Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6306/2019/1
Works approval holder	Wannamal Rd Organics Pty Ltd
ACN	604 725 019
Registered business address	488 Nicholson Road FORRESTDALE WA 6162
DWER file number	DER2019/000424
Duration	11/06/2020 to 10/06/2023
Date of issue	11 June 2020
Premises details	Wannamal Rd Organics Pty Ltd Wannamal Road West CULLALLA WA 6503 Legal description - Part of Lot 7779 on Deposited Plan 209806 Certificate of Title Volume 1608 Folio 716 As defined by the coordinates in Schedule 1

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production or 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.	50,000 tonnes per year
Category 61: Liquid waste facility: premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.	18,250 tonnes per year

This works approval is granted to the works approval holder, subject to the attached conditions, on 11 June 2020, by:

Melissa Chamberlain
Digitally signed by Melissa Chamberlain
Date: 2020.06.11 13:36:21 +08'00'

Melissa Chamberlain
A/MANAGER – WASTE INDUSTRIES
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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 or install the infrastructure listed in Table 1, in accordance with:

(a) the corresponding design and construction requirement; and

(b) at the corresponding infrastructure location;

as set out in Table 1.

2. The works approval holder must not depart from the requirements specified in Table 1 except:

(a) where such a departure does not increase risks to public health, public amenity or the environment; and

(b) all other conditions in this works approval are still satisfied.

Table 1: Design and construction requirements

	Infrastructure	Design and construction requirement	Infrastructure location
1.	Subgrade of the composing facility	The subgrade of the composting facility must be constructed with the following specifications: • The subbase will be constructed of crushed recycled building material to a minimum 300 mm thickness.	Located in the area marked “Stage 1” as depicted in the Premises Layout Map as shown in Figure 2.

	Infrastructure	Design and construction requirement	Infrastructure location
2.	Hardstand for composting windrows and stockpiling	The hardstand of the composting facility must be constructed with the following specifications: • Constructed in accordance with the design drawings provided in Figure 3 of Schedule 1 (for the Stage 1 area only); • Asphalt hardstand constructed to a minimum 100 mm thickness; • The hardstand for Stage 1 is to be seven hectares in size and include a 1:100 gradient to the leachate and collection basin specified in Row 4 of Table 1; and • Asphalt hardstand to be constructed to achieve a coefficient of permeability 1 x 10^{-9} metres per second or less.	Located in accordance with Stage 1 of the Premises Layout Map as shown in Figure 2.
3.	Bunding for collection of leachate and storm water	The bunding must to constructed to the following specifications: • Asphalt bunding must be constructed around the entire perimeter of the Stage 1 composting area; and • The asphalt bunding must be at least 200 mm high.	Located along the perimeter of the Stage 1 composting area as shown in the Premises Layout Map.

	Infrastructure	Design and construction requirement	Infrastructure location
4.	Asphalt lined leachate and storm water collection basin	The leachate and stormwater collection basin must be constructed with the following specifications: • Constructed in accordance with the design drawings provided in Figure 3 of Schedule 1; • The collection basin must be constructed with a material to achieve a coefficient of permeability 1 x 10^{-9} metres per second or less; • The collection basin is to be 141 metres wide by 123 metres in length and 4 metres in depth with a 1:2.2 side slope to allow for leachate from the composting hardstand to be contained; • The walls and base are to be constructed with material at least 200 mm in thickness; • Capacity to store a 168 hour duration, 1% AEP critical rainfall event without overflow; and • Designed so that a minimum top of embankment freeboard of 500 mm is able to be maintained during operation.	Located in accordance with the premises Layout Map as depicted in Figure 2.
5.	Perimeter fencing	The premises is to be secured by a fence at least 1.8 metres high made of non-combustible materials with gates that are able to be locked when the premises is unattended.	Located around entire perimeter of premises.

3. The works approval holder must undertake construction quality assurance testing of the asphalt hardstand and collection basin in accordance with Table 2.

Table 2: Construction quality assurance testing

Item	Property	Standards/Method	Frequency	Minimum value
Asphalt hardstand	Permeability	QLD Main Roads method Q304A: Permeability of asphalt – ponding method	1 sample per 2500m^2	1x10^{-9} m/s
Asphalt lined stormwater and leachate collection basin	Permeability			1x10^{-9} m/s

Specified Actions

4. The works approval holder must design, construct and install groundwater monitoring wells in accordance with the 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 (up gradient) MB02 (up gradient) MB03 (down gradient) MB04 (down gradient)	<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.	As depicted in Schedule 1, Figure 4: Map of groundwater monitoring well locations and labelled as MB01 to MB04.	Must be constructed, developed (purged), and determined to be operational prior to the commencement of time limited operations.
	<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 AS1726-2017. Any observations of staining / odours or other indications of contamination must be included in the bore log.		

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
	(continued from previous page) <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.		
	<u>Installation survey:</u> the vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor.		
	<u>Well network map:</u> 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 conduct one groundwater monitoring event prior to the commencement of Time Limited Operations in accordance with the requirements specified in Schedule 3 and record the results of all monitoring activity conducted under that event.

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. All groundwater sample analysis, for monitoring undertaken in accordance with condition 5 and 6, 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.

Environmental Compliance Report

8. The works approval holder must within 60 days of each item of infrastructure required by condition 1 and condition 4 being constructed:

(a) undertake an audit of their compliance with the requirements of condition 1 and condition 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 at minimum the following:

(a) certification by a suitably qualified person that each item of infrastructure or component of infrastructure specified in Table 1 has been constructed with no material defects and to the requirements specified Table 1;

(b) as constructed plans for each item of infrastructure specified in Rows 2, 3 and 4 of Table 1;

(c) where a departure from the requirements specified in Table 1 occurs and is of a type allowed by condition 2, the works approval holder must provide to the CEO a description of, and explanation for the departure;

(d) a well construction report evidencing compliance with the requirements of condition 4;

(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; and

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

Dust emissions controls

10. The works approval holder must ensure that no visible dust crosses the boundary of the premises from the works conducted on the premises.

11. The works approval holder must manage dust generation at the premises by maintaining unsealed roads and exposed construction areas in a damp state during operational hours.

Time Limited operations

12. The works approval holder may conduct 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.

13. The works approval holder must 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-line with the design specifications outlined in Table 1.

14. 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.

15. 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.

16. 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) a review of the work approval holder's performance and compliance against the conditions of the works approval for 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 21, 22 and 23;

(d) a summary of the product testing data obtained during Time Limited Operations under condition 25.

(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.

Waste acceptance and throughput restrictions

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

17. Table 4.

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

Waste type	Rate at which waste is received	Acceptance specification
Green waste	50,000 tonnes per annual period	No CCA treated timber is to be accepted at the Premises.
Liquid waste	18,250 tonnes per annual period	Liquid waste is limited to grease trap waste only. Liquid waste must only be accepted for direct application to green waste composting windrows.

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 in

18. Table 4.

19. The works approval holder must ensure that where waste does not meet the waste acceptance criteria set out in condition 17 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

20. 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
Green waste	Receipt, handling and storage prior to composting.	(a) Waste shall not be stored for longer than 48 hours before being added to the composting process; (b) Waste shall only be accepted and stored onto the compost facility specified in Row 2 of Table 1; and (c) Moisture content must be maintained at 25% or higher in stockpiles of feedstock.
	Treatment by composting and pasteurisation	(a) Waste shall only be composted on the compost facility specified in Row 2 of Table 1; (b) Windrows must be maintained in an aerobic state; (c) The core temperature of the composting pile is maintained between 55 ºC and 65 ºC during the initial aerobic composting process; (d) Moisture content in the composting piles shall be maintained between 45 and 65 per cent; (e) Dissolved oxygen level in the composting piles shall be maintained above 0.5 ppm; (f) Windrows shall not exceed 50 metres long, 10 metres wide and 5 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 minimum 21 metre separation distance between windrows in the green waste receival area; (j) Compost windrows shall be located within the composting area as specified in Figure 2 of Schedule 1;

		(k) Moisture content must be maintained at 25% or higher in finished compost product; (l) Liquid waste (grease trap waste) shall only be applied to windrows during the initial aerobic composting process; (m) Leachate and contaminated stormwater shall only be applied to windrows during initial aerobic composting process; (n) Composting leachate is collected within the stormwater and leachate collection basin specified in Row 4 of Table 1 and returned to the composting process; and (o) The stormwater and leachate collection basin specified in Row 4 of Table 1 is maintained to be free of debris and accumulated sediment.
	Final product storage and removal from the premises	Storage for final product shall be located within the final product storage area specified in Figure 2 of Schedule 1.

Dust Management

21. The works approval holder must ensure that no visible dust crosses the boundary of the premises from the primary activities conducted on the premises.

Monitoring

22. 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.

23. 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 20.

24. All groundwater sample analysis, for monitoring undertaken in accordance with condition 20, 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.

25. 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 piles	Composting	Temperature	ºC	Daily	None specified
		Moisture content	%	Weekly	None specified

		Dissolved Oxygen	ppm	Weekly	None specified

26. The works approval holder must ensure that the testing of all compost product is undertaken in accordance with AS4454.

27. The works approval holder must ensure that compost products are classified according to the product specification and end use(s) as determined by the physical and chemical quality specifications required by AS4454 prior to sale or distribution to customers.

28. 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
Green waste	m^3 and/or tonnes	Each load arriving at the premises
Liquid waste (Grease trap waste)		

29. 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/or tonnes	Each load leaving or rejected from the Premises

30. The works approval holder must record the total amount of product removed from the premises, for each product type listed in Table 9, in the corresponding unit, at the corresponding frequency set out in Table 9.

Table 9: Final product removed from the premises

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

Record-keeping

31. The works approval holder must maintain accurate books including information, reports and data in relation to the works and the books must:

    (a) be legible;

    (b) if amended, be amended in such a ways that the original and subsequent amendments remain legible or are capable of retrieval;

    (c) be retained for at least 3 years from the date the books were made;

    (d) be available to be produced to an Inspector or the CEO.

32. The works approval holder must comply with a Department request within 14 days from the date of the Department request or such other period as agreed to by the Inspector or the CEO.

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
AS1726	means the Australian Standard AS1762 *Geotechnical site investigations*, as amended from time to time.
AS4454	means the Australian Standard AS 4454 Compost, soil conditioners and mulches.
ASTM D5092/D5092M-16	ASTM D5092/D5092M-16 means the ASTM international standard for *Standard practice for design and installation of groundwater monitoring wells (Designation: ASTM D5092/D5092M-16)*, as amended from time to time.
AS/NZS 5667.11	means the Australian Standard *AS/NZS 5667.11 (R2016) Water quality – sampling – guidance on sampling groundwater*, as amended from time to time.
Assessment of Site Contamination NEPM	means the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended from time to time.
bgl	below ground level
books	has the same meaning given to that term under the EP Act.
CCA	Copper Chromium Arsenic
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.

Term	Definition
condition	means a condition to which this works approval is subject under s.62 of the EP Act.
damp	means slightly wet and moist to touch.
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.
Department request	means a request for books or other sources of information to be produced, made by an Inspector or the CEO to the works approval holder in writing and sent to the works approval's address for notifications, as described at the front of this works approval, in relation to: (a) compliance with the EP Act or this works approval; (b) the books or other sources of information maintained in accordance with this works approval; or (c) the books or other sources of information relating to emissions from the premises.
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).
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.
grease trap waste	as defined under Schedule 1 of the *Environmental Protection (Controlled Waste) Regulations 2004*
green waste	means waste that originates from untreated trees or plants.
Landfill Definitions	means the document titled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer of the Department of Water and Environmental Regulation 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
ms/cm	milliseimens per centimetre
NATA	National Association of Testing Authorities, Australia

Term	Definition
NEPM	means National Environmental Protection Measure
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.
QLD Main Roads method Q304A	means the document titled Department of Transport and Main Roads "Materials testing manual". Queensland government. Edition 4. Amendment 4, December 2017.
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 person	means a person who: (a) demonstrates competency in the area of civil 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.
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.

Schedule 1: Maps

Premises map

The boundary of the prescribed premises is depicted in the area cross-hatched yellow shown in the map below (**Figure 1**).

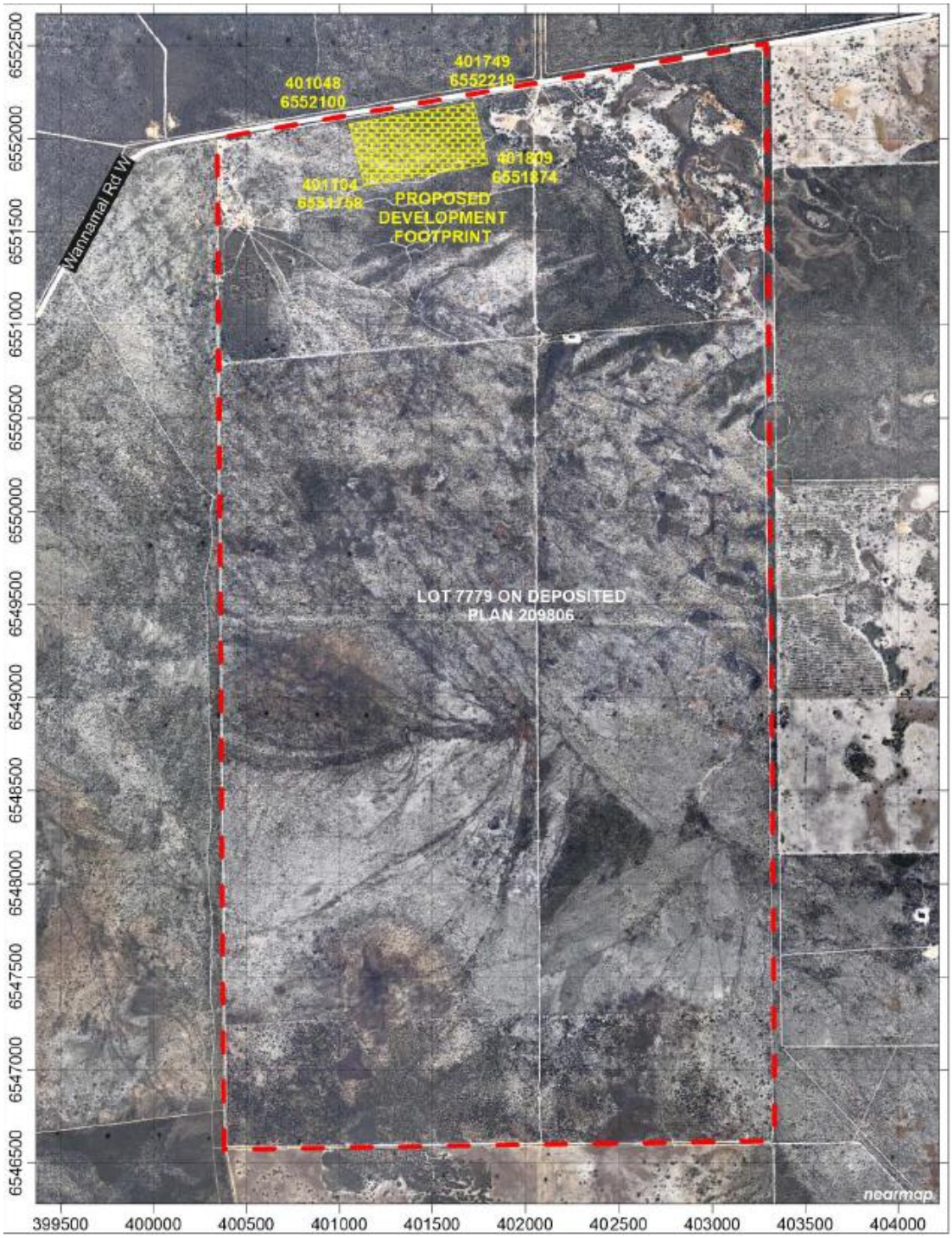

Figure 1: Map of the boundary of the prescribed premises

Source: Figure provided by the applicant

Premises Layout map

The Premises Layout Map below depicts the proposed stage layout for the composting facility with Stage 1 being the subject of this works approval (**Figure 2**).

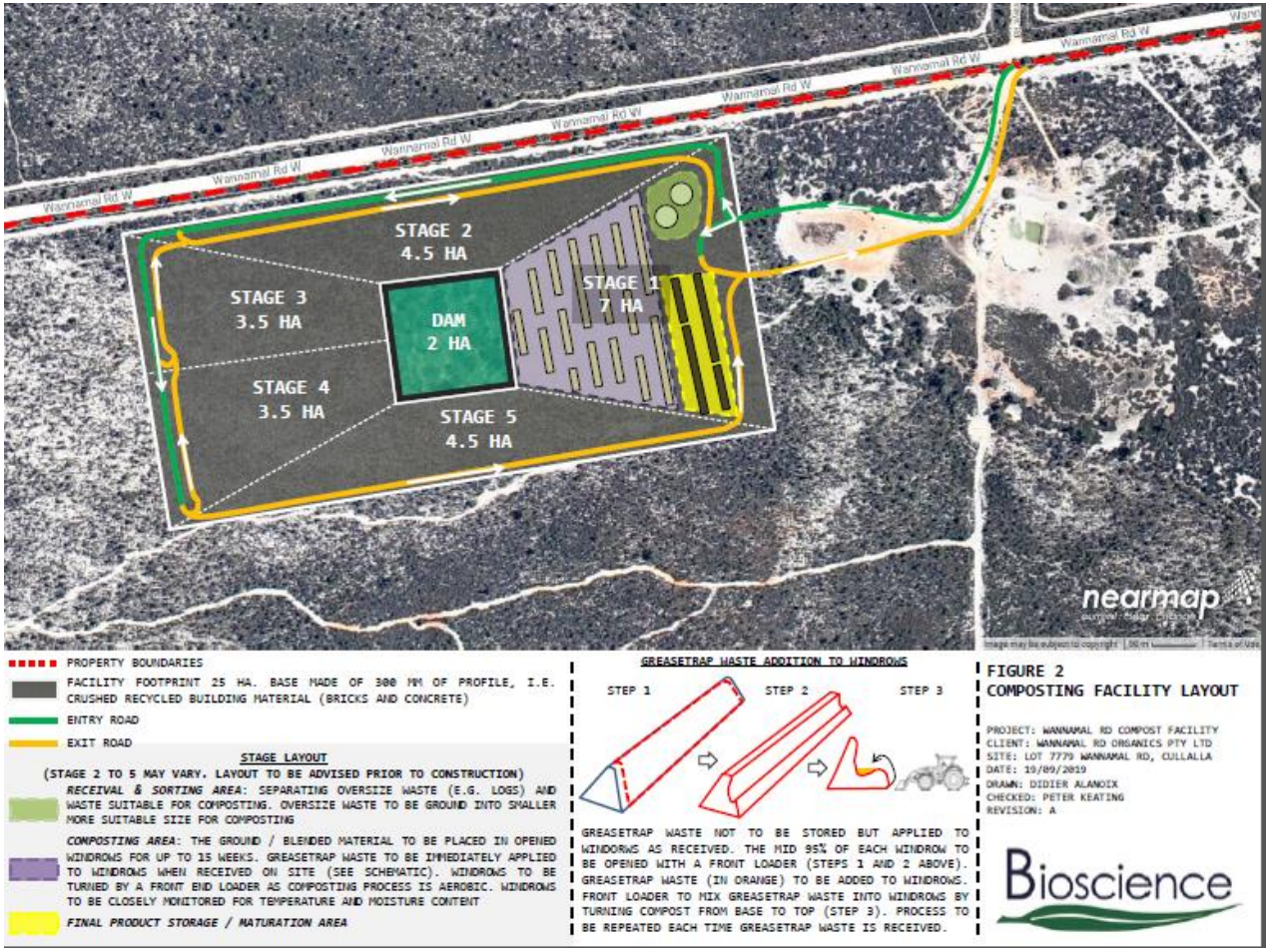

Figure 2: Proposed composting facility layout

Source: Figure provided by the applicant

Cross-section and dimensions of composting facility

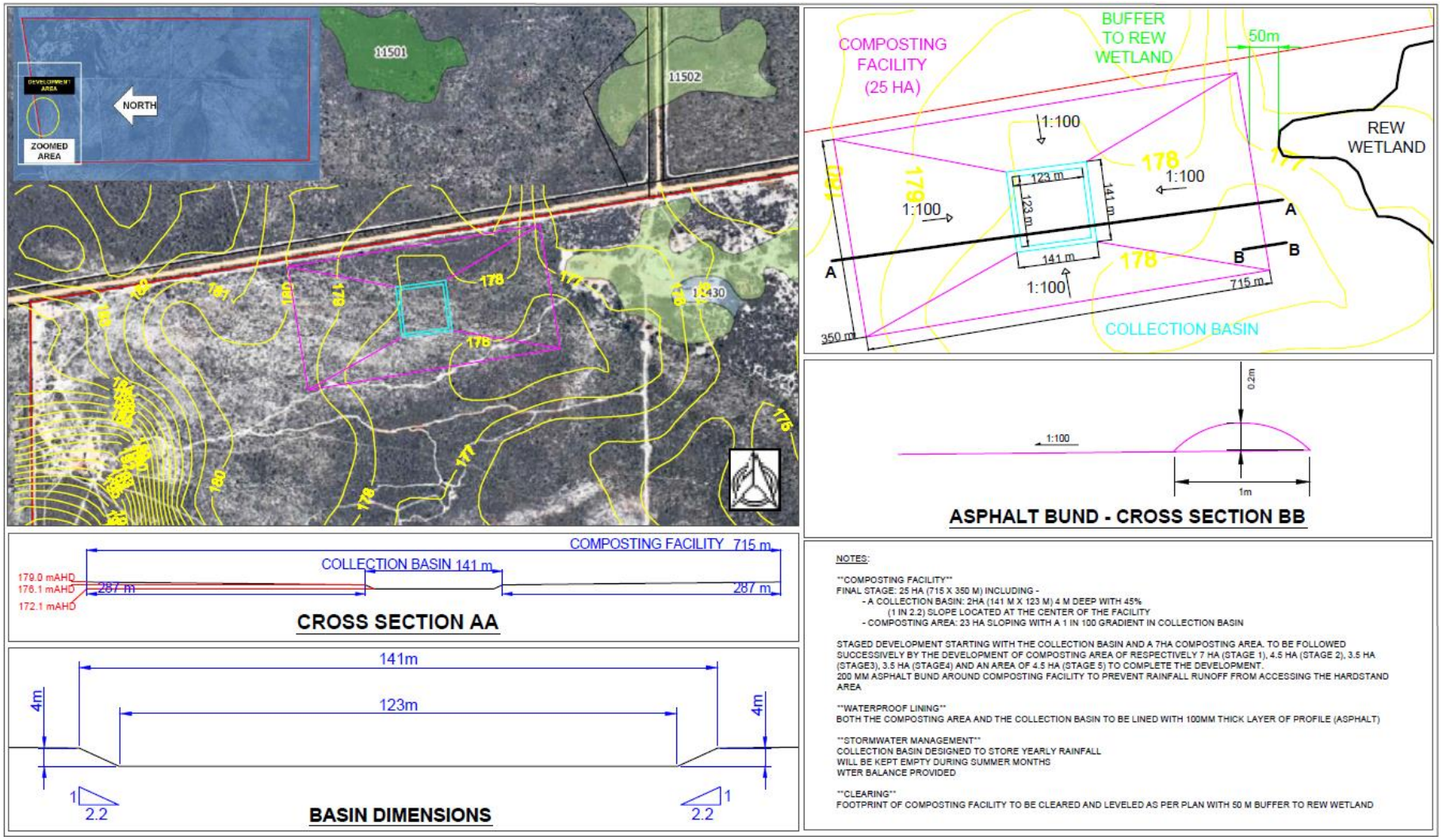

Figure 3: Cross section and dimensions of Composting Facility (Drawing submitted as part of the application)

Source: Figure provided by the applicant

Map of groundwater monitoring locations

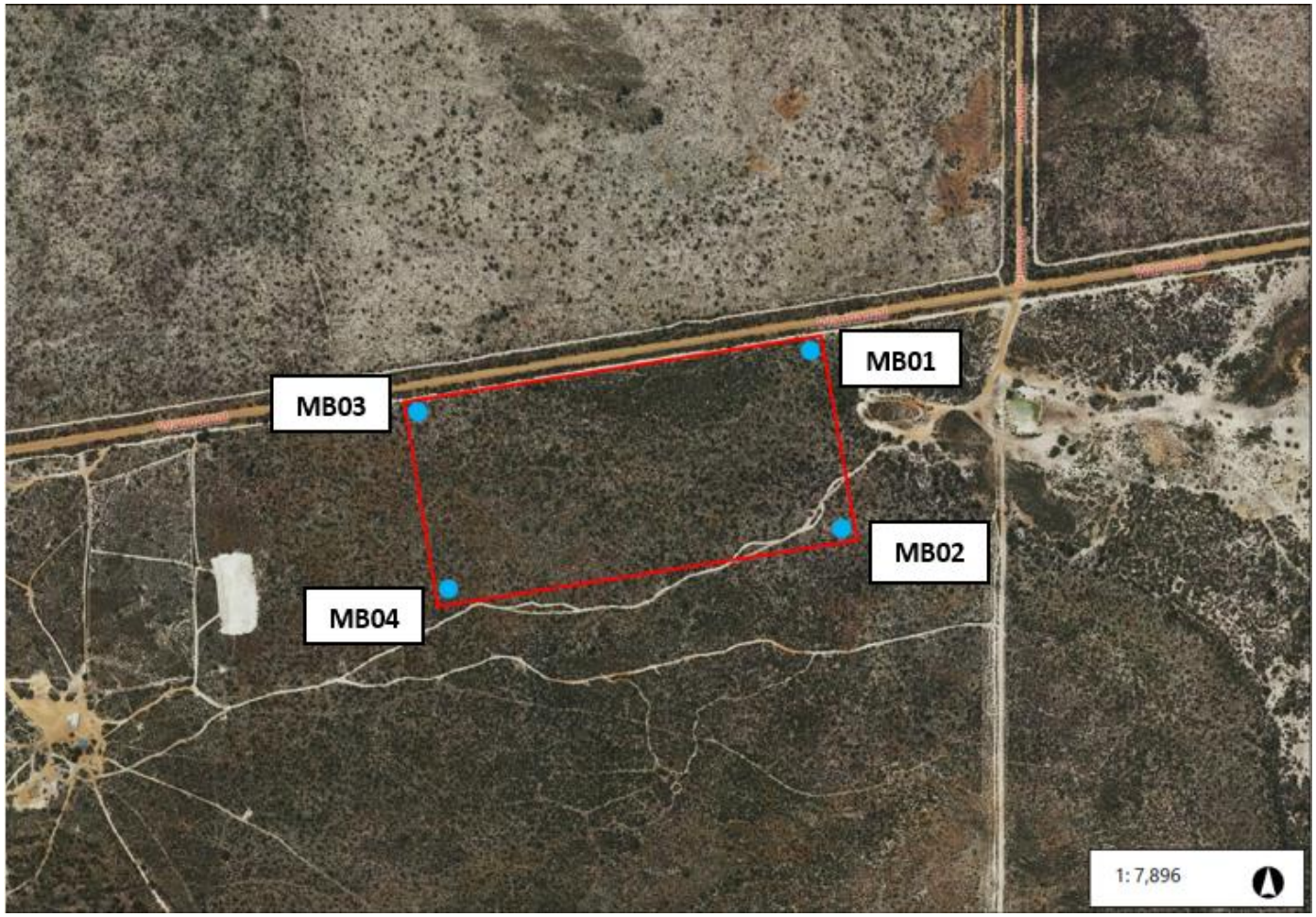

Figure 4: Map of groundwater monitoring locations

Premises boundary

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

Table 11: Premises boundary coordinates[1]

Easting	Northing
401048	6552100
401749	6552219
401104	6551758
401809	6551874

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 conditions for the works approval.

Table 12: Authorised works

Works	Specifications/Drawings
Composting facility	Composting Facility Layout, (Figure 2) dated 19 September 2019 (as submitted on 20 September 2019)
	Composting Facility Cross Section and Dimensions (Figure 3), dated 15 November 2019 (as submitted on 15 November 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 MB04	Standing water level[1]	m AHD and mbgl	**Prior to time limited operations:** One sampling event **During time limited operations[2]:** Quarterly[3]	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: If the duration of time limited operations is less than 90 days, only one sampling event is required.
Note 3: Quarterly sampling must be undertaken at least 45 days apart.

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); and

  (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.

Groundwater monitoring reporting requirements

Summaries of groundwater monitoring which are required to be included in the Environmental Compliance Report and Time Limited Operations reports required by conditions 8(b) and 14 respectively 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 (where available);

(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 (where available).