

Ministry of the Environment, Conservation and Parks Ministère de l'Environnement, de la Protection de la nature et des Parcs

ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 9526-CB9N4C Issue Date: October 4, 2022

Seaside and Lighthouse Developments Inc. 620 Richmond St, No. 201, London, Ontario, N6A 5J9.

Site Location: Hope Harbour Lot 6, Concession 14, Municipality of West Elgin, County of Elgin, Ontario, N0K 1N0.

You have applied under section 20.2 of Part II.1 of the <u>Environmental Protection Act</u>, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

establishment, usage and operation of a communal non-municipal sewage works, for the treatment of sanitary sewage from a residential and commercial development with a restaurant facility and disposal of effluent to a constructed wetland with connection to the Sixteen Mile Creek of Lake Ontario, via a Package Sewage Treatment Plant and final Effluent disposal facilities as follows:

Classification of Sewage Treatment Plant: Tertiary

Details of Service Area:

- Type of Occupancy: Residential Communal/Commercial / Permanent Development.
- **Type and Number of Units:** 348 detached and semi detached Residential Units, 10019 sq.m. Commercial Space and a 100 seat Restaurant.

Design Capacity of Sewage Treatment Plant:

Design Capacity with All Treatment Trains in	Upon Completion of Construction of All Proposed
Operation	Works
Rated Capacity / Annual Average Daily Effluent Flow	345.0 m ³ /d

Influent Sewage

Receiving Location	Types
In Collection System	Sanitary Sewage
At Sewage Treatment Plant	same as above.

Proposed Works:

Wastewater Treatment Plant (WTP-propreitary Newterra MBR system)

Preliminary Treatment System - Phases 1, 2 and 3:

- Equalization Tank / Flow Balancing: one (1) 124 cu.m and two (2) 110 cu.m. capacity balancing /equalization tanks, connected in parallel, each complete with carbon lid venting, and includes a bottom fed diffused aeration system and two (2) submersible equalization pumps, each rated at 4 L/s to discharge into a fine screens as follows:
- Screening: two (2) fine screens connected in parallel configuration, each complete with 2 mm perforated plates and automatic brushes, each with a rated capacity of 4 L/sec, to discharge from a tank (discharge tank) into the aerobic tanks biological systems as follows; and screenings are collected in screening bags for off-site disposal by licensed hauler;

Secondary Treatment System

• **Biological Treatment-Activated sludge process:** two (2) in-ground aeration tanks, connected in parallel configuration, each having a volume of 119.7 cu.m., equipped with fine bubble aeration system, each complete with two (2) duty feed forward pumps rated at 503 L/minute, one (1) duty and one (1) stand-by air blowers rated at 503 cu.m./hour; to discharge effluent into the membrane tanks as follows:

Tertiary / Post-Secondary Treatment:

- Membrane Filtration System (NewTerra) and Effluent Discharge:
 - two (2) sets of two (2) membrane filtration system tanks, connected in parallel configuration, each tank consisting of 4.24 cu.m. volume of proprietary ultrafiltration membrane filters equipped with a permeate extraction pump with a rated capacity of 133 L/min; all with provision of installing 50% of the filters initially, and 50% additional filters to fill the tanks in Phase 3;
 - Backwash: two (2) sets common chemical backwash system connected in parallel configuration, each to clean the two (2) membrane tanks consisting of a tank for backwashing with sodium

hypochlorite or citric acid solution;

Disinfection System: Two (2) sets of three (3) UV disinfection Units to be installed in parallel configuration, each set with a total Peak Flow Rate of 4.43 L/s;

Supplementary Treatment Systems:

- Phosphorus Removal/Phosphorus Reduction: two (2) sets of one (1) 1000 L capacity chemical storage tanks, connected in parallel, each complete with one (1) metering pump rated at 0 -4.4 L/h and spill control system;
- pH adjustment Alkalinity Addition: A chemical dosing pump to supply caustic soda solution to maintain the pH in the proper range and replenish alkalinity in the aerobic tank as follows: two (2) sets of one (1) 1000 L capacity alkalinity addition chemical storage tank, connected in parallel configuration, each with one (1) metering pump rated at 0 -1.53 L/h and spill control system;;

Final Effluent Flow Measurement and Sampling Point

- flow measurement device(s) at the final outlet of membrane filtration system;
- automatic composite sampler at outlet of disinfection units;

Final Effluent Disposal: all filtrate / permeate effluent to discharge via the UV disinfection system and finally into a Constructed Wetland on an approximately 3,000 sq.m. area of 400 mm deep, connected via a 400 mm diameter outlet culvert to the Sixteen Mile Creek of Lower Thames River;

Sludge Management System

- Sludge Holding:
 - Sludge Storage Tank Phases 1 & 2: waste sludge from the biological treatment tanks and ultrafiltration system is to be collected in one (1) 109.3 cu.m. tank complete with bottom fed diffused aeration and venting system, one (1) submersible decanting pump to discharge supernatant to the equalization tanks and waste sludge from the Holding Tank to be pumped out by licensed hauler as and when necessary;
 - Sludge Storage Tank Phase 3: one (1) 109.3 cu.m. tank complete with bottom fed diffused aeration and venting system, one (1) submersible decanting pump to discharge supernatant to the equalization tank;

including all other mechanical system, electrical system, instrumentation and control system, stand-by power system, piping, pumps, valves and appurtenances essential for the proper, safe and reliable operation of the Works in accordance with this Approval, in the context of process performance and general principles of wastewater engineering only; all in accordance with the submitted supporting documents listed in **Schedule**

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

1. "Annual Average Daily Effluent Flow" means the Rated Capacity of the Daily Effluent Flow and/or equalized influent flow rate which the Sewage Treatment Plant is designed to handle;

3. "Approval" means this entire Environmental Compliance Approval and any Schedules attached to it;

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

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

6. "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;

7. "District Manager" means the District Manager of the appropriate local district office of the Ministry where the Works is geographically located;

8. "E. coli " refers to coliform bacteria that possess the enzyme beta-glucuronidase and are capable of cleaving a fluorogenic or chromogenic substrate with the corresponding release of a fluorogen or chromogen, that produces fluorescence under long wavelength (366 nm) UV light, or color development, respectively. Enumeration methods include tube, membrane filter, or multi-well procedures. Depending on the method selected, incubation temperatures include 35.5 + 0.5 °C or 44.5 + 0.2 °C (to enumerate thermotolerant species). Depending on the procedure used, data are reported as either colony forming units (CFU) per 100 mL (for membrane filtration methods) or as most probable number (MPN) per 100 mL (for tube or multi-well methods);

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

10. "Final Effluent" means effluent that is discharged to the environment through the approved effluent disposal facilities, that are required to meet the design objectives stipulated in the Approval for the Sewage Treatment Plant at the Final Effluent sampling point(s);

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

13. "Licensed Engineering Practitioner" means a person who holds a licence, limited licence or temporary licence under the Professional Engineers Act, R.S.O. 1990, c. P.28;

14. "Limited Operational Flexibility" (LOF) means the conditions that the Owner shall follow in order to undertake any modification that is pre-authorized as part of this Approval;

15. "Monthly Average Effluent Concentration" is the mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month, calculated and reported as per the methodology specified in Schedule F;

16. "Monthly Geometric Mean Density" is the mean of all Single Sample Results of *E.coli* measurement in the samples taken during a calendar month, calculated and reported as per the methodology specified in Schedule F;

17. "Normal Operating Condition" means the condition when all unit process(es), excluding Preliminary Treatment System, in a treatment train is operating within its design capacity;

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

19. "Operating Agency" means the Owner, person or the entity that is authorized by the Owner for the management, operation, maintenance, or alteration of the Works in accordance with this Approval;

20. "Owner" means Seaside and Lighthouse Developments Inc., including any successors and assignees;

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

22. "Preliminary Treatment System" means all facilities in the Sewage Treatment Plant associated with screening and grit removal;

23. "Proposed Works" means those portions of the Works included in the Approval that are under construction or to be constructed;

24. "Responsibility Agreement" means a legal agreement between a municipality and developer which stipulate the conditions under which communal services will be constructed, operated and maintained, as well as, the action to be undertaken by the municipality in the event of default.

25. "Sewage Treatment Plant" means all the facilities related to sewage treatment within the sewage treatment plant site excluding the Final Effluent disposal facilities;

26. "Single Sample Result" means the test result of a parameter in the effluent discharged on any day, as measured by a probe, analyzer or in a composite or grab sample, as required;

27. "Works" means the approved sewage works, and includes Proposed Works.

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

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

- 1. The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the terms and conditions herein and shall take all reasonable measures to ensure any such person complies with the same.
- 2. The Owner shall design, construct, operate and maintain the Works in accordance with the conditions of this Approval.
- 3. Where there is a conflict between a provision of any document referred to in this Approval and the conditions of this Approval, the conditions in this Approval shall take precedence.
- 4. The issuance of, and compliance with the conditions of this Approval does not relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited to, the obligation to obtain approval from the local conservation authority necessary to construct or operate the sewage Works;

2. CHANGE OF OWNER AND OPERATING AGENCY

- 1. The Owner shall notify the District Manager and the Director, in writing, of any of the following changes within thirty (30) days of the change occurring:
 - a. change of address of Owner;
 - b. change of Owner, including address of new owner;
 - c. change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the *Business Names Act, R.S.O. 1990, c. B.17*, as amended, shall be included in the notification;
 - d. change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the *Corporations Information Act, R.S.O. 1990, c. C.39*, as amended, shall be included in the notification.
- 2. The Owner shall notify the District Manager, in writing, of any of the following changes within thirty (30) days of the change occurring:
 - a. change of address of Operating Agency;
 - b. change of Operating Agency, including address of new Operating Agency.
- 3. In the event of any change in ownership of the Works, the Owner shall notify the succeeding owner in writing, of the existence of this Approval, and forward a copy of the notice to the District Manager.
- 4. The Owner shall ensure that all communications made pursuant to this condition refer to the

environmental compliance approval number.

3. CONSTRUCTION OF PROPOSED WORKS

- 1. All Proposed Works in this Approval shall be constructed and installed and must commence operation within five (5) years of issuance of this Approval, after which time the Approval ceases to apply in respect of any portions of the Works not in operation. In the event that the construction, installation and/or operation of any portion of the Proposed Works is anticipated to be delayed beyond the time period stipulated, the Owner shall submit to the Director an application to amend the Approval to extend this time period, at least six (6) months prior to the end of the period. The amendment application shall include the reason(s) for the delay and whether there is any design change(s).
- 2. Upon completion of construction of the Proposed Works, the Owner shall prepare and submit a written statement to the District Manager, certified by a Licensed Engineering Practitioner, that the Proposed Works is constructed in accordance with this Approval.
- 3. Within one (1) year of completion of construction of the Proposed Works, a set of record drawings of the Works shall be prepared or updated. These drawings shall be kept up to date through revisions undertaken from time to time and a copy shall be readily accessible for reference at the Works.
- 4. The Owner shall ensure that the treatment technologies are installed in accordance with the manufacturer's installation manual.

4. DESIGN OBJECTIVES

- 1. The Owner shall design and undertake everything practicable to operate the Sewage Treatment Plant in accordance with the following objectives:
 - a. Final Effluent parameters design objectives listed in the table(s) included in Schedule B.
 - b. Final Effluent is essentially free of floating and settleable solids and does not contain oil or any other substance in amounts sufficient to create a visible film or sheen or foam or discolouration on the receiving waters.

5. COMPLIANCE LIMITS

- 1. The Owner shall operate and maintain the Sewage Treatment Plant such that compliance limits for the Final Effluent parameters listed in the table(s) included in **Schedule C** are met.
- 2. The Owner shall operate and maintain the Sewage Treatment Plant such that the Final Effluent is disinfected continuously year-round.

6. OPERATION AND MAINTENANCE

1. The Owner shall ensure 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 other requirements of this Approval and the OWRA and relevant regulations made under the OWRA, process controls and alarms and the use of process chemicals and other substances used in the Works.

- 2. The Owner shall prepare/update the operations manual for the Works within six (6) months of completion of construction of the Proposed Works, that includes, but not necessarily limited to, the following information:
 - a. operating procedures for the Works under Normal Operating Conditions;
 - 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. operating procedures for the Works to handle situations outside Normal Operating Conditions and emergency situations such as a structural, mechanical or electrical failure, or an unforeseen flow condition.
 - f. 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 Spills Action Centre (SAC) and District Manager;
 - g. procedures for receiving, responding and recording public complaints, including recording any follow-up actions taken.
- 3. The Owner shall maintain an up to date operations manual and make the manual readily accessible for reference at 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 ensure that the Operating Agency fulfils the requirements under O. Reg. 129/04, as amended for the Works, including the classification of facilities, licensing of operators and operating standards.
- 5. The Owner shall maintain a logbook to record the results of all inspections, repair and maintenance undertaken, calibrations, monitoring and spill response or contingency measures undertaken and shall make the logbook available for inspection by Ministry staff. The logbook shall include the following:
 - a. the name of the operator making the entry; and
 - b. the date and results of each inspection, repair, maintenance, calibration, monitoring, spill response

and contingency measure.

- 6. The Owner shall, upon the construction, prepare and make available for inspection by Ministry staff, a maintenance agreement with the manufacturer for the treatment process/technology. The maintenance agreement must be retained at the site and kept current for the operational life of the Works.
- 7. The Owner shall ensure that the Operating Agency possesses the level of training and experience sufficient to allow safe and environmentally sound operation of the Works.

7. MONITORING AND RECORDING

- 1. The Owner shall, upon commencement of operation of the Works, carry out a scheduled monitoring program of collecting samples at the required sampling points, at the frequency specified or higher, by means of the specified sample type and analyzed for each parameter listed in the tables under the monitoring program included in **Schedule D** and record all results, as follows:
 - a. all samples and measurements are to be taken at a time and in a location characteristic of the quality and quantity of the sewage stream and sludge over the time period being monitored.
 - b. definitions and preparation requirements for each sample type are included in document referenced in Paragraph 2.b.
 - c. definitions for frequency:
 - i. Bi-weekly means once every two weeks.
 - ii. Monthly means once every month;
 - iii. Quarterly means once every 3 months;
 - iv. Annually means once every 12 months.
 - d. The measurement frequencies specified in **Schedule D** in respect to any parameter may, after two (2) year of monitoring of the complete Works installation in accordance with this Condition, be modified by the Director in writing.
- 2. The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following documents and all analysis shall be conducted by a laboratory accredited to the ISO/IEC:17025 standard or as directed by the District Manager:
 - a. the Ministry's Procedure F-10-1, "Procedures for Sampling and Analysis Requirements for Municipal and Private Sewage Treatment Works (Liquid Waste Streams Only), as amended;
 - b. the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater Version 2.0" (January 2016), PIBS 2724e02, as amended;

- c. the publication "Standard Methods for the Examination of Water and Wastewater", as amended; and
- d. for any parameters not mentioned in the documents referenced in Paragraphs 2.a, 2.b and 2.c, the written approval of the District Manager shall be obtained prior to sampling.
- e. the Environment Canada publications "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" (EPS 1/RM/13 Second Edition December 2000) and "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to *Daphnia magna* " (EPS 1/RM/14 Second Edition December 2000), as amended, subject to the following:
 - the use of pH stabilization in the determination of acute lethality of Final Effluent to Rainbow Trout in accordance with the Environment Canada publication "Procedure for pH Stabilization during the Testing of Acute Lethality of Wastewater Effluent to Rainbow Trout (EPS 1/RM/50)" (2008), as amended, is permitted only if:
 - a. all the three criteria stipulated in the Environment Canada EPS 1/RM/50 are met; and
 - b. the Final Effluent is not discharged to a receiver in which the Final Effluent contributes more than 50% of the total flow in the receiving water, unless the District Manager, having reviewed additional information submitted regarding the Final Effluent and the receiving water approves on the use of RM50 on a site-specific basis.
- 3. The minimum monitoring frequency with respect to acute lethality to Rainbow Trout and Daphnia magna shall, after eight (8) consecutive quarters of monitoring results not indicating acute lethality, be reduced to annually. If any Final Effluent sample indicates acute lethality to Rainbow Trout or Daphnia magna, the monitoring frequency shall revert back to quarterly and the Owner shall carry out the following immediately:
 - a. Review the following:
 - i. Final Effluent quality and confirm that concentrations of ammonia are within the limits;
 - ii. plant operations around the time of the toxicity event; and
 - iii. all data available regarding plant operations and Final Effluent quality.
 - b. If the observed effluent toxicity is not associated with ammonia, an investigation shall be undertaken to determine the cause or source of the toxicity.
 - c. Upon determination of cause or source of acute lethality to Rainbow Trout and Daphnia magna, the Owner shall determine appropriate control measures to achieve non-acutely lethal effluent and time lines for the implementation of identified control measures. The Owner shall submit the proposed control measures and implementation time lines for approval to the District Manager.
- 4. The Owner shall monitor and record the flow rate and daily quantity using flow measuring devices or

other methods of measurement as approved below calibrated to an accuracy within plus or minus 15 per cent (+/-15%) of the actual flowrate of the following:

- a. Final Effluent discharged from the Sewage Treatment Plant by continuous flow measuring devices and/or instrumentations/pumping rates.
- 5. 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.

8. LIMITED OPERATIONAL FLEXIBILITY

- 1. The Owner may make pre-authorized modifications to the Sewage Treatment Plant in Works in accordance with the document "Limited Operational Flexibility Protocol for Pre-Authorized Modifications to Private Sewage Works" (Schedule E), as amended, subject to the following:
 - a. the modifications will not involve the addition of any new treatment process or the removal of an existing treatment process, including chemical systems, from the liquid or solids treatment trains as originally designed and approved.
 - b. the scope and technical aspects of the modifications are in line with those delineated in Schedule E and conform with the Ministry's publication "Design Guidelines for Sewage Works 2008", as amended, Ministry's regulations, policies, guidelines, and industry engineering standards;
 - c. the modifications shall not negatively impact on the performance of any process or equipment in the Works or result in deterioration in the Final Effluent quality;
 - d. where the pre-authorized modification requires notification, a "Notice of Modifications to Sewage Works" (Schedule E), as amended shall be completed with declarations from a Licensed Engineering Practitioner and the Owner and retained on-site prior to the scheduled implementation date. All supporting information including technical memorandum, engineering plans and specifications, as applicable and appropriate to support the declarations that the modifications conform with LOF shall remain on-site for future inspection.
- 2. The following modifications are not pre-authorized under Limited Operational Flexibility:
 - a. Modifications that involve addition or extension of process structures, tankages or channels;
 - b. Modifications that involve relocation of the Final Effluent outfall or any other discharge location or that may require reassessment of the impact to the receiver or environment;
 - c. Modifications that involve addition of or change in technology of a treatment process or that may involve reassessment of the treatment train process design;
 - d. Modifications that require changes to be made to the emergency response, spill prevention and

contingency plan; or

e. Modifications that are required pursuant to an order issued by the Ministry.

9. REPORTING

- 1. The Owner shall report to the District Manager orally as soon as possible any non-compliance with the compliance limits, and in writing within seven (7) days of non-compliance.
- 2. In addition to the obligations under Part X of the EPA and O. Reg. 675/98 (Classification and Exemption of Spills and Reporting of Discharges), the Owner shall, within fifteen (15) days of the occurrence of any reportable spill as provided in Part X of the EPA and Ontario Regulation 675/98, submit a full written report of the occurrence to the District Manager describing the cause and discovery of the spill, clean-up and recovery measures taken, preventative measures to be taken and a schedule of implementation.
- 3. The Owner shall, upon request, make all manuals, plans, records, data, procedures and supporting documentation available to Ministry staff,
- 4. The Owner shall prepare performance reports on a calendar year basis and submit to the District Manager in an electronic format by March 31 of the calendar year following the period being reported upon. The reports shall contain, but shall not be limited to, the following information pertaining to the reporting period:
 - a. a summary and interpretation of all Influent monitoring data, and a review of the historical trend of the sewage characteristics;
 - b. a summary and interpretation of all Final Effluent monitoring data, including concentration, flow rates, and a comparison to the design objectives and compliance limits in this Approval, including an overview of the success and adequacy of the Works;
 - c. a summary of all operating issues encountered and corrective actions taken;
 - d. a summary of all normal and emergency repairs and maintenance activities carried out on any major structure, equipment, apparatus or mechanism forming part of the Works;
 - e. a summary of any effluent quality assurance or control measures undertaken;
 - f. a summary of the calibration and maintenance carried out on Final Effluent monitoring equipment to ensure that the accuracy is within the tolerance of that equipment as required in this Approval or recommended by the manufacturer;
 - g. a summary of efforts made to achieve the design objectives in this Approval, including an assessment of the issues and recommendations for pro-active actions when any of the design objectives is not achieved more than 50% of the time in a year or there is an increasing trend in

deterioration of Final Effluent quality;

- h. a tabulation of the volume of sludge generated, an outline of anticipated volumes to be generated in the next reporting period and a summary of the locations to where the sludge was disposed;
- i. a summary of any complaints received and any steps taken to address the complaints;
- j. a summary of all situations outside Normal Operating Conditions and spills within the meaning of Part X of EPA and abnormal discharge events;
- k. a summary of all Notice of Modifications to Sewage Works completed under Paragraph 1.d. of Condition 8, including a report on status of implementation of all modification;
- 1. any other information the District Manager requires from time to time.

10. RESPONSIBILITY AGREEMENT

- 1. The Owner shall take all reasonable steps to enter into a duly signed Responsibility Agreement with Municipality of West Elgin prior to the construction of the Works approved herein in accordance with the Ministry Procedure D-5-2 entitled "Application of Municipal Responsibility for Communal Water and Sewage Services".
- 2. The Owner shall provide written confirmation that the Responsibility Agreement was entered into, including the effective date of the Responsibility Agreement, to the Director and the District Manager.

11. CERTIFICATE OF REQUIREMENT

- I. Pursuant to Section 197 of the EPA, no person having an interest in the Property, shall deal with the Property in any way without first giving a copy of this Approval to each person acquiring an interest in the Property as a result of the dealing.
- 2. The Owner shall:
 - a. within sixty (60) days of the date of the issuance of this Approval, submit to the Director for their review, two copies of a completed Certificate of Requirement and a registerable description of the Property; and
 - b. within thirty (30) calendar days of receiving the Certificate of Requirement authorized by the Director, register the Certificate of Requirement in the appropriate Land Registry Office on title to the Property and submit to the Director the duplicate registered copy immediately following registration.

3. For the purposes of this condition, Property shall mean the property located at Lot 6, Concession 14, Municipality of West Elgin, County of Elgin, Ontario, N0K 1N0.

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

- 1. Condition 1 regarding general provisions is imposed to ensure that the Works are constructed and operated in the manner in which they were described and upon which approval was granted.
- 2. Condition 2 regarding change of Owner and Operating Agency is included to ensure that the Ministry records are kept accurate and current with respect to ownership and Operating Agency of the Works and to ensure that subsequent owners of the Works are made aware of the Approval and continue to operate the Works in compliance with it.
- 3. Condition 3 regarding construction of Proposed Works is included to ensure that the Works are constructed in accordance with the Approval and that record drawings of the Works "as constructed" are updated and maintained for future references.
- 4. Condition 4 regarding design objectives is imposed to establish non-enforceable design objectives to be used as a mechanism to trigger corrective action proactively and voluntarily before environmental impairment occurs.
- 5. Condition 5 regarding compliance limits is imposed to ensure that the Final Effluent discharged from the Works to the environment meets the Ministry's effluent quality requirements.
- 6. Condition 6 regarding operation and maintenance 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. 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.
- 7. Condition 7 regarding monitoring and recording 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 compliance limits.
- 8. Condition 8 regarding Limited Operational Flexibility is included to ensure that the Works are constructed, maintained and operated in accordance with the Approval, and that any pre-approved modification will not negatively impact on the performance of the Works.
- 9. Condition 9 regarding reporting 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 this Approval.
- 10. Condition 10 is included to ensure that there is a Responsibility Agreement in place between the Owner and the Municipality prior to construction of the Works so that, in the event that the Owner is unable to continue

to provide sewage service, the Municipality may be able to assume Ownership and operation of the Works.

11. Condition 11 is included in order to require the Owner to give notice of this Approval to potential future owners of the property before the property is dealt with

Schedule A

 Application for Environmental Compliance Approval submitted by Nick Romero, P.Eng. of MTE Consultants Inc, received on November 30, 2021 for the proposed **On-Site Sewage Treatment Plant for** Seaside Development, including Environmental Study Report, design report, final plans and specifications.

Schedule B

Final Effluent Design Objectives

Concentration Objectives upon completion of construction of the Proposed Works

Final Effluent Parameter	Averaging Calculator	Objective
CBOD5	Monthly Average Effluent Concentration	5 mg/L
Total Suspended Solids	Monthly Average Effluent Concentration	5 mg/L
Total Phosphorus	Monthly Average Effluent Concentration	0.15 mg/L
Total Ammonia Nitrogen	Monthly Average Effluent Concentration	2 mg/L (05/01 - 10/30) 4 mg/L (11/01- 04/30)
E. coli	Monthly Geometric Mean Density	*50 CFU/100 mL
pН	Single Sample Result	6.5 - 8.5 inclusive
Dissolved Oxygen	Single Sample Result	4 mg/L
Toxicity to Rainbow Trout and Daphnia magna	Single Sample Result	Non-acutely lethal

*If the MPN method is utilized for E. coli analysis the objective shall be 50 MPN/100 mL

Schedule C

Final Effluent Compliance Limits

Concentration Limits upon completion of construction of the Proposed Works

Final Effluent Parameter	Averaging Calculator	Limit (maximum unless otherwise indicated)
CBOD5	Monthly Average Effluent Concentration	10 mg/L
Total Suspended Solids	Monthly Average Effluent Concentration	10 mg/L
Total Phosphorus	Monthly Average Effluent Concentration	0.3 mg/L
Total Ammonia Nitrogen	Monthly Average Effluent Concentration	3 mg/L (05/01- 10/30) 5 mg/L (11/01- 04/30)
E. coli	Monthly Geometric Mean Density	*100 CFU/100 mL
рН	Single Sample Result	between 6.0 - 9.5 inclusive
Dissolved Oxygen	Single Sample Result	minimum 4 mg/L
Toxicity to Rainbow Trout and Daphnia magna	Single Sample Result	Non-acutely lethal (no more than 50% mortality)

*If the MPN method is utilized for E. coli analysis the limit shall be 100 MPN/100 mL

Schedule D

Monitoring Program

Table 1 Influent sampling point at the Balancing Tank

Parameters	Sample Type	Minimum Frequency
BOD5	Grab	Quarterly
Total Suspended Solids	Grab	Quarterly
Total Phosphorus	Grab	Quarterly
Total Kjeldahl Nitrogen	Grab	Quarterly

Table 2 Final Effluent - Final Effluent sampling point at downstream of UV channel

Parameters	Sample Type	Minimum Frequency
CBOD5	8 hour composite	Bi-weekly
Total Suspended Solids	8 hour composite	Bi-weekly
Total Phosphorus	8 hour composite	Bi-weekly
Total Ammonia Nitrogen	8 hour composite	Bi-weekly
Total Kjeldahl Nitrogen	8 hour composite	Bi-weekly
Nitrate as Nitrogen	8 hour composite	Bi-weekly
Nitrite as Nitrogen	8 hour composite	Bi-weekly
E. coli	Grab	Bi-weekly
		(05/01 to 10/30)
Acute Lethality to Rainbow	Grab	Quarterly*
Trout and Daphnia magna		
Dissolved Oxygen	Grab/Probe/Analyzer	Bi-weekly
pH**	Grab/Probe/Analyzer	Bi-weekly
Temperature**	Grab/Probe/Analyzer	Bi-weekly
Un-ionized Ammonia***	As Calculated	Bi-weekly

*the minimum monitoring frequency with respect to acute lethality to Rainbow Trout and Daphnia Magna, after eight (8) consecutive quarters of monitoring results not indicating acute lethality; may be reduced to Annually, if recommended by a professional engineer to the Ministry.

**pH and temperature of the Final Effluent shall be determined in the field at the time of sampling for Total Ammonia Nitrogen.

***The concentration of un-ionized ammonia shall be calculated using the total ammonia concentration, pH and temperature using the methodology stipulated in "Ontario's Provincial Water Quality Objectives" dated July 1994, as amended.

Table 3 Sludge/Biosolids – holding tank/truck loading bay

Parameters	Sample Type	Minimum Frequency
Total Solids	Grab	Annually
Total Phosphorus	Grab	Annually
Total Ammonia Nitrogen	Grab	Annually
Nitrate as Nitrogen	Grab	Annually
Metal Scan	Grab	Annually
- Arsenic		
- Cadmium		
- Cobalt		
- Chromium		
- Copper		
- Lead		
- Mercury		
- Molybdenum		
- Nickel		
- Potassium		
- Selenium		
- Zinc		

Schedule E

Limited Operational Flexibility

Protocol for Pre-Authorized Modifications to Private Sewage Works

1. General

- 1. Pre-authorized modifications are permitted only where Limited Operational Flexibility has already been granted in the Approval and only permitted to be made at the pumping stations and sewage treatment plant in the Works, subject to the conditions of the Approval.
- 2. Where there is a conflict between the types and scope of pre-authorized modifications listed in this document, and the Approval where Limited Operational Flexibility has been granted, the Approval shall take precedence.
- 3. The Owner shall consult the District Manager on any proposed modifications that may fall within the scope and intention of the Limited Operational Flexibility but is not listed explicitly or included as an example in this document.
- 4. The Owner shall ensure that any pre-authorized modifications will not:
 - a. adversely affect the hydraulic profile of the Sewage Treatment Plant or the performance of any upstream or downstream processes, both in terms of hydraulics and treatment performance;
 - b. result in new Overflow or Bypass locations, or any potential increase in frequency or quantity of Overflow(s) or Bypass(es).
 - c. result in a reduction in the required Peak Flow Rate of the treatment process or equipment as originally designed.

2. Modifications that do not require pre-authorization:

- 1. Sewage works that are exempt from Ministry approval requirements;
- 2. Modifications to the electrical system, instrumentation and control system.

3. Pre-authorized modifications that do not require preparation of "Notice of Modification to Sewage Works"

1. Normal or emergency maintenance activities, such as repairs, renovations, refurbishments and replacements with Equivalent Equipment, or other improvements to an existing approved piece of equipment of a treatment process do not require pre-authorization. Examples of these activities are:

- a. Repairing a piece of equipment and putting it back into operation, including replacement of minor components such as belts, gear boxes, seals, bearings;
- b. Repairing a piece of equipment by replacing a major component of the equipment such as motor, with the same make and model or another with the same or very close power rating but the capacity of the pump or blower will still be essentially the same as originally designed and approved;
- c. Replacing the entire piece of equipment with Equivalent Equipment.
- 2. Improvements to equipment efficiency or treatment process control do not require pre-authorization. Examples of these activities are:
 - a. Adding variable frequency drive to pumps;
 - b. Adding on-line analyzer, dissolved oxygen probe, ORP probe, flow measurement or other process control device.

4. Pre-Authorized Modifications that require preparation of "Notice of Modification to Sewage Works"

- 1. Pumping Stations
 - a. Replacement or realignment of existing sewers including manholes, valves, gates, weirs and associated appurtenances provided that the modifications will not add new influent source(s) or result in an increase in flow from existing sources as originally approved.
 - b. Extension or partition of wetwell to increase retention time for emergency response and improve station maintenance and pump operation;
 - c. Replacement or installation of inlet screens to the wetwell;
 - d. Replacement or installation of flowmeters;
 - e. Replacement, reconfiguration and modifications to pump suctions and discharge pipings including valve, gates, motors, variable frequency drives and associated appurtenances to maintain firm pumping capacity or modulate the pump rate provided that the modifications will not result in a reduction in the firm pumping capacity or discharge head or an increase in the peak pumping rate of the pumping station as originally designed;
 - f. Replacement or realignment of existing forcemain(s) including valves, gates, and associated appurtenances provided that the modifications will not reduce the flow capacity or increase the total dynamic head and transient in the forcemain.
- 2. Sewage Treatment Plant

- 1. Sewers and appurtenances
 - a. Replacement or realignment of existing sewers (including pipes and channels), including manholes, valves, gates, weirs and associated appurtenances within the a sewage treatment plant, provided that the modifications will not add new influent source(s) or result in an increase in flow from existing sources as originally approved and that the modifications will remove hydraulic bottlenecks or improve the conveyance of sewage into and through the Works.
- 2. Flow Distribution Chambers/Splitters
 - a. Replacement or modification of existing flow distribution chamber/splitters or construction of new flow distribution chamber/splitters, including replacements or installation of sluice gates, weirs, valves for distribution of flows to the downstream process trains, provided that the modifications will not result in a change in flow distribution ratio to the downstream process trains as originally designed.
- 3. Imported Sewage Receiving Facility
 - a. Replacement or relocation of loading bays, connect/disconnect hook-up systems and unloading/transferring systems;
 - b. Replacement or relocation of screens, grit removal units and compactors;
 - c. Replacement or relocation of pumps, such as dosing pumps and transfer pumps, valves, piping and appurtenances;
 - d. Replacement or relocation of storage tanks/chambers and spill containment systems;
 - e. Replacement, relocation or installation of flow measurement and sampling equipment.
- 4. Preliminary Treatment System
 - a. Replacement of existing screens and grit removal units with equipment of the same or higher process performance technology, including where necessary replacement or upgrading of existing screenings dewatering washing compactors, hydrocyclones, grit classifiers, grit pumps, air blowers conveyor system, disposal bins and other ancillary equipment to the screening and grit removal processes.
 - b. Replacement of channel aeration systems, including air blowers, air supply main, air headers, air laterals, air distribution grids and diffusers.

- 5. Primary Treatment System
 - a. Replacement of existing sludge removal mechanism, including sludge chamber;
 - b. Replacement of scum removal mechanism, including scum chamber;
 - c. Replacement of primary sludge pumps, scum pumps, provided that: the modifications will not result in a reduction in the firm pumping capacity or discharge head that the primary sludge pump(s) and scum pump(s) are originally designed to handle.
- 6. Secondary Treatment System
 - 1. Biological Treatment
 - a. Conversion of complete mix aeration tank to plug-flow multi-pass aeration tank, including modifications to internal structural configuration;
 - b. Addition of inlet gates in multi-pass aeration tank for step-feed operation mode;
 - c. Partitioning of an anoxic/flip zone in the inlet of the aeration tank, including installation of submersible mixer(s);
 - d. Replacement of aeration system including air blowers, air supply main, air headers, air laterals, air distribution grids and diffusers, provided that the modifications will not result in a reduction in the firm capacity or discharge pressure that the blowers are originally designed to supply or in the net oxygen transferred to the wastewater required for biological treatment as originally required.
 - 2. Secondary Sedimentation
 - a. Replacement of sludge removal mechanism, including sludge chamber;
 - b. Replacement of scum removal mechanism, including scum chamber;
 - c. Replacement of return activated sludge pump(s), waste activated sludge pump(s), scum pump(s), provided that the modifications will not result in a reduction in the firm pumping capacity or discharge head that the activated sludge pump(s) and scum pump(s) are originally designed to handle.
- 7. Post-Secondary Treatment System
 - a. Replacement of filtration system with equipment of the same filtration technology, including feed pumps, backwash pumps, filter reject pumps, filtrate extract pumps, holding tanks associated with the pumping system, provided that the modifications will not result in a reduction in the capacity of

the filtration system as originally designed.

- 8. Disinfection System
 - 1. UV Irradiation
 - a. Replacement of UV irradiation system, provided that the modifications will not result in a reduction in the design capacity of the disinfection system or the radiation level as originally designed.
 - 2. Chlorination/Dechlorination and Ozonation Systems
 - a. Extension and reconfiguration of contact tank to increase retention time for effective disinfection and reduce dead zones and minimize short-circuiting;
 - b. Replacement of chemical storage tanks, provided that the tanks are provided with effective spill containment.
- 9. Supplementary Treatment Systems
 - 1. Chemical systems
 - a. Replacement or relocation of chemical storage tanks for existing chemical systems only, provided that the tanks are sited with effective spill containment;
 - b. Replacement of chemical dosing pumps provided that the modifications will not result in a reduction in the firm capacity that the dosing pumps are originally designed to handle.
 - c. Relocation and addition of chemical dosing point(s) including chemical feed pipes and valves and controls, to improve phosphorus removal efficiency;
 - d. Use of an alternate chemical provided that it is a non-proprietary product and is a commonly used alternative to the chemical approved in the Works, provided that the chemical storage tanks, chemical dosing pumps, feed pipes and controls are also upgraded, as necessary.
- 10. Sludge Management System
 - 1. Sludge Holding and Thickening
 - a. Replacement of sludge holding tanks, sludge handling pumps, such as transfer pumps, feed pumps, recirculation pumps, provided that modifications will not result in reduction in the solids storage or handling capacities;
 - 2. Sludge Digestion

- a. Replacement of digesters, sludge handling pumps, such as transfer pumps, feed pumps, recirculation pumps, provided that modifications will not result in reduction in the solids storage or handling capacities;
- b. replacement of sludge digester covers.
- 3. Sludge Dewatering and Disposal
 - a. Replacement of sludge dewatering equipment, sludge handling pumps, such as transfer pumps, feed pumps, cake pumps, loading pumps, provided that modifications will not result in reduction in solids storage or handling capacities.
- 11. Standby Power System
 - 1. Replacement or installation of standby power system, including feed from alternate power grid, emergency power generator, fuel supply and storage systems, provided that the existing standby power generation capacity is not reduced.
- 12. Lagoons
 - a. installing baffles in lagoon provided that the operating capacity of the lagoon system is not reduced;
 - b. raise top elevation of lagoon berms to increase free-board;
 - c. replace interconnecting pipes and chambers between cells, provided that the process design operating sequence is not changed;
 - d. replace mechanical aerators, or replace mechanical aerators with diffused aeration system provided that the mixing and aeration capacity are not reduced;
 - e. removal of accumulated sludge and disposal to an approved location offsite.
- 3. Final Effluent Disposal Facilities
 - a. Replacement or realignment of the Final Effluent channel, sewer or forcemain, including manholes, valves and appurtenances from the end of the treatment train to the discharge outfall section, provided that the sewer conveys only effluent discharged from the Sewage Treatment Plant and that the replacement or re-aligned sewer has similar dimensions and performance criteria and is in the same or approximately the same location and that the hydraulic capacity will not be reduced.

This page contains an image of the form entitled "Notice of Modification to Sewage Works". A digital copy can be obtained from the District Manager.

Ontario	Ministry of the Environment, Conservation and Parks	Notice of	f Modification to Sewage Works
RETAIN COPY OF COMPLE IMPLEMENTATION DATE.	ETED FORM AS PART O	OF THE ECA ON-	SITE PRIOR TO THE SCHEDULED
(Insert the ECA's owner, number an	nd issuance date and notice nu	mber, which should at	Limited Operational Flexibility art with "01" and consecutive numbers thereafter)
ECA Number	Issuance Date (mm/dd	(111	Notice number (if applicable)
ECA Owner		Municipality	i i i i i i i i i i i i i i i i i i i
typeImodel, material, process na 2. Confirmation that the anticipated 3. List of updated versions of, or an submission of documentation is r Part 3 – Declaration by I hereby declare that I have verified 1. Has been prepared or reviewed 2. Has been designed in accordance 3. Has been designed consistent w practices, and demonstrating on	me, etc.) environmental effects are negli nendments to, all relevant techn hot required, but the listing of up y Professional Engine by a Professional Engineer who to with the Limited Operational th Ministry's Design Guideliner going compliance with 5.3 of t	igble. ical documents that a dated documents is (neer ts of this modification is licensed to practico Flexibility as describe , adhening to enginee to Ontario Water Res	e in the Province of Ontario;
Signature			Date (mm/dd/yy)
	complete this Declaration; fication; and works are proposed in accord		Operational Flexibility as described in the ECA.
		belief the information	contained in this form is complete and accurate
Name of Owner Representative (Print)		Owner representativ	re's title (Print)
Owner Representative's Signature		Date (mm/dd/yy)	

Schedule E

Methodology for Calculating and Reporting Monthly Average Effluent Concentration and Monthly Geometric Mean Density

- 1. Monthly Average Effluent Concentration
- Step 1: Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month and proceed as follows depending on the result of the calculation:
 - a. If the arithmetic mean does not exceed the compliance limit for the contaminant, then report and use this arithmetic mean as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval;
 - b. If the arithmetic mean exceeds the compliance limit for the contaminant and there was no Bypass Event during the calendar month, then report and use this arithmetic mean as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval;
 - c. If the arithmetic mean exceeds the compliance limit for the contaminant and there was Bypass Event(s) during the calendar month, then proceed to Step 2;
 - d. If the arithmetic mean does not exceed the compliance limit for the contaminant and there was Bypass Event(s) during the calendar month, the Owner may still elect to proceed to Step 2 calculation of the flow-weighted arithmetic mean.
- Step 2: Calculate the flow-weighted arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured during a calendar month and proceed depending on the result of the calculation:
 - a. Group No Bypass Days (**NBPD**) data and Bypass Days (**BPD**) data during a calendar month separately;
 - b. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all NBPD during a calendar month and record it as **Monthly Average NBPD Effluent Concentration**;
 - c. Obtain the "**Total Monthly NBPD Flow**" which is the total amount of Final Effluent discharged on all NBPD during the calendar month;
 - d. Calculate the arithmetic mean of all Single Sample Results of the concentration of a contaminant in the Final Effluent sampled or measured on all BPD during a calendar month

and record it as Monthly Average BPD Effluent Concentration;

- e. Obtain the "**Total Monthly BPD Flow**" which is the total amount of Final Effluent discharged on all BPD during the calendar month;
- f. Calculate the flow-weighted arithmetic mean using the following formula:

[(Monthly Average NBPD Effluent Concentration × Total Monthly NBPD Flow) + (Monthly Average BPD Effluent Concentration × Total Monthly BPD Flow)] ÷ (Total Monthly NBPD Flow + Total Monthly BPD Flow)

It should be noted that in this method, if there are no Bypass Event for the month, the calculated result would be the same as the non-flow-weighted arithmetic mean method;

- g. Report and use the lesser of the flow-weighted arithmetic mean obtained in Step 2 and the arithmetic mean obtained in Step 1 as the Monthly Average Effluent Concentration for this parameter where applicable in this Approval.
- 2. Monthly Geometric Mean Density

Geometric mean is defined as the n^{th} root of the product of n numbers. In the context of calculating Monthly Geometric Mean Density for *E. coli*, the following formula shall be used:

$$\sqrt[n]{x_1 x_2 x_3 \cdots x_n}$$

in which,

"n " is the number of samples collected during the calendar month; and

"x " is the value of each Single Sample Result.

For example, four weekly grab samples were collected and tested for *E. coli* during the calendar month. The *E. coli* densities in the Final Effluent were found below:

Sample Number	E. coli Densities* (CFU/100 mL)
1	10
2	100
3	300
4	50

The Geometric Mean Density for these data:

$\sqrt[4]{10 \times 100 \times 300 \times 50} = 62$

*If a particular result is zero (0), then a value of one (1) will be substituted into the calculation of the Monthly Geometric Mean Density. If the MPN method is utilized for E. coli analysis, values in the table shall be MPN/100 mL.

In accordance with Section 139 of the *Environmental Protection Act*, you may by written notice served upon me, the Ontario Land Tribunal and in accordance with Section 47 of the *Environmental Bill of Rights*, 1993, the Minister of the Environment, Conservation and Parks, within 15 days after receipt of this notice, require a hearing by the Tribunal. The Minister of the Environment, Conservation and Parks will place notice of your appeal on the Environmental Registry. Section 142 of the *Environmental Protection Act* provides that the notice requiring the hearing ("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.

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:

* Further information on the Ontario Land Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349 or 1 (866) 448-2248, or www.olt.gov.on.ca

The Director engeinted for the mumores of

This instrument is subject to Section 38 of the *Environmental Bill of Rights*, 1993, that allows residents of Ontario to seek leave to appeal the decision on this instrument. Residents of Ontario may seek leave to appeal within 15 days from the date this decision is placed on the Environmental Registry. By accessing the Environmental Registry at https://ero.ontario.ca/, you can determine when the leave to appeal period ends.

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

DATED AT TORONTO this 4th day of October, 2022

A. Ahmed

Aziz Ahmed, P.Eng. Director appointed for the purposes of Part II.1 of the *Environmental Protection Act*

MN/

c: District Manager, MECP London - District Nick Romero, P.Eng. MTE Consultants