ONSITE WASTEWATER DESIGN REPORT SITE/SOIL EVALUATION

1.0 PROJECT	PROJECT LOCATION	**Old Mill Road, Okiwi Bay**
	LEGAL DESCRIPTION	Lot 17 DP 19155
	SIZE OF LAND (ha)	0.152hectares
	SITE OWNER	B Large
	CONTACT NUMBER	TBC
	EMAIL ADDRESS	BJLarge@xtra.co.nz
	ARCHITECT/DESIGNER	TBC
	CONTACT NUMBER	TBC
	EMAIL ADDRESS	TBC
	BC/RC REFERENCE	TBC
	PROJECT DESCRIPTION	Proposed 3 bedroom dwelling and onsite wastewater and land application system.
2.0 SYSTEM CAPACITY	**WATER SUPPLY**	Okiwi Bay Scheme
	AS/NZS1547-2012 Table H3	
	Number of Habitable Rooms - RESIDENTIAL	3
	Number of Persons	6
	Flow Allowance per Person (L/person)	165
	TOTAL FLOW ALLOWANCE RESIDENTIAL (L/day)	990
	NOTES:	Assume water supply based on notation on property file. Roof supply is an option and will reduce the footprint of the system if utilised.
	RECOMMENDED WATER REDUCTION MEASURES	6/3 flush WC; aerator taps or restrictors; water save fittings and fixtures complying with: *4.5 star WELS dishwasher and washing machine* *3 star or better WELS shower head* *5 star WELS kitchen and bathroom tapware* *4 star or better WELS toilets*
	SPECIFIED WATER RE-USE MEASURES	None
3.0 DESKTOP	RESOURCE MANAGEMENT	MSRMP
	SECTION	36.3.4
	NOTES	Previous resource consent granted and lapsed U071253
	GEOTECH REPORT REVIEWED	
	REPORT AUTHOR	Swanney Geotechnical
	REPORT REFERENCE	r01-119ijs
	NOTES	Category 4 soil identified and land application area sited for purpose.
	RAINFALL (NIWA)	
	Rainfall intensity (mm)	90
	Rainfall annual - previous 12 months (mm)	1250 (estimate)

4.0	DATE	1/08/2017
SITE VISIT	Site Exposure	northeast exposure to sun and wind
	LAND USE	
	Previous if known	bush land
	Ground cover	grass
	Existing Vegetation near LAS Area	native and exotic trees and shrubs
	Any Proposed Landscaping	none as part of this design
	SURFACE WATER	
	Directional channelling required?	no
	Potential for flooding of LAS Area?	no
	Highest seasonal groundwater level?	>2m
	Groundwater level determined how?	existing excavation showing no sign of ground water
	IDENTIFIED LAND APPLICATION AREA	
	Slope average (˚ and %)	20%
	Slope Reduction	n/a
	Slope shape Potential LAS Area	linear
	NOTES:	flat area identified by Swanney Geotechnical for wastewater system use.
	SETBACK DISTANCES MINIMUM REQUIRED & ACHIEVED	
	(AS/NZS1547-2012 Appendix R)	
	Property Boundary	2m minimum
	Buildings/Houses	2m minimum
	Surface Water	reduced to 5m minimum
	Well/Bore if known	n/a
	Recreational Area	3m minimum
	In Gound Water Tank	n/a
	Retaining Wall/Embankment	3m minimum
	Gound water	0.6m vertical minimum
	Hardpan	0.5m vertical minimum
	DESCRIPTION OF ADJACENT WWLA SYSTEM	LAS will be down slope of creek therefore a reduction in separation can be achieved without impact on the creek.

5.0	TEST PIT ONE	
SOIL	Type of Test Pit	cut excavation
TESTING	Depth of Test Pit (m)	2m
see soil logs for	Depth of Topsoil (m)	0.2m
detail	Recommended Depth of Land Application System	0.2-0.8m
	Soil type	Clay Loam
	Category	4
	TEST PIT TWO	
	Type of Test Pit	cut excavation
	Depth of Test Pit (m)	1.5m
	Depth of Topsoil (m)	0.2m
	Recommended Depth of Land Application System	0.2-0.8m
	Soil type	Clay Loam
	Category	4

	SOIL PROFILE PHOTO	SOIL PROFILE PHOTO
		
	RECOMMENDED DESIGN LOADING RATE (mm/day)	20mm/day
	NOTES:	moderate structured clay loam secondary treatment at 30mm/day. However AES Design calculations use 20mm/day for Cat 4.
6.0 Design Calculations	**System Capacity**	
	Number of Persons	6
	Flow Allowance/Person	165
	Daily Flow Allowance	990
	Land Application Area	
	Daily Flow Allowance L/Day	990
	Design Loading Rate mm/day	20
	Total Land Application Area m²	49.5
7.0	SYSTEM TYPE	AES Single Pass Sand filter
	NOTES:	
LAND APPLICATION SYSTEM	LOADED BY	trickle
	NUMBER OF DOSES	n/a
	SIZE OF DOSE (litres)	n/a
	LAS INSTALLATION	
	Average Depth of LAS (m)	0.8m
	Diameter of effluent lines (mm)	300
	Distance between effluent lines (m)	0.3
	Individual Trench/Bed Width (m)	3.27m
	Individual Trench/Bed length (m)	12.6m
	Total Lot Area (ha)	0.152hectares
	Land Application Area calculated at (m²)	49.5m²
	Reserve Area (m²)	49.5m²
	RA Reduction Notes:	Not Applicable

	Compliance with AS/NZS1547:2012 5.5.3.7	Landscaping or fence around Land Application Area to prevent occassional foot traffic and allow reinstatement of soil and access for mowing if required. Vehicle and animal traffic to be prohibited by landcaping or fence whichever is relevant.
	Land Application Area to be planted (Y/N)	Not as part of this design
	Plant density (per m^2)	n/a
8.0 WASTE WATER SYSTEM	WASTE WATER SYSTEM	
	PRIMARY TREATMENT Table J1	3500L Septic tank without filter
	SECONDARY TREATMENT	AES Single Pass Sand Filter
	TERTIARY TREATMENT	n/a
	SYSTEM DESCRIPTION (Material/In Ground)	Precast Concrete in ground tank
	DESIGN DAILY FLOW RATE (L/DAY)	825
	EFFLUENT QUALITY EXPECTED	
	BOD_5 mg/L	≤ 20
	TSS mg/L	≤ 30

9.0 AEE

A description of the sensitivity of the receiving environment, in particular the potential for the proposed system to have any impact on ground and surface water and/or Identify the location of any downstream bores and any potential adverse effects coastal water quality.

The effects of discharging domestic wastewater to land will be no more than minor given the wastewater management system has been designed to comply with the requirements of AS/NZS 1547:2012. The nearest waterbody being a creek is 5 metres however is up slope of the AES bed system and will not be affected by the system. The groiundwater at >2m. The soil depth and characteristics are sufficient to allow for the breakdown of the wastewater without actual or potential accumulated adverse effects. No potential or actual adverse effects have been identified as part of the site and soil assessment.

Details of seasonal fluctuations in flows and how this may affect the seasonal or long term performance or capacity of the system

The system will be subject to seasonal fluctuations with the warmer months receiving the mose use. The AES bed system is not affected by the fluctuations in flow and therefore the long term performance will not be affected.

Details of any proposed mitigation/contingency measures to be undertaken to help prevent or reduce the actual or potential effect

No mitigation measures deemed necessary as no potential or adverse effects identified.

Any possible alternative methods of discharge, including discharge into any other receiving environment

Irrigation has been considered as an alternative land application system, however the size of the field meant potentially less outdoor living space.

Where the scale or significance of the activities effect are such that monitoring is required a description of how, once the proposal is approved effects will be monitored and by whom

No additional monitoring other than that required by AES manufacturer is required for this system day to day. The installer shall be contracted to monitor it's operation and performance annually.

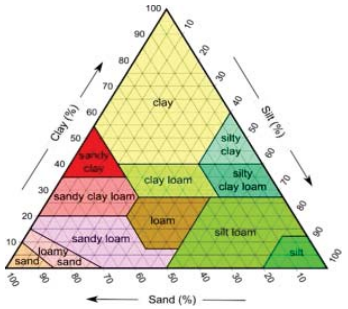
10.0 INSTALLATION SUMMARY	Install a 3500L precast in ground concrete septic tank discharging through a 3.93m x 12.6m (49.5m) AES Single Pass Sand Filter direct to ground.
11.0 OPERATION & MAINTENANCE SUMMARY	Operate and maitain as per manufacturers recommendations and in accordance with AS/NZS1547:2012 and any GSC manuals provided.
12.0 REFERENCES	AS/NZS 1546.1:2008 Onsite Domestic Wastewater Treatment Units Part 1: Septic Tanks AS/NZS 1546.3:2008 Onsite Domestic Wastewater Treatment Units Part 3: Aerated Wastewater Treatment Systems AS/NZS 1547:2012 Onsite Domestic Wastewater Management Onsite Wastewater Systems: Design and Management Manual Third Edition ARC Technical Publication TP58 USEPA Onsite Wastewater Treatment Systems Manual 2002 New Zealand Building Code
	Gary Stevens Consultant  17/08/2017
	ATTACHMENTS: SOIL LOGS WWLA Location (WW,LAA, RA, TP, Setbacks) LAS System Cross Section System Operation & Maintenance Best Practise Technical Specifications Maintenance Contract

Client name: Large

Project Location: Old Mill Road, Okiwi Bay

Date of inspection: 1/08/2017

Pit/borehole no: 1



Legal Descr. Lot 17 DP 19155
Grid reference if known: E N
Surface level if known: R L

Slope: 18 % **Slope shape:** linear **Ground cover:** grass removed **Surface condition:** firm/dry

Vegetation: established trees and shrubs adjacent creek

Groundwater depth (m): >2m
Verified by: excavation
Indicative drainage: imperfect

Layer	Lower depth mm	Horizon	Moisture condition*	Colour (moist)	Field texture	Coarse fragments % volume	Structure	Modified Emerson	Soil category	Sample taken (Y/N)	Consistency	Permeability	Ribbon Length
1	200		dry		L	20		NT	3	N	weak	NT	25
2	700		dry		CL	40	moderate	NT	4	N	firm	NT	40
3	2000		dry		CL	20	moderate	NT	4	N	v firm	NT	50
4													
5													

**Describe moisture condition as: dry, moist, very moist, saturated.*

Overall Soil Category assigned: category 4

Maximum depth of system: 0.8m

Soil appears favourable for (List system types): Irrigation, effluent Bed, LPED

Notes/comments/observations: Existing excavations on site terracing building platform and outdoor living space. The slope averages at 20% however large flat areas have been created. Varying percenatges of gravels however evident throughout the soil structure.

Soil Colours	
Pale	*may develop from pale rocks, maybe leached from darker minerals, maybe anaerobic*
Dark	*may develop from dark rocks (basalts), may indicate high levels of decomposing organic materials*
Bright Reds	*usually well aerated soil, high in iron or aluminium oxide*
Dull Yellows	*formed when iron rich soils have a higher water content over a long period*
Grey Soils	*maybe leached off dark minerals, low organic matter levels or maybe anaerobic for long periods*
Bleached Soils	*usually formed by severe water logging when minerals become soluble and move out of the horizon*

Client name: Large

Project Location: Old Mill Road, Okiwi Bay

Date of inspection: 1/08/2017

Pit/borehole no: 2

Legal Descr. Lot 17 DP 19155
Grid reference if known: E N
Surface level if known: R L

Slope: 20 % **Slope shape:** linear **Ground cover:** grass removed **Surface condition:** firm/dry

Vegetation: established trees and shrubs adjacent creek

Groundwater depth (m): >2m
Verified by: excavation
Indicative drainage: imperfect

Layer	Lower depth mm	Horizon	Moisture condition*	Colour (moist)	Field texture	Coarse fragments % volume	Structure	Modified Emerson	Soil category	Sample taken (Y/N)	Consistency	Permeability	Ribbon Length
1	200		dry		L	30		NT	3	N	weak	NT	25
2	800		dry		CL	40	moderate	NT	4	N	firm	NT	50
3	2000		dry		CL	20	moderate	NT	4	N	v firm	NT	50
4													
5													

**Describe moisture condition as: dry, moist, very moist, saturated.*

Overall Soil Category assigned: category 4

Maximum depth of system: 0.8m

Soil appears favourable for (List system types): Irrigation, effluent Bed, LPED

Notes/comments/observations: Existing excavations on site terracing building platform and outdoor living space. The slope averages at 20% however large flat areas have been created. Varying percenatges of gravels however evident throughout the soil structure.

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17 August 2017

Producer Statement - Design number BL-01 has been issued by ***Gary Stevens*** to Mr B Large in respect of the following project:

Project Description	On-site Wastewater & Land Application System
Street Address	Old Mill Road, Okiwi Bay
Legal Description	Lot 17 DP 19155

Gary Stevens has been engaged by Mr B Large to provide design services in respect of the requirements of AS/NZS 1547:2012 for work only as specified. The design has also been prepared in accordance with objectives of the New Zealand Building Code.

The work is described on Gary Stevens Report on Wastewater & Land Application System and associated drawings.

Gary Stevens Consultant

Inspection Schedule

This inspection schedule must accompany Producer Statement of Design number BL-01 issued by **Gary Stevens.**

The following inspections are required to verify the proposed work has been completed as described on **Gary Stevens** Report on Wastewater & Land Application System and drawings and the specification and other documents according to which the building is proposed to be constructed.

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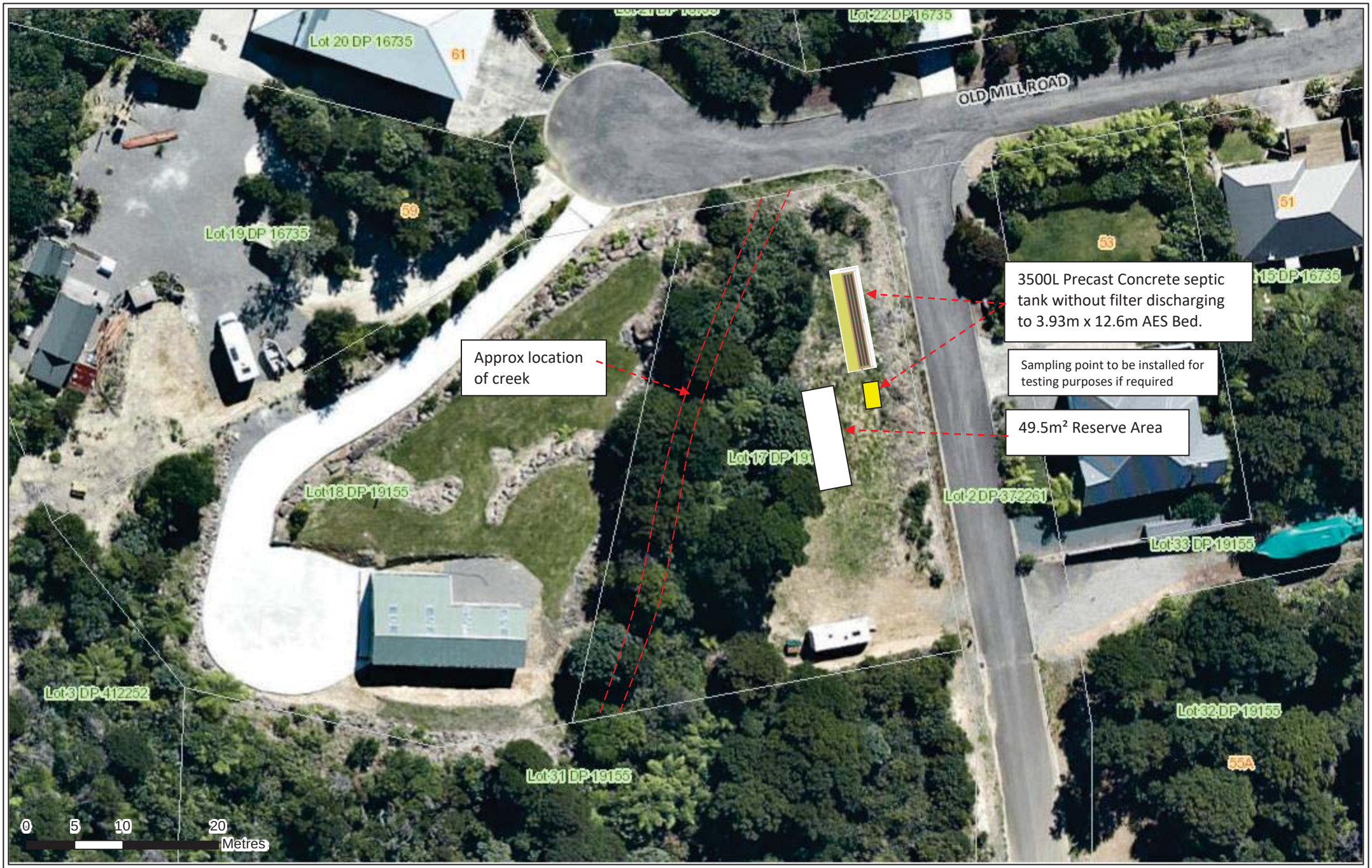
1. *Inspect Installation of Primary septic tank without effluent filter.*
2. *Inspect installation of AES effluent bed land application system.*
3. *Check operation & Maintenance schedule is appropriate for this system.*



Old Mill Road

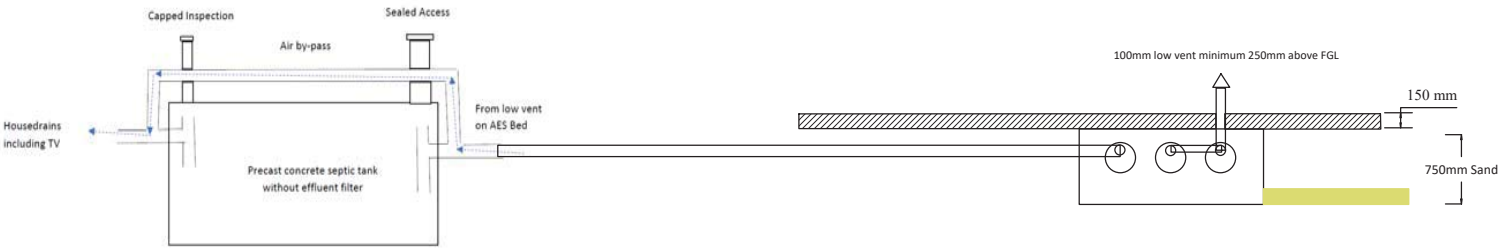
1:500

8/ 17/2017

MARLBOROUGH DISTRICT COUNCIL SMART MAPS

12.6m x 2.13m extension

By-pass installed to side of inspection points on tank.



Old Mill Road AES Bed Layout and Cross Section Scale 1:75 August 2017 Drawn by GSC

Advanced Enviro-septic™
Basic Design and Installation Manual

New Zealand Distributors
Environment Technology Ltd
14 Onekaka Iron Works Rd
Takaka 7182
(03) 9707 979
www.environmenttechnology.co.nz
info@et.kiwi.nz

Technical support
Environment Technology provides technical support to all individuals using Presby Environmental products. For questions about products or the information in this manual, please phone 03 9707 979 or email
info@et.kiwi.nz

Further information can be found at the Australasian website www.enviro-septic.com.au

Section A
Introduction

Background

Advanced Enviro-Septic™ is a passive Advanced Secondary Wastewater Treatment System tested as producing treated effluent of BOD(mg/L) ≤10 and TSS (mg/l) ≤10

Liquid that exits from a conventional septic tank (effluent) contains suspended solids that can cause other types of septic systems to fail prematurely. Solids can overload bacteria, cut off aeration required for bacterial activity, and/or seal the underlying soil.

Our unique system components

The Advanced Enviro-Septic™ System is a product consisting of three components installed in a sand bed downstream from a septic tank: -

1. A corrugated, perforated, high-density plastic pipe with a unique series of ridges on the peak of each corrugation and plastic "skimmers" extending into the pipe's interior.
2. A thick mat of randomly oriented plastic fibres surrounding the pipe.
3. A special non-woven geo-textile plastic fabric around the mat of fibres.

What our system does

By utilizing simple, yet effective, natural processes the Advanced Enviro- Septic™ System treats septic tank effluent in a manner that prevents solids from entering surrounding soils, increases system aeration, and provides a greater bacterial area (mat) than traditional systems.

Why our system excels

- Requires less fill
- Installs more easily and quickly than traditional systems
- Eliminates the need for expensive washed stone
- Adapts easily to both commercial and residential sites
- Uses a protected receiving surface
- Increases system performance and longevity
- Tests environmentally safer than conventional systems
- Recharges groundwater more safely than conventional systems

System advantages

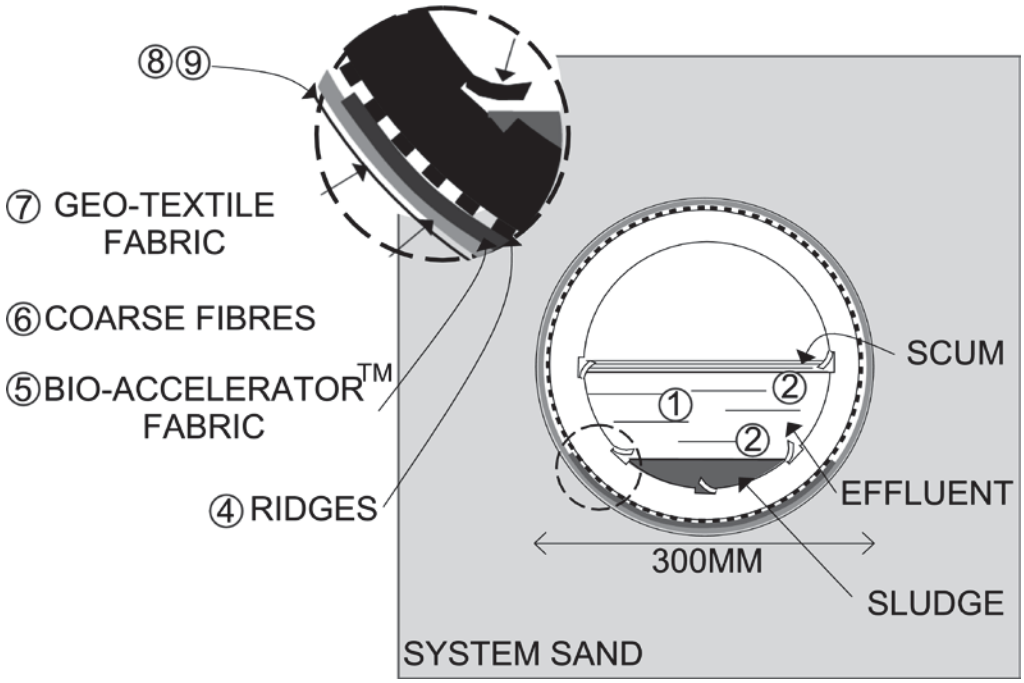
- The Advanced Enviro-Septic™ System retains solids in its pipe and provides multiple bacterial surfaces to treat effluent prior to its contact with the soil.
- The continual cycling of effluent (the rising and falling of liquid inside the pipe) enhances bacterial growth.
- No other leaching system design offers this functionality.
- Our systems excel because they are more energy efficient, last longer, and have a minimal environmental impact.
- Costs less than traditional installation products and materials
- No on-going energy, servicing, mechanical or electronic repair costs
- Requires a smaller area
- Eliminates "septic mounds" through sloping system installations
- Adapts to difficult sites

Section B
Definitions of Terms

Centre-to-centre Spacing	Centre-to-centre spacing is the horizontal distance from the centre of one line to the centre of the adjacent line.
Coupling	A coupling is a fitting that joins two pieces of Advanced Enviro-Septic™ pipe.
Design Flow	Design flow is the determined LPD flow as dictated by a recognised Standard or other publication.
Differential venting	Differential venting is a method of venting an Advanced Enviro-Septic™ system utilizing high and low vents (Oxygen Demand Vents).
Advanced Enviro-Septic™ pipe	An Advanced Enviro-Septic™ pipe is a single unit of pipe, 3m in length with an outside diameter of 300mm and a storage capacity of approximately 220 litres.
High and low Vents	High and low (ODV) vents are pipes used in differential venting. Often the high vent is at the house - minimum 80mm diameter - and the low vent – minimum 100mm diameter - is on the last line of pipes in a Serial Distribution system.
Level system	A level system is a system in which lines of Advanced Enviro-Septic™ are installed at the same elevation.
Line	A line is a number of Advanced Enviro-Septic™ pipes connected by couplings with an offset adapter on the inlet end and an offset adapter or end cap on the opposite end.
LPD	LPD is an abbreviation for Litres Per Day.
Offset adapter	An offset adapter is an end cap fitted with a 100mm hole offset at the 12 o'clock position.
Raised connection	A raised connection is a 100mm PVC pipe arrangement used to connect lines of Advanced Enviro-Septic™ pipe to maintain the correct liquid level inside each line.
Serial Distribution	A serial distribution is a group of Advanced Enviro-Septic™ lines* connected with a raised and/or drop connection.
System Sand	System sand is a gravelly, coarse sand that meets the particle size requirements described in Section E below

* See "line" in this section

Section C
Advanced Enviro-septic™ Treatment Process



NOTE: System Sand is installed to a depth of 300mm below the AES pipes and 150mm above and between the AES pipes. In less permeable soils the lower 150mm of the sand bed is extended to provide the required infiltration area.

Stage 1: Warm effluent enters the pipe and is cooled to ground temperature

Stage 2: Suspended solids separate from the cooled liquid

Stage 3: Skimmers further capture the grease and suspended solids from the exiting effluent

Stage 4: Pipe ridges allow the effluent to flow without interruption around the circumference of the pipe and aid in cooling

Stage 5: Bio-Accelerator™ fabrics screen additional solids from the effluent and accelerates Biomat development

Stage 6: A mat of coarse random fibres separates more suspended solids from the effluent

Stage 7: Effluent passes into the geo-textile fabrics and grows a protected bacterial surface

Stage 8: Sand wicks liquid from the geo-textile fabrics and enables air to transfer to the bacterial surface

Stage 9: The fabrics and fibres provide a large bacterial surface to break down solids

Stage 10: An ample air supply and fluctuating liquid levels increase bacterial efficiency

Section D
Installation, Handling, and Storage Guidelines

Introduction

This page contains guidelines that must be observed while installing, handling, and storing Advanced Enviro-Septic™ products.

Site Preparation

Here are some site preparation guidelines.

- Remove topsoil, roots, and organic matter under the required sand area of a proposed system, including the slope extensions of raised systems.
- Maintain the existing characteristics of the underlying soil as much as possible. Avoid machine compaction.
- Add the sand fill on the same day that the leach area is excavated.
- Do not allow water to run into or over the system during construction.
- Do not work wet or frozen soils.
- Do not smear or compact soils while preparing site. Note: It is not necessary for the leach area to be smooth when the site is prepared.

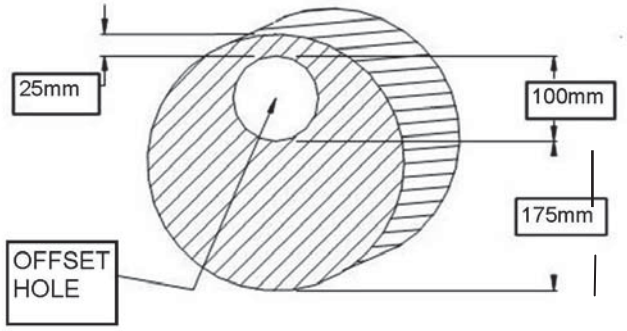
System components

Here is a picture of the Advanced Enviro-Septic™ components.

Note: Keep mud, grease, oil etc from all system components. Avoid dragging pipe through wet or muddy areas.

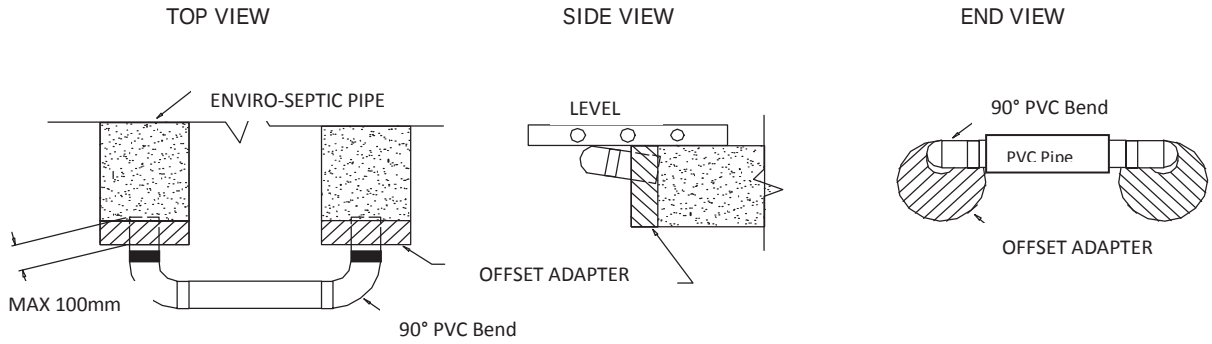
Installation, Handling, and Storage Guidelines… continued

Use raised connections: Raised connections consist of offset adapters, 100mm PVC pipe and pipe elbows. They enable greater liquid storage capacity and increase the bacterial surfaces being developed. Use raised connections to connect lines of Enviro-Septic™ pipe. Here is a diagram along with some installation notes:

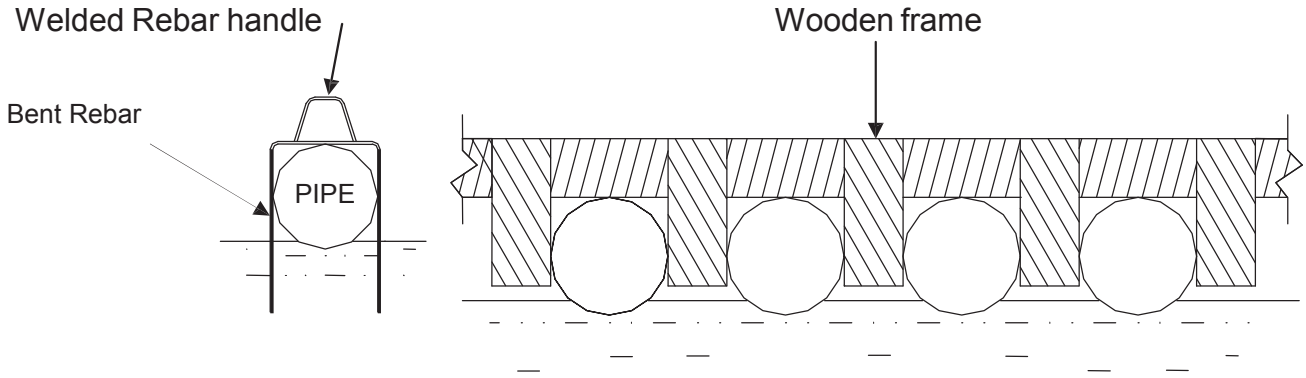


Installation Notes:

1. **Insert PVC pipe no more than 100mm into the offset adapter to prevent air locking.**
2. **Install the raised connection so that the top of the 90° bend is level with the top of the offset adapter.**
3. **Pack sand under and around the raised connection to prevent movement.**



Line spacers While sand may be used to keep pipe in place while covering, simple tools may also be constructed for this purpose. Here are two examples. One is made from rebar, the other from wood.



Caution: Remove all tools used as line spacers before final covering.

Installation, Handling, and Storage Guidelines… continued

Soil compaction

Minimize machine movement to avoid soil compaction and destruction of the soil structure under and around the system. Be especially careful not to compact soil on the down slope side of the system.

Backfilling and final grading

Spread a minimum of 150mm of system sand over the pipe. Spread the remaining fill. Final grading should shed water away from the system.

Note: A tracked vehicle may be used to spread the system sand and topsoil as long as it maintains at least 300mm of cover over the pipe.

Erosion control

Protect the site from erosion by proper grading, mulching, seeding, and control of runoff.

Storage

The outer fabric of the Advanced Enviro-Septic™ pipe is ultra-violet stabilized. However, the protection breaks down after a period of time in direct sunlight. To prevent damage to the fabric, cover the pipe with an opaque tarp.

Store pipe on high and dry areas to prevent surface water and soil from entering the pipes or contaminating the fabric prior to installation.

Section E
Sand and Fill Requirements

Introduction

This page describes the sand and fill requirements for the Advanced Enviro-Septic™ System.

System sand

All configurations of Advanced Enviro-Septic® require a minimum of 150mm of system sand surrounding the circumference of the pipe. This sand, typically gravelly coarse sand, must adhere to the following percentage and quality restrictions.

Percentage Restrictions
35% or less of the total sand may be gravel.
40%-90% of the total sand is to be coarse and very coarse sand.
Gravel Quality Restrictions
No gravel is to exceed 19mm in diameter.
No gravel is smaller than 2mm in diameter.
Coarse Sand Quality Restrictions
No coarse sand is smaller than 0.5mm in diameter.

ASTM Standard: C-33 (concrete sand) meets the above requirements. In addition the fine sand restrictions outlined below are necessary for ASTM C-33 sand to be used as System Sand

Fine Sand Quality Restrictions
No more than 2% of the total sand may pass through a 75 µm sieve.

Sand fill and clean fill

When AES beds are installed in natural sand the natural sand can be used as Sand fill in the lower 150mm of the AES bed provided it meets the fine sand quality restrictions above.
Note: System sand may also be used as sand fill.

Clean fill is the material used to complete the system.

Raised system fill extensions

Raised systems require fill extensions with 3:1 (horizontal:vertical) batters.

Sloping AES beds

AES beds sloping greater than 5% require the system sand area to extend a minimum of 1m beyond the lowest line of Advanced Enviro-Septic™ pipes on the down-slope side.

See also 'AES System Sand' information sheet available from Environment Technology Ltd.

To find out if sand is suitable as 'system sand' send 2 cups of sand to our office and we can run a simple test on it.

Send sand to: Environment Technology
14 Onekaka Iron Works Rd
RD 2
Takaka
New Zealand

Section F
Single Level System Configurations

Advanced Enviro-Septic™ systems may be designed in a variety of unusual shapes such as curved, trapezoidal, or L-shaped to provide optimum design flexibility to address the challenges of each site.

Sloping systems

The percentage of slope refers to the slope of the Advanced Enviro-Septic™ system, not the existing terrain. The slope of the system and the existing terrain are not required to be equal. A sloping system can be designed with more than one distinct slope and/or center-to-center pipe spacing in the same system.

Line orientation

Advanced Enviro-Septic™ lines must be laid level and should run parallel to contours (perpendicular to sloping terrain) if possible.

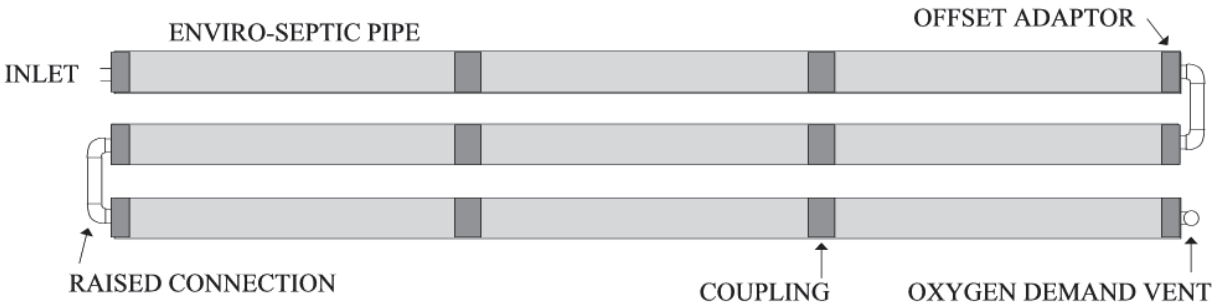
Velocity reduction

If piping from the septic tank to Advanced Enviro-Septic™ is excessively steep, or if effluent is pumped to the AES pipes a velocity reducer before the AES pipe inlet is necessary to reduce turbulence inside the AES pipe. A distribution box with a baffle or a100mm pipe with 90' bend may be an adequate velocity reducer.

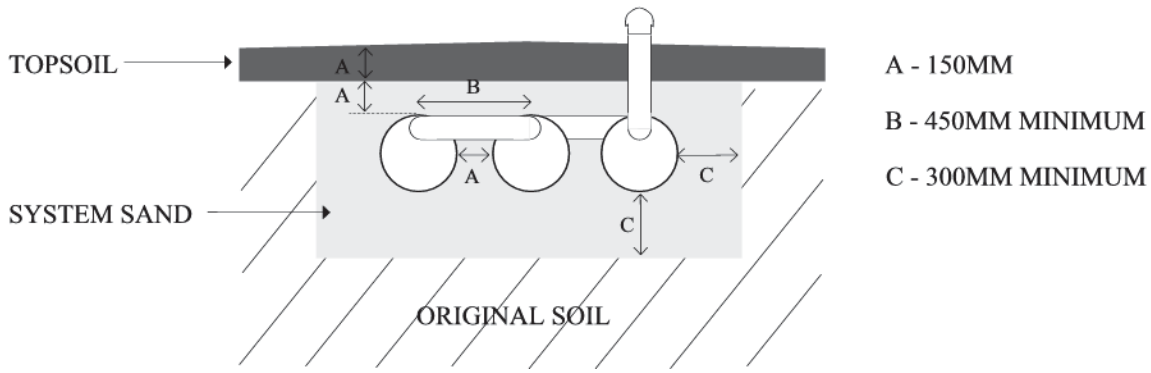
Basic Serial System – Level in-ground

A basic serial system is a series of lines of Advanced Enviro-Septic™ connected by raised connections.

Plan



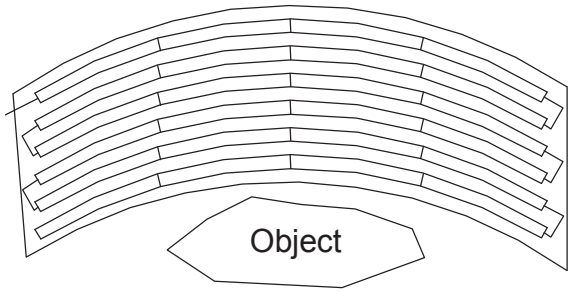
Elevation



Non-Conventional Configurations

Curves

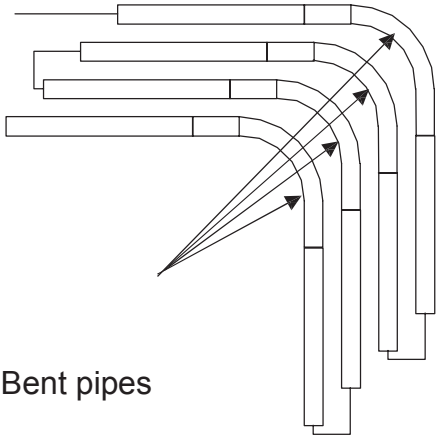
Curved configurations work well around objects, setbacks, and slopes.



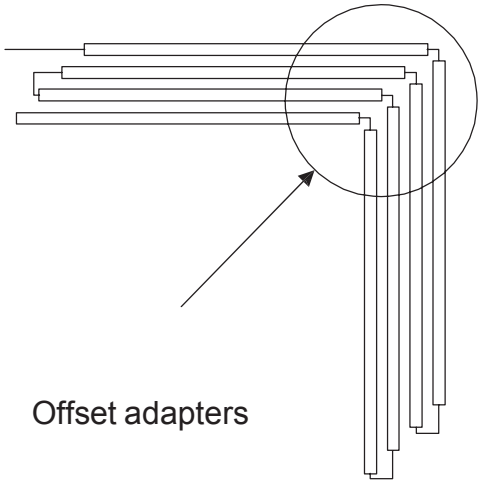
Note: Multiple curves can also be used.

Angles

Angled configurations generally have one or more specific bends. Lines are angled by bending pipes or through the use of offset adapters.



Bent pipes

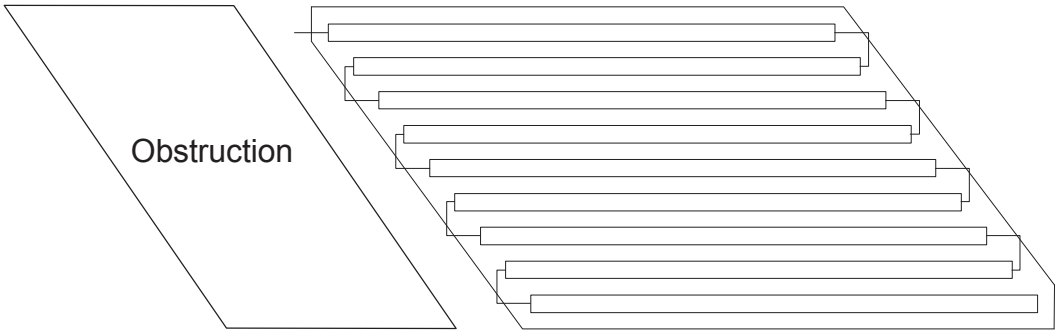


Offset adapters

Note: A 3m length of pipe may take a 90° bend.

Trapezoids

This system is trapezoidal to fit a particular slope or terrain feature.



Section G
System Rejuvenation and Expansion

Introduction

This section covers procedures for rejuvenating failing systems and explains how to expand existing systems.

Definition: failing system

System failures, almost without exception, are related to the conversion of bacteria from an aerobic to an anaerobic state. Flooding, improper venting, alteration or improper depth of soil, sudden use changes, introduction of chemicals or medicines, and a variety of other conditions can contribute to this.

Rejuvenating failing systems

Failing systems need to be returned from an anaerobic to an aerobic state. Most systems can be put back on line and not require costly removal and replacement by using the following procedure.

1. Determine the problem causing system failure and repair.
2. Excavate one end of all the lines and remove the end cap or offset adapter.
3. Drain the lines.
4. If foreign matter has entered the system, flush the pipes.
5. Safeguard the open excavation.
6. Guarantee a passage of air through the system.
7. Allow all lines to dry for a minimum of 72 hours.
8. Re-assemble the system to its original design configuration.

System expansion

Advanced Enviro-Septic™ System are easily expanded by adding equal lengths of pipe to each line of the original design or by adding additional equal sections.

Re-usable pipe

Advanced Enviro-Septic™ components are not biodegradable and may be reused. In cases of improper installation it may be possible to excavate, clean, and reinstall all system components.

System replacement

If system components require replacement, simply remove the existing pipe and the contaminated sand and replace with new pipe and sand.

Your suggestions and comments are welcome. Please contact us at
Environment Technology, 14 Onekaka Iron Works Rd, RD 2, Takaka 7182, New Zealand
Phone 03 9707 979, info@et.kiwi.nz

ONSITE WASTE WATER AND LAND APPLICATION SYSTEM MANAGEMENT CONTRACT

OWNER	
ADDRESS OF SYSTEM	
POSTAL ADDRESS (if different from above)	
PHONE CONTACT DETAILS	
TERRITORIAL AUTHORITY	
INSTALLER/MAINTENANCE CONTRACTOR	
DESIGNER	***Gary Stevens Consultant***
MAINTENANCE INTERVAL	***6 Monthly Checks***

1. Inspections as detailed by designer, resource consent and manufacturers operating instructions will be carried out at required intervals by the authorised service agent.

2. The inspections will include but are not limited to the following:

   (a) All components of the installation to have visual inspection.
   (b) Visual inspection of downstream of system.
   (c) Adjustment to any electrical controls and testing for correct operation.
   (d) Check effluent filter and clean where required as per manufacturer's instructions.
   (e) Visual and where required sample analysis of discharged effluent and reporting on the same.

3. Complete any repairs/replacement of system components.

4. All emergency repairs labour and parts outside of warranty period are to be paid for on completion of work.

5. Provide report with compliances and any issues and work completed to owner.

The above Service Contract is hereby AGREED by:

Owners Signature	***Date***
Service Agent Signature	***Date***

MAINTENANCE REPORT

Owner:
Address: ***Date:***

Checked	Not Checked	Component	Maintenance Notes *(Done/Required/Due) additional notes use back of this form*
		Septic Tank *scab/sludge levels* *Odour*	
		AES Bed *Manufacturers required check plus:* *Vegetation health downstream* *Check surface ponding* *Check for odour*	

Notes to include:

(i) any maintenance undertaken during the visit or still required, and a timetable for the expected completion of this work;
(ii) a description of the appearance of the filter/s and tanks;
(iii) the location and source of any odour detected from the system; and
(iv) a description of the appearance of the land application area (ponding, vegetation growth, etc).

Contractor Name:

Signature: