Government of Western Australia
Department of Water and Environmental Regulation

Decision Report

Application for Licence

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L7308/1998/14
Applicant	A. Richards Pty Ltd
ACN	008 734 852
File number	APP-0028140
Premises	Richgro Garden Products 203 Acourt Road JANDAKOT WA 6164 Legal description Part of Lot 186 on Deposited Plan 109038 As defined by the coordinates in Schedule 2 of the licence
Date of report	22 October 2025
Decision	Licence granted

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the operation of the premises. As a result of this assessment, licence L7308/1998/14 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

In this assessment the delegated officer has also considered the approach set out in the *Guideline: better practice organics recycling*.

2.2 Application summary

On 11 June 2025, the applicant submitted an application for a licence renewal to the department under section 57 of the *Environmental Protection Act 1986* (EP Act).

The application is to seek a licence relating to the Richgro Garden Products (Richgro) Jandakot Site (the Premises), as the existing licence expires on 22 October 2025. The premises is located at 203 Acourt Road, Jandakot.

The premises (L7308/1998/14) relates to the following categories and the below assessed/proposed production/design capacity:

Table 1: Assessed/proposed production/design capacity

Prescribed premises category description	Production / design capacity
Category 61: Liquid waste facility – premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.	25,000 tonnes per annual period
Category 61A: Solid waste facility – premises (other than premises within category 67A) on which solid waste produced on other premises is stored, reprocessed, treated or discharged onto land.	100,000 tonnes per annual period
Category 67A: Compost manufacturing and soil blending – premises on which organic material (excluding silage) or waste is stored pending processing, mixing, drying or composting to produce commercial quantities of compost or blended soils.	100,000 tonnes per annual period

As part of the licence renewal process, the applicant is seeking to increase the throughput of solid waste from 85,000 tonnes per annual period to 100,000 tonnes per annual period to meet the needs of the waste stream suppliers and product demand.

2.3 Overview of premises

The operation includes outdoor composting, indoor composting, anaerobic digestion and product bagging activities. Operations at the premises began in 1988 with the initial EP Act Part V licence being granted on 8 December 1995. On 11 September 1998 the licence was transferred to A. Richards Pty Ltd, the current licence holder.

Outdoor composting produces three main streams of compost, a green waste compost, a pine bark compost and a finer saw dust based compost. Blended soils are also produced outside. Indoor composting consists of composting of green waste blended with digestate from the anaerobic digestion plant. The anaerobic digestion plant accepts liquid controlled wastes and solid food waste which are broken down to produce a biogas which is subsequently used to generate electricity.

Operational hours are governed by the City of Cockburn that authorises operational activities as follows:

- all truck movements to, from and around the site and truck waiting shall be limited to 7am to 10pm Monday to Saturday, and not at all on Sundays and Public Holidays;
- Bagging operations including folk lift and front-end loader movements are permitted to operate 24 hours provided they are carried out in a fully enclosed shed with the exception of one door which may be left open to allow the movement of forklifts or front end loaders to shift materials associated with bagging operations; and
- The Anaerobic Digestate Plant Bio Filter and Compost Manufacturing Bio Filter operations are permitted to operate 24 hours.

The other equipment that is operational on a 24-hour basis is linked to the aeration systems on the leachate ponds. This electrical equipment provides constant air flow into the water.

The use of grinding equipment is limited to day shift schedules due to the use of other plant, such as excavator and front-end loaders to load the green waste into the hopper of the grinder.

All composting occurs on a hardstand (asphalt or limestone hardstand areas) which are graded towards a leachate collection system including lined storage ponds.

As part of the licence renewal process, the applicant has requested to include the previously excluded warehouse on the southeast boundary of the property The updated proposed prescribed premises boundary is depicted in Figure 1 below.

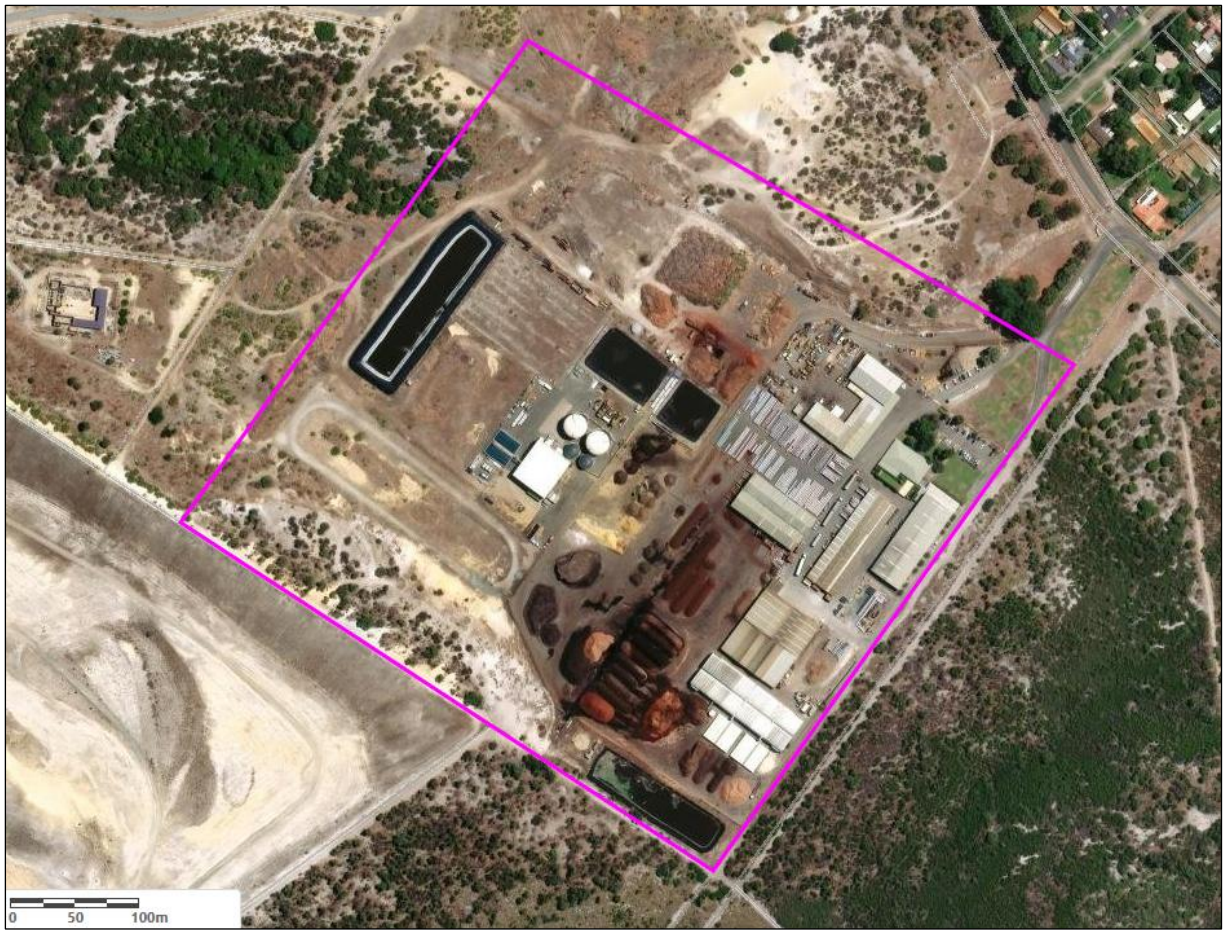

Figure 1: Prescribed premises boundary

2.4 Siting context

The premises is located in the City of Cockburn, approximately 17 kilometres south of the Perth CBD. The surrounding area is predominantly zoned 'Parks and Recreation' and 'Public purposes - Commonwealth Government' under the Metropolitan Regional Scheme. The Public purposes - Commonwealth Government' zoned area comprises the Jandakot Airport.

2.4.1 Geology

The dominant geological formation within the general area of the premises is Bassendean sands. The soils in this formation consist of pale grey to white sands which are predominately medium grained, with layers of a friable, limonite-cemented sand commonly known as 'coffee rock' (McPherson and A. Jones, 2005 Geosciences Australia).

Borehole logs from the installation of monitoring wells indicate a soil profile consisting predominantly of brown and white sands and coffee rock. Although the bore logs provided to the Department contained limited information (i.e. does not detail when groundwater was intersected), the results confirm that the soil profile is consistent with the Bassendean Sand profile.

2.4.2 Hydrogeology

Depth to groundwater beneath the premises has been reported at approximately 3 m below ground level. Groundwater quality is considered as being fresh and is used for potable use and for domestic use.

Richgro premises currently operate a licenced bore for the extraction of water. This bore water is utilised for:

- Garden and grass area reticulation;
- Dust suppression on limestone hardstand;
- Dust suppression on conveyor belt equipment;
- Dust suppression on feedstock piles;
- Mobile water tank firefighting equipment;
- Additional water introduced to compost windrows for moisture content; and
- Additional water into the Anaerobic Digestion Facility for feedstock mixing.

The premises is located within priority 2 Public Drinking Water Source Area (PDWSA) and immediately adjacent to a priority 1 PDWSA. The location of the PDSWA's are depicted in Figure 2 below.

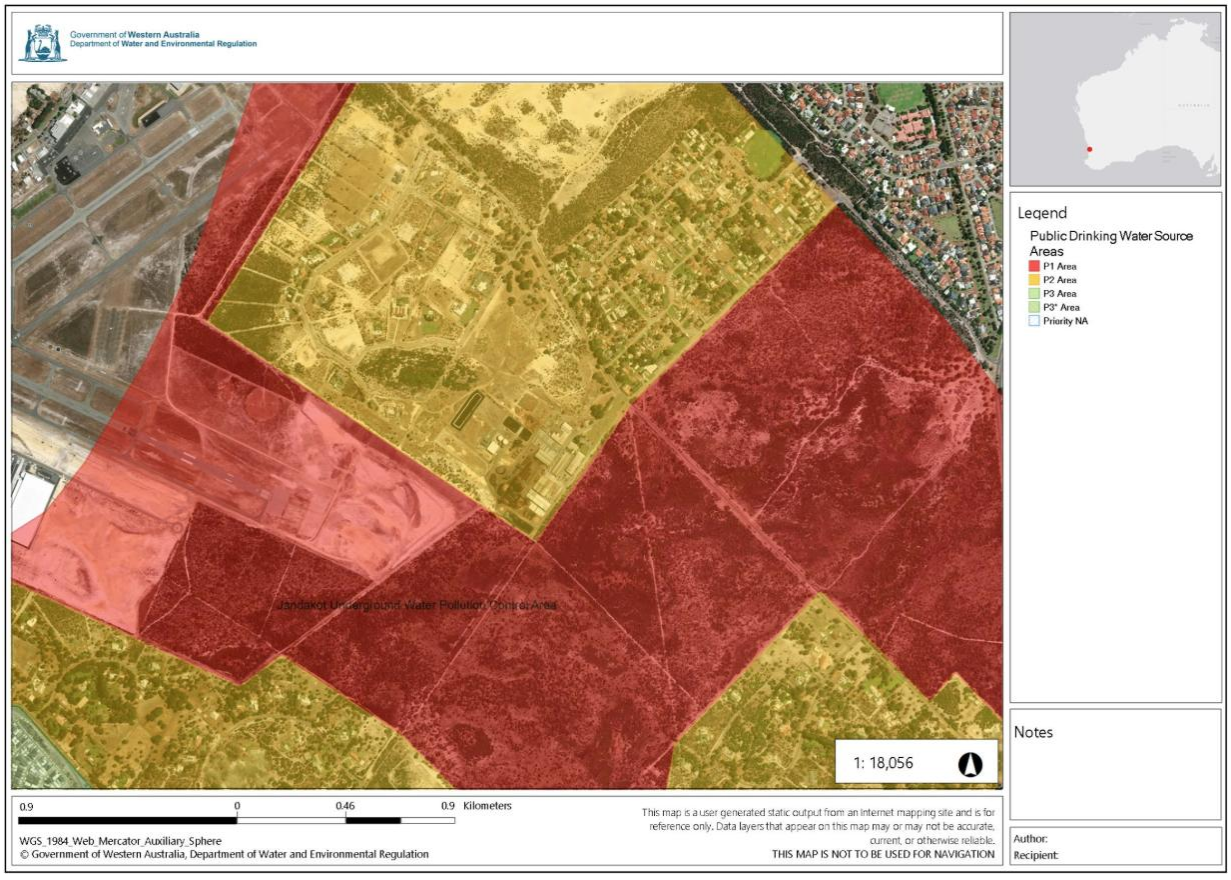

Figure 2: Public drinking water source areas

2.5 Infrastructure and Equipment

The composting facility infrastructure, as it relates to activities for categories 61, 61A and 67A, are detailed in Table 2 and with reference to the Site Layout plan depicted in Figure 3.

Table 2: Composting facility category 61, 61A and 67A infrastructure

Ref.	Operational area	Infrastructure	Plant / Equipment	Description
1	Laboratory & Offices	Enclosed building	Nil	For laboratory testing of products to meet quality requirements. For general office administration of the facility.
2	Main Office	Enclosed building	Nil	For general office administration of the facility.
3	Overflow Warehouse Area	Enclosed shed with concrete floors	Mobile forklift Manual pallet trolley	For storage of final products prior to moving to main warehouse
4	Warehouse Area	Enclosed shed with bituminised and concrete floor	Automated pallet wrapper. Mobile forklift Manual pallet trolleys	For storage of final products prior to palletising for customer orders.
5	Production & Packing Shed	Enclosed shed with bituminised and concrete floor	Automated bagging and wrapping equipment. Mobile forklifts Mobile loaders	For storage of purchased additives for inclusion in final products. Process Packaging of final products
6	Composting tunnels	Bituminised hardstand enclosed tunnels, connected to Biofiltration system	Mobile loader	Indoor aerobic compost windrows. Storage area for purchased feedstock (manures).
7	Mixing Yard area	Bituminised hardstand. Contoured to dedicated catchment sumps at leachate ponds 1 & 3	Mobile screening equipment Mobile loader	Combining of feedstock to produce products. Aerobic compost windrows. Mulch windrows. Storage area for purchased feedstock (e.g., pine bark, sawdust). Storage area for clean fill sand.

Ref.	Operational area	Infrastructure	Plant / Equipment	Description
8, 9, 15	Anaerobic Digestion Facility Area	Enclosed sheds with sealed floors, connected to biofiltration system. Purpose-built tanks, CHP, Flare, and Generator units	Mobile forklift Mobile loader Fixed depackaging machine Fixed Flare Fixed Generators Fixed CHP units	For the anaerobic process of waste organic feedstock into biogas and spent digestate liquid.
11	Green waste receival area	Compacted limestone hardstand	Fixed Electric grinder Mobile loader Mobile Excavator (Grable equipment)	Receival area for recycled green waste. Processed via electric grinder prior to moving to production yard area (Map ref.7).
12	Untreated timber (pallets etc) receival area	Compacted limestone hardstand	Fixed Electric grinder Mobile loader Mobile Excavator (Grable equipment)	Receival area for untreated timber products. Processed via electric grinder prior to moving to production yard area (Map ref.7).
13	Trade centre	Enclosed shed with concrete floor	Mobile forklift Mobile loader	For storage of finished products and other items.
14	Equipment store and Workshop Area	Enclosed sheds with concrete floor Service pit	Mobile service vehicles Mobile forklift Maintenance buggy	For the repair and maintenance of all operational equipment
15	Service washdown bay	Enclosed shed with degreasing unit	Nil	For the wash down of equipment and machinery prior to mechanical maintenance work
16	Organic Soils Packing Shed	Enclosed shed with bituminised and concrete floor	Automated bagging and pallet wrapping equipment Mobile forklift Mobile loader	For process packaging of final products

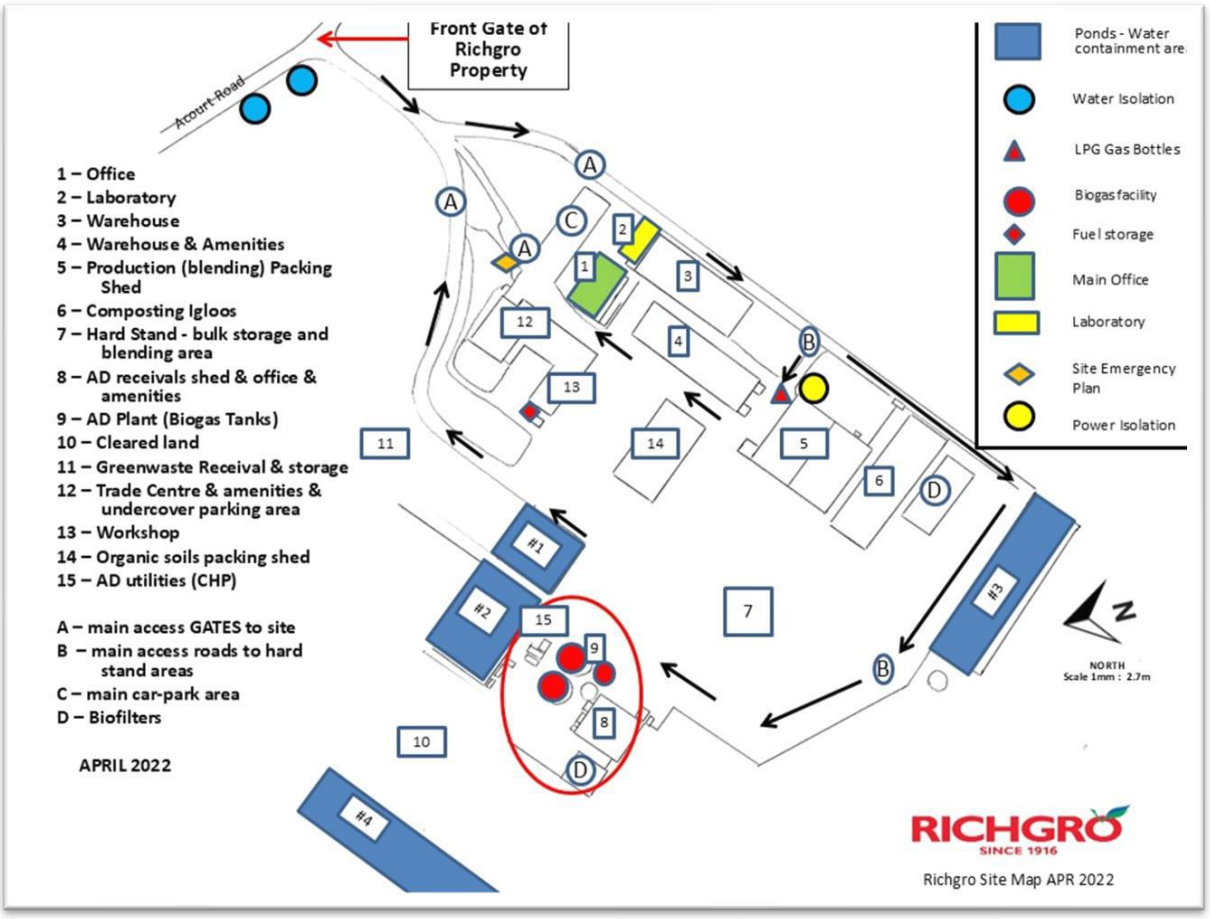

Figure 3: Site layout

2.6 Waste acceptance

The proposed waste types and acceptance quantity limits are shown in Table 3 below. The applicant is seeking to increase the throughput of solid waste from 85,000 tonnes per annual period to 100,000 tonnes per annual period to meet the needs of the waste stream suppliers and product demand. This includes the increase of greenwaste from 20,000 tonnes to 30,000 tonnes per annual period and an increase of grain wastes and packaged and unpackaged solid food wastes from 10,000 tonnes to 15,000 tonnes per annual period. The increase in throughput will be considered in the risk assessment.

Table 3: Waste acceptance

Material	Specification or Quantity Limit
Solid waste	
Green waste	30,000 tonnes/annual period
Sawdust	20,000 tonnes/annual period
Pine bark	15,000 tonnes/annual period
Poultry manure	Combined limit of 10,000 tonnes/annual period
Cow manure	

Sheep manure	
Grain wastes	Combined limit of 15,000 tonnes/annual period
Packaged and unpackaged solid food wastes	
Untreated wooden timber products	10,000 tonnes/annual period
Liquid waste	
Waste water from animal processing facilities	Combined limit of 25,000 tonnes/annual period
Waste from grease traps limited to milk solids	
Food and beverage processing wastes	

2.6.1 Acceptance and storage of green waste and untreated timber

The applicant proposes to accept 30,000 tonnes of green waste and 10,000 tonnes of untreated timber per annual period. This waste is received and stockpiled on the limestone hardstand area as depicted in Figure 4 below:

Figure 4: Green waste and timber storage area

The Department of Fire and Emergency (DFES) Bulk Green Waste Storage Fire Information Note (DEFS, 2014) states that spontaneous combustion in decomposing piles of vegetation causes internal fires. These fires ignite deep within the pile and are often, at first, difficult to detect.

Spontaneous combustion occurs when more heat is generated in the pile by decomposition than is lost to the surrounding environment, heating to a temperature high enough to cause ignition. A review of historical stockpile size undertaken by the department identified greenwaste and timber stockpiles sizes in excess of 90 m x 70 m.

DFES note that most significant factors in the management of fires in green waste storage facilities are the size of the pile and the distance separating the piles. Pile size affects fire and radiant heat generation. The separation distance influences the ability of fire to spread between piles. Recommended maximum pile dimensions have been identified by DFES based upon best practice and practicality for the safe storage of green waste. The recommended pile size is:

- Length 50 m
- Width 10 m
- Height 5 m.

The need for further controls relating to the storage of green waste and untreated timber will be considered in the risk assessment.

2.7 Waste processing

2.7.1 Anaerobic Digestion plant

Liquid wastes are received onsite and unloaded directly from the tanker to the open blending tank within the receival hall which is under negative pressure. Solid food wastes, grains as well as packaged and tinned waste foods and packaged liquids are directed from the storage bays within the receival hall to the food shredder where they are macerated and then directed to the blending tank.

Liquid and macerated solid waste that have been combined within the blending tank are then pumped into the digester feed tank/hydrolysis tank where the first phase of digestion occurs, breaking down the food waste in preparation for the digester. This is then fed in even amounts into the two anaerobic digestor tanks. Within the anaerobic digestor tanks, wastes are broken down by micro-organisms in the absence of oxygen to produce biogas (predominantly methane and carbon dioxide) and digestate.

The biogas is directed to one of two generators where it is used as fuel to generate electricity. The electricity generated is used on the premises with the surplus exported to the electricity grid. The flare is used in the following situations:

- under emergency situations, when the biogas is unable to be directed to one of the two generators;
- during start-up and shut-down periods; or
- during routine maintenance.

2.7.2 Outdoor composting

All outdoor composting, product blending, feedstock storage and processing of green waste and untreated wood products occurs on an asphalt hardstand. The asphalt hardstand has been constructed to meet the below specifications:

- 40mm of asphalt underlain by 400 mm limestone and road base;
- Meets a hydraulic conductivity of less than 1 x 10^{-8} m/s; and
- Graded (1 in 100 fall) towards leachate ponds 1 and 3.

The outdoor compost windrows are made up of a blend of materials (shredded green waste, manures or other organic feedstock), they do not utilise any of the digestate liquid from the anaerobic digestor.

Each windrow is constructed so that it is at least three metres high, six metres wide and up to 120 m long. The horizontal gap between outdoor windrows is a minimum of 0.5 m.

Upon mixing into the compost windrow the product is not turned again until the 30th and 44th day. During this period of time the applicant monitors the composting pile for temperature and moisture content. The measurement of temperature is taken twice a week, at least 3 days apart with the moisture level maintained between 40 to 65 per cent during these 4 weeks. The core temperature of the composting pile is maintained for at least two weeks between 55°C and 65°C.

Once the composting process is complete, the material is moved into stockpiles for further processing and blending into the required consumer product either bulk or bagged. Blended soils are produced on the asphalt hardstand. The blended soils are comprised of the feedstocks, final products and additional soils stored onsite, depending on the product being produced.

The applicant states that all blended soils are developed in accordance with AS 4554-12 with final products being bagged onsite in the bagging station and stored outside on pallets or within a storage warehouse prior to being sold onto wholesale clients.

2.7.3 Indoor composting

The indoor composting facility has been purpose built with an air extraction system that is linked to two dedicated biofilter systems. The indoor composting product is produced from a blend of shredded green waste with digestate from the anaerobic digestor. The application of digestate to green waste is undertaken via dedicated pipework and blended by mobile plant within the indoor compost igloo composting bay.

The applicant states that upon mixing into the compost bays the product is not turned again until 4 weeks have passed. During the four weeks the composting pile is monitored for temperature and moisture content. The core temperature of the composting pile shall be maintained for at least two weeks between 55°C and 65°C.

The compost is only moved to the outdoor composting and product storage hardstand area once the composted material has matured to an appropriate level and the recorded temperature, oxygen and moisture levels have remained stable across three consecutive measurements.

Once the composted material is moved outside it is first stored at the southwest corner of the operational yard area, prior to being moved into stockpiles ready for further processing and blending into the required consumer product either bulk or bagged.

2.7.4 Leachate ponds

Three ponds capture stormwater and run-off from the asphalt and limestone hardstands with Pond 4 receiving only treated water from the leachate ponds and via rainfall. All ponds are lined with 1.5 mm HDPE liner and underlain by in-situ soils. The asphalt hardstand is graded to a fall of 1 in 100 to drain to leachate Ponds 1, 2 and 3 with the limestone hardstand used for the storage and processing of green waste being graded to drain to leachate Ponds 1 and 2.

Water from Pond 1 is directed into Pond 2 when it reaches the level of the overflow pipe, otherwise it can be manually pumped as required using an existing pump system onsite. Water from Pond 2 can be manually pumped to Pond 3 where it is then directed through a sand filtration system before being pumped into Pond 4 where water is extracted for use in the composting process.

Ponds 1, 2 and 3 have sediment sumps installed to assist in reducing solid matter from entering the ponds. Each pond has aerators which are operated continually.

The applicant states that a water balance assessment was undertaken by David Wills and Associates (DWA) to minimise bore water usage and to ensure all stormwater runoff and operational runoff is contained onsite. The design of the ponds on site is based on the annual yield method with all rainfall and leachate being captured, stored in ponds, prior to being lost through evaporation, used in the production process, or used as dust suppression. The assessment calculated that all stormwater and leachate can contain a 1 in 100 Annual Exceedance Probability.

2.7.5 Bagging station

A bagging station is located between the composting shed and storage warehouse. The bagging station bags composts, mulches, blended soils, fertilisers and manures for sale prior to being removed from the premises. The activities are undertaken inside two enclosed warehouses with hopper and conveyor systems to transport products through the bagging station. The facility is situated on a concrete hardstand.

The applicant states that there is no noise management infrastructure installed in the bagging station and that each bagging plant is fitted with a dust extraction unit, noting that the dust extraction unit does not treat the air for odour emissions. The applicant has advised that bagging station operations may extend until 2.00 am to meet market demand when required.

2.8 Odour management and biofilter performance

The department and the City of Cockburn have historically, and continues to receive odour complaints from residents in the vicinity of the premises. Following an inspection conducted on 12 November 2024, the department raised concerns regarding the effective performance of the two biofilters at the premises. The two facilities that operate a biofilter are summarised in Sections 2.8.1 and 2.8.3.

The biofilter medium used in all biofilters is a spongelite, which is a porous substance that enables micro-organisms to live within. The applicant states that the biofilter medium is not degradable and will not require replacement. However, during the summer months, irrigation water is delivered to the medium to ensure a slight moisture content of the spongelite is maintained.

On 23 December 2024 the department requested the licence holder engage a third-party consultant to undertake a biofilter performance test at the premises. The correspondence noted that the performance test should consider, but is not limited to:

- Collecting odour concentration (odour units) samples from the inlet of each biofilter.
- Collecting composite odour concentration (odour units) samples from evenly spaced locations across the surface area of each biofilter cell.

- Conducting odour concentration analysis in accordance with AS/NZS 4323.3.2001

The licence holder submitted the required Biofilter Odour Assessment Report (Emissions Assessment, 2025) to the department on 25 March 2025. The results of the assessment will be considered in the risk assessment undertaken for odour.

2.8.1 Anaerobic digestor receival hall

The anaerobic digestor facility has been designed to ensure that all odourous feedstocks that are received and stored within the receival hall area with unpackaged feedstock being input into the system within 48 hours of receival timeframe.

The applicant states that the anaerobic digestor receival hall is maintain a negative pressure environment, with all extracted air transferred to a biofiltration system. This biofilter system enables the odorous components of the air to be extracted via micro-organism activity that in turn reduces the odour concentration rate.

The extraction of odorous air is undertaken via a 30KW fan with a static pressure of 2100 Pa to give a maximum flow rate of 8,620 l/s (31,032 m^3/hr). The extracted air is transferred to a number of slotted PVC pipes that have been placed underneath the biofilter medium. The applicant monitors the extraction system to ensure the system is operational 24 hours, 7 days a week.

2.8.2 Anaerobic digestor point source

To ensure that these systems are operational at optimal levels, the applicant has arranged an external contractor to perform maintenance and testing requirements. The applicant states that this regular maintenance ensures that the operational parameters of the combined heat and power unit meet regulatory requirements for potential air emissions.

The design of the flare is such, that it is an enclosed system, that provides a homogeneous temperature distribution across the combustion chamber and contains the flare within the chamber. The high degree of temperature that activates the flare, ensures that any potential air emissions from the biogas, methane, are destroyed instantly.

The applicant states that the testing of air emissions is currently undertaken on an annual basis, whereby samples are taken and tested as per AS 4323.3 and USEPA Methodology requirements. Air emission testing has been undertaken at the premises since 2018.

2.8.3 Indoor composting hall

The indoor composting hall has been purpose built with an air extraction system that is linked to two biofilters. The biofilters are similar to the anaerobic digestor facility system, with the extraction of odorous air being undertaken via two 30KW fans with a static pressure of 2100 Pa to give a flow rate of 8,620 l/s (31,032 m^3/hr) per fan.

The applicant states that the indoor composting igloos are maintain under negative pressure, with all extracted air being transferred to the biofilter system. Two large extraction ducting systems are located diagonally over the top of the large composting pits that capture the air and transfer it to a number of slotted PVC pipes that have been placed underneath the biofilter medium.

The composting hall is fitted with automatic roller doors, located at each corner of the composting igloos, with the doors being in a closed position for the majority of the operational work hours. When the roller doors are open for vehicle access, the ducting system ensures that the air is still being drawn into the composting igloo. Personnel doors are located beside each roller door, and these are fitted with automatic closing mechanisms. The applicant monitors the extraction system to ensure the system is operational 24 hours, 7 days a week.

2.9 Review of groundwater monitoring

The department has reviewed the historical monitoring data provided by the licence holder as part of the licence requirements. It was identified during a review of the 2014 and 2015 annual reports that there was an increasing trend of nitrogen and ammonium in groundwater bores. It was determined that the likely source of these ammonium and sulphate was the over abstraction of water from production bores in the area, resulting in the release of nutrients from the oxidation of sediments leaching into groundwater, and not leachate from Premises operations.

Similarly, following the review of the 2022 annual report, there was an increasing trend observed for pH, iron and other salts and metals detected in monitoring bores at the premises. Based on a detailed review of the data provided, regional influences and the characteristics of groundwater contamination caused by seepage from composting facilities, it is considered that seepage from the Richgro composting facility is causing groundwater contamination near the facility for the following reasons:

- There is a trend of increasing manganese concentrations that was observed in most monitoring bores at the site. Elevated concentrations of this chemical constituent are not commonly detected in shallow bores elsewhere on the Jandakot Mound;
- Most bores show a trend of increasing iron concentrations, even under near-neutral pH conditions. This is consistent with the trend that would be expected if extensive microbially driven iron reduction was taking place within the superficial aquifer near the facility; and
- Many bores show a long-term trend of declining sulfate-ion concentrations, which is consistent with the pattern expected if microbially driven sulfate reduction were to be taking place within the superficial aquifer near the composting facility. Shallow bores elsewhere on the Jandakot Mound commonly show stable or increasing sulfate concentrations due to the effects of pyrite oxidation, and the inputs of sulfate-ions into groundwater from widespread fertiliser use in the area (Larsen *et al*., 1998).

Although shallow groundwater quality in the area is likely to have been adversely impacted by the effects of groundwater acidification and contamination by regional fertilizer use, data from monitoring bores suggest that seepage from this facility is also causing groundwater contamination. The principal contaminants are manganese and iron, which are likely to have been released into groundwater by microbially driven chemical reactions between organic-rich leachate and aquifer sediments.

The need for further controls relating to the groundwater monitoring will be considered in the risk assessment.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this decision report are detailed in Table 4 below. Table 4 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 4: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Dust, including bioaerosols	Feedstock/ waste types. Feedstock/ product unloading/ loading. Processing activities. Storage of final product. Vehicle movements.	Air/ windborne to human receptors	The facility at Richgro Jandakot has been designed to restrict the movement of potential windborne particulate matter by establishing set areas for various operations. These set areas are positioned within topographical featured locations to enable shielding from the predominate easterly winds. The use of upright sprinkler system to supress the dry material in summer is undertaken by the yard operator along with the screen wetting system on the outreaching conveyor belts of the grinder. Premises operators have access to; • Entire site irrigation ring main; • Upright sprinkler systems for suppression of dust and wetting down product piles; • Dedicated water cart (12,000 litre) with spray bar for suppression of dust on hardstand areas; and • High pressure water spray systems attached to various equipment to reduce dust particles on conveyor belts. Operational procedures also restrict the use of the grinding or screening equipment in high wind periods. Richgro utilise contracted delivery and collection vehicles which are fitted with retractable tarpaulins or are fully enclosed walking floor bulk carriers. These types of transportation vehicles ensure

Emission	Sources	Potential pathways	Proposed controls
			that the organic products do not become airborne when being transported either to or from site. There is an established traffic management plan and speed limit. Site traffic is managed on sealed bitumen roadways or compacted hardstand areas only.
Noise	All operations	Air/ windborne/ ground transmission to human receptors	Broadband reversing alarms have been installed on all maintenance vehicles, forklifts, front end loaders, excavators, trucks and other machinery owned by the applicant. Operational hours are governed by the City of Cockburn that authorises operational activities as follows: • all truck movements to, from and around the site and truck waiting shall be limited to 7am to 10pm Monday to Saturday, and not at all on Sundays and Public Holidays; • Bagging operations including folk lift and front-end loader movements are permitted to operate 24 hours provided they are carried out in a fully enclosed shed with the exception of one door which may be left open to allow the movement of forklifts or front end loaders to shift materials associated with bagging operations; and • The Anaerobic Digestate Plant Bio Filter and Compost Manufacturing Bio Filter operations are permitted to operate 24 hours. The use of grinding equipment is limited to day shift schedules due to the use of other plant, such as excavator and front-end loaders to load the green waste into the hopper of the grinder. Transfer of diesel powered machine to electrical powered machines.
Odour	Types of feedstocks/ waste accepted and processes used to manage the feedstocks. Processing activities. Anaerobic materials, including feedstocks and	Air/ windborne to human receptors	**Leachate ponds** All leachate ponds are fitted with a floating aeration system to ensure oxygen-filled air is forced into the liquid and in turn increases biological growth and avoid static or stagnation of the leachate in the pond. Leachate pond water monitoring and testing is currently undertaken on a quarterly basis. **Anaerobic digestor facility** The anaerobic digestor facility has been designed as a closed loop system, whereby the

Emission	Sources	Potential pathways	Proposed controls
	wastewater.		feedstock is fed into a blending tank and thereafter is contained within a closed loop, anaerobic system. The anaerobic digestor facility has been purpose built to ensure that all feedstocks that may be odorous are received and stored within the receival hall area. The processing system has also been established to transfer unpackaged feedstock into the system within a 48 hour timeframe. The anaerobic digestor facility receival hall has been designed to maintain a negative pressure environment, whereby all the odorous air within the receival hall is drawn out to a dedicated biofiltration system. The biofilter system enables the odorous components of the air to be extracted via micro-organism activity that in turn reduces odour. The extraction of odorous air from the anaerobic digestor facility is via a 30 KW fan with a static pressure of 2100 Pa with a speed of 1366 RPM which gives a maximum flow rate of 8,620 l/s (31,032 m^3/hr). **Combined heat and power units** The two combined heat and power units located at the anaerobic digestor facility have been designed as stand-alone systems and are regularly serviced and maintained to ensure that they run as efficiently as possible. Each system has a dedicated exhaust stack and flare system. The exhaust system of the combined heat and power and flare are maintained to ensure that they operate at the optimal level to decrease any potential odorous exhaust fumes being released to atmosphere. The design of the flare is such, that it is an enclosed system, that provides a homogeneous temperature distribution across the combustion chamber and contains the flare within the chamber. The high degree of temperature that activates the flare, ensures that any potential air emissions from the biogas, methane, are destroyed instantly. The testing of air emissions is currently arranged on an annual basis **Indoor composting facility** The indoor composting facility has been purpose built with an air extraction system that is linked to two dedicated biofilter systems. The extraction of odorous air from the indoor

Emission	Sources	Potential pathways	Proposed controls
			composting facility is via two 30KW fans with a static pressure of 2100 Pa with a speed of 1366 RPM which gives a maximum flow rate of 8,620 l/s (31,032 m^3/hr) per fan. Negative pressure is maintained within the indoor composting igloos via the dedicated ducting system that traverses east to west along the roof of the composting bays. A distance of 27 metres is between each duct. Automatic roller doors are located at each corner of the composting igloos, being in a closed position for the majority of the operational work hours, this ensures a negative airflow is maintained. When the roller doors are open for vehicle access, the ducting system ensures that the air is still under negative pressure. Personnel doors are located beside each roller door and are fitted with automatic closing mechanisms. Monitoring of the entire air extraction system is arranged to ensure that both extraction fans are in sound working order and serviced regularly, therefore ensuring that the system is operational 24 hours, 7 days a week. **Outdoor composting** The outdoor composting process adopted ensures that turning of a windrow is minimal, which in turn reduces odour released to atmosphere. The location of the outdoor processes is within the southeast corner of the premises. The centre of this area is 500 metres from residential properties to the north and west, and one kilometre from residential properties to the south. Topographical features and buildings shield the potential odour generating compost windrows. The receipt of potentially odorous feedstock, such as cow, sheep or chicken manure, is arranged so that the material is received and immediately stored within a closed building. The same day or following day, the material is then mixed, blended as an added nutrient content and/or bagged.
Point source emissions to air	Point source emissions to air, in the form of exhaust fumes	Air/ windborne and overland to human and environmental	The two combined heat and power units located at the anaerobic digestor facility have been designed as stand-alone systems and are regularly serviced and maintained to ensure that they run as efficiently as possible.

Emission	Sources	Potential pathways	Proposed controls
		receptors	Each system has a dedicated exhaust stack and flare system. The exhaust system of the combined heat and power and flare are maintained to ensure that they operate at the optimal level to decrease any potential odorous exhaust fumes being released to atmosphere. The design of the flare is such, that it is an enclosed system, that provides a homogeneous temperature distribution across the combustion chamber and contains the flare within the chamber. The high degree of temperature that activates the flare, ensures that any potential air emissions from the biogas, methane, are destroyed instantly. The testing of air emissions is currently arranged on an annual basis
Leachate and contaminated stormwater	Types and volumes of feedstocks/ waste accepted and processes used to manage the feedstocks (liquids and solids). Rainfall over feedstocks, processing areas and products.	Seepage to soil and groundwater, including nearby receptors	The premises has been designed to ensure directional flow on the hardstand areas of potential leachate and stormwater is directed towards 6 solid trap sumps that are linked to 3 fully lined leachate ponds. All ponds are constructed with high-density polyethylene (HDPE) geomembrane that is 1.5 mm thick. Asphalt hardstand areas are constructed of compacted limestone and road base (400 mm) and asphalt (40 mm) with a gradient of 1 in 100 fall towards various solid sediment traps. Asphalt hardstand areas have been tested to have a 1 x 10^{-8} m/s hydraulic conductivity. The leachate ponds are interconnected to ensure management of water levels within each is ascertained and a freeboard of 300mm is maintained. Leachate pond monitoring and testing is currently undertaken on a quarterly basis. Groundwater monitoring program is undertaken on a six-month basis. Bulk Tanker liquid feedstock is received directly into the mixing tank located inside the receival shed at the facility. IBC liquid feedstock is received via flat-top delivery vehicles and the IBC is transported via forklift directly into the receival shed where the contents are pumped into the mixing system. Packaged liquid feedstock is received via flat top delivery vehicles and then transported via forklift directly into the receival shed. The packaged product is then decanted via a crushing machine that captures the liquid into

Emission	Sources	Potential pathways	Proposed controls
			the mixing system and discards the waste packaging into a dedicated refuse bin. Solid food waste feedstock is received via compactor waste trucks and packaged. The compactor truck product is tipped directly into dedicated receival bays within the receiver hall of the AD facility. Any liquid waste that seeps from the solid food waste drains towards the sump located in the floor area. The floor of the anaerobic digestor receival hall has been designed with a gradient fall directly to a blind sump. This sump has a submersible pump that is connected to a float switch that transfers the leachate directly into the mixing tank.
Litter and debris	Contaminants and management of these within feedstocks/ waste and during operations. Debris accumulating within drains.	Air/ windborne and overland to human and environmental receptors	Richgro's operational process ensures any litter is retained and disposed of in the appropriate manner. Contractual arrangements are in place for the use of dedicated skip bins within various areas of the operations that are emptied on a regular pattern or as needed basis. Skip bins are equipped with lids to prevent windblown waste from escaping. Richgro operations include the use of a road sweeper to remove the build-up of fine organic material from hardstand operational areas. The operational area is also surrounded by 6ft fencing to limit access by native animals. This is in addition to the boundary fencing at the parameter of the property.
Fire event – environmental harm and emissions (smoke and fire water)	Feedstock/ waste types. Ignitions within materials compost and mulch, including materials undergoing pasteurisation Machinery and equipment.	Airborne (smoke), overland flow and seepage (fire water) to receptors	A fire engineering review was undertaken by external consultant Fire Design Solutions. Richgro engages with the local fire brigade precinct to ensure their obligations in relation to fire emergency management is maintained. An internal Emergency Management Plan has been established and maintained. Richgro have access to the DFES online emergency portal, where site details and operational information is reviewed and updated on a regular basis. The following fire related equipment is available at the premises: • Fire breaks around the parameter of premises; • Clear access road along southwest parameter fence line;

Emission	Sources	Potential pathways	Proposed controls
			• Fire breaks are maintained between the premises and the bush forever land adjoining the premises; • Fire suppression equipment – including sand and plant (front-end loaders) to assist in moving suppression material; • Cleared area around green waste receival limestone hardstand area; • Topographic buffer aligned to the edge of the green waste receival area; • Separation distance from operational area to residential dwellings or other infrastructure; • Booster hydrant system and 11 upright double head fire hydrants; • External and internal fire hose reels at various locations within / or near operations and office buildings; • Fire extinguishers within buildings; • Smoke and heat alarms within operational buildings; and • Fire alarm system. As part of the Emergency Management procedures the applicant undertakes regular testing of all fire equipment as per Australin Standards. To prevent spontaneous combustion at the premises, the applicant has established inspection processes that includes: • Regularly checking of the temperature of the windrows; • Regularly checking the moisture content of the windrows; • Establishing the appropriate size of each windrow in a dedicated area away from operational buildings and equipment; • Ensuring access pathways around windrows are maintained; and • Maintainment of sprinkler system within the stockpile or windrow areas in extreme summer conditions. Operators are trained on the actions that are required should spontaneous combustion occur at the facility. Front end loader operators understand the importance of smothering the smouldering area

Emission	Sources	Potential pathways	Proposed controls
			or removing it to a cleared area away from other fuel sources is critical in ensuring the spontaneous combustion is under control as quickly as possible. The anaerobic digestor has been sited to include separation distances from other site operations. The area surrounding the anaerobic digestor is to be maintained as a clear zone with no buildup of foreign materials or storage of items that may lead to a fuel source. The entire anaerobic digestor tank area is a non-smoking area and all maintenance is undertaken by approved employees or contractors. The following fire related infrastructure has been installed at the anaerobic digestor facility: • Portable firefighting equipment is available and close at hand. • Fire hoses connected to the firewater ring main are installed within the receival hall and other locations to enable a reach of 20 metres. • Fire hydrants on a firewater ring main are installed for use by fire services if required. • Hydrant Booster cabinet is located 50 metres north of the main entrance to the premises. This booster enables the fire services to increase mains pressure if required. The local fire services arrange regular visits to the site to familiarise themselves with the facility layout and are made aware of the hazards and risks present on the site. The anaerobic digestor tanks, pipework and process equipment is earth-bonded to reduce static electricity buildup. The main anaerobic digestion tanks are also equipped with a lightning storm rod that is tested on a regular basis by a qualified electrician.
Vectors (vermin and pests)	Feedstock/ waste types. Processes used to manage the feedstocks (liquids and solids).	Air and overland to human and environmental receptors	The operating area is surrounded by chain link fencing. The applicant engages contracted pest management baiting for mice and rodents where potential feedstock, such as food waste is stored, prior to processing. The removal of other vermin, wild cats or foxes, is arranged with the City of Cockburn Ranger

Emission	Sources	Potential pathways	Proposed controls
			and trap systems. The applicant undertakes regular sump inspection and dosing of biodegradable oil on to the sumps surface to prevent mosquito activity. In addition, each leachate pond is equipped with aeration systems that operate 24 hours a day. Regular removal of organic buildup from the hardstand areas and within the sumps via front end loader.
Product quality derived impacts: release of physical, chemical and biological contaminants that can result in pollution or environmental harm	Feedstock/ waste types. Application of products in the environment: • with inadequate treatment of contaminants and/ or feedstocks during processing; • with residual contaminants within products	Direct contact of products by consumers and leachate/ migration into the receiving environment.	The applicant is certified under the ISO 9001 Quality Assurance system. This ISO 9001 certification ensures consistency and uniformity in every batch of products that is produced at the facility, including: • Composted products - certification under AS 4454. In 2019, the applicant adopted the SAI Global approved alternative composting methodology Harvest Quest. • Soil Conditioners - certification under AS 4454 • Mulches - certification under AS 4454 • Blended soils for landscaping and garden use – fit for purpose products aligned to certification under AS 4419. All products are fit for purpose and are tested in accordance with the product specification requirements to ensure alignment to the AS 4454, AS 4419 or customer specific requirements. The wide variety of products produced by the applicant are accompanied with product specification information and ingredient listings. These are printed onto the bagged products along with the required health warning.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 5 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DWER 2020)).

Table 5: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
Residential premises	120 m northeast of the premises boundary 160 m northwest of the premises boundary 890 m southeast of the premises boundary 900 m southwest of the premises boundary
Jandakot Airport	Immediately adjacent and to the west of the premises boundary
Users of Queensgate Drive lake and parkland	Located 2 km northeast of the premises boundary
Users of Sanctuary Waters lake and parkland	Located 2.25 km east northeast of the premises boundary
Cultural receptor	**Distance from prescribed activity**
Aboriginal heritage site	Scattered artefacts have been located 100 m east (ID 3513) and 180 m north (ID 4311) of the premises boundary.
Environmental receptors	**Distance from prescribed activity**
Groundwater beneath the premises	Depth to groundwater has been reported at approximately 3m below ground level The Premises is located within a Priority 2 Public Drinking Water Source Area (PDWSA) and immediately adjacent to a Priority 1 PDWSA. Based on information available on PGA, groundwater is considered as fresh (Total dissolved solids between 0 – 500 mg/L). Water is used for potable use and for domestic use.
Metropolitan Water Supply, Sewerage, and Drainage Act 1909 Public Drinking Water Source Area (PDWSA)	The Premises is located within a Priority 2 PDWSA and immediately adjacent to a Priority 1 PDWSA
Rights in Water and Irrigation Act 1914 Jandakot Underground Water Pollution Control Area	The premises is located within the Jandakot Groundwater Area
Threatened ecological communities	Priority 3 Banksia Woodlands of the Swan Coastal Plain immediately adjacent on the eastern and southern boundaries on the prescribed premises.
Resource enhancement dampland – Lukin Swamp Reserve	Within the premises boundary and adjacent to the western boundary of the premises
Conservation Category Wetland (within Jandakot Regional Park)	Adjacent to the eastern boundary of the premises

Harrisdale Swamp	Located 2.5km south-east of prescribed activities
Carnaby's black cockatoo habitat	Immediately adjacent on the eastern and southern boundaries on the prescribed premises.
Planning and Development Act 2005 State Planning Policy 2.8, Bushland Policy for the Perth Metropolitan Region	Immediately adjacent to Premises' eastern and southern boundaries which are areas undertaking prescribed activities
Jandakot Regional Park (Bush Forever site 389, DBCA managed regional park, Perth Regional Ecological Linkage)	Immediately adjacent on the eastern and southern boundaries on the prescribed premises.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 6.

Licence L9308/1998/14 that accompanies this decision report authorises emissions associated with the operation of the premises.

The conditions in the issued licence, as outlined in Table 6 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 6: Risk assessment of potential emissions and discharges from the premises during operation

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of licence	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
Receipt, handling and storage of feedstock (solids and liquids) Plant and mobile equipment operations Vehicle movements.	Dust	Air / windborne pathway causing impacts to health and amenity	Human receptors as listed in Table 5 Table 5	Refer to Section 3.1.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 3, 7	The Delegated Officer has considered the *Guideline – Better Practice Organics Recycling (DWER, 2022*) in undertaking this assessment and determined the controls proposed by the applicant meet the benchmark controls for dust as detailed in the Guideline. The Delegated Officer has determined that the dust controls stated by the applicant are required to control the risk of dust emission impacts on sensitive receptors and that the controls stated by the Licence Holder will be applied, where appropriate, as regulatory controls under the Licence. Further management of dust emissions is provided via the general provisions of the EP Act.
	Noise			Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 3, 4, 5, 8	The Delegated Officer has considered the *Guideline – Better Practice Organics Recycling (DWER, 2022*) in undertaking this assessment and determined the controls proposed by the applicant meet the benchmark controls for noise as detailed in the Guideline. Applicant controls are considered to be effective in mitigating the impact of noise emissions from the premises on sensitive receptors from operations at the premises. Broadband reversing alarms have been conditioned on vehicles operating on the premises. The location and operational hours for the green waste grinder have also been included in the licence to reduce the level of noise emissions from the premises operations. Further management of noise is provided by the *Environmental Protection (Noise) Regulations 1997*.
	Odour			Refer to Section 3.1.1	Refer to detailed risk assessment in Section 3.3			
	Litter and debris		Human, cultural and environmental receptors as listed in Table 5Table 5	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**		N/A	N/A
	Leachate Sediment and organic laden stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality Infiltration into groundwater causing contamination and impacting water quality	Priority 2 PDWSA and Priority 1 PDWSA. Geomorphic wetland – Lukin Swamp Reserve Conservation Category Wetland located within Jandakot Regional Park	Refer to Section 3.1.1	C = Major L = Unlikely **Medium Risk**	N	Condition 1, 2, 3, 8, 9, 10, 17, 18, 19, 20, 21, 22, 23, 31 **Condition 17**	The Delegated Officer has considered the *Guideline – Better Practice Organics Recycling (DWER, 2022*) in undertaking this assessment and determined the controls proposed by the applicant for the asphalt and limestone hardstand areas do not meet the permeability requirement of $1x10^{-9}$ m/s In reviewing the suitability of the hardstand areas for the receipt, handling and storage of feedstocks the Delegated Officer has considered the risk of the material being received and stored on the hardstand, being greenwaste untreated timber products on the limestone hardstand, and blended organics (shredded green waste, manures or other organic feedstock), high-risk composts that have already undergone composting within the indoor composting facility, and finished product. The Delegated Officer notes that a comprehensive monitoring well network is installed at the premises to detect any seepage should the permeability of the hardstand be compromised. The Delegated Officer therefore considers the hardstand installed at the premise suitable for the proposed use. Should the use and processed products be altered in the future, this permeability requirement will need to be reassessed. As detailed in Section 2.9, the Delegated Officer considered that although shallow groundwater quality in the area is likely to have been adversely impacted by the effects of groundwater acidification and contamination by regional fertiliser use, a review of groundwater monitoring data suggest that seepage from this facility has the potential to be causing groundwater contamination. The principal contaminants of concern are manganese and iron, which are likely to be released into groundwater by microbially driven chemical reactions between

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of licence	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
								organic-rich leachate and aquifer sediments. The Delegated Officer considers that there is a risk that other metals/metalloids may be present in groundwater beneath the premises. The contaminants may not have been detected to date due to the limited analytical suite currently monitored in groundwater. This poses a risk due to the proximity of the Richgro site to a P1 Public Drinking Water Source Area and public water supply bores. The Delegated Officer considers it appropriate to add additional parameters to the groundwater monitoring suite. These include antimony, arsenic, beryllium, cadmium, chromium, cobalt, molybdenum, and thallium. The Delegated Officer has additionally conditioned applicant proposed controls in the licence relating to infrastructure, operational controls, and monitoring requirements.
	Vectors / Pest / Vermin	Biological pathway causing impacts to health and amenity	Human, cultural and environmental receptors as listed in Table 5	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	N/A
	Fires/smoke	Air/windborne pathway causing impacts to health, amenity and to the Jandakot airport.	Human, cultural and environmental receptors as listed in Table 5	Refer to Section 3.1.1	C = Major L = Unlikely **Medium Risk**	N	Condition 1, 3, 8 **Condition 8**	The Delegated Officer has considered the *Information note: Bulk green waste storage fires* (DFES 2014), *Guidance note: GN04 Fire prevention and management in a materials recycling facility* (DFES, 2020), and the *Guideline – Better Practice Organics Recycling (DWER, 2022*) in undertaking this assessment. Given the increased risk of fire at the premises from the storage and processing of large quantities of greenwaste and timber stockpiles, the increase waste acceptance for green waste proposed, and the impact a large fire would have on the Jandakot airport and the surrounding residential properties and sensitive receptors, the Delegated Officer considers that additional regulatory controls will be added to the licence. These controls include acceptance and processing requirements, storage requirements, monitoring and reporting requirements, and maintaining a low fuel load buffer zone surrounding the receival, storage and processing area.
Composting and storage of finished compost product (solids and liquids)	Dust	Air / windborne pathway causing impacts to health and amenity	Human receptors as listed in Table 5	Refer to Section 3.1.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 3, 7, 8	The Delegated Officer has considered the *Guideline – Better Practice Organics Recycling (DWER, 2022*) in undertaking this assessment and determined the controls proposed by the applicant meet the benchmark controls for dust as detailed in the Guideline. The Delegated Officer has determined that the dust controls stated by the applicant are required to control the risk of dust emission impacts on sensitive receptors and that the controls stated by the Licence Holder will be applied, where appropriate, as regulatory controls under the Licence. Further management of dust emissions is provided via the general provisions of the EP Act.
	Noise			Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 3, 8	The Delegated Officer has considered the *Guideline – Better Practice Organics Recycling (DWER, 2022*) in undertaking this assessment and determined the controls proposed by the applicant meet the benchmark controls for noise as detailed in the Guideline. Applicant controls are considered to be effective in mitigating the impact of noise emissions from the premises on sensitive receptors from operations at the premises. Broadband reversing alarms have been conditioned on vehicles operating on the premises to reduce the level of noise emissions from the premises operations. Further management of noise is provided by the *Environmental Protection (Noise) Regulations 1997*.

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of licence	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
	Odour	Air / windborne pathway causing impacts to health and amenity	Human receptors as listed in Table 5	Refer to Section 3.1.1	Refer to detailed risk assessment in Section 3.3			
	Leachate Sediment and organic laden stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality Infiltration into groundwater causing contamination and impacting water quality	Priority 2 PDWSA and Priority 1 PDWSA. Geomorphic wetland – Lukin Swamp Reserve Conservation Category Wetland located within Jandakot Regional Park	Refer to Section 3.1.1	C = Major L = Unlikely **Medium Risk**	N	Condition 1, 2, 3, 8, 9, 10, 17, 18, 19, 20, 21, 22, 23, 31 **Condition 17**	The Delegated Officer has considered the *Guideline – Better Practice Organics Recycling (DWER, 2022*) in undertaking this assessment and determined the controls proposed by the applicant for the asphalt and limestone hardstand areas do not meet the permeability requirement of $1x10^{-9}$ m/s. In reviewing the suitability of the hardstand areas, the Delegated Officer has considered the risk of the material being composted and stored on the hardstand, being blended organics (shredded green waste, manures or other organic feedstock), high-risk composts that have already undergone composting within the indoor composting facility, and finished product. The Delegated Officer notes that a comprehensive monitoring well network is installed at the premises to detect any seepage should the permeability of the hardstand be compromised. The Delegated Officer therefore considers the hardstand installed at the premises suitable for the proposed use. Should the feedstocks or stored products be altered in the future, this permeability requirement will need to be reassessed. As detailed in Section 2.9, the Delegated Officer considered that although shallow groundwater quality in the area is likely to have been adversely impacted by the effects of groundwater acidification and contamination by regional fertiliser use, a review of groundwater monitoring data suggest that seepage from this facility has the potential to be causing groundwater contamination. The principal contaminants of concern are manganese and iron, which are likely to be released into groundwater by microbially driven chemical reactions between organic-rich leachate and aquifer sediments. The Delegated Officer considers that there is a risk that other metals/metalloids may be present in groundwater beneath the premises. The contaminants may not have been detected to date due to the limited analytical suite currently monitored in groundwater. This poses a risk due to the proximity of the Richgro site to a P1 Public Drinking Water Source Area and public water supply bores. The Delegated Officer considers it appropriate to add additional parameters to the groundwater monitoring suite. These include antimony, arsenic, beryllium, cadmium, chromium, cobalt, molybdenum, and thallium. The Delegated Officer has additionally conditioned applicant proposed controls in the licence relating to infrastructure, operational controls, and monitoring requirements.
	Vectors / pests	Biological pathway causing impacts to health and amenity	Human and environmental receptors as listed in Table 5	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Y	N/A	N/A
	Fires/smoke	Air/windborne pathway causing impacts to health, amenity and to the Jandakot airport.	Human, cultural and environmental receptors as listed in Table 5	Refer to Section 3.1.1	C = Major L = Unlikely **Medium Risk**	Y	Condition 1, 3, 8, 12 **Condition 8**	The Delegated Officer has considered the *Guideline – Better Practice Organics Recycling (DWER, 2022*) in undertaking this assessment and determined that the windrow separation distances do not meet the benchmark control requirements to separate individual stockpiles/windrows using a non-combustible physical barrier or at least 6 m of clear ground. In assessing the suitability of the applicant proposed separation distance the Delegated Officer has considered the applicant proposed controls to manage and contain a windrow or stockpile fire. The Delegated Officer considers that a minimum separation distance to allow sufficient access for firefighting equipment to pass between windows is required to minimize emission from a window or stockpile fire at the facility. This requirement has been conditioned within the

Risk events					Risk rating [1] C = consequence L = likelihood	Applicant controls sufficient?	Conditions [2] of licence	Justification for additional regulatory controls
Sources / activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Applicant controls**				
								licence. The Delegated Officer has determined that the firefighting controls stated by the applicant are required to control the risk of fire / smoke emission during composting and the storage of finished compost product and that the controls stated by the Licence Holder will be applied, where appropriate, as regulatory controls under the Licence.
Flaring of gas generated from the anaerobic digestor	Emissions from the flaring of captured anaerobic digestor gas	Air/windborne pathway causing impacts to health and amenity.	Human receptors as listed in Table 5	Refer to Section 3.1.1	C = Major L = Rare **Medium Risk**	Y	Condition 3, 8, 24, 31	The Delegated Officer has determined that the controls stated by the applicant are required to control the risk from the flaring of gases produced through the anaerobic digestor facility and that the controls stated by the Licence Holder will be applied, where appropriate, as regulatory controls under the Licence. These include infrastructure, processing and monitoring and reporting conditions.
Finished product quality • Fit-for-purpose compost; • Soil conditioners; • Mulches; and • Blended soil products.	Release of physical, chemical and / or biological contaminants	Direct contact of products by consumers and the receiving environment; impacting public amenity and public and environmental health	Product users and the environment receiving the product and subsequent impacts from contaminants	Refer to Section 3.1.1	C = Major L = Unlikely **Medium Risk**	Y	Condition 1, 2, 3, 7, 8, 12, 13, 14, 15, 16, 27 **Condition 15, 26, 28, 31**	The Delegated Officer has considered the *Guideline – Better Practice Organics Recycling (DWER, 2022*) in undertaking this assessment. Recycled organic products that are not processed effectively can result in impacts to amenity, public health and the environments receiving the products via the release of physical, chemical and biological contaminants. The Delegated Officer considers that all feedstocks accepted at the premise are classified as standard feedstocks for organics recycling with the majority of inputs being low risk, with the exception of garden organics (medium risk), and manures, food and food processing wastes and liquid wastes being characterised as high-risk feedstocks. The Delegated Officer notes that the receival and processing of all medium and high risk feedstocks occur in the anaerobic digestor receival hall or within the indoor composting hall. Fit-for-purpose products provide beneficial qualities to the receiving environment when used and do not contain contaminants at levels that cause pollution or environmental harm. The range and concentration of contaminants in products is highly dependent on the type, quality and quantity of feedstocks used in the organics recycling process, and the effectiveness of the organics recycling method. Products derived from higher risk feedstocks can have higher concentrations and variability in contaminant levels and require additional controls to ensure products can be demonstrated as fit-for-purpose. The Delegated Officer considers that all products are fit for purpose and are tested in accordance with the product specification requirements to AS 4454, AS 4419 or customer specific requirements. The range of base products the applicant fall into the following categories: • Composted products - aligned to certification under AS 4454. • Soil Conditioners - aligned to certification under AS 4454 • Mulches - aligned to certification under AS 4454 • Blended soils for landscaping and garden use – aligned to certification under AS 4419. The Delegated Officer considers that the applicant has adequately demonstrated through the proposed feedstocks acceptance, processes and product quality assurance controls that the suite of proposed feedstocks can be transformed into products that are fit-for-purpose for the proposed end use, being products for unrestricted markets that meet Australian Standard AS 4454 criteria. Regulatory controls relating to waste acceptance, processing, monitoring and reporting requirements will be added to the licence to ensure that products will be fit-for-purpose and align with the applicant's commitments, resulting in recycled organic products that are consistent with Australian Standard AS 4454.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

3.3 Detailed risk assessment for odour emissions from the receipt, storage and composting of feedstocks and the storage of finished compost product

3.3.1 Hazard characterisation and impact

Individual responses to odour emissions may vary depending on age, health status, sensitivity, and odour exposure patterns. Perceived odour intensity may increase or decrease on exposure. Community response to an odour can include annoyance, potentially leading to stress, and loss of amenity. Exposure to repeated odour events can create a nuisance effect. Exposure times and frequency of odour emissions depend on day to day activities and weather conditions.

Sources of odour from the premises include:

- Waste acceptance, processing and storage
- Green waste processing using grinders
- Indoor pre-treatment of feedstock
- Processing of food and liquid wastes within the anaerobic digestor receival hall
- Outdoor compost windrows
- Indoor compost windrows
- Anaerobic digestion plant
- Leachate collection system and storage ponds
- Bagging station
- Desludging of ponds

As discussed in Section 2.8 the department requested the licence holder engage a third-party consultant to undertake a biofilter performance test at the premises. The correspondence noted that the performance test should consider, but is not limited to:

- Collecting odour concentration (odour units) samples from the inlet of each biofilter.
- Collecting composite odour concentration (odour units) samples from evenly spaced locations across the surface area of each biofilter cell.
- Conducting odour concentration analysis in accordance with AS/NZS 4323.3.2001

The licence holder submitted the required Biofilter Odour Assessment Report (Emissions Assessment, 2025) to the department on 25 March 2025. Based on the laboratory analysis results provided, the biofilter system reduced odour concentrations during the sampling campaign, with average odour removal ranging from 60% to 90%. However, the department was not able to reach a broader conclusion regarding the efficiency and consistency of the biofilter system due to lack of supporting information as follows:

- DWER's *Guideline - Odour emissions* requires the time between odour sample collection and analysis to be less than six hours. This timeframe was not achieved. This requirement is recommended to minimise changes in the sample composition during transport and storage as odorous compounds in the samples may degrade significantly over time. Consequently, the analysis results may not accurately represent the actual odour concentrations at the time of sampling;
- Odour concentrations of the samples varied significantly within and across the biofilter beds (110 – 330 OU). Generally, if the optimum operating conditions of the biofilter are adequately maintained, odour concentrations are typically relatively consistent within

and across the biofilter beds. The department considers that the apparent variability may indicate potential deficiencies in the quality of the filter media or in ongoing maintenance practices;

- It is unclear how operational parameters such as air temperature, relative humidity, and biofilter back pressure are monitored to ensure the biofilter works at optimum efficiency. This information is important to assess the capacity of the system to maintain operating performance of the biofilter beds;
- The sampling conditions have not been detailed. For example, it is unclear if the samples were collected during steady-state operation or peak emissions when the anaerobic digestor facility was operating at 100% load. The efficiency of a biofilter can vary in accordance with inlet the air load; and
- Information on the odour offensiveness of inlet and outlet air during the sampling campaign was not provided. Characterising the odour offensiveness provides useful complementary information for odour reduction assessment.

3.3.2 Criteria for assessment

Amenity impacts can be assessed against the general provisions of the EP Act, specifically whether odour unreasonably interferes with the health, welfare, convenience, or comfort of any person.

3.3.3 Applicant/licence holder controls

Refer to Section 3.1.1 of this report.

3.3.4 Consequence

Based upon the sensitivity of residential receptors in close proximity to the Premises, the Delegated Officer has determined that residences may experience high level impact to amenity from odour emissions from the premises. Therefore, the Delegated Officer considers the consequence of odour emissions from the Premises to be **major**.

3.3.5 Likelihood of Risk Event

Based upon the proposed controls, proximity to residences and sensitive receptors, prevailing wind direction, the ongoing odour related complaints received by DWER and the local government, the Delegated Officer has determined that the consequence of odour impacts from the premises would probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood to be **possible**.

3.3.6 Overall rating

The Delegated Officer has compared the consequence and likelihood rating described above and determined that the overall rating for the risk of odour emissions from the premises to sensitive residential receptors to be **high**

3.3.7 Acceptability of risk event

As per Guideline: Risk Assessments (DWER 2020) the Delegated Officer has determined that the risk event of odour emissions from the premises may be acceptable and will be subject to multiple regulatory controls.

3.3.8 Regulatory controls

The Delegated Officer has determined that the odour controls stated by the Licence Holder are required to control the risk of odour emission impacts on sensitive receptors and that the controls

stated by the Licence Holder will be applied, where appropriate, as regulatory controls under the Licence.

Further regulatory controls will be included in the licence to manage the risk of odour emissions from the biofilters and will include the requirement for the licence holder to prepare and submit to the CEO a Biofilter Management Plan. The Biofilter Management Plan aims to ensure the biofilters are managed, maintained and monitored to ensure they operate efficiently and effectively.

4. Consultation

Table 7 provides a summary of the consultation undertaken by the department.

Table 7: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 22 September 2025	One submission was received during the consultation period.	Refer to Appendix 1
Applicant was provided with draft documents on 2 October 2025	Refer to Appendix 1	Refer to Appendix 2

5. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a licence renewal will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

In consideration of the approach set out in the *Guideline: better practice organics recycling*, the delegated officer has determined that operations at the premises can achieve the better practice benchmark for the purposes of Part V of the EP Act.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. Department of Water and Environmental Regulation (DWER 2022), *Guideline: Better practice organics recycling*, Perth, Western Australia.
4. DFES Guidance Note: GN04 (2021). *Fire Prevention and Management in a Recycling Facility.* Department of Fire and Emergency Services. April 2021.
5. DFES Information Note (2014). *Bulk Green Waste Storage Fires.* Department of Fire and Emergency Services. September 2014
6. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
7. Emissions Assessment 2025. *Richgro Biofilter Assessment*. Emission Assessments, March 2025
8. Larsen, R.M., Watkins, K.L., Steel, N.A., Appleyard, S.J. and Bauld, J., 1998. *A Groundwater Quality Assessment of the Jandakot Mound, Swan Coastal Plain, Western Australia*. Australian Geological Survey Organisation, 1998.
9. McPherson and A. Jones, 2005. *Perth Basin Geology Review and Site Class Assessment*. Geosciences Australia, 2005

Appendix 1: Summary of submissions received during consultation period.

Summary of comment	Department's response
The Pollution Watch complaints system requires improvement. Over the years, I received standardised responses from both DWER and Richgro, with no substantive action taken. For years, my complaints remained inactive within the system despite repeated pleas for help. • Complaints should trigger a follow-up action plan and transparent reporting to affected residents. • Response timeframes and the level of evidence provided by Richgro should be reviewed. • DWER, the City of Cockburn, and the complainants should all receive detailed updates outlining corrective actions. • On numerous occasions, DWER stated that activities at Richgro were being investigated; however, there was minimal follow-up regarding the outcomes of these investigations, and the problem remains unresolved.	The Delegated Officer acknowledges concerns regarding the previous Pollution Watch system. Since April 2024, the department has undertaken a comprehensive review of its processes that address your concerns and ensure that complaints are managed in a timely and risk-based manner. As part of this improvement program, Pollution Watch has been rebranded as Environment Watch, reflecting the department's broader environmental focus and commitment to community engagement. The department has introduced a dedicated Environment Intelligence Team, which plays a critical role in analysing data and supporting investigations to deliver actionable outcomes. The complaint triage system has been redesigned to prioritise risk and ensure follow-up actions are clearly defined. In addition, the department has launched a new 24/7 website and reporting platform that allows residents and industry to lodge complaints online, view an interactive map of incidents and access detailed information on common environmental concerns. This platform, along with the hotline, provides greater transparency and real-time updates on environmental responses. The department is committed to continuous improvement and are actively exploring new technologies to make it easier for the community to work with us in protecting Western Australia's environment. Your feedback is invaluable in shaping these enhancements and we encourage you to use the new Environment Watch channels for future reporting. As part of the renewal process, the following items related to complaints were reviewed: • Complaints received; • Compliance assessment reports; • Richgro's Standard Operating Procedures for Customer Complaint Management; • Summary of complaints; and • Annual Environmental Reports. The applicant states that all odour complaints were investigated within 24 hours of receipt of the complaint and that on all occasions, an identified odour source was not able to be identified.

Summary of comment	Department's response
Offensive odours are strongest when compost mixed with digestate is moved outdoors, occurring approximately every 4–5 weeks. • Increase the period that compost mixed with digestate remains enclosed before being exposed outdoors. • Prohibit the spraying of digestate on windrows at the Jandakot site, for example, all digestate should be transported to Richgro's North Bannister site, located approximately 7.9 km from the nearest residence. • Ensure all manure is stored indoors until bagging. • Consider raising the stack height to promote higher atmospheric dispersion and reduce ground-level odour concentration.	As outlined in the detailed risk assessment for odour, the Delegated Officer has considered the potential odour sources, proposed applicant controls, compliance inspection reports and the biofilter odour assessment as requested by the department. The detailed risk assessment undertaken for odour identified that additional regulatory controls will be included in the licence to manage the risk of odour emissions from the biofilters and include the requirement for the licence holder to prepare and submit to the CEO a Biofilter Management Plan. The Biofilter Management Plan aims to ensure the biofilters are managed, maintained and monitored to ensure they operate efficiently and effectively. The granted licence includes the requirements related to the use of digestate: • Digestate is to be added with feedstock within the indoor composting shed only; • Windrows containing digestate must be composted within the indoor composting shed only; • Windrows containing digestate undergo minimal mechanical processing to reduce the risk of odour emissions; • Windrows containing digestate undergo pasteurization within the indoor composting shed only; • Composted windrows containing digestate must not be moved to the outdoor composting hardstand until a minimum of four weeks has passed. • Composted windrows containing digestate meet a level of at least 4.5 on the Solvita Compost Maturity Index; and • Composted windrows containing digestate are monitored and results recorded and have remained stable across three consecutive measurements. The Delegated Officed notes that the granted licence contains the requirement for all manures to be stored within an enclosed building at all times prior to bagging operations and/or limited use within the composting process for nutrient content purposes.
• Require Richgro to improve the visual amenity of the site as viewed from Merrit Loop. • Enforce Richgro's prior commitment to plant a tree barrier or vegetative screening to reduce both odour and visual impacts.	The Delegated Officer notes concerns relating to the visual amenity of the premises. Part V of the EP Act is related to the regulation of emissions and discharges from prescribed premises to ensure the protection of the environment and public health. Aesthetics and visual impact of the premises are not within the remit of Part V of the EP Act.

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Condition 3 Table 2	Richgro seek to increase the area of the limestone hardstand area. The current area is approximately ,6.825m^2 as depicted in the Schedule 1 of the DRAFT licence. Richgro seek this limestone hardstand area to increase to ensure compliance with the additional conditions within the renewal licence. With the increased limestone hard-stand area Richgro acknowledge that additional water run-off during winter will need to be captured and therefore propose to construct another leachate pond. The exact location of this pond is yet to be finalised; however it is envisaged that it will be located either parallel to the current number 4 catchment pond or within the operational area towards the west boundary.	Not actioned as requested. As detailed in Section 2.6.1, DFES note that most significant factors in the management of fires in green waste storage facilities are the size of the pile and the distance separating the piles. As detailed in the risk assessment, the increased risk of fire at the premises from the storage and processing of large quantities of greenwaste and timber stockpiles, the increase waste acceptance for green waste proposed, and the impact a large fire would have on the Jandakot airport and the surrounding residential properties and sensitive receptors, the Delegated Officer considers that the additional regulatory controls remain within the licence. The Delegated Officer note that the requested new infrastructure changes should be assessed via a works approval, allowing the department to advertise the application, seeing input from stakeholders and risk assess the infrastructure to ensure compliance with the Guideline: better practice organics recycling.
Condition 3 Table 2	Richgro have sourced another electric grinder that is suitable for attaining a finer ground material from the untreated timber feedstock. The additional electric grinder is described as: • One quieter 750 Hp wood fibre electric grinder system (up to approx 300m^3/hour), with grinding chamber water injection dust control system. As these are electric grinders, the site electrical capacity can only accommodate one grinder to be operational at any given time. And this new 750 Hp grinder will operate at a quieter level to the current high-speed grinder.	The licence has been updated to include the additional timber grinder. The requirement to operate one electric grinder at any given time has also been added to the licence in line with the proposed applicant controls. The proposed changes do not alter the risk assessment undertaken for noise, odour and dust emissions.

Condition	Summary of applicant's comment	Department's response
Condition 8 Table 3	Richgro seek a variation on the storage limit of 14 days from date of receival. This operational period of 14 days and the current machinery capacity can on occasions present operational concerns, when an operator is unavailable, or machinery repairs and maintenance are required. Richgro therefore seek an extension to this storage limit of 14 days to 21 days.	Actioned as requested. The additional storage time will not alter the risk assessment undertaken for the storage of green waste so long as all regulatory controls remain eg. Stockpile sizes, storage requirements etc
Condition 8 Table 3	Richgro seek the removal of the proposed regular monitoring requirements for the green waste. This material is delivered to site and moved via heavy mobile plant (front-end Loader). The transfer of the green-waste to the grinding equipment is via additional heavy mobile plant (grabble hook on an excavator machine arm) or the front-end loader. The access to the area is off-limits to foot traffic and physical access via a person with a monitoring device would be a very unsafe work method and therefore Richgro seek this monitoring to be removed from the licence.	Not actioned as requested. The Delegated Officer has reworded the condition to allow the licence holder flexibility in how the requirements are achieved. It is the responsibility of the licence holder to ensure that temperatures within stockpiles/windrows are maintained below 75ºC and that the moisture content of materials undergoing mechanical processing is maintained at less than 20 per cent or greater than 45 per cent.
Condition 12	To ensure the economical use of hardstand area, the parallel windrow storage is required. The parallel windrows are accessible by fire-fighting equipment with the 0.5m clear ground between. As per conditions on the green waste stockpiles, Richgro request that the clearance area between parallel windrows be reduced to 0.5 m.	Not actioned as requested. It is the responsibility of the licence holder to determine the required separation distance to ensure that Individual windrows separation distances allow sufficient access for firefighting equipment to pass between.
Condition 17 Table 4	Richgro seek further information from DWER on the justification of adding these additional parameters to the water testing regime for the site at Jandakot. The current feedstocks and activities at the site do not include any of these types of activities that require such elements. Solid food waste feedstock is processed via the Anaerobic Digestion facility and levels of any plant attained element are processed. The digestate then undergoes further composting processes to produce a product that has a very low likelihood of containing these type of heavy metal elements.	Not actioned as requested. As detailed in Section 2.9, data from monitoring bores suggest that seepage from this facility is causing groundwater contamination. The principal contaminants are manganese and iron, which are likely to have been released into groundwater by microbially driven chemical reactions between organic-rich leachate and aquifer sediments. The Delegated Officer considers that there is a risk that other metals/metalloids may be present in groundwater near the Richgro facility. The contaminants may not have been detected due to the relatively limited analytical suite of chemical constituents that is

Condition	Summary of applicant's comment	Department's response
	Further clarity and understanding of the addition of these parameters within the Decision Report / Section 2.9 Review of Ground water Monitoring is being requested. Richgro therefore, seek an extension on the acceptance of these additional six-monthly testing parameters for the Jandakot facility.	currently monitored in groundwater at the Richgro site. This is of concern due to the proximity of the Richgro site to a P1 Public Drinking Water Source Area and public water supply bores. The Delegated Officer considers the additional groundwater monitoring parameters remain in the licence.
Condition 25	Richgro seek to clarify some of the comments within the Decision Report about the recent testing that was undertaken on the Biofilter system attached to the reception shed at the Anaerobic Digestate Facility. Internally Richgro have an Anaerobic Digestate Management Plan that includes the biofiltration system. This internal document can be expanded to capture the Departments Condition 25 inclusion. Air quality parameters – testing frequency. This type of testing is a very specialised activity and cannot be arranged instantly as a panel of professional people need to be available within a given time frame to ensure testing parameters are met. This testing is also extremely expensive. Microbial Health parameters – testing frequency. Richgro will need to seek clarity on the process of this testing requirement.	Not actioned as requested. The Delegated Officer has provided 12 months for the licence holder to prepare and submit the document to the department. The condition states hat it tis the responsibility of the licence holder to determine the required monitoring frequency. The The Delegated Officer notes that you may wish to engage a consultant to develop the management plan and to meet the monitoring requirements. DWER is not in the position to recommend consultants, however you may wish to seek an air quality monitoring specialist with experience in organics recycling facilities.