

Assessment of Environmental Effects for Resource Consent Application

Site Location: 298 Tauranga Bay Road, Tauranga Bay

Proposal: Installation of an onsite wastewater management system to replace a failing septic tank, including an Econotreat secondary wastewater treatment plant and land disposal via pressure-compensating dripline irrigation.

Relevant Rule: Part of the proposed installation falls within 30 meters of the Tauranga Bay Stream to the west, breaching *Permitted Activity Rule 12.7.6.1.4* under the Far North District Council Proposed District Plan. However, the onsite wastewater proposal complies with *Permitted Activity Rule C.6.1.3* in the Proposed Regional Plan for Northland and Building Consent has been issued by Far North District Council (EBC-2025-176/0).

Assessment of Effects (As Required by Section 4 of the Resource Management Act)

(a) Likelihood of Significant Adverse Effects and Alternatives: The Econotreat system provides a higher level of treatment than traditional septic tanks, reducing the risk of untreated or partially treated effluent entering the environment. Installing this secondary wastewater treatment system minimizes adverse effects on the Tauranga Bay Stream by improving effluent quality before land application.

Alternative locations: Due to the proximity of the stream to the property, and space limitations, alternative locations for the system further from the stream are not feasible. The proposed location minimizes environmental risk while allowing the necessary system upgrade to replace the failing septic tank. The alternative of keeping the existing system would pose greater risks to the environment, given its current failure.

(b) Actual or Potential Effects on the Environment: The primary concern is the proximity of the wastewater system to the Tauranga Bay Stream. Only the tanks are located within 30m (approx. 17m) and all discharge to the environment will be via the land disposal system located at least 50m from the stream edge. The Econotreat system, designed for secondary treatment, will significantly reduce nutrient and pathogen loads in the effluent before its land application via dripline irrigation on the east of the property. This method reduces potential runoff and soil saturation, limiting the risk of contaminant leaching into the stream.

The proposal complies with Building Consent requirements, demonstrating that its design and implementation mitigate environmental impacts. Additionally, the dripline irrigation method distributes effluent evenly and allows for better absorption by soil, further reducing the risk of effluent reaching the stream.

(c) Hazardous Installations: This activity does not involve hazardous installations, and no associated risks to the environment from hazardous substances are expected.

(d) Discharge of Contaminants:

- **Nature of the Discharge:** The discharge will consist of secondary treated domestic wastewater. Given the system's advanced treatment capabilities, the effluent will have significantly lower concentrations of pathogens, nitrogen, and other contaminants than the original septic tank.

- **Sensitivity of the Receiving Environment:** The Tauranga Bay Stream is sensitive to contamination, particularly from nutrient-rich or pathogen-laden wastewater. The proposed system ensures that the risk of these contaminants entering the stream is minimized through advanced treatment and carefully planned disposal via irrigation.
- **Alternative Methods:** The existing septic tank poses a greater environmental risk due to its failure. The Econotreat system, which treats the wastewater to a higher standard, is a preferable solution.

(e) Mitigation Measures:

Several mitigation measures will help prevent or reduce any actual or potential adverse effects:

- Installation of an advanced Econotreat secondary treatment system.
- Use of pressure-compensating dripline irrigation to distribute the treated wastewater, minimizing soil saturation and surface runoff.
- Regular maintenance and servicing of the treatment plant and irrigation system, ensuring continued effectiveness.
- Installation of an alarm system to detect malfunctions in the treatment plant and prevent the discharge of untreated wastewater.
- Appropriate setbacks from the stream for the irrigation system to ensure minimal interaction with surface water.

(f) Identification of Affected Persons and Consultation:

- No formal consultation has been undertaken as the likely environmental effects are considered less than minor and there are not expected to be any persons affected by the issuing of this consent.

(g) Monitoring of Effects: Given the proximity to a sensitive water body, regular monitoring of the system will be required to ensure continued compliance and to address any potential environmental effects. Monitoring will involve:

- Routine inspections and maintenance of both the treatment system and dripline irrigation.

(h) Effects on Protected Customary Rights: No protected customary rights are expected to be affected by this proposal. The system upgrade does not interfere with customary use of the stream or surrounding land, and the proposal's impact is minimal due to the mitigation measures in place.

Conclusion

The proposed installation of the Econotreat wastewater treatment system and dripline irrigation at 298 Tauranga Bay Road will significantly reduce environmental risks associated with the existing failing septic tank. The advanced treatment system and the method of effluent disposal are expected to minimize the risk of contaminants reaching the Tauranga Bay Stream. We therefore request the resource consent be granted, subject to ongoing monitoring and compliance conditions.



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy**




R. W. Muir
Registrar-General
of Land

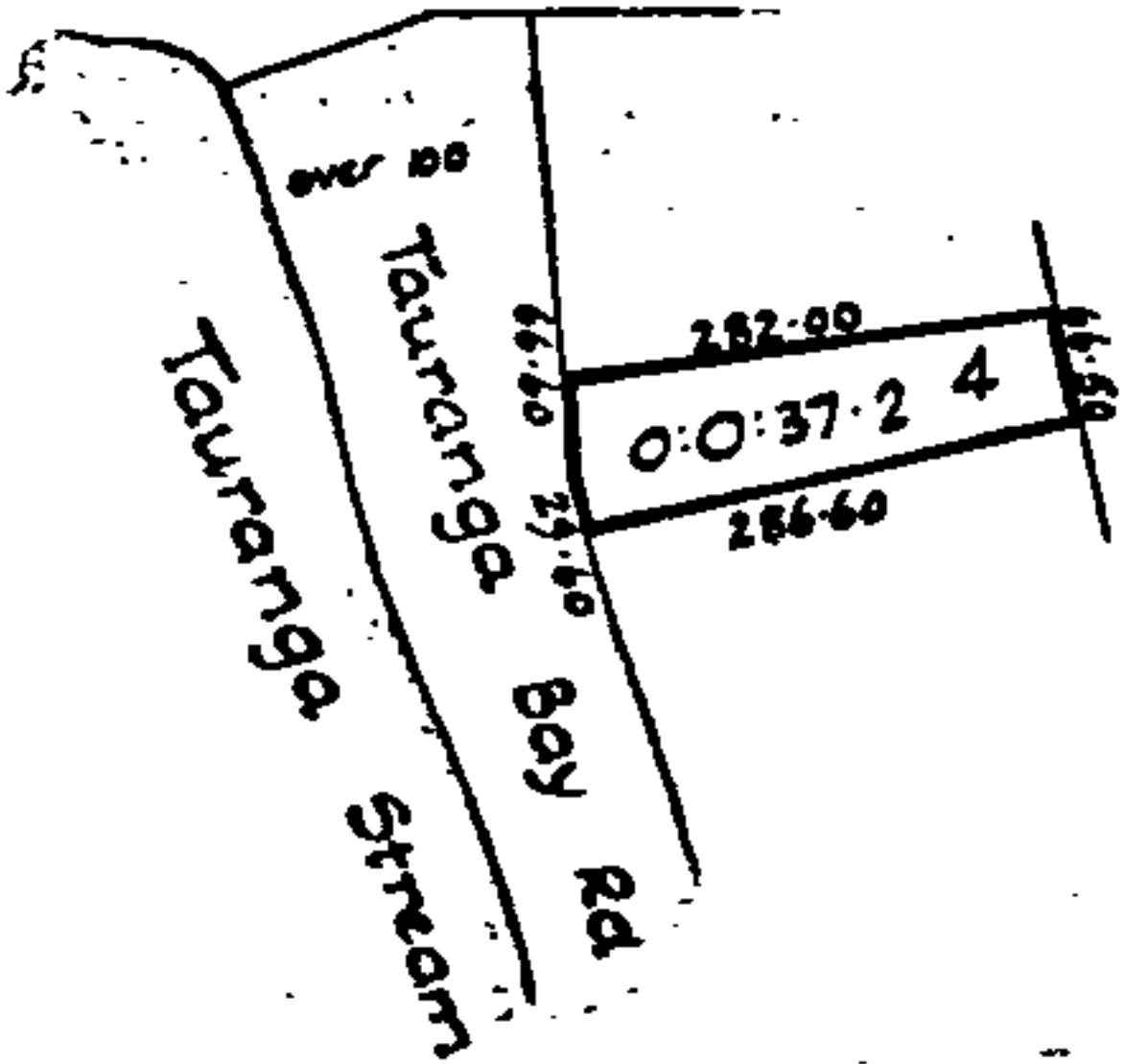
Identifier NA1693/52
Land Registration District North Auckland
Date Issued 02 December 1959

Prior References
NA1693/51

Estate Fee Simple
Area 941 square metres more or less
Legal Description Lot 4 Deposited Plan 45816

Registered Owners
Martin David Akroyd and Jodie-Ann Akroyd

Interests
K63728 Building Line Restriction
Fencing Agreement in Transfer 630873 - 2.12.1959
12829791.3 Mortgage to ANZ Bank New Zealand Limited - 20.10.2023 at 10:57 am



STATEMENT OF DESIGN - PS1

Issued by: Matt Riddell

To: Martin & Jodie Akroyd

Copy to be supplied to: Far North District Council

In Respect of: Econotreat Domestic Onsite Wastewater and Sewage System Design

At: 298 Tauranga Bay Road , Far North

Legal Description: Lot 4 DP 45816

Waterflow NZ Ltd has been engaged by Martin & Jodie Akroyd to provide the technical design services and details in respect of the requirements of G13/VM4 and B2 Durability of the Building Code 2004, for an Onsite Wastewater and Sewage System for their building at the above location.

The Design has been carried out in accordance with Auckland Council TP-58 Guidelines and Clause B2, G13 and G14 of the Building Regulations 2004.

The proposed building work covered by this producer statement is described on the drawings titled: Martin & Jodie Akroyd Onsite Wastewater Design Report, and numbered 1-42 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: correct installation of the system and drainage fields
- (ii) All proprietary products meeting their performance specification requirements;

As an independent design professional covered by a current policy for Professional Indemnity Insurance, no less than \$200,000*, I **believe on reasonable grounds** 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.

Signed by: Matt Riddell - PS Author '2384' Auckland Council, Approved Designer

Date: 23/08/2024

Signature:



Waterflow NZ Ltd
4/525 Great South Road
Penrose, Auckland 1061

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.*



2024

Waterflow NZ Ltd
Certified Designer

Martin & Jodie Akroyd
298 Tauranga Bay Road
Far North
Lot 4 DP 45816

Reference Number: WF12434

Issued 09/09/2024

ONSITE WASTEWATER DESIGN REPORT



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Attachments

- PS1
- Land Application System Schematics
- Pump Specification
- Electrical Diagram
- Assessment of Environmental Effects
- System & Installation Specifications
- Home Owners Care Guide

**PART A: CONTACT AND PROPERTY DETAILS****A 1. Consultant / Evaluator**

Name:	Alexandra Sabath
Company/Agency:	Waterflow New Zealand Ltd
Address:	1160 State Highway 12, Maungaturoto 0520
Phone:	09 431 0042
Fax:	
Email Address:	sandra@waterflow.co.nz

A 2: Applicant Details

Applicant Name:	Martin & Jodie Akroyd
Company Name:	
Property Owner:	Martin & Jodie Akroyd
Owner Address:	298 Tauranga Bay Road , Far North
Phone:	
Mobile:	021 2015751
Email Address:	mandjakroyd@gmail.com

A 3: Site Information

Sited Visited by:	Ken Hoyle	Date:	Wednesday, 3 July 2024		
Physical Address:	298 Tauranga Bay Road , Far North				
Territorial Authority:	Far North District Council				
Regional Council:	Northland Regional Council				
Regional Rule	C.6.1.3				
Legal Status of Activity:	Permitted:	<input checked="" type="checkbox"/>	Controlled:	<input type="checkbox"/>	Discretionary:
Total Property Area (m²):	941m ²				
Map Grid Reference:					
Legal Description of Land (as on Certificate of Title):					
Lot No:	4				
DP No:	45816				
CT No:	NA1693/52				



A 4: Are there any previous existing discharge consents relating to this proposal or other waste discharge/disposal on the site?

Yes:	<input checked="" type="checkbox"/>	No:	<input type="checkbox"/>
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If yes, give reference No's and description:

1 Existing Dwelling. Existing Wastewater Treatment system is failing. Owner proposes to upgrade the system to an advanced

A 5: Dwelling(s) for which on-site wastewater service is to be provided

Status of dwelling(s) to be serviced:	New	<input type="checkbox"/>	Existing	<input checked="" type="checkbox"/>	Multiple	<input type="checkbox"/>
How many dwellings on the property?	1					
Capacity of dwellings:	Dwelling 1	4				
(or number of bedrooms)	Dwelling 2					
	Dwelling 3					
	Other:					
Notes:						

**PART B: SITE ASSESSMENT - SURFACE EVALUATION****B 1: Site Characteristics**

Performance of adjacent systems:	(Unknown)		
Estimated annual rainfall (mm):	1250 - 1500 (as per NIWA statistics)		
Seasonal variation (mm):	300-400mm		
Vegetation cover:	Grass, Gardens		
Slope shape:	Linear Planar		
Slope angle:	10 °		
Surface water drainage characteristics:	Broad overland to roadside		
Flooding potential?	Yes:	No:	x
If Yes, specify relevant flood levels relative to disposal area:			
Site characteristics:	298 Tauranga Bay Road is a rectangular shaped property of 941m2. Property is generally covered with lawn grass and gardens. Property boundaries are on Tauranga Bay Road to the West and other like properties on all other boundaries.		

B 2: Slope Stability

Has a slope stability assessment been carried out on the site?

Yes:		No:	x
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If no, why not?

Low slope:	x	No signs of instability:	x	Other:
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If yes, give brief details of report:

Details:	
Author:	
Company/Agency:	
Date of report:	

B 3: Site Geology

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**B 4: Slope Direction**

What aspect does the proposed disposal system face?

North		West	x
North-West		South-West	
North-East		South-East	
East		South	

B 5: Site Clearances if applicable (also on site plan)

	Treatment Separation Distance (m)	Disposal Field Separation Distance (m)
Boundaries:	>1.5	>1.5
Surface Water:	>15	>15
Ground Water:	>1.2	>1.2
Stands of Trees / Shrubs:	n/a	n/a
Wells/Water Bores:	>20	>20
Embankments / Retaining Walls:	>3	>3
Buildings:	>3	>3
Other:		

B 6: Please identify any site constraints applicable for this property, and indicate how the design process is to deal with these.

Constraints	Explain how constraints are being dealt with
1 Site constraints: (a) (b)	n/a



PART C: SITE ASSESSMENT - SOIL INVESTIGATION

C 1: Soil Profile Determination Method

Test pit:		Depth (mm):		No. of Test pits:	
Bore hole:	x	Depth (mm):	1200	No. of Bore holes:	2
Other:					

C 2: Fill Material

Was fill material intercepted during the subsoil investigation?

Yes:	<input type="checkbox"/>	No:	<input checked="" type="checkbox"/>
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If yes, please specify the effect of the fill on wastewater disposal:

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C 3: Permeability Testing

Has constant head Permeability Testing (Ksat) been carried out?

Yes:	<input type="checkbox"/>	No:	<input checked="" type="checkbox"/>
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If yes, please indicate the details (test procedure, number of tests):

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Test report attached?

Yes:	<input type="checkbox"/>	No:	<input checked="" type="checkbox"/>
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C 4: SURFACE WATER CUT OFF DRAINS

Are surface water interception/diversion drains required?

Yes:	<input type="checkbox"/>	No:	<input checked="" type="checkbox"/>
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C 5: DEPTH OF SEASONAL WATER TABLE:

Winter (m):	>1.2
Summer (m):	>1.2

Was this:

Measured:	<input checked="" type="checkbox"/> no sign of ground water or mottling in bore holes
Estimated:	<input type="checkbox"/>

C 6: SHORT CIRCUITS

Are there any potential short circuit paths?

Yes:	<input type="checkbox"/>	No:	<input checked="" type="checkbox"/>
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If yes, how have these been addressed?

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**C 7: SOIL CATEGORY**

Is topsoil present?

Yes:	<input checked="" type="checkbox"/>	No:	<input type="checkbox"/>
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If yes, what is the topsoil depth & soil description?

250mm sandy loam topsoil over sandy loam
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Indicate the disposal field soil category (as per AC TP-58, Table 5.1)

Category	Description	Drainage	(x)
1	Gravel, coarse sand	Rapid draining	
2	Coarse to medium sand	Free draining	
3	Medium-fine & loamy sand	Good draining	
4	Sandy loam, loam & silt loam	Moderate draining	x
5	Sandy clay-loam, clay loam & silty clay-loam	Moderate to slow draining	
6	Sandy clay, non-swelling clay & silty clay	Slow draining	
7	Swelling clay, grey clay & hardpan	Poorly or non-draining	

Reason for placing in stated category:

Result of bore hole/test pit sample	<input checked="" type="checkbox"/>
Profile from excavation	<input type="checkbox"/>
Geotech report	<input type="checkbox"/>
Other:	<input type="checkbox"/>

C 8: SOIL STRUCTURE

Based on results of the in-situ soil profile investigation above (C7) please indicate the disposal (land application) field soil structure:

Massive	<input type="checkbox"/>
Single grained	<input type="checkbox"/>
Weak	<input checked="" type="checkbox"/>
Moderate	<input type="checkbox"/>
Strong	<input type="checkbox"/>

C 9: As necessary, provide qualifying notes on the relationship of Soil Category (C7) to Soil Structure (C8) and the effect this relationship will have on design loading rate selection:

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PART D: DISCHARGE DETAILS

D 1: Water supply source for the property:

Rain water (roof collection)	x
Bore/well	
Public supply	

D 2: Are water reduction fixtures being used?

Yes:	<input type="checkbox"/>	No:	x	(according to our knowledge at time of design report)
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If 'yes' Please state:

Standard Fixtures include dual flush 11/5.5 or 6/3 litre toilet cisterns, and includes standard automatic washing machine, but a low water use dishwasher, no garbage grinder.

D 3: Daily volume of wastewater to be discharged:

No. of bedrooms/people:	1: 4 Bedroom 2: 3:
Design occupance (people): (as per AC TP-58, Table 6.1)	1: 6 People 2: 3:
	Black / Grey water
Per capita wastewater production (litres/person/day): (as per ARC TP-58, Table 6.2)	1: 120 L/day 2: 3:
Total daily wastewater production (litres per day):	720 L/day

D 4: Is daily wastewater discharge volume more than 2000 litres?

Yes:	<input type="checkbox"/>	No:	x
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D 5: Gross lot area to discharge ratio:

Gross lot area:	941 m ²
Total daily wastewater production (litres/day):	720 L
Lot area to discharge ratio:	1.31

D 6: Net Lot Area

Area of lot available for installation of the disposal (land application) field and reserve area:

Net lot area (m ²):	841 m ²
Reserve area (m ²):	30% 54m ²

**PART E: LAND DISPOSAL METHOD****E 1: Indicate the proposed loading method:**

	Black / Grey Water
Gravity Dose:	
Dosing Siphon:	
Pump:	Davey D42A-B

E 2: If a pump is being used please provide following information:

Total Design Head (m):	26
Pump Chamber Volume (litres):	1600
Emergency Storage Volume (litres):	2120

Is a high water level alarm being installed in pump chambers?

Yes:	<input checked="" type="checkbox"/>	No:	<input type="checkbox"/>
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E 3: Identify the type(s) of Land Disposal method proposed for this site:

	Black / Grey Water
P.C.D.I. Dripper Irrigation:	PCDI surface laid and mulched
L.P.E.D. System:	
Evapo-Transpiration Beds:	
Other:	
(as per Schematics attached)	

E 4: Identify the Loading Rate proposed for option selected in E3:

as per ARC TP-58, Table 9.2 & Table 10.3	Black / Grey Water
Loading Rate (litres/m²/day):	4
Disposal Area Basal (m²):	
Areal (m²):	180

E 6: Details and dimensions of the disposal (land application) field:

Length (m):	45.0	No. Lines:	4	Hole Size:	N/A
Width (m):	4.0	Spacing (m):	1.0	Hole Spacing:	N/A
Notes:	180sqm of Surface laid PCDI dripline pinned at 1m centers and covered with a minimum covering of 100mm mulch. See schematic drawing attached.				



PART F: PROPOSED WASTEWATER TREATMENT SYSTEM

A Econotreat Econotreat VBB-C-2200 System, fed through surface laid PCDI dripline is suitable for this site. The Econotreat VBB-C-2200 System has enough capacity to accommodate 2200ltr per day, so will be well within its capacity. The land application system is designed to discharge a maximum volume of 720ltrs per day and if this is exceeded it could cause failure resulting in environmental and public harm.

PART G: OPERATION AND MAINTENANCE OF SYSTEM

The operation of this complete system will be explained verbally to the owner by the Installer or Agent on Completion of Installation; also provided with Waterflow's Home Owner's Manual.

Waterflow NZ Ltd encourages the Home Owner to monitor and care for your Econotreat system yourself, with our backing and support, and by doing so you will learn how your system works and operates and how to keep it in top working order.

It is also recommended that a Maintenance Program contract is in place at all times to ensure this system is maintained at top performance at all times.

All on site wastewater systems require regular maintenance; in this case once annually is suffice and may be specified within the consent process by the Building Department of Far North District Council. This Maintenance will be recorded on hard copy and supplied to both the Owner and Far North District Council Compliance Officer if requested.

NOTE TO OWNER: All written records pertaining to the wastewater system should be retained in a safe place. When a change of ownership occurs, a full and complete history is able to be passed to the new owners.

Animals are to be physically excluded from the installed effluent field to avoid damage, and to reduce the risk of soil compaction in the vicinity of the bed.

Planting within this area is encouraged to assist with evapotranspiration by plants.

PART H: SOIL LOG PROFILE

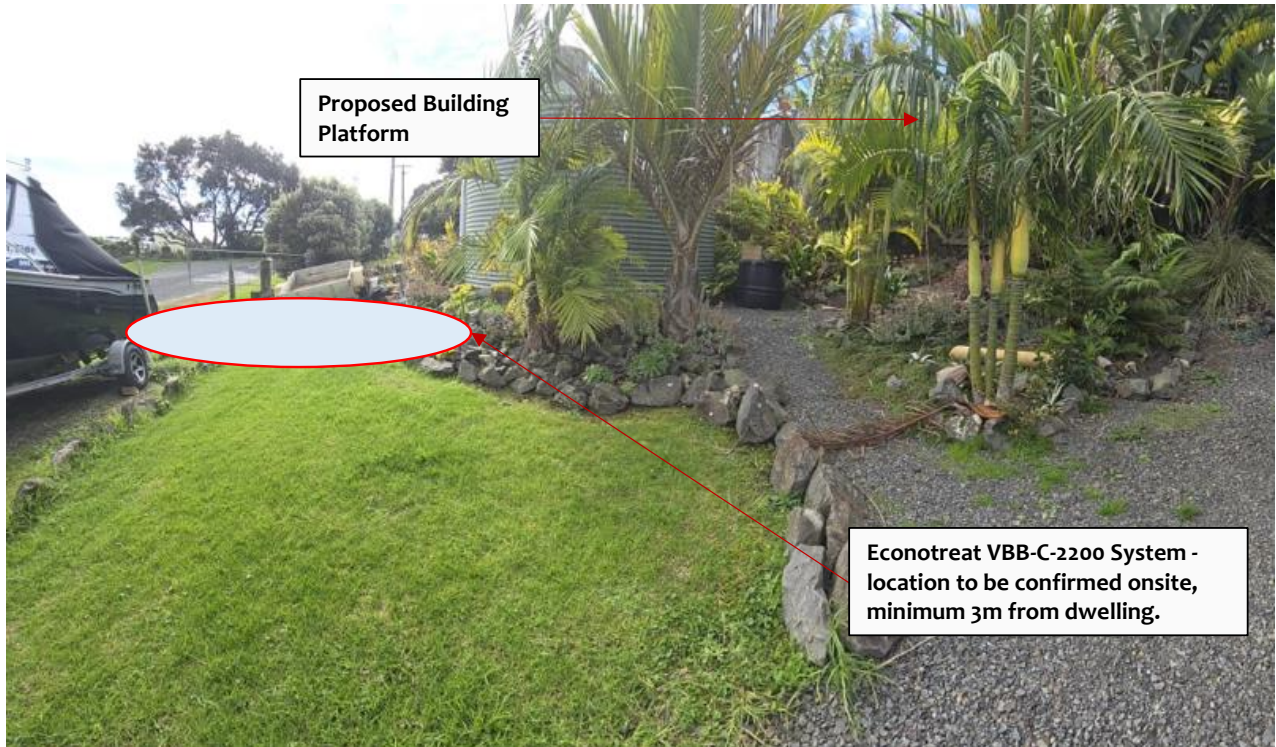


250mm sandy loam topsoil over sandy loam Class 4, (as per AC TP-58, Table 5.1)






PART I: SITE IMAGES






DECLARATION

I, hereby certify that, to the best of my knowledge and belief, the information given in this application is true and complete.

Prepared By:	
Name:	Alexandra Sabath - Approved Designer
Signature:	
Date:	9/09/2024

Reviewed By:	
Name:	Matt Riddell - PS Author '2384' Auckland Council, Approved Designer
Signature:	
Date:	9/09/2024

NOTE: The Waterflow Systems are to be installed by a registered drainlayer to the designs supplied by Waterflow NZ Ltd. All work to comply with Regional Council Water and Soil Plans.

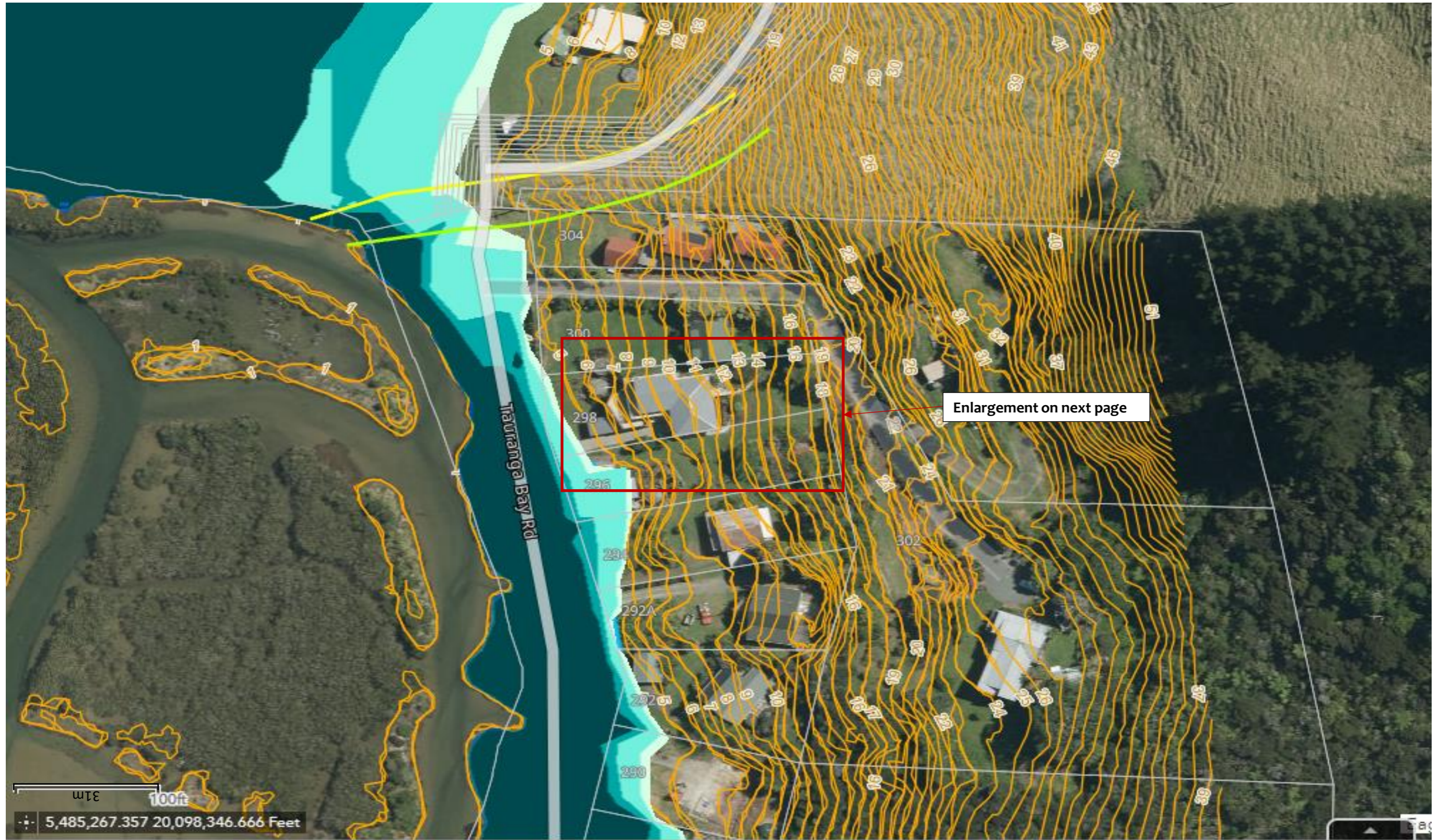
Comments/Summary:

The disposal field will need to be protected from traffic and animal grazing. Planting this area is recommended to increase Evapotranspiration.

Suitable plants for the disposal field can be found on our website www.naturalflow.co.nz

Waterflow Treatment systems to be installed by accredited installer unless other arrangements have been made by Waterflow NZ Ltd

For more information do not hesitate to contact the team at Waterflow NZ Ltd on 0800 628 356

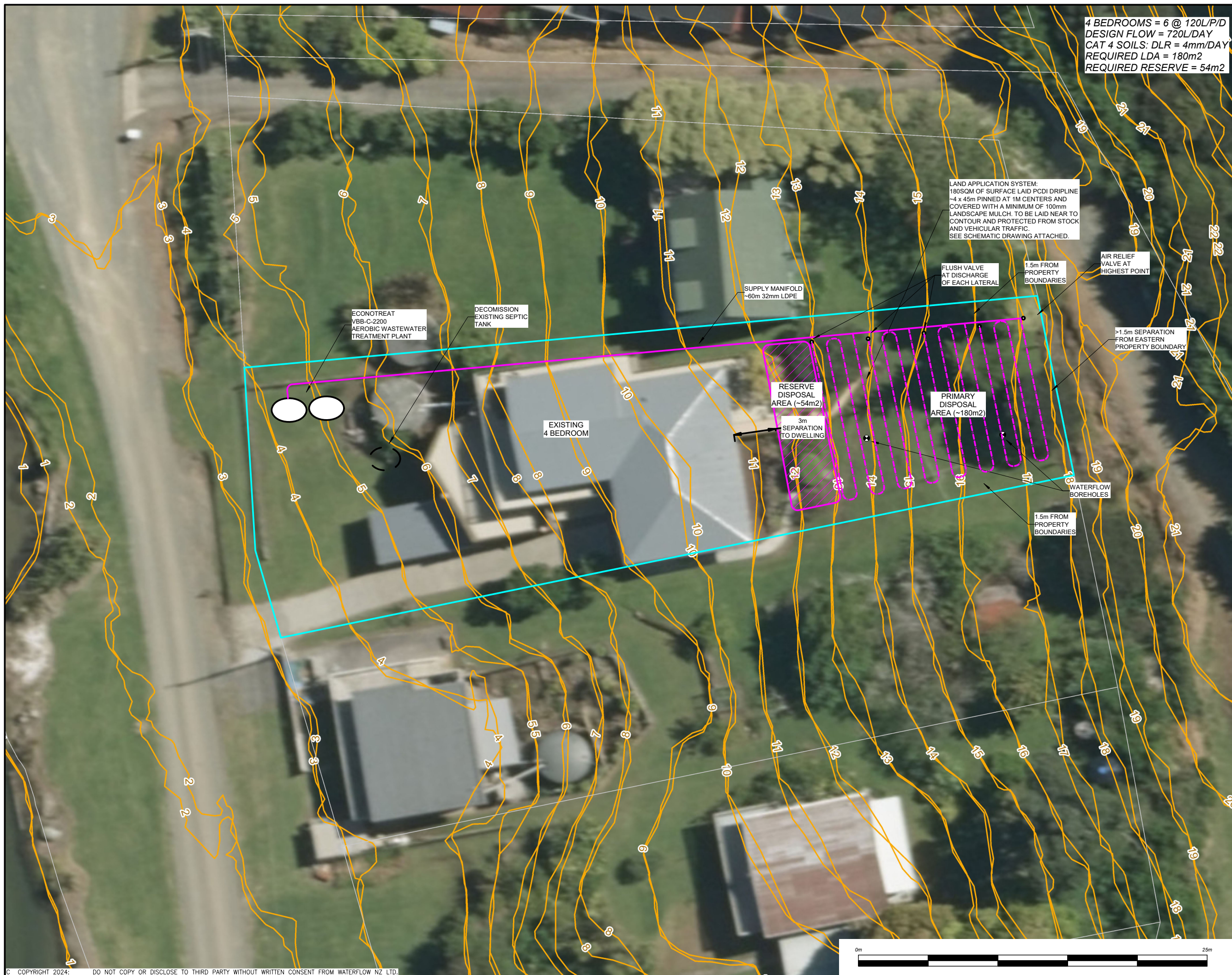


SITE LOCATION PLAN:

Martin & Jodie Akroyd
 298 Tauranga Bay Road
 Far North
 Lot 4DP 45816
 0.0941HA

SCALE:

1 : 899
 @ A3



4 BEDROOMS = 6 @ 120L/P/D
 DESIGN FLOW = 720L/DAY
 CAT 4 SOILS: DLR = 4mm/DAY
 REQUIRED LDA = 180m²
 REQUIRED RESERVE = 54m²

LAND APPLICATION SYSTEM:
 180SQM OF SURFACE LAID PCDI DRIPLINE
 ~4 x 45m PINNED AT 1M CENTERS AND
 COVERED WITH A MINIMUM OF 100mm
 LANDSCAPE MULCH. TO BE LAID NEAR TO
 CONTOUR AND PROTECTED FROM STOCK
 AND VEHICULAR TRAFFIC.
 SEE SCHEMATIC DRAWING ATTACHED.

FLUSH VALVE
 AT DISCHARGE
 OF EACH LATERAL

1.5m FROM
 PROPERTY
 BOUNDARIES

AIR RELIEF
 VALVE AT
 HIGHEST POINT

SUPPLY MANIFOLD
 ~60m 32mm LDPE

>1.5m SEPARATION
 FROM EASTERN
 PROPERTY BOUNDARY

ECONOTREAT
 VBB-C-2200
 AEROBIC WASTEWATER
 TREATMENT PLANT

DECOMMISSION
 EXISTING SEPTIC
 TANK

RESERVE
 DISPOSAL
 AREA (~54m²)

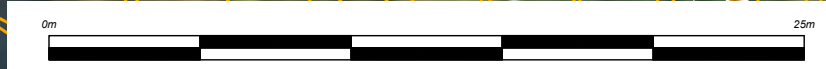
3m
 SEPARATION
 TO DWELLING

PRIMARY
 DISPOSAL
 AREA (~180m²)

WATERFLOW
 BOREHOLES

1.5m FROM
 PROPERTY
 BOUNDARIES

EXISTING
 4 BEDROOM



PO Box 24
 Maungaturoto
www.waterflow.co.nz

CLIENT

MARTIN & JODIE AKROYD

PROJECT

**PROPOSED ONSITE
 WASTEWATER LAYOUT**

TITLE

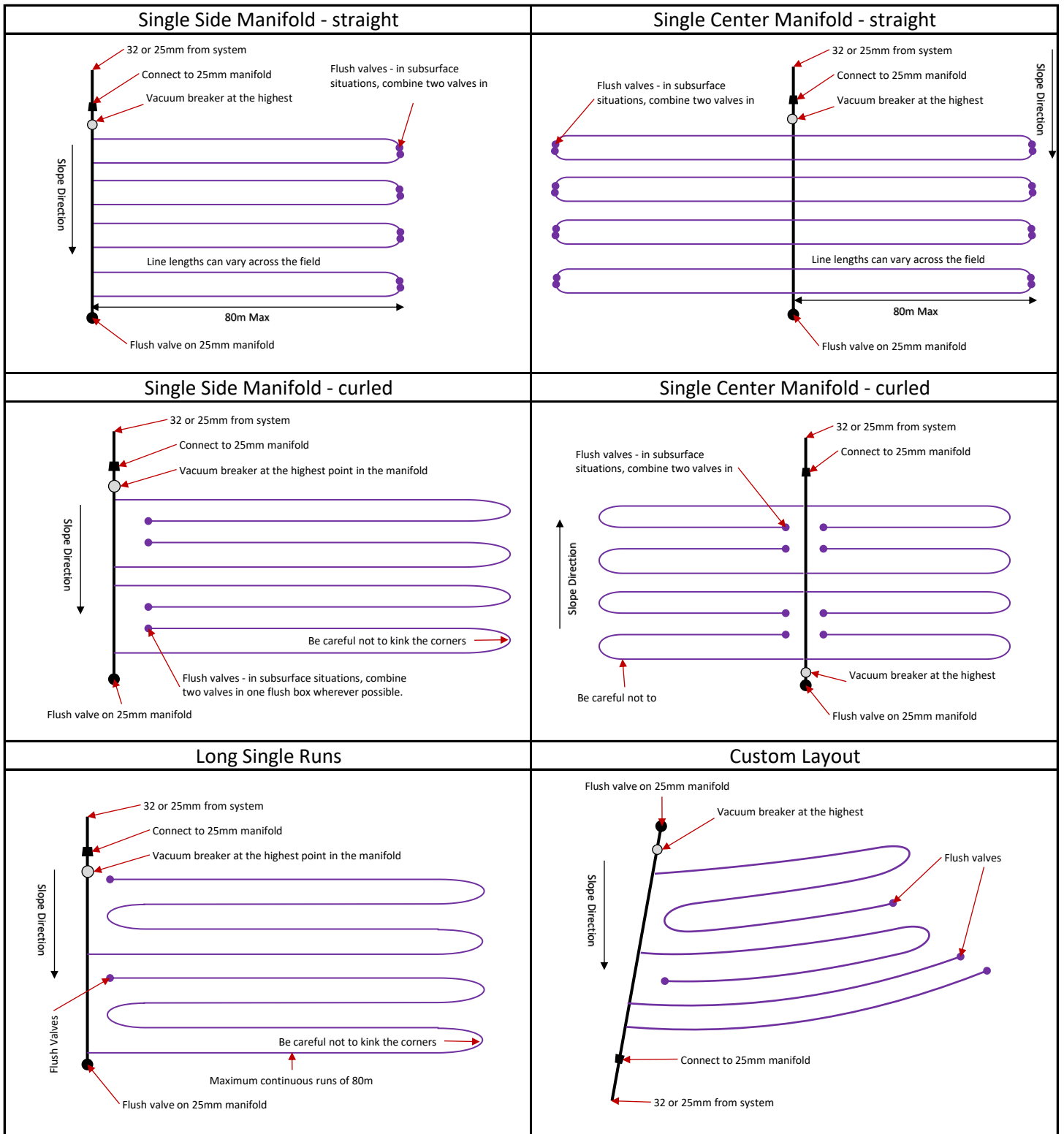
**ONSITE
 WASTEWATER
 MANAGEMENT
 298 TAURANGA BAY ROAD, KAEO**

DATE	09/09/24	
DRAWN	MR	
DESIGN	SS	
CHECKED	SS	

JOB No.	WF12434	SCALE.	1:250@A3
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DWG No.	WF12434-01	REV.	B
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Common PCDI Layouts

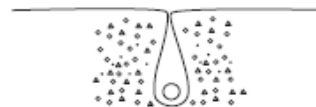


Cross Sections of PCDI installation

150mm Mulch or Leaf Litter



Subsoil Buried @ 100-150mm





METZERPLAS

ADI

Cylindrical PC
(Pressure
Compensated)
dripper.

- Cylindrical PC dripper, with unique regulating labyrinth with self-flushing operation at the beginning and the end of each irrigation cycle.
- Triple inlet filter with filtering area 10 times larger than any other dripper.
- High clog resistance.
- Suitable for poor quality and effluent water.
- Large pressure compensation range up to 4.3 bars.
- Dripline diameter: 16, 18 and 20 mm.
- Dripper flow rate: 1.6, 2.2 and 3.5 l/h.
- *Rootguard*® configuration available for extra root protection in SDI (Subsurface Drip Irrigation).



ADI Dripline Technical Data:

Model	Inside Diameter (mm)	Wall Thickness (mm)	Min. Working Pressure (bars)	Max. Working Pressure (bars)	KD
ADI 16	13.8	0.9	0.8	3.5	1.12
		1.15	0.8	4.3	0.95
ADI 18	15.8	1.2	0.8	4.3	0.95
ADI 20	17.4	1.0	0.8	3.5	0.85
		1.25	0.8	4.3	0.6



METZERPLAS

ADI

Cylindrical PC (Pressure Compensated) dripper.

ADI 16 mm. Maximum lateral length (I.D. 13.8 mm, W.T 0.9 mm, Inlet pressure 2.5 bars):

Nom. Flow Rate (l/h)	Spacing Between Drippers (m)						
	0.20	0.30	0.40	0.50	0.60	0.75	1.00
1.6	86	122	156	188	218	260	324
2.2	72	103	131	157	182	216	269
3.5	51	73	94	113	131	156	195

ADI 18 mm. Maximum lateral length (I.D. 15.8 mm, W.T 1.2 mm, Inlet pressure 2.5 bars):

Nom. Flow Rate (l/h)	Spacing Between Drippers (m)						
	0.20	0.30	0.40	0.50	0.60	0.75	1.00
2.0	93	134	171	205	238	284	355
3.5	65	92	118	142	166	198	247

ADI 20 mm. Maximum Lateral length (I.D. 17.4 mm, W.T 1.0 mm, Inlet pressure 2.5 bars):

Nom. Flow Rate (l/h)	Spacing Between Drippers (m)						
	0.20	0.30	0.40	0.50	0.60	0.75	1.00
1.6	128	182	234	281	325	388	484
2.2	113	159	202	242	279	331	409
3.5	76	109	140	168	196	233	291

For additional tables and data please contact Metzerplas Technical Department or visit our website: www.metzerplas.com

Packaging Data

Model	Roll Length (m)	Quantity Per Container (Rolls)		
		20	40	40 h
ADI 16	400	150	300	350
ADI 18	300	150	300	333
ADI 20	300	133	266	300



APPLICATIONS

- > Non-potable rainwater applications
- > Lawn and garden irrigation
- > Sump emptying to higher heads
- > Treated effluent disposal
- > Water transfer from wells



D42A/B

D53A/B

Submersible Drainage Pumps

Model Numbers: D42A/B, D53A/B

Submersible sump pump with two and three impeller designs for higher pressure, up to 45m head.

WHY CHOOSE DAVEY SUBMERSIBLE DRAINAGE PUMPS?

Double mechanical seal, one in oil bath on motor and extra mechanical seal on pump

- Superior reliability
- Long service life

Corrosion resistant 304 stainless steel shaft, motor shell and fasteners

- Long service life

Cast 316 stainless steel motor caps and super tough engineered thermo plastic pump casing

- Outstanding corrosion resistance
- Long life

Centrifugal multistage 2 and 3 impeller designs

- Higher pressures and increased efficiency

Closed vane impellers with long engagement “D” drives

- Positive operation
- Long service life

Patented independently floating neck rings

- Outstanding pump performance
- Long pump life

Corrosion resistant hard wearing polycarbonate impellers

- Long service life

Corrosion resistant stainless steel fine mesh suction strainer with large surface area

- Prevents blockages of the pump by solids

In-built automatic thermal overload

- Protects the motor in the event of blockage or voltage supply problems

HO7RNF oil resistant leads, 10 metres long with 3 pin power plug

- Easy to connect to power supply
- Longer life in dirty water



OPERATING LIMITS

Type	D42A/B	D53A/B
Capacities to	120 lpm	130 lpm
Maximum total head	32m	45m
Maximum submergence	12m	
Maximum pumped water temperature	40°C	
Maximum soft solids	1.9mm O.D.	
Outlet size (BSP)	1" F	

SUITABLE FLUIDS

Clean water of neutral pH containing up to 1% small solids. Some wear should be expected while pumping hard solids in suspension.

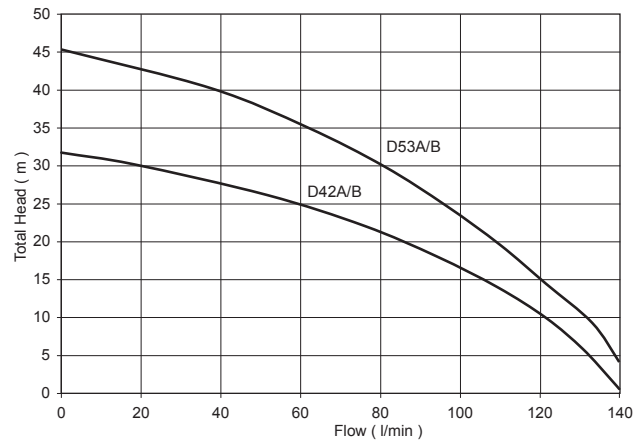
MATERIALS OF CONSTRUCTION

PART	MATERIAL
Impeller	Glass filled polycarbonate
Lock nut	304 stainless steel
Pump casing	Glass filled polycarbonate
Diffuser and blanking ring	Glass filled noryl
Mechanical seal – pump	Carbon / ceramic
Mechanical seal – motor	Silicon carbide / ceramic oil in bath
Shaft seal elastomer	Nitrile rubber
Pump shaft	304 stainless steel
O-rings	Nitrile rubber
Motor shell	304 stainless steel
Bottom bearing housing	Cast 316 stainless steel
Upper motor cover	Cast 316 stainless steel
Handle	304 stainless steel
Fasteners	304 stainless steel
Float and power supply leads	HO7RN-F oil resistant

ELECTRICAL DATA

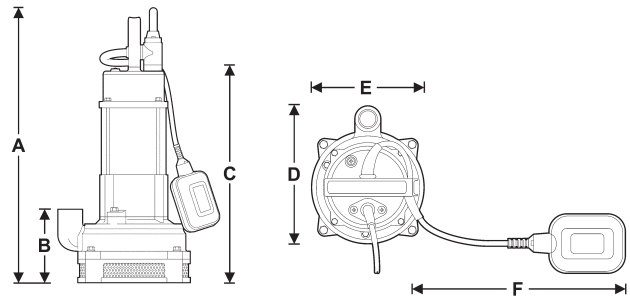
Type	D42A/B	D53A/B
Supply voltage	220-240V	
Supply frequency	50Hz single phase	
Speed	2 pole, 2850rpm	
Full load current (Run)	4.3A	5.7A
Locked rotor current (Start)	14A	
Input power (P ₁)	1.00kW	1.31kW
Output power (P ₂)	0.60kW	0.84kW
IP rating	X8	
Insulation class	Class F	
Starting	P.S.C.	
Lead	10m long	

HYDRAULIC PERFORMANCE



DIMENSIONS (MM)

Type	A	B	C	D	E	F	Outlet B.S.P.	Net Weight (kg)
D42A/B	475	130	370	235	195	330	1" F	10.8
D53A/B	535	170	430	235	195	330	1" F	16.5



INSTALLATION AND PRIMING

Use a rope to position and retrieve the pump. Do not lower or retrieve the pump using the power lead as this may damage the cable entry seals, causing water leaks and unsafe operation.

Do not use this product for recirculating or filtering swimming pools, spas, etc. While these pumps are built to high safety standards, they are not approved for installations where people will be in the water while they are operating.

Do not pump abrasive materials. Sand and grit in the water being pumped will accelerate wear, causing shortened pump life.

Keep your pump clean, particularly in situations where lint, hair or fibrous materials may get bound around the pump shaft. Regular inspection and cleaning will extend pump life.

Make room for the float switch to operate. Automatic models have a float switch to turn them on when the water level rises and turn them off again when it has been pumped down to the safe operating level of the pump. If the float switch is not free to rise and fall, correct pump operation may not be possible.

Do not run your pump dry. Non-automatic models must be switched off manually or by way of an external float/level switch when the water level is reduced to the top of the pump housing.

Assessment of Environmental Effects

Martin & Jodie Akroyd of 298 Tauranga Bay Road , Far North Lot 4 DP 45816

1.1 Description of Proposal

The owners of this site propose the servicing of an existing 4 bedroom dwelling.

1.2 Site Description

This site, located at 298 Tauranga Bay Road , is a rectangular shaped property of 941m². Property is generally covered with lawn grass and gardens. Property boundaries are on Tauranga Bay Road to the West and other like properties on all other boundaries.

1.3 Wastewater Volume

In calculating the wastewater flows we have allowed for a maximum occupancy of 6 persons in the existing four bedroom dwelling (as per Table 6.1 in Auckland Council TP58). Total wastewater production is based on an allowance of 120 litres per person per day (as per Table H3 in Australia/New Zealand Standard 1547:2012). The water supply is roof collected rainwater and full water reduction fixtures will be used throughout the house.

1.4 Wastewater Volume

The Econotreat VBB-C-2200 system that is proposed will treat the wastewater to a high standard prior to dispersal using a PCDI drip line, into a purpose-designed disposal field, where the removal of nutrient will continue, both in the receiving soils and by plant uptake.

The system will be capable of producing reductions in Biochemical Oxygen Demand, Total Suspended Solids, Nitrogen, and Coliforms to a standard that meets the requirements (see details below). The system will cater for the wastewater requirements of the private dwellings (domestic wastewater) and will not service any commercial or trade waste sources. Risk Minor to Nil.

1.5 Proposed Treatment System

The objective of the treatment system is to reduce and remove much of the contaminants from the wastewater prior to discharge into the receiving soil. This will improve the long-term performance of the disposal field as well as reducing the risk to the receiving environment. The system will consist of:

- Septic Tank Module
- EconoTreat VBB-C-2200
- Land Application System

The system is constructed using concrete tanks. The system produces treated effluent with BOD <20mg/l, Suspended solids <20mg/l.

1.6 Land Application System

The proposed irrigation system uses pressure-compensating dripper lines ensuring an even delivery of moisture over the entire irrigation field and a conservative DLR of 4mm. We propose the use of Metzerplas unibioline ADI16/2.2 @ 0.6m/c with the Dripline laid out at 1m centres. This Dripline will then be covered by 100mm landscape mulch. Densely planting this area will greatly enhance evapo-transpiration and be very beneficial especially in the wetter months of the year. This irrigation can be installed in conjunction with existing or proposed landscaping.

1.7 Surface & Ground Water

It is proposed to treat the water to a high standard prior to discharge and the proposed irrigation system will introduce the water into the topsoil horizon using PCDI irrigation. A low application rate of treated effluent into the topsoil will significantly reduce the likelihood of, any breakout or runoff or any risk of surface water contamination. With the ground water levels being >1.2m this conservative DLR also means the risk of ground water contamination is virtually nil. A majority of the undeveloped areas of this site are suitable for a PCDI disposal field when the necessary setbacks are observed. Risk Minor to Nil.

1.8 Air Quality

The proposed Econotreat VBB-C-2200 system will produce no noticeable odour when functioning correctly. Any odour will be contained within the tanks. The PCDI irrigation system will load the soil at a rate that should not cause ponding, spraying or aerosol of the effluent that could potentially cause odours. Risk Minor to Nil.

1.9 Visual Impact

The tanks are installed wholly below ground level with only the lids being visible. The lids will protrude approximately 100mm to prevent egress of storm water into the system. The disposal field will be located in a purpose designed mulched and intensively planted disposal area. Warning signs may be installed to indicate the presence of the disposal area, although probably not necessary in a domestic situation, also the area may be fenced to restrict access.

1.10 Environmental Risks

Risks associated with this proposal are minor. The treatment system will be automated, and the Home Owner will be given a 'Home Owners Care Guide' which explains the necessary visual checks to ensure no issues arise with the system, specifically – solids build-up - high water level – discharge failure – filter blockage.

Peak flow into the system are not expected to be significant and the system includes a large emergency storage volume.

1.11 Maintenance Requirements

The maintenance requirement of this system is minimal, with the system fully automated. The system requires little input from the operator apart from the regular cleaning of the outlet filter between the treatment system and the Dripline field. All other maintenance interventions must be carried out by service persons familiar with the operation of the system and approved by the manufacturer. Maintenance may include checking of the dissolved oxygen levels, cleaning of effluent outlet filter, removal of excess sludge volume, checking of control panel function, etc....

The disposal field is quite possibly the most important and sensitive part of the treatment system and requires a reasonable amount of maintenance to keep it functioning well. Any leaking or damaged Dripline must be fixed quickly using the appropriate materials, the planting must be maintained, weeds removed and grass kept cut. The Dripline should be kept covered with a suitable bark, mulch, or topsoil.

Warning signs such as ponding, odours, and signs of excessive growth act as an indicator to possible problems. A disk filter is fitted to help prevent blockage of the drippers and to protect the Dripline. This filter will require cleaning during servicing of the system. The owners will be verbally informed at the commissioning of this system of all maintenance requirements and strongly advised to have a service contract in place prior to final sign off of the system installation.



econo-treat

Econotreat VBB-C-2200 Treatment System

System Specifications & Installation Instructions



ECONOTREAT VBB-C-2200

System Specification & Installation Instructions

New Zealand's Leaders in Advanced Secondary Treatment Systems

The Treatment Process

Primary Chamber / Tank

Influent enters the chamber via the source whereby scum and solids capable of settling are separated from the raw influent. Primary treated effluent flows through a transfer port to the aeration tank. This primary tank will also act as a storage chamber for sludge returned from the Clarification Chamber.

After primary settling, the sewage passes through a ReIn outlet filter.

Aeration Chamber

Water enters from the Primary Chamber. Air is introduced into this chamber via an air blower to create an environment for aerobic bacteria and other helpful organisms to consume the organic matter present. The aeration tank is designed in a manner to help prevent short circuiting of the wastewater to ensure extended aeration. Media is present in the tank to support the growth of bacteria.

Clarification Chamber

The Clarification chamber is essentially a quiescent zone where suspended particles/solids are settled out of the water. These particles are returned to the Primary chambers via a sludge return which aids in further biological reduction, denitrification and providing a constant food supply rich in microbes supporting the system through periods of limited flows.

System Performance

The Econotreat VBB-C-2200 system is capable of treating up to 2200L per day peak flow to an advanced secondary standard. The effluent is suitable for UV disinfection where required.

Benchmark Ratings

The **Waipapa Tanks Econo-Treat® VBB C-2200-2** system achieved the following effluent quality ratings:

Indicator Parameters	Median	Std Dev.	Rating	Rating System				
				A+	A	B	C	D
BOD (g/m ³)	3.4	1.5	A+	<5	<10	<20	<30	≥30
TSS (g/m ³)	4.98	3.49	A+	<5	<10	<20	<30	≥30
Total nitrogen TN (g/m ³)	13.6	1.3	A	<5	<15	<25	<30	≥30
Ammonia Nitrogen NH ₄ -N (g/m ³)	1.1	1.8	A	<1	<5	<10	<20	≥20
Total phosphorus TP (g/m ³)	4.2	0.5	B	<1	<2	<5	<7	≥7
Faecal Coliforms FC (cfu/100mL)	11,200	50,196	B-	<10	<200	<10,000	<100,000	≥100,000
Energy (kWh/d) (mean)	1.8	-	B	0	<1	<2	<5	≥5

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ECONOTREAT VBB-C-2200

System Specification & Installation Instructions

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Compliance Requirements

All Econotreat Treatment Systems meet the requirements of the NZ Building Code G13-VM4.

Section 9 of AS/NZS 1546.1:2008 state that tanks constructed to these Standards will meet the requirements of the Code for Clauses B1 and B2, structure and durability.

Compliance with Section 9 of AS/NZS 1546.1:2008 and also Clauses G13.3.4 relating to on-site treatment and disposal systems and G14.3.1 and 14.3.2 relating to the control of foul water as an industrial waste.

Tank Specifications

Tanks are made of 50mpa Fiber Reinforced Concrete, which is suitable material for wastewater treatment containment meeting all the requirements of Section 4.3.3 of AS/NZS 1547:2012. These tanks have an expected lifespan of 50 years.

Dual Chamber Septic Tank

5200L Nominal Capacity
2500mm Long
1700mm Wide
1975mm High
- 3100kg

Aeration Tank

5200L Nominal Capacity
2500mm Long
1700mm Wide
1975mm High
- 2900kg

System Information

500L Pump Chamber
2120L Emergency Storage

Installation Location and Certification

These tanks are not designed for vehicle loads and shall be located no closer than 2m to a driveway, road frontage or a building. If for any reason the tank is located where vehicle traffic may drive over the tank or approach closer than 2m, or where it may be trampled on by farm stock then the tank should be protected by a concrete slab designed to support these loads. Surface water must also be diverted from flowing into the installation.

Installation must be certified to AS/NZS 1547:2012, the certificate to be issued and held by the regulatory authority.

High Water Table Installations

All tanks have been engineered and designed for maximum strength, in accordance with the NZC 3604. Clauses B1 and B2 for structure and durability, to withstand any hydraulic pressures, both lateral and uplift, created by high water table conditions.

In high water table installations, it is important to fill the tanks with water. This removes the hydraulic uplift and simplifies the installation. In extremely high-water tables, a concrete foot can be added to the tank during manufacture. Waterflow must be made aware of this early on in view of supplying a tank that is fit for purpose.

If in doubt contact the experts on 0800 SEWAGE or sales@waterflow.co.nz

ECONOTREAT VBB-C-2200

System Specification & Installation Instructions

New Zealand's Leaders in Advanced Secondary Treatment Systems

Plumbing Pipes and Fittings

All internal plumbing is done with PVC pipes with appropriate connections according to AS/NZS 1260 and AS/NZS 4130.

Backfill and Bedding

Place and bed to NZBC G13/AS2, using compacted granular material, in layers not exceeding 100mm.

Electrical

Where a pump is required on a flat site electrical connection must be installed according to AS/NZS 3000 and the control and alarm system must be in a weatherproof housing located in a readily visible position.

Warranty

WATERFLOW NZ LTD warrants that the Econotreat System will be free from defects in material and workmanship for the following periods of time from the date of installation as set out in the following conditions:

1. Concrete Tank 15yrs
2. Roto-Molded Tanks 15yrs
3. Nitto Blower 3yrs
4. Irrigation Pumps 2yrs
5. Warranty of Operation covers the performance of the Econotreat System as connected to the effluent inflow for which they are designed, and has been installed to the criteria as set out in the relative installation instructions and procedures, and has an assigned Service/Maintenance contract in place with Waterflow NZ Ltd or it's appointed agent/s.

Warranty excludes defects due to:

- A) Failure to use the system in accordance with owner's manual.
- B) A force majeure event outside the reasonable control of WATERFLOW NZ LTD such as (but not limited to) earthquake, fire, flood, soil subsidence, ground water table variations or plumbing fault.
- C) Modifications to surrounding landscape contour after installation
- D) The actions of a third party
- E) The system required to bear loads (either hydraulic or biological) greater than that for which it was designed
- F) Any modifications or repairs undertaken without the consent of WATERFLOW NZ LTD
- G) Failure, where applicable, to fence and plant disposal field.

1st June 2014
Dean Hoyle
Managing Director



See our website: www.waterflow.co.nz

ECONOTREAT VBB-C-2200

System Specification & Installation Instructions

Econotreat VBB-C-2200 Installation Instructions

The Econotreat system is to be installed or signed off by a registered Drain layer to the design specified by Waterflow NZ Ltd.

The following installation instructions and procedures followed correctly will ensure System performance is not compromised in any way.

1. Excavate two 3m x 2m level platforms at an appropriate depth to ensure adequate fall for inlet pipe from the source. This has to be installed on virgin ground. The two platforms are ideally on the same level and next to each other, either side-by-side or end-on-end.
2. Lay 100mm of bedding metal on platform and place the Septic and Aeration tanks next to each other. As close as practically possible to minimize the connection distance between the tanks.
3. Connect the two tanks with 100mm PVC. If the tanks are side-by-side the connection will need supporting. This is done by tying it back to the wire on the lids with a length of rope supplied. The rope can be found in the top of the treatment tank.



Sludge return 25mm



Supported with rope

4. Next connect the sludge return. This is a 25mm PVC pipe that come out of the central riser on the treatment tank. This must be plumbed back to the second 100mm PVC at the start of the septic tank. It is important that this pipe is falling slightly or at minimum flat.
5. Trench from Dose Chamber outlet to disposal field and lay the 25mm alkathene feed line.
6. Take a minimum of 3 photos at this point to showing connections and back fill, to ensure correct installation for sign off.
7. Back fill around tanks. Using spoil from the excavation is fine, be aware that this will settle over time though.

Caution: System must be protected from excessive super imposed loads both lateral and top loads. E.g. loads from vehicular traffic. There needs to be at least 2m of clearance maintained around system.

If in doubt contact the experts on 0800 SEWAGE or sales@waterflow.co.nz

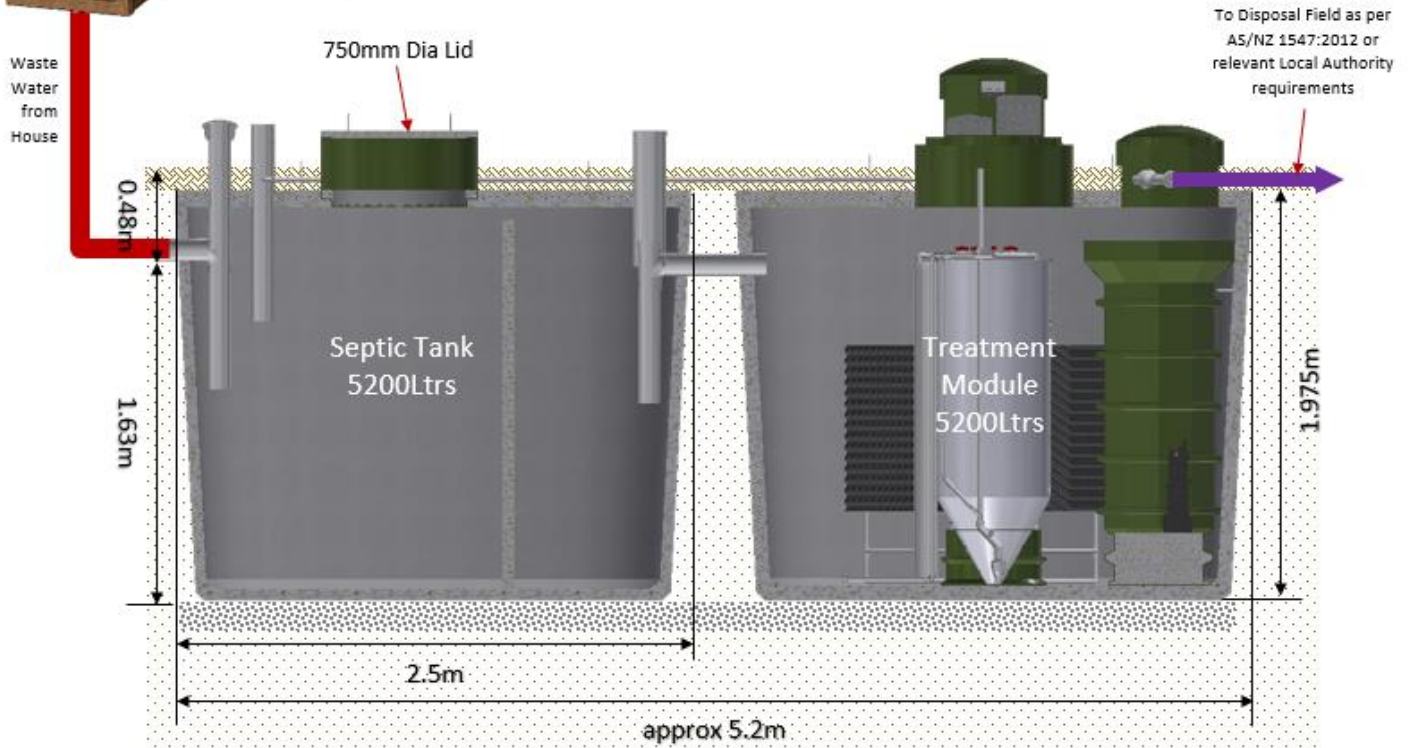
ECONOTREAT VBB-C-2200

System Specification & Installation Instructions

Econotreat VBB-C-2200 Schematic Drawings



Econotreat VBB-C-2200



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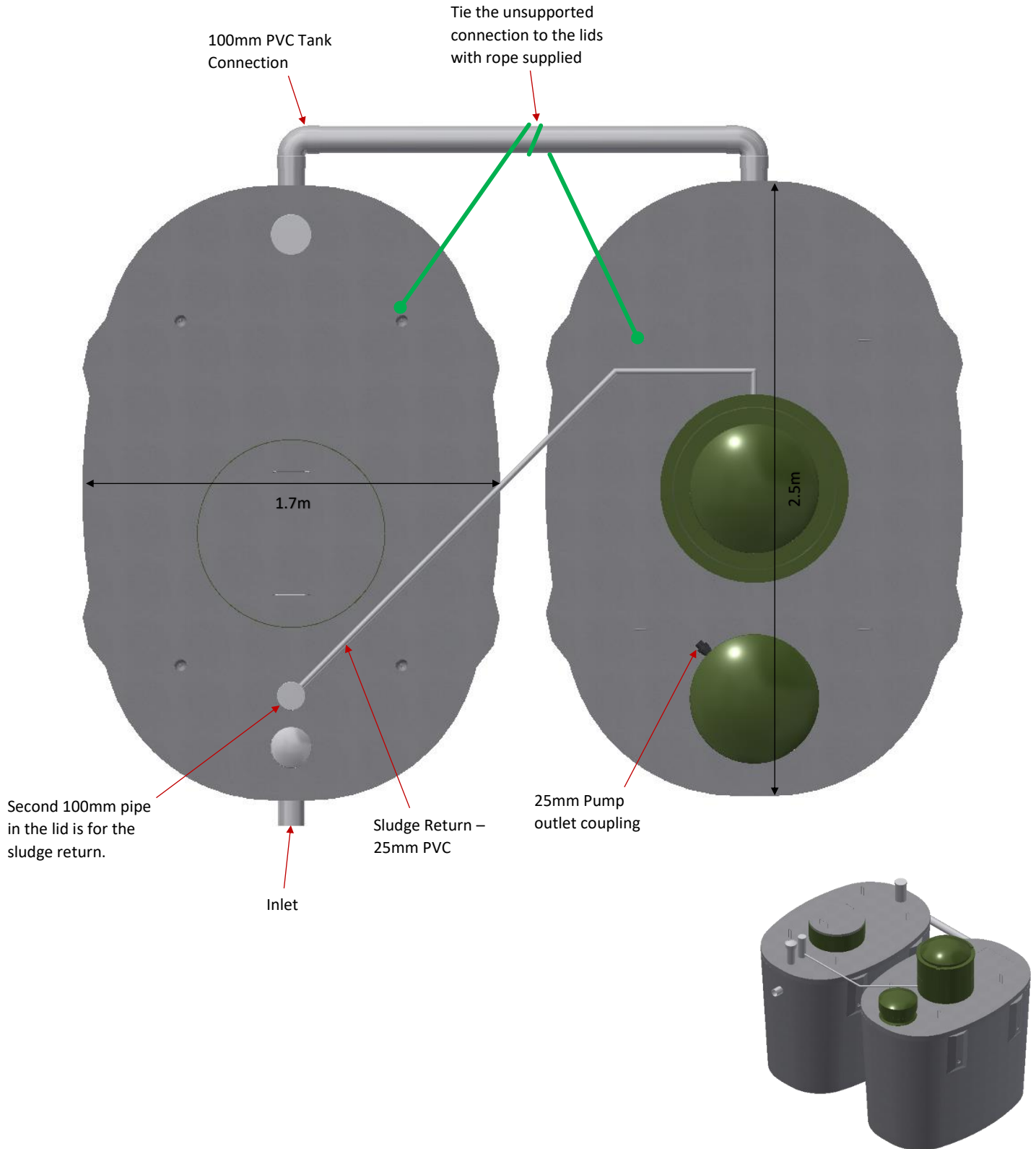
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System Specification & Installation Instructions

Econotreat VBB-C-2200 Schematic Drawings

Side by Side Installation



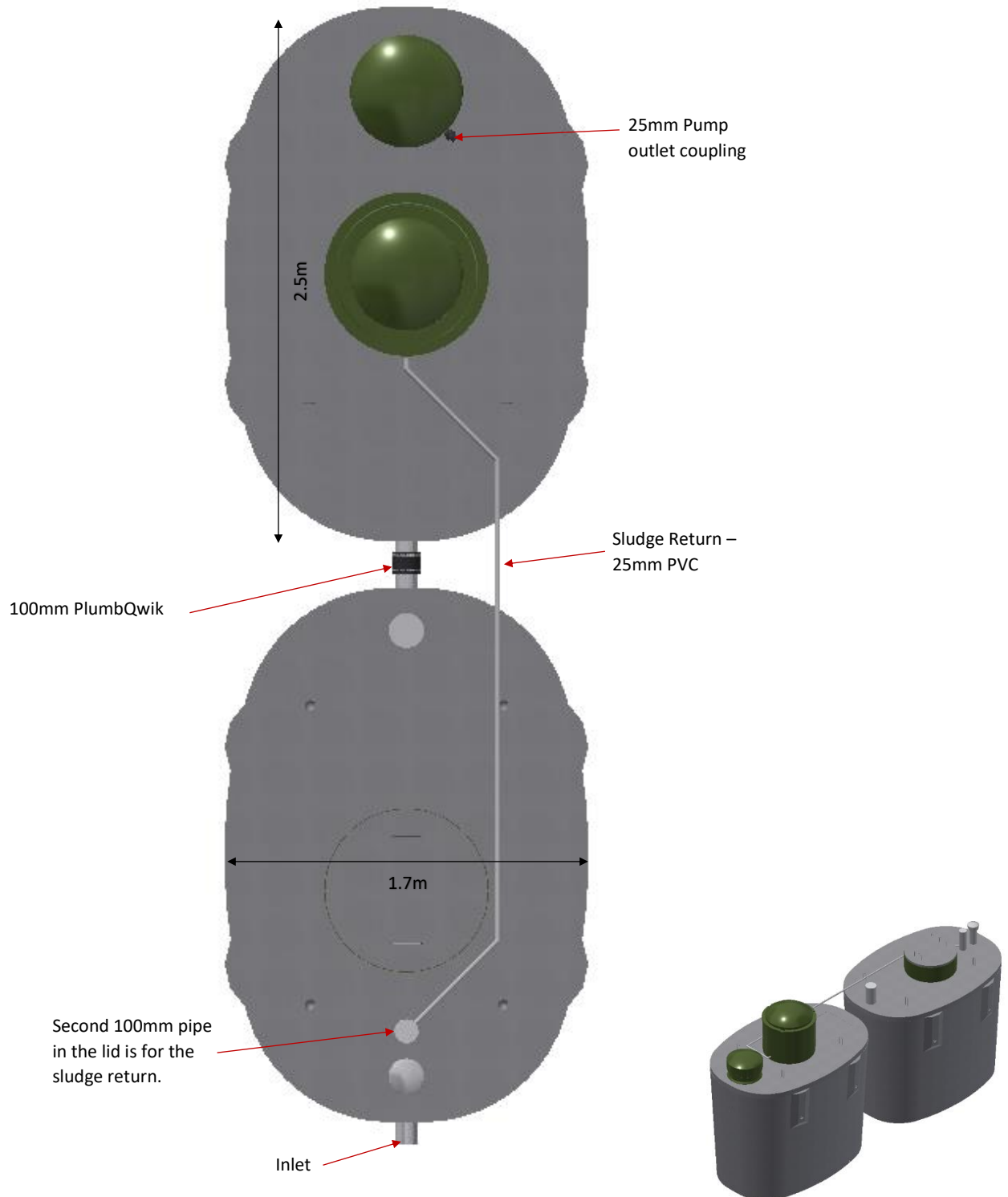
If in doubt contact the experts on 0800 SEWAGE or sales@waterflow.co.nz

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System Specification & Installation Instructions

Econotreat VBB-C-2200 Schematic Drawings

End on End Installation





“Making it Easy”

Call us today to discuss your needs

0800 SEWAGE

Or for more information www.waterflow.co.nz



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econo-treat
Advanced Secondary Treatment

Econotreat Aerated Wastewater Systems

Home Owners Guide



ECONOTREAT AERATED WASTEWATERSYSTEMS

Home Owners Care Guide

Trusted Wastewater Management Solutions

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ECONOTREAT AERATED WASTEWATERSYSTEMS

Home Owners Care Guide

Trusted Wastewater Management Solutions

To the Home Owner

Thank you for choosing an Econotreat System to treat and care for your on-site sewage and wastewater.

Your Econotreat System is fully automatic in operation and requires little owner intervention to ensure years of service. It is useful that the owner/operator of the system understand some of the broad concepts of the system operation. This manual has been written to provide this simple explanation and to serve as a future reference so that you can ensure that the system is operating effectively at all times.

We would encourage you to monitor and care for your Econotreat system with our backing and support and by doing so you will learn how your system works and operates and how to keep it in top working order. Waterflow promises consistent results year after year.

Kind regards,
The Waterflow Team

Warranty

WATERFLOW NZ LTD warrants that the Econotreat System will be free from defects in material and workmanship for the following periods of time from the date of installation as set out in the following conditions:

1. Concrete Tank 15yrs
2. Roto-Molded Tanks 15yrs
3. Nitto Blower 2yrs
4. Irrigation Pumps 2yrs
5. Warranty of Operation covers the performance of the NaturalFlow System as connected to the effluent inflow for which they are designed, and has been installed to the criteria as set out in the relative installation instructions and procedures, and has an assigned Service/Maintenance contract in place with Waterflow NZ Ltd or it's appointed agent/s.

Warranty excludes defects due to:

- A) Failure to use the system in accordance with owner's manual.
- B) A force majeure event outside the reasonable control of WATERFLOW NZ LTD such as (but not limited to) earthquake, fire, flood, soil subsidence, ground water table variations or plumbing fault.
- C) Modifications to surrounding landscape contour after installation
- D) The actions of a third party
- E) The system required to bear loads (either hydraulic or biological) greater than that for which it was designed
- F) Any modifications or repairs undertaken without the consent of WATERFLOW NZ LTD
- G) Failure, where applicable, to fence and plant disposal field.

ECONOTREAT AERATED WASTEWATERSYSTEMS

Home Owners Care Guide

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How it Works

Primary Chamber / Tank

Influent enters the chamber via the source whereby scum and solids capable of settling are separated from the raw influent. Primary treated effluent flows through a transfer port to the aeration tank. This tank will also act as a storage chamber for sludge returned via the Clarification Chamber.

Aeration Chamber

Water enters via the Primary Chamber. Air is introduced into this chamber via an air blower to create an environment for aerobic bacteria and other helpful organisms to consume the organic matter present. The aeration tank is designed in a manner to help prevent short circuiting of the wastewater to ensure extended aeration. Media is also present in the tank to support the growth of bacteria.

Clarification Chamber

The Clarification chamber is essentially a quiescent zone where suspended particles/solids are settled out of the water. These particles are returned to the Primary chambers via a sludge return which aids in further biological reduction, denitrification and providing a constant food supply rich in microbes supporting the system through periods of limited flows.



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ECONOTREAT AERATED WASTEWATERSYSTEMS

Home Owners Care Guide

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Servicing

Your Econotreat System requires annual service and maintenance inspections (this can vary depending on local council regulations). This will need to be done by our trained technicians. We will phone to arrange a suitable time to attend to your servicing needs.

A record sheet (in triplicate) will be completed by our technician at the time of service. One copy is for you the customer and available upon payment, another is sent off to Council and the third copy will be retained for our records.

Please call our office on the number listed at the back of this manual for the cost of servicing after the initial 12-month period.

1. A general inspection of tank area, irrigation and drainage.
2. Inspection of electrical equipment including timer, Low powered Blower, irrigation pump, warning lights and connections.
3. Inspection of Pump-out Chamber and septic tank, checking air lines, adjusting air supply (if necessary), operating de-sludging unit, resetting air control, operating submersible switch, checking bio-mass growth, checking sludge level.
4. Inspection of irrigation including lines, jets and outlets. Between 4 - 9 years the tank will need to be de-sludged (pumped out) as with any septic tank. We will notify you of this requirement, as the service technicians will be monitoring sludge depth annually.

Holiday Precautions

There are no precautions to take. Your Econotreat can be left to function automatically for 6 to 12 months. However, if you are likely to be away from home for more than six months you may like to contact our office, so we can make a routine check.

Responsibility

As the owner of the system, you are responsible for the correct operation and maintenance and to conform to Council's requirements.

Slowly remove irrigation cap (unscrew anti- clockwise). It is important to unscrew slowly to allow any built-up pressure to be relieved. Watch out for the O-ring inside the cap, be careful not to drop this in the tank.

ECONOTREAT AERATED WASTEWATERSYSTEMS

Home Owners Care Guide

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Problem Solving

To ensure the most effective operation of your Econotreat System you should familiarize yourself with the contents of this manual. The Econotreat has been designed to include additional safety margins and minor mishaps and normal household usage will not usually affect the operation of the system.

However, if the alarm sounds or strong odors persist Please call your service agent.

Area of Concern	Potential Cause	Remedial Action
Alarm sounds	Irrigation pump not working	Check water levels
	Air supply not working	Listen for the air compressor
	No power at the tank	Check power supply source
Water around tank	Irrigation pump not working	Check water levels
	Irrigation lines blocked or kinked	Check irrigation lines and clear sprinklers
Excessive foaming	Too much laundry detergent	Use recommended quantities
	Too many washes	Spread wash loads over different days
Persistent odors	Too much water usage	Add biologic starter pack
	Excessive chemicals in use	Install water saving devices
		System will recover
Irrigation system not working	Pump failure	Check water level
	Irrigation lines blocked	Clear irrigation lines
Water ponding on irrigation field	Irrigation line blocked	Installation should comply with original approval
	Excessive water use	Install water saving devices
	Broken irrigation pipe	Repair irrigation pipe

Do not flush baby wipes down toilets

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Caring for Your Wastewater System

Components of Your Complete Wastewater Septic System

A typical wastewater septic system has two main components: a Wastewater Treatment System and a Land Application System (or disposal field). This is simply treatment then discharge.

Efficient Water Use – ‘it does make a difference’

Average indoor water use in the typical single-family home is approximately 180ltrs per person per day. The more water a household conserves, the less water enters the septic system. Efficient water use can improve the operation of the wastewater system and reduce any risk of disposal field overload.

High-efficiency toilets

Toilet use accounts for 25 to 30 percent of household water use.

Do you know how many liters of water your toilet uses to flush? Most older homes have toilets with 11+ liter reservoirs, while newer high-efficiency dual flush toilets use 6.3/5.5ltrs or down to 4.5/3ltrs of water per flush. N.B. Did you know leaky toilets can waste as much as 700ltrs each day.

Consider reducing the volume of water in the toilet tank with a volume displacer (fancy name for a brick, stone etc!) if you don't have a high-efficiency model or replacing your existing toilets with high efficiency models.

Check to make sure your toilet's reservoir isn't leaking into the bowl. Add five drops of liquid food coloring to the reservoir before bed. If the dye is in the bowl the next morning, the reservoir is leaking, and repairs are needed.

Water fixtures

A small drip from a faucet may add many liters of unnecessary water to your system every day. To see how much a leak adds to your water usage, place a cup under the drip for 10 minutes. Multiply the amount of water in the cup by 144 (the number of minutes in 24 hours, divided by 10). This is the total amount of clean water travelling to your septic system each day from that little leak.

Faucet aerators and high efficiency showerheads

Faucet aerators help reduce water use and the volume of water entering your septic system. High-efficiency showerheads also reduce water use.

Washing machines

By selecting the proper load size, you'll reduce wastewater. Washing small loads of laundry on the large-load cycle wastes precious water and energy. If you can't select load size, run only full loads of laundry. N.B. A new Energy Star washing machine uses 35 percent less energy and 50 percent less water than a standard model.

ECONOTREAT AERATED WASTEWATERSYSTEMS

Home Owners Care Guide

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Watch your drains!

What goes down the drain can have a major impact on how well your wastewater system works.

What shouldn't you flush down your toilet?

Dental floss, feminine hygiene products, diapers, cotton swabs, cigarette butts, cat litter, and other kitchen and bathroom items that can clog and potentially damage septic system components if they become trapped. Flushing household chemicals, gasoline, oil, pesticides, antifreeze, and paint can also stress or destroy the biological treatment taking place in the system or might contaminate surface or ground waters.

Care for your Land Application System

Your land application system is an important part of your wastewater system. Here are a few things you should do to maintain it:

- Flush driplines regularly – every 3 months recommended
- Plant only recommended wetland plants over and near your wastewater system. Roots from nearby trees or shrubs might clog and damage the drain field
- Don't drive or park vehicles on any part of your wastewater system. Doing so can compact the soil in your drain field or damage the pipes, tank, or other septic system components
- Do not build any structures over it or seal it with concrete, asphalt etc.
- Keep roof drains, basement sump pump drains, and other rainwater or surface water drainage systems away from the drain field. Flooding the drain field with excessive water slows down or stops treatment processes and can cause plumbing fixtures to back up
- Trees with very aggressive roots, such as willows, should be kept well away from the disposal system, see page 11 for list of recommended planting
- A soggy drain field won't absorb and neutralize liquid waste. Plan landscaping, roof gutters and foundation drains so that excess water is diverted away from the Land Application System

Household Cleaning Chemicals

Effects on Wastewater and Disposal System Receiving Environments

Use of many cleaning chemicals in facilities served by on-site disposal systems, can result in high concentrations of the constituents in those cleaning agents being discharged into the receiving soils. These chemicals and constituents can have a massive impact on the quality and condition of the receiving soils over time.

Many of the chemicals can disrupt soil structure and decrease hydraulic conductivity while others can act as bactericides, destroying the essential micro-organisms required to achieve the high level of biodegradation in the treatment and disposal systems.

The following matters need to be considered when using cleaning agents in a domestic situation:

- Laundry powders are often extremely high in sodium which will destroy the salt balance in the soils. Check the labels for low sodium and phosphorous contents.
- Wastewater flow from dishwashing machines can have an impact on wastewater treatment systems, in terms of the strong cleaning chemicals used, so check labels for low sodium products
- Highly corrosive cleaners (such as toilet and drain cleaners) that have precautionary labels warning users to minimize direct contact, are an indication that they can adversely affect the wastewater treatment system. Up to 1 cup of bactericides such as bleach can be sufficient to impact on all the microorganisms/bugs in a septic system.

Recommended Cleaning Brands:



earthwise
caring for your world

Cleaning Substitutes

Substitutes for Household Cleaning Chemicals (Ref TP58)

Use of the following readily biodegradable substitutes for common potentially harmful household cleaning chemicals will reduce the stress on any wastewater system, significantly enhance the performance of the whole system and increase the life of the land application system, while reducing the potential effects of the receiving soils.

General Cleaners

Use soft soap cleaners and bio-degradable cleaners and those low in chlorine levels.

Ammonia-Based Cleaners

Instead sprinkle baking soda on a damp sponge.

Disinfectants

In preference use Borax (sold in most Bin Inn stores): ½ cup in 4-litres of water.

Drain De-Cloggers

Avoid using de-clogging chemicals. Instead use a plunger or metal snake or remove and clean trap.

Scouring Cleaners and Powders

Instead sprinkle baking soda on a damp sponge or add 4-Tbs baking soda to 1-Litre warm water. It's cheaper and won't scratch.

Toilet Cleaners

Sprinkle on baking soda, then scrub with toilet brush.

Laundry Detergent

Choose one with a zero-phosphate content and low in alkaline salts (in particular, a low sodium level) and no chlorine.

Oven Cleaners

Sprinkle salt on drips, then scrub. Use baking soda and scouring pads on older spills.

ECONOTREAT AERATED WASTEWATERSYSTEMS

Home Owners Care Guide

Trusted Wastewater Management Solutions

In a Nutshell

Because your system is fully automatic there is no need for the owner to be concerned. However, there are some simple precautions to observe:

DO

- Avoid using strong acids, alkalis, oils and chemicals in your toilet, bathroom, laundry and kitchen (too much can kill off the working “bugs”).
- Limit the use of water in the dwelling.
- Try to spread wash loads over different days.
- Try to avoid using the washing machine and shower at the same time.
- Front loader washing machines reduce water usage.
- If your system requires power supply make sure this remains on continuously, unless system is being serviced.
- Check faucets and toilets for leaks; make repairs if necessary.
- Use low flush toilets where possible.
- Use a ‘displacer’ to reduce the amount of water needed to flush older toilets.
- Use aerators on faucets and flow reducer nozzles on showers to help lower water consumption.
- Reduce water levels for small loads of laundry.
- Wait until the dishwasher is full to run it.
- Densely plant your field to maximize transpiration.
- Perform regular monthly visual checks of your system and field.
- Grass should be mowed or trimmed regularly to optimize growth and prevent the grass from becoming rank.
- Use signs, fences and/or plantings to prevent any vehicle or stock access.
- Keep records of all maintenance undertaken on the wastewater systems.
- Monitor and care for your Wastewater System as per instructions in the home owner’s manual.

DON'T

- Switch off power unless servicing
- Use chlorine-based disinfectant & cleaning products in the toilets or kitchen sink (Cleaners high in chlorine, phosphorous or ammonia must not be used)
- Over use heavy cleaners that kill beneficial bacteria in the septic system
- Pour any toxic/strong chemicals (paint, oil, grease, paint thinners or pesticides) down any drains
- Flush down your toilet – Dental floss, feminine hygiene products, diapers, cotton swabs, cigarette butts, cat litter, and other kitchen and bathroom items
- Discard any drugs down the sink or toilet
- Alter or add any part of your system without Waterflow NZ LTD’s approval
- Never turn the system off, even when away on holidays.

ECONOTREAT AERATED WASTEWATERSYSTEMS

Home Owners Care Guide

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Plants Suitable for Onsite Wastewater Disposal Systems

Plantings that will soon have your field looking magnificent!

Below are some of the most common of native and other plant species that are tolerant or fond of moist conditions, such as those associated with wastewater disposal fields.



Cordyline australis



Apodasia similis



Alocasia nigrescens



Carex secta

- Alocasia nigrescens (Black Taro)
- Apodasmia similis (Oioi)
- Arthropodium Matapouri Bay
(Rengarenga Lily)
- Carex dispacea
- Carex dissita
- Carex maorica
- Carex secta
- Carex tenuiculmis
- Carex virgata
- Cordyline australis (Cabbage Tree)
- Cordyline Midnight Star
- Leptospermum Burgundy Queen
(Flowering Ti Tree)
- Lomandra Tanika
- Phomium Surfer

See our website: www.waterflow.co.nz



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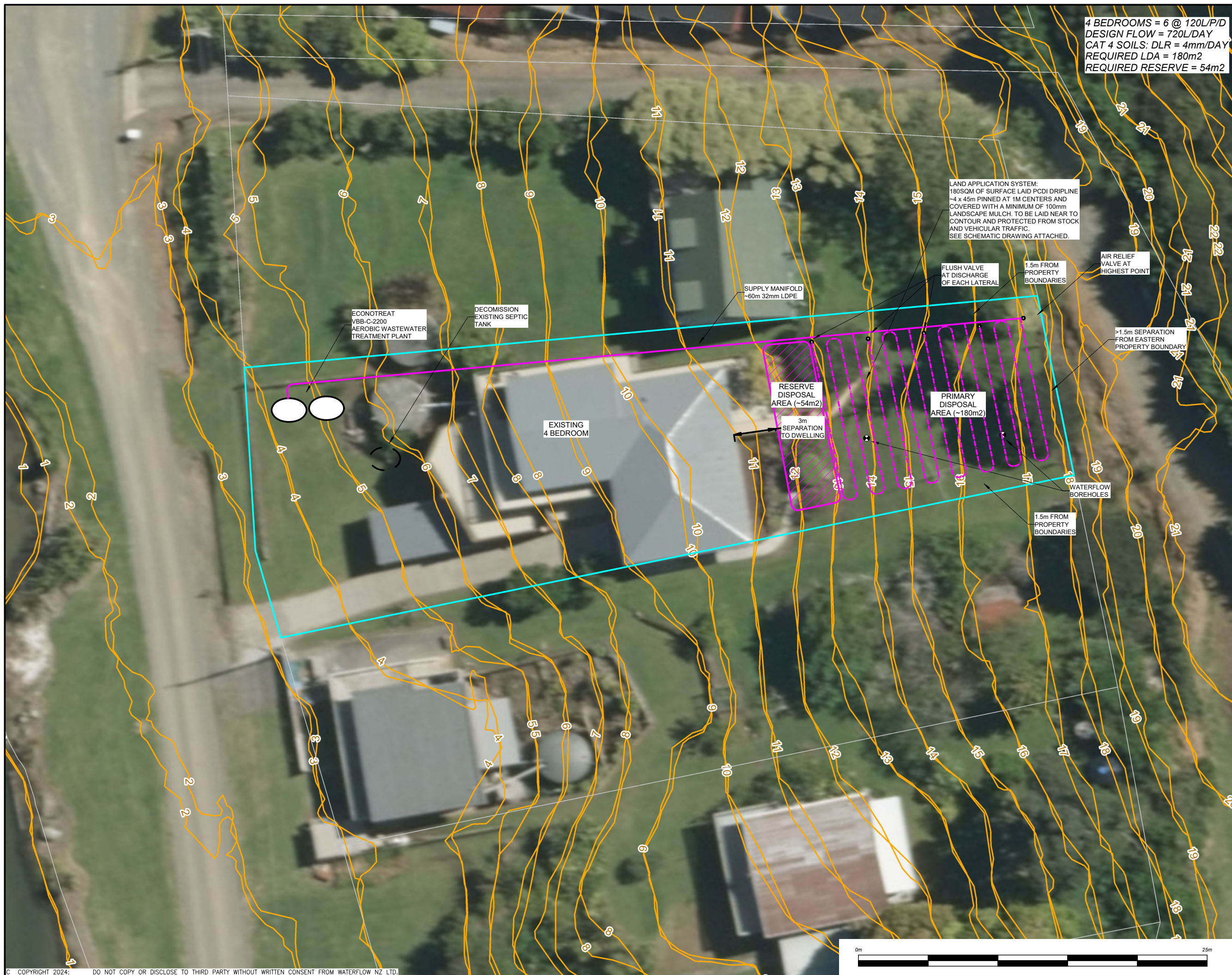
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4 BEDROOMS = 6 @ 120L/P/D
 DESIGN FLOW = 720L/DAY
 CAT 4 SOILS: DLR = 4mm/DAY
 REQUIRED LDA = 180m²
 REQUIRED RESERVE = 54m²

LAND APPLICATION SYSTEM:
 180SQM OF SURFACE LAID PCDI DRIPLINE
 ~4 x 45m PINNED AT 1M CENTERS AND
 COVERED WITH A MINIMUM OF 100mm
 LANDSCAPE MULCH. TO BE LAID NEAR TO
 CONTOUR AND PROTECTED FROM STOCK
 AND VEHICULAR TRAFFIC.
 SEE SCHEMATIC DRAWING ATTACHED.

FLUSH VALVE
 AT DISCHARGE
 OF EACH LATERAL

1.5m FROM
 PROPERTY
 BOUNDARIES

AIR RELIEF
 VALVE AT
 HIGHEST POINT

SUPPLY MANIFOLD
 ~60m 32mm LDPE

>1.5m SEPARATION
 FROM EASTERN
 PROPERTY BOUNDARY

ECONOTREAT
 VBB-C-2200
 AEROBIC WASTEWATER
 TREATMENT PLANT

DECOMMISSION
 EXISTING SEPTIC
 TANK

RESERVE
 DISPOSAL
 AREA (~54m²)

3m
 SEPARATION
 TO DWELLING

PRIMARY
 DISPOSAL
 AREA (~180m²)

WATERFLOW
 BOREHOLES

1.5m FROM
 PROPERTY
 BOUNDARIES

EXISTING
 4 BEDROOM



PO Box 24
 Maungaturoto
www.waterflow.co.nz

CLIENT

MARTIN & JODIE AKROYD

PROJECT

**PROPOSED ONSITE
 WASTEWATER LAYOUT**

TITLE

**ONSITE
 WASTEWATER
 MANAGEMENT
 298 TAURANGA BAY ROAD, KAEO**

DATE	09/09/24	
DRAWN	MR	
DESIGN	SS	
CHECKED	SS	

JOB No.	WF12434	SCALE.	1:250@A3
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DWG No.	WF12434-01	REV.	B
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