Government of Western Australia
Department of Water and Environmental Regulation

Works Approval

Works approval number	W6815/2023/1
Works approval holder	River Nominees Pty Ltd
ACN	260 959 585
Registered business address	Level 4 35-37 Havelock Street WEST PERTH WA 6005
DWER file number	DER2023/000239
Duration	14/12/2023 to 14/12/2028
Date of issue	14/12/2023
Premises details	Purearth Woottating Facility 324 Horton Road WOOTTATING WA 6562 Legal description - Part of Lot 13 on Deposited Plan 87525 Certificate of Title Volume 2026 Folio 553 As defined by the coordinates in Schedule 2

Prescribed premises category description (Schedule 1, *Environmental Protection Regulations 1987*)	**Assessed production capacity**
Category 61: Liquid waste facility: premises on which liquid waste produced on other premises (other than sewerage waste) is stored, reprocessed, treated or irrigated.	20,000 tonnes per annual period
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.	65,000 tonnes per annual period

This works approval is granted to the works approval holder, subject to the attached conditions, on 14 December 2023, by:

Abbie Crawford

Digitally signed by Abbie Crawford
Date: 2023.12.14 08:12:40 +08'00'

Abbie Crawford
A/MANAGER, WASTE INDUSTRY
Officer delegated under section 20 of the Environmental Protection Act 1986

Works approval history

Date	Reference number	Summary of changes
14/12/2023	W6815/2023/1	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.

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:

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

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

(c) at the corresponding infrastructure location.

as set out in Table 1.

Table 1: Design and construction requirements

	Infrastructure	Design and construction requirements	Infrastructure location
1.	Pasteurisation Bunkers 1-8	Constructed in accordance with the design drawing as depicted in Schedule 1, Figure 5. Installed on the existing hardstand at the specified infrastructure location. Each bunker to be 50.5 m long x 11 m wide x 3 m high. Achieve a coefficient of permeability of $1x10^{-9}$ m/s or less. Tarpaulin covers installed to effectively seal the interface between the tarpaulin, bunker walls and hardstand to prevent leakages. Must comprises an air duct system, sub-floor blowers and process/leachate water collection system. Associated pipework and equipment for air and leachate management systems. The interface between bunker walls and hardstand materials must be effectively sealed to prevent leakages.	As depicted in Schedule 1, Figure 2 (existing composting hardstand)
2.	Additional Hardstand Area	Surface area of 40,000 m^2 Hardstand layer works from bottom up: i. 300 mm compacted clay to achieve a coefficient of permeability of $1x10^{-9}$ m/s or less (minimum 3 permeability tests of source material to confirm maximum permeability). Moisture conditioned and compacted during installation to at least 95 per cent of modified maximum dry density; ii. 150 mm compacted gravel; and iii. 100 mm recycled asphalt to achieve a	As depicted in Schedule 1, Figure 2 and Figure 3

	Infrastructure	Design and construction requirements	Infrastructure location
		coefficient of permeability of $1x10^{-9}$ m/s or less. Support the load of material and machinery to be used on the hardstand without its integrity being compromised. Must be bunded to contain stormwater and leachate within the hardstand and drain to the leachate ponds. Must be graded to prevent pooling of stormwater and leachate and drain to leachate pond 3.	
3.	Leachate pond 3	Site preparation and subgrade construction as specified in Schedule 3, Table 9. Lined with 2.0 mm HDPE to achieve $<1 \times 10^{-9}$ m/sec, as specified in Schedule 3, Table 10. Leachate pond and associated pipework to be free of leaks and defects. Total operational capacity (excluding freeboard) of at least 35,000 m^3. Designed to contain leachate and stormwater produced as a result of a 5% annual exceedance probability (AEP) 24 hour storm event. Must be fitted with a visible depth indicator which clearly shows the elevation of the 500 mm freeboard level, and the 3.0 m and 3.5 m water levels in the ponds. Must be fitted with a transfer pipe capable of transferring leachate between leachate ponds.	As depicted in Schedule 1, Figure 3
4.	Gross pollutant traps	Constructed in accordance with the design drawing as depicted in Schedule 1, Figure 9.	As depicted in Schedule 1, Figure 2
5.	Groundwater monitoring bores	Additional monitoring bores (MW4 – MB6) to be constructed in accordance with condition 3.	As depicted in Schedule 1, Figure 2
6.	Additional fire water tank	7.88 m diameter x 2.26 m high with a capacity of 110,218 litres. Constructed from 1 mm steel with an impervious internal liner.	As depicted in Schedule 1, Figure 8

2. The works approval holder must ensure that dust emitted from the premises does not unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person who is not on the premises.

3. The works approval holder must design, construct, and install groundwater monitoring wells in accordance with the requirements specified in Table 2.

Table 2: Infrastructure requirements – groundwater monitoring wells

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
Groundwater monitoring well(s) MW4-MW6	<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 2	Must be constructed, developed (purged), and determined to be operational by 14 June 2023.
	<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.		
	<u>Installation survey:</u> the vertical (top of casing) and horizontal position of each monitoring well must be surveyed and subsequently		

Infrastructure	Design, construction, and installation requirements	Monitoring well location(s)	Timeframe
	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.

Compliance reporting

4. The works approval holder must within 30 calendar days of an item of infrastructure or equipment required by condition 1 being constructed and/or installed:

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

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

5. The Environmental Compliance Report required by condition 4, must include as a minimum the following:

(a) certification by a suitably qualified professional engineer that the items of infrastructure or component(s) thereof, as specified in condition 1 have been constructed in accordance with the relevant requirements specified;

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

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

6. The Environmental Compliance Report required by condition 4 must be accompanied by a Construction Quality Assurance Validation Report that:

(a) is written and certified by an independent GITA accredited engineer;

(b) assesses test results against the relevant minimum values;

(c) documents all repairs to subgrade and resulting from non-destructive weld testing;

(d) certifies that the constructed infrastructure is free of fault of defect, built to the design specification and fit for the intended purpose; and

(e) includes copies of drawings, inspections, monitoring, and testing results required by the corresponding Specifications referenced in Schedule 3.

7. The works approval holder must, within 60 calendar days of the monitoring wells being constructed, submit to the CEO a well construction report evidencing compliance with the requirements of condition 3.

Time limited operations phase

Commencement and duration

8. The works approval holder may only commence time limited operations for an item of infrastructure identified in condition 10, Table 3 where the Environmental Compliance Report as required by condition 4 has been submitted by the works approval holder for that item of infrastructure.

9. The works approval holder may conduct time limited operations for an item of infrastructure specified in condition 10, Table 3 (as applicable):

(a) for a period not exceeding 180 calendar days from the day the works approval holder meets the requirements of condition 4 for that item of infrastructure; 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 9(a).

Time limited operations requirements

10. During time limited operations, the works approval holder must ensure that the premises infrastructure and equipment listed in and located at the corresponding infrastructure location is maintained and operated in accordance with the corresponding operational requirement set out in Table 3.

Table 3: Infrastructure and equipment requirements during time limited operations

	Site infrastructure and equipment	Operational requirement	Infrastructure location
1.	Pasteurisation Bunkers 1-8	Tarpaulin covers must be installed to effectively seal the interface between the tarpaulin, bunker walls and hardstand to prevent leakages during composting activities. Must comprises an air duct system, sub-floor blowers and process/leachate water collection system. All process generated odour emissions must be directed to the biofilter for treatment prior to discharge.	As depicted in Schedule 1, Figure 2 (existing composting hardstand)
2.	Additional hardstand area	Must be bunded to contain stormwater and leachate within the hardstand area and drain to leachate pond 3. Leachate must not pool on hardstand. Leachate and stormwater must drain to leachate pond 3. Must be maintained free from cracks, leaks or defects. Must not be used for product storage until such time that the Environmental Compliance Report required by condition 4 is submitted for Leachate Pond 3.	As depicted in Schedule 1, Figure 2 and Figure 3

	Site infrastructure and equipment	Operational requirement	Infrastructure location
3.	Leachate Pond 3	Must be maintained free from leaks, tears and defects. Must be managed to prevent damage to and ensure the integrity of the HDPE liner. Must be managed to maintain a minimum freeboard of 500 mm. Must be managed to maintain aerobic conditions. Leachate must only be transferred to leachate pond 1 and 2 when the leachate level exceeds 3.5 m as measured against the depth indicator installed in leachate pond 3.	As depicted in Schedule 1, Figure 3 and Figure 4.
4.	Gross pollutant traps	Must be capable of preventing sediments, silt, total suspended solids, oil and grease from entering leachate pond 3. Must be operated and maintained in accordance with the manufacturers specifications.	As depicted in Schedule 1, Figure 2
5.	Groundwater monitoring bores	To be maintained in good working order	As depicted in Schedule 1, Figure 2
6.	Additional fire water tank	Maintained operational and full at all times with a storage capacity of at least 100,000 L	As depicted in Schedule 1, Figure 3

11. During time limited operations, the works approval holder must ensure that the emission(s) specified in Table 4, are discharged only from the corresponding discharge point(s) and only at the corresponding discharge point location(s).

Table 4: Authorised discharge points during time limited operations

Emission	Discharge point	Discharge point location
Odour	Biofilter	As depicted in Schedule 1, Figure 2

12. During time limited operations, the works approval holder must ensure that the emissions from the discharge point listed in Table 5 do not exceed the corresponding limit when monitored in accordance with condition 13.

Table 5: Emission and discharge limits during time limited operations

Discharge point	Parameter	Limit
Biofilter	Odour Units	500 ou

Monitoring during time limited operations

13. The works approval holder must monitor emissions during time limited operations in accordance with Table 6.

Table 6: Emissions and discharge monitoring during time limited operations

Discharge point	Parameter	Frequency	Averaging Period	Unit	Method
Biofilter	Air volumetric flow rate	Monthly	Continuous	Nm^3/s [1]	USEPA Method 2
	Odour concentration			Ou	ASZ 4323.3.2001
	Temperature			°C	None specified
	Pressure			kPa	None specified
	Relative humidity			%	None specified

Compliance Reporting

14. The works approval holder must submit to the CEO a report on the time limited operations within 30 calendar days of the completion date of time limited operations or 30 calendar days before the expiration date of the works approval, whichever is the sooner.

15. The works approval holder must ensure the report required by condition 14 includes the following:

(a) a summary of the time limited operations, including timeframes and amount of material processed;

(b) monitoring results recorded in accordance with condition 13 with a comparison against the output emission limits specified in condition 12

(c) a summary of the environmental performance of all infrastructure as constructed or installed (as applicable), which includes records detailing the waste inputs processed and compost produced;

(d) a review of performance and compliance against the conditions of the works approval; and

(e) 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.

Records and reporting (general)

16. 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.

17. 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 conditions of this works approval;

(c) monitoring programmes undertaken in accordance with condition 13; and

(d) complaints received under condition 16.

18. The books specified under condition 17 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 7 have the meanings defined.

Table 7: Definitions

Term	Definition
annual period	a 12 month period commencing from 1 January until 31 December of the immediately following year.
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
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 sequence of activities to be undertaken to test equipment integrity and operation, or to determine the environmental performance, of equipment and infrastructure to establish or test a steady state operation and confirm design specifications.
Environmental Commissioning Report	means a report on any commissioning activities that have taken place and a demonstration that they have concluded, with focus on emissions and discharges, waste containment, and other environmental factors.
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).
GITA	Geotechnical Inspection and Testing Authority
monthly period	means a one-month period commencing from day 1 of a month until the last day of that month.

Term	Definition
Nm^3 /s	normal cubic meters per hour
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 as depicted in Schedule 1,Figure 1 of this works approval.
prescribed premises	has the same meaning given to that term under the EP Act.
STP	Standard temperature and pressure.
Suitably qualified professional engineer	Means a person who: a) holds a Bachelor of Engineering recognised by the Institute of Engineers; and b) has a minimum of five years of experience working in a supervisory 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 condition 1, at the premises shown in Schedule 1 of this works approval to be carried out on 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.

END OF CONDITIONS

Schedule 1: Maps

Premises map

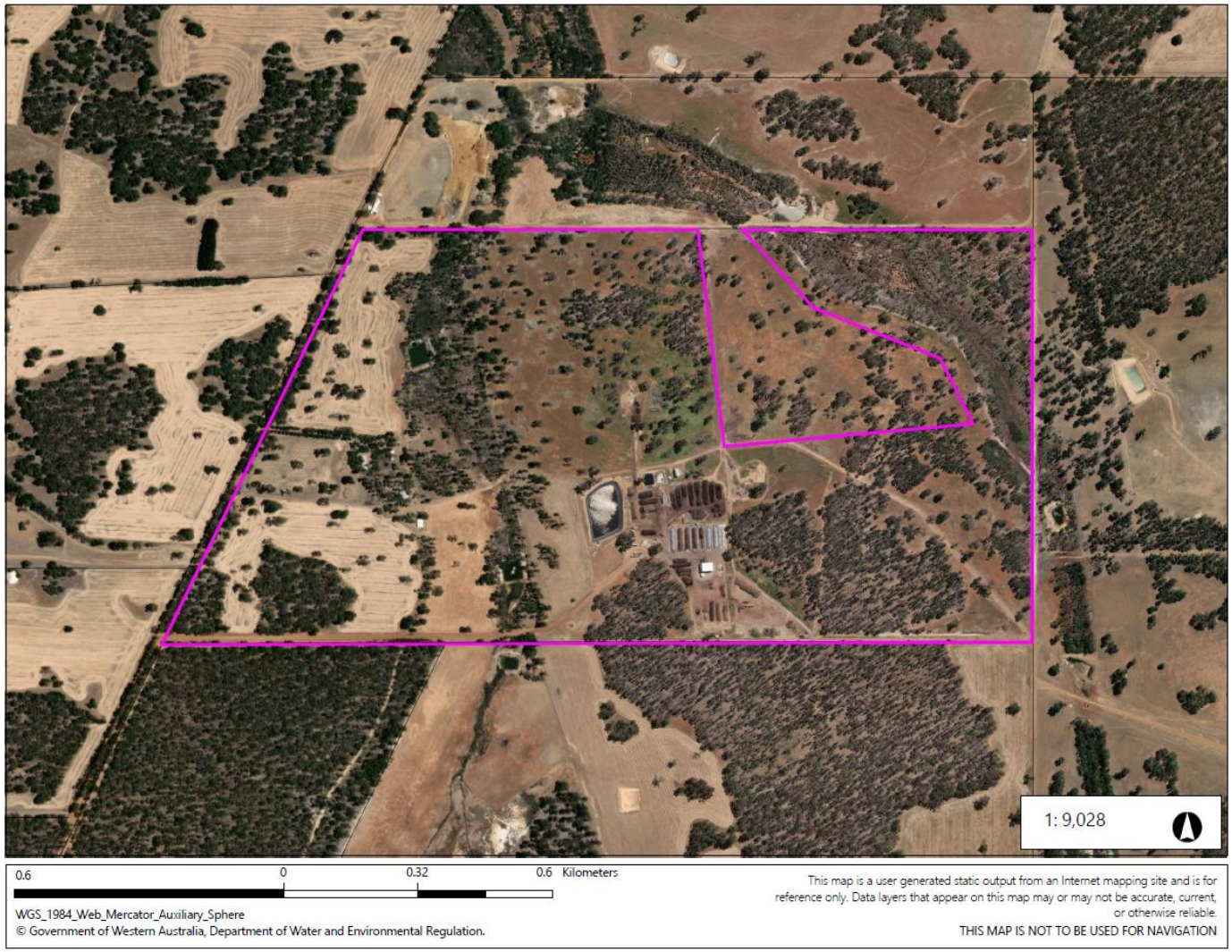

Figure 1: Map of the boundary of the prescribed premises

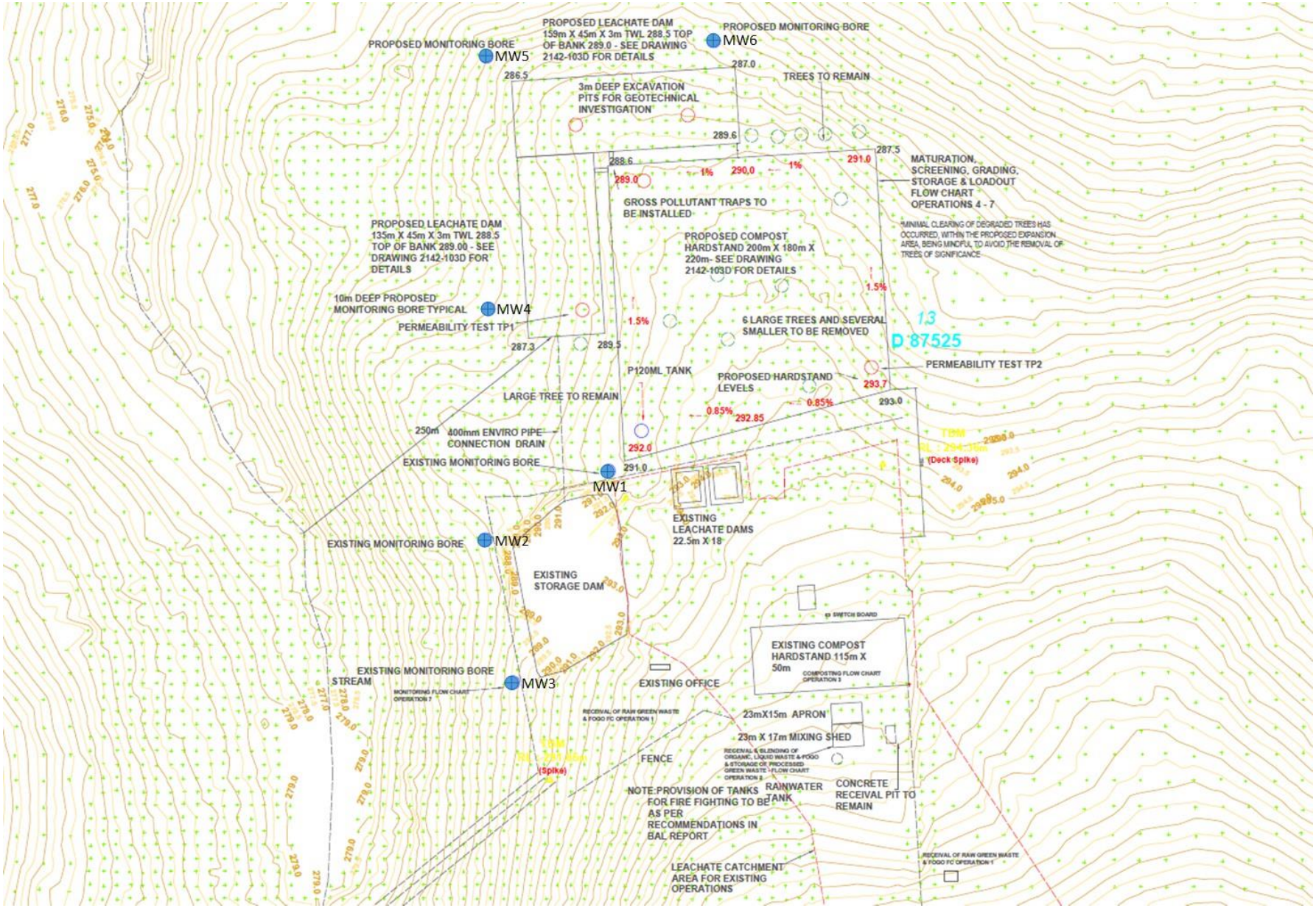

Figure 2: Map of the existing and proposed infrastructure

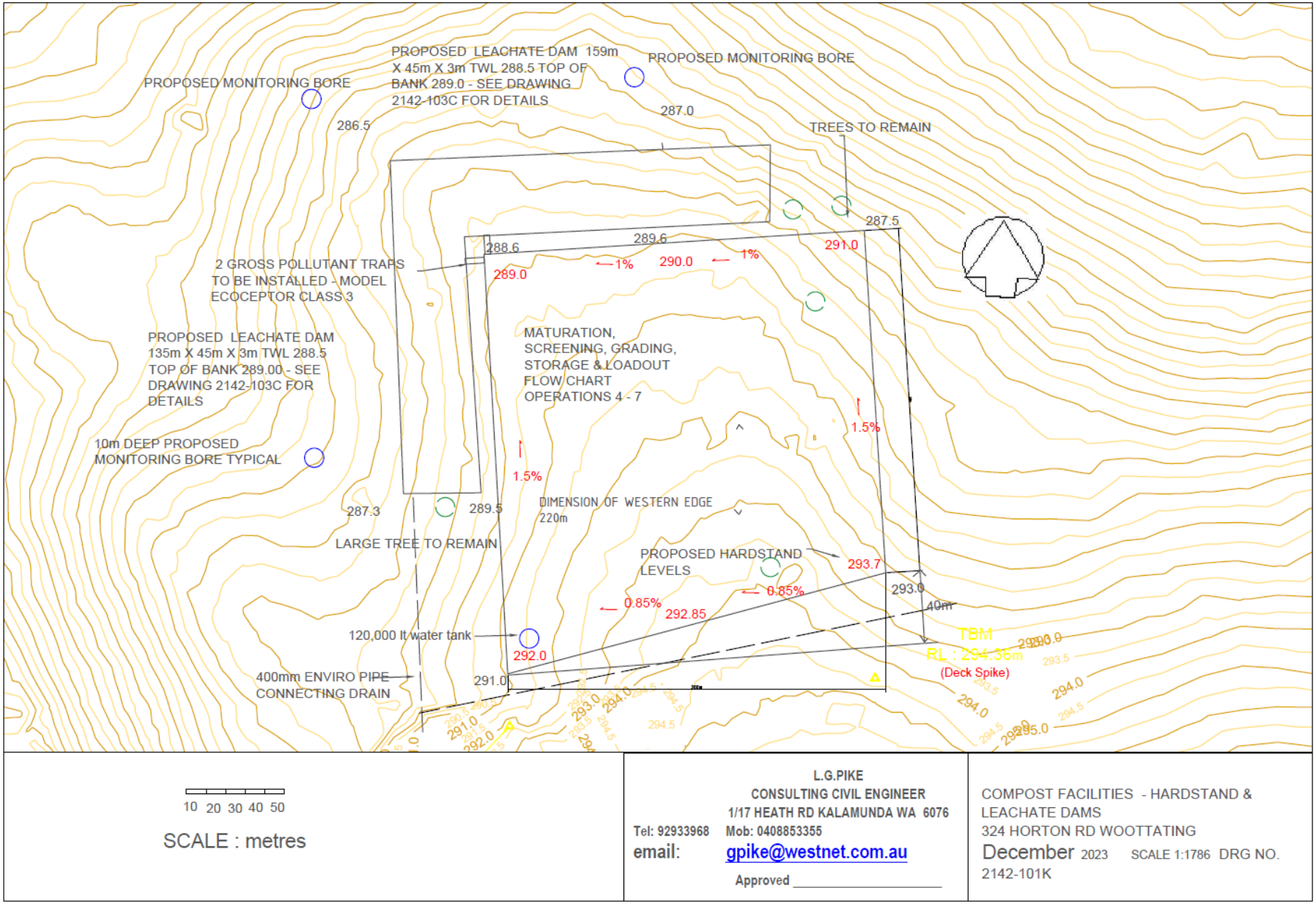

Figure 3: Map of expansion area hardstand and leachate pond 3

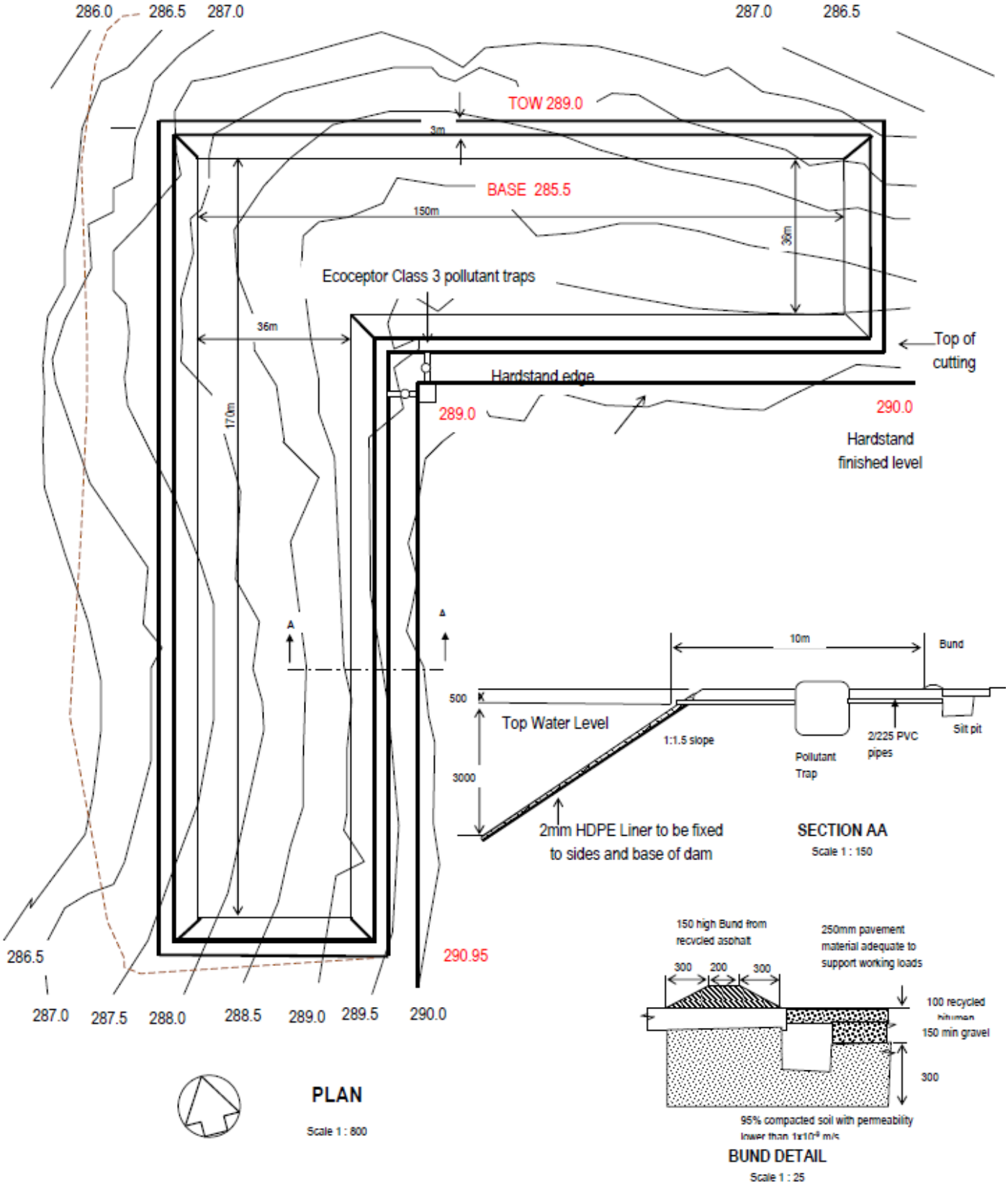

Figure 4: Leachate pond design and construction specifications

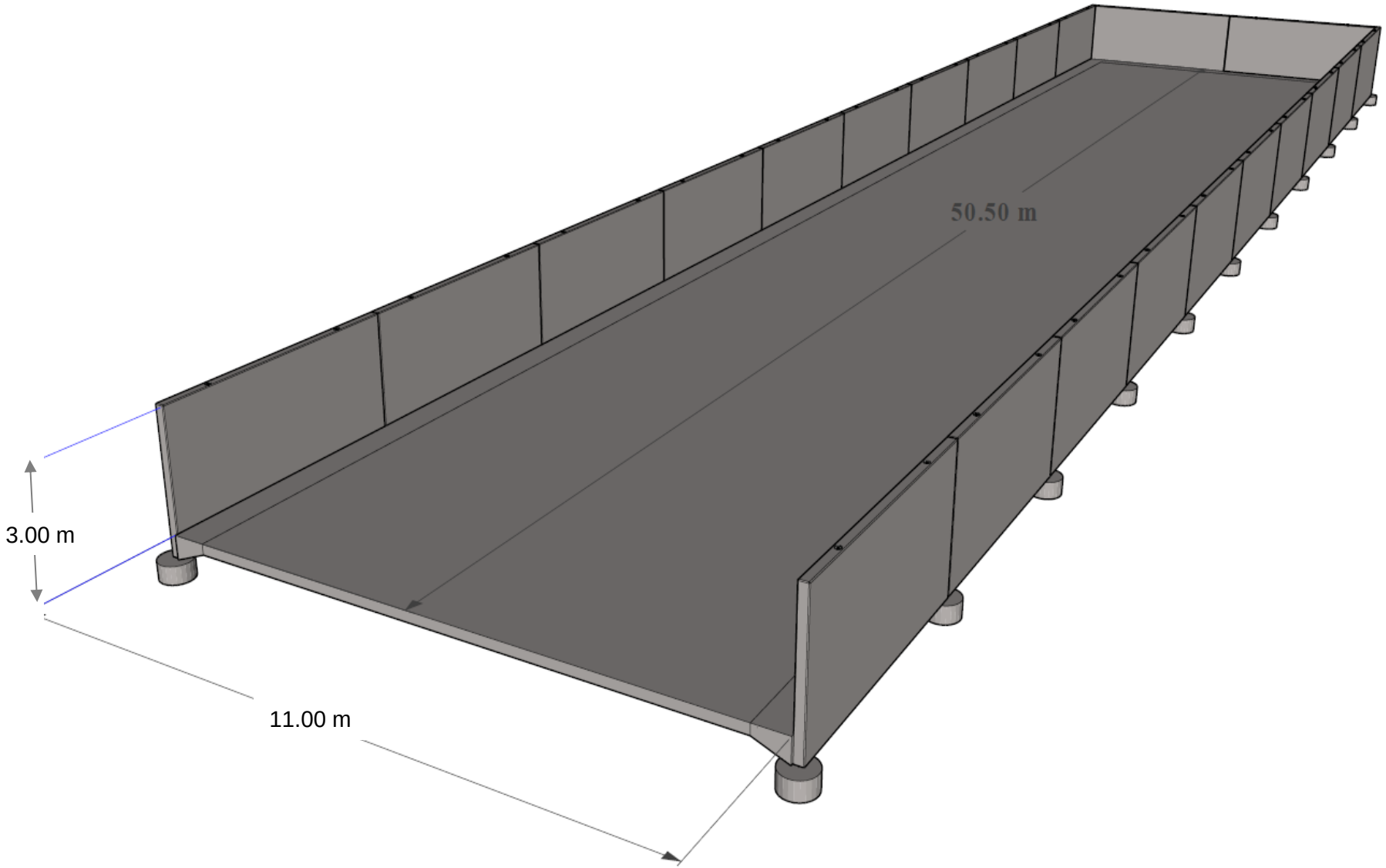

Figure 5: Pasteurisation bunker design specifications

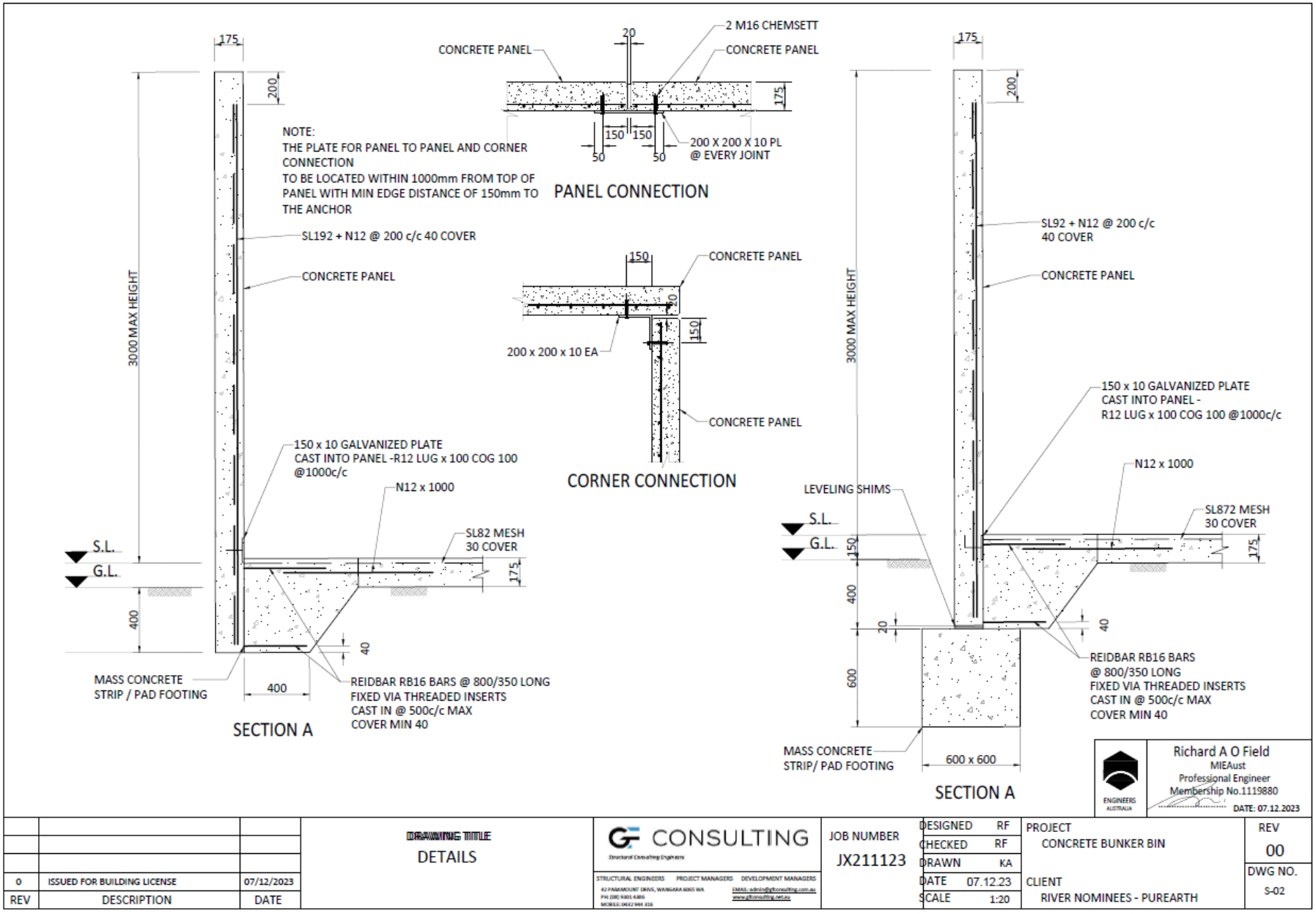

Figure 6: Pasteurisation bunker design specifications

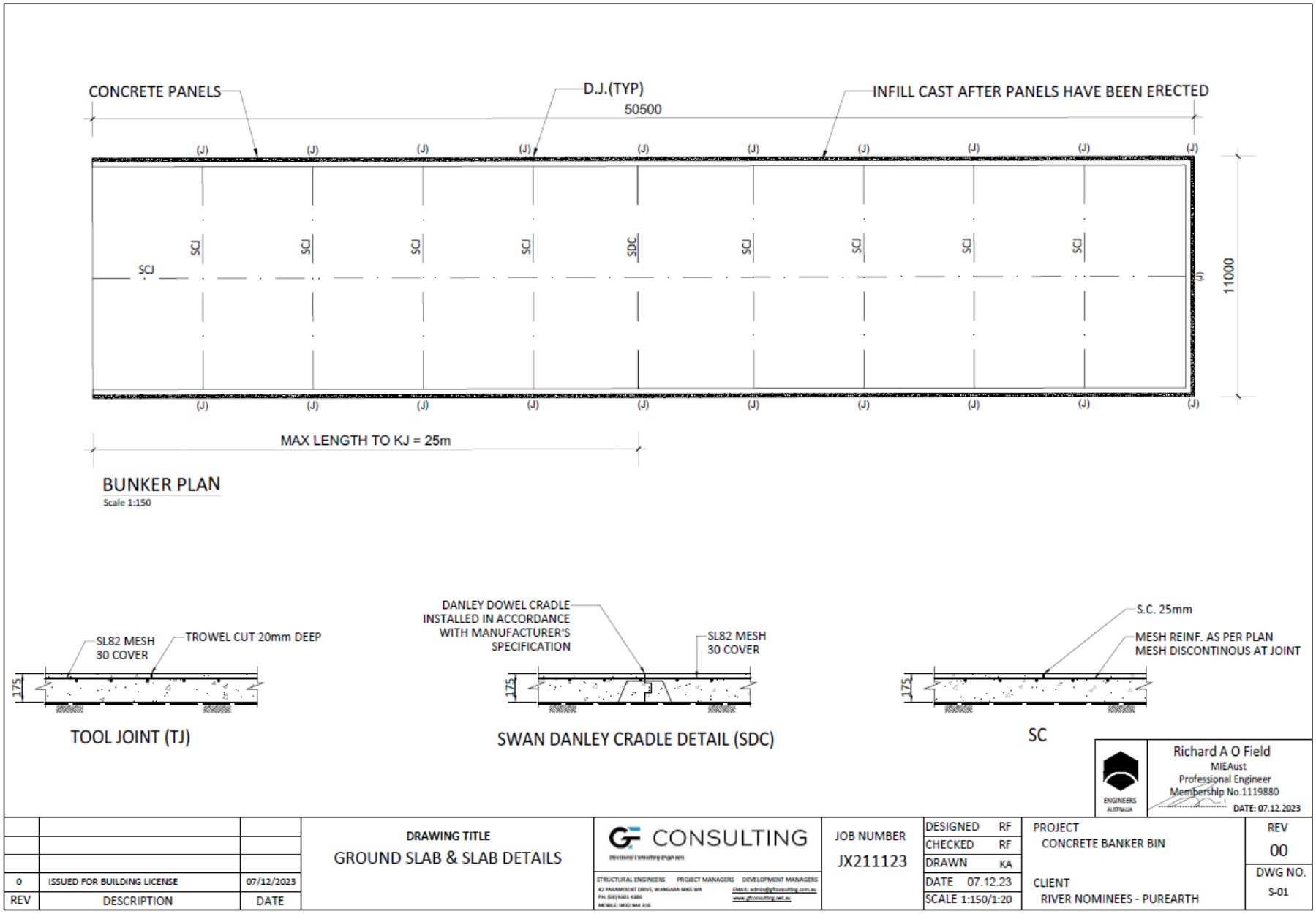

Figure 7: Pasteurisation bunker design specifications

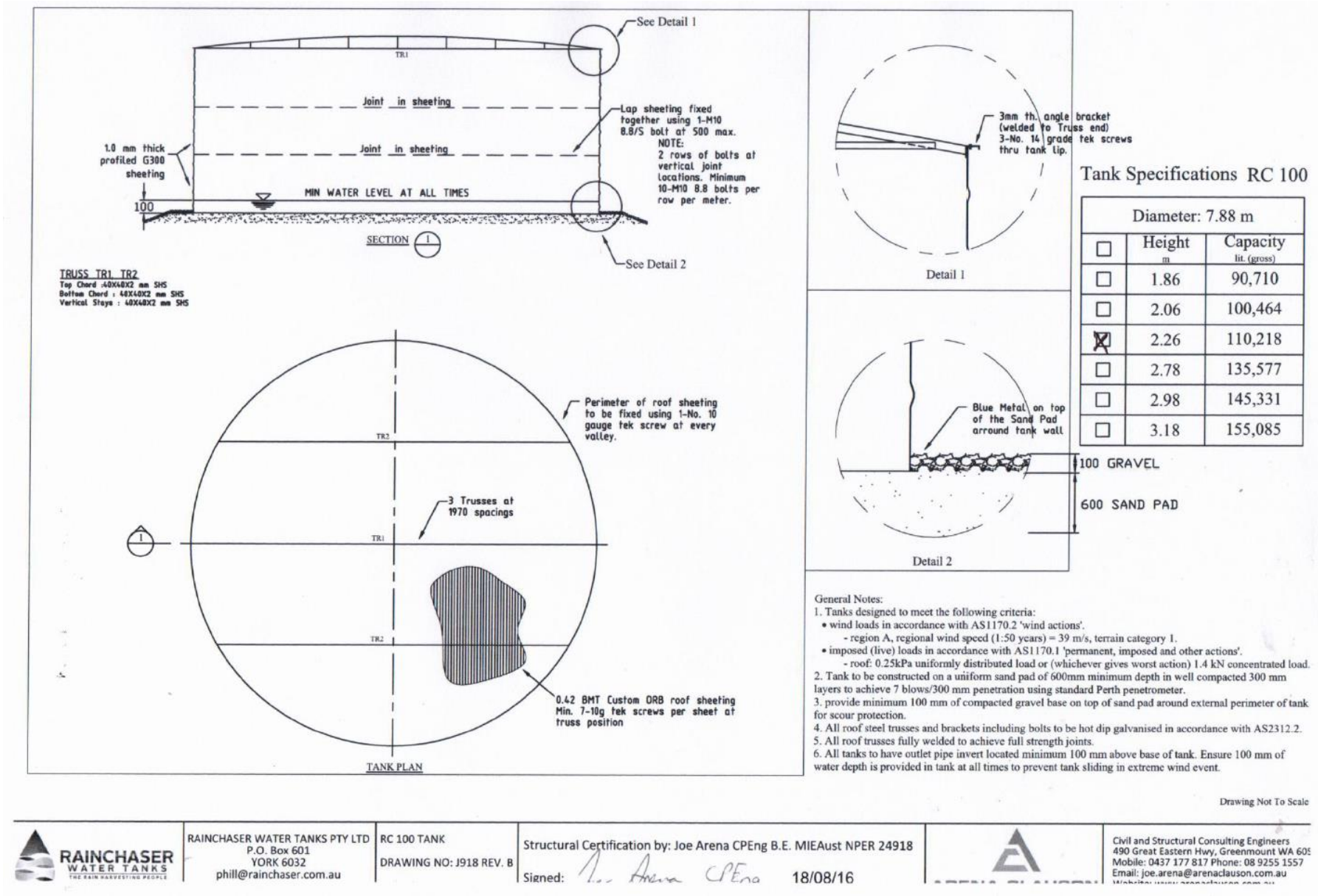

Figure 8: Fire water tank design specifications

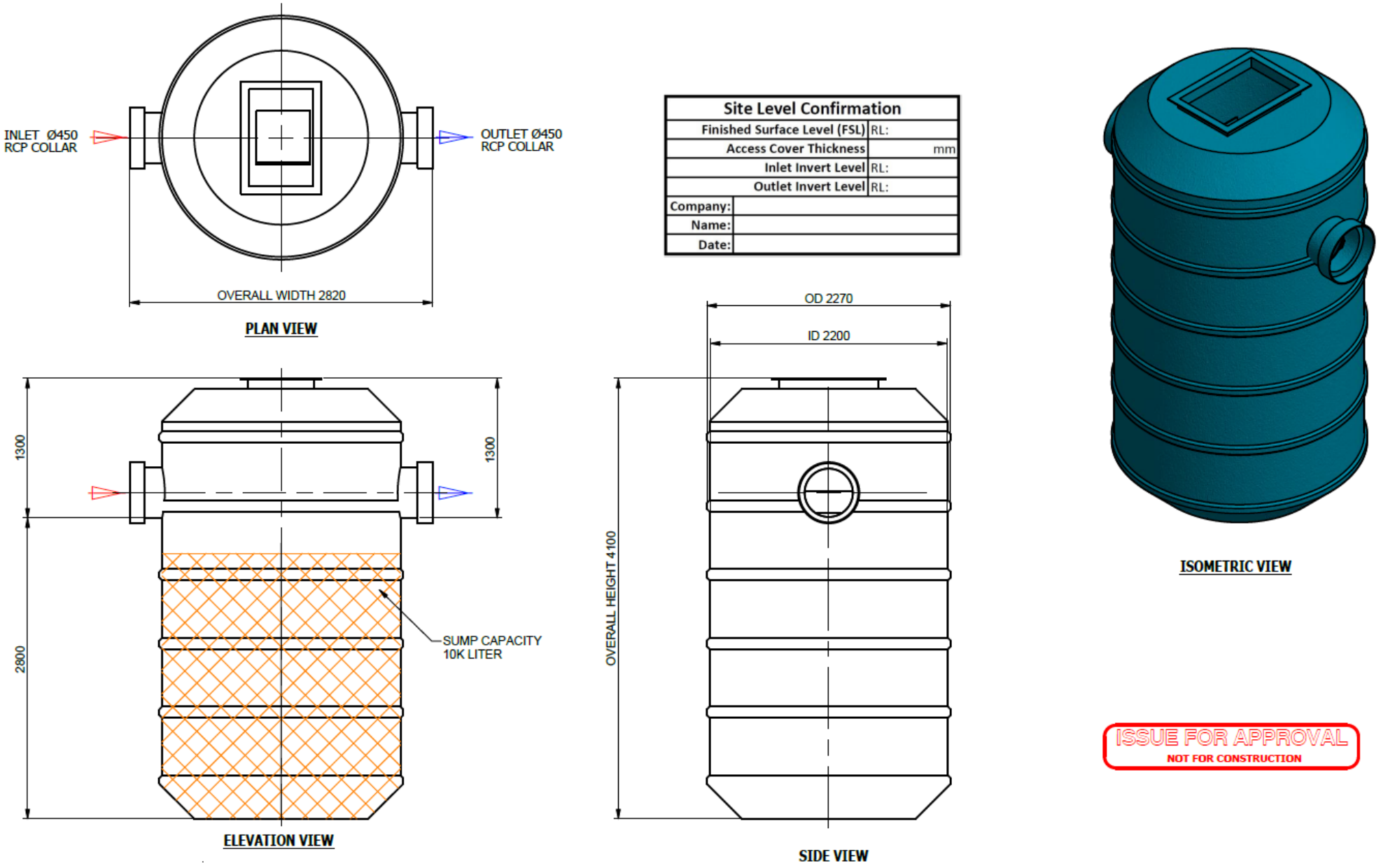

Figure 9: Gross pollutant trap design specifications

Schedule 2: Premises boundary

The corners of the premises boundary are the coordinates listed in Table 8.

Table 8: Premises boundary coordinates (GDA2020 – Zone 50)

	Easting	Northing
1.	439619.87	6476499.94
2.	439675.76	6476058.43
3.	440185.06	6476107.88
4.	440117.29	6476240.85
5.	439856.79	6476342.38
6.	439710.14	6476500.49
7.	438932.65	6476496.33
8.	438525.50	6475647.35
9.	440308.95	6475663.01
10.	440304.31	6476503.68

Schedule 3: Minimum specification for excavation and HDPE geomembrane installation

The construction works and requirements described in the following tables are required to be completed in accordance with Condition 1.

Table 9: Leachate Pond Subgrade Construction Specifications

Infrastructure or Equipment	Requirements (design and construction)
Site Preparation and Subgrade construction	The following site preparation works must be undertaken: • Clearing and grubbing of entire pond footprint including embankments, bunds and base. • Excavation of all unsuitable materials to a minimum depth of -300mm from final surface level (FSL) to form a suitable subgrade, and replace with engineered fill material, moisture condition and compact to Standard Maximum Dry Density (SMDD) of 95% and Optimum Moisture Content (OMC) of -2% to +2% in layers to FSL not exceeding 300mm and not less than 100mm. • If suitable material (meeting requirements for engineered fill material) exists in the pond footprint, the material shall be excavated to -250mm of FSL, ripped and treated as per engineered fill material for moisture conditions and compaction requirements. • Internal batters cut to 1:1.5 (V:H). • Proof roll entire footprint including pond floor and embankments • following rolling, the surface is to have no irregularities in excess of 10 mm deep over a straightedge length of 20 mm.

Table 10: HDPE Liner Design, Construction and Quality Assurance Specifications

	Parameter	Requirements (design and construction)

1	High Density Polyethylene liner	• To extend over the entire pond base and up the side embankments;
		• Must be uniform and free of pin holes, blisters, blemishes, striations, bubbles, roughness, contaminants and permanently attached raw materials;
		• Completely sealed and waterproof along all joins and seams with heat welded joints;
		  • All seams and joins made on site should be continuous;
		  • Panels of the liner should be overlapped by a minimum of
		  • 100mm, prior to heat welding; and
		• Leak detection survey to be carried out following installation.

2	Quality Assurance and Quality Control	Construction and installation performance must be measured by the following specifications: • Construction requirements (as specified by condition 1 and this table); • Conformance testing – to show materials meet the following minimum requirements;

	Parameter	Requirements (design and construction)

Property		Units	Value	Test	Testing Frequency
Thickness (average)		mm	2.0	ASTM D5199	One for every two rolls
Thickness (minimum)		mm	2.0	ASTM D5199	
Density		g/cc	> 0.932	ASTM D1505	
Water permeability (liquid tightness) (minimum)		m/s	< 1 x 10^{-9}	ASTM E96	Every five years
Tensile properties	Break strength	kN/m	57	ASTM D6693	One per batch
	Yield strength	kN/m	31	ASTM D6693	
	Yield elongation	%	13	ASTM D6693	
	Break elongation	%	700	ASTM D6693	
Tear resistance		N	250	ASTM D1004	
Puncture resistance		N	695	ASTM D4833	
Carbon black content		%	2.0 – 3.0	ASTM D4218	
Carbon black dispersion		Cat	Cat 1 or Cat 2	ASTM D5596	
Destructive fusion weld testing on-site tests undertaken by Contractor, witnessed by CQA Consultant	Fusion/Wedge Weld - Shear strength	N/25 mm	700	ASTM D6392	Every 150m along weld
	Fusion/Wedge Weld - Peel strength		530		
	Extrusion Weld – Shear Strength		700		Every 150m along weld
	Extrusion Weld – Peel Strength		455		
Non - destructive weld testing – tests undertaken by Contractor, witnessed by CQA Consultant	Air pressure test	-	pass/fail	ASTM D5820	All seams over full length
	Vacuum box test			ASTM D5641	