

Your Ref

In reply, please quote

LIM1155/26

If calling, please ask for

Raquel de Carvalho



24 February 2026

Fusion Realty Limited
6 Waipapa Way,
Te Kauwhata 3710

Kia Ora,

LAND INFORMATION MEMORANDUM

Please find enclosed your Land Information Memorandum for 48 Travers Road TE KAUWHATA.

If you have any queries, please do not hesitate to contact me.

Ngaa mihi,

A handwritten signature in black ink that reads "Raquel de Carvalho". The signature is written in a cursive style with a large, prominent "R" at the beginning.

Raquel de Carvalho
Land Information Officer

Postal Address

Private Bag 544, Ngaruawahia 3742
New Zealand

0800 492 452

www.waikatodistrict.govt.nz

Land Information

Memorandum

In reply please quote: LIM1155/26
If calling, please ask for: Raquel de Carvalho

LOCAL GOVERNMENT OFFICIAL INFORMATION AND MEETINGS ACT 1987

The information supplied in this Land Information Memorandum is based on existing Waikato District Council records that may not be complete. The property has not been inspected or surveyed by the Council. It is the purchaser's responsibility to check the boundaries of the property.

It is assumed that any purchaser will search for the certificate of title that is not held by the Council and will personally inspect the property and its surrounds. This information deals solely with the property named below and does not disclose any relevant information that may affect adjacent properties.

It is the sole responsibility of any purchaser to ensure that the land is suitable for a particular purpose.

► Property Details:

Valuation Reference:	04390/693.02
Legal Description:	Lot 2 DP 353641
Area:	8000 square metres more or less
Property Location:	48 Travers Road TE KAUWHATA
Owners:	Christopher Paul Woodham, Nicole Patricia Woodham, Gail Frances Drain

► Property Location:



■ Rates

Information regarding –
44A(2)
(c) information relating to any rates owing in relation to the land

► Rates & Rating Valuation:		Information regarding – 44A(2)(c) information relating to any rates owing in relation to the land.
Annual rates for 2025/2026	\$4,939.42	Balance Owing: \$627.79 <i>(Balance of 3rd instalment due 20 May 2026)</i>
Value of Improvements	\$1,090,000.00	
Land Value	\$ 520,000.00	
Capital Value	\$1,610,000.00	
Date of Valuation	1 October 2023	

Valuation

Properties in the Waikato District are re-valued every three years in accordance with the Rating and Valuations Act 1988.

Current Rates

A copy of the current 2025/2026 rates assessment is attached. The 2025/2026 rates are based on the valuations dated 1 October 2023.

A new part fee and charge will apply for those ratepayers that connect to specific council services after 1 July. These changes will mean that anyone that builds a new dwelling after 1 July will pay for the services their property receives (e.g., wastewater, storm water, rubbish) through fees and charges, rather than rates, until rates are struck on their property in the following financial year. You will receive an invoice from Council following granting of your Code Compliance Certificate (CCC). Rates are only struck once a year.

Valuations & Current Rates can be viewed online using the Rating Information Database (RID) available on the Waikato District Council [Rates Information Database](#)

Rates Capital Value

Please note that the rates reflected in this LIM were calculated based on the capital value of the property as at 1 July of the current rating year. Any changes to the capital value of the property that have taken place since 1 July will be reflected in the rating charges for this property in the next rating year. Please contact a member of the rating team on 0800 492 452 if you require further clarification or have any questions.

Regional Council: Waikato Regional Council

Waikato Regional Council sends their rates notices annually. You are able to get specific annual regional rates information at www.waikatoregion.govt.nz Search under address or valuation reference. Alternatively, contact them on freephone 0800 800 401

Information regarding –

44A(2)

- (f) information relating to the use to which that land may be put and conditions attached to that use;
- (g) information which, in terms of any other Act, has been notified to the territorial authority by any statutory organisation having the power to classify land or buildings for any purpose;
- (h) any information which has been notified to the territorial authority by any network utility operator pursuant to the Building Act 1991 or the Building Act 2004

Operative Waikato District Plan (Waikato Section)

This only applies where there are outstanding appeals on the provisions of the Proposed Waikato District Plan (appeals version), to the extent they are relevant to any proposed works or project.

Zone: Country Living

Policy: Remediation Policy Area, Te Kauwhata Structure Plan Area and Area A Waikato River Catchment

For further information please refer to the planning maps attached and the [Waikato District Plan](#)

Waikato District Plan – Operative in Part

Waikato District Council notified its decisions on Variation 3 on 30 October 2024, and the Plan became Partially Operative.

The zone of this property is: **Rural lifestyle zone**

The following overlays apply to the property: **Area A Waikato River Catchment**

The provisions relevant to this property may be subject to appeal and any that are subject to appeal are not yet operative.

If the provisions relevant to this property are subject to an appeal, both the Waikato District Plan Operative in Part and the Operative Waikato District Plan will need to be considered.

Designations

This property is within close proximity (500m) to land that is designated for a particular purpose:

Operative District Plan:

- *J21 - Longswamp section of Waikato Expressway - Longswamp Road Designation DES 0002/16*

Waikato District Plan - Operative in Part:

- *NZTA-3 - To undertake maintenance, operation, use and improvement of the state highway network - State Highway 1, Waikato*

For further information please refer to the planning maps attached and the Waikato District Plan, which is available to view on our website:

<https://eplan.waikatodistrict.govt.nz/?docId=59t2XlJn9rl%253d>

■ Planning continued

Information regarding –
44A(2)

- (f) information relating to the use to which that land may be put and conditions attached to that use:
- (g) information which, in terms of any other Act, has been notified to the territorial authority by any statutory organisation having the power to classify land or buildings for any purpose:
- (h) any information which has been notified to the territorial authority by any network utility operator pursuant to the Building Act 1991 or the Building Act 2004

Development Contributions

- Builders, developers and owners cannot presume that all development contributions have been paid at the time of subdivision.
- The current [Development Contributions Policy](#) can be viewed here.
- For any queries on specific properties please email info@waidc.govt.nz providing the specific property number and/or property address

The Development Contributions Estimator Tool provides an estimate only. A full development contributions assessment will be provided once a consent application has been lodged.

[Development contributions estimator tool](#)

Development contributions policies, capital works schedules, catchments and levies are subject to review and change.

Credits are given for any development contributions paid at the time of subdivision but additional development contributions may be required at time of building consent or service connection.

For any restrictions on the use of the property please refer to the Record/Certificate of Title.

► Resource Consents:

Application No	Description	Decision
	SUBDIVISION CONSENTS	GRANTED
SP0451	<i>Scheme Plan</i>	26 August 1975
70/99/167	<i>Rural Residential Subdivision</i>	16 April 1999
SUB0011/04	<i>To create one additional lot</i>	23 August 2004
SUB0011/04.01	<i>S127 RMA 1991 Change/Cancel Conditions</i>	11 October 2004

Requisitions: No known planning requisitions to date.

Planning rules relating to this property are contained in the Waikato District Plan and are not outlined in this LIM report. The Waikato District Plan is available to view on Council's website at www.waikatodc.govt.nz.

■ Building

Information regarding –
44A(2)

- (d) information concerning any consent, certificate, notice, order, or requisition affecting the land or any building on the land previously issued by the territorial authority (whether under the Building Act 1991, the [Building Act 2004](#), or any other Act):
- (e) information concerning any certificate issued by a building certifier pursuant to the Building Act 1991 or the [Building Act 2004](#):
- (ea) information notified to the territorial authority under [section 124](#) of the Weathertight Homes Resolution Services Act 2006:

It is recommended that a potential purchaser engage a building consultant to complete a pre-purchase inspection of buildings. Irrespective of code of compliance, structures are subject to deterioration over time and works may have been undertaken without building consent. If requested and supplied, a copy of this may be filed on council records for future references and Land Information Memoranda.

Architects and designers require wind & earthquake information to establish bracing requirements for building development.

► Building Consents/Permits:

Number	Description	Consent/Permit issued date	CCC Issued/ Completed Date
BLD1346/08	Dwelling with attached garage	11 June 2008	03 June 2009
BLD0537/17	Changes to Dwelling Garage	08 November 2016	30 March 2017

Requisitions: No known building requisitions to date.

If you feel there has been unauthorised building work undertaken on this property, please note that Council has no authority to issue retrospective building consents. The current owner can, however, apply for a Certificate of Acceptance (COA).

- Please refer to the [BuildWaikato](#) site for further information regarding COAs.

■ Water Supply

Information regarding –
44A(2)

- (ba) any information that has been notified to the territorial authority by a drinking-water supplier under section 69ZH of the Health Act 1956:
- (bb) information on—
 - (i) whether the land is supplied with drinking water and if so, whether the supplier is the owner of the land or a networked supplier:
 - (ii) if the land is supplied with drinking water by a networked supplier, any conditions that are applicable to that supply:
 - (iii) if the land is supplied with water by the owner of the land, any information the territorial authority has about the supply:

Council rate records indicate that the property is connected to the **Te Kauwhata** water supply and charged an annual targeted rate for domestic water supply.

The property is on a metered water supply and being charged on a volume basis for water supply.

Please contact the Customer Delivery Department at the Waikato District Council to arrange a final water meter reading prior to sale settlement.

The Te Kauwhata Water Association (Inc) provides water reticulation in close proximity to the boundary of this property. This property may draw, or have the right to draw, a metered water supply provided by the Te Kauwhata Water Association (Inc). This supply and water right is available in terms of a negotiated contractual supply entitlement attached to the property. The water quality is only suitable for irrigation and commercial purposes. It is not a potable supply and is therefore not intended for human consumption.

For further information relating to this property right and the Terms of Supply please refer to the Waikato District Council for the contact details of the Association or email water@tkwa.co.nz.

■ Drinking Water (potable water supply)

The property is connected to the **Te Kauwhata** water supply. Councils rural water supply systems are a restricted trickle feed of 1.8m³ per day. Owners are required to provide their own water storage tank with a minimum capacity of 48 hours storage, if the tank is connected to stormwater downpipes the water quality is the owner's responsibility.

The construction of a bore for the taking of ground water requires consent from the Waikato Regional Council, for further information contact Waikato Regional Council.

■ Council Utilities

Information regarding –
44A(2)

(b) information on private and public stormwater and sewerage drains as shown in the territorial authority's records:

■ Wastewater

The property is located outside an area currently served by a community system for wastewater disposal.

On-site wastewater disposal must comply with the Waikato Regional Plan and the AS/NZS standard for On-site Domestic Wastewater Management. New on-site effluent disposal systems must be designed and certified by an engineer or suitably qualified person.

Existing System

The property has an existing on-site wastewater disposal system. Wastewater disposal systems are sized in relation to the number of bedrooms of a dwelling and the potential occupancy.

Future building works that include additional bedrooms will require an assessment from an engineer or other suitably qualified person approved by the Council, of whether the existing on-site effluent treatment system is capable of adequately treating and disposing of the increased loadings. If upgrades are required, these shall be designed, supervised and certified by an engineer or other suitably qualified person to comply with AS/NZS 1547:2012 and the Waikato Regional Plan.

It is recommended that potential purchasers engage a contractor to inspect the septic tank prior to settlement. The Waikato District Council does not maintain or monitor private wastewater disposal systems and NZ standards indicate a septic tank should be cleaned / emptied every 3 years.

■ Stormwater

The property is located outside an area currently served by a community system for stormwater or land drainage disposal.

For any new development, Onsite Stormwater Disposal will be required under the Waikato District Plan & Waikato Regional Plan prior to connection to any public stormwater network or drains.

For further Information please contact a Project Planning & Engineering Officer at the Waikato District Council.

■ Natural Hazards

Information regarding –

- Whether the site is affected by potential erosion, avulsion, falling debris, subsidence, slippage, alluvion, inundation, peat, contamination or poor soakage.
- whether there is the likely presence of hazardous substances on the site and in particular whether the site has been recorded as being on the Regional Council's HAIL list of potentially contaminated sites.
- Refer to a copy of special features map.

Affected by Advisory - Hazard No. 6971 - Unconsolidated soil (hazard recording sheet)

This property has been affected by **Unconsolidated soil**, please refer to a copy of the summary sheet attached (red sheet).

TK Remediation Area

Land within the Te Kauwhata Structure Plan area has historically typically been used for horticultural activities.

- ***Attached for your information is a copy of the Te Kauwhata Rezoning Ground Contamination Report by Tonkin & Taylor, dated May 2009.***

Other Reports Available

Attached for your information is a copy of the:

- ***On site Wastewater Evaluation Design Report – 48 Travers Road, Te Kauwhata by P Massey & K Price, dated October 2007;***
- ***Geotechnical Investigation for 48 Travers Road, Te Kauwhata, Reference 055635, Drawing 7674/1-4 by G.A. Hughes & Associates (2005) Ltd, dated 05 June 2007.***

The Waikato Regional Council Hazards Portal contains information about the natural hazards that may be relevant to the site. Before exploring the Portal, please read the terms of use to understand the limitations of the information contained on the site. The recipient is advised to seek expert advice in terms of the applicability and accuracy of the information as it relates to the site.

Click here to access: [Waikato Regional Hazards Portal | Waikato Regional Council](#)

Supporting Information Documents:

[Waikato Regional Hazards Portal - Supporting information | Waikato Regional Council](#)

Climate change means long-term changes in the Earth's weather patterns and temperatures. These changes are mostly caused by human activities like burning coal, oil, and gas, which release gases that trap heat in the atmosphere. As a result, we're seeing more extreme weather, rising sea levels, and increased risks like flooding and drought. For further information regarding climate change please visit [Earth Sciences New Zealand](#)

Flood hazards across Aotearoa New Zealand

Earth Sciences New Zealand has released the country's first nationally consistent flood risk model, alongside a public flood hazard viewer that enables New Zealanders to assess their local flood exposure in the context of national trends. This national flood hazard viewer maps areas at risk from extreme rainfall events under current and future climate conditions. For further information please visit [Public Flood Hazard Viewer](#)

Under section 71-74 of the Building Act 2004, upon application for a building consent applicant must demonstrate that any proposed building work will be protected from hazards.

■ Additional Information

Information regarding –

44A(3) In addition to the information provided for under subsection (2), a territorial authority may provide in the memorandum such other information concerning the land as the authority considers, at its discretion, to be relevant.

■ Health

LAND USE AND SITE CONTAMINATION

The site is associated with an activity that appears on the Hazardous Activities and Industries List. The Hazardous Activities and Industries List is a compilation of activities and industries that are known to have the potential to cause land contamination as a result of the use, storage or disposal of hazardous substances.

The site is registered on the Waikato Regional Council's Land Use Information Register 48 Travers Road, Te Kauwhata (Site name) LUI10340 (Site ID), Rural Residential/Lifestyle Block context as an Unverified HAIL:

- **A10: Persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds**

Site Classification is unverified as insufficient information on the type of pesticides used/stored on site. However, no doubt about the site's land use as 'horticultural'. G. Sowry 03.05.2016. (WRC comments).

This information is based on records held by the Council and/or Waikato Regional Council and reflects the council's current understanding of the site. The council does not accept any liability for any inaccuracy of this information or liability for any loss or damage suffered by any person acting or refraining from acting on this information. If this information indicates that no record of a HAIL activity has been identified on Council records, this does not imply that no HAIL activity has been undertaken on the site. This simply means that the Council holds no record of a HAIL activity being undertaken on the property at this point in time. However, Council records may be incomplete. Similarly, if one HAIL activity is identified, this does not preclude another HAIL activity having been undertaken of which no record is held. If an activity is proposed to be undertaken on the site that is covered by the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES), Council retains the right to seek further information on the site history of the subject property. Where pastoral farming activities have been identified, Council may seek information in respect of cadmium in soil resulting from the application of superphosphate fertiliser if residential activities are proposed.

TK Remediation Area (Check Report Maps for properties on Travers, Te Kauwhata, Wayside & Moorfield Roads)

Land within the Te Kauwhata Structure Plan area has historically typically been used for horticultural activities.

- Attached for your information is a copy of the Te Kauwhata Rezoning Ground Contamination Report by Tonkin & Taylor dated May 2009

■ Refuse

Waikato District Council's goal is to work towards a 'zero waste' target. On 1 July 2016 we introduced a pre-paid service to our refuse and recycling to help Waikato residents reduce the volume of waste they send to landfill. Less waste will save us all more in the long run.

Refuse & Recycling Service Collection Day for this property is **Friday**.

For further information please refer to [Rubbish and Recycling](#) page

■ Additional Information continued

Information regarding –

44A(3) In addition to the information provided for under subsection (2), a territorial authority may provide in the memorandum such other information concerning the land as the authority considers, at its discretion, to be relevant.

■ Utilities

The Waikato District Council does not hold records concerning utility systems it does not administer. For information concerning state highways (administered by NZ Transport Agency), electricity, telephone or gas, the relevant network operator should be contacted.

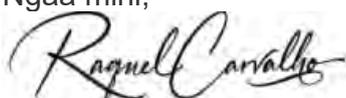
■ Telecommunication

This property may not have a physical connection to a telecommunications network.

Developer obligations are to demonstrate that a telecommunication network is available to serve the property, such network can be either physical or wireless.

Please contact the network utility supplier and/or service provider to confirm what telecommunication connection is available to the property.

Ngaa mihi,



Raquel de Carvalho
Land Information Officer

Land Information Memorandum



48 Travers Road TE KAUWHATA
Lot 2 DP 353641

Rates Information Database

Use the rates information database to find out rates information about property in the Waikato district.

If you would like your details made confidential, please complete the [Request to Suppress Personal Information](#) form and return to Waikato District Council. Please note that it is not necessary to complete the form if you have no objection to your name and postal address being published in the Complete Rating Information Database.

If you have a question about your rates, please contact the rates team on [0800 492 452](tel:0800492452) or complete our [online request form](#) for a staff member to contact you directly.

Property details

Property location	48 Travers Road TE KAUWHATA
Valuation number	04390/693.02
Legal description	Lot 2 DP 353641

Property charges (2025/2026)

	Targeted rate factor	Factor applicable	Amount
District Wide Water Supply	per SUIP	1.00	\$562.52
Central District Rubbish and Recycling Collection	per dwelling	1.00	\$280.04
General Rate	0.0022040c/\$	1610000.00	\$3,548.37
Uniform Annual General Charge (UAGC)	Fixed Charge	1.00	\$548.49

Total rates payable \$4,939.42 incl. GST

Property valuation history

2 000k

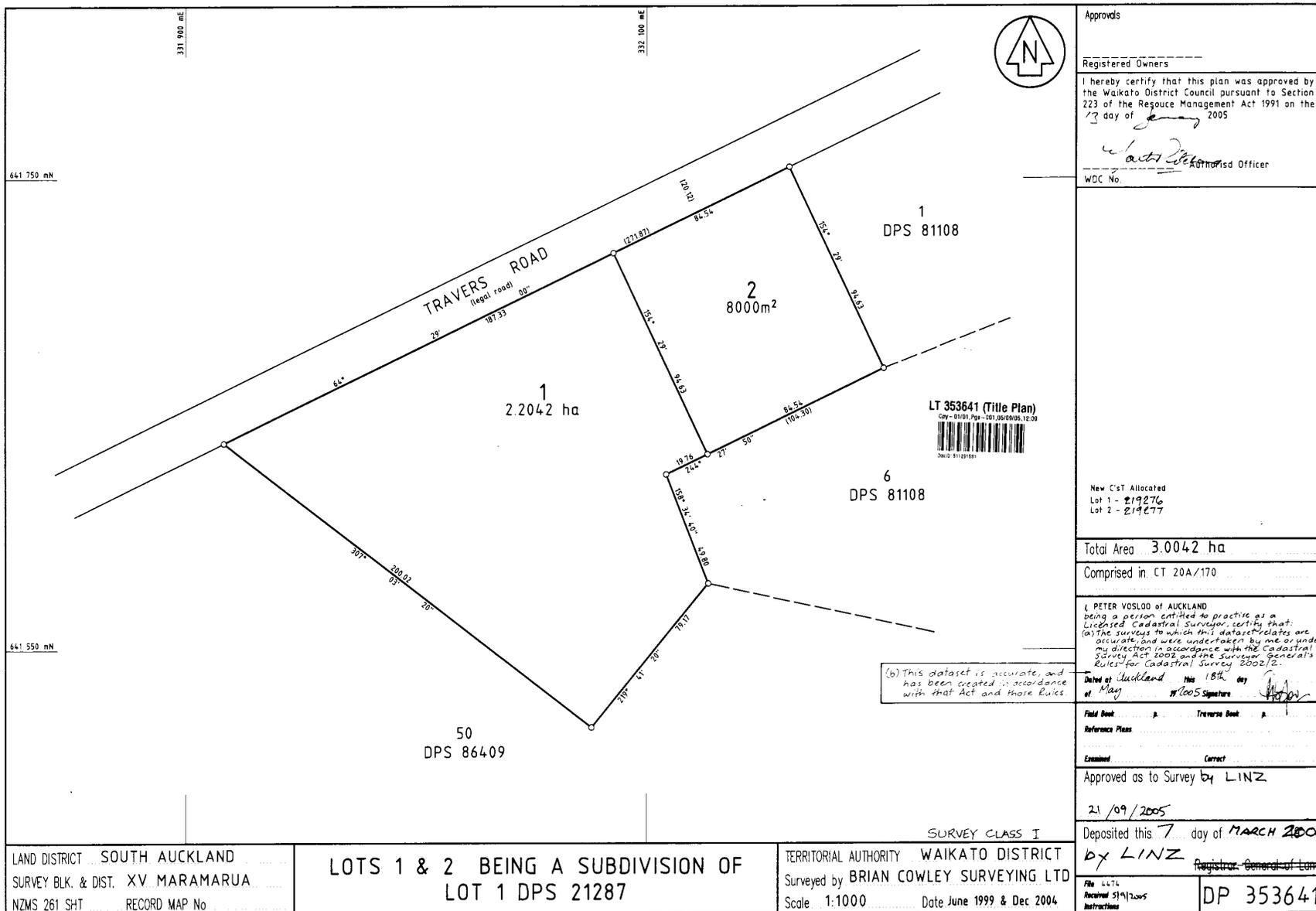


⚠ If your property connects to any additional council services between now and the 30 June 2025, there will be additional charges added to your property in the following rating year. If you have any questions or queries with regards to your 2024/25 rates, please complete our online request form for a staff member to contact you directly.

Download the Antenno app

Use the Antenno app to tell us about things that need our attention, like potholes, graffiti, or broken streetlights.

More about Antenno →



Approvals

Registered Owners

I hereby certify that this plan was approved by the Waikato District Council pursuant to Section 223 of the Resource Management Act 1991 on the 13 day of February 2005

[Signature]
 District Officer

WDC No

New C'sT Allocated
 Lot 1 - 219276
 Lot 2 - 219277

Total Area 3.0042 ha
 Comprised in CT 20A/170

I, PETER VOSLOD of AUCKLAND, being a person entitled to practice as a Licensed Cadastral Surveyor, certify that:
 (a) The surveys to which this dataset relates are accurate, and were undertaken by me or under my direction in accordance with the Cadastral Survey Act 2002 and the Surveyor General's Rules for Cadastral Survey 2002/2.

Field Book: p. Traverse Book: p.
 Reference Plans:
 Examined: Correct

Approved as to Survey by LINZ
 21/09/2005

Deposited this 7 day of MARCH 2006
 by LINZ Registrar, General of Land

File 4474
 Received 21/03/2005
 Instructions DP 353641

Kapiti Enterprises Ltd.
S.P. 0451

Lots 1 & 2 of Section 8 Blk. XV
Maramarua S.D. (Travers Rd.)

CB573088

RESOLVED: Cr Carmichael/Cr Holmes:

That the Waikato County Council, pursuant to Section 33 of the Town and Country Planning Act 1953, certifies that the subdivision shown on the survey plan complies with the operative district scheme, and pursuant to a resolution passed on the 26th day of August 1975, approves under Section 34 of the Counties Amendment Act 1961, the survey plan of subdivision, and further authorises the County Chairman and County Clerk to sign and seal the plan on behalf of the Council.

26. AUG. 1975

- Carried.

S.P. 0451
Kapiti Enterprises
Ltd.

Propd. Subdn. of Lots 1 & 2 of Section 8
Blk.XV Maramarua S.D. (Travers Rd.)

MB7308

Application to subdivide a property of 41 acres 3 roods 23 perches into two lots, the smaller of which is approximately 8 acres 3 roods.

RESOLVED: Cr Holmes/Cr Carmichael:

26. AUG. 1975

That pursuant to Sections 22 and 23 of the Counties Amendment Act 1961, the Waikato County Council approves the subdivision of land shown on Scheme Plan 0451.

- Carried.

S.P. 0451

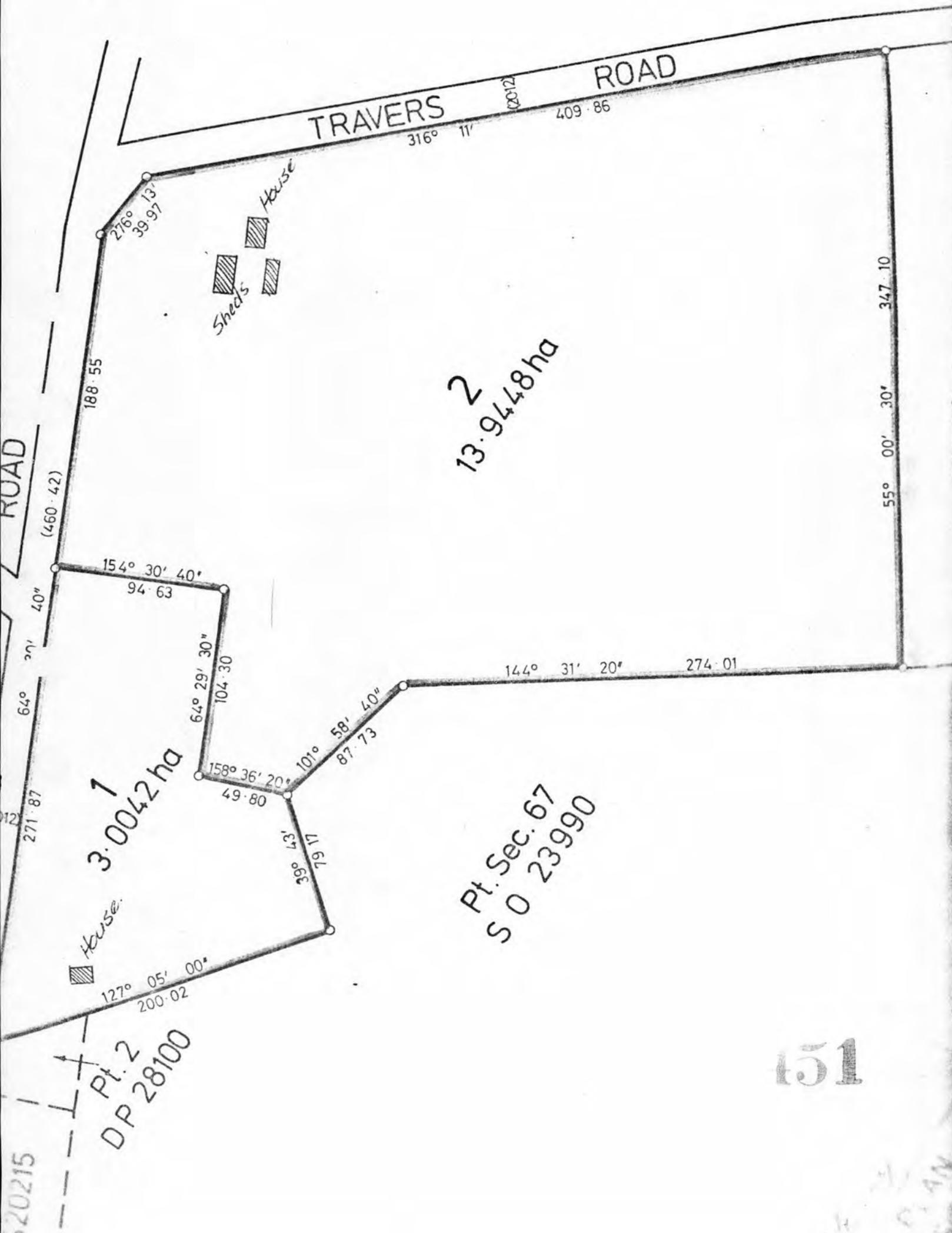
Kapiti Enterprises Ltd.

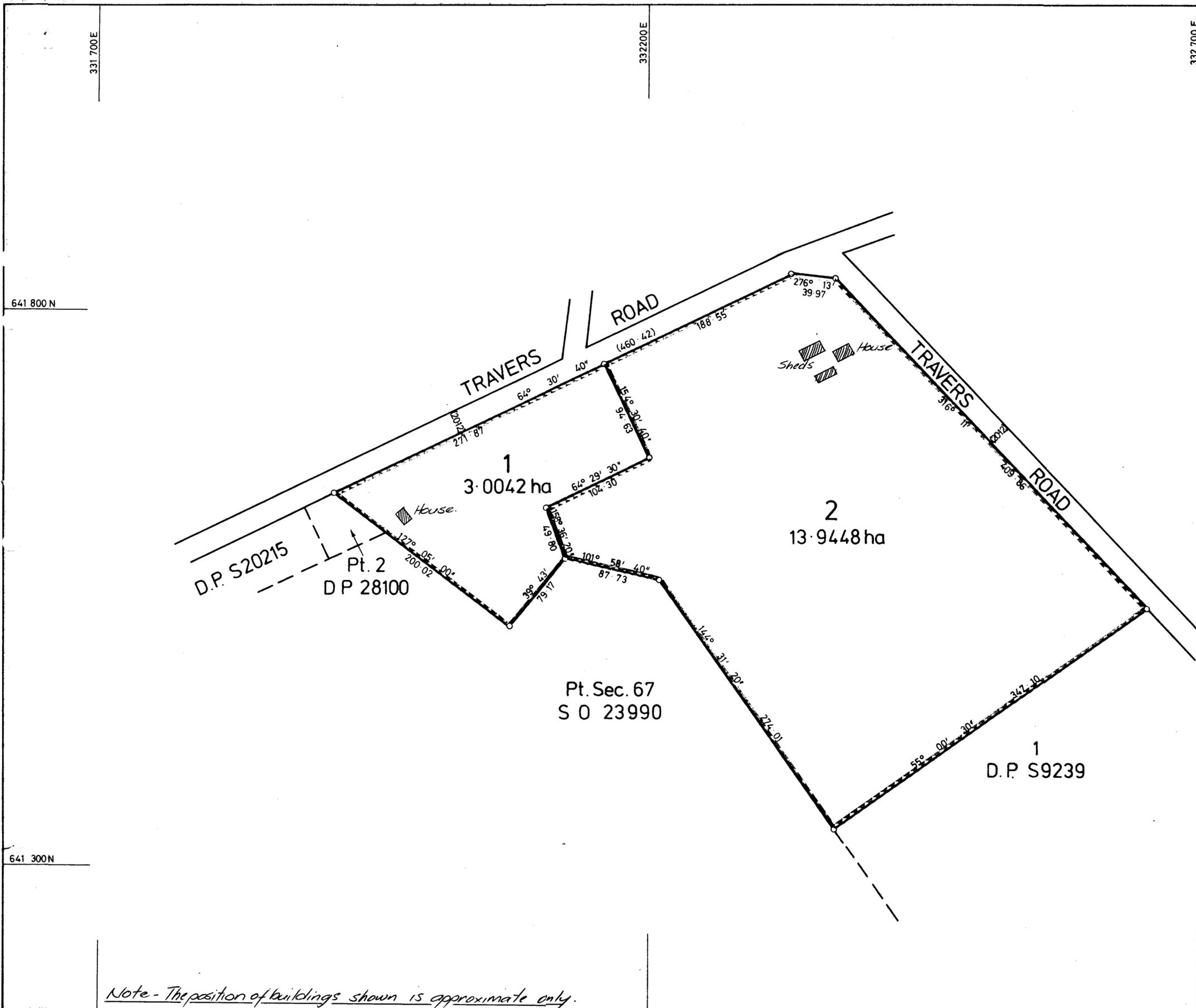
Lots 1 & 2 of Section 8 Block XV
Maramarua S.D. (Travers Road).

Resolution:

That the Waikato County Council, pursuant to Section 33 of the Town and Country Planning Act 1953, certifies that the subdivision shown on the survey plan complies with the operative district scheme, and pursuant to a resolution passed on the 26th day of August 1975, approves under Section 34 of the Counties Amendment Act 1961, the survey plan of subdivision, and further authorises the County Chairman and County Clerk to sign and seal the plan on behalf of the Council.

Council Supp. Agenda 26.8.75





Approvals
APPROVED

Registered Owner

Road shown is legal

I, Lyle Owen Kennaway Registered Surveyor
 hereby certify that this scheme plan has
 been prepared by me in accordance with the
 provisions of part II of the Counties
 Amendment Act 1961, and the first schedule
 to that Act.

L. Kennaway
 Registered Surveyor

New Cs. T. issued:

Total Area 16.9490 ha
 Comprised in All C T 700 / 31

I, Lyle Owen Kennaway of Auckland
 Registered Surveyor and holder of an annual practising certificate
 hereby certify that this plan has been made from Surveys executed
 by me or under my direction; that both plan and Survey are correct
 and have been made in accordance with the regulations under the
 Surveyors Act 1966

Dated at Auckland this 17th day
 of July 1975 Signature *L. Kennaway*

Field Book p. Traverse Book p.
 Reference Plans
 Examined Correct

Approved as to Survey

Chief Surveyor

Deposited this day of 19

District Land Registrar

File
 Received
 Instructions

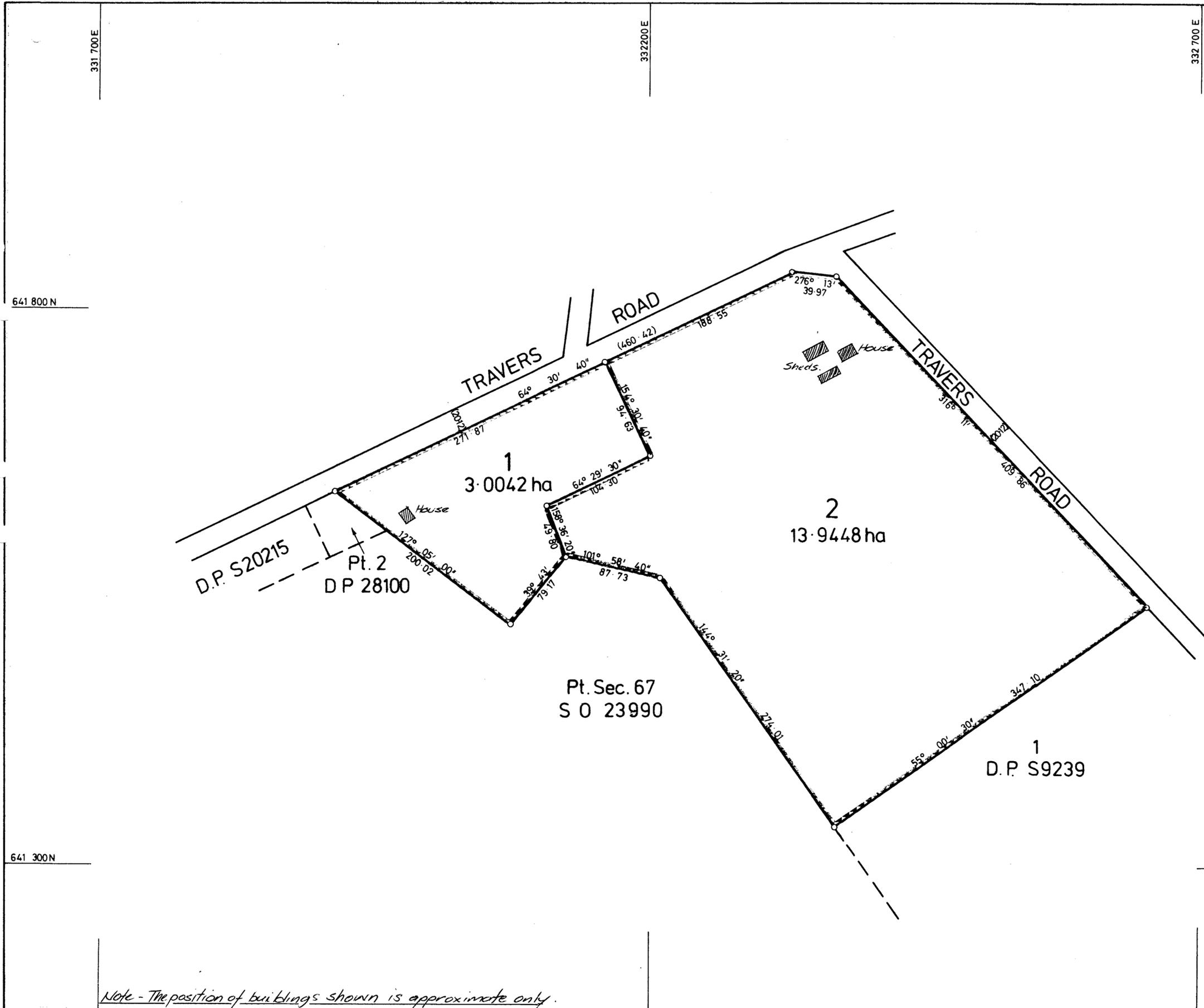
0451

Note - The position of buildings shown is approximate only.

LAND DISTRICT South Auckland
 SURVEY BLK. & DIST. XV Maramarua
 NZMS SHEET NO.

PLAN OF LOTS 1 & 2
 BEING A SUBDIVISION OF SEC 8 BLK XV MARAMARUA
 (S. O. 16174)

LOCAL AUTHORITY Waikato County
 Surveyed by McCarthy Smirk & Assocs²⁹³⁶
 Scale 1:2500 Date July 1975



Approvals
APPROVED

Registered Owner

Road shown is legal

I, Lyle Owen Kennaway Registered Surveyor hereby certify that this scheme plan has been prepared by me in accordance with the provisions of part II of the Counties Amendment Act 1961, and the first schedule to that Act.

L. O. Kennaway
 Registered Surveyor

New Cs. T. issued:

Total Area 16.9490 ha
 Comprised in All C T 700 / 31

I, Lyle Owen Kennaway of Auckland Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction; that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1966

Dated at Auckland this 17th day of July 1975 Signature *L. O. Kennaway*

Field Book _____ p. _____ Traverse Book _____ p. _____

Reference Plans _____

Examined _____ Correct _____

Approved as to Survey

_____/_____/_____ Chief Surveyor

Deposited this _____ day of _____ 19 _____

_____/_____/_____ District Land Registrar

File Received Instructions _____

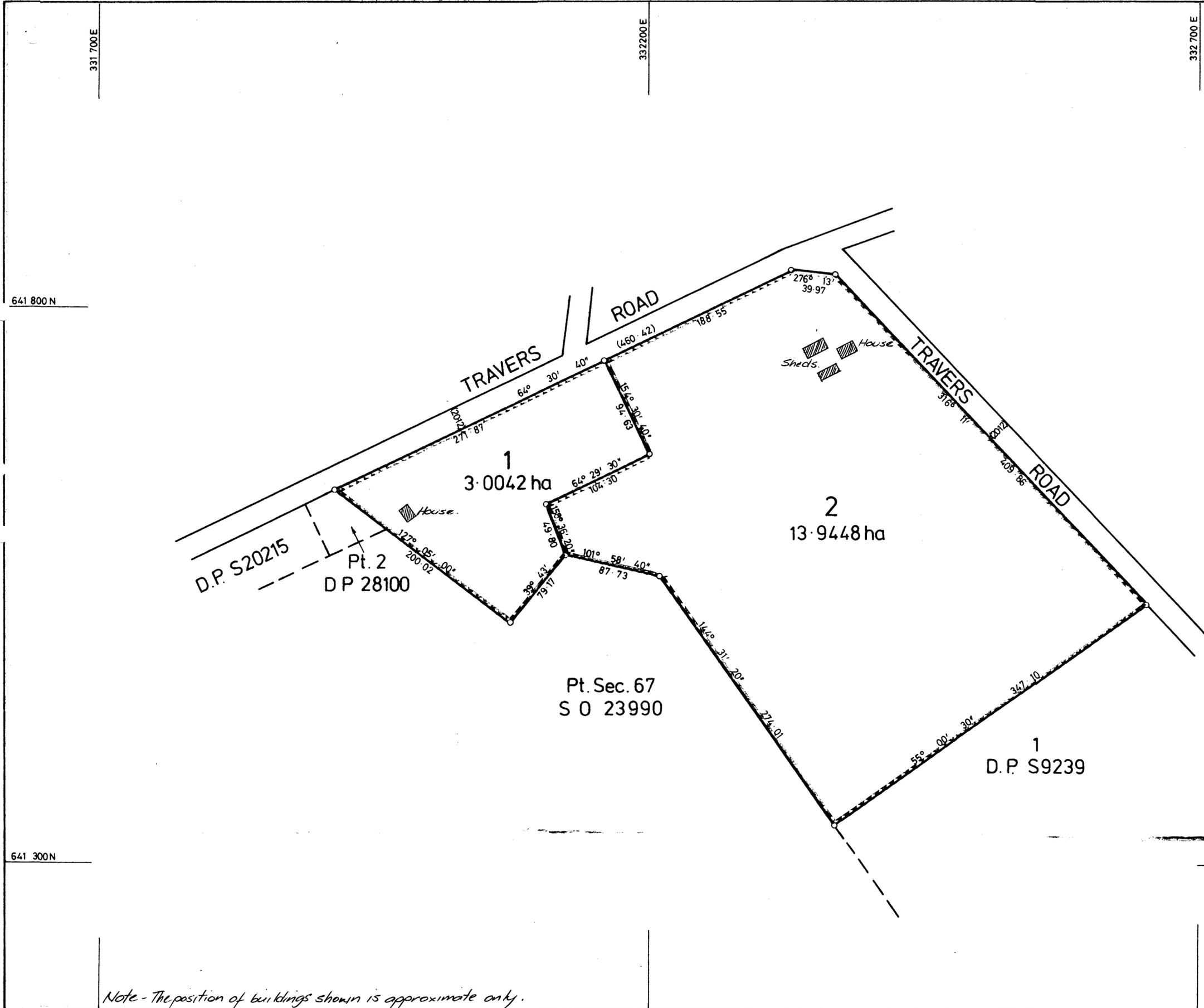
0451

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LAND DISTRICT South Auckland
 SURVEY BLK. & DIST. XV Maramarua
 NZMS SHEET NO. _____

PLAN OF LOTS 1 & 2
 BEING A SUBDIVISION OF SEC 8 BLK XV MARAMARUA
 (S. O. 16174)

LOCAL AUTHORITY Waikato County
 Surveyed by McCarthy Smirk & ASSOCs
 Scale 1:2500 Date July 1975



Approved: **APPROVED**

Registered Owner

Road shown is legal

I, Lyle Owen Kennaway Registered Surveyor hereby certify that this scheme plan has been prepared by me in accordance with the provisions of part II of the Counties Amendment Act 1961, and the first schedule to that Act.

L.O. Kennaway
Registered Surveyor

New Cs. T. issued:

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Comprised in All C T 700/31

I, Lyle Owen Kennaway of Auckland Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction; that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1966

Dated at Auckland this 17th day of July 1975 Signature *L.O. Kennaway*

Field Book p. Traverse Book p.
Reference Plans
Examined Correct

Approved as to Survey
Chief Surveyor

Deposited this day of 19
District Land Registrar

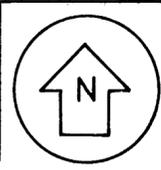
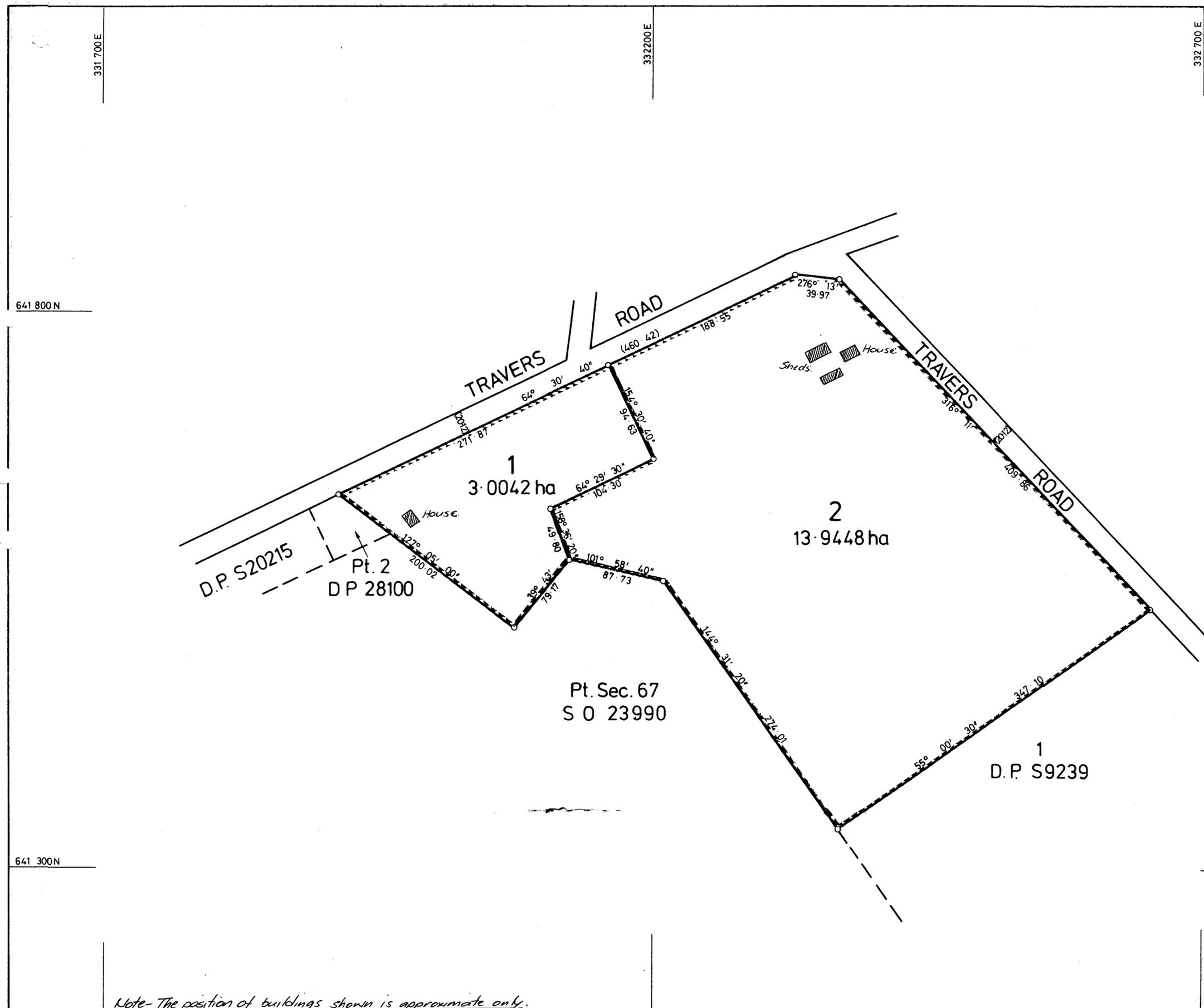
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LAND DISTRICT South Auckland
SURVEY BLK. & DIST. XV Maramarua
NZMS SHEET NO.

PLAN OF LOTS 1 & 2
BEING A SUBDIVISION OF SEC 8 BLK XV MARAMARUA
(S. O. 16174)

LOCAL AUTHORITY Waikato County
Surveyed by McCarthy Smirk & ASSOCS²⁹³⁶
Scale 1:2500 Date July 1975



Approvals:
APPROVED

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Road shown is legal

I, Lyle Owen Kennaway Registered Surveyor hereby certify that this scheme plan has been prepared by me in accordance with the provisions of part II of the Counties Amendment Act 1961, and the first schedule to that Act.

L. O. Kennaway
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New Cs. T. issued:

Total Area 16.9490 ha
Comprised in All C T 700 / 31

I, Lyle Owen Kennaway of Auckland Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction; that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1966

Dated at Auckland this 17th day of July 1975 Signature *L. O. Kennaway*

Field Book p. Traverse Book p.
Reference Plans
Examined Correct

Approved as to Survey
..... Chief Surveyor

Deposited this day of 19
..... District Land Registrar

File Received Instructions
.....
0451

Note - The position of buildings shown is approximate only.

LAND DISTRICT South Auckland
SURVEY BLK. & DIST. XV Maramarua
NZMS SHEET NO.

PLAN OF LOTS 1 & 2
BEING A SUBDIVISION OF SEC 8 BLK XV MARAMARUA
(S. O. 16174)

LOCAL AUTHORITY Waikato County
Surveyed by McCarthy Smirk & ASSOCS²⁹³⁶
Scale 1:2500 Date July 1975



15 Galileo Street
Private Bag 544
NGARUAWAHIA

Telephone: 0-7-824 8633
Facsimile: 0-7-824 8091

Your Ref: 4474

In reply please quote:

70 99 167

If calling, please ask for:

Sonya McCall

16 April 1999

Brian Cowley Surveying Limited
23 Arthur Street
Ellerslie
AUCKLAND 5

Dear Sir/Madam

APPLICATION FOR SUBDIVISION CONSENT: A E BOYCE – TRAVERS ROAD, TE KAUWHATA

You are advised of the following decision on your application, which has been made pursuant to a delegated authority by the Development Planner.

"That pursuant to sections 34(4), 105(1)(b), 108 and 220 of the Resource Management Act 1991 the Waikato District Council under delegated authority grants subdivision consent for a discretionary activity for a Rural Residential subdivision, on a site legally described as Lot 1 DPS 21287 and being part Section 8 Block XV Maramarua Survey District being the land comprised in Certificate of Title 20A/170, South Auckland Land Registry, subject to the following conditions:

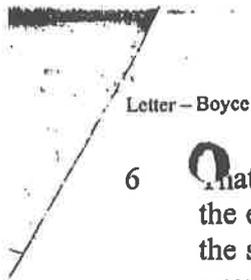
Planning

- 1 The Survey Plan to give effect to this resource consent shall be generally in accordance with the application plan of subdivision submitted by Cowley Surveying Limited on 19 March 1999 (approved copy attached) as submitted for application No. 7099167.
- 2 The applicant shall provide written confirmation from the network utility operators for electricity and telephone services that the connections and reticulations have been placed underground to the boundary of Lots 2 and 3.
- 3 That a reserve contribution of \$2,250.00 (Two Thousand Two Hundred and Fifty Dollars) inclusive of GST be paid to Council in lieu of the vesting of land for Lots 2 and 3.

Roading

- 4 That the existing entrance to Lot 1 at Rural Address Property Identification Number 26 be upgraded to a sealed standard residential vehicle entrance located and constructed in accordance with WDC plan No. TSG-E3 to the satisfaction of Council.
- 5 That Lot 2 be provided with a sealed standard residential vehicle entrance located 50 metres west of the common boundary between Lots 2 and 3, and constructed in accordance with WDC plan No. TSG-E3 to the satisfaction of Council.

Area Offices at Hamilton, Huntly, and Raglan



- 6 That Lot 3 be provided with a sealed standard residential vehicle entrance located adjacent to the eastern boundary of Lot 3, and constructed in accordance with WDC plan No. TSG-E3 to the satisfaction of Council. The entrance is to be raised above road level to improve visibility over the road crest to the east.
- 7 The surface of the sealed entrances shall be two coat chip seal, constructed with 180/200 grade bitumen and G3 and G5 chip. The seal shall extend not less than 5 metres from the edge of the existing seal, or to the property boundary if that is more than 5 metres.
- 8 That pursuant to section 108 2(A) of the Resource Management Act 1991 a roading fee of \$7,168.00 (Seven Thousand One Hundred and Sixty Eight Dollars) inclusive of GST, be paid to the Council for the Lots 2 and 3. This is based on a Uniform Roading Fee of \$3,584.00 (Three Thousand Five Hundred and Eighty Four dollars), inclusive of GST, for each additional lot. Should the Roading fee not be paid within 12 months the quantum shall be adjusted annually by the Cost Construction Index.

Utilities

- 9 That a plan at a scale of 1:200 identifying the location of the septic tank and effluent disposal field for the dwellinghouse on Lot 1 shall be provided prior to the section 224(c) certificate being signed by Council. The effluent disposal field shall have a minimum separation distance of 1.5 metres from the boundaries of Lot 1.
- 10 That an independent potable domestic water supply shall be provided for the dwellinghouse on Lot 1 to the satisfaction of Council.

Note: A building consent must be obtained from Council prior to any works that may be required to relocate the effluent disposal field to a complying position.

The reasons for this decision are:

- a The proposal satisfies the requirements of Rules 10S.5.3, 10S.5.6, 10S.5.7, and 42.5.6 of the Waikato District Plan, relating to the creation of Rural Residential Lots, and does not conflict with any relevant Objectives and Policies of the plan.
- b There are no persons who would be considered to be adversely affected by granting consent to the subject proposed subdivision.
- c The subdivision will result in provision of two allotments being created of which dwellinghouses can be located as authorised under the provisions of the Waikato District Plan. A dwellinghouse is located on Lot 1, and therefore no reserve contribution is payable for that Lot.
- d The Council, under delegated authority, is able to exercise the discretion provided under section 105(1)(b) to grant consent to this application.
- e The Reserve Contribution is a financial contribution, which would assist in off-setting the effects of increased demand for facilities and land generated by the subdivision. The reserve contribution is made necessary by the additional demand generated by new residents and would help pay for additional reserve areas or facilities and the future development of existing facilities. Reserve Contributions are imposed at the flat rate of \$1,125.00 inclusive of GST for each lot created by subdivision upon which a dwelling or dwellinghouse are authorised by this District Plan. A reserve contribution is levied for Lots 2 and 3.

- f The Uniform Roothing Fee is a financial contribution, which allows the developer to contribute a fair share of the cost of providing services, which are necessary to serve new developments. The Roothing Fee would also contribute financially towards any capital improvements to Council's roading infrastructure in the District, which the subdivision will use. This would also assist in ensuring that roads in the District are able to safely and efficiently accommodate additional traffic arising from the subdivision. The maximum uniform roading fee per lot for the 1998/1999 financial year is \$3,584.00 inclusive of GST. The subject subdivision will result in the creation of two additional lots and will attract two roading contributions for Lots 2 and 3."

A Lapsing of Consents

Your attention is drawn to section 125 of the Resource Management Act 1991. A summary of that section is that subject to sections 357 and 358 a resource consent lapses on the expiry of 2 years after the date of commencement of the consent, or after the expiry of such shorter or longer period as is expressly provided for in the consent, unless

- (a) The consent is given effect to, before the end of that period:
- or
- (b) An application is made to Council up to 3 months after the expiry of that period which meets the criteria specified in section 125.

B Compliance with Conditions

Please note that unless a specific time limit is stated in the conditions imposed by the Council when granting this consent, all conditions must be complied with before the use to which the consent relates is established.

C Changes to Conditions

Your attention is drawn to section 127 of the Resource Management Act 1991 which enables an application to be made to Council to change or cancel any condition of this consent on the grounds that a change in circumstances has caused the condition to become inappropriate or unnecessary and the other specified criteria of section 127 can be met. This section does not apply to a subdivision consent in respect of which a survey plan has been deposited.

D Review of Decision on non-notified application

Your attention is drawn to section 357(2) of the Resource Management Act 1991. This section provides that there is a right of objection to Council in respect of this decision. Section 357(5) requires:

Any such objection shall be made by notice in writing to the Council, setting out the reasons for the objection, within 15 working days after the decision or requirement being notified to that person, or within such further time as may in any case be allowed by the consent of the Council.

E Right of Appeal

Your attention is drawn to the Resource Management Act 1991 sections 120 and 121 and also Resource Management Regulations 1991/170 Clause 10 and Part VI. Some key provisions to note are as follows:-

i You may appeal against the decision of the Council by lodging a Notice of Appeal in the prescribed form with the Registrar of the Environment Court and with the Council within 15 working days of the receipt by you, or the person who filed the application on your behalf, of the Council's decision. The address of the Environment Court is as follows:-

The Registrar
Environment Court
P O Box 5027
Wellington

- ii The appeal must be in the form prescribed by the Resource Management (Forms) Regulations 1991/170 or to like effect. The regulations may be purchased from the Government Printing Office. The form is identified as Form '7' in the regulations.
- iii A filing fee of \$55.00 GST inclusive must accompany every document by which appeal proceedings are commenced.
- iv Regulation 11 of the Resource Management (Forms) Regulations 1991/170 sets out important information as to the persons upon whom the appeal must be served and the time when service must take place. It is essential that these provisions be adhered to. Failure to do so may result in your appeal being struck out.

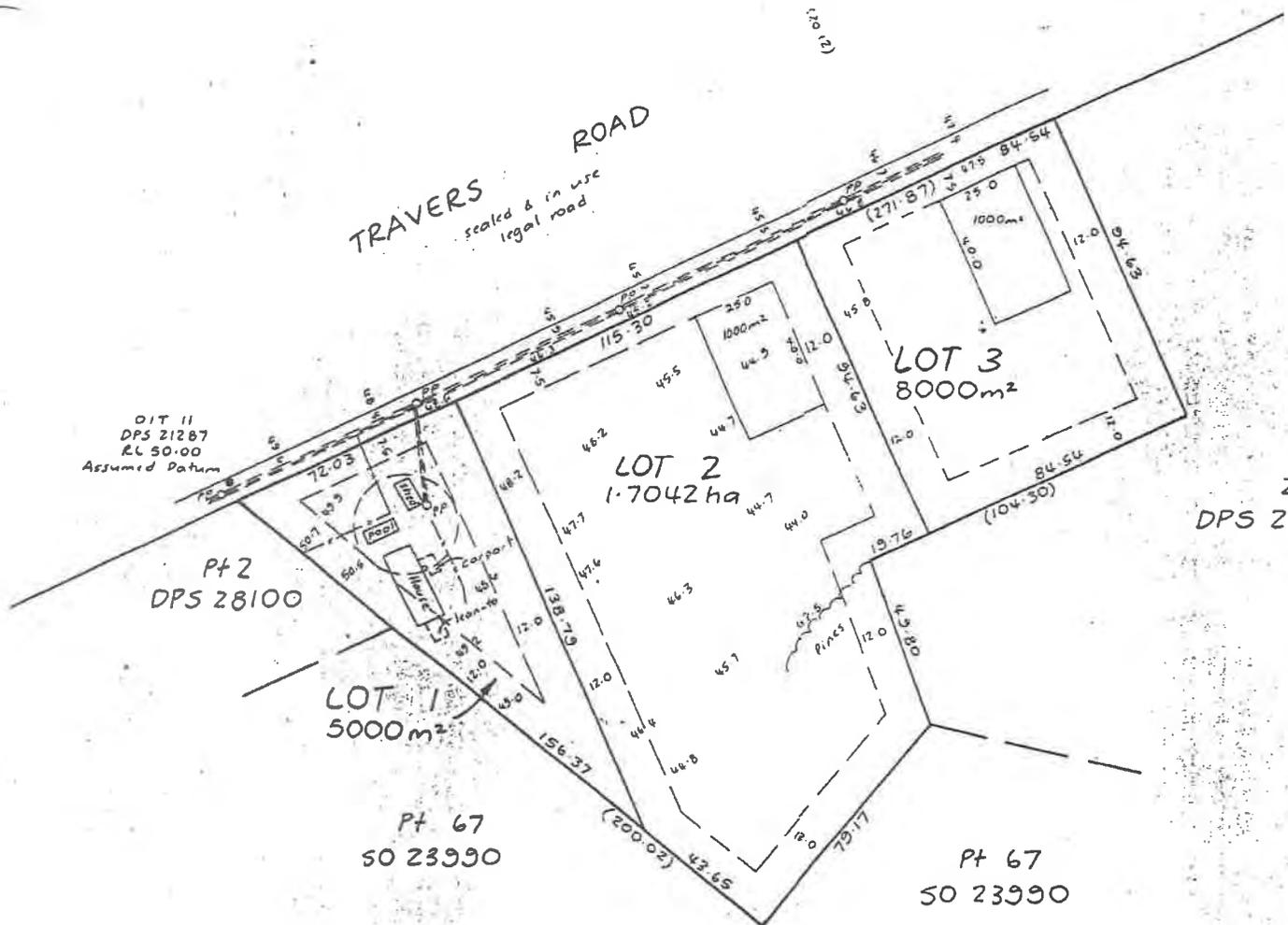
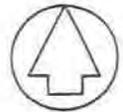
If you are in any doubt as to the procedures to be followed it is strongly recommended that you consult a lawyer.

Yours faithfully
M Buttimore
GROUP MANAGER



Marie Radford
PLANNING CONSENTS OFFICER SUPERVISOR
POLICY AND CORPORATE SERVICES

K:\SEC\MR\9041601P



OIT 11
DPS 21287
RL 50.00
Assumed Datum

Pt 2
DPS 28100

LOT 1
5000m²

Pt 67
SO 23990

LOT 2
1.7042 ha

LOT 3
8000m²

Pt 67
SO 23990

2
DPS 21287

Lot 1 - 5000m²
Lot 2 - 1.7042 ha
Lot 3 - 8000m²
Total Area 3.0042 ha

Area & dimensions subject to final Land Transfer Survey

Zone: Rural Residential
Comprised in: C.T. 20A/170

APPROVED PLAN

M Call
15-9-99

PREPARED BY
BRIAN C. SURVEYING LTD
15 Kaimiro Street, Ellerslie
ph. 579 3177 or 025 336 651
fax 575 1003

MARCH 1999

LOTS 1-3 BEING A PROPOSED SUBDIVISION OF
LOT 1 DPS 21287

APPLICANT A. Boyce Travers Road Te Kauwhata		SHEET 1 of 1
DRAWN B.P.C.	CHECKED B.P.C.	SCALE 1:1000
TRACED T.A.F.	DATE March 1999	SERIES OF REF



Your Ref

In reply please quote
SUB0011/04.01

If calling, please ask for
Kathryn Schicker

11 October 2004

Brian Cowley Surveying Limited
15 Kalmia Street
Ellerslie
AUCKLAND

Dear Mr Cowley

Application to vary conditions of consent by amending conditions 3 & 4, for D Hall at 26 Travers Road, Te Kauwhata

You are advised that your application has now been determined and has been granted. Please find enclosed a copy of the Decision and the Consent.

“Pursuant to Sections 34(A)(1) and 127 of the Resource Management Act 1991, the Waikato District Council under delegated authority consents to amending conditions 3 and 4 to the subdivision consent SUB0011/04 granted 25 August 2004. The conditions of consent shall now read as follows; (*amendments shown in italics*)

General

- 1 The survey plan to give effect to this Resource Consent shall be generally consistent with the proposal shown on plan reference 5873 prepared by Brian Cowley Surveyors Limited and information submitted in relation to SUB0011/04. A copy of the approved plan is attached.

Archaeological

- 2 The consent holder shall ensure that, should any human remains or archaeological items be exposed while undertaking works to give effect to conditions of this consent, works in that area will cease immediately. The Police, New Zealand Historic Places Trust, and Kaumatua representing the local Tangata Whenua shall be contacted and work shall not recommence in the affected area until any necessary statutory authorisations or consents have been obtained.

Financial Contributions

Roading

- 3 Pursuant to section 108(2)(a) of the Resource Management Act 1991 a financial contribution for roading of \$4883.00 (*Four Thousand Eight Hundred and Eighty Three Dollars*), inclusive of GST, shall be paid to the Council. This is based on a Roading Contribution of \$4,883.00 (*Four Thousand Eight Hundred and Eighty Three Dollars*), inclusive of GST for each additional lot.

Reserves

- 4 Pursuant to section 108(2)(a) of the Resource Management Act 1991, a reserve contribution of \$1,125.00 (*One Thousand One Hundred and Twenty Five Dollars*), inclusive of GST, shall be paid to Council. This is based on a Reserve Contribution of \$1,125.00 (*One Thousand One Hundred and Twenty Five Dollars*), inclusive of GST for the creation of two additional Lots, and shall be paid to the Council in lieu of vesting land.

Water Supply

- 5 Pursuant to section 108(2)(a) of the Resource Management Act 1991 a financial contribution for trickle feed water supply of \$5,526.00 (*Five Thousand Four Hundred and Eighteen Dollars*) G.S.T. inclusive shall be paid to Council prior to the issue of the section 224(c) certificate by Council. The quantum of the financial contribution is based on \$2,763.00 (*Two Thousand Seven Sixty Three Dollars*) for both Lots 1 and 2.

Land Drainage

- 6 Pursuant to section 108(2)(a) of the Resource Management Act 1991 a financial contribution for land drainage under the Travers Road Drainage District of \$843.00 (*Eight Hundred and forty three Dollars*) G.S.T. inclusive shall be paid to Council prior to the issue of the section 224(c) certificate by Council.

Roading

- 7 The existing entrance to Lot 1 shall be upgraded to sealed standard residential vehicle entrance located as indicated on the approved plan, and constructed in accordance with Waikato District Council plan TSG-E3 to the satisfaction of Council.
- 8 Lot 2 shall be provided with a sealed standard residential vehicle entrance located adjacent to the eastern boundary of the Lot, and constructed in accordance with WDC plan No. TSG-E3 to the satisfaction of Council.

Utilities

- 9 Separate water supply connections fitted with a manifold, flow restrictor and backflow preventer shall be provided to the boundary of Lots 1 & 2 to the satisfaction of Council. Such connections shall be installed by either Council staff or a Council approved contractor.

- 10 As built plans at a scale acceptable to Council shall be provided showing any water supply reticulation including connections within the right of way to the satisfaction of Council.

Planning

- 11 Written Confirmation shall be provided from network utility operators for electricity and telephone services confirming that the connections and reticulations have been placed underground to the boundaries of Lot 2 prior to section 224 certificate being signed by Council.

ADVISORY NOTES:

- A (i) An application form for water connection is attached and must be completed and returned to Council prior to the issuing of the section 224(c) certificate. Connection fees are in addition to the payment of a financial contribution.
- (ii) Council's trickle feed potable water supply will deliver the requested water allocation per day at a minimum water pressure of 200 kPa at the point of connection. The owner shall provide a minimum of 24-hours water storage capacity on site at a suitable location and elevation to receive water from the connection. The owner shall install a pumping system from his storage to deliver water from storage within his property as required.
- B When Building Consents are applied for the following matters will need to be addressed in any applications:
- i) For some building sites a Registered Engineer may be required to confirm that ground conditions are suitable for building
- ii) A design from suitably qualified person will be required for the effluent disposal system.

THE REASONS FOR THE DECISION ARE:

- (a) The original conditions 3 and 4 of consent SUB0011/04 related to financial contributions of amounts that exceed the proposed level of development i.e. the creation of new additional lots. Essentially the conditions have been reworded to reflect the actual financial contributions applicable.
- (b) By amending conditions 3 and 4 the original intent of the subdivision is not changed, the variation to conditions will not affect the scale and intensity of the development.
- (c) The Variation has been assessed not as a result of a change in circumstances or subdivision design rather to amend a staff error."

A Lapsing of Consents

Your attention is drawn to section 125 of the Resource Management Act 1991. A summary of that section is that a resource consent lapses on the expiry of five years after the date of commencement of the consent, or after the expiry of such shorter or longer period as is expressly provided for in the consent, unless



- (a) The consent is given effect to, before the end of that period; or
- (b) An application which meets the criteria specified in section 125 is made to the Council.

B Compliance with Conditions

Please note that unless a specific time limit is stated in the conditions imposed by the Council when granting this consent, all conditions must be complied with before the use to which the consent relates is established.

C Changes to Conditions

Your attention is drawn to section 127 of the Resource Management Act 1991 which enables an application to be made at any time to Council to change or cancel any condition of this consent.

D Review of Decision on non-notified application

Your attention is drawn to section 357 of the Resource Management Act 1991. This section provides that there is a right of objection to Council in respect of this decision. Section 357(5) requires:

Any such objection shall be made by notice in writing to the Council, setting out the reasons for the objection, within 15 working days after the decision or requirement being notified to that person, or within such further time as may in any case be allowed by the consent of the Council.

E Right of Appeal

Your attention is drawn to the Resource Management Act 1991 sections 120 and 121 and also the Resource Management (Forms, Fees, and Procedure) Regulations 2003/153, Regulations 16 – 19. Some key provisions to note are as follows:

- i) You may appeal against the decision of the Council by lodging a Notice of Appeal in the prescribed form with the Registrar of the Environment Court and with the Council within 15 working days of the receipt by you, or the person who filed the application on your behalf, of the Council's decision. The address of the Environment Court is as follows:

The Registrar
Environment Court
P O Box 7147
Wellesley Street
AUCKLAND

8th floor, District Court Building
3 Kingston Street
AUCKLAND

Telephone: 09 916 9091
Fax: 09 916 9090

- ii) The appeal must be in the form prescribed by the Resource Management (Forms, Fees, and Procedure) Regulations 2003/153 or to like effect. The regulations may be purchased from Bennetts Government Bookshop, or they (and the RMA itself)



are accessible on-line at www.legislation.govt.nz. The form is identified as Form 34 in the regulations.

- iii) A filing fee of \$55.00 GST inclusive must accompany every document by which appeal proceedings are commenced.
- iv) Section 121 of the Resource Management Act 1991 sets out important information as to the persons upon whom the appeal must be served and the time when service must take place. It is essential that these provisions be adhered to. Failure to do so may result in your appeal being struck out.

If you are in any doubt as to the procedures to be followed it is strongly recommended that you consult a lawyer.

Yours faithfully

A handwritten signature in black ink, appearing to be 'Joanne Smith', is written over the typed name.

Joanne Smith

ENVIRONMENTAL ADMINISTRATION



FINAL CODE COMPLIANCE CERTIFICATE

Section 94(1) Building Act 2004
 ISSUED BY THE WAIKATO DISTRICT COUNCIL
 BUILDING CONSENT NUMBER: BLD1346/08

F11

BUILDING LOCATION:	BUILDING WORK
48 Travers Road TE KAUPHATA	Dwelling with attached garage
APPLICANT:	PROJECT
P W Massey, K K Price 48 Travers Road RD 2 Te Kauwhata 3782	Dwelling
CONTACT:	Intended Life, not less than 50 years
QBT Homes PO Box 20343 Te Rapa Hamilton 3241	
LEGAL DESCRIPTION:	
Property Number: 2008588 Valuation Roll Number: 04390/693.02 Legal Description: LOT 2 DP 353641 BLK XV MARAMARUA SD	

This is a final Code Compliance Certificate issued in respect of all the building work under the above building consent.

Signed for and on behalf of Council:

Signature:

Name: Anthony Krippner
 Position: **Building Control Officer**
 Date: 03 June 2009

BUILDING CONSENT NO: BLD1346/08

Section 51, Building Act 2004

ISSUED BY: WAIKATO DISTRICT COUNCIL

BUILDING LOCATION	BUILDING WORK
48 Travers Road TE KAUWHATA	Dwelling with attached garage
APPLICANT	PROJECT
P W Massey, K K Price 15 Rimu St Te Kauwhata 3710	Indefinite but not less than 50 years Dwelling \$344344
CONTACT	Total Est. Value of Projects \$344344
QBT Homes PO Box 20343 Hamilton 3240	
LEGAL DESCRIPTION	
Property Number: 2008588 Valuation Number: 04390/693.02 Legal Description: LOT 2 DP 353641 BLK XV MARAMARUA SD	
COUNCIL CHARGES	
The balance of Council's charges payable on uplifting of this building consent, in accordance with the tax invoice are: Total: ALL FEES ARE GST INCLUSIVE	Signed for and on behalf of the Council:  Jodi Bell-Wymer ENVIRONMENTAL ADMINISTRATION Date: 11 June 2008

This building consent is issued under Section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building).

This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

This building consent is issued subject to the conditions specified in the attached pages headed "Conditions of Building Consent BLD1346/08".

Waikato District Council
Conditions of Building Consent Certificate No: BLD1346/08

The Building Consent Certificate is issued subject to the following conditions:

- 1 Owner/Builder **MUST** locate boundary pegs prior to Council carrying out a foundation inspection.
- 2 **At least 48 hours' notice** is required prior to the intended commencement of construction:
 - Siting, foundation (prior to pouring concrete) **AND at least 24 hours' notice** prior to any of the following inspections (See Building Regulations 1992):
 - Pre-floor plumbing and drainage and •Pre-floor building (prior to pouring concrete)
 - Structural framing (pre-wrap)
 - Pre-line plumbing and •Pre-line building
 - Exterior cladding systems
 - Post-line building
 - Sanitary sewer and stormwater
 - Final inspection to be called for (the owner or builder shall be on site at time of inspection)
 - Owner/builder to locate boundary pegs prior to council carrying out a foundation/siting inspection. **Waikato District Council contact phone number is (07) 824 8633.**
- 3 Verandah posts shall comply with Figure 9.2 and 9.3 NZS 3604, 1999.
- 4 Trusses or rafters shall be fixed at tails to top plate with wire dogs at each end.
- 5 The roof shall be braced to comply with Table 10.1 NZS 3604, 1999.
- 6 The moisture barrier beneath the floor shall comply with the New Zealand Building Code 1991.
- 7 Provide breather type building paper on outside of frame, to extend to top plate level.
- 8 Steel lintels shall be hot dip galvanised to comply with Table 11.4 NZS 3604, 1999.
- 9 Fibreglass insulation shall be a minimum of 75mm in walls and 100mm in ceilings or shall comply with the requirements of E3 ASI of the New Zealand Building Code 1991.
- 10 Footings shall be a minimum of 200mm below cleared ground level.
- 11 Lapse of building consent. A building consent lapses and is of no effect if the building

work to which it relates does not commence within:

- a) 12 months after the date of issue of the building consent
- b) Any further period that the building consent authority may allow
- c) If reasonable progress on the building work has not been made within 12 calendar months after work has commenced.

The Council can exercise its discretion in either case.

- 12 Soils may be soft in this area. Foundations shall sit on soils capable of supporting 100kpa. If soft soils are encountered an engineer's design of the foundations will be required.
- 13 All drainage and plumbing shall comply with the New Zealand Building Code 1991.
- 14 At least 24 hours' notice shall be required for plumbing and drainage inspections. Plumbing preline inspection shall be required.
- 15 Plumbing inspection shall be required before pouring floor slab.
- 16 An as built drainage plan and an electrical certificate of compliance is required on completion.
- 17 A gas certificate is required on completion.
- 18 Septic Tank and effluent disposal shall comply with AS/NZS 1547:2001. Registered, supervising engineer to provide a PS4 to Council on completion, or approved suitably qualified person to provide a PS3 on completion.
- 19 Stormwater shall be disposed of in an approved manner.
- 20 All roof trusses shall be designed and fabricated by a certified manufacturer.
- 21 No hot and cold water pipes shall be laid under concrete floors unless they are accessible after the job is completed.
- 22 All timber treatment shall comply with NZS 3602:2003.
- 23 Wall framing shall comply with table 8.2, 8.14, 8.18, 10.9, 10.10 or 10.13 figure 8.12 NZS 3604: 1999.
- 24 Domestic smoke alarms must be installed before a final inspection is requested. The number of alarms required and their location in the dwelling is to be in accordance with the New Zealand Building Code.

Date: 11 June 2008

Signed:

R.P. 

**Anthony Krippner
Waikato District Council**

B10 - BldCert04 - V1 Jul 07

WAIKATO DISTRICT COUNCIL
P.O. BOX

Drainage/Plumbing Permit No. 1346/08
Lot 2 D.P. 353641 VAL No. _____
No. 48 Street TRAVERS RD Tekanui
Owner's Name P. MASSEY K. PRICE
Drainlayer's/Plumber's Name A. J. VAN GESSEL

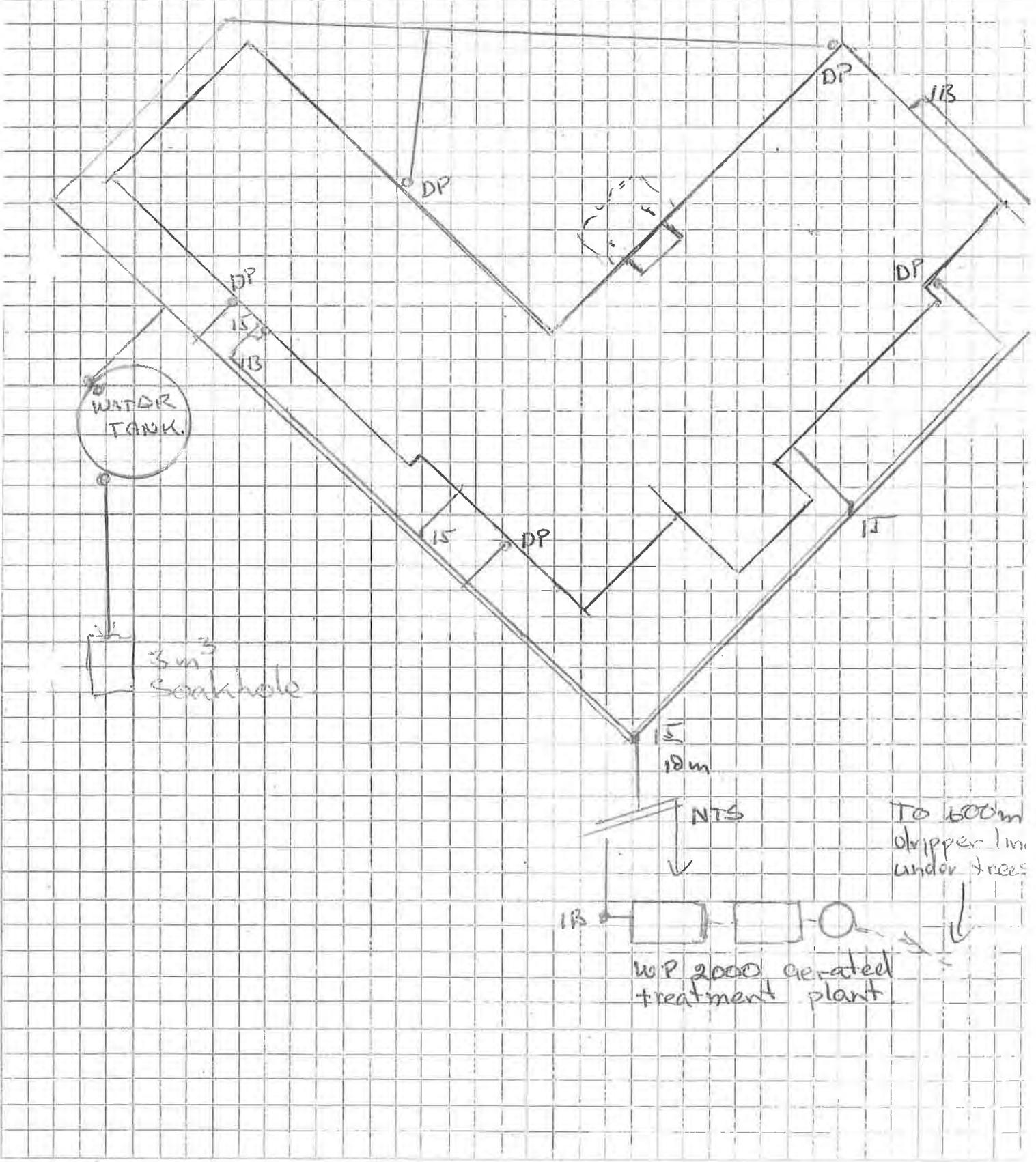
'AS BUILT PLAN'

TO BE PRESENTED TO INSPECTOR
AT TIME OF DRAIN TEST &/OR INSPECTION

SCALE = 5mm:1m (1: 200) one small square equals 1m². All other sections (including Farms, etc.), please state scale used.
Plans to be drawn in ink - **Red** for sanitary, **Blue** for stormwater, **Black** for buildings and boundaries.

ROAD BOUNDARY

5m 10m 15m 20m 25m 30m 35m





PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

(Guidance notes on the use of this form are printed on the reverse side)

ISSUED BY

G A Hughes & Associates Limited...

(Suitably qualified Design Professional)

TO: Philip Wade Massey

TO BE SUPPLIED TO: Waikato District Council

(Territorial Authority)

IN RESPECT OF Subgrade and Controlled Fill

At 48 Travers Road Te Kauwhata

Lot 2 DPS 353641

G A Hughes & Associates Limited has been engaged by the Owner
(Design Firm) *(Owner/Developer/Contractor)*

to provide Design & Observation clause(s) B1 of the Building Regulations 1992 for the Clay subgrade and compacted fill as G A Hughes & Associates Ltd References 51207 & 08691 Authorised variation(s) No.

..... (copies attached) have been issued during the course of the works. I have sighted Building Consent No BLD 1346/08 and the attached conditions of building consent.

As an independent design professional covered by a current policy of Professional Indemnity Insurance to a minimum value of \$200,000, I or personnel under my control have carried out periodic reviews of the work appropriate to the engagement and based upon these reviews and information supplied by the contractor during the course of the works

I BELIEVE ON REASONABLE GROUNDS that Part only as specified in the attached particulars of the building work under the above Building Consent with respect to Clause(s) ...B1 of

the Building Regulations 1992 has been completed to the extent required by that Building Consent.


(Signature of suitably qualified Design Professional)

Date 18th June 2008

BE, MIPENZ (Civil & Structural) C P Eng #13402.....

(Professional Qualifications)

Member IPENZ

1036 Whangaparaoa Road, Whangaparaoa HBC 0930.....

(Address)

This form to accompany Form 9 of the Building Regulations 1992 for the issue of a Code Compliance Certificate.

BrOctober 94

SENT TO: CIVIL 216:08



Home Insulation Installation Guarantee

for new homes insulated in walls and/or ceilings

This is to certify that

this home has been insulated in the walls and/or ceilings with Pink®Batts® insulation by a Tasman Insulation approved Pink®Batts® installer. Pink®Batts® when properly installed satisfies the requirements of the New Zealand Standard NZS4246:2006 and the durability requirement of the New Zealand Building Code B2.3.1(a).

The PinkFit® installer guarantees that, at the time of installation the Pink®Batts® have been properly installed. This guarantee is transferable to any subsequent owners of the home.

Signed..... *M.A. [Signature]* Date *15.10.08*

Pink® Batts® Installer..... *Pinkfit Waikato*
Compliance Number: *36345*

Builder Details:
GOLDEN HOMES

Site Details:
MASSEY PRICE RESIDENTS
LOT 2, 48 TRAVERS ROAD
TE KAUWHATA,

Date Printed: 15-Oct-2008
Install Date: 14-Oct-2008
Completion: 15-Oct-2008

Product Details
Pink® Batts® Ceiling R2.6
Pink® Batts® Wall R2.2



Electrical Certificate of Compliance

No. 2759069

for prescribed electrical work that is carried out on electrical installations and involves the placing or positioning or the replacing or repositioning of conductors (including fittings attached to those conductors).

No. of attachments

To be completed whether or not an inspection is required.

CUSTOMER INFORMATION - PLEASE PRINT CLEARLY

Name of customer P Massey & K Price Phone: _____
 Address of installation 48 Travers Rd Te Kahu what a
 Postal address of customer (if not as above) _____

WORK DETAILS

79 No. of lighting outlets 1 No. of ranges _____
 68 No. of socket outlets — No. of water heaters _____
 Was any installation work carried out by the homeowner? Yes No

Please tick (✓) as appropriate where work includes:
 Mains Main earthing system
 Switchboard Electric lines

Description New House incl
metering point inter
nal maining main sw
board & associated
subcircuits & earthing

It is recommended that test results be recorded here:

Visual Examination
 Earth Continuity
 Bonding
 Polarity
 Insulation Resistance — Mohm
 Other _____

If necessary attach any pages with sketches of work done

CERTIFICATION OF WORK

I certify that the above electrical work has been carried out in accordance with the requirements of the Electricity Act 1992 and Electricity Regulations 1997.

ELECTRICAL WORKER DETAILS

Name J Ballard
 Registration no. 26267
 Company Ballard Electrical
 Signature [Signature]
 Date 3-3-09
 Contact Ph No. 0274 920179

CERTIFICATION OF ELECTRIC LINES

(to be completed where a separate electrical worker has installed the electric line portion of the mains)

Name _____
 Registration no. _____
 Company _____
 Signature _____
 Date _____
 Contact Ph No. _____

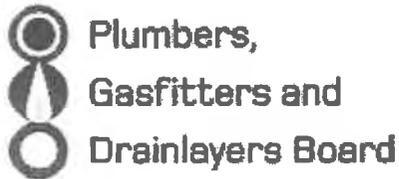
INSPECTION DETAILS Electrical work requiring inspection by a registered electrical inspector

Internal Switchboard Earthing system Installation work in hazardous areas

I certify that the inspection has been carried out in accordance with the requirements of regulation 41 of the Electricity Regulations 1997.

Name MUCE WALS Registration no. I# 244314
 Signature [Signature] Date 3-3-2009
 Daytime Contact Ph No. 0272913728

CUSTOMER COPY - THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED



GAS FITTING CERTIFICATION CERTIFICATE
 (Pursuant to the Gas Act 1992 and the Gas Regulations 1993 and amendments)
ENERGY WORK CERTIFICATE
 (Pursuant to the Building Act 2004)
Gas Supplier Copy. This certificate is not transferable

Level 9, 70 The Terrace
 PO Box 10655, Wellington
 Tel 04 494 2970, Fax 04 494 2975
 www.pgdb.co.nz

Consumer: Massey / Price P / H
 Installation Address: 48 Travers
 Te Kauwhata
 Vehicle Registration:
 Vessel Registration:

Certificate Number: **624415**
 Gas Supplier: on gas
 Category: Domestic
 Type (Regulation 24(1)): **NEW**
 Gas Type: LPG
 Certification Date: 09 Mar 2009

Test Results: 10 min Duration
 14.00kPa test pressure
 0kPa Loss / Gain
 2.75kPa Working pressure
Other Testing:
Test Date: 09 Mar 2009

DESCRIPTION OF GASFITTING TO WHICH THIS CERTIFICATE APPLIES

Qty	Item Type	Item Location	Make/ Model	Input Rate	Flue Type	Flue Location	Vent Type	Vent Location
1	Pipework							
1	Hob	kitchen	Fisher/ Pykel	34.9	Unflued		Natural	
2	Water heater instantaneous	outside	Paloma 24	188	Fan Assisted Flue (Common)		Natural	

I certify that:

1. I Certify that all appliances and fittings worked on by me or by persons working under my supervision are safe and that all work carried out was in accordance with all applicable requirements of the Gas Act 1992 and Gas Regulations 1993 as ammended.
2. I Certify that the Gasfitting to which this certificate applies does not make other parts of the installation unsafe or otherwise non-compliant with the Gas Act 1992 and Gas Regulations 1993 as ammended.
3. I Certify that the Gasfitting work to which this certificate applies does NOT include work on an appliance or fitting imported or manufactured for the consumers use.

Registered Gasfitter / Supervised by certifier
 Registration No:
 Name:
 Registration No:
 Name:

Certificate Owner
 Registration No: 14954
 Name: Nicholson, Alan Douglas
 Company:

Signed: *AS*
Certifier
 Registration No: 14954
 Name: Nicholson, Alan Douglas

FAKED 9/3/09



PS 3

(Territorial Authority)

BUILDING CONSENT NO. 1346/08

PRODUCER STATEMENT - CONSTRUCTION (INSTALLATION)

ISSUED BY: Solid Fuel Installations (NZHHA Solid Fuel Appliance Installation Technician) Installer No: 1520

TO: Mr P Massey (Owner)

IN RESPECT OF: Installation of Solid Fuel Heating Appliance

AT: 48 Travers St, Te Kowiriata (Address)

LOT: DP: SO: D. SAINTY (Certified Installer) has contracted to Mr Massey (Owner/Developer)

to perform the above work as described.

I, Darren Sainty, Certified Installer No. 1520, have sighted Building Consent No. 1346/08 and believe on reasonable grounds that the solid fuel heating appliance installation has been installed as per the above Building Consent and the Manufacturers Instructions for the appliance.

SIGNATURE OF CERTIFIED INSTALLER:

DATE: 8-3-09

EMPLOYMENT STATUS (Complete as Applicable)

SELF EMPLOYED LEISURE EMPLOYEE

Trading Name: 64a Ti Rakau Drive, Employer Name: Address: PO Box 51 047, Pakuranga Address: Ph: (09) 576 5225, Fax: (09) 576 3451 Ph. No:

Water Projects Limited

Onsite Wastewater Treatment System

Commissioning Certificate

No: 689

Site Details

Date 10/3/09 Consent No _____ Inspected By Res Donaldson
Owner P Massey
Address 48 Travers Road, Te Kauwhata.
System Type W.P. 2000

System - Tanks

Correct System as per Design
Installed Level
Ground Level Below Lids
Firm Backfill
Correctly Connected
Water in Tanks
Grading 1 2 3 4 5

Disposal Field

Correctly Sited
Setbacks Observed
Sized as per Design
Position on Slope Correct
Bury Depth Correct
Valves Fitted & Operational
Fresh Water Tested
Landscaping & Planting Complete
Grading 1 2 3 4 5

System - Electrical

Panel Correctly Fitted
Connected & Energised
All Pumps Fitted & Functioning
Float Switches - Set Correctly
Alarm Functions Checked
Grading 1 2 3 4 5

Comments/Remedial Work Required

Require 1x100 riser on treatment tank to achieve correct level above ground

Documentation

As Built Drawing - Not Sighted
Producer Statements
Electrical COC - Not Sighted
Service Contract

The Onsite Wastewater treatment system on this site:

Has been commissioned and is Functioning Correctly

Is unable to be Commissioned until Remedial Work is completed

Signed: [Signature] Dated: 10-3-09

A new certificate will be issued once any Remedial Work (if remedial work is required) is completed. Water Projects Limited does not warranty the ongoing functionality of any system. All inspections carried out by Water Projects Limited attract an inspection fee.

10-MAR-2009 15:13 FROM GOLDEN HOMES
10/03/2009 14:01 +6492355138

TO heather
WATER PROJECTS LTD

P.001
PAGE 01/02

PRODUCER STATEMENT
HOUSEHOLD SEWAGE TREATMENT PLANT

AT

48 Travers Road, Te Kauwhata

To Whom It May Concern:

Water Projects designs, manufacturers and installs all types of Sewage Treatment Systems and can verify that this plant has been installed in accordance with the original design and specifications. Water Projects does not warranty the suitability or functionality of the plant.
System Type:

WP2000 Aerated Wastewater Treatment System & 600m2 Dripline Irrigation

Water Projects hereby assert that to the best of our knowledge and belief, the prescribed work has been carried out and completed to a level and specification that will satisfy building consent conditions.

The coverage of this statement is limited to the above named system and does not include the sanitary disposal pipe work from the dwelling to the treatment plant or any work, which the purchaser has agreed to undertake. This may include the provision of bark and/or mulch cover for the disposal system and the subsequent planting of water tolerant plants.

All Sewage Treatment Plants installed by Water Projects are serviced regularly by Water Projects or their Authorised Agents. This is done with the co-operation and consent of the purchaser.

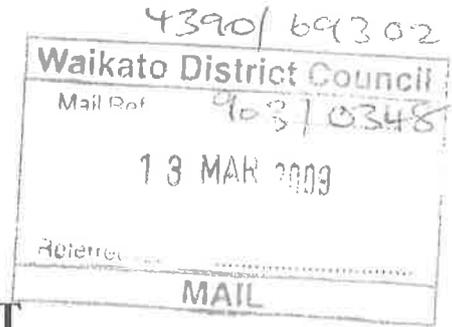


Matt Wallace
Wastewater Engineer



WATER PROJECTS
WATER & WASTEWATER ENGINEERING

P.O. Box 288 Waikato
Phone 07 23 6692
FAX 07 23 55138
FreePhone 0509 33 44 53
service@waterprojects.co.nz



PRODUCER STATEMENT

PLUMBING SYSTEM PRESSURE TEST

Owner: P Massey and K Price.

Property Address: 48 Travers Road Te Kawhata.

Lot: 2 DP S: 353641 Consent N°: B40 1346/08

To: **Waikato District Council**

Please be advised that our company: M^cGuire Plumbing Ltd

Has completed a pressure test on the plumbing system in the building at the above address. We certify that the system was tested to 1500 kPa for a period of 30 minutes. This test was conducted in accordance with manufacturer recommendations and complies with the pressure testing provisions of the New Zealand Building Code and Approved Solution G12 and AS/NZS 3500.1.2 as appropriate.

We advise that we have current public insurance to the value of at least \$500,000.00 and have approved quality control measures for recording purposes in place.

*We understand that the **Waikato District Council** will conduct random audits of our works where a producer statement has been used. If a workmanship or technical fault is detected from these audits then we undertake to carry out all appropriate remedial work as agreed is necessary by both parties in the particular circumstances.*

Issued by: M^cGuire Plumbing Ltd

Address: P O Box 28002, Horsham Downs Mail Centre, Hamilton

Contact Phone Number: 021 938 710

Signature:

Date: March 2009 Registration Number: 02986

ELECTRICAL WORKERS
REGISTRATION BOARD

Electrical Certificate of Compliance

For specified electrical work that is carried out on electrical installations and involves the blocking or positioning or the replacing or repositioning of conductors (including fittings attached to those conductors).
To be completed whether or not an inspection is required.

No. 2521897

No. of attachments

EMPLOYER INFORMATION - PLEASE PRINT CLEARLY

P. M. Assay
48 Travers Rd Te Kauhata
15 Rimust Te Kauhata
078264203

No. of light points

No. of ranges

Please tick (✓) as appropriate where work includes:

No. of socket outlets

No. of water heaters

✓ Mains

✓

Description Install B.T.S. &
V/G Mains To Pole.

It is recommended that test results be recorded here:

- Visual Examination
- Earth Continuity
- Bonding
- Polarity

Insulation Resistance ∞ Mohm

Other _____

If necessary attach any pages with sketches of work done

This work has been carried out in accordance with the requirements of the Regulations of 1992.

REGISTERED MEMBER DETAILS

J Ballard
26267
Ballard Electrical
[Signature]
5-6-08
0274 920179

CERTIFICATION OF ELECTRICAL WORK

To be completed where a separate certificate is required for the work.

~~_____~~

Electrical work requiring inspection by a registered electrical inspector:

- ✓ New wiring
- ✓ Switchboard
- ✓

It is certified that the installation has been carried out in accordance with the requirements of regulation 41 of the Electrical Regulations 1992.

STEVEN FREDERICK
[Signature]

I 250637
11-6-08
8582431

Building/engineering consents cover sheet

BLD: B01346/08

APPLICANT NAME: Massey 1ST working day: 25/4/08

LOCATION OF PROPERTY: 48 Travers Rd

PROJECT DESCRIPTION: Dwelling / Carage

Engineering

PROCESSING OFFICER: Helen Crosby 16/08/08

COUNCIL UTILITIES

- Water TK - Irrigation Rubbish Collection Yes
- Wastewater N/A Stormwater Travers Rd DD
- Building Over Council Mains N/A

ENGINEERING

- Soil Unconsolidated
- Flooding N/A
- Other hazards N/A
- S.71 notice recommended N/A
- Geotechnical Report GA Hughes
Concrete Slab + Excavations.
- Wastewater Treatment Report A W T S -
- < 2,500 m² for on-site effluent disposal
- Extra Bedrooms?
- Stormwater Management Plan

Reports: Eng 1: Water projects LTD Dated: Oct 07
 Eng 2: GA Hughes + Associates Dated: June 07
 Eng 3: _____ Dated: _____

PM 0013/08 ON FILE

continued overleaf

Job: YF0003

Client: Golden Homes
Phone:

Site: OBT Homes Ltd
6681 Massey-Price
Lot 2, 48 Travers Rd
Te Kauwhata

Description:
Building Consent No.:

MiTek 20/20 - Engineering 4.4 Gamma 1.3 (build 1597-8)

MiTek New Zealand Ltd

Phone:

Printed: 13/26/32 11 Mar 2008

PRODUCER STATEMENT
MiTek 20/20™ TRUSS DESIGN PROGRAM

Certification of MiTek 20/20™ Truss Design Program

The MiTek 20/20™ truss design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL timber roof, floor and attic trusses in New Zealand. The truss designs computed by this program are prepared using sound and widely accepted engineering principles, and in accordance with NZS 4203, NZS 3603 and NZS 3604 as verification methods and acceptable solutions of the approved documents of the New Zealand Building Code to satisfy the requirements of the Building Regulations 1992: Clause B1 - Structure. This computer design for the proposed building complies with the relevant provisions of the NZ Building Code. This is subject to all proprietary products meeting their performance specification requirements, the provision of adequate bracing, fixings and the correct input of design data carried out by suitably trained personnel.

Summary of MiTek 20/20™ Truss Design Data and Output

The MiTek 20/20™ computer design output for this job titled and located at the site identified on the top of this page is based on the following parameters entered into the program. The owner must ensure that the following job details below are current and relevant to the project before fabrication and erection of the GANG-NAIL trusses.

Job Details

Roof Truss		Pitch:		Std Overhang:	
Timber Group:	ATDCF		22.500 deg		740 mm
Roof		Ceiling		Wind	
Material:	Monier Concrete Tiles	Material:	Gib Board 12mm	Area:	High (44.0 m/s)
Dead Load:	0.600 kPa	Dead Load:	0.200 kPa	Pressure Coeff:	Cpe = varies; Cpi = -0.30, 0.20
Restraints:	400 mm centres	Restraints:	600 mm centres		
Live Load:	Q _r = 0.250 kPa				
	Q _c = 1.000 kN				

These trusses must be fabricated and erected in accordance with the GANG-NAIL manual. Proper erection bracing must be installed to hold the components true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixing must be installed before any loads are applied. The specifications for timber shall be as shown on the output. The timber shall be standard gauged and treated to the requirements of NZMP 3640. Unless otherwise noted, this design assumes that the steel fixings and timber connectors are situated in a closed environment, as defined by NZS3604:1999 Section 4.

Truss Legend: * = detail only, ? = input only, ~~xxx~~ = failed design, Unmarked trusses = designed successfully, LB = lateral bracing required

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
*CN1	60	855	0.000	900	J03G	1	2532	22.500	900	*R02	8	913	22.500	900	T10	1	5140	22.500	900
*HB01	2	8813	16.325	900	J03H	1	2532	22.500	900	*R02A	8	913	22.500	900	T11	1	5140	22.500	628
*HB02	1	10970	16.325	900	J03I	1	2532	22.500	900	*R02B	1	913	22.500	900	T12	2	7490	22.500	900
*HB03	1	2460	16.325	900	J03J	1	2532	22.500	900	*R03	1	3556	22.500	900	T13	9	7490	22.500	897
*HB04	1	7508	16.325	900	J03K	1	2532	22.500	900	*R04	1	1813	22.500	900	T14	2	3723	22.500	869
*HB05	1	7166	16.325	900	J03L	1	2532	22.500	900	*R04A	1	1813	22.500	900	T14A	1	3722	22.500	869
*HB06	2	4627	16.325	900	J04	1	1632	22.500	900	*R05	1	1768	22.500	900	T15	1	6360	22.500	869
*HB07	3	6288	16.325	900	J04A	1	1632	22.500	900	*R06	1	1485	22.500	900	T16	1	6360	22.500	869
*HB08	1	2416	16.325	900	J05	1	2547	22.500	900	*R07	1	1500	22.500	900	T17	1	2220	22.500	900
*HB09	2	2350	16.325	900	J05A	1	2547	22.500	900	*R07A	1	1500	22.500	900	T18	1	2220	22.500	900
J01	1	2807	22.500	900	J05B	1	2547	22.500	900	*R08	2	1775	22.500	900	TG01	1	11060	22.500	900
J01A	1	2807	22.500	900	J06	1	1647	22.500	900	*R08A	1	1775	22.500	900	TG02	1	12402	22.500	900
J01B	1	2807	22.500	900	J06A	1	1647	22.500	900	*R09	1	926	22.500	900	TG03	1	7490	22.500	900
J01C	1	2807	22.500	900	J06B	1	1647	22.500	900	*R09A	1	926	22.500	900	TG03A	1	7490	22.500	900
J01D	1	2807	22.500	900	J06C	1	1647	22.500	900	*R09B	1	926	22.500	900	TR01	1	11060	22.500	900
J01E	1	2807	22.500	900	J07	1	2822	22.500	900	*R09C	1	926	22.500	900	TR02	1	8833	22.500	900
J01F	1	2807	22.500	900	J07A	1	2822	22.500	900	*SB1	130	705	0.000	900	TR03	1	12820	22.500	900
J01G	1	2807	22.500	900	J07B	1	2822	22.500	900	*SB2	10	4925	0.000	900	TR04	1	12402	22.500	900
J01H	1	2807	22.500	900	J07C	1	2822	22.500	900	*SB3	12	2025	0.000	900	TR05	1	12402	22.500	900
J02	1	1907	22.500	900	J07D	1	2822	22.500	900	T01	1	8833	22.500	900	TR06	1	12125	22.500	900 LB
J02A	1	1907	22.500	900	J07E	1	2822	22.500	900	T02	1	14110	22.500	900	TR07	1	12125	22.500	900 LB
J02B	1	1907	22.500	900	J07F	1	2822	22.500	900	T03	1	14110	22.500	900	V01	1	1935	22.500	900
J02C	1	1907	22.500	900	J07G	1	2822	22.500	900	T04	1	14110	22.500	900	V02	1	1035	22.500	900
J03	1	2532	22.500	900	J08	2	1922	22.500	900	T05	1	12820	22.500	900	V03	1	1205	22.500	900
J03A	1	2532	22.500	900	J08A	1	1922	22.500	900	T06	1	12820	22.500	900 LB	V04	1	1724	22.500	900
J03B	1	2532	22.500	900	J08B	1	1922	22.500	900	T07	1	8833	22.500	692	V05	1	824	22.500	900
J03C	1	2532	22.500	900	J08C	2	1922	22.500	900	T08	1	14110	22.500	900 LB	V06	1	1757	22.500	900
J03D	1	2532	22.500	900	J09	1	1087	22.500	900	T09	1	14110	22.500	738 LB	V07	1	857	22.500	900
J03E	1	2532	22.500	900	*R01	1	1760	22.500	900	T09A	1	14110	22.500	738 LB	V08	1	2378	22.500	900
J03F	1	2532	22.500	900	*R01A	1	1760	22.500	900	T09B	2	14110	22.500	738 LB	V09	1	1509	22.500	900

Total quantity : 361

The computer design input has been carried out by:

Name of Computer Operator: Lincoln Thompson

Qualifications and Title: Truss Detailer

Signed: **CARTERS**

A Division of Carter Holt Harvey

Dated: Tuesday, 11 March 2008



MiTek New Zealand Ltd.

Correspondence from: **AUCKLAND**
5 Zelanian Drive, East Tamaki
PO Box 58-014, Greenmount
Phone: (09) 274 7109
Fax: (09) 274 7100

CHRISTCHURCH
20 Kotzikas Place, Sockburn
PO Box 8387, Riccarton
Phone: (03) 348 8691
Fax: (03) 348 0314

HOME OF **GANG-NAIL®** BUILDING SYSTEMS

www.mitek.nz.co.nz

23 May 2005

GANGLAM MANUAL UPDATED FOR NZS 3603:1993 AMENDMENT NO.4

This GANGLAM Selection Manual 05/2005 is an interim document pending the citing of NZS3603:1993 Amendment No. 4 as an approved document under the NZ Building Code by the Department of Building and Housing. Until such time, the document will not be printed in hard copy but it will be available in electronic form (PDF) and can be downloaded from our website.

The GANGLAM Selection Manual 05/2005 supersedes the previous Manual 11/2001. It has been designed in accordance with sound and widely accepted engineering principles and to comply with the following NZ Standards:

- NZS 4203:1992 General Structural Design and Design Loadings for Buildings
- NZS 3603:1993 Timber Structures Standard, Amendment No. 4
- NZS 3604:1999 Timber Framed Buildings

The minimum timber grade used is MSG 8 or VSG 8. For solid timber, the modulus of elasticity E_b (lower bound) of 5.6 GPa has been used to derive the span tables to allow for single component 100mm wide solid timber lintels and beams. These may be replaced with double component (2 x 50mm wide) lintels and beams of the same depth.

GANGLAM of 100mm wide is considered to be a four component beam hence $E = 8$ GPa. GANGLAM of 50mm wide (joist and rafter) is considered two component and has $E_{av} = 6.8$ GPa.

Should you have any questions relating to this manual, please contact myself on 09 274-7109.

Yours faithfully

A handwritten signature in blue ink, appearing to read 'In Ling Ng'.

In Ling Ng
BE (Hons), MIPENZ (Structural), CPEng, Int PE
TECHNICAL SERVICES MANAGER

GANG-NAIL®

LUMBERLOK®

BOWMAC®

GANGLAM

INTRODUCTION

Description

GANGLAM is a concept of building up large beam sections from smaller components by edge joining standard section sizes together with GANG-NAIL connector plates.

These shear plates are normally pressed onto one face with nominal stitch plates on the other face. In some cases, the plates can be totally concealed between the timber layers.

The GANGLAM system uses readily available materials and is quick to fabricate. This enables the product to be supplied with minimal delay and at minimal cost.

Each beam is custom made to measure, and can be cambered to suit any application. Extra deep or long multispan beams can be detailed to requirements.

Testing

GANGLAM beams have been tested in the test laboratories of MiTek New Zealand Ltd and by the Forest Research Institute. Much of the evidence of performance has also been tested on site since its inception around 1981.

Sizes

Although GANGLAM beams may be constructed to any depth and width, the common sizes are as follows:

350 x 50	400 x 50	450 x 50
500 x 50	550 x 50	600 x 50

Wider beams are usually achieved by nailing 50mm layers side by side.

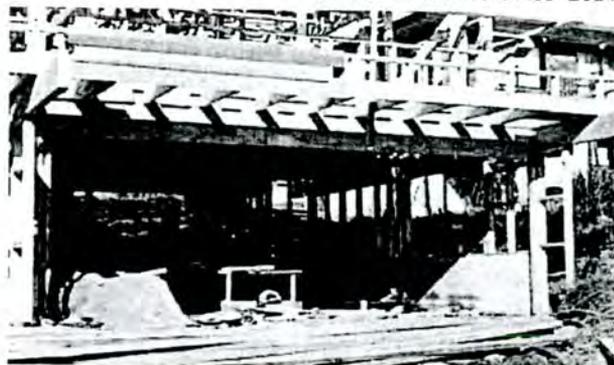
Sizes smaller than 350x100 are solid timber or 2/50mm wide components.

300x100 can be 300x100 GANGLAM or 2/300x50 solid timber or 300x100 solid timber.

Storage and Handling

Consideration for the storage and handling of GANGLAM beams are the same as for trusses in general. However particular care is required to

GANGLAM Domestic Floor Beam



ensure the beams stay dry by avoiding exposure to wet weather. Stacking is best done with fillets in between to allow air circulation. The beams are normally marked to identify the right way up and special load bearing points if any. GANGLAM beams are not suitable for applications exposed to the weather.

Strength

The tables have been designed to the limit state design provisions of NZS3603 (Amendment 4), NZS3604 and NZS4203. Some of the criteria are highlighted as follows (based on MSG8 timber):

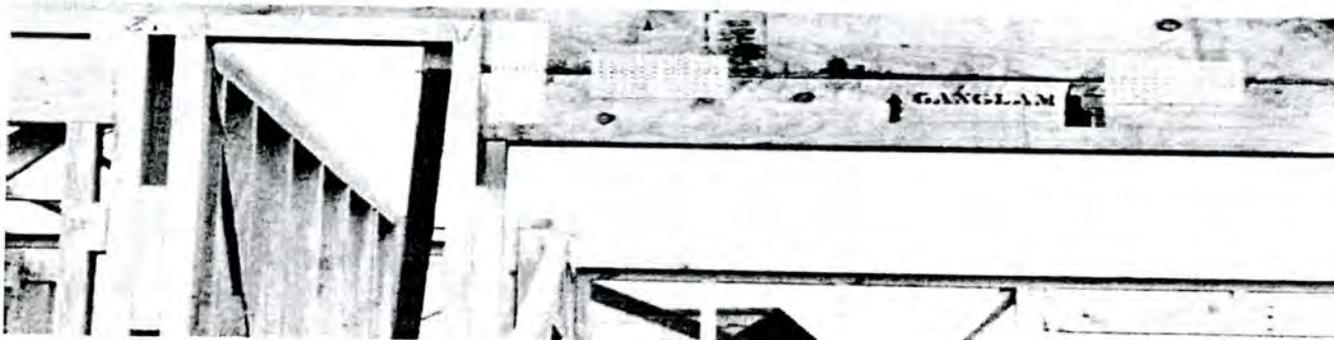
Bending Strength - f_b	=	14.0 MPa (MSG8)
Duration of Load Factor - k_1	=	0.6 (Dead only) 0.8 (Floor Live Load) 1.0 (Wind, Seismic and Roof Live Load)
Modulus of Elasticity - E_{ib}	=	5.6 GPa (Solid sawn timber)
- E	=	8.0 GPa (GANGLAM)
Creep Factor - k_2	=	2.0 (Solid sawn timber) 2.2 (GANGLAM)

Deflection

The tables have been designed in general compliance with BRANZ Guidelines for the Structural engineering Design of Houses, namely:

Longterm Deflection	=	L/300 but not greater than 15mm
Shortterm Deflection	=	L/400 but not than 12mm for liveliness control

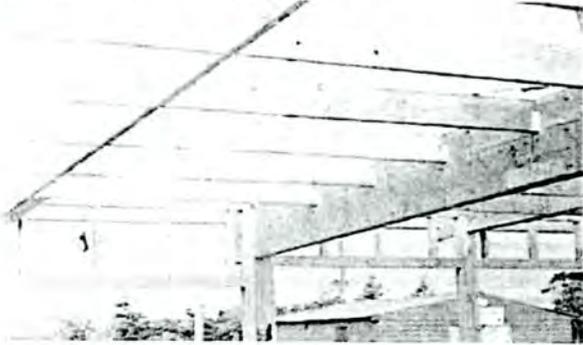
GANGLAM End Joint



GANGLAM

DESIGN SPECIFICATION

GANGLAM Rafters Supporting Maxspan Purlins



GANGLAM Commercial Lintel

Design Data

The tables herein have been designed according to the following loads:

Roof	Live Load	0.25 kPa, 1.0 kN
	Dead Load	0.65 kPa, Heavy 0.25 kPa, Light 0.20 kPa, Ceiling

Note:

- 750mm overhang has been included in the derivation of the tables.
- Spans are horizontal measurements.
- For heavy roofs over 30 degrees pitch, nominally multiply the roof span by 1.17 before using the tables:

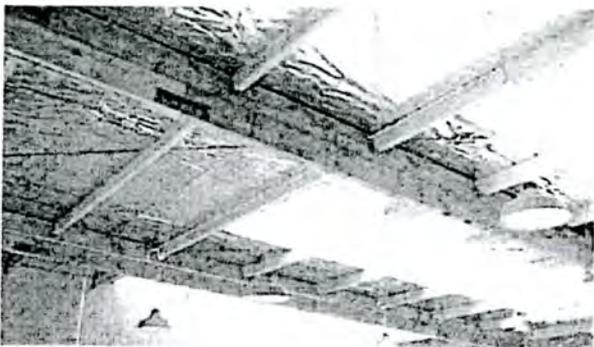
$$\text{Nominal Roof Span} = 1.17 \times \text{Actual Roof Span}$$

Floor	Live Load	1.50 kPa, 1.8 kN
	Dead Load	0.40 kPa
	Permanent Load (D + 0.4L)	1.0 kPa
Wall	Dead Load	0.6 kN/m line load
Snow	0.5 kPa snow load has been allowed in the tables. For higher snow loads up to 1.0 kPa, nominally multiply the actual roof span by 1.37 before using the tables:	

$$\text{Nominal Roof Span} = 1.37 \times \text{Actual Roof Span}$$

Wind/ Seismic Design covers all wind and seismic zones as in NZS3604 unless stated otherwise.

Multi-span Beams spans selected from the tables may be increased by 10% in multispan situations. The length of the shorter span must not be less than half the longer span.



GANGLAM Rafters

PRODUCER STATEMENT: DESIGN

GANGLAM Selection Manual

The selection charts and manufacturing details contained in this manual have been designed to comply with the relevant requirements of NZS4203:1992 and NZS3603:1993, approved documents of the NZ Building Code, and in accordance with sound and widely accepted engineering principles.

For and on behalf of MiTek New Zealand Ltd,

In Ling Ng
BE (Civil, Hons), MIPENZ, CPEng, IntPE

Date: April 2005



18 March, 2008

RALPH GILLARD
CONSULTING COMPANY LIMITED

RCDC Ltd
PO Box 4411
MOUNT MAUNGANUI

4 Dawn View Place
RD6, Minden, Tauranga
Telephone 0-7-552 4476
Facsimile 0-7-552 4482

PRODUCER STATEMENT - DESIGN

For: items as per following "Structural Summary Report" dated 18/03/2008

In a house proposed to be erected at **48 Travers Rd, Te Kauwhata**

My reference: **521601**

I, Ralph Geoffrey Gillard, being registered under the Chartered Professional Engineers Act 2002, and currently holding an Annual Practising Certificate hereby state that I have been engaged to provide structural design in accordance with the requirements of Clause B1 of the Building Regulations 1992 for the structural building elements identified above to which my calculations dated March 08 refer.

The design for these structural building elements has been prepared in accordance with section B1 / VM1 of the approved documents issued Building Industry Authority

This statement covers only those structural building elements identified above that are referred to in my calculations dated March, 08 attached to this statement and that are endorsed by Ralph Gillard Consulting Company Ltd upon the Building Consent Drawings. Only items identified above have been checked for compliance with the code. Design of all other elements remains the responsibility of others.

Amongst many other things, this statement does not cover water tightness issues, site suitability, flood risk or ground conditions. No site inspection has been made. Ground conditions complying with NZS 3604 have been assumed but not confirmed on site. Confirmation that the site is suitable for the proposed structure remains the responsibility of others.

As an independent design professional covered by a current policy of Professional Indemnity Insurance to a minimum value of \$200,000, I BELIEVE ON REASONABLE GROUNDS that subject to:

1. The verification of site suitability as outlined above
2. All proprietary products meeting the performance specifications requirements
3. Inspection of Construction by the Territorial Authority or Registered Building Certifier

the structural design of the elements listed above complies with the relevant provisions of the building code.

R G Gillard
B.E. MIPENZ (Structural)
Chartered Professional Engineer

For and on behalf of:
RALPH GILLARD CONSULTING COMPANY LIMITED

Report 00330: Evaluation of Bracket Durability; NZS 3604



LES BOULTON

& ASSOCIATES LIMITED

MATERIALS AND CORROSION CONSULTANTS

9 August 2000

Gang-Nail Group Ltd
PO Box 58-014
Greenmount
AUCKLAND

Suite 2, 266 Onewa Road
Birkenhead Auckland
New Zealand
PB 101-261
North Shore Mail Centre
Telephone 09 419 8451
Facsimile 09 419 8492

Attention: Mr T. Castledine
Manager, Lumberlok/Bowmac Division

LBA Ref: 00330

Dear Sir

Evaluation of New Durability Table 4.1; NZS 3604(1999)

1. Introduction

Les Boulton & Associates Ltd (LBA) has carried out an evaluation of the recently issued year 2000 version of Table 4.1, NZS 3604(1999), "*Steel items such as bolts, brackets and plates used to connect timber members and requiring a 50-year durability (excluding nails and screws)*", as requested by Gang-Nail Group Ltd (*Appendix 1*).

Gang-Nail Group, Bowmac Division, requested an opinion on whether the new version of Table 4.1, promoted by BRANZ (*Appendix 2*), which recommends that **galvanized steel plus protection** be employed in **exposed environments, Zones 1,2,3 and 4**, (open to airborne salts and rain wetting), is fair, reasonable and practical. In the NZS 3604 1999 version of Table 4.1, **galvanised connectors without extra protection** (viz., 100 micron epoxy powder coating, or a high-build epoxy coating), were acceptable in **exposed environments, Zones 1,2,3 and 4** (*Appendix 3*).

The *Bowmac* range of structural brackets, manufactured by Gang-Nail Group, typically represented by a connector such as item B138 in the Bowmac brackets catalogue (*Appendix 4*), falls into this latter category. Bowmac structural building connectors have a minimum hot-dip galvanised coating mass of 500 g/m² of zinc for steel 3-6mm thick.

It was considered by Gang-Nail Group that this heavy hot-dip galvanized (HDG) zinc coating mass would comfortably provide a durability in exposed environments (Zones 1,2,3 and 4) of 50 years. For this reason, Gang-Nail Group issued (October 1999) a *Durability Flow Chart* (which was screened for accuracy by LBA before Public Issue), which encapsulated the durability requirements of Table 4.1, NZS 3604 (1999). The Gang-Nail Group *Durability Flow Chart* (*Appendix 5*) has been very well received by the Building Industry, Territorial Authorities, and other interested parties, as being an accurate document (re-NZS 3604; Table 4.1), and an excellent guide for users of structural building connectors (*Appendix 3*).

Report 00330: Evaluation of Bracket Durability; NZS 3604

The recent version of Table 4.1, which was issued to the NZ Public at BRANZ workshops conducted throughout New Zealand in 2000 (*Appendix 2*), would no longer permit the use of some Bowmac options of structural HDG building connectors, if implemented, because the Bowmac range does not have an extra (very expensive) epoxy coating over the existing thick HDG coating (i.e., “plus protection” in Table 4.1, *Appendix 2*).

2. Zinc Coating Mass Determination on *Bowmac* Brackets

To determine the actual coating mass of HDG zinc on a typical *Bowmac* B138 structural galvanized steel bracket and on a typical B38 galvanized steel plate, two randomly selected *Bowmac* brackets were submitted to *Optimech Services* (Dr Jonathon Smith, BMet, PhD), for coating mass determination to AS/NZS 4680 (1999), *Hot-dipped galvanized (zinc) coatings on fabricated ferrous articles*.

The test method chosen for the evaluation was *gravimetric*. The analyst’s report is attached as *Appendix 6*. The zinc coating mass results on the galvanized brackets obtained by *Optimech Services* are summarised in *Table 1*.

Table 1
Zinc Coating Mass (g/m²) on HDG Bracket

Sample	Coating Mass g/m ²	Coating Thickness micron	Complies with AS/NZS4680
B38	982	137	Yes
B138	1029	144	Yes

It is apparent from the results in *Table 1* that the two typical *Bowmac* HDG brackets, which were tested, have approximately 1000 g/m² of zinc on the 5mm thick steel sections. The zinc coating mass requirement for 3-6mm carbon steel is 500 g/m² (AS/NZS 4650:1999). The *Bowmac* HDG brackets have a zinc coating mass of about twice the minimum requirement in the AS/NZS Standard. The owner of the *Bowmac* structural HDG brackets is provided (at no extra cost) with twice the zinc coating weight than is normally required for 5mm thick steel, for atmospheric corrosion protection.

It is expected that a zinc coating mass of approximately 1000 g/m² on structural steel brackets would comfortably provide a 50-year durability for exposed service in Zones 1,2,3 and 4.

3. Expected Life of HDG Coatings in Atmospheric Environments in New Zealand

Over the past twenty years there has been much research carried out in many countries around the World to determine the durability (and life expectancy) of galvanized zinc coatings on ferrous articles in atmospheric environments. Several research programmes have been carried out in New Zealand in this field, by BRANZ and by a private organisation. The final results of the studies in New Zealand have not been reported in

Report 00330: Evaluation of Bracket Durability; NZS 3604

the open (refereed) scientific literature, until recently. Consequently, in the past there has been considerable debate over the interpretation of the available atmospheric corrosion rate data for common engineering materials that exists in New Zealand.

However, the results of a 10-year publicly-funded study of corrosion rates of galvanized steel in NZ have recently been presented by BRANZ, in a paper at the 14th International Congress on Corrosion¹.

The following are *quotations* of some key points (*verbatim*) from this BRANZ-prepared paper, regarding the corrosion rates of zinc (galvanized steel) in New Zealand environments:

(1) *"The test site at Judgeford (i.e., at BRANZ) was purposely established as a multiple sample exposure test site and recorded the corrosion rate results of 2.49 g/m²/year with a range of 0.3 g/m²/year for galvanised steel"*.

(2) *"Based on the International Organisation for Standardisation (ISO 9223), which predicts corrosion rate classes for various materials including zinc, based on meteorological and pollution factors, the "C2 Low" classification is for zinc (galvanized steel) values in the range of 0.7 g/m²/year to 5 g/m²/year."*

(3) *"In New Zealand, the corrosion rate for zinc is generally in the ISO 9223 "C2" category for up to 100 km from the coastline, and substantially higher at geothermal and coastal areas"*.

Based upon these now published galvanized steel (zinc) corrosion rate results in New Zealand, it can be deduced that any galvanized steel zinc coating (e.g., HDG structural building brackets) with a zinc coating mass in excess of approximately 125 g/m²/year will have a zinc coating durability of 50 years. This does not apply necessarily to special areas in New Zealand where it is already well known that zinc corrosion rates are higher (e.g., geothermal zones, and sea shore zones).

Furthermore, this corrosion rate only applies to the zinc coating on the HDG steel. It does not take into account the considerable corrosion resistance of the iron-zinc (Fe-Zn) alloy layers present at the *metallurgical bond* between the zinc and HDG steel. Nor does it allow for the residual structural integrity due to the thick carbon steel members themselves. It is known for example, that the typical corrosion rate of carbon steel in a severe marine environment is only about 0.1 mm/year. It would take many more years exposure in a corrosive atmosphere in order to destroy the structural integrity of a heavy duty steel member, which is 5mm thick.

Based upon the known corrosion rate data for galvanized steel (zinc and carbon steel), LBA has no hesitation in estimating the life expectancy of an unpainted 5mm thick hot-dip galvanized steel *Bowmac* structural bracket, exposed to an *ISO C2 environment* in

¹ *Environmental Corrosivity in New Zealand: Results after 10 Years Exposure*; by P.W.Haberecht (BRANZ) et al, Proceedings of the 14 ICC, Capetown, South Africa, October, 1999.

Report 00330: Evaluation of Bracket Durability; NZS 3604

New Zealand, at over 100 years' service. This applies to exposed locations, where the connectors are *open to airborne salts and to rain wetting*. The estimated service life of 100 years for the galvanized steel structural brackets would not necessarily apply to applications in sheltered areas, where corrosion rates may be higher and less predictable. In sheltered locations it is still probable that the HDG brackets will give a durability of at least 50 years.

4. Galvanized Steel *Plus Protection*

Kerry Dalzell & Associates Ltd (Mr K. Dalzell, MSc, FTSC, FNZIC, MRSNZ, ACA-CIC; Protective Coatings Consultant), was requested to address the following question, which arises from the requirement of the *new Table 4.1* to make connectors out of "*galvanized steel plus protection*".

"Is there any substance to the claim made or implied by other parties, arising from a modification to Table 4.1 of NZS 3604, subsequent to publication of the Standard, for publicity purposes, that for exposed items, 'galvanized steel plus protection' is superior to 'galvanizing' alone".

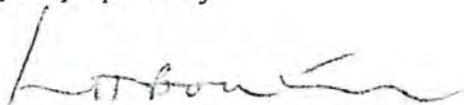
KDA's report is attached to the report as *Appendix 7*. The **Conclusion** reached by KDA was: "on the basis of your briefing, perusal of the documentation, and sighting of the items under discussion, the answer to the question is **no**".

5. Conclusions

There is no evidence available in the corrosion engineering field to support the claim in the new proposed version of Table 4.1 of NZS 3604(1999) that it is necessary to use "galvanized steel plus protection" (*meaning galvanized steel with an additional epoxy coating*) to ensure that hot-dip galvanized steel building brackets will give 50-year durability in an *exposed environment*.

It is probable that hot-dip galvanized steel brackets which have a coating mass defined as in AS/NZS 4650 (1999) will provide a 50-year service life in an *exposed* and in a *sheltered* environment.

Report prepared by:



L. H. Boulton, MSc (Hons), FICorr, FNZIC,
ACA Corrosion Technologist, NACE Corrosion Specialist

Principal Consultant
Les Boulton & Associates Ltd

Attachments: *Appendices 1-7*

Unit 1/23 Tukorako Drive
Mt Maunganui
Ph (07) 574 0138

JOB No YF0003 

Client: QBT Construction Ltd
Job Name: 6681 Massey-Price
Address: Lot 2 Travers Rd
Te Kauwhata

Pitch: 22.50
Roof Material: Concrete Tile
Soffit Overhang: 740mm
Wind Area: High
Snow Load: 0 kPa

Trusses And Rafters At 900 Centres
Unless Stated Otherwise

This Layout is to be read in
conjunction with Architectural plans

DRAWN BY Lincoln
DATE 11.03.08 PAGE 1 of 3

FIXINGS

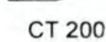
B=47x90 JH
N=47x120 JH
M=95x165 JH

A=CT200
S=Multigrrips
D=Nail On Plate

HB Hip Strut Brace

All Truss to Top Plate
Fixings 1 Pair 'Z' Nails
unless otherwise stated.

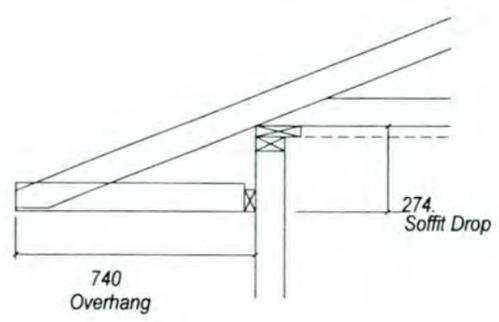
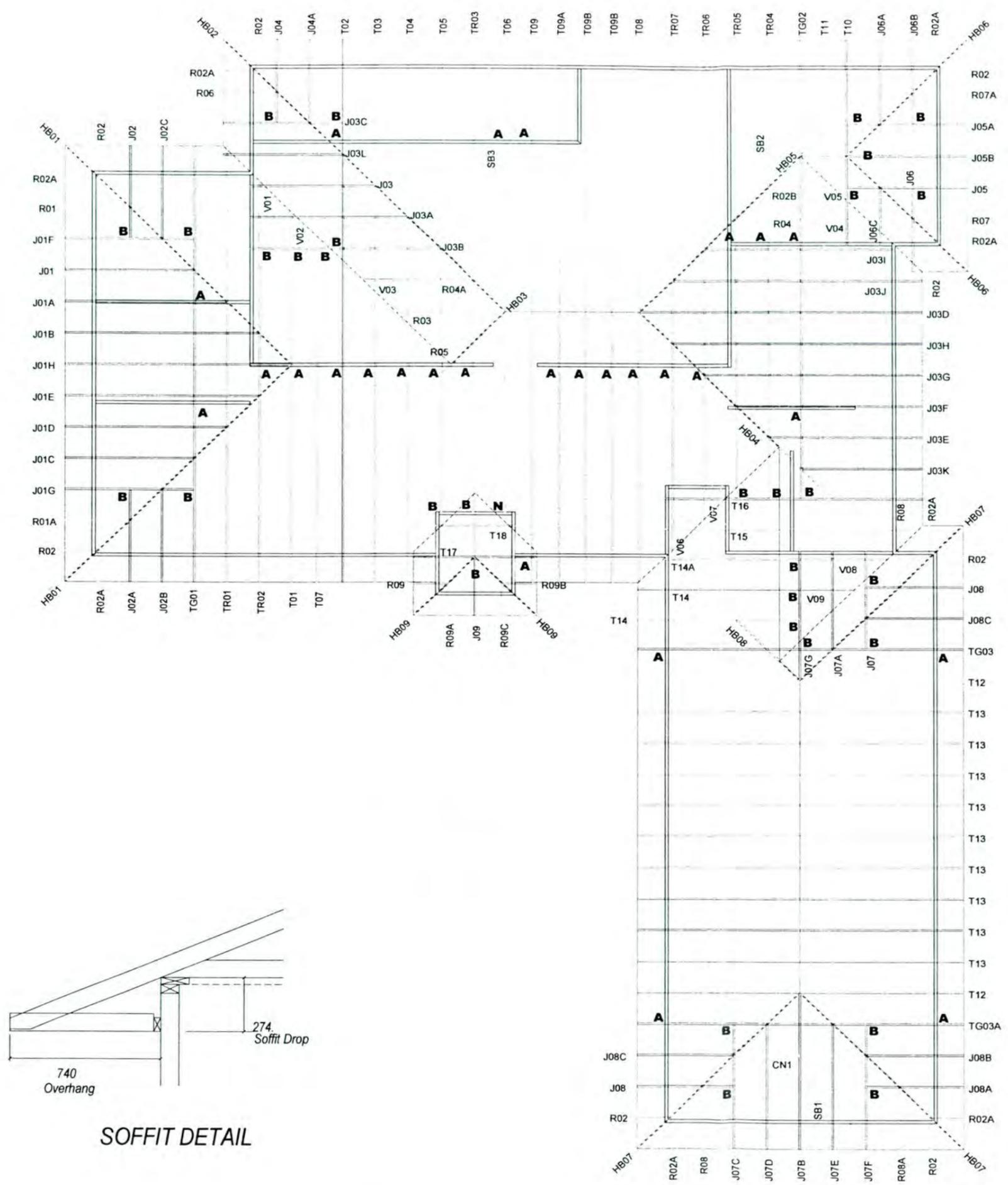
HIP BRACES
90 x 45 Hipboards are
to be supported by a
Hip Brace, fitted as per
installation instructions
supplied in Site Pack

 Joist Hanger
 CT 200
 Multi Grips
 Nail on plate
 CPC

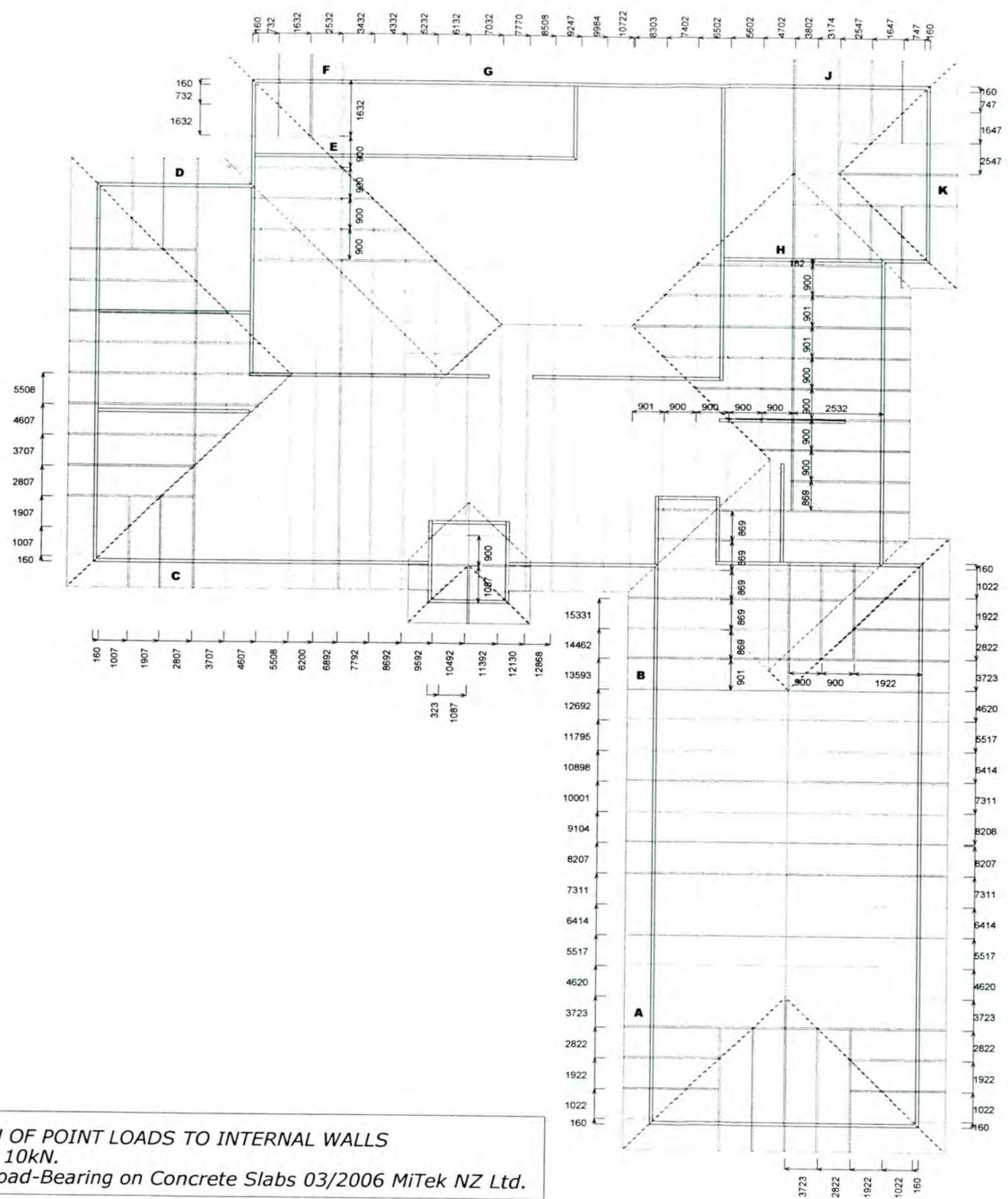
Please Contact The DETAILER for any queries
regarding this Layout.
OR
Contact your local CARTERS Manufacturing
Branch if any on site remedial work is required.
No modifications to Roof Trusses or Wall Frames
are to be undertaken without first obtaining
written authority from either The DETAILER or
CARTERS Manufacturing.

**CARTERS
MANUFACTURING**
Ph 0800 CARTERS

See Page 2 for Dimensions
Lintel Statement and
Roof truss Bracing



SOFFIT DETAIL



Unit 1/23 Tukorako Drive
Mt Maunganui
Ph (07) 574 0138

JOB No YF0003



Client: QBT Construction Ltd
Job Name: 6681 Massey-Price
Address: Lot 2, 48 Travers Rd
Te Kauwhata

Pitch: 22.50
Roof Material: Concrete Tile
Soffit Overhang: 740mm
Wind Area: High
Snow Load: 0 kPa

Trusses And Rafters At 900 Centres
Unless Stated Otherwise

This Layout is to be read in
conjunction with Architectural plans

DRAWN BY Lincoln

DATE 11.03.08 **PAGE** 1 of 2

These lintels have been sized using
the GANGLAM 05/2005 and
FLITCH BEAM 12/2007
selection manuals as provided by
MiTek NZ Ltd.

HYSpan and HY90 lintels have been
sized using designIT v3.2.10 NZ software
or selection manuals, HYSpan Edition 2
and HY90 Edition 1, as provided by
CHH futurebuild.

Unless otherwise stated the timber grade
for all lintels is MSG8. Lintels not shown
are to be selected as per GANGLAM
05/2005 selection manuals as provided
by MiTek NZ Ltd.

All walls shown on this layout are
considered to be load bearing.

LINTEL	SIZE	GRADE
A	FB30M	Fritchbeam
B	FB30M	Fritchbeam
C	200x90	HY90
D	200x90	HY90
E	300x90	HY90
F	FB25M	HY90
G	FB25M	HY90
H	200x90	HY90
J	Engineered Design	Steelbeam
K	Engineered Design	Steelbeam

CARTERS
MANUFACTURING
Ph 0800 CARTERS

See Page 1 for Truss
Layout and Fixings

NOTIFICATION OF POINT LOADS TO INTERNAL WALLS
IN EXCESS OF 10kN.
Ref. Internal Load-Bearing on Concrete Slabs 03/2006 MiTek NZ Ltd.



MiTek New Zealand Ltd.

Correspondence from: **CHRISTCHURCH**
 26 Kitzikas Place, Sockburn
 PO Box 6387, Riccarton
 Phone: (03) 348 8691
 Fax: (03) 348 0314

AUCKLAND
 5 Zealand Drive, East Tamaki
 PO Box 58-014, Greenmount
 Phone: (09) 274 7109
 Fax: (09) 274 7100

HOME OF **GANG-NAIL®** BUILDING SYSTEMS

www.mitek.nz.co.nz

4 November 2004

The Detailer
 P O Box 14008
 TAURANGA

Attn: Steve Walker

Dear Steve,

The results of the nail pull-out test done on samples by the University of Canterbury (tested using the method described in AS1649-1998) have allowed us to produce an alternative chart for you to use when defining your top plate fixing requirements. These results were obtained using standard air-driven guns with 90mm x 3.3mm resin-coated nails and because of this the revised chart is applicable to this nailing system only.

It should be noted that all the other requirements are as per the "LUMBERLOK wall fixing chart 01/10" and also that the loads are determined only when using products to the specifications of those used in the test procedure.

Regards.

Stephen Coll
 Southern Regional Manager
 MiTek NZ Limited

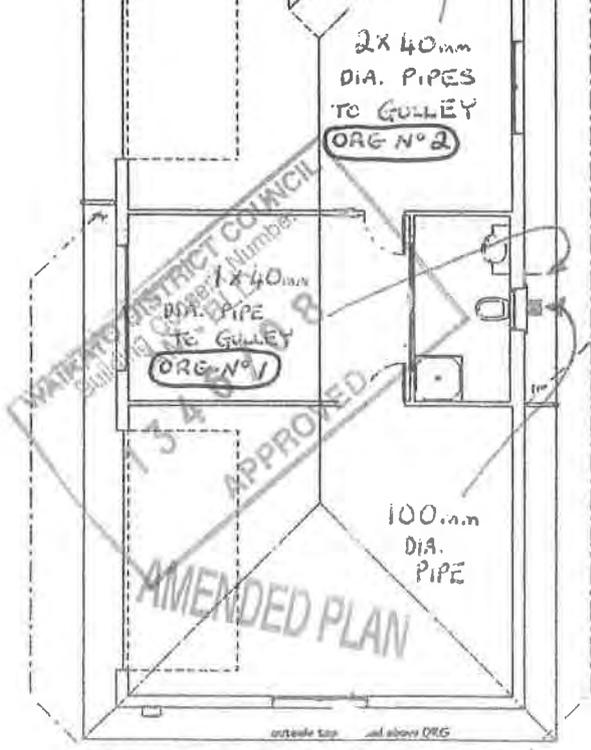
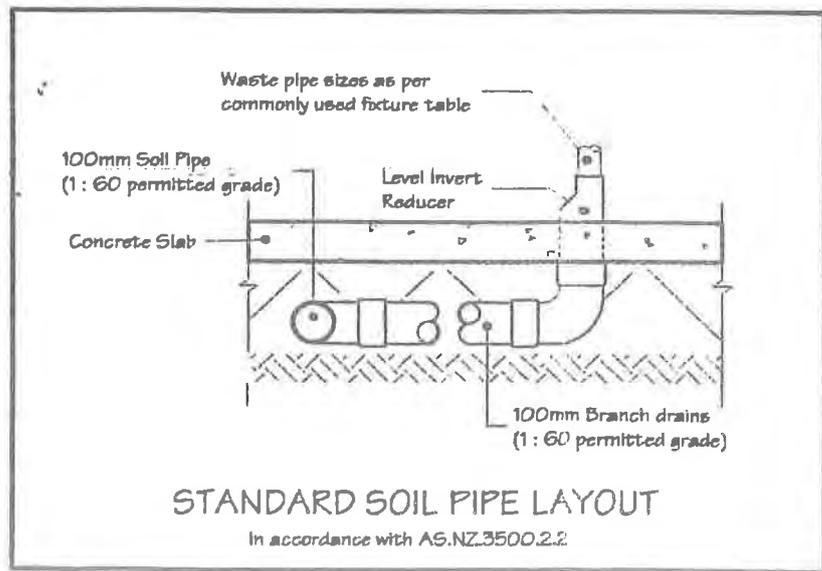
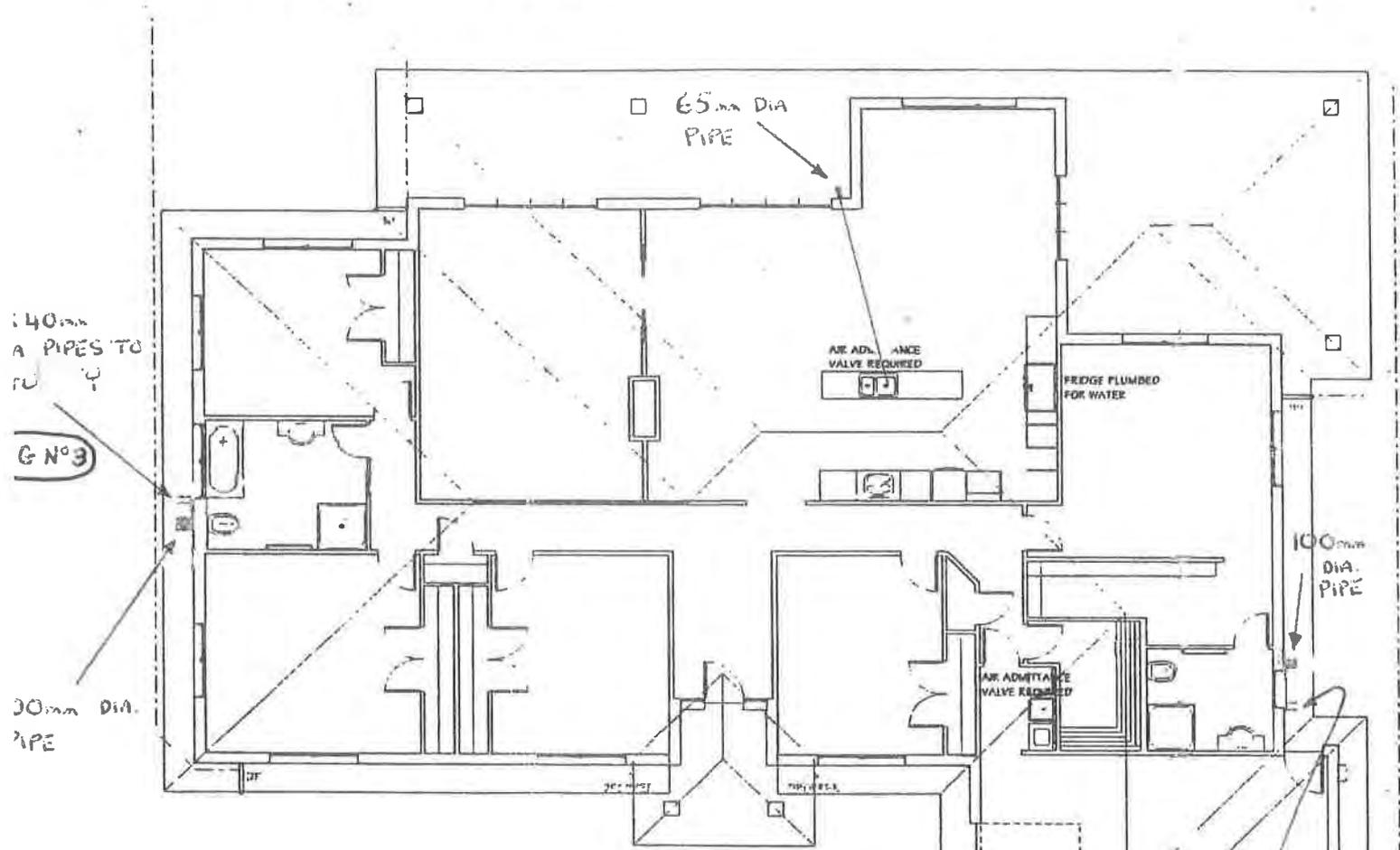
Loaded Dimension	Light Roof					Heavy Roof		
	L	Wind Zone			L	Wind Zone		
		M	H	VH		M	H	VH
1.5	A	A	A	B	A	A	A	A
2.0	A	A	A	B	A	A	A	B
2.5	A	A	B	C	A	A	A	B
3.0	A	A	B	C	A	A	A	B
3.5	A	B	C	D	A	A	B	C
4.0	A	B	C	D	A	A	B	C
4.5	A	B	C	D	A	A	B	C
5.0	A	B	D	D	A	A	B	D
5.5	A	B	D	D	A	A	C	D
6.0	A	C	D	D	A	A	C	D

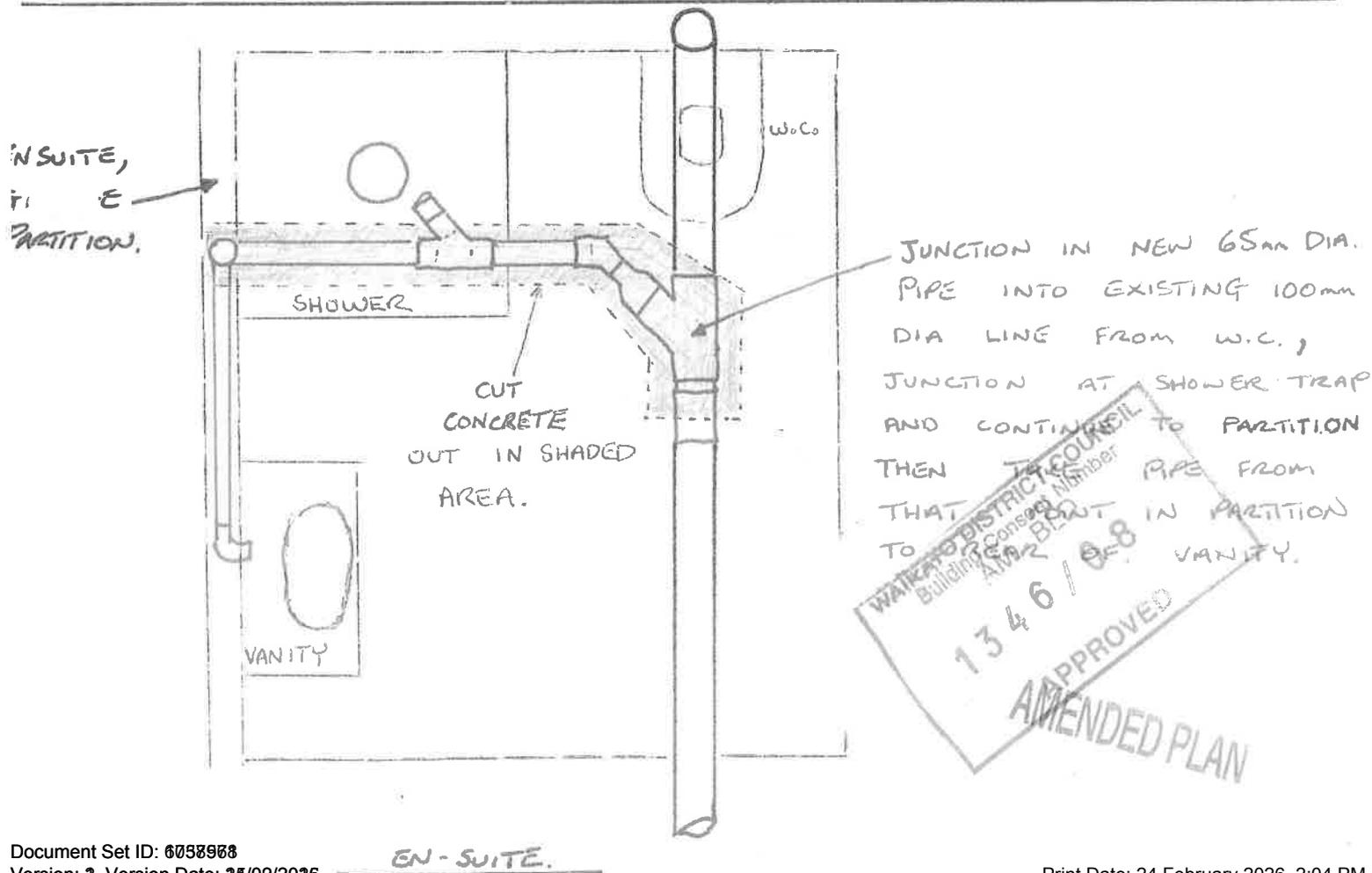
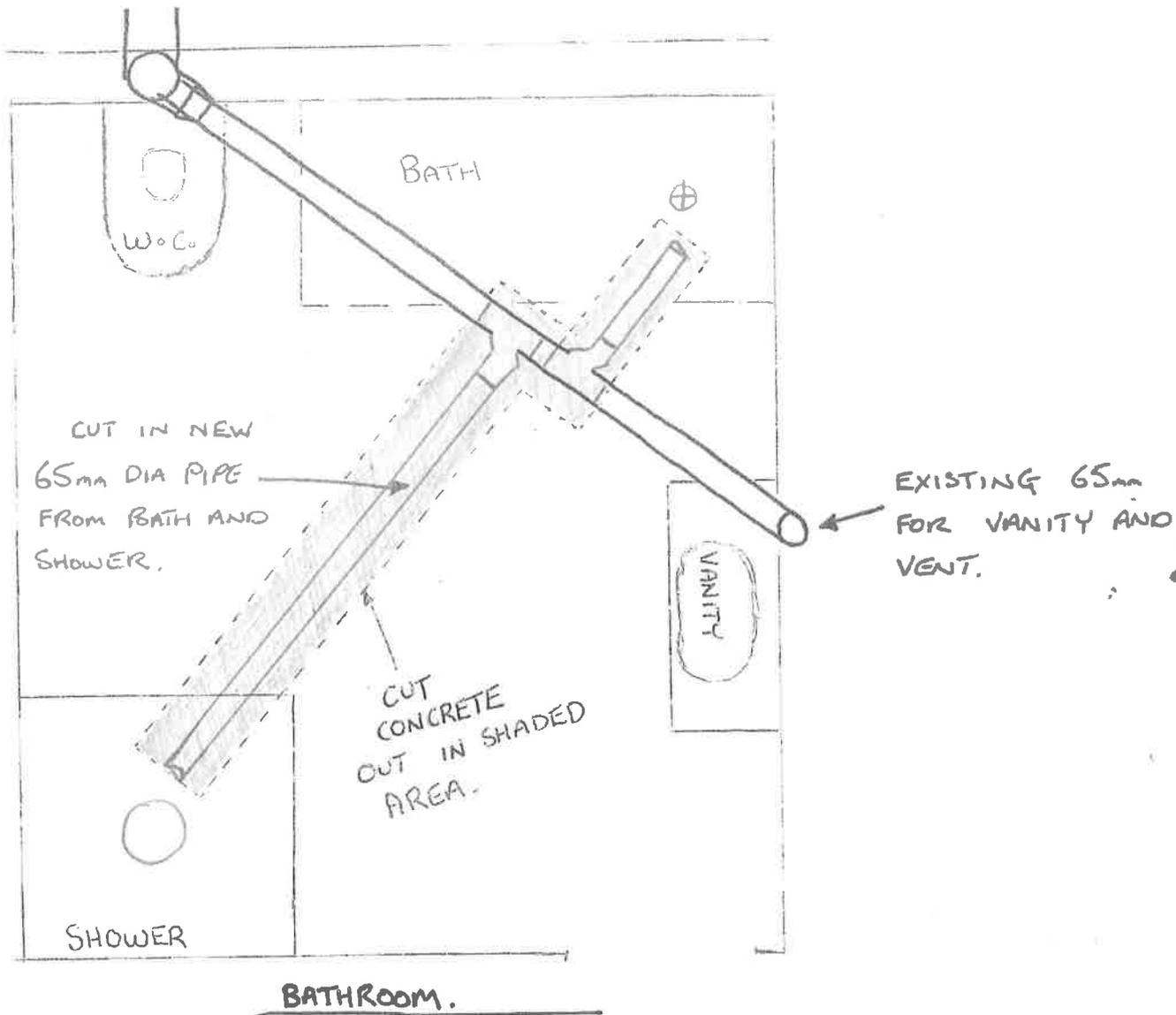
GANG-NAIL®

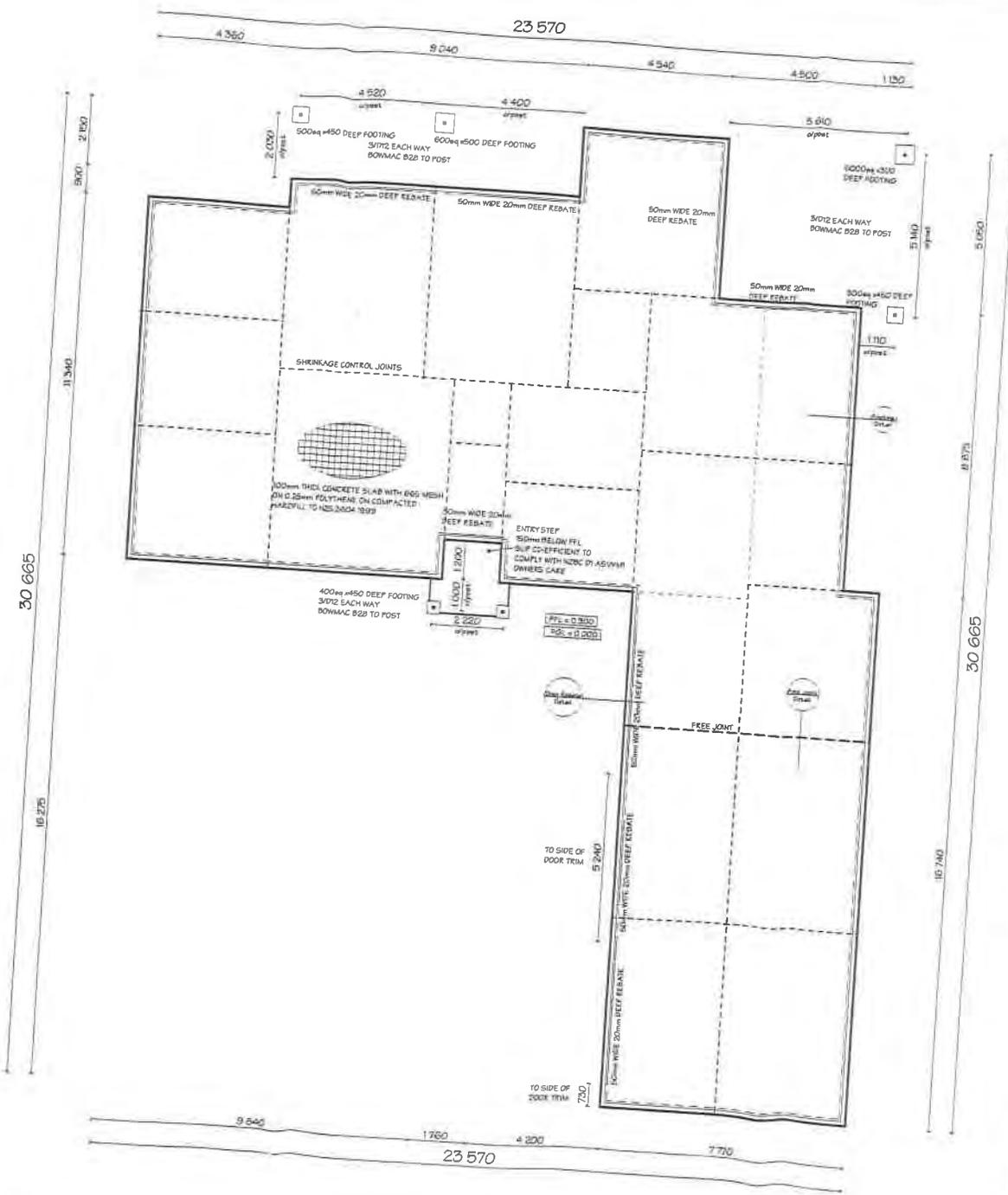
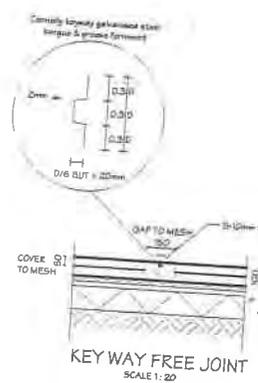
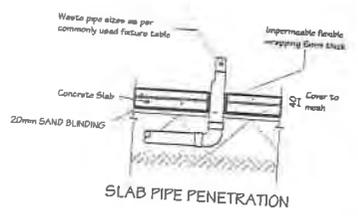
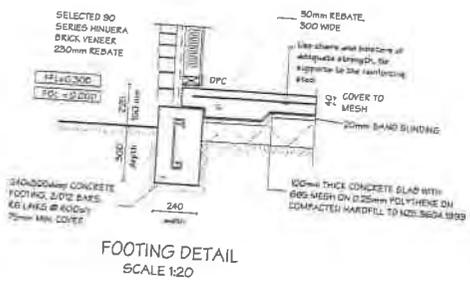
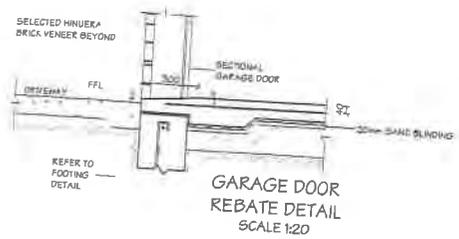
LUMBERLOK

ROWMAK

100mm PVC STORMWATER 1:20 GRADIENT MINIMUM







PLAN NAME
BROOKLYN
GOLDEN HOMES HOLDINGS LTD 2007

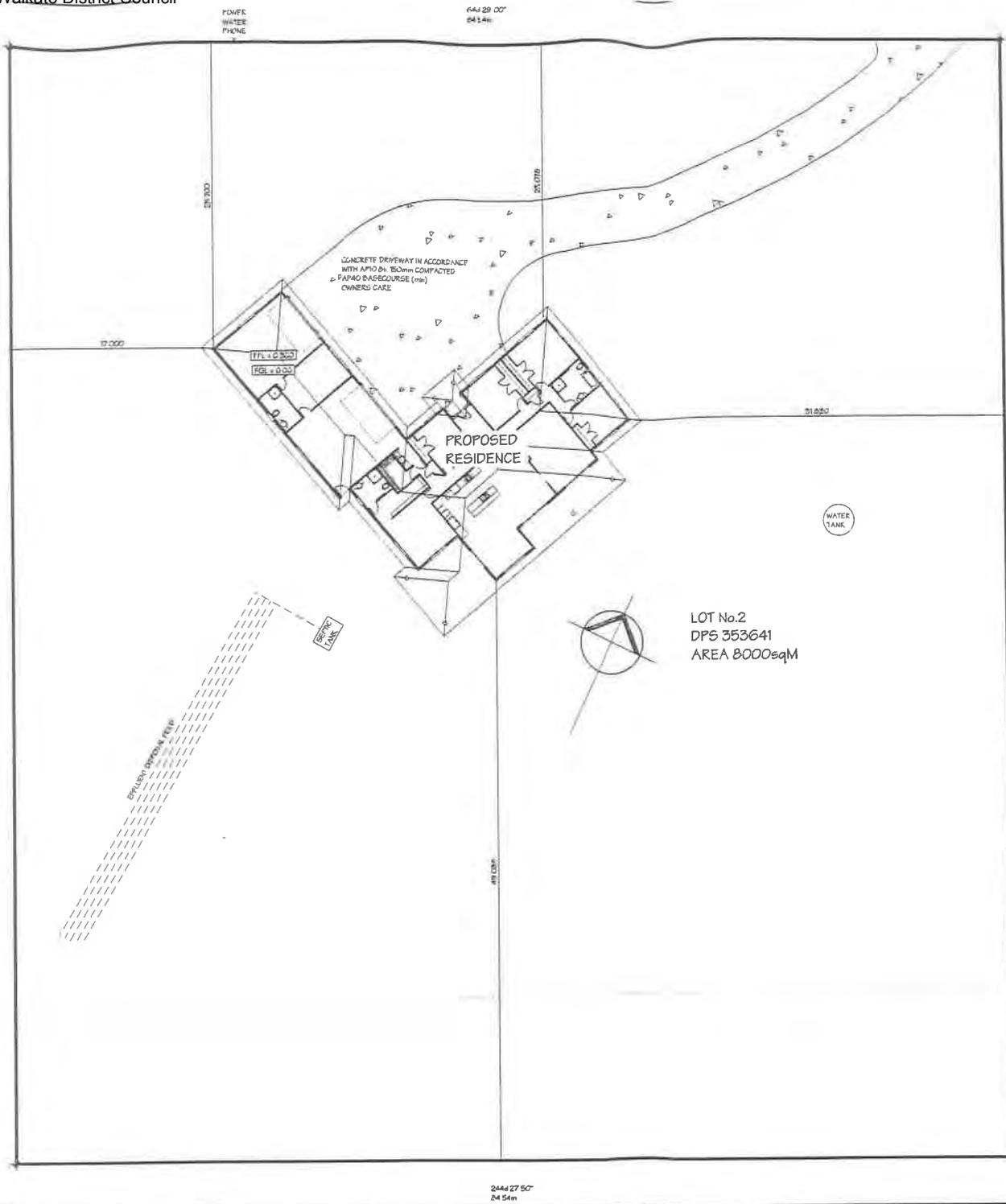
NOTES
THE DIMENSIONS ON THIS FOUNDATION PLAN ARE TO BE CHECKED BY ALL TRADES PRIOR COMMENCEMENT OF ANY WORKS AS THEY AN INDICATION ONLY AND HAVE BEEN SET UP HELP VERIFY EACH TRADES OWN CALCULATIONS FROM THE FLOOR PLAN. THE DESIGNER IS NOT RESPONSIBLE FOR ANY ERRORS IN THE DIMENSIONS SHOWN.
REINFORCED CONCRETE SLAB TO BE IN ACCORDANCE WITH SECTION 7.5.8.6.4 OF NZS 3604:1999.
SHRINKAGE CONTROL JOINTS IN SLAB SHALL COMPLY WITH THE FOLLOWING CRITERIA:
(1) SHRINKAGE CONTROL JOINTS SHALL BE POSITIONED TO COINCIDE WITH MAJOR CHANGES OF PLAN
(2) SUPPLEMENTARY STEEL (200mm) SHALL BE LAPPED AT EACH INTERNAL CORNER EXCEPT ACROSS SHRINKAGE CONTROL JOINTS
(3) THE MAX DIMENSIONS SHALL BE PERMITTED CONSTRUCTION OF SHRINKAGE CONTROL JOINTS SHALL HAVE A MAXIMUM RATIO OF LENGTH/WIDTH OF 2:1
BECAUSE OF THE POSSIBILITY OF CRACKS DEVELOPING IN THE CONCRETE FLOOR DUE TO SHRINKAGE DURING THE CURING PROCESS, WAILEA CONSTRUCTION LTD, CANNOT GUARANTEE AGAINST FLOOR TILES BEARING.
ALTERNATE FOOTING DETAIL IS AN ALTERNATE SOLUTION TO NZS 3604:1999 FOR SINGLE STOREY CONSTRUCTION. AS PER DULGHULAN TAYLOR SPENCE LTD ENGINEERS DESIGN. GROUND BEARING TO HAVE A MINIMUM ULTIMATE CAPACITY OF 300 kPa. 20MPa CONCRETE AT 28 DAYS.

SHRINKAGE CONTROL JOINTS SHOULD BE POSITIONED TO AVOID JOINTS OR TILED FINISHES.
- HIGH WIND ZONE
- DIRECTION ZONE 1
- SEISMIC ZONE B
- 0.0 kPa MINIMUM WINDING.

JOB TITLE
MASSEY / PRICE RESIDENCE
Lot 2, Op 353645
48 TRAVERS ROAD
TE KAUWHATA

DRAWING TITLE
FOUNDATION PLAN

SALES JOHN
DRAWN BY RCDC
CHECKED



GOLDEN HOMES
CONSTRUCTION LTD

PLAN NAME
BROOKLYN
GOLDEN HOMES HOLDINGS LTD 2007

NOTES

ALL BOUNDARY BEARINGS, LENGTHS AND PEG LOCATIONS TO BE CONFIRMED ON SITE PRIOR TO COMMENCING FOUNDATIONS. TO ENSURE HOUSE POSITION IS CORRECT, ANY DISCREPANCIES TO BE REPORTED TO THE DESIGNER IMMEDIATELY.

SEWER & STORMWATER DRAINS & CONNECTIONS TO BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF FOUNDATIONS.

BUILDING PLATFORM TO BE FLAT WITH A SOIL BEARING CAPACITY OF NO LESS THAN 800kpa.

SITE COVERAGE

Item	% Coverage
LOT No.2	± 8000 sqm
DWELLINGS	± 3800 sqm 47%
DRIVEWAY	± 415 sqm 5.2%

- HIGH WIND ZONE
- SEVERE WIND ZONE 1
- FATHOMLINE ZONE B
- OC 1/2a 5/10W LOADING

JOB TITLE

MASSEY / PRICE RESIDENCE
Lot 2, Dp 353641
40 TRAYERS ROAD
TE KAUWHATA

DRAWING TITLE

SITE PLAN

SALES	JOHN
DRAWN BY	RCDC
CHECKED	
DATE	20/03/08
JOB No. 6681	YF No. 0003
SCALE 1:250	SHEET No. 2 of 14



QBT CONSTRUCTION LTD

PLAN NAME

BROOKLYN
GOLDEN HOMES
HOLDINGS LTD 2007

NOTES

ALL GROUND LINES ARE INDICATIVE ONLY AND MUST BE CHECKED ON SITE

ALL GLAZING TO BE IN ACCORDANCE WITH THE NZ BUILDING CODE HAZARD RISK AND USE ZONES LOOF OF PRACTICE FOR GLAZING IN BUILDINGS

ALL WINDOWS & DOORS TO UNDERSIDE OF CORNER JOIST OR WINDUPE HEIGHT TO BE CONFIRMED ON SITE

HIGH WIND ZONE
SEVERITY ZONE 1
EARTHQUAKE ZONE D
0.0 kPa DOWN LOADING

JOB TITLE

MASSEY / PRICE RESIDENCE
Lot 2, Dp 302641
48 TRAVERS ROAD
TE KAUWHATA

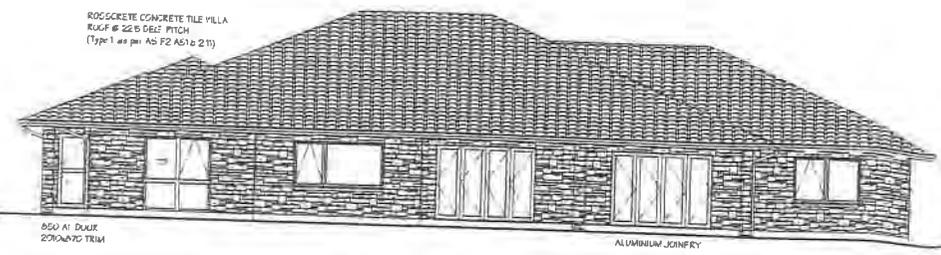
DRAWING TITLE

ELEVATIONS

SALES	JOHN
DRAWN BY	RDC
CHECKED	
DATE	20/03/08
JOB No.	6651
VF No.	0003
SCALE	1:100
SHEET No.	

1.

ROSGREY CONCRETE TILE VILLA
RUF # 22.5 DEG PITCH
(Type 1 as per AS P2 A61a 211)



3.200
2.500
5.000
5.000
5.000

WIDEX/HEIGHT	LINTEL SIZE
60x10	60x10
60x15	60x15
60x20	60x20
60x25	60x25
60x30	60x30
60x35	60x35
60x40	60x40
60x45	60x45
60x50	60x50
60x55	60x55
60x60	60x60

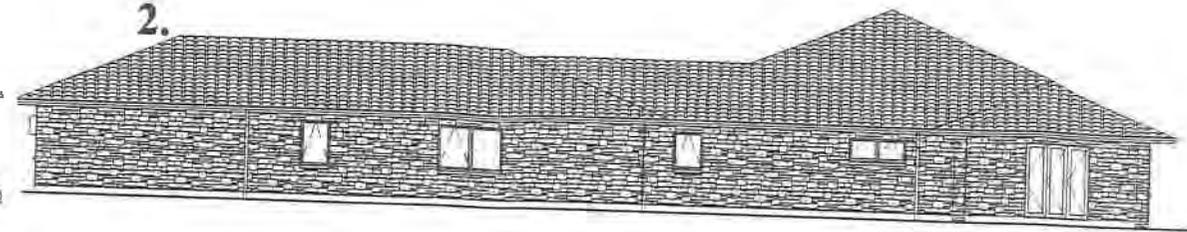
NOTE: 60x10 = MILD STEEL PLAT
60x15 = MILD STEEL ANGLE

950 AL DOUR
200x100 TRIM

ALUMINIUM JOINFRY

2.

BUILDON FACIA &
GUTTER SYSTEM



950 AL DOUR
200x100 TRIM

Table 2 Building envelope risk matrix Paragraph 2.12 Figure 1						
Risk Factor	Risk severity			FEET HIGH	WIND SPEED	Sub-factor for overall risk
	LOW	MED	HIGH			
Wind Speed (km/h)	1	2	3	1	1	1
Direction of Wind	1	1	1	1	1	1
Roof Slope (degrees)	1	1	1	1	1	1
Exposure	1	1	1	1	1	1
Building Type	1	1	1	1	1	1
Other	1	1	1	1	1	1
Total risk score						1

3.

950 AL DOUR
200x100 TRIM



RAISED HIP ENTRY
2250 PLATE HEIGHT
600 UPHANG

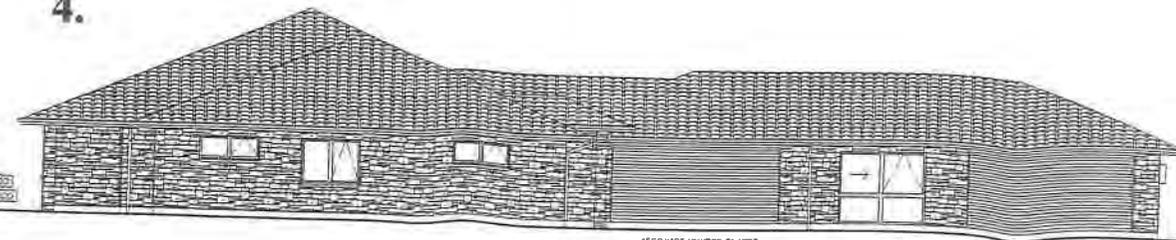
910 CEDAR ENTRY DOOR WITH
GLAZED TOP AND SIDE LIGHTS

METER BOX

SELECTED 70 SERIES
MURALERA CTONE VENEER

4.

950 AL DOUR
200x100 TRIM



4500 WIDE POWDER COATED
SECTIONAL GARAGE DOOR

4500 WIDE POWDER COATED
SECTIONAL GARAGE DOOR

FORM APPROVED - RESIDENT SIGNATURES			
OWNER	DATE	SIGNATURE	DATE



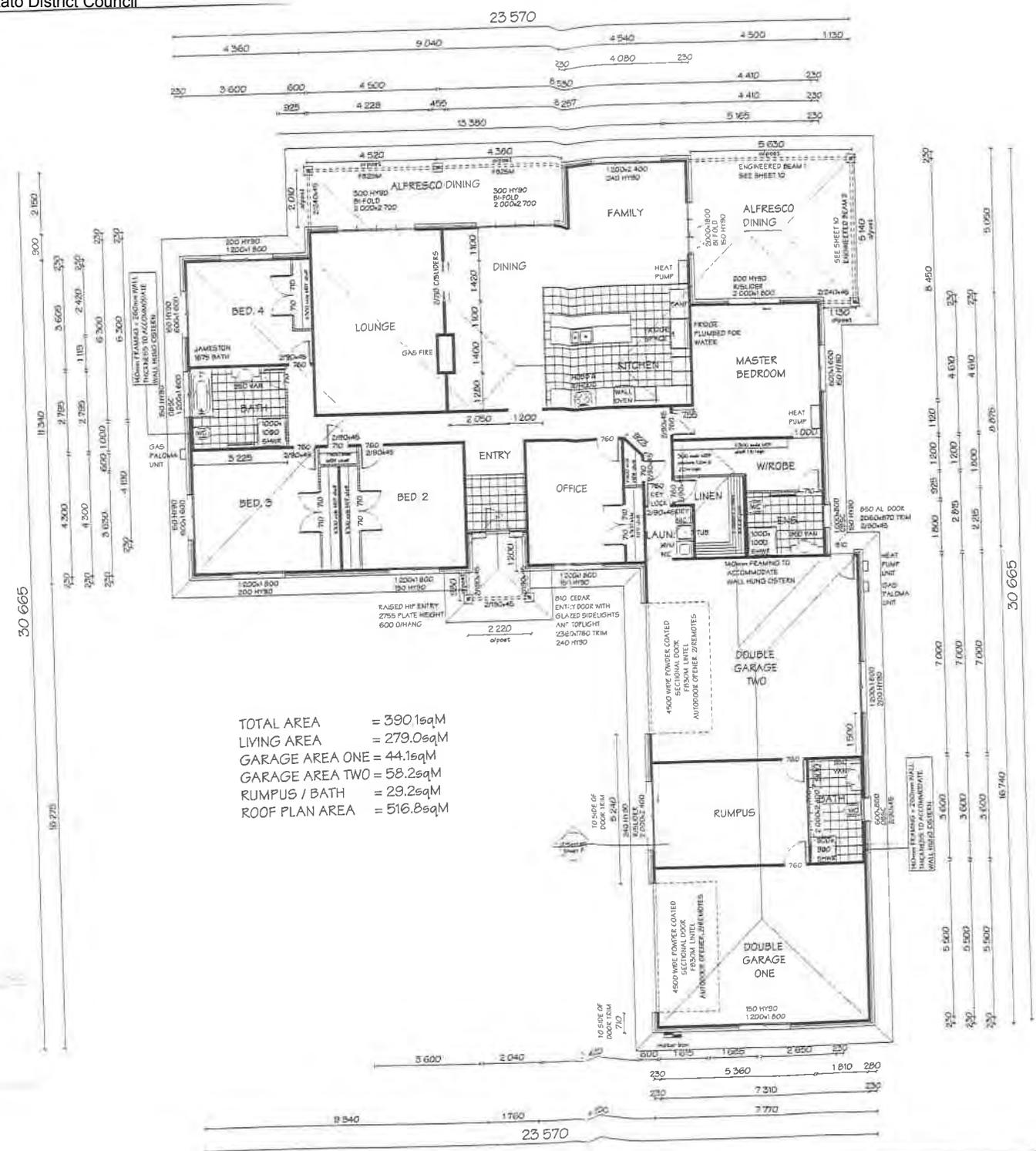
PLAN NAME
BROOKLYN
GOLDEN HOMES HOLDINGS LTD 2007

- NOTES**
- 300MM WEDGE TIMBER FRAMED 70MM MBSB TIMBER FRAMED
 - ALL LINTEL AND BEAM SIZES CALCULATED BY THE DETAILER
 - WALL FRAMING EXTERIOR HS-1 TREATED INTERIOR CHEMICAL FREE
 - ALL WARDROBE SHELVING TO BE 16mm HIGH (NOG TO SUIT)
 - R/HOOD VENTED TO SOFFIT
 - HS-1 TREATED REVEALS TO ALUMINIUM WINDOW JOINEERY
 - GIB EQUALINE TO NET AREAS
 - 22.5deg PITCH ROOF
 - 200MM HIGH HIBRA-4 STONE VENEER
 - REGENCY TYPE FIBRE GBS HIE
 - HEBLOWN HEATED TOWEL RAILS TO MAIN BATHROOM AND ENSUITE (NOT CUMBUS DAT)
 - CEDAR FRONT DOOR, GARAGE DOOR, AND 1 ALL WINDOW HEADS
 - ALL SHOWERS TO HAVE HANSA SHOWER TR SET
 - ALL TOILETS TO BEBERT UNICA FRONT FLUSH CONCEALED CISTERN (WALL HUNG)
 - HIGH WIND ZONE
 - CORROSION ZONE 1
 - EARTHQUAKE ZONE B
 - 0.2 KPa SKYLIGHT LOADING

JOB TITLE
MASSEY / PRICE RESIDEN
Lot 2, Dp 353641
4B TRAVERS ROAD
TE KAUHATA

DRAWING TITLE
FLOOR PLAN

SALES	
DRAWN BY	
CHECKED	
DATE	20/11
JOB No. 6681	YF No.
SCALE 1:100	SHEET No.



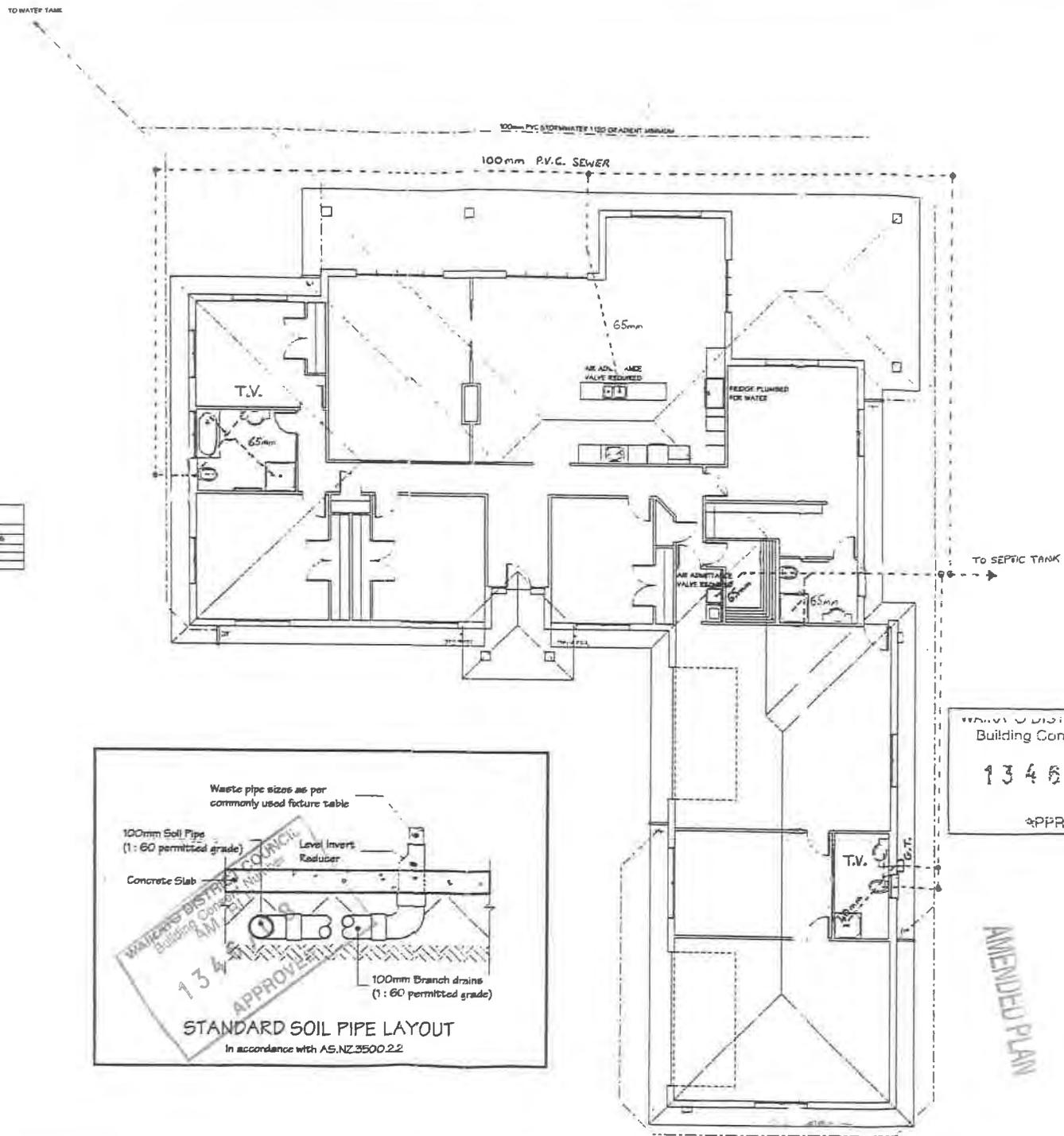
TOTAL AREA = 390.1sqm
LIVING AREA = 279.0sqm
GARAGE AREA ONE = 44.1sqm
GARAGE AREA TWO = 58.2sqm
RUMPUS / BATH = 29.2sqm
ROOF PLAN AREA = 516.8sqm

Waikato District Council
12 JUL 2007



PLAN NAME
BROOKLYN
GOLDEN HOMES HOLDINGS LTD, 2007

NOTES
KEY
100mm PVC STORMWATER DRAIN
100mm PVC SOIL DRAIN
80mm WASTE PIPES
TERMINAL VEAT
INSPECTION POINT
CHECK FOR FLEET GULLY DRAINAGES
ALL DRAINAGE TO AS/NZS3500.22
ALL DRAINS 125mm (MIN) SLAB REINFORCE 1.80mm DOWN PIPE per 100sqm OF EDOF AREA



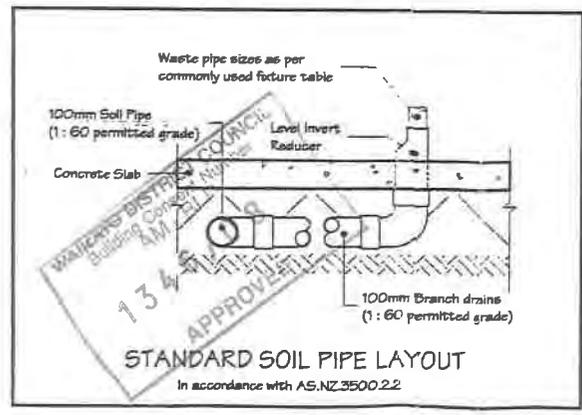
Maximum pipe sizes of soil served by drainage (mm)

DRAINPIPE SIZE	East group (Downs)			
	21-25	26-30	31-35	36-50
80mm East	100	100	100	100
100mm East	100	100	100	100
100mm East	100	100	100	100

Table C2. Discharge units and fixture discharge pipe sizes

Fixture Type	Discharge Unit	Minimum Discharge pipe size (mm)	Gradients
Down	1	80	1:40
Up	2	80	1:40
Down	3	80	1:40
Down	4	80	1:40
Down	5	80	1:40
Down	6	80	1:40
MC	7	100	1:40
MC	8	100	1:40

NZBC G13 A5.1



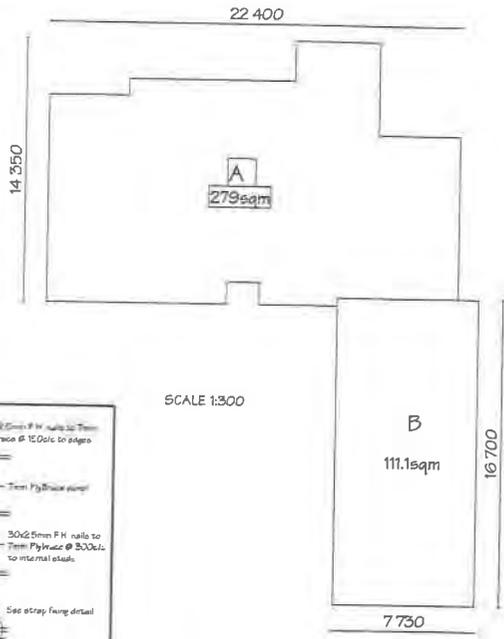
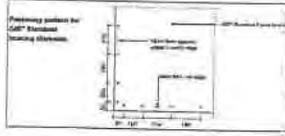
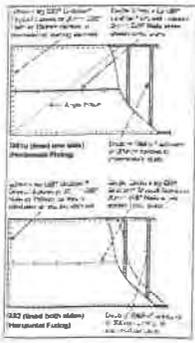
Waikato District Council
Building Consent Number
1345/08
APPROVED

JOB TITLE
MASSEY / PRICE RESIDENCE
Lot 2, Dp 353641
48 TRAVERS ROAD
TE KAUWHATA

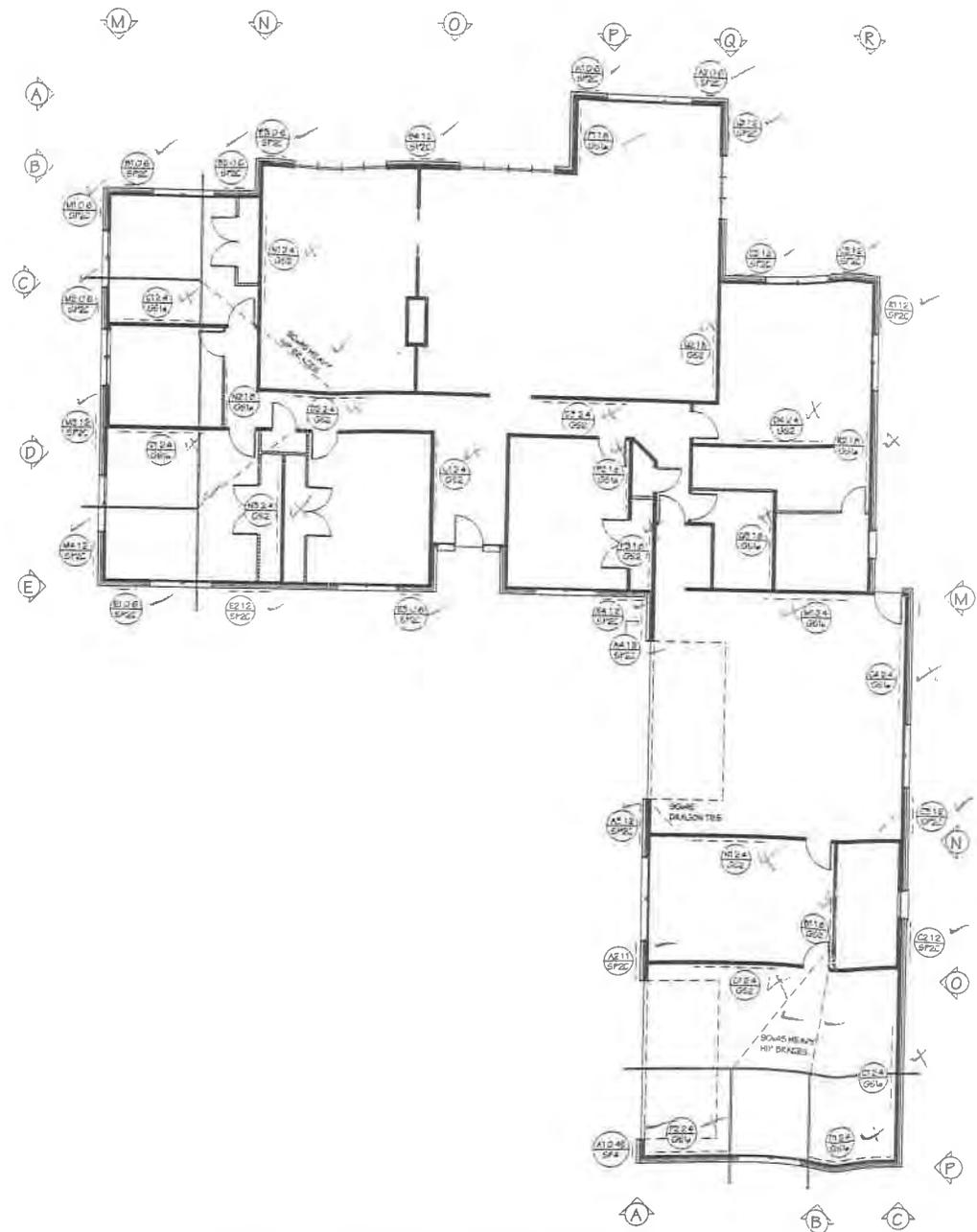
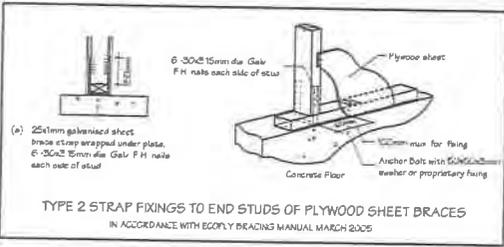
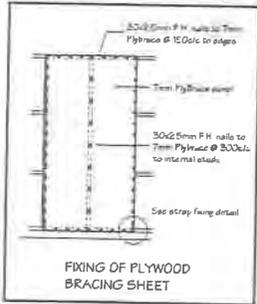
DRAWING TITLE
DRAINAGE PLAN

SALES JOHN
DRAWN BY R.C.D.C.
CHECKED
DATE 20/03/08
JOB NO. 6681 YF NO. 0003
SCALE 1:100 SHEET No. 3 of 14

AMENDED PLAN



SCALE 1:300



PLAN NAME
BROOKLYN
GOLDEN HOMES HOLDINGS LTD. 2007

NOTES
 BRACE LABEL AND LENGTH
 BRACE TYPE
 GIB BRACES FIED IN ACCORDANCE WITH GIB BRACING SYSTEMS MANUAL
 PLY BRACES FIED IN ACCORDANCE WITH CARTER HOLT HARVEY ECOPLY FLYSPACE HOUSE BRACING SYSTEM MANUAL
 ECOPLY BRACES TO BE HD GCA TREATED DC

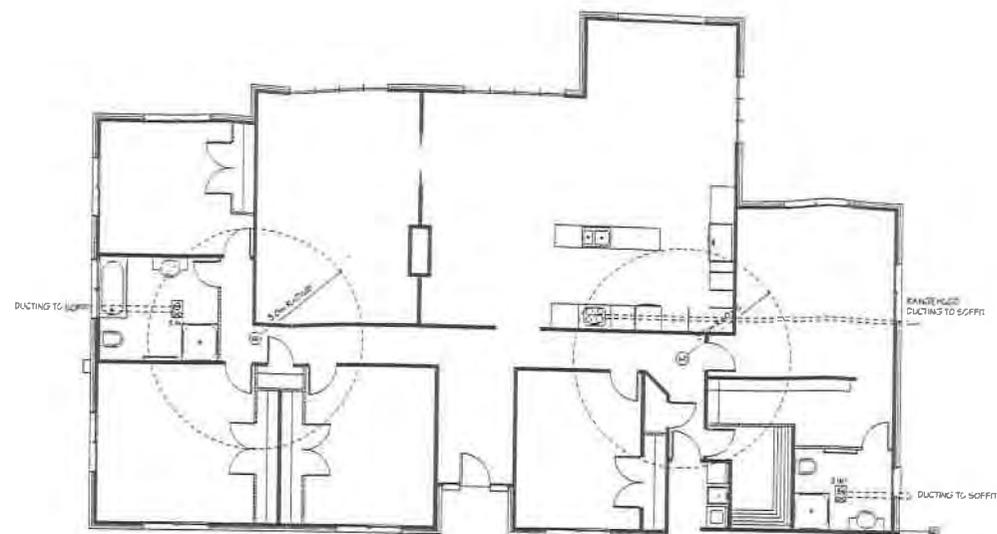
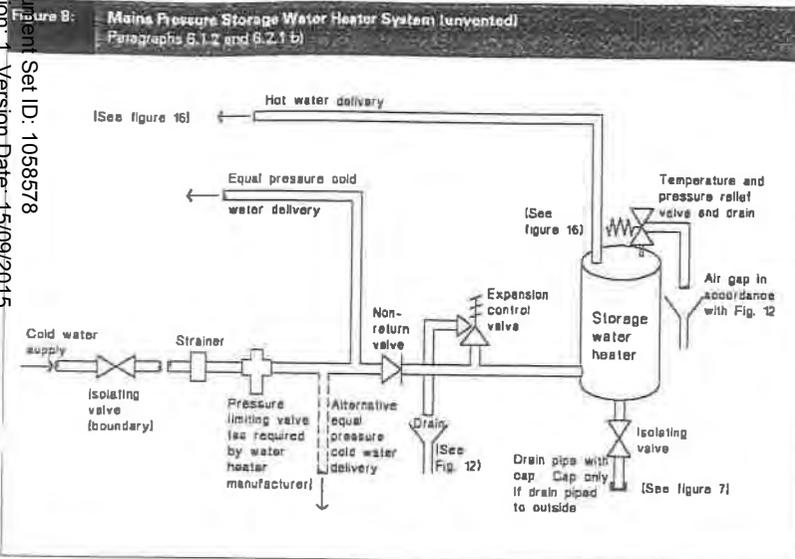


HIGH WIND ZONE
CORROSION ZONE 1
EARTHQUAKE ZONE B
0.2 kPa GAWD LOADING

JOB TITLE
MASSEY / PRICE RESIDENCE
Lot 2, Dp 353641
48 TRAVERS ROAD
TE RAUWHATA

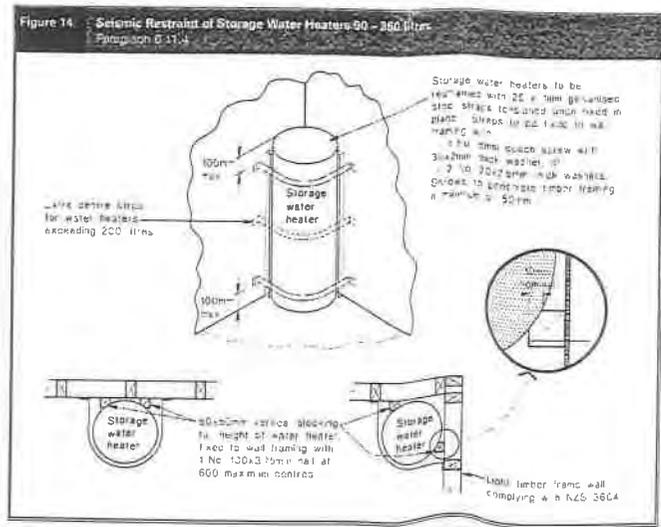
DRAWING TITLE
BRACING PLAN

SALES JOHN
DRAWN BY KCDC
CHECKED
DATE 20/03/08
JOB No. 6681 YF No. 0003
SCALE 1:100 SHEET No. 6 of 14



ELECTRICAL ALLOWANCES BY ROOM

	RECESSED LIGHTS	3 in 1 HEATLAMP & DUCTING	SINGLE PPOINT	DOUBLE PPOINT	RCD POINT	HEATED TOWEL RAIL	TV OUTLET	TELEPHONE JACK	2 WAY LIGHT CIRCUIT	RANGEHOOD DUCTING	SMOKE DETECTORS	AUTO PANTRY LIGHT	AUTO GARAGE DOOR POINT
FRONT DOOR	1												
REAR DOOR	1												
ENTRY HALL	1												
LOUNGE	2		2				2	1					
DINING	1		1										
KITCHEN	2	3	2					1	1			1	
FAMILY	2		2										
PASSAGE	3		1						1			2	
MASTER BED	1		2										
BED 2	1		1										
BED 3	1		1										
STUDY/BED 4	1		1										
BATHROOM		1	1	1	1								
TOILET	1												
ENSUITE		1		1	1								
WI-ROBE	1												
LAUNDRY	1		1										
GARAGE	1	1											1



PLAN NAME
BROOKLYN
GOLDEN HOMES HOLDINGS LTD 2007

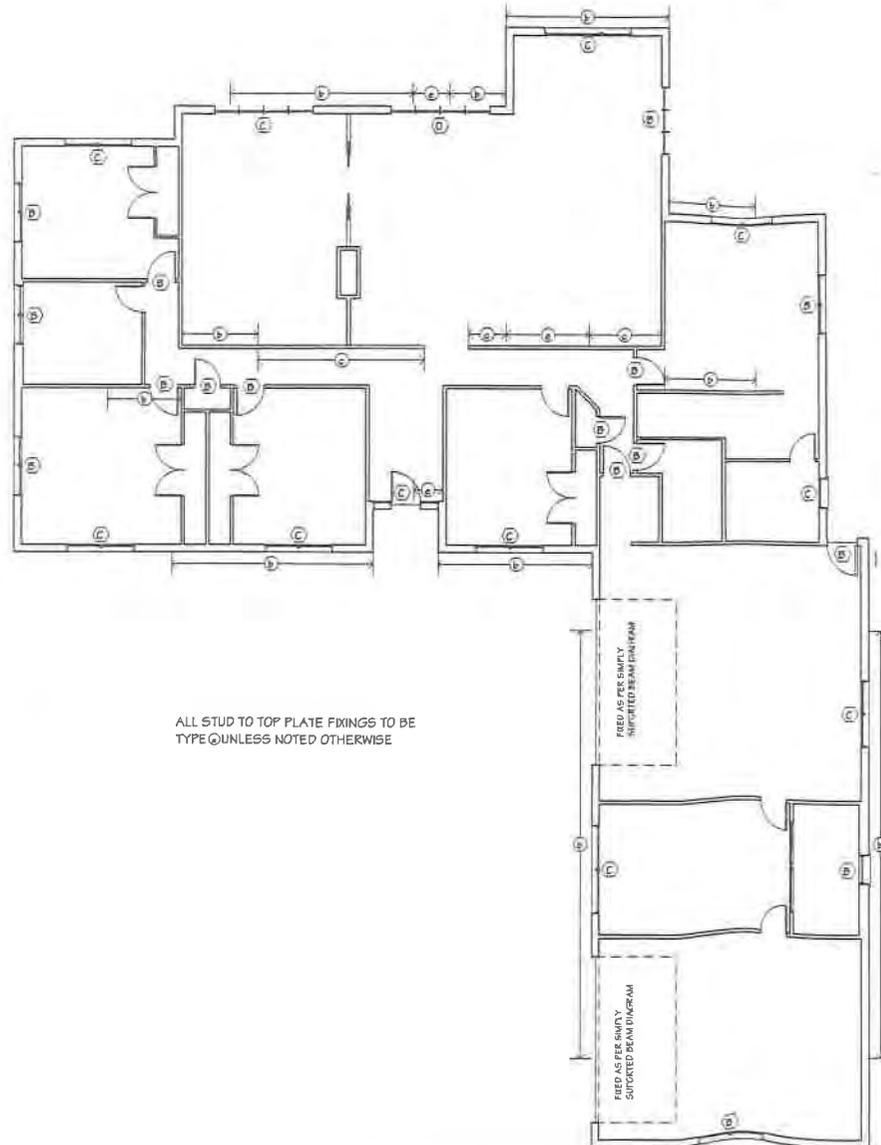
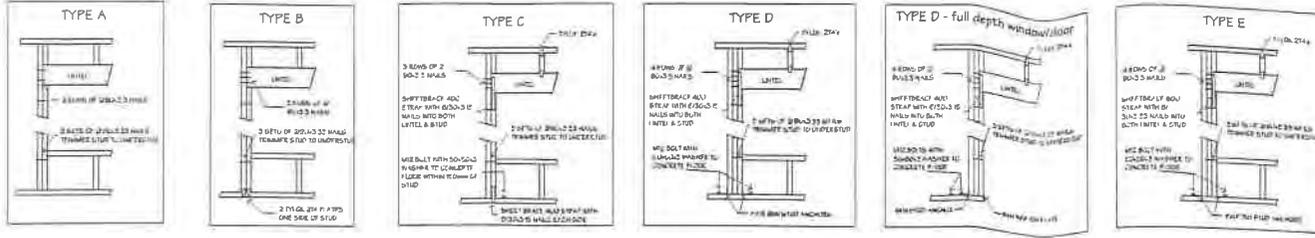
NOTES

HIGH WIND ZONE
- GROUNDWIND ZONE 1
- FARTHING ZONE B
- GULF WAVE LOADING

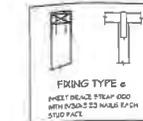
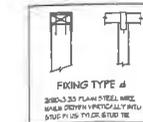
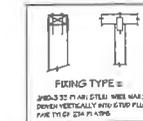
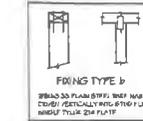
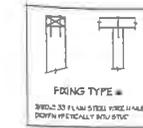
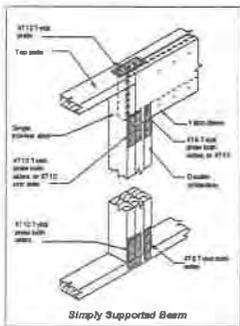
JOB TITLE
MASSEY / PRICE RESIDENCE
Lot 2, Dp 353641
48 TRAVERS ROAD
TE KAUWHATA

DRAWING TITLE
ELECTRICAL PLAN

SALES JOHN
DRAWN BY RDCG
CHECKED
DATE 20/03/06
JOB No. 6681 V.F. No. 0003
SCALE



ALL STUD TO TOP PLATE FIXINGS TO BE TYPE Q UNLESS NOTED OTHERWISE



PLAN NAME
BROOKLYN
GOLDEN HOMES HOLDINGS LTD 2007

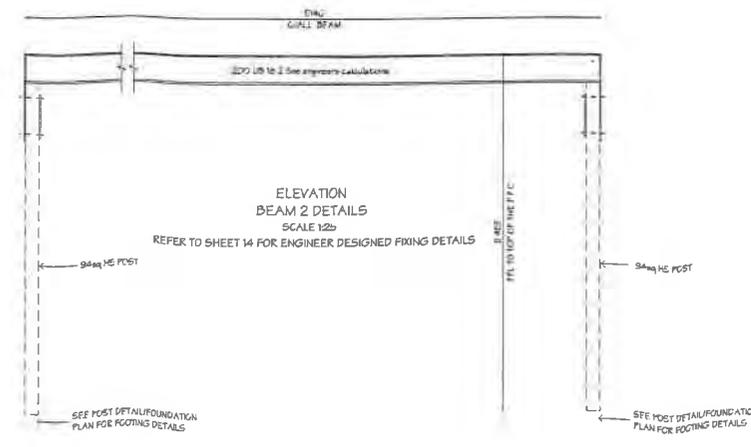
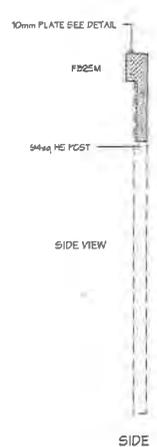
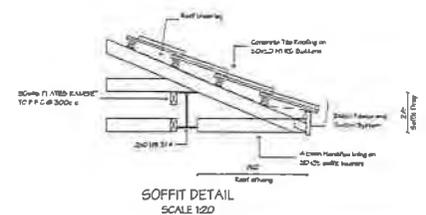
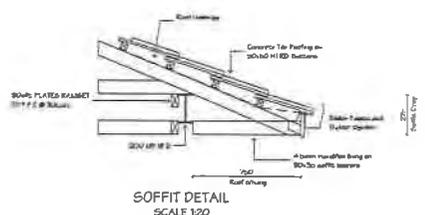
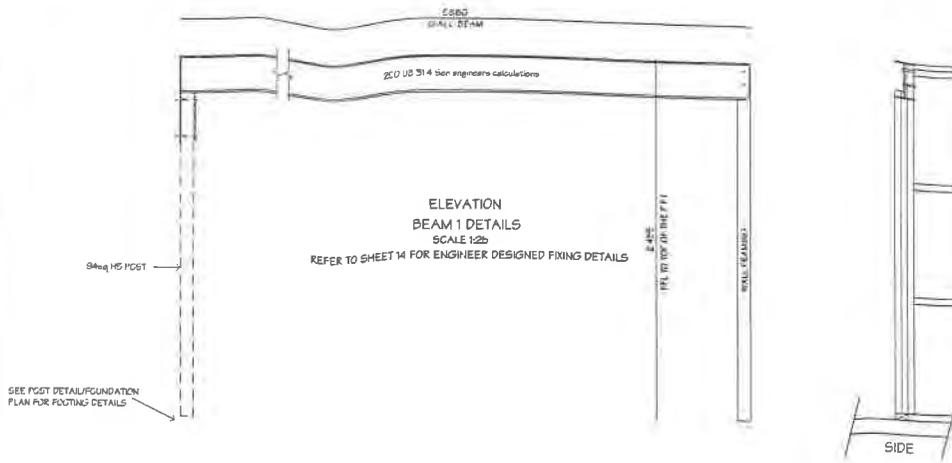
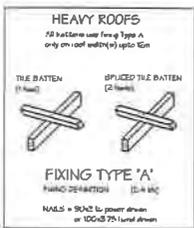
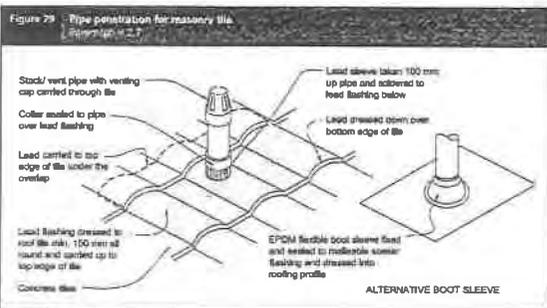
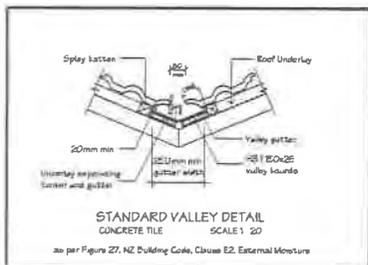
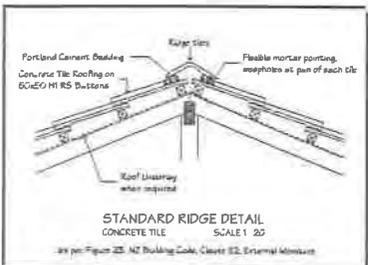
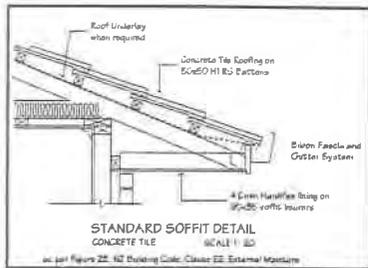
NOTES
 (A) LINTEL FIXING
 (B) TOP PLATE FIXING
 LINTEL AND STUD TO TOP PLATE FIXINGS IN ACCORDANCE WITH LUMBERLUX WALL FIXING CHARTS
 STUD TO TOP PLATE FIXING SCHEDULE (Alternative to NZS 3604:1999 Table E.16) LINTEL FIXING SCHEDULE (Information to NZS 3604:1999 Table D.14.4 Fig. D.12)

- HIGH WIND ZONE
- CORROSION ZONE 1
- EARTHQUAKE ZONE B
- D.C. WIND SHOW LOADING

JOB TITLE
 MASSEY / PRICE RESIDENCE
 Lot 2, Dp 363641
 48 TRAVERS ROAD
 TE KAUWHATA

DRAWING TITLE
 LINTEL AND TOP PLATE
 FIXING PLAN

SALES	JOHN
DRAWN BY	RCDC
CHECKED	
DATE	20/03/08
JOB No. 6681	YF No. 0003
SCALE 1:100	SHEET No. 8 of 14



PLAN NAME
BROOKLYN
GOLDEN HOMES HOLDINGS LTD. 2007

NOTES
DETAILS IN ACCORDANCE WITH NZ BUILDING CODE CLAUSE E2
SHOULD THERE BE ANY DISCREPANCIES BETWEEN RCDC DRAWINGS AND ENGINEERS REPORT THEN ENGINEERS REPORT TAKES PRECEDENCE ON STRUCTURAL MATTERS.

HIGH WIND ZONE
CLUSTERING ZONE 1
FRACTIONAL ZONE B
0.0 UFA SLOW LOADING

JOB TITLE
MASSEY / PRICE RESIDENCE
Lot 2, Dp 353641
48 TRAVERS ROAD
TE KAUWHATA

DRAWING TITLE
ROOF FLASHING & ENGINEERED BEAM DETAILS

SALES	JOHN
DRAWN BY	RCDC
CHECKED	
DATE	20/03/08
JOB No.	6681
YF No.	0003
SCALE As Shown	SHEET No. 10 of 14



PLAN NAME

BROOKLYN

GOLDEN HOMES HOLDINGS LTD. 2007

NOTES

ALL GLAZING TO BE IN ACCORDANCE WITH THE NZ BUILDING CODE HANDBOOK AND NZS 4222: PARTS 1, 2, & 3 CODE OF PRACTICE FOR GLAZING IN BUILDINGS



GRADE A SAFETY GLASS

- HIGH WIND ZONE
- CORROSION ZONE 1
- FAULTING ZONE B
- D.C. 4% SLOW LOADING

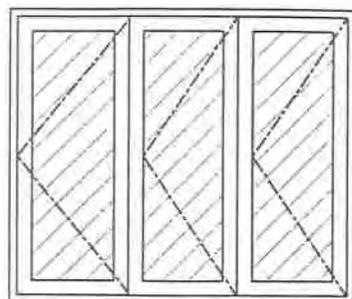
JOB TITLE

MASSEY / PRICE RESIDENCE
Lot 2, Dp 353641
48 TRAVERS ROAD
TE KAUWHATA

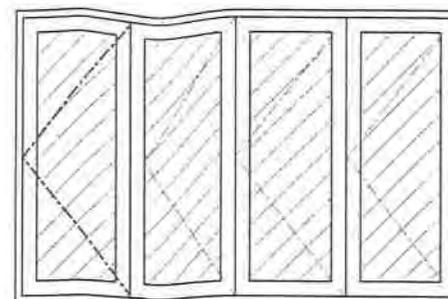
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SAFETY GLAZING DETAILS

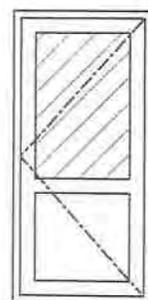
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DRAWN BY	RDCD	
CHECKED		
DATE	20/03/08	
JOB No.	6681	VF No. 0003
SCALE	1:25	SHEET No. 12 of 14



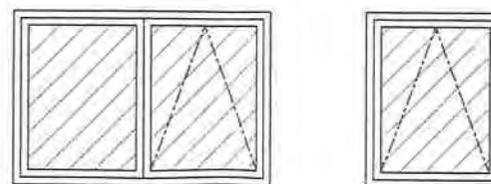
BI-FOLD DOORS
NO VISION RAILS
(grade A safety glass both panels)



BI-FOLD DOORS
NO VISION RAILS
(grade A safety glass both panels)



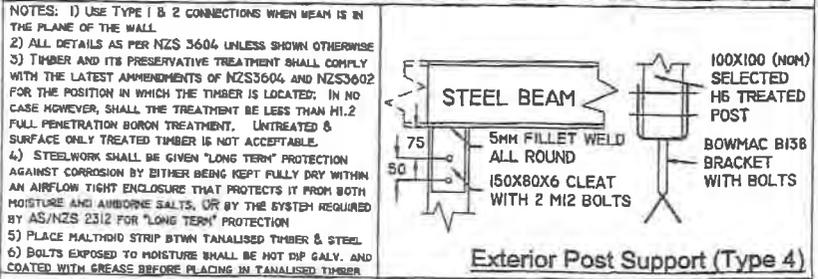
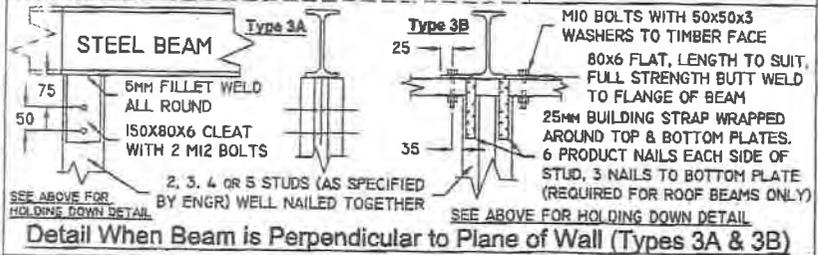
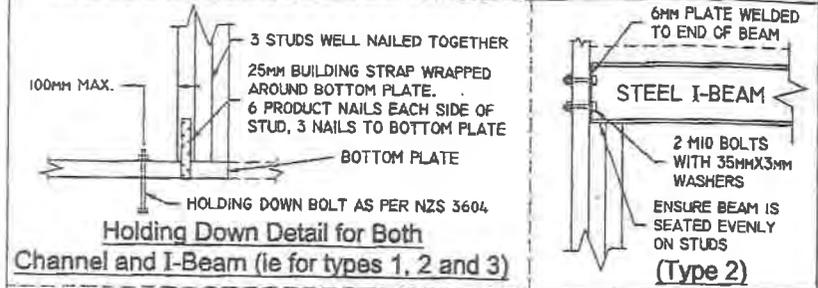
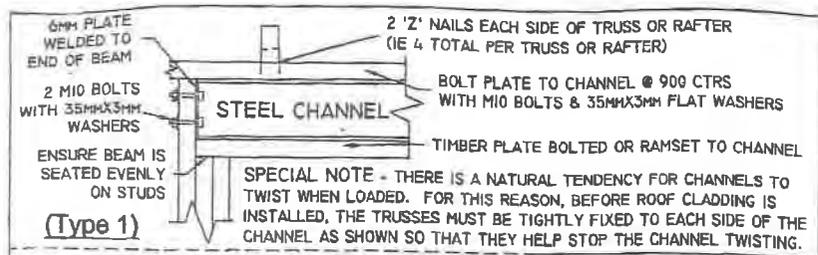
DOOR
WITH VISION RAIL
(grade A safety glass both panels)



BATHROOM & ENSUITE WINDOWS
(grade A safety glass interior panels only)

DOUBLE GLAZED WINDOW AND DOOR UNITS
Grade A safety glass as shown, interior panel or both panels (interior & exterior) refers to double glazing.
SCALE 1:25

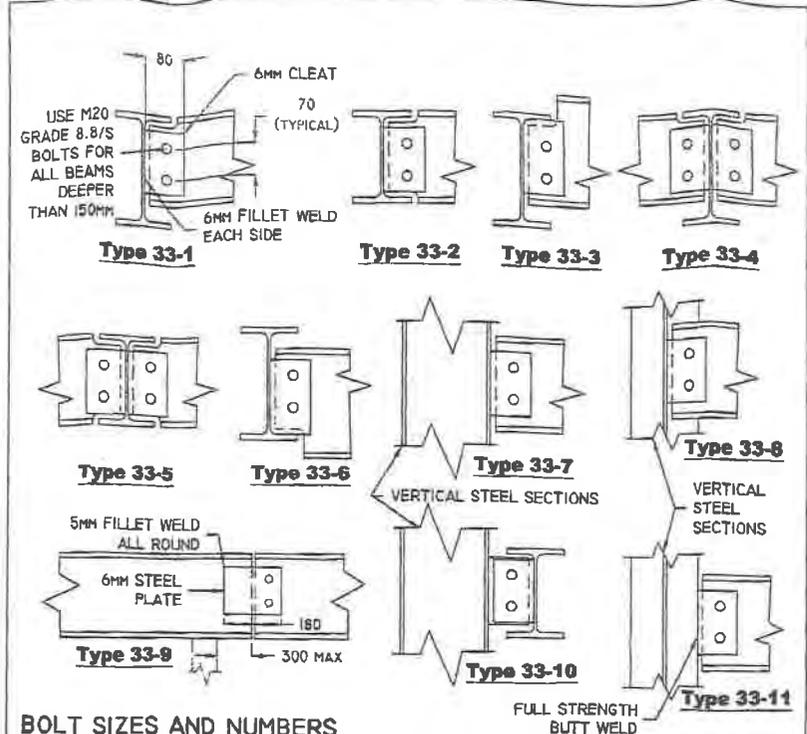
Document Set ID: 1058578
Version: 1, Version Date: 15/09/2015



Standard Steel Beam to Timber Support Fixing Details

DO NOT SCALE FROM THIS DRAWING

RALPH GILLARD CONSULTING COMPANY LIMITED Ref: 4M00 Date: 19/8/02 Drawing No: 4/BC36



- BOLT SIZES AND NUMBERS**
- 1) USE M20 GRADE 8.8/S BOLTS AT 70MM CENTRES FOR ALL BEAMS DEEPER THAN 150MM
 - 2) 150MM DEEP BEAMS - USE 2 M16 GRADE 8.8/S BOLTS AT 60MM CENTRES AND 50MM EDGE DISTANCE
 - 3) 180MM TO 250MM DEEP BEAMS - USE 2 BOLTS
 - 4) 310MM TO 410MM DEEP BEAMS - USE 3 BOLTS
 - 5) 460MM BEAMS AND DEEPER - USE NUMBER OF BOLTS ARISING FROM BOLTS SPACED AT 70MM

- GENERAL NOTES**
- 1) SIZE CLEATS TO ACHIEVE A 35MM EDGE DISTANCE TO BOTH THE CLEAT EDGES AND BEAM EDGES
 - 2) COPE BEAMS AS NECESSARY AS SHOWN
 - 3) THE CONNECTIONS SHOWN ABOVE MAY BE REPLACED WITH STANDARD HERA WEB SIDE PLATE CONNECTIONS (IE THE "WP" SERIES) AS SHOWN IN THE HERA REPORT R4-100 IF DESIRED
 - 4) ALL DIMENSIONS AND DETAILS TO BE AS TYPICALLY SHOWN FOR TYPE 33-1

Standard Steel I-Beam Connection Details

DO NOT SCALE FROM THIS DRAWING

RALPH GILLARD CONSULTING COMPANY LIMITED Ref: 4M00 Date: 24/11/05 Drawing No: 4/BC33



PLAN NAME

BROOKLYN

©GOLDEN HOMES HOLDINGS LTD. 2007

NOTES

SHOULD THERE BE ANY DISCREPANCIES BETWEEN SCD DRAWINGS AND ENGINEERS REPORT THEN ENGINEERS REPORT TAKES PRECEDENCE ON STRUCTURAL MATTERS

- HIGH WIND ZONE
- CORROSION ZONE 1
- EARTHQUAKE ZONE B
- D.G. 1/4 SLOW LOADING

JOB TITLE

MASSEY / PRICE RESIDENCE
Lot 2, Dp 353641
48 TRAVERS ROAD
TE KAUWHATA

DRAWING TITLE

ENGINEERS DETAILS

SALES JOHN

DRAWN BY: RCDC

CHECKED

DATE 20/03/08

JOB No. 6621 YF No. 0003

SCALE N.T.S SHEET No. 13 of 14



GOLDEN HOMES
QBT CONSTRUCTION LTD

PLAN NAME

BROOKLYN
GOLDEN HOMES
HOLDINGS LTD 2007

NOTES

HIGH WIND ZONE
CORROSION ZONE 1
EARTHQUAKE ZONE B
D.C. W/6 SACH LOADING

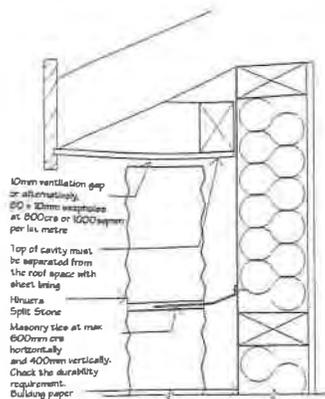
JOB TITLE

MASSEY / PRICE RESIDENCE
Lot 2, Dp 353641
48 TRAVERS ROAD
TE KAUWHATA

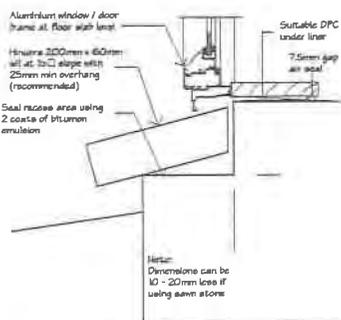
DRAWING TITLE

HINUERA DETAILS

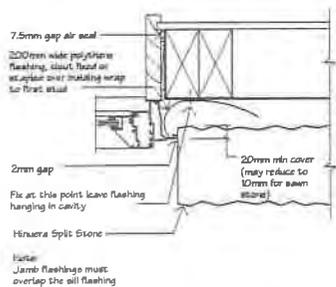
SALES	JOHN		
DRAWN BY	RCDC		
CHECKED			
DATE	20/03/08		
JOB No.	6681	YF No.	0003
SCALE	1:5	SHEET No.	14 of 14



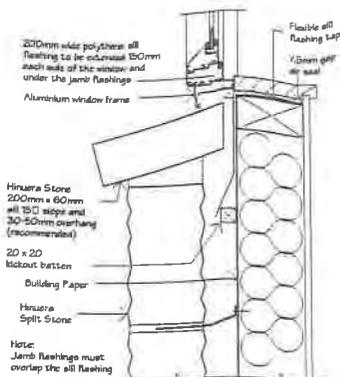
HINUERA STONE SOFFIT DETAIL



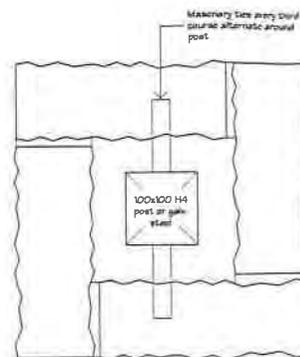
HINUERA STONE WINDOW/DOOR SILL DETAIL



HINUERA STONE WINDOW JAMB DETAIL

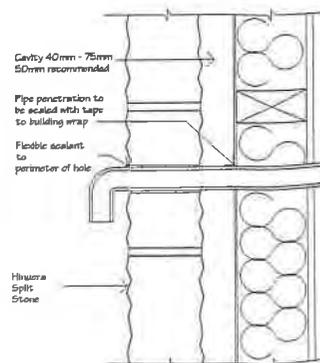


HINUERA STONE WINDOW SILL DETAIL

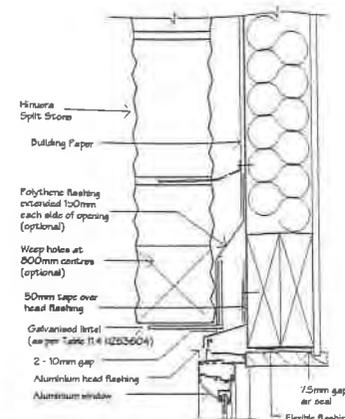


Notes:
Provide weep holes at the base.
Provide water proof layer to the top of the column.
Embedded posts 1/3 into the ground or to specific engineering design

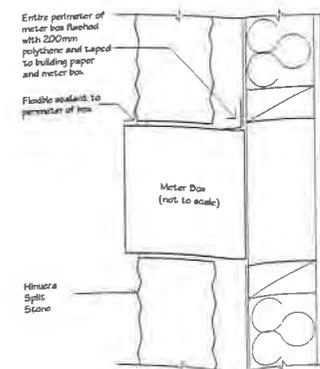
HINUERA STONE TYPICAL COLUMN DETAIL



HINUERA STONE PIPE PENETRATION



HINUERA STONE WINDOW HEAD DETAIL



HINUERA STONE METER BOX

FILE



Form 7
CODE COMPLIANCE CERTIFICATE
Section 95 Building Act 2004

The Building

Street address of building: 48 Travers Road TE KAUWHATA
 Legal description of land where building is located: LOT 2 DP 353641 BLK XV MARAMARUA SD
 Valuation number: 04390/693.02
 Property number: 2008588
 Building name: N/A
 Location of building within site/block number: N/A
 Level/unit number: N/A
 Current, lawfully established, use: Detached Dwellings
 Number of occupants per level and per use if more than 1: N/A
 Year first constructed: 1980

The Owner

Name of owner: G F Drain, N P Woodham, C P Woodham
 Contact person: N/A
 Mailing address: 48 Travers Road, RD 2, Te Kauwhata 3782

Street address/registered office: N/A

Phone numbers:

Landline: N/A Mobile: 027-6819875
 Daytime: N/A After hours: N/A
 Facsimile number: N/A Email address: wml@ihug.co.nz
 Website: N/A

First point of contact for communications with the building consent authority

Name: G F Drain
 Mailing address: 48 Travers Road, RD 2, Te Kauwhata 3782

Phone numbers:

Landline: N/A Mobile: 027-6819875
 Facsimile number: N/A Email address: wml@ihug.co.nz

Building Work:

Project: **Changes to dwelling garage**
 Building consent number: **BLD0537/17**
 Issued by: **Waikato District Council**

Code Compliance

The building consent authority named below is satisfied, on reasonable grounds, that —

- (a) the building work complies with the building consent

Signature:

Name: **Anthony Krippner**
 Position: **Building Inspector**
 On behalf of: **Waikato District Council**

Date: 30 March 2017



Form 5
BUILDING CONSENT NO: BLD0537/17
Section 51, Building Act 2004
ISSUED BY: WAIKATO DISTRICT COUNCIL

The Building

Street address of building: 48 Travers Road TE KAUWHATA
Legal description of land where building is located: LOT 2 DP 353641 BLK XV MARAMARUA SD
Valuation Number: 04390/693.02 Property Number: 2008588
Building name: N/A
Location of building within site/block number: N/A
Level/unit number: N/A

The Owner

Name of owner: G F Drain, N P Woodham, C P Woodham
Contact person: Gail Drain
Mailing Address: 48 Travers Road, RD 2, Te Kauwhata 3782

Street address/registered office: N/A

Phone numbers:

Landline: N/A Mobile: 027-6819875
Daytime: N/A After hours: N/A
Facsimile number: N/A Email address: wml@ihug.co.nz
Website: N/A

First point of contact for communications with the Building Consent Authority

Name: G F Drain
Mailing Address: 48 Travers Road, RD 2, Te Kauwhata 3782

Phone numbers:

Landline: N/A Mobile: 027-6819875
Daytime: N/A Fax number: N/A
Email address: wml@ihug.co.nz

Building Work

The following building work is authorised by this building consent:

Changes to dwelling garage

Table with 3 columns: Project type, Dwelling Additions, \$12,000. Total Value of work: \$12,000

This building consent is issued under Section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building).

This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

Waikato District Council
Building Consent No: BLD0537/17

This Building Consent is subject to the following condition(s):

I. Inspections:

When booking your inspections please phone (07) 824 8633 or (0800) 492 452 and quote your building consent number. Whilst we will endeavour to provide inspections in a timely manner, please provide **at least 48 hours notice** prior to any of the following mandatory inspections.

- Pre-wrap / Structural Framing (pre-wrap)
- Exterior Cladding
- Pre-line
- Post-line
- Final Building (Code Compliance Certificate) to be called for - *Some final inspections require Council to have access into the building. If no-one is onsite to allow access to the interior of the building it is likely the inspection will fail.*

The following documents from third parties need to be provided to the BCA to certify that the building work complies with the plans and specifications and in order for Council to issue a CCC:

Certificates / Memorandums / Statements / Letters:

- Electrical Compliance Certificate (if applicable)

Compliance Schedule:

- A compliance schedule is not required for the building.

Building Consent Advisory Notes:

- All timber treatment shall comply with NZS 3602:2003.
 - Domestic smoke alarms must be installed before a final inspection is requested. The number of alarms required and their location in the dwelling is to be in accordance with the New Zealand Building Code.
-

Lapsing of a building consent:

A building consent lapses and is of no effect if the building work to which it relates does not commence within:

- a) 12 months after the date of issue of the building consent or
- b) Any further period that the building consent authority may allow.

Restricted Building Work:

- This Building Consent involves Restricted Building Work that must be undertaken or supervised by a Licensed Building Practitioner that holds the appropriate license class.
- If you have not already done so, you are required to notify Council in writing, the name of every Licensed Building Practitioner who is going to be engaged to carry out the Restricted Building Work prior to work commencing. *LBP notification forms can be found on www.buildwaikato.co.nz – Application Forms & Checklists.*
- You will not be able to book inspections for Restricted Building Work until written notification regarding the Licensed Building Practitioners has been received and approved by Council.
- You are required to obtain a Record of Building Work Memorandum from all the Licensed Building Practitioners involved, detailing the Restricted Building Work they have completed. The Record of Building Work Memorandum is to be attached to the application for the Code Compliance Certificate.

Code Compliance Certificate will be issued after your final inspection has been carried out and passed, you have applied for your Code Compliance Certificate and all documentation has been received and approved.

Signature:



Name: Janene Koppers
Position: Senior Building Administrator

On Behalf of: Waikato District Council

Date: 08 November 2016

Code Compliance Certificate Decision Checklist BC No.: BLD053717

CCC Decisions: Inspection and Certification Documentation *To be completed by Building Officer*

Decision key: P, Y or ✓ = Adequate / Present F, N or ✗ = Inadequate / Absent NA or I = Not Applicable

INSPECTION	Inspections: <input checked="" type="checkbox"/> All passed (See BC conditions / advisories)	<input type="checkbox"/> Extra inspections paid [Check with admin]
	Site instructions: <input type="checkbox"/> Issued <input type="checkbox"/> Addressed	
	Notices To Fix: <input type="checkbox"/> Issued <input type="checkbox"/> Addressed	<input type="checkbox"/> DCs paid [Check with admin]
	Complaints: <input type="checkbox"/> Addressed	<input type="checkbox"/> Determinations outcomes considered
	Amendments: <input type="checkbox"/> Addressed	<input type="checkbox"/> EQ status considered
	<input type="checkbox"/> Other: [Specify]	

DOCUMENTS REQUIRED	<i>Check what documentation is required by the Building consent. Has it been received? Was it adequate? Refer to PS checklist on final inspections or separate sheet PS-02 (alternative)</i>			
	<input type="checkbox"/> PS4	<input checked="" type="checkbox"/> Electrical	<input type="checkbox"/> Gas	<input type="checkbox"/> Pressure test
	<input type="checkbox"/> As laid drainage	<input type="checkbox"/> Smoke alarm	<input type="checkbox"/> Sprinklers	<input type="checkbox"/> Truss
	<input type="checkbox"/> Cladding	<input type="checkbox"/> Glazing	<input type="checkbox"/> Insulation	<input type="checkbox"/> Surveying
	<input type="checkbox"/> Water proofing	<input type="checkbox"/> Solar systems	<input type="checkbox"/> Under floor / tile heating	
	<input checked="" type="checkbox"/> CCC application	Other [specify]:		

REPORTS	<input type="checkbox"/> Fire	<input checked="" type="checkbox"/> Bracing	<input type="checkbox"/> Backflow	<input type="checkbox"/> Structural Engineer
	<input type="checkbox"/> H1	<input type="checkbox"/> Geo-tech / Soil	<input type="checkbox"/> Other: [Specify]	

ROWS	<i>Check that all ROW are complete and correct, and that all relevant elements of restricted building work have been covered by a ROW.</i>			
	<i>Primary structure:</i>	<input type="checkbox"/> Walls	<input type="checkbox"/> Roof	<input type="checkbox"/> Foundations & sub floor framing
		<input type="checkbox"/> Columns & Beams	<input checked="" type="checkbox"/> Bracing	<input type="checkbox"/> Other [Specify]:
	<i>External moisture management systems:</i>	<input checked="" type="checkbox"/> Damp proofing	<input type="checkbox"/> Roof cladding / roof cladding systems	
		<input type="checkbox"/> Waterproofing	<input checked="" type="checkbox"/> Wall cladding / wall cladding systems	
		<input type="checkbox"/> Ventilation system	<input type="checkbox"/> Other: [Specify]	

Comments (If needed):

CODE COMPLIANCE CERTIFICATE DECISION (Tick the appropriate check boxes)

Decision: The CCC Can be issued Cannot be issued

Reason for the Decision: (Refer Building Act s92 – 95)

- SATISFIED on reasonable grounds that the building work complies with the building consent because the final inspection has passed AND
 - All the required documents have been received and are adequate.
 - Specified systems are capable of performing to the performance standards set out in the building consent.
 - CCC will be issued on payment of outstanding fees under s240 of the Building Act.
- NOT SATISFIED on reasonable grounds that the building work complies with the building consent because:
 - Work is not complete Missing documentation Inadequate documentation DCs owing
 - Specified systems are NOT capable of performing to the performance standards set out in the building consent.

Outcome of Decision:

CCC issued CCC refused

Officer's Name: **Tony Krippner** Signature: *AKU* Date: **29.3.17**

CCC to be issued, problems have been addressed (Add explanation in comments section)

Officer's Name: Signature: Date:

(Job file checklist on page 2 of this document)



ELECTRICAL CERTIFICATE OF COMPLIANCE AND ELECTRICAL SAFETY CERTIFICATE



Reference/Certificate ID No: 000466

This form has been designed to be used by licensed electrical workers to certify that installations or Part installations under Part 1 or Part 2 of AS/NZS 3000 are safe to be connected to the specified system of electrical supply.

Location Details:

48 Travers rd, Te kauwhata

Contact Details:
(Name and address)

Franklin Renovations Ltd

Name of Electrical worker:

Luke Henwood

Registration/Practising licence number:

E253010

Organisation/company:

Lights On Electrical

Phone and email:

0273361335

Name of person(s) supervised:

[Empty box for supervised person name]

CoC

Type of work:

- Additions Alterations New work

The prescribed electrical work is:

- Low risk General High risk (Specify): []

Reference Standards:

- Part 1 of AS/NZS 3000 Part 2 of AS/NZS 3000
 Additional Standards: []

Description of Work: (including date/s of work and type of supply system)

Installation of 4 x power points and 7 x downlights in new lounge area. 2way lighting.

I certify that the completed prescribed electrical work to which this Certificate of Compliance applies has been done lawfully and safely, and the information in the certificate is correct in that the installation, or part of the installation:

Select those that apply:

- Has been installed in accordance with the specified certified design¹
- Has an earthing system that is correctly rated (where applicable)
- Contains fittings that are safe to connect to a power supply
- Relies on a supplier Declaration of Conformity¹
- Relies on a manufacturer's instructions¹
- Has been satisfactorily tested in accordance with the Electricity (Safety) Regulations 2010
- Is safe to connect

Test Results	
Polarity (Independent earth):	Pass
Insulation resistance:	Pass
Earth Continuity:	Pass
Bonding:	
Fault Loop impedance	1.13ohms
Other (specify):	32mS

Electronic/Other reference: []

Certifier's signature: [Signature]

Date: 07/03/17

¹ Attach or reference. If it is impractical to attach a copy of a particular manufacturer's instructions, or of any certified design or supplier declaration of conformity, provide a reference to where the documents can be found, in a readily accessible format, by electronic means.

ESC

I certify that the installation, or part of the installation, to which this Electrical Safety Certificate applies is connected to a power supply and is safe to use.

Certifier's name: Luke Henwood

Registration/Practising licence number: E253010

Certifier's signature: [Signature]

Certificate Issue Date: 07/03/17

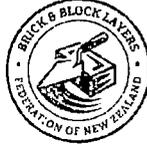
Connection Date: 07/03/17

CUSTOMER COPY – THIS IS AN IMPORTANT DOCUMENT AND SHOULD BE RETAINED FOR A MINIMUM OF 7 YEARS

This certificate also confirms that the electrical work complies with the building code for the purposes of Section 19(1)(e) of the Building Act 2004.

NZ BRICK & BLOCKLAYERS FEDERATION

Memorandum from licensed building practitioner:
 Record of building work
 Section 88, Building Act 2004 Form 6A



JOB No. INVOICE No. **26562**

The Building

Street address of building: **48 TRAVIS RD TE KAUWHATA**

The project

Building consent number:

The owner

Name: **GAIL DRAIN** Address: _____
 Telephone: **0276819875** **48 TRAVIS RD TE KAUWHATA**
 Email: _____

Record of work that is restricted building work

Work that is restricted building work	Description	Carried out/ supervised
Primary structure		
Foundations and subfloor framing ()		() Carried out () Supervised
Walls (X)	HINDERA 200 SERIES	(X) Carried out (X) Supervised
Columns and beams ()	'STONE'	() Carried out () Supervised
Other ()		() Carried out () Supervised
External moisture management systems		
Damp proofing & Penetrations ()		() Carried out () Supervised
Wall cladding or wall system (X)	STONE VENEER.	(X) Carried out (X) Supervised
er ()		() Carried out () Supervised

Issued by

Name: **M. McINNES**
 LBP number: **B.P. 107018** Class(es) licensed in **B1 & B2 MASONRY**
 Mailing address: **237 WELLINGTON ST ROTOKOHE**
 Street address or registered office: _____
 Telephone: Landline: _____ Mobile: **0272240741**
 Daytime: _____ After hours: **09 2386451**
 Facsimile: _____ Email: _____

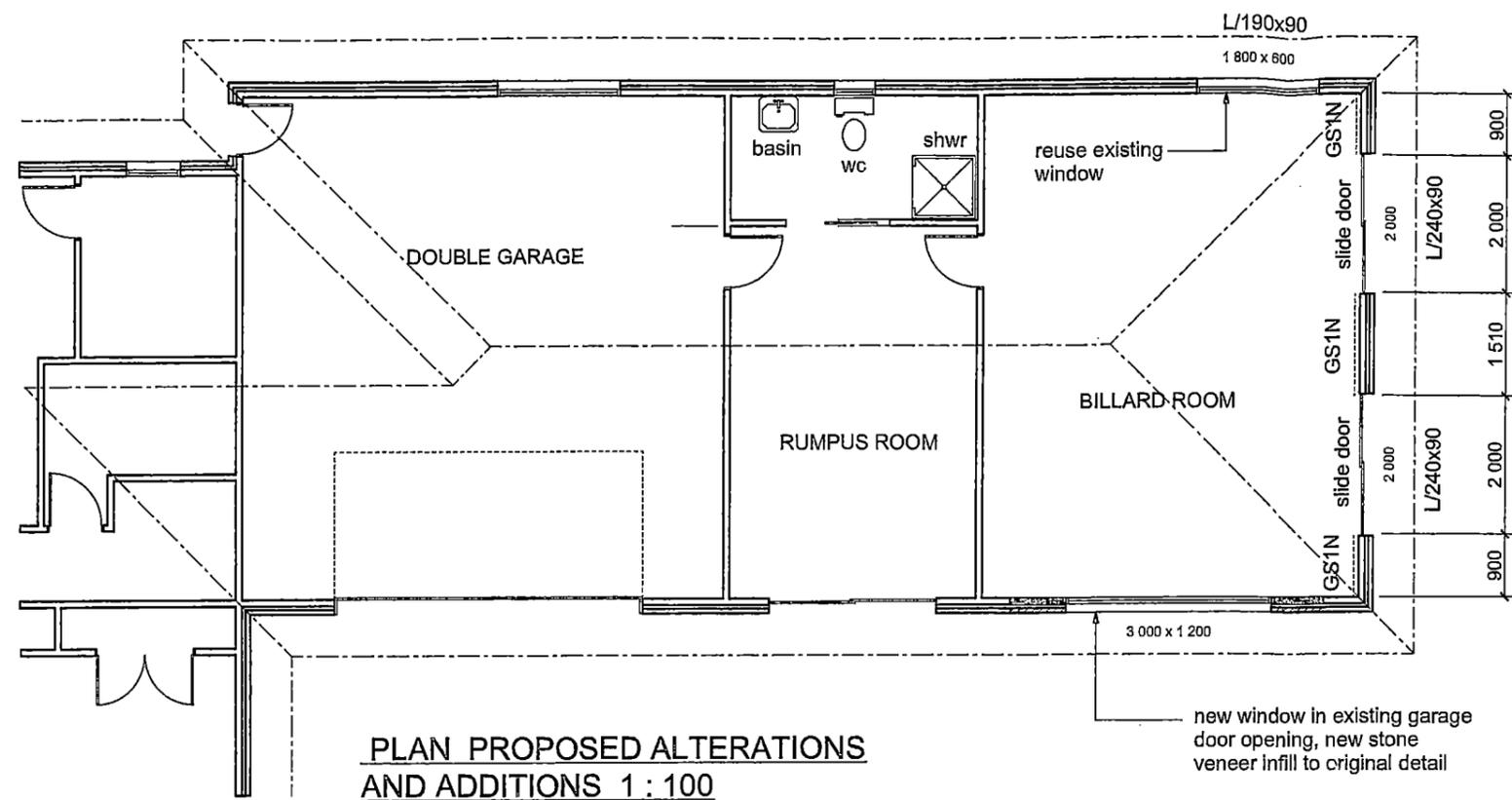
Declaration

I **MARTIN McINNES** (name of practitioner)

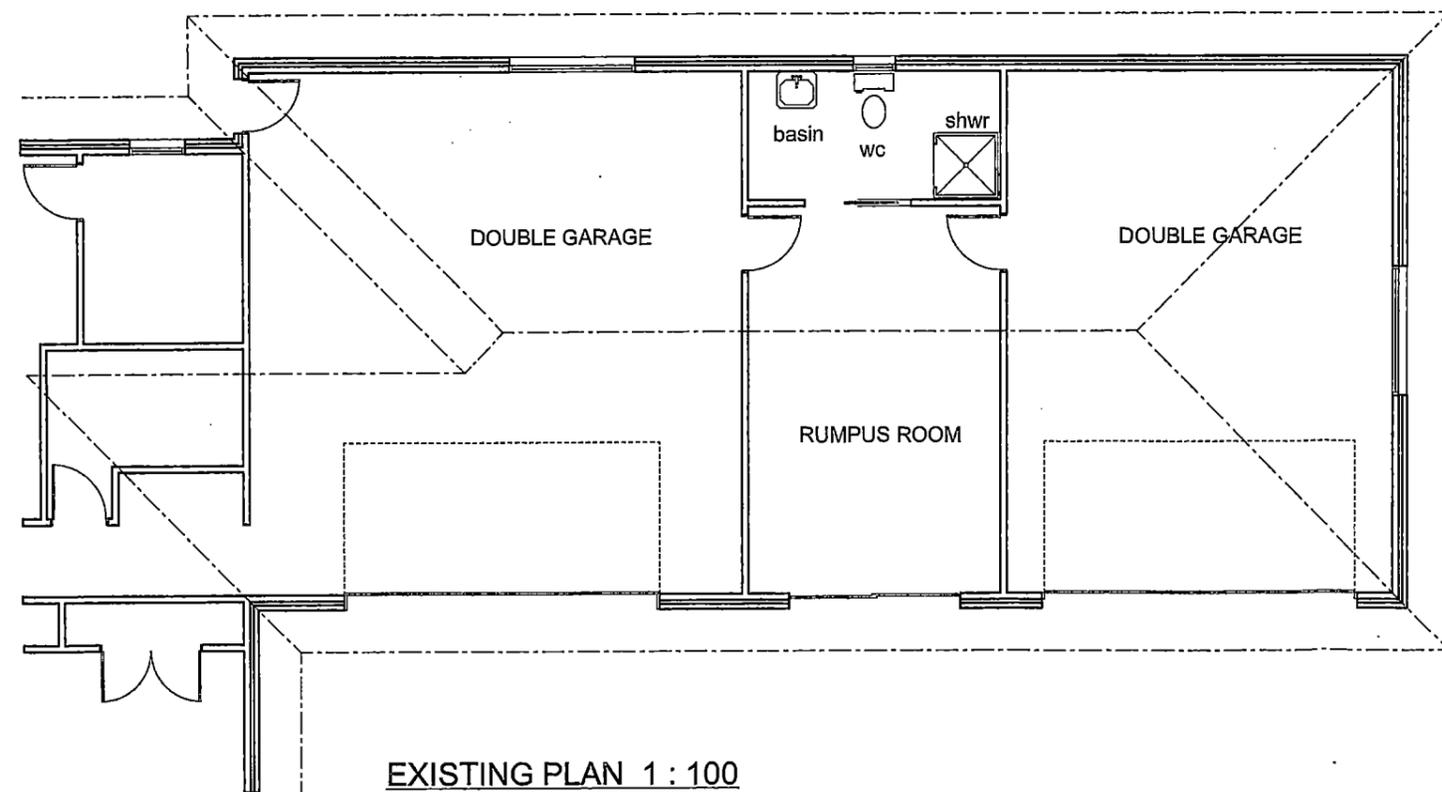
carried out or supervised the restricted building work recorded on this form.

Signature: **M. McInnes** Date: **24-3-17**

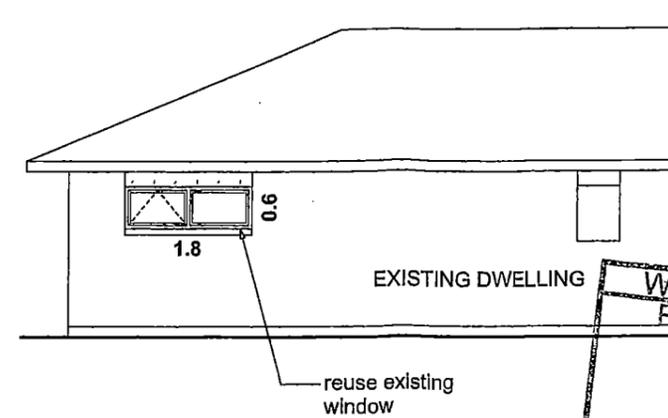
WHITE COPY - TA BLUE COPY - HOMEOWNER GREEN COPY - TRADESMAN



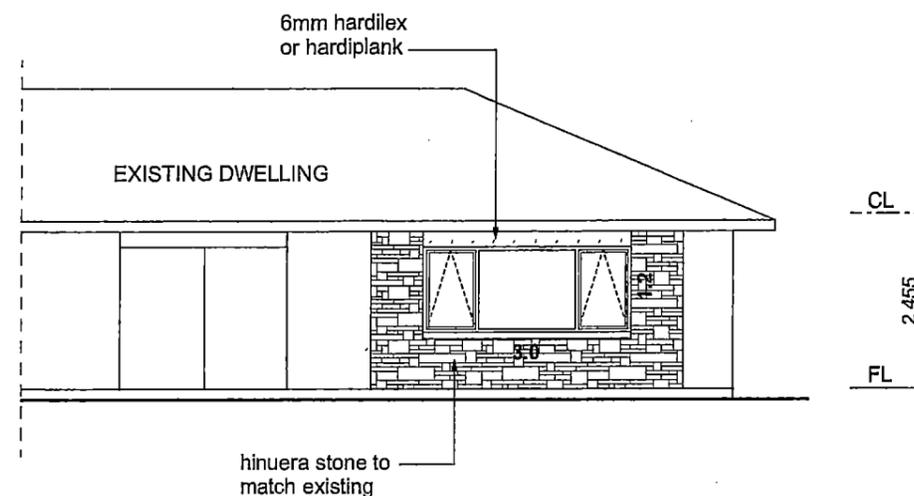
PLAN PROPOSED ALTERATIONS AND ADDITIONS 1 : 100



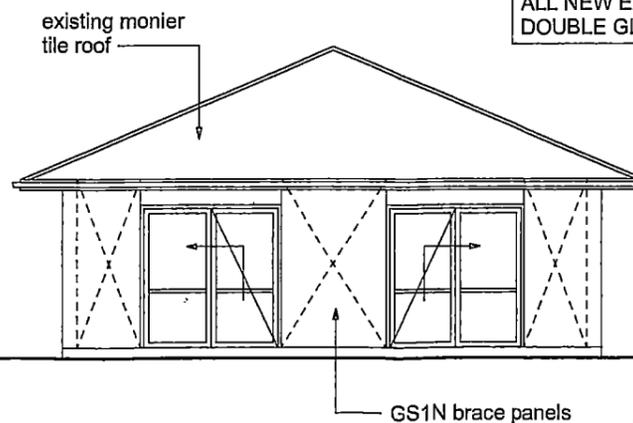
EXISTING PLAN 1 : 100



WEST ELEVATION 1 : 100



EAST ELEVATION 1 : 100



NORTH ELEVATION 1 : 100

Waikato District Council
 FULL APPLICATION RECEIVED
 26 SEP 2016
 Time Initials
 NGARUAWAHIA

NOTE
 ALL NEW EXTERNAL JOINERY ALUMINIUM
 DOUBLE GLAZED CLEAR GLASS

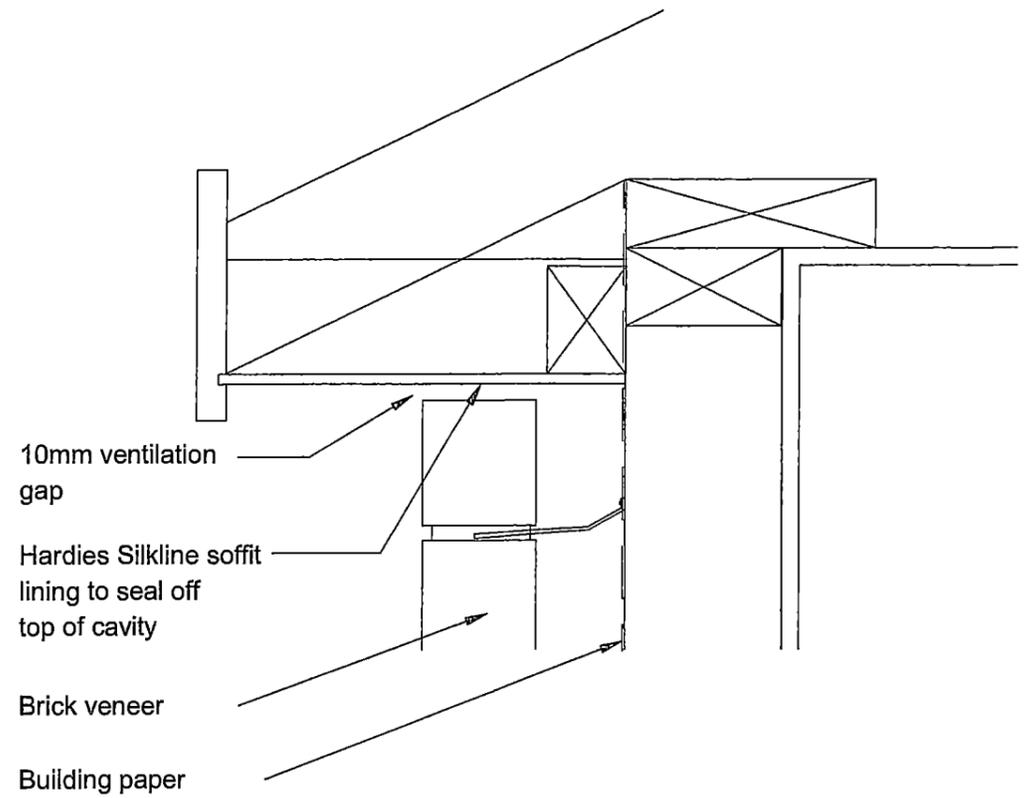
WAIKATO DISTRICT COUNCIL
 Building Consent Number
0537/17
 APPROVED

AMENDED PROPOSAL FOR ALTERATIONS AND ADDITIONS TO HOUSE AT 48 TRAVERS ROAD TE KAUWHATA FOR GAIL DRAIN

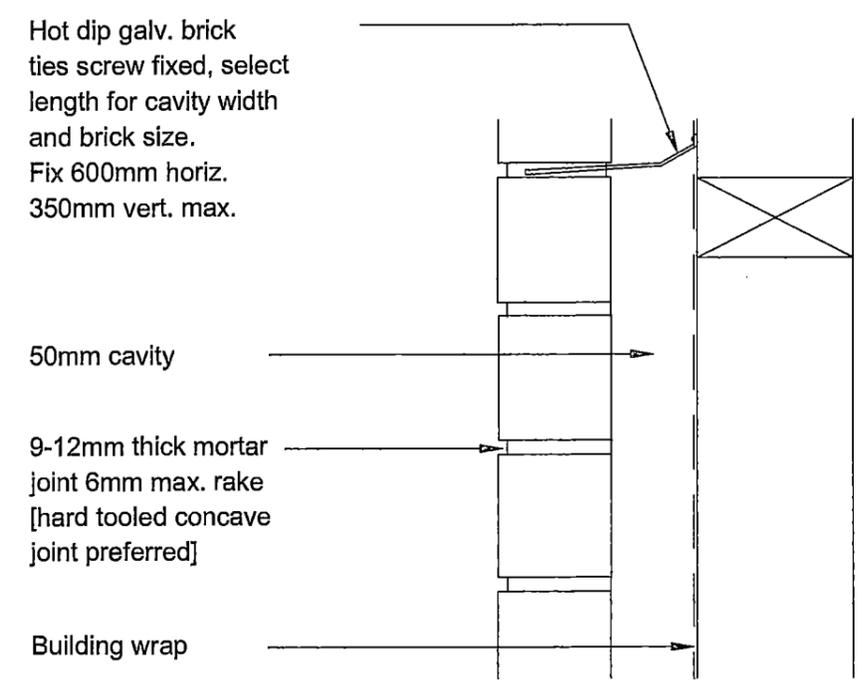
PREPARED BY PLANNING SOLUTIONS
 16 WILLIAM STREET HUNTLY 3700
 PH : 07 8286136 FAX : 07 8287866
 email : melbrooks@ihug.co.nz

NOTE : CHECK ALL DIMENSIONS ON ACTUAL SITE.
 ALL WORK TO NZS 3604 AND ANY REVISIONS.
 TREAT TIMBER TO NZS 3602, GRADE TO SG8.
 LINTOL FIXING LUMBERLOK TYPE 'F'
 FIX BRACE PANELS TO 'WINSTONE DETAILS'

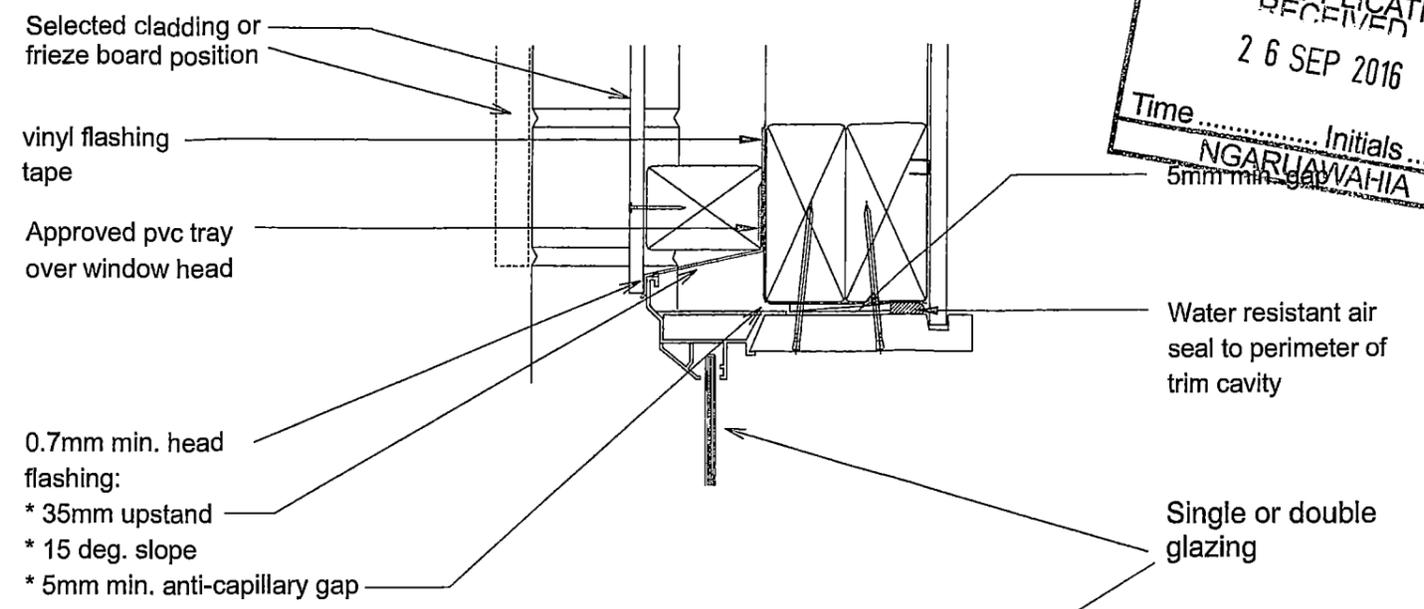
Waikato District Council
 FULL APPLICATION RECEIVED
 26 SEP 2016
 Time..... Initials.....
 NGARUAWAHIA



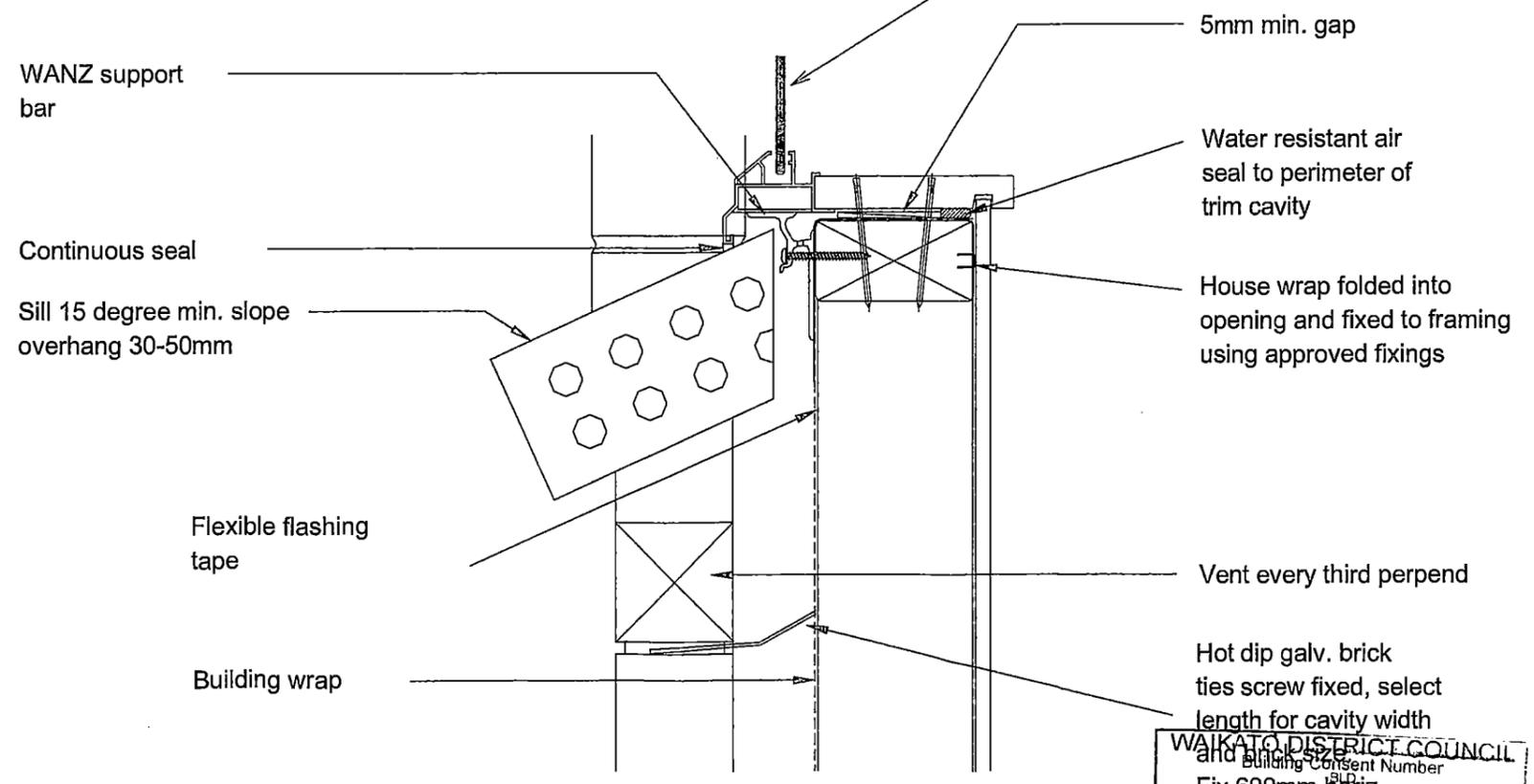
FLAT SOFFIT
 See plans for soffit widths and if frieze board is used.



TYPICAL WALL SECTION



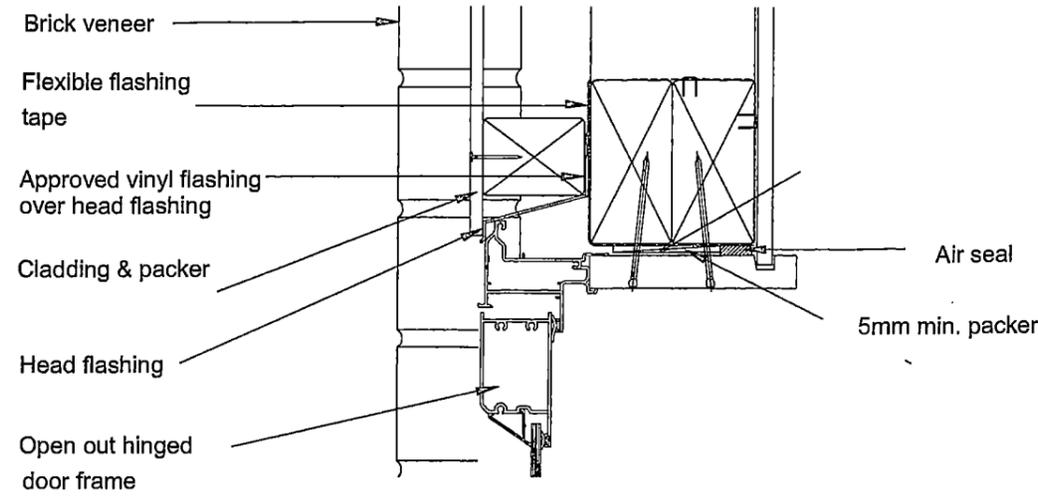
WINDOW HEAD



WINDOW SILL

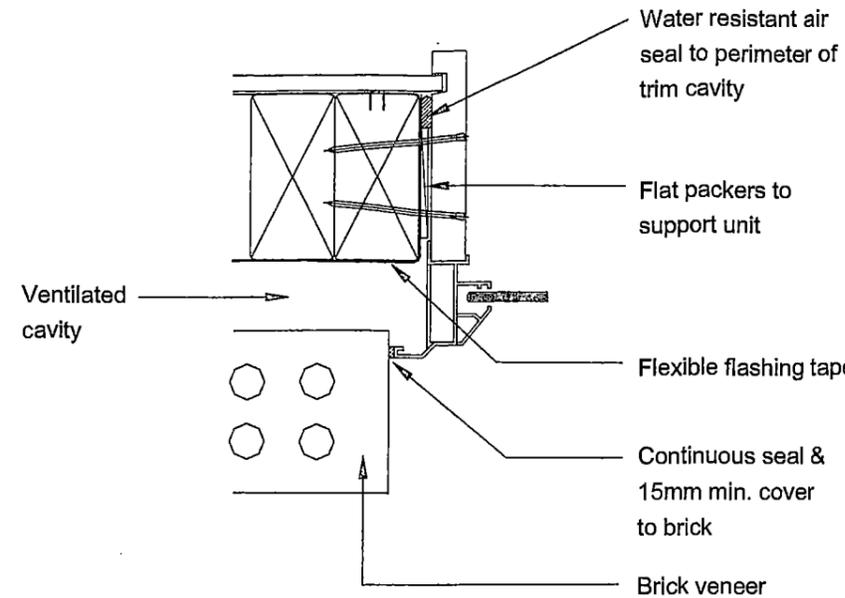
PROPOSED ALTERATIONS AND ADDITIONS TO DWELLING AT 48 TRAVERS ROAD TE KAUWHATA FOR GAIL DRAIN

WAIKATO DISTRICT COUNCIL
 Building Consent Number
 Fix 600mm horiz. 350mm vert. max.
0537717
APPROVED

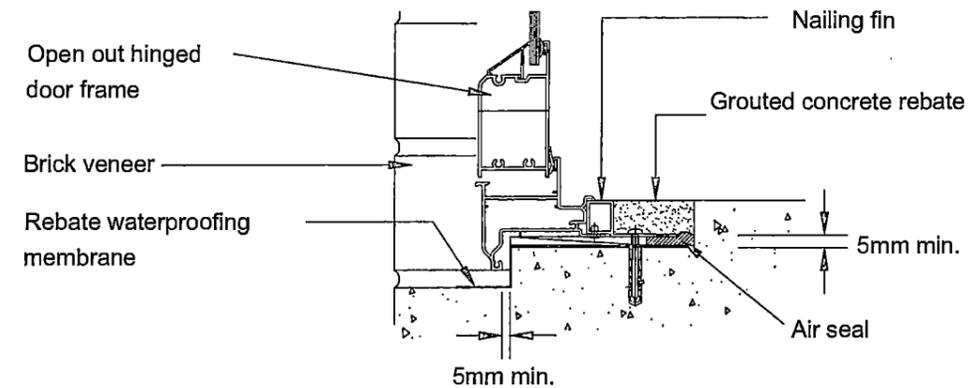


HINGED DOOR HEAD

Outward Opening Door
[Bi-Fold Doors similar]

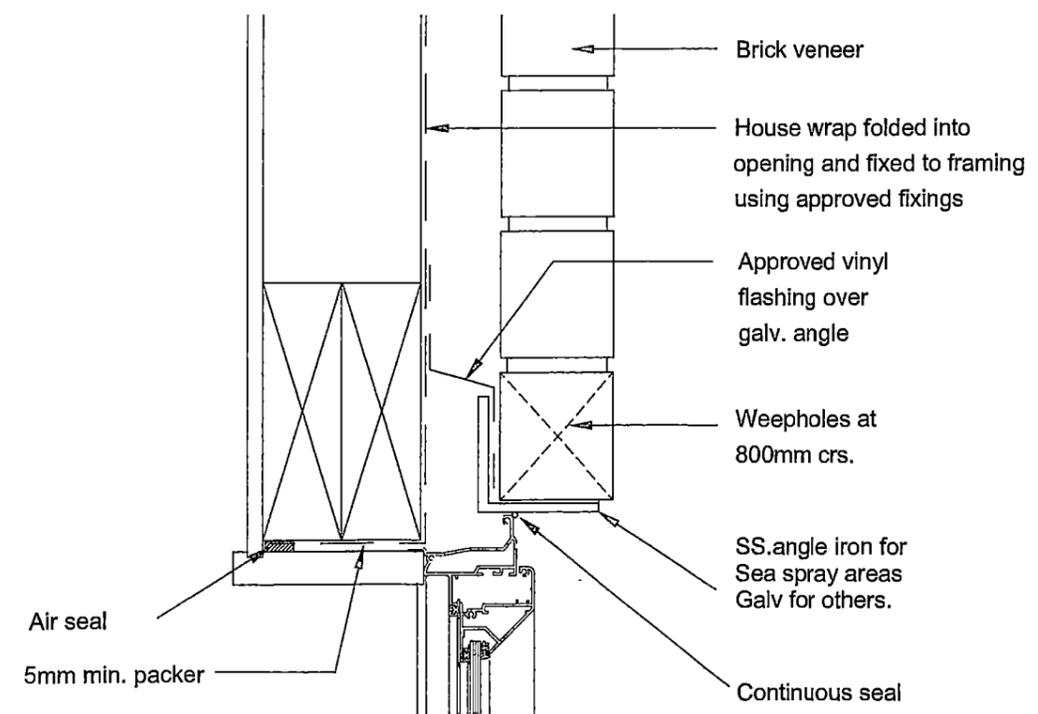


WINDOW JAMB



HINGED DOOR SILL

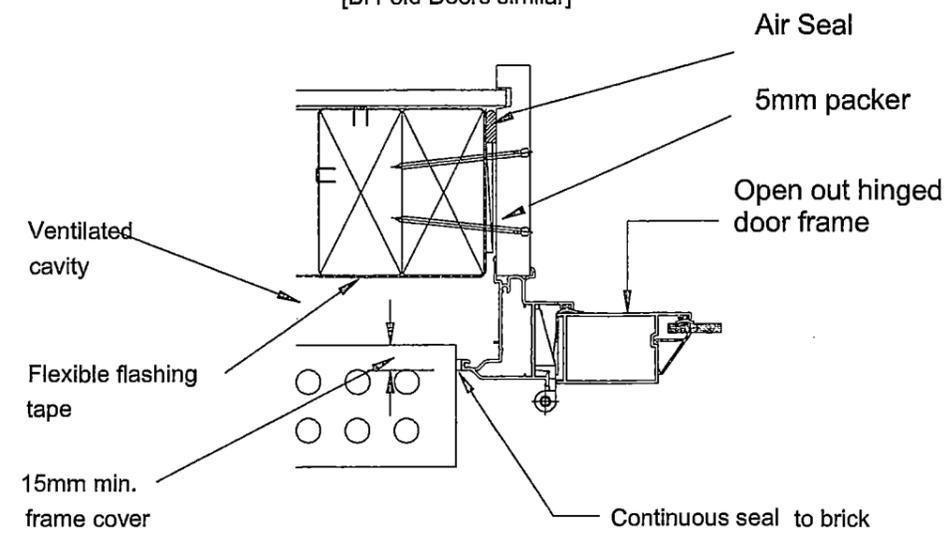
Outward Opening Door
[Bi Fold Doors similar]



WINDOW HEAD

[Brick Veneer Over]

Scale 1 : 1.25



HINGED DOOR JAMB

[Bi Fold Doors similar]

Waikato District Council
FULL APPLICATION RECEIVED
26 SEP 2016
Time Initials
NGARUAWAHIA

WAIKATO DISTRICT COUNCIL
Building Consent Number
0537/17 -
APPROVED

006

PROPOSED ALTERATIONS AND ADDITIONS TO DWELLING AT 48 TRAVERS ROAD TE KAUWHATA FOR GAIL DRAIN

Water Projects Limited

October 2007

On Site Wastewater Report
P Massey & K Price
48 Travers Road
Te Kauwhata

On Site Wastewater
Evaluation
Design
Report

Water Projects Limited

October 2007

Contents:

General Comments

Disposal Calculations

AV Ratio Calculation

Appendix E Report

Technical Specification

Site Plans

Additional Information

General Comments

48 Travers Road, Te Kauwhata

This site has a land area of 8000m². It has a gentle contour with slope of less than 10 degrees in the area of the proposed disposal field, with the site generally falling to the South.

Our site investigations (and those of others) have determined that the natural soils present on site are a category 5 – 6, therefore exhibiting slow drainage capabilities meaning they are well suited to the lighter loadings proposed.

The owners of this property propose the construction of a 6 bedroom dwelling, being 4 bedrooms, an office/study and a rumpus room that can be utilised as bedrooms, with a design occupancy of 9 persons.

This dwelling will be connected to roof water tank supply therefore we have used a wastewater flow allowance of 200 litres per person/per day, giving a total daily wastewater flow of 1800 litres.

We propose that an aerated wastewater treatment plant be utilised (WP2000 or similar) along with 600m² of sub-surfaced dripline.

Water Projects Limited



P.O. Box 288 Waiuku
Phone 09 23 56992
Fax 09 23 55138
FreePhone 0508 33 44 55
service@waterprojects.co.nz

Domestic Sewage Treatment Plant – Disposal Area Calculations

Owner: P Massey & K Price Consent No: _____

Site Address: 48 Travers Road, Te Kauwhata

Plant Type: Aerated Wastewater Treatment Plant

Treatment Capacity: 2000 l/p/d Process Type: Secondary

The following information is as required by the ARC Technical Publication No 58 "On site wastewater disposal from households":

- Number of Bedrooms or other rooms that maybe used for accommodation _____ 6
- Occupancy deemed to be (TP58) _____ 9
- Water Source []
 - Community or Borehole supply
 - Roof water tank supply [•]
- Wastewater flow allowance – litres per person per day _____ 200
- Disposal Method []
 - Surface application using dripline
 - Sub Surface application using dripline [•]
 - LPED []
 - Standard Trench []
- Loading Rate – mm per square per day _____ 3
- Calculation: 9 x 200 = 1800 / 3 = 600
- Disposal Area – square metres _____ 600

Notes:

Determination of Gross Lot Area to Discharge Volume Ratio

Owner: P Massey & K Price

Address: 48 Travers Road, Te Kauwhata

For the purpose of determining compliance with the gross lot area to flow volume ratio permitted activity criteria as per ARC rule no's 5.5.20, 5.5.22, 5.5.23 using guidelines published in ARC Tp58 3rd edition 2004.

Gross Lot Area 8000

Max Daily Flow 1800

A:V Ratio 4.44

A:V Ratio greater than or equal to 1.5

A:V Ratio greater than or equal to 3

Secondary Treatment Required

Discharge Consent Required

This information is to be used in conjunction with disposal area calculations and site evaluation.

Reserve Area

Disposal Method: Sub-Surface Dripline Irrigation

Reserve Requirement: 33% 50% 100%

Reserve disposal area requirements as determined by ARC Tp58 3rd edition 2004, 5.7

Environmental Effects

Surface Water

It is proposed to treat the water to a high standard prior to discharge, and the proposed irrigation system will introduce the water into the soil using subsurface dripline or into garden areas using surface mounted dripline. Where necessary excess rainwater will be diverted around the proposed disposal field and the disposal field will be located in excess of 30m from the nearest surface water.

Groundwater

A low application rate of secondary treated effluent into the soil will significantly reduce the likelihood of any measurable effect on the groundwater quality. The application to the ground at or near the surface will ensure the maximum distance to any groundwater.

Air Quality

The proposed secondary treatment system will produce no noticeable odour when functioning correctly. Any odour will be contained within the tanks. The drip irrigation system will load the soil at a rate that should not cause ponding, spraying, or aerosol of the effluent that could potentially cause odours.

Visual Impact

The tanks are installed wholly below ground with only the lids being visible. The lids will protrude approximately 100mm to prevent the egress of stormwater into the system. The disposal field will be landscaped with high transpiring native plants with some additional topsoil and mulch to cover the dripline. Warning signs may be installed to indicate the presence of the disposal field and the area will be fenced to be stock proof.

Environmental Risks

Risks associated with this proposal are minor. The treatment system will be automated, with alarms to advise the residents of any problems with the system, specifically – high water level – pump failure – filter blockage. The alarm can be extended into the dwelling for maximum effect. Peak flows into the system are not expected to be significant and the system includes a large emergency storage volume.

Alternative Systems

The use of a conventional septic tank and trench system was quickly ruled out due to the nature of the soil and the site area constraints (particularly the slope and the difficulty in siting a level line on the slope). Various secondary treatment options were looked at in relation to the proposal, the most economical of which is an aerated wastewater treatment system. This type of system also provides a good quality of treatment in permanently occupied dwellings.

Type of Treatment System

We recommend a range of different package systems supplied by different manufacturers, in this situation we are recommending an AWTS (Aerated Wastewater Treatment System) as being a suitable type of system for your site, and strongly recommend that you only purchase from well known suppliers. Should you need any assistance in choosing a system, or would like to confirm that it suits the design that we have prepared, please feel free to contact the author.

Management of On Site Systems

Water Projects Limited recommend that all On Site Wastewater treatment systems are maintained by suitable qualified and experienced persons familiar with the type of system installed. We also point out that the disposal field is one of the most important aspects of the treatment system and should be maintained accordingly. This may include weed control, plant pruning, maintaining mulch or bark cover over the dripline, excluding stock from the area, and maintaining the integrity of the tubing.

On-site Wastewater Systems
Design and Management Manual (DP 50)

Appendix E

On-site Wastewater Disposal Site Evaluation Investigation Checklist

On-site Wastewater Systems
Design and Management Manual (2015)

On-site Wastewater Disposal Site Evaluation Investigation Checklist

PART A: Contact Details

1. Applicant Details:

Applicant Name	P Massey & K Price	
Company Name		
Property Owner Name(s)	First Name(s)	Surname
	Phil	Massey
	Kylie	Price
Nature of Applicant*	Owners.	

(* i.e. Owner, Lessee, Prospective Purchaser, Developer)

2. Consultant/Site Evaluator Details:

Consultant/Agent Name	Water Projects limited		
Site Evaluator Name	Paul Chester		
Postal Address	P.O.Box 288 Waiuku		
Phone Number	Business	(09) 2356992	Private
	Mobile	021 2769677	Fax (09) 2355138
Name of Contact Person	Paul Chester		
E-mail Address	paul@waterprojects.co.nz		

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

Yes No

If yes, give Reference Number(s) and Description

4. List any other consents in relation to this proposal site and indicate whether or not they have been applied for or granted.

If so, specify Application Details and Consent No.:(
e.g. Land Use, Water Take, Subdivision, Earthworks Stormwater Consents)

Pending building consent

PART B: Property Details

1. Property for which this application relates:

Physical Address of Property	48 Travers Road Te Kauwhata		
Territorial Local Authority	Waikato District Council		
Regional Council	Environment Waikato		
Legal Status of Activity	Permitted: <input checked="" type="checkbox"/>	Controlled: <input type="checkbox"/>	Discretionary: <input type="checkbox"/>
Relevant Regional Rule(s) [Note 1]	3.5.7.6		
Total Property Area (m ²)	8000m ²		
Map Grid Reference of Property [Note 2]			
Notes:			
1. In the Auckland Region, the relevant Permitted Activity criteria is as specified in the ARC Proposed Regional Plan: Air Land and Water (ARC: ALWP) Decision Version October 2004 Rule 5.5 20-23 (refer Appendix C and in particular C5, in TP58).			
2. NZMS 260 series, scale 1:50,000			

2. Legal description of land (as shown on Certificate of Title):

Lot No.	2	DP No.	353641	CT No.	
Other (specify)					

Please ensure copy of Certificate of Title is attached.

PART C: Site Assessment – Surface Evaluation

(Refer TP58 – Sn 5.1 General Purpose of site Evaluation and Sn 5.2.2(a) Site Surface Evaluation)
Note: Underlined terms defined in Table 1, attached

1. Has a Desk Study been undertaken for this property

Yes No (Please tick one)

If yes, please specify the findings of the Desk Study, and if not please specify why this was not considered necessary.

To collect property information

2. Has a Slope Stability Assessment been carried out on the property?

Yes No (Please tick one)

If No, why not?

Slopes of less than 10 degrees, and with the light loadings proposed wastewater should not create any stability issues.

On-site Wastewater Systems
Design and Maintenance Manual (17/18)

If Yes, please give details of report (and if possible, please attach report):

Author:	
Company/Agency	
Date of Report	
Brief Description of Report Findings	

3. Site Characteristics (See Table 1 attached):

Provide descriptive details below:

Performance of Adjacent Systems:
Secondary systems in area performing well
Estimated Rainfall and Seasonal Variation:
1250mm - 1500mm P/A
Vegetation Cover:
Grass
Slope Shape:
Generally linear planer
Slope Angle:
Less that 10 degrees
Surface Water Drainage Characteristics:
Generally drains to the South
Flooding Potential: YES/NO
No
If yes, specify relevant flood levels on appended site plan, i.e. one in 5 year and/or 20 year and/or 100 year return period flood level, relative to disposal area.
Surface Water Separation:
30m +
Site Clearances (Provide general description and specific dimensions in Part 6 below and in Site Plan :
As per site plan
Site Characteristics:
Rural lifestyle block

4. Site Geology of the subject property

Geological Map Reference Number

5. What Aspect(s) does the proposed disposal system face (please tick)?

North	<input type="checkbox"/>
North-West	<input type="checkbox"/>
North-East	<input type="checkbox"/>
East	<input checked="" type="checkbox"/>

West	<input type="checkbox"/>
South-West	<input type="checkbox"/>
South-East	<input type="checkbox"/>
South	<input type="checkbox"/>

6. Site clearances, which should also be shown on the site plan:

Separation Distance from	Treatment Separation Distance (m)	Disposal Field Separation Distance (m)
Boundaries	5	1.5
Surface water	30 +	30 +
Groundwater	2	2
Stands of Trees/Shrubs	n/a	n/a
Wells, water bores	n/a	n/a
Embankments/retaining walls	20	20
Buildings	3	3
Other (specify):		

PART D: Site Assessment – Subsoil Investigation

(Refer TP58 – Sn 5.1 General Purpose of Site Evaluation, Sn 5.2.2(b) Site Surface Evaluation and Sn 5.3 Subsurface Investigations)

Note: Underlined terms defined in Table 2, attached

1. Please identify the soil profile determination method:

Test Pit	<input type="checkbox"/>	(Depth ___ m)	<input type="checkbox"/>	No. of Test Pits	<input type="checkbox"/>
Bore Hole	<input checked="" type="checkbox"/>	(Depth ___ m)	3.5	No. of Bore Holes	2
Other (specify)	Bore hole done by others (G.A. Hughes & Associates)				
Soil Report Attached?	Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>	(Please Tick)

2. Was fill material intercepted during the subsoil investigation?

Yes No (Please tick)

If yes, please specify the effect of the fill on wastewater disposal

Digitate Wastewater Systems
Design and Management Manual (TP 58)

3. Has percolation testing been carried out?

Yes No (Please tick)

If yes, please specify the method

Test Report Attached? (Please tick) Yes No

4. Are surface water interception/diversion drains required?

Yes No (Please tick)

If Yes, please show on site plan

5. Please state the depth of the seasonal water table:

Winter	3 -	(m)
Summer	3 +	(m)
Please indicate whether measured		<input type="checkbox"/> or estimated <input checked="" type="checkbox"/> (please tick)

6. Are there any potential short circuit paths?

Yes No (Please tick)

If the answer is yes, please explain how these have been addressed

7. Based on results of subsoil investigation above please indicate the disposal field soil category (Refer TP58 Table 5.1):

Is Topsoil Present? If so, Topsoil Depth? .2 - .3 (m)

Soil Category	Description	Drainage	Tick One
1	Gravel, coarse sand	Rapid draining	<input type="checkbox"/>
2	Coarse to medium sand	Free draining	<input type="checkbox"/>
3	Medium-fine & loamy sand	Good drainage	<input type="checkbox"/>
4	Sandy loam, loam & silt loam	Moderate drainage	<input type="checkbox"/>
5	Sandy clay-loam, clay loam & silty clay-loam	Moderate to slow drainage	<input checked="" type="checkbox"/>
6	Sandy clay, non-swelling clay & silty clay	Slow draining	<input checked="" type="checkbox"/>
7	Swelling clay, grey clay, hardpan	Poorly or non-draining	<input type="checkbox"/>

Reasons for placing in stated category

As per description in Auckland Regional Council TP58 3rd Edition 2004, compared to soil sample obtained from site.

PART E: Discharge Details

1. Water supply source for the property (please tick):

Rainwater (roof collection)	<input checked="" type="checkbox"/>
Bore/well	<input type="checkbox"/>
Public supply	<input type="checkbox"/>

2. Calculate the maximum daily volume of wastewater to be discharged, unless accurate water meter readings are available (Refer TP58 Table 6.1 and 6.2):

Number of Bedrooms	6	
Design Occupancy	9	(Number of people)
Per capita Wastewater Production	200	(Litres per person per day)
Other - Specify		
Total Daily Wastewater Production	1800	(Litres per day)

3. Do you propose to install:

a) Full Water Conservation Devices?	Yes	<input type="checkbox"/>
b) Water Recycling - what %?	%	<input type="checkbox"/>

No	<input checked="" type="checkbox"/>	(Please tick)
No	<input checked="" type="checkbox"/>	(Please tick)

If you have answered Yes, please provide additional information including the estimated reduction in water usage:

4. Is Daily Wastewater Discharge Volume more than 2000 litres:

Yes	<input type="checkbox"/>	(Please tick)
No	<input checked="" type="checkbox"/>	(Please tick)

Note if the answer to the above is yes an ARC wastewater discharge permit will be required

5. Gross Lot Area to Discharge Ratio:

Gross Lot Area	8000	m ²
Total Daily Wastewater Production	1800	(Litres per day) (from above)
Lot Area to Discharge Ratio	4.44	

6. Does this proposal comply with the Auckland Regional Council Gross Lot Area to Discharge Ratio of greater than 1.5)

Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	(Please tick)
-----	-------------------------------------	----	--------------------------	---------------

City of Waikato Water Systems
Design and Management Manual (TP 58)

7. Does this proposal comply with the Auckland Regional Council Gross Lot Area to Discharge Ratio of greater than 3

Yes No (Please tick)

8. Is an Auckland Regional Council Discharge Consent Required?

Yes No (Please tick)

PART F: Primary Treatment (Refer TP58 Section 7.2)

1. Please indicate below the no. and capacity (litres) of all septic tanks including type (single/dual chamber grease traps) to be installed or currently existing:

Number of Tanks	Type of Tank	Capacity of Tank (Litres)
1	Septic Tank	4500
1	Aeration Module	3500
1	Pump Chamber	1250
	Total Capacity	9250

2. Is a Septic Tank Outlet Filter to be installed?

Yes No (Please tick)

If Yes, please state the type

As per Aeration Module

PART G: Secondary and Tertiary Treatment
(Refer TP58 Section 7.3, 7.4, 7.5 and 7.6)

1. Please indicate the type of additional treatment, if any, proposed to be installed in the system (please tick):

Secondary Treatment	<input checked="" type="checkbox"/>
Home aeration plant	<input checked="" type="checkbox"/>
Commercial aeration plant	<input type="checkbox"/>
Intermittent sand filter	<input type="checkbox"/>
Recirculating sand filter	<input type="checkbox"/>
Recirculating textile filter	<input type="checkbox"/>
Clarification tank	<input type="checkbox"/>
Tertiary Treatment	<input type="checkbox"/>
Ultraviolet disinfection	<input type="checkbox"/>
Chlorination	<input type="checkbox"/>
Other	<input type="checkbox"/>

Specify

PART H: Land Disposal Method (Refer TP58 Section 8)

1. Please indicate the proposed loading method (please tick):

Gravity	<input type="checkbox"/>
Dosing Siphon	<input type="checkbox"/>
Pump	<input checked="" type="checkbox"/>

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

Yes No (Please tick)

3. If a pump is being used, please provide the following information:

Total Design Head	22	(m)
Pump Chamber Volume	1250	(Litres)
Emergency storage volume	2000	(Litres)

4. Please identify the type(s) of land disposal method proposed for this site (please tick) (Refer TP58 Sections 9 and 10):

Surface Dripper Irrigation	<input type="checkbox"/>
Sub-surface Dripper Irrigation	<input checked="" type="checkbox"/>
Standard Trench	<input type="checkbox"/>
Deep Trench	<input type="checkbox"/>
Mound	<input type="checkbox"/>
Evapo-transpiration Beds	<input type="checkbox"/>
Other (Please Specify)	<input type="text"/>

5. Please identify the loading rate you propose for the option selected in Part H, Section 4 above stating the reasons for selecting this loading rate:

Loading rate		3	(Litres/m ² /day)
Disposal Area	Basal		(m ²)
	Areal	600	(m ²)

Explanation (Refer TP58 Sections 9 and 10)

Suitable loading rate for soil type and proposed process

6. What is the available reserve wastewater disposal area (Refer TP58 Table 5.3)

Reserve Disposal Area (m ²)	300
Percentage of Primary Disposal Area (%)	50

On-site Wastewater Systems
Design and Management Manual (TP 55)

7. Please provide a detailed description of the design and dimensions of the disposal field and attach a detailed plan of the field relative to the property site:

Description and Dimensions of Disposal Field:

600m² of subsurfaced dripline irrigation, mole ploughed to a depth of 150mm at 1m spacings

Plan Attached? Yes No (Please tick)

If not explain why not

PART I: Maintenance & Management (Refer TP58 Section 12.2)

1. Has a maintenance agreement been made with the treatment and disposal system suppliers?

Yes No (Please tick)

PART J: Assessment of Environmental Effects

1. Is an assessment of environmental effects (AEE) included with application?
(Refer TP58 section 4 (particularly 4.4.2), section 5, and section 11 (parts 11.1 & 11.8). Ensure all issues concerning potential effects addressed)

Yes No (Please tick)

2. Are there any specific environmental constraints?

Yes No (Please tick)

If Yes, please explain

PART K: Is Your Application Complete?

1. In order to provide a complete application you have remembered to:
(Refer to TP58 section 3.5 for summary list of information to be covered):

Fully Complete this Assessment Form	<input type="checkbox"/>
Include a Location Plan and Site Plan (with Scale Bars)	<input type="checkbox"/>
Include a Property Title (Certificate of Title)	<input type="checkbox"/>
Attach an Assessment of Environmental Effects (AEE)	<input type="checkbox"/>

2. Declaration

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

Name	Paul Chester	Signature	
Position	Field Engineer	Date	15-Oct-2007

WP2000 & WP3000 Domestic Sewage Treatment Plant

Technical Specification

1.0 PLANT OPERATION

1.1 Construction:
The Sewage Treatment Plant is to be a WP2000 or WP3000 as described below and as shown and positioned on the drawings.

1.2 Design Parameters:
Domestic sewage will be collected from the dwelling and flow by gravity to the Plant.

NO trade wastes of toxic or inorganic nature will be treated by this Plant.

Total maximum daily flow to be treated by Plant	2000Litres (WP2000) 3000Litres (WP3000)
---	--

Total maximum daily influent Biochemical Oxygen demand	500 grams or 250 milligrams per litre
--	---------------------------------------

Effluent from the Plant will be disposed in accordance with the requirements of the Local Authority.

2.0 DESCRIPTION OF PLANT:

All Wastewater is gravity fed into the dual chamber septic tank which provides Primary and Secondary treatment. Here the waste undergoes settlement and digestion during a retention period of approximately 24 hours.

The settled wastewater then flows into the Main Treatment Unit, which is also a dual chamber tank. Effluent reaches the Submerged Contact Aeration (SCA) chamber first. During regular timed intervals water and air is pumped into the tank by means of strategically placed jets, which causes vigorous turbulence of the tank contents. Because of this turbulence a spiraling flow pattern develops causing a biomass to develop within the sludge particles tumbling through the tank. This biomass assimilates nutrients and oxygen from the effluent, which leads to a gradual reduction in impurities. The outlet of the SCA chamber is fitted with two contact media blocks which act as a filter for solids and also a medium on which bacteria can grow. A biomass develops on the filter, which further causes a reduction in the Biochemical Oxygen Demand (BOD). The higher the BOD the poorer the effluent quality.

Effluent now passes to the Humus chamber where sludge particles settle to the floor. Finally the effluent passes through two more contact media blocks, which act as a secondary biological interception and removal centre which further reduces the BOD before flowing to the pump chamber. Settled Humus chamber sludge is automatically returned to the inlet of the SCA chamber by means of a return sludge facility which is driven by the main SCA delivery pump. Effluent and sludge particles are also recirculated through the pre-treatment tank by means of a bypass feed line from the main SCA delivery pump. This has a threefold purpose:

1. Excess sludge is returned to the pre-treatment tank for storage and digestion.
2. Clean effluent is recycled through the plant, which suppresses the activities of micro organisms, which emit odours.
3. By regularly recycling effluent the circulating biomass in the SCA tank is being fed with stored organisms from the pre-treatment tank. This keeps the micro organisms at maximum population levels and reduces problems with plants not being used for extended periods. Because there is a continual supply of "food" for the bacteria untreated effluent is prevented from being discharged from the system when a family returns from holiday and subjects the system to increased loading after extended periods of low use.

Treated effluent is stored in the Pump Chamber where it is pumped via a mechanical filter to the disposal or irrigation system in 200 litre doses. The delivery pump float switch controls this action automatically. An over level alarm float is also incorporated in this chamber to warn of malfunction or filter blockage.

2.1 PUMPS:

Main SCA Pump	Grundfos KP350A
Maximum Head	11 metres
Maximum Flow	250 litres/min
Power Consumption	0.55 kW

Irrigation Pump	Davey D42A
Maximum Head	22 metres
Maximum Flow	60 litres/min
Power Consumption	600 watts

2.2 PUMP OPERATION:

The submersible Grundfos KPB600A pump shall be operated by a PLC based Control Panel, which maintains a nominal pump operating time of twelve hours per day. This time can be increased or decreased depending on the load presented to the system.

2.3 PRIMARY SEWAGE TANK:

One dual chamber reinforced concrete tank having a net liquid capacity of 3500 litres – WP2000 or 4500 litres – WP3000.

The inlet is to be a 100mm diameter dropper and the outlet to be a 100mm diameter dropper to prevent short-circuiting.

TOP OF TANK ACCESS SADDLE MUST BE INSTALLED LEVEL IN BOTH DIRECTIONS.

2.4 TREATMENT PLANT TANK:

One reinforced concrete tank having two chambers.

First chamber is the SUBMERGED CONTACT AERATION TANK which has a net liquid capacity of 2333 litres – WP2000 or 3000 Litres – WP3000 and an average retention time of 48 hours. Second chamber is the HUMUS SETTLING TANK, which has a net liquid capacity of 1166 litres – WP2000 or 1500 Litres – WP3000 and meets the following design parameters:

1. Maximum surface overflow rate of 1000 litres per square metre per hour
2. Minimum detention time of 4 hours at average daily flow
3. Actual detention time of 24 hours.

The tank is to be fitted with an inlet dropper, outlet baffle and automatic sludge removal facilities.
TOP OF TANK ACCESS SADDLE MUST BE INSTALLED LEVEL IN BOTH DIRECTIONS.

2.5 PUMP CHAMBER:

This is used to collect the treated effluent prior to pump out to the dripper irrigation system.

The pump chamber has a liquid capacity of 1200 litres (WP2000) or 3500 litres (WP3000). This allows for some storage in the event of a power failure.

2.6 CONTACT MEDIA BLOCK:

Contact media blocks are installed. 32m² – WP2000 or 64m² – WP3000

2.7 MATERIALS AND CONSTRUCTION:

Precast concrete tanks meet or exceed ASNZS 1546.
All access covers to be capable of supporting a live load of 250kg on an area of 0.05 square metres.

All metal components shall be of 304 or 316 stainless steel.

All plastic components to be off the grade equivalent of Class E pressure pipe.

All fittings and components will be manufactured of non-corrodible materials.

2.8 ELECTRICAL CONTROL PANEL AND ALARM:

Provide one control panel to control the automatic operation of the plant.
All electrical wiring to be carried out in accordance with the relevant Electrical regulations and by a registered electrician.

The control panel is to be of weatherproof construction and have the following facilities:

1. A main isolator switch
2. Internal circuit breakers for the main Circulation Pump and Irrigation Pump.
3. PLC based control system to carry out the functions required to achieve good quality effluent.
4. Audible and visual alarm.

The purchaser shall be responsible for providing a separate supply circuit for the treatment plant, protected by a 16 amp Circuit Breaker.

2.9 SEWER DEPTH:

This specification is based on maximum sewer depth of 580mm below ground level at the treatment plant. Where extra depth is required this will entail fitting risers to the saddles to increase depth. Risers are available in 100mm increments or 400mm.

3.0 INSTALLATION AND COMMISSIONING NOTES:

1. All tanks must be installed level in both directions.
2. Access to all tanks must be 100mm above finished ground level to prevent ground water entry.
3. All compartments are to be filled with water to avoid flotation and enable commissioning.
4. All compartments are to be free of debris before commissioning.
5. Install a 20mm class E PVC recirculation pipe between the primary sewage tank and treatment tank.
6. Flexible couplings supplied should be used between all tanks to stop pipe damage through ground movement.
7. The treatment plant is to be commissioned **ONLY** by the staff of the agent. Any attempt by other persons to commission the system without agent or manufacturers authority will automatically render the warranty null and void.
8. Top of all tanks **MUST BE INSTALLED LEVEL**
9. Electrical control panel **MUST NOT** be removed without the authority of the manufacturer and this must only be done by a registered electrician and should only be done if the location poses a risk of damage to the panel. Remote control panels are available as an optional extra as are remote alarm lights.

4.0 WARRANTY

WP 2000/3000 sewage treatment plants are manufactured to meet or exceed the requirements of the AS/NZS 1546. The manufacturer warrants to repair or replace such tanks requiring repair or replacement due to defective manufacture for a period of ten years from the date of installation. Fittings and plumbing components shall be warranted on the same basis for a period of two years. Pumps are warranted by the pump manufacturer and the warranty period is usually 12 months. Control panel and associated electrical components are also warranted by the panel manufacturer for 12 months. Any failure of the system caused by the purchasers non-compliance with the operating instructions or interference with the system or any of its parts will render any warranty null and void.

WP 2000/3000 systems are constructed using components supplied by several manufacturers. For your protection please observe the conditions of their warranty.

The irrigation system used for disposal of the treated effluent is excluded from any warranty.

The warranty will automatically be rendered void upon the happening of any of the following:

1. Any of the design parameters of the system are exceeded.
2. The normal operation of the system is interfered with by untrained personnel, causing part or parts of the system to wear out prematurely.
3. Flotation of the tanks caused by desludging at an inappropriate time.
4. The absence of or inadequately sized grease traps being installed causing grease or fat to accumulate and leading to failure of the system.
5. Inadequate desludging of the primary sewage tank.

The sewage treatment plant must be kept in operable state at all times during and after the warranty period the manufacturer will not be responsible for poor effluent quality.

SERVICE

When you purchased your WP 2000/3000 system you automatically receive four service visits that will be carried out every three months during the first year.

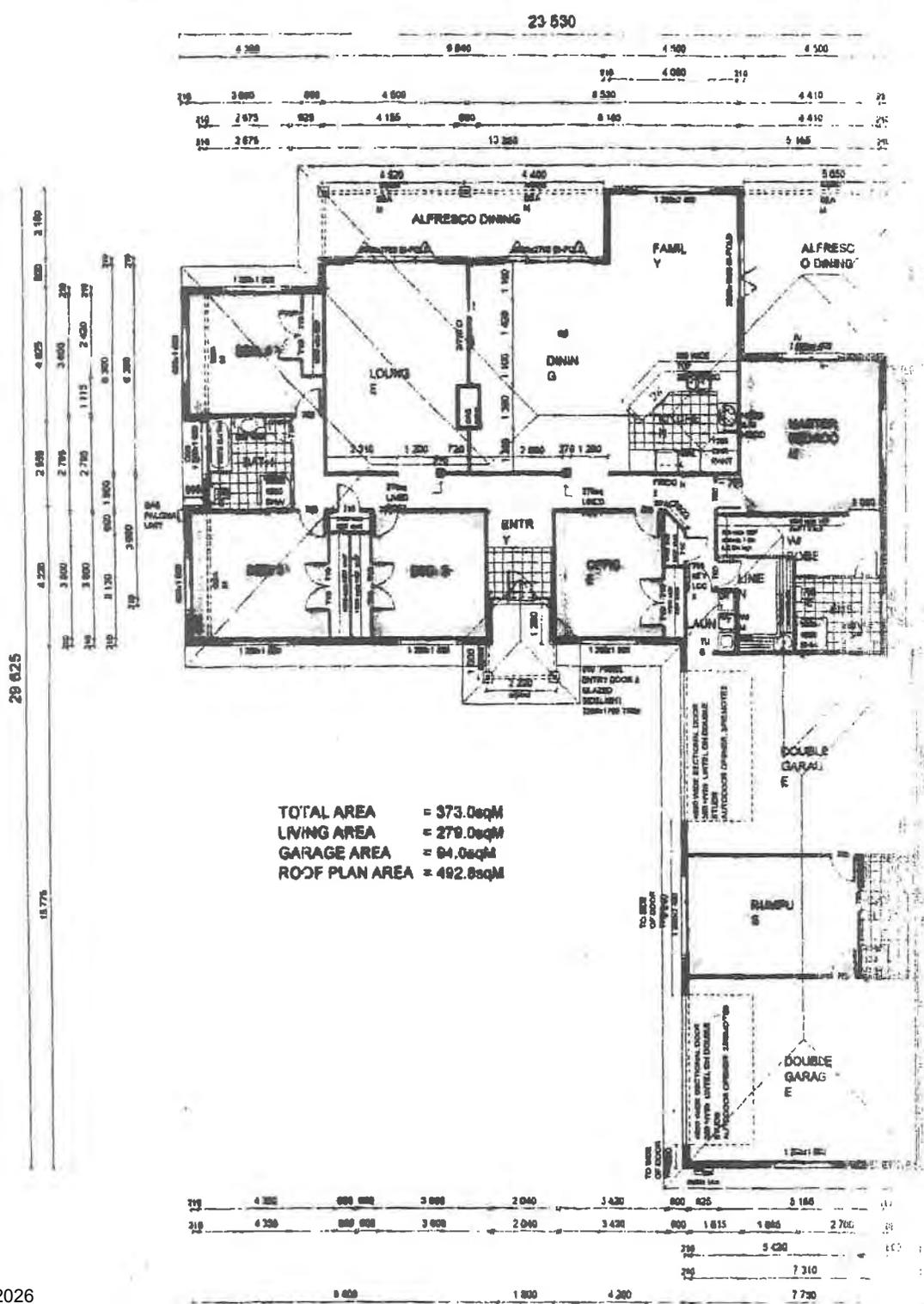
The purpose of these visits is to check the function of the system in accordance with the local body requirements in your area. After the first year we recommend that you continue to have the system serviced at least every six months (requirements will vary according to Council requirements) and that you clean the disk filter every couple of months for trouble free operation – failure to keep this filter clean may lead to flooding of the system and this has a damaging effect on the treatment process as well as the pumps, it could also void your warranty.

The service visits are a good opportunity to learn about the operation and care requirements of your system and the serviceperson will be able to answer any questions and show you how to undertake some basic maintenance.

Additional Warranty Information

As previously stated in the warranty section of the owners manual and technical specification the WP 2000/3000 system is built up using components supplied by several manufacturers where possible we have included their owners manuals and warranty details in this pack. Some important points should be noted:

- The first point of contact when seeking repair or wishing to report a fault should be agent who the system was initially purchased from. If you are unable to contact them or feel that you are not getting suitable service please contact the master agent: Water Projects LTD, P.O. Box 288 Waiuku, New Zealand.
- Concrete products are manufacturer for WP 2000/3000 system by CIE Wanganui, New Zealand. These products are warranted for a period of 10 years against manufacturing defects only.
- All submersible pumps (Davey, Grundfos or other) are covered by manufacturers warranty of one year (12 months from purchase) This warranty is off site only and does not include any costs of removal or replacement into system or from your site to the manufacturers approved repairer.
- All control panel equipment is covered by manufacturers warranty of one year (12 months from purchase). This warranty does not include damage caused by power fluctuations or failure of other components.
- Warranties may not be assigned without written permission of the manufacturer.
- No other warranties are to be applied.
- WP 2000/3000 systems function by enhancing a naturally occurring process. The loading of this system is beyond the control of the manufacturer, as are other factors influencing the function of this process. There is no warranty on process.



TOTAL AREA = 373.0sqM
 LIVING AREA = 279.0sqM
 GARAGE AREA = 94.0sqM
 ROOF PLAN AREA = 492.8sqM

*4 Boos
 1 office
 1 Rumpus
 Room*

[Faint, illegible text, possibly a site plan or additional notes]

Storm Water Disposal

48 Travers Road, Te Kauwhata

Due to the poor drainage of soils present on this site the total use of soakage pits is not suitable. The most suitable option is to collect the storm water from the site and pipe it to a soak-hole with a bubble up facility. To suitably limit the effects of doing this it will be necessary to have some storm water detention in place, as well as some basic erosion protection measures at the outflow point, (being a basic rock formation around the point of discharge).

Areas allowed for in this calculation are:

New Dwelling	492m ² (approx)
Proposed driveway turn area 150m ² + 25% Contingency for driveway area 37.5m ²	187.5m ²

House Area 492m² Only

The design calls for a 5000 gallon (22500 litre) standard water tank with invert situated below the water source while being at the top of the tank (see Fig.1) and outlet structure with sizes and heights as detailed in Fig.2.

Drained Area 492m² (say 500m²)

2 year Event

- Orifice Diameter 55m
- Detention Storage Head 600mm
- Temporary Storage Volume 5.5m³

100 year Event

- Orifice Diameter 60m
- Detention Storage Head 600mm
- Temporary Storage Volume 5.5m³

It will be necessary to discharge into a soak-hole located to the south of the house and to reduce the velocity of the water flow while maintaining free passage. I would suggest that the discharge from the detention tank is piped to the proposed soak-hole using 125mm unpunched drain coil. Once laid, trenches should be suitably compacted to avoid erosion by surface water. The drain coil should be laid in a flat-bottomed trench with constant fall.



P.O. Box 288, Waikato
Phone: 07 23 56952
Fax: 09 23 55138
FreePhone: 0508 33 44 55
services@waterprojects.co.nz

Soak-Hole Size

Based on 80mm of rainfall over a 24-hour period we would propose a 3m³ soak-hole.

Calculation

Proposed soak-hole surface area of 11m²
= 11 x 8mm transmission rate/soakage per hour/per 1m²
= 88mm per hour x 24 hours
= 2112 / 1000 = 2.112 every 24 hours

A 3m³ soak-hole will afford approximately 40% extra capacity/storage which should handle additional extreme rain events.

For Impervious Areas (Driveway)

We have allowed for design purposes approximately 150m² driveway area plus a 25% contingency giving a total of 187.5m² (say 200m²).

We propose the use of a separate soak-hole to collect surface water from the impervious areas.

Soak-Hole Size

For the purpose of this design we propose an allowance of 2m³ per 100m² of surface area.

Calculation: 200m² / 100m² = 2 x 2m³ = 4m³ soak-hole required

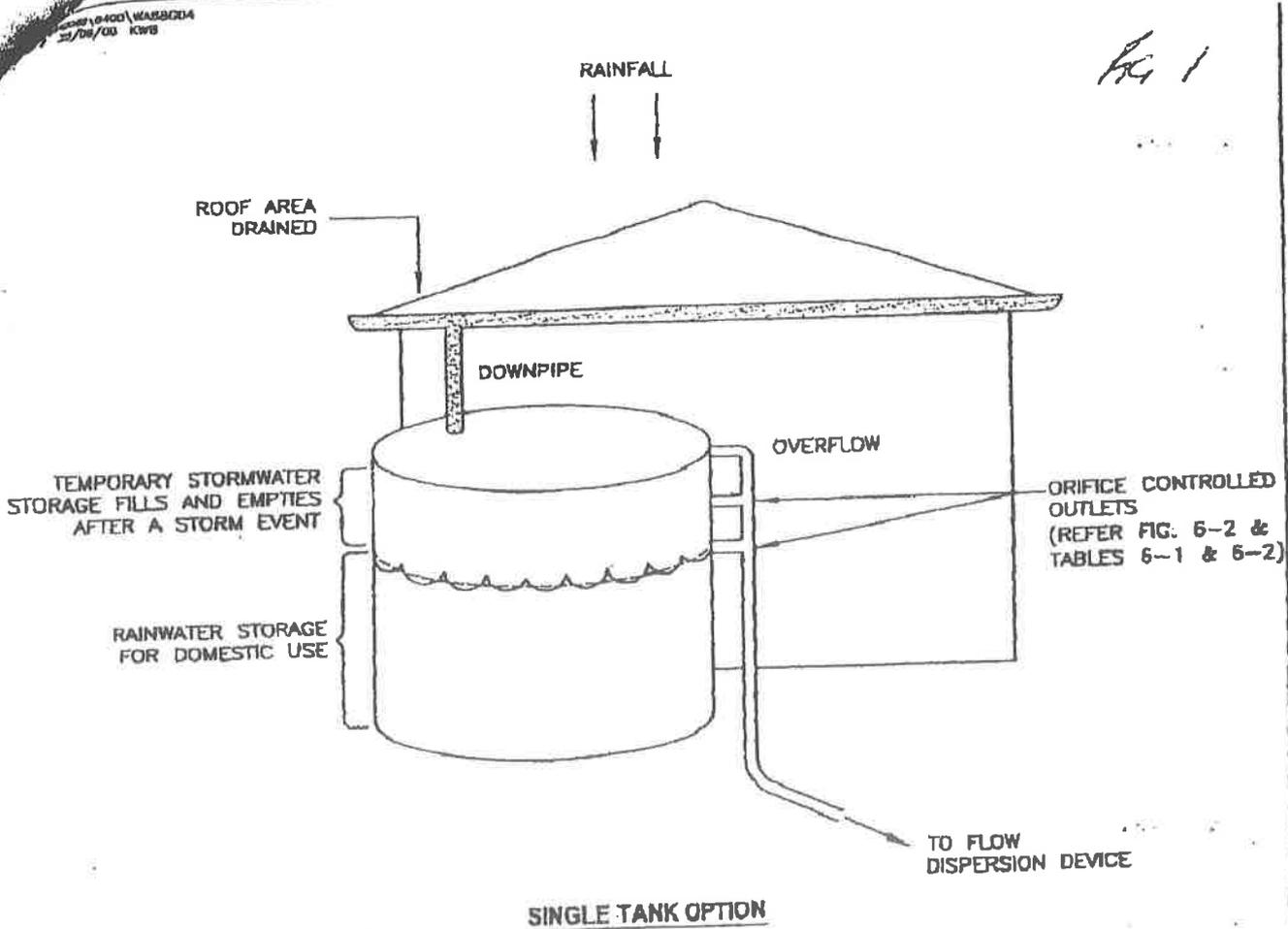
Crosscheck based on 5% AEP = 120mm

200m² x .120 = 24 / 8.33 = 2.88m³ Total 5 year rain event

Crosscheck soak-hole = Surface area of soak-hole = 14m²
= 14 x 8mm per hour/per 1m²
= 112mm per hour x 24 hours
= 2688 / 1000 = 2.688m³ every 24 hours

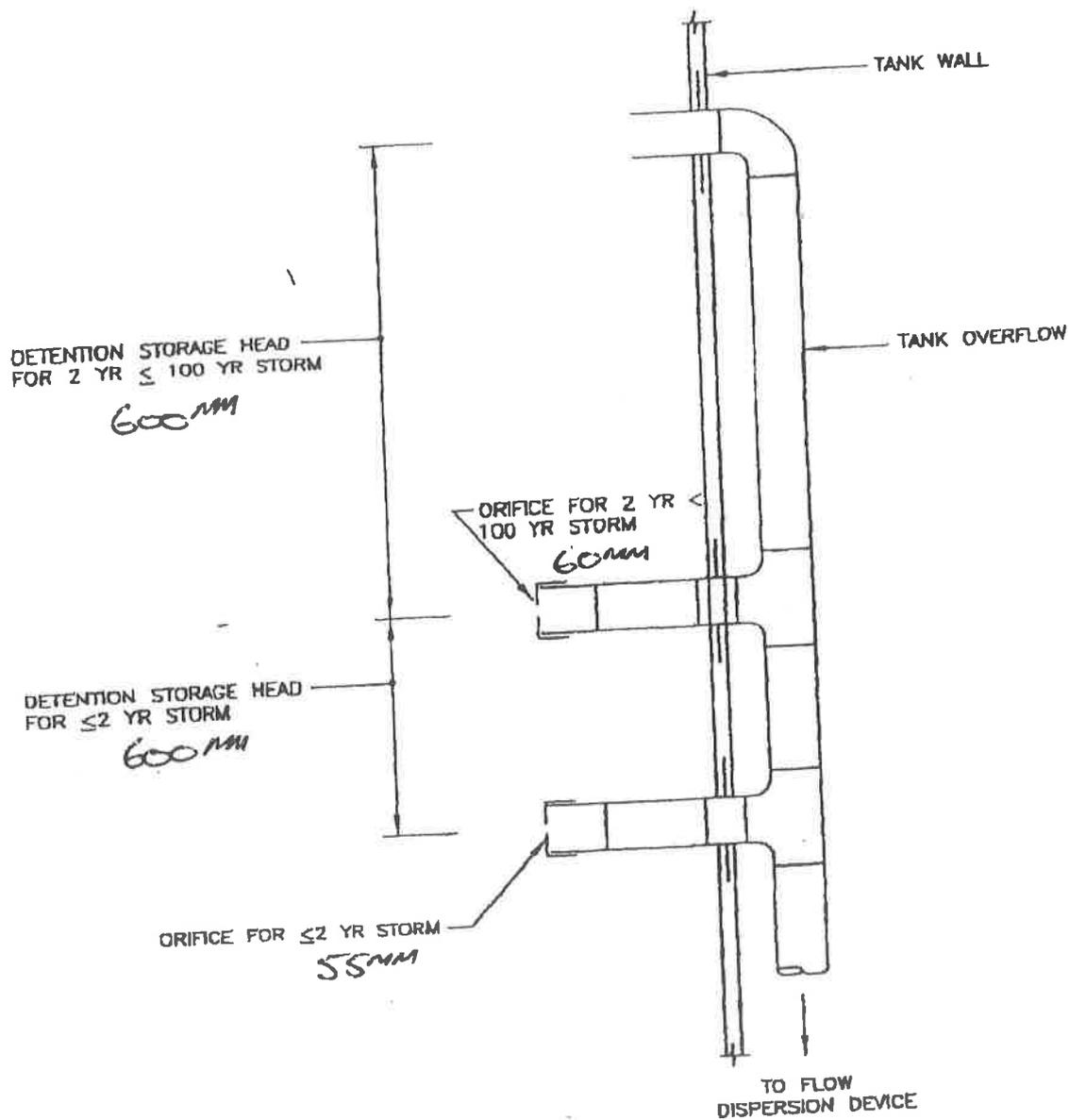


P.O. Box 228, Ōhau
Phone: (07) 21 55992
Fax: (07) 21 55128
Free Phone: 0508 31 44 55
www.waterprojects.co.nz



1/12/00 STT

Fig 2



ORIFICE CONTROLLED OUTLET

FOR ORIFICE DIAMETER AND DETENTION STORAGE HEAD DIMENSIONS REFER TO TABLE 6-1 & 6-2.

REPORT

WAIKATO DISTRICT COUNCIL

Ground contamination report
Te Kauwhata rezoning

Report prepared for:
WAIKATO DISTRICT COUNCIL

Report prepared by:
TONKIN & TAYLOR LTD

Distribution:
WAIKATO DISTRICT COUNCIL
TONKIN & TAYLOR LTD (FILE)

2 copies

1 copy

May 2009

T&T Ref: 26431



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Appendix A: Historical aerial photograph

Appendix B: Laboratory transcript

1 Introduction

Waikato District Council (WDC) is proposing to rezone approximately 200 hectares of land in Te Kauwhata for residential land-use. The proposed minimum lot size is 400 m², with an average size of 700 m².

The land has been known to have been previously used for horticultural purposes. Horticulture-derived ground contamination can affect the suitability of land for residential use. Contamination risks associated with horticultural land tend to be associated with either localised hotspots, typically around former sheds where pesticides is stored and mixed or broadly distributed contamination resulting from spraying.

WDC has requested a broad scale desktop study to identify areas that may have been affected by horticulture-derived contamination for input to the rezoning planning process. The area of interest identified by WDC for the desk top study (referred to from here on as "the site") is shown in Figure 1. Following completion of the desk study, WDC requested some sampling to provide a preliminary characterisation of likely worst case levels of residual surface contamination.

This work has been carried out in accordance with Tonkin & Taylor's proposal dated 17 February 2009 and variation dated 7 March 2009.

2 Scope of work

The following tasks have been undertaken through a desk study to identify areas within the site that may have been affected by horticulture-derived contamination:

- Review of 8 sets of historical aerial photographs obtained from NZ Aerial Mapping Ltd dating back to the 1940s;
- Identification of areas that have been in vineyard or orchard, and the length of time each area has been used for that purpose;
- An Assessment of the potential contaminants present, based on the timing of this use; and
- An assessment of where contamination hotspots are likely to exist, based on the presence of features potentially associated with pesticide storage or mixing.

On completion of the desk study, a preliminary soil sampling investigation was undertaken. The investigation comprised:

- Selection of suitable and available properties for sampling;
- Collection of a total of 21 surface samples from three properties where horticultural activity has been undertaken for about 60 years or more (5 samples from cropped areas in each property and 2 samples from potential hotspot areas identified in the desk study in each property);
- Collection of a total of 6 surface samples from around 2 vine poles (2 samples from directly adjacent the pole, 2 samples 0.3 m away from the pole and 2 samples 0.5 m away from the pole);
- Analytical testing of the surface soil samples taken from potential hotspot and cropped areas for arsenic (As), copper (Cu) and lead (Pb) concentrations;
- Analytical testing of the surface soil samples taken from around vineyard poles for arsenic (As), copper (Cu) and chromium (Cr) concentrations;

- An assessment of the soil results against appropriate soil acceptance criteria for residential landuse; and
- Preparation of this report.

3 Site description

The site is located in Te Kauwhata and is generally bounded by State Highway 1, Moorfield Road, the North Island Main Trunk Railway corridor and Te Kauwhata Road (refer Figure 1). The site covers an area of approximately 200 hectares and consists of a number of properties.

The 200 ha site is surrounded by the following land-use and features (refer Figure 1):

- The Whangamarino wetland lies approximately 850 m to the northeast of the northeastern corner of the site;
- The main township of Te Kauwhata, including a school and commercial/industrial buildings as well as sewage treatment ponds, lies to the east of the site;
- Vineyards and orchards exist both within the site and to the north, east, south and west of the site. A number of wineries, orchards and associated outlet shops currently operate on Te Kauwhata and Wayside Roads;
- Lake Kopuera lies approximately 800 m to the south of the edge of the site;
- Lake Waikare lies approximately 1.5 km to the south east of the edge of the site;
- Tributaries of the Waikato River lie to the west and south of the site, including the Ngariohe Stream (tributaries come within approximately 400 m of the site); and
- An unnamed stream runs directly across the site.

The site is located at approximately 20- 40 m RL. Elevations surrounding the site are similar.

4 Aerial photographs

Eight sets of aerial photographs for the site were obtained from NZ Aerial Mapping Ltd. Key features identified from the photographs are described below. Photographs showing areas where horticultural activities were observed are provided in Appendix A. Potential contamination hotspot areas, defined by the presence of sheds and buildings apparently related to the horticultural areas, are also marked on the drawings included in Appendix A.

4.1 NZ Aerial Mapping 1942 photograph (SN0192 287/42)

The 1942 aerial photograph (refer Figure F1 in Appendix A) shows that the North Island Main Trunk Railway corridor travels along the eastern border of the site, in the same position as it currently lies. Te Kauwhata Road, Wayside Road, Travers Road and Orchard/Moorfield Roads are present in their current alignment. However, State Highway 1 as it currently lies is not present along the western edge of the site. Te Kauwhata township is situated in its present location, to the east of the site. A number of houses and commercial buildings are present in the township. An area of bush in the northeast corner of the site extends from across the railway corridor.

In 1942, the site consists mainly of areas of pasture, vineyard, orchard and shelterbelts. Some areas west of Travers Road appear to comprise exposed soil/bare earth indicating that they are possibly being prepared for horticulture purposes. There are residential buildings scattered scarcely across the site. Some smaller buildings/sheds are present near the residential buildings and horticultural areas, where hotspot horticultural contamination may be present.

About 25% of the site appears to have been used for horticultural activity at the time the photograph was taken.

4.2 NZ Aerial Mapping 1963 photograph (SN 1397)

The 1963 aerial photograph (refer Figure F2 in Appendix A) shows that the land use within the site remains predominantly vineyard, orchard and pasture with scattered residential buildings. Residential and commercial/industrial buildings have increased in density within Te Kauwhata township. A new residential road has been built and an area of residential buildings has spread into the site between the southern end of Travers Road and the railway corridor. A number of shelterbelt trees have been removed from the site including a large shelterbelt that lined the eastern edge of Travers Road in the 1942 photograph, and a shelterbelt running south between Travers Road and Te Kauwhata Road.

Horticultural activity within the site is observed to have increased to about 45% of the site.

4.3 NZ Aerial Mapping 1973 photograph (SN 2665)

The 1973 aerial photograph (refer Figure F3 in Appendix A) shows that there is areas of pasture and scattered residential buildings on the site, however, areas of land used for horticulture have spread extensively within the site. Horticultural activity forms the dominant land-use and cover approximately 70% of the site area.

4.4 NZ Aerial Mapping 1977 photograph (SN 5164)

The 1977 aerial photograph (refer Figure F4 in Appendix A) shows State Highway 1 along the western edge of the site in the same position as it currently lies. Other roads in the near area remain similar. Areas observed to be used for horticulture purposes are similar to the 1973 photograph.

4.5 NZ Aerial Mapping 1984 photograph (SN 8367c)

The 1984 photograph (refer Figure F5 in Appendix A) shows that the site remains similar to 1977. There have been some small modifications to vegetation associated with shelterbelts but areas of horticultural landuse remains relatively similar to the 1973 and 1977 aerial photographs.

4.6 NZ Aerial Mapping 1991 photograph (SN 9124)

In general, the site remains similar in 1991 to 1984 (refer Figure F6 in Appendix A).

4.7 NZ Aerial Mapping 2002 photograph (SN 50095c)

The 2002 aerial photograph (refer Figure F7 in Appendix A) the site remains similar to 1991, with a mixture of horticultural and pastoral landuse. Scattered residential buildings are located off Te Kauwhata, Wayside, Moorfield and Travers Roads. The number of

buildings has increased slightly since 1991, with some buildings appearing to be wineries situated within vineyards.

Compared to the previous photographs, there appears to have been a reduction in land being used for horticultural activity, about 35%.

4.8 NZ Aerial Mapping 2008 photograph (SN 50660c 21/33)

The 2008 aerial photograph shows that the area of residential building between the southern end of Travers Road and the railway corridor has extended. The shelterbelt vegetation to the north of the residential area in the 2002 photograph has been removed and additional roading has been constructed. To the north of this development, an area of bush remains extending across the railway corridor, which has been present since 1942. There also appear to be some earthworks in the centre of the site to the west of Travers Road. The area of observed horticultural land has reduced from 2002. Only about 20% of the site area shows obvious horticultural use.

5 Potential for horticulture-derived contamination

Review of the historical aerial photographs showed that the majority of the site (about 90%) has been used for horticulture at one time or another. This type of land use has been prominent since prior to 1942. Figure 2 shows the areas within the site that were observed to have been used for horticultural purposes, including an estimate of the length of time in which these activities have occurred on that part of the site. Potential 'hotspot' areas for horticultural contamination are also marked on Figure 2. About 80% of the site has been used for horticultural use for more than 20 years.

A range of pesticides and chemicals would have been used on horticultural land to control pests, insects and diseases. A previous study undertaken by Auckland Regional Council (ARC)¹ indicates that contaminants that are most frequently found are copper, lead, arsenic and organochlorine pesticides (such as DDT, lindane and dieldrin). This is because these chemicals build up in soils over time. DDT was used extensively in New Zealand from the 1950s until it was delisted in the mid 1970s. Fuel is sometimes stored in tanks on horticultural land, usually above ground, for use by equipment and machinery.

As discussed in Section 1, soil contamination associated with horticultural land tends to be widely distributed in near surface soil as a result of spraying in cropping areas, however, there could also be localised hotspots. Localised hotspots are typically found around former sheds, taps and wells, where pesticides and fuel would have been stored and handled. Our experience on previous horticultural land indicates that distributed contaminants are typically confined to the top 0.5 m layer of soil and generally mostly in the top 0.3 m on land where regular ploughing hasn't occurred.

Contaminant levels could vary between properties depending on the activities and practices at the property. The results of the recent Auckland study¹ are the most relevant and are summarised below:

- About 80% of the properties in the study were developed for horticultural activities prior to 1975;

¹ Auckland Regional Council, 2007, Pesticides in horticultural soils in Auckland region.

- Approximately 70% of properties developed prior to 1975 show soil contaminants that exceed at least one residential acceptance criteria used in the report;
- About 50% of the properties sampled show that the horticultural areas contained copper concentrations that exceed residential landuse criteria;
- Of the limited number of properties that were developed for horticultural use after 1975 (total of 8), only two (or 25%) showed contaminant levels that were equal to or exceeded the residential criteria used in the report. No organochlorine pesticides (DDT), lead or arsenic were detected on these properties;
- Contaminant levels in samples taken from sprayed areas which had a long historical use (> 20 years and still active) were generally not significantly different to those taken from historic properties (>10 years inactive); and
- Hotspots have higher copper, arsenic and lead contaminant levels but DDT concentrations are typically similar to sprayed areas.

Based on the Auckland study, approximately 60% of the site (or 120 hectares) is likely to contain contaminant levels that exceed one or more of the soil acceptance criteria for residential landuse. Remedial works would probably be required to make this land suitable for residential use. Subdivision and remediation for residential use of land with similar contaminant levels has been undertaken in several areas within New Zealand (including West and South Auckland, Hawkes Bay, Nelson-Marlborough).

6 Preliminary sampling investigations

To provide preliminary characterisation of the likely worst case level of residual contamination that may be present within the site, a preliminary sampling and testing programme was undertaken. In consultation with Bloxham Burnett Olliver Ltd (BBO - consultants to WDC) and with approval from the property owners, 3 properties that had been used for horticultural activities for 40 - 60 years were sampled. The three properties (referred to as Site 1, Site 2 and Site 3) are shown on Figures 3 and 4.

The following table comments on known information about each of the sites, including the rationale for the sampled locations.

Site reference	Sample ID	Known information
Site 1	Sample 1 to Sample 5.	<p>Taken from currently cropped areas. Historical information sourced from discussions with the current site owner as summarised below:</p> <ul style="list-style-type: none"> - The site has been used as a vineyard since 1955 and is the only property in the area available for sampling that is still being cropped. - It was the original horticultural research station which ceased operations in 1995. - The cropped areas used for research/experiments have been redeveloped except a small area in the southwest corner of the site. Sample 1 was taken from the area which had not been redeveloped following closure of the research station.
	HS1	Taken from under a tank around an equipment shed
	HS2	Potential hotspot identified from historical aerial. No current evidence of a hotspot area

Site reference	Sample ID	Known information
	P1	Taken from around a new vineyard post
	P2	Taken from the original vineyard post
Site 2	Sample 6 - Sample 10	Taken from cropped areas shown on historical aerials. During sampling, it was evident that horticultural features on the site had recently been removed. Discussions with Site 1 owner indicate that it was formerly a pear orchard.
	HS3	Taken from around a former building/shed indicated in historical aerial photographs.
	HS4	Taken from beneath a sprayer
Site 3	Sample 11 - Sample 15	Taken from the rear of the property where historical aerial photographs showed long term horticultural use.
	HS5	Under apple trees
	HS6	Beneath a tap next to a shed

All samples were collected using a clean stainless steel trowel. The trowel was decontaminated between sampling locations by washing with phosphate free detergent and rinsed with tap water. The samples were collected into glass jars and were shipped in chilled containers to RJ Hill Laboratories in Hamilton under the appropriate chain of custody documentation.

All samples from cropped and hotspot areas were tested for arsenic, copper and lead. All samples from around existing poles were tested for arsenic, chromium and copper.

7 Assessment criteria

Ministry for the Environment (MfE) has published a number of guideline documents for the assessment and management of contaminated land in New Zealand. MfE Contaminated Land Management Guideline No 2 sets out the preferred hierarchy for selection of appropriate Tier 1 acceptance criteria for comparing soil testing results. Using the MfE guidelines, Tier 1 soil acceptance criteria for rural and standard residential land use are shown on Table 1. The acceptance criteria for rural lifestyle blocks allow for the likelihood of higher consumption of home grown produce (i.e. 50% consumption of home grown produce) compared to a standard residential setting (10% consumption). Based on the relatively small lot sizes proposed for the site (i.e. average of 700m²), the standard residential criteria is considered to be appropriate for the site.

Table 1: Soil acceptance criteria

Contaminant	Rural /lifestyle block ¹	Standard residential ²
Arsenic	8	30
Copper	80	130
Chromium	600	600
Lead	300	300

1. Assumes 50% consumption of home grown produce
2. Assumes 10% consumption of home ground produce

8 Laboratory results

The laboratory results are summarised in Tables 1 to 3, together with soil acceptance criteria for residential landuse. A copy of the laboratory transcript is provided in Appendix B.

The shaded cells indicate contaminant concentrations that equal/or exceed standard residential soil acceptance criteria.

Table 1: Summary of results – cropped area samples

Site reference	Sample ID	Arsenic	Copper	Lead
Site 1	1	8.3	130	58
	2	7.1	75	47
	3	6.7	130	30
	4	12	140	69
	5	8.2	64	36
Site 2	6	12	130	41
	7	17	160	51
	8	13	69	44
	9	8.1	56	66
	10	38	380	180
Site 3	11	9.9	64	47
	12	7.1	51	30
	13	6.8	62	33
	14	6.1	91	29
	15	4.0	96	26
Rural lifestyle block soil acceptance criteria		8	80	300
Standard residential soil acceptance criteria		30	130	300

Table 2: Summary of results –hotspot samples

Site reference	Sample ID	Arsenic	Copper	Lead
Site 1	HS1	40	76	20
	HS2	6.1	29	32
Site 2	HS3	15	64	170
	HS4	13	200	1,100
Site 3	HS5	7.1	110	39
	HS6	7.3	22	18
Rural lifestyle block soil acceptance criteria		8	80	300
Standard residential soil acceptance criteria		30	130	300

Table 3: Summary of results –Vineyard pole samples from Site 1

Sample ID*	Arsenic	Copper	Chromium	
P1 - 0	340	280	48	
P1 - 3	21	180	20	
P1 - 5	13	160	19	
P2 - 0	120	160	44	
P2 - 3	11	96	14	
P2 - 5	9.9	97	13	
Rural lifestyle block soil acceptance criteria		8	80	600
Standard residential soil acceptance criteria		30	130	600

Note:
* 0, 3, 5 indicates sample distance from pole in 0.1 m units, i.e. 0.0 m, 0.3m and 0.5 m

9 Discussion on soil testing results

The testing showed that copper is the potential contaminant of concern at the site. Surface soil also has the potential to contain high arsenic levels but to a lesser extent.

At least two out of the five samples taken from cropped areas and 1 out of the 2 samples taken from hotspot areas from Sites 1 and 2 contained copper and/or arsenic concentrations exceeding the standard residential soil acceptance criteria. Contaminant concentrations in Site 3 were below the standard residential soil acceptance criteria but above the rural lifestyle block soil acceptance criteria.

The pattern of exceedances is such that more extensive sampling may show that the average level of contamination (characterised by the 95% upper confidence level of the mean concentration) is below acceptance criteria.

The soil samples collected from adjacent to a vineyard pole from Site 1 showed copper and arsenic concentrations exceeding both the rural lifestyle block and standard residential criteria. Contaminant concentrations reduce with distance away from the pole. Soil samples taken from around a new pole (P1 samples) showed higher contaminant concentrations (arsenic and copper) compared with the soil samples taken from around a historical (original) pole. Contaminant concentrations 0.3 and 0.5 m distance away from the vineyard poles are relatively similar, about 60% the concentration next to the pole. Further work would be required to establish the human health significance of these exceedances. However, these preliminary results indicate exceedances are not substantial and are limited to a small proportion of the horticultural sites.

10 Conclusions

A historical aerial photograph review shows that about 90% of the site has been used for horticultural purposes at one time or another. The limited soil testing indicates that there is potential for properties within the proposed re-zoning area to contain contaminant levels that exceed standard residential criteria.

The testing results do not suggest contamination of a level sufficient to present a potential human health risk that is unmanageable or unusual in the context of subdivision of rural land.

Twelve (12) out of the 27 samples of surface soil exceeded standard Tier 1 residential criteria. However, exceedances are not substantial and it is possible that further testing would confirm that average levels are below acceptance criteria. If this is not the case, then it is possible that site specific risk assessments would demonstrate that some or all of the proposed plan change area could be used for residential use without remediation works. If remedial works are required these would involve relatively simple stripping and appropriate disposal of topsoil. The results show that topsoil disposed from subdivision works will likely be contaminated and may not be appropriate for use as topsoil elsewhere.

The accepted practice in NZ for subdivision of any land that has been previously used for horticultural activities is for the properties to be subject to a site-specific investigation before redevelopment. Based on the results of the limited testing, it would be prudent for WDC to require these investigations to be undertaken before the site is subdivided for redevelopment, in line with the guidance set out in the WDC Rural Land Contamination Screening Guide: 2009 document prepared by T&T.

Given the exceedances observed, it is likely that council will require specialist advice in assessing subdivision applications in this area.

11 Applicability

This report has been prepared for the benefit of Waikato District Council with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose without our prior review and agreement.

Recommendations and opinions in this report are based on data from sampled locations. The nature and continuity of the subsurface materials away from sampled locations are inferred but it must be appreciated that actual conditions could vary from the assumed model.

TONKIN & TAYLOR LTD

Environmental and Engineering Consultants

Report prepared by:

Authorised for Tonkin & Taylor by:



Lean Phuah

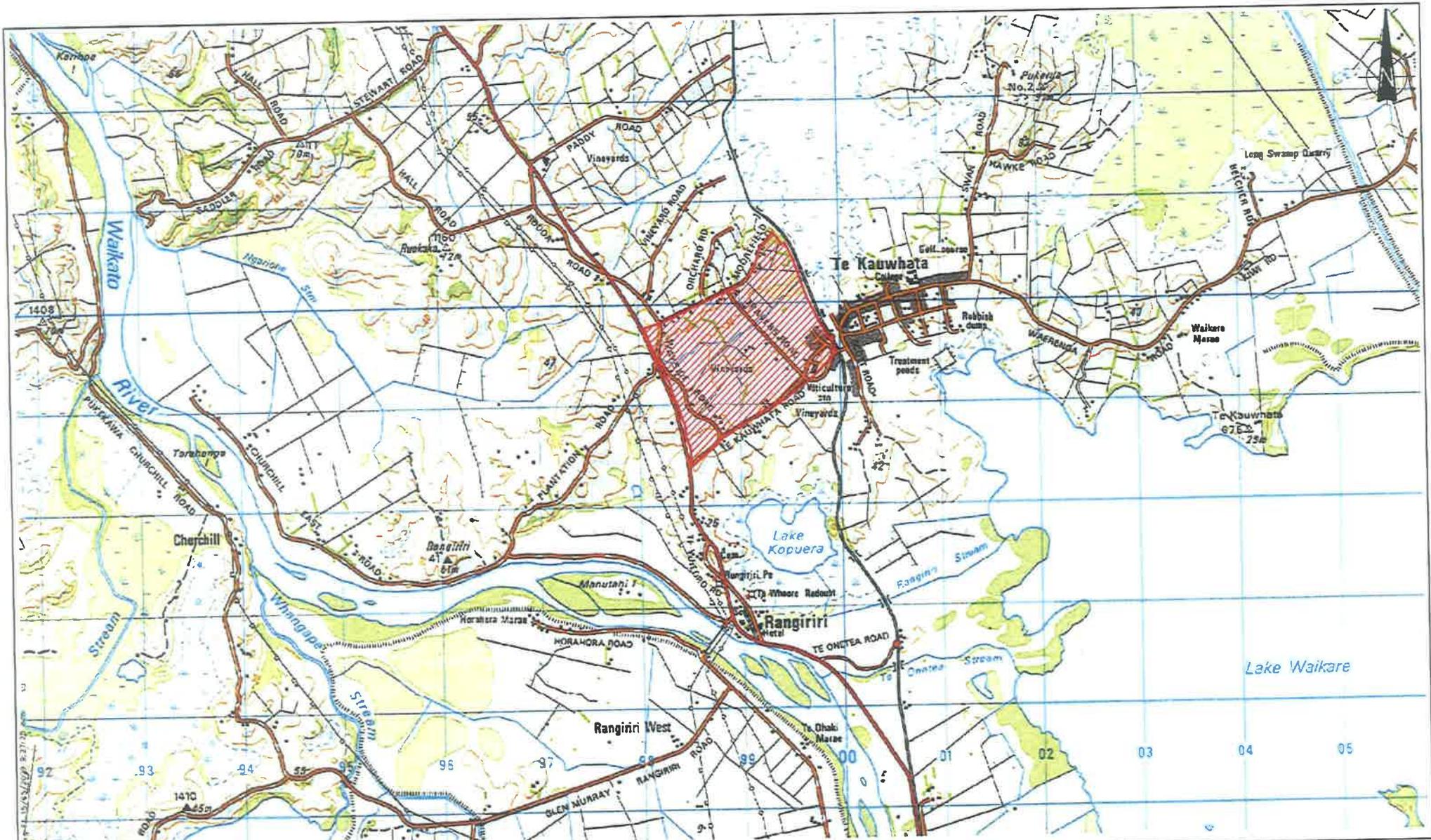
Gerard Bird

Senior Environmental Engineer

Project Director

plp

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Sourced from Land Information New Zealand data
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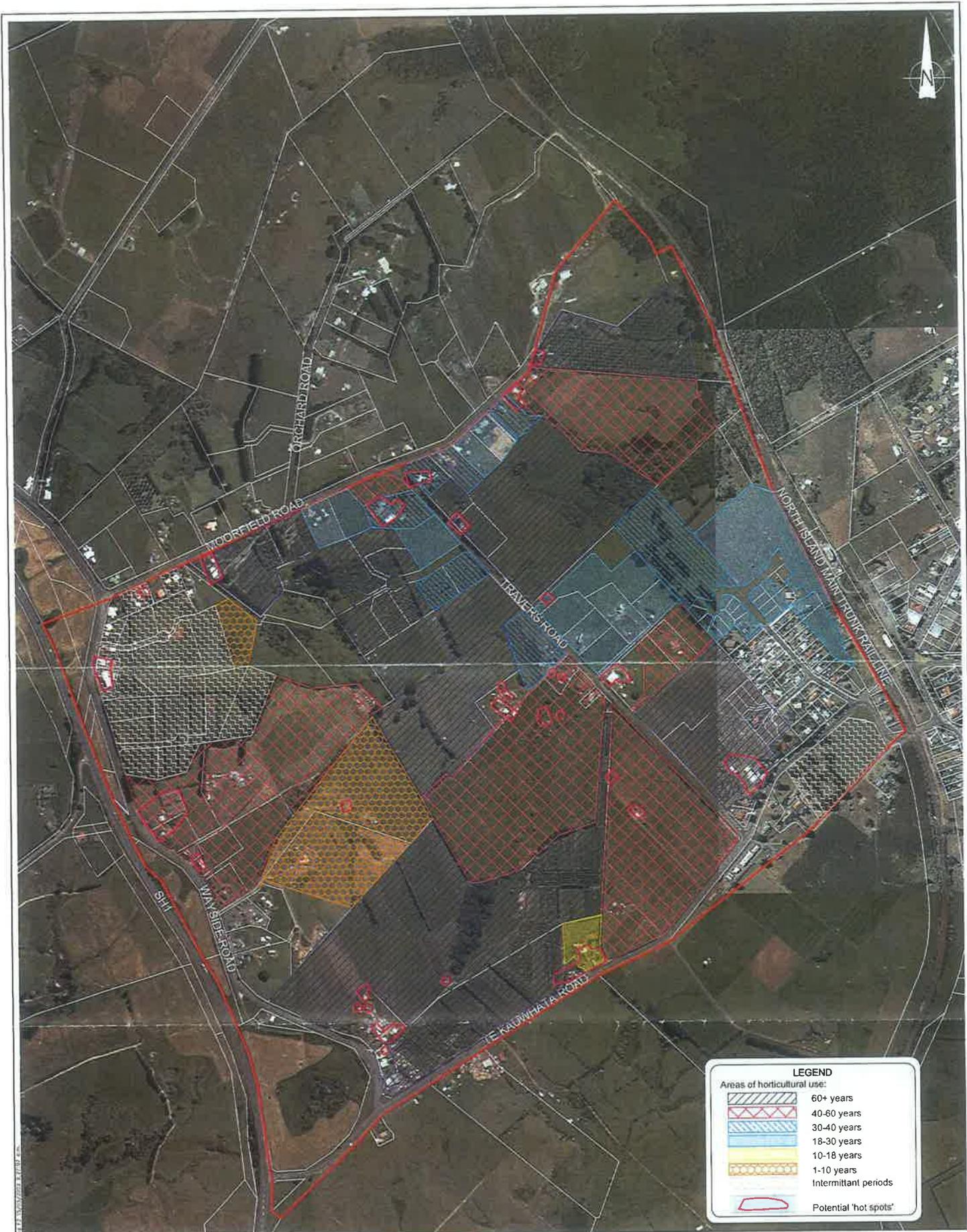


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WAIKATO DISTRICT COUNCIL
GROUND CONTAMINATION REPORT
TE KAUWHATA REZONING
Location Plan



LEGEND

Areas of horticultural use:

- 60+ years
- 40-60 years
- 30-40 years
- 18-30 years
- 10-18 years
- 1-10 years
- Intermittent periods
- Potential 'hot spots'

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Aerial sourced from TerraLink International data
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WAIKATO DISTRICT COUNCIL
 GROUND CONTAMINATION REPORT
 TE KAUWHATA REZONING
 Horticultural Intensity Plan

Figure 2

REV 0



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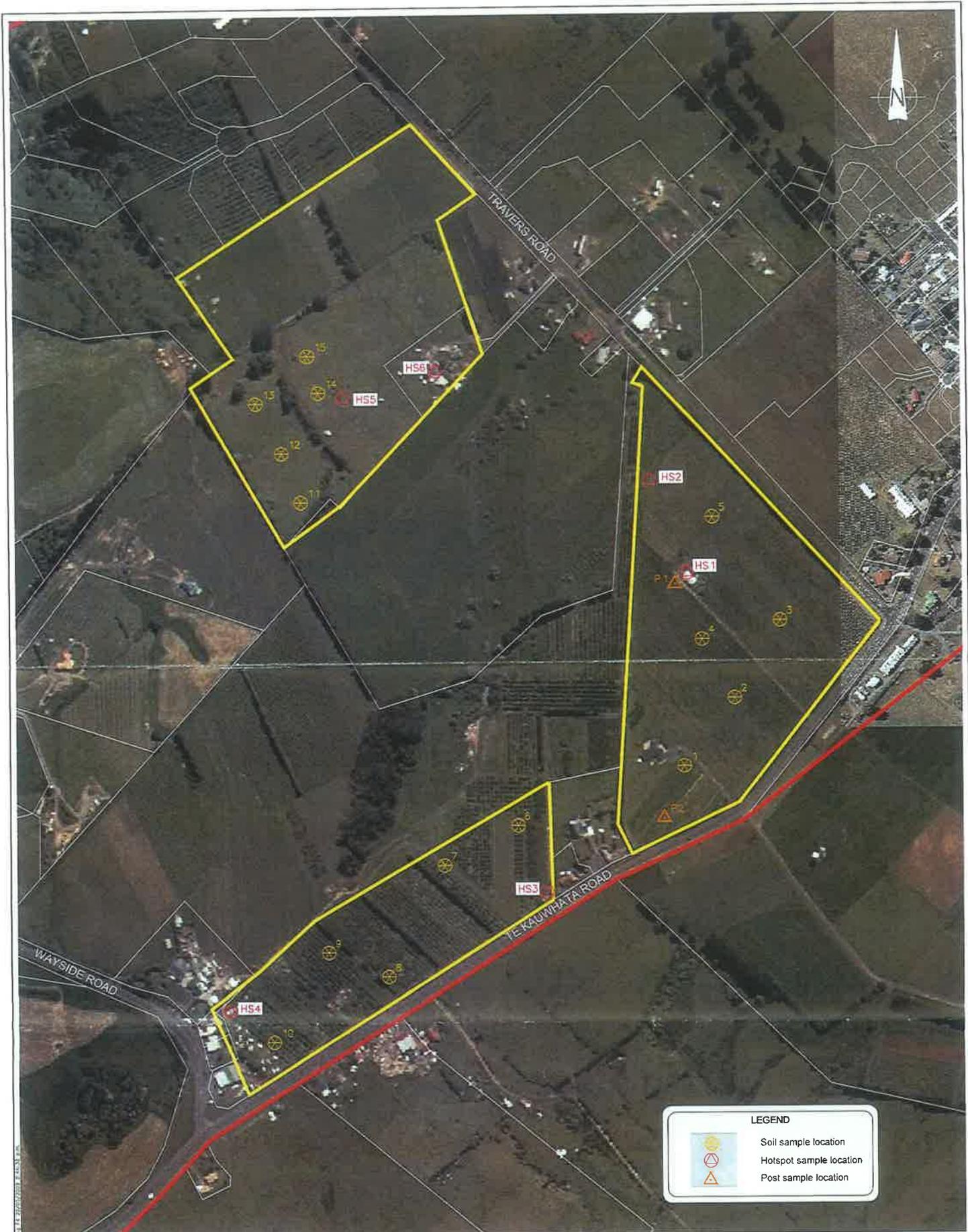
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WAIKATO DISTRICT COUNCIL
 GROUND CONTAMINATION REPORT
 TE KAUWHATA REZONING
 Site Location Plan

FIG. No. **Figure 3**

REV. **0**



LEGEND

-  Soil sample location
-  Hotspot sample location
-  Post sample location

SCALE 1: 4000
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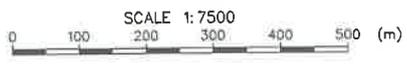
WAIKATO DISTRICT COUNCIL
 GROUND CONTAMINATION REPORT
 TE KAUWHATA REZONING
 Site Sampling Location Plan

Appendix A: Historical aerial photograph



LEGEND

-  Observed horticultural use
-  Possibly being prepared for horticultural use
-  Potential "hotspots"



Aerial sourced from N Z Aerial Mapping date Flown 1942



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WAIKATO DISTRICT COUNCIL
GROUND CONTAMINATION ASSESSMENT DESK STUDY
TE KAUWHATA REZONING
Aerial 1942

FIG. No. Appendix F1	REV. 0
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NZ Aerial Mapping
0203 442 639



LEGEND

-  Observed horticultural use
-  Possibly being prepared for horticultural use
-  Potential "hotspots"



Aerial sourced from N Z Aerial Mapping data
Flown 1963

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WAIKATO DISTRICT COUNCIL
GROUND CONTAMINATION ASSESSMENT DESK STUDY
TE KAUWHATA REZONING
Aerial 1963

FIG. No. Appendix F2

REV. 0



LEGEND

-  Observed horticultural use
-  Possibly being prepared for horticultural use
-  Potential "hotspots"



Aerial sourced from N Z Aerial Mapping data Flown 1973



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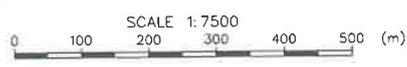
WAIKATO DISTRICT COUNCIL
GROUND CONTAMINATION ASSESSMENT DESK STUDY
TE KAUWHATA REZONING
Aerial 1973

FIG No	Appendix F3	REV	0
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LEGEND

-  Observed horticultural use
-  Possibly being prepared for horticultural use
-  Potential "hotspots"



Aerial sourced from N Z Aerial Mapping data
 Flown: 1977



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WAIKATO DISTRICT COUNCIL
 GROUND CONTAMINATION ASSESSMENT DESK STUDY
 TE KAUHATA REZONING
 Aerial 1977

FIG. No.	Appendix F4	REV.	0
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LEGEND

-  Observed horticultural use
-  Possibly being prepared for horticultural use
-  Potential "hotspots"



Aerial sourced from N Z Aerial Mapping data Flown 1984



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WAIKATO DISTRICT COUNCIL
GROUND CONTAMINATION ASSESSMENT DESK STUDY
TE KAUWHATA REZONING
Aerial 1984

FIG. No. Appendix F5 REV 0



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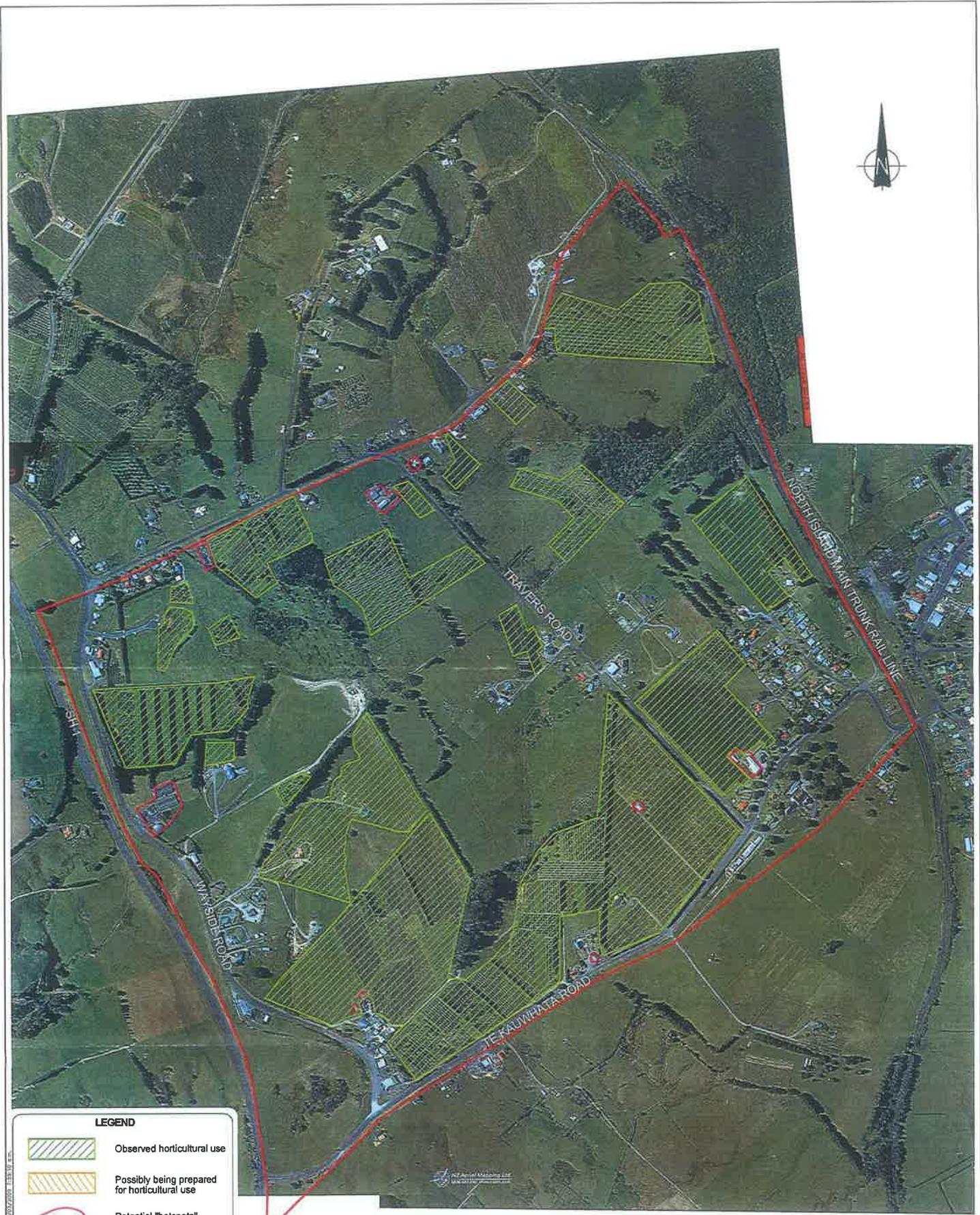
- Observed horticultural use
- Possibly being prepared for horticultural use
- Potential "hotspots"



Aerial sourced from N Z Aerial Mapping data
 Flown 1991

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	FIG. No. Appendix F6	

WAIKATO DISTRICT COUNCIL GROUND CONTAMINATION ASSESSMENT DESK STUDY TE KAUWHATA REZONING Aerial 1991	
FIG. No. Appendix F6	
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LEGEND

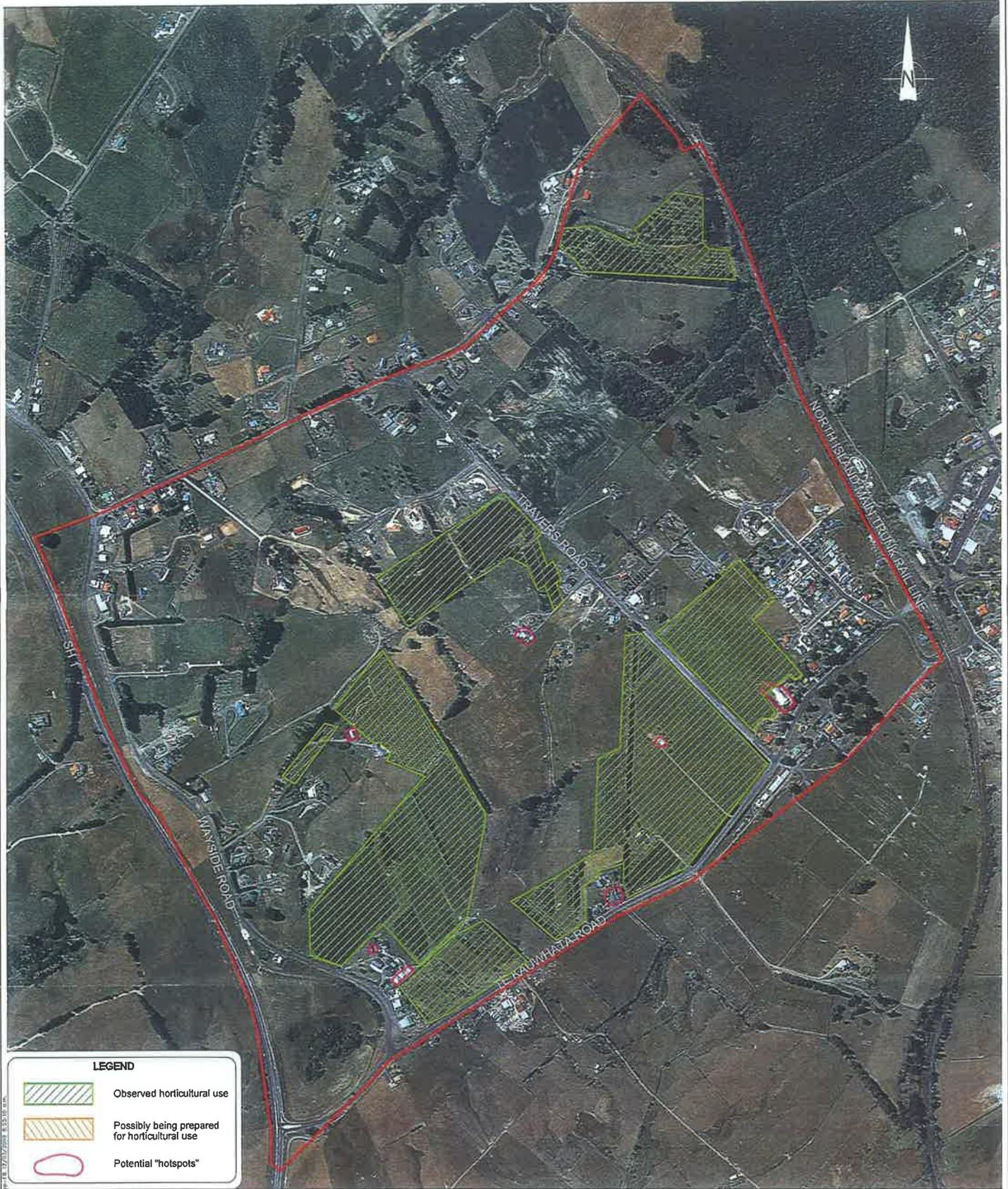
-  Observed horticultural use
-  Possibly being prepared for horticultural use
-  Potential "hotspots"

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Aerial sourced from N Z Aerial Mapping data
Flown 2002

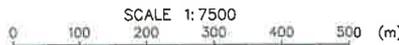
 Tonkin & Taylor Environmental & Engineering Consultants Hamilton Auckland Christchurch Nelson Wellington Whangarei	DRAWN: RBS DRAFTING CHECKED: Mgr.09 APPROVED: [Signature] CADFILE: 26431 - App-F7.dwg SCALES (AT A3 SIZE): 1: 7500 PROJECT No.: 26431
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WAIKATO DISTRICT COUNCIL GROUND CONTAMINATION ASSESSMENT DESK STUDY TE KAUWHATA REZONING Aerial 2002	
FIG. No. Appendix F7	REV. 0



LEGEND

- Observed horticultural use
- Possibly being prepared for horticultural use
- Potential "hotspots"



Aerial sourced from N Z Aerial Mapping data
Flown 2008

Tonkin & Taylor
Environmental & Engineering Consultants

Hamilton Auckland Christchurch
 Nelson Wellington Whangarei

DRAWN	RBS	May 09
DRAWING CHECKED	[Signature]	[Signature]
APPROVED	[Signature]	[Signature]
CADFILE : 26431-App-F8.dwg		
SCALES (AT A3 SIZE)		
1: 7500		
PROJECT No. 26431		

WAIKATO DISTRICT COUNCIL
GROUND CONTAMINATION ASSESSMENT DESK STUDY
TE KAUWHATA REZONING
Aerial 2008

FIG. No. Appendix F8	REV. 0
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Appendix B: Laboratory transcript



Hill Laboratories
BETTER TESTING BETTER RESULTS

R J Hill Laboratories Limited
1 Clyde Street
Private Bag 3205
Hamilton 3240, New Zealand

Tel +64 7 858 2000
Fax +64 7 858 2001
Email mail@hill-labs.co.nz
Web www.hill-labs.co.nz

ANALYSIS REPORT

Page 1 of 2

Client: Tonkin & Taylor	Lab No: 694413	SPV1
Contact: R Pickett	Date Registered: 12-May-2009	
C/- Tonkin & Taylor	Date Reported: 18-May-2009	
PO Box 5271	Quote No:	
AUCKLAND 1141	Order No: 26431	
	Client Reference: 26431	
	Submitted By: R Pickett	

Sample Type: Soil

Sample Name:	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
	11-May-2009	11-May-2009	11-May-2009	11-May-2009	11-May-2009
Lab Number:	694413.1	694413.2	694413.3	694413.4	694413.5

Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	8.3	7.1	6.7	12	8.2
Total Recoverable Copper	mg/kg dry wt	130	75	130	140	64
Total Recoverable Lead	mg/kg dry wt	58	47	30	69	36

Sample Name:	Sample 6	Sample 7	Sample 8	Sample 9	Sample 10
	11-May-2009	11-May-2009	11-May-2009	11-May-2009	11-May-2009
Lab Number:	694413.6	694413.7	694413.8	694413.9	694413.10

Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	12	17	13	8.1	38
Total Recoverable Copper	mg/kg dry wt	130	160	69	56	360
Total Recoverable Lead	mg/kg dry wt	41	51	44	66	180

Sample Name:	Sample 11	Sample 12	Sample 13	Sample 14	Sample 15
	11-May-2009	11-May-2009	11-May-2009	11-May-2009	11-May-2009
Lab Number:	694413.11	694413.12	694413.13	694413.14	694413.15

Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	9.9	7.1	6.8	6.1	4.0
Total Recoverable Copper	mg/kg dry wt	64	51	62	91	96
Total Recoverable Lead	mg/kg dry wt	47	30	33	29	26

Sample Name:	HS 1	HS 2	HS 3	HS 4	HS 5
	11-May-2009	11-May-2009	11-May-2009	11-May-2009	11-May-2009
Lab Number:	694413.16	694413.17	694413.18	694413.19	694413.20

Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	40	6.1	15	13	7.1
Total Recoverable Copper	mg/kg dry wt	76	29	64	200	110
Total Recoverable Lead	mg/kg dry wt	20	32	170	1,100	39

Sample Name:	HS 6	P1 - 0	P1 - 3	P1 - 5	P2 - 0
	11-May-2009	11-May-2009	11-May-2009	11-May-2009	11-May-2009
Lab Number:	694413.21	694413.22	694413.23	694413.24	694413.25

Individual Tests						
Total Recoverable Arsenic	mg/kg dry wt	7.3	-	-	-	-
Total Recoverable Copper	mg/kg dry wt	22	-	-	-	-
Total Recoverable Lead	mg/kg dry wt	18	-	-	-	-

CCA by ICP-MS						
Total Recoverable Arsenic	mg/kg dry wt	-	340	21	13	120
Total Recoverable Chromium	mg/kg dry wt	-	48	20	19	44
Total Recoverable Copper	mg/kg dry wt	-	280	180	160	160



This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised. The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked *, which are not accredited.

Sample Type: Soil					
Sample Name:		P2 - 3	P2 - 5		
Lab Number:		11-May-2009 694413.26	11-May-2009 694413.27		
CCA by ICP-MS					
Total Recoverable Arsenic	mg/kg dry wt	11	9.9	-	-
Total Recoverable Chromium	mg/kg dry wt	14	13	-	-
Total Recoverable Copper	mg/kg dry wt	98	97	-	-

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil			
Test	Method Description	Default Detection Limit	Samples
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction.	-	1-27
CCA by ICP-MS	Total recoverable digestion, ICP-MS, screen level.	-	22-27
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-27
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2.0 mg/kg dry wt	1-21
Total Recoverable Copper	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2.0 mg/kg dry wt	1-21
Total Recoverable Lead	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	0.40 mg/kg dry wt	1-21

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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Ara Heron BSc (Tech)
Client Services Manager - Environmental Division

Soil And Land Evaluation

Richard Chapman MNZSS MRSNZ PhD MSc (Hons)

Matangi Road, RD 4
Hamilton, New Zealand
Telephone (07) 8295437
E-mail r.k.chapman@paradise.net.nz

21st June 2004

Attention: - Mr. & Mrs. Hall – 26 Travers Road - RD 2 - Te Kauwhata

Re: Site validation report (SVR) on Lot 2 part of the subject property located at the above address – Area of Lot 2 is about 1.0 ha

Note this report should be read in conjunction with the earlier Chapman reports of the 10th May 2004 and the 1st June 2004.

1.0 Introduction and assessment criteria

A site remedial action plan (RAP) was specified in the 1st June report. The RAP included the following instructions: -

- Because the levels for arsenic are at the lower end of concern and are not identified at more than background in depths below 15 cm in the soil profile it is recommended that the following remediation plan should be adopted to “dilute” the arsenic levels in the soil by mixing, rather than totally removing the soil from the property.
- Successful remediation of similar and worse sites has been obtained by deep ploughing to 35 cm depth using a digger or semi digger plough, followed up by heavy disking (numerous passes) to thoroughly mix topsoil with subsoil. Thus ameliorating/diluting the arsenic to safe human health levels.
- This cultivation plan is therefore recommended for Lot 2 on the subject property (see attached map – 10th May report) and should be carried out before the soil gets too dry and dusty

2.0 Site inspection details in relation to validation - soil sampling and cultivation.

- **Cultivation inspection date and report – 13th June 2004.**
- Lot 2 had been deep ploughed to about 35 cm depth; verified by furrow depths and presence of orange subsoil in the furrow slice.
- **Soil sampling date and report – 15th June 2004.**
- At the time of this visit cultivation was observed and completed – a deep power harrow cultivation had thoroughly mixed the soil in preparation for sowing down to grass.
- A composite sample (**sample 1V**) of eighteen 0 to 15 cm depth soil cores were collected from Lot 2 according to protocol described in the report of 10th May and submitted to Hill Laboratory for arsenic and heavy metal analysis.

Owners present – Yes, Mr. Hall.

3.0 Test results – See attached R J Hill Laboratories original signed report

- **Lot 2 - Heavy metals (arsenic, cadmium, chromium, copper, nickel, lead and zinc) were detectable but were below trigger levels for concern for human habitation as defined by Ministry for Environment and Environment Waikato – compare the laboratory result sheet with trigger levels below**
- **Sample 1V tested at 15 mg/kg arsenic well below the guideline trigger level of concern for Arsenic (set at 30 mg/kg).**

- Trigger/acceptance levels of concern for heavy metals: arsenic is 30mg/kg, cadmium is 3 mg/kg, chromium is 600 mg/kg, copper is 500 mg/kg, nickel is 60 mg/kg, lead is 300 mg/kg and zinc is 200 mg/kg.

4.0 Validation of the site - results

- The remediation action plan was carried out according to the instructions outlined in the report of the 1st June.
- Soil analysis after cultivation determined that the level of arsenic in the 0 to 15 cm depth of soil had decreased from 32 mg/kg to an average level of 15 mg/kg, well below levels of concern. This was not surprising because the levels of arsenic in soil depths below 7.5 cm depth had been determined at about 7 mg/kg (about background level for the sites geology and soil type)
- The validation protocol has resulted in a very satisfactory remediation of Lot 2.
- The test results indicate that the subject property (Lots 1 & 2) is now declared safe in relation to heavy metal and organochlorine pesticide residue contamination.

5.0 Conclusion

- Based on the above results, the risk to human health from ingesting contaminated soil or from eating vegetables grown on the subject property is of very low risk.
- The subject property requires no further investigation in relation to contamination by heavy metals or organochlorines and as a result of this, the subject property is suitable for residential development and human habitation. **Note the footnote at the bottom of this report.**



Dr. Richard Chapman – Scientific Soil Consultant

Note – The soil sampling protocol adopted for this contamination survey was carried out according to best practice. The test results relate directly to the soil cores collected, which in turn are sample representations of the total area of the subject property. The evaluation of the results is an interpolation of ground conditions between the sampling points that cannot be guaranteed. The author of this report cannot be held negligible or liable for any future soil tests that may show contamination.

Summary Contaminated Sites Report Checklist

Indicate the reports contained in this document	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Report section(s) and information to be presented	PSI	SIR	RAP	SVR	MMP
Executive summary	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>
Scope of work	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>
Site identification	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>
Site history	R <input type="checkbox"/>	S <input type="checkbox"/>	S <input type="checkbox"/>	S <input checked="" type="checkbox"/>	S <input type="checkbox"/>
Site condition and surrounding environment	R <input type="checkbox"/>	S <input type="checkbox"/>	S <input type="checkbox"/>	S <input checked="" type="checkbox"/>	S <input type="checkbox"/>
Geology and hydrology	A <input type="checkbox"/>	R <input type="checkbox"/>	S <input type="checkbox"/>	S <input checked="" type="checkbox"/>	S <input type="checkbox"/>
Sampling and analysis plan and sampling methodology	A <input type="checkbox"/>	R <input type="checkbox"/>	X <input type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>
Field quality assurance and quality control (QA/QC)	N <input type="checkbox"/>	R <input type="checkbox"/>	X <input type="checkbox"/>	R <input checked="" type="checkbox"/>	S <input type="checkbox"/>
Laboratory QA/QC	N <input type="checkbox"/>	R <input type="checkbox"/>	X <input type="checkbox"/>	R <input checked="" type="checkbox"/>	X <input type="checkbox"/>
QA/QC data evaluation	N <input type="checkbox"/>	R <input type="checkbox"/>	X <input type="checkbox"/>	R <input checked="" type="checkbox"/>	X <input type="checkbox"/>
Basis for assessment criteria	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>
Results	A <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input checked="" type="checkbox"/>	S <input type="checkbox"/>
Site characterisation	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>
Remedial actions	X <input type="checkbox"/>	X <input type="checkbox"/>	R <input type="checkbox"/>	S <input checked="" type="checkbox"/>	S <input type="checkbox"/>
Validation	X <input type="checkbox"/>	X <input type="checkbox"/>	X <input type="checkbox"/>	R <input checked="" type="checkbox"/>	S <input type="checkbox"/>
Ongoing site monitoring	X <input type="checkbox"/>	X <input type="checkbox"/>	X <input type="checkbox"/>	N <input checked="" type="checkbox"/>	R <input type="checkbox"/>
Conclusions and recommendations	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>

A. Chapman

21st June 2004

Hill Laboratories



R J Hill Laboratories Limited

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1 Clyde Street,
Private Bag 3205,
Hamilton, New Zealand

Telephone:
+64 (7) 858-2000
Facsimile:
+64 (7) 858-2001

Email:
mail@hill-labs.co.nz
Internet:
www.hill-labs.co.nz

Client: Richard Chapman
Address: 427a Matangi Road,
R D 4
HAMILTON
Contact: Richard Chapman

Laboratory No: 344888
Date Registered: 15/06/2004
Date Completed: 18/06/2004
Page Number: 1 of 2

Client's Reference: D Hall

The results for the analyses you requested are as follows:

Sample Type: Environmental Solids, Soil

Sample Name	1V
Lab No	344888/1
Total Recoverable Arsenic (mg/kg dry wt)	15
Total Recoverable Cadmium (mg/kg dry wt)	0.2
Total Recoverable Chromium (mg/kg dry wt)	11
Total Recoverable Copper (mg/kg dry wt)	171
Total Recoverable Nickel (mg/kg dry wt)	6
Total Recoverable Lead (mg/kg dry wt)	56.7
Total Recoverable Zinc (mg/kg dry wt)	50

Summary of Methods Used and Detection Limits

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Substance Type: Environmental Solids

Parameter	Method Used	Detection Limit
Dry and sieve sample	Air dry (35°C), sieved to pass 2mm.	N/A
Total Recoverable digest	Nitric / hydrochloric acid digestion. US EPA 200.2	N/A
Total Recoverable Arsenic	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	2 mg/kg dry wt
Total Recoverable Cadmium	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	0.1 mg/kg dry wt
Total Recoverable Chromium	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	2 mg/kg dry wt
Total Recoverable Copper	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	2 mg/kg dry wt
Total Recoverable Nickel	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	2 mg/kg dry wt
Total Recoverable Lead	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	0.4 mg/kg dry wt
Total Recoverable Zinc	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	4 mg/kg dry wt



This Laboratory is accredited by International Accreditation New Zealand (previously known as TELARC). The tests reported herein have been performed in accordance with its terms of accreditation, with the exception of tests marked *, which are not accredited. This report may not be reproduced, except in full, without the written consent of the signatory.

Client: Richard Chapman

Laboratory No: 344888

Page: 2 of 2

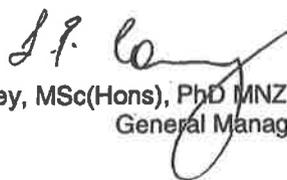
Analyst's Comments:

These samples were collected by yourselves and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the submitter.

This report must not be reproduced, except in full, without the written consent of the signatory.

Peter Robinson, MSc(Hons), PhD FNZIC
Environmental Division Manager


Terry Cooney, MSc(Hons), PhD MNZIC
General Manager

Soil And Land Evaluation

Richard Chapman MNZSS MRSNZ PhD MSc (Hons)

Matangi Road, RD 4
Hamilton, New Zealand
Telephone (07) 8295437
E-mail r.k.chapman@paradise.net.nz

1st June 2004

Attention: - Mr. & Mrs. Hall – 26 Travers Road - RD 2 - Te Kauwhata

Re: Further land contamination tests for arsenic to establish the extent of soil contamination on Lot 2 part of the subject property located at the above address – Area of Lot 2 is about 1.0 ha

Note this report should be read in conjunction with the earlier Chapman report of the 10th May 2004

1.0 Introduction and assessment criteria

To establish the seriousness and extent of possible contamination, identified in the site investigation, outlined in the report of the 10th May 2004, it was decided to carry out detailed sampling of Lot 2 to establish the depth and extent of arsenic contamination in the soil.

2.0 Site inspection details

Sampling date – 19th May 2004.

Owners present – Yes, Mrs. Hall.

3.0 Methodology -- Soil sample locations

Four soil sites (see attached map) were selected within Lot 2.

4.0 Sampling methodology and submission to RJ Hill Laboratories Ltd –

- Two composite soil samples were collected from the sites representing the 7.5 to 20 cm depths (sample 1D) and the 20 to 35 cm depths (sample 2D).
- The cores were placed in sterile bags and transported to the Laboratory in a chilly bin at about 6 degrees Celsius.
- Decontamination consisted of thorough cleaning of equipment between sampling and the wearing of surgical gloves.
- Samples were submitted to Hill Laboratories one hour later for arsenic analysis.

5.0 Test results – See attached R J Hill Laboratories original signed report

- **Sample 1D** tested at 7 mg/kg well below the guideline trigger level of concern for Arsenic (set at 30 mg/kg).
- **Sample 2D** tested at 6 mg/kg well below the guideline trigger level of concern for Arsenic (set at 30 mg/kg).

6.0 Remediation action plan and validation of the site

- Based on the above results and those obtained from the initial broad scale it is reasonable to conclude that contamination from the operations of a previous land use (apple and plum orchard) have resulted in a relatively low level of arsenic contamination
- Because the levels for arsenic are at the lower end of concern and are not identified at more than background in depths below 15 cm in the soil profile it is

recommended that the following remediation plan should be adopted to "dilute" the arsenic levels in the soil by mixing, rather than totally removing the soil from the property.

- Successful remediation of similar and worse sites has been obtained by deep ploughing to 35 cm depth using a digger or semi digger plough, followed up by heavy disking (numerous passes) to thoroughly mix topsoil with subsoil. Thus ameliorating/diluting the arsenic to safe human health levels.
- This cultivation plan is therefore recommended for Lot 2 on the subject property (see attached map) and should be carried out before the soil gets too dry and dusty.
- There is obviously a slight risk of contamination to the tractor operator and from wind blown material during the cultivation stages of remediation before sowing down to pasture.
- The tractor operator should ensure standard hygiene procedures i.e. wear dust mask and thoroughly wash down after cultivating and avoid food contamination and smoking.
- At the conclusion of disking and mixing, a composite soil sample will be required for analysis to determine the levels of arsenic in the 0 to 15 cm depth of soil.
- A "clear" validation test will result in the site being declared safe in relation to human health concerns and residential development.

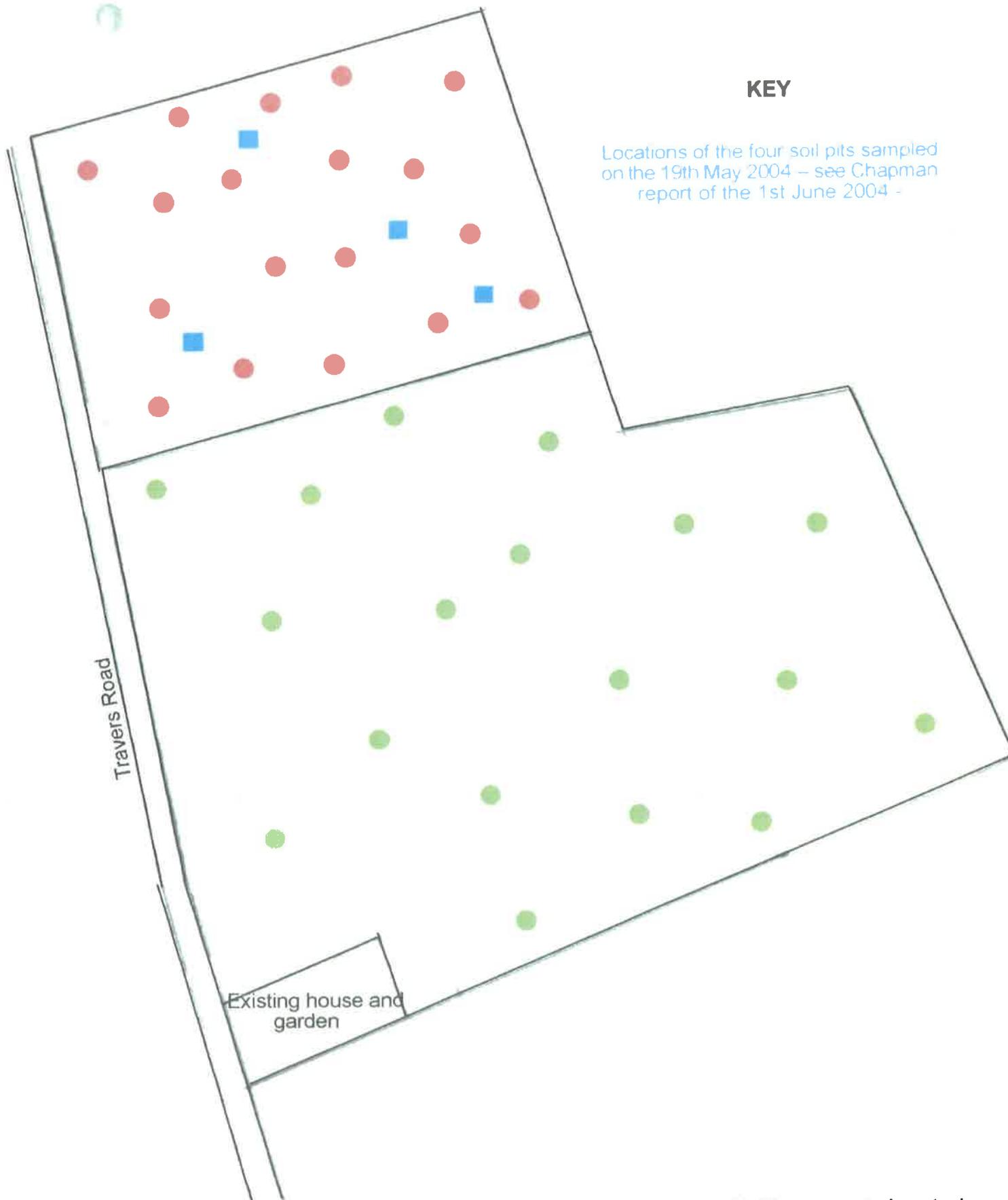
7.0 Conclusion

- Detailed land contamination tests were carried out at the subject property according to best soil sampling and analytical practice.
- Soil samples were taken for arsenic analysis.
- The samples were submitted to Hill Laboratories Hamilton - accredited by International Accreditation New Zealand (previously known as TELARC).
- Trigger levels for human health concern were found for arsenic.
- The sampling protocol provided excellent results on which to base a remediation action plan.
- The remediation action plan involving ploughing and disking should be carried out under best cultivation and hygiene practice as soon as possible.
- Validation of the site will be carried out after heavy disking.



Dr. Richard Chapman – Scientific Soil Consultant

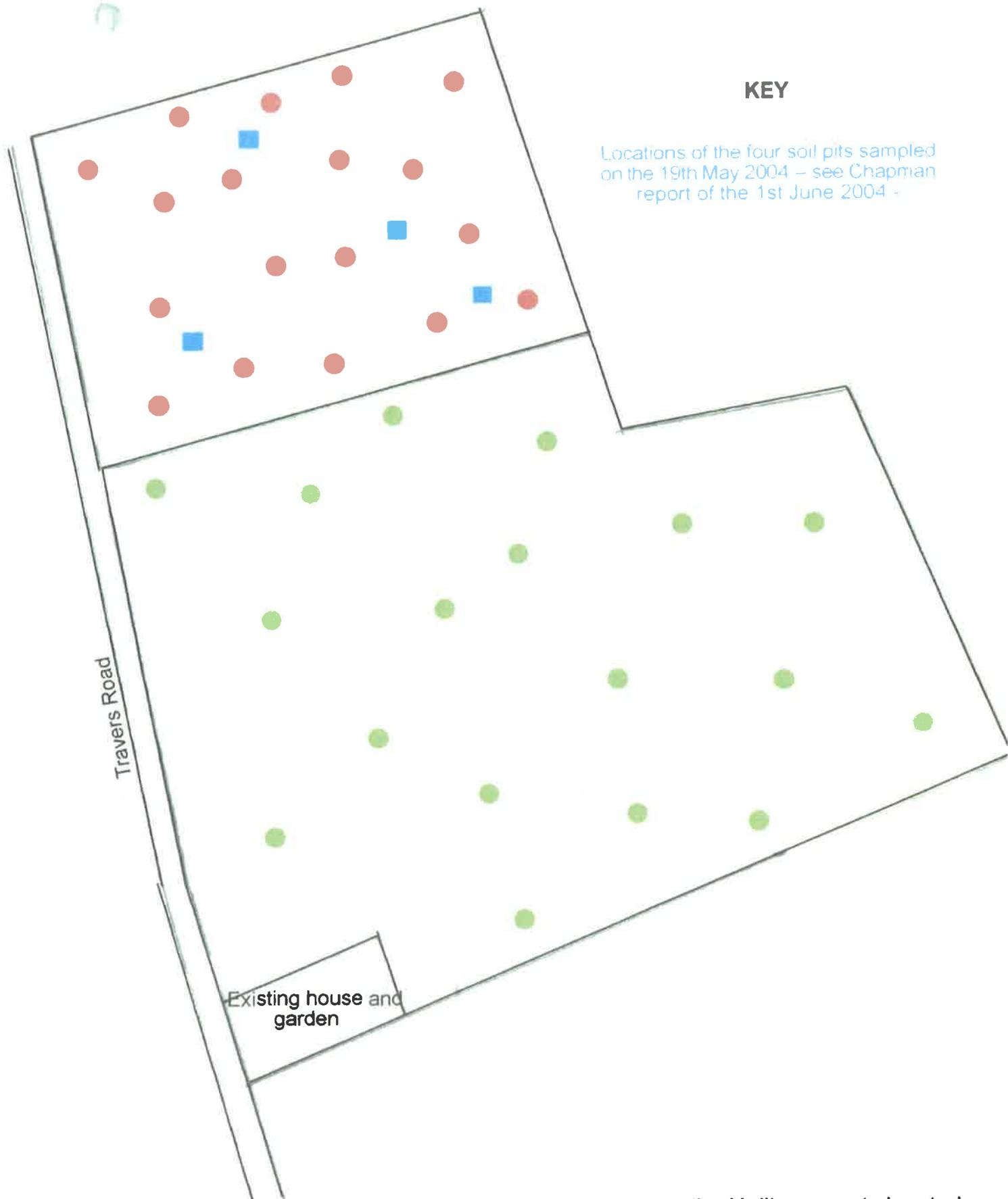
Note – The soil sampling protocol adopted for this contamination survey was carried out according to best practice. The test results relate directly to the soil cores collected, which in turn are sample representations of the total area of the subject property. The evaluation of the results is an interpolation of ground conditions between the sampling points that cannot be guaranteed. The author of this report cannot be held negligible or liable for any future soil tests that may show contamination.



KEY

Locations of the four soil pits sampled on the 19th May 2004 – see Chapman report of the 1st June 2004 -

Soil core sampling locations for potential contamination at the Hall's property located at 26 Travers Road - Te Kauwhata. Total area of the property is about 3 ha.
Composite soils - **Sample Lot 1** and **Sample Lot 2**



Soil core sampling locations for potential contamination at the Hall's property located at 26 Travers Road - Te Kauwhata. Total area of the property is about 3 ha. Composite soils - **Sample Lot 1** and **Sample Lot 2**

Hill Laboratories

R J Hill Laboratories Limited

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Client: Richard Chapman
Address: 427a Matangi Road,
R D 4
HAMILTON
Contact: Richard Chapman

Laboratory No: 342695
Date Registered: 19/05/2004
Date Completed: 3/06/2004
Page Number: 1 of 1

Client's Reference: D Hall

The results for the analyses you requested are as follows:

Sample Type: Environmental Solids, Soil

Sample Name	Lab No	Total Recoverable Arsenic (mg/kg dry wt)
1D	342695/1	7
2D	342695/2	6

Summary of Methods Used and Detection Limits

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Substance Type: Environmental Solids

Parameter	Method Used	Detection Limit
Dry and sieve sample	Air dry (35°C), sieved to pass 2mm.	N/A
Total Recoverable digest	Nitric / hydrochloric acid digestion, US EPA 200.2	N/A
Total Recoverable Arsenic	Nitric / hydrochloric acid digestion, ICP-MS, US EPA 200.2	2 mg/kg dry wt

Analyst's Comments:

These samples were collected by yourselves and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the submitter.

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Peter Robinson, MSc(Hons), PhD FNZIC
Environmental Division Manager

Terry Cooney, MSc(Hons), PhD MNZIC
General Manager



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Soil And Land Evaluation

Richard Chapman MNZSS MRSNZ PhD MSc (Hons)

Matangi Road, RD 4
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10th May 2004

Attention: - Mr. Hall – 26 Travers Road - RD 2 - Te Kauwhata

Re: Land contamination broad scale-screening tests for organochlorines pesticides and heavy metals of the subject property located at the above address – Area of property is about 3.0 ha.

1.0 Introduction and assessment criteria

The subject property (see attached map) was historically part of a beef and sheep farm until it was subdivided some years ago. From an unknown date to about 1985 it was a commercial orchard, growing apples and plums etc. There are only a few plum trees now left on the property. The property is currently supporting permanent pasture and dry stock farming. There is no evidence of sheep dips, cattle/sheep yards or offal pits. To establish whether there is a potential risk to future residents from ingesting contaminated soil and dust or from eating fruit and vegetables grown on the site it was decided to implement the following sampling protocol and potential risk evaluation.

This report includes both preliminary and detailed site inspection details (see attached check sheet).

2.0 Site inspection details

Inspection date – 5th May 2004

Owner present – Yes; Mr. Hall

Site conditions and surrounding environment – The property is located on reasonably free draining clay loam soils derived from Hamilton Ash. The predominant settlement pattern is rural residential.

Geohydrology – The underlying geology comprises of layers of Hamilton Ash overlying distal ignimbrites and Waitemata silt/mudstones. The depth to the water table was not established, however, the property lies on a topographic high and drains naturally to the south and east

Potential contaminating activity – historically: - the past 100 years or so - beef, poultry, pig and sheep farming and orchards.

Types of material that could have contaminated the site – Pesticides (DDT, Dieldrin & Lindane), Arsenic, cadmium, chromium, copper, nickel, lead and zinc based sprays.

Soil sampling – Two composite soil samples comprising 18 cores of 7.5 cm depth per sample were taken (see attached sampling map).

3.0 Sampling methodology (see attached map) and submission to RJ Hill Laboratories Ltd –

- Two times 18 single composite cores (Lot 1 & Lot 2) were collected in W patterns plus outliers at about 30 m intervals.
- The sampling density was about 850 sq m per core.

- The cores were placed in a sterile bag.
- Bags was placed in a chilly bin at 4 degrees Celsius.
- Samples labeled Lot 1 and Lot 2 were submitted to the Laboratory 2 hours later for organochlorine pesticides and heavy metal analysis.

4.0 Test results – See attached R J Hill Laboratory original signed report.

Lot 1

- Lot 1 - Heavy metals (arsenic, cadmium, chromium, copper, nickel, lead and zinc) were detectable but were below trigger levels for concern for human habitation as defined by Ministry for Environment and Environment Waikato – compare the laboratory result sheet with trigger levels below
- Organochlorine pesticides were all below detectable levels except for DDE, DDD and DDT, which were present, but at levels less than trigger levels for concern

Lot 2

- Lot 2 – Heavy metals were detectable, with the level for arsenic (32 mg/kg) exceeding the acceptance level of 30 mg/kg
- Organochlorine pesticides were all below detectable levels except for DDE, DDD and DDT, which were present, but at levels less than trigger levels for concern

Trigger/acceptance levels for human habitation

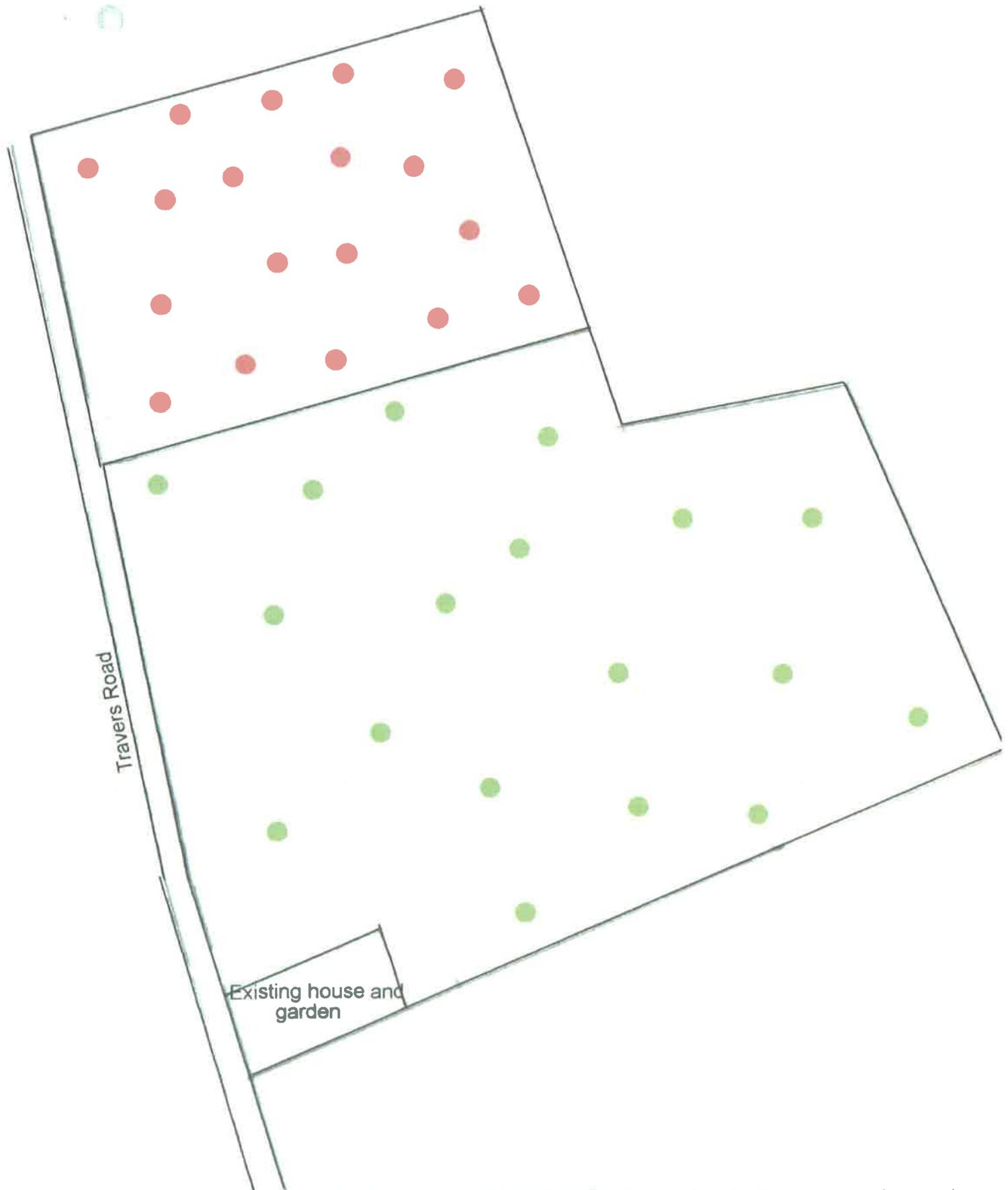
- Trigger levels for heavy metals: arsenic is 30mg/kg, cadmium is 3 mg/kg, chromium is 600 mg/kg, copper is 500 mg/kg, nickel is 60 mg/kg, lead is 300 mg/kg and zinc is 200 mg/kg.
- Trigger level for total DDT is 8 mg/kg

5.0 Conclusion and recommendations

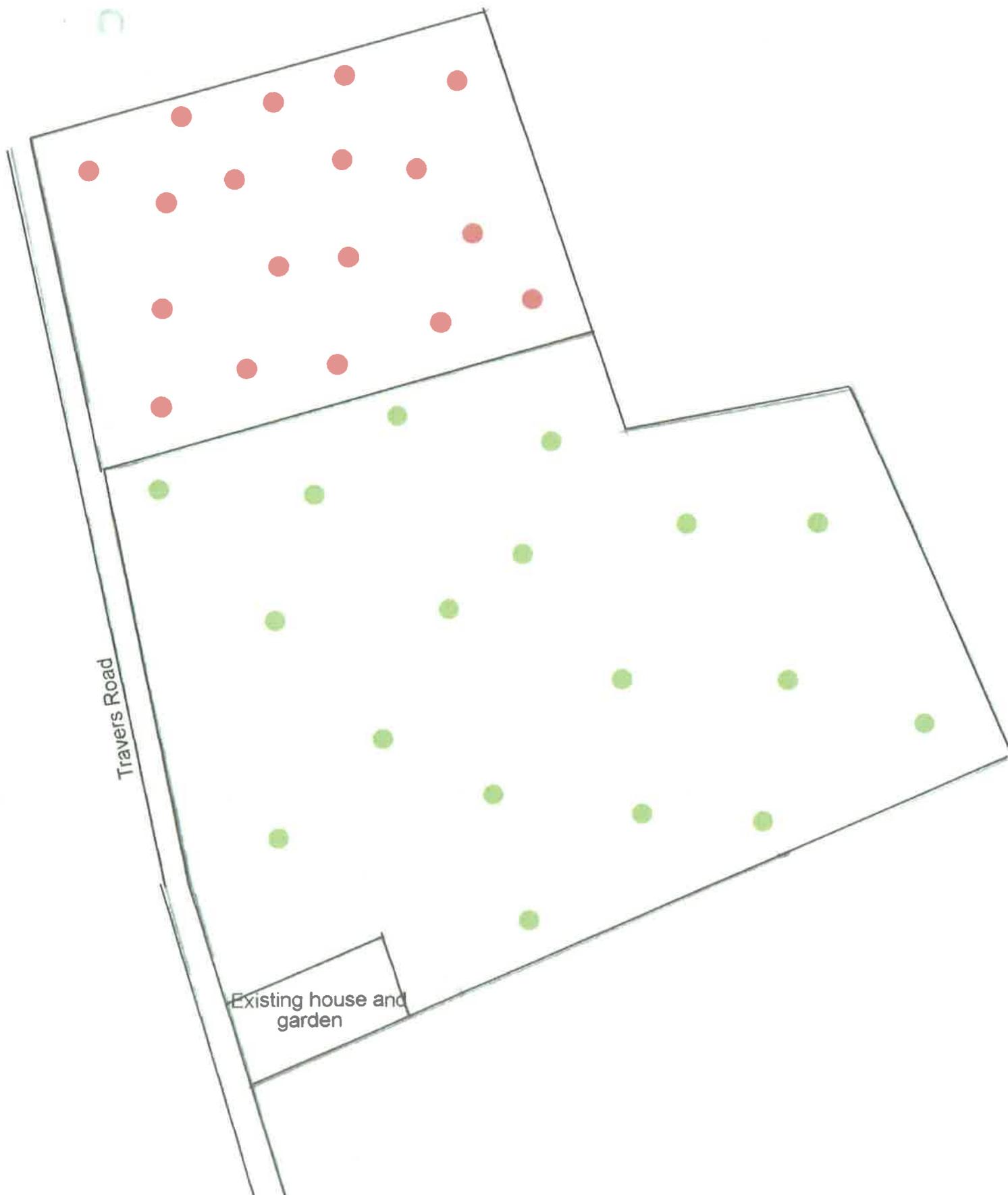
- A land contamination-screening test was carried out at the subject property according to best soil sampling and analytical practice
- Two composite soil samples were taken for organochlorine pesticides and heavy metal analysis
- The sample was submitted to Hill Laboratories Hamilton who are accredited by International Accreditation New Zealand (previously known as TELARC).
- **The found levels of the above heavy metals and organochlorines for Lot 1 were below trigger levels for human health concern**
- Based on these results, the risk to human health from ingesting contaminated soil or from eating vegetables grown on Lot 1 is of very low risk
- The found arsenic levels in the soils of Lot 2 are above the trigger levels of concern and require further investigation before a remediation action plan can be put in place
- Further investigation to determine the soil depth of arsenic contamination will be undertaken – initially two composite soil samples will be taken from the 7.5 to 20 cm depth and from the 20 to 35 cm depth layer of soil
- Based on these tests a remediation action plan for Lot 2 will be advised

Richard Chapman.
Scientific Soil Consultant

Note – The soil sampling protocol adopted for this contamination survey was carried out according to best practice. The test results relate directly to the soil cores collected, which in turn are sample representations of the total area of the subject property. The evaluation of the results are an interpolation of ground conditions between the sampling points that cannot be guaranteed, however, the report concludes that the low levels of heavy metals and organochlorides pose very low risk for human health, either through soil ingestion or from vegetables grown on the land. The author of this report cannot be held negligible or liable for any future soil tests that may show contamination.



Soil core sampling locations for potential contamination at the Hall's property located at 26 Travers Road - Te Kauwhata. Total area of the property is about 3 ha. Composite soils - Sample Lot 1 and Sample Lot 2



Soil core sampling locations for potential contamination at the Hall's property located at 26 Travers Road - Te Kauwhata. Total area of the property is about 3 ha. Composite soils - **Sample Lot 1** and **Sample Lot 2**

Summary Contaminated Sites Report Checklist

Indicate the reports contained in this document	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Report section(s) and information to be presented	PSI	SIR	RAP	SVR	MVP
Executive summary	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>
Scope of work	R <input checked="" type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>
Site identification	R <input checked="" type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>
Site history	R <input checked="" type="checkbox"/>	S <input checked="" type="checkbox"/>	S <input type="checkbox"/>	S <input type="checkbox"/>	S <input type="checkbox"/>
Site condition and surrounding environment	R <input checked="" type="checkbox"/>	S <input checked="" type="checkbox"/>	S <input type="checkbox"/>	S <input type="checkbox"/>	S <input type="checkbox"/>
Geology and hydrology	A <input checked="" type="checkbox"/>	R <input checked="" type="checkbox"/>	S <input type="checkbox"/>	S <input type="checkbox"/>	S <input type="checkbox"/>
Sampling and analysis plan and sampling methodology	A <input checked="" type="checkbox"/>	R <input checked="" type="checkbox"/>	X <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>
Field quality assurance and quality control (QA/QC)	N <input checked="" type="checkbox"/>	R <input checked="" type="checkbox"/>	X <input type="checkbox"/>	R <input type="checkbox"/>	S <input type="checkbox"/>
Laboratory QA/QC	N <input checked="" type="checkbox"/>	R <input checked="" type="checkbox"/>	X <input type="checkbox"/>	R <input type="checkbox"/>	X <input type="checkbox"/>
QA/QC data evaluation	N <input checked="" type="checkbox"/>	R <input checked="" type="checkbox"/>	X <input type="checkbox"/>	R <input type="checkbox"/>	X <input type="checkbox"/>
Basis for assessment criteria	R <input checked="" type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>
Results	A <input checked="" type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	S <input type="checkbox"/>
Site characterisation	R <input checked="" type="checkbox"/>	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>
Remedial actions	X <input type="checkbox"/>	X <input type="checkbox"/>	R <input type="checkbox"/>	S <input type="checkbox"/>	S <input type="checkbox"/>
Validation	X <input type="checkbox"/>	X <input type="checkbox"/>	X <input type="checkbox"/>	R <input type="checkbox"/>	S <input type="checkbox"/>
Ongoing site monitoring	X <input type="checkbox"/>	X <input type="checkbox"/>	X <input type="checkbox"/>	N <input type="checkbox"/>	R <input type="checkbox"/>
Conclusions and recommendations	R <input checked="" type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>	R <input type="checkbox"/>

Signil R. [Signature] 15/5/04

Hill Laboratories

R J Hill Laboratories Limited

Address:
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Private Bag 3205,
Hamilton, New Zealand

Telephone:
+64 (7) 858-2000
Facsimile:
+64 (7) 858-2001

Email:
mail@hill-labs.co.nz
Internet:
www.hill-labs.co.nz



Client: Richard Chapman
Address: 427a Matangi Road,
R D 4
HAMILTON
Contact: Richard Chapman

Laboratory No: 341492
Date Registered: 5/05/2004
Date Completed: 12/05/2004
Page Number: 1 of 2

Client's Reference: D Hall

The results for the analyses you requested are as follows:

Sample Type: Environmental Solids, Soil

Sample Name	Lot 1	Lot 2
Lab No	341492/1	341492/2
Total Recoverable Arsenic (mg/kg dry wt)	15	32
Total Recoverable Cadmium (mg/kg dry wt)	0.8	0.5
Total Recoverable Chromium (mg/kg dry wt)	25	12
Total Recoverable Copper (mg/kg dry wt)	249	372
Total Recoverable Nickel (mg/kg dry wt)	7	5
Total Recoverable Lead (mg/kg dry wt)	59.4	116
Total Recoverable Zinc (mg/kg dry wt)	125	56

Organochlorine pesticides, screening

Sample Name	Lot 1	Lot 2
Lab No	341492/1	341492/2
Units	(mg/kg dry wt)	(mg/kg dry wt)
2,4'-DDD	< 0.01	0.09
2,4'-DDE	< 0.01	< 0.01
2,4'-DDT	0.02	0.14
4,4'-DDD	0.03	0.19
4,4'-DDE	0.98	3.56
4,4'-DDT	0.11	1.20
Aldrin	< 0.01	< 0.01
Alpha-BHC	< 0.01	< 0.01
Beta-BHC	< 0.01	< 0.01
Delta-BHC	< 0.01	< 0.01



This Laboratory is accredited by International Accreditation New Zealand (previously known as TELARC). The tests reported herein have been performed in accordance with its terms of accreditation, with the exception of tests marked *, which are not accredited. This report may not be reproduced, except in full, without the written consent of the signatory.

Client: Richard Chapman

Laboratory No: 341492

Page: 2 of 2

Sample Name	Lot 1	Lot 2
Lab No	341492/1	341492/2
Units	(mg/kg dry wt)	(mg/kg dry wt)
Gamma-BHC (Lindane)	< 0.01	< 0.01
Cis-Chlordane	< 0.01	< 0.01
Trans-Chlordane	< 0.01	< 0.01
Total Chlordane ((cis+trans)*100/42)	< 0.05	< 0.05
Dieldrin	< 0.01	< 0.01
Endosulphan I	< 0.01	< 0.01
Endosulphan II	< 0.01	< 0.01
Endosulphan sulphate	< 0.01	< 0.01
Endrin	< 0.01	< 0.01
Endrin aldehyde	< 0.01	0.02
Heptachlor	< 0.01	< 0.01
Heptachlor epoxide	< 0.01	< 0.01
Hexachlorobenzene	< 0.01	< 0.01
Methoxychlor	< 0.01	< 0.01

Summary of Methods Used and Detection Limits

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Substance Type: Environmental Solids

Parameter	Method Used	Detection Limit
Dry and sieve sample	Air dry (35°C), sieved to pass 2mm.	N/A
Total Recoverable digest	Nitric / hydrochloric acid digestion. US EPA 200.2	N/A
Total Recoverable Arsenic	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	2 mg/kg dry wt
Total Recoverable Cadmium	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	0.1 mg/kg dry wt
Total Recoverable Chromium	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	2 mg/kg dry wt
Total Recoverable Copper	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	2 mg/kg dry wt
Total Recoverable Nickel	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	2 mg/kg dry wt
Total Recoverable Lead	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	0.4 mg/kg dry wt
Total Recoverable Zinc	Nitric / hydrochloric acid digestion, ICP-MS. US EPA 200.2	4 mg/kg dry wt
Organochlorine pesticides, screening	Sonication extraction, GC-ECD	N/A

Analyst's Comments:

These samples were collected by yourselves and analysed as received at the laboratory. Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the submitter.

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Peter Robinson, MSc(Hons), PhD FNZIC
Environmental Division Manager

Terry Cooney, MSc(Hons), PhD MNZIC
General Manager

- R J Hill Laboratories Ltd -

G.A. Hughes & Associates (2005) Ltd.

Consulting Civil & Structural Engineers

Cnr. Graham & Newall Streets, Hamilton East. P.O. Box 4306
Ph. (07) 856-9097. Fax (07) 856-2722. Email: steve@gahughes.co.nz

5th June 2007

Phil Massey,
15 Rimu Street,
TE KAUWHATA.

Dear Sir,

Geotechnical Investigations #48 Travers Road, Te Kauwhata.
Ref: 055635 Drawing # 7674 / 1 - 4

As requested we have carried out soils investigations for the purpose of determining suitable foundations for a new residence to be constructed on the site.

Investigation:

Test bores were carried out on 29th May 2007 using a truck mounted auger drilling rig provided by King Drilling Limited and supplemented with scala penetrometer probes. The location of the bore holes and the bore hole logs are shown on our drawings numbered 7674 sheets 1 to 4.

Soil Conditions:

Bore hole 1: shows 200 mm topsoil then 3800 mm clay: moldable/friable, compact and orange, becomes moist and light brown at 500 mm depth, becomes friable and cream/pink/orange at 1800 mm depth, becomes sticky at 2000 mm depth, becomes moldable/friable and red/orange at 2500 mm depth, contains ignimbrite specks at 2800 mm depth, becomes moist to wet at 3500 mm depth to end of bore at 4000 mm depth.

Shear vane testing revealed 116.0 kPa soils at 400 mm depth and 116.0 kPa soils at 600 mm depth.

Bore hole 2: shows 300 mm topsoil then 3700 mm clay: moldable/friable and brown/orange, becomes moist at 600 mm depth, becomes friable at 1000 mm depth, becomes friable/moldable at 2000 mm depth, contains ignimbrite specks and becomes mottled, brown/orange/cream/red/grey at 2800 mm depth to end of bore at 4000 mm depth.

Shear vane testing revealed 164.0 kPa soils at 300 mm depth and 136.5 kPa soils at 600 mm depth.

G.A. Hughes, Director, B.E., Dip.Mgt., MIPENZ (Civil, Structural), CPEng, IntPE, ANZIM, FNZPI, AREINZ.
J.S. Jaspers, Director, NZCE (Civil), AdvTradeCert (Building)

Foundation Recommendations:

Due to the nature of the soils over the proposed building site we recommend excavation of the soil to 300 mm with the excavation to extend past the building line by a minimum of 500 mm. Due to the sloping nature of the section and that part of the proposed building works is to lie within this slope, we recommend that the sub grade be benched to prevent foundation instability and that the excavation in the lower lying area extend a minimum of twice the height of its' depth plus 600 mm – or 2 units horizontal plus 600 mm to 1 unit vertical outside the building line. The excavation would then need to be backfilled with imported pit sand compacted to 100 kPa. Standard foundations in accordance with NZS 3604:1999 can then be constructed.

In addition, there is a Council Building Line Restriction (BLR) of 12.0 metres from each side boundary and the rear boundary and a BLR of 7.5 metres from the front boundary.

Disclaimer:

Geotechnical recommendations and opinions in this report are based on data from the bore holes. The nature and continuity of subsoil conditions away from the bore holes are inferred and it must be appreciated that actual conditions could vary considerably from the assumed model.

During excavation and construction the site should be examined by an Engineer or Engineering Geologist competent to judge whether the exposed subsoils are compatible with the inferred conditions on which the report has been based. It is possible that the nature of the exposed subsoils may require further investigation and the modification of the design based upon this report.

G.A. Hughes & Associates Ltd. would be pleased to provide this service to Phil Massey and believe that the project would benefit from such continuity. In any event it is essential G.A. Hughes & Associates Ltd. are contacted if there is any variation in subsoil conditions from those described in the report as it may affect the design parameters recommended in the report.

This report has been prepared solely for the benefit of Phil Massey as our client with respect to the brief. The reliance by other parties on the information or opinions contained in the report shall, without our prior review and agreement in writing, be at such parties' sole risk.

Yours faithfully,



G.A.Hughes,
Director,
G.A. Hughes & Associates Ltd.

Soils Description	Field Test Data		
	Depth in Metres	Vane Shear Strength (kpa)	Scala Penetrometer (blows per 100mm drop)
Bore Hole Log No 1			0 2 4 6 8 10
TOPSOIL			
<p>CLAY: moldable/friable, compact & orange becomes moist & light brown at 500 mm depth becomes friable & cream/pink/orange at 1800 mm becomes sticky at 2000 mm depth becomes moldable/friable & red/orange at 2500 mm contains ignimbrite specks at 2800 mm depth becomes moist to wet at 3500 mm depth</p>	<p>116 116</p>		

Note: The stratification lines represent the approximate boundary between soil types and the transition may be gradual

G.A.HUGHES & ASSOCIATES Ltd.
 CONSULTING CIVIL & STRUCTURAL ENGINEERS
 Cnr. Graham & Newall Streets, Hamilton East. P.O. BOX 4306

#48 Travers Road,
 Te Kauwhata,
 For Phil Massey.
 Bore Hole 1

Drawing No 7674/1 Ref 055635

Soils Description

Field Test Data

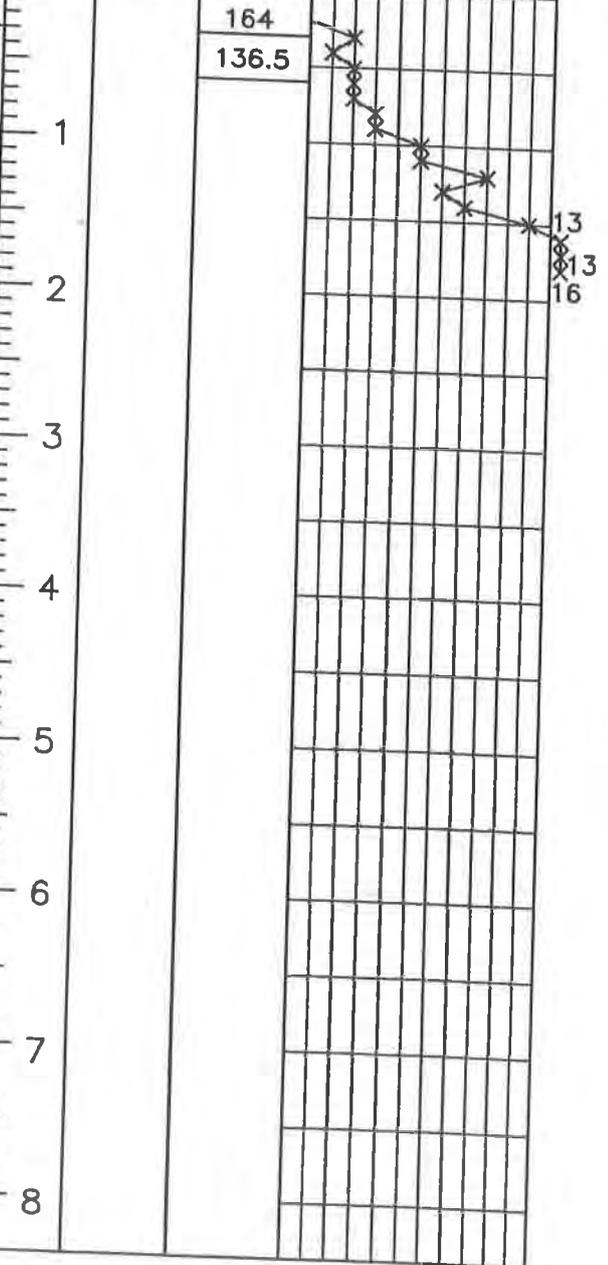
Bore Hole Log No. 2

TOPSOIL

CLAY: moldable/friable & brown/orange
 becomes moist at 600 mm depth
 becomes friable at 1000 mm depth
 becomes friable/moldable at 2000 mm depth
 contains ignimbrite specks & becomes mottled,
 brown/orange/cream/red/grey at 2800 mm depth

EOB

Depth in Metres	Vane Shear Strength (kpa)	Scala Penetrometer (blows per 100mm drop)
0		
0.1	164	
0.2	136.5	
0.5		
1.0		
1.5		
2.0		
2.5		
3.0		
4.0		
5.0		
6.0		
7.0		
8.0		



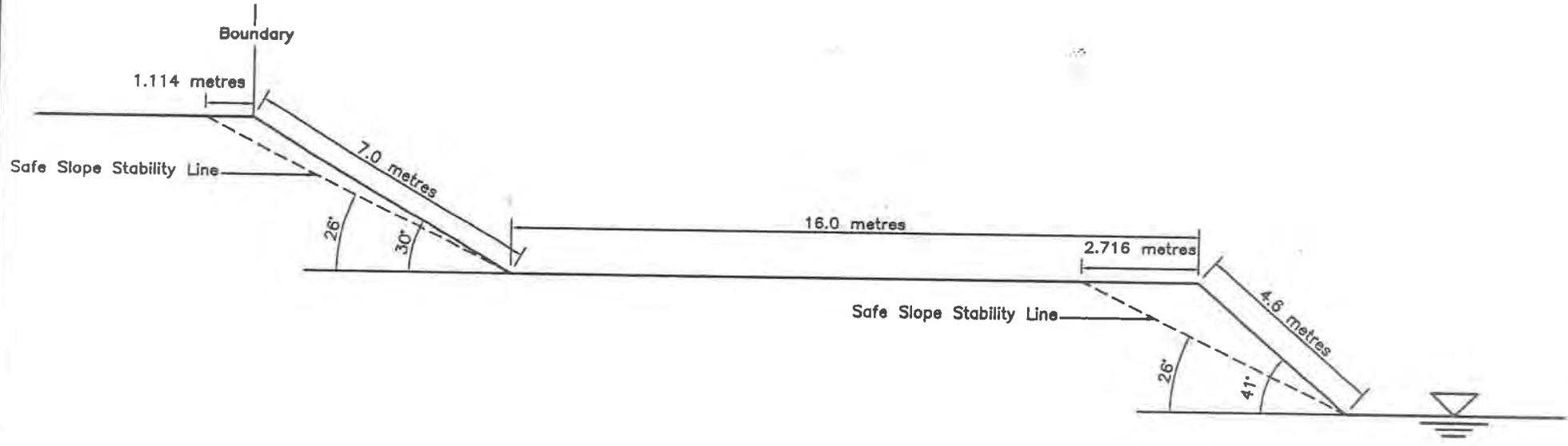
Note: The stratification lines represent the approximate boundary between soil types and the transition may be gradual

G.A.HUGHES & ASSOCIATES Ltd.
 CONSULTING CIVIL & STRUCTURAL ENGINEERS

Cnr. Graham & Newall Streets, Hamilton East. P.O. BOX 4306

#48 Travers Road,
 Te Kauwhata,
 For Phil Massey.
 Bore Hole 2

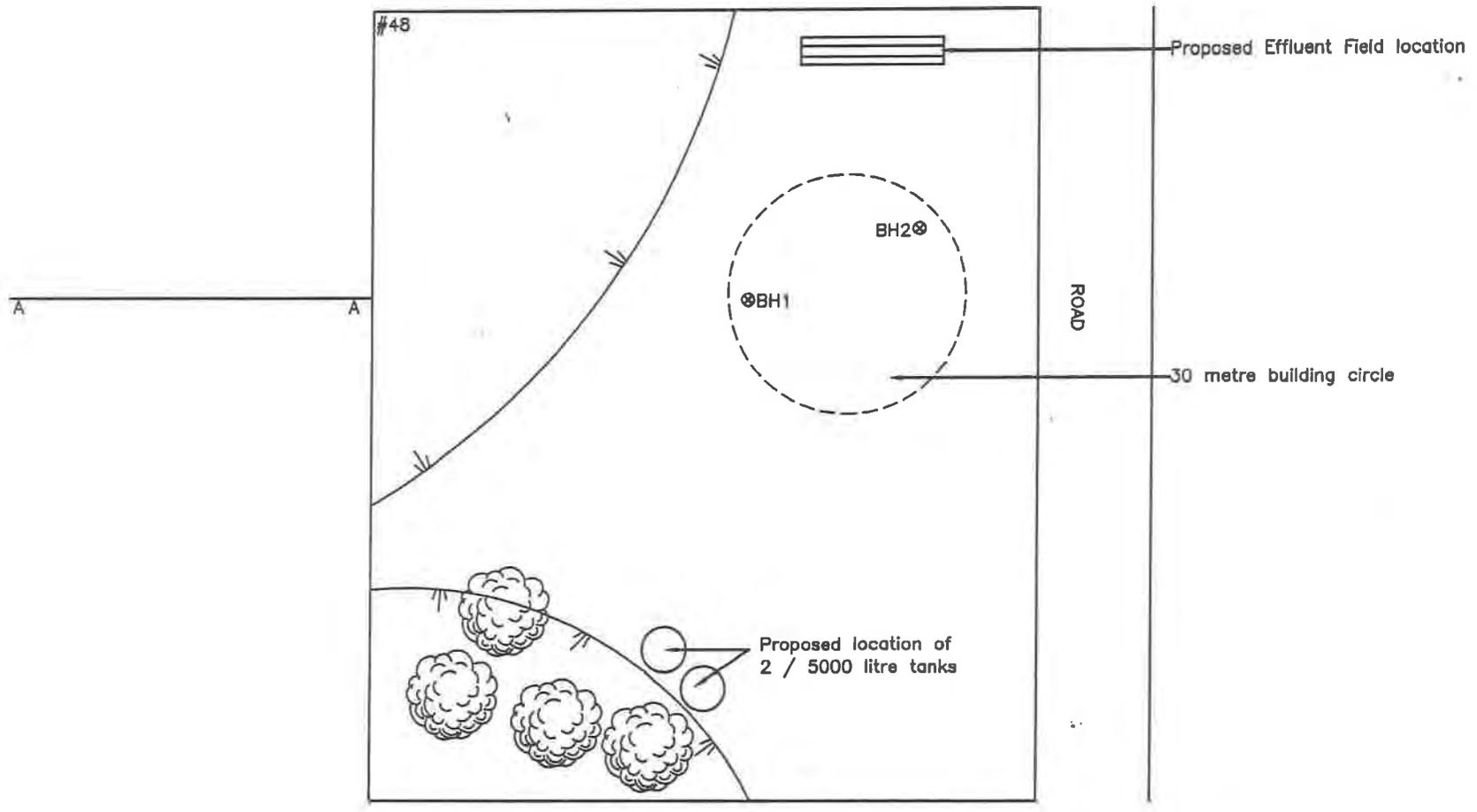
Drawing No 7674/2 Ref 055635



SECTION 'A-A' NTS

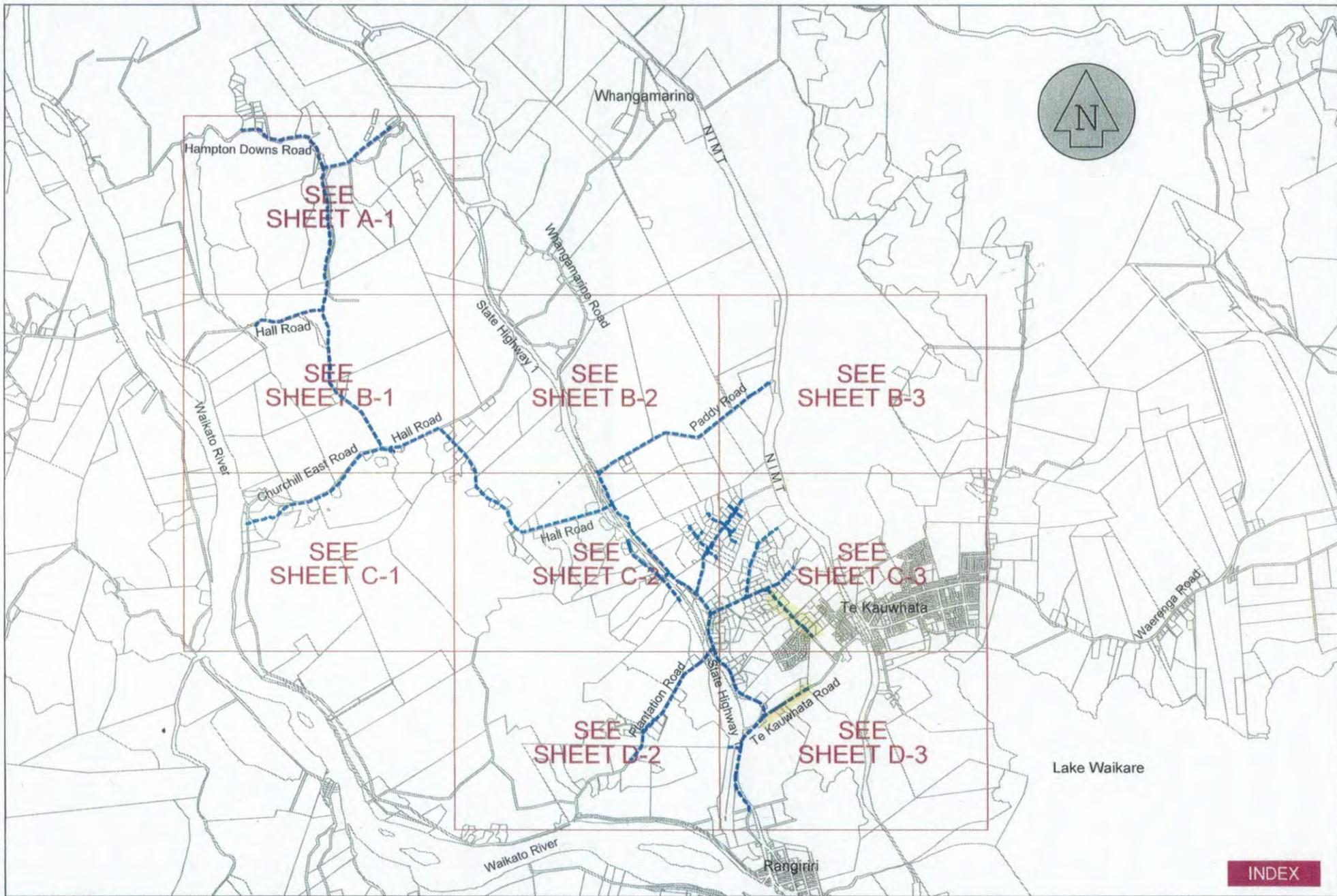
Contractor to check all dimensions on site and with Architectural drawings. The adequacy of the design incorporated on the plans is subject to the requirements included in the specification for the works and the design assumption incorporated into the calculations and reports for the project

Cross Section	Proposed New Residence At #48 Travers Road, Te Kauwhata, For Phil Massey.	G.A.HUGHES & ASSOCIATES Ltd.		SHEET 7674/3
		CONSULTING CIVIL & STRUCTURAL ENGINEERS Cnr. Graham & Newall Streets, Hamilton East. P.O. BOX 4306		
		DRAWN J.LANG	CHECKED	NO 4
		TRACED	DATE 05/06/07	REF 055635
			SCALES NTS	



Contractor to check all dimensions on site and with Architectural drawings.
 The adequacy of the design incorporated on the plans is subject to the requirements included in the specification for the works and the design assumption incorporated into the calculations and reports for the project

Site Plan	Proposed New Residence At #48 Travers Road, Te Kauwhata, For Phil Massey.	G.A.HUGHES & ASSOCIATES Ltd.		SHEET
		CONSULTING CIVIL & STRUCTURAL ENGINEERS Cnr. Graham & Newall Streets, Hamilton East. P.O. BOX 4306		7674/4
		DRAWN J.LANG	CHECKED	SCALES
		TRACED	DATE 05/06/07	NTS
				NO 4
				REF 055635



TSC
 THE SURVEYING COMPANY
 Level One, 17 Hall Street
 PO Box 466 Pukekohe 2340
 Phone 09 238 9991
 Fax 09 238 9307
 email : info@subdivision.co.nz
 web: www.subdivision.co.nz

TE KAUWHATA WATER ASSOCIATION
AS-BUILT PLAN OF WATER RETICULATION

AS BUILT WATER RETICULATION

Drawn By M F	J325 - TE KAUWHATA WATER AS-BUILT
Scale @A3 1 : 40 000	APRIL 2021 J 325

Part 1: Introduction and general provisions / How the plan works / Relationships between spatial layers

Relationships between spatial layers [000047, 000055, 000078]

The District Plan uses a range of spatial layers that are shown on planning maps including zones, overlays, site-specific controls, development areas and designations. The function of each spatial layer is set out in the National Planning Standards, November 2019, as follows:

Zones

A zone spatially identifies and manages an area with common environmental characteristics or where environmental outcomes are sought, by bundling compatible activities or effects together, and controlling those that are incompatible. The spatial area of each zone is shown on the planning maps. Every part of the district (except for roads) is in one zone and the zones do not overlap.

Overlays

As well as zones, there are various overlays (such as Outstanding Natural Landscapes and Significant Natural Areas) and sites/features (such as Historic Heritage buildings). An overlay spatially identifies distinctive values, risks or other factors which require management in a different manner from underlying zone provisions.

Site-specific controls

Site-specific control spatially identifies where a site or area has provisions that are different from other spatial layers or district-wide provisions that apply to that site or area.

Precincts

A precinct spatially identifies and manages an area where additional place-based provisions apply to modify or refine aspects of the outcomes anticipated in the underlying zone(s).

Designations

A designation is a provision in a district plan for a public work or project. Only a requiring authority can give notice of a requirement for a designation.

Land Information Memorandum Property Maps

48 Travers Road TE KAUWHATA

Created:

Tuesday 24 February 2026 12:21:14



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LAND INFORMATION

Land Information	
Land No	535162
Linz No /Parcel ID	6803355
Legal Desc	Lot 2 DP 353641
Land Area	0.800000

LAND RESOURCE MAP

LEGEND

Subdivisions

Subdivision Status

- 1
- 2 - Clearance
- 3 - 223
- 4 - 224
- 5 - Declined

River Environment

Easement

Natural Hazard Register

Alluvion

Erosion

Falling Debris

Fill

Inundation

Slippage

Subsidence

Waikato Coal Measures

Land Hazards

Advisory HAIL

Advisory

Contamination

MAP



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Land Resource Information			
Property No	2008588	Assessment	04390/693.02
Property Address	48 Travers Road TE KAUWHATA		
Land Hazard HAIL Register	6971		
Hazard Type	Advisory		
Description	TK Remediation Policy Area		
Land Cover – Slope	B		
Land Cover - Rock	Mo		

MAP

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Operative District Plan Information			
Property No	2008588	Assessment	04390/693.02
Property Address	48 Travers Road TE KAUWHATA		
Zone	Country Living		
Policy/Special Control	Remediation Policy Area, Te Kauwhata Structure Plan Area and Area A Waikato River Catchment		

OPERATIVE DISTRICT PLAN MAP

LEGEND

<p>Context</p> <ul style="list-style-type: none"> Plan Section Divide State Highway Rail Land Parcel Water Body Reserve 	<p>Building/Construction</p> <ul style="list-style-type: none"> Airport Inner Noise Control Boundary Airport Outer Noise Control Boundary Airport SEL 95 Noise Control Boundary Background Noise Area High Background Noise Area Noise Control Boundary Noise Boundary Distance (m) 	<p>Commercial</p> <ul style="list-style-type: none"> Airport Obstacle Limitation Surface Area A and B (Pokeno) Area of Interest / Scheduled Area Business Centre Classification Housing Restriction Area Front Yard Control Line Main Frontage Control Line Mixed Use Policy Area Tamahere Commercial Area Town Centre Town Centre Overlay Area Verandah 	<p>Hazard Policies</p> <ul style="list-style-type: none"> Catchment Management Plan Area 1% Design Flood Level Flood Limit Flood Risk Huntly East Mine Subsidence Huntly South Assessment I Land Stability Policy Area Remediation Policy Area River Stability Policy Area 	<p>Culture & Heritage</p> <ul style="list-style-type: none"> Battlefield View Shaft Heritage Area Heritage Item Notable Tree Schedule 8A Site of Significance Urupa Waikato River Catchment 	<p>Infrastructure</p> <ul style="list-style-type: none"> Designation Gas Line Transmission Line Indicative Road Intent Important Indicative Road Intent Important Local A Indicative Road Intent Important Local B Indicative Road Location Important Indicative Road Location Important Collector Indicative Road Location Important Service Lane National Walkway Raglan Navigation Beacon Segregation Strip Walkway Cycleway Bridleway 	<p>Natural Environment</p> <ul style="list-style-type: none"> Coastal Marine Area Conservation Policy Area Ecological Corridor Environmental Enhancement Overlay Area Environmental Protection Policy Area Gully Area Hauraki Gulf Catchment Area Identified Significant Natural Feature Landscape Policy Area Management Area Proposed Esplanade Reserve Ridgeline Policy Area Schedule 5A Site of Special Wildlife Interest Threatened Species Serious Decline Threatened Species Gradual Decline Whaanga Coast Policy Area 	<p>Urban Environment</p> <ul style="list-style-type: none"> Amenity Planting Requirement Anticipated Dwelling Number Concept Plan Papakainga Policy Area Residential Large Lot Overlay Area Residential Medium Lot Overlay Area Structure Plan Boundary Urban Expansion Policy Area Village Growth Area 	<p>Minerals/Mining</p> <ul style="list-style-type: none"> Aggregate Extraction Policy Area Aggregate Resource Policy Area Coal Mine Policy Area 	<p>Zones</p> <p>Commercial</p> <ul style="list-style-type: none"> Village Business (Franklin) Business (Waikato) Business (Franklin) <p>Open Space</p> <ul style="list-style-type: none"> Forest Conservation (Franklin) Queen's Redoubt Heritage (Franklin) Recreation (Franklin) Wetland Conservation (Franklin) Recreation (Waikato) <p>Industrial</p> <ul style="list-style-type: none"> Heavy Industrial (Waikato) Industrial 2 (Franklin) Industrial Services (Franklin) Light Industrial (Franklin) Industrial Park (Waikato) Light Industrial (Waikato) Industrial (Franklin) Maioro Mining (Franklin) Aggregate Extraction (Franklin) Timber Processing (Franklin) <p>Cultural</p> <ul style="list-style-type: none"> Pa (Waikato) <p>Residential</p> <ul style="list-style-type: none"> Residential (Franklin) Living (Waikato) Residential 2 (Franklin) New Residential (Waikato) Living Zone Te Kauwhata Ecological (Waikato) Living Zone Te Kauwhata West (Waikato) Village (Franklin) Rural-Residential (Franklin) Country Living (Waikato) Coastal (Franklin) Coastal (Waikato) Rural (Franklin) Rural (Waikato)
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Map Information

Copyright & Disclaimer - Cadastre boundaries sourced from Land Information New Zealand under CC-BY. Graphical representations of the District Plan rules have been derived from various sources; the representations are to the best of knowledge. Exact boundaries may require further investigation, please direct enquiries to the Planning and Strategy Team, districtplan@waic.govt.nz

Map Coordinates - the grid coordinates, provided as easting and northing values, measured in metres, use the New Zealand Transverse Mercator 2000 projection grid coordinates. Eastings are labelled on the top and bottom margins, their values increase towards the east. Northings are labelled on the lateral margin. Their values increase towards the north. For example, the value 5884321 is read as 5884 km and 321 m. 1:50 000 maps are marked at 4 km intervals, the area of a grid is 16 square km or 1600 hectares.

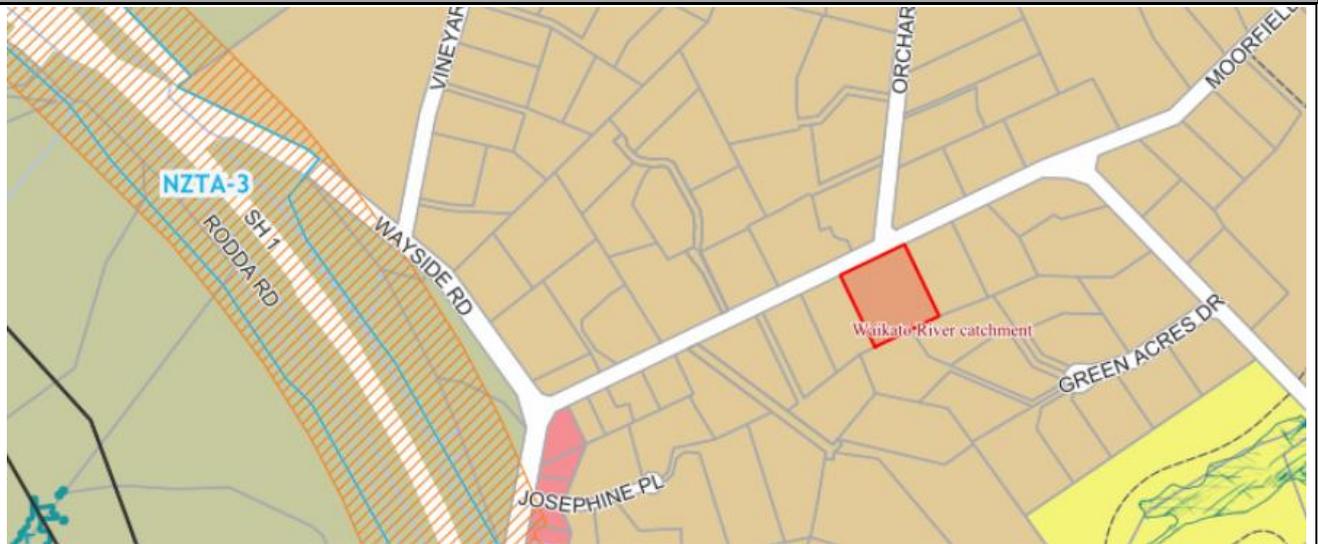
On the overview map the following town abbreviations have been used; Pokeno as Pok, Te Kauwhata as TeK, Huntly as Hun, Ngaruawahia as Nga and Raglan as Rag

WAIKATO DISTRICT PLAN – OPERATIVE IN PART MAP

LEGEND

Refer Separate Legend

MAP



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Waikato District Plan – Operative in Part Information

Property No	2008588	Assessment	04390/693.02
Property Address	48 Travers Road TE KAUWHATA		
Zone	Rural lifestyle zone		
Overlay	Area A Waikato River catchment		



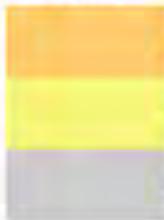
Waikato District Plan - Operative in Part Map Legend

OPERATIVE

ZONES



Zones



MR22 - Medium density residential zone 2

GRZ - General residential zone

OHI - Ohinewai zone

OVERLAYS



Precincts



Precincts



Specific controls Residential zones



Geotechnical limitation area



Tuurangawaewae Marae surrounds



Tuurangawaewae Marae Outlook High Potential Effects Area



Tuurangawaewae Marae building Height Assessment Overlay



Outer intensification area

OPERATIVE IN PART

OVERLAYS

District-wide matters

Energy, infrastructure and transport

-  Indicative road
-  Gas transmission line
-  National grid

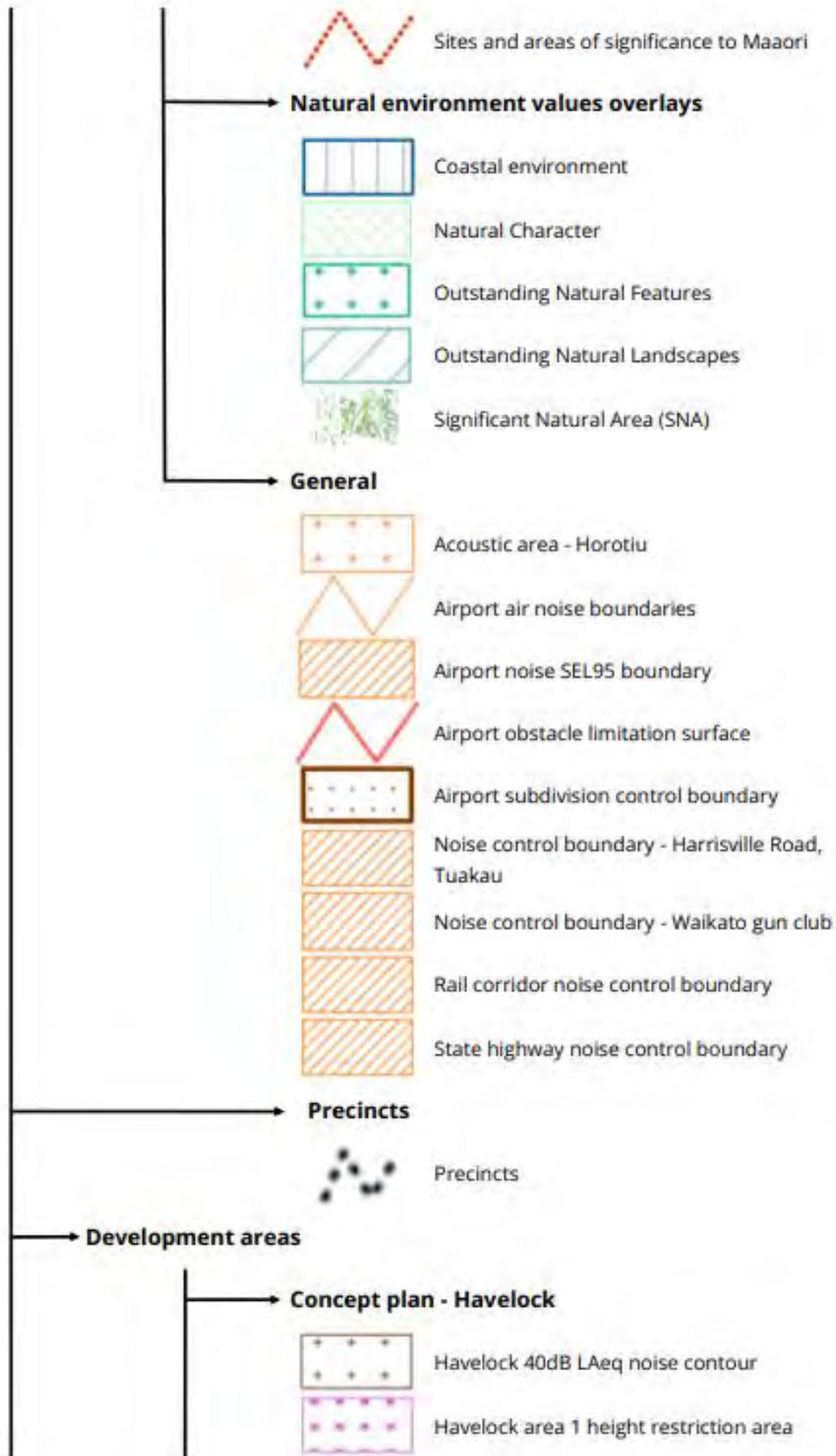
Hazards and risks overlays

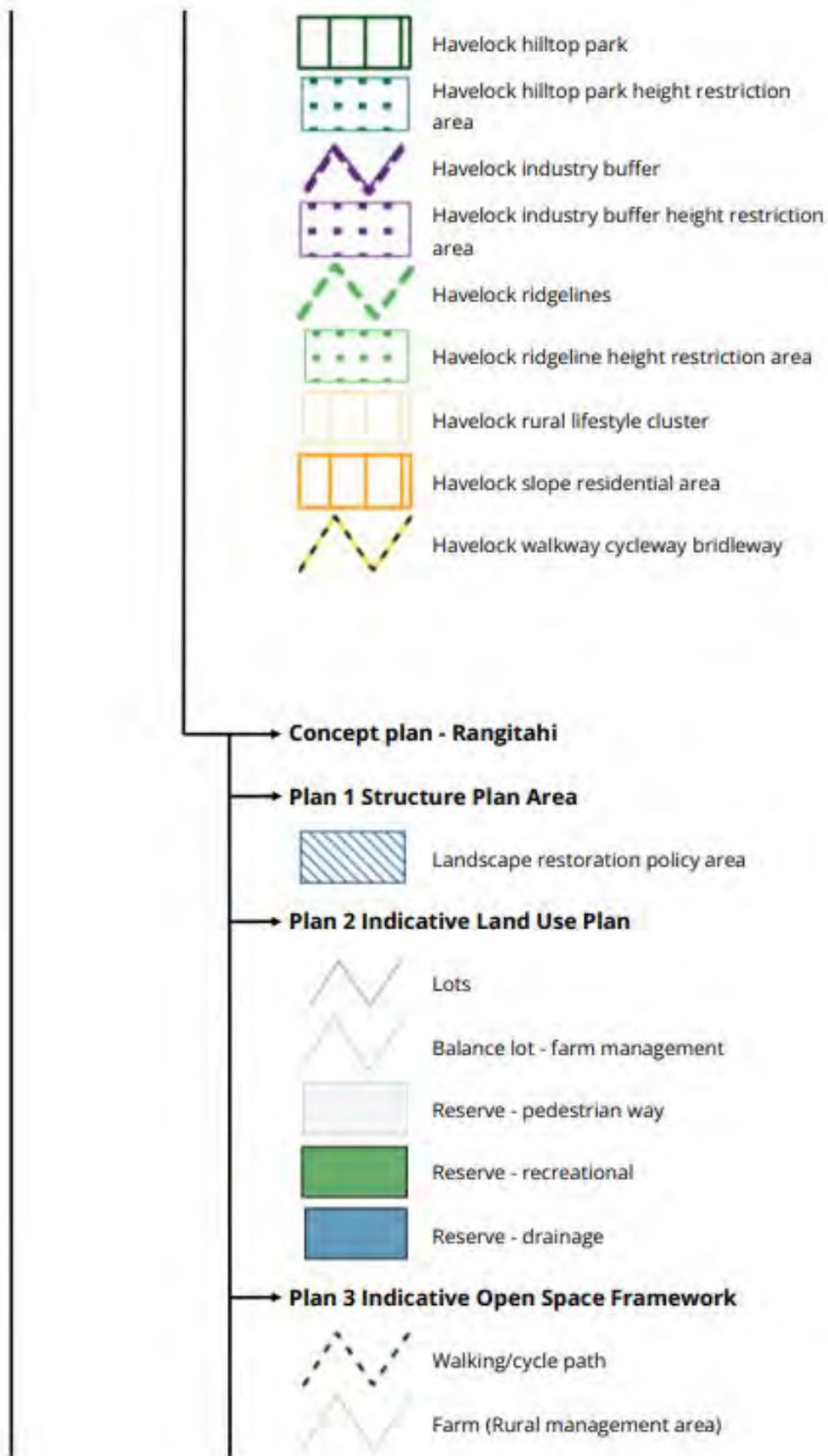
-  Coastal sensitivity area (erosion)
-  Coastal sensitivity area (inundation)
-  Defended area
-  Flood plain management area
-  Flood ponding area
-  High risk coastal erosion area
-  High risk coastal inundation area
-  High risk flood area
-  Mine subsidence risk area

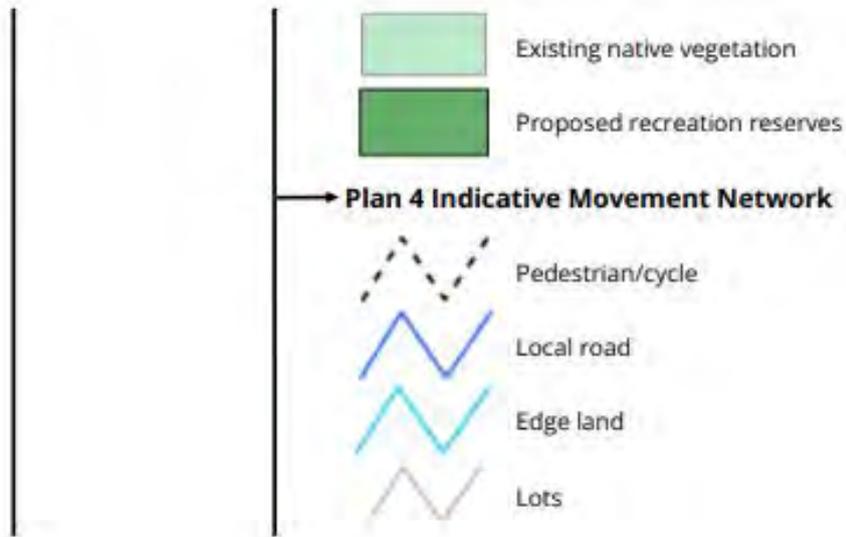
Historical and cultural values overlays

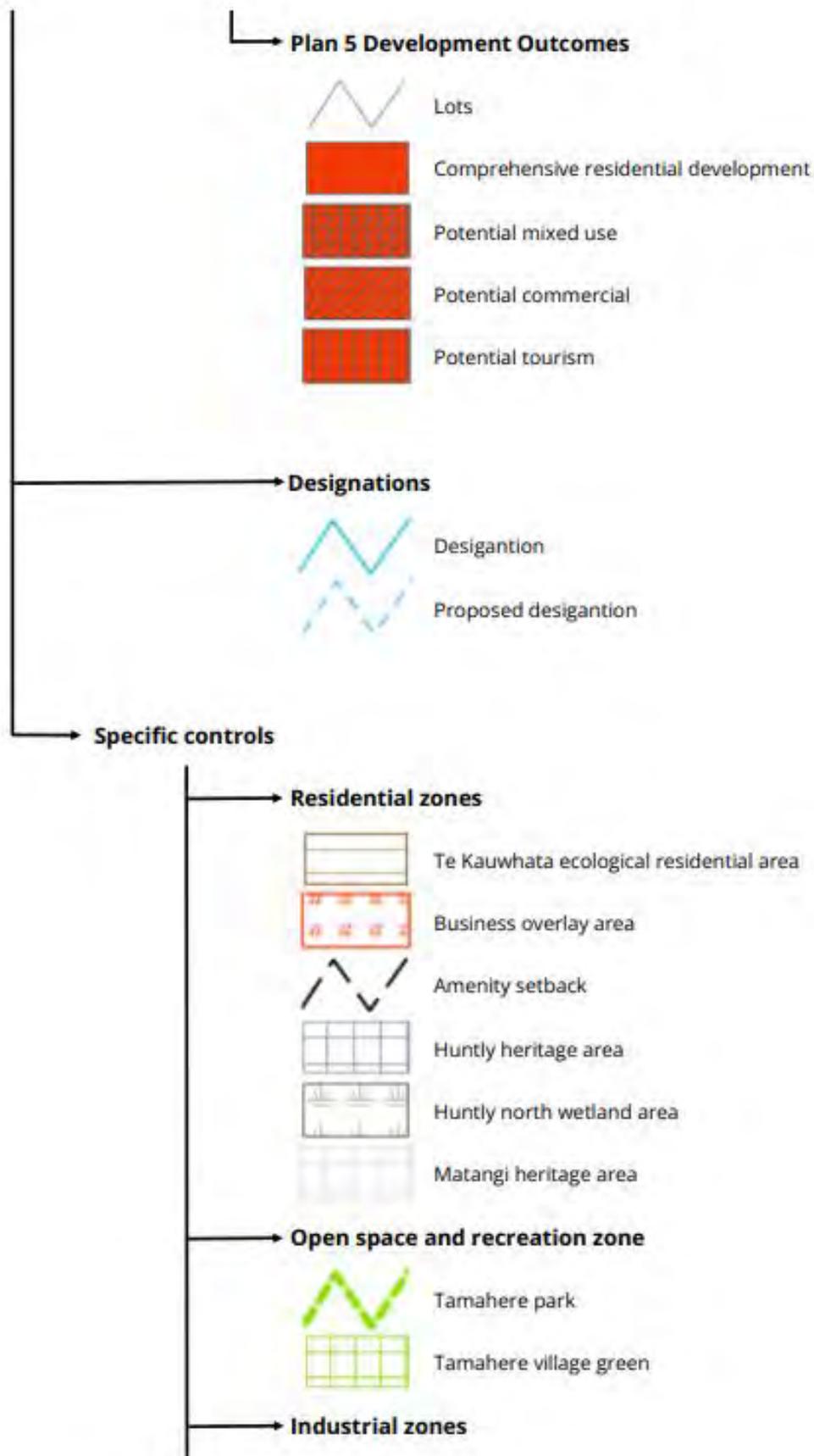
-  Historic heritage item
-  Extent of setting
-  Notable tree

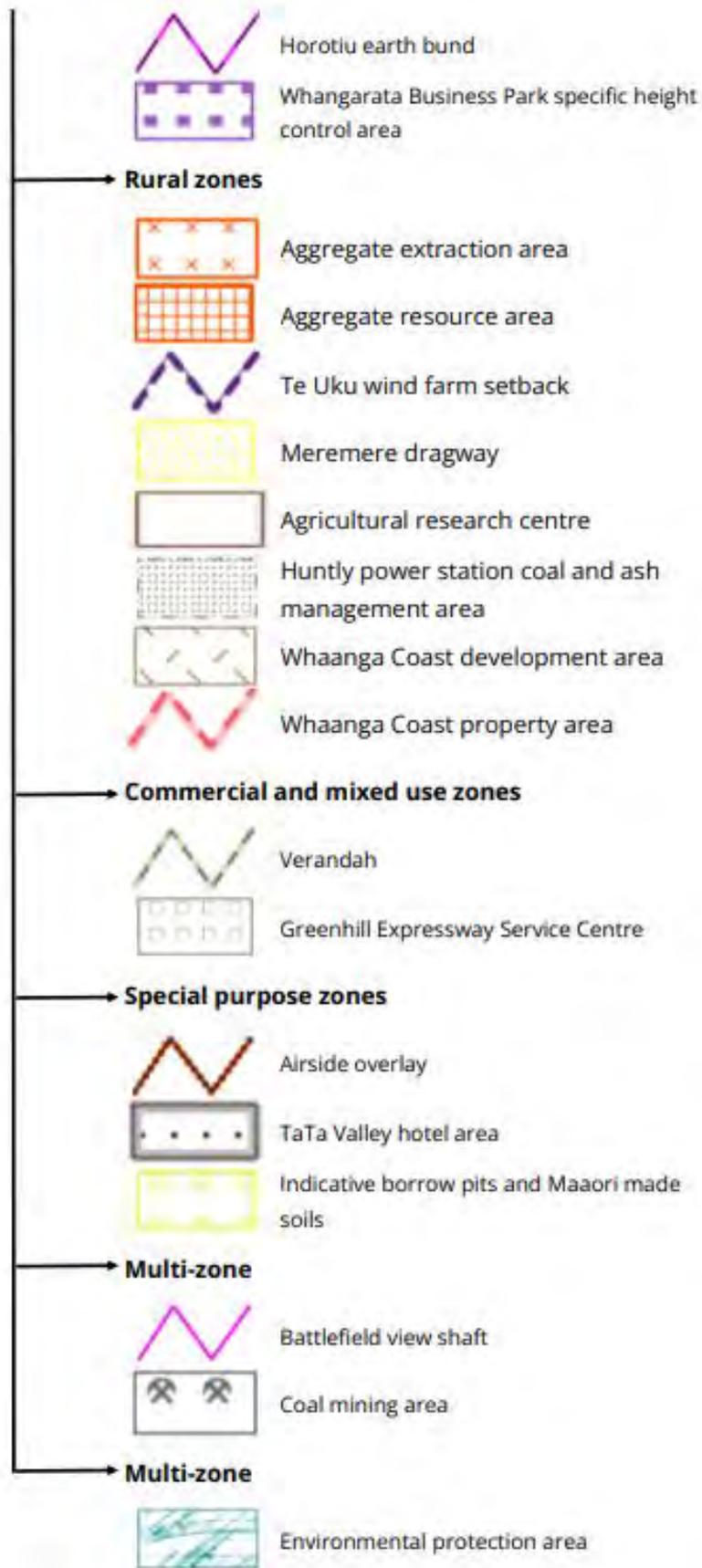
Historical and cultural values overlays

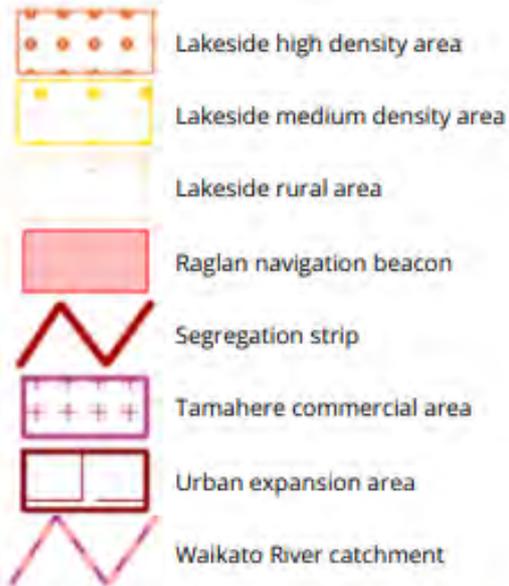










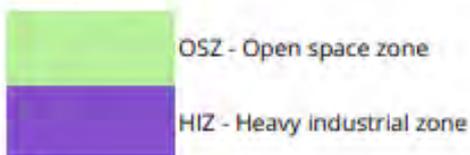


ZONES

Zones

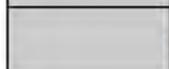
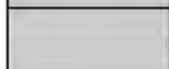
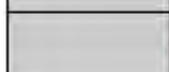
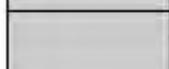


Zones



 GIZ - General industrial zone

Special purpose zones

-  MAZ - Mercer airport zone
-  MSRZ - Motorsport and recreation zone
-  CORZ - Corrections zone
-  BTZ - Business Tamahere zone
-  HOPZ - Hopuhopu zone
-  RPZ - Rangitahi Peninsula zone
-  TKAZ - Te Kowhai airpark zone
-  FUZ - Future urban zone
-  MTZ - Matangi zone
-  TTZ - TaTa Valley zone
-  KLZ - Kimihia lakes zone

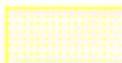
APPEALS

Appeals

 Appeals

ADDITIONAL INFORMATION

Additional Information



Mystery Creek noise boundary



Fonterra noise control boundary



Rail corridor noise alert area



Rail corridor vibration alert area

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UTILITIES MAP

LEGEND	
Storm Water Point	
● Fitting	● Other
○ Manhole	□ Sump
Water Supply Point	
◇ Backflow	● Other
○ Fitting/Node	⊗ Valve
Waste Water Point	
● Fitting	● Other
○ Manhole	⊗ Valve
Pipe	
~ Pipe	~ Drain
~ Misc	~ Service
Main	
~ Main	~ Rider Main
~ Raw Water Main	~ Rising Main
~ Service	

MAP

The map shows an aerial view of a residential area with several properties. A yellow boundary line is drawn around a central property. Utility lines are overlaid on the map, including a blue 'Rider Main 63.00mm MDPE' and two blue 'Main 150.00mm PVC-M' lines. A road labeled 'TRIVERS RD' runs horizontally across the top. Property numbers 39, 42, 48, 50, and 20B are marked in red. A meter symbol 'M' is located on Travers Road. The text 'Travers Road' is written in orange on the map.

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Water Meter Information

Meter	I22LU153625
Route	250
Sequence	590
Tariff	RurTeK
Status	Active
Location	17.6M right of left boundary
Meter Install	2023-08-03 00:0
DCL Type	Development Contribution Te Kauwhata Water

Water Meter Information

Meter	I22LU153625
Route	250
Sequence	590
Tariff	RurTeK
Status	Active
Location	17.6M right of left boundary
Meter Install	2023-08-03 00:0

DCL Type	Development Contribution Whangamarino/North Waikato
Water Meter Information	
Meter	I22LU153625
Route	250
Sequence	590
Tariff	RurTeK
Status	Active
Location	17.6M right of left boundary
Meter Install	2023-08-03 00:0
DCL Type	Development Contribution Water Te Kauwhata Meremere & Rangiriri
Water Meter Information	
Meter	I22LU153625
Route	250
Sequence	590
Tariff	RurTeK
Status	Active
Location	17.6M right of left boundary
Meter Install	2023-08-03 00:0
DCL Type	Development Contribution Water Te Kauwhata

SOLID WASTE MAP

LEGEND

- | | |
|---|---|
| <ul style="list-style-type: none"> Labels Az Address Label Az Road Label Territorial Authority Waikato District Other Districts Rail Property Parcel | <ul style="list-style-type: none"> Solid Waste Charges WstStdNor WstRcyMU WstStdTua WstBusTua WstRaglan WstRcyGLM WstStdCen |
|---|---|

MAP



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Solid Waste Information

Property No	2008588	Assessment	04390/693.02
Property Address	48 Travers Road TE KAUWHATA		
Contract Name	Green Gorilla		
Day Name	Friday		