Application for works approval

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

Works approval number	W6352/2020/1
Works approval holder	City of Karratha
DWER file number	DER2013/000622-1~3
Premises	Seven Mile Waste Disposal Facility Seven Mile Road Gap Ridge WA 6714 Legal description Lot 85 on Plan 180017 and Lot 522 on Plan 71049 Crown Reserve 32987 and 33135
Date of report	**30 June 2020**
Decision	**Works Approval Granted**

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1. Definitions

Key terms relevant to this decision report and their associated definitions are listed in **Table 1**.

Table 1: Definitions

Term	Definition
Applicant	City of Karratha
Category / categories	Categories of prescribed premises as set out in Schedule 1 of the EP Regulations.
Decision Report	refers to this document.
Delegated Officer	An officer delegated under section 20 of the EP Act.
Department	The department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the *Public Sector Management Act 1994* and is responsible for the administration of the *Environmental Protection Act 1986* along with other legislation.
Emission	has the same meaning given to that term under the EP Act.
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Existing Licence	The Licence (L7021/1997/15) issued under Part V, Division 3 of the EP Act and in force prior to the commencement of, and during this Review
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	has the same meaning given to that term under the EP Act.
Prescribed premises	This has the same meaning given to that term under the EP Act.

Term	Definition
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Risk Event	As described in *Guidance Statement: Risk Assessment*

2. Purpose and scope of assessment

The City of Karratha (the Applicant) operate the Seven Mile Waste Disposal Facility (the Premises) located at Seven Mile Road, Gap Ridge. The Applicant holds Licence L7021/1997/15 for Premises activities relating to Category 57 (Used tyre storage), Category 61 (Liquid waste facility), Category 61A (Solid waste facility), Category 62 (Solid waste depot) and Category 64 (Class II or Class III Putrescible landfill site).

In addition to current site operations, the Applicant intends to construct a compost manufacturing facility which utilises food organics and garden organics (FOGO). The construction of a composting facility will cause the Premises to also become prescribed under Category 67A (Compost manufacturing and soil blending).

Section 52 of the EP Act specifies that the occupier of a Premises who carries out any work on or in relation to the Premises, which causes the Premises to become, or to become capable of being, a Prescribed Premises, commits an offence unless the occupier does so in accordance with a works approval.

3. Application details

The Application was submitted on 22 October 2019 for Prescribed Premises Category 67A (Table 3) for the addition of composting activities to Premises operations.

The Delegated Officer determined that aspects of the application were lacking and additional information was required to validate the application. The Applicant was formally requested to provide additional information on 8 November 2019, with the outstanding information provided to DWER in full on 24 January 2020.

A second formal request for additional information was provided to the Applicant on 4 March 2020, with information provided to DWER on 8 May 2020.

Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
Application form	22 October 2019
Stage 5 – Works Approval Application Supporting Documentation (GHD, September 2019)	22 October 2019
DWER meeting request (GHD, 28 November 2019)	28 November 2019
Memorandum (GHD, 24 January 2020)	24 January 2020
Memorandum (GHD, 8 May 2020)	8 May 2020

4. Overview of existing Premises

The Premises is located approximately 9km south-west of Karratha in the Gap Ridge industrial estate, and covers an area of approximately 100 hectares. A borrow area is located in the Premises south-west corner, with the separate disposal of contaminated hazardous waste and asbestos occurring in the south-east corner. A community recycling centre and liquid waste facility are located in the northern section of the Premises. Stockpiles of accumulated materials such as metals, construction and demolition waste and tyres are located on the western side of the Premises. A detailed site plan reflecting the current site layout is included in Figure 1.

The manufacture of compost at the Premises will cause the Premises to become prescribed under Part V of the EP Act as detailed in Table 3 below. No changes to current prescribed activities authorised at the Premises under the existing licence will result from this works approval application.

Table 3: Classification of premises and assessed design capacity

Category	Description	Assessed production or design capacity or throughput
57	Used Tyre storage (general): Premises (other than Premises within Category 56) on which used tyres are stored.	200 000 tyres
61	Liquid waste facility: Premises on which liquid waste produced on other Premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.	116 500 tonnes per annual period
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.	10 000 tonnes per annual period
62	Solid waste depot: Premises on which waste is stored, or sorted, pending final disposal or re-use	20 000 tonnes per annual period
64	Class II or Class III putrescible landfill site: Premises on which waste (as determined by reference to the waste type set out in the document entitled 'Landfill Waste Classification and Waste Definitions 1996' published by the CEO and as amended from time to time) is accepted for burial.	150 000 tonnes per annual period
67A **(Addition of new category)**	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.	5 000 tonnes per annual period

5. Description of proposed activities

5.1 Construction of organics recovery facility

The Applicant proposes to construct the organics recovery facility in the footprint of future Class III landfill cells, which are authorised for construction in a staged approach over 20 years under a Licence amendment issued on 18 May 2017. Based on current landfilling volume projections it is expected that the facility will be displaced in approximately 5 years' time. If composting is found to be commercially viable, when landfilling activities encroach on the currently proposed location a new works approval application will be submitted to the department to re-establish composting activities elsewhere on the Premises.

The facility will cover a total area of 9041 m^2 and will consist of the proposed infrastructure and equipment as outlined in Table 4 below. The proposed location of the organics recovery facility is shown in Figure 1 and an overview of the facility is shown in Figure 2. It is anticipated that

construction works will take approximately 4 weeks to complete. Once construction is complete, the Applicant proposes to undergo time limited operations authorised under the Works Approval for a period of up to 180 days, or until a subsequent licence amendment is issued, whichever is sooner.

Table 4: Proposed infrastructure and equipment

Infrastructure	Specification	Site reference
Floor of operational area of facility	Constructed of compacted in-situ soils to achieve a permeability of no greater than 5.58^{-7} m/s Constructed to achieve a drainage gradient of 1:100 sloping from the south to the north of the site	Figure 2: Overview of proposed organics recovery facility
Bund walls	To be located as specified in Figure 2 Constructed of compacted in-situ soils to achieve a slope of the embankment of 1V:3H Constructed with a minimum base dimension of 2 m and a minimum height of 0.7m on the southern boundary of the facility Constructed with a minimum base dimension of 3 m and a minimum height of 1.2 m on the northern boundary of the facility	
Drainage ditches	To be located as specified in Figure 2 Constructed of compacted in-situ soils to achieve a permeability of no greater than 5.58^{-7} m/s	
Sump pit	To be located as specified in Figure 2 Constructed of high density polyethylene (HDPE) with a capacity of 7 kL	
Groundwater monitoring well	To be located at the approximate half way point of the northern boundary of the composting facility. To be located a distance of at least 10 metres from the composting facility boundary. To constructed as per the specifications in Figure 5.	N/A
Silt Trap	To be constructed with a capacity of 5 kL	
Equipment	**Specification**	**Site reference**
Shredder	To be used during Premises operational phase and commissioning Hammer shredder VB DK or similar Maximum sound power level of 114 dB	N/A – mobile equipment
Water cart	Used to maintain operational areas in a damp state during construction, commissioning and operation phase of facility	
Portable submersible pump and mobile	Used during commissioning and operational phase to pump leachate from the sump pit and	

Infrastructure	Specification	Site reference
tanker	transport leachate to evaporation pond 7 at the north of the Premises for disposal	

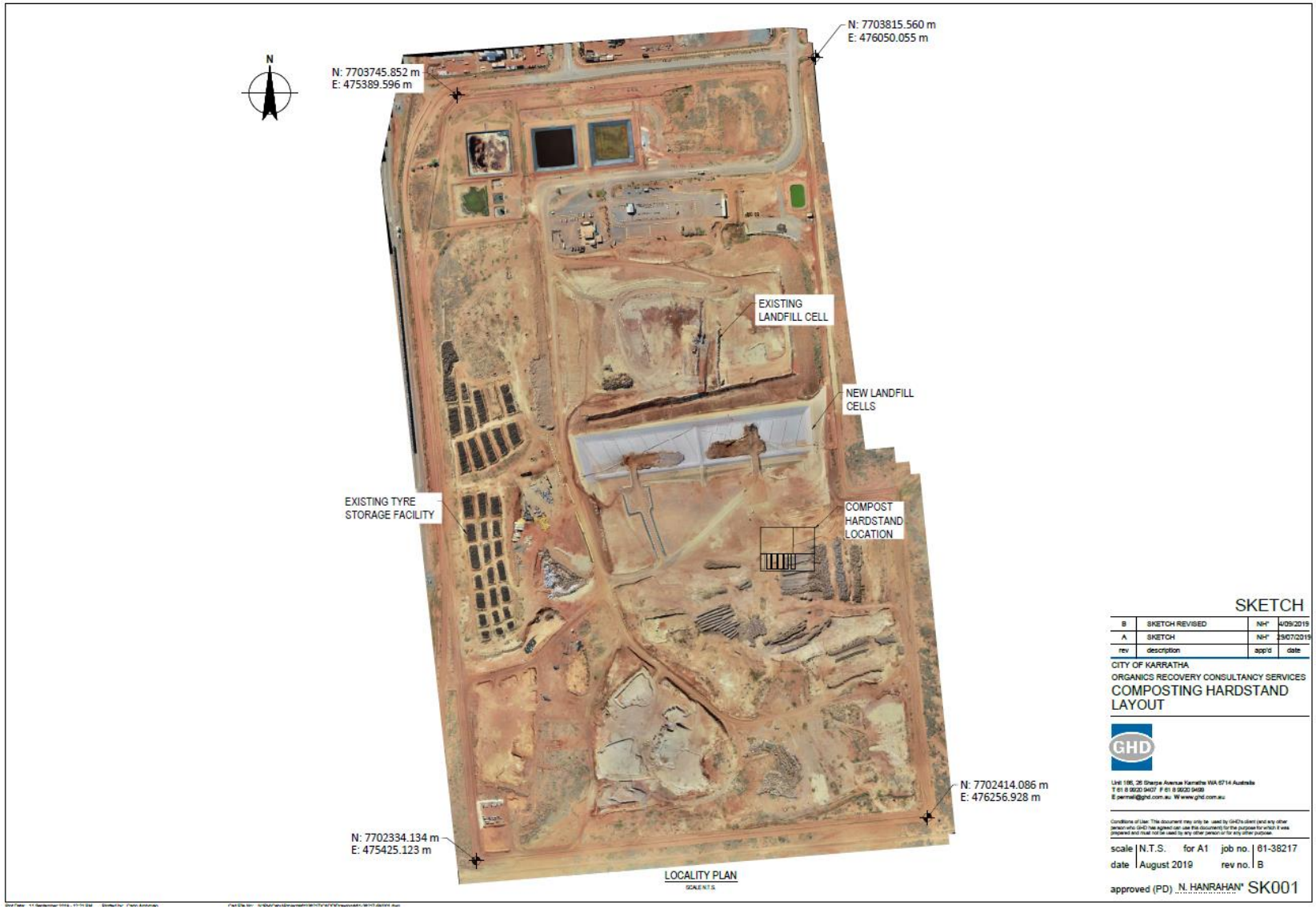

Figure 1: Premises overview

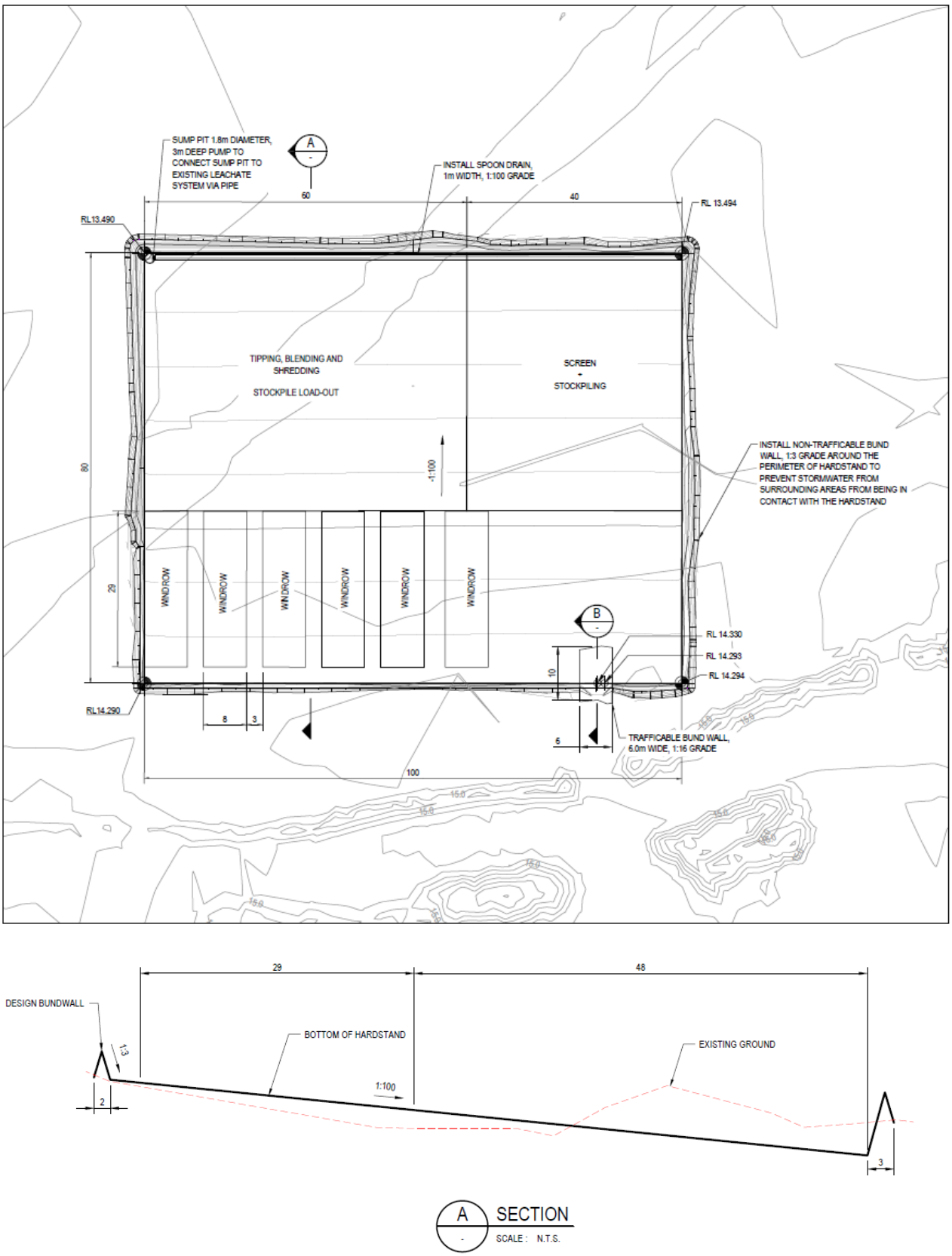

Figure 2: Overview of proposed organics recovery facility

5.2 Waste acceptance

Garden organics (GO) are delivered to the Premises by commercial and residential customers. Loads of GO are inspected on arrival at the Premises to ensure there is no contamination, with any contaminated loads sent straight for disposal into the landfill cells. Uncontaminated loads will be directed to the composting facility for processing, and will be shredded prior to further treatment if required. Shredded GO will be retained in a stockpile at the facility.

Food organics (FO) will be sourced from temporary accommodation facilities in the Karratha area and will be source separated to ensure they are free of contamination. FO will be accepted to the Premises as scheduled bulk deliveries which will be inspected on arrival to ensure there is no contamination present. If contamination is found in a load, it will instead be directed to the Class III landfill cells for disposal. Uncontaminated loads will be directed to the composting facility for further processing.

When a delivery of FO is scheduled, a layer of shredded GO will be laid out to a nominal thickness of 300 mm and will act as a receival bed for the mixing of FO. In the event that the FO delivery arrives at the site prior to a GO receival bed being prepared, the load will be directed to an area within the Class III landfill cell where the load will be tipped onto an area with no exposed waste for temporary storage. FO stored in this manner will be covered with a layer of shredded GO within one hour of unloading, to prevent odour emissions during storage. Once a GO receival bed has been prepared, the load will be relocated to the composting facility for processing.

Key Finding: The Delegated Officer notes that FO and GO are received to the Premises as separate waste streams and mixed on site prior to incorporation into composting windrows. The acceptance of source separated FO and GO will reduce the potential for contamination to enter the composting waste stream.

FO and GO will subsequently be considered as separate waste streams within the Works Approval waste acceptance specifications. Wastes will be referred to as 'FOGO' within the Works Approval waste processing specifications to reflect the Applicant's intent of utilising mixed FO and GO within the composting process.

5.3 Waste processing

The Applicant intends to produce fit for purpose products that will be manufactured and tested in accordance with the Australian Standard *AS 4454:2012 Composts, soil conditioners and mulches* (AS 4454). FOGO wastes will be processed with the aim of producing a pasteurised mulch for use as a soil surface treatment. However, due to high temperatures and high evaporation rates experienced at the Premises, it is proposed that only pasteurised mulch would be produced during summer (wet season) with composted soil conditioners and mulches being produced throughout the remainder of the year (dry season). The Applicant notes that products produced in dry season are most likely to be considered as composted mulches, as suitable mechanical screening equipment required for the production of soil conditioner is not currently available at the site.

FO will be directly deposited on top of the shredded GO receival bed and immediately mixed and blended. This will then be introduced to an active composting windrow at a ratio of FO to GO not exceeding 1:4. Windrows will be maintain at appropriate moisture levels via the addition of water from an on-site groundwater production bore. Temperatures and moisture content within the windrows will be monitored by the insertion of a handheld probe and recorded in batch records. The windrows are proposed to be maintained as 8 m wide, 30 m long and 4 m high, with a 4m separation distance between windrows and the boundary of the facility.

Windrows will be mechanically turned using mobile equipment (wheel loader or excavator) on a regular basis. Where FO is added to an active windrow, the mass of the windrow will be

subjected to a minimum of 5 turns and will be maintained at a temperature of a minimum of 55 degrees Celsius for three consecutive days before each turn. The mass of the windrow will be maintained at 55 degrees Celsius or higher for 15 days or longer in accordance with the pasteurisation requirements for high risk feedstock (FO) as outlined in AS 4454. Where FO is not added to a windrow, the mass will be subjected to a minimum of 3 turns with the internal temperature of the mass being maintained at a minimum of 55 degrees Celsius for 3 consecutive days or longer.

Following the completion of the pasteurisation process, the windrow mass will be sampled in accordance with parameters outlined in AS 4454. If sampling results indicate that the product does not meet the required criteria, the Applicant will endeavour to bring the material into compliance where possible. This may include the addition of lime or other additives to correct pH and nutrient contents, or the addition of organics materials and reprocessing. Where the product cannot be brought into compliance, or exceedances of acceptable criteria relate to chemicals, the entire mass will be disposed of into Class III landfill cells. The Applicant will ensure that any wastes disposed of to landfill will also meet the landfill acceptance criteria for Class III landfills, as outlined in the *Landfill Waste Classification and Waste Definitions 1996* (LWCWD).

Composted product will be stored within the composting facility prior to sale and end use for up to 6 months.

Key Finding: The Delegated Officer acknowledges that the acceptance of source separated FO will allow the Applicant greater control over the concentration ratios of FO to GO incorporated into composting windrows.

The Delegated Officer considers that a sufficient separation distance between composting windrows is necessary to reduce the likelihood of fire spreading between windrows in the event that they combust, and to permit access to fire fighting vehicles. Separation distances between the windrows will be discussed in the detailed risk assessment.

6. Legislative context and other approvals

The Premises is located in an area zoned as 'Public purposes: Waste disposal and treatment' as defined by the City of Karratha's Local Planning Scheme No. 8. The proposed activities specified under this amendment application fall under the public works exemption as the site is already licenced as a waste management facility. As a result, no Planning approvals are required for ongoing Premises activities.

The Applicant has provided the following information relating to other approvals as outlined in Table 5.

Table 5: Summary of emissions and applicant controls

Legislation	Number	Approval
Rights in Water and Irrigation Act 1911	201359	Groundwater Licence for the extraction of 50,000 kL per annual period. Expiry 24 May 2028.

7. Emission sources, receptors and pathways

7.1 Emissions

The potential for emissions to impact on sensitive receptors has been assessed in accordance with the Department's Risk Framework. The key emissions during construction which have

been considered in this report are **dust and noise** from excavation activities including equipment placement and use and vehicle movements.

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

Following completion and compliance with this works approval, a prescribed premises Category 67A licence under Part V of the EP Act will be required to authorise emissions associated with the operation of the premises i.e. compost manufacturing activities. A risk assessment for the operational phase has been included in this Decision Report, however licence conditions will not be finalised until DWER assesses the licence application. The key emissions considered in during premises operation are **dust, noise, odour, leachate, potentially contaminated stormwater and fire washwater** resulting from the composting of FOGO wastes, storage of compost and the potential influx of storm water resulting from a significant rainfall event (storm or cyclone).

7.2 Environmental Receptors and Aspects

Risk is assessed as a combination of emission sources, the proximity and sensitivity of receptors to those emission sources and any pathways that can allow the emission to reach and potentially harm the receptor. Figure 3 and the table below provides a summary of human and environmental receptors in proximity to the premises which have a potential to be impacted from site activities, and the risk assessment in Section 9 considers these receptors in the context of emissions and potential pathways.

Table 6: Distance to receptors

Human receptors	**Distance from prescribed premises**
Commercial Premises	Adjacent to Premises
Stayover Kingfisher Village	1.45km south-east of Premises
Civeo Karratha Village	2.2km north-east of Premises
Residential properties	3km north-east of Premises
Environmental receptors	**Distance from activity / prescribed premises**
Pilbara Groundwater Area (*RIWI Act 1914*) • Groundwater typically 6-10m below existing ground level • Hyper saline brackish	Premises mapped within this designated area
Pilbara Surface Water Area (*RIWI Act 1914*)	Premises mapped within this designated area
Threatened ecological communities • Roebourne Plains gilgai grasslands	Premises mapped within this area
Surface water lines • Seven Mile Creek • Minor non perennial water courses*	490m east of Premises

*The minor non perennial water course seen entering the Premises has not been substantiated to exist.

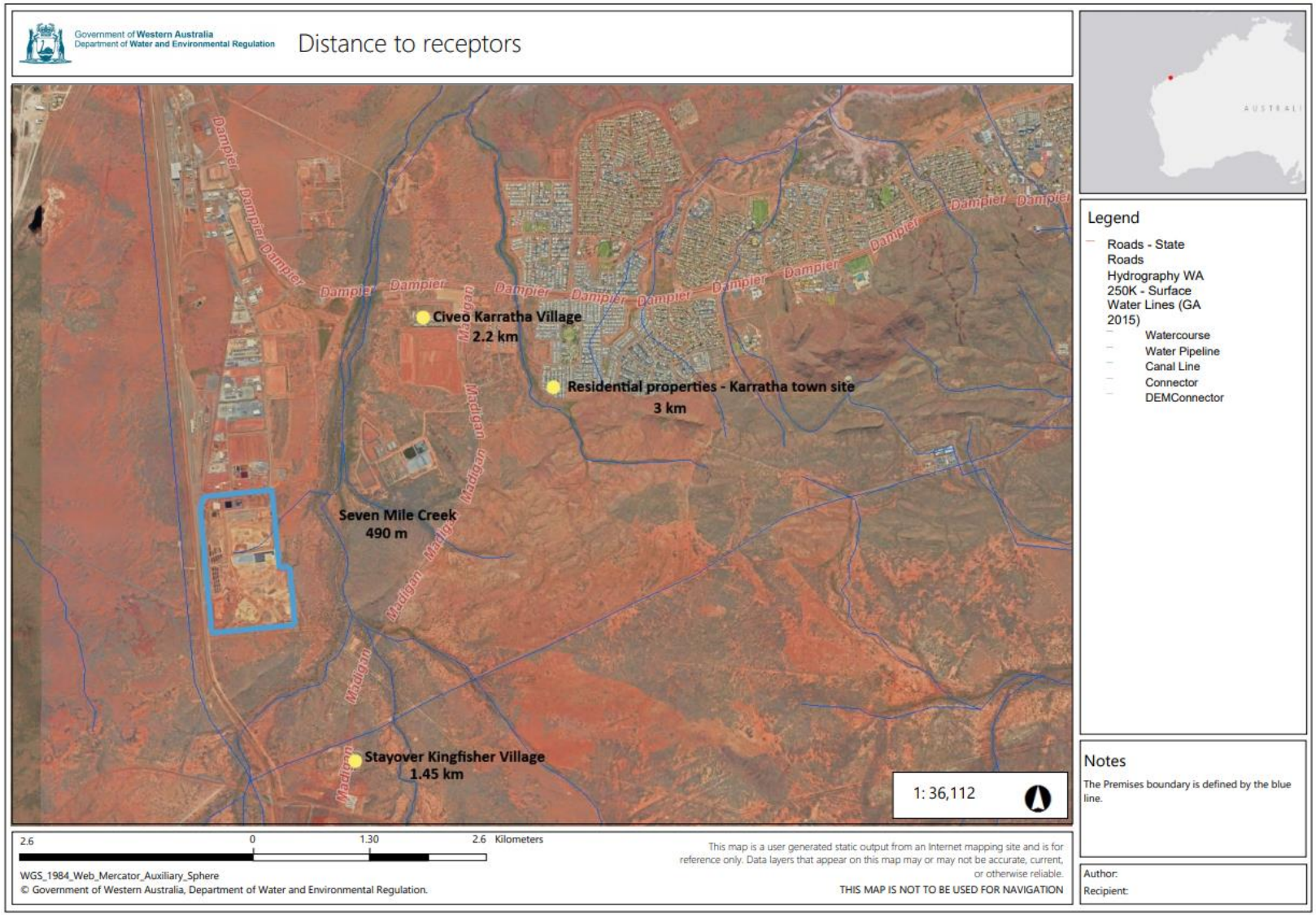

Figure 3: Distance to receptors

7.3 Pathways

7.3.1 Air

As dust and noise are considered potential emissions during construction, the prevailing wind speeds and direction have been considered.

Using information available on the Bureau of Meteorology's website, the closest available weather station for climate data is located at the Karratha Airport (Karratha Aero, 004083) which is 7 km north of the Premises. The station measures wind speed and direction at a height of 3m above ground level. Using the data available from Karratha Airport, the area has an annual average 9am wind speed of 19.5 km/h in a primarily westerly direction. The annual average 3pm wind speed is 25.6 km/h with winds in a primarily north westerly direction.

7.3.1 Groundwater

As potentially contaminated stormwater and leachate have the capacity to infiltrate groundwater, groundwater parameters for the Premises have been considered.

The Premises is located within a proclaimed groundwater area where groundwater is principally utilised for mining and town water supply. Groundwater beneath the Premises has been found between 7.8 mbgl and 11.4 mbgl. Groundwater is known to move generally in a north easterly direction across the Premises, and discharges approximately 7km away into Nickol Bay. Historical groundwater monitoring data supplied by the Applicant indicates that groundwater beneath the Premises is saline.

The Premises sits on the Pilbara fractured rock aquifer, which consists of Precambrian granite-greenstone terrain overlain by surficial sediments (predominately Pindan sands) in the river valleys. The water table is generally within 5 to 10 metres of the surface. The major aquifers within these rocks are quartz veins, and chert layers.

7.3.2 Stormwater and surface water runoff

As potentially contaminated stormwater and fire washwater are considered as a potential emissions, average yearly rainfall, evaporation rate and site topography have been considered.

Using information available on the Bureau of Meteorology's website, the closest available weather station for climate data is located at the Karratha Airport (Karratha Aero, 004083) which is 7 km north of the Premises. Based on the climate data from Karratha Airport the average total annual rainfall is 292 mm. Average evaporation experienced at the site is estimated at 3,200mm per year, with a monthly average of 175 mm in July (winter) and 300 mm in January (summer).

The Premises is located within a proclaimed surface water area. Premises topography gradually slopes downwards from south to north, with relative ground levels ranging from 50 mAHD to 40 mAHD. The surface geology consists of Pindan sands which are highly permeable in nature and act as a pathway for the infiltration of surface water to groundwater.

These pathways have been considered in the risk assessment table in Section 9.

8. Applicant controls

The Applicant has proposed the following management controls as part of the application:

Table 7: Summary of emissions and applicant controls

Construction		
Emission (as	**Source**	**Proposed controls**

identified above)		
Dust	Groundworks for construction of composting facility including excavation works and vehicle movements	All working areas of the Premises are maintained in a damp state utilising an onsite water cart Site speed limit of 30km/h applies
Noise		Site operations occur between 7:00am to 4:30pm All mobile plant equipment used on site is regularly maintained Site speed limit of 30km/h applies
Operation		
Emission (as identified above)	**Source**	**Proposed controls**
Dust	Shredding of GO and the turning of windrows	Water is added to the composting windrows to prevent dust lift off Water truck will be utilised for dust suppression during shredding
Noise	Shredding of GO, the utilisation of mobile equipment for the running of windrows, vehicle movements	Site operations occur between 7:00am to 4:30pm All mobile plant equipment used on site is regularly maintained Site speed limit of 30km/h applies
Odour	Breakdown of FOGO wastes as a result of the composting process	Ratio of FO to GO will not exceed 1:4 in composting windrows Windrow mass will be regularly turned Sufficient airflow around the windrows to be maintained **Please also refer to Section 8.1**
Leachate		**Refer to Section 8.2**
Potentially contaminated storm water	Contamination of storm water with leachate generated from breakdown of FOGO wastes as a result of the composting process	Facility will be bunded to direct uncontaminated stormwater around the perimeter of the facility Stormwater which comes into contact with FOGO and the composting wastes/products will be contained within the facility and processed as leachate. **Please also refer to Section 8.2**

Fire washwater	Generated from extinguishing a potential fire	Composting windrows will be located 4 m apart to provide a separation distance in the event of a fire The facility will be constructed so as to contain a 1 in 20 year storm event for 24hrs duration (as discussed in Section 8.2 below) The facility will have the capacity to contain all fire washwater generated in the event of a fire. Fire washwater will then be pumped out of the facility using a mobile tanker for disposal into evaporation pond 7. Evaporation pond 7 is authorised for the receival and of PFAS (per- and poly-fluoroalkyl substances) which may be present in fire washwaters.

8.1 Odour management

The Applicant has undertaken an odour screening analysis following the procedures outlined in the DWER *Guideline: Odour Emissions* (Odour Guidelines). The screening distance for an outdoor, uncovered Category 67 premises as defined by the Odour Guidelines is 800 m for up to the Applicants proposed annual throughput of 5,000 tonnes. The nearest sensitive receptor to the proposed facility is the Stayover Kingfisher village located 1.45 km south-east of the Premises and the Applicant has indicated that no special case factors that might increase odour impacts beyond the 800m screening distance are present in close proximity to the proposed facility. Consequentially, the Applicant has concluded that a detailed odour analysis is not required in support of this application.

The Applicant will ensure that the ratio of FO to GO will not exceed 1:4 in composting windrows. The Applicant expects that the potential for odour generation will be much lower than associated with a typical municipal sourced FOGO operation where a higher ratio of FO to GO, such as 1:3 or 1:2, is expected.

If not appropriately managed through turning or forced aeration, windrows may become anaerobic causing an increase in the generation of offensive odours. Windrows may also become anaerobic from over-wetting or the addition of excessive liquid waste. The Applicant intends to manage composting windrows in line with pasteurisation treatment recommendations for use of a high risk feedstock (FO) as outlined in AS 4454, which ensures that the windrows are regularly turned to ensure they remain aerobic. The Applicant will also ensure that a sufficient distance is maintained between the windows to assist in maintaining adequate airflow around the windrows. The windrows are proposed to be maintained as 8 m wide, 30 m long and 4 m high, with a 4 m separation distance between windrows and the boundary of the facility.

Key Finding: The Delegated Officer considers that the Premises is a sufficient distance from sensitive receptors to exclude the requirement for the Applicant to provide a detailed analysis of the potential odour impact, in line with the Odour Guidelines.

The Delegated Officer notes that the regular turning of composting windrows will maintain the windrows as aerobic to prevent an increase in the generation of offensive odours. The turning of windrows is also considered to be a high odour generating activity through the disturbance of composting wastes.

Due to the potential for FOGO wastes to generate offensive odours, Applicant proposed operational specifications will need to be supported through a detailed risk assessment.

8.2 Leachate management

The Applicant expects the generation of leachate from composting activities to be minimal due to very high evaporation rates at the site, with average evaporation in Karratha estimated to be 3,200mm per year, with a monthly average of 175mm in July (winter) and 300mm in January (summer). The Applicant also expects the evaporation rate to negate the potential of seepage from the base of the composting windrows due to excess watering.

8.2.1 Composting facility construction

The Applicant proposes to construct the composting facility so as to contain all generated leachate within the facility. The operational area of the facility will comprise of compacted in-situ soils. Soil permeability and soil compaction were tested as a part of a geotechnical investigation completed prior to the construction of the Class III landfill cells at the Premises. Testing of the area of the future landfill cells found the average corrected soil permeability to be 5.58^{-7} m/s. Due to the superficial soil layer being similar across the entire Premises, these results are considered comparable with the area proposed for the construction of the composting facility.

The operational area of the facility is proposed to be constructed with a gradient of 1% sloping north. The facility will be surrounded by a perimeter earthen bund to accommodate run-off from a 1 in 20 year storm event for 24 hrs duration, with a 300 mm freeboard. The bund will be constructed of compacted in-situ soils with a slope gradient of 1V:3H, and will be 0.7 m high at the south of the facility and 1.2 m high at the north of the facility. The facility will capture all leachate generated from the breakdown of composting wastes and any storm water that has come into contact with composting wastes which is potentially contaminated by leachate. Large quantities of potentially contaminated stormwater are only expected to result from significant rainfall events (storm or cyclone).

A spoon drain 1 m in width and constructed from compacted in-situ soils will run along the northern perimeter of the facility to capture leachate and potentially contaminated stormwater. A collection and pump-out sump is proposed to be installed at the low-point in the north western corner of the operational area which will have a suitable level indicator installed and be emptied on an as-need basis. The sump will be constructed from high density polyethylene and will have a capacity of 7.5 kL. Accumulated leachate and potentially contaminated stormwater will be pumped out of the sump using a submersible pump into a mobile tanker, and deposited into evaporation pond 7 in the north of the Premises for disposal via evaporation. Pond 7 is already authorised to receive landfill leachate generated from the Class III landfill cells under conditions on the Premises existing licence. It is unlikely that the input of leachate from the composting facility to evaporation pond 7 will have a significant impact on pond 7's holding capacity due to the high evaporation rate experienced at the Premises.

The Applicant was given approval for the construction of 12 Class III cells in a staged approach over 20 years, under a Licence amendment issued on 18 May 2017. As a part of this amendment, the applicant has installed a leachate management system which acts to divert landfill leachate to evaporation pond 7. This system has been installed so as to allow for the connection of extraction points for future Class III cells when the cells are constructed. Due to the proposed location of the composting facility, there is the capacity to connect the sump at the facility to the landfill leachate system for transportation into evaporation pond 7. However, the Applicant has concerns that solid residues resulting from composting leachate may damage the leachate management infrastructure. In light of this, the sump will be connected to the leachate management system only in the event of an influx of stormwater resulting from a significant rainfall event, with the preference for small leachate quantities to be manually transferred to pond 7.

Key Finding: The Delegated Officer notes the permeability of the operational area of the composting facility and that due to the need to add water to maintain moisture concentration

within the windrows, there will be some infiltration of leachate and potentially contaminated stormwater into underlying soils. Due to the high evaporation rate at the Premises, water will need to be added to composting windrows on a regular basis to maintain an appropriate moisture concentration within the windrow mass.

Due to the potential for FOGO wastes to generate higher quantities of leachate, the Applicant's proposed construction specifications will need to be supported through a detailed risk assessment.

The Delegated Officer considered that a drainage gradient of only 1% will need to be supported through a detail risk assessment, to ensure adequate drainage of leachate and stormwater towards the north of the facility.

8.2.2 Groundwater monitoring

The average depth to groundwater at the Premises is 7.8 mbgl to 11.4 mbgl. Groundwater is known to move generally in a north easterly direction across the Premises, and discharges approximately 7 km away into Nickol Bay.

A network of twelve groundwater monitoring bores currently exists at the Premises, with conditions specified on the Premises existing licence for the quarterly monitoring of groundwater parameters. The location of these bores is indicated in Figure 4 below and are monitored for the purpose of noting any impacts to groundwater that may be a consequence of Premises activities. The four bores on the eastern boundary of the Premises were included within the Licence's groundwater monitoring schedule as a part of a licence amendment, which was issued on 21 May 2020. Information confirming the condition, depth and screening intervals of these additional bores is due to be submitted to the Department by 15 August 2020.

With the inclusion of the eastern bores into the Premises groundwater monitoring schedule, bores are present both up and down hydraulic gradient of the proposed composting facility. Monitoring results may act to encompass changes to groundwater resulting from composting activities.

Key Finding: The Delegated Officer notes the location of the proposed additional monitoring bores and acknowledges that 2 of these bores appear to be down gradient of the location of the proposed composting facility.

The Delegated Officer considers that the permeability of the operational areas of the proposed facility will allow for some infiltration of leachate into underlying soils, with the capacity to infiltrate groundwater.

To monitor any potential impacts to groundwater as a direct result of composting activities, the Delegated Officer considers that an additional groundwater monitoring bore should be installed adjacent to the composting facility down hydraulic gradient. This will remove uncertainty surrounding which activity at the Premises is impacting groundwater, if any changes to groundwater are noted. This bore should also be incorporated into the current monitoring schedule within the existing licence at the Premises.

The justification for the addition of a monitoring bore directly adjacent to the proposed composting facility will be outlined through a detailed risk assessment.

Figure 4: Locations of monitoring bores proposed under the licence amendment issued 21 May 2020

9. Risk assessment

The identification of the sources, pathways and receptors to determine Risk Events are set out in Tables 8 and 9 below. Risk ratings have been assessed for each key emission source and take into account potential source-pathway-receptor linkages. The mitigation measures / controls proposed by the Applicant have been considered in determining the risk rating. Emissions during construction and operation have been assessed separately to allow clear delineation of activity phases.

The works approval that accompanies this report authorises construction and time-limited operations. A licence is required to operate the premises following the time-limited operational phase authorised under the works approval.

The conditions in the issued Works Approval, as outlined in Tables 8 and 9, have been determined in accordance with the *Guidance Statement: Setting Conditions*.

9.1 Risk assessment – construction

Table 8: Identification of emissions, pathway and receptors during construction

Risk Event					Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	**Potential emissions**	**Potential receptors**	**Potential pathway and impact**	**Applicant controls**					
Construction of composting facility infrastructure and placement of equipment .	**Dust:** groundworks for construction including excavation works and vehicle movements	Stayover Kingfisher Village 1.45km south-east of Premises Civeo Karratha Village 2.2KM north-east of Premises Residential properties 3km north-east of Premises	**Air:** heath and amenity impacts	As outlined in Section 7.2	Minor	Unlikely	Low	The Delegated Officer considers that the Applicant's proposed management practices are sufficient to prevent the emission of fugitive dust. Localised dust emissions are unlikely to have an adverse effect on potential receptors, which are located a minimum of 1.45km from the Premises.	Condition 1: Infrastructure and Equipment
	Noise: groundworks for construction including excavation works and vehicle movements				Moderate	Unlikely	Medium	The Delegated Officer considers that potential receptors are located a significant distance away so that it is unlikely that they will be impacted by noise emissions. A short term increase in localised noise emissions may occur as a result of construction activities.	Noise emissions can be regulated under the EP (Noise) Regulations.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

9.2 Risk assessment – operation

Table 9: Identification of emissions, pathway and receptors under time-limited operation and during full operation

Risk Event					Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	**Potential emissions**	**Potential receptors**	**Potential pathway and impact**	**Applicant controls**					
All operational areas of the composting facility .	**Dust:** shredding of GO and the turning of windrows	Commercial properties adjacent to the Premises Stayover Kingfisher Village 1.45km south-east of Premises Civeo Karratha Village 2.2KM north-east of Premises Residential properties 3km north-east of Premises	**Air:** health and amenity impacts	As outlined in Section 7.2	Minor	Unlikely	Low	The Delegated Officer considers that the Applicant's proposed management practices are sufficient to prevent the emission of fugitive dust. Localised dust emissions are unlikely to have an adverse effect on potential receptors, which are located a minimum of 1.45km from the Premises.	Condition 7: Infrastructure and Equipment Condition 15: Dust management
	Noise: Shredding of GO, the utilisation of mobile equipment for the running of windrows, vehicle movements				Moderate	Unlikely	Medium	The Delegated Officer considers that potential receptors are located a significant distance away so that it is unlikely that they will be impacted by noise emissions arising from composting activities. Noise will be regulated in line with the *Environmental Protection (Noise) Regulations 1997*	Noise emissions can be regulated under the EP (Noise) Regulations.

Risk Event					Consequence rating[1]	Likelihood rating[1]	Risk[1]	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	**Potential emissions**	**Potential receptors**	**Potential pathway and impact**	**Applicant controls**					
Composting process	**Odour:** breakdown of FOGO wastes as a result of composting process				Moderate	Possible	Medium	Please refer to Section 10.1	Condition 12: Waste Processing Condition 17: Compost monitoring
	Leachate: breakdown of FOGO wastes as a result of composting process	Pilbara groundwater area – Premises mapped within area Pilbara surface water area – Premises mapped within area Threatened ecological communities (gilgai grasslands) – Premises mapped within area Seven Mile Creek and associated minor non perennial water courses 490m east of Premises	**Seepage:** lateral and sub-surface migration of leachate to groundwater		Major	Unlikely	Medium	Please refer to Section 10.2	Condition 1: Infrastructure and equipment (Construction) Condition 2: Infrastructure and equipment (time limited operation) Condition 11: Baseline groundwater monitoring Condition 12: Waste processing Condition 17: Compost monitoring Conditions 19 – 21: Groundwater monitoring Conditions 25 – 26: Compliance reporting
	Potentially contaminated stormwater: contamination of storm water with leachate generated from breakdown of FOGO wastes as a result of the composting process		**Surface water run-off:** overland flow of stormwater contaminated with leachate		Major	Unlikely	Medium	Please refer to Section 10.2	
	Fire washwater: Firefighting washwater may contain hazardous materials including surfactants, heavy metals, hydrocarbons, emulsifiers and modifiers		**Surface water run-off and groundwater impacts:** Contamination with hazardous materials generated from extinguishing a potential fire		Major	Rare	Medium	The Delegated Officer considers that the facility will have capacity to retain generated fire washwater within the boundary of the operational area. Fire washwater can then be manually pumped out of the facility for disposal via evaporation. The Premises is also currently licenced to allow for the treatment of fire washwater within evaporation pond 7. The Delegated Officer notes that there will be some infiltration of fire washwater to underlying compacted in-situ soils. However, the demonstrated high evaporation rate at the Premises is expected to remove moisture from the top layers of soil before it has the opportunity to migrate downwards to infiltrate groundwater. Any soil containing residual contaminants resulting from leachate infiltration will be excavated and disposed of in approximately 5 years' time when the landfill footprint encroaches on the composting facility. Please also refer to Section 10.3	

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

10. Detailed risk assessment

10.1 Odour

Odour generated in the compost process is generally associated with receipt, storage, handling and decomposition of putrescible feedstocks, and leachate and runoff generated from feedstock and compost, in the initial pasteurisation stages. Odour can cause amenity and health impacts to surrounding receptors. The nearby residential areas and stayover villages are considered sensitive receptors for odour. The Delegated Officer notes that the closest residence is approximately 3 km from the Premises boundary and the closest stayover village is approximately 1.45 km away.

It is expected that the acceptance of a high risk feedstock (FO) will result in higher odour generation. However, the proposed acceptance of only FO sourced from temporary accommodation facilities allows the Applicant greater control over the condition and contamination rate of the FO to be incorporated into composting windrows. As FO is received separately to GO, this adds to the ability to regulate the proportions of FO to GO within the composting windrows. The incorporation of FO directly into a GO receival bed on acceptance to the Premises ensures that there is no storage of FO on site prior to use in the composting operation. If it is necessary for FO to be temporarily stored within the Class III landfill cells whilst a GO receival bed is prepared, there is not expected to be any odour increase compared to that generated from the receival of putrescible wastes into the landfill for burial.

The windrows will be managed so as to ensure they do not enter an anaerobic state, which can cause an increase in the generation of offensive odours. The regular turning of windrows incorporating FOGO in line with AS 4454 will ensure that the windrows remain in an aerobic state and the high evaporation rate experienced at the Premises will prevent the windrows remaining overly wet. The turning of windrows will act to release trapped odourous air into the surrounding environment, however the relatively large separation distances between the Premises and sensitive receptors, coupled with the low proportion of high risk feedstock within the composting windrows, suggests that the sensitive receptors should not experience any negative impacts from odour generated in this manner.

The Applicant does not expect large amounts of odour generating leachate to arise from the composting activities due to the very high evaporation rates seen at the Premises. Small quantities of leachate will be retained in the collection and pump-out sump in the north western corner of the operational area and removed to evaporation pond 7 for disposal via evaporation as needed. The generation of small quantities of leachate is not expected to contribute to an increase in odour levels arising from the Premises.

Key Finding: The Delegated Officer has considered the potential impacts of offensive odour to health and amenity and acknowledges that the acceptance specifications for FO, and a lower ratio of FO incorporated into composting windrows will result in a lower generation of offensive odours from composting activities. As a result, the consequence rating is **Moderate**.

The Delegated Officer has considered that the Premises is a sufficient distance from sensitive receptors to exclude the requirement for a detailed analysis of the potential odour impact, in line with the Odour Guidelines. This, coupled with the expected lower generation of odour, indicates that the likelihood of this consequence occurring is **Possible**.

The overall rating for the risk of odour generated from FOGO composting during the Premises operational phase is therefore **Medium** and acceptable subject to regulatory controls.

The Delegated Officer notes that the appropriateness and adequacy of controls may be

reviewed by DWER at any time and that, following a review, DWER may initiate amendments to the approval under the EP Act.

10.2 Leachate and potentially contaminated stormwater

Leachate generated from composting activities may cause contamination of groundwater from nutrients, metals and toxicants. This may result in a reduction of the quality of extracted groundwater for human uses. Leachate also has the potential to contaminate stormwater that comes into contact with any leachate generating wastes. There is potential for leachate and/or leachate contaminated stormwater to contaminate surrounding land impacting flora associated with the Seven Mile Creek and associated minor non-perennial water courses located 490 m east of the Premises.

The Applicant expects the generation of leachate from composting activities to be minimal due to the very high evaporation rates experienced at the Premises. Average evaporation rate in Karratha is estimated to be 3,200 mm per year, with a monthly average of 175 mm in July (winter) and 300 mm in January (summer). A lower ratio of high risk feedstock (FO) incorporated into composting windrows is also expected to generate less leachate than seen where proportions of FO are higher, as the breakdown of high risk feedstocks is known to produce larger quantities of leachate containing larger concentrations of environmentally hazardous components.

The operational area of the proposed composting facility will be constructed using compacted in-situ soils with a demonstrated permeability of 5.58^{-7} m/s. Although leachate generation from the decomposition of putrescible feedstocks is expected to be low, the high evaporation rate at the Premises will ensure there is a need to add water to the composting windrows to maintain moisture concentration. Run-off from the composting windrows will be contaminated with some leachate, which will have the capacity to infiltrate into underlying soils and groundwater for lateral movement off site. There also exists the potential for the seepage of leachate from the base of the composting windrows due to excess watering.

It is expected that any seepage or infiltration of leachate and/or potentially contaminated surface water run-off to the compacted in-situ soil layers of the composting facility will be prevented from infiltrating further to groundwater by the high evaporation rate at the Premises, with moisture evaporating from the top layers of soil before it has the opportunity to migrate downwards or drain to the collection and pump-out sump at the north of the facility. No pooling of water is expected to occur and large quantities of water are only expected to be present at the facility during a high intensity rainfall event. In this regard, the lower drainage gradient proposed for the operational area of the facility (1%) is expected to ensure drainage of the expected large quantities of stormwater towards the northern collection and pump-out sump. The low proportion of FO within the composting windrows will also ensure that leachate generated will contain a lower proportion of environmentally hazardous components.

Infiltration to the top layers of soil will be restricted to within the operational area of the composting facility, as the facility will be constructed so as to be able contain stormwater run-off resulting from a 1 in 20 year storm event for 24 hrs duration. Should the composting facilities containment capacity be close to exceedance, the Applicant can deploy a mobile tanker to remove potentially contaminated stormwater to evaporation pond 7 for disposal. It is also noted that since the facility is to be constructed in the future landfill footprint of the Premises, any soil containing residual contaminants resulting from leachate infiltration will be excavated and disposed of in approximately 5 years' time.

The current groundwater monitoring network at the Premises will encompass any changes in groundwater parameters caused by Premises activities, however it will be extremely difficult to determine whether any changes are a direct result of composting activities. As a safeguard to ensure that the evaporation rate is preventing the infiltration of leachate to groundwater as

expected, DWER requires the installation of an additional groundwater monitoring bore adjacent to the composting facility. The bore will be located down hydraulic gradient of the facility and will be located at approximately the half way point along the northern boundary of the composting facility, at least 10 metres from the composting facility boundary. The specifications of the groundwater bore are detailed in Figure 5 below. A baseline sample will be required to be taken prior to composting operation commencing to ensure any changes to groundwater as a result of composting activities is accurately recorded. The ongoing monitoring of this bore will be included within the existing groundwater monitoring schedule on the Premises Licence for the operational phase of the composting facility.

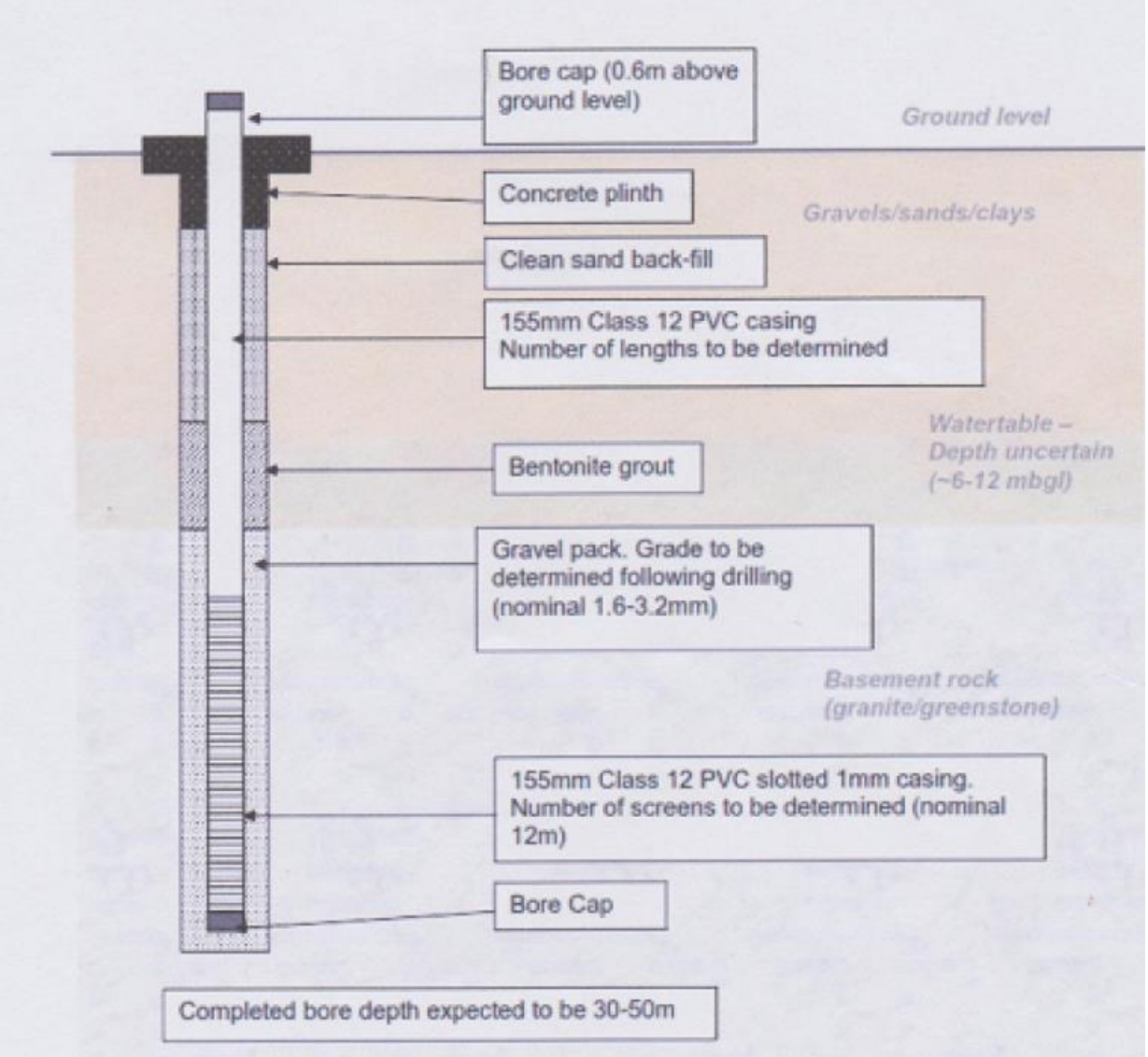

Figure 5: Groundwater bore specifications

Key Finding: The Delegated Officer has considered the potential impacts of leachate and potentially contaminated surface water to the surrounding environment and has determined that based on the potential consequences of small quantities of leachate impacting on-site and local and regional groundwater quality, the consequence rating is **Major**.

The Delegated Officer acknowledges that the high evaporation rate experienced at the Premises will act to somewhat mitigate the potential for leachate emissions to migrate downwards to groundwater. The Delegated Officer has considered the impact of accelerated evaporation along with construction specifications and location of the

composting facility, considers the likelihood of this consequence occurring is **Unlikely**.

The overall rating for the risk of leachate and potentially contaminated surface water generated from FOGO composting during the Premises operational phase is therefore **Medium** and acceptable subject to regulatory controls.

Due to the consequence rating should infiltration to groundwater occur, the Delegated Officer considers the installation of an additional groundwater monitoring bore necessary for the early detection of groundwater impacts. Should any impact to groundwater be noted, the appropriateness and adequacy of leachate controls may be reviewed by DWER and DWER may initiate amendments to the approval under the EP Act requiring additional leachate control measures be implemented.

10.3 Windrow separation distance

It is noted that the proposed separation distance between composting windows of 4 m may reduce the ability to contain any potential fire within individual windrows, and may hinder the ability for firefighting vehicles to easily manoeuvre across the composting area. This may contribute to an increase in the volume of washwaters required to extinguish a fire, and subsequent impacts to receptors.

Time limited operations under the works approval will be for small volumes of composting, for a defined short period of time.

Key Finding: The Delegated Officer has determined that based on time limited operations occurring for a short period of time for small volumes, and the risk of fire and firewater run-off impacts to receptors being Medium the 4 m separation distance is acceptable under the works approval.

Ongoing operations under a licence amendment will be subject to a separate assessment, and the distance between windows may be required to be increased based on information provided within any subsequent application and comments or advice received for example, from the Department of Fire and Emergency Services (DFES).

11. Consultation

Table 20: Summary of consultation

Method	Comments received	DWER response
Applicant referred draft documents (3 June 2020)	Construction of the Sump Pit The City is proposing to install an upstream Silt Trap tank (5KL) and overflow pipe connect to the Storage tank, with a capacity of 7KL.	The construction of a Silt Trap has not been assessed as a part of this Works Approval application as no mention of a Silt Trap was provided to DWER prior to the issuing of the draft documents to the Applicant for comment. However, the installation of a silt trap is considered to be a minor deviation from assessed activities and as such its construction will be included in the Works Approval. Confirmation of the final location and specifications of the silt trap is likely to be sought as a part of the subsequent licence amendment application assessment.

		Storage tank capacity has been changed to reflect 7 kL.
	Groundwater monitoring well The City will install the well about 10m north from the composting pad boundary in alignment to the middle of the pad. Construction specifications have been supplied.	Noted – DWER will likely request confirmation of the final location of the groundwater monitoring well as a part of supporting documentation for the subsequent licence amendment application.
	Shredder The Shredder would be brought to the composting pad as required but will not be located there permanently.	Reference to the shredder in conditions of the works approval updated to reflect that the shredder will be brought to the composting facility as required.
	Time limited operations The City requests that the time limited operations period be extended from 90 days from the day the Works Approval Holder submits the Environmental Compliance Report, to 365 days from the date of submission of the Environmental Compliance Report.	DWER grants approval for time limited operations for up to 180 days to allow the the assessment of the licence amendment application, unless justification for a longer duration is presented by the Applicant and accepted by the Delegated Officer. As no justification for this increase has been provided, the Delegated Officer has extended the time limited operations period from 90 to 180 days. The Delegated Officer has revised the risk assessment to permit the extended duration. Please also refer to the *Industry Regulation: Guide to Licensing* available on DWER's website. Condition wording will otherwise be retained in the Works Approval as the Applicants intent is still reflected.
	Time limited operations The City requests that the wording of condition 6(b) be changed to 'until such time as approval under the Licence for Food Organics and Garden Organics composting operations at the Premises is granted'.	The wording of condition 6(b) is a standard condition wording and reflects the same intention as the Applicants proposed wording. Therefore, the original wording will be retained in the Works Approval.
	Portable and submersible pump and mobile tanker IBCs will be filled using the storage tank submersible pump and decanted to Evaporation Pond 7 as required.	The use of IBCs has not been previously discussed in the Works Approval application for the removal of leachate to Evaporation Pond 7, however as this is considered a minor deviation from assessed activities, reference to a 'mobile tanker' has been removed in the Works

		Approval and replaced with reference to IBC's.
	Waste acceptance In line with the extension of the time limited operations period, the City requests that the throughput of Food Organics and Garden Organics be increased from 1,250 tonnes per annual period to 5,000 tonnes per annual period.	In line with the above extension of time limited operations from 90 to 180 days, the annual throughput of Food Organics and Garden Organics has been increased from 1,250 tonnes per annual period to 2,500 tonnes per annual period.
	Non-conforming wastes Where waste does not meet the waste acceptance criteria, it will be relocated to Cells 1 and 2.	Disposal of non-conforming wastes to the active Class III cells included in the Licence. Where this is not possible due to wastes not meeting the Class III landfill acceptance criteria in the LWCWD, wastes will be required to be stored in a rejected waste storage area or container and removed to an appropriately authorised facility as soon as practicable.
	Groundwater monitoring The City requests that groundwater monitoring be undertaken on a quarterly basis instead of monthly, during time limited operations. This would be in line with the other 12 licenced bores. It should be noted that temporary accommodation villages in town do not generate significant tonnages of food organics (<5 tonnes per week), so it is proposed that groundwater infiltration risk are low considering the low amount of food organics.	The Delegated Officer notes the change in duration of the time limited operations to 180 days and considers a reduction in monitoring frequency to be acceptable. Monitoring frequency for the additional groundwater monitoring bore has been changed from 'monthly' to 'two separate monitoring events, undertaken at least 80 days apart'. The Delegated Officer considers this to align with the Applicants requested quarterly monitoring frequency and allows flexibility surrounding the monitoring dates. The risk of leachate infiltration to groundwater has been considered in the detailed risk assessment.
	Waste processing The City requests the removal of the requirement to maintain dissolved oxygen levels in the composting windrows above 0.5ppm	The Delegated Officer notes that the Applicants primary odour control is the regular turning of the composting windrows to ensure that windrows remain in an aerobic state. The Delegated Officer considers there to be a need to monitoring composting windrows to ensure aerobic conditions are maintained. However, the Delegated Officer has changed monitoring requirements from 'dissolved oxygen' to 'oxygen content' of the windows (%) to allow the Applicant some flexibility regarding the choice of monitoring equipment.

		The Delegated Officer considers the requirement to maintain oxygen content in the composting windrows above 10% is necessary to determine whether the windrows are being maintained in an aerobic state. The maintenance of aerobic conditions within the composting windrows has also informed DWER's risk assessment regarding the management of odour emissions and the inability to confirm this is being achieved may act to change the final risk rating. The requirement to monitor oxygen content will be retained in the Works Approval.
	<u>Waste processing</u> Composting leachate will be collected from the sump pit when the storage tank is at half the volume of the sump pit's capacity. The proposed Silt Trap will be emptied as required by visible inspection and accumulation of silt.	Noted – volume capacities triggering the pumping of leachate and removal of silt have been referenced in Works Approval.
	<u>Compost storage</u> Final compost product will be stored within Cells 1 and 2 should the composting facility not have sufficient space.	The Delegated Officer does not consider the operational footprint of Cells 1 and 2 to be suitable for the storage of composting product prior to sale. As such, the storage of composting within this area will not be referenced in the Works Approval. Proposals for final storage areas for composting product can be assessed as a part of the subsequent licence amendment.
	<u>Waste processing</u> Any non-conforming waste identified during waste processing would be relocated to Cells 1 and 2.	Disposal of non-conforming wastes to the active Class III cells included in the Licence. Where this is not possible due to wastes not meeting the Class III landfill acceptance criteria in the LWCWD, wastes will be required to be stored in a rejected waste storage area or container and removed to an appropriately authorised facility as soon as practicable.
	<u>Burning of waste</u> The burning of greenwaste is allowed under the current Licence.	Noted – condition wording changed to reflect that no composting waste can be burnt on site.
	<u>Process monitoring</u>	The Delegated Officer notes that the Applicants primary odour control is the

	The City proposes to remove the requirement to monitor moisture content and dissolved oxygen of the composting windrows on a weekly basis. The City believes this to be in line with other recently issued works approvals.	regular turning of the composting windrows to ensure that windrows remain in an aerobic state. As discussed above, the Delegated Officer has changed monitoring requirements from 'dissolved oxygen' to 'oxygen content' of the windows (%) to allow the Applicant some flexibility regarding the choice of monitoring equipment. The Delegated Officer considers there to be a need to monitoring composting windrows to ensure aerobic conditions are maintained. The monitoring of both oxygen content and moisture content of the composting windrows will assist in the determination as to whether composting windrows are aerobic. As such, monitoring conditions will be retaining in the Works Approval. The Applicant is advised that the requirement for monitoring certain parameters can be reviewed during the subsequent Licence amendment assessment, with any proposed removal of conditions supported by monitoring results obtained during time limited operations.
	<u>Composting process monitoring</u> Non-NATA approved lab results should be accepted for compost clarification purposes due to the unavailability of NATA accredited Laboratories in WA.	The Delegated Officer has considered the Applicants comments and has included in compost processing monitoring requirements a definitive list of parameters to be monitored in final composting product, derived from AS 4454. Specific parameters have been selected due to the implications of composting product containing these materials to human health. The Delegated Officer considers that analysis of specified parameters should be achievable by a NATA accredited laboratory and as such, does not limit the Applicant in terms of sampling requirements. DWER notes it may not be possible for one parameter to be analysed by a NATA accredited lab in Western Australia and therefore flexibility in line with AS 4454 is provided for this parameter. Changes to monitoring requirements can be sought through the subsequent licence amendment application.
	<u>Sample analysis</u>	As discussed above, the Delegated Officer has included a definitive list of parameters to be monitored for in

	The City requests that condition 21 be changed from 'All sample analysis' to 'Groundwater monitoring sample analysis' due to the unavailability of NATA accredited Laboratories in WA to undertake compost pile monitoring	composting product, with monitoring achievable by a NATA accredited laboratory. As such, condition wording will be retained in the Works Approval, with the parameter that is exempt to be noted.
	<u>Completion of time limited operations</u> In regard to condition 25, the City requests that the requirement for the submission of a report on the time limited operations be extended from within 30 calendar days of the completion date of time limited operations, to within 60 days. The City also requests the removal of 'before the expiration date of the works approval, whichever is sooner'.	Condition wording changed to reflect 'within 60 days of the completion date of time limited operations'. Condition 25 is a standard condition wording and as such, the remained of the condition will be retained in the Works Approval.
	<u>Composting procedure</u> Due to the hot summer temperatures in Karratha which make it difficult to maintain moisture in the composting piles, the City is proposing to follow a winter strategy (April – Oct) to compost and a summer strategy (Nov – Mar) to do pasteurisation only.	The Delegated Officer notes that the definitions of 'compost' and 'composting' within AS 4454 state that the material must achieve pasteurisation. The production of pasteurised mulch can be achieved in line with conditions currently on the Works Approval. The Delegated Officer notes that there is a requirement for the Applicant to classify composted product according to the product specification and end use(s) as determined by the physical and chemical quality specifications required by AS 4454 prior to sale or distribution to customers. Reference to 'final composting product' has been included in relevant Works Approval conditions to ensure the production of pasteurised mulch is clearly encompassed within conditions.

12. Conclusion

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

Melissa Chamberlain

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Melissa Chamberlain
A/MANAGER WASTE INDUSTRIES
REGULATORY SERVICES

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

Appendix 1: Key documents

Document title	Availability
DWER, May 2017. *Licence Amendment – L7021/1997/15 –* Seven Mile Waste Disposal Facility	DWER records (A1427335)
DWER, May 2020. *Licence Amendment – L7021/1997/15 –* Seven Mile Waste Disposal Facility	accessed at www.dwer.wa.gov.au
DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	
DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	
DER, August 2016. *Guidance Statement: Licence duration.* Department of Environment Regulation, Perth.	
DER, February 2017 *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	
DWER, June 2019. *Guideline: Decision Making*. Department of Water and Environmental Regulation, Perth.	
DWER, June 2019. *Guideline: Industry Regulation Guide to Licensing*. Department of Water and Environmental Regulation, Perth.	
DWER, May 2019. *Guideline: Odour emissions*. Department of Water and Environmental Regulation, Perth.	