoon-D
Escherichia coli (CFU/100 mL)										
May 4, 2017	-	-	2	ND	ND	ND	ND	2	-	4
June 15, 2017	ND	ND	4	2	ND	ND	ND	10	-	10
July 13, 2017	1	ND	1	4	ND	ND	ND	ND	ND	ND
August 9, 2017	2	ND	14	53	3	1	ND	2	1	ND
Total Phosphorus (mg/L)										
May 4, 2017	-	-	0.010	0.010	0.010	0.011	0.011	0.008	-	0.012
June 15, 2017	0.007	0.018	0.029	0.010	0.010	0.009	0.009	0.013	-	0.013
July 13, 2017	0.008	0.008	0.007	0.008	<0.006	0.008	0.008	0.007	0.008	0.006
August 9, 2017	0.010	0.012	0.013	0.018	0.011	0.010	0.016	0.009	0.010	0.012
pH										
May 4, 2017	-	-	6.51	7.01	7.23	7.28	7.28	7.26	-	7.27
June 15, 2017	7.25	7.63	7.54	7.56	7.67	7.66	7.62	7.64	-	7.63
July 13, 2017	7.14	7.11	7.07	7.07	7.12	7.11	7.13	7.12	7.11	7.13
August 9, 2017	7.42	7.52	7.41	7.49	7.49	7.48	7.41	7.48	7.49	7.40

Sample Description	NL-S	NL-M	NL-D	OB-S	OB-D
Escherichia coli (CFU/100 mL)					
May 4, 2017	ND	ND	ND	ND	ND
June 15, 2017	ND	ND	ND	ND	ND
July 13, 2017	1	ND	ND	ND	1
August 9, 2017	ND	ND	ND	1	11
Total Phosphorus (mg/L)					
May 4, 2017	0.012	0.010	0.010	0.011	0.016
June 15, 2017	0.010	0.012	0.010	0.012	0.010
July 13, 2017	0.010	<0.006	0.008	<0.006	<0.006
August 9, 2017	0.011	<0.006	0.009	0.01	0.014
pH					
May 4, 2017	7.29	7.30	7.30	7.33	7.29
June 15, 2017	7.65	7.62	7.63	7.67	7.68
July 13, 2017	7.13	7.10	7.11	7.19	7.24
August 9, 2017	7.48	7.49	7.42	7.53	7.52

Field monitoring results at Net Lake monitoring stations, May to August 2017

Sample Description	Background-1S	Background-1B	Background-2S	Background-2B	DW-S	DW-M	DW-D	Lagoon-S	Lagoon-M	Lagoon-D
Temperature (°C)										
May 4, 2017	-	-	6.00	-	6.00	4.20	4.20	5.70	-	5.70
June 15, 2017	-	-	-	-	-	-	-	-	-	-
July 13, 2017	20.80	-	20.90	21.00	21.00	20.80	-	21.30	21.30	-
August 9, 2017	20.20	19.80	21.30	19.60	21.00	8.50	-	21.40	8.70	-
Dissolved Oxygen (mg/L)										
May 4, 2017	-	-	11.01	-	13.60	1.97	0.79	11.80	-	11.68
June 15, 2017	-	-	-	-	-	-	-	-	-	-
July 13, 2017	10.10	-	8.10	8.10	10.20	6.00	-	11.10	9.20	-
August 9, 2017	6.80	7.20	7.50	7.00	7.40	7.80	-	8.00	8.80	-
Conductivity (S/cm)										
May 4, 2017	-	-	0.00	-	0.00	0.00	0.00	0.00	-	0.00
June 15, 2017	-	-	-	-	-	-	-	-	-	-
July 13, 2017	0.07	-	0.05	0.05	0.08	0.07	-	0.06	0.06	-
August 9, 2017	0.08	0.08	0.22	0.21	0.07	0.05	-	0.23	0.15	-

Sample Description	NL-S	NL-M	NL-D	OB-S	OB-D
Temperature (°C)					
May 4, 2017	5.20	4.20	3.80	5.30	5.20
June 15, 2017	-	-	-	-	-
July 13, 2017	21.40	16.60	-	21.60	20.60
August 9, 2017	20.70	9.60	-	20.90	19.60
Dissolved Oxygen (mg/L)					
May 4, 2017	11.64	11.17	11.10	14.22	5.60
June 15, 2017	-	-	-	-	-
July 13, 2017	10.20	8.00	-	10.20	7.80
August 9, 2017	7.80	7.80	-	7.60	5.40
Conductivity (S/cm)					
May 4, 2017	0.00	0.00	0.00	0.00	0.00
June 15, 2017	-	-	-	-	-
July 13, 2017	0.07	0.06	-	0.08	0.09
August 9, 2017	0.10	0.12	-	0.11	0.10

Figure B.1. E. coli levels in Net Lake monitoring stations, May to August 2017

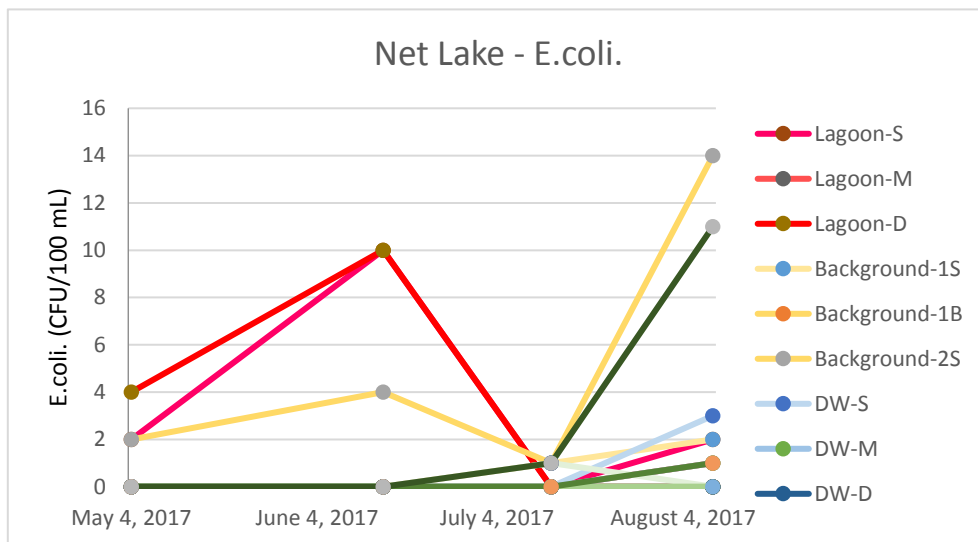
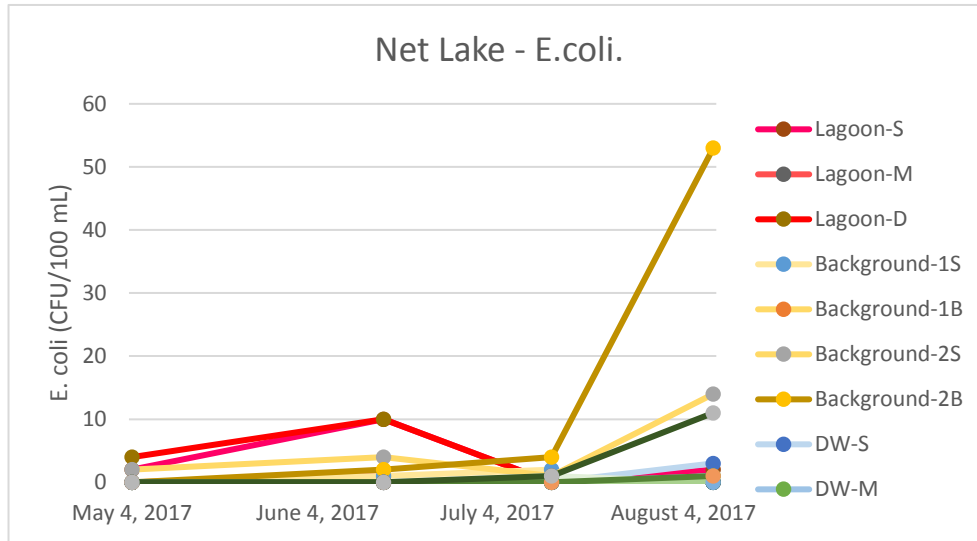
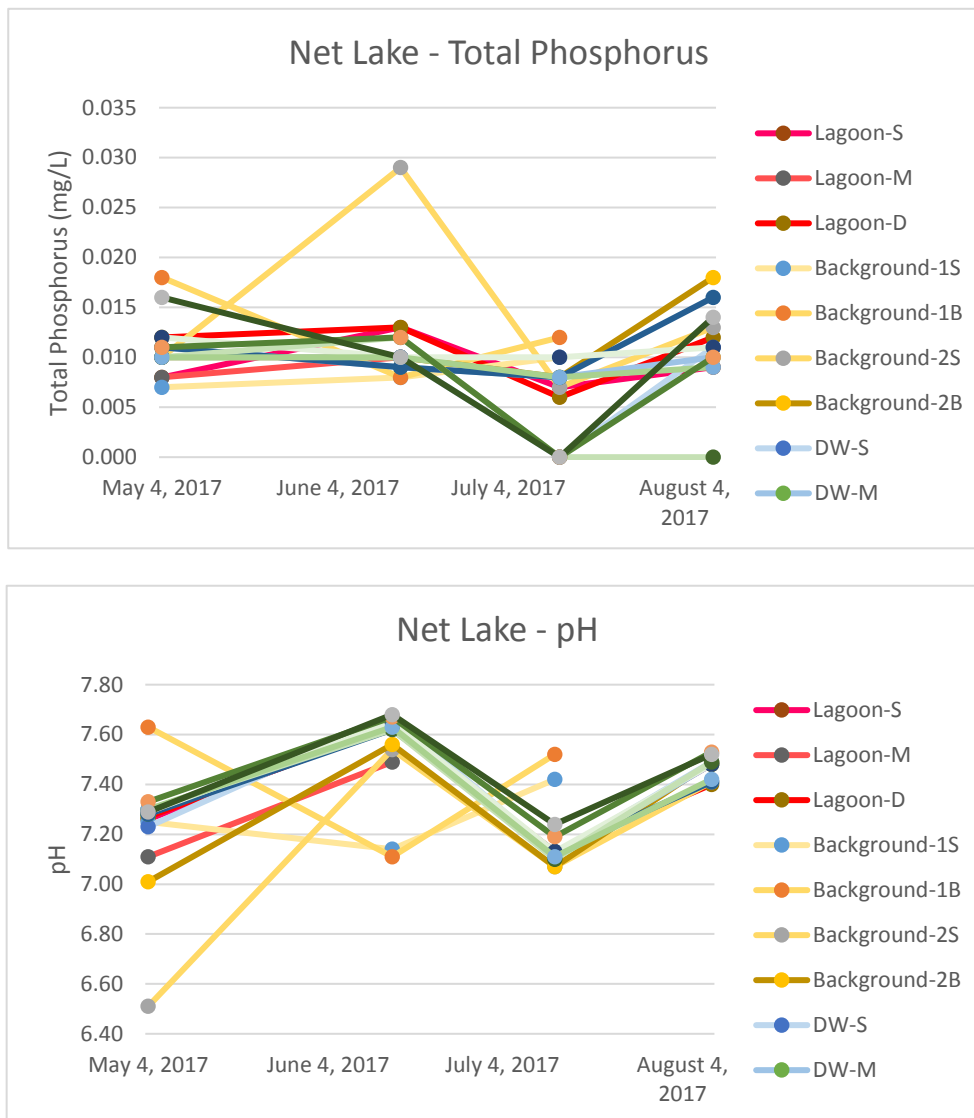


Figure B.2. Total Phosphorus and pH levels in Net Lake monitoring stations, May to August 2017



Appendix C – WASP8 Model Input and Output

Figure C.1. WASP 8 Model Output
Tracer concentration in Lagoon segment, 2014 - 2016

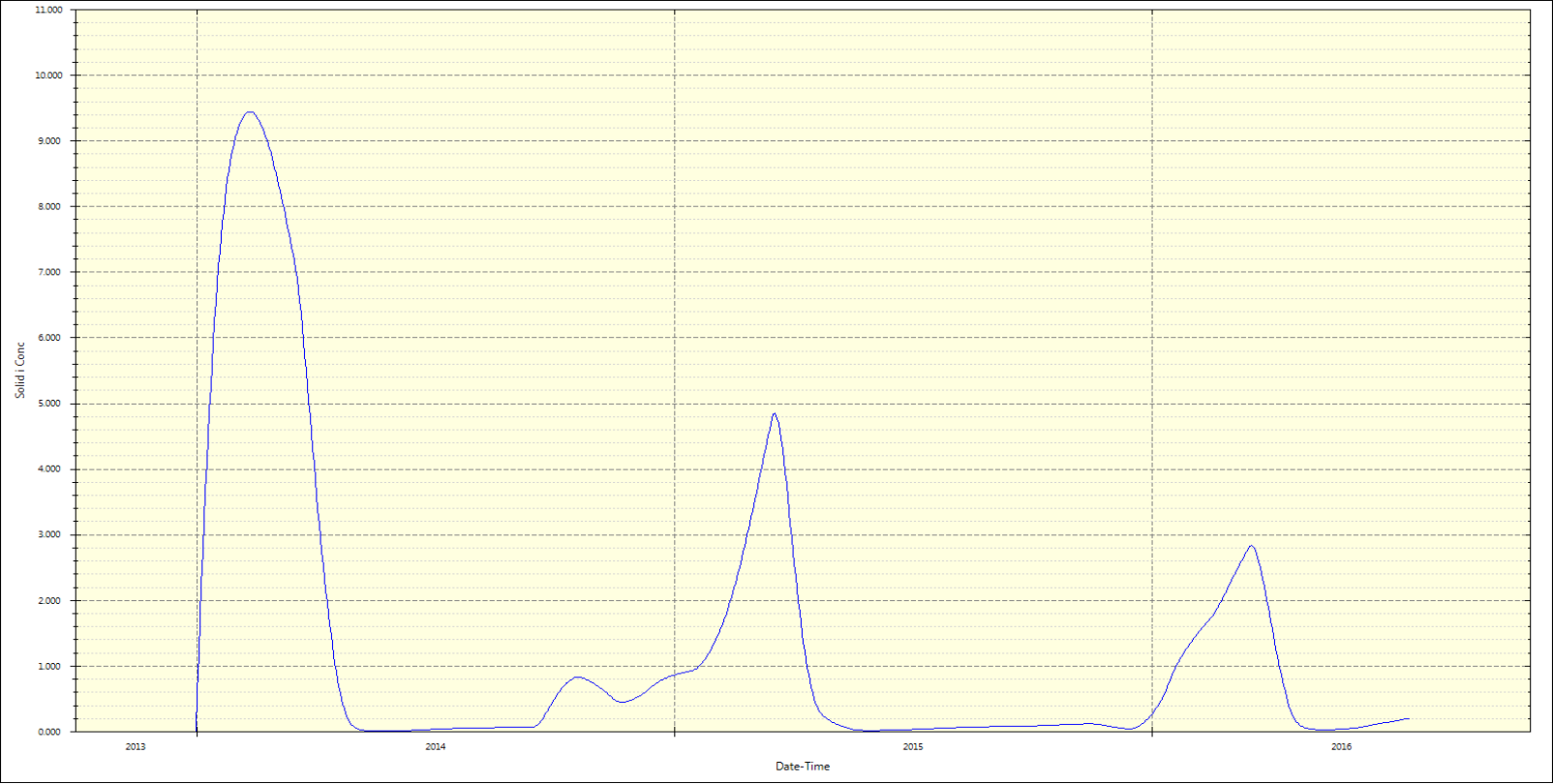


Figure C.2. WASP 8 Model Output
Tracer concentration in CentalNetLake segment, 2014 - 2016

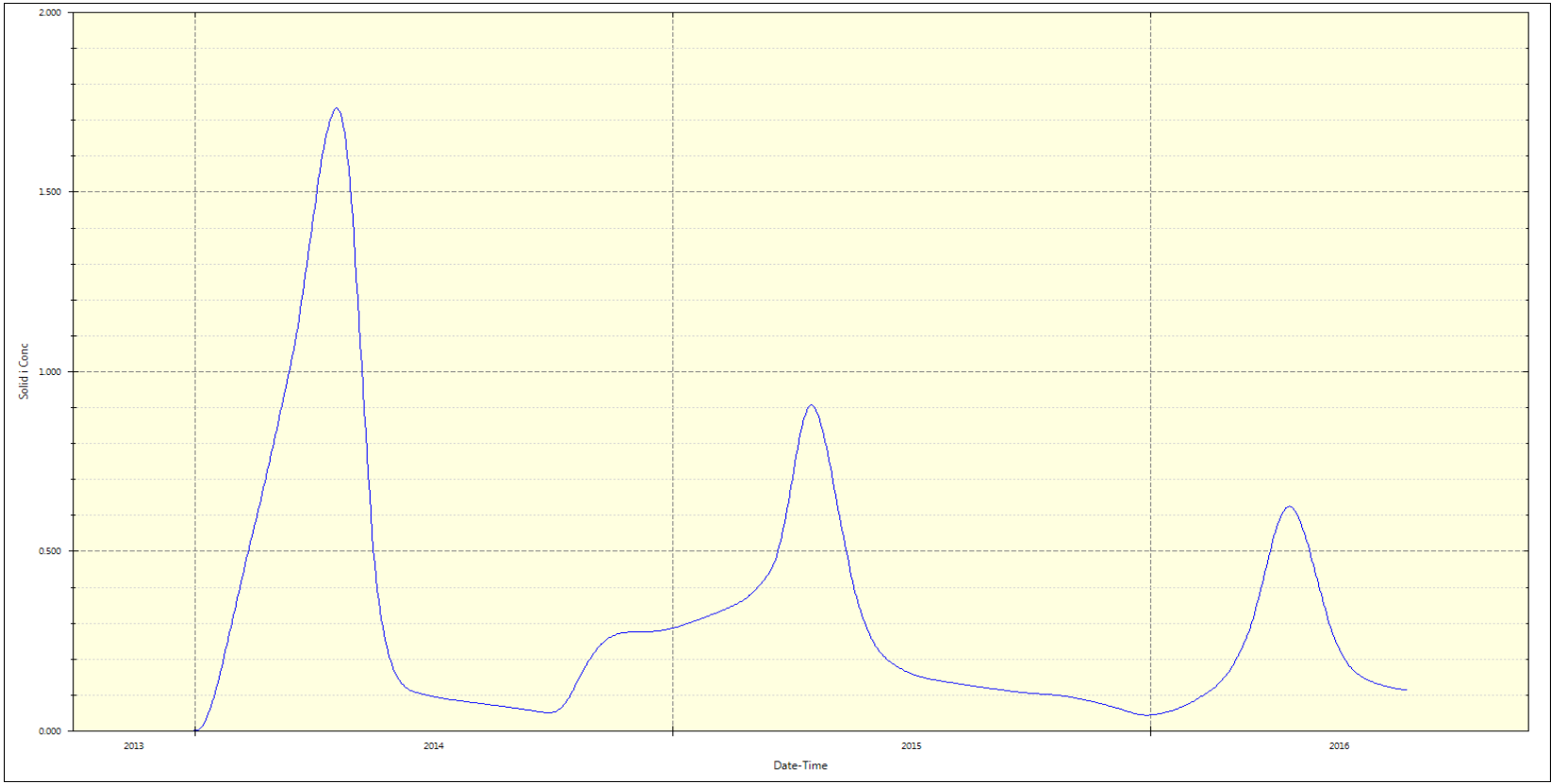


Figure C.3. WASP 8 Model Output
Tracer concentration in Downstream segment, 2014 - 2016

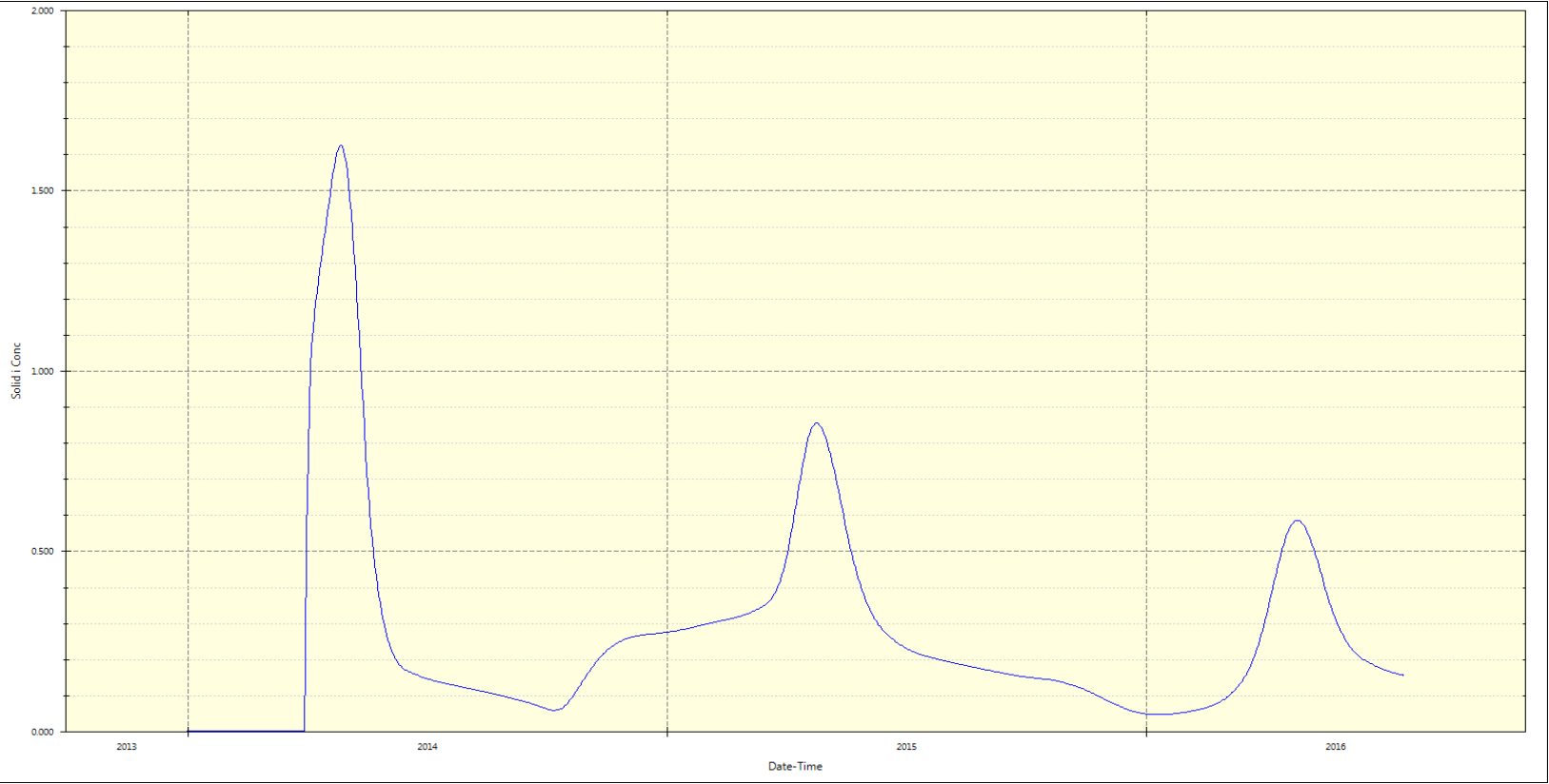
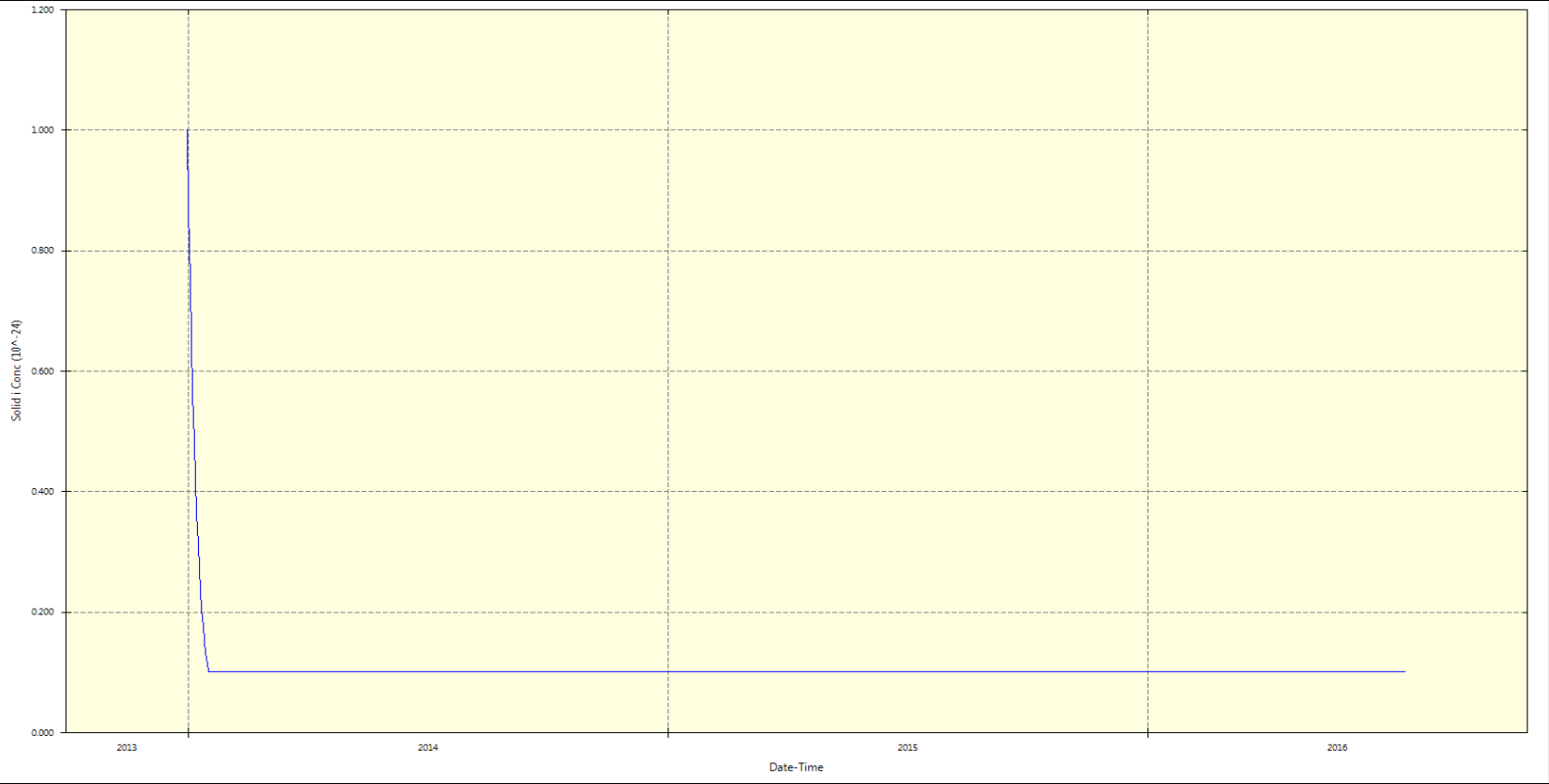


Figure C.4. WASP 8 Model Output
Tracer concentration in Upstream segment, 2014 - 2016



Net Lake WASP8 Model Input Parameters

System	Variable	Model Input
TAB	Lagoon 17	Lagoon 17
Data Set	Model Type	Advanced Toxicant
	Solution	Euler
	Start Date	1/15/2014
	End Date	7/15/2016
	Max Time Step	1
	Min Time Step	0.0001
Systems	System Type	SOLID
	System Name	Tracer Solid
	Particulate Transport	Solids 1
	Mass Balance	checked
	Density	1.000
	Dispersion Bypass	unchecked
	Flow Bypass	unchecked
Segments	UPSTREAM	
	Segment Type	Surface Water
	Transport Mode	Kinematic Wave
	Segment Below	None
	Initial Conditions	Tracer Solid 0
	Fraction Dissolved	Tracer Solid 0
	LAGOON	
	Segment Type	Surface Water
	Transport Mode	Kinematic Wave
	Segment Below	None
	Initial Conditions	Tracer Solid 0
	Fraction Dissolved	Tracer Solid 0
	NorthNetLake	
	Segment Type	Surface Water
	Transport Mode	Kinematic Wave
	Segment Below	None
	Initial Conditions	Tracer Solid 0
	Fraction Dissolved	Tracer Solid 0
	EastNetLake	
	Segment Type	Surface Water
	Transport Mode	Kinematic Wave
	Segment Below	None
	Initial Conditions	Tracer Solid 0
	Fraction Dissolved	Tracer Solid 0
	CENTRALNETLAKE	
	Segment Type	Surface Water
	Transport Mode	Ponded Weir
	Segment Below	None
	Initial Conditions	Tracer Solid 0
	Fraction Dissolved	Tracer Solid 0

	WestNetLake	
	Segment Type	Surface Water
	Transport Mode	Ponded Weir
	Segment Below	None
	Initial Conditions	Tracer Solid 0
	Fraction Dissolved	Tracer Solid 0
	DOWNSTREAM	
	Segment Type	Surface Water
	Transport Mode	Kinematic Wave
	Segment Below	None
	Initial Conditions	Tracer Solid 0
	Fraction Dissolved	Tracer Solid 0
	External Data	None selected
Parameters	Solids	None selected
	System	None
	Scale Factor	1
	All Segments	1
Constants	All Other Parameters	None selected
	All Functions	None selected
Time Functions	All Functions	None selected
Exchanges	All Functions	None selected
Flows	Channel Geometry	
	UPSTREAM	
	Volume	621,600
	Length	1,120
	Width	185
	Slope	0.0001
	Min Depth	3.000
	Roughness	0.050
	Initial Depth	3.5
	Depth Multiplier	3
	Depth Exponent	0.45
	Velocity Multiplier	1
	Velocity Exponent	0
	LAGOON	
	Volume	1,595,000
	Length	580
	Width	550
	Slope	0.0001
	Min Depth	5.000
	Roughness	0.050
	Initial Depth	5.5
	Depth Multiplier	3
	Depth Exponent	0.45
	Velocity Multiplier	1
	Velocity Exponent	0
	NorthNetLake	

Volume	8,925,000
Length	2,550
Width	500
Slope	0.0001
Min Depth	7.000
Roughness	0.050
Initial Depth	7.5
Depth Multiplier	3
Depth Exponent	0.45
Velocity Multiplier	1
Velocity Exponent	0

EastNetLake

Volume	10,080,000
Length	840
Width	1,200
Slope	0.0001
Min Depth	10.000
Roughness	0.050
Initial Depth	10.5
Depth Multiplier	3
Depth Exponent	0.45
Velocity Multiplier	1
Velocity Exponent	0

CENTRALNETLAKE

Volume	16,282,500
Length	835
Bottom Elevation	
Width	1,300
Slope	
Min Depth	15.000
Roughness	
Initial Depth	15.5
Initial Surface Elevation	
Depth Multiplier	3
Depth Exponent	0.45
Velocity Multiplier	1
Velocity Exponent	0
Weir Height	5.0

WestNetLake

Volume	7,560,000
Length	1,350
Width	700
Slope	
Min Depth	8.000
Roughness	
Initial Depth	8.5
Depth Multiplier	3

Depth Exponent	0.45
Velocity Multiplier	1
Velocity Exponent	0
Weir Height	5.0

DOWNSTREAM

Volume	606,000
Length	1,010
Width	200
Slope	0.0001
Min Depth	3.000
Roughness	0.050
Initial Depth	3.5
Depth Multiplier	3
Depth Exponent	0.45
Velocity Multiplier	1
Velocity Exponent	0

Surface Water

Flow Field

Conversion	1
Scale	1
Function	North Flow
Interpolation	Linear
Scale Factor	1
Bound	Flow
Data Source	None
Segment Pairs	Boundary to 4 (EastNetLake)
Fraction	1
Start Date	1/15/2014
End Date	7/15/2016

Value See SW Flows 2014 to 2016

Lagoon

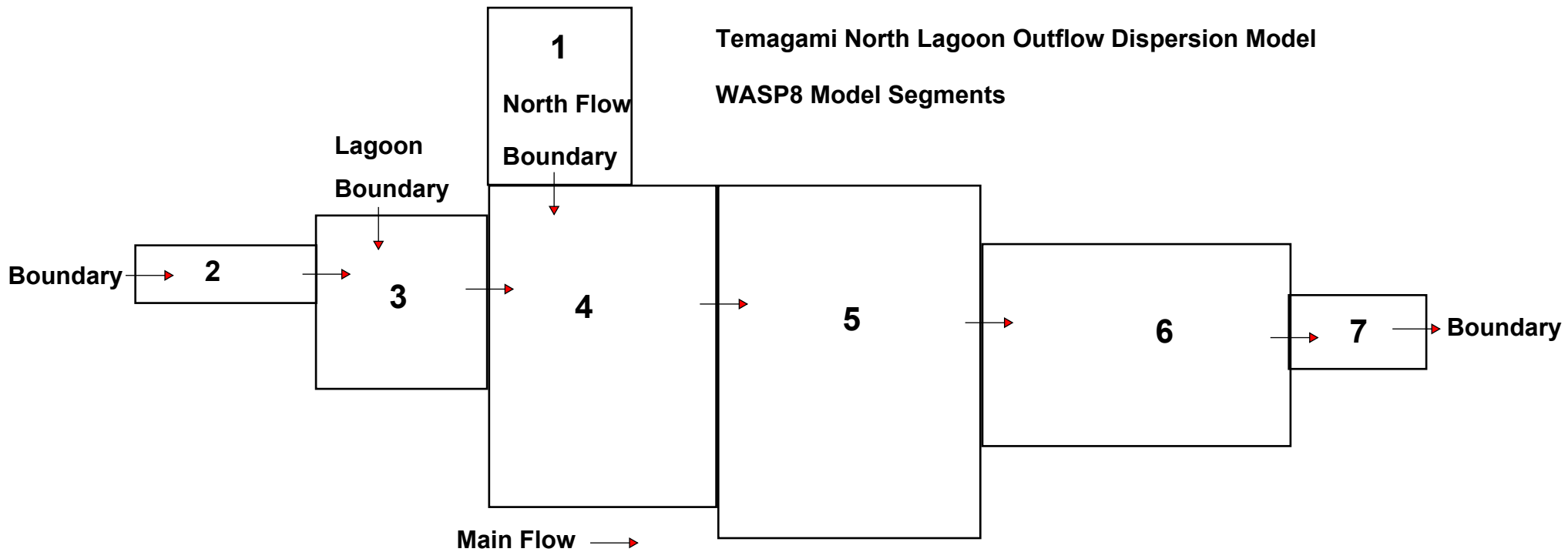
Function	Linear
Interpolation	Linear
Scale Factor	1
Bound	Flow
Data Source	None
Segment Pairs	Boundary to 3 (Lagoon)
Fraction	1
Start Date	1/15/2014
End Date	7/15/2016

Value See SW Flows 2014 to 2016

Main Flow

Function	Linear
Interpolation	Linear
Scale Factor	1
Bound	Flow
Data Source	None
Segment Pairs	Boundary to 2 2 to 3

Boundaries		3 to 4	
		4 to 5	
		5 to 6	
		6 to 7	
		7 to Boundary	
	Fraction		1
	Start Date		1/15/2014
	End Date		7/15/2016
	Value	See SW Flows 2014 to 2016	
	All Others	None selected	
	UPSTREAM		
	Start Date		1/15/2014
	End Date		7/15/2016
	Value		0
	Time Series Scale		1
	Interpolation	Linear	
	Lagoon		
	Start Date		1/15/2014
	End Date		7/15/2016
	Value		0
	Time Series Scale		1
	Interpolation	Linear	
	DOWNSTREAM		
	Start Date		1/15/2014
	End Date		7/15/2016
	Value		0
	Time Series Scale		1
	Interpolation	Linear	
Loads	Tracer Solid		
	Lagoon		
	Start Date		1/15/2014
	End Date		7/15/2016
	Value	See E coli loads 2014 to 2016	
	Time Series Scale		1
	Interpolation	Linear	
	Boundary Scale Factor		1
	Load Scale Factor		1
	All Others	None selected	



Segment #	Segment Name	Volume (m ³)	Length (m)	Width (m)	Minumum Depth (m)
1	N. Net Lake	8,925,000	2550	500	7.00
2	Upstream 1	621,600	1120	185	3.00
3	Lagoon	1,595,000	580	550	5.00
4	EastNetLake	10,080,000	840	1200	10.00
5	CentralNetLake	16,282,500	835	1300	15.00
6	WestNetLake	7,560,000	1350	700	8.00
7	Downstream	606,000	1010	200	3.00
	Total Volume	36,745,100			



Ministry of the Environment and Climate Change
Ministère de l'Environnement et de l'Action en
matière de changement climatique

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 1975-AN3RZW
Issue Date: June 21, 2017

The Corporation of the Municipality of Temagami
7 Lakeshore Dr
Post Office Box, No. 220
Temagami, Ontario
P0H 2H0

M.O.E.C.C
NORTHERN REGION

JUL 04 2017

RECEIVED
NORTH BAY

Site Location: Temagami North Lagoon
37 Cedar Ave
Temagami Municipality, District of Nipissing
P0H 2H0

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:

Existing sewage treatment works with a Rated Capacity of 390 m³/day and Peak Flow Rate of 1,200 m³/day serving the Municipality of Temagami and with a continuous discharge to Net Lake, consisting of the following:

PROPOSED WORKS APPROVED ON MAY 25, 2015 UNDER ECA No. 9498-9V7J5Y :

Cedar Avenue Pump Station (Sewage Pump Station No. 1)

An upgrade to the existing sewage pump station by replacing the existing three (3) 3.7 hp sewage pumps with the following:

- One (1) sewage pumping station (Sewage Pump Station No. 1) located beside the Temagami North Water Treatment Plant of Cedar Avenue consisting of three (3) new 5.5 hp sewage pumps (two on duty, one on standby), each pump rated at 22.2 L/sec @ 10.0 m TDH and discharging to Lagoon # 1 described below;

Chemical Addition System

- One (1) 1000 L capacity chemical (Ferric Sulphate Solution) storage tank;

- One (1) 1.0 L/min capacity chemical dosing pump discharging to a valve chamber located between Cell #1 and Cell #2; and
- Including all controls and associated appurtenances.

All in accordance with the documents listed in Schedule 'A'.

PREVIOUS WORKS APPROVED ON OR BEFORE JUNE 18, 2002 UNDER ECA No. 6321-5A7H3H:

Description of the upgraded existing sewage works consisting of the following:

Cedar Avenue Pump Station (Sewage Pump Station No. 1)

- One (1) dry well sewage pumping station (Sewage Pump Station No. 1) located beside the Temagami North Water Treatment Plant of Cedar Avenue consisting of three (3) 3.7 hp sewage pumps (two on duty, one on standby), each pump rated at 12.2 L/sec @ 7.6 m TDH and discharging to Lagoon # 1 described below;
- One (1) 80 kW capacity standby diesel generator;

Spruce Drive Pump Station (Sewage Pump Station No. 2)

- One (1) sewage pumping station (Sewage Pump Station No. 2) servicing the trailer park and Spruce Drive consisting of two (2) submersible sewage pumps (one on duty, one on standby), each pump rated at approximately 6.3 L/sec and discharging to sanitary sewage collection system flowing to the Cedar Avenue Pump Station described above;
- One (1) 25 kW capacity standby natural gas generator;

Aerated Lagoons

- One (1) aerated lagoon (Lagoon Cell #1) with a total holding capacity of approximately 4,105 m³ with approximate depth of 3.05 m and approximate surface area of 1,300 m², equipped with twelve (12) fine bubble aeration units with a design capacity of 148 m³/hr of air evenly distributed within the entire cell ;
- One (1) aerated lagoon (Lagoon Cell #2) with a total holding capacity of approximately 20,950 m³ with approximate depth of 1.5 m and approximate surface area of 13,300 m², equipped with twenty two (22) fine bubble aeration units with a design capacity of 148 m³/hr of air within the first half portion of the cell;
- Three (3) air blowers each with a rated capacity of 82 m³/hr at 62 kPa (two on duty, one on

standby) located in a blower building and equipped with air distribution and cleaning system;

Effluent Outlet

- One (1) 450 mm diameter effluent outlet pipe from Lagoon Cell #2 equipped with one (1) stop-log level control and one (1) 15 m long rip-rap covered outfall channel, discharging to Net Lake;

Sludge Dewatering System

- One (1) bermed holding area located adjacent to Lagoon Cell #2 designed to hold sludge dewatering geotubes with approximate bottom dimensions of 17 m long x 14 m wide equipped with geotextile plastic liner and a drainage trench directing dewatered effluent into Lagoon Cell #2 for further treatment; and
- Including all controls and associated appurtenances.

All in accordance with the documents listed in Schedule 'A'.

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

"Annual Average Concentration" means the arithmetic mean of the Monthly Average Concentrations of a contaminant in the effluent calculated for any particular calendar year;

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

"Annual 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;

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

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

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

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

"Director" means a person appointed by the Minister pursuant to section 5 of the EPA for the

purposes of Part II.1 of the EPA;

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

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

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

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

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

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

"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, pertaining specifically to the Final Effluent sampling point;

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

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

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

"Monthly Average Concentration" means the arithmetic mean of all Single Sample Concentrations of a contaminant in the Final Effluent sampled or measured, or both, during a calendar month;

"Notice of Modifications" means the form entitled "Notice of Modifications to Sewage Works";

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

point;

"Owner" means Municipality of Temagami and its successors and assignees;

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

"Partial Treatment" means any treatment that does not include the full train of unit processes of the Sewage Treatment Plant described and approved in the Approval;

"Peak Flow Rate" means the Peak Instantaneous Flow Rate, Peak Hourly Flow Rate or Peak Daily Flow Rate of sewage for which the Sewage Treatment Plant or treatment process unit or equipment is designed to handle, as appropriate;

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

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

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

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

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

"Water Supervisor" means the Water Supervisor for the North Bay office of the Ministry; and

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

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

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

- (1) The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- (2) Except as otherwise provided by these conditions, the Owner shall design, build, install,

operate and maintain the Works in accordance with the description given in this Approval, and the application for approval of the Works.

- (3) Where there is a conflict between a provision of any document in the schedule referred to in this Approval and the conditions of this Approval, the Conditions in this Approval shall take precedence, and where there is a conflict between the documents in the schedule, the document bearing the most recent date shall prevail.
- (4) Where there is a conflict between the documents listed in the Schedule 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 Conditions of this Approval are severable. If any Condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such condition to other circumstances and the remainder of this Approval shall not be affected thereby.

2. EXPIRY OF APPROVAL

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

3. CHANGE OF OWNER

- (1) The Owner shall notify the Water Supervisor and the Director, in writing, of any of the following changes within thirty (30) days of the change occurring:
 - (a) change of Owner;
 - (b) change of address of the Owner;
 - (c) change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c.B17 shall be included in the notification to the Water Supervisor;
 - (d) change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C39 shall be included in the notification to the Water Supervisor;
- (2) In the event of any change in ownership of the Works, other than a change to a successor municipality, the Owner shall notify in writing the succeeding owner of the existence of this Approval, and a copy of such notice shall be forwarded to the Water Supervisor and the

Director.

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 Approval, 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 the Works for the operational life of the Works.

5. BYPASSES

- (1) Any Bypass is prohibited, except:
 - (a) in an Emergency Situation;
 - (b) where the Bypass is a direct and unavoidable result of a planned maintenance procedure or other circumstance(s), the Owner having notified the Water Supervisor at least fifteen (15) days prior to the occurrence of Bypass and the Water Supervisor has given written consent of the Bypass;
- (2) For any Bypass Event, the Owner shall forthwith 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(s), time(s) of the Bypass(es);
 - (b) the treatment process(es) Bypassed and the status of the disinfection;
 - (c) the reason(s) for the Bypass(es).
- (3) After any Bypass Event, the Owner shall collect and record the following information:
 - (a) the duration of the Bypass Event;
 - (b) the measured or the estimated volume of Bypass(es) for each Event.
- (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 Effluent Limits condition. These samples shall be in

addition to the regular samples required in the Monitoring and Recording condition and shall follow the same Protocols specified in the Monitoring and Recording condition.

- (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) for Bypass(es). The Water Supervisor may modify the reporting frequency at any time in writing.

6. OVERFLOWS

- (1) Any Overflow is prohibited, except:
 - (a) in an Emergency Situation;
 - (b) where the Overflow is a direct and unavoidable result of a planned maintenance procedure or other circumstance(s), the Owner having notified the Water Supervisor at least fifteen (15) days prior to the occurrence of the Overflow and the Water Supervisor has given written consent of the Overflow.
- (2) For any Overflow Event, the Owner shall forthwith 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(s), time(s) of the Overflow(s);
 - (b) the location(s) of the Overflow(s) and the receiver;
 - (c) the reason(s) for the Overflow(s); and
 - (d) the level of treatment the Overflow(s) 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 monitored or estimated volume of the Overflow(s); and
 - (c) the impact of Overflow(s) on the receiver.
- (4) For any 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 every 4 hours for the

duration of the Event, and have them analyzed for effluent parameters outlined in Effluent Limits condition. For raw sewage and primary treatment system Overflow, BOD5 shall be monitored instead of CBOD5.

- (5) The Owner shall submit a summary report of the Overflow(s) 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) for Overflow(s). The Water Supervisor may modify the reporting frequency at any time in writing.

7. EFFLUENT OBJECTIVES

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

Table 1 - Effluent Objectives	
Effluent Parameter	Concentration Objective (milligrams per litre unless otherwise indicated)
CBOD ₅	25.0 mg/L
Total Suspended Solids	30.0 mg/L

- (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 of the Works;
 - (c) ensure that the effluent from the Works is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.
- (3) The Owner shall include in all reports submitted in accordance with Condition 12 a summary of the efforts made and results achieved under this Condition.

8. EFFLUENT LIMITS

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

Table 2 - Effluent Limits	
Effluent Parameter	Average Concentration (milligrams per litre unless otherwise indicated)
Column 1	Column 2
CBOD ₅	30.0
Total Suspended Solids	40.0

- (2) For the purposes of determining compliance with and enforcing subsection (1):
- (a) The Annual Average Concentration of a parameter named in Column 1 of subsection (1) shall not exceed the corresponding maximum concentration set out in Column 2 of subsection (1).
 - (b) The pH of the effluent shall be maintained between 6.0 to 9.5, inclusive, at all times.
- (3) The effluent limit set out in subsection (1) shall apply upon the issuance of this Approval.

9. 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 Act and regulations, adequate laboratory facilities, process controls and alarms and the use of process chemicals and other substances used in the Works.
- (2) The Owner shall prepare an operations manual within one (1) year of Substantial Completion 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 control and countermeasures plan, consisting of contingency plans and procedures for dealing with equipment breakdowns, potential spills and any other abnormal situations, including notification of the Water Supervisor; and
 - (f) procedures for receiving, responding and recording public complaints, including recording any follow up actions taken.
- (3) The Owner shall maintain the operations manual current and retain a copy at the location of the Works for the operational life of the Works. Upon request, the Owner shall make the manual available to Ministry staff.
 - (4) The Owner shall provide for the overall operation of the Works with an operator who holds a licence that is applicable to that type of facility and that is of the same class as or higher than the class of the facility in accordance with Ontario Regulation 129/04.

10. MONITORING AND RECORDING

The Owner shall 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) Daily means once each day;
 - (b) Weekly means once each week;
 - (c) Monthly means once every month; and
 - (d) Annually means once every twelve months.
- (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 - Influent Monitoring Sampling Location: Cedar Avenue Pump Station		
Parameters	Sample Type	Frequency
BOD ₅	Composite	Monthly
Total Suspended Solids	Composite	Monthly
Total Phosphorus	Composite	Monthly
Total Kjeldhal Nitrogen	Composite	Monthly

Table 4 - Effluent Monitoring Sampling Location: Effluent Outlet from Lagoon Cell #2		
Parameters	Sample Type	Frequency
CBOD ₅	Composite	Monthly
Total Suspended Solids	Composite	Monthly
Total Phosphorus	Composite	Monthly
Total Ammonia Nitrogen	Composite	Monthly
E. Coli	Grab	Monthly
pH	Grab	Weekly

- (4) The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:
 - (a) the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended from time to time by more recently published editions;
 - (b) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), PIBS 2724e02, as amended from time to time by more recently published editions;
 - (c) the publication "Standard Methods for the Examination of Water and Wastewater" (21st edition), as amended from time to time by more recently published editions;
- (5) The measurement frequencies specified in subsection (2) in respect to any parameter are minimum requirements which may, after two (2) years of monitoring in accordance with this Condition, be modified by the Water Supervisor in writing from time to time.
- (6) The Owner shall install and maintain continuous flow measuring devices calibrated at regular intervals not exceeding one (1) year, to measure the flow rate of the **influent to the Works (to Cedar Avenue Pump Station)** with an accuracy to within plus or minus 15 per cent (+/- 15%) of the actual flow rate for the entire design range of the flow measuring device, and record the flow rate at a daily frequency.

- (7) The Owner shall measure and record once annually the level of sludge accumulated in the sewage lagoon (Lagoon Cell #2), and record the total volume of dewatered sludge disposed off-site and where the dewatered sludge was disposed during the reporting period;
- (8) 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.

11. LIMITED OPERATIONAL FLEXIBILITY

- (1) The Owner may make modifications to the Works in accordance with the Terms and Conditions of this Approval and subject to the Ministry's "Limited Operational Flexibility Criteria for Modifications to Sewage Works", included under Schedule B of this Approval, as amended.
- (2) Sewage works proposed under Limited Operational Flexibility shall adhere to the design guidelines contained within the Ministry's publication "Design Guidelines for Sewage Works 2008", as amended.
- (3) The Owner shall ensure at all times, that the Works, related equipment and appurtenances which are installed or used to achieve compliance are operated in accordance with all Terms and Conditions of this Approval.
- (4) For greater certainty, the following are not permitted as part of Limited Operational Flexibility:
 - (a) Modifications to the Works that result in an increase of the Rated Capacity of the Works;
 - (b) Modifications to the Works that may adversely affect the approved effluent quality criteria or the location of the discharge/outfall;
 - (c) Modifications to the treatment process technology of the Works, or modifications that involve construction of new reactors (tanks) or alter the treatment train process design;
 - (d) Modifications to the Works approved under s.9 of the EPA, and
 - (e) Modifications to the Works pursuant to an order issued by the Ministry.
- (5) Implementation of Limited Operational Flexibility is not intended to be used for piecemeal measures that result in major alterations or expansions.
- (6) If the implementation of Limited Operational Flexibility requires changes to be made to the Emergency Response, Spill Reporting and Contingency Plan, the Owner shall, as deemed necessary in consultation with the Water Supervisor, provide a revised copy of this plan for approval to the local fire services authority prior to implementing Limited Operational Flexibility.

- (7) For greater certainty, any modification made under the Limited Operational Flexibility may only be carried out after other legal obligations have been complied with, including those arising from the *Environmental Protection Act*, *Niagara Escarpment Planning and Development Act*, *Oak Ridges Moraine Conservation Act*, *Lake Simcoe Protection Act* and *Greenbelt Act*.
- (8) Prior to implementing Limited Operational Flexibility, the Owner shall complete a Notice of Modifications describing any proposed modifications to the Works and submit it to the Water Supervisor.

12. 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 Water Supervisor (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) The Owner shall report to the Water Supervisor or designate, any exceedence of any parameter specified in Condition 8 orally, as soon as reasonably possible, and in writing within seven (7) days of the exceedence.
- (3) In addition to the obligations under Part X of the Environmental Protection Act, the Owner shall, within ten (10) working days of the occurrence of any reportable spill as defined in Ontario Regulation 675/98, bypass or loss of any product, by-product, intermediate product, oil, solvent, waste material or any other polluting substance into the environment, submit a full written report of the occurrence to the Water Supervisor describing the cause and discovery of the spill or loss, clean-up and recovery measures taken, preventative measures to be taken and schedule of implementation.
- (4) The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff.
- (5) The Owner shall prepare, and upon request, submit to the Water Supervisor 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 8, including an overview of the success and adequacy of the Works;
 - (b) a description of any operating problems encountered and corrective actions taken;

- (c) a summary of all maintenance carried out on any major structure, equipment, apparatus, mechanism or thing forming part of the Works;
 - (d) a summary of any effluent quality assurance or control measures undertaken in the reporting period;
 - (e) a summary of the calibration and maintenance carried out on all effluent monitoring equipment;
 - (f) a description of efforts made and results achieved in meeting the Effluent Objectives of Condition 7;
 - (g) a summary of the report collected under Condition 10 (7) including the lagoon sludge level, the total volume of dewatered sludge disposed off-site, and where the dewatered 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;
 - (j) 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;
 - (k) a report summarizing all modifications completed as a result of Schedule B, Section 3; and
 - (l) any other information the Water Supervisor may require from time to time.
- (6) The Owner shall, within thirty (30) calendar days of issuance of this Approval, submit a Municipal Wastewater System Profile Information Form, and shall resubmit the updated document every time a notification is provided to the Water Supervisor in compliance with requirements of change of ownership under this Approval.

13. INSTALLATION OF AN EFFLUENT DISINFECTION SYSTEM

Before May 25, 2018, the Owner shall submit an application to the Director for the installation of an effluent disinfection system for the Works along with a detailed design drawings, specifications and design calculations for the Proposed Works for approval by the Director.

Schedule 'A'

I. PREVIOUS WORKS APPROVED ON OR BEFORE JUNE 18, 2002 UNDER ECA No. 6321-5A7H3H:

1. Design report, final plans and specifications prepared by James F. MacLaren Limited, Consulting Engineers submitted for the issuance of the Certificate of Approval # 3-0544-79-006 dated August 15, 1979.

II. PROPOSED WORKS APPROVED ON MAY 25, 2015 UNDER ECA No. 9498-9V7J5Y:

1. Application for Environmental Compliance Approval (ECA) amendment submitted by Municipality of Temagami dated February 9, 2015 and design brief and drawings prepared by Ontario Clean Agency Engineering Services dated February 2015.

III. APPLICATION FOR THE EXTENSION OF THE DEADLINE FOR DISINFECTION SYSTEM:

1. Application for Environmental Compliance Approval (ECA) amendment submitted by Municipality of Temagami dated November 24, 2016 for the extension of the deadline set under Condition 12 of ECA No. 9498-9V7J5Y issued on May 25, 2015.

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. 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 facility Rated Capacity is not exceeded and the existing flow process and/or treatment train are maintained, as applicable.

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 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. For clarity proposes, the following equipment can be considered under this provision: 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 provided that the outfall location is not changed.

1.4 Sanitary Sewers

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

1.5 Pilot Systems

- a. Installation of pilot systems for new or existing technologies provided that:
 - i. any effluent from the pilot system is discharged to the inlet of the sewage treatment plant or hauled off-site for proper disposal,
 - ii. any effluent from the pilot system discharged to the inlet of the sewage treatment plant or sewage conveyance system does not significantly alter the composition/concentration of the influent sewage to be treated in the downstream process; and that it does not add any inhibiting substances to the downstream process, and
 - iii. the pilot system's duration does not exceed a maximum of two years; and a report with results is submitted to the Director and Water Supervisor three months after completion of the pilot project.
- 2. Sewage works that are exempt from section 53 of the OWRA by O. Reg. 525/98 continue to be exempt and are not required to follow the notification process under this Limited Operational Flexibility.
- 3. Normal or emergency operational modifications, such as repairs, reconstructions, or other improvements that are part of maintenance activities, including cleaning, renovations to existing approved sewage works equipment, provided that the modification is made with Equivalent Equipment, are considered pre-approved.
- 4. The modifications noted in section (3) above are not required to follow the notification protocols under Limited Operational Flexibility, provided that the number of pieces and description of the equipment as described in the Approval does not change.



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

1. Condition 1 is imposed to ensure that the Works are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review. The condition also advises the Owners their responsibility to notify any person they authorized to carry out work pursuant to this Approval the existence of this Approval.
2. Condition 2 is included to ensure that the Works are constructed in a timely manner so that standards applicable at the time of Approval of the Works are still applicable at the time of construction, to ensure the ongoing protection of the environment.
3. Condition 3 is included to ensure that the Ministry records are kept accurate and current with respect to the approved works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.
4. Condition 4 is included to ensure that the Works are constructed in accordance with the approval and that record drawings of the Works "as constructed" are maintained for future references.
5. Condition 5 and 6 are included to indicate that Bypass / Overflows of untreated or partially treated sewage to the receiving watercourse is prohibited, save in certain limited circumstances where the failure to Bypass / Overflow could result in greater injury to the public interest than the Bypass itself where a Bypass / Overflow will not violate the approved effluent requirements, or where the Bypass / Overflow can be limited or otherwise mitigated by handling it in accordance with an approved contingency plan. The notification and documentation requirements allow the Ministry to take action in an informed manner and will ensure the Owner is aware of the extent and frequency of Bypass / Overflow events.
6. Condition 7 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 8 is imposed to ensure that the effluent discharged from the Works to the Net Lake 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 9 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 work.

9. Condition 10 is included to enable the Owner to evaluate and demonstrate the performance of the Works, on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives and effluent limits specified in the Approval and that the Works does not cause any impairment to the receiving watercourse.
10. Condition 11 is included to ensure that the Works are operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider. These Conditions are also included to ensure that a Professional Engineer has reviewed the proposed modifications and attests that the modifications are in line with that of Limited Operational Flexibility, and provide assurance that the proposed modifications comply with the Ministry's requirements stipulated in the Terms and Conditions of this Approval, MOE policies, guidelines, and industry engineering standards and best management practices.
11. Condition 12 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 13 is included to require the Owner install an effluent disinfection system to ensure that existing Works consistently meet the effluent limits requirement of an E. Coli Monthly Geometric Mean of 200 counts per 100 ml which is the minimum requirement for all sewage works effluent discharging to a surface water receiver.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 9498-9V7J5Y issued on May 25, 2015

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:

- a. 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;
- b. 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:

1. The name of the appellant;
2. The address of the appellant;
3. The environmental compliance approval number;
4. The date of the environmental compliance approval;
5. The name of the Director, and;
6. 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

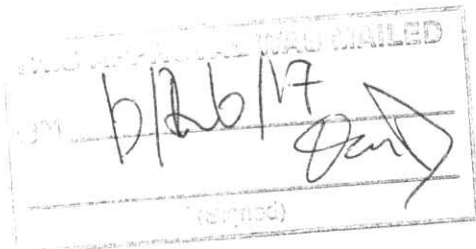
AND

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 21st day of June, 2017



Fariha Pannu.

Fariha Pannu, P.Eng.

Director

appointed for the purposes of Part II.1 of the
Environmental Protection Act

SH/

c: Area Manager, MOECC North Bay

c: District Manager, MOECC Sudbury

Shawn Sadler, exp Services Inc.



Notice of Modifications Dec-2013.pdf