Government of Western Australia
Department of Water and Environmental Regulation

Amendment Report

Licence Number	L7391/1999/9
Licence Holder	A. Richards Pty Ltd
ACN	008 734 852
File Number:	DEC3864/1~1
Premises	Richgro Nowergup (previously Amazon Soils and Landscaping Supplies) 206 Wesco Road NOWERGUP WA 6032 Part Lot 12738 on Plan 193226
Date of Report	25 August 2020
Decision / Proposed Decision	Amendment Granted

1. Definitions and interpretation

Definitions

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

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
Amendment Report	refers to this document
AS 4454-2012	Australian Standard AS 4454-2012: Composts, soil conditioners and mulches
AS 4419-2018	Australian Standard AS 4419-2018: Soils for landscaping and garden use
AS 4454-2012	Australian Standard AS 4454-2012: Composts, soil conditioners and mulches
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 *Environmental Protection Act 1986* Locked Bag 10 JOONDALUP DC WA 6027 info@dwer.wa.gov.au
CS Act	*Contaminated Sites Act 2003* (WA)
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the *Public Sector Management Act 1994* 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	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (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

Term	Definition
Licence Holder	A. Richards Pty Ltd
m^3	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
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 specified at the front of this Amendment Report.
Revised Licence	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 *Guidance Statement: Risk Assessment*

2. Amendment Description

The following guidance statements have informed the assessment and decision outlined in this Amendment Report:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

2.1. Purpose and scope of assessment

This Amendment is to undertake a risk-based assessment of existing and proposed changes to the operations of the Amazon Soils and Landscaping Supplies (now known as Richgro Nowergup) located on Wesco Road in Nowergup (the Premises). The Premises is licensed under Licence L7391/1999/9 for prescribed activities being Category 67A – compost manufacturing and soil blending; and Category 61 – Liquid waste facility.

2.1.1 Amendment Context

In April 2017 the Licence Holder applied to amend Licence L7391/1999/9 to include Category 61 (Liquid waste facility), to accept digestate from its Jandakot anaerobic digestion plant. On 9 February 2018 the Department of Water and Environmental Regulation (DWER) issued Amendment Notice 2. Amendment Notice 2 included a risk-based assessment of all operations at the premises (both pre-existing and proposed) and resulted in additional regulatory controls.

On 30 April 2018 the Licence Holder applied to amend Licence L7391/1999/9 requesting to remove Category 61 and to return the licence to the condition set that was granted prior to Amendment Notice 2. On 4 July 2018 a draft Amendment Notice 3 and decision report was sent to the Licence Holder outlining the Delegated Officer's decision on that assessment and the intended conditions that would be placed on the Licence. On 31 May 2019 the Licence Holder requested to withdraw the application.

On 8 July 2019 the Licence Holder again applied to amend Licence L7391/1999/9 requesting to remove Category 61 and all related conditions (this Amendment). Additional amendments were also requested. A summary of the requested amendments is provided in Table 2 below. Summaries of key aspects requested as part of this amendment are provided in the sections following the Table.

The premises name will also be updated as part of this amendment.

Table 2. Summary of amendments

Item	Condition No. (Existing Licence)	Condition No. (Revised Licence)	Requested changes in initial application	Amendments to application made through the assessment process
1	Category Table	Category Table	Remove Category 61	

Item	Condition No. (Existing Licence)	Condition No. (Revised Licence)	Requested changes in initial application	Amendments to application made through the assessment process
2	Condition 1.2.5 and Table 1.2.1	n/a	Remove infrastructure construction requirements related to category 61 - construction of temporary processing area, construction of concrete processing bay, construction of groundwater monitoring bores, resurfacing of hardstand area and installation of pond aerator	On 3 October 2019 advice was received from the Licence Holder that an aeration pump, powered by an on-site generator, had been installed. It was further advised that given the location of the pond and proximity to dedicated electrical source the aeration pump requires an alternative electrical supply (generator).The Licence Holder has stated that the running of the pump on a continuous basis is not possible nor feasible and they are endeavouring to source a suitable solar powered aeration pump. Instead of removing this part of the condition all together it was requested to amend the wording to "Has a *frequent* aeration program from a suitable aeration pumping device". On 13 January 2020 an email was received from the Licence Holder advising that a solar aeration pump was in the process of being purchased and that this system is designed for continuous operation. On 26 May 2020 an email from the Licence Holder advising that a storage battery for the solar aeration pump had not been purchased, however Richgro believes that the extended operational period during the summer months should be sufficient to aerate the water and in winter months aeration of the pond will occur with rainfall onto the surface of the pond. On 6 August 2020 the Licence Holder provided photos and a Compliance Certificate to certify that a solar powered aeration system has been installed. In addition, advice has been provided that that three down gradient monitoring bores have been installed. Evidence of this was provided on 6 May 2019.

Item	Condition No. (Existing Licence)	Condition No. (Revised Licence)	Requested changes in initial application	Amendments to application made through the assessment process
3	Condition 1.2.6	n/a	Remove the requirement to provide a compliance document once the infrastructure listed in Condition 1.2.5 has been completed.	On 6 August 2020 the Licence Holder provided photos and a Compliance Certificate to certify that a solar powered aeration system has been installed.
4	Condition 1.2.7	n/a	Remove the requirement to undertake a water balance assessment.	On 3 October 2019 advice was received from the Licence Holder stating that a whole site detailed water balance from an external consultant had not been conducted, however Richgro had reviewed DWER's water balance and the technical report included in Amendment Notice 3 and have now provided a Water Balance Review of the site.
5	Table 1.3.1	n/a	Remove Item 8 (Digestate) from the table.	
6	Table 1.3.2	n/a	Remove Item 8 (Digestate) and Item 9 (Green waste blended with digestate).	
7	Condition 1.3.7 c	Condition 8	Remove the requirement to ensure that the leachate pond has continual aeration following the installation of a pond aeration system.	On 6 August 2020 the Licence Holder provided photos and a Compliance Certificate to certify that a solar powered aeration system has been installed.
8	Condition 2.3	n/a	Remove the requirement to undertake an odour field survey.	
9	Schedule 1 - Premises Maps	Schedule 1 - Premises Maps	Remove the digestate processing area.	

Item	Condition No. (Existing Licence)	Condition No. (Revised Licence)	Requested changes in initial application	Amendments to application made through the assessment process
10	Condition 2.2 Table 2.2.1	Condition 10, Table 5	Remove the parameters Delta nitrogen 15 & Delta carbon 13 Amendment to frequency of monitoring from monthly to quarterly.	Monthly groundwater monitoring commenced in July and monitoring data for July, August, September, November, December, January, February and April has been provided. In an email dated 28 November 2019 the Licence Holder advised that they accept and do not want to alter the monthly sampling and testing of the five bores at their Nowergup site.
11	Condition 1.3.5 (a)	Condition 7	Remove the requirement to turn compost windrows regularly to ensure aerobic conditions are met. This request is to reflect the introduction of the Harvest Quest Method of composting.	On 3 October 2019 the Licence Holder proposed the following wording to replace the current condition 1.3.5 (a): "Windrows are turned as required to ensure composting process is sustained".
12	Condition 1.3.5 (e)	Condition 7	Request to remove the requirement for compost to meet physical and chemical requirements set out in AS4454.	
13	Condition 1.3.3 Table 1.3.2	Condition 12	Amendment to the wording of the storage and processing requirements set out in Column 2 as the current wording does not reflect processing activities at the site. Alternative wording was requested.	In an email dated 29 January 2020 the Licence Holder explained that they accept all storage and processing requirements of Column 2 of Table 1.3.2 except for the requirement to undertake activities on a hardstand that meets a permeability of $1x10^{-8}$ m/s, within 18 months from the date of this Amendment Notice. The Licence Holder explained that this requirement is practically impossible to achieve without application of asphalt on the site surfaces.

Item	Condition No. (Existing Licence)	Condition No. (Revised Licence)	Requested changes in initial application	Amendments to application made through the assessment process
14	Condition 1.3.1 Table 1.3.1	Condition 2, Table 2	Remove the tonnage limit per waste type and instead allow a combined total of 100,000 tonnes to allow for flexibility.	In a letter of 26 July 2019 DWER wrote to the Licence Holder and advised that in the absence of specified figures of feedstock inputs, it would assess the situation which would generate the highest impacts from emissions i.e. assume that the Premises can receive up to 100,000 tonnes/year of biosolids. The Licence Holder consequently provided feedstock quantities.
15	Licence Holder name change	n/a	Request to amend the Licence Holder from Amazon Soils and Landscaping Supplies to Righgro	
16	Prescribed premises category table	Prescribed premises category table; and Condition 1 (Table 1)		In a letter to the Licence Holder, dated 26 July 2019, DWER identified that greenwaste was being stored and shredded on the premises and requested that Category 61A be added to the licence, with an annual tonnage of 50,000. In an email of 6 December 2019, the Licence Holder agreed to add Category 61A to the licence. In this email it was advised that the current equipment owned by the Licence Holder which is utilised at the premises to grind mulch is a DW3060SA Doppstadt Grinder (2010) – 350 Hp Trailer mounted flow through grinder with set size screen, slow speed. The approximate production capacity of this machine is 80-120m3 per hour.

2.1.2 Harvest Quest Method description

The Harvest Quest method of composting involves the manual addition of an inoculant into the composting windrow prior to the application of a 20-30 cm cover material. Windrows stay in place and are then turned after approximately 30 days, and a second turn is carried out after another 14 days. No additional liquids are added to windrows. No aeration of windrows is proposed as the Licence Holder advises that the inoculant sufficiently maintains an aerobic state without additional aeration.

Windrows are proposed to be monitored for temperature, oxygen levels and moisture, twice weekly. The composting process aims to achieve 55 °C for three consecutive days to achieve pasteurisation. A composting windrow will not be released for sale if it does not achieve this minimum temperature. The Licence Holder aims to maintain moisture at 40-60 per cent through the addition of either bore water or treated leachate and stormwater from the leachate ponds, if required, and maintain oxygen concentrations above 15 per cent.

Prior to being released for sale or for further use in production of blended products, the compost is tested for pH, Electronic Conductivity, Solvita Maturity Index, bioassay (Toxicity), plant pathogens (Phytophthora and Pythium) and human pathogens (Thermotolerant Coliforms and Salmonella). Where a windrow does not meet the required standard (AS4454, AS3743, AS4419 or other internal standard) it is reworked into the composting process (typically blended with another windrow) for further processing.

Following test trials at Richgro's Jandakot premises (Licence: L7308/1998/13) within the indoor composting sheds, utilising digestate from the on-site Anaerobic Digestion Plant in Spring 2018, the Licence Holder provided trail test results to SAI Global who were satisfied in general with the monitoring records obtained and with the Harvest Quest compost methodology quality test results.

The Licence Holder has provided a letter from SAI Global that confirms the Harvest Quest Method meets the requirements of AS4454 and that the Harvest Quest Composting Methodology and Richgro's Standard Operating Procedure (SOP 3.03A) is suitable to meet the requirements of the standard.

The Harvest Quest Compost Method, indoor compost process monitory (at Richgro's Jandakot premises) identified that all windrows achieved and maintained pasteurisation temperatures between 55°C and 65°C core temperature for at least 15 consecutive days, moisture level in the windrows was maintained between 40 to 65 per cent and oxygen level in windrows was relatively low due to windrows minimal turning schedule, being two turns during the six week composting processes (four weeks indoor and two weeks of outdoor maturation). The core temperatures were measured at 100cm profile depth of the composting windrow with three measurements throughout the length of compost.

The laboratory reports provided indicate that all chemical and organic contaminants and pathogens tested were below maximum allowable concentrations in accordance with AS4454.

2.1.3 Item 13 – Condition 1.3.3, Table 1.3.2 of Existing Licence (Condition 5, Table 4 of Revised Licence)

Amendment Notice 2 (Section 15) discusses leachate sources, consequences and controls. The notice provided justification for why the Licence Holder was required to undertake the storage and/or processing of higher risk (of leachate generation and impacts to groundwater) feedstocks/activities on a hardstand that achieves a permeability of not less than 1 x 10-8 m/s.

The Applicant has noted that the receipt and use of digestate is no longer intended to be undertaken at the premises. It is noted that in addition to digestate, Amendment Notice 2 stated that "Manures and biosolids currently accepted at the premises pose a moderate to high leachate generation risk and are also high in nutrients". In addition, leachate from ASS/PASS contains iron sulfides and poses a moderate risk of leachate generation. The

leachate will generally be high in nutrients from the organic material and contain sulfuric acid from the decomposition of the iron sulfides.

In an email of 9 March 2020, the Licence Holder advised that biosolids, chicken manure and ASS/PASS (Peat) will not be accepted at their Nowergup premises once the Banister premises is operational. Given the uncertainty regarding the timeframe of the Bannister site becoming operational this Licence amendment has been assessed based on what is currently being accepted at the premises.

Amendment Notice 2 required the Licence Holder to undertake the storage and/or processing of higher risk (of leachate generation and impacts to groundwater) feedstocks/activities on a hardstand that achieves a permeability of not less than 1 x 10-8 m/s, within 18 months of the Amendment Notice being granted. This condition was imposed to assist in preventing infiltration of leachate from composting activities through the existing surface to the underlying groundwater table

At the time of Amendment Notice 2 there was no available groundwater monitoring data for the premises, therefore the Licence Holder was required to install and monitor three down-gradient groundwater monitoring bores, and monitor both of the existing upstream bores. Section 15 of Amendment Notice 2 surmised that “in the event that the groundwater monitoring data does not verify the high risk to groundwater and demonstrates that the existing limestone hardstand outside of the digestate application area is sufficient to mitigate risk to groundwater, regulatory controls relating to site surfacing upgrades can be reviewed and amended to reflect the updated risk assessment”.

In accordance with Condition 2.2.1 (Table 2.2.1) of Amendment Notice 2 the Licence Holder commenced monthly groundwater monitoring in July 2019. To date, groundwater monitoring data for July, August, September, November, December, January, February, March, April, May, June and July has been provided to DWER.

2.2. Proposed throughput changes

Table 3 below outlines the proposed throughput capacity changes

Table 3: Proposed throughput capacity changes

Category	Current throughput capacity	Proposed throughput capacity	Description of proposed amendment
61A	n/a	50,000	This category has been added to reflect that green waste is stored and shredded on the premises.
61	4,550 tonnes per annual period	Nil	Remove category 61 from the licence

2.3. Contaminated sites

The premises at 206 Wesco Road, Nowergup (the Site) has been classified in accordance with the *Contaminated Sites Act 2003* (CS Act) as ‘Possibly contaminated – investigation required’ due to elevated concentrations of Nitrogen in groundwater.

The current occupiers of the Site are Water Corporation and Richgro. Water Corporation operate the Nowergup Biosolids Facility, under Licence L7309/1997/10, located adjacent to Richgro’s premises.

Water Corporation and its nominated consultant are currently undertaking further soil and groundwater monitoring to assess the potential source of the contamination.

Until further test results are provided to indicate the source of the contamination, DWER will use the precautionary principle in assessing and determining regulatory controls for this application.

2.4. Consolidation of Licence

As part of this amendment package DWER has consolidated the licence by incorporating changes made under the following Amendment Notices:

- Amendment Notice 1, granted 17 November 2016 – changes to feedstock and correction to Premises boundary; and
- Amendment Notice 2, granted 9 February 2018 – inclusion of category 61 and review of existing operations

In consolidating the licence, the CEO has:

- updated the format and appearance of the licence;
- revised Licence condition numbers, and removed any redundant conditions and realigned condition numbers for numerical consistency; and
- corrected clerical mistakes and unintentional errors.

Previously issued Amendment Notices will remain on the DWER website for future reference and will act a record of DWER's decision making.

5. Other approvals

Table 4 outlines other approvals relevant to the premises.

Table 4: Relevant approvals

Legislation	Number	Approval
Metropolitan Regional Scheme – Development Approval	Application No. DA2018/1259	Granted to the Water Corporation (Land Owner) by the City of Wanneroo (City) on 6 June 2019 for the use of a biosolids and composting facility. This approval expires on 5 June 2024 unless a further application is made to, and approved by the City prior to that date.
Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974	Approval No. F-AA 11850	Granted by the Department of Health for unrestricted use until 1 May 2022.
Rights in Water and Irrigation Act 1914	Approval No. GWL166289(2)	Granted to the Licence Holder for the annual abstraction of 70,000kL water from the Wanneroo, Perth Superficial Swan resource valid until 12 September 2023.

6. Amendment history

Table 5 provides the amendment history for Licence L7391/1999/9.

Table 5: Licence amendments

Instrument	Issued	Amendment
L7391/1999/9	19/12/2013	Licence renewal
L7391/1999/9	24/07/2014	Amendment to extend timeframes for improvement condition completion
L7391/1999/9	22/10/2015	Amendment to change authorised feedstocks
L7391/1999/9	29/04/2016	Amendment to extend licence duration
L7391/1999/9	17/11/2016	Amendment Notice 1: Changes to authorised feedstocks and prescribed premises boundary
L7391/1999/9	9/02/2018	Amendment Notice 2: Changes to authorised feedstocks and monitoring requirements
L7391/1999/9	04/06/2019	Amendment Notice 3: Withdrawn
L7391/1999/9	25/08/2020	Amendment to: Remove category 61 and all associated conditions Add category 61A Allow the Harvest Quest method of composting

7. Emission sources, pathways and receptors

7.1. Emissions

The potential for emissions to impact on sensitive receptors has been assessed in accordance with the Department's Guidance Statement: Risk Assessments. The key emissions considered in this report are dust, noise, odour and leachate from activities including soil blending, grinding of green waste and the Harvest Quest method of composting.

The Applicant has proposed measures to assist in controlling these emissions, where necessary. The control measures have been considered when undertaking the risk assessment detailed in Sections 8 and 9.

7.1.1 Monitoring data

Groundwater monitoring results for nine (9) monitoring events conducted between July 2019 and April 2020 have been reviewed by DWER. The monitoring results show that groundwater sampled from one of the down gradient monitoring bores (MB3) has recorded elevated concentrations of total Nitrogen in all nine monitoring events. Nitrogen levels ranged from 26mg/L in September 2019 to 42mg/L in January 2020. Groundwater sampled from a second down gradient monitoring bore (MB4) has recorded elevated concentrations of total Nitrogen in December, January, February, March and April monitoring events (16mg/L in April 2020).

Groundwater monitoring bores, MB3 and MB4, are located close to the leachate pond and down hydraulic-gradient of the greenwaste storage area, and Water Corporation's Nowergup Bio-solids Facility which includes a pond.

Groundwater monitoring undertaken at the Water Corporation Facility also has recorded elevated concentrations of Nitrogen. Cardno (WA) Pty Ltd (Cardno) was engaged by the Water Corporation to undertake a Preliminary Site Investigation at the Nowergup Bio-solids Facility and of Richgro premises.

These two sites were reported to DWER in November 2016 and have been classified in accordance with the Contaminated Sites Act 2003 (CS Act) as 'Possibly contaminated – investigation required' due to the elevated concentrations of Nitrogen within groundwater.

The Preliminary Site Investigation identified a number of areas of potential environmental concern, including potential seepage through hardstand areas and pond, damage to pond liner and uncontrolled runoff from hardstands at both Richgro's and Water Corporation's premises. Cardno has recommended a number of tests to further understand the source-pathway-receptor linkages. DWER's Contaminated Sites Branch has advised that the results of these tests are not due until October 2020.

For the purposes of the assessment of emissions related to the proposed amendment, DWER consider that the groundwater monitoring data does not does not currently demonstrate that infrastructure at the premises, including the limestone pad, is mitigating potential emissions of leachate from the prescribed activities.

7.2. Pathways

As dust, noise and odour are considered potential emissions, the prevailing wind direction has been considered. Using information available on the Bureau of Meteorology's website, the prevailing wind direction at the Gingin Aero weather station (22.4km from Nowergup) is predominately in an easterly direction in the morning (17km/h) and south westerly in the afternoon (21.6km/h).

As leachate is considered to be a potential emission, soil type, rainfall, depth to groundwater and flow direction of groundwater have also been considered. The soil type mapped over the premises is the Spearwood System which consists of yellow deep sands, pale deep sand and yellow/brown shallow sand. The annual rainfall measured at the Tamala Park (Mindarie) weather station is 522mm (2019). Groundwater at the Premises, within the unconfined superficial aquifer, is approximately at a depth of 20 mAHD. Groundwater elevations and contours indicate that groundwater in the superficial aquifer flows east to west. The key findings on the risks associated with leachate emissions from the premises published in Amendment Notice 2 have also been considered in this assessment.

7.3 Receptors

Table 6 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 6: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Residential	The closest residential dwelling is approximately 1km west of the prescribed premises boundary.

Table 7 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 7: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Bush Forever Site 290 – Hopkins Road Bushland, Nowergup	Located adjacent to the north eastern boundary of the prescribed premises
Resource Enhancement Wetland - Camel Swamp	Located approximately 200m east of the boundary of the prescribed premises – located up hydraulic gradient of the Premises
Lake Neerabup	Located approximately 2.4km south-west of the boundary of the prescribed premises
Lake Nowergup	Located approximately 2.5km north-west of the boundary of the prescribed premises
Gnangara-Moore River State Forest	Located adjacent to the eastern boundary of the prescribed premises
Threatened Ecological Community – Banksia Dominated Woodlands of the Swan Coastal Plain	Located approximately 190m east of the boundary of the prescribed premises
Threatened Flora, *Eucalyptus argutifolia* – *Biodiversity Conservation Act 2016*	Located within 400m of the prescribed premises boundary
Threatened Flora, *Melaleuca* sp. *Wanneroo* (G.J. Keighery 16705) – *Biodiversity Conservation Act 2016*	Located 200 - 400m from the prescribed premises boundary
Priority 1 Public Drinking Water Source Area – Gnangara Underground Water Pollution Control Area	Located approximately 1km east of the prescribed premises boundary – located up hydraulic gradient of the Premises
Wanneroo Groundwater Area – *Rights in Water and Irrigation Act 1914*	The prescribed premises is located within this groundwater area.
Groundwater	Groundwater at the Premises, within the unconfined superficial aquifer, is at a depth of approximately 20 mAHD and flows from east to west.
Groundwater bores – Licence to Take Water for the purposes to stock watering, domestic use and irrigation of vegetables.	Closest registered bore is approximately 800m down hydraulic gradient of the Premises

8. Applicant Controls for Leachate

In a letter dated 4 October 2019 the Licence Holder provided the following information regarding measures taken to address leachate generation potential (volumes and quality of leachate):

- Reduced water requirements due to change in composting method, from aeration (whereby water is added during turning phase) to anaerobic composting conditions (whereby no turning is required, thus no additional water).
- Use of sprinkler water system is only used when required to maintain moisture content of composting windrows and suppression of dust from machinery,

feedstock piles and or trafficable roadways.

- Regular maintenance and cleaning (removal sediment) of the sumps associated with the pond as per SWP060.
- Compost operations are conducted on Limestone Hardstand with a gradient of 1 per cent towards two sumps that feed into a 96m x 40m fully line (1mm PVC – permeability of less than 10-9 m/s) catchment pond.
- All production activities are conducted on a Limestone Hardstand area. That has a permeability measurement at the Southern end of the pond being recorded at 6.9 x 10-6 (m/s) and 6.1 x 10-6 (m/sec) and at the Northern end of the pond being recorded at 1.8 x 10-5 (m/s) and 1.4 x 10-5 (m/sec)
- Regular maintenance and repair of limestone hardstand area to ensure any surface water is able to flow towards sumps to catchment pond.
- Feedstocks other than Biosolids contain an initial moisture content (not liquid) of between 5% to 40% in winter months and 3% to 30% in summer months. This moisture content evaporates with natural drying process of the feedstock.
- Biosolid feedstock (moisture content of 80% being a thick sludge with slow viscosity) is poured onto a predetermined measured layer of green-waste or wood-based feedstock (sawdust / tree bark [jarrah/pine]). To further absorb the moisture content another layer of green waste is laid over the biosolids and base layer of green waste. This combined feedstock is mixed further and positioned into windrows. The run-off liquid from windrow will vary from nil in summer to minimal in Winter, dependent on weather conditions and surface water on hardstand.
- Batch mixing procedures initiated immediately upon the receival of any feedstock with high moisture content (manure / biosolids / food-waste).
- Hardstand area is maintained to reduce potential pooling of liquids and retain constant flow to Leachate Pond.
- Leachate Pond liner maintained and repaired immediately.

9. Risk assessment

Table 8 below describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 2: Risk assessment for proposed amendments during operation

Risk Event				Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls
Source/Activities*	**Potential emissions**	**Potential receptors, pathway and impact**	**Applicant controls**					
Operation of green waste grinder and screeners	**Dust**	**Receptors:** Closest residential dwelling is approximately 1km west **Pathway:** Air / wind dispersion **Impact:** Impacts to amenity and wellbeing	Machinery will be located adjacent to a limestone hill that will act as barrier. Purpose built spray systems will be used to suppress dust liberation during operation of equipment.	Minor	Unlikely	Medium	Based upon the Licence Holder's controls and proximity of the nearest residents the Delegated Officer has determined that there is a medium risk dust impacts occurring.	Subject to compliance with Conditions 1, 2 and 5. Condition 1 has been added to the Revised Licence to address the risk of dust.
	Noise		Operation of the grinder and screeners to be within dedicated area protected by limestone hill Diesel powered machinery to be fitted with appropriate muffler systems to ensure noise levels are appropriate. Reversing beepers on machinery to be replaced with low squelching emitting alarms where practicable. SOP8.00 with respect to the repair and servicing of all plant and machinery Only two screeners will be operational at any one time.	Minor	Unlikely	Medium	Based upon the Licence Holder's controls and proximity of the nearest residents the Delegated Officer has determined that there is a medium risk of noise impacts occurring. Noise impacts resulting from the Premises can be managed under the *Environmental Protection (Noise) Regulations 1997*.	Subject to compliance with Condition 1 of the Revised Licence.

Risk Event				Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls
Source/Activities*	**Potential emissions**	**Potential receptors, pathway and impact**	**Applicant controls**					
Harvest Quest Method of composting and Increase acceptance of Manure (from 1,500 tonnes/year to 3,000 tonnes/year)	**Leachate**: Seepage through hardstand areas and ponds Damage/rupture of pond liner Overtopping of ponds; Run-off from hardstand	**Receptors:** Groundwater is approximately 20 mAHD. **Pathways:** Seepage through soil and limestone hardstand Transport through groundwater **Impacts:** Contamination of groundwater and contamination of surface waters at the point of groundwater expression.	Refer to Section 8 above.	Major	Possible	High	Given the uncertainty of the effectiveness of the current hardstand at preventing leachate emissions, and the elevated nitrogen levels identified in groundwater, the Delegated Officer has determined that the groundwater contamination from leachate seepage could occur. Regulatory controls are imposed on the Licence to further minimise this risk.	Subject to compliance with Conditions 2, 5, 7, 8, 9, 10, 11 and 12. Condition 7 of the Revised Licence has been amended to reflect the Harvest Quest Method of composting. The remaining conditions have been carried over from the Existing Licence.
Harvest Quest Method of composting and Increase acceptance of Manure (from 1,500 tonnes/year to 3,000 tonnes/year)	**Odour**	**Receptors:** Nearest residential receptor located approximately 1km west. **Pathway:** Air / wind dispersion **Impact:** Impacts to amenity and wellbeing	Batch mixing procedures initiated immediately upon the receival of any odorous feedstock (manure / biosolids / food waste). Composting monitoring procedures to ensure moisture content of windrows. Reduction of windrow turning frequency with the introduction of new composting process ‘Harvest Quest’	Moderate	Possible	Medium	Due to the acceptance of highly odourous feedstocks there is potential for medium level impacts to amenity. While the applicant has implemented a number of odour control measures, impacts to amenity could still occur at some time. Regulatory controls are imposed on the Licence to minimize this risk.	Subject to compliance with Conditions 1, 2, 3, 5, 7 and 8. Condition 7 of the Revised Licence has been amended to reflect the Harvest Quest Method of composting. Condition 1 of the Revised Licence has also been amended to require the leachate pond inlet v-drain to be maintained to prevent the accumulation of sludge and solids and subsequent discharge of solids to the pond from the processing areas. The remaining conditions have been carried over from the Existing Licence.

Risk Event				Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls
Source/Activities*	**Potential emissions**	**Potential receptors, pathway and impact**	**Applicant controls**					
Harvest Quest Method of composting and Increase acceptance of Manure (from 1,500 tonnes/year to 3,000 tonnes/year)	**Fires and explosions:** particulates and gases including: • Oxides of nitrogen • Carbon monoxide • Sulfur dioxide • Volatile organic compounds • Non-methane volatile organic compounds	**Receptors:** Nearest residential receptor located approximately 1km west. Native vegetation associated with Bush Forever Site 290 located adjacent to premises. Camel Swamp (Resource Enhancement Wetland) located approximately 200m east. **Pathway:** Air (windborne): wind speed and direction can change the level of smoke generated. **Impact:** Public health effects from inhaled particulates and gases Impacts to amenity and wellbeing. Loss of life, property and native vegetation from explosions/fires. Health impacts such as asphyxia. Impacts on amenity and wellbeing from odour. Contamination to surface water from drop out of ash and other particulates.	Composting monitoring procedures to ensure moisture content of windrows.	Major	Unlikely	Medium	Based upon the Licence Holder's controls and proximity to receptors, the Delegated Officer has determined that there is a medium risk of fire.	Subject to compliance with conditions 2, 3 and 7. Condition 7 of the Revised Licence has been amended to reflect the Harvest Quest Method of composting. The remaining conditions have been carried over from the Existing Licence.

Risk Event				Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls
Source/Activities*	**Potential emissions**	**Potential receptors, pathway and impact**	**Applicant controls**					
Leachate pond – change from *continuous aeration* to *aeration during day light hours*.	**Odour**	**Receptors:** Nearest residential receptor located approximately 1km west. **Pathway:** Air / wind dispersion **Impact:** Impacts to amenity and wellbeing	Installation of a solar powered pond aerator that will be operational during day light hours only.	Moderate	Possible	Medium	Given that the pond aerator is only proposed to be operated during daylight hours there is a medium level of risk of impacts to amenity. Solids will separate overnight and there is the potential of an odorous emission in the morning when the pond aerator starts up.	Conditions 1, 2, 4 and 11. Condition 1 of the Revised Licence has been amended to require the leachate pond inlet v-drain to be maintained to prevent the accumulation of sludge and solids and subsequent discharge of solids to the pond from the processing areas. This will reduce the amount of solids entering the leachate pond, thus reducing the potential for odourous gases to be generated in the pond. The remaining conditions have been carried over from the Existing Licence.

10. Consultation

Table 9: Summary of consultation

Method	Comments received	DWER response
Local Government Authority advised of proposal (19/12/2019)	No comments from the Shire have been received	n/a
Applicant referred draft documents (28/07/2020)	Comments received on 18/08/2020 Refer to Appendix 2 for a summary of comments received	Refer to Appendix 2

11. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a licence amendment will be granted in part, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Table 10 below provides DWER's response to each item the Licence Holder requested to be amended. The item numbers correspond with the item numbers from Table 2 of this report.

In addition to the Licence condition changes discussed below DWER has taken the initiative to amend Condition 1.3.6, Table 13.1 (Product assessment) of the Existing Licence. The requirement to test products and demonstrate how they are suitable for their end use has now been incorporated into Condition 12, Table 6 (Specified actions) of the Revised Licence. DWER acknowledges that laboratory reports provided for compost produced in accordance with the Harvest Quest Method indicate that all chemical and organic contaminants and pathogens tested were below maximum allowable concentrations in accordance with AS4454. However, DWER has not received evidence, with reference to testing regimes and controls, to demonstrate how other products (compost that is not produced using the harvest quest method, soil conditioners and mulches) are suitable for their end use.

Under condition 1.3.6, Table 13.1 (Product assessment) of the Existing Licence this information was to be provided to the CEO within six months of the Amendment Notice 2 being issued (being 9 February 2018). It is acknowledged that this date has now passed, however it has been retained on the Revised Licence for enforcement purposes. The Licence Holder is encouraged to provide this information at its earliest convenience.

Table 10: DWER's response to the Licence Holders requested amendments

Item no	Condition no (Revised Licence)	DWER Response
1	Category Table	In accordance with the Licence Holder's request, Category 61 has been removed
2	n/a	On 6 August 2020 the Licence Holder provided photos and a Compliance Certificate to certify that a solar powered aeration system has been installed.
3	n/a	As above
4	n/a	Section 7 (Water Balance) of Amendment Notice 2 noted that based on estimated figures, it appears that the current leachate pond has sufficient capacity to service both the existing and proposed operations (this included the acceptance of digestate). However, it was noted that DWER's calculation did not incorporate the volume of bore water that is being pumped into the leachate pond (to manage pressure from the artesian bore). In addition, this water balance assessment did not take into consideration seasonal fluctuations. The Licence Holder's Water Balance Review has provided all information required in Condition 1.2.7 of the existing licence and is sufficient to demonstrate that the pond has sufficient capacity to service both the existing and proposed operations. In accordance with the Licence Holder's request, the requirement to undertake a water balance assessment has been removed.
5	n/a	In accordance with the Licence Holder's request, Digestate has been removed.
6	n/a	In accordance with the Licence Holder's request, storage and processing requirements for digestate and green waste blended with digestate have been removed.
7	Condition 8	This condition has been amended to reflect that the aeration system will only be operational during day light hours, when there is sufficient daylight to power the system. To further manage potential odour emissions from the leachate pond, Condition 1 (Table 1) has been amended to include the requirement to maintain the leachate pond inlet v-drain free of accumulated sludge. Reducing the amount of solids entering the leachate pond will reduce the risk of odorous events occurring when the solar pump starts up in the morning. The addition of this condition was discussed with the Licence Holder on 10 June 2020 and it was agreed that this was an acceptable approach to managing odour emissions.
8	n/a	Condition 2.3 of the Existing Licence was included to address potential impacts associated with category 61 activities and has therefore been removed.
9	Schedule 1 - Premises Maps	Premises maps have been updated accordingly.

Item no	Condition no (Revised Licence)	DWER Response
10	Condition 10, Table 5	The requirement to undertake delta nitrogen and delta carbon sampling was agreed to be removed in Amendment Notice 3. The Delegated Officer considers that this type of sampling and analysis is more appropriate to use for fingerprinting specific isotopes in groundwater to assist in distinguishing between natural and composting processes. The remainder of the groundwater monitoring conditions are directly related to existing site activities.
11	Condition 7	This condition has been updated in accordance with the proposed wording provided by the Licence Holder. Items (c) and (d) have been added to this condition to align this Licence with the Licence Holder's Jandakot facility and to ensure that pasteurisation has occurred. The Harvest Quest method of composting is discussed in more detail in Section 2.1.2 above.
12	Condition 7	The Delegated Officer identified that this condition was contradictory to the requirements of condition 1.3.6 of the existing licence and therefore it has been removed. Please also refer to the assessments in sections 14 and 15 of Amendment Notice 2. The laboratory reports provided for the Jandakot trial of the Harvest Quest method all indicate chemical and organic contaminants and pathogens were below maximum allowable concentrations in accordance with AS4454.
13	Condition 12	Refer to Section 2.1.3 above for a discussion on the need to address the permeability of the hardstand. The Licence Holder met with DWER representatives on 10 June 2020 and hardstand requirements were discussed. DWER advised that the condition would be amended to include three options for the processing of feedstocks, being; 1. occurring on a hardstand that meets a permeability of 1 x 10^{-9} m/s; or 2. occurring on an alternate leachate barrier which minimises infiltration of leachate to the environment (to be pre-approved by DWER); or 3. remove from premises As an alternative DWER has added Condition 12 to the Revised Licence to add these requirements as specified actions that need to be completed within 12 months of the date of this amendment.
14	Condition 2, Table 2	This condition has been amended to include updated feedstock quantities.
15	n/a	In accordance with the Licence Holder's request the Licence Holder name has been updated.

Item no	Condition no (Revised Licence)	DWER Response
16	Prescribed premises category table; and Condition 1 (Table 1)	In accordance with the Licence Holder's request the licence has been updated to include category 61A. Condition 1 (Table 1) has been included to ensure that the greenwaste grinder is maintained and operated in good working order.

Tracey Hassell

Digitally signed by Tracey Hassell
Date: 2020.08.25 16:11:34 +08'00'

Tracey Hassell
A/Manager, Waste Industries

An officer delegated by the CEO under section 20 of the EP Act

7.3. Appendix 1: Key documents

	Document	In text ref	Availability
1	Licence L7391/1999/9 – Amendment Notice 2 – 9 February 2018	L7391/1999/9	accessed at www.dwer.wa.gov.au
2	Licence Amendment Application – submitted via email on 8 July 2019		DWER records (A1803578)
3	Additional information provided to support application – submitted via email on 3 October 2019		DWER records (A1834738)
4	Water Balance Review – submitted via email on 9 October 2019		DWER records (A1834738)
5	Additional information provided to support application – submitted via email on 27 November 2019		DWER records (A1845946)
6	Groundwater monitoring results and investigation report – submitted via email on 20/01/2020		DWER records (A1860262)
7	DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
8	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	DER 2015b	
9	DER, August 2016. *Guidance Statement: Licence duration.* Department of Environment Regulation, Perth.	DER 2016a	
10	DER, November 2016. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	DER 2016b	
11	DER, June 2019. *Guidance Statement: Decision Making*. Department of Environment Regulation, Perth.	DWER 2019	

7.4. Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Report on 28 July 2020 for review and comment. The Licence Holder responded on 18 August 2020 providing the following comments:

Condition	Summary of Licence Holder comment	DWER response
1, Table 1	The Licence Holder has requested a change to the wording to align with its Jandakot Licence (L7308/1998/13)	Proposed change accepted as it is immaterial and does not change the risk assessment.
1, Table 1	The Licence Holder has requested to add screeners to the infrastructure table to reflect current practice. The screeners are used in the processing of compost and soils.	Screeners have been added to the infrastructure list as requested. Screeners have also been incorporated into the risk assessment. Given that the screeners will be used in conjunction with spray systems and only two will be operated at any given time DWER is satisfied that the risk assessment for dust and noise remains at Medium and no additional regulatory controls are required.
5, Table 4	The Licence Holder requested changes to wording of the 'Storage and Processing Requirements'.	The proposed changes do not change the risk assessment and therefore have been accepted.
12, Table 6	The Licence Holder asked if they selected the option of removing feedstocks from the premises whether they would still be able to undertake the following action at the premises: "Receival of bulk composted product from Richgro Bannister or Jandakot sites to be blended with additional clean fill (sand), green waste and/or sawdust, and distributed to clients in the Northern Suburbs. Therefore, to allow Richgro to continue the production and distribution of mulches and blended soil products at the Premises".	DWER advises that this request should be dealt with outside of this amendment. Once the Licence is amended and the Licence Holder determines what action they intend to take to address leachate at the Premises then this can be discussed and potentially be assessed under a separate licence amendment.
Table 10 (Definitions)	The Licence Holder sought clarification that the annual period for this Licence would remain as 1 January to 31 December.	DWER confirms that this is correct and has added the relevant dates to the definitions table (annual period).