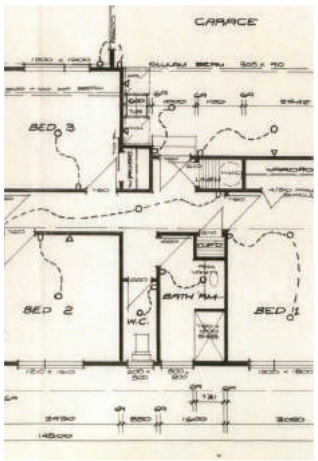
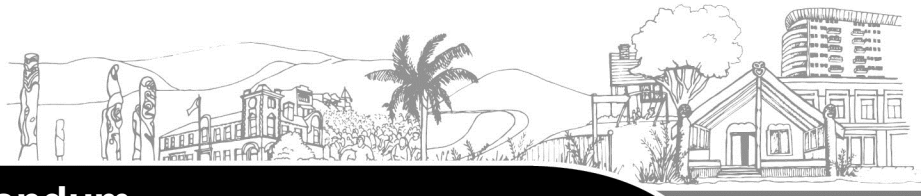
LIM

Land Information Memorandum



Tauranga City

Tauranga City



Land Information Memorandum

This L.I.M. has been prepared for:

Applicant	**John Pease**
Postal Address	**57 Halsey Drive, Lynfield, Auckland 1042**
Property Address	**19 Mamaku Rise**
Legal Description	**Lot 34 DPS 82071 Interest in Access Lot 58**
Application Date	**17 January 2017**

This Land Information Memorandum has been prepared for the purposes of Section 44A of the Local Government Official Information and Meetings Act 1987 and, in addition to the information provided for under section 44A(2), may contain such other information concerning the land that Council considers, at its discretion, to be relevant. It is based on a search of Council records only. There may be other information relating to the land which is unknown to Council. The Council has not undertaken any inspection of the land or any building on it for the purpose of preparing this Land Information Memorandum. The applicant is solely responsible for ensuring that the land is suitable for a particular purpose.

It is recommended that the Certificate of Title, which is not held by Council, be searched by the purchaser.

Contents

Services Information

Land information which is likely to be relevant includes information on private and public stormwater, water and sewer details. Please refer to the appropriate authorities for further information about network utility services.

Service Record

Copy of Deposited Plan Attached	**Yes**
Service Print Attached	**Yes**
Method of Sewer Disposal	**To Public Sewer**
Existing Method of Stormwater Disposal	**To Connection**
Drinking Water Supplied to the Land	**Yes**
Drinking Water Supplier Is:	
(I) Owner of the Land; or	**No Information Available**
(ii) Tauranga City Council [Water Supply Authority Unit (WSA)]; or	**Yes**
(iii) Another Networked Supplier	**No Information Available**
Any Information Notified Under Section 69ZH Health Act 1956	**No Information Available**

Note:

1. Cross Lease situations differ to Freehold Titles in that any building additions to the property in question may need to have the cross lease plan updated. Any unregistered changes could be regarded as not legally part of the lease. For information regarding the updating of a cross lease plan please contact a Surveyor or your Solicitor.
2. Please note that the existence of a watermain along a property frontage does not necessarily mean that a connection is available. This may need to be provided at the applicant's expense.
3. If the land is supplied with drinking water by Tauranga City Council as a Water Supply Authority, any conditions (generally set out in Tauranga City Council's "Supply of Water Bylaw 2007" – copy attached) applicable to that supply are included in this Land Information Memorandum.
4. If the land is supplied with drinking water by a networked supplier other than the WSA, any conditions that are applicable to that supply are included in this Land Information Memorandum.
5. If the land is supplied with drinking water by the owner of the land, any information Council has about the supply is included in this Land Information Memorandum.
6. Any information notified to the territorial authority by a drinking-water supplier under section 69ZH of the Health Act 1956 is included in this Land Information Memorandum.

Rating and Valuation Details

Tauranga City Council rates are billed twice a year. Unpaid rates for each instalment have a 10% additional charge added. A further 10% charge is imposed on any amount outstanding as at 30 June each year. Government Valuation details are based on a revision date of 1 July 2015.

Valuation Details

Valuation Reference	**06619/07534**
Land Value	**$115,000**
Value Of Improvements	**$240,000**
Capital Value	**$355,000**

Rating Details

Current Annual Rates	**$2,109.34**
Paid Until	**31/12/16**
Arrears Owing	**$Nil**
Balance Owing	**$Nil**

A separate account is issued for water metered properties. Residential meters are read every three months. Commercial / Industrial meters vary depending on use.

Note:

Please arrange for a final water meter reading prior to date of possession.

Water Meter Details

Water Meter On Property	**Yes**
Date Read	**8/12/16**
Number	**99M429634**
Last Reading	**02035**
Individual Meter	**Yes**
Shared Meter	**No**
Water Rates Owing	**$Nil**

Building Information

This information is sourced from Council records and may not reflect the situation on site if work has been undertaken without consent.

Building Permits: For Building Permits issued prior to 1993 a copy of the inspection records, if these are held by Council, are attached.

Building Consents: For Building Consents issued after 1 January 1993 a Code Compliance Certificate (CCC) will be issued where the building work for which the building consent relates has been completed in accordance with the NZ Building Code.

Swimming / Spa Pools: If the property contains a swimming pool or spa pool that is filled or partly filled with water then the pool must have a physical barrier restricting access to the pool that meets the requirements of the Building Act 2004. For more information, go to www.tauranga.govt.nz/council-a-z/swimming-pool-fencing.aspx.

Solid Fuel Heaters: It is important that any solid fuel heater has been legally installed, either as part of the original dwelling or by way of a separate permit/consent.

Permits and Consents

Building Consents

Date Issued	Description of Work	BC Number	CCC Issued
23/07/01	Erect dwelling and retaining walls	5950	Yes

Compliance Schedule **N/A**

Requisitions

Any Outstanding Requisitions **No**

Land Development

The Operative Tauranga City Plan

The Operative Tauranga City Plan (City Plan) is a document that regulates all subdivision, use and development across the City. It also covers how and where the City grows, how infrastructure is located and how natural and physical resources are managed. It is the blueprint by which any development in Tauranga is managed.
There are specific rules within the City Plan that cover, amongst other matters, building height, earthworks, tree protection, bulk and scale of buildings, setbacks from coastal and harbour margins, and specific residential, commercial and industrial uses depending on location within the City.

Specific rules for each suburb and property can vary depending on the underlying zone of the area and the location of a specific property within that zone.

The majority of the City Plan became 'operative in part' on 9 August 2013. The remaining parts of the City Plan subsequently became operative on 5 July 2014.

It is advised that prospective purchasers of property review and consider all relevant planning rules for the specific property this Land Information Memorandum applies to prior to purchase.

Copies of the planning maps for the Operative Tauranga City Plan are included in this LIM.

To view the Operative Tauranga City Plan please visit the Tauranga City Council website www.tauranga.govt.nz.

If you have any specific queries on any rules or any existing or proposed use of a property please contact the Tauranga City Council's Duty Planner (07 577 700) for further information.

Development Contributions

Council operates a development contributions policy under the Local Government Act 2002, and also has financial contributions provisions in its City Plan. The broad purpose of these policies is to fund infrastructure costs that relate to the city's growth from those parties that undertake subdivision, building or development. These contributions are required on building consents, resource consents, service connection authorisations and certificates of acceptance. Contributions may remain payable on any property in circumstances where subdivision, building and development projects have not been completed, and in rare occasions where the Council has agreed to defer payment. In addition, further subdivision, building or development of a property may trigger the requirement to pay further development and/or financial contributions.

Council's development contributions team can advise further on these matters in relation to the application of development and financial contributions to the property in question.

Integrated Transportation Strategy and Reserve Management Plans

As part of Tauranga City Council's Integrated Transportation Strategy and Reserves Management Plans, properties neighbouring Council-owned or administered land may be subject to walkway and cycleways development.

Relevant Planning Information

Zone: Operative Tauranga City Plan	**Suburban Residential Plan Attached**
Identified Plan Areas	**None Known**
Designations	**None**
Protected Heritage/Notable or Groups of Trees, or Protected Buildings	**None Known**
Archaeological or Significant Maori Areas	**None Known**
Council Consents, Certificates, Notices, Orders or Bonds Affecting The Land:	**No**

Land Features

This information relates only to details held on Council files and may not reflect the on site situation.

The Tauranga City Council does not act as agent for network utility operators.

The land form and geology within Tauranga City have some features which demand particular attention. These features, which may or may not be relevant to the property in question, are outlined in "General Description of Land Form within Tauranga District" as attached.

Special Land Features Relevant to the Subject Property

Yes

Comments:

1) **Please find attached copy of geotechnical report from Mark Mitchell dated 4 November 1998.**

2) **On a number of sites within this subdivision the upper 1.2-5 metres of soils were found to comprise topsoil, certified fill, topsoil again, then back to virgin ground, casting doubt on the reports from Mark Mitchell. Any further development on this site may require foundation investigation/design by a Chartered Professional Engineer.**

Additional Information

Licences

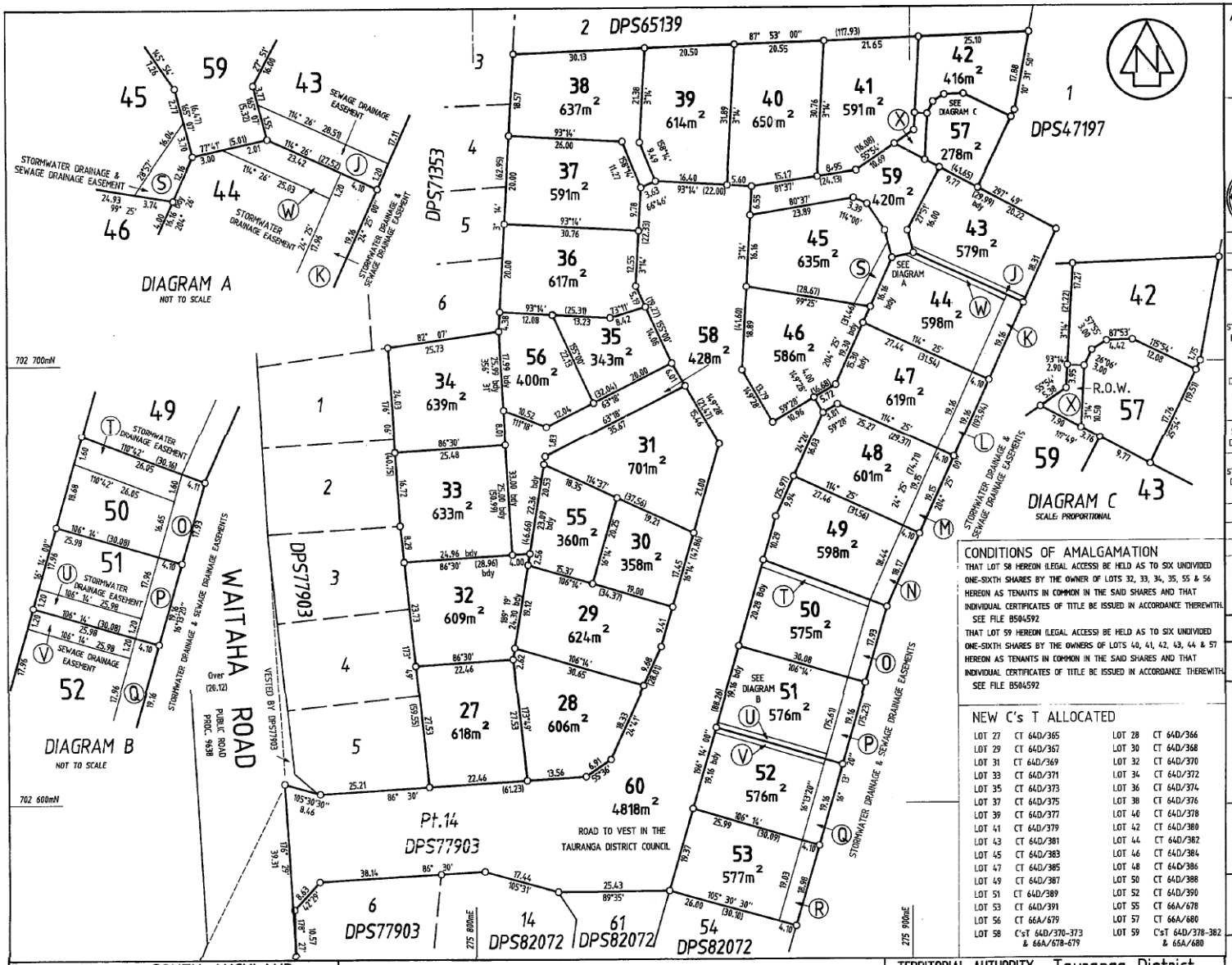
Licences Affecting the Land or Buildings **No**

Signed for and on behalf of the Council:

Position held: LIM Officer

Date: 23 January 2017

Tauranga City



Approvals

G.K.L Read
DIRECTOR

W.J.Liddle
DIRECTOR

WAITAHA PROPERTY DEVELOPMENTS LTD
REGISTERD OWNER(S)

APPROVED PURSUANT TO SECTION 223 OF THE RESOURCE MANAGEMENT ACT 1991 ON THE 24th DAY OF NOVEMBER 1998 SUBJECT TO THE GRANTING OR RESERVING OF EASEMENTS SET OUT HEREON AND SUBJECT TO THE CONDITIONS OF AMALGAMATION SET OUT HEREON THE COMMON SEAL OF THE TAURANGA DISTRICT COUNCIL IS AFFIXED HERETO IN THE PRESENCE OF:

THE TAURANGA DISTRICT COUNCIL The Common Seal of

AUTHORISED OFFICER

T.D.C. SUB 2882

Memorandum of Easements In Gross

PURPOSE	SHOWN	SERVIENT TENEMENT	GRANTEE
STORMWATER DRAINAGE AND SEWAGE DRAINAGE	(K)	LOT 44 HEREON	THE TAURANGA DISTRICT COUNCIL
	(L)	LOT 47 HEREON	
	(M)	LOT 48 HEREON	
	(N)	LOT 49 HEREON	
	(O)	LOT 50 HEREON	
	(P)	LOT 51 HEREON	
	(Q)	LOT 52 HEREON	
	(R)	LOT 53 HEREON	
	(S)	LOT 45 HEREON	
SEWAGE DRAINAGE	(J)	LOT 43 HEREON	
	(V)	LOT 52 HEREON	
STORMWATER DRAINAGE	(T)	LOT 50 HEREON	
	(U)	LOT 51 HEREON	
	(W)	LOT 44 HEREON	

Memorandum of Easements

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
R.O.W.	(X)	LOT 42 HEREON	LOT 57 HEREON

CONDITIONS OF AMALGAMATION

THAT LOT 58 HEREON (LEGAL ACCESS) BE HELD AS TO SIX UNDIVIDED ONE-SIXTH SHARES BY THE OWNER OF LOTS 32, 33, 34, 35, 55 & 56 HEREON AS TENANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL CERTIFICATES OF TITLE BE ISSUED IN ACCORDANCE THEREWITH.
SEE FILE B504592

THAT LOT 59 HEREON (LEGAL ACCESS) BE HELD AS TO SIX UNDIVIDED ONE-SIXTH SHARES BY THE OWNERS OF LOTS 40, 41, 42, 43, 44 & 57 HEREON AS TENANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL CERTIFICATES OF TITLE BE ISSUED IN ACCORDANCE THEREWITH.
SEE FILE B504592

NEW C's T ALLOCATED

LOT 27	CT 64D/365	LOT 28	CT 64D/366
LOT 29	CT 64D/367	LOT 30	CT 64D/368
LOT 31	CT 64D/369	LOT 32	CT 64D/370
LOT 33	CT 64D/371	LOT 34	CT 64D/372
LOT 35	CT 64D/373	LOT 36	CT 64D/374
LOT 37	CT 64D/375	LOT 38	CT 64D/376
LOT 39	CT 64D/377	LOT 40	CT 64D/378
LOT 41	CT 64D/379	LOT 42	CT 64D/380
LOT 43	CT 64D/381	LOT 44	CT 64D/382
LOT 45	CT 64D/383	LOT 46	CT 64D/384
LOT 47	CT 64D/385	LOT 48	CT 64D/386
LOT 49	CT 64D/387	LOT 50	CT 64D/388
LOT 51	CT 64D/389	LOT 52	CT 64D/390
LOT 53	CT 64D/391	LOT 55	CT 66A/678
LOT 56	CT 66A/679	LOT 57	CT 66A/680
LOT 58	C'sT 64D/370-373 & 66A/678-679	LOT 59	C'sT 64D/378-382 & 65A/680

This plan is concurrent with DPS 82072

Total Area 2.2471ha

Comprised in CT 61D/921 (Pt)

I, Graham Kenneth Llewellyn Read
Registered Surveyor and holder of an annual practising certificate (or who may act as a registered surveyor pursuant to section 25 of the Survey Act 1986) hereby certify that this plan has been made from surveys executed by me or under my directions, that both plan and survey are correct and have been made in accordance with the Survey Regulations 1972 or any regulations made in substition thereof.

Dated at Albany this 21st day of October 1998 Signature

Field Book ____ p ____ Traverse Book ____ p ____
Reference Plans DPS 77903, 68110, 71353, 47197

Examined _____ Correct _____

Approved as to Survey
11/2/99
Cheif Surveyor

Deposited this 11th day of February 1999
for Registrar-General of Land / District Land Registrar

File Received 4.2.99
Instructions

DPS 82071

Land District SOUTH AUCKLAND
Survey Blk. & Dist. XV TAURANGA
NZMS 261 SHT RECORD MAP No

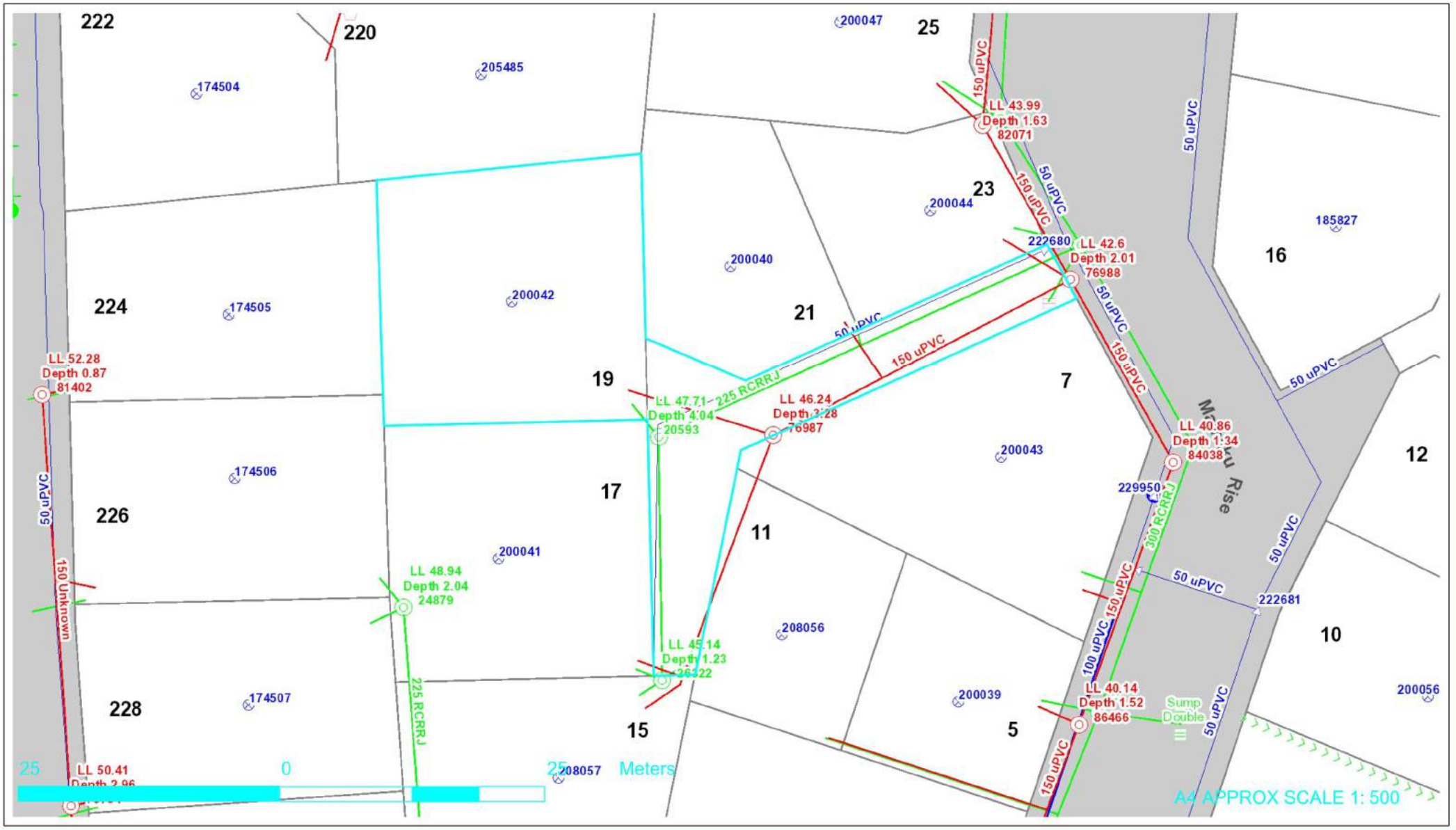
LOTS 27-53, 55-60 BEING SUBDIVISION OF PART LOT 14 DPS77903

TERRITORIAL AUTHORITY Tauranga District
1997v03sH01
Surveyed by GRAHAM READ CONSULTANTS
Scale 1 : 600 Date August 1998

18 FEB 1999

Services Plan

SmartZoom A4 Print - 23-January-2017



Rates Information

Location	19 MAMAKU RISE
Valuation Ref	06619 075 34
Legal Description	LOT 34 DPS 82071 INT IN ACCESS LOT 58 DPS 82071
Area	0.0639
Land Value	115,000
Capital Value	355,000

Total rates assessed this year

Tauranga Council	Units	Rate	Annual Amount	Regional Council	Units	Rate	Annual Amount
Uniform Annual General	1	704.34782609	704.35	Regional General	115,000	0.00030371	34.93
General	355,000	0.00174038	617.83	Regional UAGC	1	80.79829533	80.80
Wastewater Connected	1	342.34782609	342.35	Transport Rate	1	53.95651929	53.96
Total			1,664.53	**Total**			169.69
				Includes GST of			*$275.12*
				Total Rates (01 JUL 2016 to 30 JUN 2017)			$2109.34

Water Rates

Metered A/C # 1 Route # M Class # Rate: 0 /m3 Supply Area: METERED WATER

What are rates?

The amount you pay in rates doesn't directly relate to the amount of things Council does for you personally. Rates are not a 'charge for services', they are a tax on the value of your property. It is not a perfect system but it is one of the very few ways the Government allows Councils to collect revenue. Rates provide 55% of the Council's income.

Rates Information

The rating year starts on 1 July each year to 30 June the following year.

- Rates and charges are inclusive of GST.
- Annual Rates are set in July each year.
- Rates are payable in two instalments and are paid in advance.

Each year an assessment is sent out to property owners on 1 August together with the first instalment invoice. Payments are due on the last working day in August. The second instalment invoice is sent out to property owners on 1 February each year and is due on the last working day of February.

What are the charges for rates and how are they calculated?

Rates are a tax on the value of your property. The value of your property is set by an independent agency and is driven by national legislation. Revaluations are done every three years.

What do General Rates pay for?

Rates are used to pay for a wide range of services and capital projects such as new roads, storm water, libraries, reserves and so on. Councils ten year plan is a good place to find out more about how Council plans to spend rates income. Tauranga City collects rates on behalf of the regional council also.

Tauranga City Rates Schedule 2015/2016		
Description	Inclusive of GST	Charge
Uniform Annual General	$800.00	Per occupancy
Wastewater	$380.00	Per residential property or per connection for commercial
Wastewater Availability	$190.00	Per property
General Residential	$0.00228435	Capital value
General Commercial	$0.00228435	Capital value
City Mainstreet	$0.00067779	Capital value
Greerton Mainstreet	$0.00177643	Capital value
Papamoa Mainstreet	$0.0023896	Capital value
Mount Mainstreet	$0.00097128	Capital value
Economic Development	$0.00053923	Per commercial property
The Lakes	$174.34	Per property in the subdivision
Papamoa Coast	$190.74	Per property in the subdivision
Excelsa	$38.33	Per property in the subdivision

Uniform Annual General Rates (UAGC)

This is a fixed charge per rateable property and is irrespective of the value of a property. For residential properties it is a charge per occupancy.

Each occupancy is defined by physically having a separate living area, bedroom, bathroom facilities, entrance (including shared foyers) and cooking facilities. E.g. a property with a self contained flat on the ground floor would be rated for two UAGC's and two wastewater connections.

(Note: This rate is not based on ability to earn revenue or rent, frequency of use or the relationship of person/s using or able to use the separate area. This does not relieve the owner or occupier of any duty or responsibility under the Building Act 2004 or the Resource Management Act 1991 or the Tauranga City Plan) For commercial properties this is a charge on the number of separate businesses or leases. For commercial properties this is a charge on the number of separate businesses or leases

General Rate

This variable rate is charged on the capital value of a property. Capital value is land value plus improvements value.

Wastewater Rates

Residential properties connected to Council wastewater pay a uniform annual charge for one toilet per occupancy. Commercial properties connected to Council wastewater pay a uniform annual charge for each toilet or urinal.

Those properties with wastewater available (i.e. they are within 100m of wastewater lines) but not connected will pay an availability charge.

The Lakes, Papamoa Coast and Excelsa Targeted Rate

This rate is charged on the capital value of a property. Capital value is land value plus improvements value. The Lakes Development at Tauriko/Pyes Pa and Papamoa Coast and Excelsa developments at Papamoa have significantly increased level of service costs as a result of wider roads, more gardens, reserves and streetlights etc. All properties in these subdivisions are charged this targeted rate.

Economic Development Rate

This rate is charged on the capital value of a property.
It is charged to commercial properties only and funds economic development through Priority One and Tourism Bay of Plenty.

Mainstreet Rates

This rate is charged on the capital value of a property. It is charged to commercial properties only and funds the Tauranga, Mount and Greerton Village Mainstreet organisations.

Tauranga City Council

Supply of Water Bylaw 2007

This Bylaw is made under the Local Government Act 2002 and the Health Act 1956.

This bylaw should be read in conjunction with other statutory acts and regulations (or their subsequent amendments) relating to the supply of water including, but not limited to:

- Building Act 2004
- Fire Service Act 1975
- Local Government (Rating) Act 2002
- Resource Management Act 1991
- Water Supply Protection Regulations 1961

1. Scope and Purpose

The purpose of this bylaw is to cover the terms and conditions for the sale and supply of water to its customers by the Water Supply Authority (WSA).
Tauranga City Council's catchments are not subject to this bylaw and are protected by the Regional Water and Land Plan.

2. Interpretation

In this bylaw:

Approved means approved in writing, either by resolution of the Council or by any authorised officer of the WSA.

Backflow means a flow of water or other liquid through any service pipe or supply pipe in a reverse direction to the normal supply flow.

Backflow Device is a device that prevents backflow.

Connection means the service pipe from the Council's watermain to the point of supply that is owned and maintained by the WSA and includes any pipes, valves, manifolds, water meters, backflow device, water meter box and box or protection structure for the backflow device. Where two or more premises share supply pipe infrastructure, "connection" will include any additional connection elements on the supply pipe that the WSA requires for the purpose of the water metering used by each individual premises, but does not include the supply pipe itself.

Code of Practice for Development is the minimum requirements for the development of infrastructure within Tauranga City.

Council means the Tauranga City Council

Customer means the owner of any property who has obtained the right to use or direct the manner of use of, water supplied by the WSA to any premises.

Extraordinary Supply is all other purposes for which water is supplied other than "ordinary supply". Such end uses shall include supply to:

i) domestic –spa or swimming pool, fixed garden irrigation systems
ii) commercial or business
iii) industrial
iv) fire protection systems
v) out of District supply and
vi) temporary supply

Fire Installation means a water installation which conveys water solely for the purpose of fire fighting.

Level of Service means the measurable performance standards on which the WSA undertakes to supply water to its customers.

Long Term Council Community Plan (LTCCP) has the same meaning as defined in the Local Government Act 2002.

Offence includes any act or omission in relation to this Bylaw or any part thereof for which any person is liable to prosecution.

Ordinary Supply is the supply of water to a customer which is used solely for domestic purposes. Such end uses include the use of a hose for:

i) washing down a car, boat etc
ii) garden watering by hand; and
iii) garden watering by a portable sprinkler.

Owner of any property, or as applied to any land, building, or premises, means any person for the time being entitled to receive the rent of such property, land, building, or premises, and where any such person is absent from New Zealand, shall include his/her attorney or agent, or any other person acting for him/her or on his/her behalf with his/her authority.

Point of Supply means the point where a supply pipe meets the connection and it marks the boundary of responsibility between the customer and the WSA, irrespective of property boundaries. Except as by agreement between the relevant owner/s and the WSA, where premises share supply pipe infrastructure, the point of supply remains at the supply pipe's meeting with the connection regardless of whether or not the WSA requires the installation of additional connection elements to the supply pipe for the purpose of metering the water usage of each individual premises. Where shared supply pipe arrangements existed prior to 1994, the point of supply is that which existed at that time, or any point which has been agreed to between the owners and the WSA.

Premises means:

(a) A property or allotment which is held under a separate certificate of title or for which a separate certificate of title may be issued and in respect of which a building consent has been or may be issued; or
(b) A building that has been defined as an individual unit by cross-lease, unit title or company lease and for which a certificate of title is available; or Land held in public ownership (e.g. reserve) for a particular purpose.

Roading Authority means either a Territorial Authority or Transit New Zealand.

Road, Private Road, Footpath, Accessway, Service Lane and Private Way have the respective meanings given to them by the Land Transport (Road User) Rule 2004.

Service Pipe means that section of water pipe between a water main and the point of supply that is owned and maintained by the WSA.

Supply Pipe means that section of pipe between the point of supply and the customer's premises that is installed, owned and maintained by the customer.

Water Meter is an instrument intended to continuously measure the quantity of water passing through it.

Water Supply Authority (WSA) is the operational unit of the Council responsible for the supply of water, including its authorised agents.

Writing, Written or any term of like import means and includes words printed, painted, engraved, lithographed, or otherwise traced or copied, and where anything is required to be written it may be partly in writing and partly in printing.

3. Supply of Water

3.1. Any person wishing to become a customer shall apply in writing on the standard WSA form.

3.2. The WSA shall approve:

- the type of water supply to be provided to any premises
- the size of the connection to be provided to any premises
- the design of the connection to be provided to any premises
- any additional elements of the connection, including individual water meters, necessary for premises that share supply pipe infrastructure.

3.3. The applicant must be the owner or have the authority to act on behalf of the owner of the premises for which the supply is sought, and shall produce written evidence of this if required.

3.4. No person shall act on a written authorisation to supply water that is more than 6 months old unless an extension of time is authorised in writing by the WSA.

3.5. No person shall be supplied water unless the supply is authorised in writing by the WSA.

3.6. No person other than a contractor licensed by the Council shall undertake works to connect to or install any service pipe.

3.7. No person shall change the level of service of water supply received, or the end use of water supplied, or change the supply between ordinary and extraordinary unless the change is authorised in writing by the WSA.

3.8. The WSA shall be under no obligation to provide an ordinary or extraordinary supply of water.

4. Point of Supply

4.1. A customer shall be responsible for the supply pipe that will join a connection that has been located in accordance with the Council's Code of Practice for Development, or as close as possible to that location where fences, walls or other permanent structures make it difficult to locate it at the required position. A customer shall not locate a connection at any other position unless the position is authorised in writing by the WSA.

4.2. A customer shall not have more than one point of supply, unless otherwise authorised in writing by the WSA.

4.3. The WSA reserves the right to charge for maintenance of or damage to the connection.

5. Access to Point of Supply

5.1. The WSA shall be entitled, on the following terms, to enter premises that have a water supply on any day between 7.30am and 6pm to have access to, on and about the point of supply:

- without notice in order to read the water meter; or
- with notice being given whenever possible to check, test or undertake maintenance work.

5.2. At all other times the WSA shall give notice prior to entering premises except in emergency situations when authorised officers of the WSA shall be entitled to enter premises that have a water supply at any hour without notice.

5.3. The customer shall ensure that the area in and around the point of supply is maintained free of soil, growth, or other matter or obstruction which prevents, or is likely to prevent convenient access by authorised officers of the WSA.

6. Fire Connections

6.1. A customer shall design, maintain and repair any fire sprinkler system on his premises to prevent water being drawn from the system for any other purpose and shall construct, install and maintain that system in good order, and for its intended purpose.

6.2. No person shall install a new connection for fire protection unless authorised in writing by the WSA to do so. Any such connection must be installed by Council's licensed contractors at the applicant's expense and shall be subject to any terms and conditions specified by the WSA.

6.3. The WSA shall be under no obligation to provide a fire protection supply at any particular flow or pressure.

6.4. Where a fire connection has been installed in a manner or at a location so that it is likely or possible that water will be drawn from it or from any part of it for purposes other than fire fighting, the customer shall at his or her own expense, install a connection approved by the WSA.

6.5. Where the supply of water to any premises is metered, the customer shall connect any fire hose reels on those premises to the metered supply and not to a dedicated fire protection connection.

7. Water Meters

7.1. Unless otherwise agreed with the WSA, the point of water metering to an individual customer is the water meter that records the amount of water used by their particular premises.

7.2. Where the point of supply is different from the point of water metering, the customer shall:

i. Provide an approved site within the premises for the water meter;

ii. Take sufficient precaution to protect the water meter from damage at all times;

iii. Ensure the water meter is readily accessible for reading; and

iv. Ensure that no other devices are installed in the water meter box

8. Level of Service

8.1. The WSA shall use its best endeavours to provide water in accordance with the Level of Service contained in the LTCCP of the Council.

6.2 A customer with a particular requirement for an uninterrupted level of service (flow, pressure or quality), shall be responsible for providing any necessary storage, back up facilities, or equipment to satisfy that requirement.

9. Continuity of Supply

9.1. The WSA does not guarantee an uninterrupted or constant supply of water, or any maximum or minimum pressure, but shall do its best to meet the continuity of supply levels.

9.2. The WSA will consult with any potentially affected persons where works of a permanent or temporary nature are planned that will substantially affect an existing supply.

9.3. Wherever practical the WSA will make every reasonable attempt to notify the potentially affected persons of a scheduled maintenance shut down of the supply before the work commences. Where immediate action is required and this is not practical, the WSA may shut down the supply without notification.

10. Demand Management

10.1. No person shall contravene any restrictions approved by the WSA to manage high seasonal or other demands which are publicly notified.

11. Estimating Consumption

11.1. Should any water meter be out of repair or cease to register, or be removed, the WSA shall estimate the consumption for the period since the previous reading of such water meter, (based on the average of the previous four billing periods charged to the customer) and the customer shall pay according to such an estimate. Provided that when by reason of a large variation of consumption due to seasonal or other causes, the average of the previous four billing periods would be an unreasonable estimate of the consumption the WSA may take into consideration other evidence for the purpose of arriving at a reasonable estimate, and the customer shall pay according to such an estimate.

11.2. If water metering indicates a significant increase in consumption to a premises, which is established as being caused by a previously unknown leak, the WSA may either estimate consumption as provided above, providing that the customer repairs the leak with due diligence, or the customer shall be liable for the cost of water which passes through the water meter regardless of whether this is used or is the result of the leakage.

11.3. Where the seal or dial of a water meter is broken, the WSA may declare the reading void, estimate as provided above and the customer shall be liable for that cost.

11.4. Where a situation occurs, other than as provided for in clauses 11.1, 11.2 and 11.3 of this Bylaw, and the recorded consumption does not accurately represent the actual consumption on a property then the customer shall be liable to pay the cost which shall be adjusted using the best information available to the WSA. Such errors include, but are not limited to, misreading of the water meter, errors in data processing, water meters assigned to the wrong account, and unauthorised supplies.

11.5. Provided that where an adjustment is required, in favour of the WSA or the customer, this shall not be backdated more than 5 years from the date the error was detected.

12. Customer Responsibilities

12.1. New Connections shall be installed, and any associated testing undertaken, by one of the Council's licensed contractors at the applicant's expense. All new connections shall be vested with Council.

12.2. A customer who has altered the ground levels in the vicinity of the connection shall alter the existing service pipe and locate the cover to the service pipe to ensure it complies with Council's Code of Practice for Development. Such work shall be carried out by one of Council's licensed contractors at the owner's expense.

12.3. A customer shall not use water or water pressure directly from the supply for driving lifts, machinery, generators, condensers or any other similar device; unless specifically authorised by the WSA in writing.

12.4. The customer shall ascertain and monitor whether the fire protection supply available is adequate for the intended purpose.

12.5. The customer shall be liable to pay for any related water supply services in accordance with the WSA current schedule of fees and charges.

12.6. The customer shall not transfer to any other party the rights and responsibilities provided for under these Terms and Conditions.

12.7. In the event of a premises changing ownership the outgoing customer shall give the WSA seven calendar days notice to arrange a final water meter reading.

12.8. The customer shall give seven calendar days notice in writing to the WSA of his/her request to terminate the supply.

13. General Conditions

13.1. No person other than the authorised agents of the WSA, shall without express approval, make any connection to or otherwise interfere with any part of the water supply system.

13.2. No person shall have access to, and draw water from, fire hydrants unless he or she is:

- An authorised officer of the WSA;
- Fire service personnel – for the purposes of testing or firefighting purposes only;
- Fire hydrant licence holders during the period for which the licence has been issued.

13.3. Any person proposing to carry out excavation work shall view the as-built information to establish whether or not WSA services are located in the vicinity.

13.4. At least two working days notice in writing shall be given to the WSA of an intention to excavate in the vicinity of its services. Where appropriate the WSA will mark out to within ± 0.5m on the ground the location of its services, and may nominate in writing any restrictions on the work it considers necessary to protect its services. The WSA may charge for this service.

13.5. Any person excavating and working around buried services shall take due care to ensure the services are not damaged, and that bedding and backfill is reinstated in accordance with the appropriate WSA specification. Excavation within roadways is also subject to the permit process of the appropriate roading authority.

13.6. A person causing damage to a WSA service shall report that damage to the WSA immediately. Repairs shall be arranged by the WSA and repair costs may be charged.

14. Offences and Breaches

14.1. Every person breaches this Bylaw and commits an offence who:

1. Does, or allows anything to be done, which is contrary to this Bylaw or any part of it; or

2. Fails to do, or allows anything to remain undone, which ought to be done by him or her within the time and in the manner required by this Bylaw or any part of it; or

3. Does anything which this Bylaw prohibits; or

4. Fails to comply with any notice given to him or her under this Bylaw or any part of it or any condition of a licence granted by the Council; or

5. Obstructs or hinders any Council officer or other Council appointed person in performing any duty or in exercising any power under this Bylaw.

15. Licences

15.1. The form of any application for and grant of any permission, licence or approval required under this Bylaw will be determined by the Council.

15.2. The Council may attach to any permission, approval or licence any terms or conditions as it thinks fit.

15.3. No application for a licence from the Council, and no payment of or receipt for any fee paid in connection with such application or licence shall confer any right, authority or immunity on the person making such application or payment.

15.4. Suspending or Revoking Licences

(a) The Council may revoke or suspend a licence granted under this Bylaw if it reasonably believes the licence holder:

i. has acted or is acting in breach of the licence; or
ii. is unfit in any way to hold such a licence.

(b) The Council may require the licence holder to attend a hearing to explain why the licence should not be revoked or suspended. The Council may revoke or suspend the licence at its discretion. if either;

i. the licence holder does not attend the hearing; or
ii. if after the hearing the Council is satisfied the licence holder has been in breach of the licence or is unfit to hold the licence.

(c) The Council may suspend any licence granted under this Bylaw for a period not exceeding 72 hours during the staging of any special event, by giving the licence holder 10 days notice in writing. The Council may suspend any such licence for the purposes of protecting the public from nuisance or for protecting, promoting or maintaining public health and safety.

16. Fees

16.1. The Council may in accordance with section 150 of the Local Government Act 2002 prescribe fees or charges payable for any certificate, licence, approval, permit or consent form or inspection made by the Council under this Bylaw.

17. Notices

17.1. The Council may give notice to any person in breach of this Bylaw to carry out any remedial action in order to comply with the Bylaw and every such notice shall state the time within which the remedial action is to be carried out, and may be extended from time to time.

18. Penalties

18.1. Subject to anything to the contrary, every person who commits an offence against this Bylaw shall be subject to the penalties set out in section 242(4) of the Local Government Act 2002.

18.2. Under section 163 of the Local Government Act 2002 the Council or an authorised agent appointed by it, may remove or alter any work or thing that is or has been constructed in breach of this Bylaw.

18.3. The Council may recover the costs of removing or altering the work or thing that is in breach of this Bylaw from the person who committed the breach. This does not relieve that person of liability for the breach.

18.4. Under section 162 of the Local Government Act 2002 the Council may apply to the District Court for the grant of an injunction restraining a person from committing a breach of this Bylaw.

18.5. The Council may seize and impound property materially involved in the commission of an offence, under and in accordance with sections 164 and 165 of the Local Government Act 2002.

18.6. The Council will return and may dispose of property seized and impounded in accordance with sections 167 and 168 of the Local Government Act 2002.

19. Dispensing Powers

19.1. The Council may waive full compliance with any provision of this Bylaw in a case where the Council is of the opinion that full compliance would needlessly cause harm, loss or inconvenience to any person or business without any corresponding benefit to the community. The Council may in its discretion impose conditions of any such waiver.

20. Serving of Notices and Documents

20.1. Except as otherwise expressly provided for in any Act, where any notice, order, or other document is required to be served on any person for the purposes of Bylaw, the Council may serve notice by:

- delivering it personally;
- sending it by messenger;
- sending it by registered post to the person's last known place of residence or business

20.2. If that person is absent from New Zealand, the notice may be sent to his or her agent instead of to that person.

20.3. If that person has no known name or address or is absent from New Zealand and has no known agent, and the notice relates to any land or building, the notice may be served on the occupier, or if there is no occupier the notice may be put on some

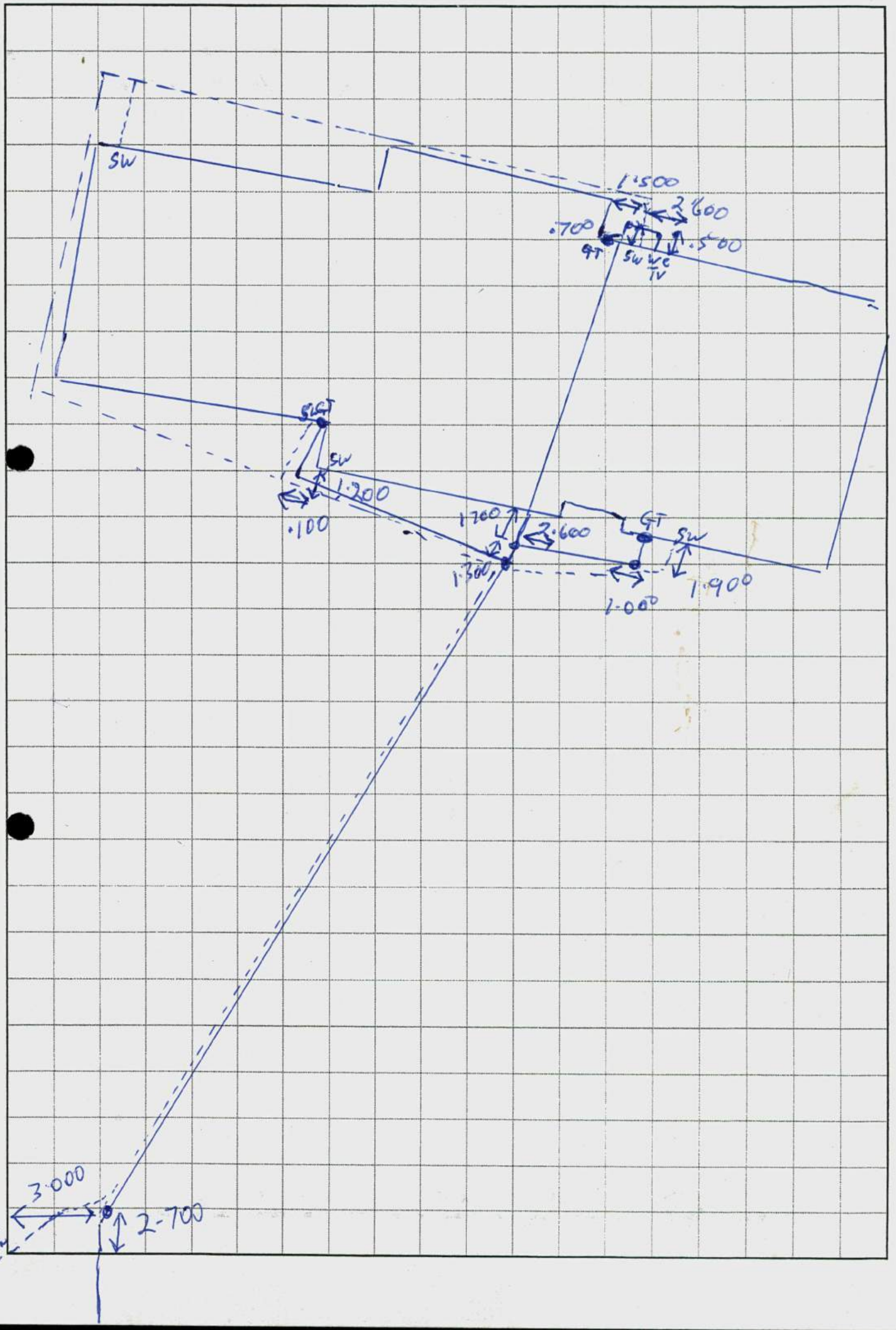
conspicuous part of the land or building without the notice naming the owner or occupier.

20.4. If that person has died, the notice may be served on his or her personal or legal representative or executor.

20.5. Where a notice is sent by registered post it will be sent to arrive in the normal course no later than when the notice is required to be served and will be deemed to have been served at the time when the registered letter would be delivered in the ordinary course of post.

21. Commencement

This bylaw comes into force on 1 January 2008.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GT
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1·300
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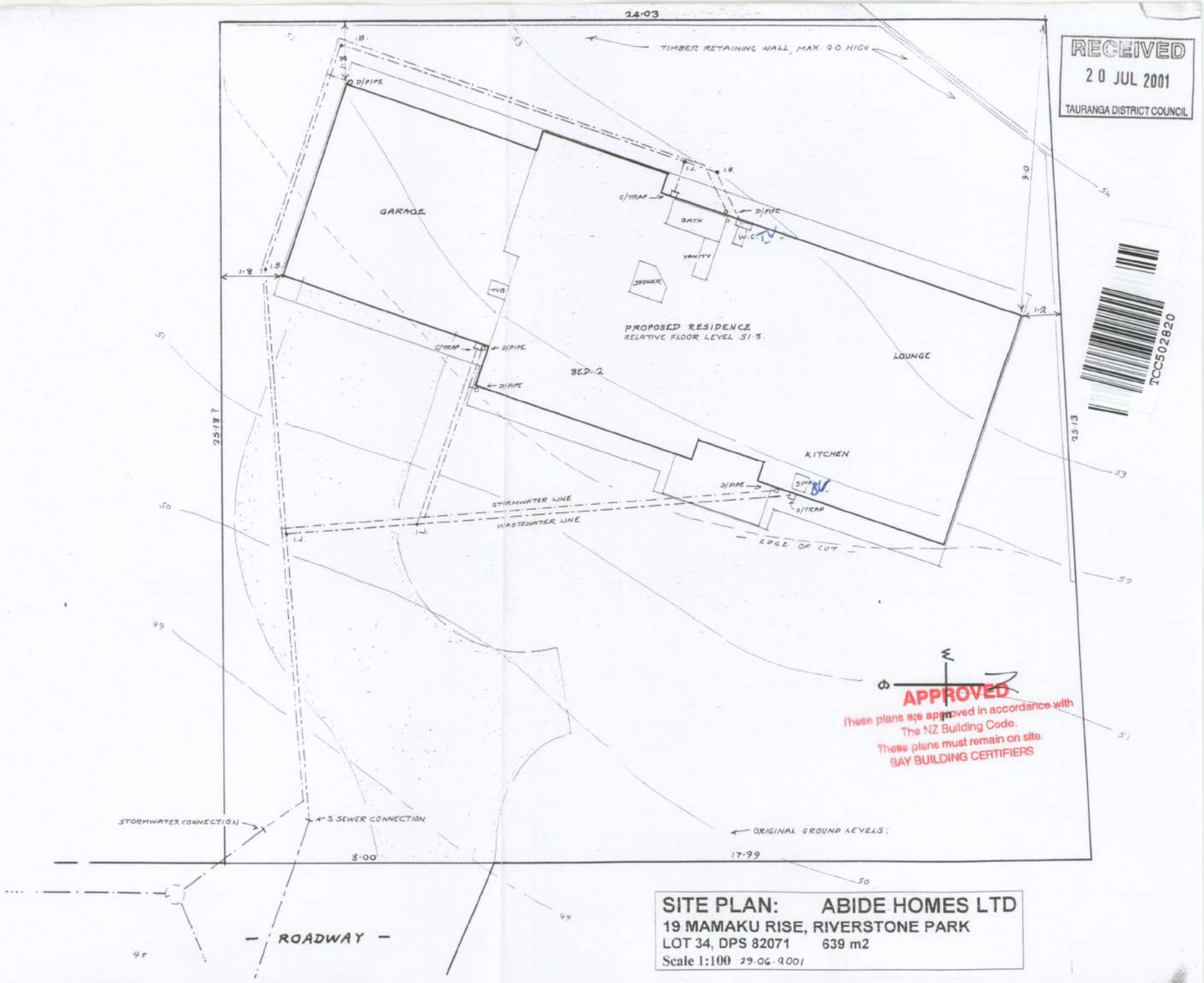
1·000
3·000
2·700

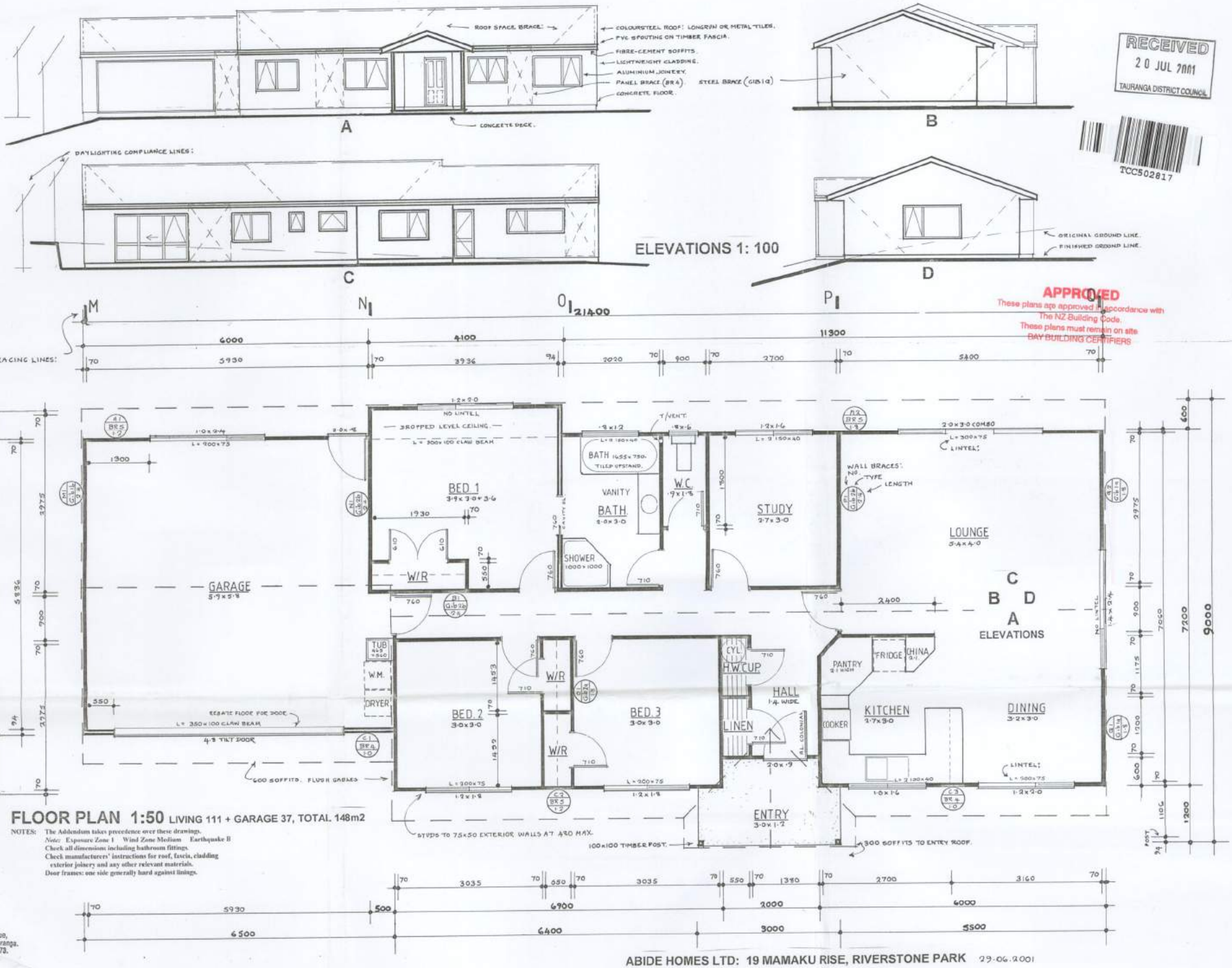


SITE PLAN: ABIDE HOMES LTD

19 MAMAKU RISE, RIVERSTONE PARK

LOT 34, DPS 82071 639 m2

Scale 1:100 29.06.2001



FLOOR PLAN 1:50 LIVING 111 + GARAGE 37, TOTAL 148m2

NOTES: The Addendum takes precedence over these drawings.
Note: Exposure Zone 1 Wind Zone Medium Earthquake B
Check all dimensions including bathroom fittings.
Check manufacturers' instructions for roof, fascia, cladding exterior joinery and any other relevant materials.
Door frames: one side generally hard against linings.

Abide Homes Ltd
28 GlenLyon Avenue,
P O Box 3180, Tauranga.
Phone (07) 578-8073.
Fax (07) 578-8326

ABIDE HOMES LTD: 19 MAMAKU RISE, RIVERSTONE PARK 29.06.2001

P8769-19-1

CODE COMPLIANCE CERTIFICATE NO: 5950

Section 56, Building Act 1991

ISSUED BY **Bay Building Certifiers Ltd**

20 Park Street, P.O.Box 2230 Tauranga
Ph. 07 578-3427 Fax 07 578-5395

Building Certifier No.9, currently registered and approved as a building certifier for all clauses of the New Zealand building code, without limitation.

Consent Number 5950

☑

PROJECT		PROJECT LOCATION
All	☑	Address 19 Mamaku Rise, Welcome Bay
Stage No. .... of an intended .... stages		
New or relocated building	☑	
Alteration	☐	Lot 34
Intended use(s) (in detail)		D.P. S 82071
Erect dwelling and retaining walls.		
		Owner
		Abide Homes Ltd PO Box 3180 Tauranga
Intended Life:		
Indefinite, but not less than 50 years	☑	
Specified as ... years	☐	
Demolition	☐	

This is:

☑ A final code compliance certificate issued in respect of all of the building work under the above building consent excluding N.Z. Building Code clauses G9 (Electricity) and G11 (Gas as an energy source)

☐ An interim code compliance certificate in respect of part only, as specified in the attached particulars, of the building work under the above building consent

☐ This certificate is issued subject to the conditions specified in the attached .... page(s) headed 'Conditions of Code Compliance Certificate No. 5950' (being this certificate).

Signed

Name: .....

Position: ..... Date: Wednesday, 26 February 2003

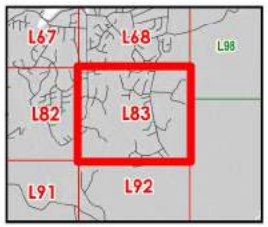
Wayne Wellington
MANAGING DIRECTOR

N

City Plan

Planning Map

L83



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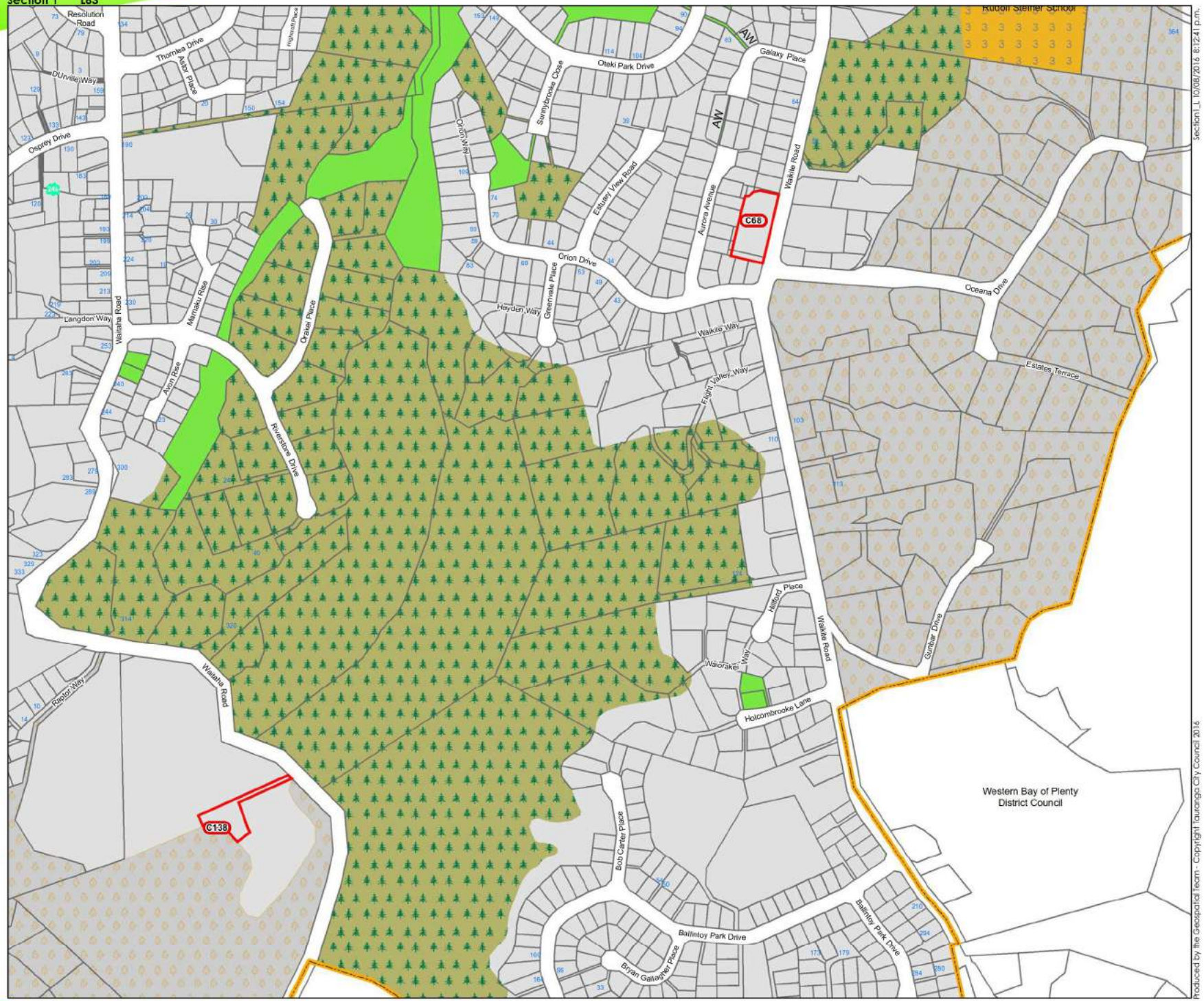
Metres

Scale = 1:5,000

Tauranga City

Section 1 L83




Section 1 R83
N
Resolution Road
Thornlea Drive
DUrville Way
Osprey Drive
Orion Way
Gunnybrooke Close
Oteki Park Drive
Galaxy Place
Estuary View Road
Aurora Avenue
Waikite Road
Orion Drive
Greenvale Place
Hayden Way
Oceana Drive
Waikite Way
Flight Valley Way
Estates Terrace
Langton Way
Wairaha Road
Namaka Rise
Riverstone Drive
Avon Rise
Craker Place
M36
Hilford Place
Gunbar Drive
Waiorakei Way
Holcombrooke Lane
Raptor Way
Waitaha Road
M34
Gas Transmission Pipeline
M33
Bob Carter Place
Ballintoy Park Drive
Bryan Gallagher Place
M32
City Plan
Planning Map
R83
R67
R68
R98
R82
R83
R91
R92
0 50 100 200 300
Metres
Scale = 1:5,000
Cadastral Information sourced from Land Information New Zealand CROWN COPYRIGHT RESERVED
Tauranga City
Produced by the Geospatial team - Copyright Tauranga City Council
Section1_R 11/08/2016 8:09:33 p.m.

Tauranga City Plan
Planning Maps Key (1 of 2)

Jurisdiction

1) The rules of this City Plan only apply landward of Mean High Water Springs.
2) The Bay of Plenty Regional Council is the consent authority for activities seaward of Mean High Water Springs and for activities on the surface of waterbodies.
3) The line of the coast shown on this map represents the position of Mean High Water Springs basedon aerial mapping (2007). It does not necessarily represent the current position of Mean High Water Springs.
4) The Bay of Plenty Regional Council should be consulted before undertaking any activity in the vicinity of Mean High Water to establish the actual line of Mean High Water Springs.

Planning Zones

- City Centre Zone
- City Centre Waterfront Subzones
- Commercial
- City Living – Mixed Use (CLMU)
- City Living – Mixed Use (CLMR) 19 metre max. height
- City Living – Residential (CLR) 9 metre max. height
- City Living – Residential (CLR)
- Suburban Residential
- Residential Large Lot
- High Density Residential

Planning Zones (continue)

- Port Industry
- Tauriko Industry
- Tauriko Commercial
- Industry
- Rural Residential
- Rural
- Education Centre
- Passive Open Space
- Active Open Space
- Active Open Space (Major)
- Conservation
- Greenbelt

Planning Zones (continue)

- Te Tumu Future Urban
- Rural Marae Community
- Urban Marae Community
- Ngati Kahu Papakainga
- Special Use Baypark
- Wairakei Town Centre (Core)
- Wairakei Town Centre (Fringe)
- Neighbourhood Centre (Wairakei)
- Papamoa East Employment
- Wairakei Residential
- Rail
  1. The rail designation has the underlying zoning of the adjoining zone measured from the centreline of the designation
  2. Where the rail designation crosses a public road, the underlying zoning is Road. The rail designation does not cross all public roads.
- Road
  All Public Roads and Service Lanes are Road Zone

Plan Areas

- Current Erosion Risk Zone (CERZ)
- 50 year (2060) Erosion Risk Zone (50 year ERZ)
- 100 year (2010) Erosion Risk Zone (100 year ERZ)
- Scheduled Site
- Commercial Plan Area
- High Rise Plan Area
- Medium Rise Plan Area
- Flood Hazard Plan Area
- Special Ecological Area (Category 1)
- Special Ecological Area (Category 2)
- Outstanding Natural Features and Landscapes Plan Area
- Important Amenity Landscapes Plan Area
- Kiwi Rail Reverse Sensitivity Plan Area
- NZTA Reverse Sensitivity Plan Area

Tauranga City Plan
Planning Maps Key (2 of 2)

1) The rules of this City Plan only apply landward of Mean High Water Springs.
2) The Bay of Plenty Regional Council is the consent authority for activities seaward of Mean High Water Springs and for activities on the surface of waterbodies.
3) The line of the coast shown on this map represents the position of Mean High Water Springs based on aerial mapping (2007). It does not necessarily represent the current position of Mean High Water Springs.
4) The Bay of Plenty Regional Council should be consulted before undertaking any activity in the vicinity of Mean High Water to establish the actual line of Mean High Water Springs.

Other Symbols

- Legal Parcel Boundary as at Date Printed on Map
- Mean High Water Springs
- Sub Zone Boundary
- Pedestrian Environment Street Frontage
- Pedestrian Link Requirement
- Coastal Protection Area
- Special Noise Rule Applies (Courtney Road, Bethlehem Town Centre)
- Territorial Authority Boundary

Utilities

Note: While only transmission and key electric lines are identified on the Planning Maps, works in close proximity to all electric lines can be dangerous. Compliance with the New Zealand Electrical Code of Practice 34:2001 is mandatory for buildings, earthworks and mobile plants within close proximity to all electric lines. Compliance with the Electricity (Hazards from Trees) Regulations 2003 is also mandatory for tree trimming and planting. To discuss works, including tree planting, near electrical lines especially within 20m of those lines, contact the line operator.

- High Voltage Transmission Plan Area-Support Structure
- High Voltage Transmission Plan Area-Electric Line
- High Voltage Transmission Plan Area
- Powerco Structure
- Powerco Overhead Electric Line
- Powerco Underground Cable
- Trustpower Structure
- Trustpower Electric Line
- Gas Transmission Pipeline

Heritage

- Built Heritage Site Number
  (Refer Heritage Register, Chapter 7) NOTE: tree canopy and number within it indicates tree(s) on this legal parcel, but not necessarily at the marked location within the parcel.
- Notable Tree
  (Refer Notable Tree Register, Chapter 6) NOTE: tree canopy and number within it indicates tree(s) on this legal parcel, but not necessarily at the marked location within the parcel.
- Heritage Tree
  (Refer Heritage Tree Register, Chapter 7) NOTE: tree canopy and number within it indicates tree(s) on this legal parcel, but not necessarily at the marked location within the parcel.
- Signficant Groups of Trees
  (Refer Signficant Groups of Trees Register, Chapter 6) NOTE: Tree canopies should be sighted on site to determine actual extent
- Significant Maori Areas
  (Refer Chapter 7, Appendix 7B: Register of Significant Maori Areas)
- Significant Archaeological Areas
  (Refer Chapter 7, Appendix 7D: Register of Significant Archaeological Areas)
- Te Tumu Archaeological Management Areas
  (Refer Chapter 7, Appendix 7E: Te Tumu Archaeological Management Areas)

Designations

- Designated Site Boundary (other than Road Designation)
- Designated Road or Road Widening
- Designated Site Number (Refer Appendix 10C:Designations)
- Limited Access Road
- Proposed Designated Site Boundary (other than Road Designation)
- Proposed Designated Road or Proposed Road Widening
- Proposed Designated Site Number (Refer Appendix 10C:Designations)

Requiring Authority Abbreviations

C	Tauranga City Council
MJ	Ministry for Courts
DR	Department of Corrections
MD	Ministry of Defence
ME	Ministry of Education
MH	Ministry of Health
MS	Meteorological Service of New Zealand
NP	New Zealand Police
NZTA	New Zealand Transport Agency
PC	PowerCo Limited
RC	New Zealand Railways Corporation
TNZ	Telecom New Zealand Ltd and Telecom Mobile Communications Ltd
TW	Transpower New Zealand Limited
WB	Western Bay of Plenty District Council
CH	Chorus Limited

Other Abbreviations

AW	Accessway - Zoned Passive Open Space
SL	Service Lane
C.M.A	Coastal Marine Area covered by Regional Coastal Environment Plan

General Description of Land Form within Tauranga District

The land form and geology within Tauranga District have some features which demand particular attention.

(a) Minimum Building Platform Levels

Significant areas of Tauranga District are at risk of flooding through sea level rise, tidal surges within the harbour, storm-wave runup on the ocean coastline and the flooding of streams, sewer drains, ponding areas and overland flow paths in extreme climatic conditions. Council has some "broadbrush" information on many possibly flood prone areas. More detailed investigations by appropriately qualified people may be required to be submitted in support of Resource and Building consents. Building Platforms should be constructed with adequate freeboard above flood levels. Council has adopted a minimum floor level policy. This level is available from Council on request from Council's Development Engineer. However due to the dynamic nature of the environment and the ongoing investigative work these levels may be reviewed at any time. For the purposes of this clause, a "building platform" is defined as the area of ground within a line 1.0m outside the perimeter of the building proper.

(b) Low-lying Land

There are many areas of low-lying land (often adjacent to the harbour) which comprise soft or very soft foundation conditions. These conditions are characterised by normally consolidated fine grained alluvial sediments (silts and clays) which have been deposited in marine or estuarine environments. In many areas they have been subject to random and non-engineered fillings. The materials are prone to settlement caused by consolidation under even minor loadings. These areas require particular care and appropriate geotechnical investigation and advice prior to development concepts being prepared. Whilst most of the Mount Maunganui/Papamoa area has an underlying sand formation, pockets of peat and "black sand" occur which exhibit poor foundation support qualities. These should be removed from building platforms and roading subgrades.

(c) Sloping Ground

The foundation conditions of the low-lying areas in the District have been described in (b) above. The near surface geology of the higher ground within the District comprises a series of weathered fine grained rhyothic ashes known locally as the Older Ashes. The Older Ashes consist of the Pahoia Tuffs overlain by the Hamilton Ash (the top of which is known locally as the "chocolate" layer).

Overlying the Older Ashes is a series of coarse friable silts, sands and pumice lapilli which tends to mantle the topography formed within the Older Ashes and are known locally as the Younger Ashes.

On some sloping ground, particularly the present and relic slips adjacent to the harbour, the ashes often have marginal stability and there are numerous examples of past and recent instability. Deep seated failures are generally confined to the steep banks which are or have in their history been subjected to active toe erosion. Development must be set back from the top of such steep banks, with the set back distance being determined by appropriate geotechnical investigations carried out by a Person who has pre-qualified with Council as a Specialist Geotechnical Advisor.

The majority of other failures on modest to steeply sloping ground are shallow failures (involving the top 1m to 3m of soil), but are nonetheless of serious consequence to any building development. Such failures are usually initiated by extreme climatic conditions. Any sloping ground greater than 15 degree gradient should be subject to appropriate geotechnical investigations to determine whether the ground is adequately stable for development.

Mark T Mitchell Ltd

Consulting Geotechnical Engineer

1202/1 Victoria Street
P.O. Box 9123
Hamilton New Zealand
Facsimile 07 839 3125
Telephone 07 838 3119
e-mail: geocon@voyager.co.nz

Ref: T - 4255/2
4 November, 1998

The Development Engineer
Tauranga District Council
Private Bag
Tauranga

Dear Sir,

Re: Inspecting Geotechnical Engineer's Summary Report
Stage II, Riverstone Park Residential Subdivision, Waitaha Road, Tauranga

I advise that I have carried out the function of Inspecting Engineer for the Stage II Development of Riverstone Park Residential Subdivision and have the appropriate qualifications and experience to carry out this work. I was retained for this work by the Owner, Waitaha Property Developments Ltd and by Manukau Consultants Ltd to advise on geotechnical aspects of the above referenced subdivision.

1. Earth Fills

An outline of the earthworks construction which was carried out as part of the subdivision development is presented in the attached report dated 3 November, 1998. Part of this work included the construction of earth fills. The fills (termed "Certified Fills") which are located within areas where residential dwellings are to be constructed have been placed and compacted in accordance with the relevant NZ Standard Code of Practice for Earth Fills.

In other areas, where building construction is unlikely, the fills have been constructed to a lesser standard. These fills are termed "Uncertified Fill" areas and have been placed over the edge of the steeper slopes within the site.

The lots where a Certified Fill has been placed are:

Lot Nos. 14, 26 to 31 and 48 to 55

The lots where Uncertified Fill exists or has been recently placed are:

Lot Nos. 26 and 48 to 54

Uncertified Fill has also been placed within trench backfilling wherever stormwater and sewer pipes have been constructed. However this backfilling is within the Drainage Reserve areas and therefore outside of building site locations.

An old fill to 0.6 metres depth was encountered near Lot 38. This area was left unaltered during the site development works and therefore the extent of this uncertified filling is unknown. However it may be assumed that this shallow, uncertified filling also extends into nearby Lots 37 and 39.

Limitations as to building construction within these areas are set out in the attached Soils Investigation and Inspecting Engineer's report dated 3 November, 1998.

2. Foundation Construction

The available soils information indicates that in most of the natural ground areas and within Certified Fill areas, the soils present are of a relatively high shear strength and density. Therefore, over much of the project site, the soil conditions are such that foundations may be constructed in accordance with the relevant NZ non-specific design codes of practice for building work, such as NZS 3604 and NZS 4229.

However this does not alleviate the necessity for a Building Certifier or an Engineer to carry out normal inspection of foundations prior to the pouring of concrete. Soft soil layers are likely to occur occasionally in natural ground areas and it is important that sufficient testing and probings be carried out to ensure that no undetected fill, loose or soft soils underlie the footings.

Council sewer and stormwater lines cross several of the lots within the subdivision and the construction of these services has resulted in the disturbance of natural ground. It should also be noted that these services were primarily constructed after the Certified Fills had been completed with excavations made into these fills in some locations. Therefore in the vicinity of these lines, some of the near-surface soils may consist of re-spread filling which has not been compacted to the same standard as for a Certified Fill. All stormwater and sewer lines have been constructed within an easement set aside for these services.

During site development, after the project site had been excavated and filled to the desired grades, topsoil was spread over the completed surface. Site Plans that show areas of cut and fill are included with the accompanying report.

3. Building Restriction Line

Much of the eastern margin of the subdivided area contains a steep batter slope of Uncertified Filling and also contains stormwater and sewer lines at the base of the slope. The western extent of this area is defined by a Building Restriction Line that is located 10 metres off the eastern boundary. Where it is desired to build closer than 10 metres from this boundary, it will be necessary to carry out a separate soils investigation at that location. If it is determined that this option is feasible, a Specific Foundation Design by a Registered Engineer will be required.

4. Site Certification

The Tauranga District Council requires in their Code of Practice that upon completion of construction the Soils Engineer is to provide a statement of professional opinion as to the suitability of the land for building development and that the earth fills are also suitable for residential development.

A Statement of Professional Opinion as to the Geotechnical Suitability of Land for Building (Tauranga District Council Form G2) is attached to this report. A Summary Form of Geotechnical Data/Recommendations/Requirements for Individual Lots (Tauranga District Council Form G2a) is also attached.

5. General Soils Report

The Tauranga District Council requires for their records, a Soils Report that sets out the results of site investigations that were carried out prior to the subdivision development as well as construction inspection data and other relevant geotechnical information.

The attached Soils Investigation and Inspecting Engineers Report dated 3 November, 1998 summarises the results of earlier soils investigations and presents data and recommendations relative to the recent construction works.

Yours faithfully,

Mark T Mitchell Ltd

Consulting Geotechnical Engineer

Mark T Mitchell Ltd

Consulting Geotechnical Engineer

1202/1 Victoria Street
P.O. Box 9123
Hamilton New Zealand
Facsimile 07 839 3125
Telephone 07 838 3119
e-mail: geocon@voyager.co.nz

SECTION 2: FORM G2

Ref: T – 4255

To: The Director of Environmental Services
Tauranga District Council
Private Bag
Tauranga

STATEMENT OF PROFESSIONAL OPINION AS TO

GEOTECHNICAL SUITABILITY OF LAND FOR BUILDING

Development : Stage 2, Riverstone Park Residential Subdivision
Owner/Developer : Waitaha Property Developments Ltd
Location : Waitaha Road, Welcome Bay, Tauranga

I, Mark Thomson Mitchell of Mark T Mitchell Ltd, Consulting Geotechnical Engineer of 1202/1 Victoria Street, Hamilton, hereby confirm that:

1. I am a Registered Engineer and professional person, appropriately qualified with experience in geotechnical engineering to ascertain the suitability of the land for building development and was retained as Soils Engineer to the above development.

2. An appropriate level of site investigation and construction overview has been carried out by our firm under my direction. Day-to-day construction inspection has been carried out by the Project Engineers for the development, Manukau Consultants Ltd. A Soils Investigation and Inspecting Engineer's Report, dated 3 November, 1998, together with an Inspecting Geotechnical Engineer's Summary Report dated 4 November, 1998 have been prepared for the project.

3. In my professional opinion, not to be construed as a guarantee, I consider that:

   a. The areas shown in my report dated 3 November, 1998 of each new allotment is suitable for the erection thereon of the building types appropriate to the zoning of the land, provided that all recommendations contained in my Soils Investigation and Inspecting Engineer's Report of 3 November, 1998 are followed.

   b. The earth fills shown on the attached Drawing No. 4255-22 have been placed in accordance with the Code of Practice for Development of the Tauranga District Council.

   c. The completed works give due regard to all land slope and foundation stability considerations.

   d. The filled ground is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604:1991 and related documents provided all recommendations contained in my Soils Investigation and Inspecting Engineer's Report of 3 November, 1998 are followed.

e. The original ground not affected by filling is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604:1991 and related documents provided all recommendations contained in my Soils Investigation and Inspecting Engineer's Report of 3 November, 1998 are followed.

4. This professional opinion is furnished to the Tauranga District Council, the Owner/Developer and to the Initial Purchaser of each property for their purpose alone, on the express condition that it will not be relied upon by any other person and does not remove the necessity for the normal inspection of foundation conditions at the time of erection of any dwelling.

for **Mark T Mitchell Ltd**
Consulting Geotechnical Engineer

4 November, 1998.

TAURANGA DISTRICT COUNCIL

LOT SUMMARY REPORT

TAURANGA DISTRICT COUNCIL

MAY 98

G2a △

VERSION 1

Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

Lot #	Area (m^2)	Subsurface Data						Foundations		Building line restriction ?	Recommendations/restrictions
		Shear strength (kPa)	Subdivision filling		Natural topography unworked?	Natural topography earthworked?		Coventional shallow foundation to NZS 3604: 1991 ?	Specific Design?		
			Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N/NA	Y/N/NA	Y/N	
14	722	-	Y	0.5	N	Y	0.5	Y	N	N	
15	662	-	N	-	N	Y	0.5	Y	N	N	
26	549	-	Y	0.5	N	Y	0.5	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
27	660	-	Y	1.0	N	Y	1.0	Y	N	N	
28	625	60	Y	1.5	N	Y	1.5	Y	N	N	
29	627	60	Y	1.5	N	Y	1.5	Y	N	N	
30	-	-	Y	1.5	N	Y	1.5	Y	N	N	
31	-	> 78	Y	1.5	N	Y	1.5	Y	N	N	
32	638	> 70	N	-	Y	N	-	Y	N	N	
33	645	-	N	-	Y	N	-	Y	N	N	
34	645	-	N	-	Y	N	-	Y	N	N	
35	701	> 84	N	-	N	Y	1.0	Y	N	N	
36	600	-	N	-	N	Y	1.0	Y	N	N	
37	600	> 80	N	-	N	Y	0.5	Y	N	N	Presence of Old shallow Filling
38	600	> 80	N	-	Y	N	-	Y	N	N	Presence of Old shallow Filling
39	632	-	N	-	Y	N	-	Y	N	N	
40	657	-	N	-	Y	N	-	Y	N	N	
41	602	> 60	N	-	Y	N	-	Y	N	N	

Comments: Lot areas are taken from the original scheme plan and may be subject to variations

TAURANGA DISTRICT COUNCIL

LOT SUMMARY REPORT

MAY 98

G2a

VERSION 1

Summary of Geotechnical Data/Recommendations/Requirements for Individual Lots

Lot #	Area (m^2)	Subsurface Data						Foundations		Building line restriction ?	Recommendations/restrictions
		Shear strength (kPa)	Subdivision filling		Natural topography unworked?	Natural topography earthworked?		Coventional shallow foundation to NZS 3604 1991 ?	Specific Design?		
			Y/N	Depth (m)	Y/N	Y/N	Depth (m)	Y/N/NA	Y/N/NA	Y/N	
42	-	-	N	-	Y	N	-	Y	N	N	
43	577	-	N	-	Y	N	-	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
44	597	-	N	-	Y	N	-	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
45	609	> 70	N	-	Y	N	-	Y	N	N	
45	570	-	N	-	N	Y	0.5	Y	N	N	
47	618	-	N	-	Y	N	-	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
48	600	-	Y	1.0	N	Y	1.0	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
49	599	-	Y	4.0	N	Y	4.0	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
50	574	-	Y	4.0	N	Y	4.0	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
51	574	-	Y	4.0	N	Y	4.0	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
52	575	-	Y	4.0	N	Y	4.0	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
53	575	-	Y	3.0	N	Y	3.0	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
54	4632	-	Y	2.0	N	Y	2.0	Y	N	Y	Building Restriction Line as shown on Drawing No. 4255-23
55	-	-	Y	1.5	N	Y	1.5	Y	N	N	
56	-	> 84	N	-	N	Y	0.5	Y	N	N	
57	-	-	N	-	Y	N	-	Y	N	N	

Comments: Lot areas are taken from the original scheme plan and may be subject to variations

SOILS INVESTIGATION AND INSPECTING ENGINEER'S REPORT STAGE II RIVERSTONE PARK RESIDENTIAL SUBDIVISION WAITAHA ROAD, WELCOME BAY, TAURANGA

I. INTRODUCTION

This report presents the results of a soils and foundation investigation, together with a summary of the engineering construction works, that have been carried out in association with the formation of Stage II of the Riverstone Park Residential Subdivision, located off Waitaha Road, Tauranga. The engineering design of the project was carried out by Graham Read Consultants, Registered Surveyors and Development Consultants on behalf of the project developers, Waitaha Property Developments Ltd.

Geotechnical aspects of the project were overseen by Mark T Mitchell Ltd, Consulting Geotechnical Engineer with soil sampling, testing and on-site supervision of earthworks carried out by Manukau Consultants Limited in conjunction with Mark T Mitchell Ltd. Some of the on-site testing and all laboratory testing of soil samples carried out by Geocon Soil Testing Ltd.

A Site Plan that shows the overall project site area that existed prior to the recent development is shown on the attached Drawing No. 4069-01. The ground at that time within the Stage II area was gently sloping and consisted of a broad gully formation where all areas sloped gently towards the central eastern boundary. A Kiwifruit Orchard originally occupied most of the Stage II area with the remaining areas consisting of pastureland.

This report also serves as part of the Completion Geotechnical Engineering Report for Stage II of the project, sometimes termed the "Inspecting Engineer's (Geotechnical) Report". Stage II comprises Lot Nos. 14, 15 and 26 to 60. The site development works consisted of general site clearing, earthfilling, together with the construction of the road and right-of-way formations. An Inspecting Geotechnical Engineer's Summary Report, which accompanies this report and contains Engineering Certifications for the site soils, has also been prepared.

The general site layout for Stage II is presented on the attached Drawing No. 4255-20.

II. FIELD INVESTIGATIONS

The project was initially investigated in September 1995 by drilling a series of eight hand auger borings over the project site area. Bore Hole Nos. 2 to 8 were drilled in the Stage II area and their logs are presented on Figs. A-1 to A-4 with their locations shown on the attached Site Plan, Drawing No. 4069-01. Bore Hole No. 1 was drilled immediately outside of the Stage II area but is also included for completion purposes.

As a result of the soil conditions encountered during the initial investigation, the site was further investigated in July and August, 1996 by drilling a series of twelve hand auger borings. Bore Hole Nos. 14 and 16 to 20 were drilled within the Stage II area and their logs are presented on Fig. A-7 to A-10.

The depths of the subsurface investigations within the Orchard area were somewhat restricted due to the wires and vines that were present. A tractor mounted auger drilling rig was therefore used to drill a further series of test holes designated Nos. 21 to 30. The locations of bore holes are shown on the attached Drawing No. 4069-01 and their logs are presented on Figs A-11 to A-17.

III. SOIL CONDITIONS and SITE GEOLOGY

1. Natural Soils

The naturally occurring, near-surface soils over the site have been produced by natural weathering activity upon a sequence of airfall volcanic ashes. These ash deposits contain soils horizons that are readily distinguishable with soil types varying from relatively unweathered silty sand, to well-weathered clayey silt and clay. The ash deposits are generally subdivided into two geologic formations; "Younger Ashes", being a less weathered formation which has been deposited in about the last 50,000 years, and "Older Ashes", being the more clayey soils deposited prior to 50,000 years ago.

The boundary between the younger and older ashes is generally distinct and so provides useful data for determining the extent of former landslide activity or former man-induced disturbance at the bore hole location. Where the upper soil formations are intact, it may be ascertained that the ground surface in the vicinity of the bore hole has been unaffected by slope instability or other disturbance in recent times. Where the ash formations are not present, it is probable that ground instability has occurred.

The soils underlying the Older Ash deposit at this site consist of either weathered Ignimbrite in the higher ground areas, or a sedimentary deposit (ie. silt and sand deposits), termed the "Tauranga Beds" within the lower (gully) parts of the site. The Ignimbrite is a volcanic deposit that was not encountered during the investigations, but its presence is assumed on the basis of other information available.

Within the lower areas of the site, the Tauranga Beds, which consist of Silts, Sands and organic layers, were encountered in a number of the deeper tractor drilled bore holes.

2. Fill Areas

A considerable amount of Uncertified Fill soils consisting of a variable mixture of Silts, Sands and Clays overlying the original gully bottom and stream bed sediments were encountered within the Stage II area.

This bore hole information together with an analysis of aerial photographs, indicated that the conversion of the original farmland into a Kiwifruit Orchard sometime after 1978 had resulted in some major earthworks having taken place. It appeared that these earthworks were undertaken primarily to create a gentle, north-east facing slope and to ease out part of a former, moderately steep sided gully system. The location of the original gully feature is presented on the original Site Plan.

From the information available, it also appeared that some filling has been pushed over the top of the bank immediately upslope of the Recreation Reserve (Lot 54) and the rear (eastern) parts of Lots 43, 44, 47 and 48.

A further Fill area was identified during the initial Site Investigation and this area is located within the north-western corner of the property. The Fill material was located at the boundary of Lot Nos. 37 and 38 and has a depth of 0.6 metres. Most, if not all, of this material was removed during the recent earthworks operations and is therefore not shown on the accompanying Site Plans.

IV. REVIEW OF SLOPE STABILITY

1. Stability of Former Natural Slopes

An inspection of the site prior to the recent development showed no evidence of past major slope instability within the property and a review of the bore hole logs in the upper site areas, away from the fill areas, indicates that the upper Younger Ash layers were essentially intact.

The original steep gully slopes that would have originally been present within the Stage II area have since been eliminated as a result of the gully infilling. The fill material pushed over the banks of the steeper slopes has also resulted in reduced slope gradients.

The upper site topography has been formed as the result of an Ignimbrite volcanic rock formation producing the major ridge structure, with a mantling of consistent layers of weathered volcanic ash. The Ignimbrite formation provides a stable base to the area, however groundwater is likely to accumulate and flow within the rock fissures. The formation of gullies in this type of formation, such as the one that was originally present within the centre of the property, are associated with groundwater outflows which may themselves create further instability unless adequate drainage measures are carried out to intercept this flow.

As groundwater outflow is likely to be a dominant factor in producing slope instability, it is considered that the site is not suitable for the in-ground disposal of concentrated stormwater and wherever possible stormwater should be collected and piped off-site. The recent site development works have ensured that this is the situation.

The steeper parts of the project site are located along the eastern boundary and reference to building restriction in these areas is provided below.

2. Stability of Slopes – as Developed

The project site has been re-graded so as to provide road and property gradients that are appropriate for a residential subdivision. The gradients of the relatively steep slopes that were present along the eastern boundary have therefore been reduced further.

However, recent construction of relatively deep stormwater and sanitary sewer lines along the eastern site boundary (Lots 26, 43, 44, and 47 to 53) has taken place. This together with he presence of Uncertified Filling within the eastern parts of many of these lots has required that foundation construction take place away from these areas and at a location where the supporting ground is suitably stable.

It is therefore recommended that a Building Restriction Line (BRL) be applied to each of these lots. The location of the BRL is presented on the attached Site Plan, Drawing No. 4255-23 and indicates that the restriction line is located 10 metres from the rear boundary of each of these lots.

V. SITE DEVELOPMENT

1. Site Excavations and Fill Placement

The construction of the roadways and right-of-ways commenced with the removal of topsoil from both cut and fill areas. The subsequent earthworks included excavations in the major cuts of several metres high within both the Stage II and III areas with the soils then placed and compacted in the fill areas.

The existing Uncertified Filling and underlying gully soils that were present within the original filled gully area were also removed from below each of the affected lots. This excavation depth was generally in the order of less than 1.5 metres within Lots 14, 27 to 31 and 55, and up to 3 metres within Lots 48 to 54. An approximate 10-metre wide bund of original Uncertified Filling was however left remaining within the eastern parts of Lots 48 to 54 as this area has been used for the construction of the stormwater and sanitary sewer lines. The Filling was also left remaining below the proposed road carriageway.

The open void created by the removal of the Uncertified Filling within Lots 48 to 54 was then refilled with Rhyolitic Rubble or crushed rock aggregate. Materials within all remaining fill areas consisted of clay soils derived from weathered volcanic deposits, commonly known as "Younger" and "Older" ashes.

The purpose of the filling which was carried out within the Stage II area was to merge the pre-existing ground levels with those of the new roading levels and to provide access to the various lots within the subdivision.

2. Controlled Fill Areas

a. Certified Fill

The majority of the fill that has been placed in the subdivision is classified as a Certified Fill. In these areas, the site was first stripped of all topsoil and any organic Silt soils that might have been present and then filled with suitable soils as described above.

The soils in the Certified Fill areas were compacted in layers with compaction applied with a sheepsfoot roller. The level of compaction effort applied was so as to achieve a density which is acceptable for building construction purposes. Field testing of the Certified Fill areas was carried out by staff from our service company, Geocon Soil Testing Ltd and by Manukau Consultants Ltd staff. The test results, as presented on the attached Table 1, indicated that an adequate density was being achieved in the areas tested. We are therefore of the opinion that the Certified Fill areas are generally able to support conventional foundations in their as-compacted state, as indicated by the accompanying Fill Certification.

It should be noted that the extent of involvement of technical staff from Manukau Consultants Ltd did not involve the full-time supervision of earthworks at the site. The works were instead supervised by the Contractor's superintendent, rather than by consulting engineering technical staff. It is for this reason that the paragraphs within the Fill Certifications refer to statements being based on a professional opinion, and not to be taken as a guarantee.

Under the circumstance of earthworks construction by large machines, it is possible that isolated areas of softer soils may occur within the Certified Fill areas. Where such softer soils are encountered during excavations for house foundations, they may need to be over-excavated and the foundations deepened or increased in size by a minor amount so as to decrease the foundation bearing pressures on the soil.

It has also been agreed by the developer and the purchaser of Lot Nos. 26 and 48 to 53 to place Topsoil to a depth 0.6 metres on each of these lots. At the time of house construction, the purchaser is to remove the Topsoil material from below the proposed building site areas and replace it with hardfill.

b. Uncertified Fill

A class of earth filling which is termed "Uncertified Fill" exists within particular areas of the subdivision site. The area where this particular class of fill is present is along the eastern boundaries of Lot Nos. 26, and 48 to 54. The soils placed in these areas consist of the original random mixture of Ash materials and would have only been compacted to a standard suitable for farming purposes. The original gully and streambed soils were also left remaining below these fill soils. Further uncertified Fill materials were then placed in these areas during the recent earthworks construction season. The soils placed in these areas were track rolled but not compacted to the density of the Certified Fill areas.

All filling which is classified as Uncertified Fill is considered to be of an inadequate and inconsistent density to be able to adequately support shallow foundations for residential buildings.

c. Other Fill Areas

The construction of stormwater and sewer lines through the project site has also resulted in the disturbance of the ground. As the degree of compaction of the trench backfill and disturbed soil around can not be verified, all backfill soils are classified as "Uncertified Fill". Where foundations for buildings, including garage structures, are located near sewer or stormwater pipes, foundations will need to be constructed in accordance with NZ Standard Building Code requirements.

As a general rule, these foundations will need to be deepened to found below the level of all backfill soils. A further criteria is for foundations which are located near these services is that foundations should be located below a 45 degree line drawn upwards from the pipe invert level, or be subject to an Engineers design.

It is possible that old filling may be present in other parts of the site but was not detected during the development of the site. For example, shallow filling to 0.6 metres depth was encountered in the vicinity of Lot 38. Where such filling is encountered during house foundation excavations, foundations should be deepened to found into the original soils below.

d. Density Test Results

The results of soil testing which was carried out during the placement and compaction of the Certified Fill areas is presented on the attached Table 1. The location of the tests are shown on the attached Drawing No 4255-21.

e. Location and Extent of Fills and Cuts

The locations where fill has been placed are shown on the attached Site Plan, Drawing No 4255-20, with the depth of the Certified Fill shown as fill depth contours on Drawing No. 4255-21. Prior to placement of the filling, the fill areas were stripped of topsoil and then benched. Fill has also been placed in the vicinity of the stormwater and sewer lines and some of the near-surface soils near these lines may consist of re-spread filling that is mixed in with the re-spread topsoil layer.

The depth of cutting which was carried out during the regrading of Stages II and III of the subdivision is shown by a series of contour lines which are presented on the attached Site Plan, Drawing No. 4255-22. Topsoil and other friable subsoils were spread over these areas following completion of the bulk earthworks and then sown with grass.

3. Fill Certification

The attached Table 1 presents the results of the quality control testing for bulk earthworks of Stage II of the subdivision. The test results presented on this Table indicate that the fill at the test locations, which are believed to be representative of all of Certified Fill areas, has been placed and compacted to the standards required in the NZ Standard Code of Practice for Earth Fill for Residential Development, NZS 4431 and to the Tauranga District Council Code of Practice for Development.

In the Certified Fill Areas, we advise that the fill, in general terms, has a satisfactory stability for residential construction involving one-storey and two-storey timber framed buildings, for masonry buildings and for buildings of both timber and masonry not requiring Specific Design in terms of NZS 3604, NZS 4229 and the New Zealand Standard Building Code, 1992.

The 'Certified Fill Areas' are also considered to have a satisfactory stability for the support of services, such as sewers and water supply lines.

VI. GENERAL RECOMENDATIONS FOR THE CONSTRUCTION OF FOUNDATIONS

Because of general variations in soil type and densities across the site, it is not possible to provide specific recommendation for the construction of foundations for all residential dwellings to be constructed within the subdivision. Instead, generalised guidelines are provided as follows. After foundations are actually excavated, variations in soil conditions encountered may require foundation construction other than that suggested below.

1. Foundations Constructed in Natural Ground Areas

The available soils information indicates that in most of the natural ground areas (Lots 15, 27, 32 to 47, 56 and 57) the soils present are of a relatively high shear strength and density. However, it should be noted that soft soil layers will occasionally occur in these deposits and their presence may affect foundation construction.

The NZ Standard Code of Practice for Light Timber Frame Buildings not requiring specific design (NZS 3604) requires that the supporting soil to the foundations has a safe bearing pressure of 100 kPa. In general, where Scala Penetrometer values are in excess of 3 to 4 blows per 100mm, or shear strength values are in excess of 60 kPa, the supporting ground will have an adequate safe bearing pressure. This situation would generally apply where foundations are located within the Certified Fill and in better natural ground areas.

For the situation of slightly lower Scala or shear strength values, such as Scala values between about 2 and 3 blows per 100mm and shear strength values less than 50 kPa, other factors need to be taken into consideration, such as the structural design of the perimeter footings, and the nature of the structure. However, in most circumstances, an increase in the size of the footing would be appropriate in locations where these lower test results are obtained.

Where the Scala values are in the order of 2 blows per 100mm, or less, or shear strengths are less than about 30 kPa, over-excavation and replacement of soils will be required in the case of a concrete floor foundation. Where a timber floor is to be supported, deepened foundations will most likely be required.

Concrete Slab-on-Grade Floor construction should be carried out by firstly excavating and removing all shallow silt/topsoil fill and topsoil materials from below the proposed foundation area. If soft soils are encountered at this level, some over-excavation of these soils will be required, and compacted hardfill used as a replacement. The shape of this excavation would be to a minimum of 600mm outside of the building lines, with the excavation taken to a deeper level below footing lines.

Timber Floor construction may be supported by either conventional cast-in-place concrete pad foundations or by driven timber pile foundations. If soft soils are found to be present at founding level, the size of the foundation will either need to be increased, or the foundation deepened, depending upon the nature of soils present below the foundations. In the situation of Rhyolite rock being encountered at foundation level and which prevents the drilling of piles to design depth of deeper piles, such as for anchor piles, an alternative subfloor bracing system will need to be employed.

2. Foundations Constructed in Certified Fill Areas

The available soils information indicates that within Certified Fill areas, the soils present are of a relatively high shear strength and density. However, it should be noted that soft soil layers within the fill could occasionally occur, as described in the above section, in which case, a minor increase in footing size may be required.

The NZ Standard Code of Practice for Light Timber Frame Buildings not requiring specific design (NZS 3604) requires that the supporting soil to the foundations has a safe bearing pressure of 100 kPa. In general, the Certified Fill will provide this support to foundations.

3. Foundations Constructed in Uncertified Fill Areas

It is unlikely that building construction will take place within any of the uncertified fill areas, including the sanitary sewer and stormwater sewer trench backfilling. However, if building construction is to take place in these areas, a separate soils investigation will be required and if stable soils are found to be present, a Specific Design of Foundations by a Registered Engineer will be required.

4. Inspection of Foundations

In the case of concrete slab-on-grade construction, it is recommended that at the time when the building site area is set out on site and the topsoil removed, the exposed surface should be inspected by a suitably qualified person. That suitably qualified person may be an approved Building Certifier, or a Registered Engineer.

If any soft areas are present at or below this level, they should be excavated from below critical areas, with footing and concrete slab details amended where necessary. The replacement hardfill used below the concrete slab and footing areas should be placed in layers not exceeding 200 mm in thickness, with each layer thoroughly compacted with the vibratory roller.

In the case of foundations supporting a timber floor, it is recommended that after the pile holes have been drilled, the foundation soils are inspected and tested by a suitably qualified person, as listed above. If any soft areas are found to be present at or below foundation level, the foundation holes should be either deepened or widened as necessary.

If and where any extensive areas of soft soils are encountered at foundation level, our office should be advised prior to the commencement of the removal of the soft soils or deepening of foundations.

5. Building Restriction Lines (BRL)

Much of the eastern margin of the subdivided area contains a steep batter slope of Uncertified Filling and also contains stormwater and sewer lines at the base of the slope. This part of the project site is therefore unsuitable for residential building construction. The western extent of this area is defined by a Building Restriction Line that is located 10 metres off the eastern boundary. Where it is desired to build closer than 10 metres from this boundary, it will be necessary to carry out a separate soils investigation at that location. If it is determined that this option is feasible, a Specific Foundation Design by a Registered Engineer will be required.

VII. LIMITATIONS

The geotechnical opinions and recommendations which are contained in this report are based on site conditions as they presently exist and further assume that the exploratory holes and soundings and site testing and observations during construction are representative of soil conditions throughout the site. i.e. inferences about the nature and continuity of ground conditions away from the bore holes and test locations have been made in providing the recommendations as set out in this and other soils reports for this project. It is assumed that subsurface conditions everywhere are not significantly different from those disclosed by the investigations and by site testing.

We should be notified of any subsurface conditions which appear to be different from those as described in the soils reports so that these conditions may be reviewed and our recommendations reconsidered where necessary. Such a review would be at the cost of the new property owner.

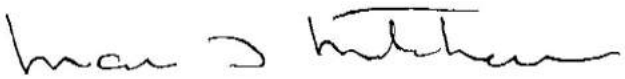
VIII. CONCLUSION

The results of our studies and investigations indicate that there is a stable building site available on each of the proposed lots. A Certified Fill has been placed over a portion of the subdivision, and this filling is able to provide a suitable support for conventional shallow foundations for residential dwellings.

This and other soils reports and associated certifications which have been completed for this project site do not preclude routine foundation inspections by the Builder or by Building Certifiers or by others employed by the Tauranga District Council.

Yours faithfully,

Mark T Mitchell Ltd



Consulting Geotechnical Engineer

TABLE 1

EARTH FILL DENSITY TEST RESULTS — **DATE: December 1998**

JOB: RIVERSTONE PARK - STAGE II, WAITAHA ROAD, TAURANGA. — **JOB NO: T-4255/2**

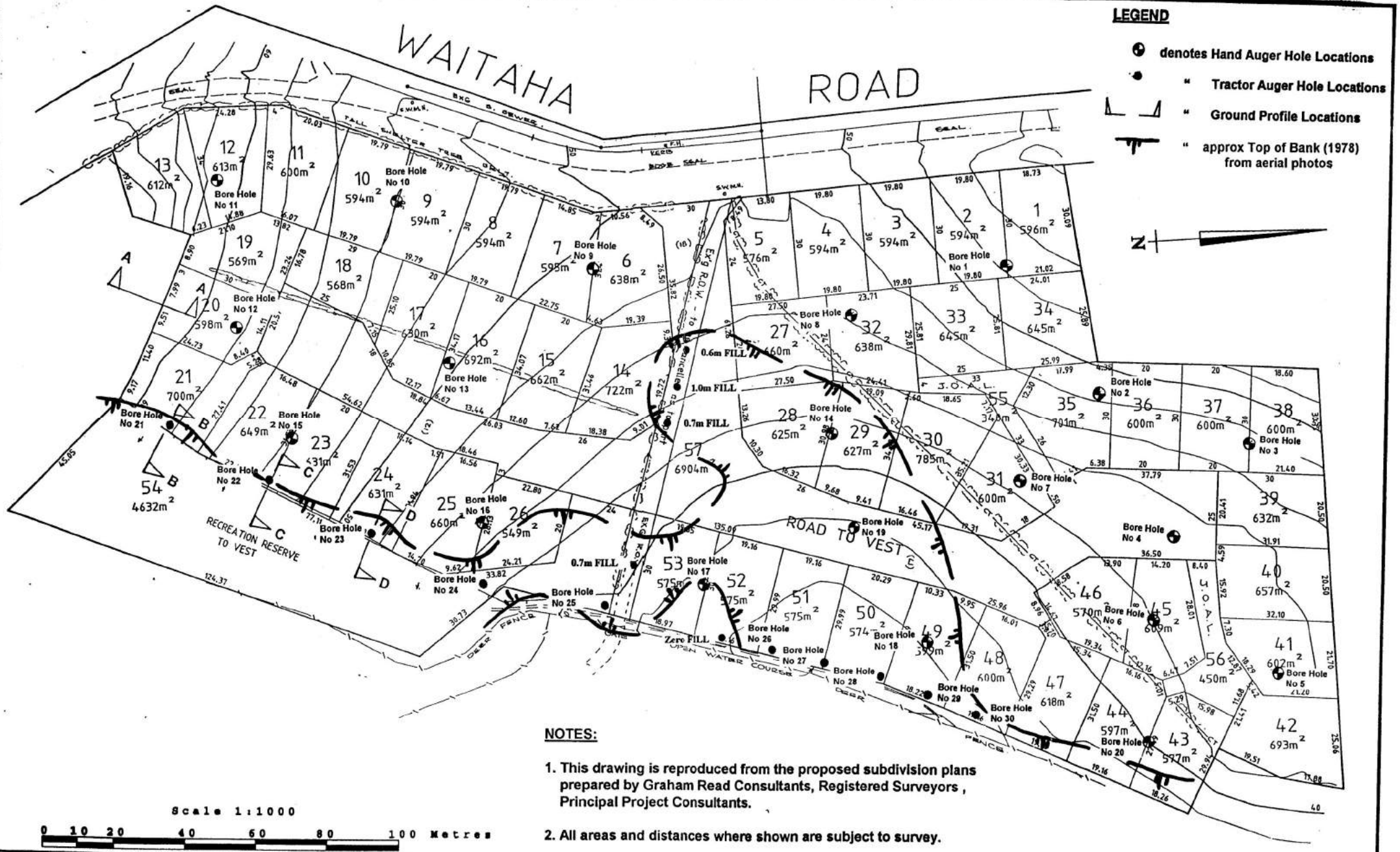
TEST METHOD: NZS 4402:1986 Determination of the Density of Soil

Test 5.1.3 Sampling Tube Method

Sample No.	Location	Date Sampled	Wet Density kg/m3	Water Content %	Optimum W. Content %	Dry Density kg/m3	Compaction %	Air Voids %	Notes
1	Lot No. 28	4/5/98	1591	40.2	39.0	1135	96	11.6	Pass
2	Lot No. 29	4/5/98	1772	29.0	29.0	1374	100	8.3	Pass
3	Lot No. 49	6/5/98	1724	41.3	36.0	1220	96	3.6	Fail (too wet)
4	Lot No. 51	6/5/98	1568	42.5	39.0	1100	93	11.7	Fail (under compacted)
5	Lot No. 14	6/5/98	1576	43.7	39.0	1097	93	10.7	Fail (under compacted)
6	Lot No. 28	13/5/98	1585	47.2	48.0	1077	98	8.5	Pass
7	Lot No. 14	13/5/98	1652	54.3	48.0	1071	97	1.5	Fail (too wet) - Repeat of Test 5
8	Lot No. 14	20/5/98	1635	56.9	48.0	1042	95	1.4	Fail (too wet) - Repeat of Test 7
9	Lot No. 14	2/10/98	1689	44.3	48.0	1170	99	4.0	Pass - Repeat of Test 8

Notes:

1. % Compaction is based on the Maximum Dry Density
2. Air Voids are calculated using an assumed S.G. = 2.65
3. Specification requires samples to be compacted within 95 % of Max. Dry Density and within +3% and -5% of Optimum Water Content



NOTES:

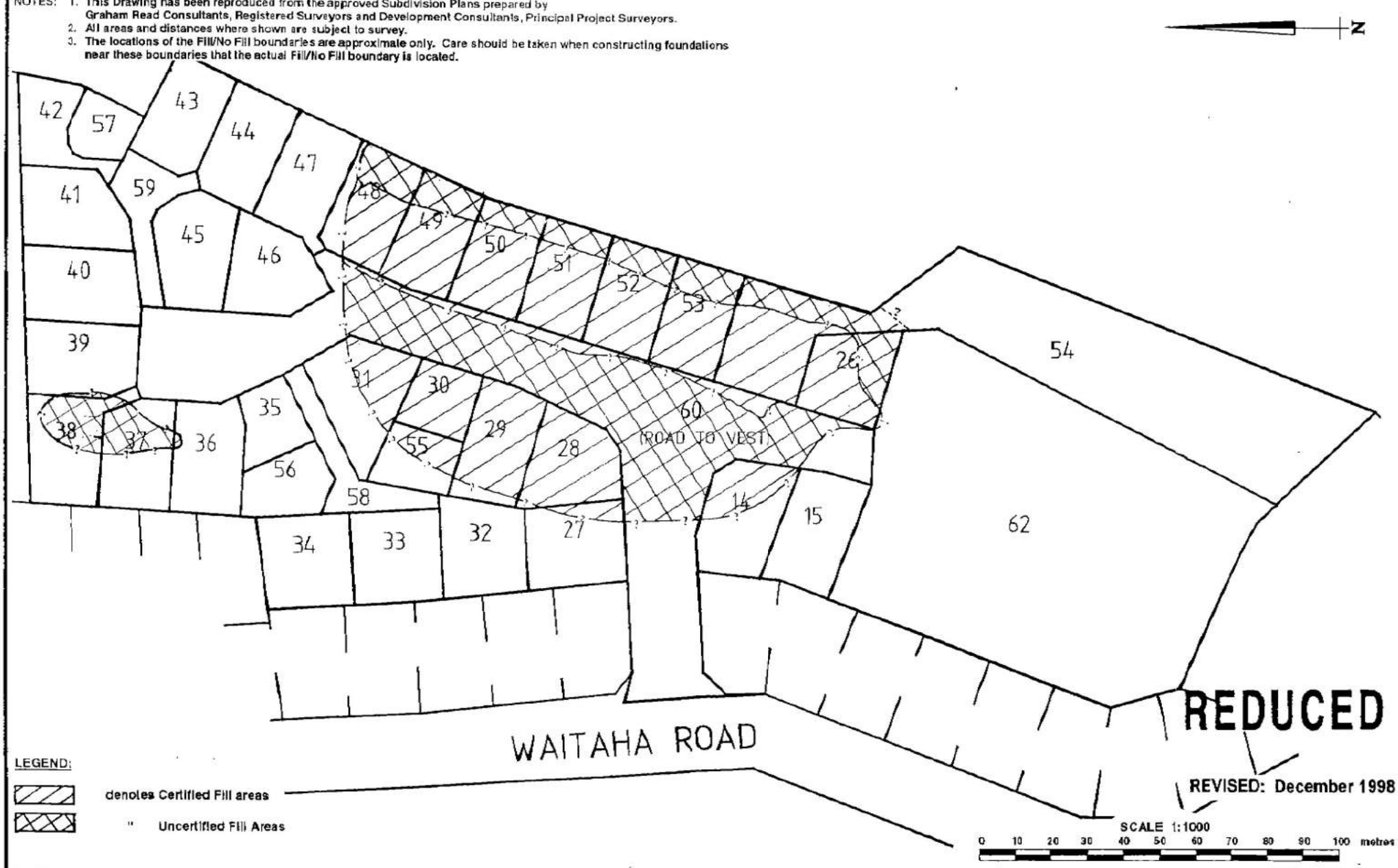
1. This drawing is reproduced from the proposed subdivision plans prepared by Graham Read Consultants, Registered Surveyors , Principal Project Consultants.
2. All areas and distances where shown are subject to survey.

Scale 1:1000

0 10 20 40 60 80 100 Metres

Mark T Mitchell Consulting Geotechnical Engineer 1202 Victoria Street, P.O. Box 9123, Hamilton	WAITAHA PROPERTY DEVELOPMENTS LTD Proposed Subdivision of Lot 3 DPS 65139 & Lot 2 DPS 68110 Waitaha Road, Tauranga.	**SITE PLAN**	DRAWING No. 4069-01 DATE July 1996 ISSUE One

NOTES:
1. This Drawing has been reproduced from the approved Subdivision Plans prepared by Graham Read Consultants, Registered Surveyors and Development Consultants, Principal Project Surveyors.
2. All areas and distances where shown are subject to survey.
3. The locations of the Fill/No Fill boundaries are approximate only. Care should be taken when constructing foundations near these boundaries that the actual Fill/No Fill boundary is located.



REDUCED

REVISED: December 1998

Mark T Mitchell Ltd Consulting Geotechnical Engineer 1202 Victoria Street, PO Box 9123, Hamilton	WAITAHA PROPERTY DEVELOPMENTS Riverstone Park Residential Subdivision – Stage II Waitaha Road, Welcome Bay, Tauranga	**SITE PLAN**	DRAWING No. 4255-20 DATE October 1998 ISSUE One

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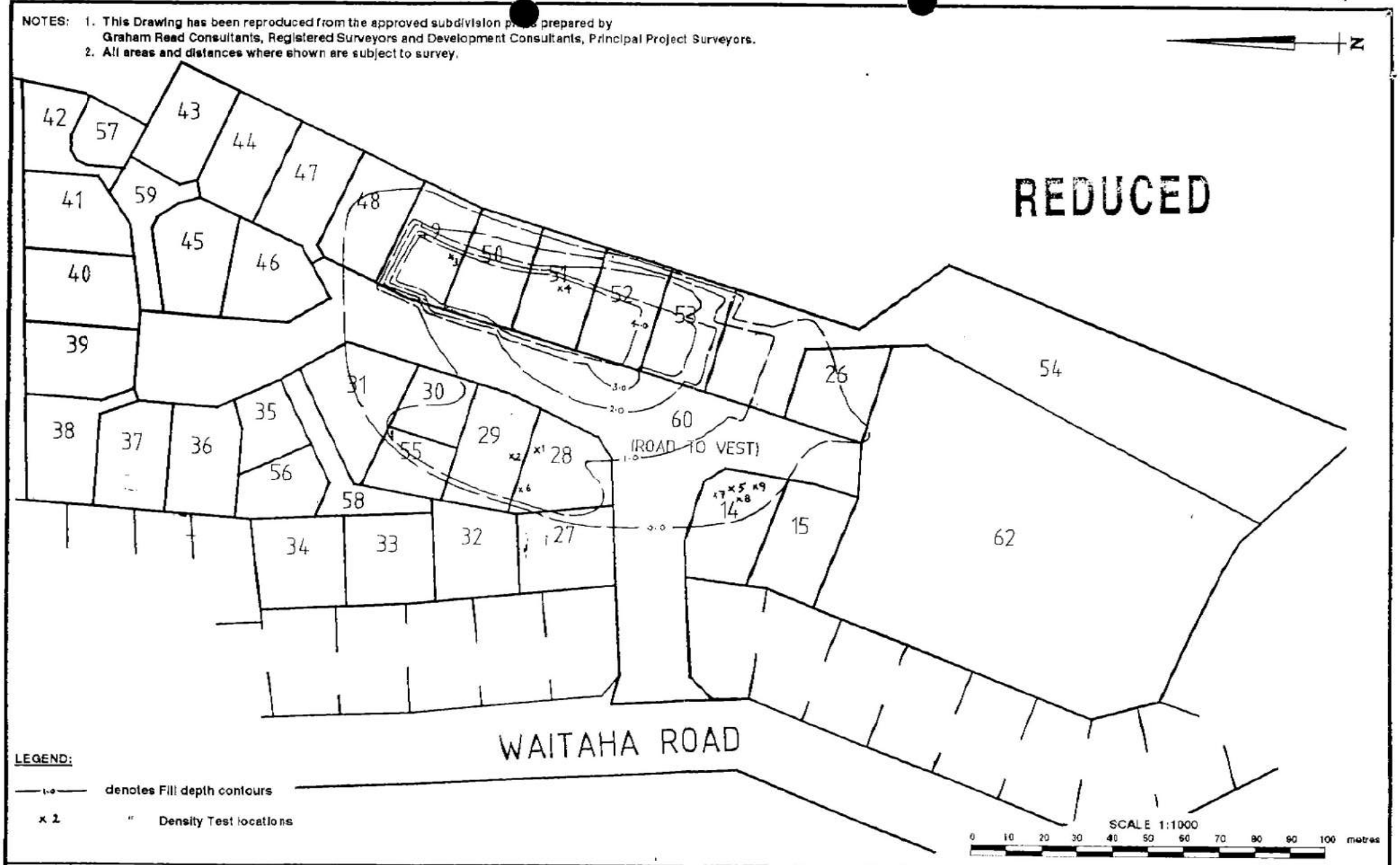

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NOTES:
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2. All areas and distances where shown are subject to survey.

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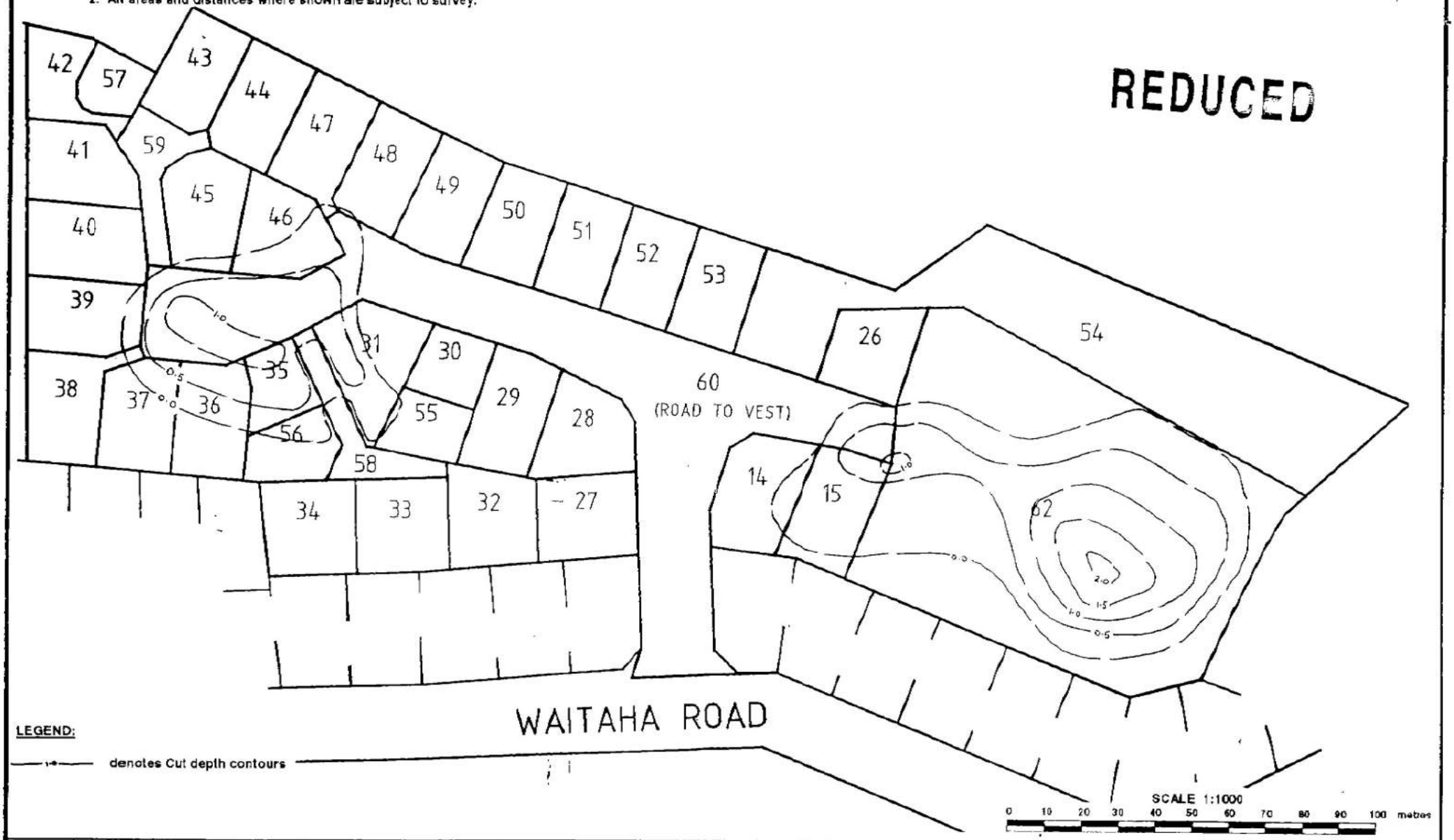

LEGEND:

—1.0— denotes Cut depth contours

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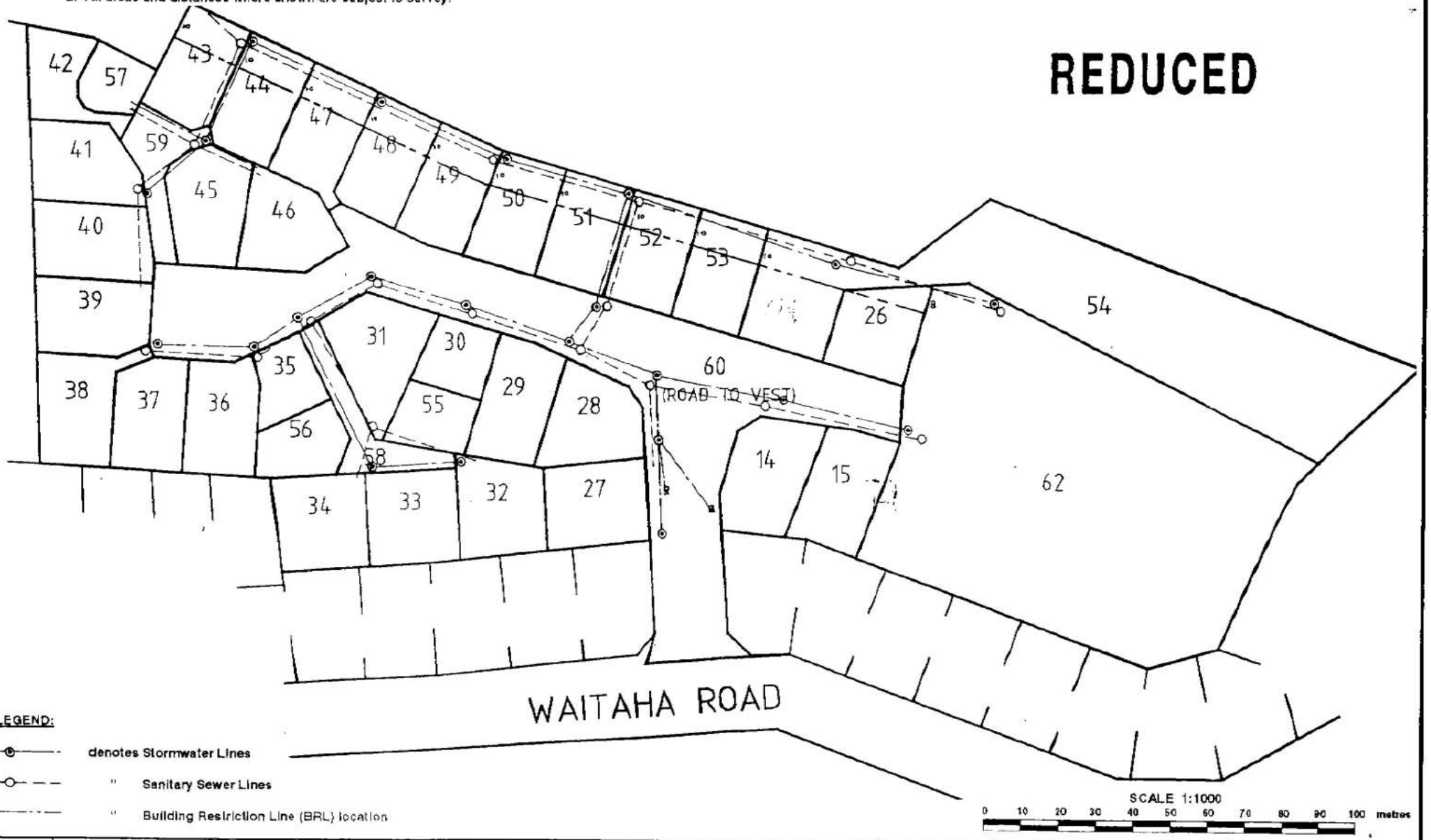
NOTES: 1. This Drawing has been reproduced from the approved subdivision plans prepared by Graham Read Consultants, Registered Surveyors and Development Consultants, Principal Project Surveyors.
2. All areas and distances where shown are subject to survey.

N

REDUCED



LEGEND:

denotes Stormwater Lines

" Sanitary Sewer Lines

" Building Restriction Line (BRL) location

SCALE 1:1000

0 10 20 30 40 50 60 70 80 90 100 metres

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SOIL DESCRIPTION

FIELD TEST DATA

Depth in Metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm. drop)

BORE HOLE LOG No. 1

TOPSOIL.

Stiff, yellowish brown, fine sandy clayey, SILT. — 110

Loose to very loose, yellowish brown, silty, medium SAND. Becoming light orangy brown & medium - coarse SAND @ 0.9m.

Soft, light brown, fine - medium sandy clayey, SILT. — 36, 36

Loose, light brown, slightly clayey silty fine - medium SAND. Becoming lighter from 1.8m.

Loose, creamy brown, clayey silty, fine SAND.

Bottom of Bore Hole completed 5/9/95

BORE HOLE LOG No. 2

TOPSOIL.

Stiff, light yellowish brown, fine sandy clayey, SILT. Becoming pale brown @ 1.0m. — 110, 84, 87, 82, 86, 57

Firm, brownish yellow, fine sandy clayey, SILT.

Medium dense, light orangy brown, silty medium - coarse SAND.

Bottom of Bore Hole completed 5/9/95

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No. 1 & 2

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August 1995 — W. 4069

Fig A-1

SOIL DESCRIPTION

FIELD TEST DATA

Depth in Metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm. drop)

BORE HOLE LOG No. 3

TOPSOIL.

FILL. Mixture of TOPSOIL & yellowish brown, fine sandy clayey SILT.

Stiff, yellowish brown, fine sandy clayey, SILT, — 102, 80, 88, 86

Stiff, brown, clayey, SILT. — 71, 84

Firm, brownish yellow, fine sandy clayey, SILT. — 55, 44

Bottom of Bore Hole completed 5/9/95

BORE HOLE LOG No. 4

TOPSOIL.

Firm, brown, fine sandy SILT.
Becoming light brown @ 0.6m.
Becoming light yellowish brown & slightly clayey @ 0.7m. — 55, 69

Firm, light brownish yellow, fine sandy clayey, SILT. — 86, 84

Firm, light brown, clayey, SILT. — 74, 68

Firm, light brownish yellow, fine sandy clayey, SILT. — 46, 42

Bottom of Bore Hole completed 5/9/95

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No. 3 & 4

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August 1995 — W. 4069

Fig A-2

SOIL DESCRIPTION

FIELD TEST DATA

Depth in Metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm. drop)

BORE HOLE LOG No. 5

Depth	Vane Shear Strength (kPa)	Scala Penetrometer (blows per 100mm. drop)
TOPSOIL.		
Very soft becoming stiff, yellowish brown, fine sandy slightly clayey, SILT.	0	104
Stiff, yellowish brown, fine sandy clayey, SILT.	1	112 110 60
Firm, light brown, slightly fine sandy clayey, SILT.		71 66 76
Firm, light brownish yellow, fine sandy clayey SILT. Becoming more yellow @ 2.1m.	2	90 65
Bottom of Bore Hole completed 5/9/95	3	

BORE HOLE LOG No. 6

Depth	Vane Shear Strength (kPa)	Scala Penetrometer (blows per 100mm. drop)
TOPSOIL.	0	107
Firm, brown, fine sandy SILT.		91
Stiff, yellowish brown, fine sandy slightly clayey, SILT. Becoming more clayey @ 0.9m.	1	80 67 25
Firm, light brown, slightly fine sandy clayey, SILT.		86 90
Firm, light brownish yellow, fine sandy clayey, SILT.	2	58 36
Bottom of Bore Hole completed 5/9/95	3	

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No. 5 & 6

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Fig A-3

SOIL DESCRIPTION

FIELD TEST DATA

Depth in Metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm. drop)

BORE HOLE LOG No. 7

Depth	Vane Shear Strength (kPa)	Scala Penetrometer (blows per 100mm. drop)
TOPSOIL.	0	
FILL. TOPSOIL & yellowish brown, fine sandy clayey, SILT mixture with a thin METAL layer @ base.		
TOPSOIL.		
Loose, brown, silty fine - medium SAND.	1	104
Stiff, yellowish brown, fine sandy clayey, SILT. Becoming brownish yellow @ 1.5m.		100 78 88
	2	62 61
Bottom of Bore Hole completed 5/9/95	3	

BORE HOLE LOG No. 8

Depth	Vane Shear Strength (kPa)	Scala Penetrometer (blows per 100mm. drop)
TOPSOIL.	0	
Stiff, light greyish brown, sandy, SILT.		64
Firm, light brownish yellow, fine sandy clayey, SILT. Becoming light brown @ 0.9m.	1	90 73 91
		74 69
Firm, brownish yellow fine sandy clayey, SILT.		
Loose, light orangy brown, medium - coarse SAND.	2	
Bottom of Bore Hole completed 5/9/95	3	

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No. 7 & 8

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Fig A-4

SOIL DESCRIPTION

FIELD TEST DATA

Depth in metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10

BORE HOLE LOG No 9

Depth	Vane Shear Strength (kPa)
TOPSOIL	
Firm to stiff, light brownish yellow, fine sandy, clayey SILT.	70, 40
Very loose, light brownish yellow, silty, fine-medium SAND.	
Soft to firm, light brownish yellow, fine sandy, clayey, SILT.	
Very loose to loose, pale brown, medium SAND.	
Stiff, pale brown, clayey SILT.	
Bottom of Bore Hole completed 26/7/96	

0 1 2 3

BORE HOLE LOG No 10

Depth	Vane Shear Strength (kPa)
TOPSOIL	
Stiff, brownish yellow, fine sandy, clayey SILT.	86, 84, 84, 68, 51, 32
Soft to stiff, light brown, clayey SILT.	
Loose, light brown, silty, medium-coarse SAND.	
Bottom of Bore Hole completed 26/7/96	

0 1 2 3

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 9 & 10

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Fig A-5

SOIL DESCRIPTION

FIELD TEST DATA

Depth in metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10

BORE HOLE LOG No 11

Depth	Vane Shear Strength (kPa)
TOPSOIL	
Stiff to very stiff, light brownish yellow, clayey SILT.	120+, 105, 76, 72, 60, 62, 110
Loose, light orangy brown, slightly silty, medium-coarse SAND.	
Bottom of Bore Hole completed 26/7/96	

0 1 2 3

BORE HOLE LOG No 12

Depth	Vane Shear Strength (kPa)
TOPSOIL	
Very loose, pale brown, silty, fine-medium SAND.	
Firm, light brown, fine sandy, clayey SILT.	48
Very loose to loose, light brown, silty, medium SAND.	
Loose to medium dense, very pale brown, medium SAND.	
Soft, brown, silty CLAY.	32
Bottom of Bore Hole completed 26/7/96	

0 1 2 3

13 15 15

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 11 & 12

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Fig A-6

SOIL DESCRIPTION

FIELD TEST DATA

Depth in metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10

BORE HOLE LOG No 13

TOPSOIL

Medium dense, pale grey, medium, silica SAND

Firm, grey (slightly iron stained) clayey SILT.

Medium dense, pale greyish brown, slightly clayey, silty, medium SAND.

Bottom of Bore Hole completed 26/7/96

0 1 2 3

Vane Shear: 60

Scala Penetrometer: 11 12

BORE HOLE LOG No 14

TOPSOIL.

FILLING. Pale brown, fine-medium SAND mixed with orangy brown CLAY.

Bottom of Bore Hole completed 6/8/96

0 1 2 3

Vane Shear: 60

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 13 & 14

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Fig A-7

SOIL DESCRIPTION

FIELD TEST DATA

Depth in metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10

BORE HOLE LOG No 15

TOPSOIL

Firm to stiff, orangy brown, slightly fine sandy, silty CLAY.

Loose, light orangy brown, clayey, silty, medium SAND.

Stiff, yellowish brown, silty CLAY.

Bottom of Bore Hole completed 26/7/96

0 1 2 3

Vane Shear: 62 100 120 98 100 95 120+ 120+ 80

Scala Penetrometer: 11 13 13

BORE HOLE LOG No 16

TOPSOIL

Firm, orangy brown, silty CLAY.

Firm, yellowish brown, fine sandy, clayey SILT.

Very loose to loose, pale brown, slightly clayey, silty, medium SAND.

Loose, pale brown, medium SAND.

Medium dense, pale greyish brown, silty fine SAND

Bottom of Bore Hole completed 26/7/96

0 1 2 3

Vane Shear: 40 50 70 62 52

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 15 & 16

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Fig A-8

SOIL DESCRIPTION

FIELD TEST DATA

Depth in metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10

BORE HOLE LOG No 17

TOPSOIL

Soft to stiff, yellowish brown, clayey SILT. — 0 — 94, 52, 30

Very loose, orangy brown, silty, medium SAND. — 1

Firm, yellowish brown, slightly fine sandy, clayey SILT.

Loose, pale greyish brown, slightly silty, medium SAND. — 2

Bottom of Bore Hole completed 26/7/96 — 3

BORE HOLE LOG No 18

TOPSOIL — 0

FILLING. Mixture of various coloured SILT, SAND and CLAY. — 1

FILLING. Yellowish brown, slightly fine sandy, silty, CLAY.

FILLING. Light orangy brown, clayey, silty, medium-coarse SAND. — 2

FILLING. Pale brown, granular, silty, CLAY.

Bottom of Bore Hole completed 26/7/96 — 3

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 17 & 18

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Fig A-9

SOIL DESCRIPTION

FIELD TEST DATA

Depth in metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10

BORE HOLE LOG No 19

TOPSOIL — 0

FILLING. Bright orangy brown, granular, silty CLAY. — 28, 88, 120+, 120+, 120+, 120+

FILLING. Pale brown, granular, silty CLAY.
Pale greyish white, silty, fine-medium SAND @ 1.0-1.1m — 1

Bottom of Bore Hole completed. 6/8/96 — 2 — 3

BORE HOLE LOG No 20

TOPSOIL — 0

Stiff, orangy brown, granular, slightly clayey SILT — 92, 90, 96, 88, 98, 94, 96 — 1

Soft, bright orangy brown, granular, clayey SILT — 2

Bottom of Bore Hole completed. 6/8/96 — 3

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 19 & 20

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Fig A-10

SOIL DESCRIPTION

FIELD TEST DATA

Depth in metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10

BORE HOLE LOG No 21

TOPSOIL

FILLING. Clean yellowish brown, SILT & CLAY mixture.

FILLING. Dirty blackish brown, TOPSOIL.

FILLING. Slightly dirty, brown, CLAY containing some minor TOPSOIL.

Yellowish brown, fine sandy clayey SILT.

Bottom of Bore Hole completed. 6/8/96

BORE HOLE LOG No 22

TOPSOIL

FILLING. Clean yellowish brown, SILT & CLAY mixture.

Yellowish brown, fine sandy clayey SILT.

Light orangy brown, clayey silty medium SAND.

Bottom of Bore Hole completed. 6/8/96

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 21 & 22

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Fig A-11

SOIL DESCRIPTION

FIELD TEST DATA

Depth in metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10

BORE HOLE LOG No 23

TOPSOIL.

FILLING. Clean brown & yellowish brown, SILT & CLAY mixture.

Yellowish brown, fine sandy clayey SILT.

Light orangy brown, clayey silty medium SAND.

Bottom of Bore Hole completed. 6/8/96

BORE HOLE LOG No 26

W.L.

FILLING. Black TOPSOIL.

Yellowish brown, fine sandy clayey SILT.

Brown, clayey SILT.

Bottom of Bore Hole completed. 6/8/96

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 23 & 26

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Fig A-14

SOIL DESCRIPTION

BORE HOLE LOG No 24

FIELD TEST DATA

Depth in metres	Vane Shear Strength (kPa)	Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10
0		
TOPSOIL.		
1		
FILLING. Dirty, TOPSOIL & CLAY mixture.		
2		
FILLING. Clean, yellowish brown, SILT & CLAY mixture.		
FILLING. Pale grey, clayey, silty, medium SAND.		
3		
FILLING. Dirty grey, SAND, TOPSOIL & CLAY mixture		
4		
5		
Black, organic SILT. (Original Gully Bottom)		
6		
Bottom of Bore Hole completed 6/8/96		

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 24

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Fig A-12

SOIL DESCRIPTION

BORE HOLE LOG No 25

FIELD TEST DATA

Depth in metres	Vane Shear Strength (kPa)	Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10
0		
TOPSOIL.		
1	W.L.	
FILLING. Clean, yellowish brown, SILT & CLAY mixture.		
2		
FILLING. Dirty, grey, SAND & CLAY mixture.		
3		
Black, organic SILT. (Original Gully Bottom)		
4		
Grey, silty, medium SAND.		
5		
Bottom of Bore Hole completed 6/8/96		
6		

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 25

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Fig A-13

SOIL DESCRIPTION

FIELD TEST DATA

Depth in metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10

BORE HOLE LOG No 27

0
TOPSOIL.

FILLING. Clean, yellowish brown, SILT & CLAY mixture.

1
Black TOPSOIL.

2
Yellowish brown, fine sandy, clayey SILT.
Becoming more sandy @ 2.2m .

Light brownish grey, clayey silty medium SAND

3
Bottom of Bore Hole completed. 6/8/96

BORE HOLE LOG No 30

0 2 4 6 8 10

0
FILLING. Black TOPSOIL.

1
Yellowish brown, fine sandy, clayey SILT.

2
Yellowish brown, fine sandy, silty CLAY.

3
Bottom of Bore Hole completed. 6/8/96

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 27 & 30

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Fig A-15

SOIL DESCRIPTION

FIELD TEST DATA

Depth in metres | Vane Shear Strength (kPa) | Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10

BORE HOLE LOG No 28

0
FILLING. Black mixture of TOPSOIL & GRAVEL.

1
FILLING. Clean, yellowish brown, SILT & CLAY mixture.

2

3
Black, organic SILT. (Original Gully Bottom)

4
Grey, silty, medium SAND.

5
Very pale brownish yellow, clayey, silty, medium SAND.

6
Bottom of Bore Hole completed 6/8/96

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 28

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Fig A-16

SOIL DESCRIPTION

BORE HOLE LOG No 29

SOIL DESCRIPTION	FIELD TEST DATA: Depth in metres		Vane Shear Strength (kPa)	Scala Penetrometer (blows per 100mm drop) 0 2 4 6 8 10
TOPSOIL.	0			
FILLING. Clean, yellowish brown, SILT & CLAY mixture.	1 – 2 – 3	▽		
Grey, silty, medium SAND.				
Brown, fine sandy clayey SILT.	4			
Light yellowish brown, clayey, fine sandy SILT.	5			
Bottom of Bore Hole completed 6/8/96	6			

NOTE: The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BORE HOLE LOG No 29

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Fig A-17

PASSING OVER STATEMENT/DISCLAIMER

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