



# Decision Report

## Application for Licence

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

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<b>Licence Number</b>	L9317/2022/1
<b>Applicant</b>	Westpork Pty Ltd
<b>ACN</b>	009 148 789
<b>File number</b>	DER2022/000006
<b>Premises</b>	Mindarra Farm Composting Facility 1340 Wannamal Road West  Part of Lot 10 on Diagram 80101 BOONANARRING WA 6503  As defined by the coordinates in Schedule 1 of the licence  As defined by the premises maps attached to the issued licence
<b>Date of report</b>	18 August 2022
<b>Decision</b>	Licence granted

#### **MANAGER WASTE INDUSTRIES REGULATORY SERVICES**

an officer delegated under section 20 of  
the *Environmental Protection Act 1986* (WA)

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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 L9317/2022/1 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 given consideration to the approach of the proposed [industry specific guideline](#) for the organics recycling industry which the department is currently finalising.

### 2.2 Application summary and overview of premises

On 22 December 2021, the applicant submitted an application for a licence to the department under section 57 of the *Environmental Protection Act 1986* (EP Act). The application relates to manufacturing compost at the premises, including accepting solid and liquid wastes. The applicant proposes to produce:

1. fit-for-purpose compost to meet the Australian Standard AS 4454;
2. mulch pasteurised in accordance with Australian Standard AS 4454, Clause 3.2.1; and
3. blended compost products using pasteurised compost, soil and inert materials.

The premises relates to the categories and assessed production capacities under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) that are defined in licence L9317/2022/1. The infrastructure and equipment relating to the premises category and any associated activities that the department has considered in line with *Guideline: Risk assessments* (DWER 2020) are outlined in licence L9317/2022/1.

Where information supporting the application was not clear or contradictory, the department has provided the applicant with the opportunity to consider our interpretation and requests for clarification through the consultation process summarised in Section 4.

#### 2.2.1 Works Approval W5632/2014/1

Works approval W5632/2014/1 was granted for construction of the premises on 31 March 2016 with the following controls recommended for operation of the premises:

- controls on the waste types and quantities accepted;
- to maintain aerobic conditions within the compost;
- controls on compost and stockpile dimensions to manage potential fires;
- to monitor process parameters including temperature and moisture levels; and
- to control contaminant levels in final products with consideration of *Australian Standard AS 4454 Composts, soil conditioners and mulches*.

Subsequently, the works approval was amended on 21 November 2016 following a DWER initiated review associated with the proposed acceptance and use of liquid waste in the composting process. In granting the amended works approval the then delegated officer:

- recommended controls to limit the types of liquid waste accepted and to limit the volume of liquid waste accepted to that only required for the production of compost.
- removed authorisation to build three additional water balance ponds and identified that the use of evaporation ponds for liquid waste was not consistent with the proposed method of compost production.
- identified that the existing pond now referred to as the 'supplementary pond' was not considered necessary for the proposed method of compost production.
- identified the risk of excessive volumes of grease trap waste applied directly to compost windrow impacting the effectiveness of the composting process.
- identified the risk of product contamination by applying the water sources available at the premises during the final stages of composting and a high level of uncertainty in how the composting process and risk could be effectively managed.
- recommended controls to ensure moisture levels are maintained during the final stages and post pasteurisation of the composting process and that no leachate or liquid waste comes into contact with compost during the maturation phase.
- recommended controls on the contaminant levels in final products.

On 24 October 2018 the then delegated officer wrote to the applicant and set out the details and actions that were to support the licence application process. The matters set out included:

- certification that construction was complete in accordance with the works approval.
- details of the proposed activities, composting process and methods.
- feedstock and liquid waste acceptance and processing controls, including:
  - any verification inspections and/ or testing, including laboratory analysis of each controlled waste stream for relevant contaminants; and
  - controls to manage the volume of leachate generation and moisture content in the composting process.
- product quality control and assurance, including:
  - product specifications for contaminants and pathogens supported by quality control procedures with sampling and testing;
  - consideration of the contaminant levels in final products set in *Australian Standard AS 4454 Composts, soil conditioners and mulches*; and
  - final products demonstrated as being fit-for-purpose for the proposed use.
- controls on the quality and quantity of water sources available at the premises with regard to dust control, leachate dam volume controls and composting process management including the potential for product contamination.
- description of the proposed use of the existing pond, now referred to as the 'supplementary pond', for excess wastewater and emergency containment purposes (e.g. rainfall events).

On 20 December 2021 the then delegated officer advised the applicant that compliance with the relevant conditions of Works approval W5632/2014/1 had been demonstrated.

## 2.2.2 Development approval

Development approval was first granted on 24 December 2013 that then lapsed, and an amended approval was granted on 22 March 2021. Relevant to this assessment is condition 4 of the amended development approval: '*The development ... shall not accept and process ... hazardous waste or wash down from industry process*'.

### 2.2.3 Premises boundary

The applicant occupies and operates an existing piggery (Mindarra Farm Piggery) on Lot 10 on Diagram 80101 and this premises is licensed under Part V, Division 3 of the EP Act by L5724/1993/11. When the licence application for the composting facility was submitted to DWER, the proposed premises was within the existing premises boundary defined in L5724/1993/11.

In parallel to applying for a licence for the composting facility, the applicant applied for a licence amendment to excise the composting facility area from the premises boundary defined in L5724/1993/11. DWER granted a licence amendment to change the Mindarra Farm Piggery premises boundary on 16 August 2022.

### 2.2.4 Biosecurity

Matters related to the management of risks under the *Biosecurity and Agriculture Management Act 2007* are outside the scope of this assessment.

As outlined in the previous section, the composting facility is adjacent to an existing intensive piggery, the Mindarra Farm Piggery licensed under L5724/1993/11. Controls that are within the scope of this assessment proposed by the applicant that also support the management of biosecurity risks have been considered. The applicant has identified, with consideration of the adjacent Mindarra Farm Piggery, that the acceptance of wastes from other piggeries and food organics and garden organics (FOGO) waste at the premises presents a biosecurity risk to the Mindarra Farm Piggery.

## 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 emissions and associated actual or likely pathway during premises operation and the potential for environmental harm that have been considered in this decision report are detailed in Table 1 below. Table 1 details the control measures the applicant has proposed to assist in controlling these emissions and sources, where necessary.

The control measures in Table 1 are based on commitments made in the following documents:

- Straten Environmental, September 2018, *Westpork compost facility Gingin: Environmental assessment and management plan* (DWERDT596803) that includes the 2014 *Liquid waste acceptance management plan*; and
- Aurora Environmental, 2020, *Mindarra composting licence application supporting information* (A2078026).

**Table 1: Proposed applicant controls**

Emission or environmental aspect	Source	Potential pathways	Applicant proposed controls
Feedstock/ waste derived impacts: contribution to bioaerosols, odour, leachate, vectors, fire and impacts to product quality	Types of feedstock/ waste accepted and processes used to manage the feedstocks. Includes physical, chemical and biological contaminants.	Contribute to emissions from the premises and/ or via use of outputs/ products in the receiving environment	Pre-acceptance controls and limits on the feedstocks accepted at the premises, including the volume of liquid waste, for producing pasteurised mulch and fit-for-purpose compost. Wastes from pigs only accepted from the Mindarra Farm Piggery for biosecurity purposes. Application of the <i>Liquid Waste Acceptance Management Plan</i> , including wastes that are not pre-approved or properly identified are not accepted. The plan includes: <ul style="list-style-type: none"> <li>• Pre-approval of wastes based on characterisation and acceptability criteria; this includes waste being beneficial to the composting process or product quality and capacity to accept the waste at that time.</li> <li>• Unloading of wastes into pre-prepared windrows, informed by moisture, pH and temperature monitoring.</li> <li>• Waste reporting and rejection processes including isolation of compost windrows that receive waste that is identified as not authorised for acceptance.</li> </ul>
Dust, including bioaerosols	Feedstock/ waste types. Feedstock/ product unloading/ loading. Processing activities. Storage of final product. Vehicle movements.	Air/ windborne to human receptors listed in Table 2	The separation distance from the premises to identified sensitive receptors. Suppression using wastewater from the leachate pond or supplementary pond, using a water cart if required. Composting windrows will also be kept in a moist state to facilitate bacterial activity, reducing any particulate lift-off. Trucks fitted with dust suppression covers.
Noise	All operations	Air/ windborne/ ground transmission to human receptors listed in Table 2	The separation distance from the premises to identified sensitive receptors. Operations will generally occur between 0700 and 1700 hours Monday to Saturday, but may occur 24 hours per day, seven days per week.

Emission or environmental aspect	Source	Potential pathways	Applicant proposed controls
Odour	Types of feedstocks/ waste accepted and processes used to manage the feedstocks. Processing activities. Anaerobic materials, including feedstocks and wastewater.	Air/ windborne to human receptors listed in Table 2	All solid and liquid wastes, other than green waste and inert materials located on the green waste hardstand, will be incorporated directly into the composting process when received. Maintain aerobic compost windrows using front-end loaders and compost turners.
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 listed in Table 2	<p>Vehicle washout bay with all liquid waste contained in the composting hardstand catchment.</p> <p>All composting will occur on the composting hardstand (permeability less than <math>1 \times 10^{-9}</math> m/sec).</p> <p>All liquid waste accepted is applied directly to channels formed within composting windrows (mulch), on the composting hardstand.</p> <p>Only green waste mulching, pasteurisation of mulch, storage of final compost products and soil blending will occur on the storage pad.</p> <p>No leachate or liquid waste is applied to a composting windrow when visible leachate is coming from the windrow.</p> <p>All leachate and runoff from the composting hardstand is directed to the leachate pond via low permeability (less than <math>1 \times 10^{-9}</math> m/sec) diversion drains.</p> <p>All runoff from the storage pad will be directed to infiltration swales (drains).</p> <p>Use of two HDPE low permeability ponds, the leachate and supplementary ponds, to contain leachate and run-off from the composting hardstand. This includes the active management of wastewater levels in the leachate pond via (1) use in the composting process, (2) restrictions on the acceptance of liquid waste and (3) the pumped transfer of wastewater to the supplementary pond based on water levels in the leachate pond.</p> <p>Wastewater in the leachate pond is used in place of liquid waste when the water level in the leachate pond exceeds 2.9 m and until water levels fall below 2.9 m.</p>

Emission or environmental aspect	Source	Potential pathways	Applicant proposed controls
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 listed in Table 2	No controls proposed. This type of emission/ environmental aspect was not identified by applicant.
Vectors (vermin and pests)	Feedstock/ waste types. Processes used to manage the feedstocks (liquids and solids).	Air and overland to human and environmental receptors listed in Table 2	No controls proposed. This type of environmental aspect was not identified by applicant.
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 listed in Table 2	<p>Clearances around windrows associated with machinery movement:</p> <ul style="list-style-type: none"> <li>• Compost windrow sizes limited to 160 m long x 8 m wide x 3.5 m high with alternating separation distance of 2 and 6 m along the length of windrows.</li> <li>• Clear access of 3 m wide along the west and east sides of the composting hardstand and 6 m along the north and south sides.</li> </ul> <p>Sufficient separation between stockpiles of green waste to allow machinery and equipment to access the materials.</p> <p>Water cart available, and access to mounted fire-fighting units, fire extinguishers and overhead fast fill water supply at all times.</p> <p>Temperature management and monitoring of windrows for temperature and moisture levels.</p> <p>Maintenance of machinery.</p> <p>No open flames at the premises.</p>



Emission or environmental aspect	Source	Potential pathways	Applicant proposed controls
<p>Product quality derived impacts: release of physical, chemical and biological contaminants that can result in pollution or environmental harm from:</p> <ul style="list-style-type: none"> <li>• fit-for-purpose compost;</li> <li>• blended compost products; and</li> <li>• pasteurised mulch</li> </ul>	<p>Feedstock/ waste types.</p> <p>Application of products in the environment:</p> <ul style="list-style-type: none"> <li>• with inadequate treatment of contaminants and/ or feedstocks during processing;</li> <li>• with residual contaminants within products</li> </ul>	<p>Direct contact of products by consumers and leachate/ migration into the receiving environment.</p>	<p>See additional controls proposed for Feedstocks.</p> <p>Fit-for-purpose compost:</p> <ul style="list-style-type: none"> <li>• Compost produced to meet Australian Standard AS 4454, including product batch testing for criteria under AS 4454 and pathogen, hydrocarbon and metal contaminant levels.</li> <li>• All composting will occur on the composting hardstand.</li> <li>• Maintaining a carbon:nitrogen ratio of 25-35:1, with a calculated ratio of 31:1.</li> <li>• Maintaining a moisture content of between 30% and 60%, supported by a liquid waste application rate of ~10% w/w every seven days.</li> <li>• Dedicated compost windrows for pig carcasses, before being added to the compost process.</li> <li>• All process water will be sourced from liquid waste tankers and the leachate pond.</li> <li>• No liquid wastes will be applied during the last week of active composting/pasteurisation.</li> <li>• No liquids will be added to the compost following the pasteurisation process.</li> <li>• Soil blending of finished compost will occur on the storage pad.</li> </ul> <p>Blended compost products: No controls in addition to those for fit-for-purpose compost.</p> <p>Pasteurised mulch:</p> <ul style="list-style-type: none"> <li>• Shredded green waste pasteurised in accordance with processes set out in Australian Standard AS 4454, Clause 3.2.1 and subject to product batch testing for contaminants.</li> <li>• Pasteurisation of mulch, not part of the composting process, will occur on the storage pad.</li> </ul>

The delegated officer has reviewed the information regarding applicant controls, with consideration of the information previously provided to the applicant that is summarised in Section 2.2.1, and has found:

1. the applicant has considered controls for liquid feedstocks with commitments in the *Liquid Waste Acceptance Management Plan*.
2. controls on the levels in the leachate pond and moisture levels in the compost windrows will reduce the volume of liquid waste to levels required for compost production, consistent with the previous findings summarised in Section 2.2.1.
3. controls on the quality of water sources available for compost manufacturing and the risk of product contamination occurring due to all process waters being derived from the leachate pond have not been addressed by the applicant.
4. controls for product quality assurance have been considered by the applicant with a commitment to produce fit-for-purpose compost to meet Australian Standard AS 4454.

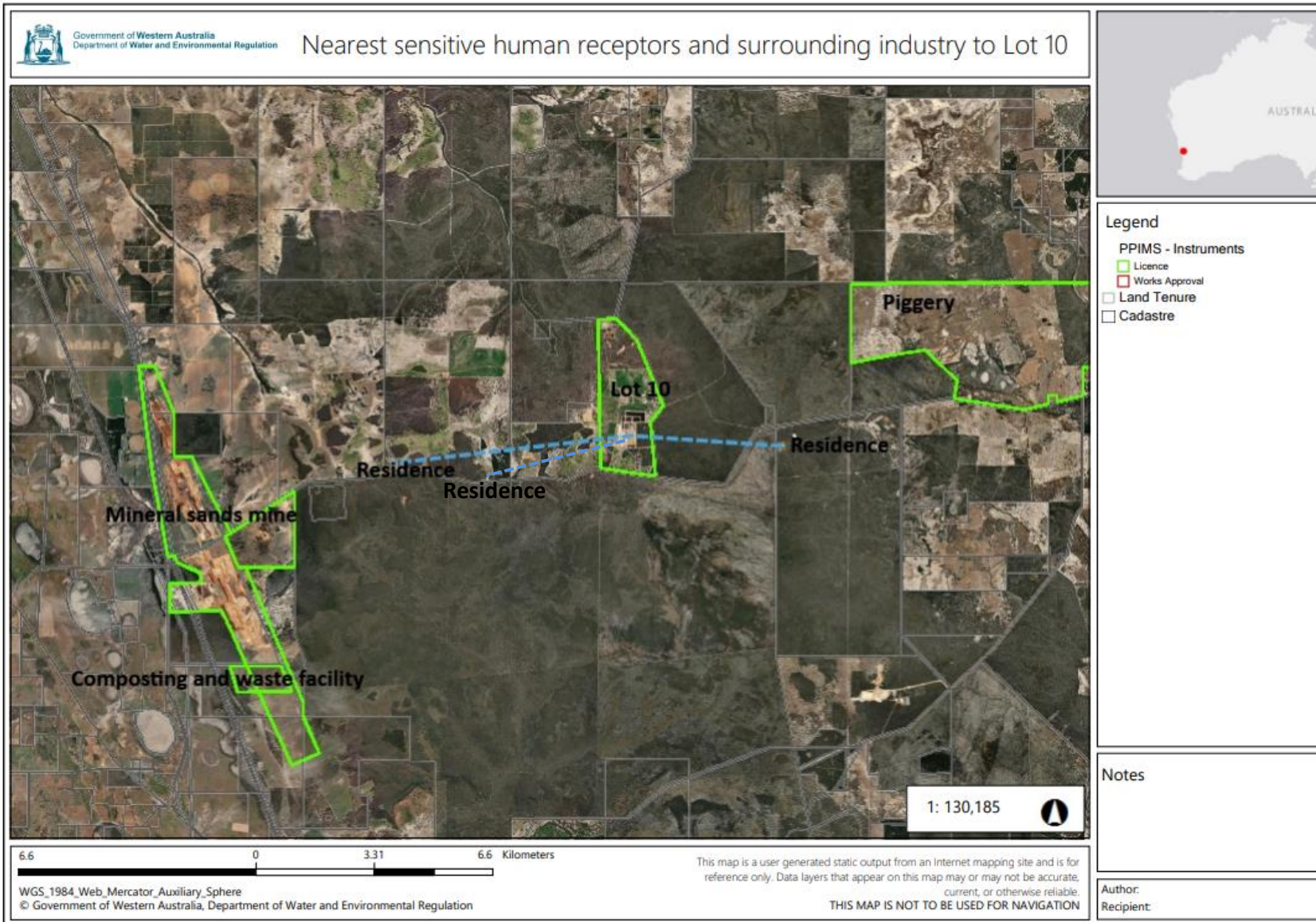
### 3.1.2 Receptors

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.

The premises is located on land that is zoned as general rural and currently used for a piggery and a pine tree plantation, with some residual native vegetation. Table 2, Figure 1 and Figure 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities or emissions and discharges from the prescribed premises (*Guideline: Environmental siting* (DWER 2020)).

**Table 2: Sensitive human and environmental receptors**

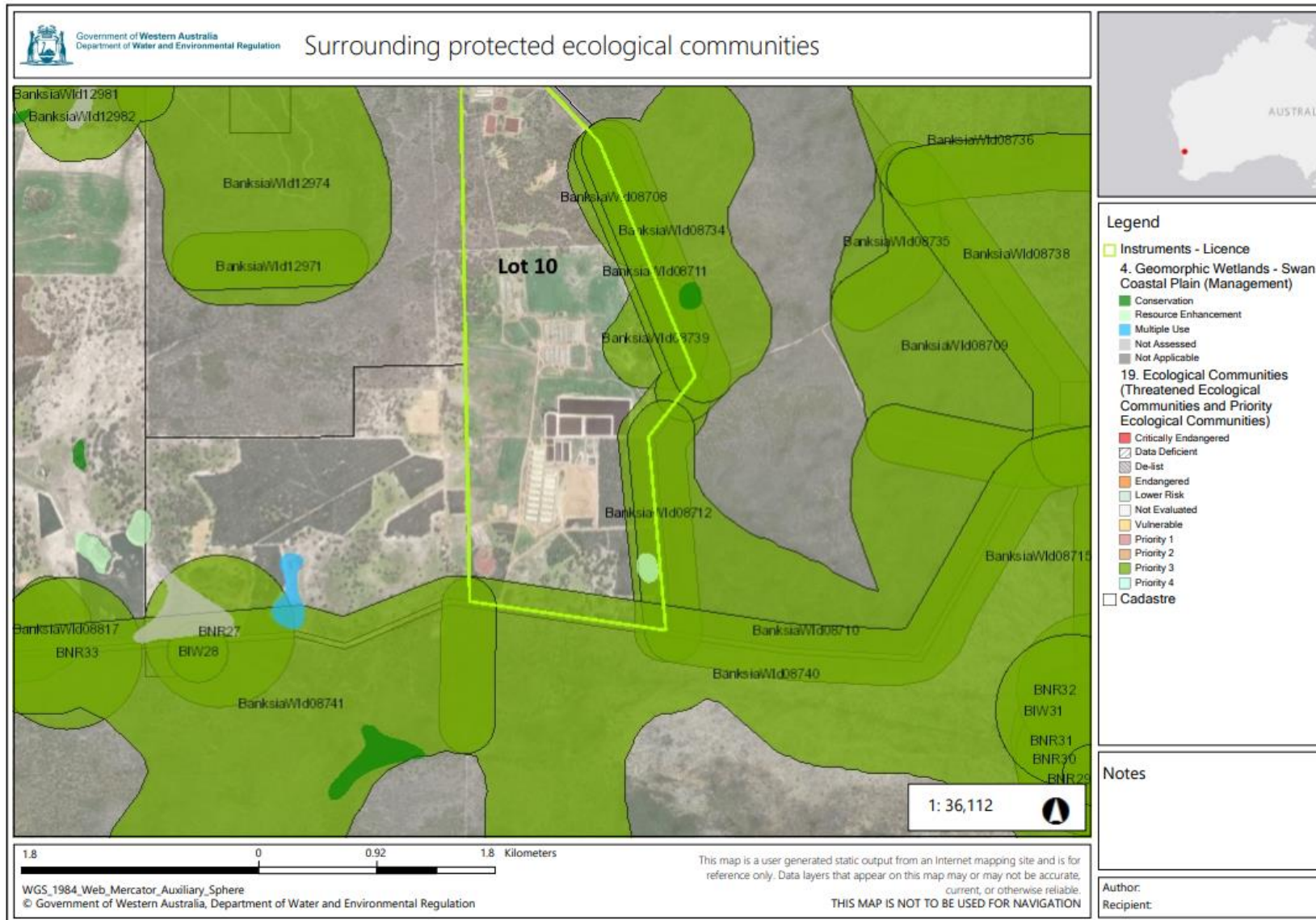
Human receptors	Distance from prescribed activity
Mindarra Farm Piggery	Directly adjacent the premises (to the west)
Users of the Boonanarring Nature Reserve	South of Lot 10 across Wannamal Road, approximately 700m from the premises boundary
Rural-residential dwellings	About 3.5 km to the east and 3.3 and 5.5 km to the west
Users of products	Site specific where products are used, noting no restrictions are proposed on the use of the products
Environmental receptors	Distance from prescribed activity
Geomorphic Wetlands of the Swan Coastal Plain	Within Lot 10 to the south-east of the premises boundary (resource enhancement dampland)
Geomorphic Wetlands of the Swan Coastal Plain	Approximately 1.8km to the south-west (multiple use sumpland and conservation category floodplain)
Other surface waters	Premises is assumed to drain east into the Swan-Avon catchment based on topographic contours. Identified surface waters are: tributary of Red Gully Creek ~2km northwest; tributaries of the Brockman River ~7.5km east; Boonanarring creek ~7.5 km south; and tributaries of Gingin Brook ~7.5 km west
Boonanarring Nature Reserve	South of Lot 10 across Wannamal Road, approximately 700m from the premises boundary
Groundwater	The premises is located within the Gingin Groundwater Area, regional groundwater is estimated to occur at depths of at least 60mbgl and exhibits brackish (non-potable) water quality. Westpork is licensed to abstract groundwater from three bores on Lot 10, under Licence Number GWL60381. An ephemeral perched water table is likely to be present around 15mbgl, only following high volumes of rainfall. This is assumed to flow south-east and discharge as springs/ seeps where topography changes.
Banksia woodlands of the Swan Coastal Plain (Threatened ecological communities) Note: This receptor has been afforded a higher level of protection since Works Approval W5632/2014/1 was granted.	Adjacent to the east and south of the premises and more broadly in most directions from the premises, listed as: <ul style="list-style-type: none"> <li>Western Australia: Priority 3(iii)</li> <li><i>Environment Protection and Biodiversity Conservation Act 1999</i>: Endangered</li> </ul>
Environments receiving products	Site specific where products are used, noting no restrictions are proposed on the use of the products



**Figure 1: Distance to sensitive human receptors**

Licence: L9317/2022/1

IR-T13 Decision report template (short) v3.0 (May 2021)



**Figure 2: Surrounding protected Banksia Woodlands and wetlands**

Licence: L9317/2022/1

IR-T13 Decision report template (short) v3.0 (May 2021)

## 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk assessments* (DWER 2020) for each identified emission source and environmental aspect, 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 3. Licence L9317/2022/1 that accompanies this decision report authorises emissions associated with the operation of the premises activities. The conditions in the licence, as outlined in Table 3 have been determined in accordance with *Guidance statement: Setting conditions* (DER 2015).

**Table 3: Risk assessment of the premises during operation**

Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions of licence <sup>2</sup>	Justification for additional regulatory controls
Sources / activities	Potential emission or environmental aspect (that may cause environmental harm)	Potential pathways and impact	Receptors	Applicant controls				
Feedstock/waste and product unloading/loading and storage. Mulch and compost processing. Vehicle movements.	Dust, including bioaerosols	Dust: Air/windborne causing impacts to human amenity and health	Human receptors listed in Section 3.1.2 (Mindarra Farm Piggery)	See Section 3.1.1	C = Slight L = Unlikely <b>Low risk</b>	Y	Conditions 1, 2, 6, 10 and 11 and <b>Conditions 15 and 20</b>	The delegated officer considers dust emissions are effectively regulated by the general provisions of the EP Act and the applicant's controls; condition 20 gives effect to this outcome.
		Bioaerosols: Air/windborne causing impacts public health and environment		C = Major L = Rare <b>Medium risk</b>	N	The delegated officer has not considered impacts from <i>Phytophthora</i> species (dieback) in this assessment based on its presence already being identified in the area (Source: <a href="https://dieback.net.au/dieback-public-map/">https://dieback.net.au/dieback-public-map/</a> ) and that the nearby <i>Banksia</i> woodlands are not listed in the Department of Biodiversity, Conservation and Attractions <a href="#">Forest disease risk areas (DBCA-024)</a> . In addition to the applicant controls the delegated officer has imposed condition 15 (leachate reuse) that primarily controls the risk of bioaerosols in product quality (see the risk assessment in Section 3.3) and also provides control during operations.		

Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions of licence <sup>2</sup>	Justification for additional regulatory controls
Sources / activities	Potential emission or environmental aspect (that may cause environmental harm)	Potential pathways and impact	Receptors	Applicant controls				
All operations	Noise	Air/ windborne/ ground transmission causing impacts to human amenity	Human receptors listed in Section 3.1.2	See Section 3.1.1	C = Minor L = Unlikely <b>Medium risk</b>	Y	N/A	The environmental siting of the premises is considered to be effective in mitigating the impact of noise emissions from the premises on sensitive receptors. The delegated officer considers noise emissions are effectively regulated by the general provisions of the EP Act, <i>Environmental Protection (Noise) Regulations 1997</i> .
Types of feedstock/ waste accepted and processes used to manage the feedstocks and composting process.  Anaerobic materials, including feedstocks, wastewater and compost windrows.	Odour	Air/ windborne causing impacts to human amenity and health	Human receptors listed in Section 3.1.2	See Section 3.1.1	C = Moderate L = Unlikely <b>Medium risk</b>	N	Conditions 1, 2, 3, 7, 8, 9, 10 and 11 and <b><u>Conditions 6 (Table 3, items 3 and 4) and 21</u></b>	Some proposed feedstocks have a potential high risk of odour emissions. Anaerobic conditions in feedstocks, windrows and ponds are considered the most likely sources of emissions.  The delegated officer considers odour emissions are effectively regulated by the general provisions of the EP Act and the applicant's controls; condition 21 gives effect to this outcome. In addition, condition 6 has been imposed to require aerobic conditions to be maintained in the ponds.  A screening analysis as per the <i>Guideline: Odour emissions</i> for the premises would trigger a detailed odour analysis. In considering the premises siting and decision making for Works Approval W5632/2014/1 (prior to publication of the guideline), the delegated officer finds that a detailed odour analysis may be required for any future application based on the following factors: changes in feedstocks; increases in throughput; or odour complaints.

Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions of licence <sup>2</sup>	Justification for additional regulatory controls
Sources / activities	Potential emission or environmental aspect (that may cause environmental harm)	Potential pathways and impact	Receptors	Applicant controls				
Types and volumes of feedstock/ waste accepted and processes used to manage the feedstocks (liquids and solids). Rainfall over feedstocks, processing areas and products.	Leachate and contaminated stormwater	Seepage to soil and groundwater, impacting users of groundwater, the condition of local soils, groundwater and surface water expressions.	Receptors listed in Section 3.1.2	See Section 3.1.1	C = Minor L = Possible <b>Medium risk</b>	N	Conditions 1, 2, 3, 6, 7 and 22 and <b><u>Conditions 6, 15 and 27</u></b>	<p>This assessment takes into consideration the: nature of the feedstock/ waste types being accepted; construction standards of the leachate pond, storage pad, composting hardstand, vehicle wash and drains/ swales; and an assumption that the HDPE liner of the supplementary pond is intact and fit-for-purpose.</p> <p>The delegated officer considers the:</p> <ul style="list-style-type: none"> <li>the applicant's proposed use of waste water from the leachate pond on the storage pad (for managing dust and moisture levels), increases the risk from seepage through the storage pad and discharge to the infiltration swales.</li> <li>the use of waste water from the leachate pond on the storage pad is not consistent with the design specifications for the storage pad, being the permeability of the storage pad and drainage using infiltration swales.</li> </ul> <p>In addition to the applicant controls, the delegated officer has imposed condition 15 (leachate reuse) that controls the risk of waste water impacting product quality and discharging from use on the storage pad. Subsequently, the discharge from the storage pad into the swales is authorised under condition 22.</p> <p>Specifications in conditions 6 and 27 have also been imposed to ensure that pond liners are fit-for-purpose following any mechanical desludging processes and the pond levels are monitored to help reduce the risk of overtopping.</p> <p>Spills of feedstocks and waste will be regulated by the general provisions of the EP Act and the <i>Environmental Protection (Unauthorised Discharge) Regulations 2004</i>.</p>

Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions of licence <sup>2</sup>	Justification for additional regulatory controls
Sources / activities	Potential emission or environmental aspect (that may cause environmental harm)	Potential pathways and impact	Receptors	Applicant controls				
Contaminants and management of these within feedstocks/ wastes	Litter and debris	Air/ windborne and overland impacting human amenity and health and/ or the environment, including adjacent threatened ecological communities	Receptors listed in Section 3.1.2	None proposed	C = Minor L = Rare <b>Low risk</b>	N/A	Conditions 1,2 and 6 and <b>Condition 5</b>	<p>The applicant did not identify the risk of litter and debris and no controls specific to the risk were identified in the application.</p> <p>The potential for litter and debris is limited by the types of feedstocks/ wastes being accepted. Where litter and debris occur in feedstocks the contaminants should be managed in accordance with condition 5 to ensure the risk of these materials impacting the environment is effectively controlled.</p> <p>The delegated officer has considered the effective use of the vehicle wash and maintenance of drainage systems in making this assessment.</p>
Feedstocks/ wastes and products at the premises	Vectors (vermin and pests) occurring within feedstocks/ wastes and products at the premises	Air and overland impacting public health and the environment, including adjacent threatened ecological communities	Receptors listed in Section 3.1.2	None proposed	C = Major L = Unlikely <b>Medium risk</b>	N/A	N/A	<p>The applicant did not identify the risk of vectors, vermin and pests and no controls specific to the risk were identified in the application.</p> <p>The delegated officer considers impacts from vectors are effectively regulated by the general provisions of the EP Act. In making this decision, the delegated officer has considered the effective application of the applicant's controls at the premises.</p> <p>The delegated officer notes that the Shire of Gingin has been affected by large populations of Stable Fly in the past. Breeding of Stable Fly can be associated with poultry manure and rotting vegetable matter, both of which may be present as feedstocks on the premises. The activities at the premises may therefore be subject to regulatory requirements relating to Stable Fly management under the <i>Biosecurity and Agriculture Management Act 2007</i>. The applicant should remain vigilant of potential fly infestations in feedstocks and windrows on the premises and may need to implement additional control measures (e.g. increased turning frequency or windrow covers) if fly infestations occur.</p>



<p>Fire event:</p> <ul style="list-style-type: none"> <li>• Ignitions within feedstocks, waste, compost and mulch, including materials undergoing pasteurisation</li> <li>• Ignitions from machinery and equipment</li> </ul>	<p>Environmental harm and emissions (smoke, fire water)</p>	<p>Airborne (smoke), overland flow and seepage (fire water) to receptors listed in Table 2</p>	<p>Receptors listed in Section 3.1.2</p>	<p>See Section 3.1.1</p>	<p>C = Major L = Rare <b>Medium risk</b></p>	<p>N</p>	<p>Conditions 1, 2, 6, 10, 11, 12, 18 and 19 and <b><u>Conditions 10, 11, 12, 16, 17, 18 and 19</u></b></p>	<p>The delegated officer has considered the <i>Information note: Bulk green waste storage fires</i> (DFES 2014) and <i>Guidance note: GN04 Fire prevention and management in a materials recycling facility</i> (DFES, 2020) in undertaking this assessment. The delegated officer has also considered that the premises is mapped within a bushfire prone area according to mapping published by the Office of Bushfire Risk Management.</p> <p>In assessing the potential impacts for fire events, the delegated officer has considered that the applicant has:</p> <ul style="list-style-type: none"> <li>• committed to have sufficient space around materials on the storage pad however, has not set limits on stockpile sizes or timeframes for materials on the storage pad; and</li> <li>• not defined a fire response procedure, including consideration of the volume of available water or an area where materials being impacted by fire will be handled.</li> </ul> <p>The delegated officer considers the risks from fire events are effectively regulated by the:</p> <ul style="list-style-type: none"> <li>• applicant's controls, including infrastructure and equipment;</li> <li>• general provisions of the EP Act; and</li> <li>• additional controls imposed to reduce the risk of fire events: <ul style="list-style-type: none"> <li>○ maintain appropriate temperature, moisture levels and spacing for all materials (conditions 10, 11 and 12);</li> <li>○ require a fire and emergency management plan (FEMP) to be prepared and implemented (condition 17); and</li> <li>○ provide for a designated area and measures to effectively manage combusting materials (conditions 18 and 19).</li> </ul> </li> </ul> <p>Note: Alternative sizes of windrow and stockpile sizes, including separation distances, can be considered through the FEMP. Where this approach is taken the applicant can seek to amend the licence to modify the stockpile dimensions as conditioned in the licence.</p>
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Risk events					Risk rating <sup>1</sup> C = consequence L = likelihood	Applicant controls sufficient?	Conditions of licence <sup>2</sup>	Justification for additional regulatory controls
Sources / activities	Potential emission or environmental aspect (that may cause environmental harm)	Potential pathways and impact	Receptors	Applicant controls				
Product quality: <ul style="list-style-type: none"> <li>• fit-for-purpose compost</li> <li>• pasteurised mulch</li> <li>• blended compost products</li> </ul>	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	See Section 3.1.1	C = Major L = Possible <b>High risk</b>	N	Conditions 1, 2, 4, 6, 7, 8, 9, 10, 11, 13, 23, 24, 28 and 30 and <b><u>Conditions 1, 2, 7, 8, 14, 15, 23, 24, 25, 26, 28, 29, 30 and 31</u></b>	See the detailed risk assessment in Section 3.3 for product quality.

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 product quality

In assessing the risks posed by recycled organic product quality (compost), the delegated officer has given regard to:

- how outputs and products are considered under the regulatory framework for waste; and
- the risks posed by potential impacts from the use of the outputs and products.

The end use of the applicant's products is understood to be unrestricted, intended for the open market, '*... for home, commercial and agricultural use*' (Strategen Environmental 2018, pg 2).

#### 3.3.1 Description of risks for product quality

The processing of waste and materials to generate recycled organic products relies on a number of factors, such as feedstock selection and processing methodology, being effectively implemented to ensure products are fit-for-purpose for their use and the receiving environment.

The applicant has committed to produce the following product types:

1. fit-for-purpose compost to meet the Australian Standard AS 4454;
2. mulch pasteurised in accordance with Australian Standard AS 4454, Clause 3.2.1; and
3. blended compost products using pasteurised compost, soil and inert materials.

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 contaminants that can impact amenity, public and environmental health;
- chemical contaminants that can impact public and environmental health; and
- biological contaminants that can impact amenity, public and environmental health.

The level of impact to public amenity and public and environmental health from recycled organic products that are not fit for purpose depends on the level of use, types and quantities of contaminants in the product and the sensitivity of the receptors in the receiving environment.

Matters that the delegated officer considers relevant to this risk assessment for product quality, and whether outputs are considered a waste, are summarised below under the feedstock acceptance, process water and product quality assurance sub-sections. Each subsection considers the factors relevant to the stage of the organics recycling process, the applicant's controls and key aspects that frame the risk assessment.

#### **Feedstock acceptance**

All feedstocks are to be beneficial to the organics recycling process. Feedstocks that provide a beneficial outcome for product quality may improve the quality of the finished product and/or improve the efficiency or effectiveness of the processing method. Disposal of waste via absorption and dilution of contaminants is not a beneficial outcome.

To ensure that potential contaminants can be processed, the likely composition of contaminants needs to be understood and processes implemented to ensure the contaminants can be effectively managed and removed or treated during the process.

The applicant was previously advised, see Section 2.2.1, that they would need to ensure certain wastes are appropriately characterised via verification testing and/ or inspections, including source identification and contaminant ranges identified through laboratory analyses for parameters of concern.

The applicant proposes to accept feedstocks/ wastes that are broadly described as '*biodegradable wastes which after digesting in a predominantly green waste compost process, result in a soil-product which meets client requirements*'. The proposed solid feedstock/ wastes are listed in Table 4 and proposed liquid feedstocks/ wastes are listed in Table 5.

**Table 4: Proposed solid waste types (Source: Aurora Environmental 2020)<sup>1</sup>.**

Solid waste type	Quantity per year
<b>Shredded green waste:</b> vegetation, timber, leaves, grass, hardwood, softwood, bark and biodegradable garden organics.	60,000 tonnes
<b>Nitrogenous solid wastes:</b> wastes that are compostable such as foodstuffs, vegetable matter, manure, malting sludge, other food wastes, spoiled fertilisers, etc.	20,000 tonnes
<b>Benign solid waste:</b> Non-biodegradable wastes beneficial for the soil that include bentonite clays, plasterboard and other minerals, such as clays, granite dust and gypsum.	10,000 tonnes
<b>Pig manures and mortalities:</b> Manures and pond sludge from the adjoining Mindarra Farm Piggery only.	No limit specified but an estimated quantity of ~23,000 tonnes that includes ~700 tonnes of pig mortalities

Note 1: Additional feedstocks are referred to within Straten Environmental 2018; where reasonable these feedstock types have been considered in this assessment and conditions of the licence.

The acceptance of liquid wastes is supported by actions set out in the *Liquid Waste Acceptance Management Plan*, that is based on the approach of a ‘... *specific liquid waste is sought to be disposed at the compost facility ...*’ and includes the following key steps:

- pre-waste acceptance approval with supporting waste characterisation information as depicted in Figure 3 below, including a suitability determination based on water content, beneficial ingredients and other relevant factors;
- acceptance of only pre-approved wastes that are accepted directly into pre-prepared compost windrow that are then closed and aerated;
- wastes not approved for acceptance are rejected; and
- manage any acceptance of wastes, that are found not be approved, into compost windrows via the non-conformance reporting process.

<p><b>1 PRE-APPROVAL OF WASTE</b></p> <p><b>Definition</b> - The process by which a specific liquid waste is sought to be disposed at the compost facility and is determined to be acceptable and suitable before any delivery to site occurs, or is rejected.</p> <p><b>1.1 Initiation from waste carrier or waste producer ("a client") to head office.</b> A request from a client is received by head office for the disposal of a particular waste.</p> <p>Head office requests the client to provide the following information about the waste in order to approve/accept it:</p> <ul style="list-style-type: none"> <li>(a) Waste description and MSDS if applicable;</li> <li>(b) Volume and proposed date for receipt;</li> <li>(c) CW category;</li> <li>(d) pH;</li> <li>(e) EC;</li> <li>(f) Waste source, or how it has been generated;</li> <li>(g) Concentration of key analytes, specifically Hydrocarbons and Heavy Metals;</li> <li>(h) % Nitrogen and Phosphorous;</li> <li>(i) If the source has or there is a risk of Hydrocarbons, Heavy Metals, PAH, Acid, or similar, additional analysis of respective analytes may be sought.</li> <li>(j) If the concentration of an analyte in part (i) exceeds a concentration level that would result in a concentration of the substance in the final compost greater than 50% of the limit set in the Australian Standard, based on the waste volume contributing up to 10% of the total liquid waste volume intake, then the load is rejected.</li> </ul> <p>The client would be responsible for the testing and a frequency of one in every 10 loads would be sought for sources of liquid waste with a risk of containing the analytes identified in part (i).</p>
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**Figure 3: Liquid waste pre-approval requirements (Straten Environmental 2018)**

**Table 5: Proposed liquid waste types and rationale (Source: Strategen Environmental 2018)**

Category Group	Waste Code	Waste Type	Maximum total volume intake	Use in composting process (agronomic rationale)
B Acids	B100	Acid solutions or acids in solid form	1%	<p>This will include phosphoric acid and citric acid and any other acids related to food and fertilizer production. Category B100 contains a variety of acids, many of which do not confer direct benefit to the compost process. There are specific wastes within category B100 that are highly beneficial to both composting and the resultant finished compost. Category B100 wastes sought are comprised of phosphoric acid and citric acid and any other acids related to food and fertilizer production.</p> <p>The composting process goes through an alkaline phase, which takes significant time for the compost to mature and stabilise. The application of beneficial acids expedites the maturation of compost to achieve normal and acceptable pH.</p> <p>Phosphoric acid is also beneficial as it is the base ingredient in phosphoric fertilizers. Phosphorous is the most expensive of nitrogen/phosphorus/potassium (NPK) in mineralised fertiliser form, and the value of compost to a grower is greatly enhanced with increases in phosphorus (however, within the requirements of the Australian Standards).</p> <p>There are some crops and markets that require more acidic soil (e.g. berries). The use of acids that do not dramatically affect NPK are important to modify pH in this regard, for example citric acid.</p>
C Bases	C100	Bases solutions or alkalis in solid or liquid form	1%	<p>Alkalis are extremely useful in modifying pH to suit the requirements of certain markets. For example, some plant species require an alkaline soil to thrive.</p> <p>Many alkalis within category C100 are fertiliser elements that are essential for composting and valuable for plant nutrition at the end of maturation.</p> <p>A few examples are as follows:</p> <ul style="list-style-type: none"> <li>• Ammonia and derivatives are nitrogen sources - essential activator to green waste for balanced composting</li> <li>• lime is a widely used agricultural ingredient providing slow release calcium and pH balancing of the soil</li> <li>• potash is a fertiliser necessary for WA's potassium starved soils</li> <li>• calcium hydroxide provides the same effect, but in a faster release calcium.</li> </ul>
D Inorganic Chemicals	D300	Non Toxic Salts	5%	<p>Non-toxic salt includes mineral and fertilizer salts that are the staple for food production (fertilizer). There are certain waste streams that are very valuable to composting in this regard, for example, fertilizer plants wash down. However, there are wastes in this category that confer no benefit to plants and composting bacteria.</p> <p>Therefore, D300 will be limited to non-toxic salts that are sourced from fertiliser and fertiliser related waste (for example, water damaged/burst bags of urea) which contain a predominance of elements recognised to be beneficial to plant and soil health.</p>

Category Group	Waste Code	Waste Type	Maximum total volume intake	Use in composting process (agronomic rationale)
K Putrescible and Organic Wastes	K100	Animal effluent and residues	2%	Provides organic matter for composting. Key source is related to the adjacent piggery with other sources providing fowl and other manure opportunities.
	K110	Wastes from grease traps	80%	Grease-trap waste is a well-known moisture and bio-activator source.
	K190	Wool scouring wastes	10%	This is the cleaning residue of greasy wool. Wool scourings are sometime pelletised and directly applied to the land. In the composting process, wool scouring waste will provide detergent (highly beneficial as a wetting agent negating the need to purchase commercial alternative inputs), dirt and water.
	K200	Food and beverage processing wastes	10%	Provides organic matter for composting.
L Industrial Wash Water	L150	Industrial wash waters contaminated with a controlled waste	10%	<p>This material is dirty water and detergent (i.e. from the cleaning of trucks and earthmoving equipment). The value to composting is the surfactants that these streams contain. Composts are used, in part, to increase water holding capacity of the soil. A large component of compost is carbon. Each unit of carbon can hold four units of water, an important factor for dry WA soils. Organic materials like compost can dry out, and if they do, they become waxy and hydrophobic (i.e. repel water).</p> <p>Non-wetting soils are overcome with surfactants, and surfactant used in composting helps the carbon rich substrate receive and absorb liquid quickly. The benefits are:</p> <ul style="list-style-type: none"> <li>• reduced turning time to achieve ideal moisture content in the compost rows</li> <li>• reduced liquid waste escapes on the pad</li> <li>• increase the homogenous construct of the composting pile</li> <li>• reduces the composting time.</li> </ul> <p>Essentially, provided the wash water is not high in metals or hydrocarbons, this is a valuable material for the process. Testing of these streams will be required prior to acceptance as outlined in the Liquid Waste Acceptance Management Plan (Appendix 3).</p>
M Organic Chemicals	M250	Surfactants and detergents	5%	As explained, 'wettability' is a major factor in composting and soil use.

The delegated officer has reviewed the information regarding feedstock acceptance and has found:

5. The following feedstocks are considered 'high-risk feedstocks' as they may contain chemical or biological contaminants which require treatment or management during the organics recycling process:
  - a) nitrogenous solid waste and pig manures and mortalities;
  - b) plasterboard; and
  - c) all liquid wastes.
6. Some of the high-risk feedstocks proposed in the application are not widely used in the organics recycling industry and based on the limited information in the application there is a high level of uncertainty about how these feedstocks will affect product quality. These feedstocks are listed in Table 6 with a summary of the key risks and uncertainties associated with each.

**Table 6: Risks and uncertainties associated with certain feedstocks**

Solid/liquid	Feedstock type	Risks and uncertainties
Solid	Plasterboard	Potential to contain chemical contaminants (e.g. volatile organic compounds, phthalates and perfluoroalkyl and polyfluoroalkyl substances) associated with additives such as fire retardants, plasticisers and water repellents (Arcadis 2019). Not supported by characterisation analysis to indicate potential contaminants and concentrations.
Liquid	Wool scouring wastes	Potential to contain pesticides associated with sheep pest treatments. Not supported by characterisation analysis to indicate potential contaminants and concentrations.
	Non-toxic salts	Not described in sufficient detail to provide assurance about the composition of feedstocks. High potential for variability in the composition of feedstocks from different sources and over time.
	Surfactants and detergents	
	Industrial wash waters contaminated with a controlled waste	Not supported by characterisation analysis to indicate potential contaminants and concentrations.

### Process water

Water sources are required to effectively support the organics recycling process (pasteurisation) and for dust control. All water will be sourced from imported wastewater, being liquid waste of the types described in Table 5, and residual wastewater present within the leachate and supplementary ponds.

Liquid waste and wastewater can contain biological, chemical and physical contaminants. The pasteurisation process is to effectively treat organic materials so that the numbers of biological contaminants (pathogens and plant propagules) are significantly reduced. Where higher risk feedstocks are used (e.g. food wastes, animal waste and manures), as proposed by the applicant, a pasteurisation process that achieves a temperature of 55°C for 15 days or longer with the windrow being turned a minimum of five times is set in Australian Standard AS 4454.

In producing:

- fit-for-purpose compost, to meet the Australian Standard AS 4454, the applicant proposes to cease the application of liquid waste and wastewater to the windrows for the last week (seven days) of the pasteurisation process;

- mulch pasteurised in accordance with Australian Standard AS 4454, the applicant proposes to add water, assumed to be wastewater sourced from the leachate and supplementary ponds, to '*permit thermophilic microorganisms to act for a period of several days*'; and
- blended compost products, the applicant has not defined any further treatment steps or the use of water in producing the products.

The applicant also proposes to use wastewater from the ponds for dust control on the storage pad that will be used for soil blending activities, green waste mulching and to store final products post-pasteurisation.

The delegated officer has reviewed the information regarding process water and has found:

7. The addition of liquid waste and wastewater to the composting process after the pasteurisation phase begins creates the risk that compost products will not be effectively pasteurised and will be contaminated by pathogens post-pasteurisation.
8. The addition of wastewater during the production of pasteurised mulch creates the risk that mulch products will be contaminated by pathogens from high-risk feedstocks (pre- or post-pasteurisation) and will not be effectively pasteurised.
9. The application did not indicate how liquid waste and wastewater will be used in producing blended compost products.
10. The use of wastewater from the leachate or supplementary ponds on the storage pad, including for dust control, creates the risk that finished products stored at this location will be contaminated by pathogens in the wastewater.

### **Product quality assurance**

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.

In producing fit-for-purpose compost to meet the Australian Standard AS 4454 and mulch pasteurised in accordance with Australian Standard AS 4454, Clause 3.2.1 for unrestricted use the applicant has committed to:

*'... undertake batch testing ... to validate compliance with relevant AS product criteria ... [that] will include pathogens, hydrocarbons and metals.*

*Products that do not meet these standards will be blended back into the process ... or disposed to landfill on the rare occasions that the standards cannot be met'.*

The delegated officer has reviewed the information regarding product quality assurance and has found:

11. The applicant is proposing to accept high-risk feedstocks that may contain contaminants not considered in Australian Standard AS 4454, and has not established what '*... elevated concentrations of hydrocarbons, salts or pesticides*' are in feedstocks or how the acceptability of these contaminants would be assessed in the product quality assurance stage.
12. The applicant has not defined a product standard for blended compost products.
13. A regular sampling frequency for product quality assurance is not proposed by the applicant or set in Australian Standard AS 4454.



### 3.3.2 Key findings

The delegated officer has reviewed the information and risks regarding product quality and has found:

14. In considering previous findings by the then delegated officers (see Section 2.2.1):
  - a) The limit on the acceptance of liquid waste to a volume only required for use in the composting process was justified, that this limit will be maintained and can be effectively managed through process management controls.
  - b) The restriction on the use of the supplementary pond for evaporation purposes was justified. However, based on the approach set out in the licence application and the assumption that the liner is fit-for-purpose, the use of the supplementary pond for containment of overflow from the leachate pond, such as during high rainfall events, is considered acceptable.
  - c) The application did not identify or address the risk of product contamination associated with the proposed method for managing process water. A high level of uncertainty remains about how this risk will be effectively managed.
  - d) The application did not address some aspects of feedstock and product quality control and assurance that were previously set out as being required to support the licence application.
15. In considering feedstock acceptance:
  - a) Most of the proposed solid feedstocks are generally acceptable within the organics recycling process. However, insufficient information was provided to justify that plasterboard is a suitable feedstock given it has the potential to contain a range of chemical additives in addition to the primary ingredient of gypsum.
  - b) Some of the proposed liquid feedstock types are generally acceptable within the organics recycling process. However, some of the liquid feedstock types are not commonly used in the organics recycling industry and were not adequately characterised in the application, including source identification and verification of contaminant ranges through laboratory analyses (see Table 6).
  - c) The application did not establish the likely composition of contaminants in some of the proposed liquid feedstock types (see Table 6). Without this information, the application does not provide assurance that the addition of these liquid feedstocks provides a net beneficial outcome to the finished products or that they are suitable for organics recycling. This includes where pesticides, hydrocarbons and other contaminants are not considered in AS 4454 and therefore steps 1.1(i) and (j) of the *Liquid Waste Acceptance Management Plan*, depicted in Figure 3, will not be effective.
  - d) The waste categories that support the *Environmental Protection (Controlled Waste) Regulations 2004* are for waste tracking and reporting purposes. Some controlled waste categories, such as industrial wash waters, are not appropriate to use as acceptance criteria because they do not provide sufficient information about the composition of the feedstock.
16. In considering process water, the applicant has not demonstrated that the proposed sources and management of process water will result in effective pasteurisation of recycled organic products. There is the potential that the proposed uses of process water could result in contaminated products.
17. In considering product quality assurance:
  - a) The applicant's commitment to achieve the pasteurisation process as set in Australian Standard AS 4454, Clause 3.2.1 is an appropriate method of producing pasteurised mulch products.

b) While the applicant has proposed to produce:

- ‘... compost ... in a soil-product which meets client requirements’; and
- ‘... compost and soils for home, commercial and agricultural use’;

the applicant has also committed to ‘All compost ... produced and tested to Australian Standards AS 4454-2012 criteria before it is sold and removed off site’ and will be regulated to achieve this outcome.

- c) Specific controls for blended compost products were not addressed in the application, including product specification, therefore these will be considered and assessed as compost products.
- d) The application did not outline the proposed method to achieve pasteurisation of compost products. The ability of the applicant’s controls to effectively treat biological contaminants and achieve pasteurisation in accordance with the criteria in Australian Standard AS 4454 therefore remains uncertain.
- e) Products that are contaminated may not be fit-for-purpose and considered a waste.

**18.** The applicant has not adequately demonstrated through the proposed feedstocks acceptance, process 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.

**19.** Alternative standards have not been established by the applicant for how the product quality assurance process will demonstrate the production of fit-for-purpose products.

### 3.3.3 Risk assessment

The delegated officer has:

- considered that consequence to receptors exposed to products that are not fit-for-purpose could be high based on potential impacts to public amenity and public and environmental health;
- considered that the likelihood of impacts to receptors is possible based on the controls proposed by the applicant; and
- determined that the overall rating for the risk of impacts from product quality, based on a consequence of major and likelihood of possible, is **high**.

### 3.3.4 Additional regulatory controls

In considering the findings of the delegated officer and risk rating for product quality the additional regulatory controls set out in Table 7 will be imposed. The controls are intended to address the uncertainty and risks identified in this assessment and 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.

**Table 7: Summary of additional regulatory controls for product quality**

Condition number	Regulatory control
<p><b>Condition 1</b></p>	<p><b>Solid feedstock acceptance:</b> The types of solid feedstock authorised for acceptance are generally consistent with those proposed by the applicant. The terms used in the licence to describe solid feedstocks support consistency across the regulatory approach for feedstock classification and organics recycling.</p> <p>Acceptance specifications for the feedstock types give effect to the specifications provided by the applicant in a clear, valid and enforceable manner. In framing the feedstocks in this context garden organics (GO) and food organics and garden organics (FOGO) from source-separated kerbside collections have not been authorised as:</p> <ul style="list-style-type: none"> <li>• these feedstocks were not explicitly proposed in the application; and</li> <li>• the applicant has not proposed any decontamination or other physical contaminant controls to effectively manage the levels of contamination typically associated with these feedstocks.</li> </ul> <p>Plasterboard has not been authorised for acceptance due to:</p> <ul style="list-style-type: none"> <li>• the potential for this feedstock to contain chemical contaminants (see Table 6);</li> <li>• the application not being supported by characterisation analysis or standards for how potential contaminants will be managed in the product quality assurance process; and</li> <li>• the resulting uncertainty about how this feedstock will affect product quality.</li> </ul>
<p><b>Condition 2</b></p>	<p><b>Liquid feedstock acceptance:</b> The types of liquid feedstock authorised for acceptance include controls additional to what the applicant proposed. These controls:</p> <ul style="list-style-type: none"> <li>• consider that the acceptance of waste based on the categories supporting the <i>Environmental Protection (Controlled Waste) Regulations 2004</i> is not consistent with demonstrating a beneficial outcome for the organics recycling process;</li> <li>• consider the lack of definition in the application of potential contaminants, and the uncertainty and variability with potential contaminants, in the feedstocks;</li> <li>• restrict the acceptance of waste to those types that are clearly defined and are justified as providing a beneficial outcome to the organics recycling process;</li> <li>• do not authorise the acceptance of industrial wash waters, non-toxic salts from fertiliser plant washdown, surfactants and detergents and wool scouring wastes as the applicant has not explicitly or effectively defined the feedstock type and source, potential contaminants or standards for how these contaminants will be managed in the product quality assurance process; and</li> <li>• align with the restriction on the acceptance of industrial wash waters under the Shire of Gingin development approval.</li> </ul>
<p><b>Condition 7</b></p>	<p><b>Feedstock processing (liquids):</b> The application of some liquid feedstocks to compost windrows during processing has been restricted to ensure that liquid feedstocks that present a source of biological contamination are not applied once pasteurisation has begun. This control ensures the method for achieving pasteurisation as set out in Australian Standard AS 4454 is effectively implemented to the whole composting mass. In addition, the use of liquid feedstocks on the storage pad is not authorised.</p>

Condition number	Regulatory control
<b>Condition 8</b>	<b>Pasteurisation:</b> The applicant committed to produce recycled organic products that meet Australian Standard AS 4454, however, was not explicit in the process methodology that would be applied to achieved this. Consistent with the control imposed for the use of process waters (leachate) to produce pasteurised mulch (see Condition 15), the method for achieving pasteurisation has been imposed: <ul style="list-style-type: none"> <li>for compost based on the higher risk materials method defined in Clause 3.2.1 of AS 4454; and</li> <li>for mulch based on the lower risk materials method defined in Clause 3.2.1 of AS 4454.</li> </ul>
<b>Condition 14</b>	<b>Cross-contamination:</b> The potential for product contamination based on stockpiles and windrows being at different stages of processing is to be prevented.
<b>Condition 15</b>	<b>Leachate reuse:</b> In consideration of the risk to product quality: <ul style="list-style-type: none"> <li>posed by the use of process waters to produce pasteurised mulch; and</li> <li>posed by the application of process waters during the pasteurisation process;</li> </ul> controls that limit the use of process water at stages that can result in biological product contamination have been imposed.
<b>Conditions 23, 24 (Schedule 3), 30 and 31</b>	<b>Product quality assurance:</b> The applicant committed to produce recycled organic products that meet Australian Standard AS 4454 however, was not explicit in the product testing methodology that would be applied to achieved this. Generally consistent with Australian Standard AS 4454, the conditions require products to be tested at an appropriate frequency for identified contaminants, using appropriate methods, validated against contaminant limits and managed appropriately where those limits are not met.
<b>Conditions 25 and 26</b>	<b>Input/ output monitoring:</b> The conditions are considered necessary for administration and reporting requirements.
<b>Conditions 28 and 29</b>	<b>Process monitoring:</b> Equipment used to manage the pasteurisation process needs to be effectively maintained and operated.

## 4. Consultation

Table 8 provides a summary of the consultation undertaken by the department.

**Table 8: Consultation**

Consultation method	Comments received	Department response
Application advertised on the department's website on 10 February 2022	None	N/A
Application advertised in <i>The West Australian</i> on 7 February 2022	None	N/A
Local Government Authority advised of proposal on 10 February 2022.	The Shire of Gingin replied on 11 March 2022 to confirm the proposal is in line with their Development Approval	The delegated officer notes this feedback
Applicant was provided with draft documents on 27 May 2022	Refer to Appendix 1	Refer to Appendix 1

## 5. Conclusion

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

The composting facility was excised from the Mindarra Farm Piggery premises as part of a licence amendment to L5724/1993/11 that was granted by DWER on 16 August 2022. The licences for the existing Mindarra Farm Piggery (L5724/1993/11) and new Mindarra Farm Composting Facility (L9317/2022/1) relate to separate portions of Lot 10 on Diagram 80101.

## References

1. Arcadis 2019, *Critical Evaluation of Composting Operations and Feedstock Suitability Phase 2 – Contamination*, prepared for the Department of Environment and Science Queensland.
2. Aurora Environmental 2020, *Mindarra composting licence application supporting information (A2078047)*
3. Department of Biodiversity, Conservation and Attractions (DBCA) 2021, *Priority Ecological Communities for Western Australia Version 32*, Perth, Western Australia.
4. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
5. Department of Fire and Emergency Services (DFES) 2014, *Information note: Bulk green waste storage fires*, Perth, Western Australia.
6. DFES 2020, *Guidance note: GN04 Fire prevention and management in a recycling facility*, Perth, Western Australia.
7. Department of the Environment and Energy 2016, *Banskia Woodlands of the Swan Coastal Plain: a nationally-protected ecological community*, Commonwealth of Australia
8. Department of Water and Environmental Regulation (DWER) (letter) 24 October 2018, *Works approval W5632/2014/1 and proposed licence application for lot 10 Wannamal West Road, Gingin (A1732108)*
9. DWER 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
10. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
11. DWER undated, *Factsheet – assessing whether material is waste*, Perth, Western Australia.
12. Standards Australia 2012, *Australian Standard AS 4454 Composts, soil conditioners and mulches*, Sydney, Australia.
13. Straten Environmental September 2018, *Westpork compost facility Gingin: Environmental assessment and management plan (A828035)*.

## Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Condition 1, Table 1, Item 6 – Nitrogen fertiliser waste acceptance specifications	Applicant requested that the draft condition, which limited nitrogen fertiliser acceptance to urea only, be amended to allow the use of any commercially available nitrogen rich fertiliser.	The delegated officer considers that other commercially manufactured nitrogen fertilisers, in addition to urea, are acceptable for blending into organic feedstocks on the premises. Condition 1, Table 1, Item 6 has been amended accordingly.
Condition 6, Table 3, Item 2 (iv) – Composting hardstand bunding requirement	Applicant notes that the requirement for the composting hardstand to be <i>'bundled to contain stormwater and leachate within the hardstand and drain to the leachate pond'</i> will be met by bunding the down gradient areas of the hardstand as given the gradient of the hardstand there is no benefit obtained by bunding the up-gradient areas of the hardstand given that the hardstand is required to be graded towards the leachate pond.	The delegated officer acknowledges that effective bunding at the down gradient edges of the composting hardstand should satisfy the containment requirement in this condition.
Condition 6, Table 3, Item 5 – Swale drain operational requirements	Applicant notes that the requirement for sedimentation controls was proposed in the final Strategen EAMP (Strategen Environmental 2018). It is proposed that this requirement will be complied with by constructing permeable bunds of limestone or blue metal cobbles at approximately 50 m separation distance down the length of swale which extend the width of the swale with a maximum nominal height approximately 200 mm lower than the side walls of the swale to prevent overtopping of the swale. These permeable bunds will calm flows and trap sedimentation behind them. Trapped sediments will be periodically removed when they approach the height of the permeable bunds.	The delegated officer notes the applicant's proposal to use permeable bunds as sediment traps and manage these to periodically remove accumulated sediments.
Condition 12 (a) – Maximum windrow length	The condition stipulates a maximum windrow length of 50 metres. The applicant considers that the maximum windrow length is an operational matter and does not impact on environmental performance and requests that the requirement specifying a maximum length is removed.	The purpose of the maximum windrow length and minimum separation distance between windrows/ stockpiles is to: <ul style="list-style-type: none"> <li>• limit the potential spread of a fire within and between windrows; and</li> <li>• provide adequate vehicle access around windrows to facilitate emergency response measures in the event of a fire (e.g. water application and breaking up windrows using mobile equipment).</li> </ul>
Condition 12 (b) – Stockpile/windrow separation distance	The condition stipulates a separation distance of 6 metres between windrows whereas the application indicated the separation distance would be of the order of 3.5 m. The applicant considers that the separation distance between windrows is an operational matter and does not impact on environmental performance and requests that the requirement for a minimum separation distance between windrows is removed or adjusted to be consistent with the licence application.	The department expects organics recycling facilities to demonstrate that fire events can be effectively prevented, contained and controlled. In determining what fire controls are appropriate for a premises and whether an operator's proposed controls are sufficient, the department considers site-specific circumstances and benchmark controls derived from DFES publications and the industry specific

Condition	Summary of applicant's comment	Department's response
		<p>guideline for the organics recycling industry, which the department is currently finalising.</p> <p>The applicant did not demonstrate that the proposed maximum windrow length of 160 m and minimum separation distance of 2 m (Strategen Environmental 2018) could be effectively managed to mitigate the potential impacts from a fire event at the premises. The delegated officer therefore considers that the maximum windrow length and separation distance specified in the draft licence are appropriate based on the operations proposed at the premises and its location within a bushfire prone area.</p> <p>As highlighted in Table 3, the applicant may consider alternative windrow/stockpile sizes and minimum separation distances when preparing the FEMP. If the FEMP demonstrates that an alternative windrow/stockpile layout can effectively mitigate the spread of fires and provide vehicle access around windrows/stockpiles during a fire, DWER may consider modifying the conditions of the licence to align with this alternative layout. Such changes would need to be assessed through a licence amendment application to DWER and supported by submission of the FEMP.</p>
Condition 15, Table 6 – Supplementary pond	This entry of Table 6 stipulates that leachate stored in this pond is not reused on the premises, the applicant requests that this requirement is modified to reflect that leachate stored in the supplementary position can be reused if it is first transferred to the leachate pond and that any reuse is then subject to the specifications for reuse from the leachate pond.	<p>It was not clear from the supporting documents to the application that the applicant proposed to reuse leachate from the supplementary pond during the composting process. Now that the applicant has clarified this, the delegated officer has reviewed whether this practice would be acceptable based on potential impacts to product quality.</p> <p>It is assumed that the supplementary pond currently contains stormwater and wastewater from the Mindarra Farm Piggery operations and does not contain any other types of liquid wastes. Based on this assumption, this liquid is expected to be of a similar nature to the liquid animal effluent and residue feedstock authorised for acceptance and composting under the licence. The delegated officer therefore considers that liquid currently stored in the supplementary pond is suitable for reuse during composting, subject to the limitations in condition 15.</p> <p>Once the licence has been granted, the supplementary pond will no longer be authorised to receive waste directly from the Mindarra Farm Piggery (condition 6, Table 3, Item 4). Based on this and other leachate management controls in the licence, leachate in the leachate pond and supplementary pond are expected to have a</p>



Condition	Summary of applicant's comment	Department's response
		<p>generally similar composition during future operations. The delegated officer therefore considers that leachate stored in the supplementary pond in the future will be suitable for reuse during composting, subject to the same limitations as reuse of leachate from the leachate pond in condition 15. The delegated officer considers that it is not necessary for leachate be transferred from the supplementary pond to the leachate pond before it is reused.</p> <p>Condition 15 has been amended in accordance with this decision.</p>
Condition 16 – Fire and Emergency Management Plan (FEMP)	The applicant requests the condition is drafted to require preparation of the FEMP within 6 months of operations commencing on the site.	<p>The delegated officer understands that it is currently uncertain when operations at the premises (feedstock acceptance and processing) will commence. Based on this, the delegated officer considers that it is reasonable to extend the FEMP preparation timeframe to a date that is specified in relation to the commencement of operations.</p> <p>A new condition (condition 16) that requires the licence holder to notify DWER of the commencement date at least 30 days before operations commence has been added to the licence. The FEMP condition (now condition 17) has been amended to require preparation, maintenance and implementation of the FEMP within 150 days of the commencement date notified in accordance with condition 16. This approach will avoid an ambiguous FEMP implementation timeframe and ensure the due date for these actions is clear and enforceable.</p>
Condition 19 – Operating hours	Given the remote location of the site and the nature of the facility, the applicant requests that the site is permitted to operate 24 hours per day 7 days per week. This request is made given that the Development Approval issued by the Shire of Gingin for the site does not impose a restriction on the hours of operation and that the site already hosts four intensive piggery units that have not been a source of amenity complaints in the surrounding area.	<p>The delegated officer notes that the Shire of Gingin Development Approval dated 22 March 2021 does not specify any conditions relating to the operating hours of the premises.</p> <p>The delegated officer reviewed the risk assessment in Section 3.2 with consideration that the premises may operate 24 hours a day, seven days a week. Based on the closest residential receptor being located more than 3 km away and the types of equipment proposed to be used on the premises (i.e. grinder, screener, compost turners etc), the delegated officer considers that potential noise emissions from operations at the premises 24 hours a day and 7 days a week present a medium risk to amenity. This is considered acceptable and can be effectively regulated under the <i>Environmental Protection (Noise) Regulations 1997</i>, noting that more stringent assigned noise levels apply to noise emissions outside the hours of 0700 to 1900 Monday to Saturday.</p> <p>Condition 19 has been removed from the licence.</p>

Condition	Summary of applicant's comment	Department's response
Condition 23 – Upper contaminant limits for products	Condition 23 requires that compost conform to the Upper Concentration Limit specified in Schedule 3. The applicant requests that the condition is amended to require compost to comply with the unrestricted quality specifications in AS 4454-2012 (as may be amended) so that if the Australian Standard is amended, there is no requirement to amend the licence.	<p>The delegated officer has determined to retain the approach of listing and referring to upper contaminant limits in Schedule 3 because:</p> <ul style="list-style-type: none"> <li>• Inclusion of recycled product upper contaminant limits in a schedule is consistent with DWER's current regulatory approach for composting facilities and provides greater clarity than referencing limits in a separate document.</li> <li>• Some of the upper contaminant limits in Schedule 3 are not derived from AS 4454 (e.g. <i>E. coli</i>).</li> <li>• Some of the physical and chemical requirements specified in Table 3.1(A) of AS 4454 are relevant to the beneficial properties of recycled organic products (e.g. particle size, organic carbon content and wettability). These parameters are not considered relevant to preventing potential environmental or health impacts associated with the use of contaminated products, The product quality monitoring requirements in the draft licence are focused on those parameters that are considered potential contaminants, rather than the entire suite of AS 4454 parameters.</li> </ul>

## Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)			
<b>Application type</b>			
Licence	<input checked="" type="checkbox"/>	Relevant works approval number:	W5632/2014/1
			None <input type="checkbox"/>
		Has the works approval been complied with?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
		Date report received:	8 December 2021 (ref: A2074946)
Date application received	22 December 2021		
<b>Applicant and premises details</b>			
Applicant name/s (full legal name/s)	Westpork Pty Ltd		
Premises name			
Premises location	Part of Lot 10 on Diagram 80101 Boonanarring		
Local Government Authority	Shire of Gingin		
<b>Application documents</b>			
HPCM file reference number:	DER2022/000006		
Key application documents (additional to application form):	<p>Strategen Environmental September 2018, <i>Westpork compost facility Gingin: Environmental assessment and management plan</i> (DWERDT596803) that includes the 2014 <i>Liquid waste acceptance management plan</i>; and</p> <p>Aurora Environmental 2020, <i>Mindarra composting licence application supporting information</i> (A2078026).</p> <p>Department of Water and Environment Regulation 2021, <i>Works Approval (W5632/2014/1) Compliance report – Compliance demonstrated</i> (A2078028)</p>		
<b>Scope of application/assessment</b>			
Summary of proposed activities or changes to existing operations.	Operation of a composting manufacturing facility (Category 67A), including the acceptance of liquid waste (Category 61).		
Category number/s (activities that cause the premises to become prescribed premises)			
Table 1: Prescribed premises categories			
Prescribed premises category and description	Proposed production or design capacity		
Category 61 : Liquid Waste Facility	50,000 tonnes per annum		
Category 67A : Compost manufacture and soil Blending	80,000 tonnes per annum		

Legislative context and other approvals		
Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	N/A
Has the applicant obtained all relevant planning approvals?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	Amended development approval granted 22 March 2021
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Infiltration swales facilitate a discharge of runoff from the storage pad to land; premises is within Gingin Groundwater Area
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004</i> , <i>Environmental Protection (Controlled Waste) Regulations 2004</i> , <i>State Agreement Act xxxx</i> )	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Including general provisions of the EP Act and the <i>Environmental Protection (Controlled Waste) Regulations 2004</i>
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises subject to any EPP requirements?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A