Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6905/2024/1
Works approval holder	Van Tiep Doan, Thi Chinh Duong and Van Phu Doan
Registered business address	51 Redcliffe Avenue MARANGAROO WA 6064
DWER file number	DER2023/000583
Duration	24/09/2024 to 23/09/2027
Date of issue	24/09/2024
Premises details	Mushroom Compost Facility Lots 800 and 801 Military Road MUCKENBURRA WA 6503 Legal description - Lot 800 and Lot 801 on Deposited Plan 423409 Certificate of Title Volume LR4024 Folio 518 and 519

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	Assessed production capacity
Category 67A: Compost manufacturing and soil blending: premises on which organic material (excluding silage) or waste is stored pending processing, mixing, drying or composting to produce commercial quantities of compost or blended soils.	5,590 tonnes per annual period

This works approval is granted to the works approval holder, subject to the attached conditions, on 24 September 2024, by:

Digitally signed by Koby Anderson
Date: 2024.09.24 17:47:26 +08'00'

A/MANAGER WASTE INDUSTRIES
Officer delegated under section 20
of the Environmental Protection Act 1986

Works approval history

Date	Reference number	Summary of changes
24/09/2024	W6905/2024/1	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:

  (i) if dated, refers to that particular version; and

  (ii) if not dated, refers to the latest version and therefore may be subject to change over time;

(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.

This works approval does not provide any implied authorisation for the clearing of native vegetation in order to meet the conditions or activities specified in this works approval. The clearing of native vegetation requires separate consideration under the EP Act.

Works approval conditions

The works approval holder must ensure that the following conditions are complied with:

Construction phase

Construction Environmental Management Plan (CEMP)

1. The works approval holder must submit a Construction Environmental Management Plan (CEMP) to the CEO a minimum of 30 days prior to construction activities commencing.

2. The CEMP specified in condition 1 should include as a minimum:

(a) details of the potential sources of:

(i) noise emissions;
(ii) dust emissions; and
(iii) acid sulfate soil related emissions

during the construction works; and

(b) provide mitigation and management measures to reduce and prevent the potential emissions listed under condition 2(a);

(c) demonstrate how compliance with the *Environmental Protection (Noise) Regulations 1997* will be achieved; and

(d) demonstrate how acid sulfate soils have been investigated in accordance with the *Guideline: Identification and investigation of acid sulfate soils and acidic landscapes*.

Infrastructure and equipment

3. The works approval holder must:

(a) construct and/or install the infrastructure and/or equipment;

(b) in accordance with the corresponding design and construction/installation requirements; and

(c) 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 facility building	The composting facility building must be designed and constructed in accordance with Figure 4, Figure 5, and Figure 6 in Schedule 1, meeting the following specifications: a) A maximum ridge height of 10 m. b) A total floor area of approximately 5,400 m^2 (56.8 m x 95 m). c) Impermeable concrete floor. d) Internal drainage swales (3 m wide and 0.6 m deep) traversing the western, northern, eastern, and half of the southern walls.	As shown in Schedule 1, Figure 2

	Infrastructure	Design and construction / installation requirements	Infrastructure location
1.	Composting facility building (cont.)	e) Reinforced Concrete Pipe (RCP) drainage culverts and headwalls at the three vehicle access points. f) Finished floor levels and swale gradient to have sufficient fall to direct all leachate to the Goody Water Tanks collection pit so that there is no pooling. g) Goody Water Tanks collection pit to be fitted with a pump for pumping of leachate to the Goody Water Tanks. h) Compost facility building to be adequately ventilated. i) Compost facility building vents to be fly-screened to prevent entry of insects and pests.	As shown in Schedule 1, Figure 2
2.	Chicken manure and gypsum storage bunkers	a) Bunkers to be 4 m in height with a floor area of approximately 104 m^2 each. b) Bunkers must be constructed of concrete.	As shown in Schedule 1, Figure 4
3.	Wheat straw bale wetting bunker	a) Bunker to be 4 m in height with a floor area of approximately 336 m^2. b) The bunker floor must be constructed with an aeration system to aerate material placed on the floor during operation.	
4.	Mixing line conveyors and hoppers	a) None specified.	
5.	Phase 1 composting tunnels (x3)	a) Must be enclosed. b) Have an area of approximately 118 m^3 each. c) Must be aerated, with timer and oxygen controls.	
6.	Phase 2/3 composting tunnels (x4)	a) Must be enclosed. b) Have an area of approximately 120 m^3 each. c) Must be aerated, with timer and oxygen controls.	
7.	Goody Water Tanks (x4)	a) Tanks to have a combined capacity of at least 739 m^3. b) Tanks must be fitted with high-level alarms. c) Tanks must be fitted with aerators to maintain the goody water in aerobic condition.	
8.	Unloading area	a) Must be constructed to accommodate a truck for unloading of feedstocks.	
9.	Emptying hall	a) Must be constructed to accommodate a 12.5 m long rigid truck or a 19 m long semi-trailer.	
10.	Filling hall	a) None specified.	

	Infrastructure	Design and construction / installation requirements	Infrastructure location
11.	Straw Bale Storage Area	a) Constructed to the approximate dimensions of 20 m x 40 m	As shown in Schedule 1, Figure 3 and Figure 7
12.	Rain Water Pond	The Rain Water Pond must be designed and constructed in accordance with Figure 7, and meeting the following specifications: a) Must be designed to accommodate an operational freeboard level of 0.5 m. b) Must have sufficient capacity to contain all run-off from a 1-in-20-year, 24-hour storm event. c) Volume of pond to be a minimum of 1258 m^3. d) Pond must be lined with a minimum 1 mm thick HDPE liner. e) Pond to be fitted with aeration device(s) to achieve adequate aeration of pond water to prevent odour emissions and mosquito breeding.	
13.	External drainage swales	a) Must be designed and constructed in accordance with Figure 7. b) Must be designed and constructed with sufficient capacity to convey all stormwater runoff from a 1-in-20-year, 24-hour storm event, from: (i) the external areas of the composting facility; (ii) access roads around the composting facility; and (iii) the compost facility building roof; to the Rain Water Pond. c) External drainage swales must be constructed to be 4.5 m wide and 1 m deep.	
14.	Fire water tanks and hydrant booster	a) Fire hydrant system shall provide coverage to reach all areas of the open yard with 60 m of hose and 10 m of water stream b) The system shall be designed to provide a minimum of 4 hours water supply, based on two operating hydrants at 10 L/s each.	
15.	Fire Hose reels, portable fire extinguishers and fire blankets	a) 1 x dry chemical powder portable fire extinguisher to be available adjacent to each entry of the composting facility building. b) Fire hose reel coverage shall reach all points of the floor of the compost facility building with 36 m of hose and 4 m of water stream. c) Fire hose reels to be provided with bollards to prevent mechanical damage.	As shown in Schedule 1, Figure 3

	Infrastructure	Design and construction / installation requirements	Infrastructure location
16.	Access tracks/roads	a) Constructed from crushed/compacted limestone. b) Internal access road around the composting facility must be a minimum of 10 m wide.	As shown in Schedule 1, Figure 2
17.	Groundwater monitoring bores/wells MB01, MB02 and MB03	a) Groundwater monitoring well installation must be supervised by a suitably qualified person. b) Groundwater monitoring wells must be designed and constructed in accordance with *ASTM D5092/D5092M-16: Standard practice for design and installation of groundwater monitoring wells.* c) Well screens must target the part, or parts, of the aquifer most likely to be affected by contamination[1] d) Soil samples must be collected and logged during the installation of the monitoring wells. e) A record of the geology encountered must be described and classified in accordance with the Australian Standard Geotechnical Site Investigations AS1726-2017. f) 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. g) 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. h) The vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently mapped by a suitably qualified surveyor. i) 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. j) Must be constructed, developed (purged), and determined to be operational no later than 15 calendar days prior to the commencement of environmental commissioning activities under condition 11.	Bores must be positioned within the locations shown in Schedule 1, Figure 8

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

Construction phase emission controls

4. The works approval holder must manage dust generation from construction activities at the premises by wetting down unsealed roads and exposed areas with a water truck.

5. The works approval holder must ensure that:

(a) all reasonable and practicable measures are taken to ensure that no windblown waste escapes from the premises; and

(b) any windblown waste is collected on at least a weekly basis and returned to the premises or otherwise appropriately contained.

6. The works approval holder shall:

(a) immediately recover, or remove and dispose of, spills of environmentally hazardous materials including fuel, oil, or other hydrocarbons, whether inside or outside an engineered containment system; and

(b) ensure that all material used for the recovery, removal, and/or disposal of environmentally hazardous material is stored in an impermeable container prior to disposal at an appropriately authorised facility.

Odour Management Plan

7. The works approval holder must prepare, maintain and implement an Odour Management Plan for the premises that sets out:

(a) the identification of odour sources within the premises;

(b) how odour emissions will be mitigated from the identified odour sources;

(c) the identification of procedures to support the mitigation of odour emissions;

(d) details of engineered controls to support the mitigation of odour emissions;

(e) site inspections to be undertaken to identify any unreasonable sources of odour; and

(f) measures to be undertaken if unreasonable odour emissions are detected outside of the prescribed premises boundary.

Fire and Emergency Management Plan

8. The works approval holder must prepare, maintain and implement a Fire and Emergency Management Plan for the premises that sets out:

(a) an assessment of fire safety risk including identification of areas where a fire might occur and factors that might cause a fire;

(b) how fires will be prevented, detected, responded to, supressed, contained and controlled, addressing all feedstock types and stages of the organics recycling process;

(c) the firefighting equipment and fire response capabilities and responsibilities; and

(d) a plan showing the location and layout of firefighting equipment and systems at the premises, including the layout of drainage and containment infrastructure that will assist during fire management.

Construction phase compliance reporting

9. The works approval holder must within 30 calendar days of all items of infrastructure or equipment required by condition 3 being constructed and/or installed:

(a) undertake an audit of their compliance with the requirements of condition 3; and

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

10. The Environmental Compliance Report required by condition 9, must include as a minimum the following:

(a) certification by a suitably qualified engineer that the items of infrastructure or component(s) thereof, as specified in condition 3, have been constructed in accordance with the relevant requirements specified in condition 3;

(b) as constructed plans and a detailed site plan for each item of infrastructure or component of infrastructure specified in condition 3; and

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

Environmental commissioning and time limited operations phases

Environmental commissioning phase commencement and duration

11. The works approval holder may only commence environmental commissioning for the items of infrastructure identified in condition 3 where the Environmental Compliance Report as required by condition 9 has been submitted by the works approval holder.

12. The works approval holder may conduct environmental commissioning for the items of infrastructure identified in condition 3 for a period not exceeding 90 calendar days from the day the works approval holder meets the requirements of condition 11.

Environmental commissioning odour field assessment

13. During environmental commissioning, the works approval holder must retain the services of a suitably qualified odour panelist to:

(a) plan and implement a minimum of three odour field assessments (OFAs) during the environmental commissioning period which follow the plume measurement methodology as specified in the DWER *Guideline: Odour Emissions* and the *European Standard EV 16841-2 (plume method)*. OFAs are to be undertaken:

(i) with the prime objective of characterising odour plume extents in the directions of receptors which are most likely to be impacted by odour;
(ii) during meteorological and operational conditions most likely to cause impacts to these receptors;
(iii) over the time limited operations period, with each OFA conducted at least 2 weeks apart; and

(b) compile an OFA report in accordance with condition 14.

14. An OFA report prepared pursuant to condition 13 is to include:

(a) the objective of the assessment;

(b) a description of the measurement strategy, measurement conditions and the odour field survey standards that were followed;

(c) the following details for each single measurement:

(i) odour intensity levels and odour characters;
(ii) location (GPS coordinates), date and time;
(iii) field survey odour panelist identification; and
(iv) details of feedstock volumes held, product volumes held and feedstock accepted to the site during the assessment period.

(d) The following representative meteorological measurements as recorded during the measurement cycle:

(i) wind speed (metres per second)
(ii) wind direction;
(iii) cloud cover estimate;
(iv) temperature;

(e) map(s) depicting the assessment area, odour sources at the premises and other potential odour sources (if relevant);

(f) a graphical summary of field survey results showing the recorded odour intensity levels either as a percentage of total observation using pie charts if the stationary plume method was used that will be superimposed at each point assessed on a map of the survey area;

(g) any deviations from the conditions targeted in the OFA strategy and those occurring during the measurement (conclusions should reflect the influence of such deviations on the results); and

(h) detailed analysis, interpretation and conclusions with regard to the objectives of the assessment.

15. The works approval holder must submit to the CEO the OFA report prepared pursuant to condition 13 within six weeks of completing the final OFA field campaign.

Time limited operations phase commencement and duration

16. The works approval holder may only commence time limited operations for the items of infrastructure identified in condition 3 where:

(a) the environmental commissioning period specified in condition 12 has been completed; or

(b) the OFA report has been submitted to the CEO in accordance with condition 15, should this occur before the end of the period specified in condition 12.

17. The works approval holder may conduct time limited operations for the items of infrastructure specified in condition 3:

(a) for a period not exceeding 180 calendar days from commencement in accordance with condition 16; 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*, if one is granted before the end of the period specified in condition 17(a).

Environmental commissioning and time limited operations requirements

18. During environmental commissioning and time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in Table 2 and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 2.

Table 2: Infrastructure and equipment requirements during environmental commissioning and time limited operations

	Infrastructure	Operational requirements	Infrastructure location
1.	Composting facility building	a) Impermeable concrete floor, internal drainage swales, and RCP drainage culverts and headwalls must be maintained in good condition, free of cracks and defects. b) All natural air vents are to be fitted with fly-screens and maintained in good condition to prevent entry of pests. c) Building roller doors to remain closed at all times except for vehicle entry and exit. d) Adequate space must be maintained within the building for vehicle/truck access for loading and unloading.	As shown in Schedule 1, Figure 2
2.	Chicken manure and gypsum storage bunkers	a) Bunkers must be used for the storage of chicken manure and gypsum only. b) The height of stockpiles in the bunkers must not exceed the height of the bunker walls. c) Bunkers to be maintained in good condition, free of cracks and defects.	As shown in Schedule 1, Figure 4
3.	Wheat straw bale wetting bunker	a) Bunker must be used for the wetting of straw only. b) Floor aeration system must be maintained in good working order and free of blockages. c) Bunker to be maintained in good condition, free of cracks and defects	
4.	Mixing line conveyors and hoppers	a) Must be maintained in good working order.	
5.	Phase 1 composting tunnels (x3)	a) Must be maintained in good condition, free of damage. b) Must be enclosed. c) Must be aerated, with timer and oxygen controls.	
6.	Phase 2/3 composting tunnels (x4)	a) Must be maintained in good condition, free of damage. b) Must be enclosed. c) Must be aerated, with timer and oxygen controls.	

	Infrastructure	Operational requirements	Infrastructure location
7.	Goody Water Tanks (x4)	a) Tanks must be maintained in good condition, free of leaks, and with functioning high-level alarms. b) Aerators in tanks to be kept in good working order to maintain goody water in aerobic condition.	As shown in Schedule 1, Figure 4
8.	Unloading area	a) Must be maintained with sufficient space to accommodate a B-double truck (up to 27.5 m long) during unloading	
9.	Emptying hall	a) Must be maintained with sufficient space to accommodate a 12.5 m long rigid truck or a 19 m long semi-trailer.	
10.	Straw Bale Storage Area	a) Used for the storage of clean straw bales only.	As shown in Schedule 1, Figure 3
11.	Rain Water Pond	a) A top of embankment freeboard height equal to or greater than 500 mm must be maintained. b) Overtopping of the pond must not occur. c) The integrity of the pond HDPE liner must be maintained at all times. d) Breeding of mosquitoes within the pond must be prevented. e) The water in the pond must be kept aerated. f) The Rain Water Pond must be pumped out and all its contents disposed of to an appropriate authorised facility in the event that the water in the pond becomes contaminated through: i. spills of feedstocks or hazardous materials into the pond; ii. receival of stormwater that has come into contact with spills of feedstocks or hazardous materials; or iii. receival of firefighting wash-water. g) Contaminated rain/storm water is not permitted to be used for any activity on the premises.	
12.	External drainage swales	a) Must be maintained in good condition to capture stormwater/roof water runoff and direct it to the Rain Water Pond.	
13.	Fire water tanks and hydrant booster	a) Must be readily accessible, clearly signposted and in good condition.	

	Infrastructure	Operational requirements	Infrastructure location
14.	Fire Hose reels, portable fire extinguishers and fire blankets	a) Must be readily accessible, clearly signposted and in good condition.	As shown in Schedule 1, Figure 3

Waste acceptance - Environmental commissioning and time limited operations

19. During environmental commissioning and time limited operations, the works approval holder must only accept feedstocks/waste onto the premises of a type that:

(a) does not exceed the rate at which that waste is received; and

(b) meets the relevant acceptance specification,

as set out in Table 3.

Table 3: Waste/Feedstock acceptance criteria

	Waste Type	Rate at which waste is received	Acceptance specification
1.	Wheat straw	3,338 tonnes per annual period	Delivered in bales
2.	Poultry manure	2,710 tonnes per annual period	Delivered into the compost facility building via trucks
3.	Canola seed	520 tonnes per annual period	
4.	Gypsum	338 tonnes per annual period	

20. Where the works approval holder identifies that waste does not meet the waste acceptance criteria set out in condition 19, the works approval holder must:

(a) record the details of the:

(i) waste (type and description)
(ii) source of the waste load;
(iii) name of the waste carrier;
(iv) registration number of the delivery vehicle; and
(v) date that the waste load was rejected;

and

(b) Reject the waste and have it removed from the premises by the waste supplier's delivery vehicle;

or

(c) Where the waste supplier cannot immediately remove the waste in the delivery vehicle, it is stored in a quarantined storage area or container and removed to an appropriately authorised facility within seven (7) calendar days of receipt.

Waste processing - Environmental commissioning and time limited operations

21. During environmental commissioning and time limited operations, the works approval holder must ensure that the waste types specified in Table 4 are only subjected to the corresponding process(es), subject to the corresponding process limits and/or specifications.

Table 4: Waste processing during environmental commissioning and time limited operations

Waste Type	Process(es)	Process limits and/or specifications
Wheat straw, poultry manure, gypsum, and canola seed	Receipt and storage	a) Wheat straw must be delivered to, unloaded, and stored within the Straw Bale Storage Area as depicted in Figure 3. b) Baled straw must be stockpiled with: i. an interlaced configuration as indicated in Schedule 1, Figure 9; ii. a maximum stockpile height not exceeding 4 bales; iii. a maximum stockpile width of 20 m; iv. a maximum stockpile length of 40 m; and v. uncontained vertical faces receding on a slope no greater than 45°. c) Poultry manure, gypsum and canola seed must be unloaded in the Compost Facility Building and stored in the Chicken Manure and Chicken Manure and Gypsum Storage Bunkers. d) Stockpiles of Poultry manure, gypsum and canola seed must be fully contained within the Chicken Manure and Gypsum Storage Bunkers and must not exceed bunker heights. e) Doors to the composting facility to be closed during unloading of feedstocks in the building.
	Feedstock preparation (pre-wetting and blending) and composting (Phase 1 composting, Phase 2 pasteurisation and conditioning, and Phase 3 spawning	a) Doors to the composting facility are to be closed during processing of wastes and outside hours of operation. b) Straw bales must only be wetted in the pre-wetting area shown in Figure 4 with recycled goody water from the goody water storage tanks. c) Blending of feedstocks must only occur in the pre-wetting area shown in Figure 4. d) Materials undergoing composting must be maintained in an aerobic state. e) The moisture content of material undergoing composting must be maintained between 65-75%. f) Only clean rainwater, sourced from the Rain Water Pond, or clean bore water may be used for Phase 1 composting processes onwards. g) Phase 1 composting must occur in the Phase 1 composting tunnels shown in Figure 4. h) Temperature of composting material must not exceed 80°C. i) Phase 2 pasteurisation and conditioning must occur in the Phase 2/3 tunnels shown in Figure 4. j) Compost must be pasteurised at a temperature of at least 58°C. k) Phase 3 spawning and colonising must take place in the Phase 2/3 tunnels shown in Figure 4.

Waste Type	Process(es)	Process limits and/or specifications
Wheat straw, poultry manure, gypsum, and canola seed	Final product recovery and removal from the premises	a) Finished mushroom compost product must only be loaded onto trucks within the emptying hall shown in Figure 4 with external doors closed. b) Finished product must be covered during transport from the premises.

22. The works approval holder must only undertake environmental commissioning and time limited operational activities from 7.00 am to 5.00 pm, Monday to Friday, and 7.00 am to 12.00 pm on Saturday.

23. All leachate generated during storage and processing of feedstocks must be collected inside the Compost Facility Building and stored in the goody water tanks shown in Figure 4.

24. Goody water must not be used for any other purpose apart from pre-wetting of feedstocks within the pre-wetting area shown in Figure 4.

25. The works approval holder must immediately recover, or remove and dispose of feedstock spills outside of their designated storage areas, and spills of environmentally hazardous materials including fuel, oil, or other hydrocarbons, whether inside or outside and engineered containment system.

26. The works approval holder must ensure that all material used for the recovery, removal, and/or disposal of environmentally hazardous materials is stored in an impermeable container prior to disposal at an appropriately authorised facility.

Fire prevention and control

27. The works approval holder must ensure that:

(a) no waste is burnt at the premises;

(b) a designated external hardstand area is available at all times, and kept free of other combustible materials, to allow the management of stockpiles that are being impacted by fire;

(c) equipment is available at all times that is capable of moving and breaking apart stockpiles to limit the spread of fire;

(d) fire-fighting equipment is in good working order and capable of controlling a fire on the premises;

(e) an adequate water supply is available at the premises and can be effectively delivered to extinguish a fire at any part of the premises;

(f) any fires on the premises are extinguished as soon as possible;

(g) fire-fighting wash water that may result from firefighting activities on the premises must be captured and contained within the Rain Water Pond; and

(h) any contained fire-fighting water is removed from the premises by a carrier licensed under the Controlled Waste Regulations.

Compost product quality

28. Composting products must:

(a) not exceed the maximum contaminant concentrations set out in Table 5; and

(b) remain on the premises until sampling results required by condition 30 are received to verify that the maximum contaminant concentrations set out in Table 5 are not exceeded.

Table 5: Maximum contaminant concentrations

Contaminant type	Parameter	Maximum concentration
Chemical contaminants	Arsenic	20 mg/kg
	Cadmium	1 mg/kg
	Boron	100 mg/kg
	Chromium	100 mg/kg
	Copper	100 mg/kg
	Lead	150 mg/kg
	Mercury	1 mg/kg
	Nickel	60 mg/kg
	Selenium	5 mg/kg
	Zinc	200 mg/kg
	DDT/DDD/DDE	0.5 mg/kg
	Aldrin	0.02 mg/kg
	Dieldrin	0.02 mg/kg
	Chlordane	0.02 mg/kg
	Heptachlor	0.02 mg/kg
	HCB	0.02 mg/kg
	Lindane	0.02 mg/kg
	BHC	0.02 mg/kg
	PCBs	Not detectable (detection limit of 0.2 mg/kg)
Biological contaminants	Salmonella spp.	Absent in 50 g (dry weight)
	Faecal coliforms	1000 MN or CFU/g (dry weight)
	E. coli	100 MPN or CFU/g (dry weight)
Physical contaminants	Glass, metal and rigid plastics (>2 mm)	0.5% dry matter w/w
	Plastics – light, flexible or film (>5 mm)	0.05% dry matter w/w

Waste input and output monitoring

29. The works approval holder must record the total amount of waste and products accepted onto and removed from the premises, for each waste/product type listed in Table 6, according to the parameters and in the corresponding unit for each corresponding time period, as set out in Table 6.

Table 6: Monitoring of inputs and outputs

Waste/product type	Parameters	Unit	Time period
Types listed in Table 3	Waste types arriving at the premises	Tonnes	Each load accepted at the premises
Waste types rejected	All waste types rejected from the premises	Tonnes	Each load removed or rejected from the premises
Product outputs (mushroom compost)	All compost removed from the premises.	Tonnes	

Compost process monitoring

30. The works approval holder must undertake compost process monitoring in accordance with the specifications set out in Table 7.

Table 7: Process monitoring

Monitoring point	Process description	Parameter	Unit	Frequency	Method
Pre-wetted material	Pre-wetting	Temperature	°C	Daily	None specified
		Moisture content	%	Each time the material is placed, turned or moved	
Phase 1 composting tunnels	Composting	Temperature	°C	Daily	
		Moisture content	%	Weekly	
Phase 2/3 tunnels	Pasteurisation and conditioning	Temperature	°C	Daily	
		Moisture content	%	Weekly	
	Spawning and colonising	Temperature	°C	Daily	
		Moisture content	%	Weekly	

Monitoring point	Process description	Parameter	Unit	Frequency	Method
Mushroom compost final product	On completion of composting and before movement off the premises for application at the works approval holder's mushroom farm	Quantity produced[1]	Tonnes	Each batch	As specified in AS 4454
		Arsenic	mg/kg	At a minimum rate of one composite sample per 1,000 tonnes Each composite sample is made up of 16 subsamples	
		Cadmium			
		Boron			
		Chromium			
		Copper			
		Lead			
		Mercury			
		Nickel			
		Selenium			
		Zinc			
		DDT/DDD/DDE			
		Aldrin			
		Dieldrin			
		Chlordane			
		Heptachlor			
		HCB			
		Lindane			
		BHC			
		PCBs			
		Salmonella spp.	MPN/g		
		Faecal coliforms			
		E. coli			
		Glass, metal and rigid plastics[2]	% w/w dry matter		

Monitoring point	Process description	Parameter	Unit	Frequency	Method
		Plastics – light, flexible or film[2]			

Note 1: In-field non-NATA accredited analysis permitted

Note 2: non-NATA accredited analysis permitted. Method must comply with Appendix I in AS 4454

31. The works approval holder must ensure all monitoring equipment used to comply with condition 30 is operated and calibrated in accordance with manufacturer specifications.

Groundwater monitoring

32. The works approval holder must conduct groundwater monitoring during environmental commissioning and time limited operations in accordance with the requirements specified in Schedule 2 and record the results of all monitoring activity conducted under those events.

33. The works approval holder must adhere to the field quality assurance and quality control procedures specified in Schedule 2 for the monitoring required by condition 32. All groundwater sampling analysis for monitoring undertaken in accordance with condition 32, 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 2.

Compliance reporting

34. The works approval holder must submit to the CEO a report on the environmental commissioning and time-limited operations within 60 calendar days of the completion date of time limited operations or 60 calendar days before the expiration date of this works approval, whichever is the sooner.

35. The works approval holder must ensure the report required by condition 34 includes the requirements set out in Table 8.

Table 8: Compliance report

Condition	Requirements
N/A	a summary of the environmental commissioning and time limited operations
N/A	a summary of the environmental performance of all infrastructure as constructed or installed.
N/A	a review of performance and compliance against the conditions of the works approval.
N/A	where the manufacturer's design specifications and the conditions of this works approval have not been met, what measures will the works approval holder take to meet them, and what timeframes will be required to implement those measures.
29	a summary of feedstock acceptance volumes.
29	a summary of waste volumes removed and rejected loads.
27	fire management: Summary of any events that trigger a fire management response, other than for training/exercise activities.

Condition	Requirements
30 and 31	a summary of compost process monitoring undertaken in accordance with condition 30.
28 and 28(b)	product quality: a) tabulated summary of process monitoring for final product in accordance with condition 30; b) comparison of monitoring results to the upper contaminant limits set out in Table 5. c) identification of any batches of compost that did not comply with condition 28 and a description of how each of these non-conforming batches was managed.
32 and 33	a groundwater monitoring report demonstrating compliance with conditions 32 and 33, including: 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 record and field QA/QC documentation; e) an assessment of the reliability of field procedures and laboratory results; f) a tabulated summary of results, as well as the 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 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*.
36	A summary of complaints received, including the information to be recorded by condition 36.

Records and reporting (general)

36. The works approval holder must record the following information in relation to complaints 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:

(a) the name and contact details of the complainant, (if provided);

(b) the time and date of the complaint;

(c) the complete details of the complaint and any other concerns or other issues raised; and

(d) the complete details and dates of any action taken by the works approval holder to investigate or respond to any complaint.

37. 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 3;

(b) any maintenance of infrastructure that is performed in the course of complying with condition 18 and 21;

(c) monitoring programs undertaken in accordance with conditions 29, 30,32, and 13; and

(d) complaints received under condition 36.

38. The books specified under condition 37 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 9 have the meanings defined.

Table 9: Definitions

Term	Definition
1-in-20-year, 24-hour storm event	means a 24-hour storm event of a size that will be equalled or exceeded on average once every 20 years for the premises location.
Assessment of Site Contamination NEPM	means the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as amended from time to time.
AS 4454	means Australian Standard AS 4454 *Composts, soil conditioners and mulches*
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.
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
CFU	colony forming units
compost	means a solid organic material that has undergone controlled aerobic and thermophilic biological transformation through the composting process to achieve pasteurisation and reduce phytotoxic compounds and achieved a specified level of maturity for compost.
composting	means the process whereby organic materials are microbiologically transformed under controlled aerobic conditions to achieve pasteurisation and a specified level of maturity.
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 commissioning	means the operation of the infrastructure, equipment and processes identified under this works approval, that is undertaken to validate odour modelling results and test the environmental performance of odour emission controls.

Term	Definition
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).
feedstock	means a material used as an ingredient in the production of recycled organic products at the premises. The term feedstock applies to materials whether they are: a) a waste or not; b) solid or liquid; and c) organic or inorganic.
fire water	means water that, in the event of a fire, has been used to extinguish a fire and all materials and combustion products dissolved or suspended within such water and includes other fire suppressant substances such as foams.
Guideline: Identification and investigation of acid sulfate soils and acidic landscapes	means the document titled *Guideline: Identification and investigation of acid sulfate soils and acidic landscapes* published by the Department as amended.
Guideline: Better practice organics recycling	means the document titled *Guideline: Better practice organics recycling* published by the Department as amended.
goody water	means recycled leachate that has been: (a) collected by drainage from the mushroom composting facility, and (b) contained in the goody water tanks shown in Figure 4.
HDPE	High-density polyethylene
Landfill Definitions	means the document titled *Landfill Waste Classification and Waste Definitions 1996* published by the Department as amended
leachate	liquid that has percolated through and/or been generated by the decomposition of waste material, including water that has interacted with feedstocks, materials undergoing processing (i.e. mechanical, pasteurization or composting) or products.
MPN	most probable number
pasteurisation	a process whereby organic materials are heat-treated to significantly reduce the numbers of plant and animal pathogens and plant propagules.
premises	the premises to which this licence applies, as specified at the front of this licence and as shown on the premises map, Figure 1 in Schedule 1 to this works approval.

Term	Definition
prescribed premises	has the same meaning given to that term under the EP Act.
suitably qualified engineer	means a person who: a) holds a Bachelor of Engineering recognised by Engineers Australia; b) has a minimum of five years of experience working in a supervisory area of civil, structural or environmental engineering; and c) is a third party to the principal.
suitably qualified odour panellist	a person who has been tested and is qualified to undertake odour measurements in an odour laboratory or in the field in compliance with AS 4323.3:2001 and EN 16841-2 and VDI 3940-3 standards respectively.
suitably qualified person	means a person who: a) holds a bachelors degree in environmental science, geology or hydrogeology; and b) has a minimum of three years of experience supervising drilling and installation of groundwater monitoring wells.
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 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).

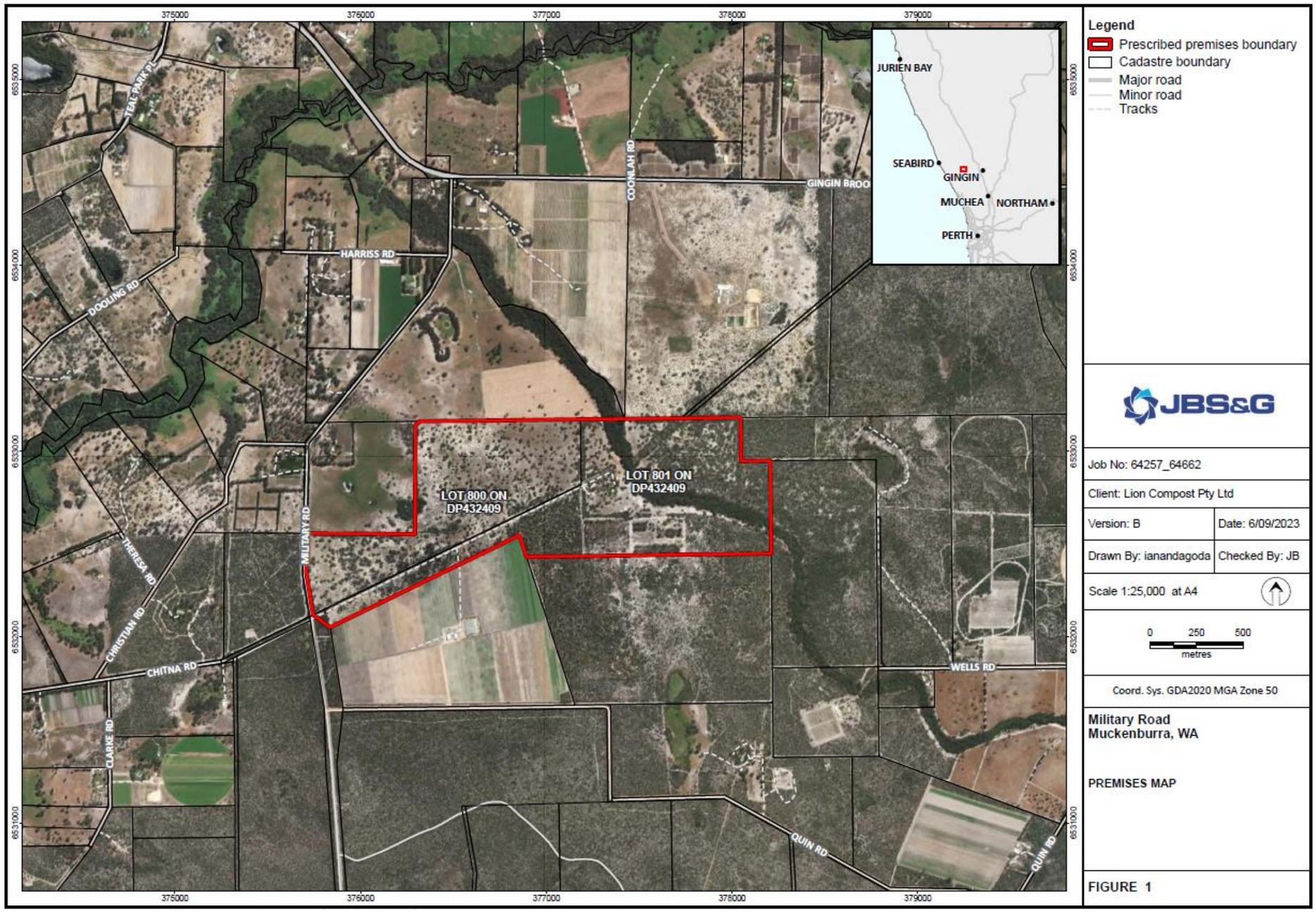

Figure 1: Map of the boundary of the prescribed premises

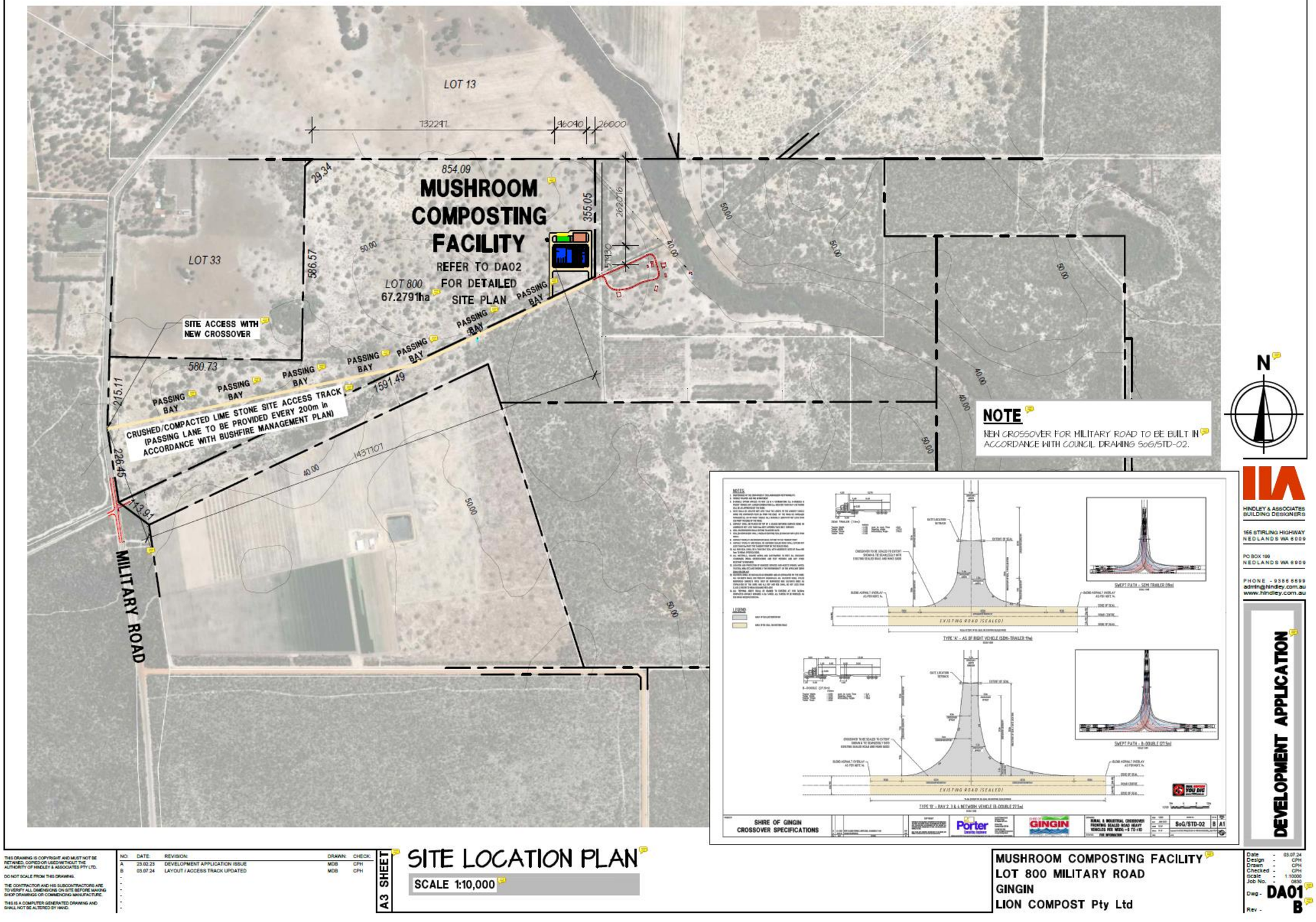

Figure 2: Location of mushroom composting facility

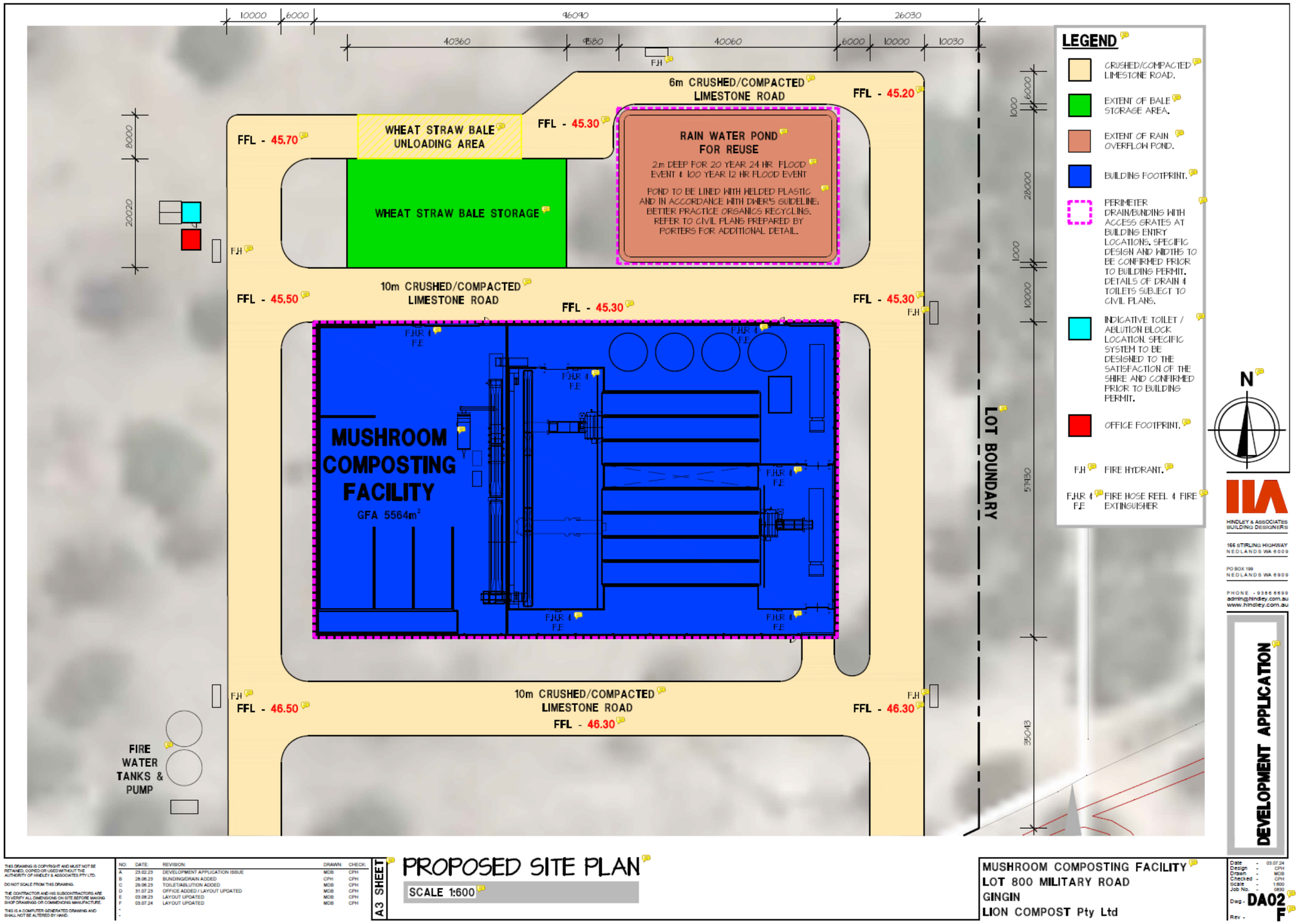

Figure 3: Mushroom composting facility site plan

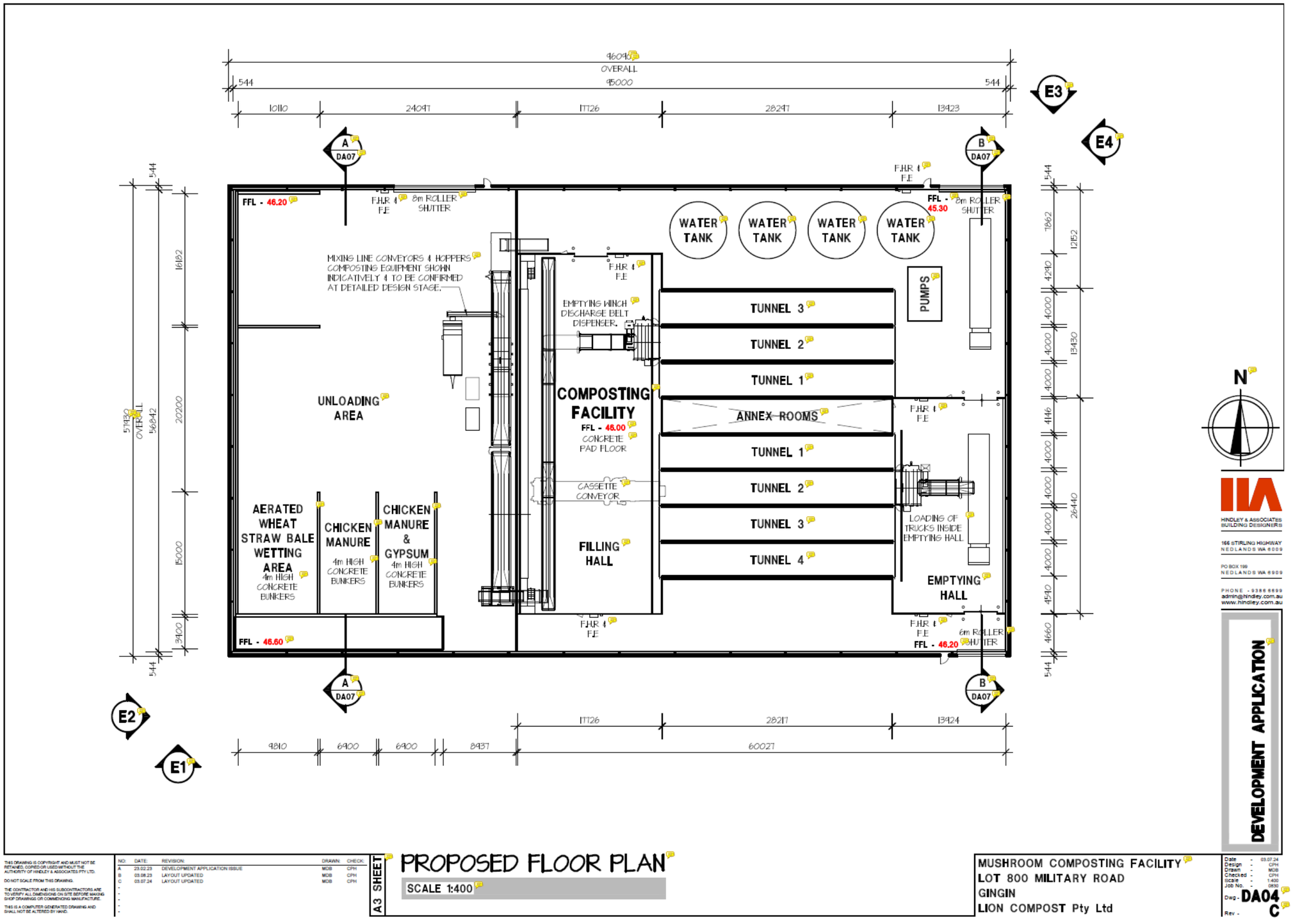

Figure 4: Mushroom composting facility floor plan

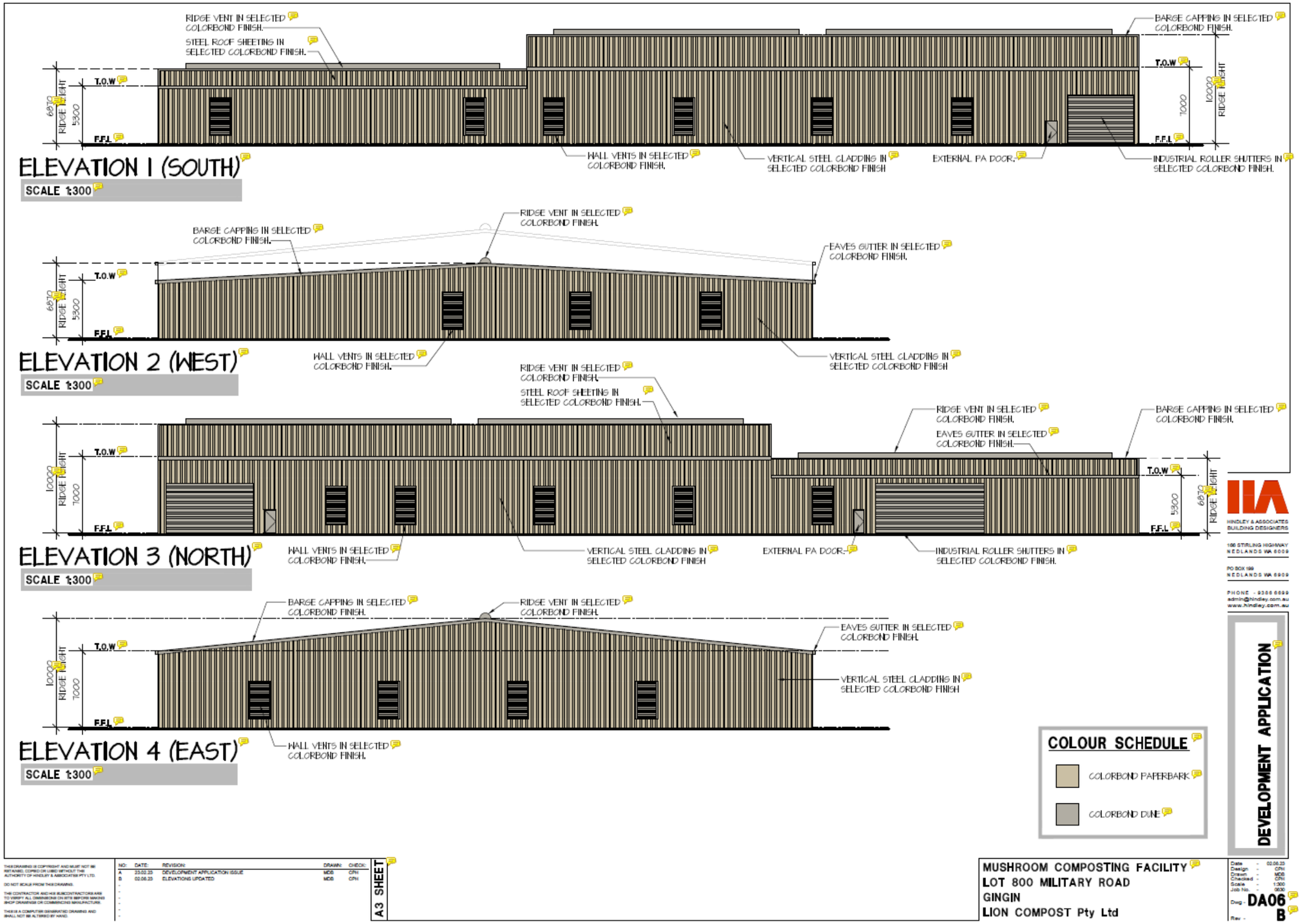

Figure 5: Compost facility building elevation plan

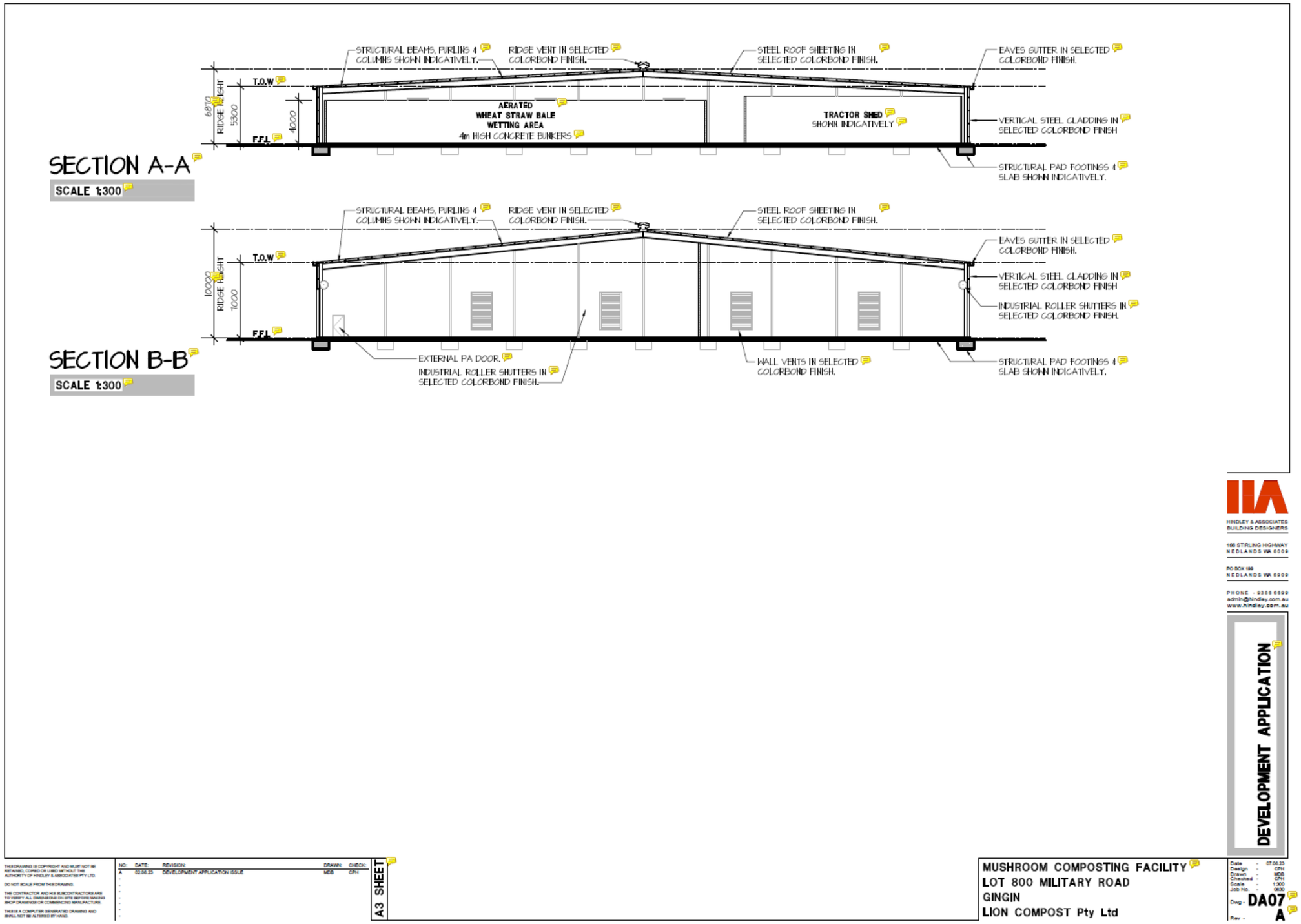

Figure 6: Compost facility building section plan

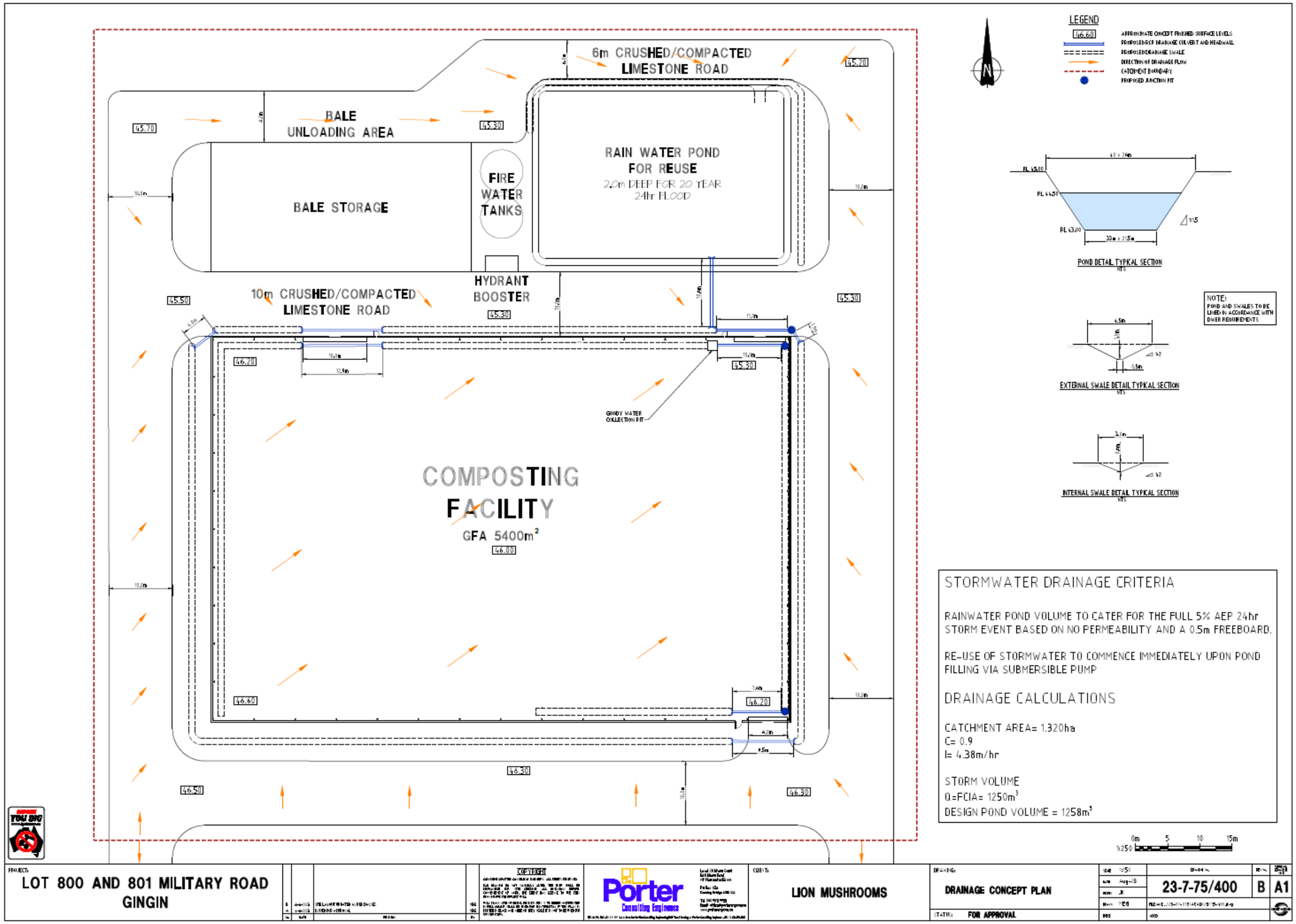

Figure 7: Stormwater drainage plan

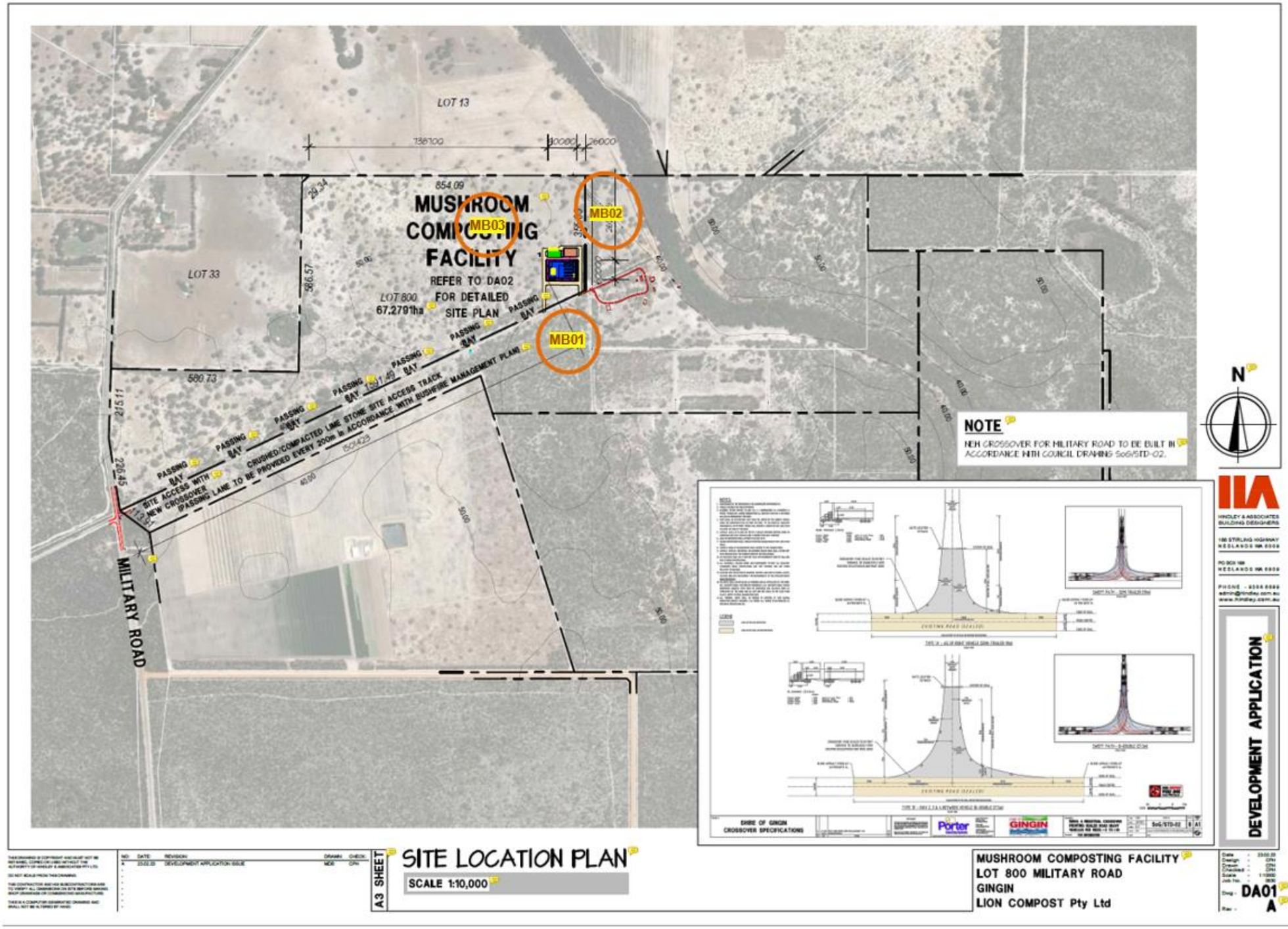

Figure 8: Groundwater monitoring bore locations

The orange circles show the areas within which MB01, MB02, and MB03 must be installed

Straw bale storage arrangement

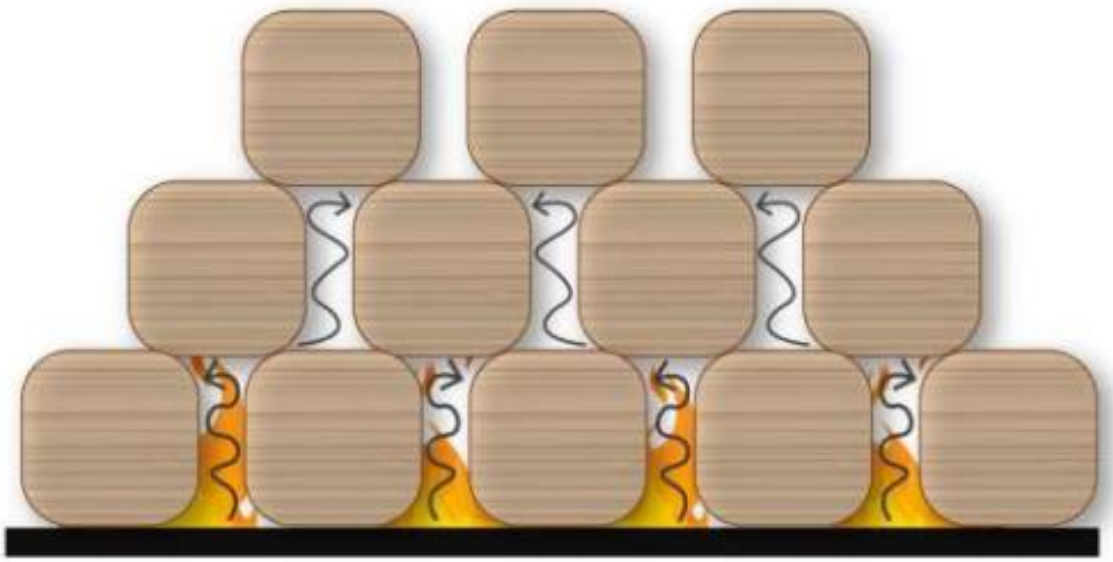

Figure 9: Interlaced configuration.

Source: *Management and storage of combustible recyclables and waste materials – guideline* (Environmental Protection Authority Victoria, 2021, Publication 1667.3).

Schedule 2: Groundwater monitoring

Groundwater monitoring

The works approval holder must monitor groundwater for concentrations of the identified parameters in accordance with Table 10.

Table 10: Groundwater monitoring of ambient concentrations

Monitoring well location	Parameter	Unit	Frequency	Method
MB01, MB02 and MB03 as shown in Figure 8	Standing water level[1]	mAHD and mbgl	**Prior to environmental commissioning:** One sampling event **During environmental commissioning and time limited operations:** Quarterly[2]	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: 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 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.