Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6343/2020/1
Works approval holder	Brogate Pty Ltd
ACN	009360605
Registered business address	2446 Yerramullah Road, HILL RIVER WA 6521
DWER file number	DER2019/000466
Duration	04/12/2020 to 03/12/2025
Date of issue	04 December 2020
Premises details	Parron Place Cadda Road, Badgingarra WA 6521 Legal description - Lot 3739 on Deposited Plan 207069 Certificate of Title Volume 2125 Folio 562 As defined by the coordinates in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production / design capacity**
Category 67A: Compost manufacturing and soil blending: premises on which organic material (excluding silage) or waste is stored pending processing, missing, drying or composting to produce commercial quantities of compost or blended soils.	2,080 tonnes per annum

This works approval is granted to the works approval holder, subject to the attached Conditions, on 04 December 2020, by:

Michael Greenslade
Digitally signed by Michael Greenslade
Date: 2020.12.04 09:12:01 +08'00'

A/MANAGER WASTE INDUSTRIES
REGULATORY SERVICES
an officer delegated under section 20 of the Environmental Protection Act 1986 (WA)

Works approval history

Date	Reference number	Summary of changes
04/12/2020	W6343/2020/1	Works approval granted.

Interpretation

In this works approval:

(a) the words 'including', 'includes' and 'include' in Conditions mean "including but not limited to", and similar, as appropriate;

(b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;

(c) where tables are used in a Condition, each row in a table constitutes a separate Condition;

(d) any reference to an Australian or other standard, guideline or code of practice in this works approval means the version of the standard, guideline or code of practice in force at the time of granting of this works approval and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the works approval;

(e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act; and

(f) unless specified otherwise, all definitions are in accordance with the EP Act.

NOTE: This works approval requires specific Conditions to be met but does not provide any implied authorisation for other emissions, discharges, or activities not specified in this works approval.

Works approval conditions

The Works Approval Holder must ensure that the following Conditions are complied with:

Construction phase

Infrastructure and equipment

1. The Works Approval Holder must construct and/or install the infrastructure listed in Table 1, in accordance with;

(a) the corresponding design and construction / installation requirements; and

(b) at the corresponding infrastructure location,

as set out in Table 1.

Table 1: Design and construction / installation requirements

	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Composting hardstand	The hardstand of the composting facility must be constructed with the following specifications: a) Hardstand constructed of compacted in-situ material to a minimum 300 mm thickness; b) Hardstand constructed to achieve a maximum permeability of 1 x 10^{-9} metres per second or equivalent; c) Hardstand is 1,326 m^2 in size and graded with a 1:100 fall that prevents pooling of liquid; and d) Directs all leachate and run off into the evaporation pond specified in Row 3 of Table 1.	Referred to as 'Hardstand' in Figure 2 Site Layout Plan.
2.	Bunding for collection of leachate and storm water	The bunding must be constructed to the following specifications: a) Bunding must be constructed from compacted in-situ material around the perimeter of the composting hardstand area to retain surface run off on the hardstand area or direct it to the evaporation pond; and b) Bunding must be at least 200 mm high.	Located along the perimeter of the composting hardstand area as shown in the Premises Layout Map.
3.	Evaporation pond	The evaporation pond of the composting facility must be constructed with the following specifications: a) Lined of compacted in-situ material to a minimum 300 mm thickness; b) Constructed to achieve a maximum permeability of 1 x 10^{-9} metres per second or equivalent; c) The evaporation pond is to be constructed	Referred to as 'Evaporation Pond' in Figure 2 Site Layout Plan.

	Infrastructure	Design and construction / installation requirements	Infrastructure location
		with capacity to store 309 m^3 (1-in-20 year winter rainfall event) without overflow; and d) Designed so that a minimum top of embankment freeboard of 500 mm is able to be maintained during operation.	
4.	Diversion drain	The diversion drain of the composting facility must be constructed with the following specifications: a) Compacted in-situ material with a maximum permeability of 1 x 10^{-9} metres per second; and b) Constructed upslope of hardstand area and directs all stormwater away from hardstand area specified in Row 2 of Table 1.	Located upslope of hardstand area
5.	Perimeter fencing / site security	The Premises is to be secured: a) By a fence at least 1.8 metres high made of non-combustible materials; and b) By entrance gates to the premises that are able to be securely locked when the premises is unattended.	Located around entire perimeter of Premises.

2. The Works Approval Holder must undertake construction quality assurance testing of the composting hardstand, evaporation pond and diversion drain, as specified in Table 1, in accordance with the requirements of Table 2.

Table 2: Construction quality assurance testing

	Item	Property	Standards/Method	Frequency	Maximum value
1.	Composting hardstand	Permeability	AS 1289	1 sample per 2500m^2	1x10^{-9} m/s
2.	Evaporation pond	Permeability	AS 1289	1 sample per 2500m^2	1x10^{-9} m/s
3.	Diversion drain	Permeability	AS 1289	1 sample per 2500m^2	1x10^{-9} m/s

3. The Works Approval Holder must ensure the permeability and compaction testing, as specified in Table 2, is conducted by a suitably qualified engineer experienced in geotechnical testing.

Specified actions

4. The Works Approval Holder must design, construct, and install:

(a) One upgradient groundwater monitoring well; and

(b) Two down gradient groundwater monitoring wells,

in accordance with requirements specified in Table 3.

Table 3: Infrastructure requirements – groundwater monitoring wells

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
Groundwater monitoring wells MB01 (upgradient) MB02 (downgradient) MB03 (downgradient)	<u>Well design and construction:</u> Designed and constructed in accordance with *ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring bores*. Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination[1]. Where temporary/seasonal perched features are present, wells must be nested, and the perched features individually screened.	To be determined by applicant. Must be installed at relevant locations hydraulically up gradient and down gradient from the composting infrastructure.	<u>Upgradient well MB01</u> - Must be constructed, developed (purged), and determined to be operational prior to the commencement of time limited operations. <u>Downgradient wells MB02 and MB03</u> - Must be constructed, developed (purged), and determined to be operational within 12 months of the commencement of the works approval.
	<u>Logging of borehole:</u> Soil samples must be collected and logged during the installation of the monitoring wells. A record of the geology encountered during drilling must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726. Any observations of staining / odours or other indications of contamination must be included in the bore log.		
	<u>Well construction log:</u> Well construction details must be documented within a well construction log to demonstrate compliance with *ASTM D5092/D5092M-16*. The construction logs shall include elevations of the top of casing position to be used as the reference point for water-level measurements, and the elevations of the ground surface protective installations.		
	<u>Well development:</u> All installed monitoring wells must be developed after drilling to remove fine sand, silt, clay and any drilling mud residues from around the well screen to ensure the hydraulic functioning of the well. A detailed record should be kept of well development activities and included in the well construction log.		

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
	Installation survey: the vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.		
	Well network map: a well location map (using aerial image overlay) must be prepared and include the location of all monitoring wells in the monitoring network and their respective identification numbers.		

Note 1: refer to Section 8 of Schedule B2 of the Assessment of Site Contamination NEPM for guidance on well screen depth and length.

5. The Works Approval Holder must install and sample the upgradient groundwater monitoring well, prior to commencement of Time Limited Operations. Sampling must be conducted in accordance with the requirements specified in Schedule 3 and the results of all monitoring activity conducted under that event must be recorded.

6. The Works Approval Holder must adhere to the field quality assurance and quality control procedures specified in Schedule 3 for the monitoring required by Condition 5.

7. The Works Approval Holder must ensure that all groundwater sample analysis, for monitoring undertaken in accordance with Condition 5, be undertaken by laboratories with current accreditation from the National Association of Testing Authorities (NATA) for the relevant parameters, unless otherwise specified in Schedule 3.

Environmental compliance reporting

8. The Works Approval Holder must within 60 calendar days of the completion of the infrastructure specified by Conditions 1 and 4(a);

(a) undertake an audit of their compliance with the requirements of Conditions 1 and 4; and

(b) prepare and submit to the CEO an Environmental Compliance Report on that compliance.

9. The Environmental Compliance Report required by Condition 8(b), must include as a minimum the following:

(a) certification by a Suitably Qualified Engineer that each item of infrastructure or component(s) thereof, as specified in Condition 1 and Table 1, have been constructed in accordance with the relevant requirements specified in Condition 1 and Table 1;

(b) certification by a Suitably Qualified Engineer that the geotechnical testing conducted in accordance with Condition 3, meets the relevant requirements specified in Condition 2 and Table 2;

(c) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in Condition 1 and Table 1;

(d) well construction logs, installation survey data and a detailed site location for the upgradient monitoring well as specified in Condition 4, Table 3;

(e) a summary that details the results of the first groundwater monitoring event in accordance with the reporting requirements in Schedule 3 and including an assessment of compliance with Conditions 5, 6 and 7;

(f) be signed by a person authorised to represent the works approval holder and contains the printed name and position of that person; and

(g) where a departure from the requirements specified in Table 1 occurs, the Works Approval Holder must provide to the CEO a description of, and explanation for the departure.

Dust emissions

10. The Works Approval Holder must manage dust generation at the Premises by applying water, as needed, to unsealed roads and exposed construction areas to prevent visible dust being generated, during hours of operation and/or while undertaking construction activities involving earthworks.

Time limited operations phase

11. The Works Approval Holder may commence Time Limited Operations:

(a) for a period not exceeding 180 calendar days from the date of submission of the Environmental Compliance Report required by Condition 8(b) of this Works Approval; or

(b) until such time as a licence for that item of infrastructure is granted in accordance with Part V of the *Environmental Protection Act 1986* and only where this occurs prior to 180 calendar days from the day the works approval holder meets the requirements of Condition 8(b) for that item of infrastructure.

12. The Works Approval Holder must ensure that the premises infrastructure and equipment listed in Table 1 and located at the corresponding infrastructure location is maintained in good working order and in accordance with the design specifications outlined in Table 1.

13. The Works Approval Holder must implement the following security measures at the Premises:

(a) maintain suitable fencing to limit unauthorised access to the site;

(b) ensure that any entrance gates to the Premises are securely locked when the Premises is unattended; and

(c) undertake regular inspections of all security measures and repair damage as soon as practicable.

14. The Works Approval Holder must submit to the CEO a report on the Time Limited Operations within 60 days of the completion date of Time Limited Operations.

15. The Works Approval Holder must ensure the report required by Condition 14 of this Works Approval includes at minimum the following:

(a) a summary of the Time Limited Operations, including timeframes, quantities of waste accepted and processed, and the quantity of compost produced;

(b) review of the Work Approval Holder's performance and compliance against the Conditions of the Works Approval during Time Limited Operations;

(c) a summary that details groundwater monitoring results obtained during Time Limited Operations in accordance with the reporting requirements in Schedule 3 and including an assessment of compliance with Conditions 23, 24 and 25;

(d) a summary of the product testing data obtained during Time Limited Operations under Condition 26;

(e) a summary of any failure or malfunction of any pollution control equipment or any incidents that have occurred during the Time Limited Operations period and any action taken;

(f) a summary of the environmental performance of all infrastructure as constructed or installed (as applicable);

(g) a complaints summary received during Time Limited Operation whereby the Works Approval Holder must record the following information received by the Works Approval Holder (whether received directly from a complainant or forwarded to them by the Department or another party) about any alleged emissions from the Premises:

i) the name and contact details of the complainant, (if provided);
ii) the time and date of the complaint;
iii) the complete details of the complaint and any other concerns or issues raised; and
iv) the complete details and dates of any action taken by the Works Approval Holder to investigate or respond to any complaint.

16. The Works Approval Holder must within 60 calendar days of the completion of the downgradient groundwater monitoring wells specified by Condition 4(b);

(a) undertake an audit of their compliance with the requirements of Conditions 4; and

(b) prepare and submit to the CEO a Groundwater Monitoring Well Construction Report on that compliance.

17. The Groundwater Monitoring Well Construction Report, required by Condition 16 must include as a minimum the following:

(a) well construction logs, installation survey data and a detailed site location for the downgradient monitoring wells as specified in Condition 4, Table 3;

(b) be signed by a person authorised to represent the Works Approval Holder and contains the printed name and position of that person; and

(c) where a departure from the requirements specified in Table 3 occurs, the Works Approval Holder must provide to the CEO a description of, and explanation for the departure.

Waste acceptance and throughput restrictions

18. During Time Limited Operations, the Works Approval Holder must only accept onto the premises waste of a waste type, which does not exceed the corresponding rate at which waste is received, and which meets the corresponding acceptance specification set out in Table 4.

Table 4: Types of waste authorised to be accepted onto the premises

Waste type	Rate at which waste is received	Acceptance specification
Spent hens	1,300 tonnes per annual period	Must direct spent hen carcasses accepted at the Premises directly to the composting hardstand and incorporate into a compost windrow on the day of receipt.
Animal manure	520 tonnes per annual period	Must direct animal manures accepted at the Premises directly to the composting hardstand and incorporate into a compost windrow within 14 days of receipt.
Vegetative waste, straw and/or hay	260 tonnes per annual period	May store vegetative waste, straw or hay at the Premises.

19. The Works Approval Holder must visually inspect all waste on arrival at the Premises and again before it enters any stockpile or treatment process to ensure that it complies with the waste acceptance criteria specified in Table 4.

20. The Works Approval Holder must ensure that where waste does not meet the waste acceptance criteria set out in Condition 18 it is removed from the Premises by the delivery vehicle or, where that is not possible, stored in a quarantined storage area or container and removed to an appropriately authorised facility as soon as practicable.

Waste processing specifications

21. The Works Approval Holder must ensure that all wastes accepted onto the Premises are only subjected to the corresponding processes in accordance with the corresponding process requirements set out Table 5.

Table 5: Waste processing

Waste Type	Process	Process requirements
Spent hens and animal manure	Receipt, handling and storage prior to composting.	(a) Spent hens waste shall be incorporated into a compost windrow on the day of receipt; (b) Animal manure waste shall not be stored for longer than 14 days before being added to the composting process; (c) Waste shall only be accepted and stored onto the compost facility hardstand specified in Row 1 of Table 1;
	Treatment by composting and pasteurisation	(a) Waste shall only be composted on the compost facility hardstand specified in Row 1 of Table 1; (b) Ensure that an input nutrient balance (carbon: nitrogen ratio) of 25:1 to 35:1 is achieved when forming windrows; (c) The core temperature of the composting windrow is maintained between 55 ºC and 65 ºC during the initial aerobic composting process for ≥15 consecutive days through the process of pasteurisation;

		(d) Each compost windrow is turned a minimum of five times through the process of pasteurisation; (e) Moisture content in the composting piles shall be maintained between 45 and 65 per cent; (f) Windrows shall not exceed 39 metres long, 4 metres wide and 2 metres high; (g) Windrows must be separated with at least 6 metres of clear ground or a physical barrier constructed of non-combustible materials; (h) A buffer zone of at least 6 metres of cleared ground must be maintained between stockpile/windrow areas and the boundary fence line; (i) A buffer zone of at least 6 metres of cleared ground separation distance between the final product storage area and composting area will be applied as a fire prevention measure; (j) Compost windrows shall be located within the composting area as specified in Figure 2 of Schedule 1; (k) Leachate shall only be applied to windrows during initial aerobic composting process; (l) Composting leachate is collected within the evaporation pond specified in Row 3 of Table 1 and returned to the composting process; (m) Fire wash water collected from fire services or fire truck shall not be applied to windrows during the composting process; and (n) The evaporation pond specified in Row 3 of Table 1 is maintained to be free of debris and accumulated sediment.
	Final product storage and removal from the premises	Storage for final compost product shall be located within the final product storage area specified in Figure 2 of Schedule 1.

22. The Works Approval Holder must ensure final Compost Product is not for commercial sale and is only to be used on land occupied by the Work Approval Holder.

Monitoring

23. The Works Approval Holder must conduct groundwater monitoring during Time Limited Operations in accordance with the requirements specified in Schedule 3 and record the results of all monitoring activity conducted under those events.

24. The Works Approval Holder must adhere to the field quality assurance and quality control procedures specified in Schedule 3 for the monitoring required by Condition 23.

25. All groundwater sample analysis, for monitoring undertaken in accordance with Condition 23, must be undertaken by laboratories with current accreditation from the National Association of Testing Authorities (NATA) for the relevant parameters, unless otherwise specified in Schedule 3.

26. The Works Approval Holder shall undertake the monitoring in Table 6 according to the specifications in that table.

Table 6: Process monitoring

Monitoring point	Process description	Parameter	Units	Frequency	Method
Compost windrows	Composting	Temperature	ºC	Daily	None specified
		Moisture content	%	Weekly	None specified

27. The Works Approval Holder must record the total amount of waste accepted onto the premises, for each waste type listed in Table 7, in the corresponding unit, at the corresponding frequency, as set out in Table 7.

Table 7: Waste accepted onto the Premises

Waste type	Unit	Frequency
Spent hens	m^3 and tonnes	Each load arriving at the Premises
Animal manure		
Vegetative waste		

28. The Works Approval Holder must record the total amount of waste removed from the premises, for each waste type listed in Table 8, in the corresponding unit, at the corresponding frequency set out in Table 8.

Table 8: Waste removed from the Premises

Waste type	Unit	Frequency
Waste types as defined in the Landfill Definitions	m^3 and tonnes	Each load leaving or rejected from the Premises

29. The Works Approval Holder must record the final production rate, for each product type listed in Table 9, in the corresponding unit, and for each corresponding time period set out in Table 9.

Table 9: Final product production rate

Waste type	Unit	Frequency
Compost	m^3 and tonnes	Each load produced and leaving or rejected from the premises

Records and reporting

30. The Works Approval Holder must maintain accurate and auditable books including the following records, information, reports, and data required by this works approval:

(a) the works conducted in accordance with Condition 1;

(b) any maintenance of infrastructure that is performed in the course of complying with Condition 1 and Condition 12;

(c) monitoring programmes undertaken in accordance with Conditions 23, 24, 25 and 26;

(d) monitoring data obtained in accordance with Conditions 27, 28 and 29; and

(e) complaints received under Condition 15(g).

31. The books specified under Condition 30 must:

(a) be legible;

(b) if amended, be amended in such a way that the original version(s) and any subsequent amendments remain legible and are capable of retrieval;

(c) be retained by the works approval holder for the duration of the works approval; and

(d) be available to be produced to an inspector or the CEO as required.

Definitions

In this works approval, the terms in Table 10 have the meanings defined.

Table 10: Definitions

Term	Definition
ACN	Australian Company Number
AHD	Australian Height Datum
Annual period	a 12-month period commencing from 1 April until 31 March of the immediately following year.
AS 1289	Means the Australian Standard 1289 *Methods of testing soils for engineering purposes series*
bgl	Below Ground Level
books	has the same meaning given to that term under the EP Act.
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department administering the *Environmental Protection Act 1986* Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
Compost	means an organic product that has undergone controlled aerobic and thermophilic biological transformation through the composting process.
Composting	the process whereby organic materials are microbiologically transformed under controlled aerobic conditions.
Compost Product	means the final composted material ready for dispatch from the Premises.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V Division 3 of the EP Act.
discharge	has the same meaning given to that term under the EP Act.
emission	has the same meaning given to that term under the EP Act.
Environmental Compliance Report	means a report to satisfy the CEO that the conditioned infrastructure and/or equipment has been constructed and/or installed in accordance with the works approval.
EP Act	*Environmental Protection Act 1986* (WA).

Term	Definition
EP Regulations	*Environmental Protection Regulations 1987* (WA).
Freeboard	means the distance between the maximum water surface elevations and the top of retaining banks or structures at their lowest point.
Landfill Definitions	means the document *Landfill Waste Classification and Waste Definitions 1996*, as amended from time to time.
Leachate	means liquid released by or water that has percolated through waste and which contains some of its constituents.
mg/L	Milligrams Per Litre
NATA	National Association of Testing Authorities, Australia
Premises	the Premises to which this Works Approval applies, as specified at the front of this Works Approval and as shown on the Premises map (Figure 1) in Schedule 1 to this works approval.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Primary activities	means those activities that meet the description of the categories which are the subject of this works approval (refer to page 1) and that which are defined in Schedule 1 of the EP Regulations.
Quarterly period	means the four inclusive periods from 1 January to 31 March, 1 April to 30 June, 1 July to 30 September and 1 October to 31 December.
Suitably qualified engineer	means a person who: a) demonstrates competency in the area of civil or structural engineering; and b) has a minimum of at least three years working in the area of civil or structural engineering; and c) is employed by an independent third party external to the Works Approval Holder's business; or is otherwise approved in writing by the CEO to act in this capacity.
Time Limited Operations	refers to the operation of the infrastructure and equipment identified under this works approval that is authorised for that purpose, subject to the relevant Conditions.
Waste	has the same meaning given to that term under the EP Act.
Works	refers to the Works described in Schedule 2, at the locations shown in Schedule 1 of this Works Approval to be carried out at the Premises, subject to the Conditions.

Term	Definition
Works Approval	refers to this document, which evidences the grant of the works approval by the CEO under section 54 of the EP Act, subject to the Conditions.
Works Approval Holder	refers to the occupier of the premises being the person to whom this works approval has been granted, as specified at the front of this works approval.

END OF CONDITIONS

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is shown in the map below (Figure 1).

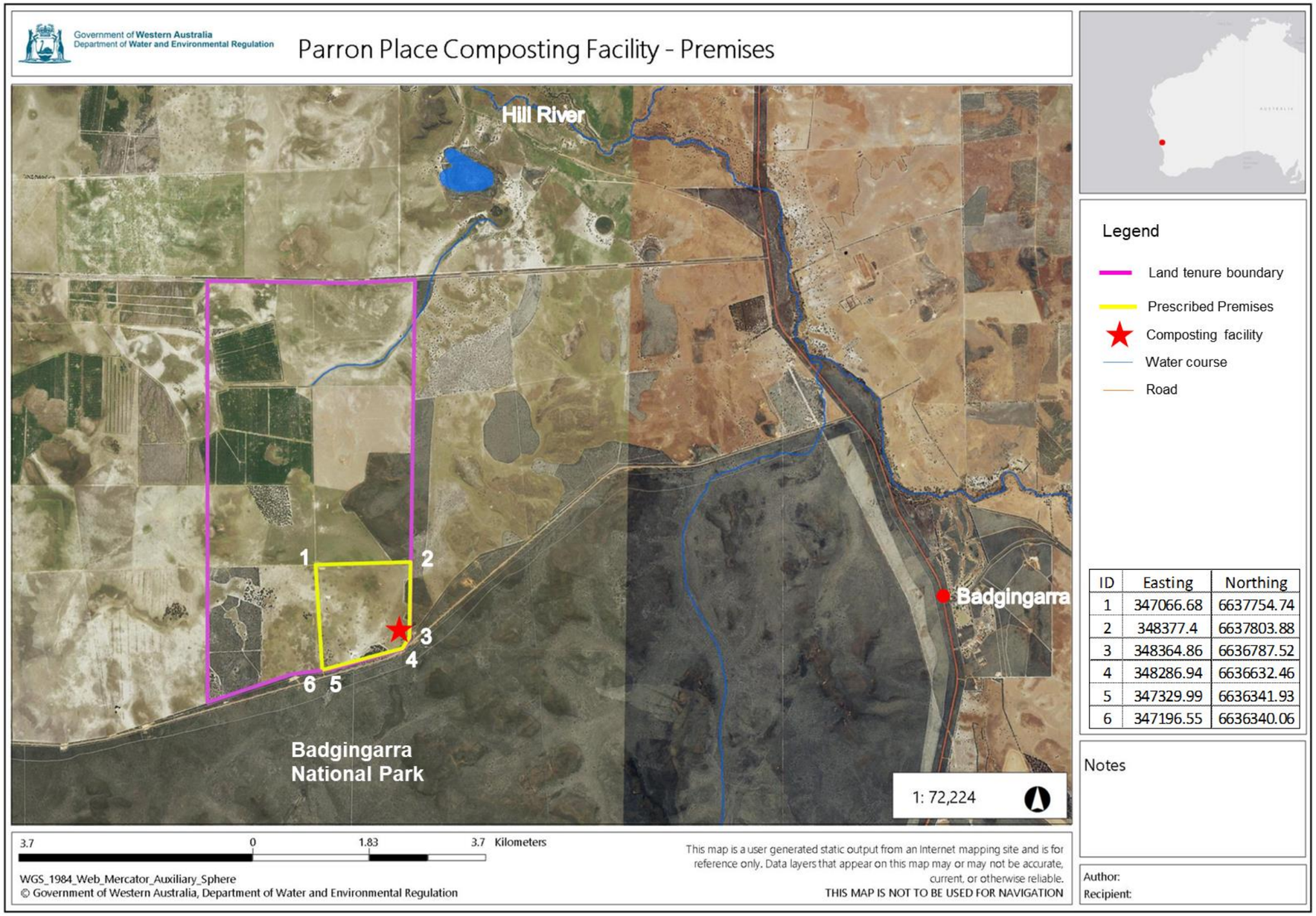

Figure 1: Map of the boundary of the prescribed premises

Site layout

The site layout plan of the composting facility is shown in the map below (Figure 1).

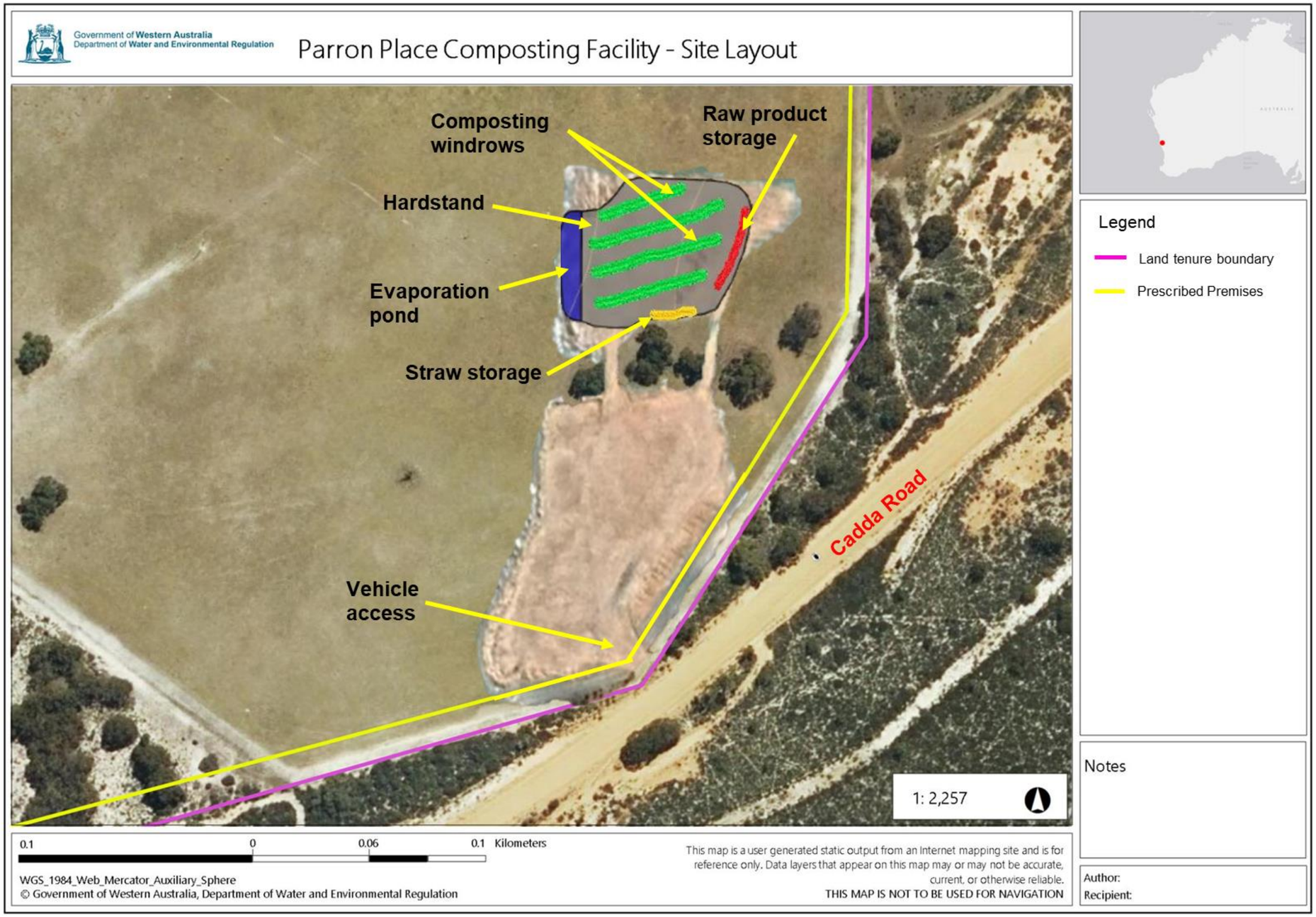

Figure 2: Site layout plan

Premises boundary

The premises boundary is defined by the coordinates in Table 11.

Table 11: **Premises boundary coordinates**[1]

Easting	Northing
347066.68	6637754.74
348377.40	6637803.88
348364.86	6636787.52
348286.94	6636632.46
347329.99	6636341.93
347196.55	6636340.06

Note 1: GDA 1994 MGA Zone 50

Schedule 2: Works and activities

At the time of assessment, Emissions and Discharges from the Works listed in Table 12 were considered in the determination of the risk and related for the Works Approval.

Table 12: Authorised Works

Works	Specifications/Drawings
Composting facility	Composting Facility Layout, (Figure 2) (as submitted on 17 December 2019)

Site layout

The infrastructure and equipment are set out on the Premises in accordance with the Composting Facility Layout Plan and Groundwater monitoring locations depicted under Schedule 1.

Schedule 3: Monitoring

Groundwater monitoring

The works approval holder must monitor groundwater for concentrations of the identified parameter(s) in accordance with Table 13.

Table 13: Groundwater monitoring of ambient concentrations

Monitoring well location	Parameter	Unit	Frequency	Method
MB01 MB02 MB03	Standing water level[1]	mAHD and mbgl	**Prior to time limited operations:** One sampling event[2] **During time limited operations[3]:** Quarterly[4,5]	Spot sample, in accordance with AS/NZS 5667.11
	pH[1]	-		
	Electrical conductivity[1]	ms/cm		
	Redox potential[1]	Eh		
	Dissolved oxygen[1]	mg/L		
	Reactive phosphorus			
	Total dissolved solids (TDS)			
	Ammonia (as nitrogen)			
	Nitrite (as nitrogen)			
	Nitrate (as nitrogen)			
	Total Kjeldahl nitrogen (TKN)			
	Total nitrogen			
	Total phosphorus			
	Dissolved metals (arsenic, cadmium, chromium, copper, lead, mercury nickel potassium, selenium, zinc, manganese, iron and aluminum)			

Note 1: In-field non-NATA accredited analysis permitted.
Note 2: Only the up gradient groundwater monitoring well (MB01) is required to be sampled prior to time limited operations
Note 3: If the duration of time limited operations is less than 90 days, only one sampling event is required.
Note 4: Sampling for the down gradient monitoring wells (MB02 and MB03) to be conducted once constructed in accordance with Condition 4(b).
Note 5: Quarterly sampling must be undertaken at least 45 days apart.

Groundwater monitoring reporting requirements

Summaries of groundwater monitoring which are required to be included in the Environmental Compliance Report and Time Limited Operations reports must include:

(a) a clear statement of the scope of work carried out;

(b) a description of the field methodologies employed;

(c) a summary of the field and laboratory quality assurance / quality control (QA/QC) program;

(d) copies of the field monitoring records and field QA/QC documentation;

(e) an assessment of reliability of field procedures and laboratory results;

(f) a tabulated summary of results, as well as all raw data provided in an accompanying Microsoft Excel spreadsheet digital document/file (or a compatible equivalent digital document/file), with all results being clearly referenced to laboratory certificates of analysis;

(g) a diagram with aerial image overlay showing all monitoring locations and depicting groundwater level contours, flow direction and hydraulic gradient (relevant site features including discharge points and other potential sources of contamination must also be shown);

(h) an interpretive summary and assessment of the results against relevant assessment levels for water, as published in the Guideline Assessment and management of contaminated sites;

(i) an interpretive summary and assessment of results against previous monitoring results;

(j) an interpretive summary and assessment of the results against relevant assessment levels for water, as published in the Guideline Assessment and management of contaminated sites; and

(k) trend graphs to provide a graphical representation of historical results and to support the interpretive summary.

Quality assurance and quality control requirements

The works approval holder must adhere to the following field quality assurance and quality control procedures, as specified in Schedule B2 of the Assessment of Site Contamination NEPM, and must include as a minimum:

(a) decontamination procedures for the cleaning of tools and sampling equipment before sampling and between samples;

(b) field instrument calibration for instruments used on site;

(c) blind replicate samples and rinsate blanks must be collected in the field and sent to the primary laboratory to determine the precision of the field sampling and laboratory analytical program;

(d) completed field monitoring sheets / sampling logs for each sample collected, showing:

(i) time of collection;
(ii) location of collection;
(iii) initials of sampler;
(iv) sampling method;

(v) field analysis results;
(vi) duplicate type / location (if relevant);
(vii) site observations and weather conditions, and

(e) chain-of-custody documentation must be completed which details the following information:

(i) site identification;
(ii) the sampler;
(iii) nature of the sample;
(iv) collection time and date;
(v) analyses to be performed;
(vi) sample preservation method;
(vii) departure time from site;
(viii) dispatch courier(s); and
(ix) arrival time at the laboratory