



<b>Licence Number</b>	L8904/2015/1
<b>Licence Holder</b>	Cleanaway Solid Waste Pty Ltd
<b>ACN</b>	120 175 635
<b>File Number:</b>	DER2015/001648-1
<b>Premises</b>	<p>Banksia Rd Landfill Site 2 Banksia Rd Crooked Brook WA 6236</p> <p>Legal description – Lot 2 on Deposited Plan 65861 Certificate of Title Volume 1670 Folio 568 As depicted in Schedule 1 of L8904/2015/1</p>
<b>Date of Report</b>	17 December 2019

# Definitions and interpretation

## Definitions

In this Amendment Report, the terms in Table 1 have the meanings defined.

**Table 1: Definitions**

Term	Definition
ACN	Australian Company Number
Amendment Report	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 JOONDALUP DC WA 6919 <a href="mailto:info@dwer.wa.gov.au">info@dwer.wa.gov.au</a>
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
Licence	Licence L8904/2015/1
Licence Holder	Cleanaway Solid Waste Pty Ltd
Minister	the Minister responsible for the EP Act and associated regulations
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Amendment Report applies, as

Term	Definition
	specified at the front of this Amendment Report.
Revised Licence	Refers to the amended Licence issued under Part V, Division 3 of the EP Act, with changes that correspond to the assessment outlined in this Amendment Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>

# 1. Amendment Description

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Works Approval issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

The following guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory principles (July 2015)*
- *Guidance Statement: Setting conditions (October 2015)*
- *Guidance Statement: Environmental Standards (September 2016)*
- *Guidance Statement: Environmental Siting (November 2016)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guideline: Decision Making (June 2019)*
- *Guideline: Industry Regulation Guide to Licensing (June 2019)*

## 1.1 Purpose and scope of assessment

On 10 September 2019, Cleanaway Solid Waste Pty Ltd (the Licence Holder) submitted an application to the Department of Water and Environmental Regulation (DWER) to amend Licence L8904/2015/1 (Licence).

The scope of this assessment is limited to an amendment for the increased acceptance of waste within Category 64: Class II/III putrescible landfill site activities to 350,000 tonnes per annual period for the Premises located at 2 Banksia Rd, Crooked Brook WA (Lot 2 on Deposited Plan 65861).

As part of this amendment to the licence, Amendment Notices 1, 2 and 3 have been consolidated into the existing Licence document. No additional assessment has been undertaken as part of this consolidation. Decisions related to the consolidated changes are published in previous Amendment Notices 1, 2 and 3. Section 4.1 summarises the content of previous amendments to the Licence. In accordance with Section 59(1)(e), (f), (h), (i), or (j) of the EP Act it is noted that consolidation of the amendments made as part of previous decisions may not be appealed against.

# 2. Background

The Banksia Road Putrescible Landfill (the Premises) is located at Lot 2 on Deposited Plan 65861, Crooked Brook within the Shire of Dardanup, approximately 3.8 kilometres south-east of the town of Dardanup.

Historically, landfilling operations were established at the Premises in June 2000. Prescribed activities at the Premises have involved:

- The first two landfill cells were lined using the in situ clays, incorporating a leachate collection system and accepted waste until reaching capacity in 2006.
- The third cell was the first Class III cell to be constructed with a composite geosynthetic/ HDPE liner and included an independent leachate collection system. The design was revised following damage to the liner during construction and the cell was divided using an intermediate wall and formed cells 3 and 4.
- The fifth cell, a Class III composite geosynthetic/ HDPE lined with an independent leachate collection system, was constructed in May 2011 under Works Approval W4760/2010/1.
- An independent liquid waste 'MIC cell' was constructed under Works Approval

W5096/2012/1 in 2012 for the discrete disposal of Cristal Pigment Slurry.

- Three composite geosynthetic/ HDPE lined leachate management ponds were constructed in 2012 under Works Approval W5124/2012/1.
- A landfill gas extraction system was installed in 2013 under Works Approval W5301/2012/1.
- Landfill Cell 4B was constructed in 2014 under Works Approval W5546/2013/1. The cell tied into the liners of Cells 3 and 4 with leachate being managed through landfill cell 4.
- Leachate evaporation pond 3 was constructed in 2015 under works approval W5748/2014/1.
- Cell 12, a Class III composite geosynthetic/ HDPE lined with an independent leachate collection system, was constructed and commissioned in 2016 under Works Approval W5748/2014/1 and subsequently authorised for operation through an amendment to the Licence in 2016.
- The Licence was amended in 2017 to allow the construction and operation of three composite HDPE liner Class III Landfill cells (cells 6, 7 and 8).
- A new Cristal pigment waste cell and pond was constructed and authorised for operation through licence amendments in 2019.

In December 2018, DWER received a works approval application W6212/2019/1 from the Licence Holder to construct a lithium tailings storage cell at the premises. Infrastructure and activities associated with lithium tailings storage cell application are beyond the scope of this amendment and have not been considered.

## 2.1 Classification of Premises

Table 2 summarises the classification and approved capacity for the Prescribed Premises in relation to the Application.

**Table 2: Classification of premises and assessed design capacity**

Category	Description	Assessed production or design capacity or throughput
Category 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	303,000 tonnes per annual period

## 2.2 Stakeholder Consultation

The amendment application was advertised for public comment on the DWER website and in the West Australian on 14 October 2019 for a period of 15 days.

All stakeholders that made submissions in regards to previous works approval and licence amendment applications were notified with a direct interest letter on 11 October 2019.

All submissions relevant to the scope of this assessment were considered as part of this assessment. A summary of all submissions received and DWER responses to submissions from stakeholders is included in Appendix 3.

## 2.3 Licence Holder's comments

The Licence Holder was provided with the draft Revised Licence on 28 November 2019. Comments received from the Licence Holder have been considered by the Delegated Officer as shown in Appendix 2.

## 3. Description of proposed amendment

The Licence Holder seeks an amendment for the increased acceptance of waste within Category 64: Class II/III putrescible landfill site activities to 350,000 tonnes per annual period for the Premises.

The proposed increase in waste acceptance will be of waste types currently accepted and processed, as specified in Tables 1.4.2 and 1.4.3 of the Licence.

For the 2018 annual period, the Premises accepted 327,671 tonnes of Category 64 waste, in exceedance of the 303,000 tonnes per annual period quantity limit specified in Condition 1.4.1 of the Licence. The additional volume of waste has been attributed to growth within the region, with further volumes proposed resulting from waste acceptance from a transfer station operated by the Licence Holder. This breach of Condition 1.4.1 of the Licence is currently being managed in accordance with DWER's *Compliance and Enforcement Policy (Interim)*, July 2017.

Table 3 lists the documents submitted during the assessment process, with full references provided in Appendix 1.

**Table 3: Documents and information submitted during the assessment process**

Document/information description	Date received
Application form and supporting documentation (Cleanaway, 2019), including: <ul style="list-style-type: none"><li>• Environmental Acoustic Assessment, 24762-2-19122-02, Herring Storer Acoustics, September 2019;</li><li>• Dust Management Plan, Version 001, Cleanaway, August 2019;</li><li>• Windblown Waste Management Plan, Version 001, Cleanaway, June 2019</li></ul>	20 September 2019
Response to DWER Request for Information Rev0, Cleanaway, October 2019	4 October 2019
Response to DWER Request for Information, Preliminary Noise Advice	14 November 2019

## 4. Legislative Context

No other approvals are required in relation to this Application. Correspondence from the Shire of Dardanup was provided to the Licence Holder on 8 August 2019, confirming that a Development Application would not be required for the proposed amendment.

### 4.1 Amendment history

The amendment history for L8904/2015/1 is outlined in Table 4.

**Table 4: Works approval amendments**

Instrument	Issued	Amendment
L8904/2015/1	22 October 2015	Licence amendment to authorise operation of leachate evaporation pond 3, constructed under W5748/2014/1
L8904/2015/1	5 May 2016	Licence Amendment to: <ul style="list-style-type: none"> <li>• Change company name;</li> <li>• Authorise operation of cell 12 constructed under W5748; and</li> <li>• Address storm water upgrades</li> </ul>
L8904/2015/1	21 July 2017	Licence amendment for: <ul style="list-style-type: none"> <li>• Construction and operation of three composite HDPE liner Class III Landfill cells (cells 6, 7 and 8);</li> <li>• Construction and operation of a phytocapping trial on Class III landfill cell 5; and</li> <li>• Review of Premises operations and regulatory controls.</li> </ul>
L8904/2015/1	2 February 2018	Amendment Notice 1: to reflect the completion of cell 6 construction and authorise its use.
L8904/2015/1	18 February 2019	Amendment Notice 2: for the construction of a new Cristal pigment waste cell and Cristal Pond under Category 61
L8904/2015/1	25 June 2019	Amendment Notice 3: to authorise the use of CC2 and Cristal pond constructed under Amendment Notice 2.
L8904/2015/1	17 December 2019	Licence amendment for: <ul style="list-style-type: none"> <li>• Increase in quantity limit for Category 64 waste acceptance to 350,000 tonnes per annual period;</li> <li>• Review of regulatory controls relating to dust and windblown waste; and</li> <li>• Amalgamate previous amendments into a consolidated Licence</li> </ul>

## 5. Emission Sources, Receptors and Pathways

### 5.1 Emissions

The potential for emissions to impact on sensitive receptors has been assessed in accordance with the DWER's Risk Framework. Emissions associated with the increased acceptance of Category 64 waste types have been considered in this report, of which the key emissions are:

- dust emissions from the increased volume of waste accepted and buried within the Premises;
- windblown waste from the increased volume of waste accepted and buried within the Premises.
- odour emissions associated with the increased volume of waste accepted and buried within the Premises.
- noise emissions from increased landfilling activities associated with the increased volume of waste accepted and buried within the Premises.

### 5.1.1 Dust

The increased volume of waste accepted and buried within the Premises may have the potential to generate increased dust emissions impacting upon sensitive receptors. The potential sources of dust associated with this Application within the Premises are:

- transport of waste loads within the Premises prior to unloading;
- unloading of waste at the landfill tipping area;
- covering of waste being disposed to landfill; and
- vehicle movements on unsealed ground.

Table 2 within the Application (Cleanaway, 2019) indicates that an additional five truck movements per day (including transportation and unloading) will result from the proposed increase in waste acceptance to 350,000 tonnes per annual period. These increased activities are expected to alter the risk of fugitive dust emissions.

### 5.1.2 Windblown Waste

The increased volume of waste accepted and buried within the Premises may have the potential to generate windblown waste emissions impacting upon sensitive receptors. The potential sources of windblown waste associated with this Application within the Premises are:

- transport of waste loads within the Premises prior to unloading;
- unloading of waste at the active landfill tipping area; and
- unloaded waste within the active landfill cell prior to covering.

### 5.1.3 Odour and fugitive landfill gas

The proposed waste acceptance increase does not alter the final volume of each landfill as assessed through previous applications. As such, odour and fugitive landfill gas emissions associated with the proposed amendment are likely to be similar to those assessed previously.

### 5.1.4 Noise

Table 2 within the Application (Cleanaway, 2019) indicates that an additional five truck movements per day (including transportation and unloading) will result from the proposed increase in waste acceptance to 350,000 tonnes per annual period. Given the current vehicle movements and landfilling activities occurring at the premise, these increased truck movements are not expected to alter the risk of noise emissions adversely impacting sensitive receptors.

### 5.1.5 Leachate

The proposed waste acceptance increase does not alter the final volume of each landfill cell as assessed through previous applications. As such, leachate emissions associated with the proposed amendment are likely to be similar to those assessed previously.

## 5.2 Receptors

Risk is assessed as a combination of emission sources, the proximity and sensitivity of receptors to those emission sources and any pathways that can allow the emission to reach and potentially harm the receptor. Tables 5 and 6 provide a summary of human and environmental receptors, respectively, in proximity to the premises which have a potential to be impacted from the proposed amendment, and the risk assessment in Section 6 considers these receptors in the context of emissions and potential pathways. Note that previous Decision Reports for the Licence and Licence Amendments have given a full description of the



environmental siting and sensitive receptors for the Premises.

**Table 5: Receptors and distance from activity boundary**

Residential and sensitive premises	Distance from Prescribed Premises
Residential premises	<ul style="list-style-type: none"> <li>0.5 km south of the south west corner of the Premises, separated by the Dardanup Conservation Park and Boyanup State Forest.</li> <li>0.9 km due west of the Premises.</li> <li>1 km west south west of the south west corner of the Premises</li> <li>1.5 km due south of the Premises, separated by the Dardanup Conservation Park and Boyanup State Forest.</li> <li>1.5 km north west of the north west corner of the Premises.</li> <li>1.5 km north east of the north east corner of the Premises separated by the Dardanup Conservation Park and Boyanup State Forest.</li> <li>1.75 km east north east from the eastern boundary of the Premises separated by the Dardanup Conservation Park and Boyanup State Forest.</li> </ul>

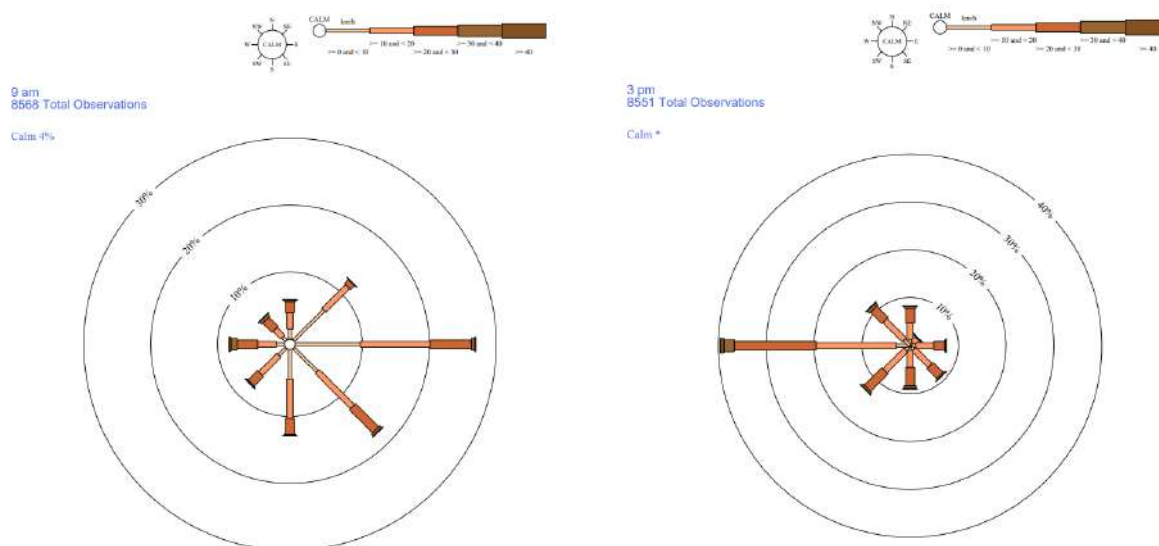
**Table 6: Environmental receptors and distance from activity boundary**

Environmental receptors	Distance from Prescribed Premises
Dardanup Conservation Park and Boyanup State Forest	Immediately adjacent (0m) south and east of the Premises boundary
Threatened ecological communities	Four priority Threatened Ecological Communities are present within the adjacent Dardanup Conservation Park. The 500 metre buffers extend within the eastern edge of the Premises boundary.
Geomorphic wetland: Multiple use Palusplain and Dampland (flat, seasonally waterlogged)	Approximately 400 metres south west through north west of the Premises boundary.
Crooked Brook (significant stream)	<ul style="list-style-type: none"> <li>Located approximately 1100m south/ south west of the Premises boundary flowing in a generally east west direction.</li> <li>A minor watercourse located approximately 750 metres south of the Premises boundary across a ridge line also flows into Crooked Brook.</li> <li>Other minor watercourses originate in the Palusplain areas approximately 400 metres west of the Premises Boundary.</li> </ul>
Groundwater	It is understood that a superficial aquifer is present within the Yoganup geological formation between 30m to 40m below ground level, which is connected to the upper part of the Leederville aquifer. It is also possible that further isolated perched aquifers occur under the Premises 15 – 20m below ground level.

### 5.2.1 Wind direction and strength

The closest available wind data for the Premises can be sourced from the Bunbury Meteorology Site (Number 009965). The Bureau of Meteorology (BoM) provides the 9 am and 3 pm wind speed and direction for the Bunbury Meteorology Site, shown in Figure 1. Several residential receptors are in line with the pathway of prevailing morning easterly winds and could be exposed to emissions during this period.

**Figure 1. Bunbury Meteorology Site 9 am and 3 pm wind roses (1995 – 2019)**



It is important to note that these wind roses show historical wind speed and wind direction data for the Bunbury Meteorology Site and should not be used to predict future data.

## 5.3 Pathways

### 5.3.1 Dust

The Licence Holder has developed and implemented a Dust Management Plan to mitigate and monitor fugitive dust emissions at the Premises. The Dust Management Plan outlines the key dust management practices that will be carried out on site and include a Dust Risk Area Map which identifies the key risk areas for dust creation.

The Licence Holder has committed to the following measures within the Dust Management Plan to mitigate dust emissions:

- monitoring of wind speed and wind direction monitoring to plan and modulate active landfill operations;
- sampling of dust at several locations on the Premises perimeter to satisfy requirements of the site Radiation Management Plan;
- where wind speed and direction indicate a likelihood of fugitive dust emissions, site speed limits may be reduced by up to 10km/h for moderate and high risk areas on the Dust Risk Area Map;
- site roads identified as having high traffic exposure to be sealed as part of planned site development;
- a wheel wash for all medium and heavy vehicles exiting the premises;
- all loads must be contained in sealed or covered vessels prior to acceptance;
- waste must be covered with 150 mm of Type 1 Inert waste or Clean Fill as soon as

practicable after tipping and no later than the end of the working day;

- as far as practicable, the active landfill area must be positioned away from the edge of the active cell;
- as far as practicable loads, must not be tipped oblique to the wind;
- certain waste types, including Special Waste Type 1, are wet down during disposal and burial;
- stormwater dams are maintained via rainfall, bore pump and generator in order to provide water for dust suppression;
- leachate from the leachate ponds where available may be used for dust suppression in the wetting down of the active cell;
- a 15 kL watercart is available for application of water for dust suppression; and
- Fugitive Dust Emissions Inspections are performed monthly as a component of the Banksia Road Operations Compliance Framework.

**Key Finding:**

1. The Delegated Officer has reviewed the Licence Holder's Dust Management Plan and notes that minimal dust mitigation measures are undertaken for the Laydown area, identified as a high risk area for dust emissions.

### 5.3.2 Windblown waste

The Licence Holder has developed and implemented a Windblown Waste Management Plan to mitigate and monitor windblown waste emissions at the Premises. The Windblown Waste Management Plan outlines the key management practices that will be carried out at the Premises.

The Licence Holder has committed to the following measures within the Windblown Waste Management Plan to mitigate windblown waste emissions:

- All loads must be contained in sealed or covered vessels prior to acceptance;
- Adequately covering waste as soon as practicable after tipping and no later than the end of the working day;
- Monitoring wind speed and wind direction;
- As far as practicable, the active tipping area is positioned away from the edge of the active landfill area, with tipping not to occur oblique to the wind;
- Visual inspection routine for litter both inside site boundaries and at offsite receptors;
- Manual or mechanical litter picking to include regular and emergency response capacity both inside site boundaries and at offsite receptors; and
- Litter screen monitoring and maintenance program.

In addition, the Licence Holder has proposed to implement a two tier portable litter control screen system comprising primary and secondary control of windblown waste from the active landfill cell.

The primary tier of portable litter screens comprise soccer goal style steel nets which can be readily re-located on the tip face to mitigate acute litter emissions. These screens will be a minimum of 4 metres tall and 8 metres wide and located in five to six metre sections. A minimum of 10 panels will be available for the working face on the landfill, with the number of panels dependent upon the length of the working face. The panels will be placed within 15 metres, where practicable, of the working face on the downwind side and will be capable of

being moved promptly if the wind direction shifts.

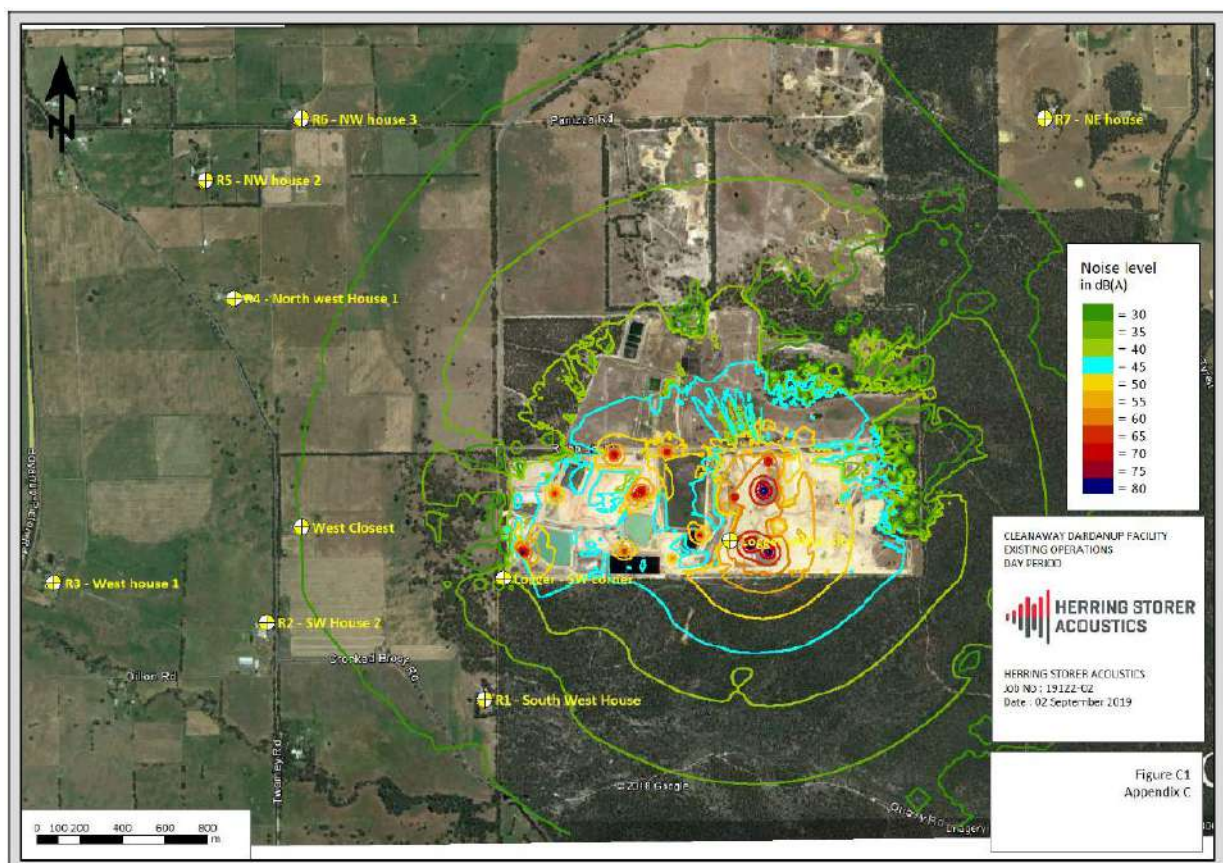
The secondary tier comprises the use of chain wire fencing based on operational needs and cell development strategies and will be used in conjunction with the primary portable panels. Up to 200 metres of this fencing will be installed on the southern area of the landfill, placed 90 to 150 metres downwind of the portable panels, where practicable, intending to catch any material passing the primary panels.

### 5.3.3 Noise

Herring Storer Acoustics was commissioned by the Licence Holder to undertake a noise assessment relating to noise emissions from the Premises over the period 2 May 2019 to 9 May 2019. The purpose of this assessment was to assess noise emissions for the current operations of the facility for compliance with requirements of the *Environmental Protection (Noise) Regulations 1997* at noise sensitive residences. The assessment (Herring Storer, 2019) indicates that due to the nature of the relatively constant operations at the Premises, no increase in noise emissions from levels currently produced is expected from the increased waste acceptance proposed, hence the assessment of the current operations.

Noise monitoring was undertaken throughout the aforementioned period under various operating scenarios to inform the noise modelling and assessment. The results of the assessment indicated that “noise emissions from the facility will comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* at all times.” Figure 2 presents the noise contour plot based on the noise modelling results.

**Figure 2: Noise contour plot**



*Figure supplied within the Application (Herring Storer, 2019)*

Technical review of the assessment undertaken by DWER indicates that noise compliance at the closest noise sensitive premises was not demonstrated by measurement; rather based solely on the predictions made by noise modelling. The review also identified that further

information was required to adequately assess the methodology of the Herring Storer noise modelling.

Further information regarding the assessment was requested by DWER on 12 November, with the Licence Holder providing the requested information on 14 November 2019 (Cleanaway, 2019c). This information provided further clarification of variables within the noise modelling calculations and reasoning for the methodologies undertaken.

#### **Key Findings:**

1. The Herring Storer Acoustics *Environmental Acoustic Assessment* indicated that whilst noise emissions from the facility will comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* at all times, predicted noise levels were exactly at assigned levels at certain periods and at certain locations.
2. Advice from DWER Environmental Noise section following technical review of the Herring Storer Acoustics *Environmental Acoustic Assessment* (assessment) and subsequent requested information agreed with the findings of the *Environmental Acoustic Assessment* that the proposed waste acceptance increase will not impact noise emission levels from the Premises.
3. Advice from DWER Environmental Noise section is that compliance of an existing operation should be demonstrated by noise measurement at noise sensitive premises, rather than by noise modelling.

## **6. Risk assessment**

Table 7 below describes the Risk Events associated with the amendment consistent with the Guidance Statement: Risk Assessments. The table identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls. Risks associated with Category 64 activities have been considered due to emissions directly impacted by the increased waste acceptance.



**Table 7: Risk assessment for proposed amendments during operation**

Risk Event				Consequence rating*	Likelihood rating*	Risk*	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
<b>Category 64</b> Acceptance and burial of wastes including Contaminated Solid Waste, Inert Waste Types 1 and 2, Putrescible Waste and Special Waste Types 1 and 2 – additional 47,000 tonnes accepted per annual period	Dust emissions arising from the acceptance and burial of Class II/III waste types	Air/wind dispersion of particulate matter resulting in health and amenity impacts to sensitive receptors	<ul style="list-style-type: none"> <li>- Monitoring of wind speed and wind direction monitoring to plan and modulate active landfill operations;</li> <li>- Sampling of dust at several locations on the Premises perimeter to satisfy requirements of the site Radiation Management Plan;</li> <li>- Where wind speed and direction indicate a likelihood of fugitive dust emissions, site speed limits may be reduced by up to 10km/h for moderate and high risk areas on the Dust Risk Area Map;</li> <li>- Site roads identified as having high traffic exposure to be sealed as part of planned site development;</li> <li>- Wheel wash for all medium and heavy vehicles exiting the premises;</li> <li>- All loads must be contained in sealed or covered vessels prior to acceptance;</li> <li>- Waste must be covered with 150 mm of Type 1 Inert waste or Clean Fill as soon as practicable after tipping and no later than the end of the working day;</li> <li>- As far as practicable, the active landfill area must be positioned away from the edge of the active cell;</li> <li>- As far as practicable loads, must not be tipped oblique to the wind;</li> <li>- Certain waste types, including Special Waste Type 1, are wet down during disposal and burial;</li> <li>- Stormwater dams are maintained via rainfall, bore pump and generator in order to provide water for dust suppression;</li> <li>- Leachate from the leachate ponds where available may be used for dust suppression in the wetting down of the active cell;</li> <li>- A 15 kL watercart is available for application of water for dust suppression; and</li> <li>- Fugitive Dust Emissions Inspections are performed monthly as a component of the Banksia Road Operations Compliance Framework.</li> </ul>	Moderate	Unlikely	Medium	<p>The Delegated Officer has reviewed the information regarding the risk of dust emissions associated with the Application and has found:</p> <ul style="list-style-type: none"> <li>Existing regulatory controls in conjunction with Licence Holder controls are likely to be sufficient at mitigating dust emissions associated with the Application at the tipping face of the active cell.</li> <li>Minimal dust mitigation measures are undertaken for the Laydown area, identified as a high risk area for fugitive dust emissions as per the Licence Holder's <i>Dust Management Plan</i>, noting that the Laydown Area comprises a large surface area of exposed sandy material.</li> </ul>	Amendment of dust controls to reflect Licence Holder controls are required in the existing Licence. Additional regulatory controls are proposed in relation to fugitive dust management in the laydown area.
	Windblown waste arising from the acceptance of Class II/III waste types	Air/wind dispersion of waste causing visual amenity and nuisance impacts	<ul style="list-style-type: none"> <li>- All loads must be contained in sealed or covered vessels prior to acceptance;</li> <li>- Adequately covering waste as soon as practicable after tipping and no later than the end of the working day;</li> <li>- Monitoring wind speed and wind direction;</li> <li>- As far as practicable, the active tipping area is positioned away from the edge of the active landfill area, with tipping not to occur oblique to the wind;</li> <li>- Visual inspection routine for litter both inside site boundaries and at offsite receptors;</li> <li>- Manual or mechanical litter picking to include regular and emergency response capacity both inside site boundaries and at offsite receptors; and</li> <li>- Litter screen monitoring and maintenance program.</li> <li>- Primary tier of portable litter screens comprise soccer goal style steel nets which can be readily re-located on the tip face to mitigate acute litter emissions.</li> </ul>	Moderate	Unlikely	Medium	<p>The Delegated Officer considers that the Licence Holder's proposed windblown waste mitigation controls are likely to be sufficient at mitigating windblown waste emissions associated with the proposed increase of Category 64 waste acceptance.</p>	Amendment of windblown waste controls to reflect Licence Holder controls are required in the existing Licence.

Risk Event				Consequence rating*	Likelihood rating*	Risk*	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
			- Secondary tier comprises the use of chain wire fencing based on operational needs and cell development strategies and will be used in conjunction with the primary portable panels. Up to 200 metres of this fencing will be installed on the southern area of the landfill, placed 90 to 150 metres downwind of the portable panels, where practicable, intending to catch any material passing the primary panels.					
	Odour arising from the acceptance of Class II/III waste types	Airborne odour causing impacts to health and amenity of closest human receptors (approximately 0.5 km south west of the Premises)	Controls will remain consistent with the existing Licence and those previously assessed, including: <ul style="list-style-type: none"> <li>- Application of cover material over incoming waste;</li> <li>- Controlling and potentially rejecting excessively odorous waste streams;</li> <li>- Limiting the number of active disposal areas;</li> <li>- Operating and maintaining the landfill gas management which includes maintaining a negative pressure base to extract odorous gas;</li> <li>- Selecting working areas based on meteorological conditions; and</li> <li>- Timely handling, compaction and covering of waste</li> </ul>	Minor	Unlikely	Medium	The Delegated Officer considers the increase in waste acceptance does not alter the nature and extent of potential odour emissions to that assessed in previous licence amendments and as such considers previously proposed emission controls for odour are acceptable to manage potential odour emissions.  No substantiated odour complaints have been reported to DWER.	No proposed amendment to existing regulatory controls.
	Noise arising from the acceptance of Class II/III waste types	Air/wind dispersion resulting in amenity impact	Previous assessments found that the <i>Environmental Protection (Noise) Regulations 1997</i> were adequate to manage the risk of noise emissions at the Premises.	Slight	Unlikely	Low	The Premises currently involves the daily operation of various machinery and it is unlikely that the increase in waste acceptance will result in a perceivable increase in noise from the perspective of the nearest sensitive receptor.  No substantiated noise complaints have been reported to DWER.  Notwithstanding the above, the Delegated Officer has reviewed the Herring Storer Acoustics <i>Environmental Acoustic Assessment</i> , and determined that the methodology of the assessment was not sufficient to demonstrate compliance with the <i>Environmental Protection (Noise) Regulations 1997</i> at noise sensitive premises.	Addition of conditions relating to the validation of noise modelling by undertaking noise measurement at sensitive premises.
	Leachate arising from the acceptance of Class II/III waste types	Infiltration through soil profile to groundwater causing potential impacts on ecological values and beneficial uses associated with quality of water in the aquifer	Controls will remain consistent with the existing Licence and those previously assessed, including: <ul style="list-style-type: none"> <li>- Enhancing leachate evaporation rates through:               <ul style="list-style-type: none"> <li>• Recirculation of leachate within the leachate ponds;</li> <li>• Spray irrigation over the leachate pond surface; and</li> <li>• Recirculation onto the landfill active tipping face.</li> </ul> </li> <li>- Operation of the leachate collection system; and</li> <li>- Timely handling, compaction and covering of waste</li> </ul>	Moderate	Unlikely	Medium	The Delegated Officer considers the increase in waste acceptance does not alter the nature and extent of potential leachate emissions to that assessed in previous licence amendments, due to the final volume of the landfill cells being unaltered, and as such, considers previously proposed emission controls acceptable to manage potential leachate emissions.	No proposed amendment to existing regulatory controls.
	Fugitive landfill gas arising from the acceptance of Class II/III waste types	Airborne odour causing impacts to health and amenity of closest human receptors (approximately 0.5 km south west of the Premises)	Controls will remain consistent with the existing Licence and those previously assessed, including: <ul style="list-style-type: none"> <li>- An established a landfill gas management system within Cells 1 and 2 in accordance with condition 1.4.9 of the Licence;</li> <li>- Landfill gas quality specified actions in accordance with condition 1.4.10 of the Licence; and</li> <li>- A landfill gas monitoring program that assesses the quantity and quality of gas at each extraction well monthly</li> </ul>	Slight	Unlikely	Low	The Delegated Officer considers the increase in waste acceptance does not alter the nature and extent of potential fugitive gas emissions to that assessed in previous licence amendments and as such, considers previously proposed emission controls acceptable to manage potential fugitive gas emissions.	No proposed amendment to existing regulatory controls.

\*Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

## 7. Regulatory Controls

The Delegated Officer considers that existing regulatory controls within the Licence requires amendment to reflect current Licence Holder emission controls, in addition to greater specificity to mitigate the risk of windblown waste and dust emissions impacting sensitive receptors.

Primary controls mitigating windblown waste emissions currently relate to portable litter control screens and routine litter collection. Further controls will be added to the Licence consistent with those proposed by the Licence Holder.

Primary controls mitigating dust emissions within the Licence will be amended consistent with those proposed by the Licence Holder on addition to further controls relating to fugitive dust emissions from the Laydown area.

## 8. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined to amend the Licence in accordance with section 59(1) of the EP Act, subject to conditions commensurate with the determined controls. Table 8 summarises these changes.

**Table 8: Conditions amended**

Condition No.	Proposed amendments
1.4.11	Windblown waste emissions condition amended, being replaced with multiple specific conditions (1.4.11 to 1.4.14). Condition 1.4.11 requires routine collection of windblown waste.
1.4.12	Amended condition requiring use of portable litter control screens at the working face of the landfill.
1.4.13	New condition requiring the installation of chain wire fencing south of the portable litter control screens.
1.4.15	Fugitive dust emissions condition amended, being replaced with multiple location specific conditions. Condition 1.4.15 requires the bituminising of haul roads within the Premises.
1.4.16	Amended condition requiring use of water or street sweeper upon trafficable areas.
1.4.17	Amended condition requiring application of water or leachate upon the active tipping area.
1.4.18	New condition requiring the wetting down of material during disposal with the potential for dust emissions.
1.4.19	Amended condition requiring the application of a dust suppressant material to non-vegetated areas, landfill batters and within the Laydown area.
1.4.20	New condition requiring the annual assessment of dusk risk areas within the premises.
1.4.21	New condition requiring the submission of the assessment pursuant to condition 1.4.20
1.4.22	New condition requiring exiting vehicles to use a wheel wash.
2.5.1	New condition requiring the validation of noise modelling calculated within <i>Environmental Acoustic Assessment, 24762-2-19122-02, Herring Storer Acoustics, September 2019</i>
2.5.2	New condition requiring the preparation of a report pursuant to condition 2.5.1.
2.5.3	New condition requiring the submission of the report pursuant to condition 2.5.2 to DWER.



2.5.4	New condition requiring measures to be undertaken if noise validation demonstrates non-compliance with the <i>Environmental Protection (Noise) Regulations 1997</i> .
Schedule 1	Inclusion of Dust Risk Area Map to identify locations referred to in conditions 1.4.15 and 1.4.18

## Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L8904/2015/1 and Decision Report – Banksia Rd Landfill Site	Licence	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
2	Licence L8904/2015/1 - Amendment Notice 1	Amendment Notice 1	DWER records (A1607538)
3	Licence L8904/2015/1 - Amendment Notice 2	Amendment Notice 2	DWER records (A1757891)
4	Licence L8904/2015/1 - Amendment Notice 3	Amendment Notice 3	DWER records (A1800436)
5	Licence L8904/2015/1 Decision Report – Banksia Rd Putrescible Landfill (amended 13 April 2017)	Decision Report, 2017	DWER records (A1414098)
6	Application Form: Licence Amendment, Cleanaway Pty Ltd – emailed to DWER on 10 September 2019	Amendment Application	DWER records (DWERDT198817)
7	Banksia Road Landfill Site Licence Amendment Application Supporting documentation (September 2019) – emailed to DWER on 10 September 2019	Cleanaway, 2019a	DWER records (DWERDT198817)
8	Environmental Acoustic Assessment, 24762-2-19122-02, Herring Storer Acoustics, September 2019	Herring Storer, 2019	DWER records (DWERDT198817)
9	Dust Management Plan, Cleanaway Pty Ltd, Version 001, August 2019	Dust Management Plan	DWER records (DWERDT198817)
10	Windblown Waste Management Plan, Cleanaway Pty Ltd, Version 001, June 2019	Windblown Waste Management Plan	DWER records (DWERDT198817)
11	Response to DWER Request for Information Rev0 – emailed to DWER on 4 October 2019	Cleanaway, 2019b	DWER records (A1829296)
12	Memorandum, DWER Environmental Noise Branch, Technical Advice, 8 November 2019	Tech Advice	DWER records (A1839810)
13	Response to DWER Request for Information – emailed to DWER on 14 November 2019	Cleanaway, 2019c	DWER records (A1845389)
14	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	DER 2015a	accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
15	DER, October 2015. <i>Guidance Statement: Setting conditions</i> .	DER 2015b	

	Department of Environment Regulation, Perth.		accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
16	DER, September 2016. <i>Guidance Statement: Environmental Standards</i> . Department of Environment Regulation, Perth.	DER 2016c	
17	DER, November 2016. <i>Guidance Statement: Environmental Siting</i> . Department of Environment Regulation, Perth.	DER 2016d	
18	DER, February 2017. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	DER 2017b	
19	DWER, June 2019. <i>Guideline: Decision Making</i> . Department of Water and Environmental Regulation, Perth.	DWER 2019a	
20	DWER, June 2019. <i>Guideline: Industry Regulation Guide to Licensing</i> . Department of Water and Environmental Regulation, Perth.	DWER 2019b	

## Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Licence Amendment on 28 November 2019 for review and comment. The Licence Holder responded on 16 December 2019, with the following comments received on the draft Amendment.

Condition	Summary of Licence Holder comment	DWER response
1.4.13	The Licence Holder commits to installing 10 4 m x 4 m litter screens on the working face of the landfill site in accordance with the Cleanaway National Landfill Operation Standard.	The condition is amended to reflect the use of the litter screens.
1.4.14	The chain wire fencing will not run directly along the southern boundary due to safety risks associated with litter collection from the fence (i.e inclined batters).	The condition is amended to install the fence along the or parallel to the southern boundary as far as reasonably practicable.
1.4.18(b)	Replace the use of a sprinkler system with the use of a water cart.	The condition is amended to reflect the response.
1.4.19	The Licence Holder queried the practicality of the condition.	The condition is necessary to adequately control potential dust emissions during the disposal and tipping of wastes with the potential to generate fugitive dust. It is noted that this practice currently occurs for certain waste types, as specified in the Licence Holder's Dust Management Plan.
1.4.20	The Licence Holder provides that a water cart can be reasonably used for this condition, but alternative dust suppressant materials such as mulch cannot be used during active operations in the areas. The figure in Schedule 1 is also indicative of a moment in time, noting that the higher risk dust areas can move over time.	Operational constraints have been considered within the condition, with compliance to be achieved as far as practicable. It is noted that the use of a water from the water cart is considered a dust suppressant material for the purposes of this condition.

### Appendix 3: Summary of comments received during public consultation period

The following table contains a summary of the concerns submitted by members of the public during the public submission period. The number relates to each submission received by the Department and may be an individual, community group or government agency.

Concern	Submitter	Summary of Submission Points	DWER response
Dust emissions	1, 11, 12, 13, 17	- Concerns raised regarding dust emissions that could be exacerbated due to increased throughput, notably easterly winds impacting nearby farmland and the Dardanup town site.	- DWER notes the submissions, and has considered dust emissions associated with the increased throughput in making the decision. The risk assessment associated with dust emissions and additional conditions placed on the licence to mitigate dust emissions are detailed in Tables 7 and 8 of this report.
Waste acceptance throughput	5, 7, 8, 10, 11, 12, 13, 14, 15, 17	- The Licence Holder is already accepting waste in excess of its Licence limit.	- This issue is currently being managed in accordance with DWER's Compliance and Enforcement Policy (Interim), July 2017.
Vehicle movements	2, 9, 13, 14, 16, 17	- Concerns were raised regarding truck movements along roads creating dust and safety issues.	- Nuisance dust from non-licensed premises is not regulated by DWER. Dust emissions generated from vehicle movements on roads outside of the Prescribed boundary are generally managed by local governments.
Siting	2, 6, 9, 10, 12, 14, 15	- The location of the Premises within the Ferguson Valley is not suited to a landfill. - <i>Dardanup Environmental Action Group Information Sheet 5: The Impact on Tourism and the Environment</i> was received by DWER for consideration.	- In accordance with DWER's Regulatory Framework, DWER's assessment of this amendment application is limited to impacts from emissions and discharges from the proposed increased acceptance of waste. The suitability of the siting of the established landfill is beyond the scope of this amendment application assessment. - The location and expansion of the landfill has been approved under statutory planning processes administered by the Shire of Dardanup, which are able to consider a broader range of issues beyond emissions and discharges – such as impacts to tourism. Specified Ecosystems and Environmentally Sensitive Areas, including the Dardanup Conservation Park and

Concern	Submitter	Summary of Submission Points	DWER response
			Boyanup State Forest, have been identified to inform the risk assessment of the proposed amendment.
Waste acceptance type	3, 4	<ul style="list-style-type: none"> <li>- Query regarding whether the Licence Holder accepted containers of contaminated waste returned from Indonesia.</li> <li>- Concerns with the Application in relation to the acceptance of waste associated with the construction of the Bunbury Outer Ring Road.</li> </ul>	<ul style="list-style-type: none"> <li>- DWER is not aware of any substantiated information regarding the acceptance of contaminated waste returned from Indonesia at the Premises.</li> <li>- The Bunbury Outer Ring Road (Southern Section) Project is currently being assessed by the Environmental Protection Authority (Assessment Number 2225).</li> </ul>
Waste strategy	5, 6, 13	<ul style="list-style-type: none"> <li>- Granting an increase in waste is not in accord with <i>Waste Avoidance and Resource Recovery Strategy 2030</i>.</li> </ul>	<ul style="list-style-type: none"> <li>- The <i>Waste Avoidance and Resource Recovery Strategy 2030</i> provides the State with a strategic framework for managing waste and guides the Waste Authority in delivering its programs and development of advice to government. Individual Applications cannot be considered within the Strategy in isolation, as the headline strategies guiding the document apply to state-wide behaviours. Notwithstanding this, the Licence Holder's commitments to the Strategy are distinct from this assessment.</li> </ul>
Cell rehabilitation	12	<ul style="list-style-type: none"> <li>- Concern that there is no rehabilitation plan for landfill cells after they are capped.</li> </ul>	<ul style="list-style-type: none"> <li>- Rehabilitation of landfill cells is beyond the scope of this Application assessment.</li> </ul>
Noise	13, 14	<ul style="list-style-type: none"> <li>- The noise assessment within the Application was flawed due to positioning and duration of noise loggers, and the lack of variance due to meteorological conditions.</li> <li>- Noise modelling demonstrated that the Assessable Noise Level for weekends was equal to the Assigned <math>L_{A10}</math> Level limit for the nearest sensitive receptor.</li> </ul>	<ul style="list-style-type: none"> <li>- As identified in section 5.3.3, the Delegated Officer has reviewed the Herring Storer Environmental Acoustic Assessment, and has determined that the predicted noise levels derived from modelling should be validated with monitoring at or proximal to sensitive receptors. Accordingly, noise validation requirements have been included as part of this assessment.</li> </ul>
Ministerial consistency	6	<ul style="list-style-type: none"> <li>- Approving this Amendment is inconsistent with Ministerial Statements and associated documents (such as approved management plans) for</li> </ul>	<ul style="list-style-type: none"> <li>- The activities at the Premises have not been subject to an assessment by the Environmental Protection Authority and no Ministerial Conditions are applicable. The initial landfill proposal was referred to the EPA in</li> </ul>

Concern	Submitter	Summary of Submission Points	DWER response
		significant proposals that have been assessed under Part IV of the EP Act and recent local Council policy changes to deal with waste	1997, and on 5 September 1997 the level of assessment was determined as 'Not assessed – managed under Part V (Works Approval).
Lithium tailings acceptance	10	- <i>Dardanup Environmental Action Group Information Sheet 2: Lithium Refinery Tailings Storage and Information Sheet 4: Water and Air Pollution from Lithium Refinery Tailings</i> were received by DWER for consideration.	- The proposed acceptance of lithium tailings is beyond the scope of this Application assessment.
Groundwater leaching	3, 4, 9, 14	- Concerns with the Application in relation to groundwater leaching from landfill activities.	- The risks associated with groundwater emissions resulting from landfill leachate have been assessed previously, most notably in the April 2017 Licence amendment, noting that “ <i>The Delegated Officer has determined that the controls stated by the Licence Holder should be adequate to control the risk of potential leachate emission impacts on sensitive receptors and that the controls stated by the Licence Holder will be regulatory controls under the Licence</i> ”. - The Delegated Officer considers the increase in waste acceptance does not alter the nature and extent of potential leachate emissions to that assessed in previous licence amendments, due to the final volume of the landfill cells being unaltered, and as such, considers previously proposed emission controls acceptable to manage potential leachate emissions.
Leachate recirculation	12, 14	- Concern regarding the use of leachate for dust suppression within the active landfill cell adversely impacting health	- The Delegated Officer considers the increase in waste acceptance does not alter the nature and extent of potential fugitive emissions associated with leachate recirculation, noting that consideration was made with regards to the scale of operations at the Premises, effectiveness of the controls, the distance to receptors and relatively low density of receptors.
Application type	6	- This Amendment application meets the requirements for a Works Approval	- The infrastructure of the Premises, including final dimensions of landfill cells, have been assessed and

Concern	Submitter	Summary of Submission Points	DWER response
		Application and should not be considered under a licence Amendment change.	approved through previous Works Approval and Licence Amendments. In accordance with <i>Guidance Statement: Decision Making</i> , “where an occupier who is a Licence Holder of prescribed premises intends to carry out actions that fall within sections 53(1)(a) to (e) or sections 53(2)(a) to (b) of the EP Act, then the occupier should apply for a licence amendment in relation to the proposed works, rather than a works approval.”
Stormwater	13, 17	- Concerns regarding current control of stormwater emissions.	- The local government is generally responsible for the regulation of uncontaminated stormwater management within the Premises, notably through Development Approvals.
Windblown waste	13, 14, 17	- Concerns regarding current control of windblown waste emissions. - <i>Dardanup Environmental Action Group Information Sheet 5: The Impact on Tourism and the Environment</i> was received by DWER for consideration.	- The Delegated Officer considers that the Licence Holder’s proposed windblown waste mitigation controls are likely to be sufficient at mitigating windblown waste emissions associated with the proposed increase of Category 64 waste acceptance, with the Licence amended to reflect those controls.
Pest management	10, 14	- Concerns regarding the increased prevalence of pest species in the area. - <i>Dardanup Environmental Action Group Information Sheet 5: The Impact on Tourism and the Environment</i> was received by DWER for consideration.	The risks associated with pests and vermin resulting from landfill activities have been assessed previously, most notably in the April 2017 Licence amendment, noting that “ <i>the Delegated Officer has determined that the controls stated by the Licence Holder should be adequate to control the risk of pest, disease, vermin and weeds. The controls stated by the Licence Holder will be regulatory controls under the Licence in conjunction with regulatory controls for normal waste handling practices.</i> ”