



Licence

Environmental Protection Act 1986, Part V

Licensee: North Bannister Waste Facility Pty Ltd

Licence: L8871/2014/1

Registered office: 65 Howson Way
BIBRALAKE WA 6163

ACN: 154 763 541

Premises address: North Bannister Waste Facility
6364, Lot 2 on Plan 2767 Albany Highway
North Bannister WA 6390
as depicted in Schedule 1.

Issue date: Friday, 06 March 2015

Commencement date: Monday, 09 March 2015

Expiry date: Sunday, 08 March 2020

Amendment date: Thursday, 20 October 2016

Prescribed premises category

Schedule 1 of the *Environmental Protection Regulations 1987*

Category number	Category description	Category production or design capacity	Approved Premises production or design capacity
57	Used tyre storage (general): premises (other than premises within category 56) on which used tyres are stored.	100 tyres or more	1,000 tyres
62	Solid waste depot: premises on which waste is stored, or sorted, pending final disposal or re-use.	500 tonnes or more per year	14,000 tonnes per annual period
64	Class II or III putrescible landfill site: premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer and as amended from time to time) is accepted for burial	20 tonnes or more per year	350,000 tonnes per annual period
61	Liquid waste facility: premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.	100 tonnes or more per year	2000 tonnes per annual period
67A	Compost manufacturing and soil blending: premises on which organic material (excluding silage) or waste is stored pending processing, mixing, drying or composting to produce commercial quantities of compost or blended soils.	1000 tonnes or more per year	33,000 tonnes per annual period



Conditions

This Licence is subject to the conditions set out in the attached pages.

Date signed: 20 October 2016

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Caron Goodbourn

A/Manager Licensing (Waste Industries)
Officer delegated under section 20
Of the *Environmental Protection Act 1986*



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Introduction

This Introduction is not part of the Licence conditions.

DER's industry licensing role

The Department of Environment Regulation (DER) is a government department for the state of Western Australia in the portfolio of the Minister for Environment. DER's purpose is to advise on and implement strategies for a healthy environment for the benefit of all current and future Western Australians.

DER has responsibilities under Part V of the *Environmental Protection Act 1986* (the Act) for the licensing of prescribed premises. Through this process DER works with the business owners, community, consultants, industry and other representatives to prevent, control and abate pollution and environmental harm to conserve and protect the environment. DER also monitors and audits compliance with works approvals and licence conditions, takes enforcement action as appropriate and develops and implements licensing and industry regulation policy.

Licence requirements

This Licence is issued under Part V of the Act. Conditions contained within the Licence relate to the prevention, reduction or control of emissions and discharges to the environment and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the Act and any other statutory instrument. Legislation can be accessed through the State Law Publisher website using the following link:
<http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html>

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- *Environmental Protection (Unauthorised Discharges) Regulations 2004* – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.
- *Environmental Protection (Controlled Waste) Regulations 2004* - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.
- *Environmental Protection (Noise) Regulations 1997* – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You must comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply.



Licence holders are also reminded of the requirements of section 53 of the Act which places restrictions on making certain changes to prescribed premises unless the changes are in accordance with a works approval, licence, closure notice or environmental protection notice.

Licence fees

If you have a licence that is issued for more than one year, you are required to pay an annual licence fee prior to the anniversary date of issue of your licence. Non-payment of annual licence fees will result in your licence ceasing to have effect meaning that it will no longer be valid and you will need to apply for a new licence for your Premises.

Ministerial conditions

If your Premises has been assessed under Part IV of the Act you may have had conditions imposed by the Minister for Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and Licence summary

North Bannister Waste Facility Pty Ltd (NBWF Pty Ltd) is a wholly owned subsidiary of NBWF Pty Ltd involved in the collection, recycling, processing and disposal of waste in domestic, industrial and commercial sectors in Western Australia. It operates the North Bannister Waste Facility (NBWF) which is a valley-style putrescible landfill facility. A composting facility within the same premises currently accepts solid green waste, bio solids, waste from grease traps and food waste. The facility is located in North Bannister approximately 30 km north of the Shire of Boddington on section of privately owned and leased land formerly used for Blue Gum plantation.

The nearest sensitive human receptor to the facility is a single residence 4.5 km away. No Environmental Sensitive Areas (i.e. Bush Forever, Wetlands etc.) are within notable proximity to the premises. The location of the landfill on the southern side of a ridge line that divides two water catchment areas means that the risk of groundwater or surface water impact from the site on the nearest and most substantial watercourse/tributary is negligible due to the directional flow of water into the Hotham Catchment. The Hotham River system lies to the south of the site and the nearest creek that flows into Hotham River is Gringer Creek approximately 6 km to the south east.

The landfill has been designed and constructed with reference to the *Best Practice Environmental Management (BPEM) Guidelines; Siting, Design, Operation and Rehabilitation of Landfills* EPA – Victoria (2010). The Landfill receives up to 350,000 tonnes per annum of Class III waste in addition to temporary storage of 14,000 tonnes per annum of recyclables and other materials pending burial or removal off site.

This licence amendment relates to the submission of the Landfill Gas Management Plan as required by previous condition 1.3.14. and incorporates revised details of gas management infrastructure as well as approximate timeframes based on modelled landfill gas production rates. Conditions are also added to incorporate Licensee proposed measures with DER initiated specifications to meet acceptable environmental performance based on risk based assessment. Administrative changes have also been incorporated in accordance with DER licensing processes.

The licences and works approvals issued for the Premises since 22/03/2012 are:



Instrument log		
Instrument	Issued	Description
W5101/2011/1	22/03/2012	Works Approval to construct Cells 1,2 and associated infrastructure to establish the landfill
W5789/2015/1	23/04/2015	Works approval to construct a composting facility
L8871/2014/1	09/03/2015	New licence
L8871/2014/1	11/06/2015	Licence amendment to operate composting facility and receive liquid waste.
L8871/2014/1	06/05/2016	Licence amendment application to increase composting throughput and acceptance of biosolids and increase the class III landfill throughput.
L8871/2014/1	22/10/ 2016	Amendment to incorporate required infrastructure specifications and timeframes for landfill gas management.

Severance

It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION



Licence conditions

1 General

1.1 Interpretation

1.1.1 In the Licence, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 For the purposes of this Licence, unless the contrary intention appears:

'Act' means the *Environmental Protection Act 1986*;

'ACM' means asbestos containing material and has the meaning defined in the Guidelines for Assessment, Remediation and Management of Asbestos Contaminated Sites, Western Australia, (DOH, 2009);

'AHD' means the Australian height datum;

'Acceptance Criteria' has the meaning defined in Landfill Definitions;

'annual period' means a 12 month period commencing from 9 March until 8 March in the following year;

'AS 4454: 2012' means the Australian Standard AS 4454: 2012 Composts, Soil Conditioners and Mulches;

'AS/NZS 5667.1' means the Australian Standard AS/NZS 5667.1 *Water Quality – Sampling – Guidance of the Design of sampling programs, sampling techniques and the preservation and handling of samples*;

'AS/NZS 5667.4' means the Australian Standard AS/NZS 5667.4 *Water Quality – Sampling – Guidance on sampling from lakes, natural and man-made*;

'AS/NZS 5667.10' means the Australian Standard AS/NZS 5667.10 *Water Quality – Sampling – Guidance on sampling of waste waters*;

'AS/NZS 5667.11' means the Australian Standard AS/NZS 5667.11 *Water Quality – Sampling – Guidance on sampling of groundwaters*;

'asbestos' means the asbestiform variety of mineral silicates belonging to the serpentine or amphibole groups of rock-forming minerals and includes actinolite, amosite, anthophyllite, chrysotile, crocidolite, tremolite and any mixture containing 2 or more of those;

'asbestos fibres' has the meaning defined in the Guidelines for Assessment, Remediation and Management of Asbestos Contaminated Sites, Western Australia, (DOH, 2009);

'averaging period' means the time over which a limit or trigger level is measured or a monitoring result is obtained;

'biosolids' means sludge from a wastewater treatment plant that has undergone further treatment to reduce disease causing pathogens and volatile organic matter significantly, resulting in a stabilised material suitable for beneficial use. Does not include industrial or food processing wastes.

'CEO' means Chief Executive Officer of the Department of Environment Regulation;



'CEO' for the purpose of notification means;

Chief Executive Officer.
Department Div.3 PtV EP Act Locked Bag 33
CLOISTERS SQUARE WA 6850
info@der.wa.gov.au

'Clean Fill' has the meaning defined in Landfill Definitions;

'compost' means an organic product that has undergone controlled aerobic and thermophilic biological transformation through the composting process to achieve the pasteurisation processes and parameters as stated in AS4454:2012;

'composting' means the process whereby organic materials are microbiologically transformed under controlled aerobic conditions;

'Contaminated Solid Waste' means contaminated solid waste meeting the Acceptance Criteria for Class III landfills;

'controlled waste' has the definition in *Environmental Protection (Controlled Waste) Regulations 2004*;

'DDT' means dichlorodiphenyltrichloroethane;

'food processing waste' means organic waste derived from food and food preparation, but excludes abattoir waste or animal carcasses;

'freeboard' means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point;

'GITA' means Geotechnical Inspection and Testing Authority;

'green waste' means a solid waste that originates from flora and which does not contain or has not been treated or coated with, preserving agents, biocides, fire retardants, paint, adhesives or binders;

'hardstand' means a surface with a permeability of 10^{-9} metres/second or less;

'HCB' means hexachlorobenzene;

'Inert Waste Type 1' has the meaning defined in Landfill Definitions;

'Inert Waste Type 2' has the meaning defined in Landfill Definitions;

'Landfill Definitions' means the document titled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer of the Department of Environment as amended from time to time.

'Landfill gas extraction works' means earthworks, infrastructure and installation of active landfill gas management extraction systems within Cells 1-8.

'Leachate' means liquid released by or water that has percolated through waste and which contains some of its constituents;

'Licence' means this Licence numbered L8871/2014/1 and issued under the Act;

'Licensee' means the person or organisation named as Licensee on page 1 of the Licence;

'NATA' means the National Association of Testing Authorities, Australia;



'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'NBRRF LMP' means North Bannister Resource Recovery Facility Landfill Management Plan, Bowman & Associates Pty. Ltd., Version 3, 17 December 2013;

'PCE' means perchloroethylene;

'phase 1' means the initial aerobic composting process which takes place in windrows of feedstock and aerated with air drawn through perforated pipes beneath the windrows to achieve pasteurisation;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Licence;

'Putrescible waste' has the meaning defined in the Landfill Definitions;

'rehabilitation' means the completion of the engineering of a landfill cell and includes capping and/or final cover;

'Schedule 1' means Schedule 1 of this Licence unless otherwise stated;

'Schedule 2' means Schedule 2 of this Licence unless otherwise stated;

'Solid Waste' means waste which meets the definition of a solid in the landfill Definitions;

'Special Waste Type 1' has the meaning defined in the Landfill Definitions;

'Special Waste Type 2' has the meaning defined in the Landfill Definitions;

'spot sample' means a discrete sample representative at the time and place at which the sample is taken;

'stabilised biosolids' means biosolids that have been dewatered by mechanical or solar means to usually greater than 15 per cent total solids.

'TCE' means trichloroethylene;

'usual working day' means 0800 – 1700 hours, Monday to Friday excluding public holidays in Western Australia;

'µS/cm' means microsiemens per centimetre;

'Waste Code' means the Waste Code assigned to a type of controlled waste for purposes of waste tracking and reporting as specified in the Department of Environment Regulation "Controlled Waste Category List" (July 2014), as amended from time to time.

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the standard in force from time to time during the term of this Licence.

1.1.4 Any reference to a guideline or code of practice in the Licence means the version of that guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guideline or code of practice made during the term of this Licence.

1.2 General conditions



- 1.2.1 The Licensee must ensure that the landfill gas extraction works specified in Column 1 of Table 1.2.1 and Table 1.2.2 meets or exceeds the specifications in Column 2 of those tables for the works in each row of those tables.
- 1.2.2 The Licensee must not depart from the specifications in Table 1.2.1 and 1.2.2 except:
- (a) where such departure is minor in nature and does not materially change or affect the infrastructure; or
 - (b) where such departure improves the functionality of the infrastructure and does not increase risks to public health, public amenity or the environment; and all other Conditions in this Licence are still satisfied.

Table 1.2.1: Landfill gas extraction Infrastructure	
Column 1	Column 2
Well hole works	Specifications (design and construction)
Diameter	At least 600mm in diameter
Depth	75% of the waste depth
Fill material surrounding pipe perforations	Fill with aggregate: <ul style="list-style-type: none"> a. Sized between 20mm and 75mm in diameter b. Filled to a level of 300mm above the uppermost perforation
Overlying fill material	<ul style="list-style-type: none"> a. At least 1.2m of backfill over aggregate; b. At least 1.0m of bentonite; and c. For the remainder, cover material or material of permeability equal to the existing cover material.

Table 1.2.2: Landfill gas extraction Infrastructure	
Column 1	Column 2
Well pipe works	Specifications (design and construction)
Material	PVC, HDPE, fiberglass
Diameter	At least 75mm
Length	Fill with aggregate: <ul style="list-style-type: none"> a. Sized between 200mm and 750mm in diameter b. Filled to a level of 300mm above the uppermost perforation
Perforations along pipe length	<ul style="list-style-type: none"> a. Diameter of 12mm b. At least four evenly spaced perforations in a horizontal row around pipe c. Spacing between each row of holes - 0.1 to 0.2m (4 to 8 in.) apart. d. Distributed over at least 75% of the lower portion of the pipe
Placement of pipe in well hole	Longitudinal axis of the well pipe located in the centre of the well hole

- 1.2.3 If any departures outlined in Condition 1.2.3 apply, then the Licensee must provide the CEO with a list of departures which are certified as complying with Condition 1.2.3 at the same time as the certifications under Condition 1.2.5.
- 1.2.4 The Licensee must connect landfill gas extraction infrastructure detailed in Column 1 of Table 1.2.2 to active landfill gas management systems capable of capture and combustion of landfill gas no later than 90 days following the completion of the construction of those wells.
- 1.2.5 The Licensee must ensure the construction compliance document:
- (a) is certified by a suitably qualified professional engineer that each item of infrastructure specified in Table 1.2.2 has been constructed in accordance with the Conditions of the Licence and any documentation submitted under condition 1.2.3;



- (b) contains a detailed site plan showing the location and dimensions of site infrastructure;
- (c) contains as constructed drawings and bore construction logs; and
- (d) Is signed by a person authorised to represent the Licensee and contains the printed name and position of that person within the company.

1.3 Premises operation

1.3.1 The Licensee shall only accept waste at the premises if:

- (a) it is of a type listed in Table 1.3.1; and
- (b) the quantity accepted is below any quantity limit listed in Table 1.3.1 for that activity (category);
- (c) it meets any specification listed in Table 1.3.1; and
- (d) in the case of contaminated solid waste is supported by documentation that demonstrates compliance with the acceptance criteria for Class III landfills.

Table 1.3.1: Waste acceptance						
Waste type	Quantity limit / annual period					Specification ¹
	Category 67A	Category 61	Category 57	Category 62	Category 64	
Clean fill	N/A	N/A	N/A	14,000 tonnes	Combined total of 350,000 tonnes	None specified
Inert Waste Type 1						Plastic only
Inert Waste Type 2						Cement bonded asbestos only. No fibrous asbestos shall be accepted.
Special Waste Type 1	N/A	N/A	N/A	N/A	N/A	Biomedical/clinical which is radioactive must not be accepted ²
Special Waste Type 2						Must meet the acceptance criteria for Class III landfills
Putrescible Waste						
Contaminated solid waste						
Tyres	N/A	N/A	1000 tyres	N/A	N/A	1000 tyres ³
Green Waste	33,000 tonnes of compost produced	N/A	N/A	N/A	N/A	Solid Waste only
Food processing waste						Not more than 10,000 tonnes per annum of stabilised biosolids to be accepted
Biosolids						
Liquid waste	N/A	2000 tonnes	N/A	N/A	N/A	Liquid waste acceptance is limited to the following sub category of putrescible and organic wastes as specified under the <i>Environmental Protection (Controlled Waste) Regulations 2004</i> : K110 - Waste from grease traps.

Note 1: Additional requirements for the acceptance of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.



Note 2: Information relating to the classification of radioactive waste can be found in the *Western Australian Radiation Safety Act 1975*.

Note 3: Information relating to the storage of tyres can be found in the *Western Australian Environmental Protection Regulations 1987*

1.3.2 The Licensee shall ensure that where waste does not meet the waste acceptance criteria set out in condition 1.3.1 it is removed from the Premises by the delivery vehicle or, where that is not possible, stored in a quarantined storage area or container and removed to an appropriately authorised facility as soon as practicable.

1.3.3 The Licensee shall ensure that wastes accepted onto the Premises are only subjected to the process(es) set out in Table 1.3.2 and in accordance with any process limits described in that Table.

Table 1.3.2: Waste processing		
Waste type	Process(es)	Process limits^{1,2}
All solid waste (excluding tyres)	Disposal of waste by landfilling	<p>Shall only take place within the landfill area shown on the Landfill Infrastructure and Storage Area Map in Schedule 1.</p> <p>No waste shall be temporarily stored or landfilled within 35 metres from the boundary of the premises.</p> <p>The separation distance between the base of the landfill and the highest groundwater level shall not be less than 2m.</p> <p>Landfill classification guidelines</p>
Contaminated Solid Waste	Receipt, handling and disposal by landfilling	None specified
Clean Fill		
Inert Waste Type 1	Receipt, handling, storage prior to removal offsite or disposal by landfilling	<ul style="list-style-type: none"> Crushing and screening of Inert Waste Type 1 is not permitted; and Inert Waste Type 1 to be stored within the designated C & D waste stockpile area as defined in Schedule 1: Landfill Infrastructure and Storage Area Map prior to disposal other than by landfilling.
Special Waste Type 1	Receipt, handling and disposal by landfilling	<ul style="list-style-type: none"> Only to be disposed of into a designated asbestos disposal area within landfill Cells as defined in Schedule 1: Landfill and Storage Area Map; Not to be disposed within 2m of the final tipping surface of the landfill; and No works shall be carried out on the landfill that could lead to a release of asbestos fibres
Special Waste Type 2		<ul style="list-style-type: none"> Only to be disposed of into a designated biomedical waste disposal area within the landfill cells as defined in Schedule 1: Landfill Infrastructure and Storage Area Map; Not to be disposed within 2m of the final tipping surface of the landfill; and



		<ul style="list-style-type: none"> No works shall be carried out on the landfill that could lead to biomedical wastes being excavated or uncovered
Inert Waste Type 2 (excluding tyres)	Receipt, handling, storage prior to removal offsite or disposal by landfilling	None specified
Tyres	Receipt, handling, storage prior to removal offsite or re-use	<ul style="list-style-type: none"> Used tyres to be stored within the designated tyre stockpile area (Landfill, and Containment Infrastructure, Storage Areas and Monitoring locations Map Schedule 1) prior to disposal other than by landfilling; Used tyres to be stored in piles of up to 100 tyres with a 6m minimum separation distance between piles; and No more 1,000 used tyres shall be stored in the designated tyre stockpile area at any time.
Solid Green waste and Food processing waste	Receipt, handling and storage prior to composting	<ul style="list-style-type: none"> To be stored within the designated area of the composting facility (Landfill, and Containment Infrastructure, Storage Areas and Monitoring locations Map Schedule 1)
Biosolids	Receipt, handling and storage prior to composting	<ul style="list-style-type: none"> To be stored within the designated area of the composting facility (Landfill, and Containment Infrastructure, Storage Areas and Monitoring locations Map Schedule 1)
Liquid waste	Storage of liquid waste from grease traps in an enclosed tanker	<ul style="list-style-type: none"> Non specified
Green waste, food processing waste, stabilised biosolids and liquid waste	Treatment by composting and storage of compost prior to removal offsite	<ul style="list-style-type: none"> To be processed and stored within the designated area of the composting facility (Landfill, and Containment Infrastructure, Storage Areas and Monitoring locations Map Schedule 1) Any windrows not subject to forced aeration shall be turned regularly to ensure aerobic conditions are maintained. The core temperature of the composting pile shall be maintained between 60 °C and 70 °C for phase 1. Moisture level in the composting piles shall be maintained between 50 to 60 percent. Windrows shall not exceed 3.5 metres high, 15 metres wide and 39 metres long. Compost stockpile shall not exceed 1500 m³. A minimum of 5 metres firebreak shall be maintained around the green waste and compost stockpiles. There shall not be more than 8 composting windrows in total on site at any one time. Leachate from Dam 2 shall only be applied



		<p>to phase 1 windrows.</p> <ul style="list-style-type: none"> No more than 33,000 tonnes of compost to be produced per annual period.
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Note 1: Requirements for landfilling tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.

Note 2: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the *Environmental Protection (Controlled Waste) Regulations 2004*.

Note 3: Further requirements for composting of biosolids are set out in the *Western Australian Guidelines for Biosolids Management 2012* and the Department of Health response to NBRRF: *North Bannister Composting Facility in Principal Approval for Composting Trial Using Sewage Sludge 1 April 2016*.

1.3.4 The Licensee shall ensure that waste accepted at the premises is disposed of in landfill infrastructure in accordance with Table 1.3.3:

Table 1.3.3: Landfill Infrastructure		
Cell Number	Class of Cell or Phase	Infrastructure requirements
All cells	Class III (Putrescible)	<ul style="list-style-type: none"> Composite lining system in accordance with section 7 of NBWF LMP for each landfill cell; Leachate collection system constructed in accordance with, but not limited to, measures in Sections 7 and 11 of NBRRF LMP.

1.3.5 The Licensee shall ensure that waste material is only stored and/or treated within vessels or compounds provided within the infrastructure detailed in Table 1.3.4

Table 1.3.4: Containment Infrastructure		
Reference and location on Site map	Material	Infrastructure requirements
Composting facility	Green waste, food processing waste, biosolids, material undergoing composting and maturation and final compost material	Hardstand area, graded and drainage to direct leachate to Leachate Dam 2
Liquid waste tanker	Liquid Waste <ul style="list-style-type: none"> K110 - Waste from grease traps 	Liquid waste tanker stored within the composting facility as needed
Leachate Dam 1	<ul style="list-style-type: none"> Landfill leachate from active and/or closed cells; and Wastewater from Leachate Dam 2 	<ul style="list-style-type: none"> Composite lining system to achieve a permeability of less than 1×10^{-9} metres per second or equivalent; and Designed to contain leachate and stormwater produced as a result of a 1:100 year storm event. Designed to maintain a freeboard of no less than 1100mm
Leachate Dam 2	<ul style="list-style-type: none"> Leachate from the composting facility; and Emergency runoff from the tyre stockpile 	<ul style="list-style-type: none"> Geosynthetic lining system to achieve a permeability of not less than 1×10^{-9} metres per second or equivalent; and Designed to contain leachate and stormwater produced as a result of a 1:100 year storm event.



	area	<ul style="list-style-type: none">• Designed to maintain a freeboard of no less than 500 mm
Stormwater dam	Stormwater runoff uncontaminated by activities on the Premises	<ul style="list-style-type: none">• Geosynthetic lining system to achieve a permeability of not less than 1×10^{-9} metres per second or equivalent; and• Designed to contain surface water produced as a result of a 1:100 year storm event.• Designed to maintain a freeboard of no less than 500mm

1.3.6 The Licensee shall manage the landfilling activities to ensure:

- (a) the size of the tipping face is kept to a minimum and not larger than 30m in diameter and 2m high; and
- (b) waste is levelled and compacted as soon as practicable after it is discharged;
- (c) waste is placed and compacted to ensure all faces are stable and capable of retaining rehabilitation material; and
- (d) rehabilitation of a cell or phase takes place within 6 months after disposal in that cell or phase has been completed.

1.3.7 The Licensee shall ensure that cover is applied and maintained on landfilled wastes in accordance with Table 1.3.5 and that sufficient stockpiles of cover are maintained on site at all times.



Table 1.3.5 Cover requirements ¹	
Waste Type	Cover requirements
Inert Waste Type 1	No cover required
Inert Waste Type 2	To be covered by the end of the working day in which the waste was disposed with 100mm of Type 1 inert waste or soil
Special Waste Type 1	(a) To be covered with 300mm of soil as soon as practicable and not later than the end of the working day after disposed and before being compacted to prevent the release of asbestos fibres as a result of compaction and other landfilling activities (b) 1,000mm of soil within 3 months of achieving final waste contours
Special Waste Type 2	(a) To be covered with 300mm of soil as soon as practicable and not later than the end of the working day after disposal (b) 1,000mm of Inert Waste Type 1 or Clean Fill within 3 months of achieving final waste contours
Putrescible waste and Contaminated Solid Waste	(a) 150mm of Inert Waste Type 1 or Clean Fill as soon as practicable and not later than the end of the working day; and (b) 1,000mm of Inert Waste Type 1 or Clean Fill within 3 months of achieving final waste contours

Note 1: Additional requirements for final cover of tyres are set out in Part 6 of the *Environmental Protection Regulations 1987*.

- 1.3.8 The Licensee shall implement the following security measures at the site:
- (a) erect and maintain suitable fencing to prevent unauthorised access to the site; and
 - (b) ensure that any entrance gates to the premises are securely locked when the premises are unattended; and
 - (c) undertake regular inspections of all security measures and repair damage as soon as practicable.

1.3.9 The Licensee shall take all reasonable and practical measures to ensure that no wind-blown waste escapes from the Premises and that wind-blown waste is collected on at least a weekly basis and returned to the tipping area or appropriately contained.

1.3.10 The Licensee shall take all practical measures to ensure that the process control parameters in Table 1.3.6 comply with the trigger level specified in that table.

Table 1.3.6: Process controls for leachate management			
Reference	Parameter	Trigger level	Averaging period
PC1	Leachate head within the leachate sump	Less than or equivalent to 300mm	Instantaneous
PC2	Leachate Dam 1 freeboard	Greater than or equivalent to 1.1m	
PC3	Leachate Dam 2 freeboard	Greater than or equivalent to 500mm	



1.3.11 The Licensee shall take the specified management action in the case of an event in Table 1.3.7.

Table 1.3.7: Management actions			
Process control parameter reference	Event/action reference	Event	Management action
PC1	EA1	Any time the leachate head exceeds the trigger level in Table 1.3.6.	<p>a) Should leachate sump inspection and monitoring as per condition 1.3.10 (PC1) and 3.3.3 (PM1) indicate normal operating conditions, the Licensee shall undertake management measures as defined in section 11 of NBRRF LMP within 24 hours of observing the exceedance.</p> <p>b) Where inspection and monitoring indicate failure of the leachate collection system, the Licensee shall remove leachate from the system via liquid waste transport to a licenced liquid waste facility within 72 hours of observing the exceedance.</p>
PC1	EA2	EA1	The licensee shall undertake inspection of the leachate collection pipes and notify any blockage or other malfunction in accordance with Schedule 2, Part A of this Licence within 1 week of observing the exceedance.
PC2/PC3	EA3	Any time the freeboard in leachate dam 1 and or leachate dam 2 becomes less than the trigger level prescribed in Table 1.3.6.	<p>a) Should leachate sump inspection and monitoring as per condition 1.3.10 (PC1) and 3.3.3 (PM1) indicate normal operating conditions, the Licensee shall undertake management measures as defined in section 11 of NBRRF LMP within 24 hours of observing the exceedance.</p> <p>b) Where inspection and monitoring indicate failure of the leachate collection system, the Licensee shall remove leachate from the system via liquid waste transport to a licenced liquid waste facility within 72 hours of observing the exceedance.</p>



1.3.12 The Licensee shall submit information in Table 1.3.8 in accordance with the requirements of Table 1.3.8

Table 1.3.8: Capping requirements		
Cell Numbers	Specification	Timescales
Each landfill cell	Capping plan submitted to the CEO including design, material specifications, gas collection, current and finished surveyed levels, construction quality assurance planning	3 months prior to the completion of waste disposal in each cell
Each landfill cell	Complete capping works in accordance with Capping Plan submitted to the CEO	6 months after the completion of waste disposal in each cell

2 Emissions

2.1 General

2.2.1 The Licensee shall provide, implement and maintain suitable wheel cleaning facilities to ensure that no waste or other debris is tracked beyond the boundary on the premises.

3 Monitoring

3.1 General monitoring

3.1.1 The licensee shall ensure that:

- (a) all water samples are collected and preserved in accordance with AS/NZS 5667.1;
- (b) all wastewater sampling is conducted in accordance with AS/NZS 5667.10;
- (c) all surface water sampling is conducted in accordance with AS/NZS 5667.4;
- (d) all groundwater sampling is conducted in accordance with AS/NZS 5667.11;
- (e) all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured [unless indicated otherwise in the relevant table].

3.1.2 The Licensee shall ensure that :

- (a) monthly monitoring is undertaken at least 15 days apart;
- (b) six monthly monitoring is undertaken at least 5 months apart; and
- (c) annual monitoring is undertaken at least 9 months apart.

3.1.3 The Licensee shall submit to the CEO within 28 calendar days of the end of the annual period, a surveyed topographic contour map depicting the area of the planned footprint including cross sections for cut slopes, filled areas and un-excavated areas.

3.2 Monitoring of inputs and outputs

3.2.1 The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.



Table 3.2.1: Monitoring of inputs and outputs				
Input/Output	Parameter	Units	Averaging period	Frequency
Waste Inputs	Clean Fill, Inert Waste Type , Inert Waste Type 2, Special Waste Type 1, Special Waste Type 2, Putrescible waste and Contaminated Solid Waste, Solid Green waste, Food processing waste, Liquid waste, Biosolids.	tonnes	N/A	Each load arriving at the Premises
Waste Outputs	Waste type as defined in the Landfill Definitions			Each load leaving or rejected from the Premises
Compost outputs	Final compost material	tonnes	Annually	Each load leaving the premises and sold to surrounding broad acre farmers.

3.3 Process monitoring

3.3.1 The Licensee shall submit to the CEO within 28 calendar days of the end of the annual period a leachate water balance including inputs and calculations and explanation of any changes that may indicate an issue with the leachate collection system or a breach of the landfill liner.

3.3.2 The licensee shall submit to the CEO within 28 calendar days of the end of the annual period, a Geotechnical Inspection Report prepared on behalf of the Licensee by a GITA certified engineer assessing the stability of all landfill embankments and cut slopes.

3.3.3 The Licensee shall undertake the monitoring in Table 3.3.1 according to the specifications in that table.

Table 3.3.1: Process monitoring					
Monitoring point reference	Process description	Parameter	Units	Frequency	Method
PM1	Leachate head within the leachate sump	Depth	mm	Monthly	Depth at PC1 to be measured after a minimum period of 24 hours after any pumping of leachate from the sump.
PM2	Leachate	pH	None	Six	As



	extracted from the leachate sump		specified	monthly	specified in condition 3.1.1
		Electrical conductivity	µS/cm		
		Arsenic (total), cadmium, chromium, copper, iron (total), lead, manganese, mercury, molybdenum, nickel, selenium, zinc	mg/l		
		Ammoniacal nitrogen, nitrate-nitrogen, total nitrogen, total phosphorus			
		Total potassium, chloride and sulfate			
		Total soluble solids, total organic carbon and chemical oxygen demand			
		<i>Monocyclic Aromatic Hydrocarbons:</i> Benzene, toluene methylbenzene, xylene (total)	µg/l	Annually	
		<i>Polycyclic Aromatic Hydrocarbons:</i> acenaphthene, anthracene, ben(a)pyrene, fluoroanthene, naphthalene, pyrene			
		<i>Organochlorine pesticides:</i> aldrin, chlordane (and metabolites), DDT (and metabolites), dieldrin, chlorpyrifos, HCB, heptachlor (and its epoxide), lindane			
		<i>Organophosphates:</i> parathion, demeton-S-methyl, maldison, diazinon, demethoate, fenamiphos, fenthion			
		<i>Other:</i> atrazine, TCE, PCE and polychlorinated biphenyls (total)			
Compost windrows	Composting materials	Temperature	°C	Twice daily	Representative samples of windrow condition
		Moisture content	Monitoring to be undertaken in accordance with North Bannister Composting Facility Process Control and Monitoring Plan, Version 1, April 2015		



3.4 Ambient environmental quality monitoring

3.4.1 The Licensee shall undertake the monitoring in Tables 3.4.1 and 3.4.2 according to the specifications in those tables.

Table 3.4.1: Monitoring of ambient surface water quality				
Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
SD1 – SD3	pH	None specified	Instantaneous ¹ and spot sample	Two sampling events between the months of June and September separated by at least 30 days
	Electrical conductivity	µS/cm	Spot sample	
	Metals: Arsenic (total), cadmium, chromium, copper, iron (total), lead, manganese, mercury, molybdenum, nickel, selenium, zinc	mg/l		
	Nutrients: Ammoniacal nitrogen, nitrate-nitrogen, total nitrogen, total phosphorus			
	Cations and anions: Total potassium, chloride and sulfate			
	Total soluble solids, total organic carbon and chemical oxygen demand			

Note 1: In-field non-NATA accredited analysis permitted

Table 3.4.2: Monitoring of ambient groundwater quality				
Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
MW01 – MW08	Standing water level	m(AHD)	Instantaneous ¹	Six monthly
	pH	None specified	Instantaneous ¹ and spot sample	
	Electrical conductivity	µS/cm	Spot sample	
	Arsenic (total), cadmium, chromium, copper, iron (total), lead, manganese, mercury, molybdenum, nickel, selenium, zinc	mg/l		
	Ammoniacal nitrogen, nitrate-nitrogen, total nitrogen, total phosphorus			
	Total potassium, chloride and sulfate			
	Total soluble solids			
	<i>Monocyclic Aromatic Hydrocarbons</i> : Benzene, toluene methylbenzene, xylene (total)	µg/l	Annually	
<i>Polycyclic Aromatic Hydrocarbons</i> :				



	<p>acenaphthene, anthracene, ben(a)pyrene, fluroanthene, naphthalene, pyrene</p> <p><i>Organochlorine pesticides:</i> aldrin, chlordane (and metabolites), DDT (and metabolites), dieldrin, chlorpyrifos, HCB, heptachlor (and its epoxide), lindane</p> <p><i>Organophosphates:</i> parathion, demeton-S-methyl, maldison, diazinon, demethoate, fenamiphos, fenthion</p> <p><i>Other:</i> atrazine, TCE, PCE and polychlorinated biphenyls (total)</p>			
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Note 1: In field non-NATA accredited analysis permitted.

4 Information

4.1 Records

4.1.1 All information and records required by the Licence shall:

- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 4.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
- (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
 - (i) off-site environmental effects; or
 - (ii) matters which affect the condition of the land or waters.

4.1.2 The Licensee must submit to the CEO within 90 calendar days after the annual period, an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions in the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous annual period.

4.1.3 The Licensee shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

4.2 Reporting

4.2.1 The Licensee shall submit to the CEO an Annual Environmental Report within 28 calendar days after the end of the annual period. The report shall contain the information listed in Table 4.2.1 in the format or form specified in that table.



Table 4.2.1: Annual Environmental Report		
Condition or table (if relevant)	Parameter	Format or form ¹
3.1.3	Topographic contour map	At least A3 size in hard-copy and electronic format
1.3.11	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
Table 3.2.1	Waste input and output data (including rejected loads)	
Table 3.3.1	Process monitoring data	
Table 3.4.1	Ambient surface water quality monitoring data	
Table 3.4.2	Ambient groundwater quality monitoring data	
4.1.2	Compliance	Annual Audit Compliance Report (AACR). Form available at the DER website: www.der.wa.gov.au under the publication section
4.1.3	Complaints summary	None specified

Note 1: Forms are in Schedule 2

- 4.2.2 The Licensee shall ensure that the Annual Environmental Report also contains:
- an assessment of the information contained within the report against previous drawings, monitoring results and licence limits and/or trigger levels; and
 - an assessment of landfill gas production from gas wells including the viability of commencing landfill gas extraction for treatment or reuse.
- 4.2.3 The Licensee shall submit the information in Table 4.2.2 to the CEO according to the specifications in that table.

Table 4.2.2: Non-annual reporting requirements				
Condition or table (if relevant)	Parameter	Reporting period	Reporting date (after end of the reporting period)	Format or form
-	Copies of original monitoring reports submitted to the Licensee by third parties	Not Applicable	Within 14 days of the CEOs request	As received by the Licensee from third parties

4.3 Notification

- 4.3.1 The Licensee shall ensure that the parameters listed in Table 4.3.1 are notified to the CEO in accordance with the notification requirements of the table.

Table 4.3.1: Notification requirements			
Condition or table (if relevant)	Parameter	Notification requirement ¹	Format or form ²



Table 1.3.7 and Table 3.3.1	Failure or malfunction of the leachate collection and management system.	Part A: As soon as practicable, but no later than 5pm of the next usual working day. Part B: As soon as practicable	N1
Conditions 1.2.1 and 1.2.2, Table 1.2.1 and 1.2.2	Failure or malfunction of the landfill gas management system	As soon as practicable, but no later than 5pm of the next usual working day.	N1

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act

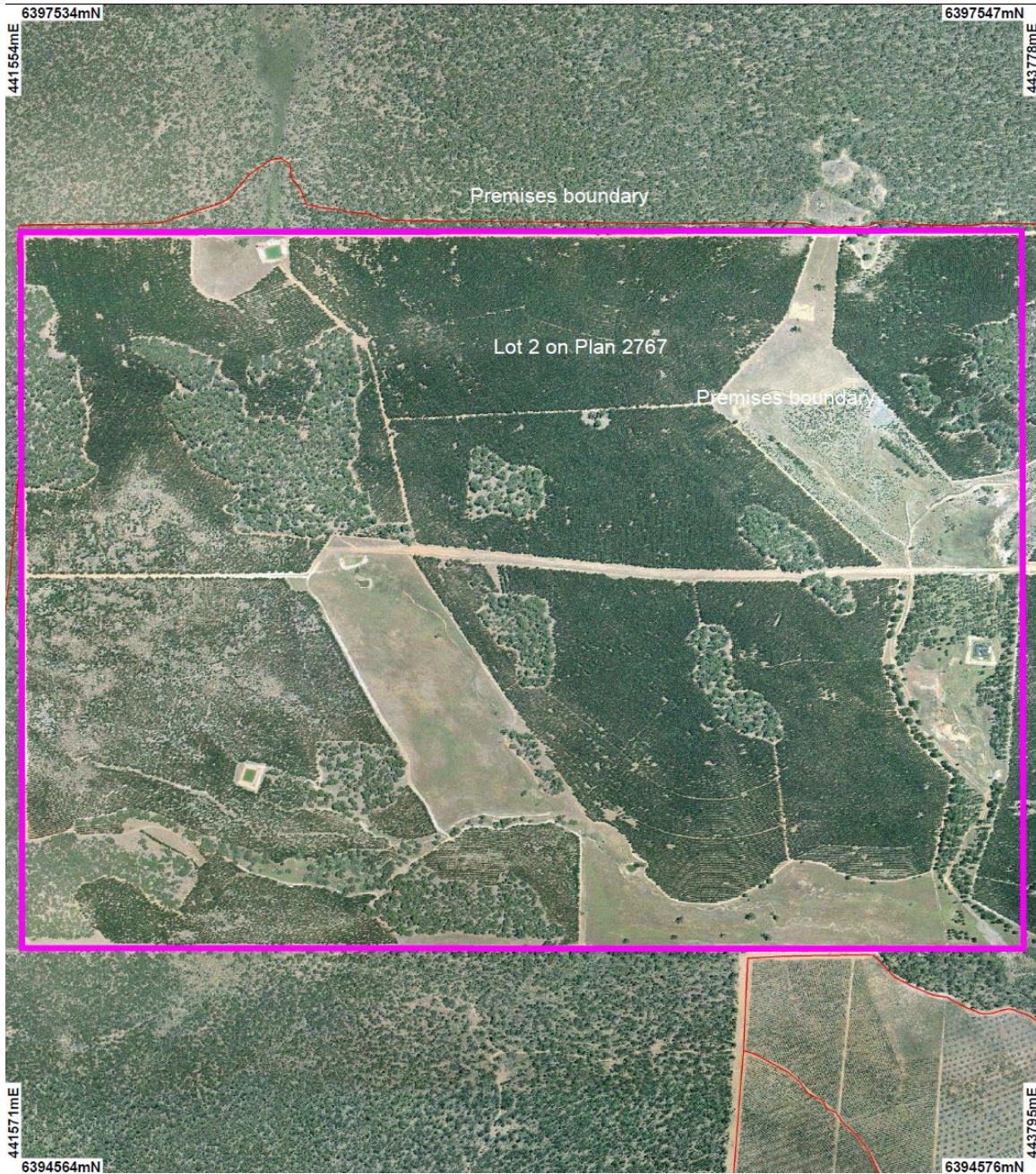
Note 2: Forms are in Schedule 2



Schedule 1: Maps

Premises Map

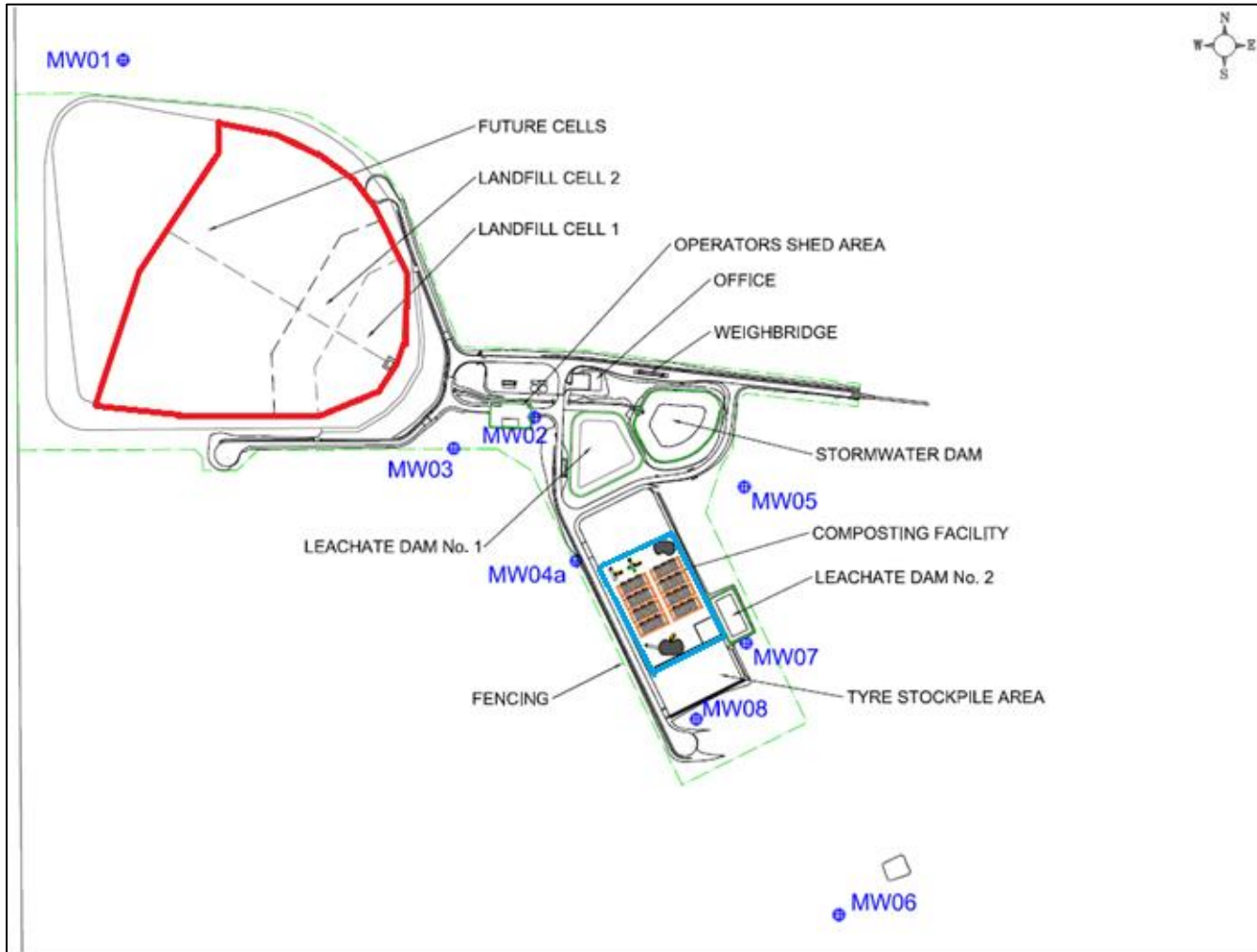
The Premises is shown in the maps below. The pink line below depicts the Premises boundary.





Landfill, and Containment Infrastructure, Storage Areas and Monitoring locations Map

The area in which the disposal of waste by landfilling may take place is show in the map below as depicted by the red line and referred to in Table 1.3.2, 1.3.3 and 1.3.4. The blue line below depicts the composting facility.





Schedule 2: Reporting & notification forms

Licence: L8871/2014/1
 Form: N1

Licensee: North Bannister Waste Facility Pty Ltd
 Date of breach:

Notification of detection of the exceedance of a limit or trigger level

These pages outline the information that the operator must provide.
 Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

Part A

Licence Number	
Name of operator	
Location of Premises	
Time and date of the detection	

Notification requirements for the exceedance of a limit or trigger level	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	



Part B

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident.	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission.	
The dates of any previous N1 notifications for the Premises in the preceding 24 months.	

Name	
Post	
Signature on behalf of NBWF Pty Ltd	
Date	



Decision Document

Environmental Protection Act 1986, Part V

Proponent: North Bannister Waste Facility Pty Ltd

Licence: L8871/2014/1

Registered office: 65 Howson Way
BIBRA LAKE WA 6163

ACN: 154 763 541

Premises address: North Bannister Waste Facility
6364, Lot 2 on Plan 2767 Albany Highway
North Bannister WA 6390

Issue date: Friday, 6 March 2015

Commencement date: Monday, 9 March 2015

Date of Amendment: Thursday, 20 October 2016

Expiry date: Sunday, 8 March 2020

Decision

Based on the assessment detailed in this document the Chief Executive Officer's (DEO) Delegate has decided to grant an amended licence. The CEO Delegate considers that in reaching this decision that they have taken into account all relevant considerations and that the Licence and its conditions will ensure that an appropriate level of environmental protection is provided.

Decision Document prepared by: Thomas Kaethner
Licensing Officer

Decision Document authorised by: Caron Goodbourn
Delegated Officer



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1 Purpose of this Document

This Decision Document explains how the Chief Executive Officer's (DEO) Delegate has assessed and determined the application and provides a record of CEO Delegate's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this Decision Document is limited to the CEO Delegate's assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.



2 Administrative summary

Administrative details		
Application type	Works Approval <input type="checkbox"/>	
	New Licence <input type="checkbox"/>	
	Licence amendment <input checked="" type="checkbox"/>	
	Works Approval amendment <input type="checkbox"/>	
Activities that cause the premises to become prescribed premises	Category number(s)	Assessed design capacity
	57	1000 tyres
	62	14,000 tonnes per annual period
	64	350,000 tonnes per annual period
	61	2000 tonnes per annual period
67A	33,000 tonnes per annual period	
Application verified	Date: N/A	
Application fee paid	Date: N/A	
Works Approval has been complied with	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
Compliance Certificate received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
Commercial-in-confidence claim	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Commercial-in-confidence claim outcome	N/A	
Is the proposal a Major Resource Project?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: Managed under Part V <input checked="" type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Is the proposal subject to Ministerial Conditions?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i>)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Department of Water consulted Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	



3 Executive summary of proposal and assessment

Operation

North Bannister Waste Facility Pty Ltd (NBWF Pty Ltd) is a wholly owned subsidiary of NBWF Pty Ltd involved in the collection, recycling, processing and disposal of waste in domestic, industrial and commercial sectors in Western Australia. It operates the North Bannister Waste Facility (NBRRF) which is a valley-style putrescible landfill facility to accept class III solid waste. A composting facility within the same premises currently accepts solid green waste, waste from grease traps and food waste.

The landfill has been designed and constructed with reference to the *Best Practice Environmental Management (BPEM) Guidelines; Siting, Design, Operation and Rehabilitation of Landfills* EPA – Victoria (2010). The site is authorised to receive and bury up to 350,000 tonnes per annual period of up to Class III waste in addition to temporary storage of 14,000 tonnes per annual period of recyclables and other materials pending burial or removal off site.

Siting

The facility is located in North Bannister approximately 30 km north of the Shire of Boddington on section of privately owned and leased land formerly used for Blue Gum plantation.

The nearest sensitive above ground receptor to the facility is a single residence 4.5 km away. No Environmental Sensitive Areas (i.e. Bush Forever, Wetlands etc.) are within notable proximity to the premises. The location of the landfill on the southern side of a ridge line that divides two water catchment areas means that the risk of groundwater or surface water impact from the site on the nearest and most substantial watercourse/tributary is low due to the directional flow of water into the Hotham Catchment. The Hotham River system lies to the south of the site and the nearest creek that flows into Hotham River is Gringer Creek approximately 6 km to the south east.

Landfill Gas Management

This licence amendment relates to the submission of the Landfill Gas Management Plan (LFGMP) on 17 May 2016 as required by the previous licence conditions. The LFGMP was required to contain details of landfill gas well balancing methods and as constructed details of landfill gas infrastructure constructed to date. Upon detailing deficiencies of the plan in these areas through DER correspondence dated 6 July 2016, the Licence Holder indicated that no landfill gas management infrastructure had been installed. At this time Cell 1 fill was nearing completion and filling in cells 2 and 3 had commenced.

The Licence Holder was then required through further DER correspondence to submit an amended LFGMP addressing identified deficiencies and detailing proposed design and timeframes for gas capture methods; as well as timeframes based on modelled landfill gas production rates.

This Decision Document identifies and assesses any additional potential emissions arising from the proposed works, being the retrofitting of landfill gas extraction wells within cells for at least Cells 1 and 2; as opposed to what was originally proposed, being the progressive installation of horizontal gas collection pipework at intervals throughout landfilling.



4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987*, DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises and relevant DER Guidance Statements . Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L= Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Introduction interpretation	N/A	Administrative changes have been included within the licence amendment process in accordance with DER protocol Definitions updated	N/A
General Conditions	N/A	Licence condition 1.2.1 of the previous licence has been removed as it is considered redundant in accordance with current licensing process as it is not enforceable due to not specifying onsite stormwater management infrastructure. Construction New condition 1.2.1 has been added to the licence including Tables 1.2.1 and 1.2.2 to detail the design and construction specifications for approved landfill gas management works within Cells 1-8 at the premises. Further information relating to the assessment and decision-making in relation to this requirement is provided in Appendix A. Conditions 1.2.3 – 1.2.5 relate to the certification of works approved under the licence. Part (c) of Condition 1.2.5 requires bore logs and as constructed information to be submitted to the CEO to verify depth and construction of the bores. Please see Appendix A for further information regarding the justification of these conditions.	<i>DER's Guidance Statement: Regulatory Principles</i> <i>DER's Guidance Statement: Setting Conditions</i> <i>DER's Guidance Statement: Licence and works approval process</i> NBRRF Operations Management Plan, Version 7, July 2016



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
			Landfill Gas Management Plan North Bannister Resource Recovery Facility Albany Highway North Bannister WA Version: 1 (May 2016)
Premises operation	Tables 1.3.1, 1.3.2, 1.3.4 and 3.2.1	<p>Tables 1.3.1, 1.3.2, 1.3.4 and 3.2.1 have had the references to: the NBCF Food Waste Acceptance Plan, version 1, April 2015, and the Amendment Application: Supporting Paper to Include Biosolids in the Composting Process at Perthwaste’s North Bannister Resource Recovery Facility, Version 1, 18 December 2015, the Works Approval Application, North Bannister Composting Facility, Version 3, December 2014, North Bannister Composting Facility Process Control and Monitoring Plan, Version 1, April 2015 are removed as a condition referring to an application or management plan is valid or enforceable or in accordance with <i>DER’s Guidance Statement Setting Conditions</i>.</p> <p>The Licence holder is still required to comply with the commitments made within the submitted documents.</p> <p>Condition 1.3.13 of the previous licence has been removed as it refers to the NBRRF LMP. This management plan is outdated as it relates to landfill gas management due to reference to progressive installation of horizontal gas collection pipework in Section 12.7. As detailed in the Executive Summary, the Licence Holder is not in compliance with this condition as horizontal pipework wasn’t installed during progressive fill. As a result, the proponent intends to drill horizontal collection wells as detailed in the Landfill Management Plan and Landfill Gas Management Plan. Further risk assessment for this can be found in Appendix A.</p> <p>Condition 1.3.14 of the previous licence has been removed as there is no</p>	<p>NBCF Food Waste Acceptance Plan, version 1, April 2015</p> <p>Amendment Application: Supporting Paper to Include Biosolids in the Composting Process at Perthwaste’s North Bannister Resource Recovery Facility, Version 1, 18 December 2015.</p> <p>Works Approval Application, North Bannister Composting Facility, Version 3, December 2014.</p> <p>North Bannister Composting Facility Process Control and Monitoring Plan, Version</p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		longer a requirement for submission of a Landfill Gas Management Plan. An amended LFGMP addressing identified deficiencies and detailing proposed design and timeframes for gas capture methods; as well as timeframes based on modelled landfill gas production rates was submitted to the Delegated Officer 4 August 2016 which fulfils the associated conditions of the previous licence. Specifications and construction requirements have been added to the amended licence accordingly through General Conditions in the previous section.	1, April 2015 North Bannister Resource Recovery Facility Landfill Management Plan, Bowman & Associates Pty. Ltd., Version 3, 17 December 2013 DER's Guidance Statement <i>Setting Conditions</i> , October 2015
Information	N/A	Condition 4.1.2 has been amended to ensure the Annual Compliance Report is submitted in DER's revised format, the template which can be found on DER's website at www.der.wa.gov.au	N/A
Licence Duration	N/A	The duration of the licence remains unchanged and will expire 08 March 2020. The premises has planning approval with no expiry date.	N/A

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
22/09/2016	Proponent sent a copy of draft instrument	a) Proponent questioned the use of the term 'valley style landfill' in the executive summary as he felt that the landfill is more of a mound	a) The term 'valley style landfill' has been retained from the original assessment as the landfill was



Date	Event	Comments received/Notes	How comments were taken into consideration
		<p>style fill. While the landfill is at the bottom of a very gentle valley, the Proponent felt that this wasn't significant enough for the landfill to be deemed 'valley fill' as it isn't filling a valley as such.</p> <p>b) There was a comment that full CQA for vertically drilled landfill gas extraction bores is overly onerous given the requirement to have supervision and sign off from a suitably qualified engineer. Proponent would like to apply only the need for bore construction logs and as constructed details.</p> <p>c) Condition 4.1.2 includes a timeframe of 28 days between the end of the annual period and submission of the annual reports.</p>	<p>assessed as a valley style fill. While the filling method isn't filling a valley. The waste body is located at the toe of a gentle valley.</p> <p>b) The proponent has since advised that they have an in-house suitably qualified engineer and therefore have no objection to the condition.</p> <p>c) This is a typographical error and has therefore been amended to allow a submission timeframe of 90 days.</p>
24/10/2016	Amendment granted advertised in the West Australian	N/A	N/A



APPENDIX A

Landfill Gas

Emission: Methane, Carbon Dioxide and other trace gases emitted due to co-mingling and degradation of putrescible waste during and following acceptance and disposal.

Impact: Additional environmental harm through odour, asphyxiation and explosion at sensitive receptors via atmospheric and sub-surface migration pathways through drilling of vertical landfill gas wells through existing waste. The separation distance of 4.5 km to the nearest residence is deemed sufficient to mitigate landfill gas impacts at this receptor, however risk remains for collection of landfill gas at the surface and through preferential hydrological and geological pathways. Atmospheric and lateral movement of landfill gas has the potential to impact users of the Bibbulman Track 400m - 500m north of the site. Vertical movement of landfill gas through sub-soil if the liner is punctured has the potential to contaminate sub-surface groundwater flows. Drilling of gas wells through waste following disposal allows more advanced degradation before the wells are installed; as opposed to the previously approved method of progressively installed horizontal collection pipes.

Controls: The Geocomposite liner constructed (Cell 1) and further proposed for subsequent cells is designed to create an environmental barrier from the landfill to the surrounding environment. Under normal operating conditions this is sufficient to mitigate transfer of landfill gas to sub-soil and groundwater. The revised NBWF LMP includes construction controls limiting the depth of gas wells to no deeper than to 4 metres proximity to the basal liner in order to mitigate disturbance of the liner by drilling apparatus.

Following capping works, the Licensee proposes to connect the landfill gas collection system to a flare to manage emissions until production levels reach a volume viable for energy production through a gas powered energy plant. Design, installation and timeframes for this aren't included in the amendment proposal documents.

Risk Assessment

Consequence: Moderate

Likelihood: Unlikely

Risk Rating: Moderate

Regulatory Controls: New licence condition 1.2.1 including Tables 1.2.1 and 1.2.2 contain works specifications ensuring effective collection of landfill gas within Cells 1-8; including materials and dimensions for landfill well infrastructure. The requirements in these tables reflect the guideline recommendations as described in the United States Environmental Protection Agency document *Municipal Solid Waste Landfills, Volume 1: Summary of the Requirements for the New Source Performance Standards and Emission Guidelines for Municipal Solid Waste Landfills 1999, Appendix E – Collection system design plans*. This reference source is deemed by the Delegated Officer to be applicable as it applies to sites in the USA with similar waste types, climatic conditions and engineered barrier systems to those present at NBWF. Well hole and pipe dimensions, high permeability aggregate, depth requirements, perforation parameters and the requirement to place the pipe in the centre of the hole (in Tables 1.2.1 and 1.2.2) are imposed in order to ensure unrestricted movement of landfill gas from the waste body through perforations in the well pipe; and to create a sealed barrier near at the top of the well to prevent air infiltrating the well. The aggregate layer acts as a filter to prevent refuse from clogging well pipe perforations while the bentonite layer creates the aforementioned seal.

Condition 1.2.3 relates to Condition 1.2.2 in requiring that any alternate design of the landfill gas extraction works is detailed and justified in accordance with the Licence.

Condition 1.2.4 details a timeframe for the connection of landfill gas extraction works to a flare for the destruction of hazardous components of landfill gas emanating from the landfill facility. This ensures



that venting infrastructure is not able to simply vent landfill gas from increasing rates of waste breakdown to the atmosphere for unreasonable timescales.

Condition 1.2.5 requires construction compliance documentation demonstrating compliance with required specifications, including the submission of as constructed drawings and bore construction logs to ensure performance parameters are met for gas extraction and ongoing integrity of the gas wells.

Risk Assessment

Consequence: Major

Likelihood: Rare

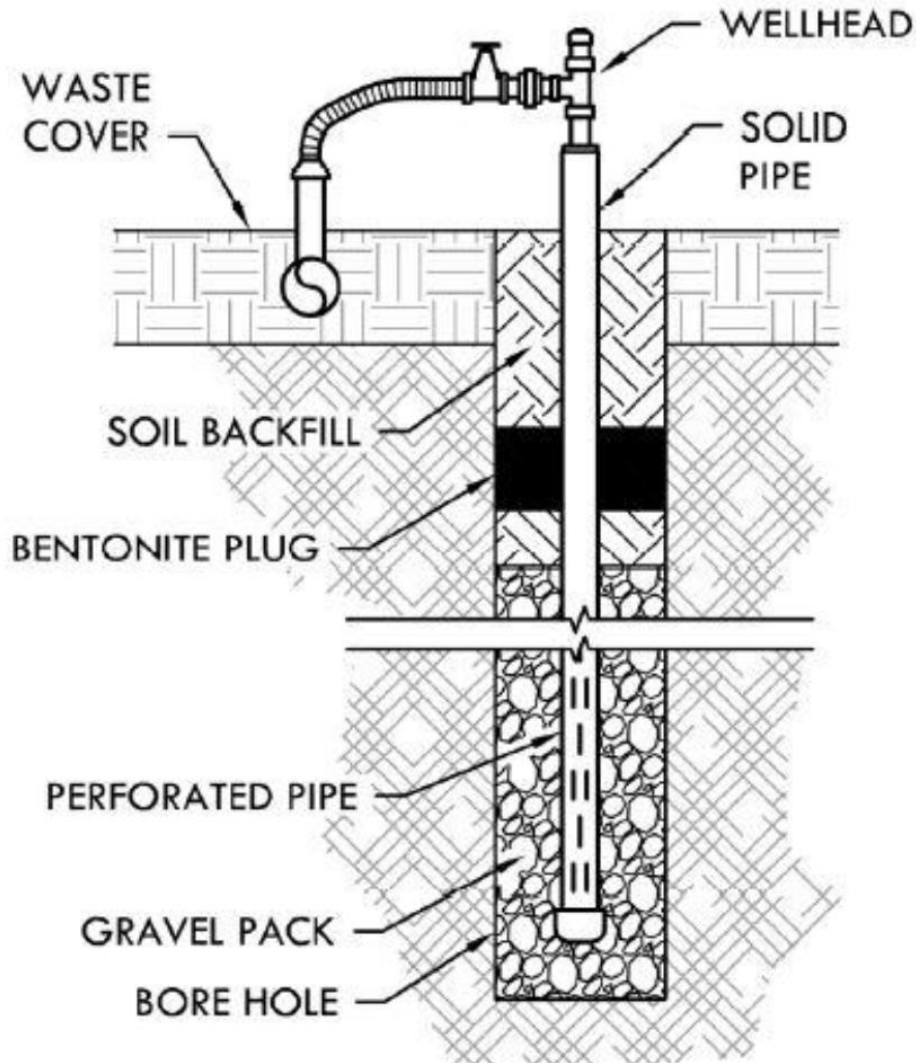
Risk Rating: Moderate

The Delegated Officer has reviewed the amendment proposal supporting information and made the following determination for the premises:

- Proposed controls for the management of landfill gas through capping, venting and flaring are considered appropriate to mitigate the risk of offsite migration, asphyxiation and explosion however application supporting documentation was deficient in detailed design specifications and distinct timeframes;
- The amended methodology and construction of infrastructure for the extraction of landfill gas from Cells 1 and 2, being retrofitted vertically drilled landfill gas wells; under the specified provisions of the amended licence to manage landfill gas are considered to present acceptable additional risk to environmental receptors regarding the risk of offsite migration, asphyxiation and explosion.



Figure 1: NBRRF vertical gas well design





6 Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High