



Conservation and Water Stewardship

Environmental Stewardship Division
Environmental Approvals Branch
123 Main Street, Suite 160, Winnipeg, Manitoba R3C 1A5
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www.gov.mb.ca/conservation/eal

CLIENT FILE NO.: 5703.00

June 25, 2014

Harry Waldner
Eagle Creek Colony Ltd.
Box 340
Somerset MB R0G 2L0

Dear Mr. Waldner:

Enclosed is **Environment Act Licence No. 3110** dated June 25, 2014 issued to **Eagle Creek Colony Ltd.** for the construction and operation of the Development being a wastewater collection system and a wastewater treatment lagoon located in NE 25-5-8W in the Rural Municipality of Lorne, in accordance with the Proposal filed under *The Environment Act* dated February 27, 2014.

In addition to the enclosed Licence requirements, please be informed that all other applicable federal, provincial and municipal regulations and by-laws must be complied with. A Notice of Alteration must be filed with the Director for approval prior to any alteration to the Development as licensed.

For further information on the administration and application of the Licence, please feel free to contact Bruce Webb, Environmental Engineer at 204-945-7021.

Pursuant to Section 27 of *The Environment Act*, this licensing decision may be appealed by any person who is affected by the issuance of this Licence to the Minister of Conservation and Water Stewardship within 30 days of the date of the Licence.

Yours truly,

“original signed by”

Tracey Braun, M.Sc.
Director
Environment Act

c: Don Labossiere, Director, Environmental Compliance and Enforcement
Donna Smiley, Provincial Manager, Central Region (**via email**)
Peter Grieger, South-Man Engineering (**via email**)
Public Registries

NOTE: Confirmation of Receipt of this Licence No. 3110 (*by the Licensee only*) is required by the Director of Environmental Approvals. Please acknowledge receipt by signing in the space provided below and faxing a copy (letter only) to the Department by July 9, 2014.

On behalf of Eagle Creek Colony Ltd.

Date

LICENCE

Licence No. / Licence n° 3110

Issue Date / Date de délivrance June 25, 2014

In accordance with *The Environment Act* (C.C.S.M. c. E125) /
Conformément à *la Loi sur l'environnement* (C.P.L.M. c. E125)

Pursuant to Section 11(1) / Conformément au Paragraphe 11(1)

THIS LICENCE IS ISSUED TO: / CETTE LICENCE EST DONNÉE À:

EAGLE CREEK COLONY LTD.;
"the Licencee"

for the construction and operation of the Development being a wastewater collection system and a wastewater treatment lagoon with a hydraulic storage capacity of 13,760 cubic metres (38 cubic metres per day) located in NE 25-5-8W in the Rural Municipality of Lorne as shown in Figure 1 attached to this Licence, serving the Eagle Creek Colony, with treated effluent to be discharged to Tobacco Creek, in accordance with the Proposal filed under *The Environment Act* dated February 27, 2014, and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

"accredited laboratory" means an analytical facility accredited by the Standard Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Conservation and Water Stewardship to be equivalent to the SCC, or be able to demonstrate, upon request, that it has the quality assurance/quality control (QA/QC) procedures in place equivalent to accreditation based on the international standard ISO/IEC 17025, or otherwise approved by the Director;

"affected area" means a geographical area, excluding the property of the Development;

"approved" means approved by the Director or assigned Environment Officer in writing;

"ASAE" means the American Society of Agricultural Engineers;

"**ASTM**" means the American Society for Testing and Materials;

"**Director**" means an employee so designated pursuant to *The Environment Act*;

"**effluent**" means treated wastewater flowing or pumped out of the wastewater treatment lagoon;

"**Environment Officer**" means an employee so designated pursuant to *The Environment Act*;

"**fecal coliform**" means aerobic and facultative, Gram-negative, nonspore-forming, rod-shaped bacteria capable of growth at 44.5°C, and associated with fecal matter of warm-blooded animals;

"**five-day biochemical oxygen demand (BOD₅)**" means that part of the oxygen demand usually associated with biochemical oxidation of organic matter within five days at a temperature of 20°C;

"**five-day carbonaceous biochemical oxygen demand (CBOD₅)**" means that part of the oxygen demand usually associated with biochemical oxidation of carbonaceous organic matter within five days at a temperature of 20°C, excluding the oxygen demand usually associated with the biochemical oxidation of nitrogenous organic matter;

"**flooding**" means the flowing of water onto lands, other than waterways, due to the overtopping of a waterway or waterways;

"**grab sample**" means a quantity of wastewater taken at a given place and time;

"**HDPE**" means high density polyethylene;

"**high water mark**" means the line on the interior surface of the primary and secondary cells which is normally reached when the cell is at the maximum allowable liquid level;

"**low water mark**" means the line on the interior surface of the primary and secondary cells which is normally reached when the cell is discharged;

"**mil**" means one-thousandth of an inch;

"**MPN Index**" means the most probable number of coliform organisms in a given volume of wastewater which, in accordance with statistical theory, would yield the observed test result with the greatest frequency;

"**odour nuisance**" means a continuous or repeated odour, smell or aroma, in an affected area, which is offensive, obnoxious, troublesome, annoying, unpleasant or disagreeable to a person:

- a) residing in an affected area;
- b) working in an affected area; or
- c) present at a location in an affected area which is normally open to members of the public;

if the odour, smell or aroma

- d) is the subject of at least 5 written complaints, received by the Director in a form satisfactory to the Director and within a 90-day period, from 5 different persons falling within clauses a), b) or c), who do not live in the same household; or
- e) is the subject of at least one written complaint, received by the Director in a form satisfactory to the Director, from a person falling within clauses a), b) or c) and the Director is of the opinion that if the odour, smell or aroma had occurred in a more densely populated area there would have been at least 5 written complaints received within a 90-day period, from 5 different persons who do not live in the same household;

"primary cell" means the first in a series of cells of a wastewater treatment lagoon system and which is the cell that receives the untreated wastewater;

"record drawings" means engineering drawings complete with all dimensions which indicate all features of the Development as it has actually been built;

"riprap" means small, broken stones or boulders placed compactly or irregularly on dykes or similar embankments for protection of earthen surfaces against wave action or current;

"SAR" means sodium adsorption ratio;

"secondary cell" means a cell of a wastewater treatment lagoon system which is the cell that receives partially treated wastewater from the primary cell;

"sludge" means accumulated solid material containing large amounts of entrained water, which has separated from wastewater during processing;

"Sodium adsorption ratio" means the dimensionless value where Sodium, Calcium and Magnesium concentrations are expressed in milligrams per litre:

$$SAR = \frac{0.044 \times \text{Sodium concentration}}{\sqrt{(0.025) \text{ Calcium concentration} + (0.041) \text{ Magnesium concentration}}}$$

"Standard Methods for the Examination of Water and Wastewater" means the most recent edition of Standard Methods for the Examination of Water and Wastewater published jointly by the American Public Health Association, the American Waterworks Association and the Water Environment Federation;

"total coliform" means a group of aerobic and facultative anaerobic, Gram-negative, nonspore-forming, rod-shaped bacteria, that ferment lactose with gas and acid formation within 48 hours at 35°C, and inhabit predominantly the intestines of man or animals, but are occasionally found elsewhere, and include the sub-group of fecal coliform bacteria;

"wastewater" means the spent or used water of a community or industry which contains dissolved and suspended matter;

"wastewater collection system" means the sewer and pumping system used for the collection and conveyance of domestic, commercial and industrial wastewater; and

"wastewater treatment lagoon" means the component of this development which consists of an impoundment into which wastewater is discharged for treatment and storage.

GENERAL TERMS AND CONDITIONS

This Section of the Licence contains requirements intended to provide guidance to the Licencee in implementing practices to ensure that the environment is maintained in such a manner as to sustain a high quality of life, including social and economic development, recreation and leisure for present and future Manitobans.

1. In addition to any of the limits, terms and conditions specified in this Licence, the Licencee shall, upon the request of the Director:
 - a) sample, monitor, analyze or investigate specific areas of concern regarding any segment, component or aspect of pollutant storage, containment, treatment, handling, disposal or emission systems, for such pollutants, ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, and for such duration and at such frequencies as may be specified;
 - b) determine the environmental impact associated with the release of any pollutant from the Development;
 - c) conduct specific investigations in response to the data gathered during environmental monitoring programs; or
 - d) provide the Director, within such time as may be specified, with such reports, drawings, specifications, analytical data, descriptions of sampling and analytical procedures being used, bioassay data, flow rate measurements and such other information as may from time to time be requested.
2. The Licencee shall submit all information required to be provided to the Director or Environment Officer under this Licence, in writing, in such form (including number of copies) and of such content as may be required by the Director or Environment Officer, and each submission shall be clearly labeled with the Licence Number and Client File Number associated with this Licence.
3. The Licencee shall direct all wastewater generated within the Eagle Creek Colony toward the wastewater treatment lagoon or other approved wastewater treatment facilities.
4. The Licencee shall not cause or permit an odour nuisance to be created as a result of the construction, operation or alteration of the Development, and shall take such steps as the Director or Environment Officer may require to eliminate or mitigate an odour nuisance.

5. The Licencee shall actively participate in any future watershed-based management study, plan and/or nutrient reduction program, approved by the Director, for Tobacco Creek, the Morris River and associated waterways and watersheds.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Respecting Construction and Maintenance Involving Earthwork:

6. The Licencee shall notify the assigned Environment Officer not less than two weeks prior to beginning construction of the Development. The notification shall include the intended starting date of construction and the name of the contractor responsible for the construction.
7. The Licencee shall:
 - a) conduct all ditch related work activities during no flow or dry conditions and not during the April 1 to June 15 fish spawning and incubation period;
 - b) not construct the wastewater treatment lagoon during periods of heavy rain;
 - c) place and/or isolate all excavated and construction material where it will not erode into any watercourse;
 - d) implement effective long-term sediment and erosion control measures to prevent soil-laden runoff, and/or silt from entering any watercourse during construction and until vegetation is established;
 - e) routinely inspect all erosion and sediment control structures and immediately complete any necessary maintenance or repair;
 - f) revegetate soil exposed during the construction of the Development with native or introduced grasses or legumes. Native species shall be used to revegetate areas where native species existed prior to construction; and
 - g) use rock that is free of silt and clay for riprap.
8. The Licencee shall dispose of non-reusable construction debris from the Development at a waste disposal ground operating under the authority of a permit issued pursuant to *Manitoba Regulation 150/91* respecting *Waste Disposal Grounds*, or any future amendment thereof, or a Licence issued pursuant to *The Environment Act*.
9. The Licencee shall locate fuel storage and equipment servicing areas established for the construction, operation and maintenance of the Development a minimum distance of 100 metres from any waterbody, and shall comply with the requirements of *Manitoba Regulation 188/2001* respecting *Storage and Handling of Petroleum Products and Allied Products*, or any future amendment thereof.
10. The Licencee shall, during construction and maintenance of the Development, operate, maintain and store all materials and equipment in a manner that prevents any deleterious substances (fuel, oil, grease, hydraulic fluids, coolant, paint, uncured concrete and concrete wash water, etc.) from entering the wastewater treatment lagoon, the discharge

- route, and watercourses, and have an emergency spill kit for in-water use available on site during construction.
11. The Licencee shall, during construction and maintenance of the Development, prevent the introduction and spread of foreign aquatic and terrestrial biota by cleaning equipment prior to its delivery to the site of the Development.
 12. The Licencee shall, in the case of physical or mechanical equipment breakdown or process upset where such breakdown or process upset results or may result in the release of a pollutant in an amount or concentration, or at a level or rate of release, that causes or may cause a significant adverse effect, immediately report the event by calling 204-944-4888 (toll-free 1-855-944-4888). The report shall indicate the nature of the event, the time and estimated duration of the event and the reason for the event.
 13. The Licencee shall, following the reporting of an event pursuant to Clause 12:
 - a) identify the repairs required to the mechanical equipment;
 - b) undertake all repairs to minimize unauthorized discharges of a pollutant;
 - c) complete the repairs in accordance with any written instructions of the Director and/or the Environment Officer; and
 - d) submit a report to the Director about the causes of breakdown and measures taken, within one week of the repairs being done.
 14. The Licencee shall, prior to the construction of the dykes for the wastewater treatment lagoon, remove all organic material from the area where the wastewater treatment lagoon will be constructed.
 15. The Licencee shall construct and maintain a continuous liner, including cover material, underlying the primary and secondary cells of the wastewater treatment lagoon, such that:
 - a) the liner is constructed from HDPE geomembrane;
 - b) the liner has a minimum thickness of 60 mils;
 - c) all sections of the liner are joined by dual track seaming;
 - d) the liner is installed in accordance with ASAE Standard EP340.2 for the Installation of Flexible Membrane Linings;
 - e) the liner is installed to a minimum elevation of 2.8 metres above the base of both the primary and secondary cells;
 - f) non-destructive test methods are used to test the integrity of:
 - i) all field seams joining liner sections in accordance with ASTM Standard D 5820-95 (Reapproved 2006); and
 - ii) all other field seams in accordance with ASTM Standard D 4437-99;
 - g) the hydraulic conductivity of the liner does not exceed 3×10^{-9} centimetres per second over the entire surface area of the liner;
 - h) a testing report is prepared and submitted to the assigned Environment Officer for approval within 30 days of commencing the installation of the liner; and
 - i) the liner is covered with sand or other granular cover material to a minimum depth of 0.3 metres measured perpendicular to the surface of the liner.

16. The Licencee shall construct and maintain an effective gas relief system under the liner for all cells of the wastewater treatment lagoon.
17. The Licencee shall notify the assigned Environment Officer one week prior to commencing the installation of the liner and the gas relief system.
18. The Licencee shall not cover the liner or use the wastewater treatment lagoon until receiving the approval of the assigned Environment Officer of the report submitted pursuant to sub-Clause 15 h) of this Licence.
19. The Licencee shall complete the installation of the HDPE liner of the wastewater treatment lagoon between the 15th day of May and the 15th day of October of any year, unless otherwise approved by the Environment Officer.
20. The Licencee shall install and maintain a fence around the wastewater treatment lagoon to control access. The fence shall be a minimum of 1.2 metres high and have a locking gate, which shall be locked at all times except to allow access to the wastewater lagoon.
21. The Licencee shall:
 - a) prepare "record drawings" for the Development and shall label the drawings "Record Drawings"; and
 - b) provide to the Director, within four months of the Environment Officer's approval of the report required by clause 15 h) of this Licence, two electronic copies of the "record drawings".

Respecting Operation:

22. The Licencee shall obtain and maintain classification of the Development pursuant to *Manitoba Regulation 77/2003* respecting *Water and Wastewater Facility Operators* or any future amendment thereof and maintain compliance with all requirements of the regulation including, but not limited to, the preparation and maintenance of a Table of Organization, Emergency Response Plan and Standard Operating Procedures.
23. The Licencee shall carry out the operation of the Development with individuals properly certified to do so pursuant to *Manitoba Regulation 77/2003* respecting *Water and Wastewater Facility Operators* or any future amendment thereof.
24. The Licencee shall operate and maintain the wastewater treatment lagoon in such a manner that:
 - a) the organic loading on the primary cell, as indicated by the five-day biochemical oxygen demand, does not exceed 56 kilograms per hectare per day;
 - b) the depth of liquid in all cells does not exceed 1.5 metres; and
 - c) a minimum 1.0 metre freeboard is maintained in the primary and secondary cells at all times.

25. The Licencee shall not discharge effluent from the wastewater treatment lagoon:
- a) where the organic content of the effluent, as indicated by the five-day carbonaceous biochemical oxygen demand, is in excess of 25 milligrams per litre;
 - b) where the total suspended solids content of the effluent is in excess of 25 milligrams per litre, unless the exceedance is caused by algae;
 - c) where the fecal coliform content of the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample;
 - d) where the unionized ammonia content of the effluent is in excess of 1.25 milligrams per litre expressed as nitrogen (N), at $15^{\circ}\text{C} \pm 1^{\circ}\text{C}$;
 - e) where the total phosphorus content of the effluent is in excess of 1 milligram per litre;
 - f) between the 1st day of November of any year and the 15th day of June of the following year;
 - g) when flooding from any cause is occurring along the discharge route; and
 - h) when the discharge of effluent will cause or contribute to flooding in or along the discharge route.
26. The Licencee shall, when chlorine is used as a disinfecting agent:
- a) notify the Director in advance;
 - b) dechlorinate effluent prior to discharge;
 - c) obtain grab samples prior to and daily during the discharge period and have them analyzed for total residual chlorine; and
 - d) not discharge effluent where the concentration of the total residual chlorine is in excess of 0.02 milligrams per litre.
27. The Licencee shall discharge each secondary cell of the wastewater treatment lagoon over at least a two-week period, while accelerating discharge as necessary to maintain normal operation of the wastewater treatment lagoon.

Respecting Maintenance:

28. The Licencee shall, if in the opinion of the Director or Environment Officer, significant erosion of the interior surfaces of the dykes occurs, repair the dyke and install riprap as necessary. The riprap shall be placed on the interior dyke surfaces from 0.6 metres above the high water mark to the bottom of the dykes to protect the dykes from wave action.
29. The Licencee shall provide and maintain a grass cover on the dykes of the wastewater treatment lagoon and shall regulate the growth of the vegetation so that the height of the vegetation does not exceed 0.3 metres on all dykes.
30. The Licencee shall annually remove by mechanical methods all reeds, rushes and trees located above the low water mark in every cell of the wastewater treatment lagoon.
31. The Licencee shall implement an ongoing program to ensure that burrowing animals are removed from the site of the wastewater treatment lagoon.

32. The Licencee shall take action to maintain the HDPE liner on the bottom of the cells of the Development. If the liner becomes displaced from its design position, the Licencee shall immediately report the displacement to the Director, and take any measures required by the Director to restore the liner to its design position.

MONITORING AND REPORTING SPECIFICATIONS

33. The Licencee shall, unless otherwise specified in this Licence:
- a) carry out all preservations and analyses on liquid samples in accordance with the methods prescribed in the Standard Methods for the Examination of Water and Wastewater, or in accordance with equivalent preservation and analytical methodologies approved by the Director;
 - b) carry out all sampling of, and preservation and analyses on, soil, compost, and air samples in accordance with methodologies approved by the Director;
 - c) have all analytical determinations undertaken by an accredited laboratory; and
 - d) report the results to the Director, in writing and in an electronic format acceptable to the Director, within 60 days of the samples being taken.
34. The Licencee shall immediately notify the Director each time the operating depth of any cell of the wastewater treatment lagoon does not comply with the maximum operating depth and minimum freeboard requirements for that cell as specified in Clause 24 this Licence.
35. The Licencee shall, if reporting is required pursuant to Clause 34 of this Licence in two consecutive years:
- a) engage the services of a qualified consultant, acceptable to the Director, to undertake an investigation of the Facility and related infrastructure, to determine the ability or inability of the existing system to meet the hydraulic loading capacity of the community. The investigation shall include but not be necessarily limited to:
 - i) diagnosis of the cause(s) of the recent exceedances of maximum operating depth;
 - ii) sources of infiltration into the wastewater system;
 - iii) current hydraulic loading of the system;
 - iv) lack of storage capacity due to sludge build-up within existing cells;
 - v) the organic loading on the primary cell in terms of the five day biochemical oxygen demand; and
 - vi) operating procedures;
 - b) provide to the Director, within four months of the notification given pursuant to Clause 34 of this Licence, an engineering report describing in detail the results and observations concluded by virtue of the investigation; and
 - c) provide to the Director, within four months of the report provided pursuant to Sub-clause b) of this section, a remedial action plan in the form of a detailed engineering report describing recommended modifications, repairs or upgrading works to overcome excessive hydraulic loading of the system.

36. The Licencee shall prior to each effluent discharge campaign, obtain grab samples of the treated wastewater and have them analyzed for:
 - a) the organic content as indicated by the five-day carbonaceous biochemical oxygen demand and expressed as milligrams per litre;
 - b) the total suspended solids content expressed as milligrams per litre;
 - c) the fecal coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
 - d) the unionized ammonia nitrogen expressed as milligrams per litre; and
 - e) the total phosphorus content expressed as milligrams per litre.

37. The Licencee shall conduct a monitoring program for the sodium adsorption ratio (SAR) of the effluent from the Development, prior to each discharge, for a minimum of three years commencing with the operation of the Development. The program shall monitor the SAR in the effluent, and upstream and downstream of the effluent discharge point.

38. The Licencee shall, not less than 30 days after the results of the sample analysis are available, submit to the Director the results of the monitoring program carried out pursuant to Clause 37.

39. The Licencee shall, as may be required by the Director, submit a plan for the approval of the Director, to be implemented by the Licencee to reduce the concentrations of effluent constituents that create SAR levels that exceed the Manitoba Water Quality Standards, Objectives and Guidelines.

40. The Licencee shall during each year maintain the following records and retain them for a minimum period of five calendar years:
 - a) reports of visual inspections conducted a minimum of once per month;
 - b) wastewater sample dates;
 - c) original copies of laboratory analytical results of the sampled wastewater;
 - d) a summary of laboratory analytical results;
 - e) effluent discharge dates;
 - f) estimated effluent discharge volumes; and
 - g) maintenance and repairs.

41. The Licencee shall submit an annual report to the Environment Officer by February 28 of the following year including all records required by Clause 40 of this Licence.

42. The Licencee shall, during the first year of operation of the Development following the construction of the wastewater treatment lagoon that a discharge must occur, obtain and analyze grab samples of the effluent during each effluent discharge campaign and report the results of the analysis in accordance with Schedule "A" attached to this Licence.

REVIEW AND REVOCATION

- A. If, in the opinion of the Director, the Licencee has exceeded or is exceeding or has or is failing to meet the specifications, limits, terms, or conditions set out in this Licence, the Director may, temporarily or permanently, revoke this Licence.
- B. If the Licencee has not commenced construction of the Development within three years of the date of this Licence, the Licence is revoked.
- C. If, in the opinion of the Director, new evidence warrants a change in the specifications, limits, terms or conditions of this Licence, the Director may require the filing of a new proposal pursuant to Section 11 of *The Environment Act*.

“original signed by”

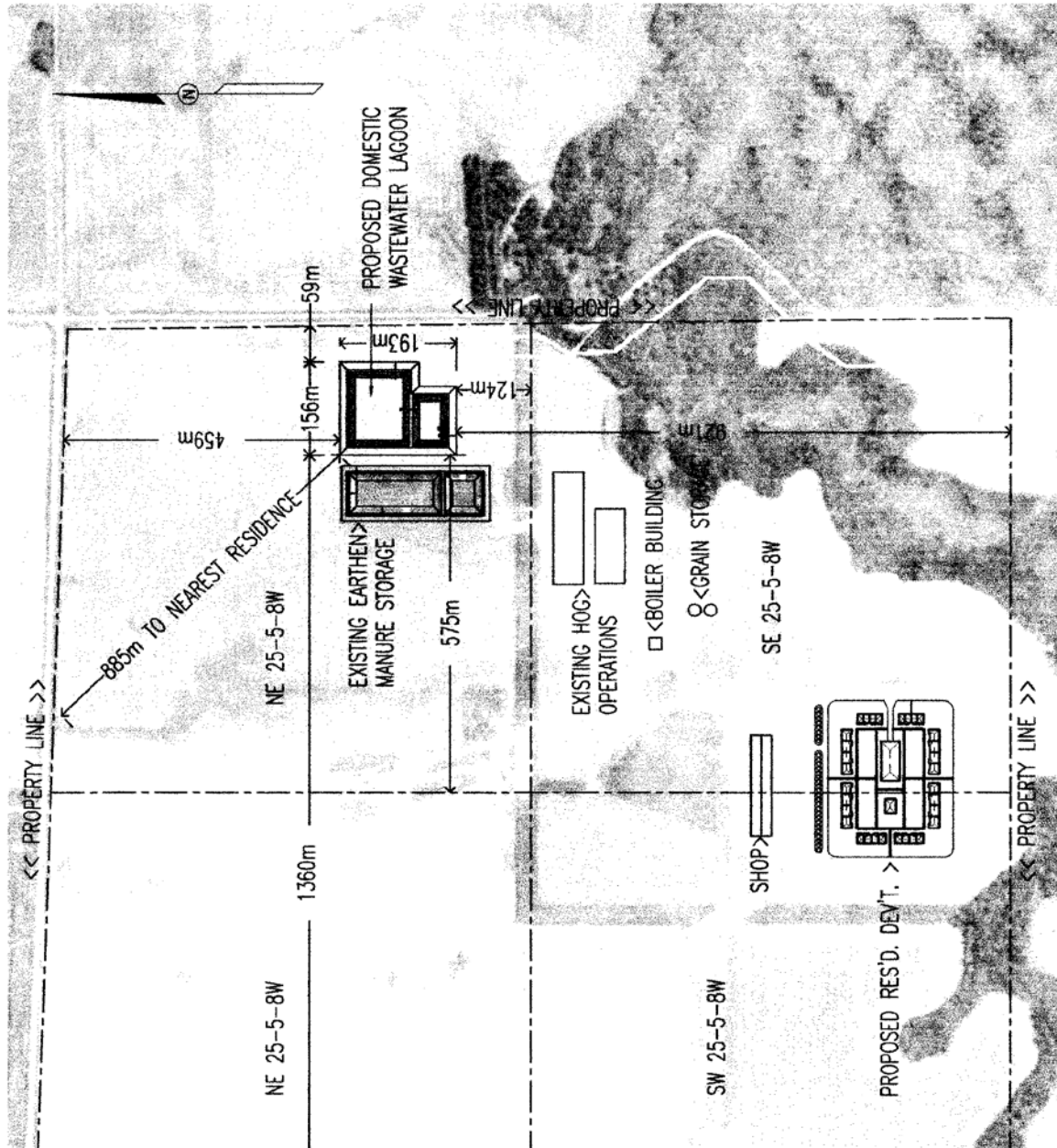
Tracey Braun, M.Sc.

Director

Environment Act

Client File No.: 5703.00

Figure 1: Eagle Creek Colony Ltd. - Wastewater Treatment Lagoon Licence No. 3110



****A COPY OF THE LICENCE MUST BE KEPT ON SITE AT THE DEVELOPMENT AT ALL TIMES****

Schedule "A" to Environment Act Licence No. 3110

Initial Characterization of Wastewater Pursuant to Clause 42

Facility Size: Very small (less than 500 m³/day)

Facility Type: Facultative wastewater treatment lagoon - intermittent discharge

Effluent Sampling:

During the first year of operation, for all discharge events:

1. Obtain a representative grab sample of the discharging effluent near the beginning of the discharge period and near the end of the discharge period (i.e., two samples for each discharge event); and
2. Determine the temperature of each sample at the time of sampling.

Effluent Analysis:

1. For each grab sample, have the grab sample analysed for:
 - a) the organic content as indicated by the five-day biochemical oxygen demand and expressed as milligrams per litre;
 - b) the organic content as indicated by the five-day carbonaceous biochemical oxygen demand and expressed as milligrams per litre;
 - c) the total suspended solids content expressed as milligrams per litre;
 - d) the *Escherichia coli* (*E. Coli*) content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
 - e) the fecal coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
 - f) the total coliform content as indicated by the MPN index and expressed as MPN per 100 millilitres per sample;
 - g) if chlorine was used as a disinfecting agent, total residual chlorine expressed as milligrams per litre;
 - h) total ammonia nitrogen expressed as milligrams per litre;
 - i) nitrate-nitrite nitrogen expressed as milligrams per litre;
 - j) total Kjeldahl nitrogen (TKN) expressed as milligrams per litre;
 - k) dissolved phosphorus expressed as milligrams per litre;
 - l) total phosphorus expressed as milligrams per litre; and
 - m) pH.

Effluent Reporting:

1. For each grab sample, report the results to the Director, in writing or in an electronic format acceptable to the Director within 60 days of the sampling date. The report shall include the sampling date, sample temperature, the dates of the effluent discharge, and copies of the laboratory analytical results of the sampled effluent.