



In reply please quote: 13214

25th March 2025

Duracrete Products Ltd
37 Saleyards Road
Kauri 0185

Attention: Craig Little (craig@duracrete.co.nz)

DURACRETE PRODUCTS LTD
4500L SINGLE AND DUAL CHAMBER TANKS
SCHEDULE TO PS1.

The purpose of this schedule is to outline the scope of the attached producer statement design PS1. It reflects the extent of the analysis carried out by Hawthorn Geddes engineers and architects ltd.

This producer statement covers the following specific features for structure B1 and durability B2 based on Design Life 50yrs, side loading of 1200kg/m² from adjacent boundary, and “good ground” in accordance with the Building Code Clause B1:

1. Duracrete proprietary 4500Ltr single chamber and dual chamber septic tanks conforming to the installation loading limitations illustrated in Figure 1 attached.
2. Duracrete proprietary 4500Ltr single chamber and dual chamber septic tanks with a 150mm thick lid conforming to the installation loading limitations illustrated in Figure 2 attached.
3. 4500Ltr septic tank anti-floatation sill for water table to the full buried depth of tanks with 900mm maximum soil cover.

Overall tank’s durability is as certified by Duracrete.

The critical elements are constructed in factory conditions under strict QA/QC processes. The products are also subject to consumer warranties.

Tank installation is to be in accordance with the stamped and signed Duracrete’s site preparation and installation guidelines attached in this PS1.

HG considers inspection by the local Territorial Authority is appropriate. If the consenting authority requires a PS4 for the tanks, a CM1 level of inspection would be appropriate. Also, if the site conditions are deemed to need PS4 inspections, the PS4 can be carried out by appropriately qualified engineer familiar with the contents of this PS1.

Limitation

This schedule has been prepared solely for the benefit of our client Duracrete Products Ltd and the Building Consent Authority in relation to the building consent application for which this schedule has been prepared. The comments in it are limited to the purpose stated in this schedule. No liability is accepted by Hawthorn Geddes engineers & architects ltd in respect of its use by any other person, and any other person who relies upon any matter contained in this schedule does so entirely at their own risk.



Anthony Barber
Hawthorn Geddes
engineers & architects ltd

Schedule prepared by: Anthony Barber

Encl: Copy of analysis calculations (20 sheets A4)
Endorsed Duracrete drawings (4 sheets A4)
Duracrete site preparation guideline (3.sheets A4)



association of
consulting and
engineering

Building Code Clause(s) B1

PRODUCER STATEMENT – PS1 – DESIGN

ISSUED BY: Hawthorn Geddes engineers and architects ltd
(Design Firm)

TO: Duracrete
(Owner/Developer)

TO BE SUPPLIED TO: Any Consenting Authority
(Building Consent Authority)

IN RESPECT OF: 4500L Single Chamber & Dual Chamber Septic Tanks
(Description of Building Work)

AT: Any site within New Zealand
(Address)

Town/City: **LOT** **DP** **SO**
(Address)

We have been engaged by the owner/developer referred to above to provide:

Structural engineering analysis services for the 4500L dual and single chamber septic tanks. Refer to the attached schedule.

.....
(Extent of Engagement)

services in respect of the requirements of Clause(s) B1 of the Building Code for:

All or Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

Compliance Documents issued by the Ministry of Business, Innovation & Employment B1/VM1 & VM4
(verification method/acceptable solution)

Alternative solution as per the attached schedule.....

The proposed building work covered by this producer statement is described on the drawings titled:

Duracrete 4500L Septic Tank and numbered Figures 01 & 02
together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:

- (i) Site verification of the following design assumptions Good Ground as described in NZBC B1
- (ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:


CM1 CM2 CM3 CM4 CM5 (Engineering Categories)

I, Anthony Barber am: CPEng # 224371
(Name of Design Professional)

I am a member of: Engineering New Zealand and hold the following qualifications: BE, CMEngNZ, PSA122901

The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than \$200,000*.

The Design Firm is a member of ACE New Zealand:

SIGNED BY Anthony Barber (Signature) 
(Name of Design Professional)

ON BEHALF OF Hawthorn Geddes engineers and architects ltd Date 25/03/2025
(Design Firm)

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of \$200,000.*

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.
THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACE NEW ZEALAND AND ENGINEERING NEW ZEALAND

GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional engineers New Zealand (now Engineering New Zealand), ACE New Zealand in consultation with the Building Officials Institute of New Zealand. The original suit of producer statements has been revised at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking undertaken by others.

PS1 Design Intended for use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 Design Review Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 Construction Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011²

PS4 Construction Review Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACE New Zealand and Engineering New Zealand to interpret the Producer Statement.

Competence of Design Professional

This statement is made by a Design Firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its designers.

A competent design professional will have a professional qualification and proven current competence through registration on a national competence based register as a Chartered Professional Engineer (CPEng).

Membership of a professional body, such as Engineering New Zealand (formerly IPENZ) provides additional assurance of the designer's standing within the profession. If the design firm is a member of ACE New Zealand, this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent design professional".

*Professional Indemnity Insurance

As part of membership requirements, ACE New Zealand requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to \$500,000.

Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-CM5 for Engineers³). The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design firm's engagement.

Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

Refer Also:

¹ Conditions of Contract for Building & Civil Engineering Construction
NZS 3910: 2013

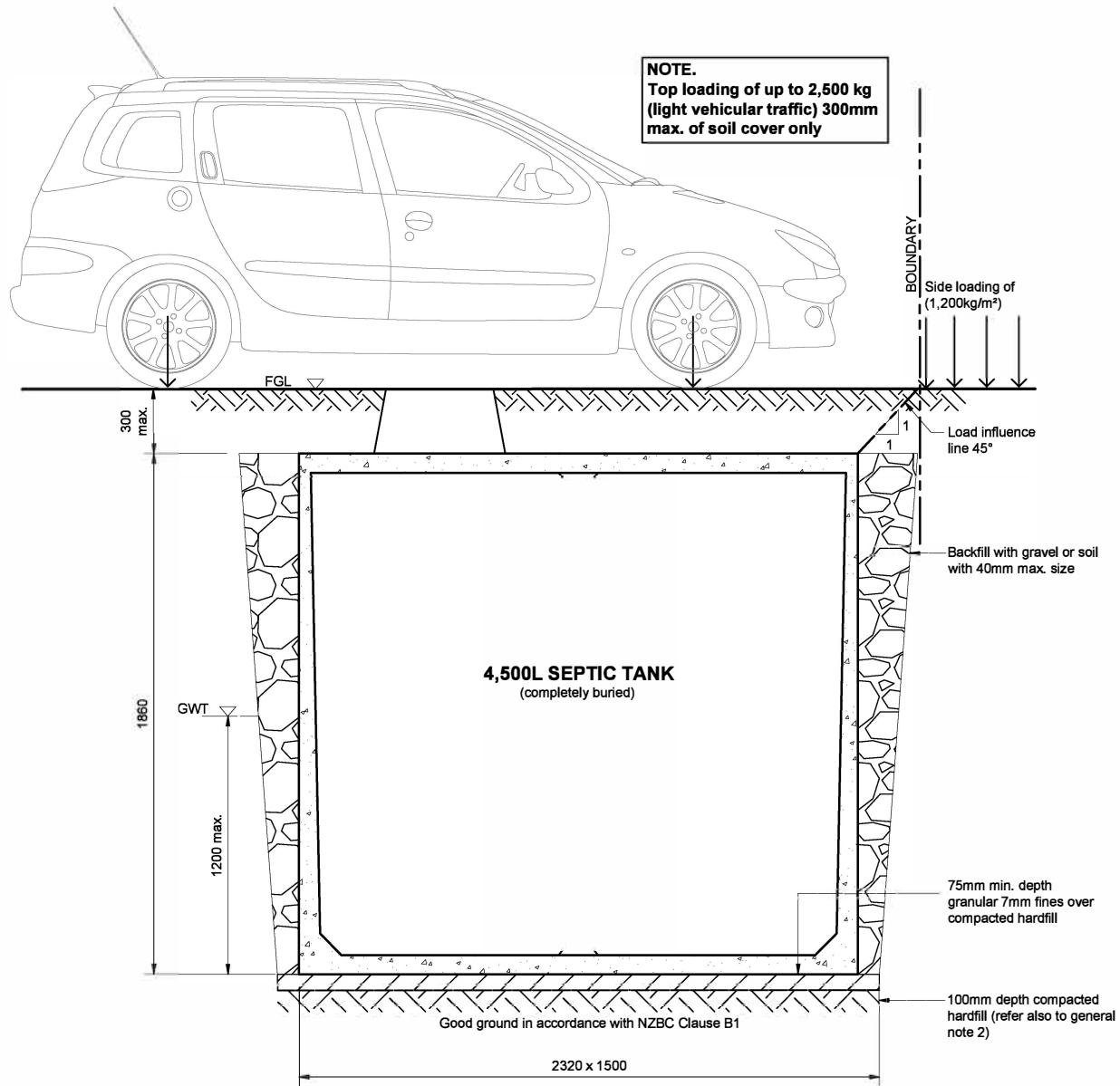
² NZIA Standard Conditions of Contract SCC 2011

Guideline on the Briefing & Engagement for Consulting Engineering Services
(ACE New Zealand/Engineering New Zealand 2004)

⁴ PN Guidelines on Producer Statements

www.acenz.org.nz
www.engineeringnz.org





NOTE.
 Top loading of up to 2,500 kg
 (light vehicular traffic) 300mm
 max. of soil cover only

4,500L SEPTIC TANK
 (completely buried)

LOADING LIMITATIONS

	REINFORCING	CONCRETE THICKNESS	COVER TO REINFORCING BARS	CONCRETE 28 DAY STRENGTH
ROOF	D10 @ 300mm ctrs with 35kg/m³ steel fibre	75mm	44mm	65 - 70MPa
WALLS	Fibre only 35kg/m³	65mm	N/A	80MPa
BASE	35kg/m³ steel fibre	80mm	N/A	80MPa

Fibre to be Dramix 4D 80/60 GG

GENERAL NOTES

- Buried tanks with more than 300mm soil cover may require specific design. The actual depth and loading should be reported to a qualified engineer for further assessment.
- Tank installation shall be in accordance with the stamped and signed Duracrete site preparation and installation guidelines.
- Anti-floatation sill may be required if the top soil cover is less than 300mm. The actual GWT and top soil cover should be reported to a qualified engineer for further assessment.
- 35MPa minimum for durability under worst case B2 exposure.

DO NOT SCALE FROM DRAWING. VERIFY ALL DIMENSIONS ON SITE. © HAWTHORN GEDDES ENGINEERS & ARCHITECTS LTD (HGE&A)



Hawthorn Geddes
 engineers & architects ltd

7 Selwyn Avenue
 Whangarei 0110
 Phone: 09 438 7139
 hg@hgcs.co.nz

Unit 21a, The Grange
 Warkworth 0910
 Phone: 09 283 3428
 www.hawthorngeddes.co.nz

CLIENT **DURACRETE PRODUCTS 2017 LTD**
 PROJECT **WATER TANK STRUCTURAL CHECK**
 DRAWING **4,500L TANK DETAIL - 2.5t LOAD**

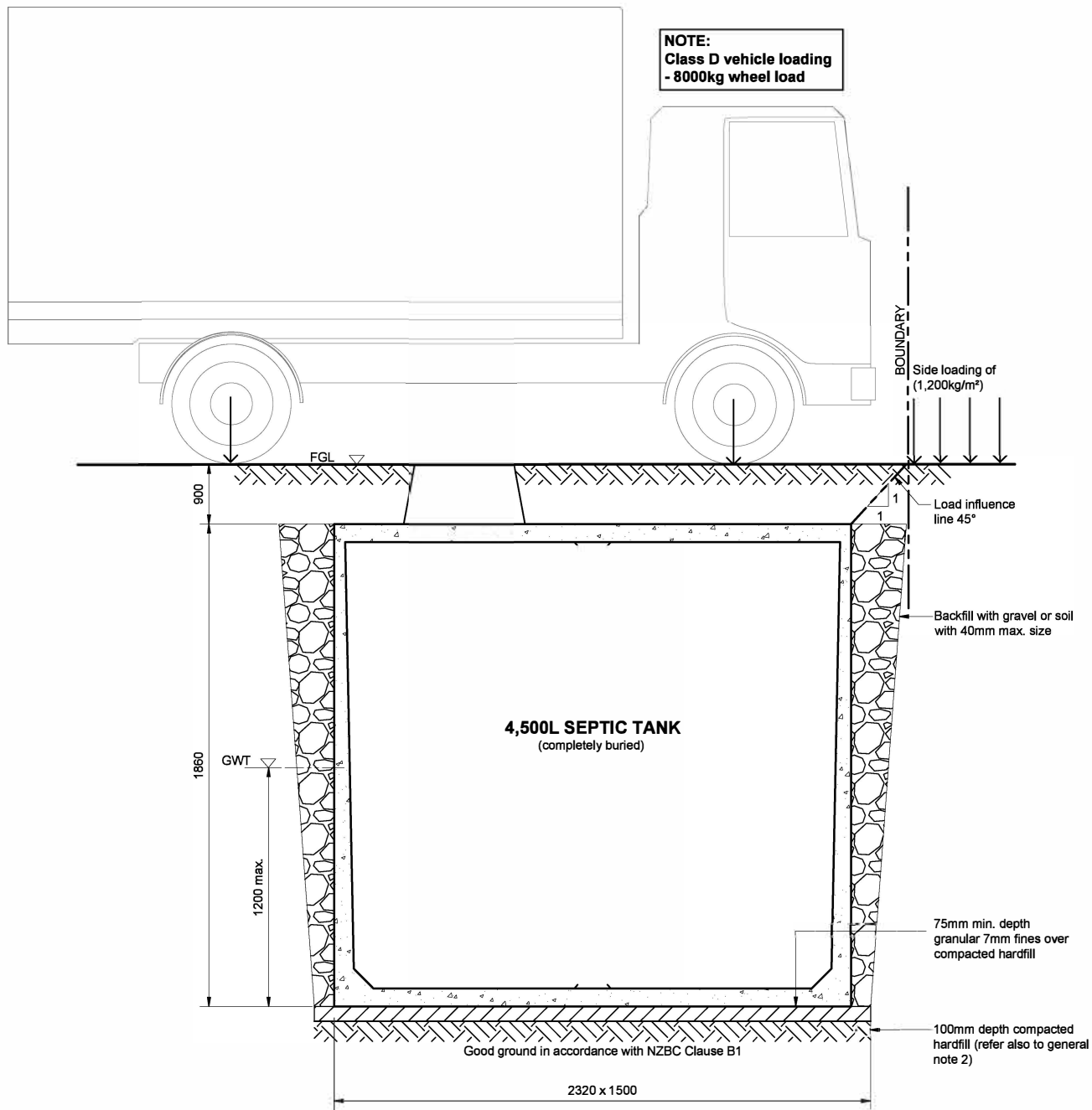
COMPLETELY BURIED TANK INSTALLATION

DATE 26/03/2025

PROJECT No.
13214

FIGURE No. | REV.
01 | 0

01/02/25 09:07:46 K:\13214 Duracrete - 4500L septic Tank PS1 - 37 Salayards Road, Kaunui3214 - Figures 01 and 02.dwg



LOADING LIMITATIONS

	REINFORCING	CONCRETE THICKNESS	COVER TO REINFORCING BARS	CONCRETE 28 DAY STRENGTH
ROOF	D10 @ 300mm ctrs with 35kg/m ³ steel fibre	150mm	44mm	65 - 70MPa
WALLS	Fibre only 35kg/m ³	65mm	N/A	80MPa
BASE	35kg/m ³ steel fibre	80mm	N/A	80MPa

Fibre to be Dramix 4D 80/60 GG

GENERAL NOTES

- Buried tanks with depths other than 900mm soil cover may require specific design. The actual depth and loading should be reported to a qualified engineer for further assessment.
- Tank installation shall be in accordance with the stamped and signed Duracrete site preparation and installation guidelines.
- Anti-floatation sill may be required if the top soil cover is less than 300mm. The actual GWT and top soil cover should be reported to a qualified engineer for further assessment.
- 35MPa minimum for durability under worst case B2 exposure.

DO NOT SCALE FROM DRAWING. VERIFY ALL DIMENSIONS ON SITE. © HAWTHORN GEDDES ENGINEERS & ARCHITECTS LTD (HGE&A)



Hawthorn Geddes
engineers & architects ltd

7 Selwyn Avenue
Whangarei 0110
Phone: 09 438 7139
hg@hgcs.co.nz

Unit 21a, The Grange
Warkworth 0910
Phone: 09 283 3428
www.hawthorngeddes.co.nz

CLIENT **DURACRETE PRODUCTS 2017 LTD**
PROJECT **WATER TANK STRUCTURAL CHECK**
DRAWING **4,500L TANK DETAIL - CLASS D LOAD**

COMPLETELY BURIED TANK INSTALLATION

DATE 26/03/2025

PROJECT No.
13214

FIGURE No. REV.
02 0

07/02/25 09:07:50 K:\13214 Duracrete - 4500L septic Tank (PS) - 37 Salbyards Road, Kaunui 13214 - Figure 01 and 02.dwg



37 Saleyards Road, Kauri, Whangarei, PO Box 4194 Kamo 0141, 0800 387 227

Importance of correct site preparation

The site loading of a full 4 500 litre septic tank is 7.8 tonnes across the site dimensions of 2.4m x 1.5m. This extreme loading requires our base preparation steps to be carefully followed by the purchaser/chosen contractor for the tank to be covered by the manufacturer's warranty.

The excavated site must be free from all solid objects such as rocks, tree stumps, tree roots etc and be flat and level. Do not reintroduce the excavated material as a way of forming a level platform.

Correct site preparation (steps 1&2 below) is critical to distribute the downward loading evenly across the site. It will also allow some ground movement or settlement to be taken up in the prepared foundation and not allow it to be transferred directly to the base of the tank.

Uneven weight transfer will result in the failure of the tank.

Tanks should be backfilled as soon as possible after they are sited to seal in the ground. The backfilling material should be clean, rock free soil or similar.

Site preparation steps

A tolerance of 15mm is permitted across the entire site at the conclusion of following steps 1&2.

1. Excavate & level the ground which will form the base for the tank. Ground shall be "good ground" in accordance with NZBC Clause B1. Do not reintroduce excavated material to achieve a level platform. The final excavated hole size should be 2.8m x 2m and to a maximum depth of 2.26m.
2. Add bedding material GAP20/7 (General All Purpose 7-20mm) and level in all directions to a depth of 100mm. A tolerance of 15mm across the site is permitted across the entire site.



100mm layer of bedding material GAP20/7 (General All Purpose 7-20mm) to a tolerance of 15mm.



2.8m x 2m excavated foundation. Levelled in all directions to a tolerance of 40mm. NZBC Clause B1.





37 Saleyards Road, Kauri, Whangarei, PO Box 4194 Kamo 0141, 0800 387 227

Important notes & purchaser responsibilities

- It is the purchaser's responsibility to ensure access is clear, site preparations are complete and to the required standard when the tanks arrive. This will avoid any delays and extra time on site and potential cost overruns. Duracrete and the chosen Transport Contractor takes no responsibility for site readiness or unforeseen delays on site
- Site suitable access is the responsibility of the purchaser. Check that there are no overhead power lines, tree branches, buildings, gate posts or other obstacles blocking access to the loaded delivery truck
- It is the purchaser's responsibility to ensure that the path required from the road to the tank site does not have drains, septic tanks, bridges or irrigation lines that the truck could either fall into or damage
- Duracrete and the chosen Transport Contractors are not responsible or liable for the site preparation standards
- On the day of installation, it is critical that the primary chamber of the septic tank is filled completely with water not exceeding the outlet point.
- To prevent floatation (hydraulic uplift) issues, the tanks should remain full until connected to the household plumbing pipes
- Determining the location of your tanks on your site may require an engineer's assessment and specific foundation design
- It is the installers responsibility to ensure that the pipework entering the tank from the household and exiting the tank is supported and bedded accordingly to prevent dislodgement or displacement
- It is the purchaser's responsibility to ensure that their site access and tanks sites are ready to take delivery on the agreed date with our Production/Dispatch Manager. If there is a delay, you may move to the back of the que depending on product and transport contractor availability. Product may then need to be allocated to the next customer who is ready to take delivery as we cannot store tanks due to storage space limitations
- It is the installers responsibility to ensure that backfilling takes place after all connections are complete and done using material that is uniform in size and free from large rocks. Do not use sand
- It is the purchaser's responsibility to pass this document on to any relevant contractors or end users





37 Saleyards Road, Kauri, Whangarei, PO Box 4194 Kamo 0141, 0800 387 227

Warranty terms and conditions

All Duracrete Products are warranted to be free of defects caused by poor workmanship or non-compliance with industry standards for a period of 10 years from the date of dispatch.

Conditions of Warranty

- Duracrete Products accepts no liability for damage caused due to improper site preparation and incorrect site situations that are outside our requirements (refer to site preparation steps 1&2 on previous page)
- Liability of Duracrete Products is limited to the repair, or if necessary, replacement of the concrete tank concerned. The decision to repair or replace the tank lies exclusively with Duracrete Products

This warranty does not cover

- Damage caused after delivery resulting from poor, inadequate or incorrect site foundations
- Tanks that are not placed directly on to a prepared tank site at the time of delivery
- Damage caused during transportation
- Negligent or accidental damage that occurs after delivery and during installation
- Moving the tank from its original location
- Filling of the primary chamber with water past the outlet point before the outlet pipe is fitted
- Installation of the tanks exceeding the maximum ground level of 300mm soil cover as per the specifications
- Damaged caused to the roof of the tank due to the exceeding of the load limitations
- Exceeding of the specified load capacity on the manhole lid
- Hydraulic Uplift (Floatation)
- Normal aging, wear and tear
- Failure resulting from natural causes (earthquakes, flooding, ground settlement/subsidence, land slips)
- Undermining of the ground supporting the tank
- Failure of any plumbing or drainage connections installed by others after delivery
- Repairs carried out by unauthorised persons



DO NOT SCALE
CONTRACTOR MUST VERIFY
ALL DIMENSIONS ON SITE
BEFORE COMMENCING WORK



T: 0800 387 227

M: 021 951 054

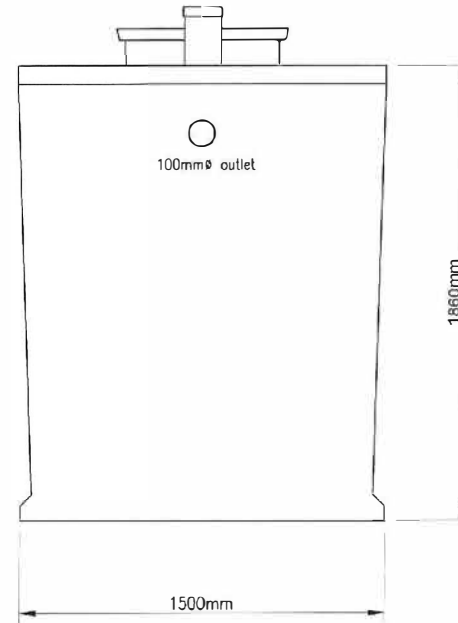
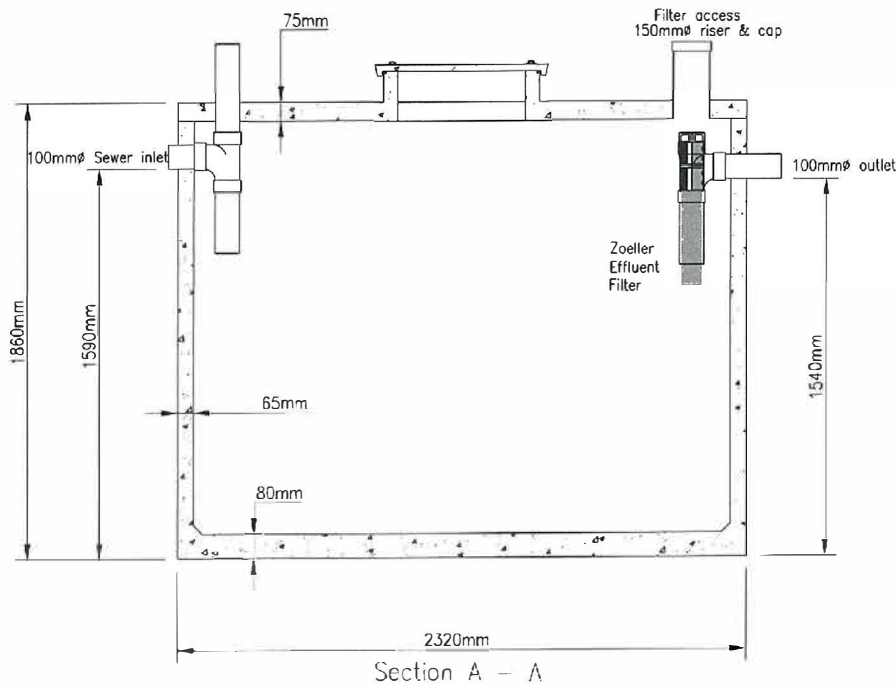
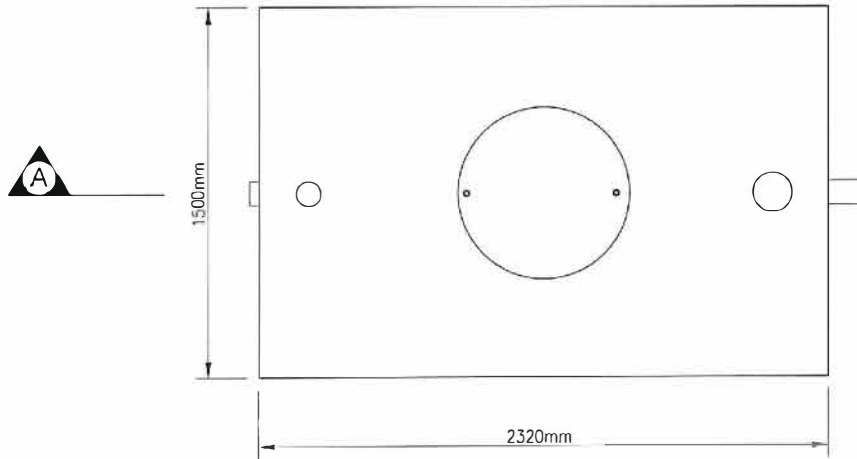
E: gerald@duracrete.co.nz

W: www.duracrete.co.nz

This drawing has been checked for Compliance
only with the extent of our work described on the
accompanying Producer Statement Ref: 13214..

Signed: *G. Lilley* Date: *25/3/2022*

Hawthorn Geddes
engineers & architects ltd



PROJECT:
**Duracrete
4,500L
Tank**

SHEET:
**4,500L
Single
Chamber**

NOTES:

NO.	DATE	REVISION:	BY:

PAGE SIZE: A3
SCALE: As Shown
REF: D4500LSC
DATE: 22-03-2022
DRAWN: G. Lilley

DRAWING #:
1 of 1

© COPYRIGHT
THIS DESIGN AND DRAWING IS
COPYRIGHT OF DURACRETE
PRODUCTS LTD. IT MAY NOT BE
COPIED OR REPRODUCED IN
ANY FORMAT OR IN ANY MEDIUM
WITHOUT THE WRITTEN
AUTHORISATION FROM
DURACRETE PRODUCTS LTD.

DO NOT SCALE
CONTRACTOR MUST VERIFY
ALL DIMENSIONS ON SITE
BEFORE COMMENCING WORK



T: 0800 387 227
M: 021 951 054
E: gerald@duracrete.co.nz
W: www.duracrete.co.nz

This drawing has been checked for Compliance only with the extent of our work described on the accompanying Producer Statement Ref: 13214

Signed: *Abule* Date: 25/3/2025

Hawthorn Geddes
engineers & architects ltd

PROJECT:
Duracrete
4,500L
Tank

SHEET:
4,500L
Dual
Chamber

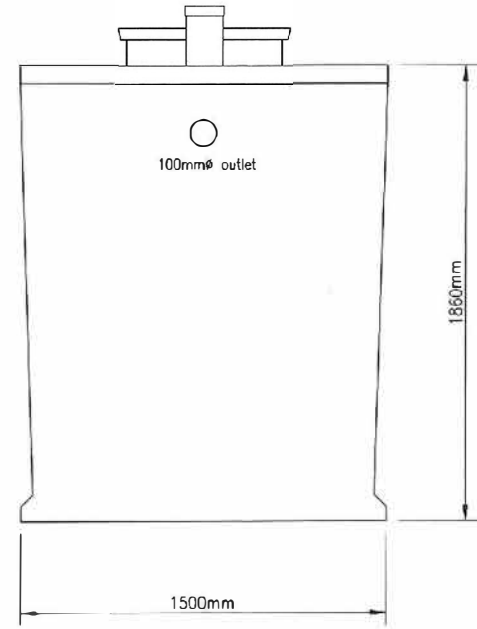
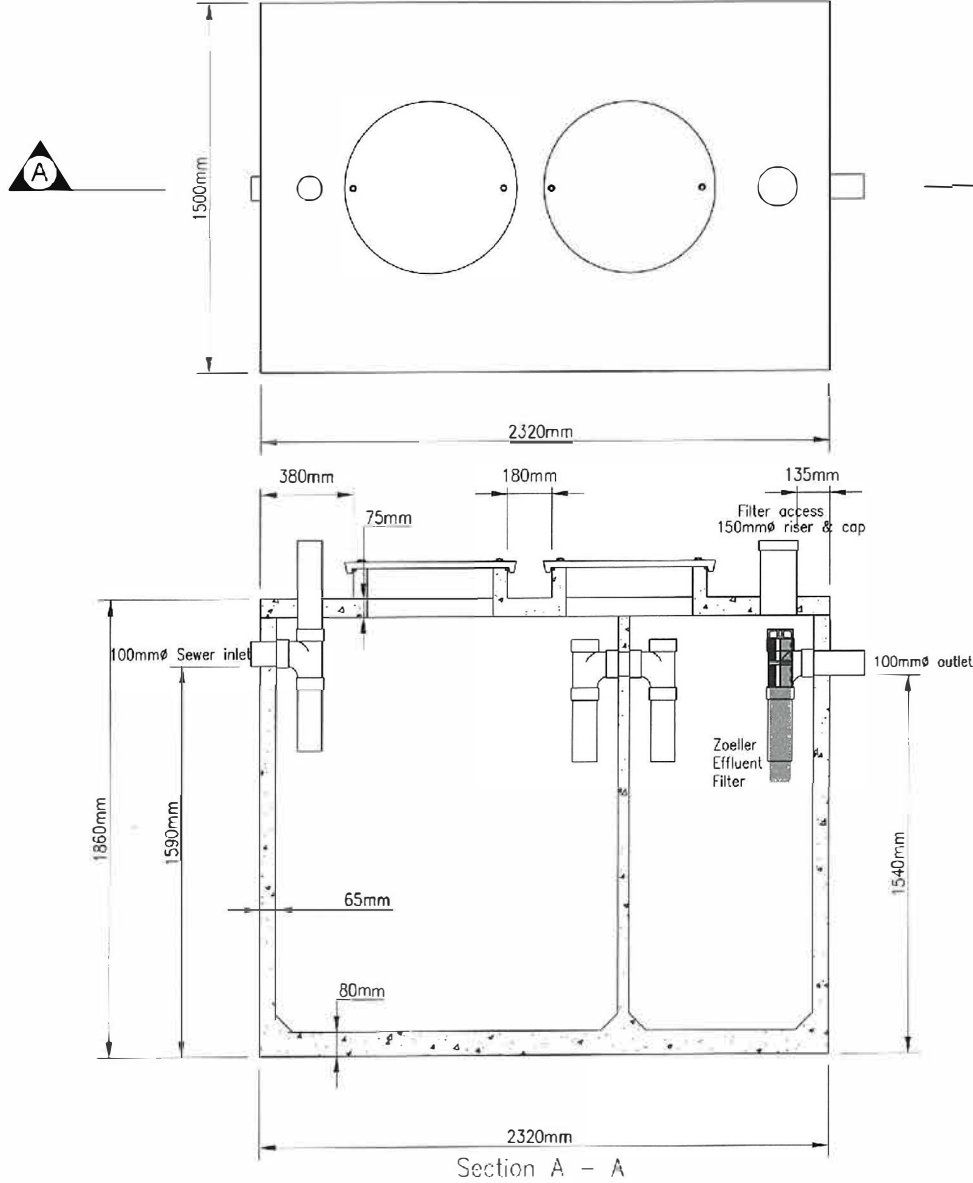
NOTES:
USE THIS CONFIGURATION FOR
A DUAL CHAMBER SEPTIC TANK
WITH EFFLUENT FILTER ON THE
OUTLET.

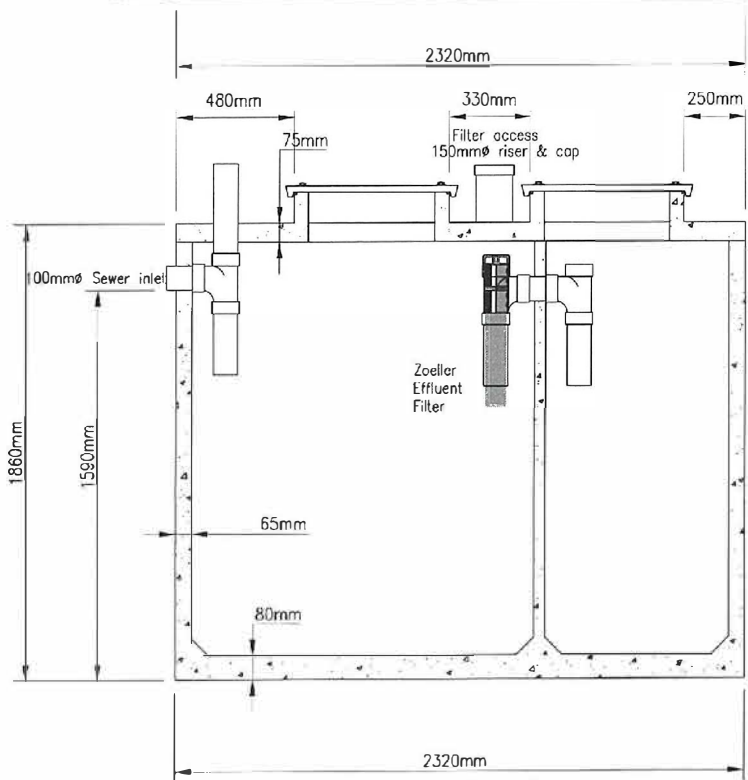
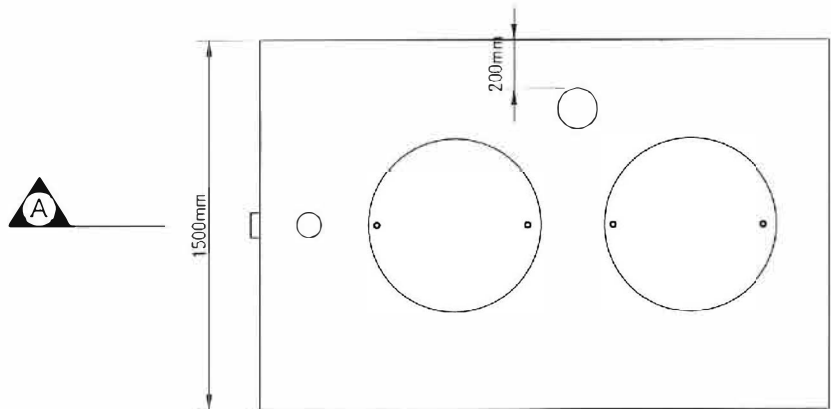
NO:	DATE:	REVISION:	BY:

PAGE SIZE: A3
SCALE: As Shown
REF: D4500LDCOPT1
DATE: 22-03-2022
DRAWN: G. Lilley

DRAWING #:
1 of 1

© COPYRIGHT
THIS DESIGN AND DRAWING IS
COPYRIGHT OF DURACRETE
PRODUCTS LTD. IT MAY NOT BE
COPIED OR REPRODUCED IN
ANY FORMAT OR IN ANY MEDIUM
WITHOUT THE WRITTEN
AUTHORISATION FROM
DURACRETE PRODUCTS LTD.



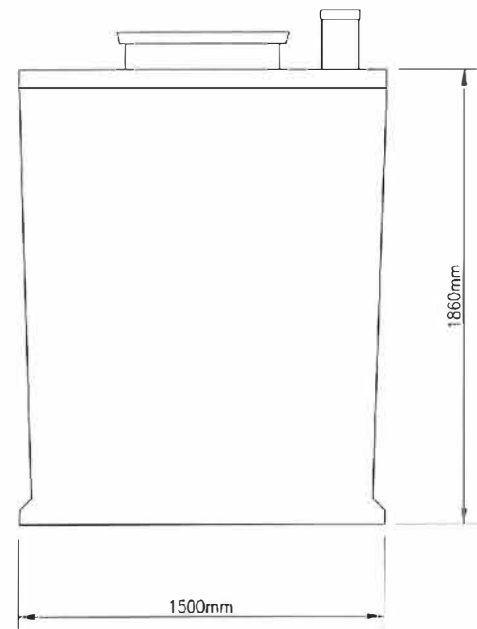


Section A - A

This drawing has been checked for Compliance only with the extent of our work described on the accompanying Producer Statement Ref: 13214

Signed: *A Butler* Date: 25/3/2025

Hawthorn Geddes
engineers & architects ltd



DO NOT SCALE
CONTRACTOR MUST VERIFY
ALL DIMENSIONS ON SITE
BEFORE COMMENCING WORK



T: 0800 387 227
M: 021 951 054
E: gerald@duracrete.co.nz
W: www.duracrete.co.nz

PROJECT:
**Duracrete
4,500L
Tank**

SHEET:
**4,500L
Dual
Chamber -
Option 2**

NOTES:

USE THIS CONFIGURATION FOR
PUMP CHAMBER AND SYPHON

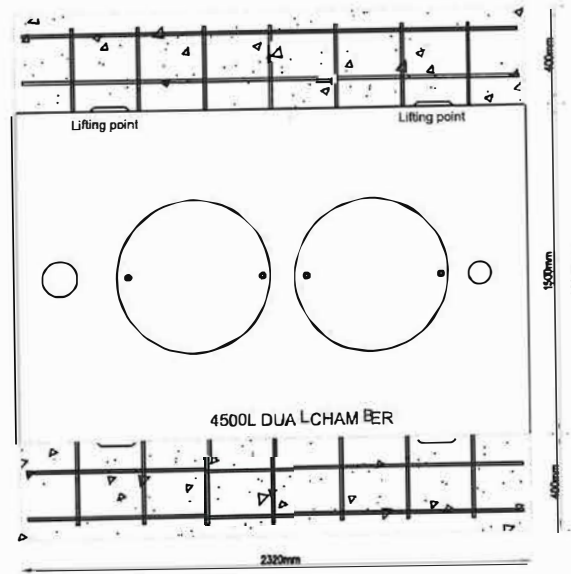
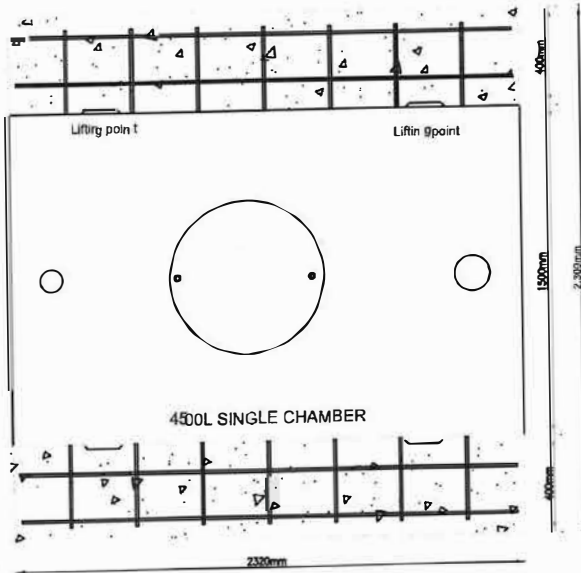
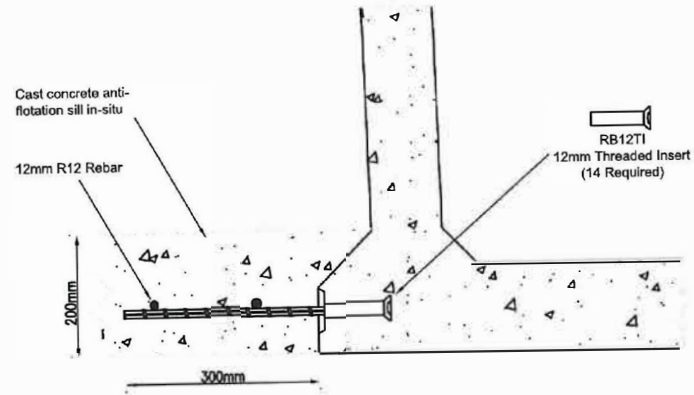
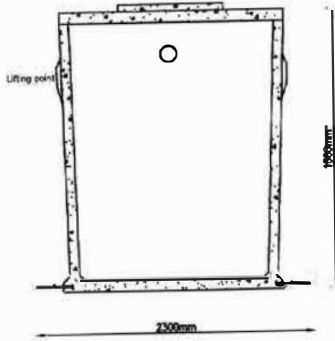
NO	DATE	REVISION	BY:

PAGE SIZE: A3
SCALE: As Shown
REF: D4500LDCOPT2
DATE: 22-03-2022
DRAWN: G. Lilley

DRAWING #:
1 of 1

© COPYRIGHT
THIS DESIGN AND DRAWING IS
COPYRIGHT OF DURACRETE
PRODUCTS LTD. IT MAY NOT BE
COPIED OR REPRODUCED IN
ANY FORMAT OR IN ANY MEDIUM
WITHOUT THE WRITTEN
AUTHORISATION FROM
DURACRETE PRODUCTS LTD.

4500L SINGLE & DUAL SEPTIC CHAMBER - ANTI-FLOAT DETAILS



This drawing has been checked for compliance only with the extent of our work described on the accompanying Producer Statement Ref: 13214.

Signed: *Alister* Date: 25/3/2025

Hawthorn Geddes
engineers & architects ltd