CAMERON GIBSON & WELLS LTD

CONSULTING CIVIL & STRUCTURAL ENGINEERS

9953-4

27 January 2003

COPY FOR YOUR INFORMATION

Marlborough District Council
PO Box 443
BLENHEIM

Attention: Angus Laird

Dear Sir

RE: Effluent Field, Proposed Baty Residence, Lot 7 Soucis Lane, Okiwi Bay (ref. U020749)

In response to your request for further information of 13 January 2003 we provide the following:

(a) Description of the soil type.

We have completed further investigation of the soil conditions within the proposed land application areas. The results of that investigation are attached for your information. In summary, the area has a deep underlying layer of very soft highly weather rock, which approaches the consistency of a sandy clay loam when disturbed by auger and wetted. Over this is a layer of weakly structured sandy clay loam to clay loam of varying depth up to 980mm, but generally approximately 300mm thick. A further 150mm layer of strongly structured topsoil covers about two-thirds of the area, the rest being previously stripped. There is a single out-crop of hard rock and an associated small area of fractured gravels. The soil is identified as Category 4.

RECEIVED
12 MAR 2003
MARLBOROUGH DISTRICT COUNCIL

28-02-03

DIRECTORS/REGISTERED ENGINEERS: R.W.L. WELLS BE FIPENZ * S.R. CAMERON BE (HONS) MIPENZ * R.B. GIBSON BE MIPENZ
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(b) Importation of topsoil

The preparation of the land application areas will be as follows:

- The existing topsoil shall be stripped and stockpiled
- The hard rock outcrop shall be removed to a depth of 600mm below finished grade
- The existing clay loam subsoil shall be mixed with the underlying highly weathered rock and contoured to provide a slope of approximately 25% and a minimum depth of reworked soil of 400mm
- At least 100mm of topsoil shall be spread over the area from the stockpile and/or imported as necessary.

The irrigation lines shall then be buried to a depth of 100mm in the topsoil. All areas of the land application area shall be planted as previously indicated. It is our opinion that the reworked highly weathered rock mixed with the clay loam will improve the soil to a Category 3 soil due to the higher sand content. However, the design has been based on Category 4.

In relation to the possible combined effects of the proposed effluent field and the existing field on Lot 6, the driplines for the system at Lot 6 are very close to the property boundary, and at present are uncovered, some laying on rock fill. We understand that these have yet to be covered with a mulch layer. However, if effluent from Lot 6 remains within the property boundaries of that section as is required by the Building Act, there will be no adverse combined effects resulting from the operation of the proposed system for Lot 7. The proposed configuration complies with AS/NZS 1547:2000 for the soils identified.

Reported effluent quality from the Gould system proposed range from 4 to 23 g/m^3 (average 14) BOD and 6 to 29 g/m^3 (average 12.2) suspended solids, which meet the requirements of AS/NZS 1547:2000. Both values are well below the MDC limits for septic tank effluent (100 g/m^3 BOD and 60 g/m^3 SS). It is our opinion that the effluent will be treated to a high standard in the soils within the land application areas.

The preparation of the land application area as indicated above, along with some regrading of the area below the driveway for the installation of the treatment plant, will require the excavation, filling and/or disturbance of approximately 250m^3 of soil. This exceeds the permitted volume of excavation or filling specified in the Marlborough Resource

28-02-03

Management Plan of 20m^3. Therefore, the application for resource consent is amended to include this earthworks. Earth retaining structures will be employed as required along the driveway cut and in the vicinity of the treatment plant to ensure the stability of the fill, and planting of the land application areas will protect the soil from surface erosion.

We trust this provides the information you require.

Yours faithfully

Peter Born
Senior Environmental Engineer
CAMERON GIBSON & WELLS LTD

Approved by
Simon Cameron
CAMERON GIBSON & WELLS LTD

cc: Drew and Raewyn Baty

28-02-03

Baty Effluent Treatment - Okiwi Bay

21.1.03
FB

Site & Soil Evaluation (Re-evaluation)

- Areas previously identified expected available area as North (uphill) side of section & immediately south of access at west side of section.

- Refer site plan for soil test pit/borehole locations

Test Pit #1

0 — Topsoil/minor roots - strongly structured

150 — Clay loam - 5-10% fine gravel occasional coarse gravel (fractured rock) - light brown

700 (borehole) — Clay loam to sandy clay loam - light brown w/ slight grey/red mottle

930

Bore Hole #1

0' — Top soil/ minor roots - strongly structured

150 — Sandy loam - possibly highly weathered rock - many very weak rock fragments - dark brown

600

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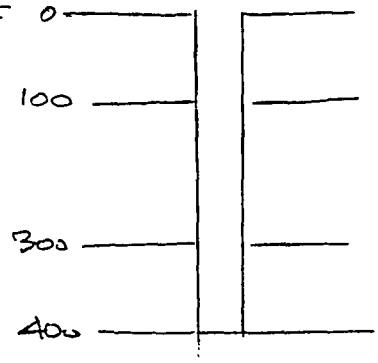
Batty E.T.

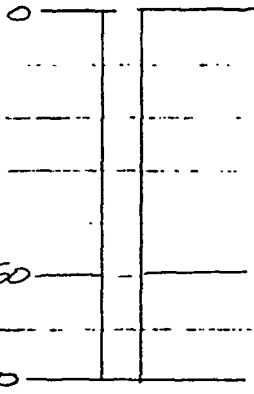
21.1.03
PB

Borehole #2



Topsoil removed
light clay to clay loam
- light brown
Sandy clay loam
- light brown
highly weathered rock

Borehole #4
(below access)



Topsoil removed
clay loam to sandy clay loam
light brown
highly weathered rock
- grey

Exposed drive way cut.

- Top soil removed.
- 0 to 300+ mm (varies) clay loam with many gravel fragments
- remainder of exposed face 1.0m + highly weathered rock of varying colour (near white to dark grey/brown) but almost all very soft
- one hard rock outcrop as indicated on plan

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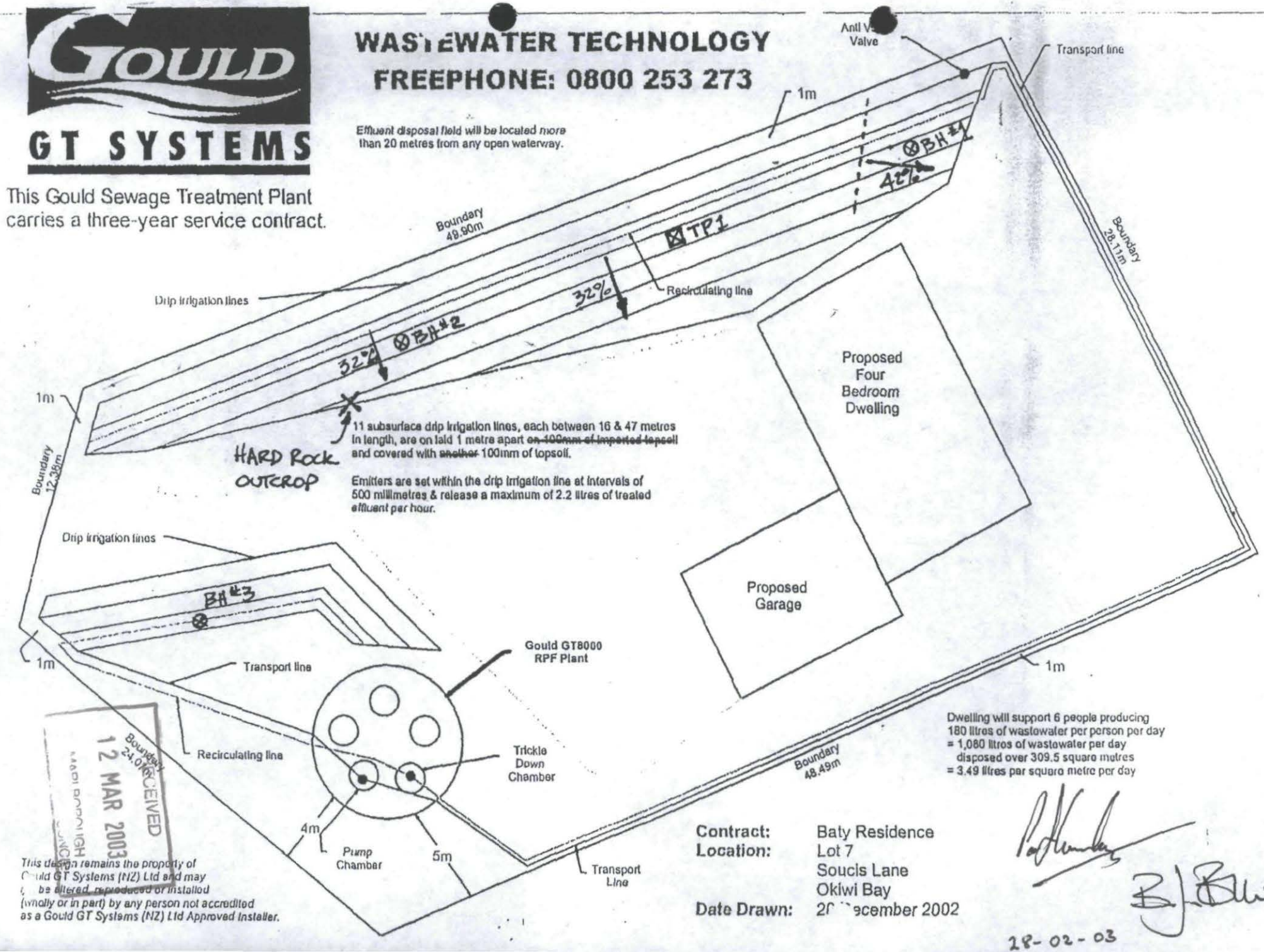
28-02-03

GOULD GT SYSTEMS

WASTEWATER TECHNOLOGY
FREEPHONE: 0800 253 273

This Gould Sewage Treatment Plant carries a three-year service contract.



Dwelling will support 6 people producing
180 litres of wastewater per person per day
= 1,080 litres of wastewater per day
disposed over 309.5 square metres
= 3.49 litres per square metre per day

RECEIVED
12 MAR 2003
KAIPARA DISTRICT COUNCIL

Contract: Baty Residence
Location: Lot 7
Soucis Lane
Okiwi Bay

Date Drawn: 20 December 2002

28-02-03

CAMERON GIBSON & WELLS LTD

CONSULTING CIVIL & STRUCTURAL ENGINEERS

9953-3

8 January 2003

Marlborough District Council
PO Box 443
BLENHEIM

Attention: Angus Laird

Dear Sir

RE: Effluent Field, Proposed Baty Residence, Lot 7 Soucis Lane, Okiwi Bay (ref. U020749)

In response to your second request for further information of 13 November 2002 we offer the following information:

(a) A description of the soil type and depth over the waste water disposal area.
As already described in the application the soil has been classified as weakly structured clay loam. This has been easily assessed on this site from the cut face exposed by the driveway. This soil overlies fractured weathered rock at varying depths.

AS/NZS 1547:2000 states that for soil depth 'a minimum of 0.4 m below bottom of dripper lines is desirable'. We acknowledge there is minimal topsoil in places on the site, however our assessment is that there is typically 400 mm of the weakly structured clay loam over the site.

(b) Bark may not provide the retention time that imported top soil would.
We believe that using shredded bark or mulch is better than importing topsoil from a treatment point of view, however, if you feel uncomfortable with this we could use 200 mm of imported topsoil over the disposal field area. This ground will need to be benched on the steeper slopes prior to topsoil placement to prevent the topsoil eroding downslope.

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The owner proposes to plant out all areas of the effluent field which will reduce the effluent loading on the soil and will provide stability of the bark or topsoil.

(c) Written approval from the owners/occupiers of Lots 8, 9, 10, 11 DP 20444.
These written approvals are attached. As a result of the consultation, the location of the driplines has been altered. The amended site plan is attached.

We hope this information answers your questions.

Yours faithfully

Leanne Reeve
Environmental Engineer
CAMERON GIBSON & WELLS LTD

Approved by
Simon Cameron
CAMERON GIBSON & WELLS LTD

cc: Drew and Raewyn Baty

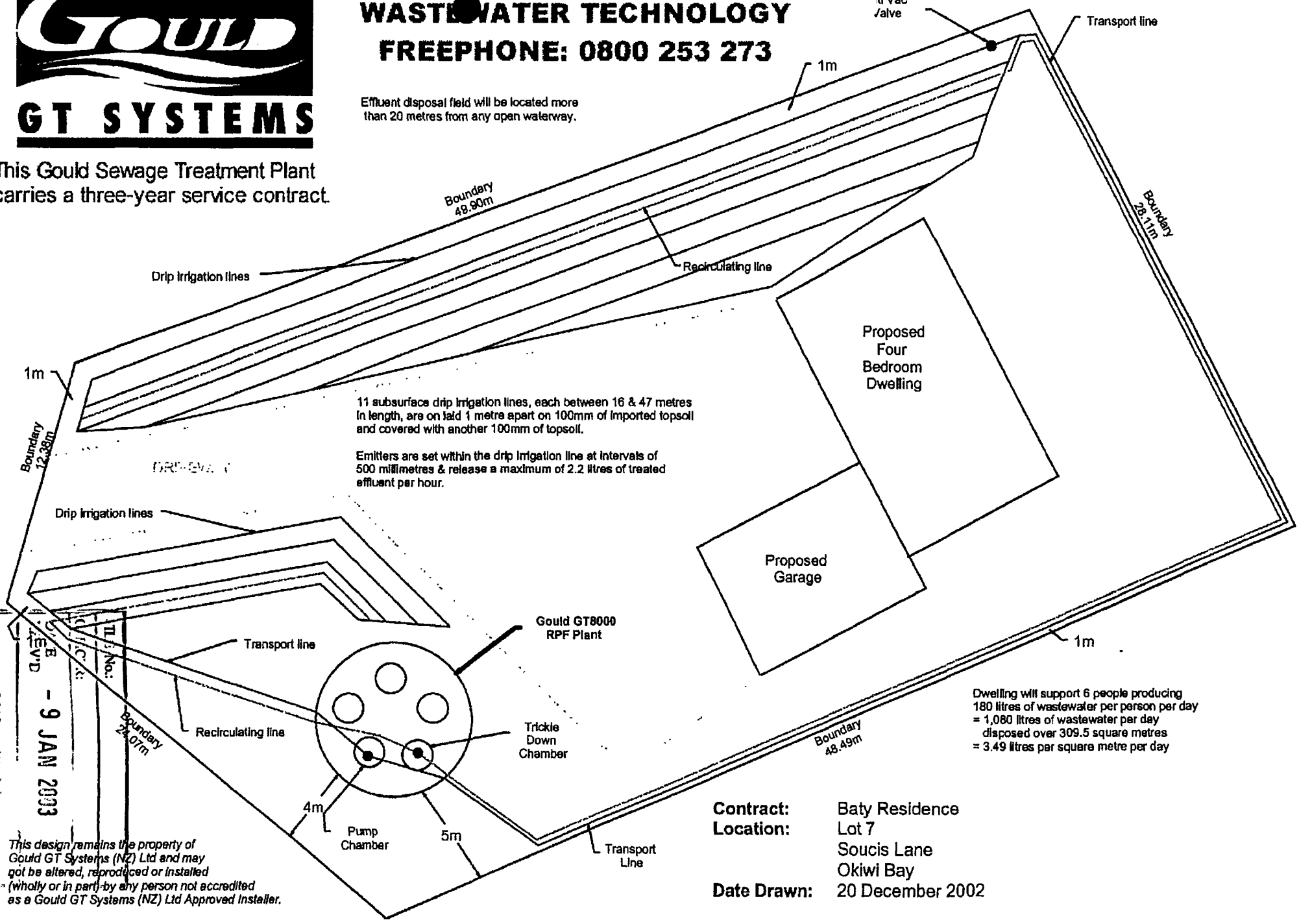
GOULD

GT SYSTEMS

WASTEWATER TECHNOLOGY

FREEPHONE: 0800 253 273

This Gould Sewage Treatment Plant carries a three-year service contract.



Contract: Baty Residence
Location: Lot 7
Soucis Lane
Okiwi Bay
Date Drawn: 20 December 2002

File Ref: U020749

Case Officer: Angus Laird

13 Nov 2002

ISO 9002
Form Ref CI 352

S92 request

Drew and Raewyn Baty
65 Michael Road
Paraparaumu 6010

Dear Drew and Raewyn,

Application for Resource Consent
Baty, William Drew
Soucis Lane Okiwi Bay
Section 92 – Request for Further Information

Thank you for the further information received 11 November 2002, there are however a number of issues which require further clarification;

a) As requested in my previous letter, a description of the soil type and depth over the waste water disposal area and a description of how this was assessed (eg test bores etc). Please note that there are requirements for a soil depth of 0.4m minimum below the irrigation lines under AS/NZS 1547:2000.

b) I have some concern that bark may not be an appropriate medium at this site as the area has potentially high rainfall and bark may not provide the retention time that imported top soil would, could you please comment on this.

As the revised application area is close (1m) to down slope boundaries, the owners/occupiers of this land have been deemed to be potentially affected parties, and as such to continue to process this application on a non-notified basis requires the written approval of these parties, being;

i) The owners/occupiers of Lot 8, 9, 10, 11 DP 20444, being Okiwi Bay Limited.

(Lots 9, 10, & 11 are included as they have an interest in the right of way which provides access for the lots).

The required form is enclosed.

While we are waiting for this information the statutory time clock effectively stops and will restart once this information is received. If you anticipate a lengthy delay in obtaining this information, please contact us.

If you consider that this request for further information is unreasonable, then you may exercise your right under section 357 of the Resource Management Act 1991 and lodge an objection to this request. Any notice of objection should be in writing and be made within 15 working days of the date of this letter.

If you have any questions regarding this request, please do not hesitate to contact me.

Yours sincerely

Angus Laird
RESOURCE MANAGEMENT OFFICER

Cc Leanne Reeve

\\S....O:\ResourceConsent\2002\020501-020750\U020749-Baty-discharge-sec92-ala1-le.doc Saved 18/11/02 15:24

CAMERON GIBSON & WELLS LTD

CONSULTING CIVIL & STRUCTURAL ENGINEERS

9953-2

7 November 2002

Marlborough District Council
PO Box 443
BLENHEIM

Attention: Angus Laird

Dear Sir

RE: Effluent Field, Proposed Baty Residence, Lot 7 Soucis Lane, Okiwi Bay (ref. U020749)

We have changed our design for the effluent treatment on the above site from the documentation submitted to you on 29 July 2002.

The design flow remains at 1080 L/day as the average flow derived from a four bedroom house. The treatment plant has been changed to a Gould GT8000 RPF Plant (Recirculating Progressive Filtration – information enclosed).

Based on a design irrigation rate of 25 mm/week, the drip irrigation field has been increased to a minimum size of 303 m² as shown on the attached Gould design plan (331 m² available). The drip irrigation lines are to be laid on the ground and covered with 60 – 100 mm of bark or mulch.

All effluent field areas will be planted out by the owners.

In response to your request for further information of 30 July 2002 we offer the following information:

DIRECTORS/REGISTERED ENGINEERS: R.W.L. WELLS BE FIPENZ • S.R. CAMERON BE (HONS) MIPENZ • R.B. GIBSON BE MIPENZ
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(a) A site description outlining the distances to any other effluent disposal fields and their types.

The property to the north (Lot 6) has recently had a Gould GT8000 RPF Plant installed with drip irrigation lines to service their new three bedroom house (refer attached design plan). The drip irrigation lines are shown to be within 5 m of the boundary to the Baty property.

There are currently no dwellings on the other immediately neighbouring properties (Lots 4 and 8).

(b) The potential environmental effect of this close proximity.

The land slopes in general from Lot 6 to Lot 7, meaning it is unlikely any system installed on Lot 7 will cause any effects on Lot 6.

(c) Steps taken to minimise the environmental effect of the proposal.

The proposed effluent field as shown on the attached design plan is to cover a minimum of 303 m² which meets the design requirements of AS/NZS 1547:2000 for weakly structured clay loam with a design irrigation rate (DIR) of 25 mm/week.

In your letter of 20 August 2002, you express concern at an apparent lack of topsoil on the site. We acknowledge there is minimal topsoil and have considered importing topsoil to rectify this. We consider that the irrigation lines laid on top of the existing topsoil and covered with 60 – 100 mm of mulch or bark will provide a better solution.

All areas of the effluent field will be planted out by the owner.

(d) Alternate sites and methods considered for the disposal field.

There were no alternate sites considered for the disposal field as the effluent field as designed already takes up all the space available and suitable for effluent treatment within the site boundaries.

Effluent trenches were considered for use as the disposal field, however, due to the requirement of trenches to be level to promote even distribution of the effluent, this proved difficult on this site.

Pressurised drip irrigation provides more flexibility with regards to field layout and location and allows for more security in the even distribution of effluent over the entire field.

(e) An identification of those persons interested in or affected by the proposal.
As already discussed, Lot 6 is unlikely to be affected by the proposed effluent treatment, as it is uphill of Lot 7.

There are two irrigation lines shown to be adjacent to the boundary with Lot 8, the closest being 1 m from the boundary. We are confident that due to the low daily loading rate of effluent and planting proposed by the owner, that there will be no carry-over of effluent to Lot 8.

I hope this information satisfies the information you require.

Yours faithfully

Leanne Reeve
Environmental Engineer
CAMERON GIBSON & WELLS LTD

Approved by
Simon Cameron
CAMERON GIBSON & WELLS LTD

cc: Drew and Raewyn Baty

GOULD

GT SYSTEMS

Specialist Manufacturers of Wastewater Treatment Plants and Septic Tank Filters

The Gould GT8000 RPF System ...

(Recirculating Progressive Filtration)

specifically has the following benefits:

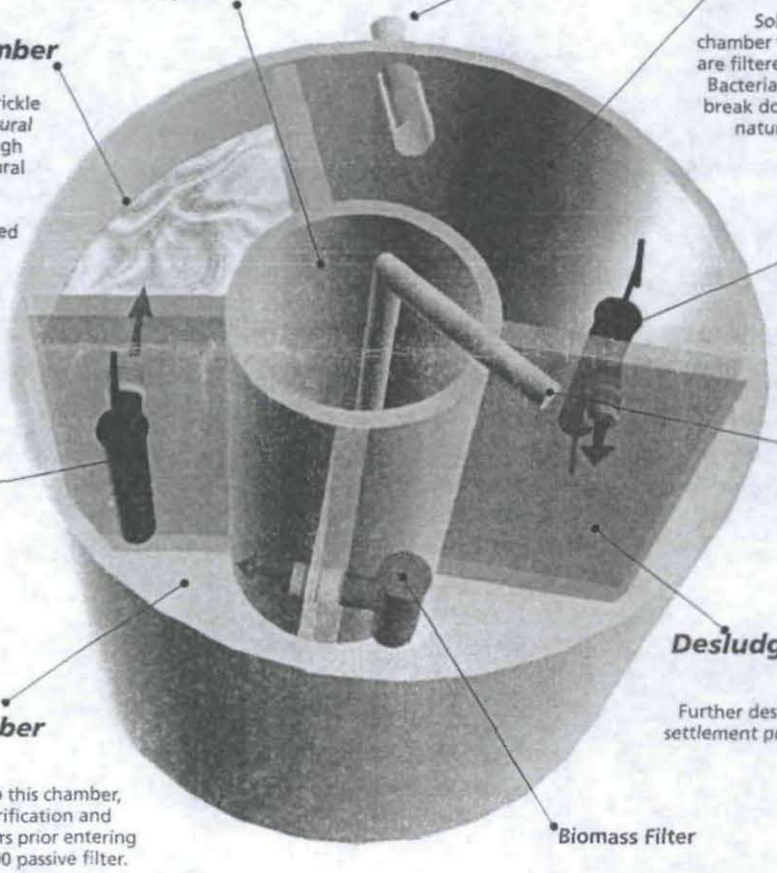
- Less maintenance than other advanced systems.
- Fewer pumps.
- Requires less electricity than other similar systems.
- Includes a trickledown saNZeo™ filter.

Pump Chamber
900L STAGE 5
Processed effluent is pumped out to a disposal field.

Inlet

Primary Chamber
3300L STAGE 1
Solids enter the primary chamber through the inlet and are filtered by the GT150 filter. Bacteria residing on the filter break down the solids using a natural biological process.

saNZeo Filter Chamber
1400L STAGE 4
The saNZeo filter is a micro trickle down filter that utilises a natural product. Effluent flows through the filter where another natural biological process occurs. Non-dispersed effluent from the disposal field is recirculated back to the primary chamber for further treatment.



Gould GT150 reduces solids to 1mm in diameter.

Outlet

Gould GT500 Filter removes solids larger than 100 microns in diameter.

Desludging Chamber
1700L STAGE 2
Further desludging occurs to aid settlement prior to clarification in Stage 3.

Clarification Chamber
1700L STAGE 3
Desludged effluent flows into this chamber, which is essentially where clarification and stabilisation of the liquid occurs prior entering the saNZeo filter via the GT500 passive filter.

Biomass Filter

FREEPHONE 0800 253 273

• TEL: 64-6-353-6157 • FAX: 64-6-353-3020 • MOBILE: 021-505-198
• PO BOX 4196 • PALMERSTON NORTH
• EMAIL: gouldsystems@xtra.co.nz
• WEBSITE: www.gouldgtsystems.com

GOULD

GT SYSTEMS

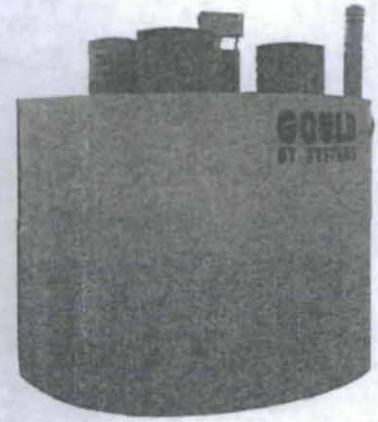
Specialist Manufacturers of Wastewater Treatment Plants and Septic Tank Filters

The Gould GT8000 RPF Wastewater Treatment Plant

The GT8000 RPF Wastewater Treatment Plant produces superior quality effluent and is ideal for use in environmentally sensitive locations or locations where high water table levels exist. The treatment plant uses the latest development in effluent filter technology, the Gould GT500 or the Gould GT100 Turbo Filter for high volume flows.

The GT8000 RPF Wastewater Treatment Plant offers:

- The opportunity to recycle your own effluent by using it to irrigate gardens, trees, lawns and shelter belts.
- An environmentally friendly system that is easily installed.
- Low maintenance requirements.
- Large 9000 litre capacity suited for domestic and small commercial properties.
- A three year service and parts replacement contract to ensure your systems optimal performance.
- Prompt and on-going support from Gould GT Systems.
- Resulting high-quality effluent at an affordable price.



The GT8000 RPF ready for installation

Gould GT100 Turbo Effluent Filter

The GT100 Turbo Effluent filter is a self cleaning filter that reduces suspended solid particles size to a minimum of 100 microns in diameter.

This system is ideal for properties with limited amounts of topsoil, poor soakage and also for environmentally sensitive areas. The domestic plant caters for low flows up to 2000 litres per day and our commercial system for flows up to 100,000 litres per day.

Gould GT Systems (NZ) Limited is committed to producing the best effluent systems available. We contribute substantial resources to the development of superior wastewater treatment plants so that our clients are assured of owning systems that provide long term effective and environmentally friendly sewerage treatment.

Gould GT Systems (NZ) Limited, or their Approved Installers, deliver and install the GT8000 RPF Wastewater Treatment Plant.

Dimensions:

Diameter: 2.5 metres

Height: 2.4 metres from base to top of inspection risers

Installed price $

FREEPHONE 0800 253 273

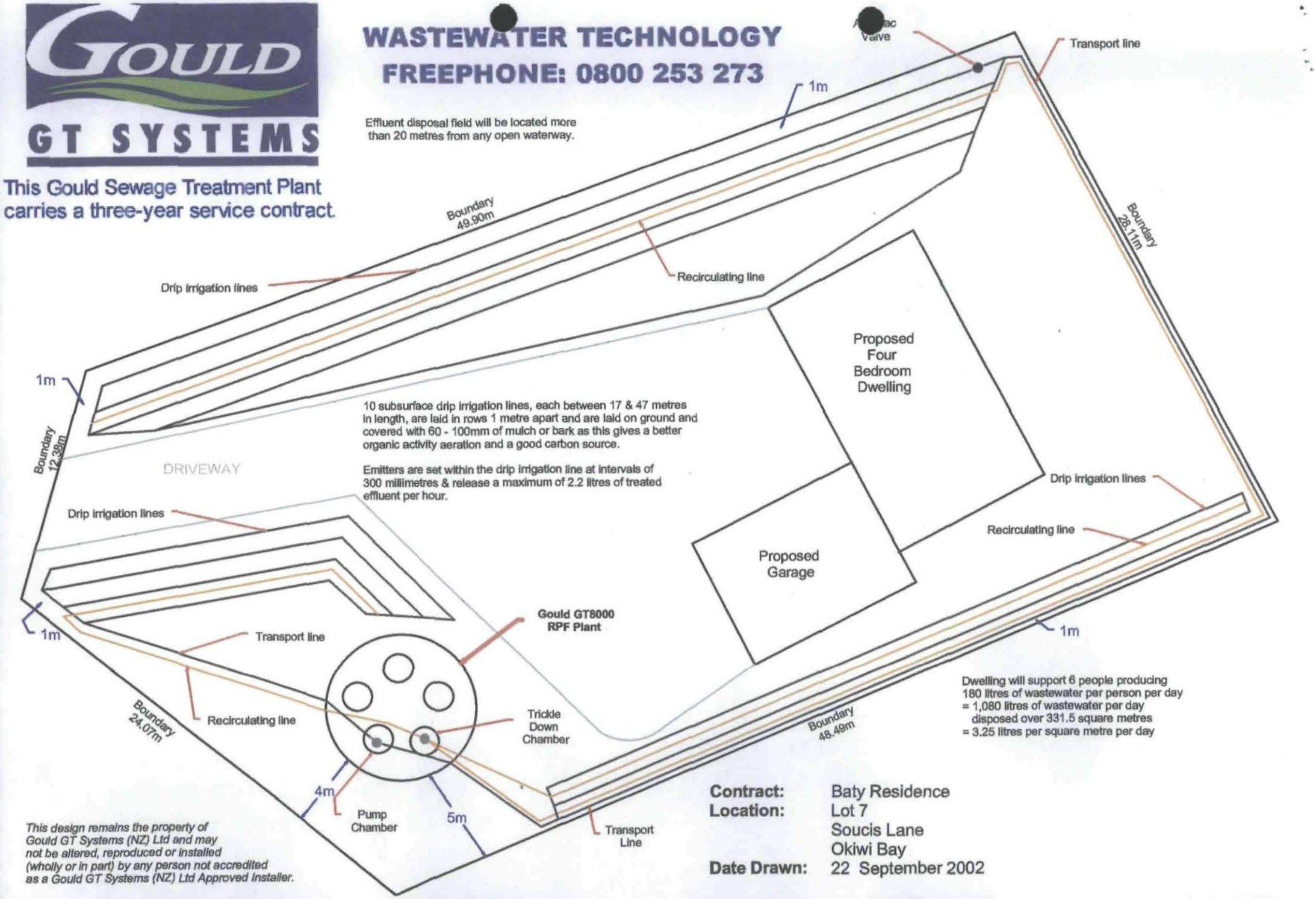
• TEL: 64-6-353-6157 • FAX: 64-6-353-3020 • MOBILE: 021-505-198
• PO BOX 4196 • PALMERSTON NORTH
• EMAIL: gouldsystems@xtra.co.nz
• WEBSITE: www.gouldgtsystems.com

GOULD

GT SYSTEMS

WASTEWATER TECHNOLOGY
FREEPHONE: 0800 253 273

This Gould Sewage Treatment Plant carries a three-year service contract.



Contract: Baty Residence
Location: Lot 7
Soucis Lane
Okiwi Bay
Date Drawn: 22 September 2002

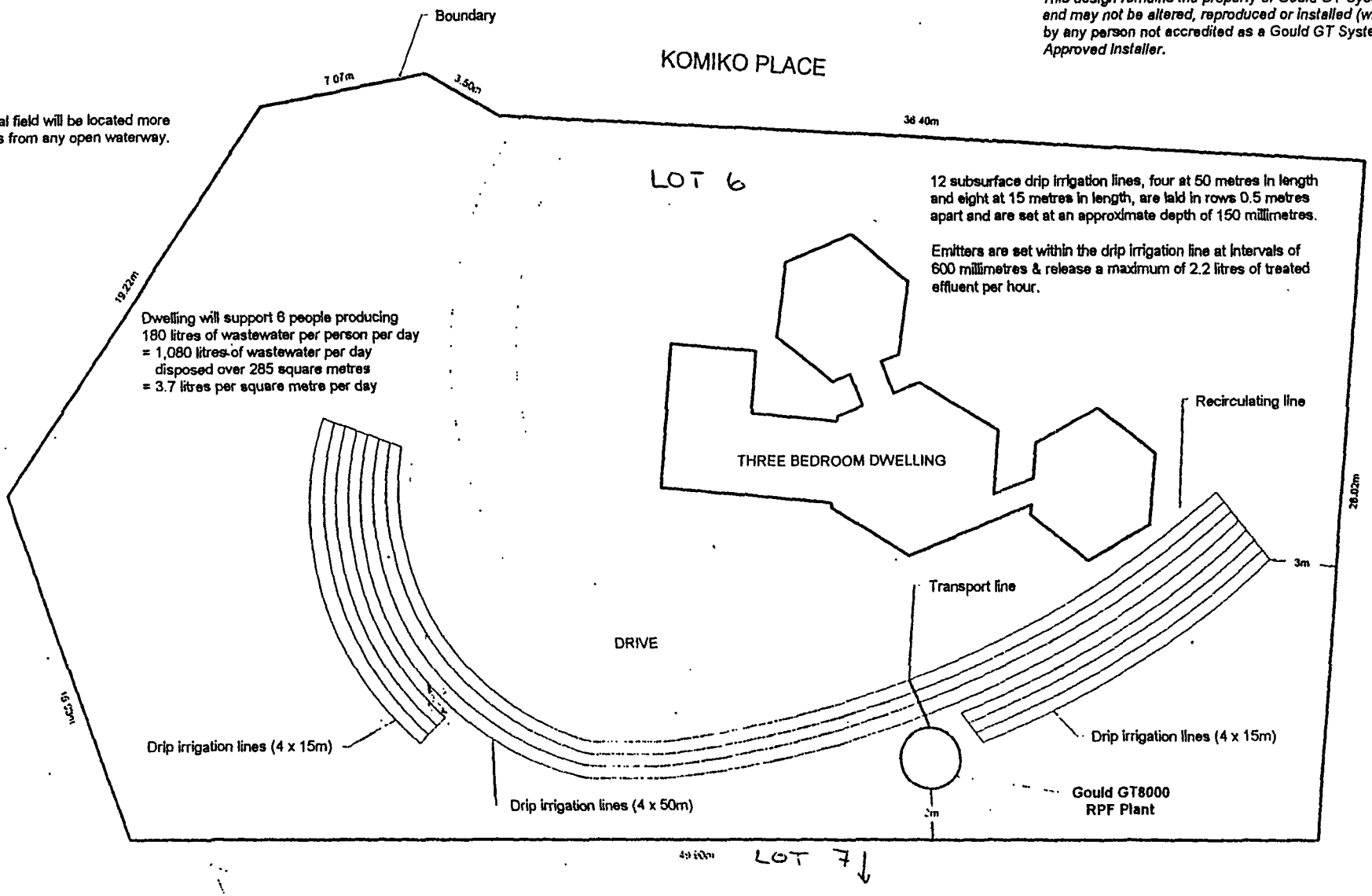
GOULD
GT SYSTEMS

WASTEWATER TECHNOLOGY
FREEPHONE: 0800 253 273

This Gould Sewage Treatment Plant carries a three-year service contract.

Contract: Beth Elliot & Paul Standing
Location: Kamiko Place
Okiwi Bay
Marlborough Sounds

Date Drawn: 25 March 2002



File Ref: U020749

Ask For: Angus Laird

Drew and Raewyn Baty
65 Michael Road
Paraparaumu

20/08/02

Dear Drew and Raewyn,

Resource Consent Application, Soucis Lane, Okiwi Bay

Further to our recent telephone conversation(s) please find enclosed a plan of the waste water disposal system to be installed on the property adjacent to yours at Okiwi Bay.

With regard to the system proposed for your property, there appears to be a problem with the size of the waste water disposal field. This appears to come about as a result of the design engineer using a design loading rate (DLR) for trenches and applying it to the proposed subsurface irrigation system (DIR). It is not possible to assess this application until this apparent design over sight is explained or rectified.

Also after visiting the site, I am concerned at the apparent lack of top soil and the lack of any apparent evidence that the soil depth and type have been accurately assessed (as required by the AS/NZS 1547:2000, a national standard for domestic waste water management).

As stated in my previous letter this application cannot be accepted until the required information is received and the apparent design problems are rectified.

Please contact me if you have any further quires regarding this application.

Yours faithfully

ANGUS LAIRD
RESOURCE MANAGEMENT OFFICER

Cc Leanne Reeve

CAMERON GIBSON & WELLS LTD

CONSULTING CIVIL & STRUCTURAL ENGINEERS

9953-1

1 July 2002

Drew and Raewyn Baty
65 Michael Rd
PARAPARAUMU

Dear Sir / Madam

RE: Effluent Field, Proposed Baty Residence, Soucis Lane, Okiwi Bay, Lot 7 DP 1890

The following report outlines the design of a suitable system to be assessed by the Marlborough District Council for compliance with existing drainage requirements in order to obtain Building Consent. The only aspect of the proposed discharge to land which is not permitted under the Proposed Marlborough Sounds Resource Management Plan is that the effluent field is to be located within 50 m of another effluent field, therefore Resource Consent is also required.

The system involves an Advantex™ recirculating textile packed bed reactor providing high quality effluent with land based treatment via small diameter RAAM dripline.

1.0 Design Flows

The system has been designed based on wastewater flows expected from a four bedroom dwelling. This fits the long-term plans of the site owner, however, in the short / medium term there is only to be a two bedroom batch.

2.0 Treatment Plant

Wastewater flows shall drain to the Advantex™ treatment plant. This consists of a tank with a nominal size of 7200 L which is divided into three compartments and the textile packed bed reactor.

Pre-treatment occurs in the septic chamber (operating volume 4000 L) which provides adequate retention of design flows to allow for a significant reduction in suspended solids concentrations. The settled sewage flows by displacement into the recirculation chamber (operating volume 2000 L). A screened pump vault and a splitter valve ensure that flows are recirculated through the packed bed

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191 HIGH STREET MOTUEKA PHONE 0-3-528 8123 FAX 0-3-528 4456

reactor at a recycle ratio of 4:1, with a fraction being split off into the treated effluent tank (operating volume 1200 L).

Treated effluent is then pumped to the effluent field.

The treatment plant should be checked and serviced as required by the manufacturer (Innoflow Technologies Limited).

3.0 Effluent Field

Small diameter RAAM dripline shall be utilised to release flows into the soil for further treatment. The design loading rate is set at 20 mm/day based on the capability of the soil to accept effluent. Refer to Appendix One for the design basis of the system.

A dosed system practically eliminates the possibility of effluent field failure due to the trickle failure problems common with gravity-fed systems.

RAAM dripline has pressure compensating drippers which allow the dripline to be laid along uneven surfaces (i.e. it is not crucial for the treatment surface to be level as with other systems).

4.0 Conclusion

A wastewater management system has been selected to serve the Baty residence in accordance with AS/NZS 1547:2000. The system is appropriate to the site and to the long term plans of the owners to expand the dwelling to four bedrooms.

In the immediate future the dwelling is to be a 2 bedroom batch, and the system proposed is capable of handling the intermittent and / or short term peak loading expected from a batch without significantly compromising the effluent quality.

If you have any queries regarding the system outlined in this report, please contact the writer.

Yours sincerely

Leanne Reeve
Cameron Gibson & Wells Ltd

Approved by

Simon Cameron
Cameron Gibson & Wells Ltd

Appendix One

Design basis for the proposed wastewater treatment and effluent field system.

Design Flow

No. of bedrooms	=	4
Design population	=	6 (Gunn, 1994)
Per capita design flow	=	180 L /cap/day
Design flow, Q	=	1080 L / day

Pre-treatment – Septic Chamber

Operating volume	=	4000 L
Retention time	=	3.7 days

Recirculation Chamber

Operating volume	=	2000 L
Screened pump vault	=	Orenco Biotube™ PVU57-24
Recirculating pump model	=	PA1003 high head turbine submersible pump (timer controlled)
Splitter valve recycle ratio	=	4:1

Secondary Treatment – Textile Recirculating Packed Bed Reactor

Size	=	1.1 m^2 x 0.9 m high
Capacity	=	1.1 L / day
Effluent Quality	=	BOD < 15 mg/L
		SS < 15 mg/L

Treated Effluent Tank

Operating volume	=	1200 L
Pump model	=	Tesla Diver75

Application Rate

Soil category	=	4 (Weakly structured clay loam, imperfectly drained) (AS/NZS 1547:2000)
Design Loading Rate (DLR)	=	20 mm/day (for secondary treated effluent)

Effluent Field

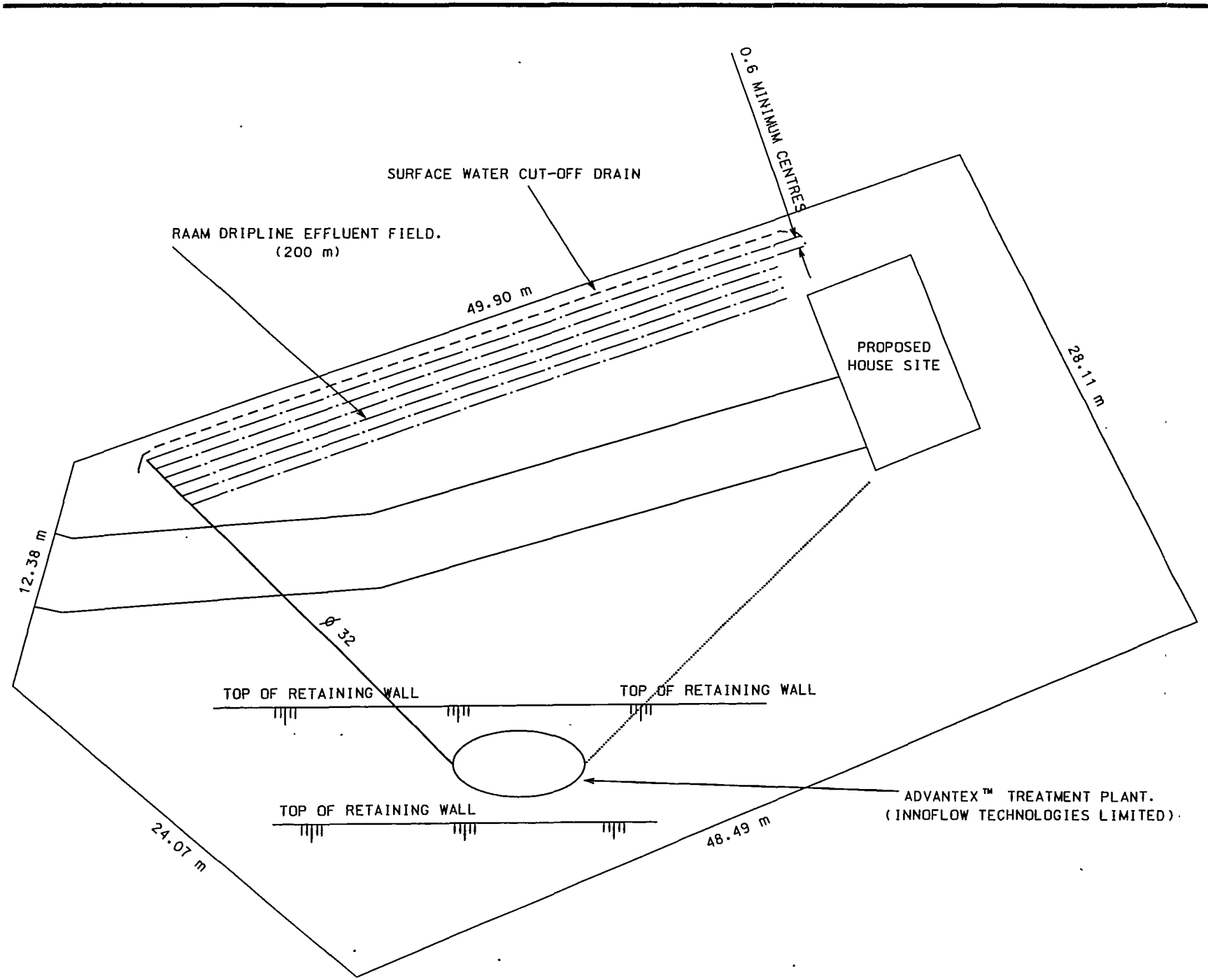
RAAM Dripline

Treatment area	=	1080 ÷ 20
	=	54 m^2
Total distribution length	=	200 m
Width of treatment area	=	0.27 m
Distance between trenches	=	minimum 0.6 m centres

Appendix Two Drawings

9953, Sheet 1: Site plan

020749



Notes

(1) Verify all dimensions on site
(2) Do not scale from drawing
(3) Exact location of treatment plant to be determined on site.

ACENZ

RECEIVED
29 JUL 2002
MARLBOROUGH
DISTRICT COUNCIL

No	Date	Amendment	Drn	Chd	Apd
A	01/07/02	FOR BUILDING CONSENT	JH		

CAMERON GIBSON & WELLS LTD
CONSULTING CIVIL & STRUCTURAL ENGINEERS
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Design	LR
Drawn	JWH
Checked	
Approved	
Date	01/07/02

Job Title

BATY RESIDENCE
SOUCIS LANE
LOT 7 DP 1890

Drawing Title

EFFLUENT FIELD
SITE PLAN

Scale	Of Sheets
1:200	1
Job No	Sheet
9953	1

File Ref: U020749

Case Officer: Angus Laird

ISO 9002
Form Ref CI 352
S88 Non
Acceptance

30 Jul 2002

Baty, William Drew
65 Michael Road
Paraparaumu 6010

Dear Mr Baty

Application for Resource Consent
Baty, William Drew
Soucis Lane Okiwi Bay

The Council acknowledges receipt of your application, received on 29 Jul 2002.

Your application does not contain sufficient information for it to be accepted in accordance with section 88 of the Resource Management Act 1991. Would you please provide the following information:

An assessment of the environmental effects in accordance with Section 88 of, and the Foruth Schedule to, the Resource Management Act 1991. It may be advantageous to have a professional experienced in this type of assessment compile this. It will need to address, but not be limited to;

(a) A site description outlining the distances to any other effluent disposal fields and their types.

(b) The potential environmental effect of this close proximity.

(c) Steps taken to minimize the environmental effect of the proposal.

(d) Alternate sites and methods considered for the disposal field.

(e) An identification of those persons interested in or affected by the proposal.

Could you please check the legal description as I am unable to locate the site with the legal description provided. Also the property number needs to be provided and the application needs to be signed (it is enclosed).

Once you have provided this information the application shall be deemed to be accepted, with the statutory period in which the Council has to complete the processing of the application commencing from the date of receipt of this information.

If you wish to discuss this request or have difficulty completing this requirement, please do not hesitate to contact me.

The reference number of your application is U020749. It is helpful if you have this number available when making any enquiries regarding this application.

Yours sincerely

Angus Laird
RESOURCE MANAGEMENT OFFICER

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CAMERON GIBSON & WELLS LTD

CONSULTING CIVIL & STRUCTURAL ENGINEERS

9953-1

1 July 2002

Drew and Raewyn Baty
65 Michael Rd
PARAPARAUMU

Dear Sir / Madam

RE: Effluent Field, Proposed Baty Residence, Soucis Lane, Okiwi Bay, Lot 7 DP 1890

The following report outlines the design of a suitable system to be assessed by the Marlborough District Council for compliance with existing drainage requirements in order to obtain Building Consent. The only aspect of the proposed discharge to land which is not permitted under the Proposed Marlborough Sounds Resource Management Plan is that the effluent field is to be located within 50 m of another effluent field, therefore Resource Consent is also required.

The system involves an Advantex™ recirculating textile packed bed reactor providing high quality effluent with land based treatment via small diameter RAAM dripline.

1.0 Design Flows

The system has been designed based on wastewater flows expected from a four bedroom dwelling. This fits the long-term plans of the site owner, however, in the short / medium term there is only to be a two bedroom batch.

2.0 Treatment Plant

Wastewater flows shall drain to the Advantex™ treatment plant. This consists of a tank with a nominal size of 7200 L which is divided into three compartments and the textile packed bed reactor.

Pre-treatment occurs in the septic chamber (operating volume 4000 L) which provides adequate retention of design flows to allow for a significant reduction in suspended solids concentrations. The settled sewage flows by displacement into the recirculation chamber (operating volume 2000 L). A screened pump vault and a splitter valve ensure that flows are recirculated through the packed bed

DIRECTORS/REGISTERED ENGINEERS: R.W.L. WELLS BE FIPENZ * S.R. CAMERON BE (HONS) MIPENZ * R.B. GIBSON BE MIPENZ
44 HALIFAX STREET NELSON PHONE 0-3-548 8259 FAX 0-3-546 8412 EMAIL cgwl@xtra.co.nz
191 HIGH STREET MOTUEKA PHONE 0-3-528 8123 FAX 0-3-528 4456

reactor at a recycle ratio of 4:1, with a fraction being split off into the treated effluent tank (operating volume 1200 L).

Treated effluent is then pumped to the effluent field.

The treatment plant should be checked and serviced as required by the manufacturer (Innoflow Technologies Limited).

3.0 Effluent Field

Small diameter RAAM dripline shall be utilised to release flows into the soil for further treatment. The design loading rate is set at 20 mm/day based on the capability of the soil to accept effluent. Refer to Appendix One for the design basis of the system.

A dosed system practically eliminates the possibility of effluent field failure due to the trickle failure problems common with gravity-fed systems.

RAAM dripline has pressure compensating drippers which allow the dripline to be laid along uneven surfaces (i.e. it is not crucial for the treatment surface to be level as with other systems).

4.0 Conclusion

A wastewater management system has been selected to serve the Baty residence in accordance with AS/NZS 1547:2000. The system is appropriate to the site and to the long term plans of the owners to expand the dwelling to four bedrooms.

In the immediate future the dwelling is to be a 2 bedroom batch, and the system proposed is capable of handling the intermittent and / or short term peak loading expected from a batch without significantly compromising the effluent quality.

If you have any queries regarding the system outlined in this report, please contact the writer.

Yours sincerely

Leanne Reeve

Leanne Reeve
Cameron Gibson & Wells Ltd

Approved by

S. K. Cameron

Simon Cameron
Cameron Gibson & Wells Ltd

Appendix One

Design basis for the proposed wastewater treatment and effluent field system.

Design Flow

No. of bedrooms	=	4
Design population	=	6 (Gunn, 1994)
Per capita design flow	=	180 L /cap/day
Design flow, Q	=	1080 L / day

Pre-treatment – Septic Chamber

Operating volume	=	4000 L
Retention time	=	3.7 days

Recirculation Chamber

Operating volume	=	2000 L
Screened pump vault	=	Orenco Biotube™ PVU57-24
Recirculating pump model	=	PA1003 high head turbine submersible pump (timer controlled)
Splitter valve recycle ratio	=	4:1

Secondary Treatment – Textile Recirculating Packed Bed Reactor

Size	=	1.1 m^2 x 0.9 m high
Capacity	=	1.1 L / day
Effluent Quality	=	BOD < 15 mg/L
		SS < 15 mg/L

Treated Effluent Tank

Operating volume	=	1200 L
Pump model	=	Tesla Diver75

Application Rate

Soil category	=	4 (Weakly structured clay loam, imperfectly drained) (AS/NZS 1547:2000)
Design Loading Rate (DLR)	=	20 mm/day (for secondary treated effluent)

Effluent Field

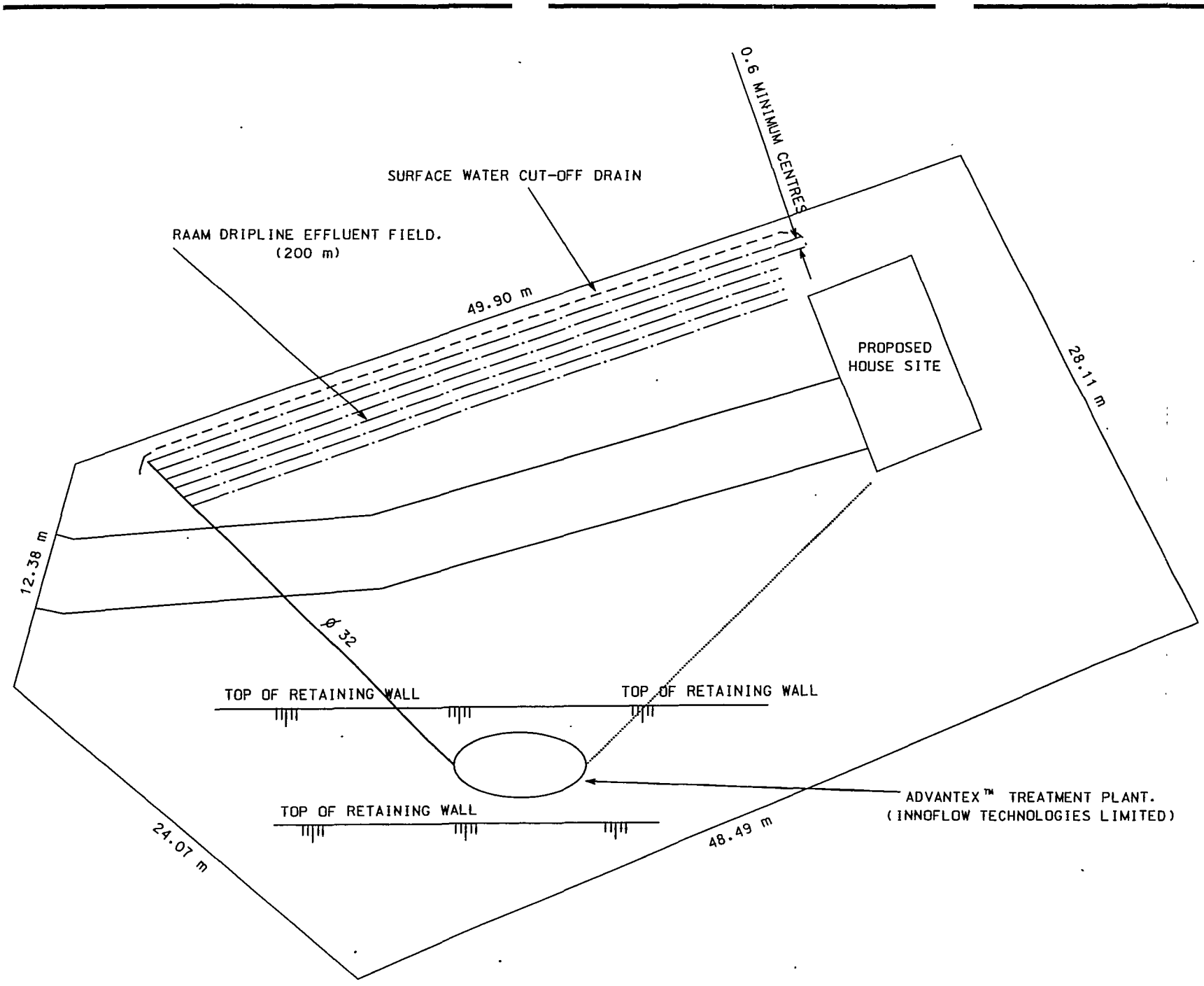
RAAM Dripline

Treatment area	=	1080 ÷ 20
	=	54 m²
Total distribution length	=	200 m
Width of treatment area	=	0.27 m
Distance between trenches	=	minimum 0.6 m centres

Appendix Two Drawings

9953, Sheet 1: Site plan

020749



Notes

1. Verify all dimensions on site
2. Do not scale from drawing
3. Exact location of treatment plant to be determined on site.

ACENZ

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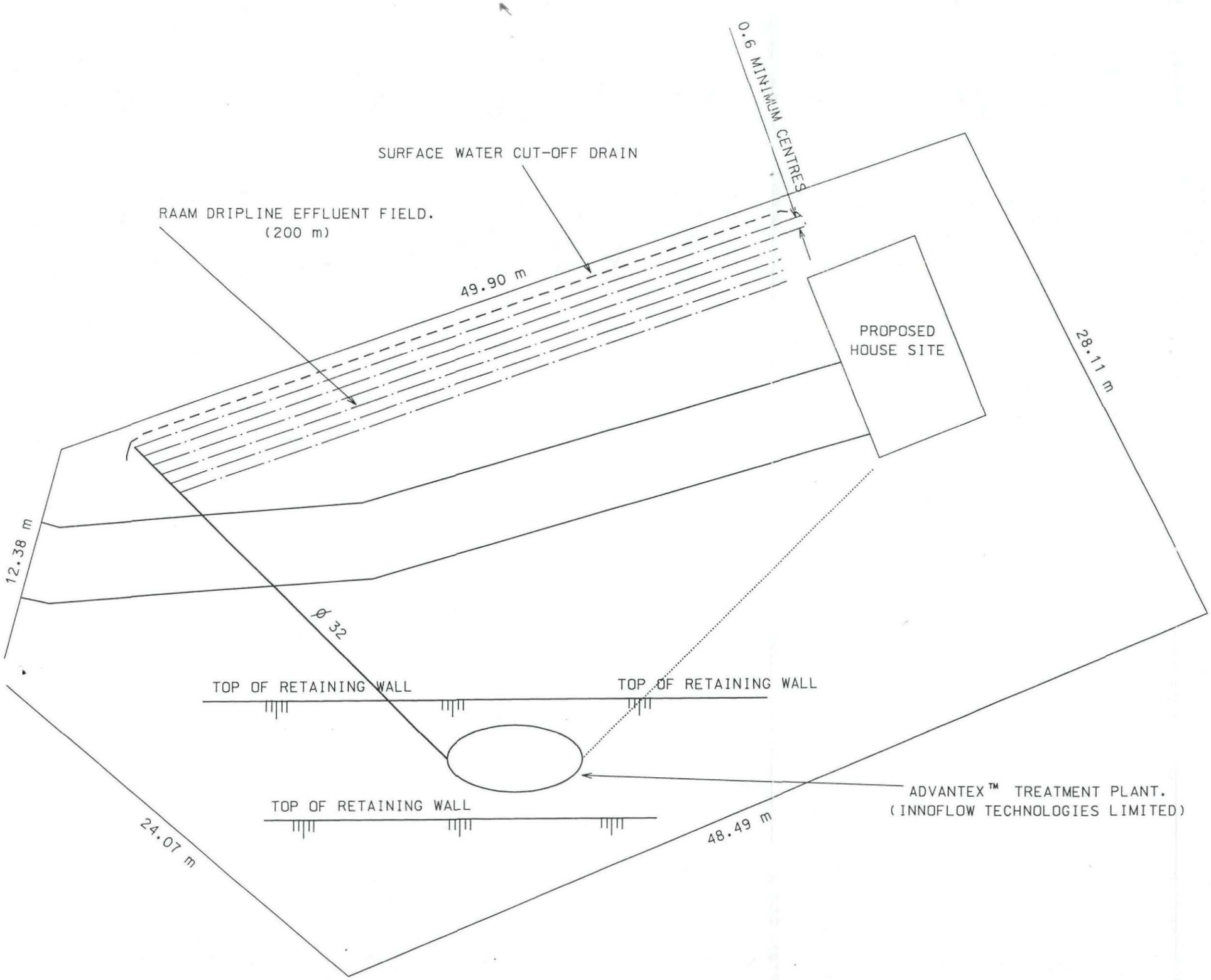

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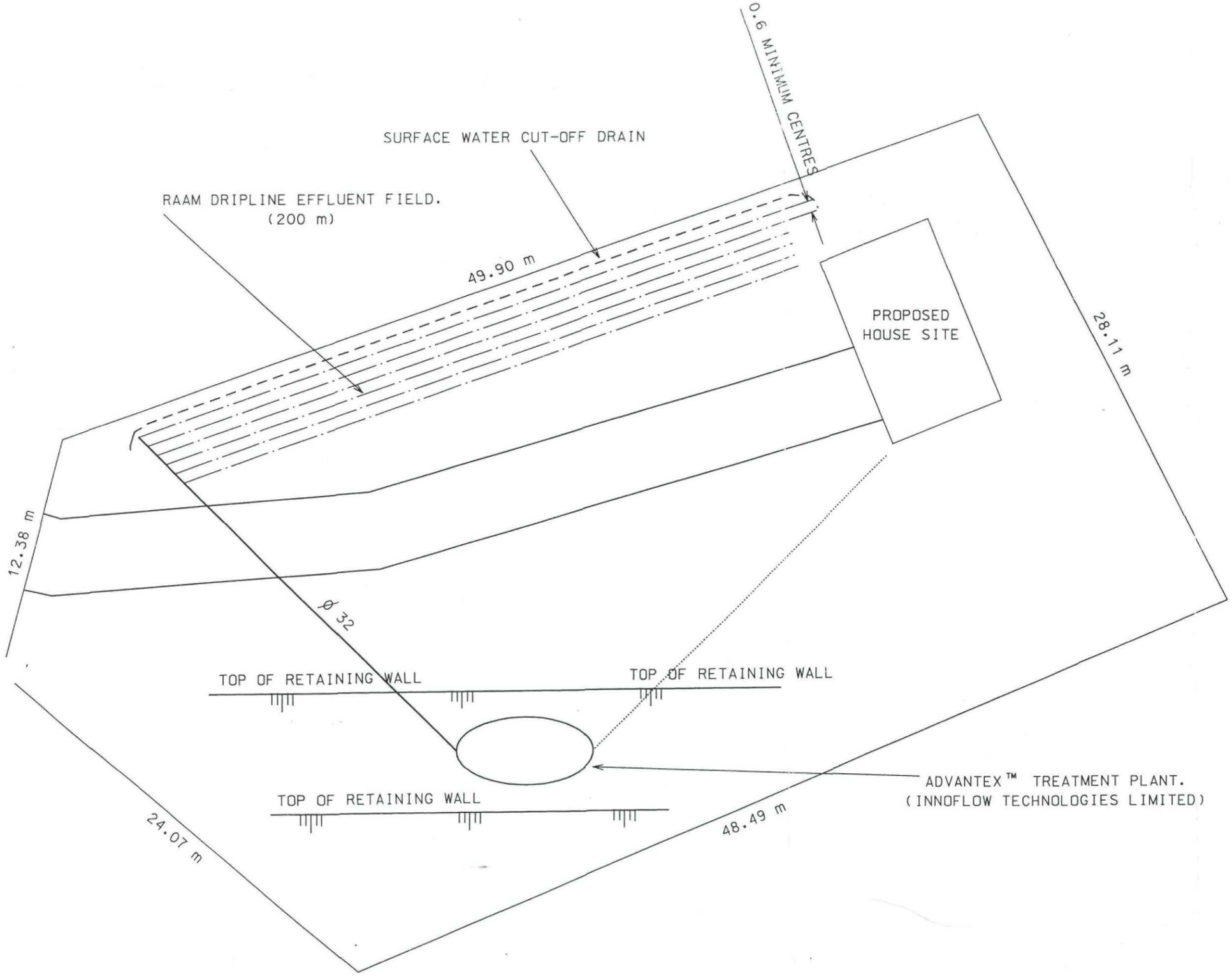

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