Manitoba
Environment and Climate
Environmental Approvals Branch
14 Fultz Boulevard (Box 35)
Winnipeg MB R3Y 0L6
T 204 945-8321 F 204 945-5229
EABDirector@gov.mb.ca

File No: 6122.00

April 27, 2023

John McKenzie
Executive Director of Infrastructure
10005279 Manitoba Association Inc.
Box 10880
Opaskwayak Cree Nation MB R0B 2J0
john.mckenzie@opaskwayak.ca

Dear John McKenzie:

Re: Environment Act Licence No. 3397

Please find enclosed Environment Act Licence No. 3397 in response to your proposal dated June 20, 2021. You wish to construct and operate a class 1 waste disposal ground on portions of N ½ of 34-54-26 WPM and NE 33-54-26 WPM.

10005279 Manitoba Association Inc. must follow all licence requirements and federal, provincial, and municipal regulations and by-laws. The licensee must get approval from the director per The Environment Act to alter the development.

Anyone affected by this decision may appeal, in writing, to the Minister of Environment and Climate at minec@leg.gov.mb.ca by May 29, 2023. The licence is available on the public registry at https://www.gov.mb.ca/sd/eal/registries/index.html.

If you have any questions regarding this approval, please contact Cristal Huculak, Regional Supervisor, Environmental Compliance and Enforcement Branch, at EnvCENorth@gov.mb.ca or 204-620-5797. For clauses 82-92, 95, 103, and 104, the designated environment officer is Edwin Yazon, who may be contacted at Edwin.Yazon@gov.mb.ca or 431-335-2554.

Sincerely,

Original Signed By
Siobhan Burland Ross
Acting Director

Enclosure

c. Cristal Huculak
Edwin Yazon

THE ENVIRONMENT ACT
LOI SUR L'ENVIRONNEMENT

Manitoba

LICENCE

File No.: 6122.00

Licence No. / Licence n°: 3397
Issue Date / Date de délivrance : April 27, 2023

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:

10005279 MANITOBA ASSOCIATION INC.; "the licensee"

for the construction and operation of a development known as the Opaskwayak Cree Nation Regional Solid Waste & Recycling Facility. The development is classified as a class 1 waste disposal ground which also includes a composting facility, a leachate evaporation pond, and a household hazardous waste collection depot, as identified in Schedule A of this licence. The development is located on portions of N ½ of 34-54-26 WPM and NE 33-54-26 WPM, as described in the proposals filed under The Environment Act and The Dangerous Goods Handling and Transportation Act dated July 20, 2021, with supplemental information dated October 5, 2021, February 10, 2022, and June 29, 2022. This licence is subject to the following specifications, limits, terms, and conditions:

DEFINITIONS

In this licence,

"access road" means a road that leads from a Provincial Trunk Highway, Provincial Road, or a municipal road;

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

"active area" means a designated trench or berm confined area of a waste disposal ground in which solid wastes are deposited, also known a waste disposal cell or landfill cell;

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

"alternative cover" means materials approved by the director for use in temporarily covering waste in an active area;

"approved" means approved by the director or an environment officer in writing;

"asbestos" means the fibrous form of crocidolite, amosite, chrysotile, anthophyllite, actinolite, tremolite or a mixture containing any of those minerals;

"asbestos containing material" means a friable material containing 0.1 per cent or greater asbestos, or a non-friable material containing 1.0 per cent or greater asbestos, or vermiculite insulation that contains asbestos;

"background groundwater quality" means the quality of water in the uppermost aquifer with regards to the chemical and microbiological parameters specified in a licence issued under The Environment Act;

"biosolids" means accumulated organic solids, resulting from wastewater treatment processes, that have received adequate treatment to permit the material to be recycled;

"BTEX" means the following components of gasoline and other specific petroleum products:
B = Benzene;
T = Toluene;
E = Ethylbenzene; and
X = Xylenes;

"CCME" means Canadian Council of Ministers of the Environment;

"CFIA" means Canadian Food Inspection Agency;

"cell" means a compartment within a landfill isolated from other compartments and contains a deposit of waste that has been covered by cover material so that no waste deposited in the cell is directly exposed to the atmosphere;

"class 1 waste disposal ground" means a landfill as defined in the Waste Management Facilities Regulation;

"closure plan" means a plan indicating the actions to be taken for the closure of the development, or a portion of the development;

"compost" means solid mature product resulting from composting;

"composting" means a managed process of bio-oxidation of a solid heterogeneous organic substrate, including a thermophilic phase;

"composting facility" means a facility, including compost pad and compost runoff storage pond, at which composting is carried out;

"component" means a cell, pad or structure that forms a part of a process or system within an activity area of the development;

"concentration value" means a restriction established by a licence issued under The Environment Act by the director on quantities, discharge rates, and concentrations of pollutants;

"container" means a container (e.g. drum, drum equivalent, tub skid, or any container with a capacity of less than 30 litres) used for holding hazardous wastes;

"contaminant" means a contaminant as defined in The Dangerous Goods Handling and Transportation Act;

"cover material" means inorganic soil, free of refuse, trash and vegetation, or other materials as approved by the director, that is used to cover compacted solid waste;

"dangerous goods" means any product, substance or organism designated in the regulations, or conforming with the criteria set out in the regulations, or in any regulation adopted under The Dangerous Goods Handling and Transportation Act, and includes hazardous wastes;

"day" means any 24-hour period;

"director" means an employee so designated under The Environment Act or The Dangerous Goods Handling and Transportation Act;

“Director of Wildlife” means the director of the branch responsible for the administration of The Wildlife Act or any future amendments;

"drum" means a container having a capacity of 205 litres;

"drum equivalent" means a volume of 205 litres;

"engineer(s)" means an engineer or engineers registered with Engineers Geoscientists Manitoba;

"**environmental accident"** means a release, leakage or spillage of a contaminant into the environment otherwise than in accordance with the provisions of The Dangerous Goods Handling and Transportation Act, its licences, orders and regulations or The Environment Act, its orders and regulations, or an incident which may or is likely to result in such a release, leakage or spillage, which, having regard to the environment in which the release, leakage or spillage takes place or may take place, and to the nature of the contaminant, creates or may create a hazard to human life or health, to other living organisms, or to the physical environment;

"environment officer" means an employee so designated under The Environment Act or The Dangerous Goods Handling and Transportation Act;

"final cover" means earth compacted to a thickness of at least 0.5 metres applied to the surface of the compacted waste cell that has achieved the final elevation for cell closure, and is graded to minimize ponding of water on the surface;

"groundwater" means water below the ground surface in a zone of saturation;

"groundwater monitoring program" means a plan developed for the monitoring of groundwater;

"groundwater monitoring well" means a well drilled to measure groundwater levels and collect groundwater samples for the purpose of physical, chemical or biological analysis to determine the concentration of groundwater constituents;

"hazardous waste" means a product, substance or organism as defined in The Dangerous Goods Handling and Transportation Act, or any future amendments;

"HDPE" means high density polyethylene;

"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 waste" means a waste product generated by industry other than hazardous waste and liquid waste;

"landfill" means waste disposal ground;

"leachate" means a liquid that has percolated through solid waste, and that contains dissolved and suspended materials from the solid waste;

"leachate collection system" means a system that gathers leachate so that it may be removed from a landfill cell and which could include a permeable drainage layer, a network of perforated piping, and sumps or manholes from which leachate can be removed;

"leachate management system" means the overall system of pipes, collection points, conveyance infrastructure, and storage area(s) that contain leachate;

"liner" means a continuous layer of compacted clay material, or manufactured materials, placed beneath and on the sides of a waste disposal ground cell, compost pad, soil treatment, or a storage area intended to restrict the downward or lateral escape of solid waste, leachate, and/or gases, and/or to restrict the upward movement of groundwater into the landfill or storage area;

"liquid industrial waste" means waste generated by industrial processes that has a slump of more than 150 mm using the slump test method (slump test, C.S.A. Standards Test Method A 23.2-5C), and does not include hazardous waste;

"liquid waste" means sewage, sewage effluent, and sludge from septic tanks, holding tanks and municipal wastewater treatment systems and that has a slump of more than 150 mm using the slump test method (slump test, C.S.A. Standard Test Method A23.2-5C);

"livestock" means animals or poultry not kept exclusively as pets, excluding bees;

"Manitoba Household Hazardous Waste Stewardship Program" means the program proposed by the Product Care Association and approved by the director which provides consumers in Manitoba with a collection system for specified household hazardous waste materials using the services of qualified recycling collection facilities;

"mil" means one-thousandth of an inch;

"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 five written complaints, received by the director in a form satisfactory to the director and within a 90-day period, from five 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 five written complaints received within a 90-day period, from five different persons who do not live in the same household;

"notify" means notify in writing;

"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 five written complaints, received by the director in a form satisfactory to the director and within a 90-day period, from five 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 five written complaints received within a 90-day period, from five different persons who do not live in the same household;

"particulate matter" means any finely divided liquid or solid matter other than water droplets;

"Polychlorinated Biphenyls (PCB) waste" means a PCB liquid, a PCB solid or a piece of PCB equipment that is taken out of service for the purpose of disposal as defined in the PCB Storage Site Regulation, or any future amendments;

"pollutant" means a pollutant as defined in The Environment Act;

"Product Care Manitoba Collection Site Guidelines" means the document “Manitoba Collection Site Guidelines - HHW Collection Sites” dated 2018, or any future amendments. This

contains practical guidance and best management practices for collection site operators regarding staff handling and storing of program products collected under the Manitoba Household Hazardous Waste Stewardship program;

"qualified professional" means an individual properly trained and authorized to practice in a specific area or field which may include assessment, design, or providing consultation for an aspect of the development, including but not limited to Professional Engineers, Professional Geoscientists, or Landscape Architects;

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

"service area" means Opaskwayak Cree Nation, Town of The Pas, Rural Municipality of Kelsey, and surrounding communities and industries (not including mining wastes) in Manitoba and Saskatchewan;

"site" means the area both permanent and temporary which is required for the construction and operation of the development;

"solid waste" means any waste in solid form, including dead animals and does not include liquid waste, hazardous waste, or bulky metallic waste;

"special waste" means bagged asbestos containing materials, dead animals including specified risk materials (SRM), slaughterhouse waste, and food products deemed to be unacceptable by the Canadian Food Inspection Agency (CFIA), biosolids, and any other waste identified by the director;

"specified risk material" means the skull, brain, trigeminal ganglia (nerves attached to the brain), eyes, tonsils, spinal cord, and dorsal root ganglia (nerves attached to the spinal cord) of cattle aged 30 months or older, as well as the distal ileum of cattle of all ages;

"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 Water Works Association, and the Water Environment Federation;

"top soil" means soil that is free of roots, vegetation, weeds, and stones larger than 50 mm, is capable of supporting good vegetative growth, and is suitable for use in top dressing, landscaping, and seeding;

"Transportation of Dangerous Goods Regulations" means the Transportation of Dangerous Goods Regulations, made under The Transportation of Dangerous Goods Act, 1992 (Canada), or any future amendments;

"used oil" means petroleum-derived or synthetic lubrication oil that has become unsuitable for its original purpose due to the presence of physical or chemical impurities or the loss of original properties if the oil falls within any of the following categories:

a) lubrication oils for internal combustion engines such as motor oil, vehicle crankcase oil, and engine lubricating oil;
b) transmission fluids, gearbox, and differential oils; and
c) hydraulic fluids;

"used oil filter" means an oil filter containing used oil that through use, storage, handling, defect, damage, or other similar circumstances can no longer be used for its original purpose;

"used oil products and material" means used oil, used oil filters, or used oil containers;

"waste automotive battery" means a lead-acid electromotive battery that:

a) through use, storage, handling, defect, damage, expiry of shelf life or other similar circumstance can no longer be used for its original purpose; or
b) for any other reason, the owner or person in possession of the battery intends to dispose of it;

"waste disposal ground" 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 under the Waste Management Facilities Regulation, or any future amendments, or a licence under The Environment Act;

"water body" means any body of flowing or standing water, whether naturally or artificially created, and whether the flow or presence of water is continuous, intermittent or occurs only during a flood, including but not limited to a lake, river, creek, stream, slough, marsh, swamp and wetland, including ice on any of them; and

"wastewater" means any liquid containing a contaminant as defined in The Dangerous Goods Handling and Transportation Act, associated with or resulting from the development and which requires treatment before being discharged into the environment.

GENERAL TERMS AND CONDITIONS

Reporting Format

1. The licensee must submit all information required to be provided to the director or an environment officer under this licence, in electronic format, in a form (including number of copies) and of content as may be specified by the director or environment officer, and each submission must be clearly labelled with the licence number and file number associated with this licence.

Retain Copy of Operations Manual and Licence

2. The licensee must maintain at the development a copy of:
   a) the operations manual developed under clause 22 of this licence; and
   b) this licence.

Responsible Party

3. The licensee must assign an engineer to be responsible for the design, construction or alteration of the development, and any required remediation action following the plans, specifications, and design report(s) submitted in support of the proposal or this licence.

Environmental Coordinator

4. The licensee must designate an employee, within 60 days of the date of issuance of this licence, as the licensee's environmental coordinator, whose job description will include assisting the licensee in complying with the limits, terms, and conditions in this licence and assisting senior management of the licensee to manage environmental issues at the development. The name of the environmental coordinator must be submitted in writing to the director within 14 days of appointment and any subsequent appointment.

General Terms

5. The licensee must adhere to the commitments made in the proposal, the associated plans, and any future alterations approved under section 14(2) of The Environment Act, during the construction, operation, and decommissioning of the development.

6. The licensee must, upon receipt of a request from any users, communities, or municipalities within the landfill's service area, develop a waste disposal service sharing agreement.

Sampling Methods

7. The licensee must, unless otherwise specified in this licence:
   a) carry out all preservations and analyses on liquid samples following the methods prescribed in the most current edition of Standard Methods for the Examination of Water and Wastewater or following equivalent preservation and analytical methodologies approved by the director;
   b) carry out all sampling, preservation, and analyses of soil, compost, and air samples following methodologies approved by the director;
   c) have all analytical determinations undertaken by an accredited laboratory; and
   d) report the results to the director in an electronic format acceptable to the director, within 60 days of the samples being taken, or within another timeframe as specified by the director

8. The licensee must, unless otherwise specified in this licence, carry out all sampling of groundwater, surface water, leachate, soil, and air following methodologies specified in the operations manual submitted under this licence.

Remedial Measures

9. The licensee must, as deemed necessary by the director or environment officer, carry out any remedial measures, modifications, or alterations with respect to matters authorized under this licence.

Future Sampling

10. In addition to any of the limits, terms and conditions specified in this licence, the licensee must, upon the request of the director:
    a) sample, monitor, analyze, and/or investigate specific areas of concern regarding any aspect of pollutant storage, containment, treatment, handling, disposal or emission systems, for pollutants or ambient quality, aquatic toxicity, leachate characteristics and discharge or emission rates, for duration and at frequencies as may be specified;
    b) determine the environmental impact associated with the release of any pollutants from the development;
    c) conduct specific investigations in response to the data gathered during environmental monitoring programs; or
    d) provide the director, within time as may be specified, with reports, drawings, specifications, analytical data, descriptions of sampling and analytical procedures being used, bioassay data, flow rate measurements and other information as may from time to time be requested.

Equipment or Process Upset

11. The licensee must, 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 emergency report line at 204-944-4888 (toll-free 1-855-944-4888). The report must indicate the nature of the event, the time and estimated duration of the event, and the reason for the event.

12. The licensee must, following the reporting of an event under clause 11 of this licence:
    a) identify the repairs required to the mechanical equipment;
    b) undertake all repairs to minimize unauthorized discharges of a pollutant;
    c) complete the repairs following any written instructions of the director; and
    d) submit a report to the director about the causes of breakdown and measures taken, within 30 days of the repairs being completed.

Fire Reporting

13. The licensee must, in the event of a fire which continues in excess of 30 minutes, or requires implementation of the emergency response plan, or requires fire suppression assistance from personnel outside of the development (e.g., fire department):
    a) call the fire department; and
    b) report the fire by calling the 24 hour environmental emergency report line at 204-944-4888 (toll free 1-855-944-4888), identifying the type of materials involved, and the location of the fire.

Chemical Storage and Spill Containment

14. The licensee must provide secondary containment for all vessels containing chemicals and in each area of the development where the chemicals are stored, loaded, transferred, used or otherwise handled, such that any product leakage or spillage and any contaminated liquid generated is contained within the development and contamination of groundwater and surface water is prevented.

15. The licensee must, in a manner approved by the director, remove and dispose of all spilled dangerous goods and hazardous waste.

16. The licensee must equip the development with spill cleanup equipment and supplies.

17. The licensee must in the event of an environmental accident, immediately report the spill by calling the environmental emergency reporting line at 204-944-4888 (toll-free 1-855-944-4888) following regulatory requirements, contain the spill, manage the impacted environment, and restore the environment to the satisfaction of the director.

SPECIFICATIONS, LIMITS, TERMS AND CONDITIONS

Odour Nuisance and Air Emission

18. The licensee must not cause or permit an odour nuisance to be created as a result of the construction, operation, or alteration of the development, and must take such steps as the director may require to eliminate or mitigate an odour nuisance.

19. The licensee must, upon written request of and in a timeframe specified by the director, comply with any air emission or ambient air quality criteria specified by the director for any pollutant of concern to the director which has been identified under clause 10 of this licence.

20. The licensee must take action to minimize the entrainment of particulate matter into the air at the development resulting from the operation of vehicles or the transportation, storage or handling of compost feedstock, construction and demolition waste, or other solid materials.

Noise Nuisance

21. The licensee must not cause or permit a noise nuisance to be created as a result of the construction, operation, or alteration of the development, and must take such steps as the director may require to eliminate or mitigate a noise nuisance.

Respecting Operations Manual

22. The licensee must develop, within six months of the date of issuance of this licence, an operations manual following the Waste Management Facilities Regulation and the Standards for Landfill. The manual must include all aspects of the development, but not be limited to:
    a) design and construction;
    b) general operations;

c) operational parameters and objectives, including method of tracking, placement of special wastes, and other wastes requiring unusual management considerations;
d) waste type acceptance parameters and limitations, including hazardous wastes;
e) incident tracking and reporting parameters;
f) dust and litter control procedures;
g) emergency response and contingency plans;
h) environmental construction operations;
i) site safety plan;
j) fire prevention;
k) odour monitoring and abatement plans;
l) noise management plans;
m) vector control procedures;
n) dust and litter control procedures;
o) methodologies and processes for all sampling (groundwater, surface water, leachate, soil, and air);
p) leachate management, monitoring, and sampling schedule;
q) surface water and groundwater management, monitoring, and sampling schedule;
r) composting operation;
s) active cell development, maintenance, cover, and closure practices;
t) identification of operational records to be maintained; and
u) an overview of staffing qualifications and positions.

23. The licensee must implement the operations manual developed under clause 22 of this licence, and subject to any terms and conditions set by the director, and must update the manual upon operational changes, or every five years, or at an earlier time if required by the director.

Signage and Site Security

24. The licensee must post adequate, legible, weatherproof signs at the entrance to the development indicating, but not limited to the following:
    a) name of the development;
    b) area as a hazardous waste collection facility;
    c) hours and days of operation;
    d) types of wastes accepted at the development;
    e) types of wastes not accepted at the development;
    f) a warning not to leave hazardous waste at the development when the trained personnel are not available to accept hazardous waste; and
    g) 24-hour emergency contact telephone number.

25. The licensee must staff and secure the development so that:
    a) an attendant is on duty at all times during the hours of operation;
    b) gates are provided for all access locations to the site; and
    c) the gates are kept locked when the attendants are not on duty or the development is closed.

Wildlife Barriers

26. The licensee must, to the satisfaction of the director of Wildlife or delegate, maintain effective barriers to prevent scavenging by bears and wild canids at the development.

27. The licensee must, upon request of the Director of Wildlife or delegate, submit a proposal for alteration, modification, or replacement of the barriers referenced in clause 26 of this licence for review and approval of the Director of Wildlife or delegate.

Materials Acceptance and Handling

28. The licensee must deposit all non-hazardous wastes, other than material intended for recycling or processing, in an active area within the development.

29. The licensee must segregate materials collected for recycling or reuse, and must manage these materials in clearly signed designated areas. These areas must be maintained to control weeds, vectors, and the quality of materials.

30. The licensee must remove the materials identified in clause 29 of this licence regularly or upon the request of an environment officer, within the timeframe specified.

31. The licensee must install fencing, including adequate portable litter fences, around the active area or other locations where unloading or handling of materials occur, to prevent litter or other material from collecting on or escaping from the boundaries of the development.

32. The licensee must require the contracted hauler to cover their vehicles transporting wastes to the development to prevent the spread of litter on transportation routes and the surrounding areas.

HAZARDOUS WASTE

Trained Personnel

33. The licensee must provide the following training for all persons who will be assigned duties at the development:
    a) transportation of dangerous goods;
    b) regulatory requirements; and
    c) procedures about the operation of the development, including spill response.

34. The licensee must make records of the training provided under clause 33 of this licence available for inspection by an environment officer upon request.

35. The licensee must have trained personnel on-site at all times when the development is open to receive waste or materials.

Hazardous Waste Operation

36. The licensee must only accept hazardous wastes at the development listed in Schedule B of this licence, and must not accept the following wastes, unless otherwise approved by the director:
    a) biomedical waste (hazardous);
    b) liquid waste;

c) liquid industrial waste;
d) radioactive waste or materials;
e) pharmaceutical waste or cytotoxic waste;
f) explosives;
g) biosolids;
h) unbagged asbestos; and
i) soils or sediments containing contaminants at concentrations in excess of the criteria specified for industrial occupancy in the
    i) Canadian Council of Minister of Environment (CCME) Environmental Quality Guidelines (latest edition) for environmental health soil contact; and
    ii) CCME Canada Wide Standards for petroleum hydrocarbons for industrial land use for eco soil contact.

Manitoba Household Hazardous Waste Stewardship Program Materials

37. The licensee must receive and manage household hazardous wastes that are identified as program materials and non-program materials under the Manitoba Household Hazardous Waste Stewardship Program following the most current version of the Manitoba Product Care Collection Site Guidelines and this licence.

Non-Program Hazardous Waste

38. The licensee must segregate hazardous waste that is deemed to be non-program waste and dispose of it at a facility operating under the authority of a licence issued under The Dangerous Goods Handling and Transportation Act in Manitoba, or under an approval of similar type in another jurisdiction.

Hazardous Waste Storage

39. The licensee must store hazardous waste in a container that must be:
    a) constructed of a material that is compatible with the hazardous waste being stored;
    b) corrosion and weather-resistant;
    c) designed and constructed to withstand damage during handling and transportation; and
    d) sealable to prevent the release of its contents and to prevent any substance from entering the container.

40. The licensee must store hazardous waste following the Manitoba Fire Code, or any future amendments.

41. The licensee must not store hazardous waste outside the storage structure or depot of the development except:
    a) when the Manitoba Fire Code prohibits inside storage;
    b) when approved by an environment officer; or
    c) for purposes of handling during receiving or shipping operations of not more than 48 hours, unless otherwise approved by an environment officer.

42. The licensee must prominently affix a weather resistant label with the name of the hazardous waste in the container.

Transport of Hazardous Waste

43. The licensee must transport all hazardous waste received at the development within 120 days. The 120-day period will commence on the date the container is filled.

Pesticide Container Depot

44. The licensee must use the pesticide container depot to store containers which were last used to contain pesticide products.

45. The licensee must locate the pesticide container depot on soil formations which will prevent percolation of contaminants into groundwater. The licensee must, where local soils are not adequate to protect groundwater, construct containment in a manner approved by the director.

46. The licensee must manage the pesticide container depot to prevent drainage or run off from the area entering or leaving the container depot.

47. The licensee must grade the area within the pesticide container depot to a sump capable of retaining any accumulated precipitation and/or pesticide residues.

48. The licensee must surround the pesticide container depot with a fence capable of retaining all containers stored within the development and separating the storage area from the surrounding land use.

49. The licensee must maintain a fire break outside of the perimeter fence identified in clause 48 of this licence to prevent the spread of fire into the pesticide container depot.

50. The licensee must designate separate areas within the pesticide container depot for the storage of metal and plastic containers.

51. The licensee must remove the accumulated containers from the pesticide container depot at least once per year.

52. The licensee must manage any liquid accumulated at the pesticide container depot in the sump following the requirements of the Hazardous Waste Regulation, or any future amendments.

Used Oil Products and Material Collection Depot

53. The licensee must store used oil in an above ground double-wall storage tank with a capacity of less than 5000 litres.

54. The licensee must locate the storage tank on an impervious surface which consists of at least 152 mm of compacted clay or on an impermeable containment area acceptable to the director.

55. The licensee must equip the area where used oil is transferred from the container to the storage tank with a containment system that is capable of containing 110% of the volume of used oil being transferred.

56. The licensee must, whenever used oil is being transferred to or from the tank of a vehicle, or to or from the storage tank, or via any other transfer systems, supervise the transfer at all times and in such a manner that the flow of liquid can be immediately shut off.

57. The licensee must store used oil filters received at the development in containers that have a maximum capacity of 205 litres and are designed so that they will contain any used oil which may drain from the filters.

58. The licensee must store the containers for used oil filters referred to in clause 57 of this licence in a manner which provides protection from precipitation.

59. The licensee must store used oil containers received at the development in containers that are constructed of a material that will contain any used oil that may drain from the containers.

Waste Automotive Batteries

60. The licensee must store waste automotive batteries in an area where the floor or base is resistant to acid.

61. The licensee must store waste automotive batteries in acid resistant, leak-proof tub skids, unless approved by an environment officer.

62. The licensee must place effective neutralizing materials, or materials approved by the director in writing in a clearly identified area, for the containment or clean-up of spills.

63. The licensee must not allow the inventory of waste automotive batteries at the development to exceed 300 at any time.

Liquid Emissions

64. The licensee must:
    a) maintain the development in a condition capable of retaining any spillage which may occur. Floor drains or catch basins are not permitted in the storage area unless they are connected to an on-site holding tank or sump; and
    b) direct wastewater collected in holding tanks or sumps to a treatment facility approved by the director.

Facility Inspection

65. The licensee must inspect the development, and the hazardous waste storage area every day when the development is open to ensure that all pieces of equipment and storage are operated in a manner that will not negatively impact the environment. Any unauthorized materials found at the development must be securely stored or removed from the development.

66. The licensee must record each inspection required by clause 65 of this licence and make the records available to an environment officer upon request. The record must include the following:

a) the date of inspection;
b) the name of the person who conducted the inspection;
c) the observations made by that person during inspection including but not limited to:
    i) the conditions of hazardous waste containers and all ancillary equipment;
    ii) the conditions of secondary containment system and of any other mechanism that prevents the release of hazardous waste; and
    iii) any indications of a release of hazardous waste or of any deteriorations of containers, piping, ancillary equipment or a secondary containment system that increase the likelihood of a release; and
d) the recommendations for remedial action and actions undertaken.

LANDFILL

Respecting Construction – General

67. The licensee must, before any construction or design of any new components for the development, consult with the Manitoba Conservation Data Centre to determine if any mitigation will be required.

68. The licensee must notify the environment officer not less than two weeks before beginning construction of the development. The notification must include the intended starting date(s) of construction and the name(s) of the contractor(s) responsible for the construction.

69. The licensee must:
    a) minimize clearing to the extent possible;
    b) not conduct clearing during May 5 to August 15 in peak breeding bird season;
    c) conduct pre-clearing nest searches, as needed, no more than five days prior to clearing during April 30 to May 10 and August 14 to 20 shoulder nesting season outside of the peak nesting timeframe;
    d) 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;
    e) not construct the development during periods of heavy rain;
    f) place and/or isolate all dredged and construction material where it will not erode into any watercourse;
    g) 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;
    h) routinely inspect all erosion and sediment control structures and immediately complete any necessary maintenance or repair;
    i) revegetate soil exposed during the construction of the development with native species or introduced grasses or legumes. Native species must be used to revegetate areas where native species existed prior to construction; and
    j) use rock that is free of silt and clay for riprap.

70. The licensee must, during construction 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 development, the discharge route, and associated watercourses, and have an emergency spill kit for in-water use available on-site during construction.

71. The licensee must locate all 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 must comply with the requirements of the Storage and Handling of Petroleum Products and Allied Products Regulation, or any future amendments.

72. The licensee must, during construction and maintenance of the development, prevent the introduction and spread of foreign aquatic and terrestrial biota by cleaning equipment before its delivery to the site of the development following the requirements of the Aquatic Invasive Species Regulation or any future amendments.

Heritage Resources

73. The licensee must comply with the requirements of The Heritage Resources Act and, if heritage resources are encountered during the construction of the development, suspend construction and immediately notify the Historic Resources Branch.

Site Preparation

74. The licensee must, before any new construction of any component of the development, remove all organics to a minimum depth of 150 mm or to the underlying clay layer and store the organics at a suitable location for future use.

Respecting Mitigating Erosion and Runoff

75. The licensee must, with respect to on-site earthen construction works, construct and maintain silt fences in the drainage routes transporting surface runoff off the property of the development until vegetation has been re-established on the disturbed areas.

Slope Stability

76. The licensee must construct and maintain the final side slopes of the above ground deposit of waste, including final cover, in the waste cell in accordance with the proposal, unless otherwise specified in the closure plan by an engineer, and approved by the director.

Maximum Elevation

77. The licensee must develop the site so that the maximum elevation of the above ground deposit of waste not including the final cover does not exceed 295.65 metres above sea level.

Special Wastes

78. The licensee must not excavate in areas where special wastes have been previously buried without approval from an environment officer.

79. The licensee must record, by Global Positioning System (GPS), the locations of buried special wastes.

80. The licensee must dispose of asbestos or asbestos containing material following the most current version of Guideline for Asbestos Disposal at a Landfill.

Construction – Weigh Scales and Facility Buildings

81. The licensee must install and maintain weigh scales on all inbound traffic lanes.

Construction – Landfill Cells

82. The licensee must, at least 60 days before beginning the construction of a new waste disposal cell, submit to the designated environment officer the engineering design plans, sealed by an engineer which address construction specifications of any new active area and include, but are not limited to the following:
    a) engineering design with respect to the construction of the waste disposal cell base and sides;
    b) engineering design with respect to the construction of the leachate collection system in each new cell, and connections, if applicable, to the overall leachate management system;
    c) location of all access road(s);
    d) details of the location of the waste disposal ground construction with respect to property lines; and
    e) details of the surface water drainage system.

83. The licensee must construct new waste disposal cells following the design plans submitted following clause 82 of this licence and subject to terms and conditions set by the designated environment officer.

Clay Liner Components

84. The licensee must, where a component of the development is to be constructed with a clay liner, construct the liner underlying the component as described in clause 85 of this licence.

85. The licensee must construct and maintain all clay lined component(s) of the development with the following specifications:
    a) the clay liner is recompacted to a minimum thickness of one metre for the side slopes and for the base of waste cells or leachate ponds;
    b) the hydraulic conductivity of the clay is $1x10^{-7}$ cm/second or less;
    c) the leachate pond liner extends a vertical distance of one metre above normal operating level; and
    d) the clay liner is installed under the entire base and side wall or berm of any waste containment cell(s).

Soil Liner Sampling, Testing and Reporting

86. The licensee must, after the completion of any cells or leachate pond of the landfill, 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.

87. The licensee must take and test undisturbed soil samples, following Schedule C of this licence, from:
    a) the clay of the new waste disposal cell;
    b) the clay of compost pad(s), if applicable; and
    c) any clay component of the development requiring testing by the director.

88. The number and location of samples and test methods will be specified by the environment officer up to a maximum of 20 samples per cell, pond, pad, or clay component of the development.

89. The licensee must, before using any area tested under clause 87 of this licence, receive the approval of the designated environment officer for the results of the tests carried out under clause 87 of this licence.

Synthetic Liner for Components

90. The licensee, upon approval by the designated environment officer, must construct and maintain a continuous synthetic liner underlying the components, a synthetic liner, such that:
    a) the liner is constructed from HDPE geomembrane or other materials as approved by the director;
    b) the HDPE liner has a minimum thickness of 60 mils;
    c) all sections of the HDPE liner are joined by dual track seaming;
    d) the HDPE liner is installed under the entire base and side wall or berm of the leachate pond;
    e) the HDPE liner is installed following ASAE Standard EP340.2, or any future amendments, for the installation of Flexible Membrane Linings;
    f) non-destructive test methods are used to test the integrity of:
        i) all field seams joining liner sections following ASTM Standard D 5820-95 (Reapproved 2006); and
        ii) all other field seams following ASTM Standard D 4437-99;
    g) an installation report is prepared and submitted to the designated environment officer for approval within 30 days of commencing the installation of the liner. The installation report must include a cover letter with a declaration that the liner is continuous underlying the cell. The installation report must also include the test results, a discussion of the results, and a declaration that the liner was installed following the manufacturer's requirements;
    h) the floor of the liner is covered with sand or other granular cover material to a minimum depth of 0.3 metre measured perpendicular to the surface of the liner; and
    i) the liner is secured to prevent lifting of the liner.

91. The licensee must complete the installation of the synthetic liner on any component of the development following the manufacturer’s recommendations regarding temperature and environmental conditions.

92. The licensee must not cover a synthetic liner of the development until receiving written approval of the report submitted under clause 90 g) of this licence from the designated environment officer.

Operation – Landfill Cells

93. The licensee must cover all solid waste at the end of each day of operation with a layer of soil, or another material approved by the director, compacted to a depth of at least 0.15 metre.

94. The licensee, after submitting a written request and obtaining approval of an environment officer, may, during extreme weather conditions, use alternative cover in an active area. The alternative cover must, unless otherwise specified by an environment officer, be replaced with permanent cover material when the extreme weather conditions cease.

Construction – Composting Facility

95. The licensee must submit to the designated environment officer for approval at least 60 days before construction of the compost facility one electronic copy of engineering design plans. The engineering design plans, sealed by an engineer(s) must address construction specifications of the compost facility and include, but not limited to the following:
    a) engineering design for building the compost facility components such that the clay liner has a minimum thickness of 0.5 metre and the clay has a hydraulic conductivity of $1x10^{-7}$ cm/second or less;
    b) location of access road(s) to the compost facility;
    c) details of the location of the compost facility with respect to property lines;
    d) details of the compost facility drainage system;
    e) details of a drainage system to prevent storm water runoff from entering the compost facility; and
    f) details of fencing around the compost facility.

96. The licensee must construct the compost facility following the design plans approved under clause 95 of this licence.

Operation – Composting Facility

97. The licensee must only accept and use food waste, yard trimmings, yard waste, garden waste, leaves, livestock bedding waste, or other materials acceptable to the director, and must not accept biosolids and livestock mortalities as compost feedstock at the facility.

98. The licensee must dispose of any process material that does not achieve the compost quality only in a manner that is acceptable to the director.

99. The licensee must not sell or make available, to any third-party, compost generated at the development that does not achieve the quality requirements and specifications as contained in the most recent edition of the Canadian Council of Ministers of the Environment publication entitled "Guidelines for Compost Quality – PN1340" or equivalent standard approved by the director.

Burning

100. The licensee must not allow burning at the development.

Storm Water Pond

101. The licensee must collect and contain all surface water runoff at the development in the storm water pond as identified in Schedule A of this licence.

102. The licensee must:
   a) test the quality of the liquid in the storm water pond for the parameters identified in Schedule D and other parameters approved by the director; and
   b) receive approval from the environment officer before the release or use of the liquid.

Leachate Management – Leachate Pond and Compost Runoff Storage Pond

103. The licensee must, at least 60 days before construction of the leachate pond and compost runoff storage pond, submit to the designated environment officer the engineering design plans, sealed by an engineer, which address construction specifications such that the clay liner has a minimum thickness of one metre and the clay has a hydraulic conductivity of $1x10^{-7}$ cm/second or less.

104. The licensee must construct the leachate and compost runoff storage ponds following the design plans submitted under clause 103 of this licence, and subject to any terms and conditions set by the designated environment officer.

105. The licensee must, before placement of any waste in any new cell or compost pad, have leachate collection and extraction infrastructure installed.

106. The licensee must maintain at least one metre freeboard for the leachate pond and 0.4 m for the compost runoff storage pond.

107. The licensee must not recirculate leachate or contaminated water collected at the development through the landfill cells.

108. The licensee must report immediately to an environment officer any occurrence of leachate breakout which leaves the development.

109. The licensee must:
   a) store all leachate generated at the development at the leachate pond, and must not transfer leachate generated at the development to any wastewater treatment facility without receiving approval of the director; and
   b) not implement any method of leachate treatment without receiving approval of the director.

Groundwater Monitoring Wells

110. The licensee must, before using any of the landfill cells, install and sample the monitoring wells.

111. The licensee must, within 12 months of the date of issuance of this licence or a Time frame approved by the director, develop and maintain a groundwater monitoring program that includes, but may not be limited to the following:

a) background groundwater data for each monitoring well;
b) establishment of groundwater control limits for each naturally occurring parameter;
c) ongoing monitoring during development operation; and
d) details of sampling frequency and analysis.

112. The licensee must undertake the sampling and analysis of the background groundwater quality for the chemical and microbiological parameters identified in Schedule E of this licence.

113. The licensee must have groundwater monitoring and sampling conducted by a qualified professional for those parameters identified in Schedule E of this licence or selected parameters once per year, or at a frequency approved by the director. The analytical results must be retained in a format acceptable to the director.

114. The licensee must not, as a result of the operation of the development, cause the concentration values of the parameters identified in Schedule E of this licence or selected parameters, to exceed background groundwater quality levels.

Surface Water Management

115. The licensee must develop and maintain a surface water drainage network to minimize water from entering any active area.

116. The licensee must manage surface water at the development to prevent uncontrolled release from the development.

117. The licensee must, within 12 months of the date of issuance of this licence or a timeframe approved by the director, develop and maintain a surface water monitoring program that includes, but not limited to the following:
a) sample points from the runoff control system at the development;
b) identification of potential sources of contamination, leaks, or spills at the development;
c) identification of any receiving surface water bodies at the boundary of the development that could be impacted by release of surface water from the development; and
d) sample points in the receiving surface water bodies both upstream and downstream from the landfill.

Failure to Undertake Monitoring Programs

118. Where the licensee fails to undertake the groundwater and surface water monitoring programs required by this licence, the director may cause such monitoring to be undertaken and recover the cost of such monitoring from the licensee.

Records

119. The licensee must keep operating and monitoring records at the development site office including the following:
a) inspection records;
b) training procedures;

c) construction completion reports and record drawings showing the location and development of excavation, fill area, final grades, and structural components;
d) initial topographic survey and plans showing the area where waste has been deposited in the current and previous years;
e) composting records;
f) leachate management;
g) all certifications and permits for acceptance of regulated materials;
h) operational activities;
i) closure plan;
j) complaints received and actions taken; and
k) statement of compliance with licence conditions.

120. The licensee must retain all records relating to this licence for a period of at least five years after they are made. Records may be transferred from their original form to other accepted forms for information storage.

Annual Report

121. The licensee must, unless otherwise approved by the director, on or before March 31st of each year and beginning in 2024, submit an annual report with respect to all activities at the development conducted under this licence during the previous calendar year. The report must be submitted in a format acceptable to the director and contain at minimum:
a) a summary of any construction activities which occurred at the development;
b) hazardous waste receiver report including the manner in which the hazardous waste was treated or disposed;
c) records of handling of any wastes (including special wastes) accepted at the development including the mass accepted, and the disposal locations within the development;
d) a summary of the monitoring report results from groundwater sampling;
e) a summary of the monitoring report results from surface water sampling;
f) recommendations for changes in monitoring for groundwater or surface water, based on current and previous monitoring results;
g) leachate management report;
h) compost records;
i) the volume of leachate which was removed from the development for treatment (if applicable);
j) a summary report of noise and/or odour complaints received, and actions taken; and
k) a summary report of any fires within the development requiring notification under clause 13 of this licence.

122. The licensee must compare the results included with the report under clause 121 of this licence with annual reports submitted in previous years to show trends and variances. The reports must identify, at minimum, any significant variations, the cause of the variations and any actions taken.

Environmental Emergency Response and Contingency Plans

123. The licensee must, within 12 months of the date of issuance of this licence or a timeframe approved by the director, develop and maintain an emergency response plan following the Canadian Centre for Occupational Health and Safety "Emergency Response Planning Guide" or other emergency planning guidelines acceptable to the director. The plan must include procedures to be used in the event of a leak, spill, fire, flood or other hazardous condition at the development, or if waste management functions are disrupted.

124. The licensee must, within 12 months of the date of issuance of this licence or a timeframe approved by the director, develop and maintain a contingency plan for the approval of the director, in the event that the monitoring program identifies any pollutant in the air, soil, surface, or groundwater, as a result of the operation of the development, in excess of background levels.

125. The licensee must report to an environment officer all incidents requiring emergency response and contingency action within seven days from the occurrence of such incidents. The report must include the nature of the incident, substances involved, the area affected, action taken, and follow up action proposed to be taken with timeline for implementation.

126. The licensee must have, records of the details of all incidents requiring the implementation of the emergency response and contingency plans at the development site office, available during inspection by an environment officer.

127. The licensee must review the emergency response and contingency plans on an annual basis, as a minimum, and make revisions as required.

Insurance and Financial Assurance

128. The licensee must, within 12 months of the date of issuance of this licence or a timeframe approved by the director, prepare a remediation and closure plan assessment, satisfactory to the director, that includes, but is not limited to, the following:
    a) estimated cost to assess the impacts of the development to soil, surface water, and groundwater;
    b) estimated cost to remediate impacts of the development identified in the assessment referred to in clause 128 a); and
    c) estimated cost to decommission the development.

129. The licensee must maintain and submit to the director the amount determined in clause 128 of this licence:
    a) a permit bond issued by a surety company licensed to do business in the Province of Manitoba;
    b) an irrevocable letter of credit; or
    c) another acceptable security satisfactory to the director.

130. The licensee must maintain the permit bond, irrevocable letter of credit, or other security and renewals, referenced in clause 129 of this licence, for the duration of the operation and decommissioning of the development. The director may order forfeiture of the permit bond, irrevocable letter of credit, or other security, either in whole or in part, by giving written notice to that effect to the licensee, upon the director being satisfied that the licensee is in breach of any specification, limit, term or condition of this licence, or for reimbursement of any costs or expenses incurred by the Province of Manitoba in rectifying environmental damage caused or contributed to by the operation of the development.

131. The licensee must, every five years or more frequently at the licensee's preference or at the request of the director, carry out a review of the assessment completed under clause 128 of this licence and accordingly update the amount of the permit bond, irrevocable letter or credit or other security required by clause 129 of this licence.

132. The licensee must maintain valid environmental impairment liability insurance providing coverage subject to a minimum limit of $1,000,000 CAD per occurrence or claim, including coverage for gradual, and sudden and accidental pollution. Coverage to include on-site and off-site clean-up costs, and be placed with insurers satisfactory to the Province of Manitoba. The Province of Manitoba is to be added as an additional insured on the policy. The policy must contain a clause stating that the Insurer will give the Province of Manitoba 60 days prior written notice in case of a reduction in coverage or policy cancellation.

Agreement

133. The licensee must at all times during the operation of the development, maintain a Manitoba Household Hazardous Waste Recycling Full Service Collection Site Agreement with the Product Care Association.

Elder Firewood Program

134. The licensee must discuss the opportunities for a portion of the timber harvested with the Manitoba Metis Federation as per the Elder Firewood Program.

Record Drawings

135. The licensee must:
   a) prepare "record drawings" for the development and label the drawings "record drawings"; and
   b) provide to the director, within six months, or as otherwise approved by the director, after completion of construction of each component of the development, one electronic copy of "record drawings" of the component of the development.

Alterations

136. The licensee must obtain approval, in writing, from the director for any proposed alteration or expansion to the development which is likely to cause a significant environmental effect or could affect compliance with any clause(s) of this licence, before proceeding with the alteration.

Closure

137. The licensee must, at the request of the director, in the event that the development is permanently closed for a period of 12 months, conduct an investigation following "Environmental Site Assessments in Manitoba", (June 2016), or any future amendments, to the satisfaction of the director, to identify any contamination which may have resulted from the operation of the development.

138. The licensee must, where the investigation referred to in clause 137 of this licence shows that contamination of the environment has occurred, submit a remediation proposal, within 90 days, to the director for approval. The licensee must carry out the remediation approved by the director.

REVIEW AND REVOCATION

A. If, in the opinion of the director, the licensee 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 licensee 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 under section 11 of The Environment Act.

Original Signed By
Siobhan Burland Ross
Director
The Environment Act

Consignor (Generator) Registration No.: MBG14737
Consignee (Receiver) Registration No.: MBR30191

Schedule A to Environment Act Licence No. 3397
Layout of the Development as identified in clause 101

Schedule B to Environment Act Licence No. 3397 under clause 36

Types of hazardous wastes accepted at the development

Hazardous Wastes
Aerosols
Asbestos
Automotive Antifreeze
Automotive Batteries
Non-hazardous Biomedical Waste
Household Batteries (non-rechargeable)
Household Batteries (rechargeable)
Compressed Gases
Corrosives
Flammable Liquids
Flammable Solids
Fluorescent Lighting Tubes and Compact Fluorescent Lights (whole and/or broken)
Organic Peroxides
Oxidizing Substances
Paint Products
Pesticides
Empty Pesticide Containers
Polychlorinated Biphenyls (PCB)
Used Oil
Used Oil Filters & Used Oil Containers (Used Oil Products and Materials)

Schedule C to Environment Act Licence No. 3397 under clause 87

SOIL SAMPLING

1. The licensee must provide a drilling rig, acceptable to the designated environment officer, to extract soil samples from the specified liner of the structure. This includes all liners constructed with clay. The drill rig must have the capacity to drill to the maximum depth of the clay liner plus an additional 2 metres. The drill rig must be equipped with both standard and hollow stem augers. The minimum hole diameter must be five inches.
2. For liners placed or found at the surface of the structure, the licensee must 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 must be collected and shipped following 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 must meet the stated requirements including length, inside clearance ratio and corrosion protection. An adequate venting area must be provided through the sampling head.
4. At the time of sample collection, the designated environment officer must advise the licensee 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 undisturbed clay soil which has not been remoulded and which is homogeneous and unweathered. The triaxial test must be used for all samples taken from disturbed and remoulded soils or from non-homogenous and weathered soils.
5. The licensee must 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 must be sealed with bentonite pellets after the field drilling and sampling has been completed.

Schedule C to Environment Act Licence No. 3397 under clause 87 (cont'd)

SOIL TESTING METHODS

1. Triaxial Test Method

    a) The soil samples must 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 must have a minimum diameter of 70 mm (2.75 inches) and a minimum height of 70 mm (2.75 inches). The soil specimens must be selected from a section of the soil sample which contains the most porous material based on a visual inspection. The hydraulic gradient must 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 must not exceed 40 kPa (5.7 psi) or the specific stress level, that is expected in the field location were the sample was taken, whichever is greater.
    c) The complete laboratory report, as outlined in ASTM D 5084, must be supplied for each soil sample collected in the field.

2. Oedometer Test Method

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

Schedule D to Environment Act Licence No. 3397 under clauses 102
Surface Water Parameters

Alkalinity (as $CaCO_3$) - Total
Aluminum (Al) - Dissolved
Ammonia (as N) - Total
Antimony (Sb) - Dissolved
Arsenic (As) - Total
Barium (Ba) - Dissolved
Benzene - Total
Beryllium (Be) - Dissolved
Bicarbonate (HCO_3) - Total
Biochemical Oxygen Demand (BOD)
Bismuth (Bi) - Dissolved
Boron (B) - Dissolved
Cadmium (Cd) - Dissolved
Calcium (Ca) - Dissolved
Carbon - Total
Carbonate (CO_3) - Total
Cesium (Cs) - Dissolved
Chloride (Cl) - Dissolved
Chromium (Cr) - Dissolved
Cobalt (Co) - Dissolved
Colour, True
Conductivity
Copper (Cu) - Dissolved
Cyanide (free) - Total
Dissolved Solids - Total
Ethylbenzene - Total
Fluoride - Dissolved
Hardness (as $CaCO_3$) - Total
Inorganic Carbon - Total
Iron (Fe) - Dissolved
Kjeldahl Nitrogen - Total
Lead (Pb) - Dissolved
Lithium (Li) - Dissolved
Magnesium (Mg) - Dissolved
Manganese (Mn) - Dissolved
Mercury (Hg) - Dissolved
Molybdenum (Mo) - Dissolved

Nickel (Ni) - Dissolved
Nitrate (as N) - Total
Nitrite (as N) - Total
Nitrogen - Total
Odour
Organic Carbon - Dissolved
Oxygen - Dissolved
PHC - F1 (C6-10)
PHC - F2 (C10-16)
PHC - F3 (C16-34)
PHC - F4 (C34-50)
pH
Phosphorus - Dissolved
Phosphorus - Total
Potassium (K) - Dissolved
Rubidium (Rb) - Dissolved
Selenium (Se) - Dissolved
Silicon (Si) - Dissolved
Silver (Ag) - Dissolved
Sodium (Na) - Dissolved
Strontium (Sr) - Dissolved
Sulfate (SO_4)- Dissolved
Suspended Solids - Total
Tellurium (Te) - Dissolved
Temperature
Thallium (Tl) - Dissolved
Thorium (Th) - Dissolved
Tin (Sn) - Dissolved
Titanium (Ti) - Dissolved
Toluene - Total
Total Hydrocarbons (C6-C50)
Tungsten (W) - Dissolved
Turbidity
Uranium (U) - Dissolved
Vanadium (V) - Dissolved
Xylene - Total
Zinc (Zn) - Dissolved
Zirconium (Zr) - Dissolved

Note: The director may revise this schedule. All dissolved samples should be filtered in the field and preserved in the field at the time of sampling. The licensee must notify the director and the laboratory for dissolved samples not filtered and preserved in the field

Schedule E to Environment Act Licence No. 3397 under clauses 112, 113, and 114
Groundwater Chemistry Parameters

Chemical Parameters		
Inorganics		
Alkalinity – Total		Magnesium – Dissolved
Ammonia – Total		Manganese – Dissolved
Arsenic – Total		Mercury – Dissolved
Barium – Dissolved		Nitrate - Reported as N
Boron – Dissolved		Nitrite - Reported as N
Cadmium – Dissolved		Total Kjeldahl Nitrogen – Reported as N
Calcium – Dissolved		Total Phosphorous
Calcium Carbonate		Potassium – Dissolved
Chloride		Silicon – Dissolved
Chromium – Dissolved		Sodium – Dissolved
Conductivity		Total Dissolved Solids (TDS)
Copper – Dissolved		Sulphate
Iron – Dissolved		Uranium – Dissolved
Lead – Dissolved		Zinc – Dissolved
Volatile Organic Compounds (VOC's)		
BTEX		
Other Organics		
Biological Oxygen Demand (BOD)		Chemical Oxygen Demand (COD)
Dissolved Organic Carbon (DOC)		
Field Parameters		
pH		Groundwater Elevation
Conductivity		Dissolved Oxygen
Temperature		

Note: The director may revise this schedule. All dissolved samples should be filtered in the field and preserved in the field at the time of sampling. The licensee must notify the director and the laboratory for dissolved samples not filtered and preserved in the field.