

Our Ref: 25780

29 May 2015

**WASTEWATER MANAGEMENT REPORT  
FOR  
REVALIDATION OF ONSITE WASTEWATER SYSTEM  
FOR T T & M A MORRISON, TE MAHIA**

**1. Background**

The current wastewater system is authorised under Resource Consent U001384 and this will expire on 15 January 2016.

A one bedroom house was constructed on this property approximately 46 years ago and this was serviced by a septic tank (approximately 2,500 litres) and a trench of unknown length. In the year 2000, a Resource Consent was granted to construct an adjacent two bedroom house, the effluent from which discharged to the existing septic tank and trench. Conditions of consent include that:

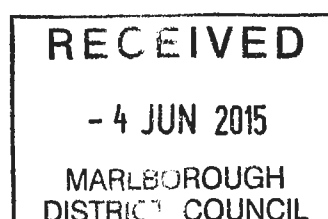
- a) if the effluent system was unable to cope with the increased demand, then it shall be upgraded accordingly to comply with current codes, and
- b) an outlet filter be installed to the existing septic tank.

The two bedroom dwelling was constructed but subsequently modified to allow for a further two bedrooms, making a total of five bedrooms discharging to the wastewater system.

Our investigation to revalidate this consent has been undertaken on the basis of determining if there have been any adverse environmental effects and ensuring that the system complies as close as practically possible to current codes and guidelines and making recommendations to modify if considered necessary.

**2. Investigation**

We inspected the site on 22 April 2015, accompanied by the applicant. We noted the location of the septic tank and effluent filter and the applicant described where the effluent trench was located, although this now appears to be covered with a concrete path. The original length could not be confirmed nor the condition of the trench itself.



Davidson Ayson House, 4 Nelson St  
P O Box 256, Blenheim 7240, NZ  
T: 03-579 2099 / F: 03-578 7028  
E: service@DavidsonGroup.co.nz  
W: DavidsonGroup.co.nz

**Principals**

Ross Davis, CPEng, MIPENZ, BE  
Stephen Sheat, CPEng, MIPENZ, BE  
Leigh McGlynn, CPEng, MIPENZ, BE

The applicants advise that the effluent filter is checked every three months and that the typical loading is two people for a short period once a month and peak load of 10 people at Christmas for one week maximum.

They also advise that there have been no issues, including odours, seepage or trench malfunction, since the year 2000.

The water supply is from the roof and storage tanks in excess of 40,000 litres have been installed.

The fixtures include dual flush toilets, standard taps and shower heads, no baths and a top loader washing machine.

We inspected the area around and below the trench area and found no signs of seepage, odour or any other adverse environmental effects.

In anticipation that an increased area for Land Application will be required, we inspected the area to the north and east of the buildings.

The area immediately uphill and to the east is a gully area which is very wet in the winter and into which some road culverts discharge from the Kenepuru Road above.

The area immediately north of the buildings is well vegetated but very steep (35° plus) and not considered suitable for a Land Application Area (LAA).

The area in the north-eastern corner of the property is also well vegetated and too steep and not considered suitable. However, the area below this, immediately to the north-east of the house, is 25 to 30°, well vegetated, shows no signs of active movement and is considered suitable for a LAA. The area available is in the order of 23 metres down slope and 15 metres across (345 m<sup>2</sup>).

Three test pits were excavated through this area. Test pits 1 and 2 (TP1 & 2) consisted of 300 mm of topsoil over a dark brown, firm, moist sandy CLAY. The material ribboned to 50/60 mm and was gritty when saturated. This was considered a Category 5 soil in accordance with NZS 1547:2012.

TP3 had 100 mm topsoil, ribboned 40 to 50 mm and was a dark brown firm moist fine sandy CLAY which is a Category 4 soil.

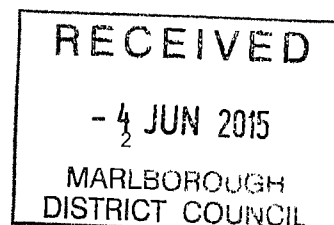
TP3 appears to be located on ancient slip debris material that is currently inactive.

### 3. Assessment

We consider that while the existing septic tank and trench system copes with the current usage, it may not do so if the property was fully occupied on a permanent basis. Also, an additional two bedrooms have been added to the system since approval of the Discharge Permit and the Conditions of Consent required further upgrading and a Resource Consent if that were to occur.

We consider that the upgrade design should be based on the following:

- Category 5 soil.
- A Design Irrigation Rate (DIR) for a drip irrigation option, reduced 25% for the 25 to 30° slope, of 2.25 mm/day.
- A roof water supply of 180 litres/person/day less an allowance of 20 litres/person/day for a dual cistern, making a design wastewater flow 160 litres/person/day.
- Five bedrooms, or 10 people.
- Design wastewater allowance of 1,600 litres/day.
- Sharing the load between a new drip field and the existing trench.
- Replacing the septic tank with a secondary treatment unit.



#### 4. Design

The LAA available for drip irrigation is 345 m<sup>2</sup> which is equivalent to 345 m<sup>2</sup> x 2.25 ml/day = 776 litres/day.

This leaves a balance of 824 litres/day to discharge through the existing trench system.

This is considered reasonable on the basis that 824 litres/day is equivalent to 5.2 persons (824 divided by 160) or close to the three bedrooms that the system was originally approved for under U001384 and that there have been no visible or reported adverse environmental effects since.

Drip irrigation will require treatment to a secondary standard and therefore a further mitigation is that the trench will now be fed secondary treated effluent rather than primary. The trench will also be flood, not trickle, loaded.

For simplicity, we recommend that a two-way distribution valve be installed after the pump to split 50/50 between the drip irrigation area and the existing trenches. This will mean a maximum of 800 litres/day to the drip irrigation area (slightly more than the 776 litres as per design theory but insignificant) and slightly less than the 824 litres/day assigned to the trench, providing a further mitigation measure.

Refer to the design and drawings attached to this report.

#### 5. Risk Assessment

The following risk assessment follows the guidelines and recommendations in AS/NZS 1547:2012.

- Risk Reduction Measures (Table A1)

##### **Hydraulic Failure**

- Dual cisterns are installed
- There is a good topsoil depth
- The irrigation field is well vegetated
- The use of pressure dosing within the LAA will create an even distribution.

##### **Power Failure**

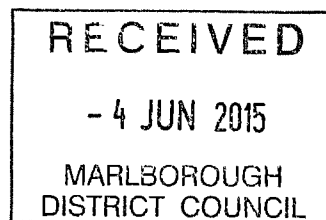
- The proposed system will have at least a 24 hour reserve storage capacity at full design flow.
- Emergency numbers are readily available

##### **Bacteria Washout**

- The hydraulics of the system has been specifically designed
- The treatment system is considered appropriate to the proposed pattern of use for the dwelling.

##### **Dispersive Soils**

- The soils are not dispersive.



### **Marginal Soil Conditions**

- The soils are not Category 6 (medium to heavy clays)
- The topsoil depth and vegetation cover is good
- A lower design irrigation rate has been used to take account of the slope
- The treatment is to a secondary standard
- The effluent is drip irrigated (50% of load)

### **Site Constraints**

- The area available for drip irrigation is restricted due to steep slopes and wet areas (runoff) so a combination of drip and existing trench (good performance noted) has been proposed
- Dual cisterns have been incorporated
- Pumped dosing will be used

### **Rainfall**

- The annual rainfall is greater than 1,400 mm and there are high rainfall events on occasion. However, the catchment above the LAA is insignificant.
- There is a good topsoil depth to assimilate stormwater.

### **Salinisation**

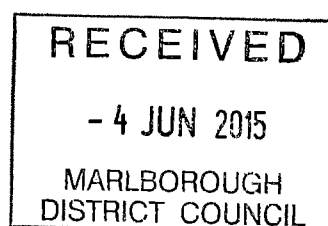
- No bare ground, salt crystals or salt tolerant plants were found to indicate evidence of salinity.
- There is no water table.

### **Highly permeable Soils**

- The soils are not free draining
- There is no permanent water table
- Shallow drip irrigation
- There is no domestic water take from an aquifer

- Slope (Table M2)

The slope at the LAA is about 25 - 30°. The DIR has been reduced by 25%.



- Setback Distances (Table R2)

The setback distances have been assessed by way of a weighting analysis (see Appendix) and can be summarised as follows:

Feature	Setback		Comment
	Assessed	Proposed	
Property Boundary	22 m	10 (existing)-30 m (drip) down gradient	Low risk
Building/House	3.7 m	9 m downhill (drip)	No risk
Surface Water	58 m	33 (existing)-53 m (drip)	Low risk
Bore/well	26 m	No bore/well in area	No risk
Recreational Areas	8 m	15 (existing)- 9 m (drip)	No risk
In-ground water tank	8.6 m	No in ground tank	No risk
Retaining wall cut within 3 m or 45°	3 m	> 3 m	No risk
Ground Water	900 mm	No groundwater	No risk
Hardpan/Bedrock	800 mm	> 800 mm from observations	No risk

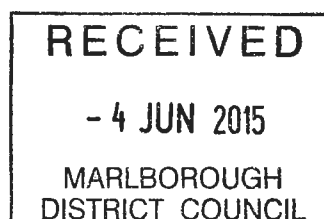
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**W L McGlynn**

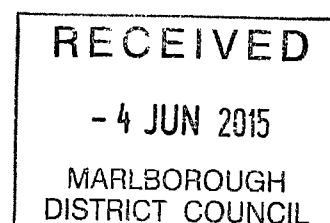
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## APPENDICES

1. Field Assessment Report
2. Design Check
3. Setback Risk Assessment
4. Wastewater Loading Certificate
5. Findlater PA 5 x 5 Treatment System
6. Drawings





**FIELD ASSESSMENT REPORT**

T and M Morrison  
Te Mahia

Job No  
Name  
Date

25780  
WLM  
25.05.15

REFS : 1 MDC, 11.07.05 "Guidelines for new on-site wastewater management systems"  
2 AS/NZS 1547:2012 "On Site Domestic Wastewater Management"

1 Soil log (depth from surface in mm)

2 Coarse Fragments (size / abundance)

3 Ribbon Length (mm)

4 Soil Structure (Pedal Content)

5 Soil Category (1 - 6)

6 Site Exposure to - sun  
- wind

7 Nearby Water Bodies ?  
- Separation Distance ?

8 Nearby Wells ?  
- Separation Distance ?

9 Runoff To Be Controlled ?

10 Ground Water To Be Controlled ?

11 Any Stability Considerations ?

12 Depth to Water Table

13 Vegetation Cover Existing ?  
- Proposed ?

14 Gravity Head to Proposed Disposal Field

15 Existing Systems Nearby - type  
- proximity  
- performance

16 Reserve Area Available ?

17 Intended Water Supply

18 Power Available?

19 Other Comments ?

Test Pit No.					
1		2		3	
300	Topsoil	300	Topsoil	100	Topsoil
	brown, firm, moist, gritty, sandy CLAY		brown, firm, moist, gritty, sandy CLAY		dark brown, firm, moist, fine, sandy CLAY
600		600		600	
occasional		occasional		occasional	
60		50-60		40-50	
high		high		high	
<b>5</b>		<b>5</b>		<b>4</b>	
<b>moderate</b>					
<b>moderate</b>					
no					
no					
no					
no					
old slip, but now inactive					
>> 2m					
young regenerating natives					
young regenerating natives					
no					
currently primary to trench					
~ 20m					
good					
minimal					
roof					
yes					
LAA will suit drip					
Continue to use trench but it will have 1/2 load and have secondary treatment					

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**On Site Wastewater Design**  
 Client T Morrison  
 Location Te Mahia  
 \_\_\_\_\_  
 FLOW ALLOWANCES

Job No 25780  
 Sheet No 1  
 Name WLM  
 Date 25.05.15

- REFERENCES :
- 1 ARC TP # 58 Third Edition
  - 2 AS/NZS 1547:2012 "On Site Domestic Wastewater Management"
  - 3 ON-SITE NewZ Special Report - 97/1
  - 4 MDC, 11 July 2005, "Guidelines for New On -Site Wastewater Systems"

		Appliance / Fixture per Capita Daily Flow Allowance				Total per Capita Flow (l/p/d)
		Toilet	Washing Machine	Shower	Basin (kitchen, bathroom, laundry)	
1	<b>Households with standard fixtures</b> (11 L wc, top loading washing machine)	60	25	85	30	120
		60	25	70	25	
	Blackwater only	60				
	Greywater only	60	25	85	10	
			20	65	5	
2	<b>Households with standard water reduction fixtures</b> (11/5.5 dual flush wc, shower flow restrictors, aerator taps and water conserving automatic washing machines)	40	20	80	25	40
		40	20	65	20	
	Blackwater only	40				
	Greywater only	40	20	80	10	
			15	60	5	
3	<b>Households with full water reduction facilities</b> (6/3 dual flush wc, shower flow restrictors, aerator taps, front loading washing machine and flow/pressure control valves on all water use outlets)	35	15	75	20	
		35	15	55	15	
	Blackwater only	35				
	Greywater only	35	15	75	10	
			10	55	5	
<b>Design wastewater flow per person per day</b>					<b>160</b>	
<b>Number of Bedrooms</b>					<b>5</b>	
<b>Equivalent Occupancy</b>					<b>10</b>	
<b>Design Daily Wastewater Allowance</b>					<b>1600</b>	

NOTES 1 Add 5 l/p/d for a bath  
 2 Figures in *italics* are for roof water supply. Other values are for creek, community and/or bore water supply (see also Note 6, Table H3, 1547).

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**On Site Wastewater Design**  
 Client T Morrison  
 Location Te Mahia  
 IRRIGATION DESIGN

Job No 25780  
 Sheet No 2  
 Name WLM  
 Date 25.05.15

1	DIR (Design Irrigation Rate)			
	Soil Category	5		
	DIR	3	25% reduction, $DIR_{design} =$	2.25 mm/day
2	Field Area	Irrigation field area = Daily Flow x 50% / (DIR) =		356 m <sup>2</sup>
			make	345 m <sup>2</sup>
3	Irrigation Field design			(max area available)
	Emitter type	Netafim Raam 17		
	Emitter flow rate	1.6 litres/hr		
	Emitter spacing	0.5 m		
	Dripline spacing	1.0 m		
	Dripline ID	14.2 mm		
	Total drip line length	345 m		
	No. of sectors	1		
	Drip line length/sect	345 m		
	Max lateral length	15 m		
	Submain length	23 m		
	Submain ID	26.9 mm	32 dia MDPE Greenline	
	Rising main length	58 m	35+23=58m	
	Rising main ID	26.9 mm	32 dia MDPE Greenline	
	Elevation of rising main	2.0 m, including depth to IL at treatment plant		
4	Flows	Flow rate	= $\frac{\text{length} \times \text{emitter flow rate}}{\text{emitter spacing}}$ =	1104 litres/hr
		(in rising and submain)		0.3 litres/sec
		Lateral flow rate	=	48 litres/hr
				0.01 litres/sec
5	Head	To open emitter	5.0 m	min. head req'd
		Reserve head	5.0 m	
		Lateral	0.0 m	Lamonts eqn
		Submain	0.4 m	
		Sequencing Valve ?	yes 1.0 m	2 way
		Rising Main	1.0 m	
		Water meter	1.2 m	
		Filter	3.0 m	semi-blocked filter
		Elevation	2.0 m	
		Total	18.6 m	
		say	20 m	
6	Pump	Hence the Pump Duty is	1104 l/hr	
			<b>18 l/min at 20 m head</b>	
			0.3 litres/sec	
	Pump chamber size	Dose vol.	300	
		Reserve	1600 litres (min.)	
			1900 litres	

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**SETBACK RISK ASSESSMENT**  
 re : AS/NZS 1547:2012, TABLE R1 (Weighted Assessment)  
 T Morrison  
 Te Mahia

Job No 25780  
 Name WLM  
 Date 27.05.15

SITE FEATURE	SETBACK(m)		SITE CONSTRT ITEM	SCORE (0 - 4) low-best high-worst	WEIGHTED SETBACK (m)	COMMENTS
	min	max				
Property Boundary	1.5	50.0	A	1	21.7	The effluent is secondary treated > 30% , some risk of off site export but no erosion risk Subsurface irrigation method
			D	3		
			J	1		
			<b>TOTAL</b>	<b>5</b>		
Building/houses	2.0	6.0	A	1	3.7	The effluent is secondary treated > 30% , some risk of off site export but no erosion risk Subsurface irrigation method
			D	3		
			J	1		
			<b>TOTAL</b>	<b>5</b>		
Surface water	15.0	100.0	A	1	57.9	The effluent is secondary treated Cat 5 soil 35 - 55 m from the sea > 30% , some risk of off site export but no erosion risk house and recreational area downgradient Cat 5 soil but no seepage or groundwater, low pollution haz No flooding risk Subsurface irrigation method
			B	2		
			D	3		
			E	3		
			F	2		
			G	0		
			J	1		
			<b>TOTAL</b>	<b>12</b>		
Bore, well	15.0	50.0	A	1	25.9	The effluent is secondary treated Cat 5 soil and no groundwater Cat 5 soil, low porosity soils, no groundwater, v low groundwater pollution risk Subsurface irrigation method
			C	2		
			H	1		
			J	1		
Recreatnl areas	3	15	A	1	8.0	The effluent is secondary treated house and recreational area downgradient Subsurface irrigation method
			E	3		
			J	1		
			<b>TOTAL</b>	<b>5</b>		
In-ground water tank	4	15	A	1	8.6	The effluent is secondary treated house and recreational area downgradient Subsurface irrigation method
			E	3		
			J	1		
			<b>TOTAL</b>	<b>5</b>		
Ret. wall, embankm, escarpmt, cuttings	3 or > 45°		D			> 30% , some risk of off site export but no erosion risk No flooding risk Cat 5 soil, low porosity soils, no groundwater, v low groundwater pollution risk nothing within 3 m
			G			
			H			
Ground water	0.6	1.5	A	1	0.9	The effluent is secondary treated Cat 5 soil and no groundwater Cat 5 soil but no seepage or groundwater, low pollution haz Cat 5 soil, low porosity soils, no groundwater, v low groundwater pollution risk Side slope, no concentration of surface waters, sheds runoff Subsurface irrigation method
			C	2		
			F	2		
			H	1		
			I	1		
			J	1		
			<b>TOTAL</b>	<b>8</b>		
Hardpan, bedrock	0.5	1.5	A	1	0.8	The effluent is secondary treated Cat 5 soil and no groundwater Subsurface irrigation method
			C	2		
			J	1		
			<b>TOTAL</b>	<b>4</b>		

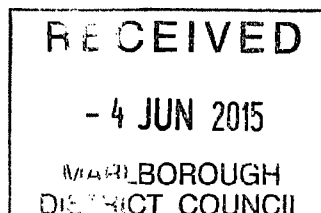
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Our Ref: 25780

May 2015

## WASTEWATER LOADING CERTIFICATE

- **Location** 88 Te Mahia Road, Te Mahia
- **Owner** T and M Morison
- **Number of Bedrooms** 5
- **Equivalent Number of People** 10
- **Maximum Daily Wastewater Output** 1600 litres (160 l/p for 10 people)
- **Wastewater Reduction Facilities**
  - Standard dual flush water closets
  - No baths
- **Treatment System** Findlater PA 5 x 5 Aerated secondary treatment system
- **Land Application System** 50% to existing trench (dose loaded) and 50% to drip irrigation field  
Trench length unknown (existing)
- **Distribution** Two way sequencing valve to split 50% (K-Rain 4200)
- **Drip Field Area** 345 m<sup>2</sup>
- **Overloading the System** Overloading the system may result in:
  - Inadequate treatment and/or odour
  - Saturation of the soil in some areas of the land application area (LAA)
  - Seepage from the LAA
  - Odour from the LAA
  - Spread of infectious diseases
  - Breeding of mosquitoes and attraction of flies and rodents
- **Good Practice** To keep the bacteria working in the treatment system and LAA:
  - Use biodegradable soaps
  - Use low-phosphorus detergent
  - Use detergents in recommended quantities
  - Don't use powerful bleaches, whiteners, nappy soakers, spot removers and disinfectants, and
  - Don't put oil, chemicals or paints down the drain



Davidson Ayson House, 4 Nelson St  
PO Box 256, Blenheim 7240, NZ  
T: 03 579 2099 / F: 03 578 7028  
E: service@DavidsonGroup.co.nz  
W: DavidsonGroup.co.nz  
Principals  
Ross Davis, BE, CPEng, MIPENZ  
Stephen Sheat, BE, CPEng, MIPENZ  
Leigh McGlynn, BE, CPEng, MIPENZ

# Findlater PA 5x5

## Aerated Wastewater System

### Technical Booklet

PA 5X5 AERATED WASTEWATER SYSTEM  
TECHNICAL BOOKLET

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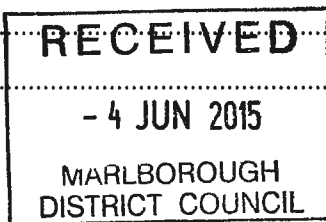
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# Findlater PA 5x5 Aerated Wastewater System

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## 1. Introduction

With the help of industry leading process engineers, overseas component suppliers and our own practical experience we have designed the **Findlater PA 5x5** aerated wastewater system. The system has been designed without compromise to be a simple, robust and low maintenance domestic aerated wastewater system that uses only quality components.

Our system utilises the latest proven aerated wastewater system technologies and is housed in two durable 5,000 litre concrete tanks.

## 2. Key Features

- Two tank system with a large working volume.
- Orenco Bio Tube outlet filter.
- Low noise level Nitto piston air pump.
- Quality disc type fine air diffusers – Each independently adjustable.
- Superior Bio Blok media – Specifically engineered for aerated wastewater systems.
- Industry standard Davey D42A/B-3 pump-out chamber pump.
- Electrical controller
  - Programmable air pump timer - Run air pump as required.
  - Both audible and visual alarms are part of the controller mounted on top the tank.
  - Air and Pump-out chamber pumps plug into normal household sockets, so there is no need for an electrician when replacing either pump.
- Primary wastewater cannot overflow into other chambers as it is in its own separate tank.
- Easy to install - As tanks can be lifted by a 12 t digger - Handy on difficult or remote sites.
- Low invert level 1.625 m – Makes installation easy, great for high water table sites.
- Concrete tanks that won't rupture, tear, crush, warp or puncture like plastic or fibreglass tanks.
- Easily transportable on trucks 2.4 m long x 1.5 m wide.
- Two large access points which can be extended using standard concrete manholes and concrete pipes.
- A service person following correct *confined spaces safety practices* for wastewater tanks can easily enter all tank chambers, should this ever be required.
- All components can be removed and replaced through the access points.
- All chambers have large working volumes to ensure a robust waste water treatment process.
- Low long term ownership costs – Not just short term power saving costs.

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## 3. How the System Works

### 3.1 Tank 1 - Primary Tank

This tank is divided into two chambers by a longitudinal division wall, which creates a long flow path two sided primary treatment tank.

Household wastewater flows into the first half of this tank where under quiescent conditions the settle-able solids sink to the bottom of the tank to form a sludge layer. Oil, greases and other light materials float to the surface, where a scum layer forms as floating materials accumulate. The organic material on the top and bottom of the tank undergoes facultative and anaerobic decomposition and is converted into more stable compounds and gases. While the sludge layer in the bottom of the tank will eventually decompose biologically, it will still need to be periodically emptied due to the gradual build up and very slow decomposition.

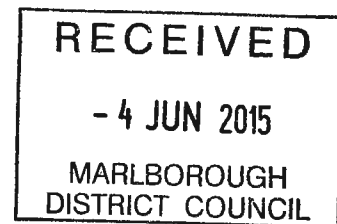
In the second half of this tank, liquid wastewater from the first half comes into contact with recycled wastewater from the end of the process. This assists with reducing the nitrogen content of the treated effluent.

All wastewater leaves through the outlet filter.

### 3.2 Tank 2 - Secondary Tank

This tank is divided into four large chambers

- Aeration chambers 1 & 2
- Clarification chamber
- Pump-out chamber



Wastewater from the primary tank enters *aeration chamber 1*, it then flows down through the Bio Blok media and enters *aeration chamber 2*. Here in *aeration chamber 2* the wastewater then flows up through the Bio Blok media, before flowing into the *clarification chamber*. After this, the wastewater flows into the *pump-out chamber*.

### 3.3 Aeration Chamber 1 & 2

Each aeration chamber has a disc type fine air diffuser located centrally below the media. Air is pumped through the diffusers, creating fine air bubbles that rise through the media. This process mixes the wastewater and provides oxygen, whilst still keeping the solids in suspension. Naturally occurring bacteria, which require oxygen to grow, form a biomass on the media. Through an aerobic biological oxidation process, these microorganisms consume the oxygen and wastewater pollutants, which reduce the levels of bio-chemical oxygen demand (BOD), suspended solids (SS) and ammonia (NH<sub>3</sub>) in the wastewater. As the bacteria die they fall off the media and flow through to the clarification chamber.

### 3.4 Clarification Chamber

Here the wastewater settles and the solids collected at the bottom of the chamber are returned to second half of the primary tank to reduce nitrogen levels in the wastewater (through a process called denitrification). The wastewater finally flows up through a circular weir to the pump-out chamber.

### 3.5 Pump-out Chamber

Here the wastewater can settle out again before being pumped out, via a 130 µm (micron) disc filter to some form of land disposal system, usually in the form of effluent drip line.

## 4. Biological Performance and AS/NZS Standards

The Findlater PA 5x5 waste water system has been designed to meet or exceed the following performance standards:

### 4.1 Biological

5-day Biological Oxygen Demand	BOD <sub>5</sub>	20 g/m <sup>3</sup>
Total Suspended Solids	TSS	30 g/m <sup>3</sup>
Total Nitrogen	TN	25 g/m <sup>3</sup>

### 4.2 AS/NZS Standards

Tanks	AS/NZS 1546.1	: 2008
On Site Domestic Wastewater Treatment Units		
Aerated Wastewater Treatment Systems	AS/NZS 1546.3	: 2008
On-site Domestic Wastewater Management	AS/NZS 1547	: 2012

## 5. Daily Loading Rates

Please contact us for further information if you have any questions regarding Daily Loading Rates.

### 5.1 Recommended Daily Loading Rates

- 6 to 8 people
- 1600 litres per day

## 6. Findlater PA 5x5 System Tank Volumes, Dimensions and Weights

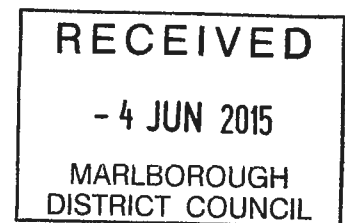
Both primary and aeration tanks have internal volumes of 5,000 litres each.

### 6.1 Primary Tank

- Working volume	4,200
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### 6.2 Secondary Tank

- Aeration chamber 1 working volume	830
- Aeration chamber 2 working volume	811
- Clarification chamber	1,360
- Pump-out chamber	<u>960</u>
	8,161 litres
Emergency storage capacity in Tank 2	1,039 litres



### 6.3 Dimensions

Each tank has external dimensions of 2.4 m long x 1.485 m wide x 1.9m high (excluding access turrets which are usually another 0.5 m higher than the top of the tank lid).

## 6.4 Weight

Each tank weights approximately

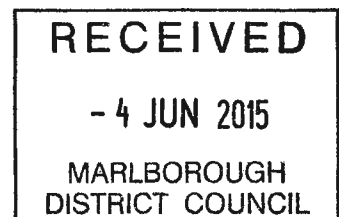
3.6 Tonnes when empty

## 7. Key Component Specifications

- 5,000 litre reinforced 35 MPa concrete tanks and lids manufactured in our factory
- Orenco Bio Tube septic tank filter
- Nitto 80 litre/minute piston air pump
 

Model	LA80B
Power	86 Watts
- Bio Blok 200 media
- Environmental Dynamics International 9" disc fine air diffusers
- Programmable electrical controller from Taylex Industries
- Findlater Construction designed clarification chamber outlet weir
- Davey D42A/B S/S pump
 

Amps	4.0 A
Input	0.9 kW
Output	0.6 kW
Max. Flow	130 L/min.
Max. Head	30 m
- Azud 130 micron disc filter, 50mm outlet and inlet



## 8. System Power Usage

### 8.1 Nitto LA80B Air Pump

#### 86 Watts

Under normal operation this pump will run continuously, but it can be programmed by use of the electrical controller to run less frequently if required.

### 8.2 Davey D42 A/B Pump-out Chamber Pump

#### 0.9 kW

This pump will only run on demand when the pump-out chamber requires emptying, and will not have a significant effect on the systems overall power usage.

## 9. Warranties

The electrical controls, air and pump-out chamber pumps have a two year full replacement warranty.

## 10. Maintenance

When the system is first installed it **must** be filled with fresh water and commissioned by a trained service person. They will check that the system is working correctly and make adjustments as required. This will ensure that the system gets off to the best possible start.

### 10.1 Maintenance (Cont.)

It is important that the system be maintained regularly at six monthly intervals by a trained service person. The Local Regularity Authority will usually require any owner of this type of system to enter into a service contract with an experienced service provider.

When servicing the system the service provider must follow our detailed check list to ensure the system is operating correctly. They will also clean parts of the system, make adjustments and report on the overall condition of the system.

**Normally three copies of this service check list are required:**

- Firstly, one for Findlater Construction’s records.
- One is sent to the system owner along with the service invoice.
- Another is usually sent to the Local Regularity Authority. This is quite often a condition of the Consent the Local Regularity Authority approved when the system was first installed. It could also be part of a Resource or Discharge Consent.

It should be noted that a lot of consents to install wastewater systems now only run for a prescribed time, quite often 15 years, after which the wastewater system owner has to apply to renew the consent.

## 11. OSET NTP Trial 8 (2012-2013) Rotorua

This system is entered in the 8<sup>th</sup> On-Site Effluent Treatment National Testing Programme (OSET NTP) trial being held in Rotorua. Operation will commence in October 2012, with testing taking place in November 2012. Initial results from the trial should be available by the end of 2012.

If after the testing, it is deemed that system modifications are required to meet the standards specified above, we would naturally make these modifications standard on new systems and retrofit these changes to any existing systems.

## 12. Contact Us

### 12.1 Office and Factory

**Mailing address**

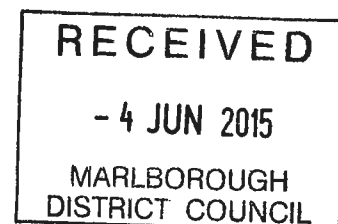
Findlater Construction Ltd  
 32 Timandra Place  
 BLENHEIM 7201

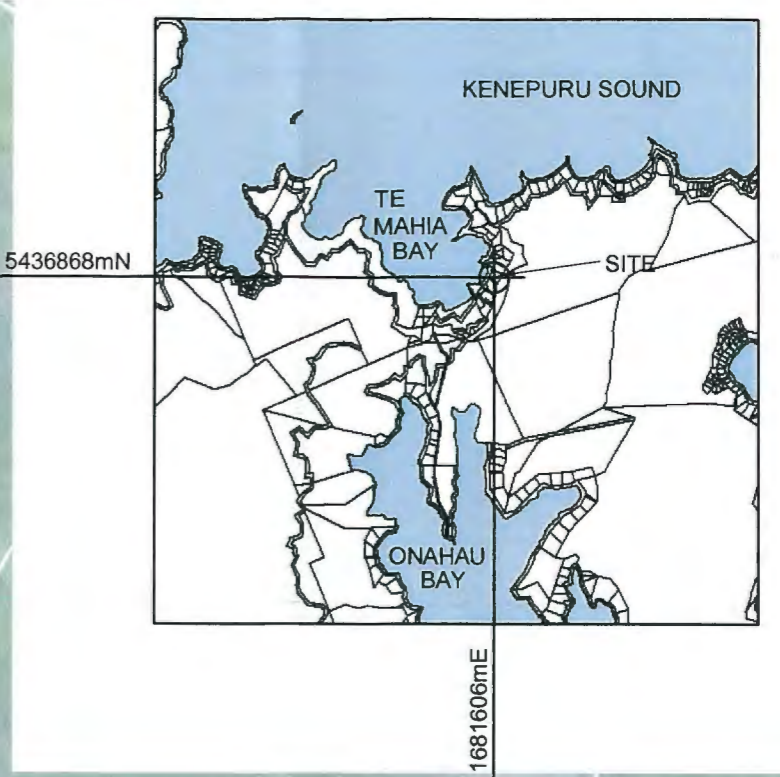
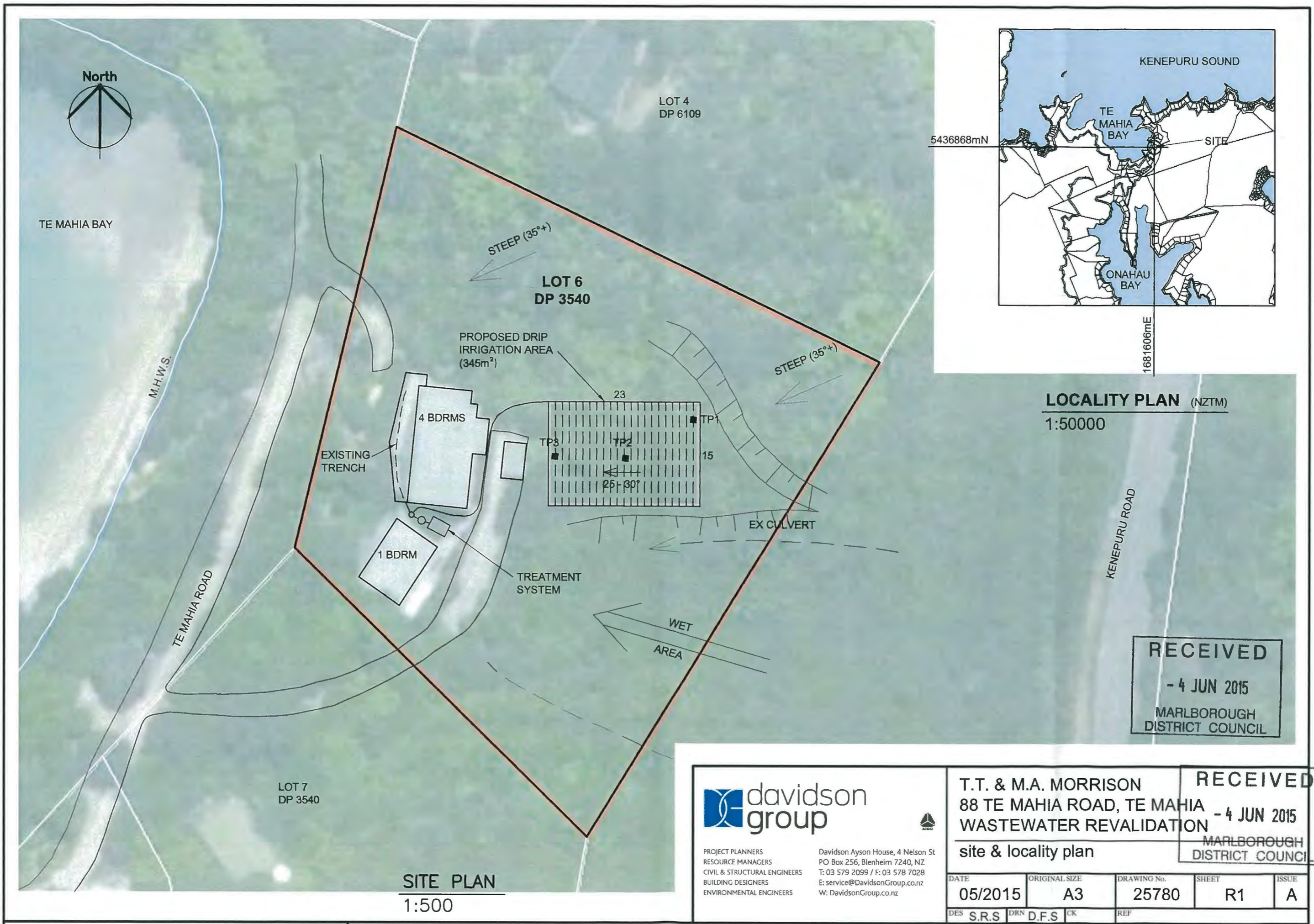
**Phone support**

Phone (+64) (0)3 579 2284  
 Fax (+64) (0)3 579 2285

**Online**

Email [office@findlaterconstruction.co.nz](mailto:office@findlaterconstruction.co.nz)  
 Website [www.findlaterconstruction.co.nz](http://www.findlaterconstruction.co.nz)





**LOCALITY PLAN (NZTM)**  
1:50000

**RECEIVED**  
- 4 JUN 2015  
MARLBOROUGH  
DISTRICT COUNCIL

**RECEIVED**  
- 4 JUN 2015  
MARLBOROUGH  
DISTRICT COUNCIL

**SITE PLAN**  
1:500

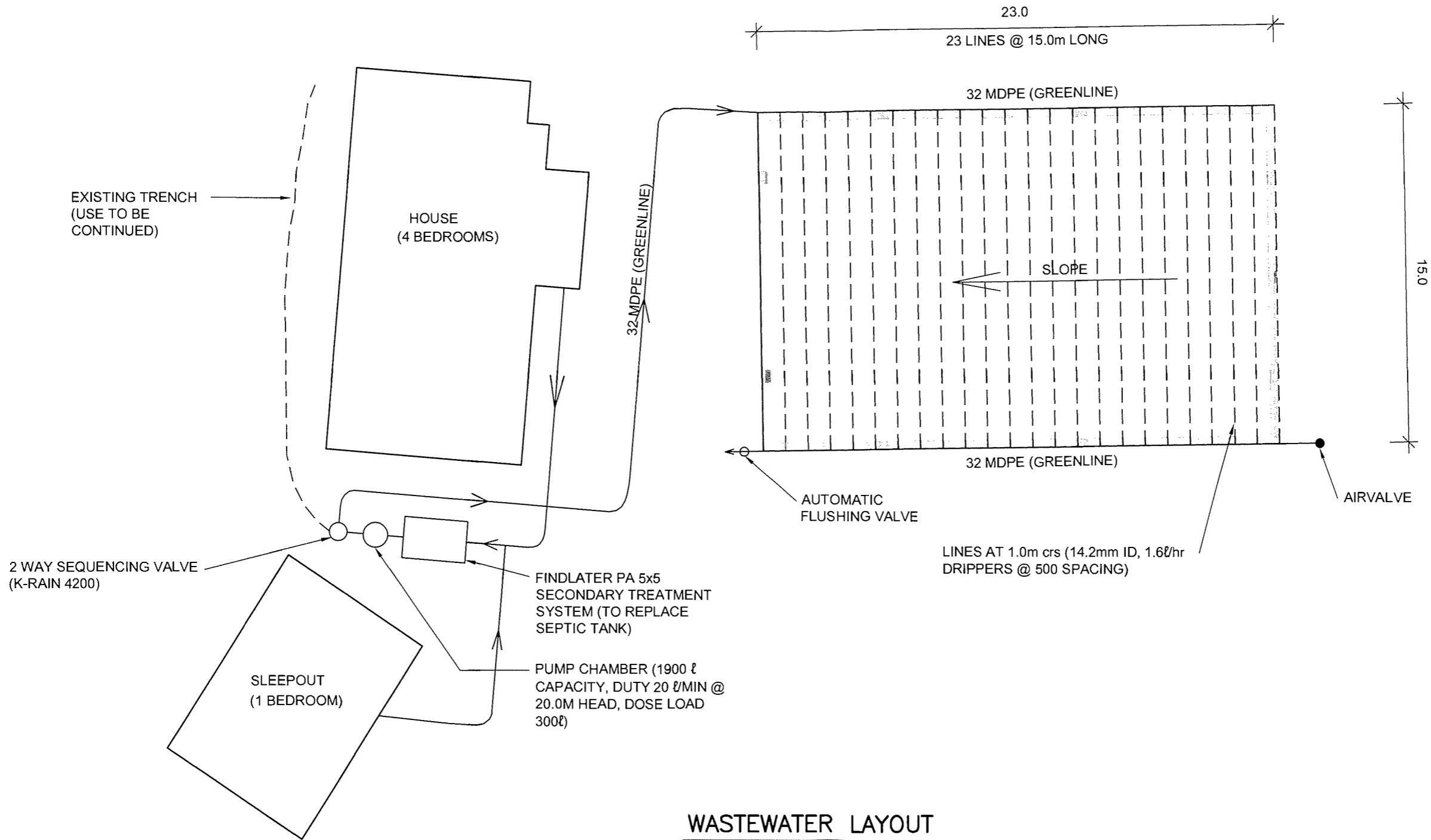


PROJECT PLANNERS  
RESOURCE MANAGERS  
CIVIL & STRUCTURAL ENGINEERS  
BUILDING DESIGNERS  
ENVIRONMENTAL ENGINEERS

Davidson Ayson House, 4 Nelson St  
PO Box 256, Blenheim 7240, NZ  
T: 03 579 2099 / F: 03 578 7028  
E: service@DavidsonGroup.co.nz  
W: DavidsonGroup.co.nz

**T.T. & M.A. MORRISON**  
88 TE MAHIA ROAD, TE MAHIA  
WASTEWATER REVALIDATION  
site & locality plan

DATE	ORIGINAL SIZE	DRAWING No.	SHEET	ISSUE
05/2015	A3	25780	R1	A
DES S.R.S	DRN D.F.S	CK	REF	



**WASTEWATER LAYOUT**  
N.T.S.

**RECEIVED**  
- 4 JUN 2015  
MARLBOROUGH DISTRICT COUNCIL

**Davidson group**

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T.T. & M.A. MORRISON  
88 TE MAHIA ROAD, TE MAHIA  
WASTEWATER REVALIDATION

wastewater layout

DATE	ORIGINAL SIZE	DRAWING No.	SHEET	ISSUE
05/2015	A3	25780	R2	A
DES S.R.S	DRN D.F.S	CK	REF	