

GEOTECH 24-030a

11/9/2024

Phillip Wiezbowski  
[phillipwiezbowski@gmail.com](mailto:phillipwiezbowski@gmail.com)

Marcus Ralph  
[marcusralph@bigpond.com](mailto:marcusralph@bigpond.com)

ROCK SOLID GEOTECHNICS PTY LTD  
Peter Hofto  
163 Orielton Road  
Orielton  
TAS 7172  
0417 960 769  
[peter@rocksolidgeotechnics.com.au](mailto:peter@rocksolidgeotechnics.com.au)

ONSITE WASTEWATER ASSESSMENT / SYSTEM DESIGN – 92 Lowes Road, Bruny Island

Below find the assessment to determine of the type and size of wastewater treatment system, and the allocation of a Land Application Area (LAA) for a proposed residence at 92 Lowes Road, Bruny Island. This assessment should be read in conjunction with Site & Soil Evaluation Report (GEOTECH 24-030a) - enclosed.

A site investigation was completed in 2012, and again in 2024. This assessment included the augering of three test holes to assess the site for onsite wastewater disposal suitability (4WD mounted SAMPLA25 mechanical auger with 100mm solid flight augers).

This area designated for the proposed wastewater LAA (Plate 1) slopes shallowly at 2-3 degrees to the west.

Typical of the profiles encountered in the Test Holes was;

0.00 – 0.25m	sandy CLAY: medium plasticity, greyish brown, 25-30% fine to medium grained, greyish brown, moist, rootlets – TOPSOIL
0.25 – 0.80m	sandy CLAY: medium to high plasticity, olive brown, 30% fine to coarse grained, brown, trace fine to medium angular dolerite gravel
0.80m+	Auger refusal on dolerite bedrock - 0.80m depth

Groundwater was not encountered in any of the test holes.

The site is classified as a Class 6 (clay / bedrock) with an Indicative Permeability of 0.12-0.5 m/day.

A Design Irrigation Rate (DIR) of 2mm/day is appropriate for secondary treated effluent from an Aerated Wastewater Treatment System (AWTS).

It is proposed to install an Aerated Wastewater Treatment System (AWTS) and to dispose of the effluent via subsurface irrigation under lawn (to be established).

Plate 1 – Proposed LAA. Looking upslope to the northeast.



COMPLIANCE WITH THE INTERIM PLANNING SCHEME

Compliance Table		Code E23
Acceptable Solutions	Performance Criteria	Compliance achieved by
<b>E23.10 Development Standards for Land Application Areas</b>		
<p><b>A1</b>                      Horizontal separation distance from a building to a LAA must comply with one of the following:                      (a) be no less than 6m;                      (b) be no less than;                      (i) 2m from an upslope or level building;                      (ii) if primary treated effluent be no less than 4m plus 1m for every degree of average gradient from a downslope building;                      (iii) if secondary treated effluent and subsurface application, no less than 2m plus 0.25m for every degree of average gradient from a down slope building.</p>	<p><b>P1</b>                      Horizontal separation distance from a building to a LAA must satisfy all of the following:                      (a) effluent must be no less than secondary treated effluent standard and applied through a subsurface land application system;                      (b) be no less than 2m.</p>	<p>Complies with <b>A1</b>                      LAA &gt;2m from upslope building.</p>

<p><b>A2</b> Horizontal separation distance from downslope surface water to a LAA must comply with any of the following: (a) be no less than 100m; (b) if the site is within a high rainfall area or the site soil category is 4, 5 or 6, be no less than the following; (i) if primary treated effluent standard or surface application, 50m plus 7m for every degree of average gradient from downslope surface water; (ii) if secondary treated effluent standard and subsurface application, 50m plus 2m for every degree of average gradient from down slope surface water. (c) if the site is not within a high rainfall area or the site soil category is not 4, 5 or 6, be no less than the following; (i) if primary treated effluent 15m plus 7m for every degree of average gradient from downslope surface water; (ii) if secondary treated effluent &amp; subsurface application, 15m plus 2m for every degree of average gradient from down slope surface water.</p>	<p><b>P2</b> Horizontal separation distance from downslope surface water for a LAA must satisfy all of the following: (a) effluent must be no less than secondary treated effluent standard &amp; applied through a subsurface land application system; (b) be no less than 15m; (c) the surface water is not of high resource or environmental value; (d) the average gradient is no more than 16 degrees; (e) the site is not in a flood prone area with an ARI of no less than 20 years; (f) either of the following applies: (i) the site soil category is 1, 2 or 3; (ii) a raised bed is used.</p>	<p>Complies with <b>A2</b>  LAA &gt;100m from downslope surface water.</p>
<p><b>A3</b> Horizontal separation distance from a property boundary to a LAA must comply with either of the following: (a) be no less than 40m from a property boundary; (b) be no less than: (i) 1.5m from an upslope or level property boundary; &amp; (ii) if primary treated effluent 2m for every degree of average gradient from a downslope property boundary; or (iii) if secondary treated effluent and subsurface application, 1.5m plus 1m for every degree of average gradient from a downslope property boundary.</p>	<p><b>P3</b> Horizontal separation distance from a property boundary to a LAA must satisfy all of the following: (a) effluent must be no less than secondary treated effluent standard &amp; applied through a subsurface land application system; (b) be no less than 1.5m (c) the average gradient is no more than 16 degrees; (d) either of the following applies: (i) the vertical separation between the LAA &amp; groundwater or any limiting layer is no less than 1.5m; (ii) a raised bed is used to achieve a minimum vertical separation of 1.5m between the LAA &amp; groundwater or any limiting layer.</p>	<p>Complies with <b>A3</b>  LAA &gt;40m from any property boundary.</p>
<p><b>A4</b> Horizontal separation distance from a downslope bore, well or similar water supply to a LAA must be no less than 50m.</p>	<p><b>P4</b> Horizontal separation distance from a downslope bore, well or similar water supply to a LAA must satisfy all of the following: (a) effluent must be no less than secondary treated effluent standard &amp; applied through a subsurface land application system; (b) be no less than 15m; (c) the water is not high resource value water.</p>	<p>Complies with <b>A4</b>  No known potable bores in the area.</p>
<p><b>A5</b> Vertical separation distance between groundwater &amp; a LAA must be no less than 1.5m.</p>	<p><b>P5</b> Vertical separation distance between groundwater &amp; a LAA must satisfy all of the following: (a) effluent must be no less than secondary treated effluent standard &amp; applied through a subsurface land application system; (b) vertical separation distance must be no less than 0.5m, (whether 'in ground' or by use of a raised bed).</p>	<p>Complies with <b>A5</b>  Groundwater not encountered.</p>

<p><b>A6</b> Vertical separation distance between a limiting layer &amp; a LAA must be no less than 1.5m.</p>	<p><b>P6</b> Vertical separation distance between a limiting layer &amp; a LAA must satisfy all of the following: (a) effluent must be no less than secondary treated effluent standard &amp; applied through a subsurface land application system; (b) vertical separation distance must be no less than 0.5m, (whether 'in ground' or by use of a raised bed).</p>	<p>Complies with <b>P6</b>  Secondary treated effluent.  Limiting layer &gt;0.5m.</p>
<p><b>A7</b> The arrangement of a LAA must comply with both of the following: (a) not include areas beneath buildings, driveways or other hard stand areas; (b) have a minimum horizontal dimension of 3m.</p>	<p><b>P7</b> No performance criteria.</p>	<p>Complies with <b>A7</b></p>

**WASTEWATER SYSTEM DESIGN:**

The site is not suitable for an 'inground' trench based onsite wastewater system due to the low permeability of the clay subsoils and shallow bedrock.

It is proposed to install an Aerated Wastewater Treatment System (AWTS) and to dispose of the effluent into a LAA consisting of subsurface irrigation lines.

Several models of AWTS units are available that can be run off solar power.

The size of the total LAAs is conditional on the wastewater load entering the system and the permeability of the site.

The site is classified as a Class 6 (clay / bedrock) with an Indicative Permeability of 0.12-0.5 m/day. A Design Irrigation Rate (DIR) of **2mm/day** is appropriate for secondary treated effluent from an Aerated Wastewater Treatment System (AWTS).

2-bedroom residence	4 persons occupancy	
Tank water	120 litres/person/day	
Wastewater Load	4 x 120 litres/person/day	480 litres/day
Design Irrigation Rate (DIR)	2mm/day	Secondary treated effluent
Irrigation Area	480 / 2 = 240m <sup>2</sup>	

Total size of calculated Land Application Area (LAA) is **240m<sup>2</sup>**.

## LAND APPLICATION AREA

The new Land Application Area should be constructed as per the following specifications:

- Establishment and maintenance of 240m<sup>2</sup> of irrigation area.
- The area is to consist of sub-surface irrigation under designated lawns.
- Landscaping of the irrigation area is to be maintained in good order at all times. Such maintenance includes the mowing of the lawns.
- The LAA shall be stripped of vegetation, cleared of surface rocks and lightly ripped.
- The driplines will be placed on the surface of the site, and covered with 150mm of sandy LOAM / TOPSOIL.
- The drip lines must be rated for use with wastewater (pressure compensated), and organized to cover the entire 240m<sup>2</sup> zone @ 0.8m spacings.
- A Vacuum Breaker Valve will be installed at the high point of the LAA, and placed in a valve box to enable inspection.
- A Flush Valve will be provided for the LAA, with piping returning the flush water to the treatment plant. The Flush Valve will be installed in a valve box to allow inspection and servicing.
- An inline strainer (150-200 mesh) is to be installed to prevent solids from entering the irrigation system.
- A cutoff drain will be installed on the eastern and northern sides of the LAA (250mm deep and 300mm wide), to prevent overground water flows entering the site.
- The areas should not be driven on, as compaction of the subsurface driplines could render the system unserviceable.

*SITE AND SOIL EVALUATION REPORT*

Soil Category:

Modified Emerson Test Required

No

1,...2,...3,...4,...5,...6

If Yes, Emerson Class No. ....

Measured or Estimated Soil Permeability (m/d):

.12-0.5 m/day

Design Irrigation Rate (DIR)

2 mm/day

Geology:

Dolerite

Slope:

2-3 degrees

Drainage lines / water courses:

Nil

Vegetation:

semi-cleared

Site History: (land use)

Bush block

Aspect:

west

Pre-dominant wind direction:

Northwest to southwest

Site Stability: Will on-site wastewater disposal affect site stability?

No

Is geological advice required?

No

Drainage/Groundwater:

Not Encountered

Depth to seasonal groundwater (m):

Not Encountered

Are surface or sub-surface drains required upslope of the land application area?

Yes

Date of Site Evaluation:

2012 / 2024

Weather Conditions:

Fine / rain

Phillip Wiezbowski  
[phillipwiezbowski@gmail.com](mailto:phillipwiezbowski@gmail.com)

ROCK SOLID GEOTECHNICS PTY LTD  
Peter Hofto  
163 Orielton Rd  
Orielton  
TAS 7172  
0417960769  
[peter@rocksolidgeotechnics.com.au](mailto:peter@rocksolidgeotechnics.com.au)

6/3/2024

**Loading Certificate for Onsite Wastewater System - 92 Lowes Road, Bruny Island**

- 1 System Capacity:
  - (medium/long term) 2-bedroom residence - 4 persons, 480 litres/day
  
- 2 Design Criteria Summary:

Secondary Treated Effluent	Aerated Wastewater Treatment System (AWTS)
Soil Category	Class 6 CLAY / BEDROCK
Land Application System	240m <sup>2</sup> of subsurface irrigation
  
- 3 Reserve Area:
  - Reserve LAA available if required.
  
- 4 Variation from design flows etc:
  - The system should successfully assimilate additional peak loadings which may result from occasional social gatherings provided that this does not exceed use by more than 8 persons in a 24-hour period or more than 2 temporary resident visitors (ie. up to 6 persons total) for a period not exceeding 4 days. Visitors should be advised of the requirement to minimise time spent in showers, not running taps whilst cleaning teeth, and other common sense water conservation measures.
  
- 5 Consequences of overloading the system:
  - Long term use by more than 4 residents or equivalent may result in overloading of the system, surfacing of effluent, public and environmental health nuisances, pollution of surface water etc.
  
- 6 Consequences of under-loading the system:
  - The system will work effectively with as few as 1-person in the residence, however long periods of zero occupancy may result in poor functioning of the system when normal use recommences. If the building is left unoccupied for more than one month, it is advised to inform the maintenance contractor.
  
- 7 Consequences of lack of operation, maintenance and monitoring attention:
  - The AWTS and irrigation area will need to be serviced by a registered contractor.

Peter Hofto  
Rock Solid Geotechnics Pty Ltd

## CONDITIONS OF INVESTIGATION

This report remains the property of Rock Solid Geotechnics Pty. Ltd. (RSG). It must not be reproduced in part or full, or used for any other purpose without written permission of this company. The investigations have been conducted, & the report prepared, for the sole use of the client or agent mentioned on the cover page. Where the report is to be used for any other purpose RSG accepts no responsibility for such other use. **The Form 35 is not transferable to another body without consultation (reissue) from RSG.** The information in this report is current and suitable for use for a period of two years from the date of production of the report, after which time it cannot be used for Building or Development Application.

**This report should not be used for submission for Building or Development Application until RSG has been paid in full for its production.** RSG accepts no liability for the contents of this report until full payment has been received.

The results & interpretation of conditions presented in this report are current at the time of the investigation only. The investigation has been conducted in accordance with the specific client's requirements &/or with their servants or agent's instructions.

This report contains observations & interpretations based often on limited subsurface evaluation. Where interpretative information or evaluation has been reported, this information has been identified accordingly & is presented based on professional judgement. RSG does not accept responsibility for variations between interpreted conditions & those that may be subsequently revealed by whatever means. Due to the possibility of variation in subsurface conditions & materials, the characteristics of materials can vary between sample & observation sites. RSG takes no responsibility for changed or unexpected variations in ground conditions that may affect any aspect of the project. The classifications in this report are based on samples taken from specific sites. The information is not transferable to different sites, no matter how close (ie. if the development site is moved from the original assessment site an additional assessment will be required).

It is recommended to notify the author should it be revealed that the sub-surface conditions differ from those presented in this report, so additional assessment & advice may be provided.

- **AS1547-2012: Onsite Domestic Wastewater Management**

Any assessment that has included an onsite wastewater system design will require a further site visit / inspection once the system has been installed. **It is the responsibility of the client / plumber to inform the author as to when the wastewater system is being installed, and to arrange the final inspection.** After the inspection to verify that the system has been installed as per RSG's design a statement will be provided. An additional fee applies for the site visit & issuing the certificate.

RSG is not responsible for the correct installation of wastewater systems. Any wastewater installation is the sole responsibility of the owner/agent and certified plumber. Any variation to the wastewater design must be approved by RSG, and an amended Special Plumbing Permit obtained from the relevant council. The registered plumber must obtain a copy and carefully follow the details in the council issued Special Plumbing Permit. A "Certificate of Completion" will be based on surface visual inspection only, to verify the location of the system. All underground plumbing works are the responsibility of the certified plumber.

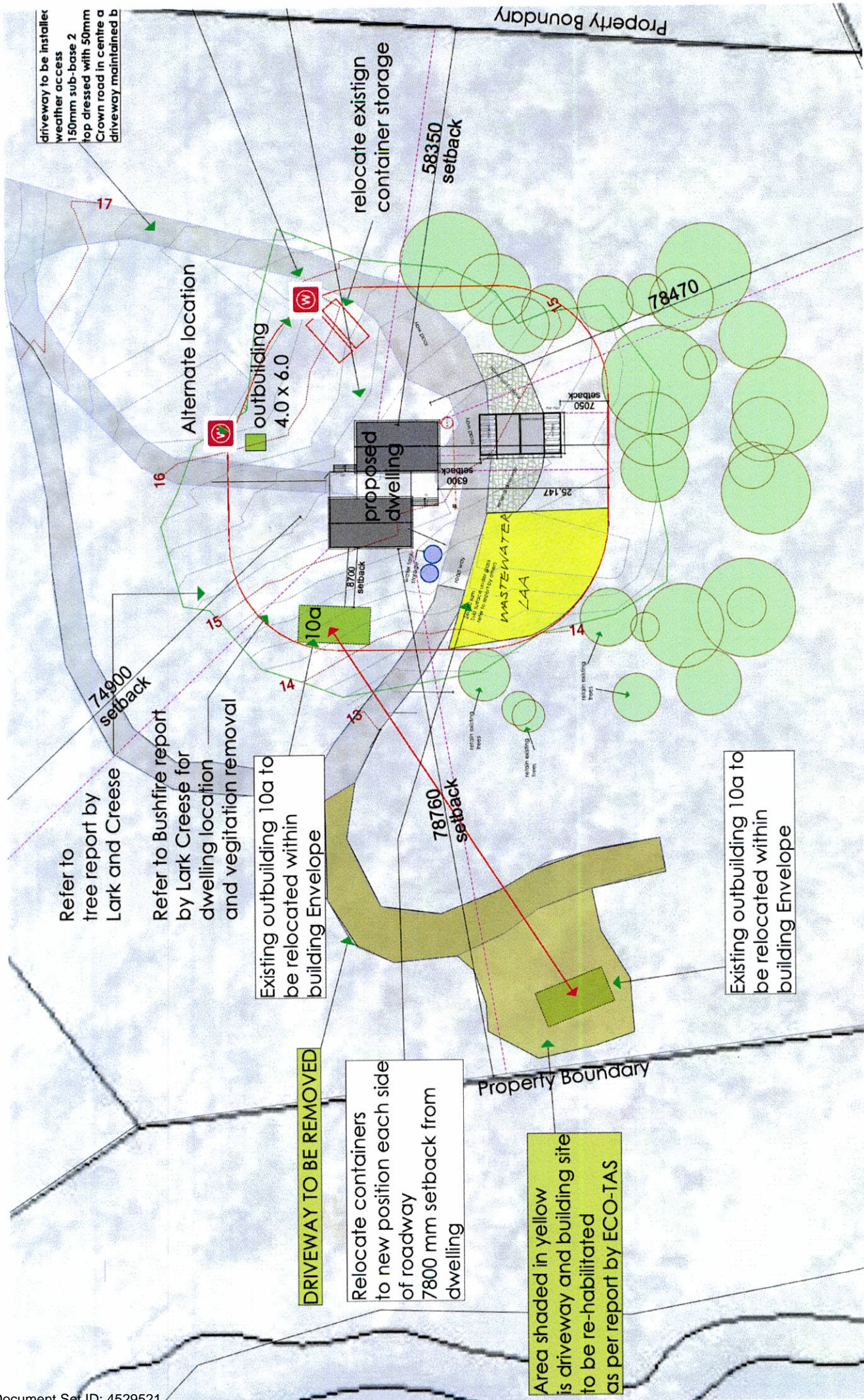
Copyright: The concepts & information contained in this report are the Copyright of Rock Solid Geotechnics Pty. Ltd.



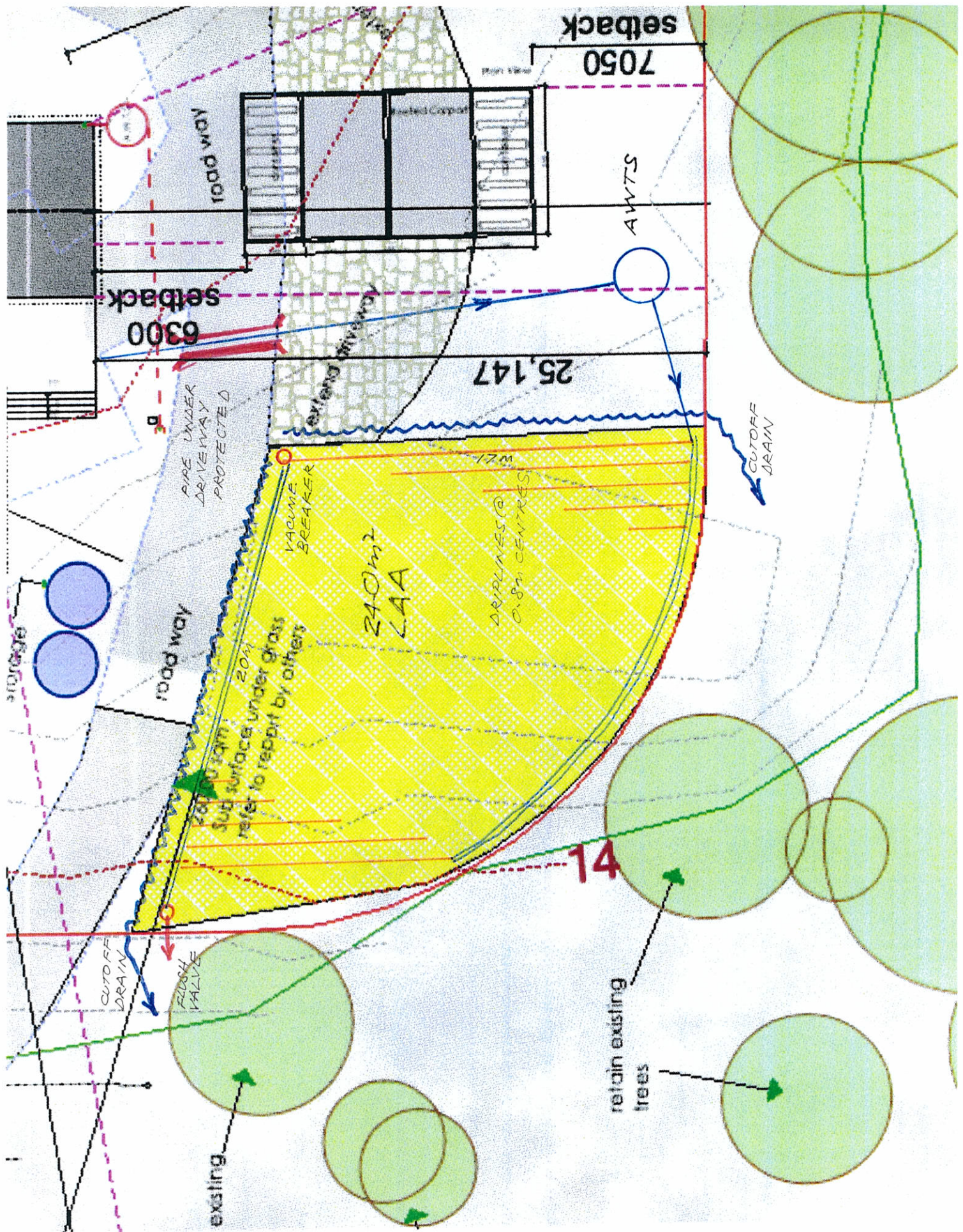
PETER HOFTO

ROCK SOLID GEOTECHNICS PTY LTD





<p>PROJECT NAME: New Dwelling          CLIENT: Wierzbowski Residence          SITE: 92 Lowes Road          Date: 08/2024          DRAWN BY: MASON</p>		<p>Part Site Plan          PROJECT NO: 2023-965          DRAWING NO: 965-04          SCALE: 1:500</p>
<p>FOR CONSTRUCTION          PM-12.42G-01 - chassis</p>		<p>ISSUE DRAWING A01</p>
<p>A: 102 CAMBRIDGE ROAD, CAMBRIDGE TAS 7170          P: +61 8238 4561   E: INFO@PODMATRIX.COM.AU  <b>PODMATRIX</b></p>		
<p>FOR CONSTRUCTION          PM-12.42G-01 - chassis          © Copyright, property of PODMATRIX CAMBRIDGE TASMANIA</p>		



PLAN 1:200  
 ZAA

# CERTIFICATE OF THE RESPONSIBLE DESIGNER

Section 94  
Section 106  
Section 129  
Section 155

Form **35**

To:  Owner name  
 Address  
  Suburb/postcode

## Designer details:

Name:  Category:   
 Business name:  Phone No:   
 Business address:   
  Fax No:   
 Licence No:  Email address:

## Details of the proposed work:

**Owner/Applicant**  Designer's project reference No.   
**Address:**  Lot No:   
   
**Type of work:** Building work  Plumbing work  (X all applicable)

### Description of work:

ONSITE WASTEWATER MANAGEMENT SYSTEM

*(new building / alteration / addition / repair / removal / re-erection water / sewerage / stormwater / on-site wastewater management system / backflow prevention / other)*

### Description of the Design Work (Scope, limitations or exclusions): (X all applicable certificates)

Certificate Type:	Certificate	Responsible Practitioner
	<input type="checkbox"/> Building design	Architect or Building Designer
	<input type="checkbox"/> Structural design	Engineer or Civil Designer
	<input type="checkbox"/> Fire Safety design	Fire Engineer
	<input type="checkbox"/> Civil design	Civil Engineer or Civil Designer
	<input checked="" type="checkbox"/> Hydraulic design	Building Services Designer
	<input type="checkbox"/> Fire service design	Building Services Designer
	<input type="checkbox"/> Electrical design	Building Services Designer
	<input type="checkbox"/> Mechanical design	Building Service Designer
	Plumbing design	Plumber-Certifier; Architect, Building Designer or Engineer
	<input type="checkbox"/> Other (specify)	
Deemed-to-Satisfy: <input checked="" type="checkbox"/>		Performance Solution: <small>(X the appropriate box)</small>
Other details:		

**Design documents provided:**

The following documents are provided with this Certificate –

*Document description:*

Drawing numbers:	Prepared by: ROCK SOLID GEOTECHNICS	Date: 11/9/2024
Schedules:	Prepared by:	Date:
Specifications:	Prepared by: ROCK SOLID GEOTECHNICS	Date: 11/9/2024
Computations:	Prepared by: ROCK SOLID GEOTECHNICS	Date: 11/9/2024
Performance solution proposals:	Prepared by:	Date:
Test reports:	Prepared by:	Date:

**Standards, codes or guidelines relied on in design process:**

AS 1547:2021 On-site domestic wastewater management  
Director's Guidelines for Onsite Wastewater Management

**Any other relevant documentation:**

**Attribution as designer:**

I Peter Hofto – ROCK SOLID GEOTECHNICS P/L ..... am responsible for the design of that part of the work as described in this certificate;

The documentation relating to the design includes sufficient information for the assessment of the work in accordance with the *Building Act 2016* and sufficient detail for the builder or plumber to carry out the work in accordance with the documents and the Act;

This certificate confirms compliance and is evidence of suitability of this design with the requirements of the National Construction Code.

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	<input type="text" value="Peter Hofto"/>	<input type="text" value="Peter Hofto"/>	<input type="text" value="11/9/2024"/>
Licence No:	<input type="text" value="CC6159I"/>		

**Assessment of Certifiable Works: (TasWater)**

**Note: single residential dwellings and outbuildings on a lot with an existing sewer connection are not considered to increase demand and are not certifiable.**  
**If you cannot check ALL of these boxes, LEAVE THIS SECTION BLANK.**  
**TasWater must then be contacted to determine if the proposed works are Certifiable Works.**

**I confirm that the proposed works are not Certifiable Works, in accordance with the Guidelines for TasWater CCW Assessments, by virtue that all of the following are satisfied:**

- The works will not increase the demand for water supplied by TasWater
- The works will not increase or decrease the amount of sewage or toxins that is to be removed by, or discharged into, TasWater's sewerage infrastructure
- The works will not require a new connection, or a modification to an existing connection, to be made to TasWater's infrastructure
- The works will not damage or interfere with TasWater's works
- The works will not adversely affect TasWater's operations
- The works are not within 2m of TasWater's infrastructure and are outside any TasWater easement
- I have checked the LISTMap to confirm the location of TasWater infrastructure
- If the property is connected to TasWater's water system, a water meter is in place, or has been applied for to TasWater.

**Certification:**

I .....Peter Hofto – ROCK SOLID GEOTECHNICS P/L.....  
being responsible for the proposed work, am satisfied that the works described above are not Certifiable Works, as defined within the *Water and Sewerage Industry Act 2008*, that I have answered the above questions with all due diligence and have read and understood the Guidelines for TasWater CCW Assessments.

Note: The Guidelines for TasWater Certification of Certifiable Works Assessments are available at: [www.taswater.com.au](http://www.taswater.com.au)

	<i>Name: (print)</i>	<i>Signed</i>	<i>Date</i>
Designer:	<input type="text" value="Peter Hofto"/>	<input type="text" value="PHO"/>	<input type="text" value="11/9/2024"/>