DavidsonPartnersLtd

Structural Engineering
Civil Engineering
Building Design
Project Management

Practising in association with Ayson and Partners, Consulting Surveyors

Our Ref: 23702

15 February 2007

Marlborough District Council
P O Box 443
BLENHEIM

ATTENTION: Guy Boddington

re: **COLEMAN FAMILY TRUST, THE GROVE, (U070041)**

We refer to your letter of 31 January 2007 and provide information as follows:

1. We have visited the site and the footprint for the house has been marked on site. We have also carried out levels at the proposed corners of the house in addition to levels at the low point in Queen Charlotte Drive and the 1.2 m diameter culvert invert to the north.

We attach a plan, drawing 23702 / sk1, which show these levels in relation to an arbitrary datum of 100.00 m on the top of the concrete abutment where shown.

We are proposing a floor level of 100.00 which is the same as the datum level at the abutment and 500 mm above the low point in Queen Charlotte Drive, where, if the 1.2 m diameter culvert blocked or could not cope, the flooding would escape across Queen Charlotte Drive.

The land application area for the wastewater discharge has not been specifically demarcated on site but will be at or higher than our RL 100.00 on the raised ground to the south of the proposed house.

2. From discussions with a long term resident and also as a result of our levelling exercise, the attached plan shows the extent of historic flooding in this area. There is a deep drain running along the south side of Queen Charlotte Drive which takes any initial overland flow to the 1200 culvert. If this culvert could not cope or was blocked, the natural secondary overflow path would be at the low point in the road (approx. RL 99.50) where shown on the plan.

ACENZ

Davidson Ayson House, 4 Nelson Street,
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Principals
Ross Davis, BE, CPEng, MIPENZ
Stephen Sheat, BE, CPEng, MIPENZ
Leigh McGlynn, BE, CPEng, MIPENZ

We are proposing to construct a floor level 500 mm above this low point, i.e. at RL 100.00 with the datum being the top of the concrete abutment at the 1200 culvert (also 100.00) where shown on the plan.

We trust this satisfies Council's concerns but if you have any further queries, please do not hesitate to contact us.

DAVIDSON PARTNERS LTD

W L McGlynn

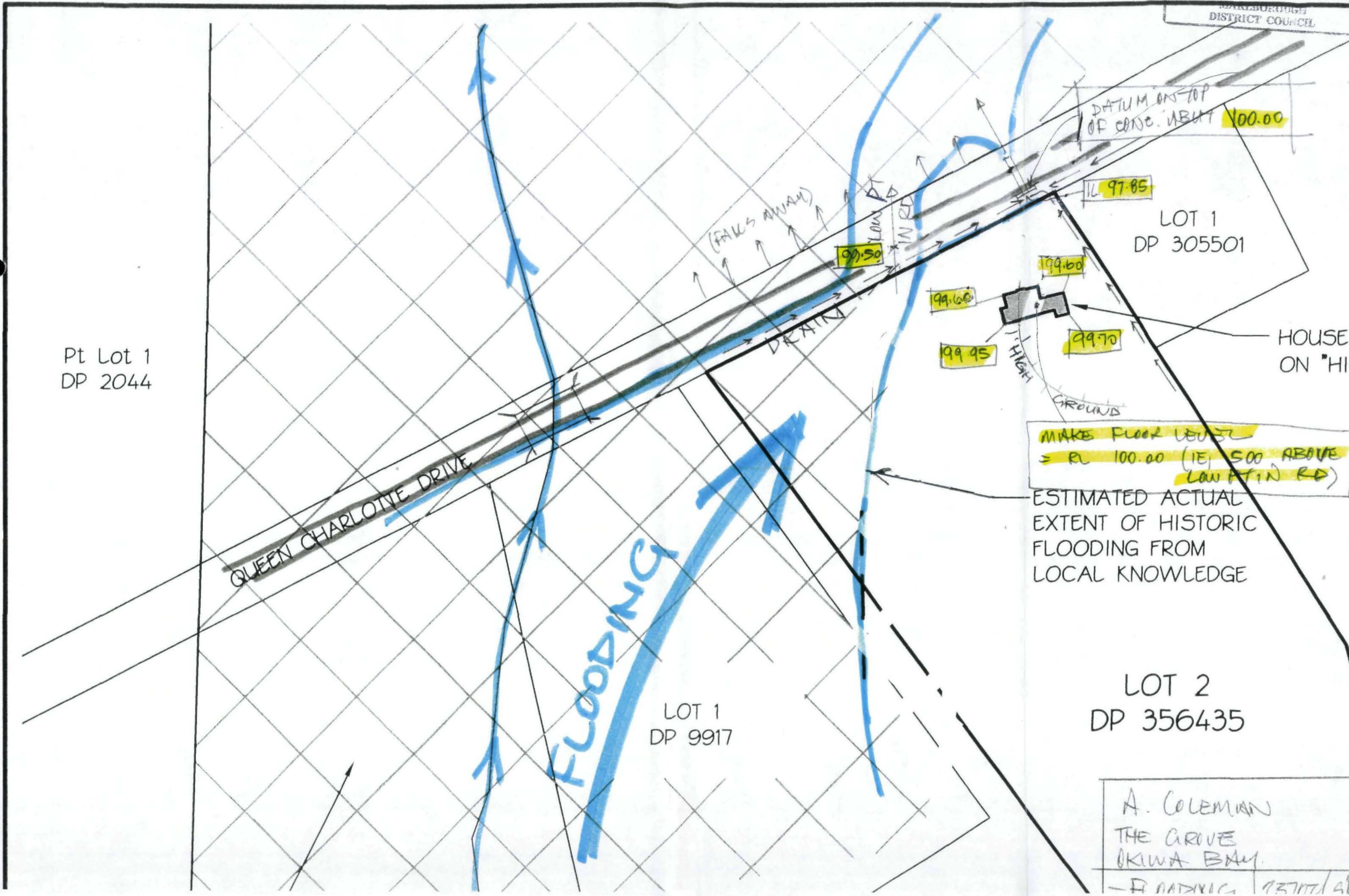
WLM:MH

Encl

COPY TO: Fowler Homes Ltd
P O Box 5009
Springlands
BLENHEIM

A Coleman
The Grove
R D 1
PICTON

FILE No.:	
OFFICER:	
DATE RECV'D	20 FEB 2007
MARLBOROUGH DISTRICT COUNCIL	



File Ref: U070041

Ask For: Guy Boddington

31 January 2007

Roger:
See my e mail @ 10.51 Thur. to you
Guy

Davidson Partners Ltd
PO Box 256
Blenheim
Attention Mr Leigh McGlynn

Dear Leigh

Application for Resource Consent: U070041 Coleman Family Trust, The Grove

The above application is accepted under S.88 of the RMA, 1991 but before continuing to process it, I would like to draw to your attention concerns from different Council officers. We require your comment on their concerns. The application is on hold under S.92 pending receipt of your comment.

There is clearly a drainage issue at this site where the Sounds Plan, as you acknowledge, has a flood hazard overlay.

Building officer's concerns in response to the Land Use (Activity) application:
there is need for the footprint for the dwelling and land application area for the final wastewater discharge to be demarcated on the site. Floor height is to be shown on a sturdy peg on site so that it can be confirmed at foundation inspection.

Rivers Engineer's concerns at absence of a floor level recommendation:
the 1200 mm culvert right opposite the house site serves to convey water from an overland flow channel from the south as well as catering for flood flows which would reach the culvert via overland flow from breakout from the bigger stream channel 150 m further to the west. Roger Fitzgerald has suggested we request more ground level information or simply require a minimum finished floor level of 600 mm above adjoining ground levels.

I have attached two annotated photographs taken at the location this week.

Yours faithfully

GUY BODDINGTON
RESOURCE MANAGEMENT OFFICER

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Our Ref: 23702

15 January 2007

Marlborough District Council
P O Box 443
BLENHEIM

ATTENTION: Building Control

re: COLEMAN FAMILY TRUST, THE GROVE (BC 062142)

We refer to your letter of 24 October 2006 to Fowler Homes Marlborough Ltd.

1. Introduction

In addition to attending to Item 1 in that letter, we have also been engaged to apply for a Resource Consent for a Discharge Permit for the new wastewater disposal system and also a Land Use Consent to address the potential flood hazard.

2. Wastewater System

Please find attached three copies of our wastewater design report and plans, which also assess the environmental effects.

3. Natural Hazard Zone (Flooding)

We note that Council's Natural Hazard planning maps have a delineation approximately through the proposed house site as shown on the plans attached with the wastewater design report.

We have had discussions with the Coleman family who have been living in the area for the last 80 years. They confirm that, while flooding does occur at times from an outbreak from the stream to the south, the flood plain does not encroach on the proposed house site and land application area which is located on higher ground and is one of the reasons for the proposed house site location.

The actual extent of flooding through this property has been estimated and shown on the plans in the wastewater design report. As a result, we consider that there will be no environmental consequences of the proposed development and that the effects will be nil.

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Leigh McGlynn, BE, CPEng, MIPENZ

4. Attachments

Please find attached:

a) Resource Consent application form.

b) Three copies of our wastewater design report, including plans.

If you require further information, please do not hesitate to contact us.

DAVIDSON PARTNERS LTD

W L McGlynn

WLM:KR

COPIES TO: Fowler Homes Ltd
P O Box 5009
Springlands
BLENHEIM 7241

A Coleman
The Grove
R D 1
PICTON

Simcox Construction
14 Taylor Pass Road
BLENHEIM

ATTENTION: I Simcox

Davidson Partners Ltd

WASTEWATER DESIGN REPORT
FOR
COLEMAN FAMILY TRUST

January 2007
Our Ref: 23702

DavidsonPartners Ltd

Structural Engineering
Civil Engineering
Building Design
Project Management

Practising in association with Ayson and Partners, Consulting Surveyors

Our Ref: 23702

15 January 2007

CONTENTS

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1. INTRODUCTION

Adam Coleman (Coleman Family Trust) is proposing to build on family land in The Grove, Okiwa Bay.

It is proposed to construct a dwelling on a gentle to moderate sloping grassed paddock, south of which runs a stream which is known to flood during extreme events.

Our brief was to carry out an investigation to determine an appropriate wastewater treatment and disposal system for the new house.

2. INVESTIGATION

Five test samples have been excavated, logged and bagged by Simcox Construction Ltd in early November 2006. We have inspected these samples and also visited the site subsequently to make a further site assessment.

The plans show the location of the five test pits. The topsoil was reasonably consistent at 100 mm thick and the material varied from coarse gravels amongst silt to sandy clay loams amongst finer gravels.

The site has a high exposure to the sun and prevailing winds.

The proposed land application area is located more than 30 m away from any surface water body and greater than 50 m from the well serving this property and the neighbouring property.

The watertable at the well site is approximately 16 m below the surface and at the land disposal area is expected to be well in excess of 2 m.

The proposed land application field is located on a raised area and tends to shed water rather than accept water from catchment runoff. The vegetation is grass.

Local records and knowledge indicate that the proposed house/wastewater site has never been subject to flooding.

There are no stability considerations.

There is a house to the northeast but the location of its land application area has not been confirmed. However, it is likely to be between 40 and 70 m away from the proposed field.

Test pits 3 and 4 lie either within or closest to the proposed land application field. The material from these test pits is a light brown, moist, firm, sandy clay loam with fine to coarse fragments. The sandy clay loam ribboned to between 35 and 50 mm. The pedal content was high and the Soil Category was assessed as 3.

3. DESIGN

3.1 Loading

It is proposed to construct a three bedroom dwelling. This equates to 6 persons living permanently for design purposes.

The water supply will be from a good well and the wastewater allowance per person is therefore 180 litres. The design load is therefore 6 x 180 = 1,080 l/d.

3.2 Land Application System

There are no environmental considerations which require treatment to a secondary or tertiary standard.

The location of the field relative to the septic tank and the generally gentle grades around the site indicate however that dosed loading (pump) will be required.

It is therefore considered that the best practical option consists of a dose loaded trench system. There is ample reserve area available.

For a Category 3 soil, the Design Loading Rate (DLR) can vary from 15 to 25 mm/d. For the characteristics of this site, we consider that an appropriate DLR is 20 mm/d (refer appendix).

For a 500 mm wide trench, a minimum length of 110 m will be required.

We recommend that this be split into 5 x 22 m long trenches, each centrally fed from a distribution box to which the rising main discharges.

We recommend that an 80 mm nominal diameter drainage pipe (ID 73 mm) be used at a dose load of 230 l to ensure approximately 50% loading of the pipe network per dose.

A distribution box specifically made up on site shall be constructed to ensure that all five outlets to the field receive equal flow.

The pump chamber is required to have sufficient volume for the dose (230 l) and an emergency capacity of the daily flow (1,080 l), making a total capacity of at least 1,310 l.

The pump chamber should be fitted with a high level float set just above normal operating level and wired to audio and/or visual alarms.

The submersible pump shall have a head of at least 5 m at a flow of 75 l / minute. However, the head is to be confirmed onsite.

3.3 Treatment

There are no environmental concerns requiring secondary treatment. We recommend primary treatment using a 4,000 litre (minimum) septic tank with an effluent filter on the outlet.

3.4 Additional Work

Davidson Partners Ltd has carried out a site investigation and design in accordance with current codes and modern practice. However, the treatment and disposal system is a biological (living) process and modifications may have to be undertaken to the treatment or disposal system in some circumstances, such as when there is/are;

(a) An increase in design load

(b) Disposal of inappropriate substances to the septic system

(c) Poor maintenance

(d) Poor workmanship or departure from construction drawings

We strongly recommend that the homeowner and installer read and note the information included in the Appendix and shown on the drawings to ensure ongoing good practice and maintenance.

4. ASSESSMENTS OF ENVIRONMENTAL EFFECTS

There are no nearby surface water bodies or wells. There may be an existing land application field within 40 to 70 m of this proposed field. However, the existing field will be upslope from this property. Also, the Category 3 soils have moderately well drained characteristics and with dose loading as proposed, will have a good, even rate of application and assimilation by the soils.

We also note that the proposed house site straddles the boundary line to the Natural Hazard (Flooding) Zone as identified in the Marlborough Sounds Resource Management Plan. However, the purpose of this delineation is to alert potential developers that there have been flooding problems in the area in the past and although flooding may not be a problem at this proposed location, further investigation is required to confirm.

We have had discussions with the Coleman family who have resided in this area for the last 80 years. They confirm that the stream to the west of the property has broken its banks and has flooded the north western corner of this paddock but has always been well clear of the proposed house site and land application field which is located on raised ground.

An estimate of the extent of the actual Flood Hazard has been marked on the plans.

As a result of our assessment, we consider that the effects on the environment will be less than minor.

5. SUMMARY

5.1 The best practical option for a wastewater system is considered to be a primary treated effluent dose loaded to trenches.

5.2 The Soil Category has been assessed as 3 with a DLR of 20 mm per day.

5.3 The design wastewater loading rate has been based on three bedrooms, or 6 persons, using a well supply. The daily load has been assessed at 1,080 l.

5.4 The primary treatment system consists of a 4,000 l (minimum) septic tank with an effluent filter to the outlet.

5.5 The dose loaded trench system consists of 5 x 22 m long trenches, 500 mm wide and 1 m apart, each centrally fed for a five way distribution box.

5.6 A 100% reserve area is available in flood-free land.

6. REFERENCES

6.1 Marlborough District Council "Marlborough Sounds Resource Management Plan".

6.2 AS/NZS 1547:2000 "On Site Domestic Wastewater Management".

6.3 Marlborough District Council 11 July 2005, "Guidelines for New On-Site Wastewater Management Systems".

DAVIDSON PARTNERS LTD

W L McGlynn

LM:KR

APPENDIX

1. **Field Assessment Report**
2. **Calculations**
3. **Owner & Installer Guidelines**
4. **Drawings**

DAVIDSON PARTNERS LTD WASTEWATER MANAGEMENT TEST PITS		JOB NO. 23702 SHEET NO 1 NAME LM DATE 02-Nov-06
CLIENT	COLEMAN FAMILY TRUST	
LOCATION.	THE GROVE, QUEEN CHARLOTTE DRIVE	

TP 1

0	
100	TOPSOIL
	COARSE GRAVELS AMONGST SILT
600	

TP 2

0	
100	TOPSOIL
	SANDY CLAY LOAM AMONGST COARSE GRAVELS
600	

TP 3

0	
100	TOPSOIL
	SANDY CLAY LOAM AMONGST FINER GRAVELS
600	

DAVIDSON PARTNERS LTD WASTEWATER MANAGEMENT TEST PITS		JOB NO. 23702 SHEET NO 2 NAME LM DATE 02-Nov-06
CLIENT	COLEMAN FAMILY TRUST	
LOCATION	THE GROVE, QUEEN CHARLOTTE DRIVE	

TP 4

0	
100	TOPSOIL
	COARSE GRAVELS AMONGST SILT
600	

TP 5

0	
100	TOPSOIL
	SANDY GRAVELS
600	

	DAVIDSON PARTNERS LTD	JOB NO.	23702
	WASTEWATER MANAGEMENT	SHEET NO	1
	FIELD ASSESSMENT REPORT	NAME	lm
CLIENT	COLEMAN FAMILY TRUST	DATE	12.01.07
LOCATION	THE GROVE		

REFERENCES : 1 MDC, 11.07.05 "Guidelines for new on-site wastewater management systems"

2 AS/NZS 1547:2000 "On Site Domestic Wastewater Management"

(NOTE THAT THIS SAMPLE IS TYPICAL OF SOIL FROM TP 3 & 4)

1	Site Exposure to - sun	HIGH
	- wind	HIGH
2	Topsoil Depth (mm)	100
3	Soil Description (colour, moisture, firmness, type)	LIGHT BROWN, MOIST, FIRM, SANDY CLAY LOAM
4	Coarse Fragments (size / abundance)	COMMOM, FINE TO COARSE
5	Ribbon Length (mm)	35 - 50
6	Soil Structure (Pedal Content)	HIGH
7	Soil Category (1 - 6)	3
8	Nearby Water Bodies ?	NO
	- Separation Distance ?	> 30 m
9	Nearby Wells ?	YES (southeast of house site. See plan)
	- Separation Distance ?	> 30 m
10	Runoff To Be Controlled ?	NO
11	Ground Water To Be Controlled ?	NO
12	Any Stability Considerations ?	NO (FLAT)
13	Depth to Water Table	WELL IS APPROX 16 m TO WATER TABLE
14	Vegetation Cover - Existing ?	GRASS
	- Proposed ?	GRASS ??
15	Gravity Head to Proposed Disposal Field	NONE (TO BE PUMPED)
16	Existing Systems Nearby - type	UNKNOWN
	- proximity	30 - 70 m ??
	- perform'ce	NA
17	Reserve Area Available ?	YES
18	Intended Water Supply	WELL
19	Power Available?	YES
20	Other Comments ?	GOOD, EXPOSED SITE. NEEDS PUMPING FOR DISTRIBUTION. SOIL CAT GOOD. OUT OF FLOOD WAY

DAVIDSON PARTNERS LTD WASTEWATER MANAGEMENT LOADING AND SEPTIC TANK DESIGN		JOB NO. 23702 SHEET NO 1 NAME lm DATE 11-Jan-07
CLIENT	COLEMAN FAMILY TRUST	
LOCATION	The Grove, Queen Charlotte Drive	

Last Updated 28.07.05

REFERENCES : 1 ARC TP # 58 Third Edition
2 AS/NZS 1547:2000 "On Site Domestic Wastewater Management"

1 **LOADING**

Number of bedrooms	3	
Occupancy (N)	6	
Wastewater allowance (A)	180	litres / person / day (refer calcs)
Soil category (from field assessment)	3	

2 **SEPTIC TANK DESIGN**

Number of people (ex 1.3 above)	6		
Number of people for design purposes	6		
(peaking factor =	1)		
Daily flow	1080	litres	
Miinimum residence time required	24	hours	
Pump out interval required	5	years	
Sludge/scum accumulation(bl-50,gr-40,80)	80	litres / person / year	
Allowance for scum / sludge	2400	litres	
Minimum tank size	3480	litres	
Let tank size be	**4000**	**litres**	
Settling volume available	1600	litres	
Settling time available	36	hours	OK,> min. res. time

DAVIDSON PARTNERS LTD ON-SITE WASTEWATER MANAGEMENT TRENCH DESIGN		JOB NO. 23702 SHEET NO 2 NAME lm DATE 11-Jan-07
CLIENT	COLEMAN FAMILY TRUST	
LOCATION	The Grove, Queen Charlotte Drive	

3 TRENCH DESIGN

3.1 (a) DLR (Design Loading Rate) Indicators

INDICATOR	0	1	2	SCORE	WEIGHTING	RANKING
Slope	> 20°	10-20°	0-10°	1	3	3
Topsoil Depth	<100 mm	100-200	>200 mm	1	2	2
Exposure to Sun	low	mod	high	2	3	6
Exposure to Wind	low	mod	high	2	3	6
Vegetation	not suitable	suitable	v. suitable	2	3	6
Proximity to Water Bodies or Wells	<10 m	10-30	>30 m	2	2	4
Proximity to Water Table	<1 m	1-2	>2 m	2	3	6
Known Problems in the Area ?	yes	unsure	no	1	2	2
Nearby Systems?	yes	unsure	no	1	1	
Trench Width	>400 mm	300-400	<300 mm	0	1	0
Distribution	gravity	dose	LPED/drip	1	3	3
Use	permanent	frequent	infrequent	0	3	0
RANKING SCORE						38

(b)

DLR (ex Table 4.2.A1)	RANKING
Most Conservative = 15 mm/day	<25
Least Conservative = 25 mm/day	>50

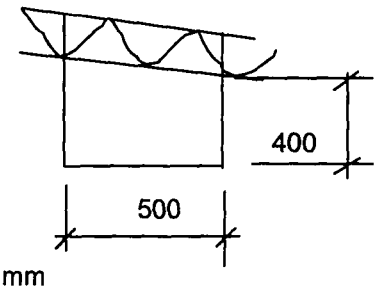
(c) DLR considered appropriate for the site = 20.2 mm / day

Let DLR = 20 mm / day

3.2 Trench Dimensions Proposed

width = **500** mm

depth = **400** mm (below topsoil layer)



3.3 Trench Width for Design, W = **500** mm

3.4 Trench Length , L (min.) = (N x A)/(DLR x W)

= **108.00** m

Let trench length = 110 m

Let pipe ID **73** mm (80 nom drain pipe)

Pipe Volume = 460 litres and 50% full = **230** litres

If # fields = **1** , then dose load = **230** litres

DAVIDSON PARTNERS LTD ON-SITE WASTEWATER MANAGEMENT PUMP CAMBER CAPACITY		JOB NO. 23702 SHEET NO 3 NAME lm DATE 11-Jan-07
CLIENT	COLEMAN FAMILY TRUST	
LOCATION	The Grove, Queen Charlotte Drive	

PUMP CHAMBER CAPACITY

Pump chamber to have capacity for the dose volume in addition to the volume at full load from a 24 hour pump breakdown or power outage.

Dose volume	=	230 litres
Daily load	=	1080 litres
Total capacity	=	**1310 litres**

DAVIDSON PARTNERS LTD

HOW TO GET THE BEST FROM YOUR ON-SITE WASTEWATER MANAGEMENT SYSTEM

Helpful Information for Homeowners/Occupiers

1. GOOD HOUSEHOLD PRACTICES

(a) Reduce solids disposal to treatment tanks as much as possible including food scraps, fats, grease etc. Scrape all dishes before washing and do not install a waste disposal unit unless the wastewater system has been specifically designed to carry the extra load.

(b) Do not put any of the following down sinks, drains or the toilet

- **(i)** Oil/grease from e.g. a deep fryer;
- **(ii)** Stormwater and any drainage other than wastewater generated in the house;
- **(iii)** Petrol, oil and other flammable/explosive substances;
- **(iv)** Household, garden, garage and workshop chemicals (e.g. pesticides, paint cleaners, photographic chemicals, motor oil and trade waste);
- **(v)** Disposable nappies and sanitary napkins.

(c) In order to keep the bacteria working in the tank and in the land-application area:

- **(i)** Use biodegradable soaps;
- **(ii)** Use a low-phosphorus detergent;
- **(iii)** Use a low-sodium detergent in the dispersive soil areas;
- **(iv)** Use detergents in the recommended quantities;
- **(v)** Don't use powerful bleaches, whiteners, nappy soakers, spot removers and disinfectants including cold water washing products.
- **(vi)** Don't put chemicals or paint down the drain.

(d) Conserve water. Less water means a lower load on the treatment system and land application area, with ensuing improved and more reliable performance. Conservation measures include:

- **(i)** Installation of water-conservation fittings such as low water use toilets, spray taps and water-saving automatic washing machines;

(ii) Taking showers instead of baths;

(iii) Only putting the dishwasher or washing machine on where there is a full load.

(e) Space dishwasher and washing machine use out to avoid overloading the wastewater system. Try not to do a large amount of washing in one day and avoid running the washing machine and dishwasher at the same time.

(f) For the physical protection of treatment and land application systems:

(i) The treatment unit must be protected from vehicles;

(ii) Pedestrian traffic routes should not cross effluent field areas;

(iii) No vehicles or heavy stock should be allowed on trenches or beds;

(iv) Deep rooting trees or shrubs should not be grown over absorption trenches or pipework.

2. MAINTENANCE

(a) General

The appropriate maintenance of your treatment and land application systems will be the key to their effective and reliable performance. Please contact a drainlayer or Council if you are unsure about anything or require further advice.

(b) Septic Tanks

Any septic tank (primary wastewater treatment unit) will need to:

(i) Be cleaned out regularly i.e. every three to five years or when scum and sludge occupy two thirds of the volume of the tank (or first stage of a two-stage system). All scum, sludge and septage material must be disposed of in an approved manner. Pump chambers should be cleaned out at the same time if necessary;

(ii) Have grease traps cleaned out regularly;

(iii) Keep the vent and/or access cover of the septic tank exposed;

(iv) Have any outlet filter inspected and cleaned, normally at the same time as septic tank cleaning. Remove the cartridge and rinse off with a garden house, being careful to rinse all septage material back into the tank. It is not necessary that the cartridge be cleaned "spotless". The biomass growing on the filter aids in the pre-treatment process and should be left on the cartridge.

(c) Secondary Treatment Systems

Improved treatment systems, such as aerated plants or sand filters, require specialist maintenance and should be looked after under a maintenance contract. Owners should ensure that they are aware of the manufacturer's/suppliers recommended maintenance intervals and that a contract is in place for routine checks of mechanical components.

These systems will have a primary treatment stage which should be treated as in (b) above.

(d) Effluent Field

Reliable performance from your effluent field (including shallow trenches, drip irrigation field or mound) will be aided by regular attention including one or more of the following depending on the type of system:

(i) Keep the surface water diversion drains upslope of and around the land-application area clear to reduce absorption of rainwater into trenches or beds;

(ii) The baffles or valves in the distribution system should be periodically (monthly or seasonally) changed to direct treated wastewater into alternative trenches or beds, as required by the design;

(iii) Evapotranspiration and irrigation areas should have their grass mowed and plants maintained to ensure that these areas take up nutrients with maximum efficiency;

(iv) Clean disc filters or filter screens on irrigation-dosing equipment periodically by rinsing back into the primary wastewater treatment unit;

(v) Irrigation systems which dispose of wastewater that has only been treated by a septic tank and filter must be flushed through with clean water before and after any significant period of non-use.

(vi) Regular maintenance of the treatment systems (as per manufacturers recommendations), especially for aerated and sand contactor type systems.

DAVIDSON PARTNERS LTD

GUIDELINES FOR INSTALLERS OF ON-SITE DOMESTIC WASTEWATER MANAGEMENT SYSTEMS

References

A.S./N.Z.S. 1546.1:1998 'On-Site Domestic Wastewater Treatment Units, Part 1:Septic Tanks'
A.S./N.Z.S. 1546.3:2001 'On-Site Domestic Wastewater Treatment Units, Part 3 AWTS'
A.S./N.Z.S. 1547:2000 'On-Site Wastewater Management'

1. GENERAL

(a) All products and construction shall be in accordance with the relevant Standards and in general the best trade practices shall prevail. If there are any questions about any aspect of the work please contact Council in the first instance.

(b) The Contractor shall act to protect the health and safety of staff and private persons at all times.

(c) The Contractor must be aware of the inspection requirements of Council and/or the Engineer and the need to provide as-built locations of the treatment and land application systems to Council and the owner.

(d) The Contractor should also educate the owner about the functioning of their system, especially the maintenance requirements, and where appropriate put in place a maintenance contract for systems which rely on mechanical action in order to function properly.

2. LOCATION OF TREATMENT AND DISTRIBUTION SYSTEMS AND LAND APPLICATION AREAS

(a) All tanks and the land application area shall be located clear of structures to avoid the undermining of foundations. In general, a minimum clearance of 2.0 metres should be adequate but if in doubt check with Council or an Engineer. Tank vents should be located 3 metres minimum from dwellings.

(b) The Contractor must be aware of the required separation distances of tanks and/or the land application area to surface water (ponds, water courses and drainage paths), wells and/or boundaries.

(c) Treatment systems should be sited with consideration for access by desludging trucks.

3. GOOD CONSTRUCTION TECHNIQUE

(a) Treatment and Distribution Systems

(i) When working with existing systems or carrying out maintenance tasks, measures shall be in place to ensure staff are adequately protected from contact with wastewater.

(ii) All tanks located in areas where high seasonal groundwater levels are known to occur shall be weighted down or provided with anchorage in accordance with clause 10.3.3 of A.S./N.Z.S. 1546.1:1998 (copy attached).

(iii) The Contractor shall allow to carry out any treated effluent testing required by Council. Samples should be taken once the system has been in operation for approximately three months. In a holiday-home situation testing should be done in January.

(iv) All pump chambers shall be vented similar to septic tanks. The commissioning of pumped distribution systems shall consist of at least the following:

- A check of pump out and emergency storage volumes (reserve capacity equivalent to the peak daily flow should be provided).
- Three drawdown tests.
- Testing of the operation of controls and alarms.
- Checking of uniform flow throughout any pressurised distribution network prior to covering over.

(b) **Land Application Area**

The following excavation techniques shall be observed so as to minimise the risk of damage to the soil.

(i) Plan to excavate only when the weather is fine. Puddling, where washed clay settles on the base of the trench to form a relatively impermeable layer, must be avoided.

(ii) Avoid excavation when the soil has a moisture content above the plastic limit. This can be tested by seeing if the soil forms a "wire" when rolled between the palms.

(iii) During wet seasons or when construction can not be delayed until the weather becomes fine, smeared soil (smooth) surfaces should be raked to reinstate a more natural soil surface, taking care to use fine tines and only at the surface.

(iv) When excavating by machine, fit the bucket with "raker teeth" if possible, and excavate in small "bites" to minimise compaction.

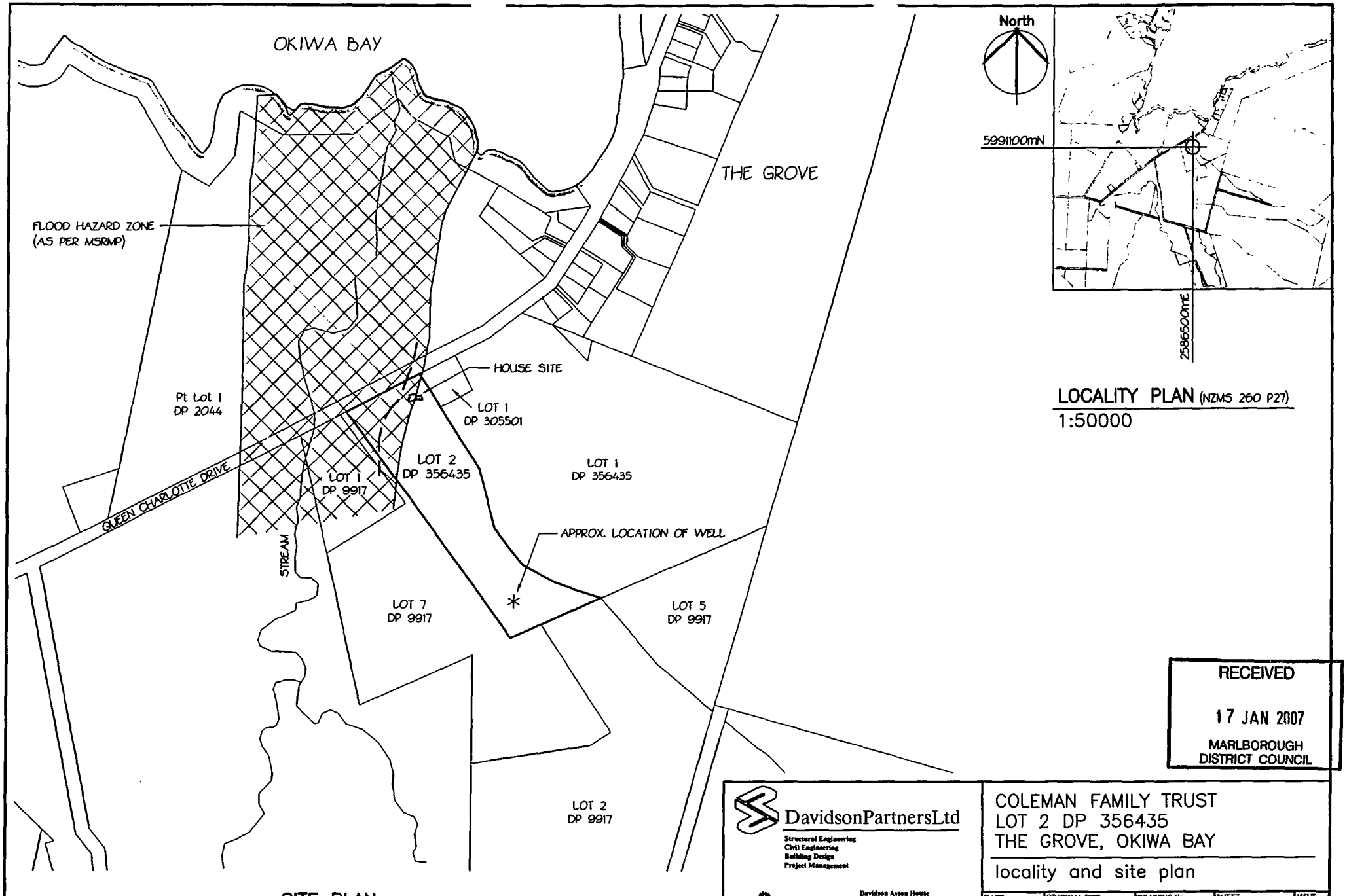
(v) Avoid compaction by keeping people off the finished trench or bed floor.

In particular for trenches and beds:

(vi) If rain is forecast cover any open trenches to protect them from rain damage.

(vii) Excavate perpendicular to the line of fall or parallel to the contour levels.

(viii) Ensure that the inverts are horizontal or sloped at not more than 1 in 200.



SITE PLAN
1:5000

LOCALITY PLAN (NZMS 260 P27)
1:50000

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DavidsonPartnersLtd
Structural Engineering
Civil Engineering
Building Design
Project Management

Davidson Ayson House
4 Nelson Street, P.O. Box 256
Blenheim, New Zealand
Telephone 03 579 2099 Fax 03 578 7028

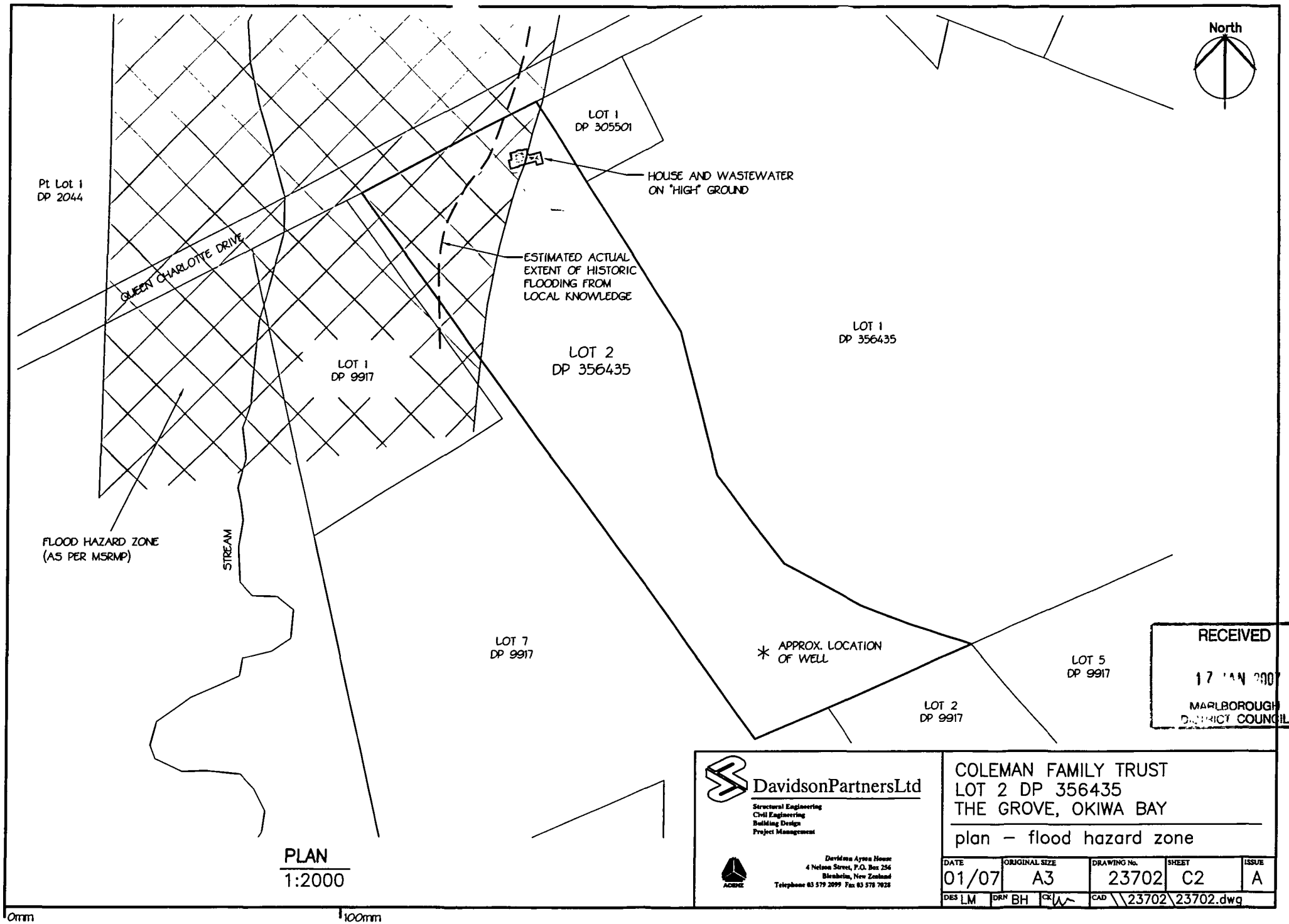
COLEMAN FAMILY TRUST
LOT 2 DP 356435
THE GROVE, OKIWA BAY

locality and site plan

DATE	ORIGINAL SIZE	DRAWING No.	SHEET	ISSUE
01/07	A3	23702	C1	A

DES LM | DRN BH | CK | CAD \\23702\23702.dwg

070041



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plan – flood hazard zone

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01/07	A3	23702	C2	A

DES LM | DRN BH | CK | CAD \23702\23702.dwg

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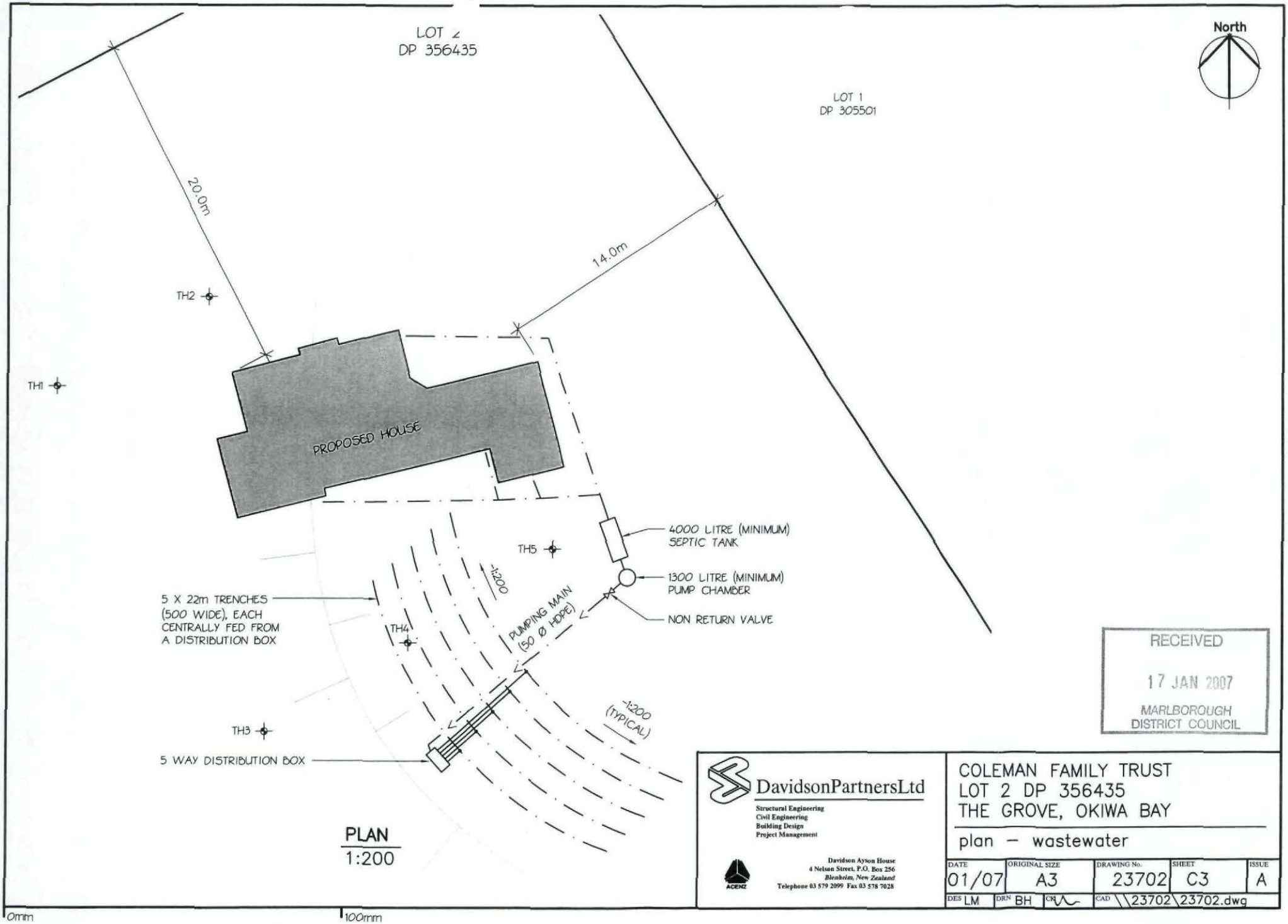

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ACENZ

COLEMAN FAMILY TRUST
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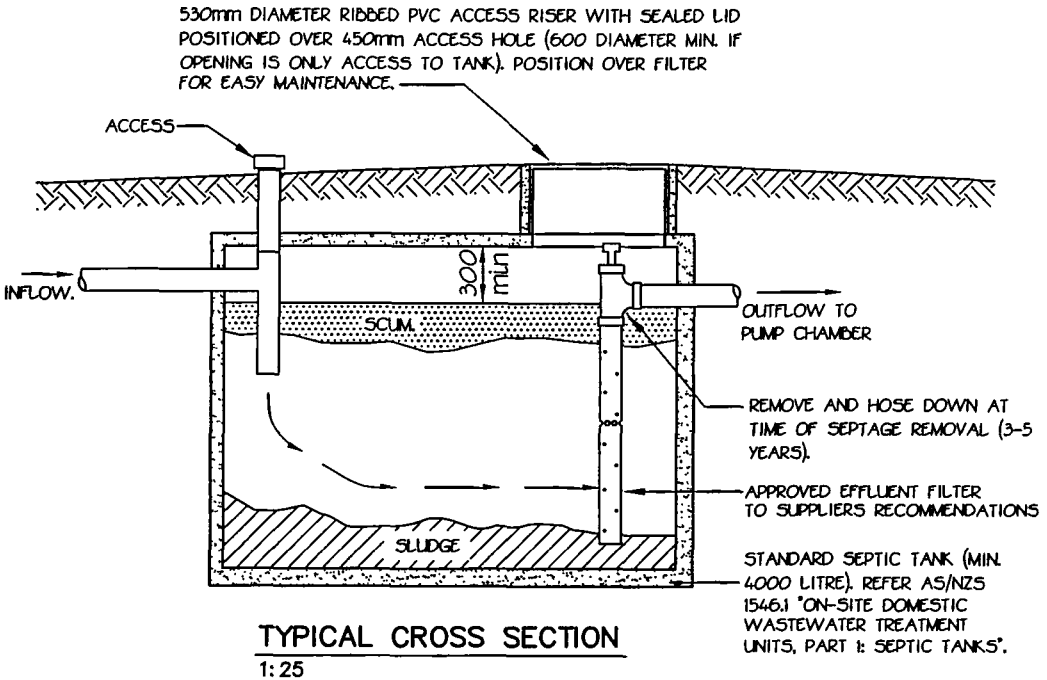
THE GROVE, OKIWA BAY

plan – wastewater

DATE	ORIGINAL SIZE	DRAWING No.	SHEET	ISSUE
01/07	A3	23702	C3	A

DES LM | DRN BH | CK | CAD \\23702\23702.dwg

070041



TYPICAL CROSS SECTION
1:25

SUGGESTED OPERATION AND MAINTENANCE SEPTIC TANK

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2.) THE FILTER SHALL BE CLEANED AT THE SAME TIME AS THE NORMAL SEPTIC TANK SERVICING (3-5 YEARS).

3.) REMOVE THE CARTRIDGE AND RINSE OFF WITH A GARDEN HOSE, BEING CAREFUL TO RINSE ALL SEPTAGE MATERIAL BACK INTO THE TANK.
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COLEMAN FAMILY TRUST
LOT 2 DP 356435
THE GROVE, OKIWA BAY

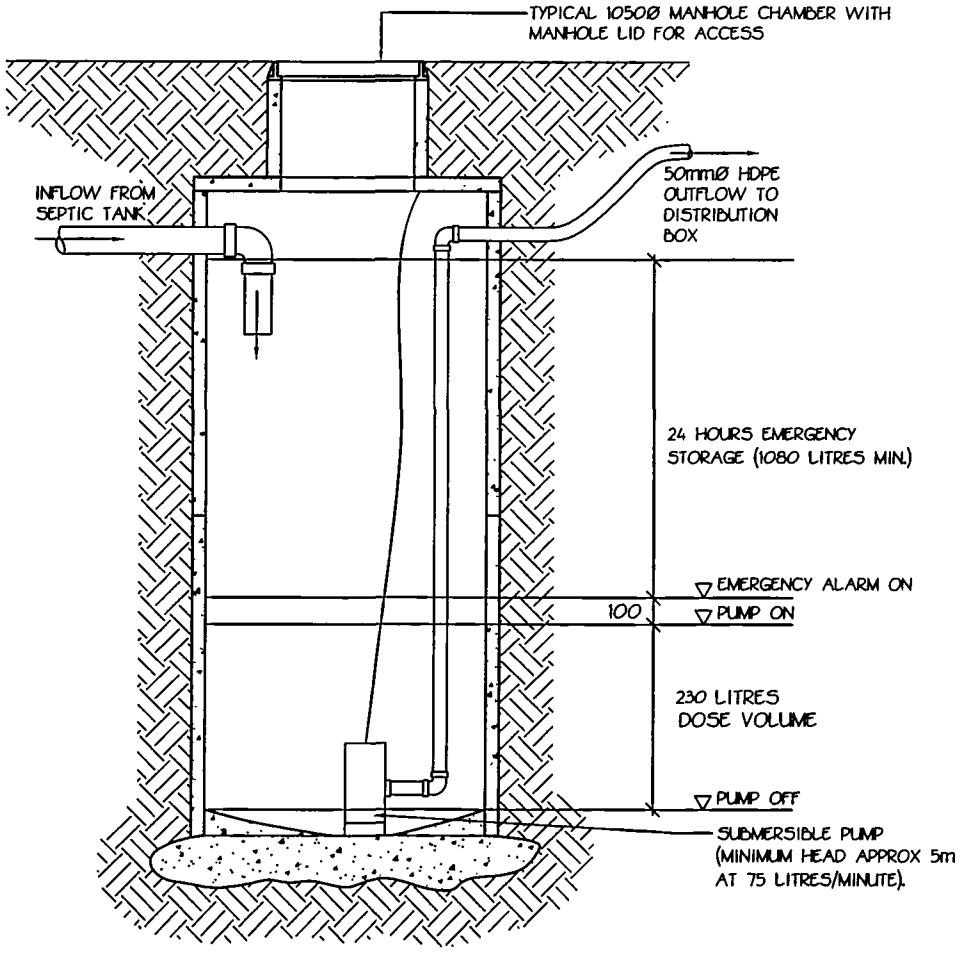
typical septic tank details

DATE	ORIGINAL SIZE	DRAWING No.	SHEET	ISSUE
01/07	A3	23702	C4	A

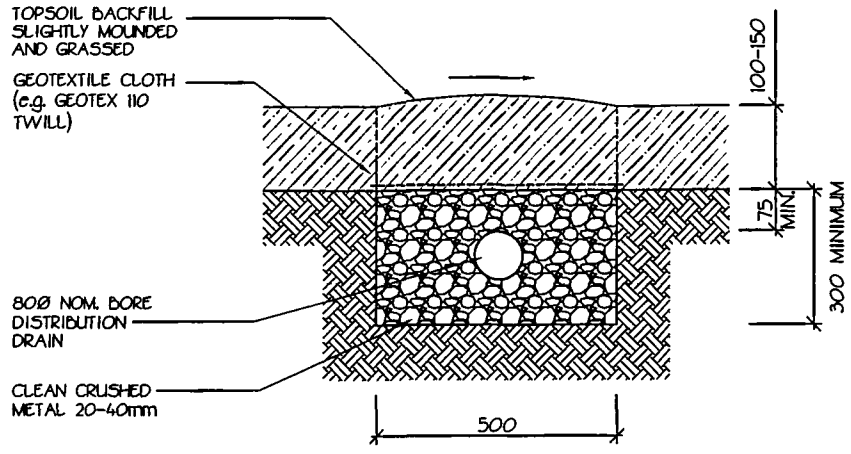
DES LM | DRN BH | CK | CAD \\23702\23702.dwg

0mm 100mm

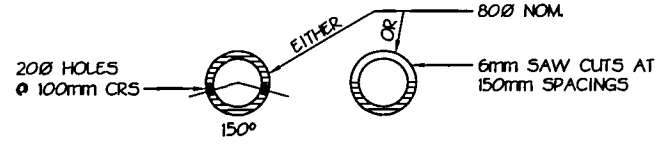
070041



PUMP CHAMBER
1:20



TRENCH.



DISTRIBUTION DRAINS
NTS

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NOTES:
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6.) DISTRIBUTION PIPES TO BE LAID AWAY FROM EFFLUENT ENTRY AT GRADIENT NOT GREATER THAN 1 IN 200.
7.) SIDES AND BASE OF TRENCH TO BE CAREFULLY SCRATCHED WITH A POINTED TOOL BEFORE LAYING FILTER MEDIA.
8.) OPERATION OF DISTRIBUTION SYSTEM TO BE FULLY TESTED PRIOR TO COVERAGE OF PIPEWORK. ENGINEER TO BE PRESENT.

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COLEMAN FAMILY TRUST
LOT 2 DP 356435
THE GROVE, OKIWA BAY

pump/distribution details

DATE	ORIGINAL SIZE	DRAWING No.	SHEET	ISSUE
01/07	A3	23702	C5	A

DES LM | DRN BH | CHK | CAD \\23702\23702.dwg

0mm 100mm

070041

OKIWA BAY

THE GROVE

FLOOD HAZARD ZONE
(AS PER MSRMP)

HOUSE SITE

Pt Lot 1
DP 2044

LOT 1
DP 305501

LOT 2
DP 356435

LOT 1
DP 356435

LOT 1
DP 9917

QUEEN CHARLOTTE DRIVE

STREAM

APPROX. LOCATION OF WELL

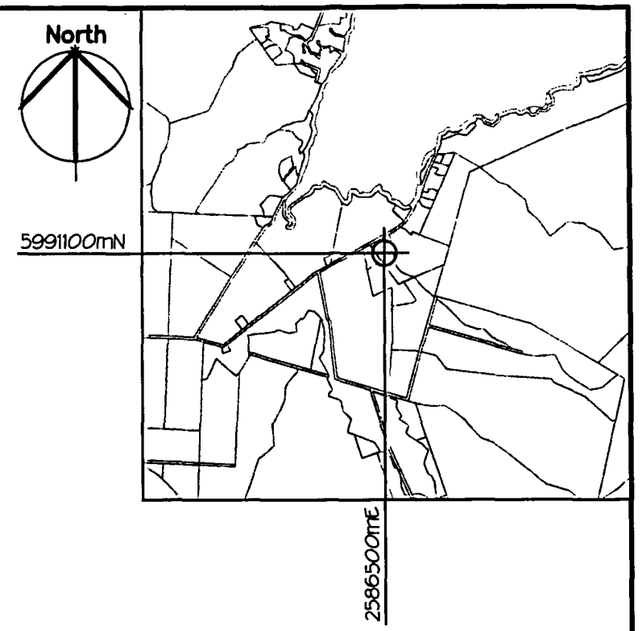
LOT 7
DP 9917

LOT 5
DP 9917

LOT 2
DP 9917

SITE PLAN
1:5000

0mm 100mm



LOCALITY PLAN (NZMS 260 P27)
1:50000

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locality and site plan

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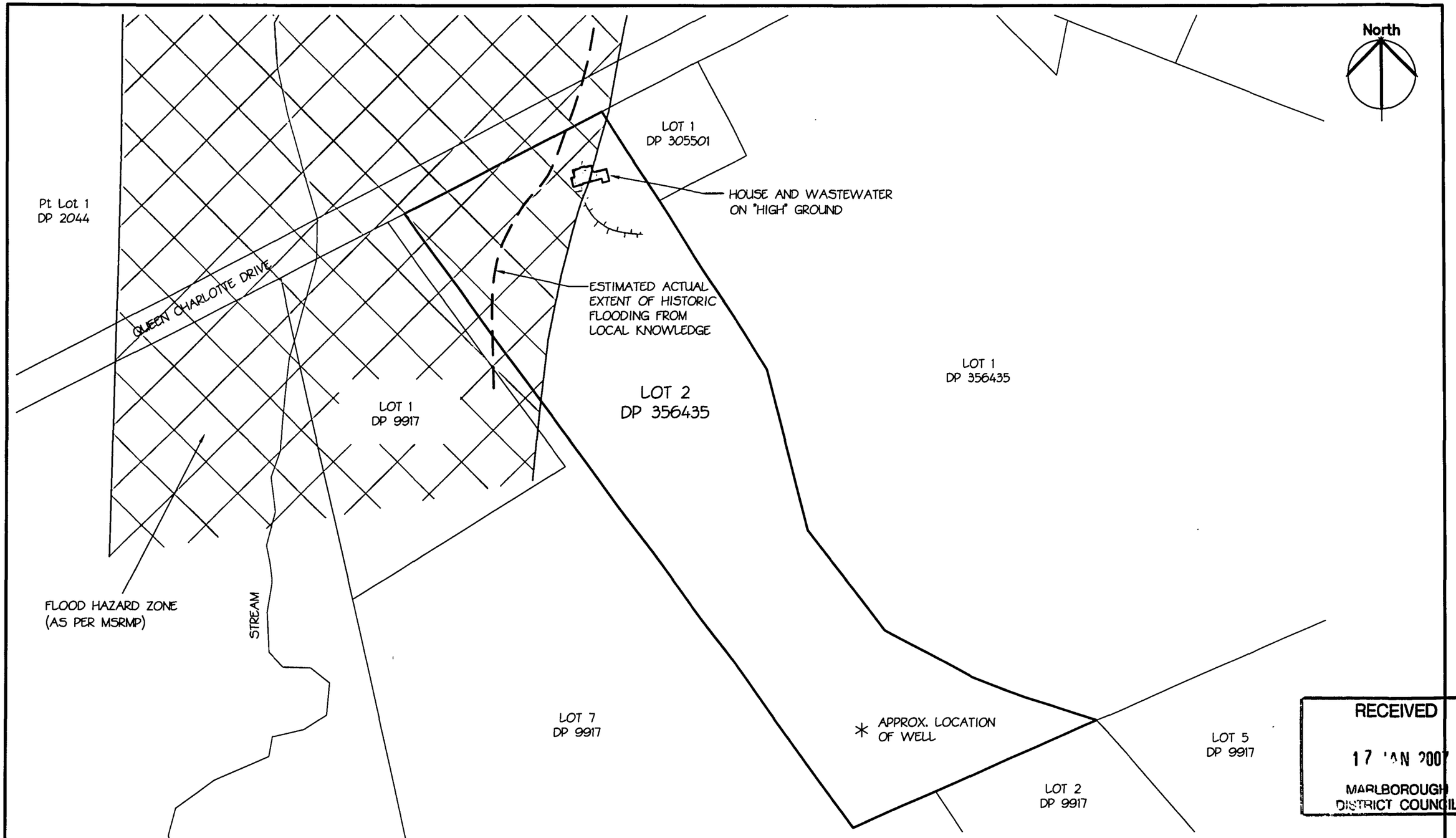
01/07	A3	23702	C1	A

DES LM DRN BH CK CAD \\23702\23702.dwg

070041



PLAN
1:2000

0mm 100mm

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plan – flood hazard zone

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DES LM | DRN BH | CK | CAD \\23702\23702.dwg

070041

LOT 2
DP 356435

LOT 1
DP 305501

North

20.0m

14.0m

TH1

TH2

TH3

TH4

TH5

PROPOSED HOUSE

4000 LITRE (MINIMUM)
SEPTIC TANK

1300 LITRE (MINIMUM)
PUMP CHAMBER

NON RETURN VALVE

PUMPING MAIN
(50 Ø HDPE)

~1:200

~1:200
(TYPICAL)

5 X 22m TRENCHES
(500 WIDE), EACH
CENTRALLY FED FROM
A DISTRIBUTION BOX

5 WAY DISTRIBUTION BOX

PLAN
1:200

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plan – wastewater

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0mm 100mm

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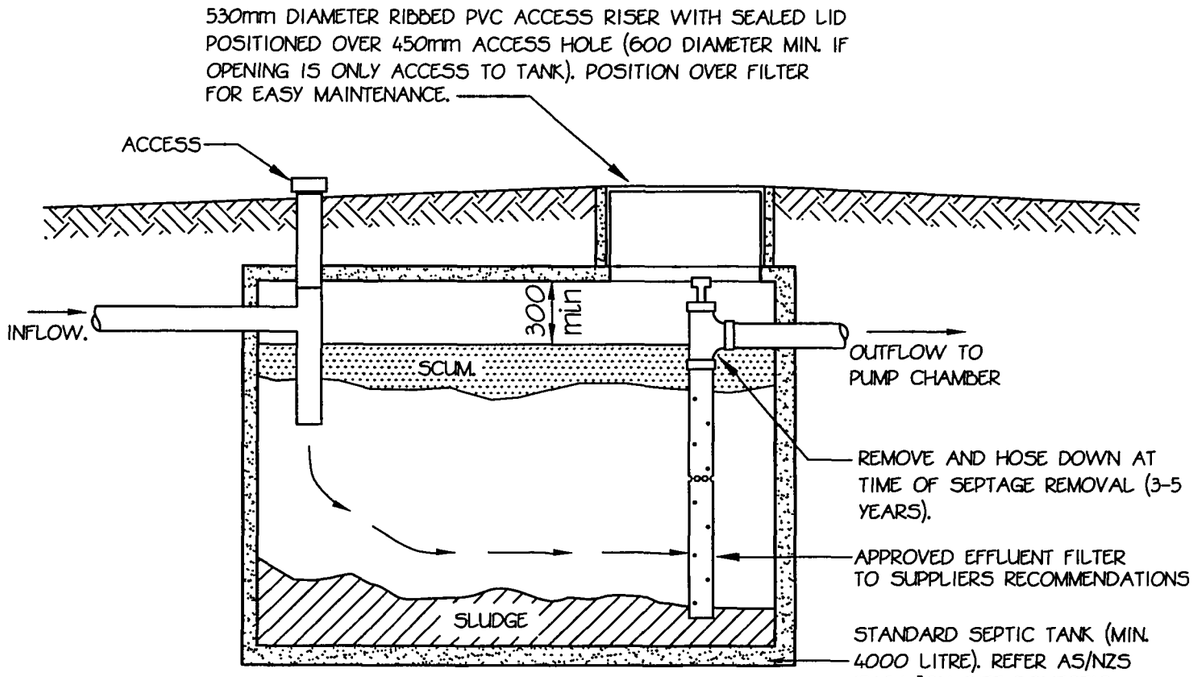

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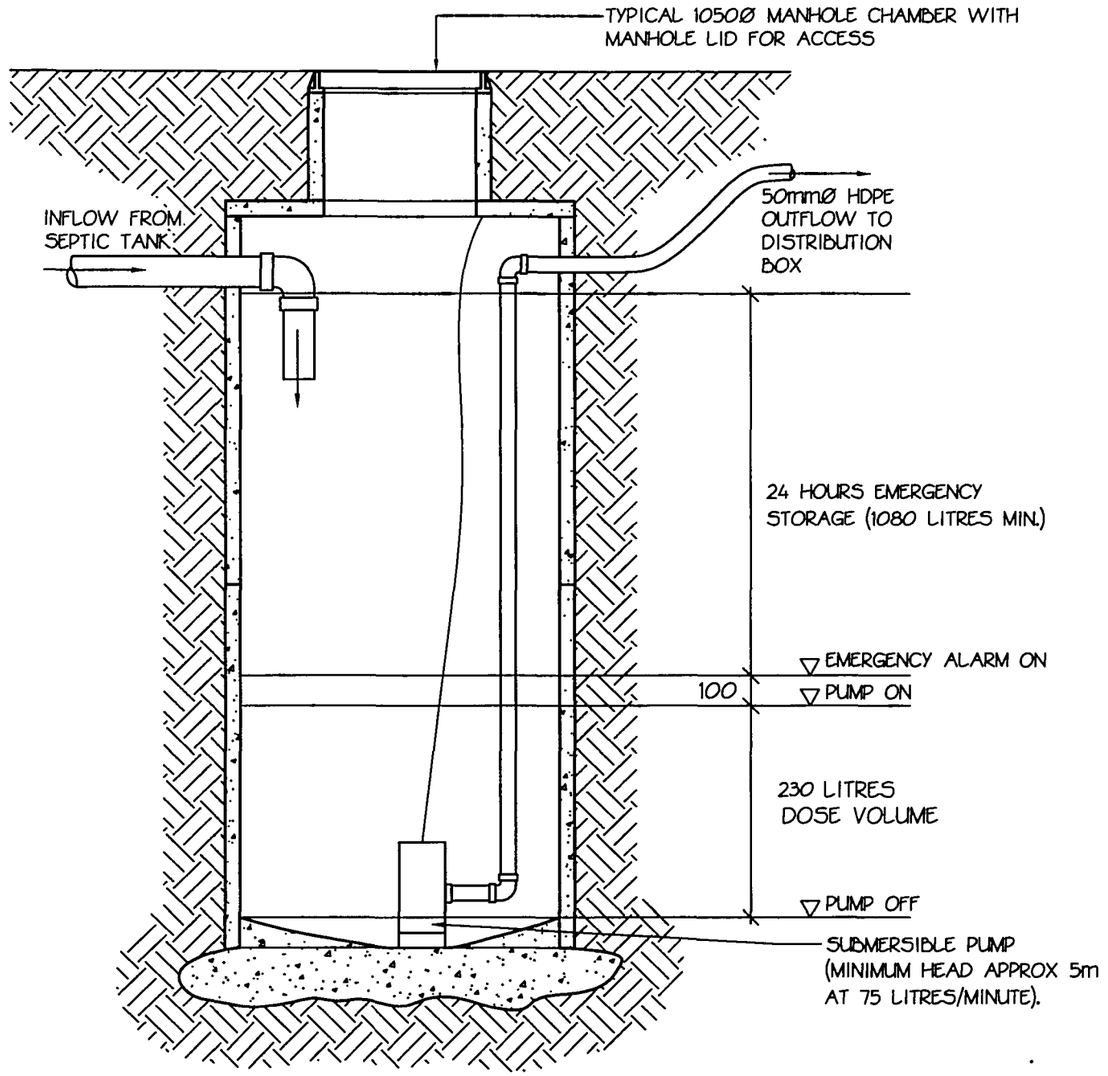

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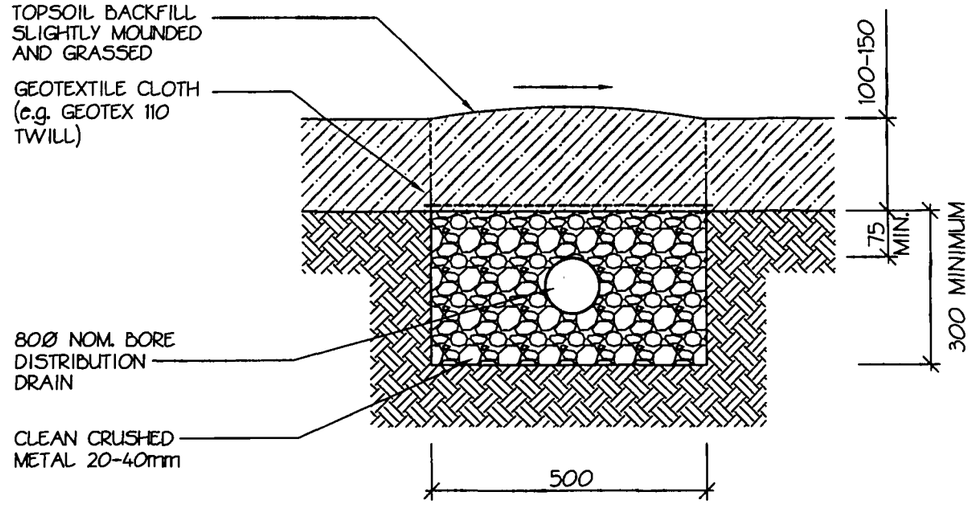

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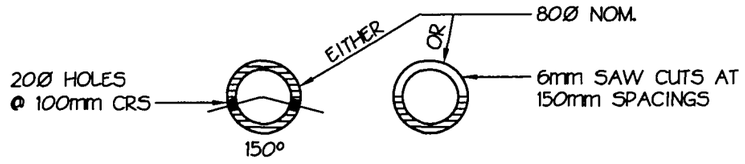

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0mm 100mm

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