



Sustainable Development

Environmental Stewardship Division
Environmental Approvals Branch
1007 Century Street, Winnipeg, Manitoba R3H 0W4
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CLIENT FILE NO.: 2708.20

April 17, 2019

Scott Toews
City of Winkler
185 Main Street
Winkler MB R6W 1B4

Dear Mr. Toews:

Enclosed is **Environment Act Licence No. 2525 R**, issued to the **City of Winkler** for the construction and operation of the Development being a wastewater collection system and a wastewater treatment facility located in the Rural Municipality of Stanley, in accordance with the Proposal filed under The Environment Act.

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.

If you have any questions on this matter, please contact Tyler Kneeshaw, Environment Officer, at 204-239-3608.

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 Sustainable Development within 30 days of the date of the Licence.

Yours truly,

Tracey Braun, M.Sc.
Director
Environmental Approvals Branch

- c: Yvonne Hawryliuk/Tyler Kneeshaw: Environmental Compliance and Enforcement
Bruce Webb: Environmental Approvals
Paul Barsalou: AECOM Canada; Travis Parsons: MWSB
Public Registries

NOTE: Confirmation of receipt of this Licence No. 2525 R (by the Licencee only) is required by the Director of Environmental Approvals. Please acknowledge receipt by signing in the space below and email a copy of this letter to bruce.webb@gov.mb.ca by May 1, 2019.

On behalf of the City of Winkler

Date

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

LICENCE

| | |
|---------------------------------|-------------------------|
| Licence No. / Licence n° | <u>2525 R</u> |
| Issue Date / Date de délivrance | <u>January 23, 2002</u> |
| Date Revised | <u>April 17, 2019</u> |

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 Sections 11(1) and 14(3) / Conformément au Paragraphes 11(1) et 14(3)

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

CITY OF WINKLER;
"the Licencee"

for the construction and operation of the Development being a wastewater collection system and a wastewater treatment facility with a maximum daily flow rate not in excess of 60,000 cubic metres over any 24-hour period with not more than 23,641 cubic metres of that volume being directed to secondary treatment over any 24-hour period, for a design population of 28,400 and located at SW 23-3-4W and SE 22-3-4W in the Rural Municipality of Stanley, with discharge of treated effluent into an outfall to Deadhorse Creek, in accordance with the Proposal filed pursuant to The Environment Act on April 4, 2014 and a Notice of Alteration and additional information dated November 22, 2016, and subject to the following specifications, limits, terms and conditions:

DEFINITIONS

In this Licence,

"accredited laboratory" means an analytical facility accredited by the Standards Council of Canada (SCC), or accredited by another accrediting agency recognized by Manitoba Sustainable Development to be equivalent to the SCC, or 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;

"acute lethality" means a toxic effect resulting in death in an organism by a substance or mixture of substances within a short exposure period (usually 96 hours or less);

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"aerated" means the bringing about of intimate contact between air and a liquid by bubbling air through the liquid;

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

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

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

"bentonite" means specially formulated standard mill grade sodium bentonite conforming to American Petroleum Institute Specification 13-A;

"bioassay" means a method of determining toxic effects of industrial wastes and other wastewaters by using viable organisms;

"composite sample" means a quantity of undiluted wastewater consisting of a minimum of 10 equal volumes of effluent, or flow proportional volumes collected over a 24-hour period, and may be collected manually or by means of an automatic sampling device;

"cut-off" means a vertical or slanted trench filled with compacted clay or a sand and bentonite mixture, or a wall constructed from compacted clay;

"day" means any 24-hour period;

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

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

"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 material 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;

"high water mark" means the line on the interior surface of a wastewater treatment lagoon cell which is normally reached when the cell is at the maximum allowable liquid level or the line of the exterior of the perimeter dykes which is reached during local flooding;

"hydraulic conductivity" means the quantity of water that will flow through a unit cross-sectional area of a porous material per unit of time under a hydraulic gradient of 1.0;

"industrial use agreement" means an agreement to discharge industrial wastewater to municipal wastewater collection and treatment systems;

"industrial wastewater" means wastewater derived from an industry which manufactures, handles or processes a product and does not include wastewater from commercial or residential buildings;

"influent" means water, wastewater, or other liquid flowing into the wastewater treatment plant;

"low water mark" means the line on the interior surface of a wastewater treatment lagoon cell which is normally reached when the cell is discharged;

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

"mixing zone" means an area adjacent to a discharge where a receiving water may not meet all water quality objectives included in the most recent version of the "Manitoba Water Quality Standards, Objectives, and Guidelines";

"noise nuisance" means an unwanted sound, in an affected area, which is annoying, troublesome, 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 unwanted sound

- 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 unwanted sound 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;

"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;

"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 earth surfaces against wave action or current;

"septage" means the sludge produced in individual on-site wastewater disposal systems such as septic tanks;

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

"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;

"storage cell" means a cell of the wastewater treatment lagoon system which is a cell that receives partially treated wastewater or sludge and retains the wastewater or sludge for a period of time;

"total coliform" means a group of aerobic and facultative anaerobic, Gram-negative, non-spore 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;

"total residual chlorine" means the sum of free chlorine and combined chlorine, including inorganic chloramines;

"UV" means ultraviolet;

"UV disinfection" means a disinfection process for treating wastewater using ultraviolet radiation;

"UV germicidal dose" means the units of intensity of ultra violet light that is required to kill bacteria and viruses present in the effluent;

"WAS" means waste activated sludge;

"waste disposal facility" means an area of land designated by a person, municipality, provincial government agency, or crown corporation for the disposal of waste and approved for use in accordance with Manitoba Regulation 37/2016 – Waste Management Facilities, or any future amendments thereto, or a Licence pursuant to The Environment Act;

"waste solid" means a dissolved, suspended, or volatile substance that is contained in or removed from wastewater and that can no longer be used for its original purpose;

"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;

"wastewater treatment facility" means the wastewater treatment plant, wastewater treatment lagoon and all ancillary components, exclusive of the wastewater collection system;

"wastewater treatment lagoon" means the components of this Development which consists of impoundments into which wastewater and sludge is discharged for treatment and storage;

"wastewater treatment plant" means the central facility of wastewater treatment of the Development which contains all treatment processes exclusive of the wastewater collection system and the wastewater treatment lagoon;

"wet industry" means an industry that generates manufacturing or processing wastewater but does not include an industry that generates only cooling process wastewater;

"WWTF" means wastewater treatment facility; and

"WWTP" means wastewater treatment plant.

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. The Licencee shall direct all wastewater generated with the City of Winkler toward the WWTF as shown in Schedule "A" (plan of facility) and Schedule "B" (process diagram) to this Licence or other approved wastewater treatment facilities.
2. In addition to any of the following specifications, 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, handling, treatment and disposal systems, for such pollutants, ambient quality, aquatic toxicity, seepage characteristics and discharge rates and for such duration and 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, bioassay data, flow rate measurements and such other information as may from time to time be requested.
3. 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 labelled with the Licence Number and Client File Number associated with this Licence.
4. The Licencee shall not cause or permit a noise nuisance to be created as a result of the construction, operation or alteration of the Development, and shall take such steps as the Director may require to eliminate or mitigate a noise nuisance.

5. 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 may require to eliminate or mitigate an odour nuisance.
6. The Licencee shall actively participate in any future watershed-based management study, plan or nutrient reduction program, approved by the Director, for Deadhorse Creek and associated waterways and watersheds.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Construction - General

7. The Licencee shall notify the assigned Environment Officer prior to beginning construction of and upgrades to the WWTF. The notification shall include the intended starting date of construction and the name of the Licencee's contact person at the construction site.
8. 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 components of the WWTF involving earthwork 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.
9. The Licencee shall dispose of non-reusable construction debris from the Development at a waste disposal facility operating under the authority of a permit issued pursuant to Manitoba Regulation 37/2016 respecting Waste Management Facilities, or any future amendment thereof, or a Licence issued pursuant to The Environment Act.
10. The Licencee shall comply with the requirements of The Heritage Resources Act, and suspend construction and immediately notify the Historic Resources Branch if heritage resources are encountered during the construction of the Development.

11. The Licencee shall locate fuel storage and equipment servicing areas established for the construction and operation 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.
12. 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 WWTF, the discharge route, and watercourses, and have an emergency spill kit for in-water use available on site during construction.
13. 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 and complying with the requirements of Manitoba Regulation 173/2015 respecting Aquatic Invasive Species, or any future amendment thereof.
14. The Licencee shall construct and maintain an all-weather access road and a wastewater dumping station for truck-hauled wastewater.
15. 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 treatment lagoon.
16. The Licencee shall install and maintain a security fence around all components of the wastewater treatment plant that are not enclosed within secured buildings to the satisfaction of the Environment Officer.

Breakdown or Process Upset Reporting

17. 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 the 24-hour environmental accident reporting line at 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.
18. The Licencee shall, following the reporting of an event pursuant to Clause 17,
 - 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.

Wastewater Treatment Lagoon Cells

19. The Licencee shall maintain all wastewater, sludge storage and effluent storage cells of the wastewater treatment lagoon as identified as Cells 1 – 9 on Schedule “A” to this Licence with continuous liners, including cut-offs, under all interior surfaces of the cells in accordance with the following specifications:
 - a) the liners shall be made of clay;
 - b) the liners shall be at least one metre in thickness; and
 - c) the liners shall have a hydraulic conductivity of 1×10^{-7} centimetres per second or less at all locations.
20. The Licencee shall maintain the continuous liners of the wastewater treatment lagoon cells across the bottom of each cell and up to the top of the dykes. Cell depths from the bottom of the cell to the top of the dykes shall be:
 - a) Cell 1 (aerated): 5.3 m;
 - b) Cells 2 and 3 (sludge stabilization and storage): 5.3 m;
 - c) Cells 4 and 5 (effluent storage): 2.5 m;
 - d) Cell 6 (effluent storage): 3.1 m; and
 - e) Cells 7, 8 and 9 (effluent storage): 3.5 m.
21. The Licencee shall, if in the opinion of the Environment Officer, significant erosion of the interior surfaces of the dykes occurs, repair the dykes of the wastewater treatment lagoon to the satisfaction of the Environment Officer. Upon approval of the Environment Officer, 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.
22. 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.
23. 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.
24. The Licencee shall implement an ongoing program to remove burrowing animals from the site of the wastewater treatment lagoon.

Sludge in Cell 1 of the Wastewater Treatment Lagoon

25. The Licencee shall dispose of dewatered sludge from Cell 1 of the wastewater treatment lagoon in a waste disposal facility.

Operation – General

26. 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.
27. 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.
28. The Licencee shall not allow the discharge of any industrial wastewater from a wet industry into the wastewater collection system and WWTF unless the wet industry discharging the wastewater has first entered into an industrial use agreement with the Licencee.
29. Notwithstanding Clause 28 of this Licence, the Licencee shall establish an industrial use agreement with wet industries that do not currently have an industrial use agreement within six months of the date of this Licence. Any such agreement(s) shall specify the quality, quantity and timing of discharges into the wastewater collection system.
30. The Licencee shall operate the wastewater treatment plant in such a manner that:
- a) all wastewater, septage and sludge transported to the Development by means other than the wastewater collection system are transported in enclosed containers and in such a manner to prevent loss of wastewater, septage and sludge to the satisfaction of an Environment Officer;
 - b) only wastewater as defined in this Licence is discharged into the wastewater treatment plant;
 - c) waste solids including screenings and grit collected by the wastewater treatment plant headworks are disposed of in a waste disposal facility;
 - d) sludge generated by the wastewater treatment plant is pumped to the sludge stabilization cell (Cell 2) as identified on Schedule "A" to this Licence for stabilization; and
 - e) sludge stored in the sludge stabilization cell (Cell 2) or sludge storage cell (Cell 3) is land applied periodically as necessary and in accordance with the requirements of a Licence or Licences issued pursuant to The Environment Act

so as to maintain effective and stable operation of the stabilization and storage cells.

31. The Licencee shall not spill, or allow to be spilled, wastewater and/or sludge in the area around the wastewater treatment facility.
32. The Licencee shall report and remediate spills and other accidental releases of wastewater, effluent and sludge in accordance with the requirements of clauses 17 and 18 of this Licence.

Operation – Loading Rates

33. The Licencee shall, unless otherwise approved by the Director, operate and maintain the WWTF in such a manner that:
 - a) the maximum daily flow rate directed to secondary treatment in the wastewater treatment plant is not in excess of 23, 641 cubic metres per day;
 - b) the maximum daily flow rate is not in excess of 60,000 cubic metres per day;
 - c) the organic loading is not in excess of 5,581 kilograms of five-day biochemical oxygen demand per day; and
 - d) the organic loading prior to the commissioning of the WWTP is not in excess of 1,837 kilograms of five-day biochemical oxygen demand per day.

Operation – Maximum Depths in Wastewater Treatment Lagoon Cells

34. The Licencee shall maintain a minimum freeboard of 1.0 metres in all cells of the wastewater treatment lagoon and maximum depths of wastewater in each cell as follows:
 - a) Cell 1 (aerated): 4.3 m;
 - b) Cells 2 and 3 (sludge stabilization and storage): 4.3 m;
 - c) Cells 4 and 5 (effluent storage): 1.5 m;
 - d) Cell 6 (effluent storage): 2.1 m; and
 - e) Cells 7, 8 and 9 (effluent storage): 2.5 m.

Operation – Wastewater Treatment Lagoon Aerated Cell (Cell 1)

35. The Licencee shall, when operating the aerated wastewater treatment cell of the wastewater treatment lagoon (Cell 1 as identified in Schedule “A” of this Licence) to treat wastewater flows in excess of the capacity of the wastewater treatment plant and at depths exceeding 1.5 metres, maintain a minimum of 2 milligrams of dissolved oxygen per litre in the liquid in the cell.

Operation – Effluent Discharge

36. The Licencee shall not discharge effluent to Deadhorse Creek from the wastewater treatment plant or the wastewater treatment lagoon, where:

- a) the organic content of the effluent, as indicated by the five-day carbonaceous biochemical oxygen demand (CBOD₅), is in excess of 25 milligrams per litre;
- b) the fecal coliform or *E. coli* content of the effluent, as indicated by the MPN index, is in excess of 200 per 100 millilitres of sample, as determined by the monthly geometric mean of 1 grab sample collected at equal intervals on each of a minimum of 3 consecutive days per week;
- c) the total suspended solids content of the effluent, as indicated by the non-filterable residue, is in excess of 25 milligrams per litre, unless the exceedance is in the cells of the wastewater treatment lagoon and is caused by algae;
- d) the total phosphorus is in excess of 1.0 milligram per litre, as determined by the thirty-day rolling average;
- e) the total nitrogen is in excess of 15 milligrams per litre, as determined by the thirty-day rolling average;
- f) the total ammonia content of the effluent of the WWTF expressed as total ammonia nitrogen (N) in milligrams per litre is in excess of the limit specified below:

| Effluent pH | Effluent, Total Ammonia expressed as N (mg/L) |
|-------------|-----------------------------------------------|
| 6.50 | 48.83 |
| 6.60 | 46.84 |
| 6.70 | 44.57 |
| 6.80 | 42.00 |
| 6.90 | 39.16 |
| 7.00 | 36.09 |
| 7.10 | 32.86 |
| 7.20 | 29.54 |
| 7.30 | 26.21 |
| 7.40 | 22.97 |
| 7.50 | 19.89 |
| 7.60 | 17.03 |
| 7.70 | 14.44 |
| 7.80 | 12.14 |
| 7.90 | 10.13 |
| 8.00 | 8.41 |
| 8.10 | 6.95 |
| 8.20 | 5.73 |
| 8.30 | 4.71 |
| 8.40 | 3.88 |
| 8.50 | 3.20 |
| 8.60 | 2.65 |
| 8.70 | 2.20 |
| 8.80 | 1.84 |
| 8.90 | 1.56 |
| 9.00 | 1.32 |

- g) prior to the commissioning of the WWTP, the unionized ammonia content of the effluent from the cells of the wastewater treatment lagoon is in excess of 1.25 milligrams per litre expressed as nitrogen (N), at $15^{\circ}\text{C} \pm 1^{\circ}\text{C}$;
- h) the total dissolved solids content of the effluent is in excess of 1,165 milligrams per litre;
- i) the chloride content of the effluent is in excess of 120 milligrams per litre;
- j) when freezing conditions are occurring on the discharge route;
- k) when flooding from any cause is occurring along the discharge route; or
- l) when the discharge of effluent will cause or contribute to flooding in or along the discharge route.

Subclauses e), f), h) and i) apply after commissioning of the WWTP of the Development.

Subclauses h) and i) may be reviewed on request by the Licencee within five years of the date of this Licence, in consideration of the finalized operation of the Licencee's water treatment plant, the Licencee's evaluation of alternatives for the disposal of reject water from the water treatment plant, the quality of wastewater mixed with extraneous flows into the wastewater collection system and the results of monitoring on the effects of effluent on Deadhorse Creek.

37. The Licencee shall not release a quality of effluent from the wastewater treatment plant or the wastewater treatment lagoon which:
- a) on any day, causes, or contributes to, the mixing zone for the effluent in Deadhorse Creek being acutely lethal to aquatic life passing through the mixing zone; or
 - b) can be demonstrated to be acutely lethal to fish within the mixing zone for the effluent in Deadhorse Creek by using a 96-hour static acute lethality test which results in mortality to more than 50 percent of the test fish exposed to 100 percent concentration of effluent, with the test carried out in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout: EPS 1/RM/13 Second Edition – December 2000" or any future amendment thereof.

Operation - Disinfection

38. The Licencee shall, when UV disinfection is employed, have adequate instrumentation installed to provide constant monitoring of the UV process to ensure compliance with the UV disinfection requirements. Such instrumentation shall include but not be limited to the following:
- a) a UV sensor to monitor lamp intensity;
 - b) appropriate alarm and shutdown systems;
 - c) a lamp monitoring system to identify the location of individual lamp failures;

- d) an hour meter which cannot be reset to display actual hours of UV lamp operation; and
 - e) protective circuits for overcurrent and ground current leakage detection.
39. The Licencee shall, when UV disinfection is employed, utilize UV lamps in the UV disinfection process that have a rated output of at least 254 nanometres (nm) capable of delivering a germicidal dose in excess of 30,000 microwatt seconds/sq cm.
40. The Licencee shall, when UV disinfection is employed, operate and maintain the UV disinfection system to give a germicidal dose of 80% or more of the design UV germicidal dose, at the end of the lamp life.
41. 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.

Operation – Sludge Management

42. The Licencee shall direct all WAS from the bioreactors and scum from the secondary clarifiers of the WWTP to the sludge collection and thickening train of the WWTP, and then to the aerobic sludge stabilization cell (Cell 2) and sludge storage cell (Cell 3) of the wastewater treatment lagoon as identified on Schedule “A” to this Licence.

MONITORING AND REPORTING SPECIFICATIONS

43. The Licencee shall, unless otherwise specified in this Licence:
- a) carry out all preservations and analyses of 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.
44. The Licencee shall monitor, and make the records of such monitoring available to the Environment Officer as may be requested, the wastewater treatment process for the following parameters:
- a) total flow rate(s) into the WWTF;

- b) total flow rate(s) into Cell 1 of the wastewater treatment lagoon;
 - c) flow rates from the wastewater treatment plant and each effluent storage cell of the wastewater treatment lagoon into Deadhorse Creek; and
 - d) other process parameters approved or required by the Director or Environment Officer.
45. The Licencee shall:
- a) inspect the operation of the aeration system blowers once each week;
 - b) annually inspect the aeration system and make any necessary repairs at least once each year;
 - c) maintain a record of aeration system inspection dates, observations, maintenance and repairs completed; and
 - d) make the record of aeration system inspection dates, observations, maintenance and repairs completed available to the Environment Officer upon request.
46. The Licencee shall maintain records of the aeration system operation and/or maintenance requirements including, but not limited to, the aeration system pumps daily elapsed time and make these records available to the Environment Officer on request.
47. The Licencee shall:
- a) construct, maintain, and make available for use by an Environment Officer, secured and heated monitoring stations, allowing direct accesses to:
 - i) the influent wastewater channel; and
 - ii) the WWTP effluent discharge pipe following UV disinfection;
 - b) have the monitoring stations accessible to an Environment Officer at all times;
 - c) install and maintain flow measuring devices at the monitoring stations or at locations acceptable to the Director which are capable of measuring the volumes of influent and effluent with an accuracy of ± 2 percent;
 - d) have the flow measuring devices re-calibrated biannually or on the request of an Environment Officer;
 - e) equip the monitoring stations with flow-proportional sampling devices equipped to function with the flow measuring device and have the sampling devices available on request for use by an Environment Officer; and
 - f) equip the monitoring stations with an electrical power source of 15 amperes at 110 volts.
48. The Environment Officer shall approve the sampling locations for the influent and the effluent.

Effluent Monitoring

49. The Licencee shall:
- a) take one flow proportional composite sample of effluent from the WWTP effluent monitoring station over a 24-hour period once each week when the WWTP is discharging directly to Deadhorse Creek;
 - b) have the flow proportional composite effluent sample analyzed for:
 - i) five-day carbonaceous biochemical oxygen demand (CBOD₅);
 - ii) total suspended solids;
 - iii) unionized ammonia;
 - iv) total ammonia;
 - v) total nitrogen;
 - vi) total phosphorus;
 - vii) total dissolved solids;
 - viii) chloride;
 - ix) pH; and
 - x) temperature;
 - c) take three daily grab samples on consecutive days of the effluent from the effluent monitoring station during the discharge period once each week;
 - d) have the grab samples analyzed for fecal coliform content or *E. coli*; and
 - e) determine and record the monthly geometric mean for the fecal coliform or *E. coli* counts based on all the data collected during each month, from a minimum of twelve (12) grab samples.

These requirements do not apply when the WWTP is discharging only to the effluent storage cells of the wastewater treatment lagoon.

50. The Licencee shall, prior to each discharge of effluent from effluent storage cells of the wastewater treatment lagoon, obtain grab samples of the treated wastewater and have them analyzed for:
- a) five-day carbonaceous biochemical oxygen demand (CBOD₅);
 - b) fecal coliform or *E. coli*;
 - c) total suspended solids;
 - d) total ammonia;
 - e) total nitrogen;
 - f) total phosphorus;
 - g) total dissolved solids;
 - h) chloride;
 - i) pH; and
 - j) temperature.

Prior to the commissioning of the WWTP, the analysis of subclause d) shall be for unionized ammonia.

51. The Licencee shall, during the first year of operation of the Development following the commissioning of the WWTP, obtain grab samples of the effluent from the WWTP and the wastewater treatment lagoon at times when each is discharging to Deadhorse Creek, have them analyzed and report the results in accordance with Schedule "C" attached to this licence.
52. The Licencee shall, for a period of three years commencing with the commissioning of the WWTP of the Development, monitor water quality in Deadhorse Creek in the spring and fall of each year at locations approved by the Environment Officer upstream and downstream of the discharge point of the Development into Deadhorse Creek, and report the monitoring in accordance with the requirements of Clause 54 of this Licence. The monitoring shall include the following:
 - a) total nitrogen;
 - b) total phosphorus;
 - c) total ammonia;
 - d) pH;
 - e) temperature;
 - f) total Kjeldahl nitrogen;
 - g) total suspended solids;
 - h) total dissolved solids; and
 - i) chloride.

Respecting Acute Lethality

53. The Licencee shall:
 - a) take two flow proportional composite samples of effluent from the WWTP effluent monitoring station over a 24 hour period every three months each year with a minimum separation time of 90 days between samples;
 - b) have one bioassay sample of the effluent analyzed at 100 percent concentration for acute lethality in accordance with the protocol outlined in Environment Canada's "Biological Test Method: Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout: EPS 1/RM/13 Second Edition – December 2000", or any future amendment thereof;
 - c) have one sample of the effluent analyzed for chronic toxicity in accordance with a method approved by the Director; and
 - d) report the results to the Director within 30 days of the end of the month during which the samples were taken.

Records Maintenance and Reporting

54. 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 at 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) cell isolation dates (i.e., valve operation records);
 - f) effluent discharge dates;
 - g) monthly effluent discharge volumes from the WWTP and all effluent storage cells of the wastewater treatment lagoon;
 - h) maintenance and repairs;
 - i) expansions to the wastewater collection system with associated capacity assessment;
 - j) updated organization charts identifying all certified operators, including backup operators; and
 - k) a summary of any sanitary sewer overflows.
55. The Licencee shall submit an annual report to the Environment Officer by February 28 of the following year including all records required by Clause 54 of this Licence.

Operating Depth and Freeboard Non-Compliance Events

56. 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 34 of this Licence.
57. The Licencee shall, if reporting is required pursuant to Clause 56 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 cells of the wastewater treatment lagoon 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 including the municipal infrastructure;
 - 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 any 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 56 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.

Soil Liner Sampling, Testing and Reporting

58. The Licencee shall arrange with the designated Environment Officer a mutually acceptable time and date for any required soil sampling between the 15th day of May and the 15th day of October of any year, unless otherwise approved by the Environment Officer.
59. The Licencee shall take and test undisturbed soil samples, in accordance with Schedule "D" attached to this Licence, from the soil liners of the wastewater treatment lagoon cells of the lagoon; the number and location of samples and test methods to be specified by the designated Environment Officer up to a maximum of 70 samples.
60. The Licencee shall, not less than 2 weeks before the operation of any cell of the wastewater treatment lagoon for which soil sampling has been required, submit for the approval of the Environment Officer the results of the tests carried out pursuant to Clause 59 of this Licence.

Record Drawings

61. The Licencee shall:
 - a) prepare "record drawings" for the Development and shall label the drawings "record drawings"; and
 - b) provide to the Director, within six months of commissioning the WWTP of the Development, two sets of "record drawings" of the Development.

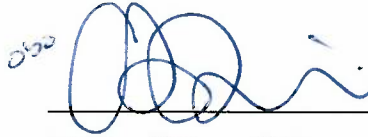
Alterations

62. The Licencee shall notify the Director and receive the approval of the Director for any alterations to the Development as licensed, prior to proceeding with such alterations.

REVIEW AND REVOCATION

- A. Licence No. 2525 is hereby rescinded.
- B. 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.

- 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.



Tracey Braun, M.Sc.
Director
The Environment Act

Client File No.: 2708.20

Schedule "A" to Environment Act Licence No. 2525 R

AECOM

PROJECT
WASTEWATER TREATMENT PLANT UPGRADE PROJECT

CLIENT
 City of Winkler
 181 Main Street
 Winkler, Manitoba
 R6W 1S6

CONSULTANT
 AECOM
 55 Commerce Drive
 Winnipeg, Manitoba R3P 8Y7
 204-587-5311 ext. 254-254 (local) or
 888-881-1001

REGISTRATION

PRELIMINARY
 NOT FOR CONSTRUCTION
 Date: 03-16-11-04

| NO. | DATE | REVISION |
|-----|------|----------|
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PROJECT NUMBER

DATE

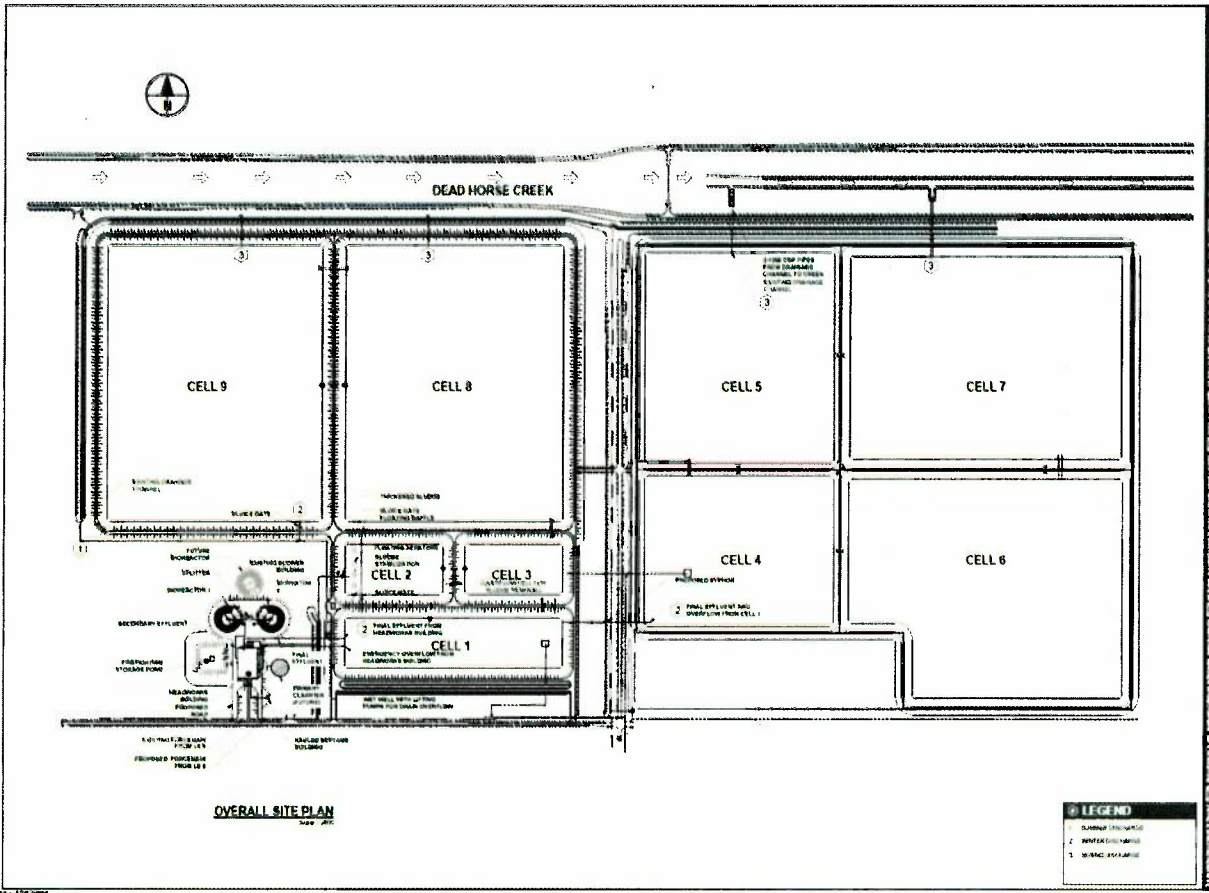
PROJECT TITLE

GENERAL & SITEWORK

OVERALL SITE PLAN

SHEET NUMBER

00-001

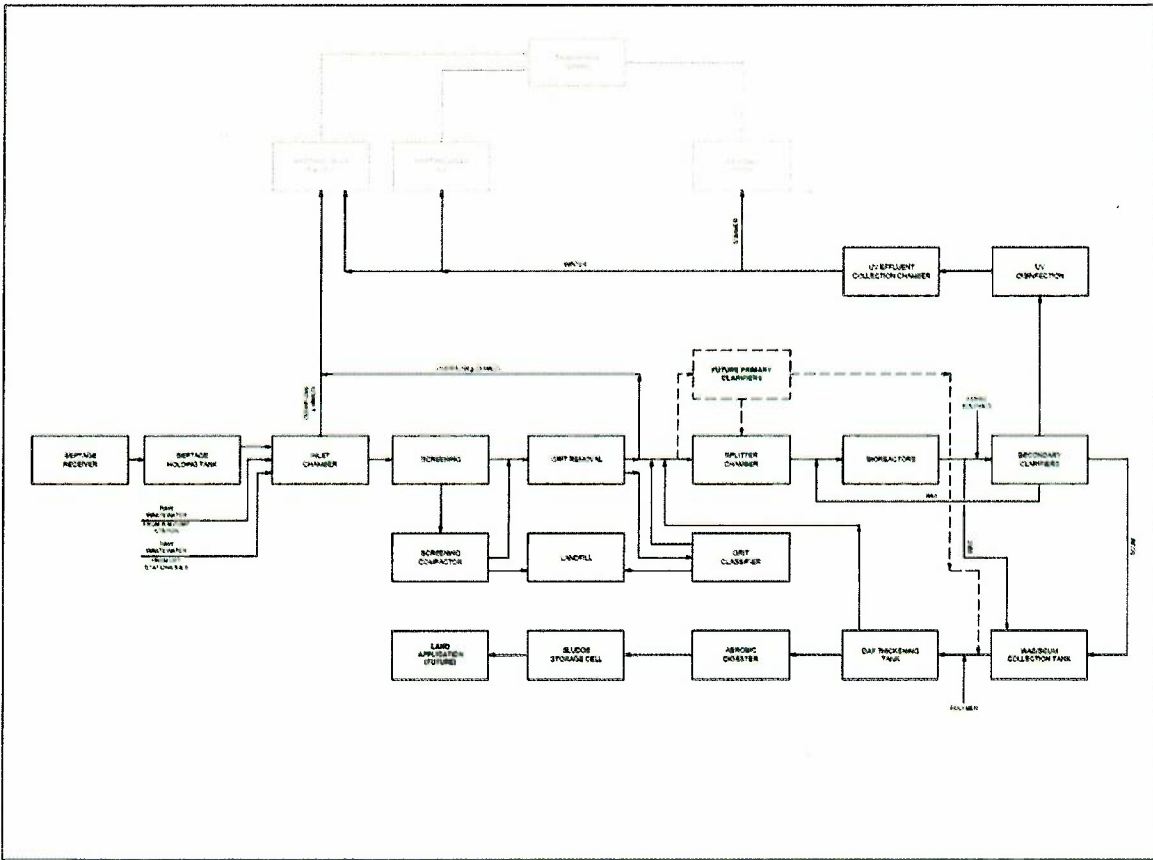


LEGEND

- 1. SLUDGE THICKENER
- 2. WATER CLARIFIER
- 3. MIXING TANK

OVERALL SITE PLAN
 Date: 03/16/11

Schedule "B" to Environment Act Licence No. 2525 R



AECOM

PROJECT
WASTEWATER TREATMENT PLANT UPGRADE PROJECT

CLIENT
 City of Winkler
 161 Main Street
 Winkler, Manitoba
 R6W 1S1

CONSULTANT
 AECOM
 19 Glenview Drive
 Winnipeg, Manitoba R2P 0Y7
 Tel: 471 5311 ext. 224 234 2040 fax
 www.aecom.com

REGISTRATION

PRELIMINARY
 NOT FOR CONSTRUCTION
 Date: 02-15-11/11

ISSUE/REVISION

| NO. | DATE | DESCRIPTION |
|-----|------|-------------|
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PROJECT NUMBER
 60450450

SHEET TITLE
 GENERAL & SITEWORKS
 GENERAL
 PROCESS BLOCK
 FLOW DIAGRAM

SHEET NUMBER
 00-0002

Schedule "C" to Environment Act Licence No. 2525 R

Initial Characterization of Wastewater from the Wastewater Treatment Facility Pursuant to Clause 51

Facility Size: Large (greater than 17,500 m³/day but less than 50,000 m³/day)

Facility Type: Sewage Treatment Plant - Continuous discharge

Effluent Sampling:

During the first year of operation:

1. a grab sample of effluent shall be collected on a weekly basis;
2. a grab sample of effluent shall be collected on a monthly basis;
3. a grab sample of effluent shall be collected on a quarterly basis; and
4. a grab sample of effluent shall be collected twice per day, if chlorine is used.

Effluent Analysis:

1. Have the weekly sample analyzed 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) total ammonia nitrogen expressed as milligrams per litre;
 - h) nitrate-nitrite nitrogen expressed as milligrams per litre;
 - i) total Kjeldahl nitrogen, TKN (ammonia + organic N) expressed as milligrams per litre;
 - j) dissolved phosphorus expressed as milligrams per litre;
 - k) total phosphorus expressed as milligrams per litre;
 - l) temperature; and
 - m) pH.

2. Have the monthly sample analyzed for:
 - a) acute toxicity; and
 - b) chronic toxicity.

Schedule "C" to Environment Act Licence No. 2525 R (cont'd)

3.

Have the quarterly sample analyzed for:

- a) fluoride;
- b) nitrate;
- c) nitrate + nitrite;
- d) total extractable metals and metal hydrides (full range);
- e) chemical oxygen demand (COD);
- f) organochlorine pesticides;
- g) polychlorinated biphenyls (PCBs);
- h) polycyclic aromatic hydrocarbon (PAHs);
- i) cyanide (total);
- j) pH;
- k) volatile organic compounds;
- l) mercury;
- m) phenolic compounds; and
- n) surfacants.

4. Have the twice daily sample analyzed for total residual chlorine (TRC), if required.

Effluent Reporting:

- 1. 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.

Schedule "D" to Environment Act Licence No. 2525 R

Soil Sampling and Testing Pursuant to Clause 59

Soil Sampling:

1. The Licencee shall provide a drilling rig, acceptable to the designated Environment Officer, to extract soil samples from the liner which is not placed or found at the surface of the lagoon structure. This includes all wastewater treatment lagoons constructed with clay cutoffs at the interior base of the dyke or with a clay cutoff in the centre of the dyke. The drill rig shall have the capacity to drill to the maximum depth of the clay cutoff plus an additional 2 metres. The drill rig shall be equipped with both standard and hollow stem augers. The minimum hole diameter shall be 5 inches.
2. For lagoon liners placed or found at the surface of the lagoon structure, the Licencee shall provide a machine, acceptable to the designated Environment Officer, capable of pressing a sampling tube into the liner in a straight line motion along the centre axis line of the sample tube and without sideways movement.
3. Soil samples shall be collected and shipped in accordance with ASTM Standard D 1587 (Standard Practice for Thin-Walled Tube Sampling of Soils), D 4220 (Standard Practice for Preserving and Transporting Soil Samples) and D 3550 (Standard Practice for Ring-Lines Barrel Sampling of Soils). Thin-walled tubes shall meet the stated requirements including length, inside clearance ratio and corrosion protection. An adequate venting area shall be provided through the sampling head.
4. At the time of sample collection, the designated Environment Officer shall advise the Licencee as to the soil testing method that must be used on each sample. The oedometer method may be used for a sample were the Environment Officer determines that the soil sample is taken from an undisturbed clay soil which has not been remoulded and which is homogeneous and unweathered. The triaxial test shall be used for all samples taken from disturbed and remoulded soils or from non homogenous and weathered soils.
5. The Licencee shall provide a report on the collection of soil samples to the designated Environment Officer and to the laboratory technician which includes but is not limited to: a plot plan indicating sample location, depth or elevation of sample, length of advance of the sample tube length of soil sample contained in the tube after its advancement, the soil test method specified by the Environment Officer for each soil sample and all necessary instructions from the site engineer to the laboratory technician.
6. All drill and sample holes shall be sealed with bentonite pellets after the field drilling and sampling has been completed.

Schedule "D" to Environment Act Licence No. 2525 R – cont'd

Soil Testing Methods:

1. Triaxial Test Method
 - a) The soil samples shall be tested for hydraulic conductivity using ASTM D 5084 (Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter).
 - b) Soil specimens shall have a minimum diameter of 70 mm (2.75 inches) and a minimum height of 70 mm (2.75 inches). The soil specimens shall be selected from a section of the soil sample which contains the most porous material based on a visual inspection. The hydraulic gradient shall not exceed 30 during sample preparation and testing. Swelling of the soil specimen should be controlled to adjust for: the amount of compaction measured during sample collection and extraction from the tube and the depth or elevation of the sample. The effective stress used during saturation or consolidation of the sample shall not exceed 40 kPa (5.7 psi) or the specific stress level, that is expected in the field location where the sample was taken, whichever is greater.
 - c) The complete laboratory report, as outlined in ASTM D 5084, shall be supplied for each soil sample collected in the field.

2. Oedometer Test Method
 - a) The soil samples shall be tested for hydraulic conductivity using ASTM D 2435 (Standard Test Method for One-Dimensional Consolidation Properties of Soils).
 - b) Soil specimens shall have a minimum diameter of 50 mm (2 inches) and a minimum height of 20 mm (0.8 inches). The soil specimens shall be selected from a section of the soil sample which contains the most porous material based on a visual inspection. The soil specimen shall be taken from an undisturbed soil sample. The soil specimen shall be completely saturated.
 - c) The complete laboratory report, as outlined in ASTM D 2435, shall be supplied for each soil sample collected in the field.