

Western
Bay of Plenty
District Council

14 LAYLA PLACE WESTERN

LIM

Land Information Memorandum

Information in a LIM

Includes:

Rates and water rates

- Current Rating Valuation
- Annual Rates
- Outstanding Rates amounts
- Water Charges

Sewer and stormwater

- Whether the property has district sewer available and whether it is connected

Special land features

- Including potential erosion, filing, flooding avulsion, falling debris, slippage, alluvion, or inundation.
- The status of the land in relation to the contamination of soil by hazardous substances
- Weathertight Homes information (if relevant)
- Any relevant reports or information held by council in relation to the property

Archaeological sites

- Any relevant Archaeological sites.

Building consents, licences and requisitions

- Building Permits/Consents issued on the property
- Any outstanding works, Code Compliance Certificates for consents issued since 1993
- If a Compliance Schedule has been issued for the building and when the related Warrant of Fitness expires

Licences and environmental health

- Whether the property has a licence relating to the sale of food, the sale of liquor or any other licence (under Health Act 1956)

Enforcements and notices

- Any notice, order, or requisition affecting the land or any building on the land previously issued by Council

Planning and resource management

- Zoning of the property as defined by Operative and/or Proposed District Plans
- All Resource Consents approved in relation to the property
- Long term Community Plans
- Structure Plans

Drainage and water

- Information on public stormwater and wastewater pipelines on the property as shown on Councils log plans
- Water toby location

Maps

- Maps relating to the property including Aerial Photo, Land Information, District Plan and Deposited Plan.

Information not received in a LIM:

- Building Plans
- For information in relation to State Highways please contact Waka Kotahi NZ Transport Agency
- Western Bay of Plenty District Council does not hold any information concerning electricity, gas and telephone connections.
- Computer Registers (previously called Certificate of Title).

Land Information Memorandum

Section 44a, Local Government Official Information and Meetings Act 1987

27 August 2025

P/1189/7

Kia orā

Thank you for your application for a Land Information Memorandum.

The original of this LIM has been prepared pursuant to S.44A of the Local Government Official Information and Meetings Act 1987, solely for the applicant, and contains information known to Council within its records and only relevant to the site requested. The reliance by other parties on the information within this LIM shall be at that other parties' sole risk. If any interpretation or explanation is required on any of the enclosed information or plans, the services of an independent advisor or consultant should be sought.

It is recommended that the Record of Title, which is not issued by Council, be searched by the purchaser. The LIM does not necessarily include information relating to private covenants or other memoranda affecting the title and those should be obtained from a Land Record search.

In preparing this report, no Council inspection of the property has been undertaken.

This Land Information Memorandum is valid as at the date of issue only.

Ngā mihi

The Consents Services Team (Environmental Consents)

limprocessors@westernbay.govt.nz

Applicant

Client Name:	Charanjeet Singh as to a 1/2 share and Kulvinder Kaur as to a 1/2 share
Applicant Name:	EVES REALTY KATIKATI PO BOX 96 KATIKATI 3166
Postal Address:	PO BOX 96 KATIKATI 3166
Application Date:	22 Aug 2025
Issue Date:	27 August 2025

Property

Property Owner:	KAUR, KULVINDER SINGH, CHARANJEET
Valuation No:	06817 196 07
Location:	14 LAYLA PLACE WESTERN
Legal Description:	LOT 7 DP 521037
Area (hectares):	0.1166

Copies of any relevant deposited plans are included in the Map Section of this LIM.

Rates and Water Rates

The information provided on rates/financial details in this report may not reflect the current details of the legal description/valuation on your application form. This may be due to the property being under subdivision or that the information has not yet been provided or updated for the current valuation and improvements for this financial year.

Note: Rates, Rateable Valuation Details and Water Rates relate to a valuation number. This may be linked to other properties, or a parent property. For this Land Information Memorandum, the valuation number 06817 196 07 is linked to Lot 7 Deposited Plan 521037

Land Value:	$500,000
Improvements:	$650,000
Capital Value:	$1,150,000
Tree Value:	$0

Annual Rates:	$6,256.18
Rates Owing:	$2,095.29

Note: For the period until rates are "set" the Current Annual Rates and Rateable Valuation Details should not be relied upon and any queries should be directed to the Rates Team.

Rates are charged in two equal instalments for the period commencing 1 July and ending 30 June each year.

Water Rates – This information applies to Western Bay of Plenty District Council systems only. In some parts of Tauriko, Papamoa, Pyes Pa and Oropi, properties are served by Tauranga City Council system.

Metered Water	YES
Date of Last Reading	14 Feb 2025
Connected	YES
Available	YES
Owing	$447.58

Water rates may be outstanding on this property as meter readings are completed six monthly.

Further information about Council's water supply and water quality is available from Council's website. Please refer to the Western Bay of Plenty District Council's Water Supply System Bylaw 2008: Water Supply System Bylaw 2008

Rates information and valuation history can be found online at the Western Bay of Plenty District Council website: Rating Information Search

For any information regarding Maori Land, please contact the Waiariki or Waikato/Maniapoto Office of the Maori Land Court or view their website and online records at: Maori Land Court

Building

This information is a record of details held on Council files and may not reflect the situation on site if work has been undertaken without consent. If Council holds any as-built drainage plans relevant to this property they will be included in the attachments section of this LIM.

Building Consents:		
BC	**Project**	**Status of Consent**
96290	Single level duplex, three bedroom with attached single garage and attached two bedroom dwelling.	CCC FINAL ISSUED 10 Nov 2022

Building, Plumbing and Drainage Permits issued prior to 1993 will not have a Code Compliance Certificate as the requirement for this did not come into effect until 1 January 1993.

Any information held by council relating to Building Permits will be listed on the Historical Data page at the back of this section in your LIM.

Information regarding buildings where Council holds no records of consents:

The absence of records for building permits or consents may mean any of the following:

- The building was erected without a permit or consent.
- The building work may be exempt from requiring a permit/consent.
- A Council record is unable to be located.

If building work was carried out without a building permit prior to the 1991 Building Act, or without obtaining building consent under the Building Act 1991 or Building Act 2004, then there is no authority under those Acts for the Council to retrospectively issue a building consent for the work.

For buildings erected prior to the commencement of the Building Act 1991, without any building permit or for which Council holds no records, then Council is generally unlikely to take any action against the current owners of that building unless the building is unsafe or insanitary in terms of the Building Act 2004 or the Health Act 1956. This assumes that the building complies in all other respects with other statutory requirements.

For post-Building Act 1991/Building Act 2004 work, for which the Council holds no record, or the work is not exempt, it is likely that the building work was carried out without consent. If so, the property owner and the person who carried out the work may have contravened the Building Act 1991 and Building Act 2004, and enforcement action may be taken at the Council's discretion. However, some building work is exempt from requiring a permit/consent. This generally applies to small buildings or structures and minor alterations. Irrespective of whether consent is required the Building Act requires that all building work must comply with the Building Code. Potential purchasers of properties requiring further information on building work are advised to engage a qualified building professional to inspect and report.

A certificate of acceptance can be applied for when work is done without a building consent after 1 July 1992, or in specific circumstances when a code compliance certificate (CCC) can't be issued.

For further information go to – Certificate of Acceptance Information

Certificate of Acceptance:	
COA	**Status**
None Known	

Compliance Schedules / Building Warrant of Fitness:	
Premise	**Notes**
None Known	

Any other information affecting this Property is listed below:
-COUNCIL SERVICES There are Council Services on this property (refer to the Land Information Map in the Map Section of this LIM). It is Council policy that no building shall be built closer than the greater of: a. 1.5m from the centre of any public sewer, stormwater or water pipe. b. within 1.5m of rising main c. the depth of the pipe inverted from the ground surface. To construct a building within these requirements written permission must be granted by Councils Utilities Manager.

Environmental Health – Registrations and Licences

Premise Registration:		
Premises	**Category**	**Licence Status**
None Known		

Liquor Licences:			
Type	**Status**	**Licence No**	**Date Issued**
None Known			

Enforcements and Notices

Enforcements and Notices:				
Parcel ID	**Notice Type**	**Comments**	**Date Issued**	**Date Complied**
None Known				

Special Land Features

This section includes any special features of the property known to Council including potential erosion, fill, flooding, avulsion, falling debris, slippage, alluvium or inundation. It also includes the status of the land in relation to the contamination of soil by hazardous substances.

It is the landowner's responsibility to determine whether the property is suitable for any proposed activity or whether any proposed building site is suitable for development (and to undertake tests if necessary).

Any information relating to Weathertight Homes Resolution Services Act 2006 – Section 124 will be included in the attachments section of this LIM (if applicable).

Any relevant reports held by Council are included in the attachments.

-OPERATIVE DISTRICT PLAN FLOOD HAZARD

Part of this site has been identified as possibly subject to flooding. Refer to Planning section of this LIM. Future building work within this area may be subject to endorsement of title under Section 73 of the 2004 Building Act.

-BAY OF PLENTY REGIONAL COUNCIL'S LAND USE REGISTER

The BOPRC's Land Use register letter and/or Land use site details are included in the attachments section of this LIM. Any subsequent investigations (PSI's and/or DSI's), site management plan(s) and/or site validation report(s), will also be attached.

The Hazardous Activities and Industries List (HAIL) is a compilation of activities and industries that are considered likely to cause land contamination resulting from hazardous substance use, storage or disposal. The HAIL is intended to identify most situations in New Zealand where hazardous substances could cause, and in many cases have caused, land contamination.

The registration of a site on the Land Use Register has no effect on current land use. However, in the case of a future change of use or subdivision, an investigation to determine the effects of pesticide sprays on site soils may be required.

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (the NES:CS) came into force on 1 January 2012. This standard means that if the land is, or has been, used for a hazardous activity or industry and you want to subdivide or change the use of the land, or disturb the soil, or remove or replace a fuel storage system, you will need to comply with the NES:CS.

The enforcement of the NES:CS requirements sits with the Territorial Authority rather than the Regional Council. Failing to comply with the NES may result in the council taking enforcement action against you.

Natural Hazards

Our region is exposed to a range of natural hazards including earthquakes, coastal erosion, volcanic eruption, landslides, tsunami and flooding.

These natural hazards can have major consequences on people, property and infrastructure. Regional Council is working to improve our understanding and management of these risks to support safe and resilient communities. Further information regarding Natural Hazards Specific to this property can be found here;

Bay of Plenty Regional Council Website - Natural Hazards

Bay Hazards - Bay of Plenty Natural Hazards Viewer

Further property specific Natural Hazard information can also be found under the 'Planning/ Resource Management' section of this LIM (inside the Operative District Plan 'identified features' and the 'other features' boxes).

Contaminated Land

Information about Contaminated Land can be found on the Bay of Plenty Regional Council's (BOPRC's) website.

Properties that are currently recorded on the BOPRC Land Use Register can be viewed via the BOPRC's HAIL Site Viewer.

If the property is identified as a HAIL site, the BOPRC's land use register letter and/or land use site details will be included in the 'attachments section' of this LIM.

Any contaminated site investigations and/or site validation reports will also be included in the 'Attachments' section of this LIM (if available for this property).

Historic Heritage Features and Archaeological Sites

Please refer to the map section of this LIM. The Geographic Information Services (GIS) plan entitled 'Archaeological Sites' will identify any registered archaeological site(s) over the property (depicted as a "U" number in a red/pink box/circle). If a site(s) is recorded on the property, an 'archaeological sites report' will be attached.

Please also refer to the District Plan map, this will also identify any significant historic heritage features located on the property. If a significant historic heritage feature is recorded over the property, the provisions of Section 7 (Historic Heritage) of the Operative District Plan apply.

If the GIS plan or District Plan map does not identify any archaeological site(s) and/or historic heritage feature(s) it should not be assumed there are no sites or features, only that Council has no record of these. Property owners still have obligations under the Heritage New Zealand Pouhere Taonga Act 2014 in that it is an offence for anyone to destroy, damage or modify or cause to be destroyed, damaged or modified, the whole or part of any archaeological site, knowing or having reasonable cause to suspect it is an archaeological site.



Further information on Archaeological Sites and/or Historic Heritage Features in the Western Bay of Plenty District can be found here;

- Operative District Plan
- NZAA Arch Site Hub
- Heritage New Zealand

Sewer and Stormwater

Services: See attached Land Information map
District Sewer Connected: YES
District Sewer Available: YES

If a sewer is available, under the Local Government Act 1974, the property must connect to the sewer if it is within 30 metres of the property boundary or if the sewer is within 60 metres of the dwelling.

Septic Tanks and On-Site Effluent Treatment Systems (OSET)

Most septic tanks in the Western Bay of Plenty are permitted provided they are adequately maintained, however, when making dwelling additions you may need to upgrade the wastewater system, and this will require Building Consent under the Building Act 1991.

The removal and/or upgrade of existing septic tanks and/or OSET may also require Resource Consent from the Bay of Plenty Regional Council. Please contact Bay of Plenty Regional Council directly 0800 884 880 if you have any further questions about this.

OSET Maintenance Zones

In some areas where the environment is being adversely affected, the Bay of Plenty Regional Council has decided to include communities in maintenance zones. This requires more active management of systems to reduce the risk to the environment and to public health. Within the Western Bay of Plenty District, **Tanners Point** is located within one of these maintenance zones. A map showing the extent of this zone can be found in the On-Site Effluent Treatment Regional Plan:

OSET Regional Plan

Please note, Ongare Point and Te Puna West are now reticulated and are therefore no longer considered as maintenance zones.

If the land is located within the Tanners Point maintenance zone, you will need to employ a contractor to pump out and inspect the septic tank. A report on the size and condition of the system is prepared by the contractor. Any repairs that are required are the responsibility of the owner.

Please contact Bay of Plenty Regional Council directly 0800 884 880 if you have any further questions about this.

Network Utility Operators

Western Bay of Plenty District Council does not hold any information concerning electricity, telecommunication and gas connections. Information may be obtained from the relevant network utility providers.

Projects

We work to provide good-quality local infrastructure and local services to our communities. You can read about **Council Projects** here.

Planning/Resource Management

This property is zoned **RES** for more information on this zone refer to the **Western Bay of Plenty Operative District Plan**

The District Plan including rules, maps and performance standards, plus any current (and previous) Plan Changes can be found here:



Operative District Plan

District Plan Changes

If you have any questions about the Operative District Plan, please contact Council's Customer Service Planner.

RC Number	Status	Consent Type	Date Issued
12337	INCOMP-RTURND	This application will seek to subdivide Lots 7,8 and 9 DP521037 Layla Place, Katikati to create seven new Lots and associated right of ways for residential purposes. All lots exceed the minimum lot size requirements for conventional residential lots in the Katikati Residential Zone.	-
12354	GRANTED	Seven additional lots in residential zone and flood hazard.	28/09/2020
13345	GRANTED	minor dwelling – controlled.	14/01/2022

Any information held by council relating to Historic Planning Consents will be listed on the Historical Data page at the back of this LIM.

If there are any Consent Notices, Memorandums of Encumbrance, Deeds of Covenant, Bush Protection Inspections and/or Yard Exemption Statements relevant to this property they will be included in the attachments section of this LIM.

Resource consents can lapse. Applicants are advised to verify the status of Resource Consents with Council staff.

If a Resource Consent(s) has been granted on this property it does not infer that the conditions of the consent have been met. Applicants are advised to verify the status of Resource Consent(s) with Council's Customer Service Planner.

Any features identified in the Operative District Plan are listed below:
-FLOOD HAZARD Refer to the Natural Hazards section (Section 8) and map of the Operative District Plan 2012. Resource Consent will be required to build within this area and there may be recommendations on your buildings floor levels.

Any other features are listed below:

INFRASTRUCTURE BUILT WITHIN PROPERTY

Please note that each property owner has a responsibility to take reasonable care to ensure the infrastructure built within your property is not damaged. Any Water, Wastewater or Stormwater system, should not be subjected to any undue stresses caused by structures or vegetation either built or planted over or adjacent to the infrastructure without Council's authority. Council also needs to be able to access the infrastructure for future maintenance and inspection requirements.

KATIKATI NO LONGER FLOODABLE

Council holds a report from Aurecon titled "Katikati Stormwater Model Build and Flood Hazard Mapping Report" (2019) (Report). This Report presents the results of flood modelling carried out for Katikati.

The Report is referred to in this LIM because the subject property is not identified as being potentially susceptible to flooding (from extreme rainfall) based on the information contained in the Report relating to the scenario which is considered to be the most relevant for Council's statutory planning and consenting processes.

This means that the District Plan Maps, which do show the property as floodable, are now out-of-date.

Council will be introducing changes to its District Plan in due course to update its maps to reflect the information contained in the Report. In the interim, Council will be relying on the information contained in the Report to exercise statutory functions such as making decisions under the Building Act and Resource Management Act

The scenario mentioned above identifies the possible extent of flooding that may occur in the year 2130 if a 1% AEP rainfall event was to happen at that time. A 1% AEP event is something that only has a 1% chance of occurring in any year. This means it is expected to occur on average once every 100 years, however it could actually happen at any time.

The modelling for this scenario takes into account the possible effects of climate change that may be present in the year 2130 including sea level rise and the increased intensity of rainfall. The reason for selecting a timeframe out to 2130 (at least 100 years from now) and taking into account climate change is because the New Zealand Coastal Policy Statement requires potential coastal hazards to be identified in this manner.

This is the scenario shown on Council's interactive online natural hazard map. This online map allows a particular property to be searched for and can be viewed on Council's natural hazards webpage (flooding subpage).

BECA's report can be viewed on Council's natural hazards webpage (flooding subpage). The Report includes maps predicting the extent of flooding under a number of scenarios including that described above.

This flooding subpage also contains information and FAQs relating to flooding and how it may affect the use of a property.

It can be viewed at www.westernbay.govt.nz/flooding.

This webpage also has links to Civil Defence and Emergency Management information on how to prepare for a flood event.

LIQUEFACTION

Council holds a report from Tonkin + Taylor Ltd entitled "Bay of Plenty Regional Liquefaction Vulnerability Assessment" (2021) (Report). This Report presents the results of a liquefaction mapping exercise for the Bay of Plenty Region.

Liquefaction can occur when some saturated soils (typically silts and sands) lose strength and stiffness (temporarily behaving as a liquid rather than a solid) in response to earthquake shaking.

The Report was prepared in accordance with the Ministry for the Environment (MfE) and Ministry of Business, Innovation and Employment (MBIE) "Planning and Engineering Guidance for Potentially Liquefaction Prone Land" (2017) to a Level A (basic desktop assessment) level of detail.

A figure showing the liquefaction vulnerability categories recommended for use in the "Planning and Engineering Guidance for Potentially Liquefaction Prone Land" (2017) can be viewed on Council's natural hazards webpage (liquefaction subpage).

These categories are "liquefaction damage is unlikely", "liquefaction damage is possible" and "liquefaction category is undetermined".

The Report is referred to in this LIM because the subject property is identified based on information contained in the Report as having one or more of these categories.

The liquefaction maps from the Report are shown on the map contained in this LIM entitled "Natural Hazards (Not District Plan)" and shown on Council's interactive online natural hazard map. The latter allows a particular property to be searched for and can be viewed on Council's natural hazards webpage (liquefaction subpage).

"Liquefaction damage is unlikely" means a probability of more than 85 percent that liquefaction-induced ground damage will be none to minor in a 1-in-500 year earthquake shaking event. At this stage there is not enough information to distinguish between Very Low and Low (liquefaction vulnerability).
More detailed assessment would be required to assign a more specific liquefaction category. Following more detailed assessment a classification of Medium or High (liquefaction vulnerability) is also a possible categorisation but based on the information available this is considered very unlikely.
"Liquefaction damage is possible" means a probability of more than 15 percent that liquefaction-induced ground damage will be minor to moderate (or more) in a 1-in-500 year earthquake shaking event. At this stage there is not enough information to distinguish between Medium and High (liquefaction vulnerability). More detailed assessment would be required to assign a more specific liquefaction category. Following more detailed assessment a classification of Very Low or Low (liquefaction vulnerability) is also a possible categorisation but this is considered less likely.

"Liquefaction category is undetermined" means that a liquefaction vulnerability category is undetermined, either because a liquefaction assessment has not been undertaken for this area, or there is not enough information to determine the appropriate category with the required level of confidence.

Council will be introducing changes to its District Plan in due course to update its maps to reflect the information contained in the Report. In the interim, Council will be relying on the information contained in the Report to exercise statutory functions such as making decisions under the Building Act and Resource Management Act.

The Report can be viewed on Council's natural hazards webpage (liquefaction subpage). The Report includes a liquefaction vulnerability map for the Region in Figure 4.2 on page 52.

This liquefaction subpage also contains information and Frequently Asked Questions (FAQs) relating to liquefaction and how it may affect the use of a property.

It can be viewed at www.westernbay.govt.nz/liquefaction.

Property Adjoining Reserves

Under Council's Reserve Management Plan(s) any property adjoining a public reserve is not permitted to encroach onto that reserve. Where new encroachments occur, or if an existing encroachment exists, Council will give notice to the encroacher to remove the encroachment and reinstate the reserve at their own cost. Please refer to the Reserve Management Plan.



Reserve Management Plans

Community Plans

Council has a programme to help urban communities in the district develop long term plans that detail a vision for each community. Information regarding current Community Plans can be found here:



Community Plans

Other Useful information

Western Bay of Plenty District Council provides the following discretionary information which it considers to be relevant in accordance with Section 44A(3) of the Local Government Official Information and Meetings Act 1987 (LGOIMA).

Structure Plans

Structure plans have been created by Council to assist in managing the District's growth. These identify new areas for development and show required infrastructure (roading, water supply, wastewater disposal, stormwater and recreation) and associated costs. These structure plans are contained in **District Plan - Appendix 7 - Structure Plans** and shown on the Planning Maps.

Council Website

The Council's **Website** provides comprehensive information and resources, including details on building and resource consents topics such as natural hazards and zoning.

The Bay of Plenty Regional Council

Regional Council policies and plans may affect the use and management of land, water air and other natural and physical resources. These can be found here: **Bay of Plenty Regional Council Website**

For further information on whether a property is affected by any Regional Planning instrument or by some other function of the Regional Council please contact Regional Council.

The Ministry for the Environment

The Ministry for the Environment administer Acts, National Policy Statements, National Environmental Standards and other regulations. See **Act and Regulations.**

HISTORICAL DATA

Parcel ID: 1189/7 BUILDING PERMITS		
Date	**Type**	**Document Name**
1978-10-24	Building	Building Permit and Plumbing & Drainage Permit - Coolstore/packhouse - 1978-10-24 - Building Demolished

There are no historical planning consent documents held for this property

MAPS

Aerial Photography

Land Information

Land Information Legend

District Plan

District Plan Legend

Other Natural Hazards (not in District Plan)

Natural Hazards Legend



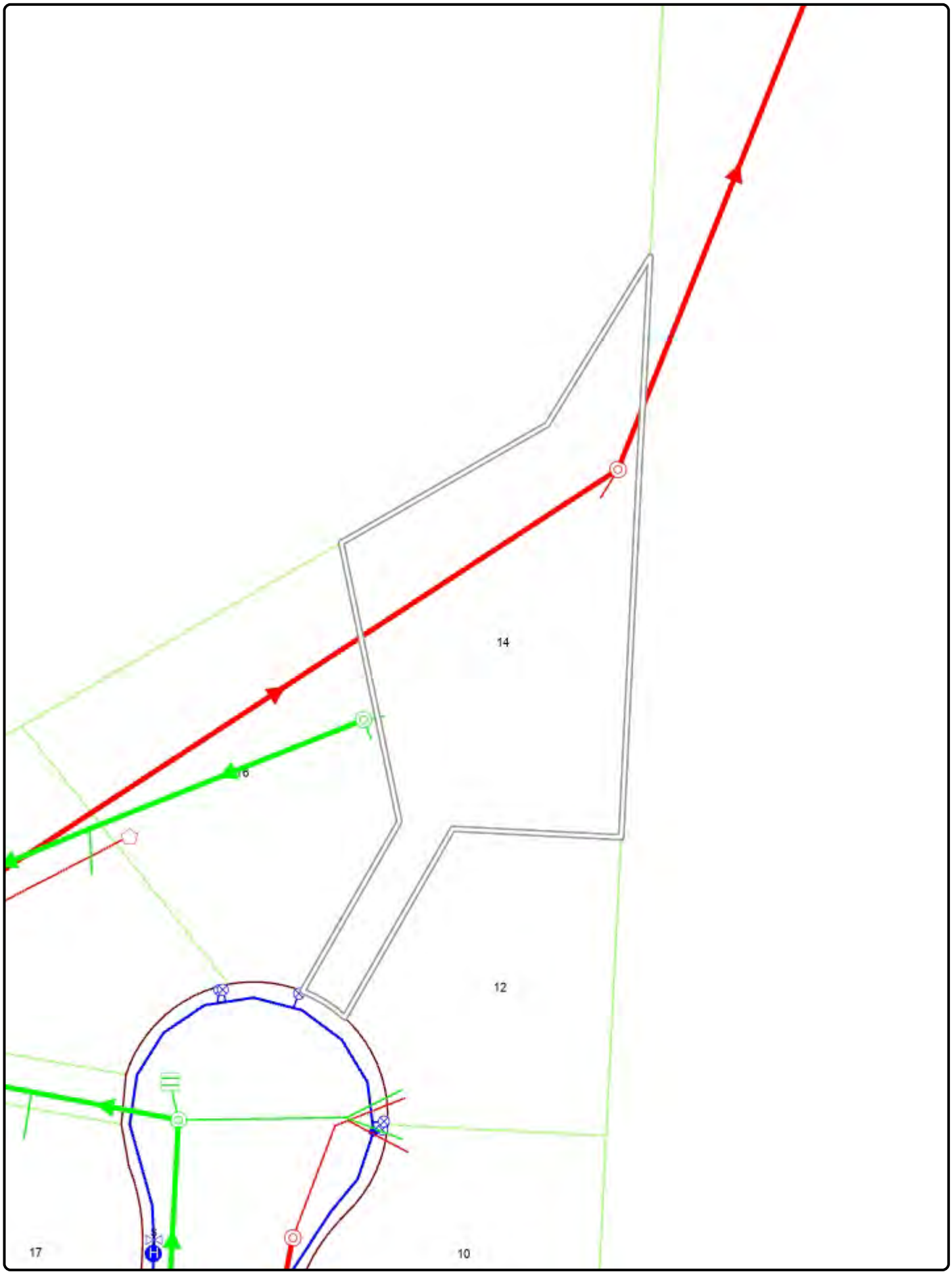
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Aerial Photo

0 — 25 Meters A4 Scale 1: 500

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Land Information

0 25 Meters A4 Scale 1: 500

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Water Supply

- Main
- Rider Main / Connection
- Instruments - Meter / Toby
- Valve - Air Release
- Valve - Altitude
- Valve - Non Return / Backflow Preventer
- Valve - Butterfly
- Valve - Flow Control
- Valve - Flow Meter
- Valve - Hydrant
- Valve - Normally Closed
- Valve - Pressure Reducing
- Valve - Pressure Sustaining
- Valve - Scour
- Valve - Sluice
- End Cap
- Junction
- Treatment Plant
- Containment Structure - Reservoir or Tank
- Pump
- Well - Bore

Stormwater

- Gravity Main
- Gravity Main (Below 1:2000)
- Pressure Main
- Service Main / Connection
- Open Drain
- Grass Swale
- Catchpit
- Chamber - Box
- Chamber - Inspection Shaft
- Chamber - Manhole
- Soakhole
- Valve - Flood Gate
- Valve - Sluice
- Wing Wall
- Inlet
- Junction
- Outlet
- Pump
- RAMM Culvert
- Stormwater Drainage Reserve
- Stormwater Pond

Wastewater

- Gravity Main
- Gravity Main (Below 1:2000)
- Rising Main
- Service Main / Connection
- Chamber - Inspection Shaft
- Chamber - Manhole
- Mechanical - Grinder Pump
- Valve - Air / AirKnife
- Valve - Non Return
- Valve - Pressure Reducing
- Valve - Scour /Knife
- Valve - Sluice
- Inlet
- Treatment Plant
- Junction
- Outlet
- Instruments - Flow Meter
- Pump
- Wastewater Pond

Property

- Paper Road
- Property or Restrictive Area
- Building
- Hydro
- Railway
- Road
- Parcel
- TCC Water Catchment

Protected Land

- Statutory Acknowledgement Areas
- Consent Notice Covenant
- Ecological
- Conservation Covenant
- QE II

RAP

- Class 1
- Class 2
- Class 3

WBOP

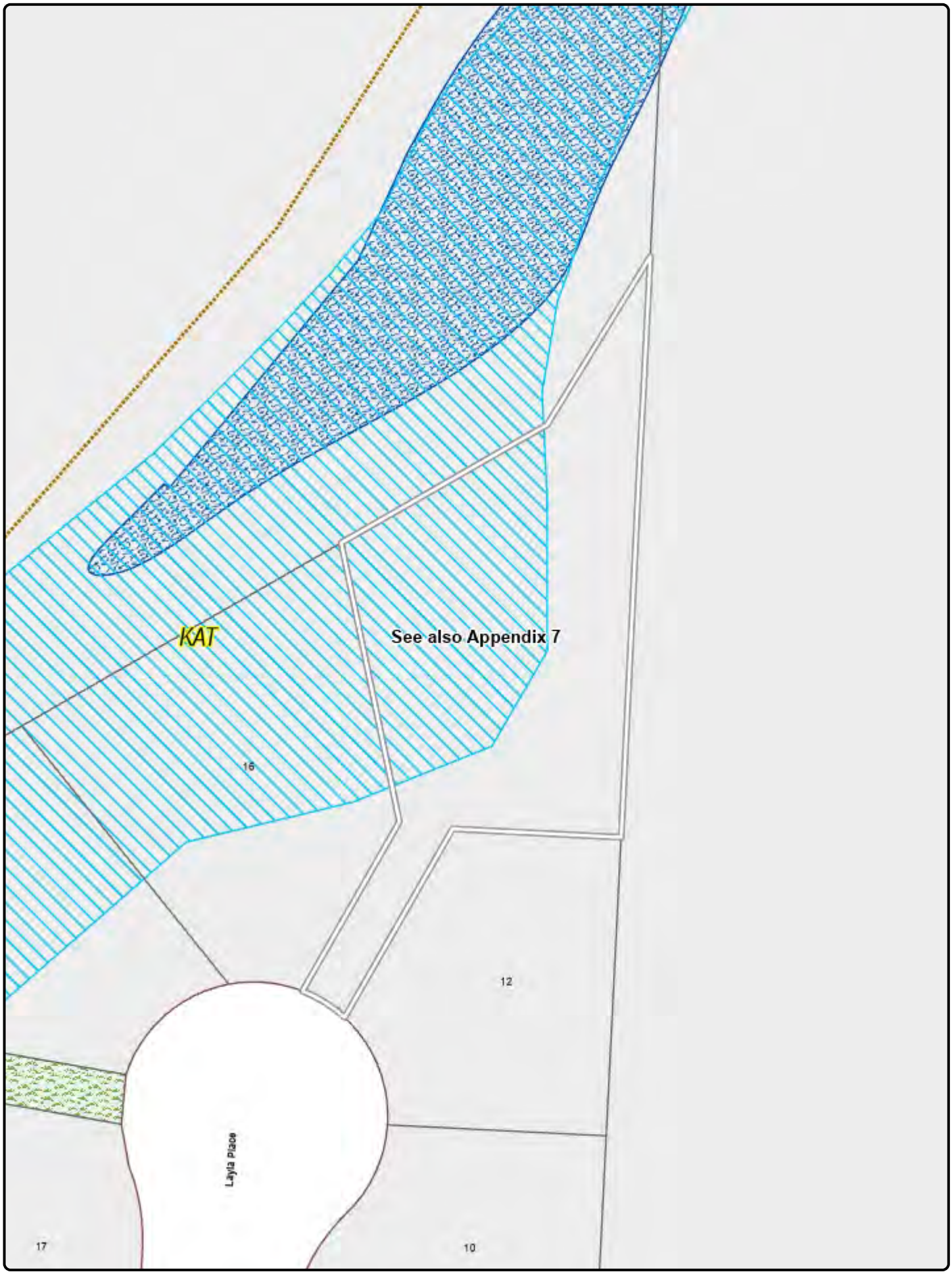
- Other Councils
- Western Bay of Plenty
- Ocean, River, Stream
- Selected Parcel

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Archaeological data supplied by NZ Historic Places Trust
http://www.archsite.org.nz

Location of Services is indicative only.
Council accepts no liability for any error.

Western Bay of Plenty District Council | For our people

Land Information Legend



Western Bay of Plenty District Council | For our people

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District Plan

0 25 Meters A4 Scale 1: 500

N



Bay of Plenty Regional Council should be consulted before undertaking any activity in the vicinty of Mean High Water Springs to establish the actual line of Mean High Water Springs.
Formed roads are indicated as white shading on the road land parcels. Unformed roads have the underlying zone indicated.

(1) Primary risk includes the whole of the red line and the land towards the sea. Secondary risk includes the whole of the green line up to the edge of the red line.
(2) The identified areas include; the community service area at Rangiuru, the central hub site within the All Terrain Park and buffer zones in Stage 2 Omokoroa and Binnie Road.
(3) Compliance with NZECP 34:2001 is required in this area for buildings/structures and earthworks. The distance quoted is from the centreline of the transmission line.

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District Plan Legend



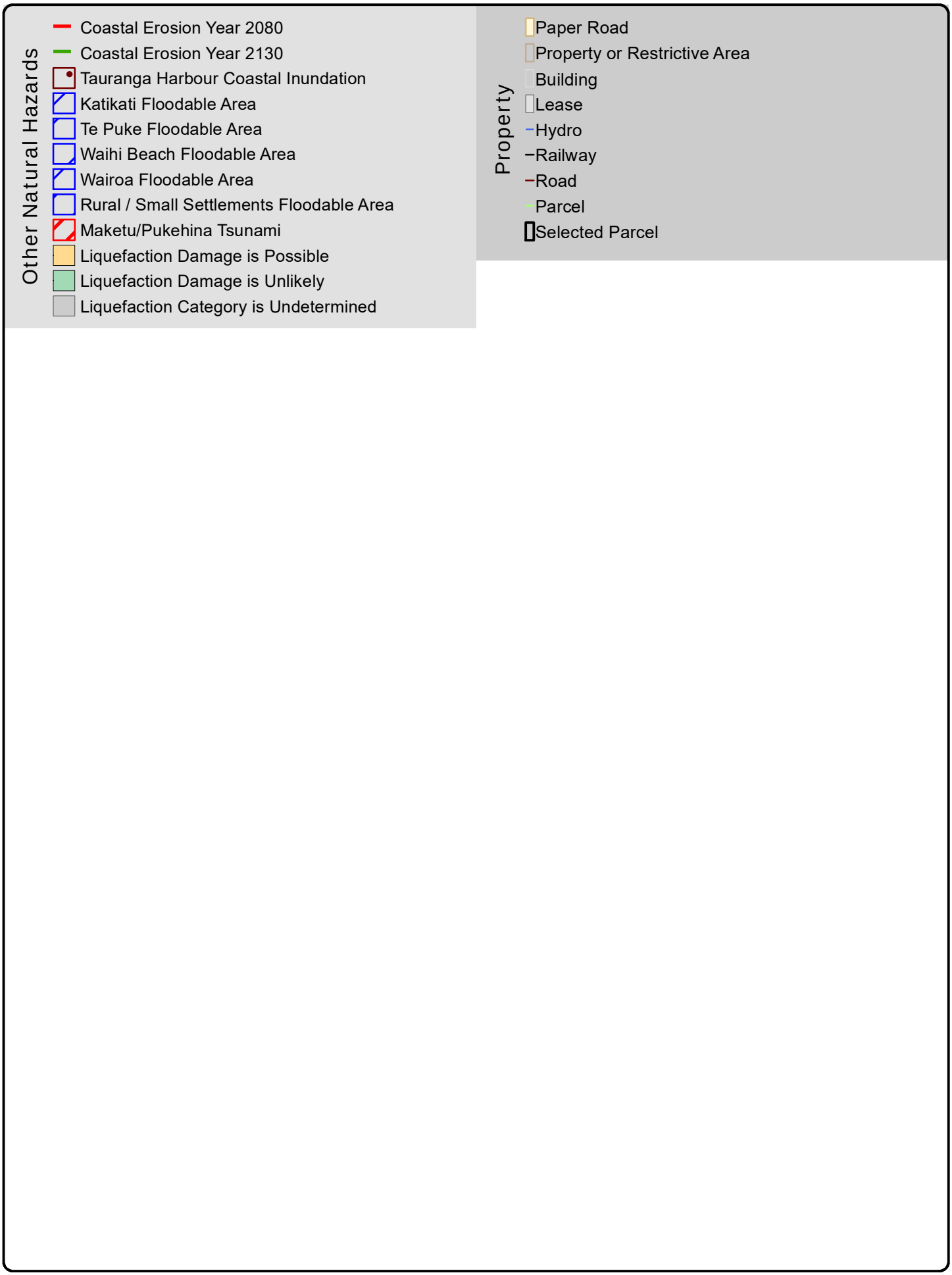
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Natural Hazards (not District Plan)

0 25 Meters A4 Scale 1: 500

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Natural Hazards Legend

Title Plan - DP 521037

Survey Number	DP 521037
Surveyor Reference	21377 Mitchell - CSR
Surveyor	Timothy Andrew McBride
Survey Firm	S & L Consultants Ltd
Surveyor Declaration	I Timothy Andrew McBride, being a licensed cadastral surveyor, certify that: (a) this dataset provided by me and its related survey are accurate, correct and in accordance with the Cadastral Survey Act 2002 and the Rules for Cadastral Survey 2010, and (b)the survey was undertaken by me or under my personal direction. Declared on 28 Jun 2018 05:52 PM

Survey Details

Dataset Description	Lots 1 - 30 being Subdivision of Lot 2 DP 460580		
Status	Deposited		
Land District	South Auckland	**Survey Class**	Class A
Submitted Date	28/06/2018	**Survey Approval Date**	29/06/2018
		Deposit Date	04/07/2018

Territorial Authorities

Western Bay of Plenty District

Comprised In

CT 604083

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Area AG Deposited Plan 521037	Land Covenant		
Area AH Deposited Plan 521037	Land Covenant		
Area AI Deposited Plan 521037	Easement		
Area AJ Deposited Plan 521037	Easement		
Area AK Deposited Plan 521037	Land Covenant		
Lot 1 Deposited Plan 521037	Fee Simple Title	0.0700 Ha	823156
Lot 2 Deposited Plan 521037	Fee Simple Title	0.0630 Ha	823157
Lot 3 Deposited Plan 521037	Fee Simple Title	0.0630 Ha	823158
Lot 4 Deposited Plan 521037	Fee Simple Title	0.0630 Ha	823159
Lot 5 Deposited Plan 521037	Fee Simple Title	0.0633 Ha	823160
Lot 6 Deposited Plan 521037	Fee Simple Title	0.0674 Ha	823161
Lot 7 Deposited Plan 521037	Fee Simple Title	0.1166 Ha	823162
Lot 8 Deposited Plan 521037	Fee Simple Title	0.0960 Ha	823163
Lot 9 Deposited Plan 521037	Fee Simple Title	0.0948 Ha	823164
Lot 10 Deposited Plan 521037	Fee Simple Title	0.0551 Ha	823165
Lot 11 Deposited Plan 521037	Fee Simple Title	0.0552 Ha	823166
Lot 12 Deposited Plan 521037	Fee Simple Title	0.0550 Ha	823167
Lot 13 Deposited Plan 521037	Fee Simple Title	0.0541 Ha	823168
Lot 14 Deposited Plan 521037	Fee Simple Title	0.0550 Ha	823169
Lot 15 Deposited Plan 521037	Fee Simple Title	0.0602 Ha	823170

Title Plan - DP 521037

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Lot 16 Deposited Plan 521037	Fee Simple Title	0.0594 Ha	823171
Lot 17 Deposited Plan 521037	Fee Simple Title	0.0666 Ha	823172
Lot 18 Deposited Plan 521037	Fee Simple Title	0.0600 Ha	823173
Lot 19 Deposited Plan 521037	Fee Simple Title	0.0630 Ha	823174
Lot 20 Deposited Plan 521037	Fee Simple Title	0.0788 Ha	823175
Lot 21 Deposited Plan 521037	Fee Simple Title	0.0788 Ha	823176
Lot 22 Deposited Plan 521037	Fee Simple Title	0.0781 Ha	823177
Lot 23 Deposited Plan 521037	Fee Simple Title	0.0788 Ha	823178
Lot 24 Deposited Plan 521037	Fee Simple Title	0.0736 Ha	823179
Lot 25 Deposited Plan 521037	Fee Simple Title	0.0732 Ha	823180
	Road	0.2409 Ha	
Lot 27 Deposited Plan 521037	Fee Simple Title	0.0218 Ha	Multiple
Lot 28 Deposited Plan 521037	Fee Simple Title	0.0415 Ha	Multiple
Lot 29 Deposited Plan 521037	Fee Simple Title	0.0129 Ha	Multiple
Lot 30 Deposited Plan 521037	Vesting on Deposit for Local Purpose Reserve	0.0802 Ha	823185
Area A Deposited Plan 521037	Easement		
Area B Deposited Plan 521037	Easement		
Area C Deposited Plan 521037	Easement		
Area D Deposited Plan 521037	Easement		
Area E Deposited Plan 521037	Easement		
Area F Deposited Plan 521037	Easement		
Area G Deposited Plan 521037	Easement		
Area H Deposited Plan 521037	Easement		
Area I Deposited Plan 521037	Easement		
Area J Deposited Plan 521037	Easement		
Area K Deposited Plan 521037	Easement		
Area L Deposited Plan 521037	Easement		
Area M Deposited Plan 521037	Easement		
Area N Deposited Plan 521037	Easement		
Area O Deposited Plan 521037	Easement		
Area P Deposited Plan 521037	Easement		
Area Q Deposited Plan 521037	Easement		
Area R Deposited Plan 521037	Easement		
Area S Deposited Plan 521037	Easement		
Area T Deposited Plan 521037	Easement		
Area U Deposited Plan 521037	Easement		
Area AA Deposited Plan 521037	Land Covenant		
Area AB Deposited Plan 521037	Easement		
Area AC Deposited Plan 521037	Land Covenant		
Area AD Deposited Plan 521037	Easement		
Area AE Deposited Plan 521037	Easement		

Title Plan - DP 521037

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Area AF Deposited Plan 521037	Land Covenant		
Total Area		2.1393 Ha	

Schedule / Memorandum

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SURVEYORS - ENGINEERS - PLANNERS

S&L File: 21377 Mitchell

Land Registration District
SOUTH AUCKLAND

Plan Number
DP 521037

Territorial Authority
WESTERN BAY OF PLENTY DISTRICT COUNCIL

Memorandum of Easements			
Purpose	**Shown**	**Servient Tenement**	**Dominant Tenement**
Right of Way, Right to Convey Water, Electricity, Telecommunications and Computer Media	A	Lot 27 hereon	Lots 23 and 24 hereon
	B	Lot 28 hereon	Lots 15, 16, 17, 18, 19 and 20 hereon
	C	Lot 29 hereon	Lots 11 and 12 hereon

Schedule of Easements			
Purpose	**Shown**	**Servient Tenement**	**Dominant Tenement**
Right of Way	A	Lot 27 hereon	Lot 25 hereon
	B	Lot 28 hereon	Lot 21 hereon

Memorandum of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Drain Sewage	A	Lot 27 hereon	Western Bay of Plenty District Council
	K, AI	Lot 18 hereon	
	B	Lot 28 hereon	
	L, AE	Lot 16 hereon	
	N, AB	Lot 12 hereon	
	C	Lot 29 hereon	
	G, Q, R, P	Lot 9 hereon	
Right to Drain Water	A	Lot 27 hereon	
	J, AJ	Lot 19 hereon	
	M, AD	Lot 12 hereon	
	O, Q, S	Lot 9 hereon	
	T, U	Lot 8 hereon	

Continues below

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Continues from previous page

Memorandum of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Drain Water (Overland flow path)	J, AJ	Lot 19 hereon	Western Bay of Plenty District Council
	N, AB	Lot 12 hereon	
Right to Convey Water	B	Lot 28 hereon	

Schedule of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Convey Telecommunications and Computer Media	A	Lot 27 hereon	Chorus Limited
	B	Lot 28 hereon	
	C	Lot 29 hereon	
Right to Convey Electricity	B	Lot 28 hereon	Powerco Limited

Schedule of Existing Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Document Number**
Right to Drain Sewage	D, E, F	Lot 30 hereon	E.I 6685670.1
	G, Q, R	Lot 9 hereon	
	H, T	Lot 8 hereon	
	I	Lot 7 hereon	

NOTE – Areas marked AA, AC, AF, AG, AH, AK to be subject to Land Covenants.

Certifying parties must sign or initial this box

Schedule / Memorandum

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Amalgamation Conditions

That Lot 27 hereon (legal access) be held as to two undivided one half shares by the owners of Lots 23 and 24 hereon as tenants in common in the said shares and that individual computer freehold registers be issued in accordance therewith. (LINZ Request 1367599)

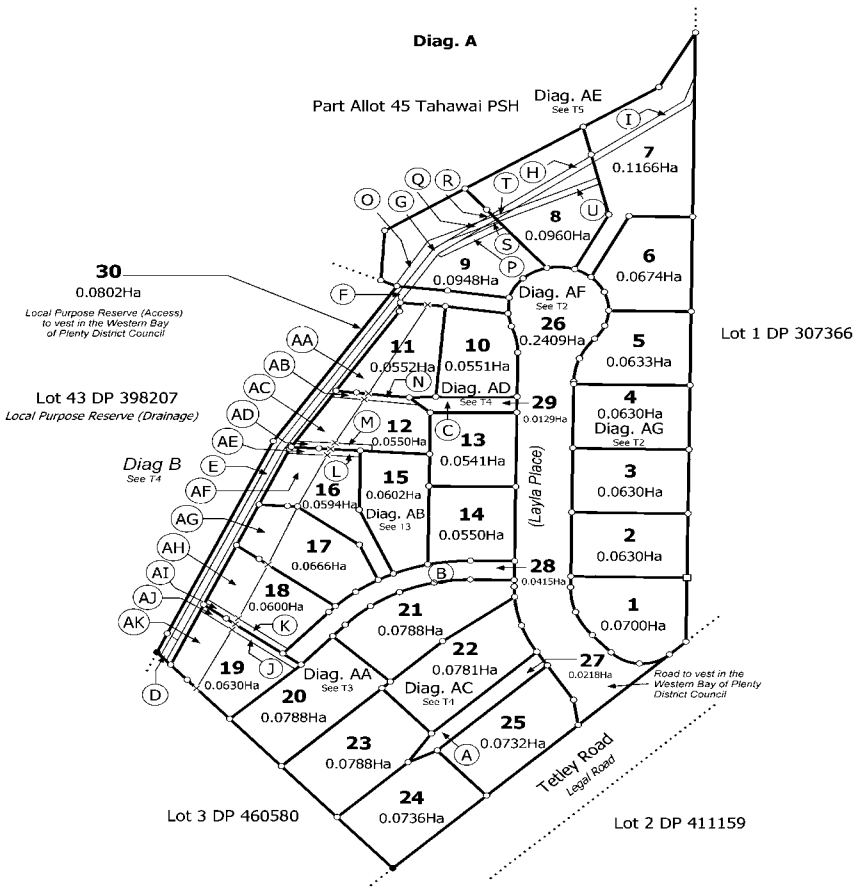
That Lot 28 hereon (legal access) be held as to six undivided one sixth share by the owners of Lots 15, 16, 17, 18, 19 and 20 hereon as tenants in common in the said shares and that individual computer freehold registers be issued in accordance therewith. (LINZ Request 1367599)

That Lot 29 hereon (legal access) be held as to two undivided one half shares by the owners of Lots 11 and 12 hereon as tenants in common in the said shares and that individual computer freehold registers be issued in accordance therewith. (LINZ Request 1367599)

Consent Notice

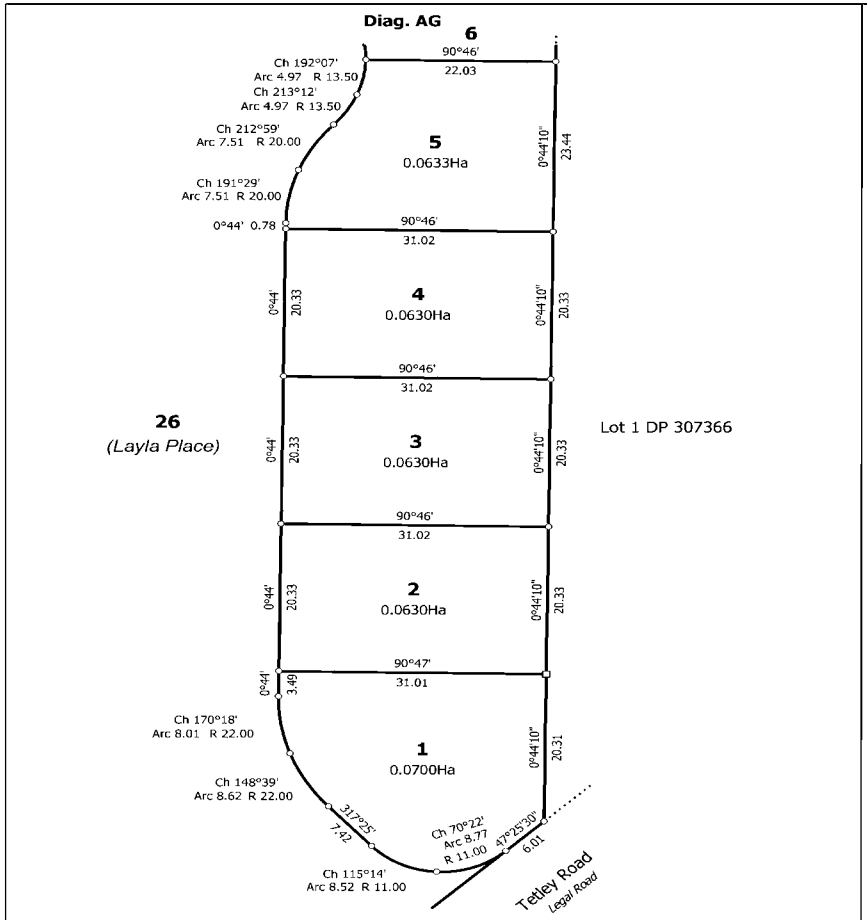
Lots 1 to 25 to be subject to a Consent Notice.

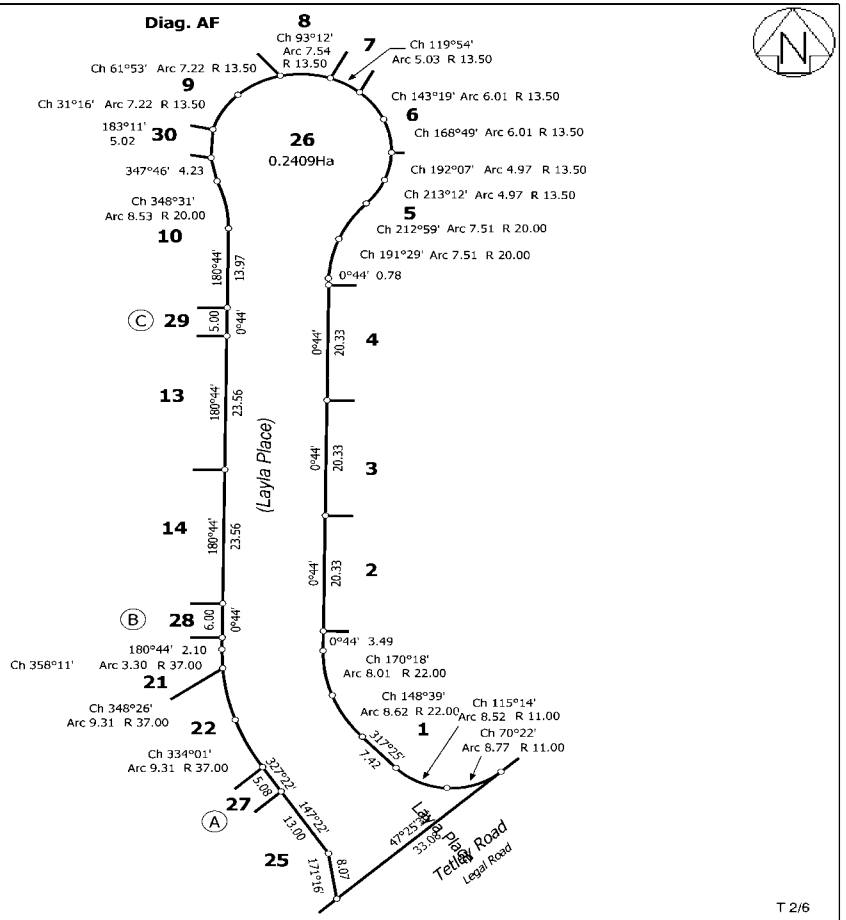
Areas AA – AK are subject to a Consent Notice.



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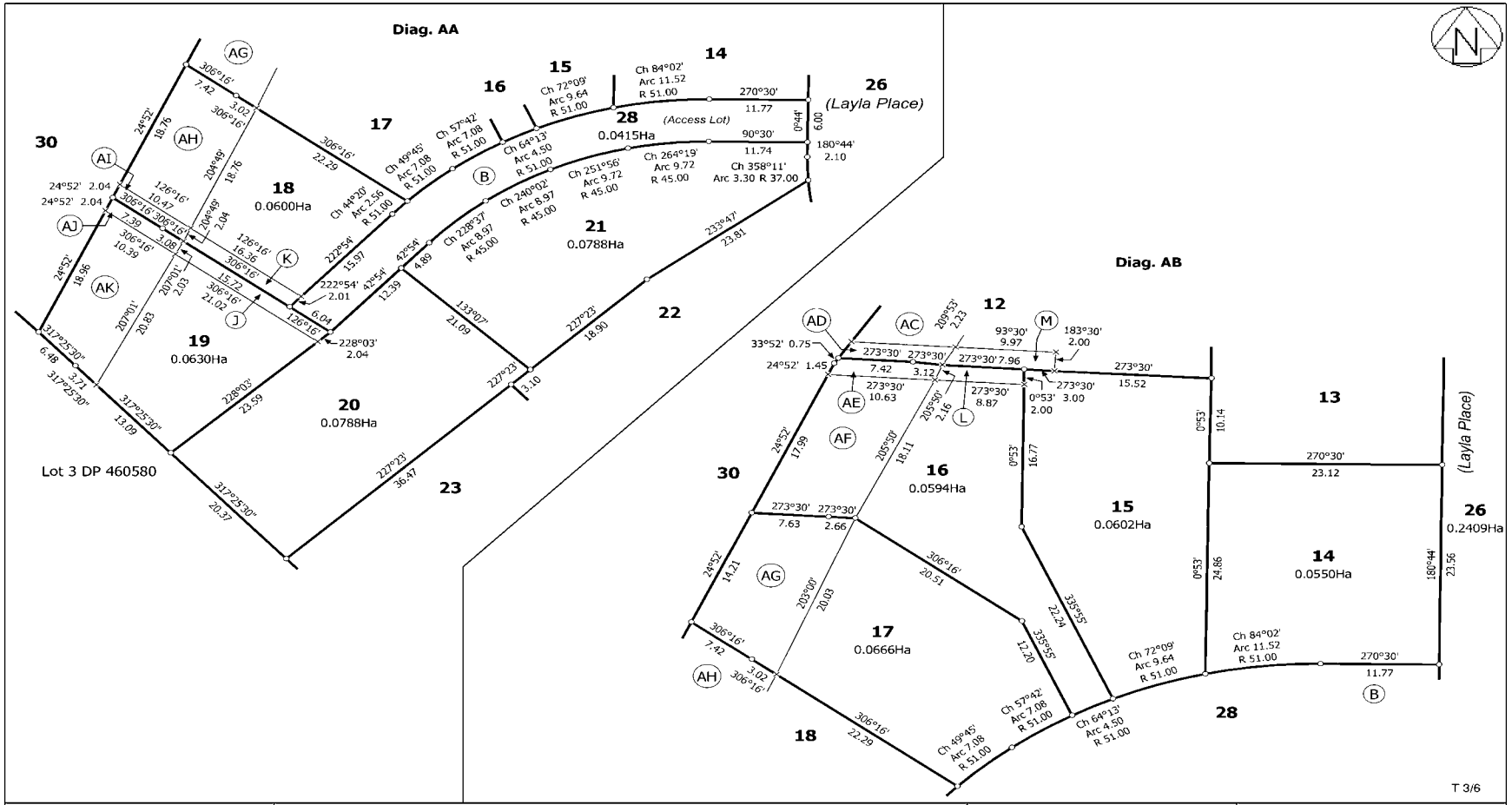
Land District: South Auckland Digitally Generated Plan Generated on: 16/07/2018 1:18pm Page 7 of 12	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan DP 521037 Deposited on: 4/07/2018



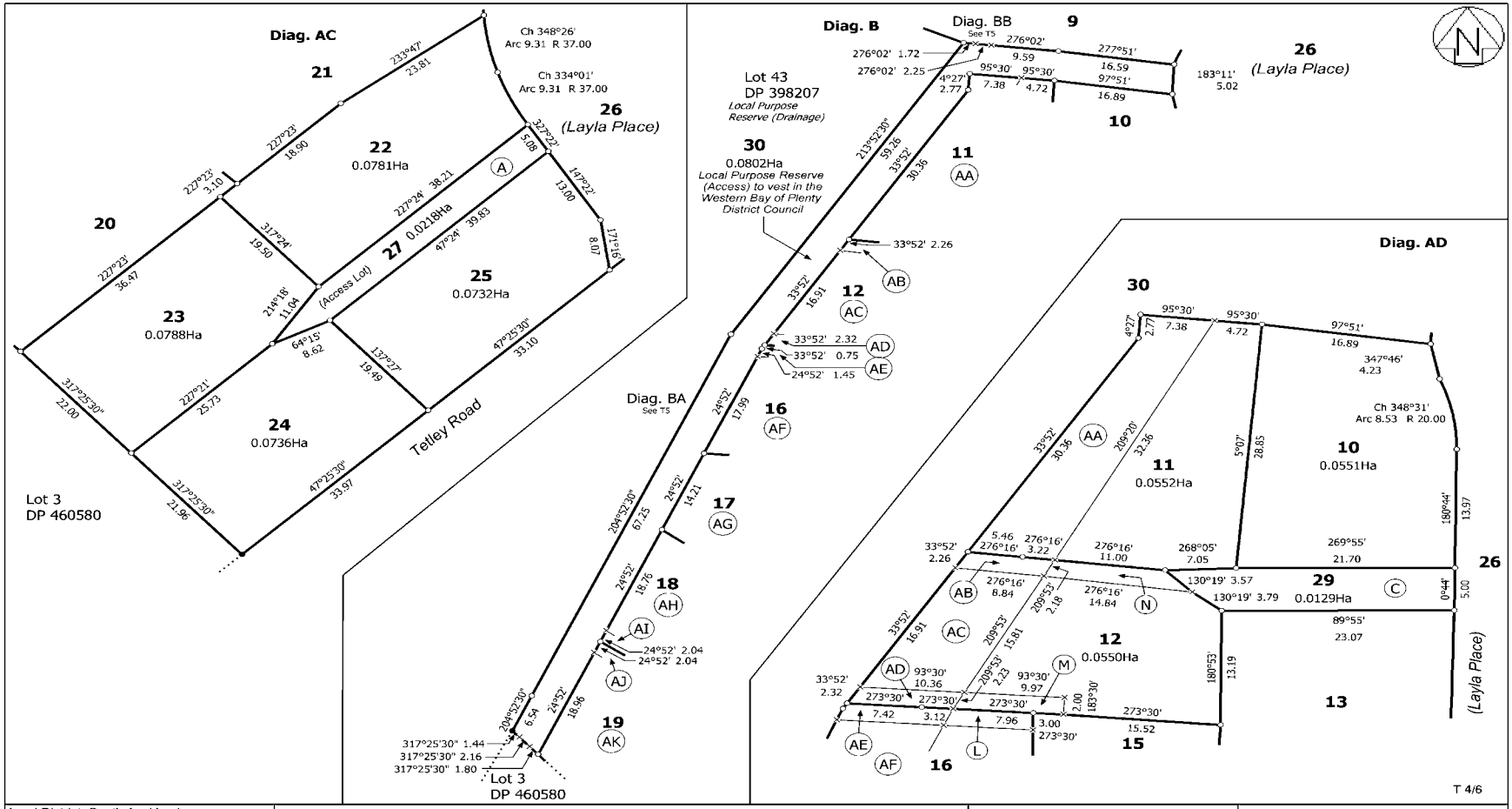


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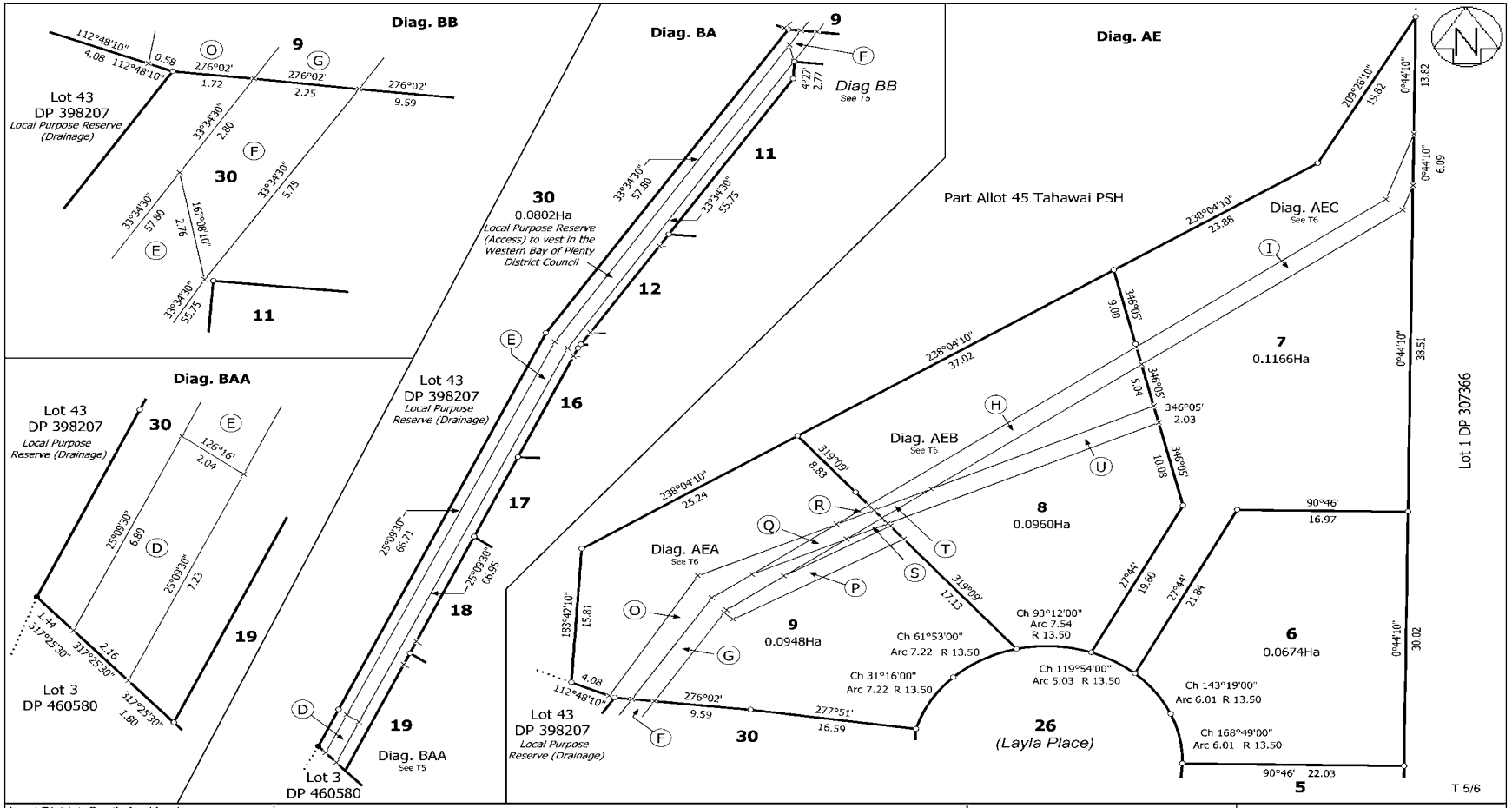
Land District: South Auckland Digitally Generated Plan Generated on: 16/07/2018 1:18pm Page 8 of 12	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan DP 521037 Deposited on: 4/07/2018



Land District: South Auckland Digitally Generated Plan Generated on: 16/07/2018 1:18pm Page 9 of 12	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan DP 521037 Deposited on: 4/07/2018

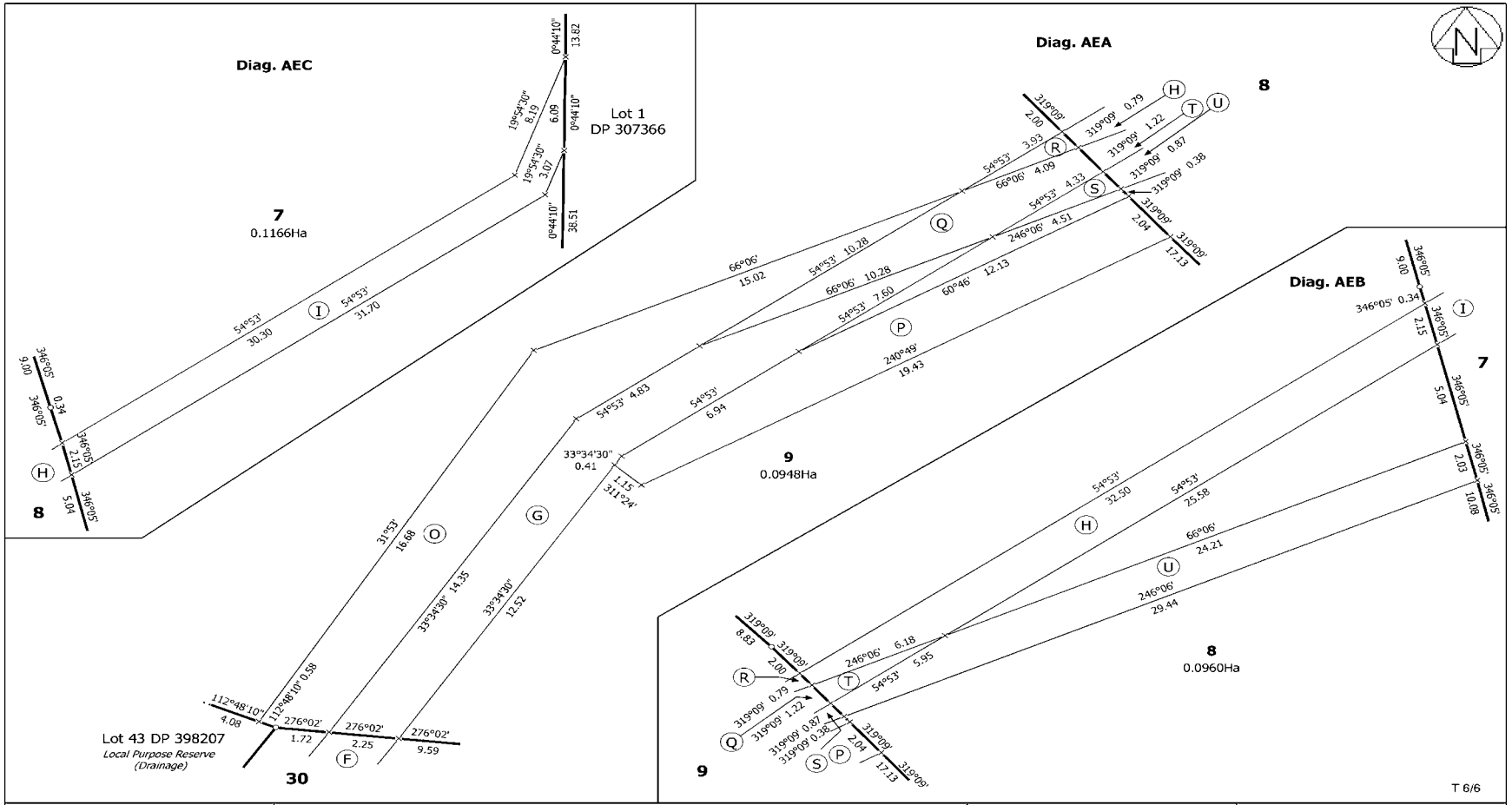


Land District: South Auckland Digitally Generated Plan Generated on: 16/07/2018 1:18pm Page 10 of 12	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan DP 521037 Deposited on: 4/07/2018



Land District: South Auckland Digitally Generated Plan Generated on: 16/07/2018 1:18pm Page 11 of 12	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan DP 521037 Deposited on: 4/07/2018

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Land District: South Auckland Digitally Generated Plan Generated on: 16/07/2018 1:18pm Page 12 of 12	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan DP 521037 Deposited on: 4/07/2018

Attachments

A2680924: 2016-06-07 - Geohazard - Remediation Action Plan - Reference 151209A
A3200466: SUB11914 - Section 221 Consent Notice - All lots except 30 (Council Reserve)
A3200467: SUB11914 - Section 221 Consent Notice - Lots 1-25, 27-29
A3200476: SUB11914 - Geotechnical Report - S & Lipinski
A3849714: 2016-03-14 - Geohazard - Detailed Site Investigation Report - Reference 151209
A3873899: 2020-09-28 - RC12354S - Final Decision - Chris Watt (ECM) - Delegated Authority
A4455426: 2022-01-14 - RC13345L - Final Decision - Chris Watt (ECM) - Delegated Authority
A4591818: BC96290 96290 Drainage asbuilt.
A6749073: 2025-04-30 - LUR-WBP-01038 2025-03-25 154614 HAIL Site Details & Map
Invoice

Remediation Action Plan

Proposed Residential Development at 193 Tetley Rd, Katikati

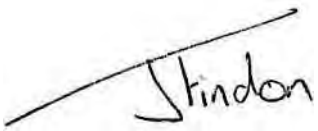
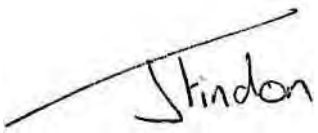
Date 07-06-2015
Job# 151209A

Remediation Action Plan
Proposed Residential Development at 193 Tetley Rd, Katikati

This report has been prepared for Tigr Investments Ltd ("the Client") by Geohazard Environmental Ltd. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other parties.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval to fulfil a legal requirement.

The contents of this report comply with good practice and professional standards. It has been approved for release and signed by a Suitably Qualified and Experienced Practitioner.

Quality Assurance Statement		
Task	Responsibility	Signature
Prepared	Nikki Sandercock	
Reviewed	Jonathan Findon	
Approved for issue	Jonathan Findon	

Revision Schedule		
Revision	Reason	Date
Original DSI Report	-	14 March 2016
Remediation Action Plan	Additional soil sampling.	07 June 2016

Prepared by:
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Job No.: 160302

Geohazard Environmental
Contaminated Site Investigation Specialists

Remediation Action Plan
Proposed Residential Development at 193 Tetley Rd, Katikati

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EXECUTIVE SUMMARY

Reports undertaken by Geohazard Environmental Ltd to date identified that concentrations of arsenic within three small areas of the site are present above Soil Contaminant Standards (SCS) for the proposed residential land use. Furthermore, the soil sampling identified that the majority of surface level soils on-site contain metals above natural background levels.

The source of the arsenic contamination is not confirmed, however potential sources include the historical broadcast application and/or bulk storage of persistent pesticides, spreading or poultry waste with elevated arsenic, or stockpiled treated old fence posts that have leached to the ground. Given that the majority of samples taken across the site found arsenic and lead to be evaluated above natural background levels, this indicates that the source is more likely from the potential historical broadcast application. Given that the exceedances of arsenic were detected within the area of the site which historically supported a number of sheds, the potential for the bulk storage of pesticides to have taken place on-site cannot be discounted. An alternative likely scenario is arsenic-based additives in poultry food, used to control mites.

The remediation objectives are to remove the affected soil to eliminate the pathway between the source and the receptor. Works will include:

- Removal of vegetation in works area.
- Soil excavation of each of the three areas of approximately 25m^2, to a depth of 300mm. This results in a volume of approximately 22.5m^3 (in-situ volume).
- Offsite disposal of material to an approved landfill.
- Importation of verified clean soil if required for development purposes.

It is likely a validation report will be required by Western Bay of Plenty District Council at completion of the proposed remedial works.

In addition to the proposed remedial works, it is understood that as part of the proposed residential development, approximately 8000m^3 of soil on-site is planned to be disturbed, which is more than the approximately 1,068m^3 permitted under the NES. Soil is planned to be cut from the central, southern and eastern areas of the site and used to fill the northern and north-western areas of the site. Consent from the Western Bay of Plenty District Council for earthworks should be applied for given that the permitted volumes are exceeded.

It is understood that surplus stripped topsoil is planned to be removed from the site however a destination has not been confirmed at the time of reporting.

Given that concentrations of metals within site soils were found to be present above natural background levels, surplus soils to be removed from site will likely need to go to managed fill, or consent will be required for discharge to land at the chosen destination. It should be noted that zinc was elevated above Class A landfill screening criteria (but within guidelines for the protection of human health) within a number of soil samples taken across the site. Furthermore, copper was also noted to exceed Class A landfill screening criteria (but within guidelines for the protection of human health) within one sample (HA04 0.0m).

Soil handling procedures for all earthworks undertaken on-site should be carried out in accordance with this Remediation Action Plan (see Sections 5 above).

The appointed contractor should confirm suitable disposal location(s) for surplus soils with the Bay of Plenty Regional Council in advance of earthworks commencing.

Given that the three small areas found to contain elevated arsenic are planned to be appropriately excavated and removed from the site and no other concentrations of contaminants were identified above the SCS for a residential land use, ongoing management is not required.

The contractor undertaking works on exposed soils is required to ensure the health and safety of earthworks workers and site visitors. This includes:

- Ensuring contact with soil is minimised.
- Appropriate PPE is used.
- Offsite discharges such as dust and sediment are restricted.

The advice of a planner shall be sought to ensure all local and regional rules are complied with prior to the commencement of works.

Consent for remedial earthworks will be required by the Bay of Plenty Regional Council under Rule 35 of the Water and Land Plan.

Soils for removal above background levels but within guidelines for the protection of human health and the environment will require discretionary consent for disposal to non-landfill sites if they are placed in a location where they may enter water. Soils imported to site above background levels will require consent from the Bay of Plenty Regional Council.

1.0 INTRODUCTION

1.1 Background and Objectives

The site has been used for pastoral farming and orchard purposes. Reports undertaken by Geohazard Environmental Ltd to date identified that concentrations of arsenic within three small areas of the site are present above Soil Contaminant Standards (SCS) for the proposed residential land use. Furthermore, the soil sampling identified that the majority of surface level soils on-site contain metals above natural background levels. The Client requested that Geohazard Environmental Ltd prepare this Remediation Action Plan (RAP) to address the soils within these three areas of the site containing elevated arsenic, as well as to meet requirements related to the proposed disturbance of contaminated land as part of the planned residential development at 193 Tetley Road.

The principal purpose of this report is to provide a description of the minimum standards that must be complied with, as well as best practicable options for management of contaminated and potentially contaminated soil. It is intended as a framework for the development of particular contaminated soil control practices and procedures to minimise effects on health and safety and to reduce their impact on the environment.

1.2 Scope of Work

Consistent with the MfE Guidelines for Reporting on Contaminated Sites in New Zealand, the following scope of work was undertaken:

- Review existing ground contamination reports.
- Delineate extent of known soil contamination around the perimeter of these three areas of the site.
- Prepare a report to outline how to remediate soils on-site, and how to meet requirements related to the proposed disturbance of contaminated land as part of the planned residential development at 193 Tetley Road.

1.3 Limitations

Geohazard Environmental Ltd has performed services for this project in accordance with current professional standards for environmental site assessments. No guarantees are either expressed or implied. This report does not attempt to fulfil the requirements of legal due diligence.

There is no investigation that is thorough enough to preclude the presence of materials at the site that presently, or in the future, may be considered hazardous. As regulatory criteria are subject to change, contaminant concentrations present and considered to be acceptable may, in the future, become subject to different regulatory standards that cause them to become unacceptable for existing or proposed land use activities.

Any recommendations, opinions or findings stated in this report are based on circumstances, facts and regulatory criteria as they existed at the time that Geohazard Environmental Ltd performed the work and on data obtained from the investigations and site observations as detailed in this report. Opinions and judgements expressed in this report, which are based on an understanding and interpretation of current regulatory standards, should not be construed as legal opinions. This report and the information it contains have been prepared solely for the use of the Client. Any reliance on this report by other parties shall be at such party's own risk.

2.0 PLAN ADMINISTRATION AND CONTROL

2.1 Roles and Responsibilities

The owner shall appoint a contractor to undertake the works required by this RAP. Details of the relevant contractors and any consultants shall be provided to Western Bay of Plenty District Council and Bay of Plenty Regional Council prior to commencing work.

Implementation of the RAP shall be the responsibility of the site owner. The owner shall be responsible for ensuring that any contractor engaged for works is provided with the most up to date version of the RAP and oversee the contractor to ensure that the procedures are followed.

The site construction contractor shall be responsible for the implementation of this Plan in conjunction with the contractors' own health, safety and environmental management plans. The Contractor shall notify other parties (including subcontractors), who may be carrying out excavation works at the site, of the existence of this RAP and shall provide an overview of its contents prior to works occurring. The Contractor shall also ensure that their project-specific health and safety plan addresses worker protection measures described below.

2.2 Distribution

At least one copy of the RAP shall be held on-site. A copy of the plan shall be provided to Western Bay of Plenty District Council and Bay of Plenty Regional Council. Copies of the plan shall be provided to the appropriate contractors undertaking below ground works at the site.

An up-to-date register of Plan Holders shall be maintained by the person responsible for the management and implementation of the document.

2.3 Plan Amendment

The RAP should be considered a living document as the project is advanced. If unforeseen conditions are encountered, the document should be re-evaluated and updated as required.

The RAP shall be reviewed prior to work commencing and at appropriate intervals to cater for changes in operation procedures or ground conditions. The Western Bay of Plenty shall be provided with draft amended versions for approval before amended versions are finalised. Revisions/amendments will require re-issue of the RAP to all registered holders.

The RAP does not supersede any requirements established by the appointed contractors own management plans. Instead it has been designed to provide additional detail regarding management of contaminated soil that may be encountered during the excavation works.

3.0 SITE OVERVIEW

3.1 Site Inspection

The site is located at 193 Tetley Rd, Katikati. The site is listed on the Western Bay of Plenty files as19 Tetley Road. Figure 1 illustrates the general locale of the site. The site is legally described as Lot 2 DP 460580. The land parcel site is approximately 21380m^2 in size. In this report, reference to "the site" constitutes the whole of the parcel generally.

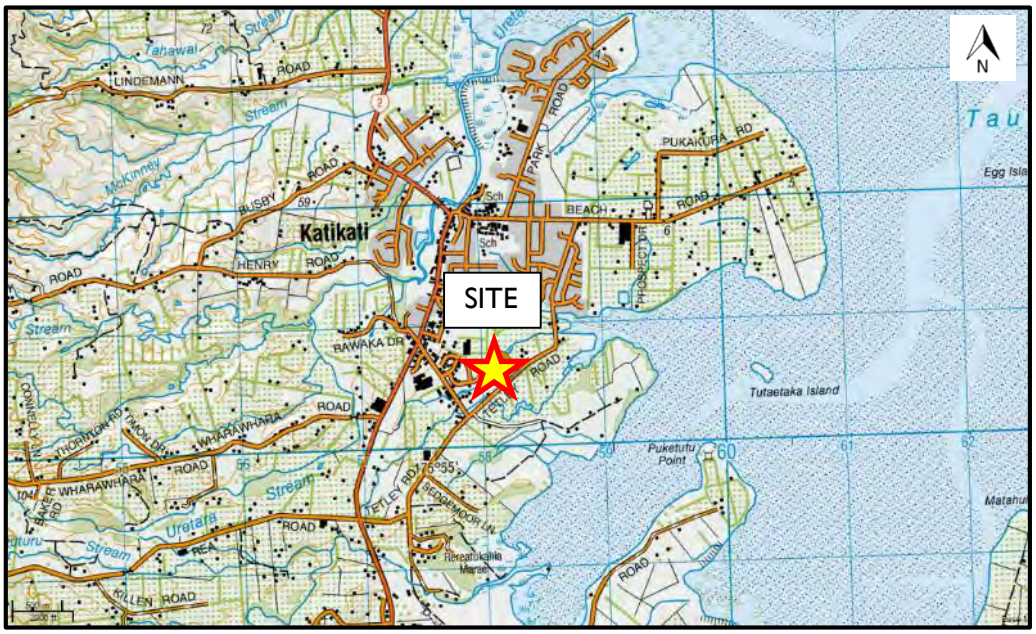


Figure 1: Map View of the Site Location in Relation to Katikati

In Figure 2, the area located inside the red lines is the site under investigation and the areas inside the yellow lines are the three areas proposed for remediation.



Figure 2: The Site at 193 Tetley Rd, Katikati

3.2 Summary of Site History and Site Description

The site historically supported land assumed to have been utilised for grazing purposes. From at least 1960 until pre-2007, the site supported an orchard. From at least 2010 until present, the site has supported undeveloped land utilised for grazing purposes. The historical pastoral farm use and subsequent orchard use of the site represents a potential source of contamination from the potential broadcast application of fertilisers and persistent pesticides, as well as the potential stockpiling and/or spreading of chicken litter, potentially containing arsenic from mite control.

A number of structures (assumed sheds and a possible propagation greenhouse or chicken shed) have historically been present on-site, the earliest of which dated back to pre-1943. The types of materials stored within these structures is unknown, therefore, these too represent a potential source of contamination (from the potential bulk storage of fertilisers, persistent pesticides etc).

It should be noted that earthworks (assumed stripping of topsoil on-site, potentially associated with near-by large-scale residential development to the west of the site) appear to have taken place within the eastern and western areas of the site between 2007 and 2010. However no evidence of infilling has been identified. The site currently supports a number of grass-covered grazing paddocks. It is understood that the site is planned to be redeveloped for residential purposes.

3.3 Conditions at Site Boundaries

Conditions at the site boundaries are as described below:

North – Stream, beyond which an orchard is located
East – Orchard
South – Tetley Road, beyond which an orchard is located
West – Grazing land and a residential dwelling

The majority of the site boundaries are defined with vegetation and fences, however the northern and western boundaries of the site are not currently defined. Fencing will not affect migration of any contaminants onto or off the site.

3.4 Geology and Topography

The site is generally flat in topography. The geology is mapped as Middle Quaternary aged alluvium and colluvium described as "*alluvial and colluvial gravel, sand and mud, commonly pumice-rich in central areas, with intercalated lignite or peat; locally includes non-welded ignimbrite and tephra, and, in the south and east, loess*."

3.5 Hydrology and Groundwater

A stream is located adjacent to the north and northwest of the site and Tauranga Harbour is located from approximately 980m southeast of the site. Two groundwater abstraction bores are recorded within a 500m radius of the site, the nearest of which is located approximately 140m east of the site. The bore (Well Number 1322) is shown on the Bay of Plenty Regional Council GIS website as being 181m deep, however the standing water is not recorded. The bore was drilled in July 1983 and is recorded as 'current'.

Based on topography, shallow groundwater and surface water at the site is expected to flow in a north-westerly direction, and into the stream situated adjacent to the north and northwest of the site. Groundwater and surface water is eventually expected to discharge to the Tauranga Harbour approximately 980m southeast of the site.

4.0 SOIL TESTING DATA

4.1 Basis for Guideline Values

A SCS is a first stage screening value that provides the concentration of a contaminant in soil to which people (and/or ecological receptors) on or near a site can be exposed without creating an unacceptable level of risk to health. For the protection of human health, SCS are derived by defining a critical receptor (e.g. a child of a certain age and weight) and defining tolerable daily intake for a particular contaminant. Then, using assumptions regarding exposure (e.g. amount, duration, pathway), the soil concentrations that would equal the tolerable daily intake are calculated. Exposure pathways reflect how people are exposed to contaminants.

SCS are based on generic exposure scenarios based on use. An exposure scenario is a combination of exposure pathways typical of a particular activity or use in which exposure to soil contaminants is likely to occur; an activity could be, for instance, a child playing in a residential area. The intent is to estimate the intake of a contaminant for each particular scenario. For simple risk assessment, generic use scenarios are used, with a standard combination of exposure pathways for each scenario. The generic use scenarios used for the SCS are intended to be typical of the great majority of situations in which New Zealanders may be exposed to soil contaminants.

The site investigated here is classed as 'residential' by the Western Bay of Plenty District Council, and also considering the site's proposed residential end use, the 'Residential grown produce consumption (up to 10 %)' use scenario, described in Table 1 below, is most relevant to this investigation. As a result, based on the MfE Guidelines, any results should be assessed against SCS given for this scenario. There are both more conservative and more liberal standards that could be applied; however, the one presented is appropriate both to the use classification of the site based on the information available.

Table 1: Use Scenario Most Relevant to this Report.

Parks / Recreational	Covers exposure at public and private green areas and reserves that are used for active sports and recreation. This scenario is intended to cover playing fields and suburban reserves where children play frequently. It can also reasonably cover secondary school playing fields but not primary school playing fields.
Residential grown produce consumption (up to 10 %)	Covers standard residential lots for single dwelling sites with gardens, including home-grown produce consumption (up to 10 %).
Rural/ lifestyle block	Rural residential use, including home-grown produce consumption. Applicable to the residential portion of farms, but not productive parts of agricultural land.
Industrial	Commercial / industrial sites with varying degrees of exposed soil.

SCS in this report, tabulated in Section 4.2, are taken from the National Environmental Standards (NES) and New Zealand Ministry for the Environment (MfE) wherever possible. In some cases, the MfE has not developed a specific SGV for some contaminants under some use scenarios. When MfE values are unavailable, guideline values from reputable sources such as the Australian National Environmental Protection Council (NEPC) are used, according to acceptable SGV sources and the hierarchy of use for these sources that is specified by the MfE (2007).

The NES for contaminated land was introduced in order to address a legacy of soil contamination in New Zealand that has resulted from the use, and improper storage and disposal, of chemicals in industry and agriculture.

The NES controls apply to “Land use change, subdivision, and disturbance of any land where, according to the best information available to the local authority, there has been a facility on the land or a hazardous activity carried out on the land that may have involved the intentional or accidental discharges of hazardous substances that could now be a risk to human health”. Hence the NES is applicable to the present site due to the proposed subdivision and redevelopment of the site for residential use. The NES contains SCS, and where present these supersede those previously published in MfE industry-specific guidelines.

4.1.1 Regional Council Guidelines

In addition to human health standards, the Bay of Plenty Regional Council requires that contaminants be assessed against guidelines for the protection of the environment. Rule 35 of the Regional plan states that disturbance of contaminated soils is a Restricted Discretionary Activity. This includes creating access ways or services. The applicable guidelines are shown in the tables below.

4.2 Field Sampling and Analysis

As part of the original DSI, Geohazard Environmental Ltd took 24 individual surface soil samples, each of which were analysed for a suite of metals. 16 of the 24 samples were taken along a 34m grid basis to allow for valid statistical analysis. The remaining 8 samples were taken within the vicinity of a number of the former structures on-site. In addition, the samples were composited (mixed) in the laboratory and analysed for a suite of persistent pesticides. The purpose of taking composite samples, i.e. samples that represent a mixture of several sub-samples taken from different locations, is to reduce needless laboratory expense – if contamination is present at high levels, even if some of the sub-samples are uncontaminated, the resulting sample will still reflect the presence of the contaminated sub-samples that went into the composite.

Samples were collected using a hand auger. The auger was cleaned between each sample location using Decon90 (a non-phosphate laboratory grade detergent) and deionised water. Samples were placed into laboratory supplied jars, and placed into a chillibin with ice. Samples were couriered to Hill Laboratories in Hamilton under Chain of Custody documentation.

Information about the site indicates that HAIL (Hazardous Activities and Industries List) associated use has occurred (HAIL A.10), hence HAIL compounds associated with this use were chosen for analysis.

The results from analysis of samples, summarised in this section, indicate that some contaminant concentrations exceeded guideline values. Per MfE Guidelines, all results reported herein that exceed SCS are highlighted; this report uses grey highlighting to emphasise any results over guideline values. The results from analysis of samples for metals are summarised in Table 2 below.

Table 2: Results from Analysis for Metals (all results in mg/kg).

Sample	Arsenic mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Nickel mg/kg	Zinc mg/kg
General former Orchard Area							
HA01 0.0m	9	0.42	9	46	13.6	3	125
HA02 0.0m	11	0.26	14	33	29	8	94
HA03 0.0m	7	0.35	6	35	12.5	3	72
HA04 0.0m	6	0.7	8	*100*	13	4	*230*
HA05 0.0m	7	0.34	6	42	14.1	3	90
HA06 0.0m	7	0.33	6	55	13.1	2	98
HA08 0.0m	10	0.39	5	31	18.6	5	196
HA09 0.0m	6	0.39	8	35	14.8	4	101
HA10 0.0m	6	0.15	10	17	15.4	6	65
HA11 0.0m	7	0.59	10	31	13.9	5	108
HA12 0.0m	6	0.24	8	18	14.6	5	68
Within the Vicinity of the Former Structures On-Site							
HA07 0.0m	6	0.21	5	25	14.5	< 2	92
HA13 0.0m	7	0.35	6	39	23	2	151
HA14 0.0m	54	0.36	46	62	47	2	156
HA15 0.0m	8	0.19	7	30	23	2	93
HA16 0.0m	11	0.27	9	30	34	< 2	96
HA17 0.0m	10	0.5	10	42	43	5	*210*
HA18 0.0m	7	0.27	8	31	36	3	156
HA19 0.0m	7	0.24	9	22	30	4	168
HA20 0.0m	6	0.21	10	26	34	3	186
HA21 0.0m	10	0.55	8	35	34	4	185
HA22 0.0m	8	0.27	10	25	24	3	129
HA23 0.0m	80	0.38	23	66	58	3	*330*
HA24 0.0m	8	0.29	7	35	26	2	187
SGV (Residential)	20 [a]	3 [a]	460 [a]	>10,000 [a]	210 [a]	400 [b]	7400 [b]
Environmental [c]	100	7.5	400	325	250	105	400
"Background" (indigenous forest) [d]	6.4	0.08	3.0	15.0	8.4	1.4	29.6
Class A Landfill Acceptance [d]	100	20	100	100	100	200	200

Cells highlighted in grey exceed SGV. Cells highlighted in italics exceed Class A Landfill Acceptance.

a) MfE 2012 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health,
b) National Environment Protection Council (NEPC) updated 2013. Guideline on Health-Based Investigation Levels and Ecological Investigation Levels. *=standard residential
c) Bay of Plenty Regional Council Interim Environmental Guidelines
d) Bay of Plenty Regional Council (2011) Trace Elements in Bay of Plenty Soils

Table 3 below summarises results from analysis for *detected* pesticides.

Table 3: Results from Analysis for Detected Pesticides (all results in mg/kg).

Sample	4,4'-DDE	2,4'-DDT	4,4'-DDT	Total DDT Isomer
Composite of HA01 - HA04	0.143	< 0.010	0.052	0.2
Composite HA05 - HA08	0.178	0.014	0.068	0.26
Composite HA09 - HA12	0.014	< 0.010	< 0.010	< 0.06
Composite HA13, HA16, HA23 and HA24	< 0.010	< 0.010	< 0.010	< 0.06
Composite HA15, HA17, HA18 and HA19	< 0.010	< 0.010	< 0.010	< 0.06
Composite HA14, HA20, HA21 and HA22	0.012	< 0.010	< 0.010	< 0.06
SGV (Residential)	-	-	-	70[a]
Adjusted SGV	-	-	-	17.5
Environmental [c]	-	-	-	0.7

a) MfE 2012 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health,
b) National Environment Protection Council (NEPC) updated 2013. Guideline on Health-Based Investigation Levels and Ecological Investigation Levels. *=standard residential
c) Bay of Plenty Regional Council Interim Environmental Guidelines

4.3.1. Additional Testing

Additional testing for arsenic and heavy metals was undertaken on 24 February 2016 by Geohazard Environmental Ltd staff. Individual surface soil samples were collected 5m north, south, east and west of HA14 and HA23 and tested for arsenic only. Furthermore, individual surface soil samples were collected to the north of one of the former sheds which was demolished pre 2007 (HA25) and within the footprint of another smaller former shed which was demolished pre 2003 (HA26). HA25 and HA26 were tested for heavy metals.

The results from analysis of samples indicate that one exceedance of arsenic was identified at HA26 (within the footprint of a former small shed situated within the south of the site dating from at least 1960 until pre 2003). No other exceedances of contaminants were identified within the additional samples taken, however it is noted that the majority of contaminants were found to be elevated above natural background levels (but within guidelines for the protection of human health). The results from analysis of the additional samples taken are summarised in Table 4 below.

Table 4: Results from Analysis of the Additional Samples Taken (all results in mg/kg).

Sample	Arsenic mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Nickel mg/kg	Zinc mg/kg
HA14-5MN 0.0m	13	-	-	-	-	-	-
HA14-5ME 0.0m	9	-	-	-	-	-	-
HA14-5MS 0.0m	16	-	-	-	-	-	-
HA14-5MW 0.0m	9	-	-	-	-	-	-
HA23-5MN 0.0m	8	-	-	-	-	-	-
HA23-5ME 0.0m	10	-	-	-	-	-	-
HA23-5MS 0.0m	11	-	-	-	-	-	-
HA23-5MW 0.0m	5	-	-	-	-	-	-
HA25 0.0m	6	0.32	7	24	45	2	185
HA26 0.0m	33	0.46	26	39	43	3	*210*
SGV (Residential)	20 [a]	3 [a]	460 [a]	>10,000 [a]	210 [a]	400 [b]	7400 [b]
Environmental [c]	100	7.5	400	325	250	105	400
"Background" (indigenous forest) [d]	6.4	0.08	3.0	15.0	8.4	1.4	29.6
Class A Landfill Acceptance [d]	100	20	100	100	100	200	200

Cells highlighted in grey exceed SGV. Cells highlighted in italics exceed Class A Landfill Acceptance.

a) MfE 2012 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health,
b) National Environment Protection Council (NEPC) updated 2013. Guideline on Health-Based Investigation Levels and Ecological Investigation Levels. *=standard residential
c) Bay of Plenty Regional Council Interim Environmental Guidelines
d) Bay of Plenty Regional Council (2011) Trace Elements in Bay of Plenty Soils

On the 10th May 2016, Geohazard Environmental undertook the following additional soil sampling:

- Sampling at depth (0.3m bgl) at the original exceedance sample location HA14, HA23 and HA26.
- Four surface level soil samples 5m north, south, east and west of sample location HA26.
- 16 surface level soil samples along a 12m grid basis within the southern area of the site (within the vicinity of former building locations on-site).

The results from analysis of the additional samples taken indicate that all concentrations of contaminants are below SCS, however a number of samples are noted to contain concentrations of contaminants above expected background levels. Two samples contained zinc above environmental guidelines however, no significant environmental receptors have been identified on-site or within the surrounding area and therefore, this is considered unlikely to be of concern. The results are summarised in Table 5 below.

Table 5: Results from Analysis for Metals (all results in mg/kg).

Sample	Arsenic mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Nickel mg/kg	Zinc mg/kg
HA14 0.3m	8	0.12	5	45	16.6	2	56
HA23 0.3m	7	< 0.10	6	13	15.1	< 2	35
HA26 0.3m	7	0.2	5	35	16.2	3	91
HA26-5MN 0.0m	8	0.33	11	28	73	4	*210*
HA26-5ME 0.0m	10	0.58	14	91	85	6	*380*
HA26-5MS 0.0m	10	0.45	8	32	19.5	3	92
HA26-5MW 0.0m	7	0.22	7	29	34	< 2	112
HA27 0.0m	12	0.59	11	41	47	5	*380*
HA28 0.0m	5	< 0.10	7	7	13.8	2	39
HA29 0.0m	7	0.28	6	29	31	3	82
HA30 0.0m	18	0.95	17	66	99	7	*320*
HA31 0.0m	4	< 0.10	5	5	11.6	< 2	25
HA32 0.0m	5	0.16	8	18	27	5	98
HA33 0.0m	10	0.55	8	52	47	4	*310*
HA34 0.0m	6	0.24	10	20	29	5	86
HA35 0.0m	7	0.4	6	35	26	3	*210*
HA36 0.0m	14	0.59	18	40	19.5	6	*230*
HA37 0.0m	11	0.4	7	36	32	4	117
HA38 0.0m	10	0.25	5	33	27	3	140
HA39 0.0m	7	< 0.10	8	14	15.2	3	42
HA40 0.0m	8	0.27	7	19	12.7	3	83
HA41 0.0m	9	0.37	5	24	14	3	***470***
HA42 0.0m	11	0.48	9	57	20	3	***530***
SGV (Residential)	20 [a]	3 [a]	460 [a]	>10,000 [a]	210 [a]	400 [b]	7400 [b]
Environmental [c]	100	7.5	400	325	250	105	400
"Background" (indigenous forest) [d]	6.4	0.08	3.0	15.0	8.4	1.4	29.6
Class A Landfill Acceptance [d]	100	20	100	100	100	200	200

Cells highlighted in bold exceed environmental guidelines. Cells highlighted in italics exceed Class A Landfill Acceptance.

e) MfE 2012 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health,
f) National Environment Protection Council (NEPC) updated 2013. Guideline on Health-Based Investigation Levels and Ecological Investigation Levels. *=standard residential
g) Bay of Plenty Regional Council Interim Environmental Guidelines
h) Bay of Plenty Regional Council (2011) Trace Elements in Bay of Plenty Soils

Copies of all laboratory results are given in Appendix C.

5.0 REMEDIATION PLAN

5.1 Site Characterisation

Remedial works are required as elevated levels of arsenic are present at three location on the site, (sample locations HA14, HA23 and HA26, situated within the vicinity of the former buildings in the south of the site). Soil removal is proposed to eliminate the pathway between the soil and a residential receptor. The controlling pathway (i.e. the most significant risk) for arsenic is soil ingestion. Therefore removal of those pathways significantly reduces the risk to human health.

The three areas proposed for remediation are each 25m^2 in size. Geohazard Environmental Ltd recommend that at least 300mm of soil within these areas of the site be excavated and appropriately removed from the site. The proposed remediation areas are shown on the Plan in Appendix A.

5.2 Remediation Plan Objectives and Goals

The objective of this Remediation Action Plan is to ensure that the works required as part of the project are appropriately managed and that contaminated or potentially contaminated soils are identified, handled and disposed of in an appropriate manner. The goals of the remedial works are to:

- Remove the pathway for impacted soils to adversely affect human health (the receptor).
- Ensure appropriate protection of on-site workers during works.
- Remove surplus soil to appropriate landfill locations.
- Limit discharges from the site during and following remediation.

5.3 Outline of Works

The proposal is to appropriately remove soils containing elevated concentrations of arsenic from the site. The purpose of this plan is twofold: firstly to ensure the health of site occupiers and the general public, and secondly to ensure discharges from the site are managed to mitigate any adverse effects to the environment.

Surficial soils at the site are impacted by the presence of contaminants from historical activities on the site. Soil sampling has shown that metals are above levels for the protection of human health and natural background levels. There is no evidence of buried underground storage tanks at the site. The investigation has identified potential risk to soils from historical activities impacting surficial and near-surface soils only. The following works will be undertaken at the site:

- Site establishment.
- Vegetation removal as required.
- Soil removal.
- Offsite disposal of soils.
- Importation of verified clean soils if required for site levels.

Soil testing has shown that any excavated soil from the three aforementioned areas on-site is likely to contain arsenic concentration that exceed the residential guidelines, but are within Class A landfill guideline criteria. The contractor shall dispose of soil at an appropriate off site licensed landfill facility.

Soils shall be excavated and placed directly into waiting trucks wherever practical. Stockpiling shall be avoided.

5.4 Volumes for removal

Earthworks are required on-site. Approximately 25m^3 (in-situ volume) of soil is to be excavated and removed from the site. This includes:

- Soils from around sample location HA14.
- Soils from around sample location HA23.
- Soil from around sample location HA26.

The earthworks area is shown on the plans in Appendix A.

5.5 Pathways for Exposure (site workers)

Expected levels of metals and other contaminants at the site are generally below the applicable soil contaminant standard for the protection of outdoor workers. It is always possible some areas may include contaminants above what has been detected. Soil exposure can occur in several ways:

- Direct soil contact, for example during excavation of soils.
- Soil ingestion.
- Inhalation of dust.

To minimise soil contact, the management processes outlined in the sections below are proposed for the site.

5.6 Site Establishment

Prior to works commencing, a number of structures shall be emplaced to aid in the management aspects of site safety and environmental compliance. These include the following:

- Signage, including works information and health and safety requirements.
- Silt and sediment control measures.
- If required, stormwater (surface runoff) diversion and collection systems.

The earthworks contractor shall complete a health and safety induction prior to the works commencing for all contractors employed during the remediation works in the project area. A Health and Safety Plan shall be prepared, and include actions that need to be taken for handling potentially contaminated soil and groundwater as described in this Plan.

Access to the site shall be restricted to authorised personnel by the use of barricades/fences and adequate signage. Personnel shall be authorised access to site following completion of site induction procedures.

5.7 Contaminated Soil Management

This section provides information regarding steps that are required with regards to protecting human health and the environment during remediation and subsequent development of the site.

5.7.1 Contaminated Soil Definition

The term contaminant refers to a substance that is not normally present in the environment. For this report however, the following operational definition is used: a contaminant is a substance that is present at levels that might cause harmful effects to humans or the environment. Therefore, this report does not consider whether or not the levels present are from natural sources or not, but only whether or not contamination is likely to, or does, exist above safe levels, i.e. SCS.

The results from analysis of samples taken at site as part of the recent DSI indicate that contaminants (namely arsenic) are present within three small areas at levels above SCS, and therefore, these areas of the site are contaminated with respect to the operational definition given above. Concentrations of metals within site soils were found to be present above natural background levels within the majority of samples taken across the site.

5.7.2 Health and Safety During Excavation

In addition to the requirements specified in the contractor's own health and safety documentation, the following shall be applied:

Work Areas

During the proposed remediation works and subsequent construction activities at the site, the work areas shall be controlled to prevent entry of unauthorised persons into the work areas. The work areas shall be cordoned off and notices posted prohibiting entry outside working hours.

Workers shall use appropriate personal protective equipment. Worker and equipment decontamination shall take place within the work areas such that excavated material is not spread around the site nor offsite.

Decontamination operations shall be accommodated within the works area, as well as controls for dust suppression and prevention of sediment discharges.

Personnel Safety

Soils containing elevated concentrations of arsenic will be encountered during excavation works around sample locations HA14, HA23 and HA26. The elevated metals (namely arsenic) are present in soil within these areas of the site and pose some minor risk to site workers. Workers should be notified of this possibility before beginning subsurface work so they are aware of potential hazards that may be encountered.

Before work on the site commences, workers shall be thoroughly briefed by the Contractor (or designee) regarding the contents of this Plan.
Workers directly in contact with soil or potentially contaminated material from the site shall wear appropriate personal protective equipment including:

- Gloves
- Overalls or clothing that covers arms and legs
- Boots
- Eye Protection
- Dust masks (if visible dust is present)

Site Worker and Equipment Cleaning

The following procedures for worker and equipment cleaning have been developed to minimise transport of contaminated material from the work area. The following steps shall be undertaken for worker decontamination if leaving the work area:

- Wash boots with detergent, water, brush and bucket, and rinse with clean water.
- Rinse goggles with clean water.
- Discard dust mask (if used) in disposal drum.
- Remove overalls and wash (personnel should brush off clothing, and should be advised not to wash their work clothing in the same load as family laundry, as cross-contamination can occur).
- Wash hands and face.

Eating, drinking and smoking shall only be allowed in prescribed areas outside the work area and only after washing of hands and face with soap and water and removal of any soil from clothing.

Equipment, tyres and other parts that have been in contact with contaminated or potentially contaminated soil shall be rinsed with clean water before leaving the site. Water shall not be allowed to drain to off-site areas.

5.7.3 Dust Control

Dust shall be managed along all access tracks and work areas with dust mitigation methodologies (e.g. water trucks, dust suppressants or capping the area with alternative material such as gravel).

Potentially contaminated dust may settle on surfaces on-site or off-site, presenting a potential risk to human health and ecological receptors. Dust must be minimised to the greatest extent possible in accordance with Environment Bay of Plenty Erosion and Sediment Control Guidelines for Land Disturbing Activities (2010).

A water tanker or spray equipment shall be kept on-site and used for dust control. Waste soil, including stockpiled soil, shall be kept adequately wetted to minimise dust. Stockpiles shall be dampened and material shall not be added or removed from stockpiles during high wind events.

Whilst contaminated or potentially contaminated soil are being stored on-site, vehicle wheels of equipment moving near storage areas shall be washed before leaving the site. A truck wheel wash may be required at the site exit to prevent silt/soil being tracked onto public roadways by vehicles. In the event that soil is tracked onto the public roadway, it shall be wetted as soon as possible and street cleaning equipment will be brought in to clean the roadway. Screens to prevent dust migration may also be considered if complaints are received.

5.7.4 Odour Control

Odours from contaminated soil are not anticipated. However, in the event of accidental discovery of odorous contaminated materials, it may be necessary to place cover material over the contaminated materials to reduce odour and to excavate in a manner that exposes a small area at a time, allowing it to ventilate, then exposes another small area, and so on.

All staff involved in excavation works shall immediately report any visual or olfactory (smells, odours) evidence of contamination to the site manager. The site manager will consult with the Environmental Management Representative when evidence of contaminated material is reported and decide on the best option for managing these materials.

Equipment, such as diesel-powered vehicles (trucks, excavators, etc.), shall not be left running when not in use to help minimise exhaust odours.

A complaint log will be established and will include the date/time the complaint was received, source and nature of the complaint, weather conditions, and resolution. The complaint log shall be maintained for the duration of the project.

5.7.5 Groundwater

Groundwater at the site has not been tested for the presence of contaminants. Groundwater shall not be extracted from the site and used for human consumption unless future laboratory analysis shows groundwater to be suitable for such use. Groundwater has not been consented abstraction for dust control.

Groundwater is not expected to be encountered during shallow earthworks for these remedial works. However in the event that significant quantities of groundwater are encountered, it should be handled in accordance with Environment Bay of Plenty *Erosion and Sediment Control Guidelines for Land Disturbing Activities*. It is not expected that excavation works will increase

adverse effects on site groundwater. Where water is identified as having been affected by potential contamination, it should be contained and sampled.

If water is found to be contaminated in excess of guidelines provided in New Zealand Municipal Wastewater Monitoring Guidelines (MfE 2002b) or other appropriate references it should be contained in drums or tanks on-site for removal to a suitable facility authorised to receive wastewater for treatment and disposal. Records of this disposal shall be kept and maintained on site.

5.7.6 Spill Response

Potential ground contamination sources may be bought onto a site by contractors, in the form of fuels and chemicals. Each contractor shall ensure they provide suitable spill response kits. The contractor should also have in place a plan for dealing with contamination, including first response, clean-up and investigation of effects of the spill.

5.7.7 Erosion and Sediment Control

Contaminated soil may be transported through erosion and sediment deposition. Erosion and sediment controls shall be implemented prior to any construction works in accordance with Environment Bay of Plenty *Erosion and Sediment Control Guidelines for Land Disturbing Activities* (2010). Any consent conditions imposed by Regional or Local authorities related to erosion and sediment control shall be complied with. Erosion and sediment control shall be sufficient to address:

- Control of overland flow/stormwater.
- Separation of “clean” and “dirty” water.
- Protecting the land surface from erosion.
- Preventing sediment from leaving the site.

Temporary erosion control berms, drains and sediment barriers shall be installed as necessary and maintained until final construction clean-up is completed).

5.7.8 Stockpiled Soils

Stockpiles of contaminated soils should be avoided wherever possible. Contaminated soils that require stockpiling shall be placed in a designated area. The designated area shall be designed to divert stormwater away from the stockpile, and contain and prevent impact from potentially contaminated runoff.

Stockpiles may require covering to reduce the potential for leachate generation. When stockpiling contaminated soil, erosion and sediment controls shall be maintained and work at all times to prevent erosion in accordance with Environment Bay of Plenty Erosion and Sediment Control Guidelines for Land Disturbing Activities. Specifically, sediment control measures shall be used to preserve stockpiled soils to prevent siltation of any land surface and water or blockage of any existing drainage channels

Stockpiles shall not be placed within the bed or banks of watercourses and vehicular movement over stockpiled soil shall be restricted to machinery required to create the stockpile. Bunds or sediment fences shall be constructed or installed around the edges of the stockpile management area to prevent stormwater run-off from carrying contaminated or potentially contaminated soil away from the stockpile management area. The bunds will also assist in directing stormwater around the stockpiles. Dust shall be controlled as outlined in previous sections.

5.8 Soil Disposal

The nearest landfill is a site in Tirohia operated by HG Leach. The Tirohia landfill has confirmed that they will accept the waste without further treatment.

The soils from the three proposed remediation areas do not meet the cleanfill definition, and it is unsuitable for disposal to cleanfill.

An alternative landfill, Greenpark Fill Site in Oropi, has similar consent conditions and is expected to accept the waste if requested.

5.9 Risks to Offsite Receptors

The risks to off-site receptors are managed through the earthworks and transport procedures outlined in this document. The overall level of risk is very low, as soils are to be placed in covered trucks, and transported predominantly through industrial and rural areas on State Highways.

Levels of arsenic have been identified above "residential" guidelines within soils in three small areas on-site. It is essential waste from these three areas is taken directly to an approved landfill, to avoid soils being placed in inappropriate locations such as on farms that may be later developed for residential use.

5.10 Contingency and Notification

Not all ground conditions can be anticipated, and some contingency measures are required if ground contamination is encountered in excess of what is indicated by this Remediation Action Plan. A Suitably Qualified Environmental Professional (SQEP) shall be engaged if there is doubt about soil quality. In addition to engaging a SQEP, it is the duty of the contractor to notify the Contaminated Land Officer of the Western Bay of Plenty District Council within 48hrs that adverse site conditions have been encountered.

Below are examples of when a suitably qualified person shall be engaged. The list is not comprehensive and discretion is required on site. None of the below are considered likely scenarios on this site:

- Underground storage tanks encountered, whether empty or filled.
- Buried waste is identified in significant quantities (more than $5m^3$), indicating a potential landfill site.
- Groundwater is encountered within the works area.
- Hydrocarbon odours are noted from soils on-site.
- Staining of sub-surface natural soils observed.

5.11 Conceptual Model (Post Remediation)

Following the removal of affected soils, the pathway for dermal contact and ingestion will have been removed. Table 6 therefore shows a conceptual site model without linkage between contamination source, pathways and receptors.

Table 6: Conceptual Site Model (Post Remediation)

Source	Pathway	Receptor	Linkage Present
Non-volatile contaminants (e.g. metals)	Ingestion, dermal contact, inhalation	Site occupiers	No. Ingestion and dermal contact pathway removed.
Volatile contaminants (e.g. hydrocarbons)	Ingestion, dermal contact, inhalation	Site occupiers	No. Source not identified.

6.0 VALIDATION

The proposed remedial works are intended to allow the site to be suitable for residential use. As such, validation testing of remaining soils is required. Western Bay of Plenty District Council the Bay of Plenty Regional Council require information to prove that soils excavated and removed from these three small areas of the site were taken to an appropriate location.

The Completion Report shall be submitted to council no later than 6 months after works have completed. The following information shall be retained and presented at completion of the works:

- Details of any additional sampling undertaken.
- Documentation that all soil excavated and removed from the project area was disposed to an appropriate location, at an off-site licensed landfill facility;
    - Volumes and locations of soil excavated from the site.
        - Includes provision of as-built plans.
    - Transport operator details.
    - A photographic record of works as they progress
    - Details of disposal location.
    - Receipts from landfill operators showing the date and volume or tonnage of soil disposed.
- Documentation of the quality of any imported clean soil. The contractor shall confirm the topsoil meets the validation requirements set out in Table 8 below.
- Documentation that stormwater and groundwater (if encountered during works) was disposed in an appropriate manner, if removed from the site.
- Details of any contingency measures invoked.
- Sampling at the periphery of the excavated area (including the base of the excavation) to confirm that all affected soils have been removed.

6.1 Imported Topsoil and Hard Fill Validation

The contractor shall ensure that any topsoil imported for use on-site shall meet at least the validation requirements set out in Table 7 (below). The lesser of human health protection or environmental protection guidelines is the maximum allowable. **Note that consent will be required to import soils that exceed the "cleanfill criteria", i.e. above natural background levels**.

The source of the topsoil shall be confirmed to be appropriate for residential use, with testing and comparison against residential land use guidelines if required (e.g. topsoil from an intensive market garden site may not be suitable for residential use).

Should the contractor import fill for use directly from a quarry, no validation testing is required of the hard fill. Material not demonstrated to be imported from virgin ground shall have been tested at a rate of one sample per 250 cubic metres (m3) of fill for volumes more than 3000 m3 for an appropriate suite of contaminants to demonstrate that it is acceptable for reuse at the site as cleanfill.

Table 7: Imported topsoil maximum validation criteria (human health protection)

Contaminant	Human Health criteria (mg/kg)	Environmental protection
Arsenic	20[a]	100
Cadmium	3[a]	7.5
Chromium	460[a]	400
Copper	>10,000[a]	325
Nickel	400 [b]	250
Lead	210[a]	105
Zinc	7400 [b]	400

a) MfE National Environmental Standards
b) National Environment Protection Council (NEPC) updated 2013. Guideline on Health-Based Investigation Levels and Ecological Investigation Levels, standard residential.

7.0 OTHER EARTHWORKS

It is understood that as part of the proposed residential development, approximately 8000m^3 of soil on-site is planned to be disturbed, which is more than the approximately 1,068m^3 permitted under the NES. Soil is planned to be cut from the central, southern and eastern areas of the site and used to fill the northern and north-western areas of the site. Consent from the Western Bay of Plenty District Council for earthworks should be applied for given that the permitted volumes are exceeded.

It is understood that surplus stripped topsoil is planned to be removed from the site however a destination has not been confirmed at the time of reporting.

Soil handling procedures, erosion, sediment and dust control techniques for all earthworks undertaken on-site should be carried out in accordance with this Remediation Action Plan (see Sections 5 above). Soil disposal requirements for soils not undergoing remediation are outlined below.

7.1 Waste Soil Classification

Dependent on the level of contaminated identified within soil excavated on-site, the following definitions may be applied:

Cleanfill
The definition of 'cleanfill' is defined by MfE *Guide to the Management of Cleanfills* (2002) as:
"*Material that when buried will have no adverse effect on people or the environment. Cleanfill material includes virgin natural materials such as clay, soil and rock, and other inert materials such as concrete or brick that are free of:*

- *Combustible, putrescible, degradable or leachable components.*
- *Hazardous substances.*
- *Products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices.*
- *Materials that may present a risk to human or animal health such as medical and veterinary waste, asbestos or radioactive substances.*
- *Liquid waste*."

In simpler terms, cleanfill includes materials such as uncontaminated soils, cured asphalt, bricks, unreinforced concrete, fibre cement building products (excluding asbestos) and glass.

Non-cleanfill materials would include soils with analytical results showing exceedance of regional background concentrations of metals, asbestos containing materials, asphalt (new), greenwaste and household refuse. Waste soil meeting cleanfill criteria and requiring removal from site is able to be disposed of in a landfill permitted for acceptance of cleanfill.

In accordance with the MfE Guide to Cleanfills "*soils with low levels of contaminants may be acceptable if the consent authority is satisfied that the material meets the definition of cleanfill*".

Managed Fill
Managed fill comprises:

- Soil containing metal contaminants above regional background concentrations.
- Soil containing detectable concentrations of hydrocarbon compounds.
- Soil containing contaminants of concern above ecological risk based guideline values.
- Soil that does not contain hazardous substances or materials in the form of household and industrial waste, organic waste or asbestos containing material.

Contaminated Fill
Contaminated fill in the context of this assessment constitutes soil with contamination present above human health guideline values.

Soils across the site are in many cases above regional background levels. Soils in the vicinity of the former buildings typically contain elevated zinc and are not at regional background levels. Soils on the north-west boundary and in the area excavated for a roadway appear to be at or near regional background levels.

7.2 Bay of Plenty Regional Water and Land Plan

Given that approximately 8000m^3 of soil on-site is planned to be disturbed as part of the proposed residential development, Restricted Discretionary consent under Rule 35 of the Bay of Plenty Regional Water and Land Plan would apply.

Bay of Plenty Regional Council restricts its discretion to the following matters outlined in Table 8 below:

Table 8: Bay of Plenty Regional Council– Remediation or Disturbance of Contaminated Land

Matters	Notes
The remediation processes to be employed	Three small hotspots of arsenic contamination have been identified on-site (each c.25m^2 in size). As part of the proposed remediation, a total of around 25m^3 of soil from these three areas is planned to be excavated and removed from the site. Section 5 of this report outlines the proposed Remediation Action Plan for this work. The remainder of soils do not require specific remediation. It is understood that the earthworks proposed to be undertaken across the site as part of the planned residential development exceed the permitted volumes under Regulation 8(3) of the NES. Section 7 of this report outlines plans to meet requirements related to the proposed disturbance of contaminated land as part of the proposed residential development.
Degree and extent of off-site discharges	Based on site topography, shallow groundwater and surface water at the site is expected to flow in a north-westerly direction, and into the stream situated adjacent to the north and northwest of the site. Groundwater and surface water is eventually expected to discharge to the Tauranga Harbour approximately 980m southeast of the site. Discharges are to be managed in accordance with this plan and are therefore expected to be minor.
Reporting, information and monitoring requirements	The proposed remedial works are intended to allow the site to be suitable for residential use. As such, validation testing of remaining soils is required. A Completion Report would be required to prove that all soil excavated and removed from the three areas requiring remedial works was disposed to an appropriate location, at an off-site licensed landfill facility. The contractor shall ensure that any topsoil imported for use on-site shall meet at least the validation requirements. However, should the contractor import fill for use directly from a quarry, no validation testing is required of the hard fill. Ongoing management is not required, as it is proposed to remove contaminated soils from the site.

7.3 Soil Disposal

The Bay of Plenty Regional Council requires discretionary consent for discharge of contaminants to land where they may enter water. For the purposes of this rule, a contaminant may be defined as metals above background levels. As such, soils above regional background should be disposed of to a managed fill site. Soils at Regional Background levels are suitable for disposal to cleanfill. Ideally, soils that are not suitable for cleanfill but are suitable for residential land use should remain on site rather than be disposed of wherever possible.

Given that concentrations of metals within site soils were found to be present above natural background levels, most surplus soils to be removed from site will likely need to go to managed fill, or consent will be required for discharge to land at the chosen destination.

Several areas on site do have soils at or near regional background, including soils on the formerly excavated roadway (HA 28, HA 31 and HA 39). It is expected that the top 100-150mm of soil will contain elevated levels of metals from pesticide application, and deeper soils are more likely to be at regional background levels. The contractor may choose to selectively strip soil, and stockpile soil on site for individual testing of stockpiles.

It should be noted that zinc was elevated above Class A landfill screening criteria (but within guidelines for the protection of human health) within a number of soil samples taken across the site (including sample locations HA04, HA17, HA23, HA26, HA27, HA30, HA33, HA35, HA36, HA41 and HA42). Furthermore, copper was also noted to exceed Class A landfill screening criteria (but within guidelines for the protection of human health) within one sample (HA04 0.0m). Soils from those areas are not suitable for disposal to cleanfill or landfill without confirmation of acceptance.

The appointed contractor shall confirm suitable disposal location(s) for surplus soils with the Bay of Plenty Regional Council in advance of earthworks commencing.

8.0 SUMMARY AND CONCLUSIONS

Reports undertaken by Geohazard Environmental Ltd to date identified that concentrations of arsenic within three small areas of the site are present above Soil Contaminant Standards (SCS) for the proposed residential land use. Furthermore, the soil sampling identified that the majority of surface level soils on-site contain metals above natural background levels.

The source of the arsenic contamination is not confirmed, however potential sources include the historical broadcast application and/or bulk storage of persistent pesticides, spreading or poultry waste with elevated arsenic, or stockpiled treated old fence posts that have leached to the ground. Given that the majority of samples taken across the site found arsenic and lead to be evaluated above natural background levels, this indicates that the source is more likely from the potential historical broadcast application. Given that the exceedances of arsenic were detected within the area of the site which historically supported a number of sheds, the potential for the bulk storage of pesticides to have taken place on-site cannot be discounted. An alternative likely scenario is arsenic-based additives in poultry food, used to control mites.

The remediation objectives are to remove the affected soil to eliminate the pathway between the source and the receptor. Works will include:

- Removal of vegetation in works area.
- Soil excavation of each of the three areas of approximately 25m^2, to a depth of 300mm. This results in a volume of approximately 25m^3 (in-situ volume).
- Offsite disposal of material to an approved landfill.
- Importation of verified clean soil if required for development purposes.

It is likely a validation report will be required by Western Bay of Plenty District Council at completion of the proposed remedial works.

In addition to the proposed remedial works, it is understood that as part of the proposed residential development, approximately 8000m^3 of soil on-site is planned to be disturbed, which is more than the approximately 1,068m^3 permitted under the NES. Soil is planned to be cut from the central, southern and eastern areas of the site and used to fill the northern and north-western areas of the site. Consent from the Western Bay of Plenty District Council for earthworks should be applied for given that the permitted volumes are exceeded.

It is understood that surplus stripped topsoil is planned to be removed from the site however a destination has not been confirmed at the time of reporting.

Given that concentrations of metals within site soils were found to be present above natural background levels, surplus soils to be removed from site will likely need to go to managed fill, or consent will be required for discharge to land at the chosen destination. It should be noted that zinc was elevated above Class A landfill screening criteria (but within guidelines for the protection of human health) within a number of soil samples taken across the site. Furthermore, copper was also noted to exceed Class A landfill screening criteria (but within guidelines for the protection of human health) within one sample (HA04 0.0m).

Soil handling procedures for all earthworks undertaken on-site should be carried out in accordance with this Remediation Action Plan (see Sections 5 above).

The appointed contractor should confirm suitable disposal location(s) for surplus soils with the Bay of Plenty Regional Council in advance of earthworks commencing.

Given that the three small areas found to contain elevated arsenic are planned to be appropriately excavated and removed from the site and no other concentrations of contaminants were identified above the SCS for a residential land use, ongoing management is not required.

8.1 Contractor Requirements

The contractor undertaking works on exposed soils is required to ensure the health and safety of earthworks workers and site visitors. This includes:

- Ensuring contact with soil is minimised.
- Appropriate PPE is used.
- Offsite discharges such as dust and sediment are restricted.

8.2 Planning Requirements

The advice of a planner shall be sought to ensure all local and regional rules are complied with prior to the commencement of works.

Consent for remedial earthworks will be required by the Bay of Plenty Regional Council under Rule 35 of the Water and Land Plan.

Soils for removal above background levels but within guidelines for the protection of human health and the environment will require discretionary consent for disposal to non-landfill sites if they are placed in a location where they may enter water. Soils imported to site above background levels will require consent from the Bay of Plenty Regional Council.

9.0 REFERENCES

Bay of Plenty Regional Council (2010) *Erosion and Sediment Control Guidelines for Land Disturbing Activities, Guideline 2010/01*

Bay of Plenty Regional Council (Nov 2011). *Trace Elements in Bay of Plenty Soils, Environmental Publication 2011/16*

Geohazard Environmental Ltd (14/03/2016). Detailed Site Investigation - *193 Tetley Rd, Job # 151209*

Leonard, G.S; Begg, J.G; Wilson, C.J.N. 2010. *Geology of the Rotorua Area IGNS 1:250,000*

MfE 2011. *Contaminated Land Management Guidelines No.1: Reporting on Contaminated Site's in New Zealand.*

MfE 2004. *Contaminated Land Management Guidelines Schedule A: Hazardous Activities and Industries List (HAIL)* and *Schedule B: Hazardous Activities and Industries List (HAIL) with Hazardous Substances*.

MfE 2011. *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils.*

MfE 2011. *Contaminated Land Management Guidelines No. 2: Hierarchy and Application in New Zealand of Environmental Guideline Values.*

MfE 2012 *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.*

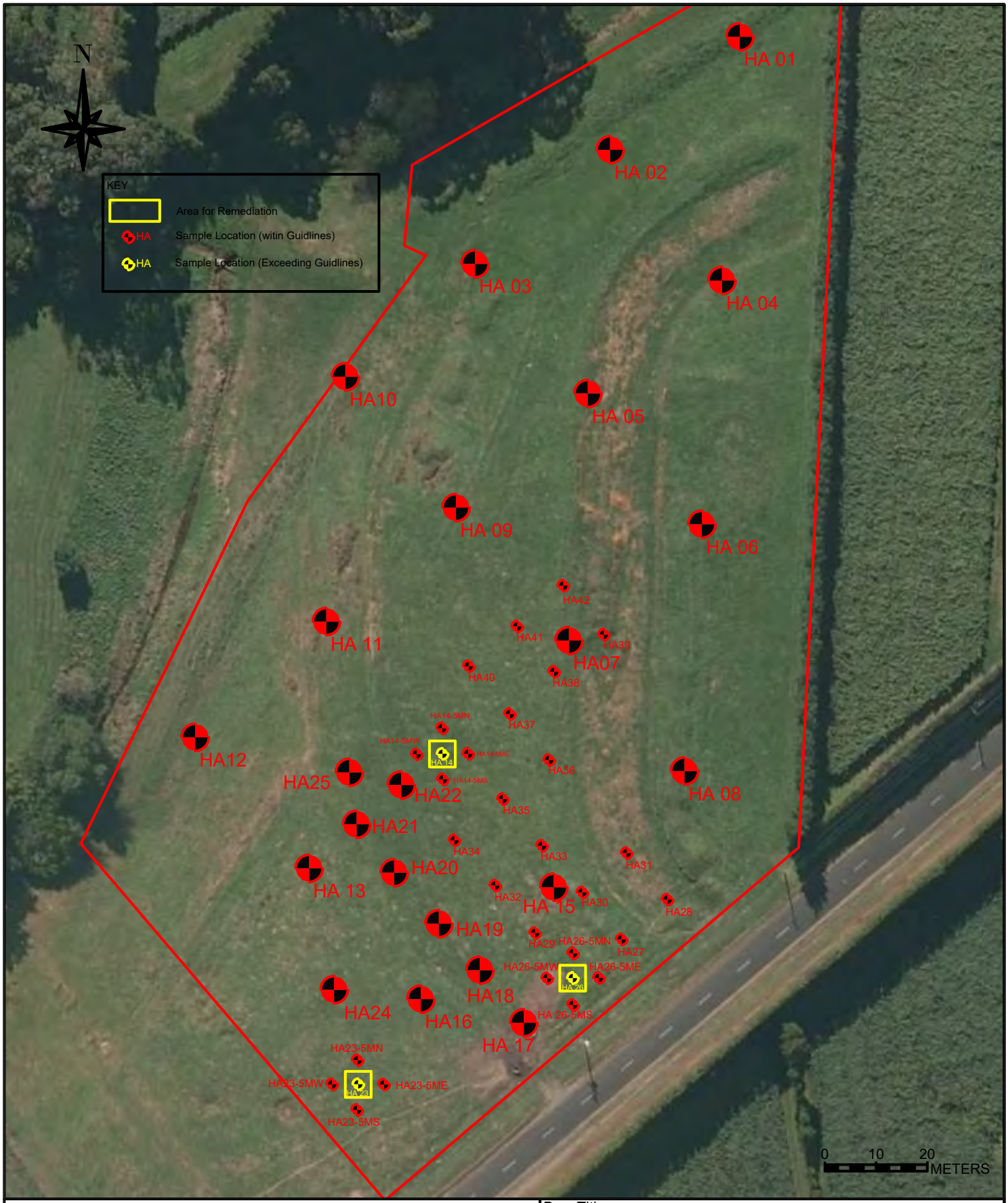
MfE 2004 Module 2 – Hazardous waste guidelines: Landfill waste acceptance criteria and landfill classification.

National Environment Protection Council (NEPC) 1999. *Guideline on Health Based Investigation Levels (updated 2013).*

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Contaminated Site Investigation Specialists

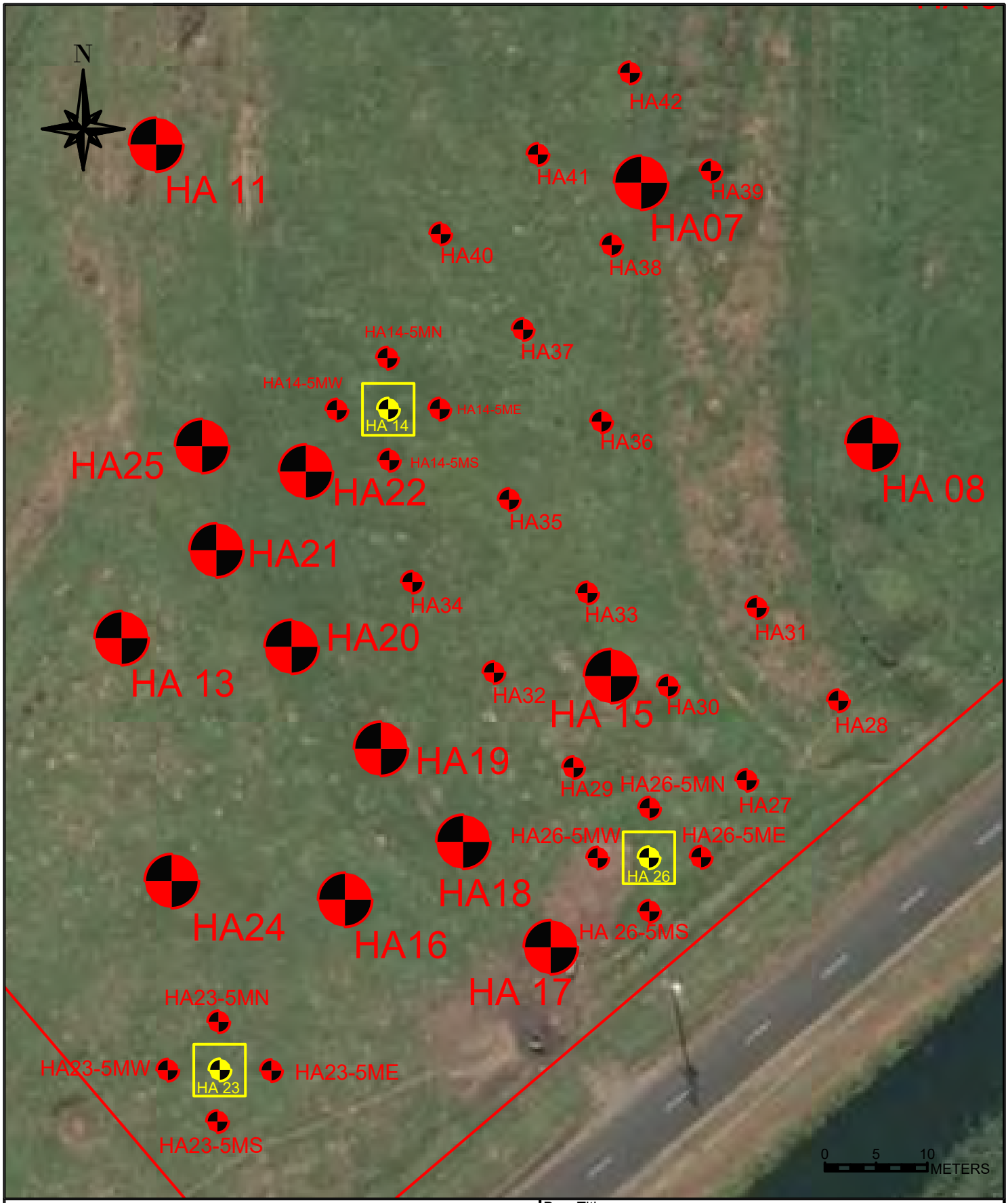
APPENDIX A

Sample Location Plan and Remediation Area Plan



Geohazard Environmental
Contaminated Site Investigation Specialists

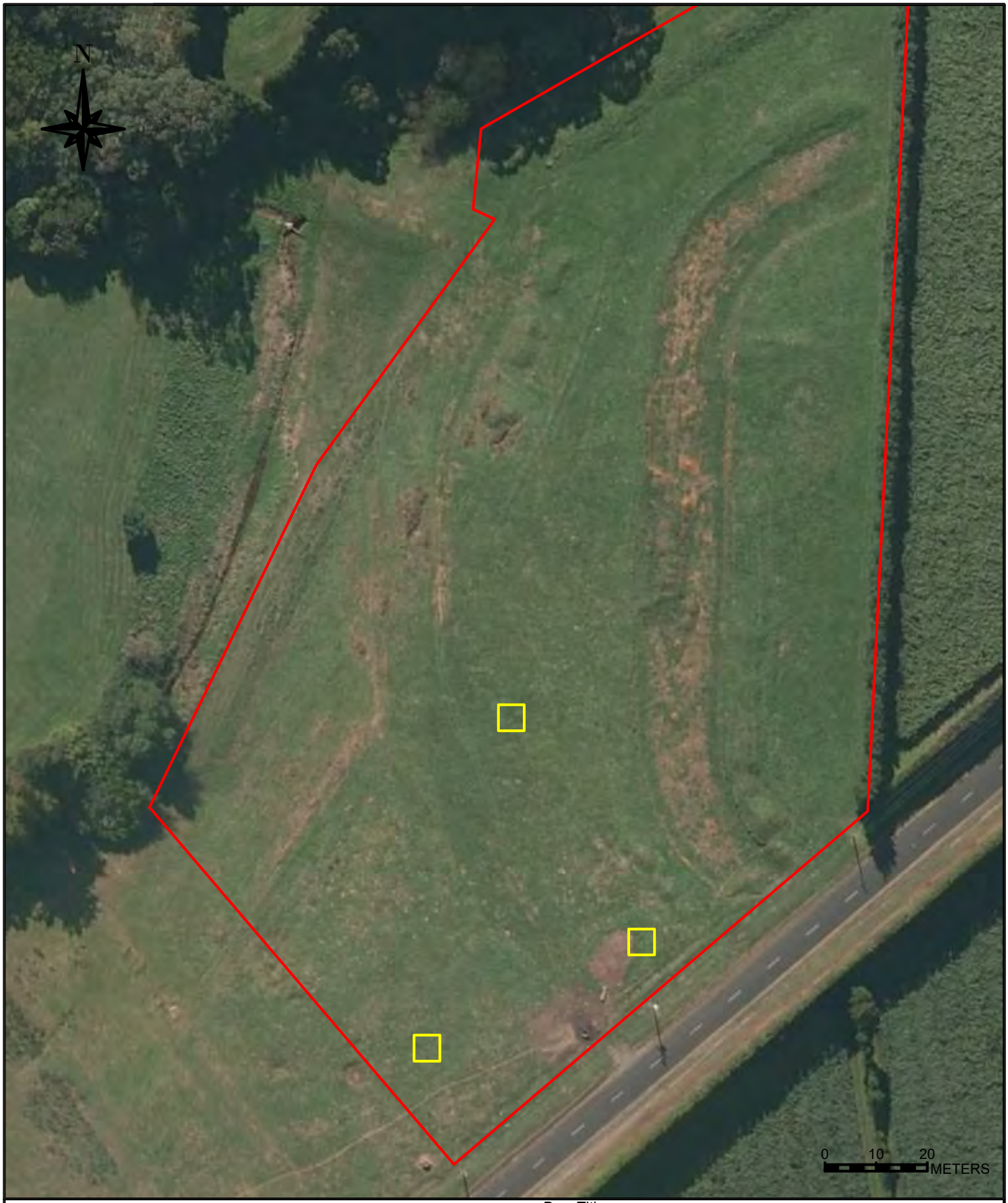
Dwg Title: Sample Location Plan - 193 Tetley Rd		
Client: Tigr Investments Ltd		SCALE: 1:- 1000@ A4
JOB # 151209	DATE: 02/06/16	DRAWN BY: NS
DRG No. 001		REV. -



Geohazard Environmental

Contaminated Site Investigation Specialists

Dwg Title: Sample Location Plan - 193 Tetley Rd		
Client: Tigr Investments Ltd		SCALE: 1:- 500@ A4
JOB # 151209	DATE: 02/06/16	DRAWN BY: NS
DRG No. 002		REV. -



Geohazard Environmental

Contaminated Site Investigation Specialists

Dwg Title

Areas Requiring Remediation

Client: Tigr Investments Ltd	SCALE: 1:- 1000@ A4
JOB # 151209 DATE: 02/06/16	DRAWN BY: NS
DRG No. 003	REV. -



Geohazard Environmental
Contaminated Site Investigation Specialists

Dwg Title
Soil Near Regional Natural Background

Client: Tigr Investments Ltd		SCALE: 1:- 1000@ A4
JOB # 151209	DATE: 02/06/16	DRAWN BY: NS
DRG No. 004		REV. -

Geohazard Environmental
Contaminated Site Investigation Specialists

APPENDIX B

Laboratory Results

Hill Laboratories
BETTER TESTING BETTER RESULTS

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

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

ANALYSIS REPORT

Client:	Geohazard Environmental Limited	**Lab No:**	1520033	SPv1
Contact:	J Findon	**Date Registered:**	29-Dec-2015	
	C/- Geohazard Environmental Limited	**Date Reported:**	11-Jan-2016	
	PO Box 7053	**Quote No:**	73913	
	ROTORUA 3042	**Order No:**		
		Client Reference:	193 Tetley Rd	
		Submitted By:	J Findon	

Sample Type: Soil

Sample Name:		HA01 0.0m 24-Dec-2015 10:15 am	HA02 0.0m 24-Dec-2015 10:15 am	HA03 0.0m 24-Dec-2015 10:15 am	HA04 0.0m 24-Dec-2015 10:15 am	HA05 0.0m 24-Dec-2015 10:15 am
Lab Number:		1520033.1	1520033.2	1520033.3	1520033.4	1520033.5
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	9	11	7	6	7
Total Recoverable Cadmium	mg/kg dry wt	0.42	0.26	0.35	0.70	0.34
Total Recoverable Chromium	mg/kg dry wt	9	14	6	8	6
Total Recoverable Copper	mg/kg dry wt	46	33	35	100	42
Total Recoverable Lead	mg/kg dry wt	13.6	29	12.5	13.0	14.1
Total Recoverable Nickel	mg/kg dry wt	3	8	3	4	3
Total Recoverable Zinc	mg/kg dry wt	125	94	72	230	90

Sample Name:		HA06 0.0m 24-Dec-2015 10:15 am	HA07 0.0m 24-Dec-2015 10:15 am	HA08 0.0m 24-Dec-2015 10:15 am	HA09 0.0m 24-Dec-2015 10:15 am	HA10 0.0m 24-Dec-2015 10:15 am
Lab Number:		1520033.6	1520033.7	1520033.8	1520033.9	1520033.10
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	7	6	10	6	6
Total Recoverable Cadmium	mg/kg dry wt	0.33	0.21	0.39	0.39	0.15
Total Recoverable Chromium	mg/kg dry wt	6	5	5	8	10
Total Recoverable Copper	mg/kg dry wt	55	25	31	35	17
Total Recoverable Lead	mg/kg dry wt	13.1	14.5	18.6	14.8	15.4
Total Recoverable Nickel	mg/kg dry wt	2	< 2	5	4	6
Total Recoverable Zinc	mg/kg dry wt	98	92	196	101	65

Sample Name:		HA11 0.0m 24-Dec-2015 10:15 am	HA12 0.0m 24-Dec-2015 10:15 am	HA13 0.0m 24-Dec-2015 10:15 am	HA16 0.0m 24-Dec-2015 10:15 am	HA23 0.0m 24-Dec-2015 10:15 am
Lab Number:		1520033.11	1520033.12	1520033.13	1520033.14	1520033.15
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	7	6	7	54	8
Total Recoverable Cadmium	mg/kg dry wt	0.59	0.24	0.35	0.36	0.19
Total Recoverable Chromium	mg/kg dry wt	10	8	6	46	7
Total Recoverable Copper	mg/kg dry wt	31	18	39	62	30
Total Recoverable Lead	mg/kg dry wt	13.9	14.6	23	47	23
Total Recoverable Nickel	mg/kg dry wt	5	5	2	2	2
Total Recoverable Zinc	mg/kg dry wt	108	68	151	156	93

Sample Name:		HA24 0.0m 24-Dec-2015 10:15 am	HA15 0.0m 24-Dec-2015 10:15 am	HA17 0.0m 24-Dec-2015 10:15 am	HA18 0.0m 24-Dec-2015 10:15 am	HA19 0.0m 24-Dec-2015 10:15 am
Lab Number:		1520033.16	1520033.17	1520033.18	1520033.19	1520033.20
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	11	10	7	7	6

ilac-MRA IANZ ACCREDITED LABORATORY

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked *, which are not accredited.

Sample Type: Soil						
Sample Name:		HA24 0.0m 24-Dec-2015 10:15 am	HA15 0.0m 24-Dec-2015 10:15 am	HA17 0.0m 24-Dec-2015 10:15 am	HA18 0.0m 24-Dec-2015 10:15 am	HA19 0.0m 24-Dec-2015 10:15 am
Lab Number:		1520033.16	1520033.17	1520033.18	1520033.19	1520033.20
Heavy Metals, Screen Level						
Total Recoverable Cadmium	mg/kg dry wt	0.27	0.50	0.27	0.24	0.21
Total Recoverable Chromium	mg/kg dry wt	9	10	8	9	10
Total Recoverable Copper	mg/kg dry wt	30	42	31	22	26
Total Recoverable Lead	mg/kg dry wt	34	43	36	30	34
Total Recoverable Nickel	mg/kg dry wt	< 2	5	3	4	3
Total Recoverable Zinc	mg/kg dry wt	96	210	156	168	186

Sample Name:		HA14 0.0m 24-Dec-2015 10:15 am	HA20 0.0m 24-Dec-2015 10:15 am	HA21 0.0m 24-Dec-2015 10:15 am	HA22 0.0m 24-Dec-2015 10:15 am	Composite of HA01 0.0m, HA02 0.0m, HA03 0.0m and HA04 0.0m
Lab Number:		1520033.21	1520033.22	1520033.23	1520033.24	1520033.25
Individual Tests						
Dry Matter	g/100g as rcvd	-	-	-	-	59
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	10	8	80	8	-
Total Recoverable Cadmium	mg/kg dry wt	0.55	0.27	0.38	0.29	-
Total Recoverable Chromium	mg/kg dry wt	8	10	23	7	-
Total Recoverable Copper	mg/kg dry wt	35	25	66	35	-
Total Recoverable Lead	mg/kg dry wt	34	24	58	26	-
Total Recoverable Nickel	mg/kg dry wt	4	3	3	2	-
Total Recoverable Zinc	mg/kg dry wt	185	129	330	187	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	-	-	< 0.010
alpha-BHC	mg/kg dry wt	-	-	-	-	< 0.010
beta-BHC	mg/kg dry wt	-	-	-	-	< 0.010
delta-BHC	mg/kg dry wt	-	-	-	-	< 0.010
gamma-BHC (Lindane)	mg/kg dry wt	-	-	-	-	< 0.010
cis-Chlordane	mg/kg dry wt	-	-	-	-	< 0.010
trans-Chlordane	mg/kg dry wt	-	-	-	-	< 0.010
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	-	-	-	-	< 0.04
2,4'-DDD	mg/kg dry wt	-	-	-	-	< 0.010
4,4'-DDD	mg/kg dry wt	-	-	-	-	< 0.010
2,4'-DDE	mg/kg dry wt	-	-	-	-	< 0.010
4,4'-DDE	mg/kg dry wt	-	-	-	-	0.143
2,4'-DDT	mg/kg dry wt	-	-	-	-	< 0.010
4,4'-DDT	mg/kg dry wt	-	-	-	-	0.052
Total DDT Isomers	mg/kg dry wt	-	-	-	-	0.20
Dieldrin	mg/kg dry wt	-	-	-	-	< 0.010
Endosulfan I	mg/kg dry wt	-	-	-	-	< 0.010
Endosulfan II	mg/kg dry wt	-	-	-	-	< 0.010
Endosulfan sulphate	mg/kg dry wt	-	-	-	-	< 0.010
Endrin	mg/kg dry wt	-	-	-	-	< 0.010
Endrin aldehyde	mg/kg dry wt	-	-	-	-	< 0.010
Endrin ketone	mg/kg dry wt	-	-	-	-	< 0.010
Heptachlor	mg/kg dry wt	-	-	-	-	< 0.010
Heptachlor epoxide	mg/kg dry wt	-	-	-	-	< 0.010
Hexachlorobenzene	mg/kg dry wt	-	-	-	-	< 0.010
Methoxychlor	mg/kg dry wt	-	-	-	-	< 0.010
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	-	-	-	-	< 0.08
Alachlor	mg/kg	-	-	-	-	< 0.05
Atrazine	mg/kg	-	-	-	-	< 0.08
Atrazine-desethyl	mg/kg	-	-	-	-	< 0.08
Atrazine-desisopropyl	mg/kg	-	-	-	-	< 0.16

Sample Type: Soil						
Sample Name:		HA14 0.0m 24-Dec-2015 10:15 am	HA20 0.0m 24-Dec-2015 10:15 am	HA21 0.0m 24-Dec-2015 10:15 am	HA22 0.0m 24-Dec-2015 10:15 am	Composite of HA01 0.0m, HA02 0.0m, HA03 0.0m and HA04 0.0m
Lab Number:		1520033.21	1520033.22	1520033.23	1520033.24	1520033.25
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Azaconazole	mg/kg	-	-	-	-	< 0.04
Azinphos-methyl	mg/kg	-	-	-	-	< 0.16
Benalaxyl	mg/kg	-	-	-	-	< 0.04
Bitertanol	mg/kg	-	-	-	-	< 0.16
Bromacil	mg/kg	-	-	-	-	< 0.08
Bromopropylate	mg/kg	-	-	-	-	< 0.08
Butachlor	mg/kg	-	-	-	-	< 0.08
Captan	mg/kg	-	-	-	-	< 0.16
Carbaryl	mg/kg	-	-	-	-	< 0.08
Carbofuran	mg/kg	-	-	-	-	< 0.08
Chlorfluazuron	mg/kg	-	-	-	-	< 0.08
Chlorothalonil	mg/kg	-	-	-	-	< 0.08
Chlorpyrifos	mg/kg	-	-	-	-	< 0.08
Chlorpyrifos-methyl	mg/kg	-	-	-	-	< 0.08
Chlortoluron	mg/kg	-	-	-	-	< 0.16
Cyanazine	mg/kg	-	-	-	-	< 0.08
Cyfluthrin	mg/kg	-	-	-	-	< 0.10
Cyhalothrin	mg/kg	-	-	-	-	< 0.08
Cypermethrin	mg/kg	-	-	-	-	< 0.19
Deltamethrin (including Tralomethrin)	mg/kg	-	-	-	-	< 0.08
Diazinon	mg/kg	-	-	-	-	< 0.04
Dichlofluanid	mg/kg	-	-	-	-	< 0.08
Dichloran	mg/kg	-	-	-	-	< 0.2
Dichlorvos	mg/kg	-	-	-	-	< 0.09
Difenoconazole	mg/kg	-	-	-	-	< 0.11
Dimethoate	mg/kg	-	-	-	-	< 0.16
Diphenylamine	mg/kg	-	-	-	-	< 0.16
Diuron	mg/kg	-	-	-	-	< 0.08
Fenpropimorph	mg/kg	-	-	-	-	< 0.08
Fluazifop-butyl	mg/kg	-	-	-	-	< 0.08
Fluometuron	mg/kg	-	-	-	-	< 0.08
Flusilazole	mg/kg	-	-	-	-	< 0.08
Fluvalinate	mg/kg	-	-	-	-	< 0.06
Furalaxyl	mg/kg	-	-	-	-	< 0.04
Haloxyfop-methyl	mg/kg	-	-	-	-	< 0.08
Hexaconazole	mg/kg	-	-	-	-	< 0.08
Hexazinone	mg/kg	-	-	-	-	< 0.04
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	-	-	-	-	< 0.4
Kresoxim-methyl	mg/kg	-	-	-	-	< 0.04
Linuron	mg/kg	-	-	-	-	< 0.08
Malathion	mg/kg	-	-	-	-	< 0.08
Metalaxyl (Mefenoxam)	mg/kg	-	-	-	-	< 0.08
Methamidophos	mg/kg	-	-	-	-	< 0.4
Metolachlor	mg/kg	-	-	-	-	< 0.05
Metribuzin	mg/kg	-	-	-	-	< 0.08
Molinate	mg/kg	-	-	-	-	< 0.16
Myclobutanil	mg/kg	-	-	-	-	< 0.08
Naled	mg/kg	-	-	-	-	< 0.4
Norflurazon	mg/kg	-	-	-	-	< 0.16
Oxadiazon	mg/kg	-	-	-	-	< 0.08
Oxyfluorfen	mg/kg	-	-	-	-	< 0.04
Paclobutrazol	mg/kg	-	-	-	-	< 0.08
Parathion-ethyl	mg/kg	-	-	-	-	< 0.08

Sample Type: Soil						
Sample Name:		HA14 0.0m 24-Dec-2015 10:15 am	HA20 0.0m 24-Dec-2015 10:15 am	HA21 0.0m 24-Dec-2015 10:15 am	HA22 0.0m 24-Dec-2015 10:15 am	Composite of HA01 0.0m, HA02 0.0m, HA03 0.0m and HA04 0.0m
Lab Number:		1520033.21	1520033.22	1520033.23	1520033.24	1520033.25
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Parathion-methyl	mg/kg	-	-	-	-	< 0.08
Pendimethalin	mg/kg	-	-	-	-	< 0.08
Permethrin	mg/kg	-	-	-	-	< 0.03
Pirimicarb	mg/kg	-	-	-	-	< 0.08
Pirimiphos-methyl	mg/kg	-	-	-	-	< 0.08
Prochloraz	mg/kg	-	-	-	-	< 0.4
Procymidone	mg/kg	-	-	-	-	< 0.08
Prometryn	mg/kg	-	-	-	-	< 0.04
Propachlor	mg/kg	-	-	-	-	< 0.08
Propanil	mg/kg	-	-	-	-	< 0.2
Propazine	mg/kg	-	-	-	-	< 0.04
Propiconazole	mg/kg	-	-	-	-	< 0.06
Pyriproxyfen	mg/kg	-	-	-	-	< 0.08
Quizalofop-ethyl	mg/kg	-	-	-	-	< 0.08
Simazine	mg/kg	-	-	-	-	< 0.08
Simetryn	mg/kg	-	-	-	-	< 0.08
Sulfentrazone	mg/kg	-	-	-	-	< 0.4
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	-	-	-	-	< 0.16
Tebuconazole	mg/kg	-	-	-	-	< 0.08
Terbacil	mg/kg	-	-	-	-	< 0.08
Terbufos	mg/kg	-	-	-	-	< 0.08
Terbumeton	mg/kg	-	-	-	-	< 0.08
Terbuthylazine	mg/kg	-	-	-	-	< 0.04
Terbuthylazine-desethyl	mg/kg	-	-	-	-	< 0.08
Terbutryn	mg/kg	-	-	-	-	< 0.08
Thiabendazole	mg/kg	-	-	-	-	< 0.4
Thiobencarb	mg/kg	-	-	-	-	< 0.08
Tolylfluanid	mg/kg	-	-	-	-	< 0.04
Triazophos	mg/kg	-	-	-	-	< 0.08
Trifluralin	mg/kg	-	-	-	-	< 0.08
Vinclozolin	mg/kg	-	-	-	-	< 0.08

Sample Name:		Composite of HA05 0.0m, HA06 0.0m, HA07 0.0m and HA08 0.0m	Composite of HA09 0.0m, HA10 0.0m, HA11 0.0m and HA12 0.0m	Composite of HA13 0.0m, HA16 0.0m, HA23 0.0m and HA24 0.0m	Composite of HA15 0.0m, HA17 0.0m, HA18 0.0m and HA19 0.0m	Composite of HA14 0.0m, HA20 0.0m, HA21 0.0m and HA22 0.0m
Lab Number:		1520033.26	1520033.27	1520033.28	1520033.29	1520033.30
Individual Tests						
Dry Matter	g/100g as rcvd	59	56	58	64	60
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
alpha-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
beta-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
delta-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
gamma-BHC (Lindane)	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
cis-Chlordane	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
trans-Chlordane	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2,4'-DDD	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
4,4'-DDD	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4'-DDE	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
4,4'-DDE	mg/kg dry wt	0.178	0.014	< 0.010	< 0.010	0.012
2,4'-DDT	mg/kg dry wt	0.014	< 0.010	< 0.010	< 0.010	< 0.010

Sample Type: Soil						
Sample Name:		Composite of HA05 0.0m, HA06 0.0m, HA07 0.0m and HA08 0.0m	Composite of HA09 0.0m, HA10 0.0m, HA11 0.0m and HA12 0.0m	Composite of HA13 0.0m, HA16 0.0m, HA23 0.0m and HA24 0.0m	Composite of HA15 0.0m, HA17 0.0m, HA18 0.0m and HA19 0.0m	Composite of HA14 0.0m, HA20 0.0m, HA21 0.0m and HA22 0.0m
Lab Number:		1520033.26	1520033.27	1520033.28	1520033.29	1520033.30
Organochlorine Pesticides Screening in Soil						
4,4'-DDT	mg/kg dry wt	0.068	< 0.010	< 0.010	< 0.010	< 0.010
Total DDT Isomers	mg/kg dry wt	0.26	< 0.06	< 0.06	< 0.06	< 0.06
Dieldrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan I	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan II	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin aldehyde	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin ketone	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor epoxide	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobenzene	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Methoxychlor	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Alachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Atrazine	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Atrazine-desethyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Atrazine-desisopropyl	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Azaconazole	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Azinphos-methyl	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Benalaxyl	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Bitertanol	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Bromacil	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Bromopropylate	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Butachlor	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Captan	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Carbaryl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Carbofuran	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Chlorfluazuron	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Chlorothalonil	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Chlorpyrifos	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Chlorpyrifos-methyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Chlortoluron	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Cyanazine	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Cyfluthrin	mg/kg	< 0.10	< 0.11	< 0.10	< 0.09	< 0.10
Cyhalothrin	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Cypermethrin	mg/kg	< 0.2	< 0.3	< 0.2	< 0.18	< 0.19
Deltamethrin (including Tralomethrin)	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Diazinon	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Dichlofluanid	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Dichloran	mg/kg	< 0.2	< 0.3	< 0.3	< 0.2	< 0.2
Dichlorvos	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Difenoconazole	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Dimethoate	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Diphenylamine	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Diuron	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Fenpropimorph	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Fluazifop-butyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Fluometuron	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Flusilazole	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Fluvalinate	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Furalaxyl	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04

Sample Type: Soil						
Sample Name:		Composite of HA05 0.0m, HA06 0.0m, HA07 0.0m and HA08 0.0m	Composite of HA09 0.0m, HA10 0.0m, HA11 0.0m and HA12 0.0m	Composite of HA13 0.0m, HA16 0.0m, HA23 0.0m and HA24 0.0m	Composite of HA15 0.0m, HA17 0.0m, HA18 0.0m and HA19 0.0m	Composite of HA14 0.0m, HA20 0.0m, HA21 0.0m and HA22 0.0m
Lab Number:		1520033.26	1520033.27	1520033.28	1520033.29	1520033.30
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Haloxyfop-methyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Hexaconazole	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Hexazinone	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
Kresoxim-methyl	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Linuron	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Malathion	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Metalaxyl (Mefenoxam)	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Methamidophos	mg/kg	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
Metolachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Metribuzin	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Molinate	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Myclobutanil	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Naled	mg/kg	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
Norflurazon	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Oxadiazon	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Oxyfluorfen	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Paclobutrazol	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Parathion-ethyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Parathion-methyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Pendimethalin	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Permethrin	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pirimicarb	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Pirimiphos-methyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Prochloraz	mg/kg	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
Procymidone	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Prometryn	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Propachlor	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Propanil	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Propazine	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Propiconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Pyriproxyfen	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Quizalofop-ethyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Simazine	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Simetryn	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Sulfentrazone	mg/kg	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Tebuconazole	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Terbacil	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Terbufos	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Terbumeton	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Terbuthylazine	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Terbuthylazine-desethyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Terbutryn	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Thiabendazole	mg/kg	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
Thiobencarb	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Tolylfluanid	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Triazophos	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Trifluralin	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Vinclozolin	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1-24
Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS	Sonication extraction, Dilution cleanup, GC-MS analysis. Tested on as received sample	-	25-30
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. US EPA 3550. (Free water removed before analysis).	0.10 g/100g as rcvd	25-30
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	1-24

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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Ara Heron BSc (Tech)
Client Services Manager - Environmental Division

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ANALYSIS REPORT

Client:	Geohazard Environmental Limited	**Lab No:**	1542699	SPv1
Contact:	Nikki Sandercock	**Date Registered:**	25-Feb-2016	
	C/- Geohazard Environmental Limited	**Date Reported:**	03-Mar-2016	
	PO Box 7053	**Quote No:**	74658	
	Rotorua 3042	**Order No:**		
		Client Reference:	193 Tetley Road	
		Submitted By:	Nikki Sandercock	

Sample Type: Soil

Sample Name:	HA14-5MN 0.0m 24-Feb-2016 11:00 am	HA14-5ME 0.0m 24-Feb-2016 11:00 am	HA14-5MS 0.0m 24-Feb-2016 11:00 am	HA14-5MW 0.0m 24-Feb-2016 11:00 am	HA23-5MN 0.0m 24-Feb-2016 11:00 am
Lab Number:	1542699.1	1542699.2	1542699.3	1542699.4	1542699.5
Individual Tests					
Total Recoverable Arsenic mg/kg dry wt	13	9	16	9	8

Sample Name:	HA23-5ME 0.0m 24-Feb-2016 11:00 am	HA23-5MS 0.0m 24-Feb-2016 11:00 am	HA23-5MW 0.0m 24-Feb-2016 11:00 am	HA25 0.0m 24-Feb-2016 11:00 am	HA26 0.0m 24-Feb-2016 11:00 am
Lab Number:	1542699.6	1542699.7	1542699.8	1542699.9	1542699.10
Individual Tests					
Total Recoverable Arsenic mg/kg dry wt	10	11	5	-	-
Heavy Metals, Screen Level					
Total Recoverable Arsenic mg/kg dry wt	-	-	-	6	33
Total Recoverable Cadmium mg/kg dry wt	-	-	-	0.32	0.46
Total Recoverable Chromium mg/kg dry wt	-	-	-	7	26
Total Recoverable Copper mg/kg dry wt	-	-	-	24	39
Total Recoverable Lead mg/kg dry wt	-	-	-	45	43
Total Recoverable Nickel mg/kg dry wt	-	-	-	2	3
Total Recoverable Zinc mg/kg dry wt	-	-	-	185	210

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-8
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	9-10
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-8
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-8

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These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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Ara Heron BSc (Tech)
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ANALYSIS REPORT

Client:	Geohazard Environmental Limited	**Lab No:**	1582471 SPv1
Contact:	J Findon	**Date Registered:**	11-May-2016
	C/- Geohazard Environmental Limited	**Date Reported:**	17-May-2016
	PO Box 7053	**Quote No:**	76941
	Rotorua 3042	**Order No:**	
		Client Reference:	Additional Samples RAP Tetley Road
		Submitted By:	J Findon

Sample Type: Soil

Sample Name:		HA26-5MN 0.0m 10-May-2016 10:00 am	HA26-5ME 0.0m 10-May-2016 10:00 am	HA26-5MS 0.0m 10-May-2016 10:00 am	HA26-5MW 0.0m 10-May-2016 10:00 am	HA27 0.0m 10-May-2016 10:00 am
Lab Number:		1582471.1	1582471.2	1582471.3	1582471.4	1582471.5
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	8	10	10	7	12
Total Recoverable Cadmium	mg/kg dry wt	0.33	0.58	0.45	0.22	0.59
Total Recoverable Chromium	mg/kg dry wt	11	14	8	7	11
Total Recoverable Copper	mg/kg dry wt	28	91	32	29	41
Total Recoverable Lead	mg/kg dry wt	73	85	19.5	34	47
Total Recoverable Nickel	mg/kg dry wt	4	6	3	< 2	5
Total Recoverable Zinc	mg/kg dry wt	210	380	92	112	380

Sample Name:		HA28 0.0m 10-May-2016 10:00 am	HA29 0.0m 10-May-2016 10:00 am	HA30 0.0m 10-May-2016 10:00 am	HA31 0.0m 10-May-2016 10:00 am	HA32 0.0m 10-May-2016 10:00 am
Lab Number:		1582471.7	1582471.9	1582471.11	1582471.13	1582471.15
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	5	7	18	4	5
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	0.28	0.95	< 0.10	0.16
Total Recoverable Chromium	mg/kg dry wt	7	6	17	5	8
Total Recoverable Copper	mg/kg dry wt	7	29	66	5	18
Total Recoverable Lead	mg/kg dry wt	13.8	31	99	11.6	27
Total Recoverable Nickel	mg/kg dry wt	2	3	7	< 2	5
Total Recoverable Zinc	mg/kg dry wt	39	82	320	25	98

Sample Name:		HA33 0.0m 10-May-2016 10:00 am	HA34 0.0m 10-May-2016 10:00 am	HA35 0.0m 10-May-2016 10:00 am	HA36 0.0m 10-May-2016 10:00 am	HA37 0.0m 10-May-2016 10:00 am
Lab Number:		1582471.17	1582471.19	1582471.21	1582471.23	1582471.25
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	10	6	7	14	11
Total Recoverable Cadmium	mg/kg dry wt	0.55	0.24	0.40	0.59	0.40
Total Recoverable Chromium	mg/kg dry wt	8	10	6	18	7
Total Recoverable Copper	mg/kg dry wt	52	20	35	40	36
Total Recoverable Lead	mg/kg dry wt	47	29	26	19.5	32
Total Recoverable Nickel	mg/kg dry wt	4	5	3	6	4
Total Recoverable Zinc	mg/kg dry wt	310	86	210	230	117

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The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked *, which are not accredited.

Sample Type: Soil						
Sample Name:		HA38 0.0m 10-May-2016 10:00 am	HA39 0.0m 10-May-2016 10:00 am	HA40 0.0m 10-May-2016 10:00 am	HA41 0.0m 10-May-2016 10:00 am	HA42 0.0m 10-May-2016 10:00 am
Lab Number:		1582471.27	1582471.29	1582471.31	1582471.33	1582471.35
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	10	7	8	9	11
Total Recoverable Cadmium	mg/kg dry wt	0.25	< 0.10	0.27	0.37	0.48
Total Recoverable Chromium	mg/kg dry wt	5	8	7	5	9
Total Recoverable Copper	mg/kg dry wt	33	14	19	24	57
Total Recoverable Lead	mg/kg dry wt	27	15.2	12.7	14.0	20
Total Recoverable Nickel	mg/kg dry wt	3	3	3	3	3
Total Recoverable Zinc	mg/kg dry wt	140	42	83	470	530

Sample Name:		HA14 0.3m 10-May-2016 10:00 am	HA23 0.3m 10-May-2016 10:00 am	HA26 0.3m 10-May-2016 10:00 am		
Lab Number:		1582471.39	1582471.41	1582471.43		
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	8	7	7	-	-
Total Recoverable Cadmium	mg/kg dry wt	0.12	< 0.10	0.20	-	-
Total Recoverable Chromium	mg/kg dry wt	5	6	5	-	-
Total Recoverable Copper	mg/kg dry wt	45	13	35	-	-
Total Recoverable Lead	mg/kg dry wt	16.6	15.1	16.2	-	-
Total Recoverable Nickel	mg/kg dry wt	2	< 2	3	-	-
Total Recoverable Zinc	mg/kg dry wt	56	35	91	-	-

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1-5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 27, 29, 31, 33, 35, 39, 41, 43

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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Ara Heron BSc (Tech)
Client Services Manager - Environmental Division

Western Bay of Plenty
District Council

Consent Notice Pursuant to Section 221 Resource Management Act 1991

File Ref: S/B/11914

IN THE MATTER OF: Deposited Plan 521037

A N D

IN THE MATTER OF: Subdivision Consent pursuant to Sections 108, 220 and 221 of the Resource Management Act 1991.

I, CHRIS WATT, Authorised Officer of the Western Bay of Plenty District Council, hereby certify that by way of resolution passed under delegated authority on 27 June 2016, the following condition was imposed on the subdivision consent for Lot 2 Deposited Plan 460580:

THAT a consent notice pursuant to section 221 of the Resource Management Act 1991 be issued against the title of all Lots (except lot 30 – Council reserve) such that:

a) any future building development be in accordance with the geotechnical report prepared by M W Hughes of S & L Consultants dated 21 March 2018 reference 21377 or subsequent geotechnical reports prepared by a chartered professional or geotechnical engineer suitably experienced to the satisfaction of the Chief Executive Officer or duly authorised officer
b) Lots 7 to 9 are subject to a 'close proximity line' as shown on drawing 21377 AB5 appended to the above referenced report.
c) Lots 11,12 and 16 to 19 are subject to building set back lines as shown on the survey plan as areas AA, AC, AF, AG, AH and AK.

Dated at Tauranga this 12th day of June 2018

Authorised Officer

Western Bay of Plenty
District Council

Consent Notice Pursuant to Section 221 Resource Management Act 1991

File Ref: S/B/11914

IN THE MATTER OF: Deposited Plan 521037

A N D

IN THE MATTER OF: Subdivision Consent pursuant to Sections 108, 220 and 221 of the Resource Management Act 1991.

I, CHRIS WATT, Authorised Officer of the Western Bay of Plenty District Council, hereby certify that by way of resolution passed under delegated authority on 27 June 2016, the following condition was imposed on the subdivision consent for Lot 2 Deposited Plan 460580:

THAT pursuant to section 221 of the Resource Management Act 1991 consent notices are registered against the titles of Lot(s) 1-25, 27-29 such that:

10. THAT a Chartered Professional Engineer or engineering geologist, suitably experienced to the satisfaction of the Principal Administrative Officer shall supervise and inspect all earthworks (including those carried out previously) and shall prepare a report which describes the extent of the earthworks, the extent of inspection, test results and a statement of professional opinion in respect to the following:

    (a) That all lots subject to filling contain a buildable area suitable for building development with standard foundations in accordance with NZS 3604 or NZS 4229, and all filling has been carried out in accordance with NZS 4431.

    (b) That the original ground not affected by earthworks is suitable for the erection thereon of residential buildings providing bearing capacities greater than 100 kPa in accordance with NZS 3604 and/or that certification for each residential lot is provided in accordance with NZS 4404 (Appendix B). At the Principal Administrative Officers discretion a Consent Notice may have to be registered on the lots where the ground bearing capacities are less than 100 kpa or that the unsuitable materials shall be replaced in accordance with clause (a) above.

(c) That minimum bearing capacities of not less than 100 kPa shall be available for the buildable area of each lot exposed during earthwork. All unsuitable material shall be removed from the buildable area of the lot and be replaced by material compacted in accordance with clause (a) above.

(d) Where a consent notice is required, the notice shall state that all future development be in accordance with the relevant geotechnical report (or subsequent approved reports) and include clear reference to the report including date, author , reference and revision numbers as applicable.

27. THAT if necessary and pursuant to Section 221 of the Resource Management Act 1991, for any lots that cannot be serviced by a gravity wastewater connection, a Consent Notice shall be registered on the titles of those proposed Lots to the effect that a sewer pump and electrical switchgear are required to be installed as part of the Building Consent application.

Dated at Tauranga this 12th day of June 2018

Authorised Officer

Our ref: 21377

Geotechnical Completion Report
Sophia Rose Estate Subdivision at Layla Place
Katikati

1.0 Introduction

Resource consent S/B/11914 was granted by the Western Bay of Plenty District Council (WBOPDC) on 29 June 2016 to develop twenty five residential lots on the property formerly described as 193 Tetley Road, Katikati. The approved subdivision was shown on subdivision plan 21377-RC1, a copy of which is in Appendix 1 of this report. The lots are also shown on survey plan DP 521037 which is also in Appendix 1. Access to the new lots within the subdivision is from the subdivision cul de sac of Layla Place and the private way of Pamment Place shown on DP 521037.

A development evaluation report dated 2 May 2016 was submitted with the application for subdivision consent in accordance with Clause 10A.2 (iii) of the WBOPDC Development Code. The results of the evaluation showed that conventional residential development can take place on each of the proposed 25 lots subject to some ground improvement work and the placement of filling by supervised bulk earthworks. The evaluation discussed site geological conditions and recommendations for the required earthworks to be undertaken.

This geotechnical completion report has been prepared to comply with condition 10 of S/B/11914. Reference is made in this report to drawings 21377-G01 to G06 inclusive, in Appendix 1 which show lot positions, areas of cut and filling, and test positions in the cut and filling.–

2.0 Predevelopment Landform

The subdivision site was originally grassed and utilised for the grazing of stock. Parts of the property were also planted with kiwifruit. The property was near flat adjacent to Tetley Road and down the eastern side of the property. The general ground fall in the south to north direction was 2 m over a distance of 100 m.

To the west, the near flat upper level extended to slopes which descended to the western boundary of the property. The crests of these slopes were within proposed lots 11, 15, 16, 17, 18, 19 and 20. These slopes were approximately 3 m high and stood at 1 in 4 (14 degrees).

Within proposed lots 6, 7, 8 and 9 at that time, the ground also sloped down to the north western boundaries of the property at 1 in 6 to 1 in 10.

The lower areas on the property along the western and north western boundary are adjacent to a watercourse that eventually runs into Tauranga Harbour about 700 m to the north east of the property. A trunk sewer is present within an easement along the western boundaries of lots 11, 12 and 16 to 19 and runs within lots 7, 8 and 9 as shown on the subdivision plan in Appendix 1.

At the proposed road alignment shown on the subdivision plan, past earthworks have been undertaken to form a road subgrade for an earlier development on the property. This development did not proceed.

3.0 Site Subsoil Conditions

Published geological information states that the elevated areas in the Katikati district comprise fluviatile sands, gravels and estuarine sands and silts of the Matua subgroup soils overlain by Pahoia tephra and airfall volcanic ash deposits from the Taupo and Coromandel volcanic zones.

To identify the subsoils that will be present on future building sites within the subdivision, 20 inspection pits were excavated in May and July 2007. The locations of these test positions are shown on 21477-G01 and the summary logs of the soils encountered in these pits are in Appendix 3.

Pre subdivision pits 16 (lot 17), 17 (lot 22), 18 (lot 25), 19 (roadway), 20 (lots 21, 22), 21 (lot 15), 22 (lots 1 and 2), 23 (lot 3), 24 (lot 10), 27 (lot 6), 39 (lot 19), 42 (lot 23), 43 (lot 24) and 44 (lot 23) were located on the upper level ground. The lots in which these pits were located are shown in brackets. Each of these pits revealed similar soils being light brown clayey silts of the recent or younger ashes below surface topsoil. In pits 16, 17, 18, 39, 42, 43 and 44 these silts of the younger ashes were 2 m deep and overlaid a band of medium dense light brown silty sands and sandy silts (Rotoehu ash). The sands were generally 200 mm to 300 mm thick and overlaid more highly weathered “older” Hamilton ashes which were dark (chocolate) brown at first and then became orange brown with depth.

The undrained shear strengths of these ash derivative soils were recorded with a hand held shear vane pushed into the pit sides. These recorded strengths are tabulated on the pit log sheets. A free ground water level established in pits 39, 42, 43 and 44 at depths of 2.0 to 2.4 m. The remaining pits at the upper level ground were dry.

In pits 19, 20, 21, 22, 23, 24 and 27 at the upper level ground a band of alluvial soils was present directly above the “older” Hamilton ashes. These alluvial soils were mainly clayey silts and contained some roots and gravels and boulders. It is likely that these soils were transported into this area by meandering streams in the period of possibly 50,000 years that the Hamilton ashes were at the ground surface before being overlaid by the Rotoehu ashes.

Pits 25 (lot 11), 26 (lot 8), 28 (lot 7), 29 (lot 19), 37 (lot 18), 38 (lot 18), 40 (lot 13) and 41 (lot 17) were located in the lower levels on the lots in brackets, adjacent to the stream that runs around the western and north western boundaries of the property. In these pits surface filling or deposited alluvium was present to 0.5 m in pit 25, 0.4 m in pit 28, 1.1 m in pit 29, more than 0.7 m in pit 37, 1.0 m in pit 38, more than 1.0 m in pit 40 and 2.1 m in pit 41. Ash soils underlaid the surface alluvium in pits 25, 26, 28, and 29. Significant depths of alluvial soils containing gravels, cobbles and boulders to sizes of 200 mm or larger were found in pits 26, 28 (at least 2 m thick), 29 and 38.

Ground water levels established in pits 28 at 2.9 m deep, 40 at 1.0 m deep and 41 at 2.2 m deep. The recorded undrained shear strengths in the natural ash derivative soils in pits 25, 26 and 28 were high being mostly in excess of 100 kPa but were variable in the surface filling in pits 25, 28, 29, 37, 38, 40 and 41.

4.0 Subdivision Construction Earthworks

The extent of the subdivision earthworks is shown on appended drawings 21377-G01 to G06.

East of Layla Place, cutting has been undertaken up to 2m deep on lots 1, 2, 3, 4, 5, and 6. A cut batter was formed along the eastern boundaries of these lots which is up to 2 m high and is to be faced with a retaining wall to be erected by the property developer, TIGR Investments Ltd.

The subgrade for Layla Place was also formed in cuts of up to 1.0 m.

The areas of cut also extended to the west and north of Layla Place within lots 7 (part), 8 (part), 9 (part), 10, 11 (part), 12 (part), 13, 14, 15, 16 (part), 17 (part), 18 (part), 19 (part), 20, 21, 22, 23, 24 and 25. The depths of cut were in the range of 0 to 2.0 m deep with the deepest cuts being on lots 10, 13, 14 16 and 17.

Filling derived from the cut areas was placed around the western and north western margins of lots 7 to 9, 11, 12 and 16 to 19 and in a small area to shallow depths in lot 6. The depths of filling are shown on 21377-G01 to G06. The greatest depths of filling were on lots 7, 8, 18 and 19 where past horticultural unsupervised filling was undercut and removed. On lots 16 and 17 the past filling was present but was not undercut and therefore remains under the filling that was placed during the bulk earthworks for this subdivision.

As part of the subdivision earthworks the final ground shape on all lots was modified to provide more level sites resulting in a terraced look to the development. This arrangement is shown on appended drawing 21377-AB5.

Retaining walls are proposed to support cut faces and filled batters on drawing 21377 –AB5. These retaining walls are to be constructed by the subdivision developer. The walls are to be constructed with the issue of building consents because the walls could support surcharges from parked

vehicles and domestic loadings. A retaining wall has already been constructed by the developer below the northern boundaries of lots 10 and 11.

5.0 Earthworks Construction Observations and Testing

Testing of the earthworks was carried out during the cut - fill operation and the locations of the tests are shown on drawings 21377-G01 to G06

The filling, apart from imported rock fill, was derived from site soils taken from areas of cut. As these soils were variable in type and in situ moisture content, it was likely that they would be mixed both during pick up and then in being spread and compacted. The specification for adequate compaction was therefore based on the determination of percentage air voids and developed undrained shear strength. Target values were

Percentage air voids not greater than 10 with a maximum value of 12.

Undrained shear strengths not less than 150 kPa with a minimum permitted value of 110 kPa.

The adoption of these standards associated with continuous site observation provides compliance with NZS 4431:1989 “Code of Practice for Earthfill for Residential Development.”

After sites on some lots were established in cut, tests were undertaken by SL by recording undrained shear strengths using a hand held shear vane at regular depth intervals.

The following tests were undertaken on each lot.

Lot 1

Five hand drilled boreholes were put down around the perimeter of a house proposed for this lot at locations shown on 21377-G05. No topsoil was present but the surface had been disturbed to a depth of 0.3 m by construction equipment. Ground improvement will be required. The underlying natural soils were stiff yellow brown sandy silts with high undrained shear strengths.

Lots 2 and 3

Two hand drilled boreholes were put down on each of these lots. Natural soils being stiff yellow orange silts and clayey silts were present

Lots 4 and 5.

Two hand drilled boreholes were put down on lot 4. Stiff natural soils being orange brown clayey silts were present.

No specific tests were undertaken on lot 5 but the exposed soils were inspected and probed by SL before the surface topsoil was placed. Stiff natural soils were present that were typical of those soils found in pre subdivision test pits.

Lot 6

Four hand drilled boreholes were put down after the topsoil had been removed and the ground levels had been reduced in cut. Stiff yellow brown silts and clayey silts were present that were typical of those soils found in pre subdivision test pits.

Lots 7, 8 and 9

Sub excavation was undertaken to remove past unsupervised horticultural filling and the underlying organic soils over which the horticultural filling had been placed. Where groundwater entered the excavations initial refilling was with 100 mm down rock to 0.5 m above the water level before placing a filling overlay of site soils. The compaction of the rock filling was checked with a Clegg hammer by SL. The site soil overlay work was observed by SL who undertook measurements of the undrained shear strengths that had been developed by the compaction of the filling. The shear strengths met the required standard. In addition, in situ density tests were undertaken by Opus International Consultants on behalf of the civil contractor, Moon Civil and Drainage. Seven tests by Opus in the clayey silt overlay to the rock showed compliance with the contract specification. The test positions are shown on 21377-G02 and the Opus test results are in Appendix 3.

Lot 10

Four hand drilled boreholes were put down on lot 10. Natural soils being stiff yellow orange clayey silts were present having been exposed on cut ground. Recorded undrained shear strengths ranged from 75 to more than 200 kPa.

Lots 11 and 12

Past horticultural filling was removed from these lots and was replaced with supervised filling obtained from site soils. A temporary silt runoff collection pond was established on lot 11 and this pond was infilled after it was no longer required. The placement of the filling was observed by SL staff and the compaction standards were monitored by tests undertaken by Opus. The test results met the contract specification. The results are in Appendix 3.

A filled batter at a slope of 1 in 3 was formed along the western sides of these lots and down to the lower ground levels where the Council sewer and easement is present. These batters are shown on 21377-AB5 and were only nominally compacted to avoid disturbing the sewer line that was in close proximity.

Lots 13 and 14

No specific tests were undertaken on lots 13 and 14 but the exposed soils were inspected and probed by SL before the surface topsoil was placed. Stiff natural soils were present that were typical of those soils found in pre subdivision test pits and on other sites on natural ground.

Lot 15

Four hand drilled boreholes were put down on lot 15. Natural soils being stiff yellow orange silts and clayey silts were present having been exposed on cut ground. Recorded undrained shear strengths ranged from 90 to more than 200 kPa.

Lots 16, 17, 18 and 19

Past horticultural filling was removed from lots 18 and 19. The undercut depths were up to 6m deep on lots 18 and 19 where the horticultural filling had been placed over peat containing buried logs. Replacement filling comprised 100 mm down rock over a geofabric that lined the floor of the excavation after the hole had been dewatered by pumping. The depth of the rock filling was to 500 mm above the groundwater level before completing the filling to the finished ground level with site soils.

Because of the degree of ground improvement required on lots 19 and 20, the undercutting to remove the horticultural filling was not undertaken on lots 17 and 18. Filling using site soils was placed over the horticultural filling to achieve the finished ground levels shown on 21377-AB5.

The foundations for buildings on lots 17 and 18 would be the subject of a specific design with the intention that these buildings would be supported on driven piles.

The placement of the filling was observed by SL staff and the compaction standards in the upper filling were monitored by tests undertaken by Opus. The test results met the contract specification. The results are in Appendix 3.

A filled batter at a slope of 1 in 3 was formed along the western sides of these lots and down to the lower ground levels where the Council sewer and easement is present. These batters are shown on 21377-AB5 and were only nominally compacted to avoid disturbing the sewer line that was in close proximity.

Lot 20

Four hand drilled boreholes were put down on lot 20. Natural soils being stiff light brown silts and clayey silts were present having been exposed on cut ground. Recorded undrained shear strengths ranged from 90 to more than 200 kPa.

Lot 21
Four hand drilled boreholes were put down on lot 21. Natural soils being stiff yellow brown silts and clayey silts were present having been exposed on cut ground. Recorded undrained shear strengths ranged from 100 to 200 kPa.

Lots 22, 23, and 24
No specific tests were undertaken on lots 22, 23 and 24 but the exposed soils were inspected and probed by SL before the surface topsoil was placed. Stiff natural soils were present that were typical of those soils found in pre subdivision test pits and on other sites on natural ground.

Lot 25
No subdivision earthworks took place on this lot except to remove the surface topsoil when the kiwifruit vines and support structures were removed during the construction of the subdivision. Six hand drilled boreholes were put down around the perimeter of a house proposed to be erected.
Natural ground was mostly encountered in the boreholes but some depths of disturbed ground were also found. In a report to the subdivision developer, who was going to erect the proposed house, it was recommended that

- Any remaining topsoil is to be removed
- The site is to be inspected by a chartered professional geotechnical engineer
- The cleared ground surface is to be compacted by at least four passes with a steel drum roller of at least 5 tonne capacity under the supervision of the engineer.

5.0 Slope Stability

As shown on appended drawing 21377-AB5, cut batters in the natural ground are present on lots 1 to 6, 13 to 15, 17, 18, and 20 to 23. The batter faces are unlikely to be subject to a rotational type or shear failure unless they are surcharged by loads from buildings, but, when left unfaced, they will be vulnerable to erosion. Unless or until retaining walls are constructed, buildings should not be located closer than 1.5 m from the upper edges of these batters. When retaining walls are detailed the wall designer would take into account any surcharges from the intended houses in close proximity In addition a domestic surcharge of 2.5 kPa behind the walls should be considered where the building would be absent.

Building set back distances are also appropriate behind the crests of the filled batters on lots 11, 12, 16, 17, 18 and 19. The set back distance is 3 m from the tops of the batters and the set back lines are shown on DP 521037. These batters are vulnerable to erosion from surface water runoff, at least until these lots have been developed and surface water runoff can be controlled or directed to the stormwater outfall on each lot. As the batters have been formed to a compaction density lower than achieved on the building sites the areas forward of the set back lines may be prone to ground settlement.

Encroachments over these set back lines can only be considered when subject to investigation by a chartered professional geotechnical engineer.
Retaining walls are to constructed by the developer to support the batters on the eastern boundaries of lots 3, 4 and 5.

6.0 Recommendations for Residential Development

Tests and observations during the earthworks for the lots on the subdivision have confirmed that the filling placed meets the specifications in NZS 4431:1989. Accordingly the filled ground may be considered as "good ground" in terms of NZS 3604:2011 "Timber Framed Buildings"

Observations and testing on the lots located on areas of cut indicated that the exposed natural soils are of consistent high strength. This data confirms that areas formed in cut can also be considered as "good ground."

On lots 16 and 17 deeper unsuitable soils were not replaced and therefore surface foundations for buildings on those lots will not be appropriate unless the unsuitable soils are replaced. Buildings would therefore be supported on deep piles. A chartered professional engineer would undertake additional tests to determine the properties and depths of the subsoils so that the pile capacities may be determined for both end bearing and perimeter adhesion properties

Building on each lot, except lots 16 and 17, may therefore be detailed in accordance with NZS 3604:2011. For the specific design of foundations an ultimate bearing capacity in the limit state of 300 kPa may be adopted. (it should be noted that condition 8E of consent S/B/11571 requires a minimum bearing capacity of 100 kPa. This value is assumed to refer to an "allowable bearing capacity" which, by definition, is the ultimate bearing capacity modified by a factor of safety of 3.).

The presence of the wastewater line contained in easements G, H, I and J on DP 495589 requires a suitable set back for future buildings on lots 7, 8 and 9. This set back is shown on 21377-AB5 as being south of the easement to comply with the close proximity clearances shown on drawing W652 in the WBOPDC Development Code.

7.0 Professional Opinion

A statement of professional opinion in the format of form 10C from the Development Code is attached confirming that the land within the subdivision is suitable for building. It is recommended that the opinions and recommendations contained in this report are advised to future owners of the lots by way of a consent notice on the certificates of title.

6.0 Applicability

Recommendations contained in this report are based on data from observations of site earthworks, boreholes and test results. Inferences about the nature and continuity of subsoils away from these locations are made by cannot be guaranteed.

In all circumstances, if variations in the subsoils occur which differ from those described or are assumed to exist, the site should be inspected by a chartered professional engineer suitably qualified to make an informed judgement and provide advice on appropriate improvement measures.

This report has been prepared specifically for the subdivision as shown on DP 521037 at Layla Place, Katikati and no responsibility is accepted by S&L Consultants Ltd for the use of any part of this report for other development sites without their written approval.

S & L Consultants Ltd
Consulting Engineers, Surveyors, Planners



Report prepared by M W Hughes CPEng MIPENZ
Geotechnical Engineer **21 March 2018**

Appendices

Appendix 1 **Drawings**

Subdivision Plan	21377-RC1
Geotechnical Plans	21377-G01 to G06
Finished Ground Contours	21377-AB5
DP 521037	

Appendix 2 **Opinion**

Statement of Professional Opinion (Cert 10c)

Appendix 3 **Test Reports**

Reports by Opus
Pre Construction Test Pit Logs

APPENDIX I

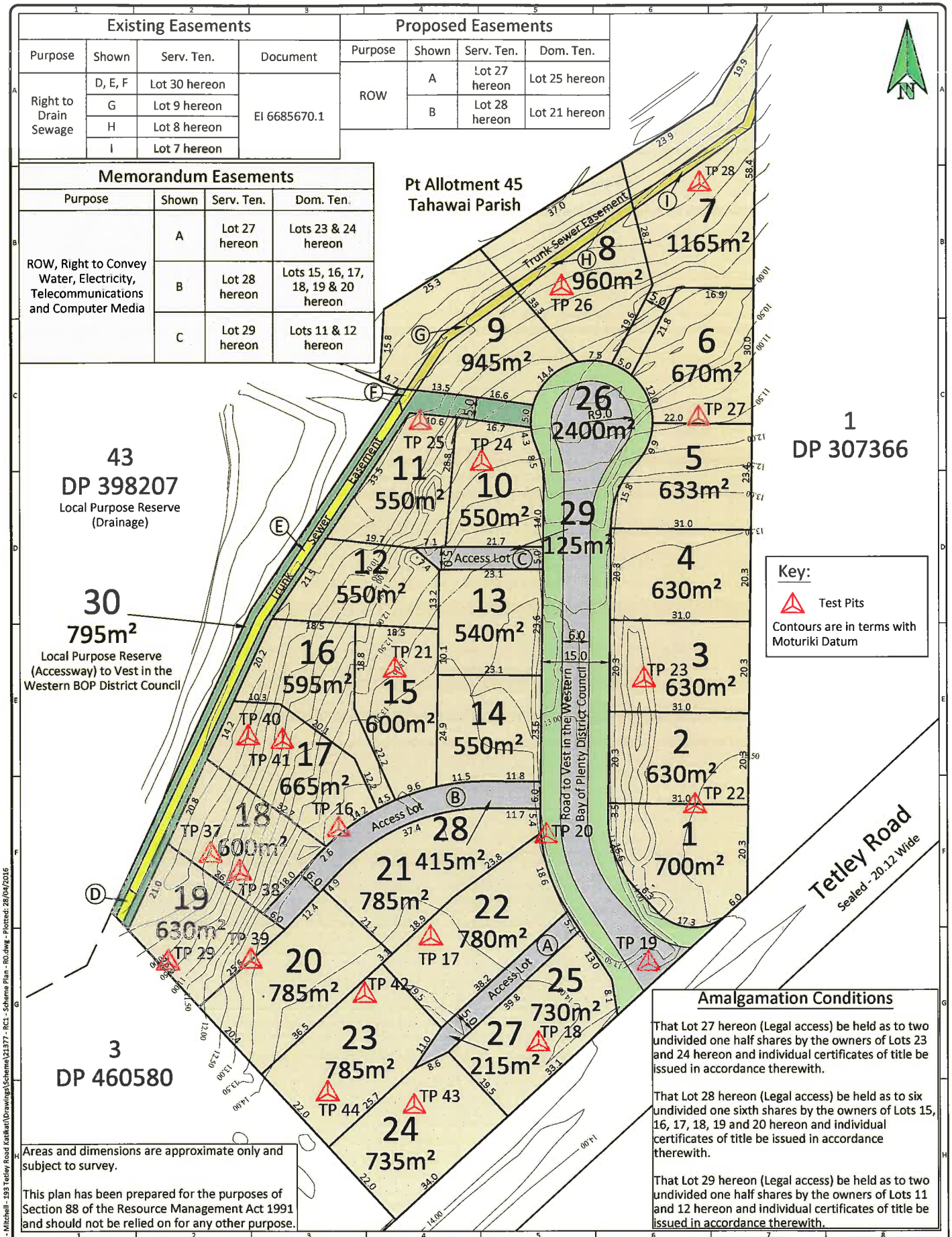
Reference Drawings:

Subdivision plan 21377-RC1

Geotechnical plans 21377-G01 to G06

Finished Ground Contours 21377-AB5

DP 521037



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Email: slconsultants@sltga.co.nz
Web Site: www.sltga.co.nz

Proposed Subdivision of Lot 2 DP 460580

Comprised in CT 604083
Total Area: 2.1400ha
Address: 193 Tetley Road
Registered Owners: Tigr Investments Limited

REV No.	DESCRIPTION	DATE
0	Issued to WBOPDC	04/16

	NAME	DATE	SIGNED
Surveyed			
Designed			
Drawn	NP	04/16	
Checked			
Approved			

References

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Original Scales @ A3: 1:750 Do Not Scale Dimensions
Date: 04/16
Drawing No: 21377 - RC1
Revision: 0

H:\21000 - 21999\21300 - 21399\21377 - Mitchell - 193 Tetley Road Katikati\Drawings\Scheme\21377 - RC1 - Scheme Plan - RO.dwg - Plotted: 28/04/2016



Key

- Cut/Fill Contours - 0.5m Contour Interval
- Bore Holes During Construction (S&L Consultants Ltd)
- Pre Construction Test Pit Locations 2007 - (S&L Consultants Ltd)
- Nuclear Densometer Tests (Opus) (16-03-2017 - 22-03-2017)
- Nuclear Densometer Tests (Opus) (26-04-2017)
- Nuclear Densometer Tests (Opus) (28-04-2017)
- Nuclear Densometer Tests (Opus) (2-05-2017)
- Nuclear Densometer Tests (Opus) (5-05-2017)
- Nuclear Densometer Tests (Opus) (16-10-2017)
- Nuclear Densometer Tests (Opus) (10-11-2017)
- Nuclear Densometer Tests (Opus) (17-11-2017)
- Nuclear Densometer Tests (Opus) (24-11-2017)

Checked by	Rev. No.	Description	DATE
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Surveyed	CR	03/16	
Designed	SM	04/16	
Drawn	ADP	03/18	
Checked	MWH	03/18	
Approved	MWH	03/18	

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Fax(07)577-6065
Email: slconsultants@sltga.co.nz

TITLE

TIGR Investments Ltd

Sophia Rose Estate
Layla Place, Katikati

Geotechnical Reference Plan

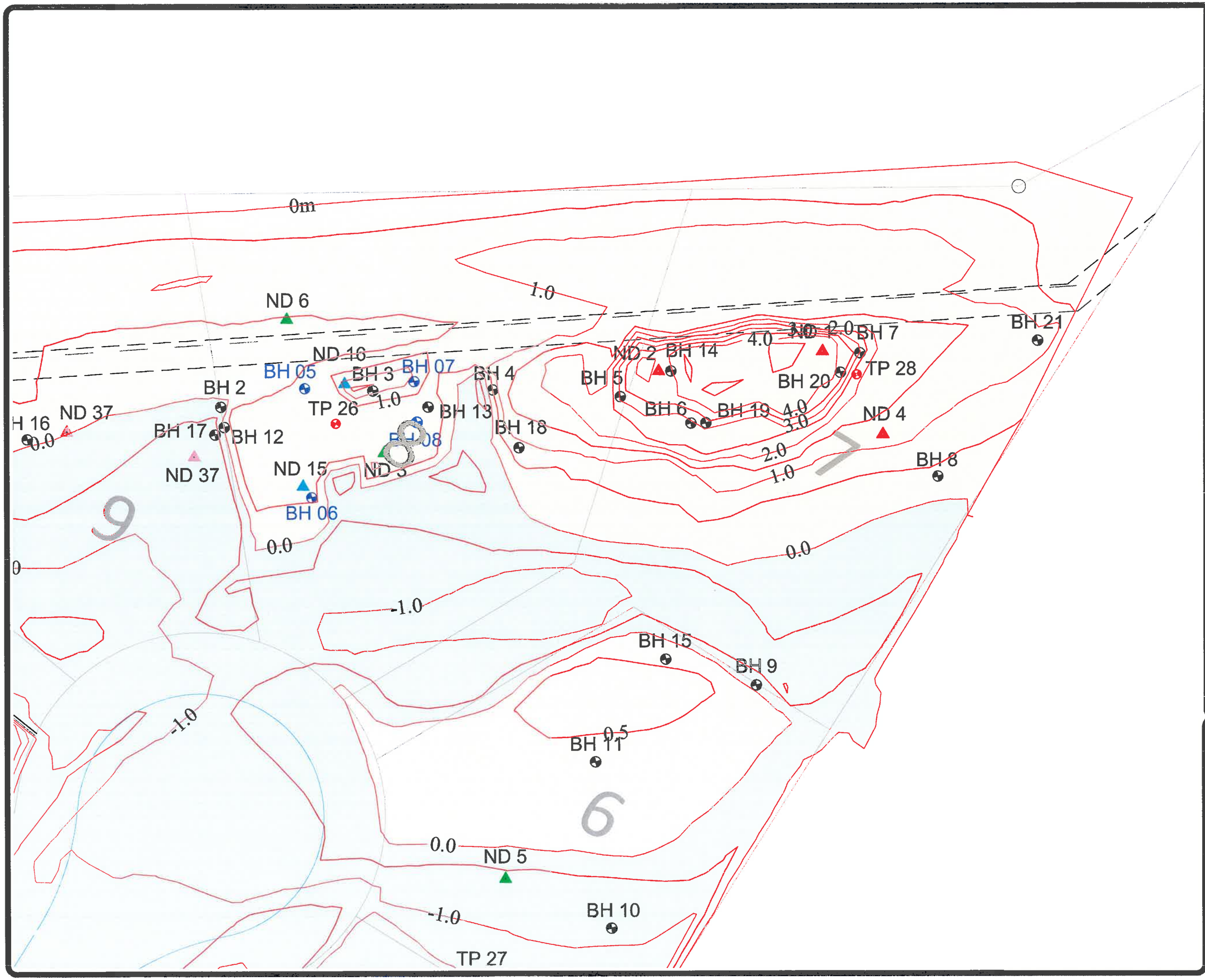
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DRAWING No
21377 - G01

Revision: A

METRIC DESIGN



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- Pre Construction Test Pit Locations 2007 - (S&L Consultants Ltd)
- Nuclear Densometer Tests (Opus) (16-03-2017 - 22-03-2017)
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- Nuclear Densometer Tests (Opus) (24-11-2017)

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	A	Issued for Geotechnical Report	03/18

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Surveyed	CR	04/17	
Designed	ADP	03/18	
Drawn	ADP	03/18	
Checked	MWH	03/18	
Approved	MWH	03/18	

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Email: slconsultants@sltga.co.nz

TITLE

TIGR Investments Ltd

Sophia Rose Estate
Layla Place, Katikati

Geotechnical Reference Plan

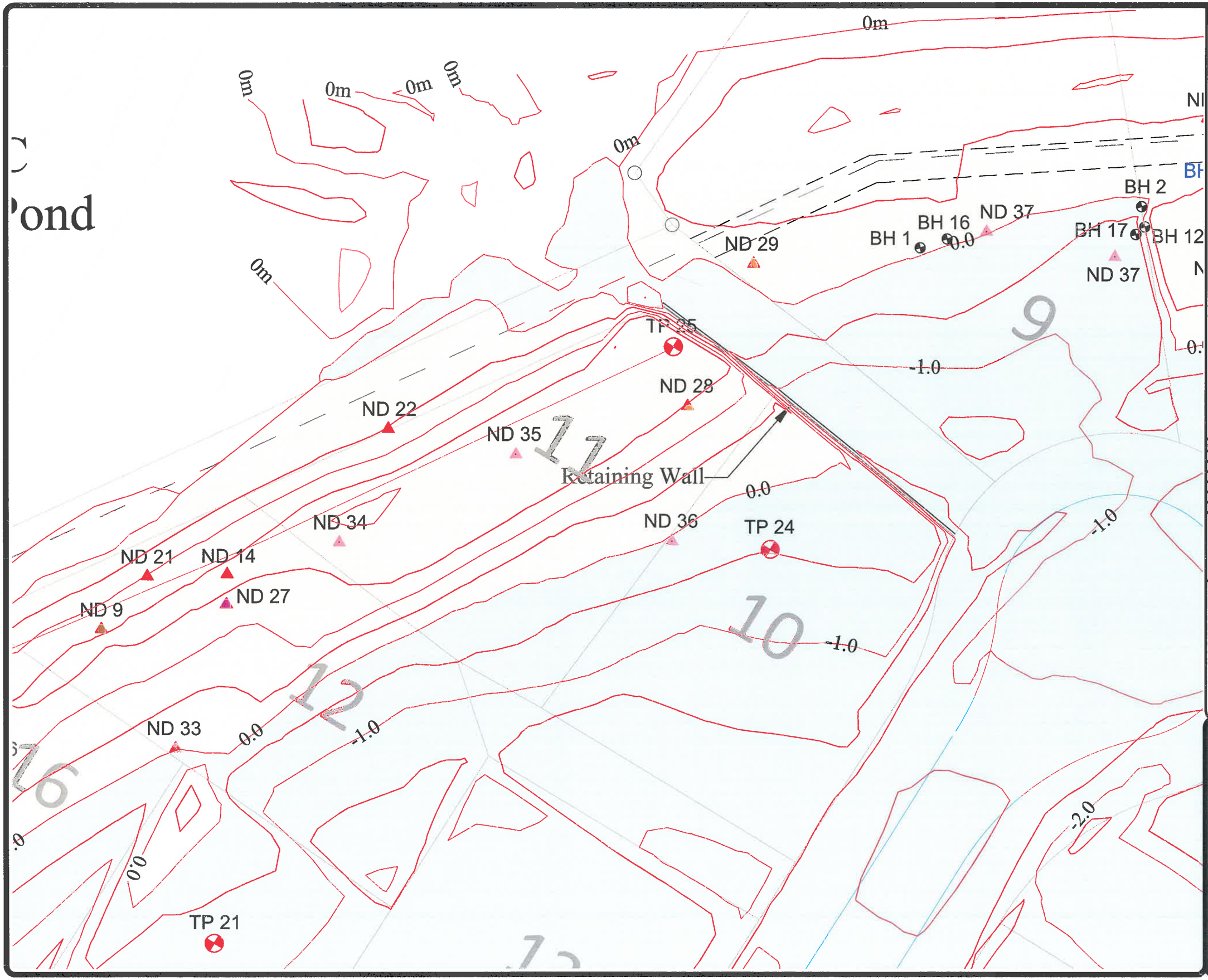
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DRAWING No
21377 - G02

Revision: A

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- Pre Construction Test Pit Locations 2007 - (S&L Consultants Ltd)
- Nuclear Densometer Tests (Opus) (16-03-2017 - 22-03-2017)
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- Nuclear Densometer Tests (Opus) (17-11-2017)
- Nuclear Densometer Tests (Opus) (24-11-2017)

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Designed	ADP	03/18	
Drawn	ADP	03/18	
Checked	MWH	03/18	
Approved	MWH	03/18	

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Fax(07)577-6065
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TITLE

TIGR Investments Ltd

Sophia Rose Estate
Layla Place, Katikati

Geotechnical Reference Plan

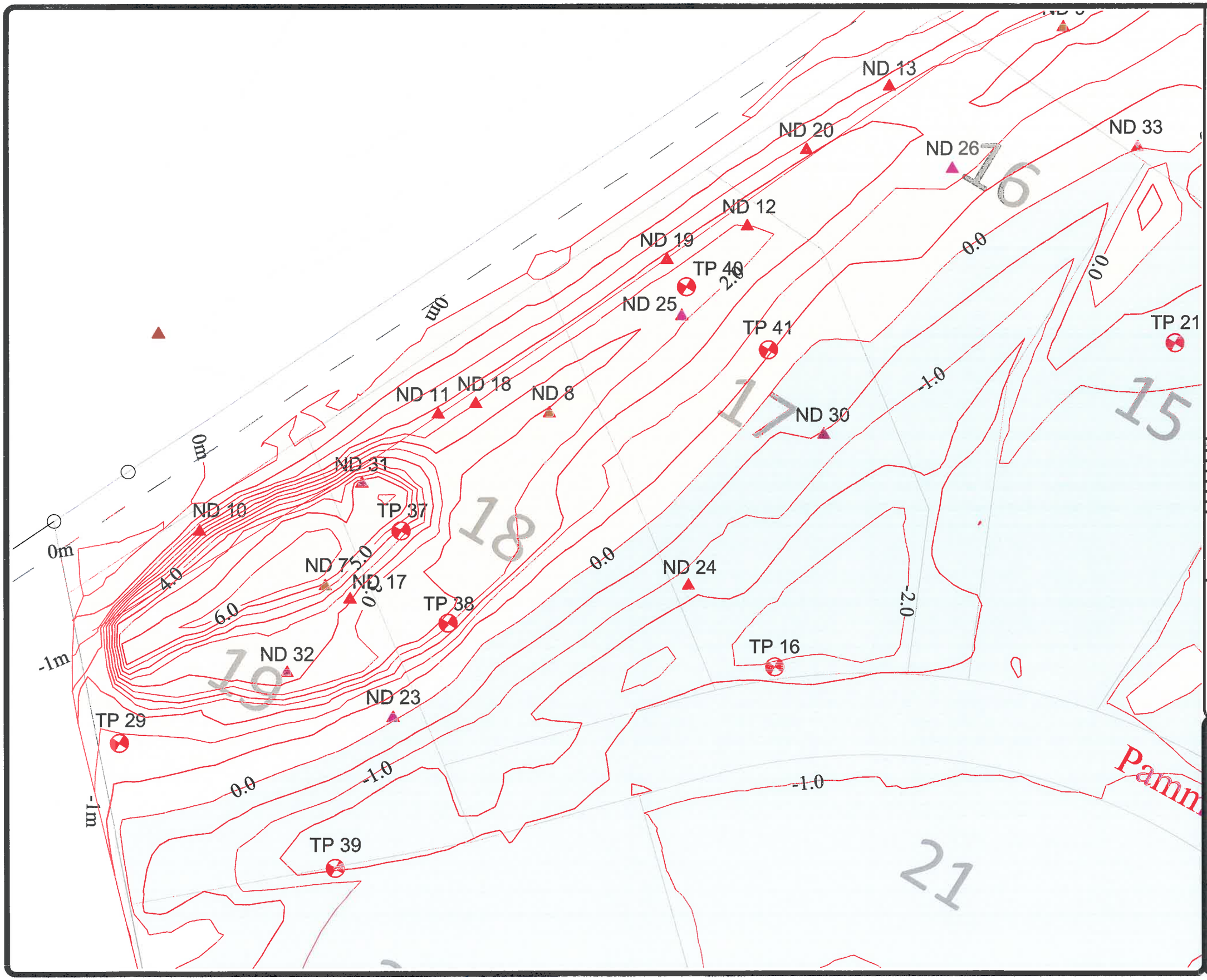
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DRAWING No
21377 - G03

Revision: A

METRIC DESIGN



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- Pre Construction Test Pit Locations 2007 - (S&L Consultants Ltd)
- Nuclear Densometer Tests (Opus) (16-03-2017 - 22-03-2017)
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- Nuclear Densometer Tests (Opus) (17-11-2017)
- Nuclear Densometer Tests (Opus) (24-11-2017)

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Drawn	ADP	03/18	
Checked	MWH	03/18	
Approved	MWH	03/18	

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TITLE

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Layla Place, Katikati

Geotechnical Reference Plan

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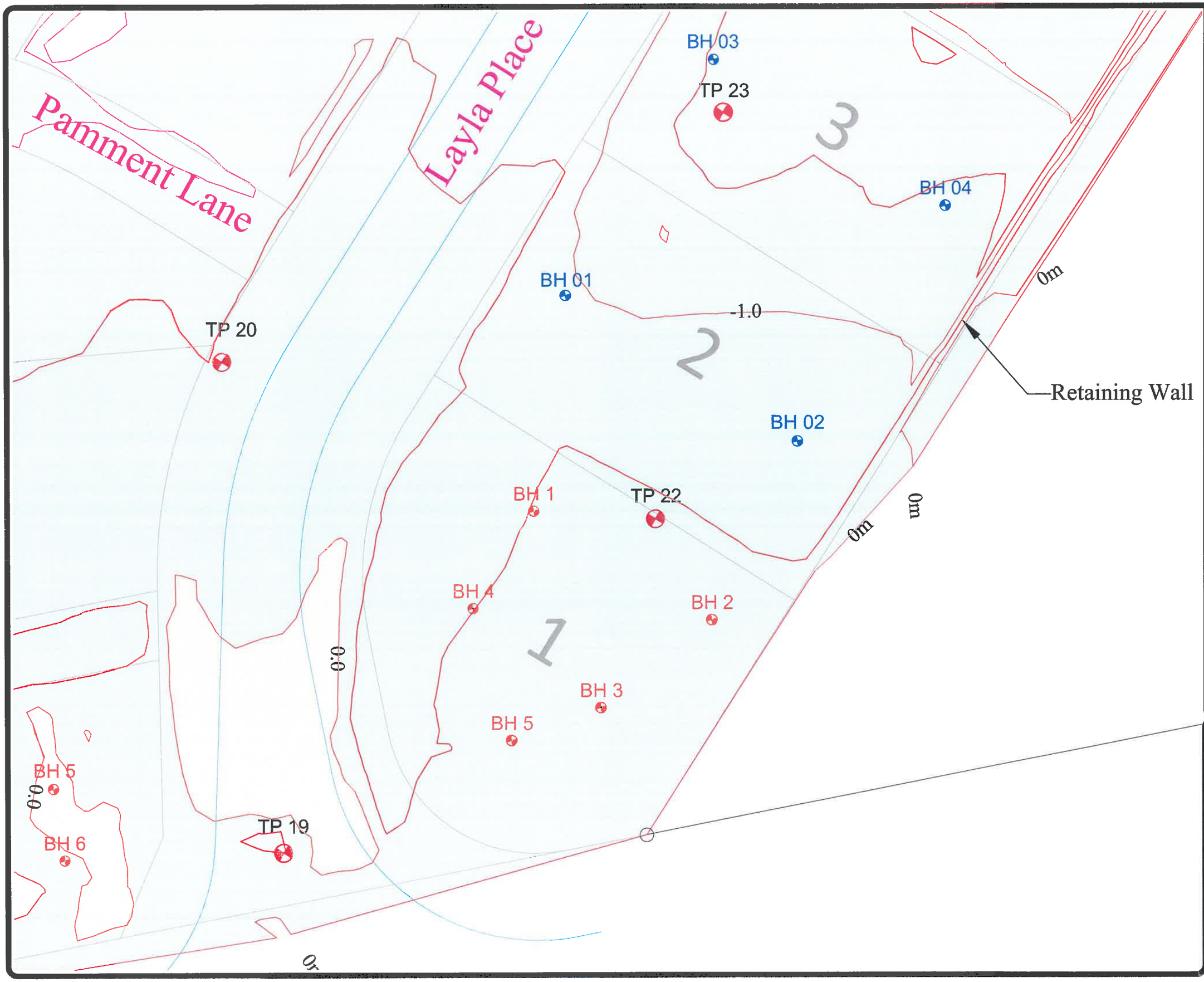
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DATE: 03/18

DRAWING No: 21377 - G04

Revision: A

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- Pre Construction Test Pit Locations 2007 (S&L Consultants Ltd)
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- Nuclear Densometer Tests (Opus) (24-11-2017)

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Drawn	ADP	03/18	
Checked	MWH	03/18	
Approved	MWH	03/18	

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TITLE

TIGR Investments Ltd

Sophia Rose Estate
Layla Place, Katikati

Geotechnical Reference Plan
Lot 1

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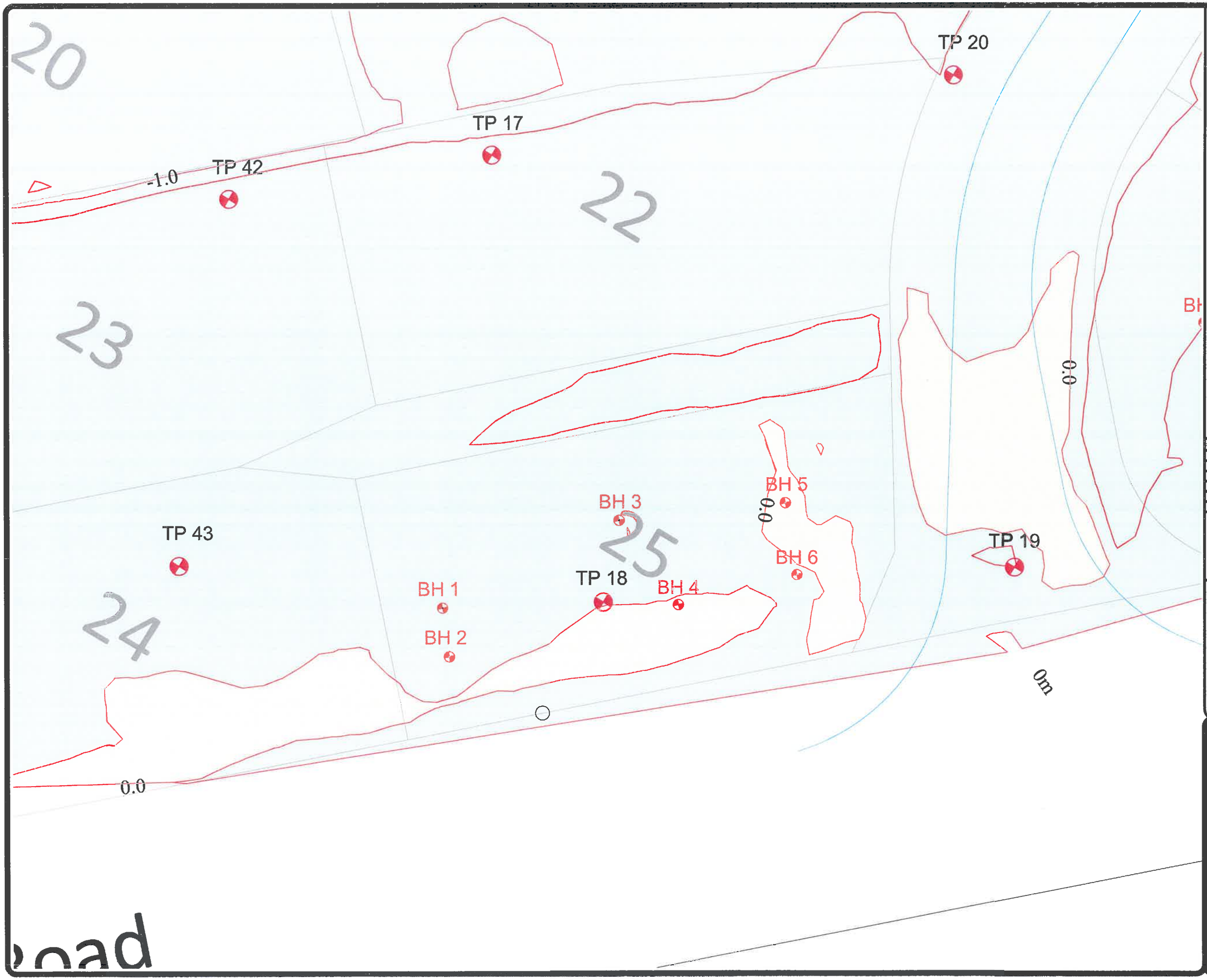
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DRAWING No

21377 - G05

Revision: A

METRIC DESIGN



Key

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- Bore Holes During Construction (S&L Consultants Ltd)
- Pre Construction Test Pit Locations 2007 - (S&L Consultants Ltd)
- Nuclear Densometer Tests (Opus) (16-03-2017 - 22-03-2017)
- Nuclear Densometer Tests (Opus) (26-04-2017)
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- Nuclear Densometer Tests (Opus) (17-11-2017)
- Nuclear Densometer Tests (Opus) (24-11-2017)

Checked. by	Rev. No.	Description	DATE
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Designed	ADP	03/18	
Drawn	ADP	03/18	
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Approved	MWH	03/18	

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TITLE

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Sophia Rose Estate
Layla Place, Katikati

Geotechnical Reference Plan
Lot 25

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ORIGINAL SCALES	DATE
Scale 1:250 @ A3	03/18

DRAWING No: 21377 - G06

Revision: A

METRIC DESIGN

Existing
WBOPDC
Stormwater Pond

Tetley Road

Pamment Lane

Layla Place

Existing Sewer Close Proximity Line

Retaining Wall
and Reserve Fencing

Proposed
Retaining Wall

Retaining Wall
Lots 3 to 5

Slope 1:5
Slope 1:3
Slope 1:36
Slope 1:80
Slope 1:120
Slope 1:180
Slope 3%

Key

- Design Contours - 0.5m Contour Interval
- Existing Ground Contours - 0.5m Contour Interval
- Setback line from subdivision batters and sewer line

REV No.	DESCRIPTION	DATE
1	Issued for 224	03/18

	NAME	DATE	SIGNED
Surveyed			
Designed			
Drawn	ADP	03/18	
Checked			
Approved			

References

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Fax(07)577-6065
Email: slconsultants@sltga.co.nz
Web Site: www.sltga.co.nz

Title

TIGR Investments Ltd

Sophia Rose Estate
Subdivision

Layla Place
Finished Ground
Contours

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Original Scales @ A3	Date
1:750 Do Not Scale Dimensions	03/18
Drawing No: 21377 - AB5	Revision: 1

H:\21000 - 21999\21300 - 21399\21377 - Mitchell - 193 Tetley Road Katikati\Drawings\Asbuilt\21377 - AB5 - Finished Ground Levels - R1.dwg - Plotted: 23/03/2018

Title Plan - LT 521037

Survey Number	LT 521037
Surveyor Reference	21377 Mitchell - CSR
Surveyor	Timothy Andrew McBride
Survey Firm	S & L Consultants Ltd
Surveyor Declaration	

Survey Details

Dataset Description	Lots 1 - 30 being Subdivision of Lot 2 DP 460580		
Status	Initiated		
Land District	South Auckland	**Survey Class**	Class A
Submitted Date		**Survey Approval Date**	
		Deposit Date	

Territorial Authorities

Western Bay of Plenty District

Comprised In

CT 604083

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Lot 1 Deposited Plan 521037	Fee Simple Title	0.0700 Ha	823156
Lot 2 Deposited Plan 521037	Fee Simple Title	0.0630 Ha	823157
Lot 3 Deposited Plan 521037	Fee Simple Title	0.0630 Ha	823158
Lot 4 Deposited Plan 521037	Fee Simple Title	0.0630 Ha	823159
Lot 5 Deposited Plan 521037	Fee Simple Title	0.0633 Ha	823160
Lot 6 Deposited Plan 521037	Fee Simple Title	0.0674 Ha	823161
Lot 7 Deposited Plan 521037	Fee Simple Title	0.1166 Ha	823162
Lot 8 Deposited Plan 521037	Fee Simple Title	0.0960 Ha	823163
Lot 9 Deposited Plan 521037	Fee Simple Title	0.0948 Ha	823164
Lot 10 Deposited Plan 521037	Fee Simple Title	0.0550 Ha	823165
Lot 11 Deposited Plan 521037	Fee Simple Title	0.0550 Ha	823166
Lot 12 Deposited Plan 521037	Fee Simple Title	0.0550 Ha	823167
Lot 13 Deposited Plan 521037	Fee Simple Title	0.0541 Ha	823168
Lot 14 Deposited Plan 521037	Fee Simple Title	0.0550 Ha	823169
Lot 15 Deposited Plan 521037	Fee Simple Title	0.0602 Ha	823170
Lot 16 Deposited Plan 521037	Fee Simple Title	0.0594 Ha	823171
Lot 17 Deposited Plan 521037	Fee Simple Title	0.0666 Ha	823172
Lot 18 Deposited Plan 521037	Fee Simple Title	0.0600 Ha	823173
Lot 19 Deposited Plan 521037	Fee Simple Title	0.0630 Ha	823174
Lot 20 Deposited Plan 521037	Fee Simple Title	0.0788 Ha	823175
Lot 21 Deposited Plan 521037	Fee Simple Title	0.0788 Ha	823176
Lot 22 Deposited Plan 521037	Fee Simple Title	0.0781 Ha	823177
Lot 23 Deposited Plan 521037	Fee Simple Title	0.0788 Ha	823178
Lot 24 Deposited Plan 521037	Fee Simple Title	0.0736 Ha	823179

Title Plan - LT 521037

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Lot 25 Deposited Plan 521037	Fee Simple Title	0.0732 Ha	823180
Lot 26 Deposited Plan 521037	Vesting on Deposit for Road	0.2411 Ha	823181
Lot 27 Deposited Plan 521037	Fee Simple Title	0.0218 Ha	Multiple
Lot 28 Deposited Plan 521037	Fee Simple Title	0.0415 Ha	Multiple
Lot 29 Deposited Plan 521037	Fee Simple Title	0.0129 Ha	Multiple
Lot 30 Deposited Plan 521037	Vesting on Deposit for Local Purpose Reserve	0.0804 Ha	823185
Area A Deposited Plan 521037	Easement		
Area B Deposited Plan 521037	Easement		
Area C Deposited Plan 521037	Easement		
Area D Deposited Plan 521037	Easement		
Area E Deposited Plan 521037	Easement		
Area F Deposited Plan 521037	Easement		
Area G Deposited Plan 521037	Easement		
Area H Deposited Plan 521037	Easement		
Area I Deposited Plan 521037	Easement		
Area J Deposited Plan 521037	Easement		
Area K Deposited Plan 521037	Easement		
Area L Deposited Plan 521037	Easement		
Area M Deposited Plan 521037	Easement		
Area N Deposited Plan 521037	Easement		
Area O Deposited Plan 521037	Easement		
Area P Deposited Plan 521037	Easement		
Area Q Deposited Plan 521037	Easement		
Area R Deposited Plan 521037	Easement		
Area S Deposited Plan 521037	Easement		
Area T Deposited Plan 521037	Easement		
Area U Deposited Plan 521037	Easement		
Area AA Deposited Plan 521037	Land Covenant		
Area AB Deposited Plan 521037	Land Covenant		
Area AC Deposited Plan 521037	Land Covenant		
Area AD Deposited Plan 521037	Land Covenant		
Area AE Deposited Plan 521037	Land Covenant		
Area AF Deposited Plan 521037	Land Covenant		
Total Area		2.1394 Ha	

Title Plan - LT 521037

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Lot 25 Deposited Plan 521037	Fee Simple Title	0.0732 Ha	823180
Lot 26 Deposited Plan 521037	Vesting on Deposit for Road	0.2411 Ha	823181
Lot 27 Deposited Plan 521037	Fee Simple Title	0.0218 Ha	Multiple
Lot 28 Deposited Plan 521037	Fee Simple Title	0.0415 Ha	Multiple
Lot 29 Deposited Plan 521037	Fee Simple Title	0.0129 Ha	Multiple
Lot 30 Deposited Plan 521037	Vesting on Deposit for Local Purpose Reserve	0.0804 Ha	823185
Area A Deposited Plan 521037	Easement		
Area B Deposited Plan 521037	Easement		
Area C Deposited Plan 521037	Easement		
Area D Deposited Plan 521037	Easement		
Area E Deposited Plan 521037	Easement		
Area F Deposited Plan 521037	Easement		
Area G Deposited Plan 521037	Easement		
Area H Deposited Plan 521037	Easement		
Area I Deposited Plan 521037	Easement		
Area J Deposited Plan 521037	Easement		
Area K Deposited Plan 521037	Easement		
Area L Deposited Plan 521037	Easement		
Area M Deposited Plan 521037	Easement		
Area N Deposited Plan 521037	Easement		
Area O Deposited Plan 521037	Easement		
Area P Deposited Plan 521037	Easement		
Area Q Deposited Plan 521037	Easement		
Area R Deposited Plan 521037	Easement		
Area S Deposited Plan 521037	Easement		
Area T Deposited Plan 521037	Easement		
Area U Deposited Plan 521037	Easement		
Area AA Deposited Plan 521037	Land Covenant		
Area AB Deposited Plan 521037	Land Covenant		
Area AC Deposited Plan 521037	Land Covenant		
Area AD Deposited Plan 521037	Land Covenant		
Area AE Deposited Plan 521037	Land Covenant		
Area AF Deposited Plan 521037	Land Covenant		
Total Area		2.1394 Ha	

S&L CONSULTANTS LTD
SURVEYORS - ENGINEERS - PLANNERS

S&L File: 21377 Mitchell

Land Registration District
SOUTH AUCKLAND

Plan Number
DP 521037

Territorial Authority
WESTERN BAY OF PLENTY DISTRICT COUNCIL

Memorandum of Easements			
Purpose	**Shown**	**Servient Tenement**	**Dominant Tenement**
Right of Way, Right to Convey Water, Electricity, Telecommunications and Computer Media	A	Lot 27 hereon	Lots 23 and 24 hereon
	B	Lot 28 hereon	Lots 15, 16, 17, 18, 19 and 20 hereon
	C	Lot 29 hereon	Lots 11 and 12 hereon

Schedule of Easements			
Purpose	**Shown**	**Servient Tenement**	**Dominant Tenement**
Right of Way	A	Lot 27 hereon	Lots 25 hereon
	B	Lot 28 hereon	Lots 21 hereon

Memorandum of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Drain Sewage	A	Lot 27 hereon	Western Bay of Plenty District Council
	K	Lot 18 hereon	
	B	Lot 28 hereon	
	L	Lot 16 hereon	
	N	Lot 12 hereon	
	C	Lot 29 hereon	
	G, Q, R, P	Lot 9 hereon	
Right to Drain Water	A	Lot 27 hereon	
	J	Lot 19 hereon	
	M	Lot 12 hereon	
	O, Q, S	Lot 9 hereon	
	T, U	Lot 8 hereon	

Continues below

S&L CONSULTANTS LTD
SURVEYORS - ENGINEERS - PLANNERS

S&L File: 21377 Mitchell

Memorandum of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Drain Water (Overland flow path)	J	Lot 19 hereon	Western Bay of Plenty District Council
	N	Lot 12 hereon	
Right to Convey Water	B	Lot 28 hereon	

Schedule of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Convey Telecommunications and Computer Media	A	Lot 27 hereon	Chorus Limited
	B	Lot 28 hereon	
	C	Lot 29 hereon	
Right to Convey Electricity	A	Lot 27 hereon	Powerco Limited
	B	Lot 28 hereon	
	C	Lot 29 hereon	

Schedule of Existing Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Document Number**
Right to Drain Sewage	D, E, F	Lot 30 hereon	E.I 6685670.1
	G	Lot 9 hereon	
	H	Lot 8 hereon	
	I	Lot 7 hereon	

Certifying parties must sign or initial this box

S&L CONSULTANTS LTD
SURVEYORS - ENGINEERS - PLANNERS

S&L File: 21377 Mitchell

Memorandum of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Drain Water (Overland flow path)	J	Lot 19 hereon	Western Bay of Plenty District Council
	N	Lot 12 hereon	
Right to Convey Water	B	Lot 28 hereon	

Schedule of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Convey Telecommunications and Computer Media	A	Lot 27 hereon	Chorus Limited
	B	Lot 28 hereon	
	C	Lot 29 hereon	
Right to Convey Electricity	A	Lot 27 hereon	Powerco Limited
	B	Lot 28 hereon	
	C	Lot 29 hereon	

Schedule of Existing Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Document Number**
Right to Drain Sewage	D, E, F	Lot 30 hereon	E.I 6685670.1
	G	Lot 9 hereon	
	H	Lot 8 hereon	
	I	Lot 7 hereon	

Certifying parties must sign or initial this box

S&L CONSULTANTS LTD
SURVEYORS - ENGINEERS - PLANNERS

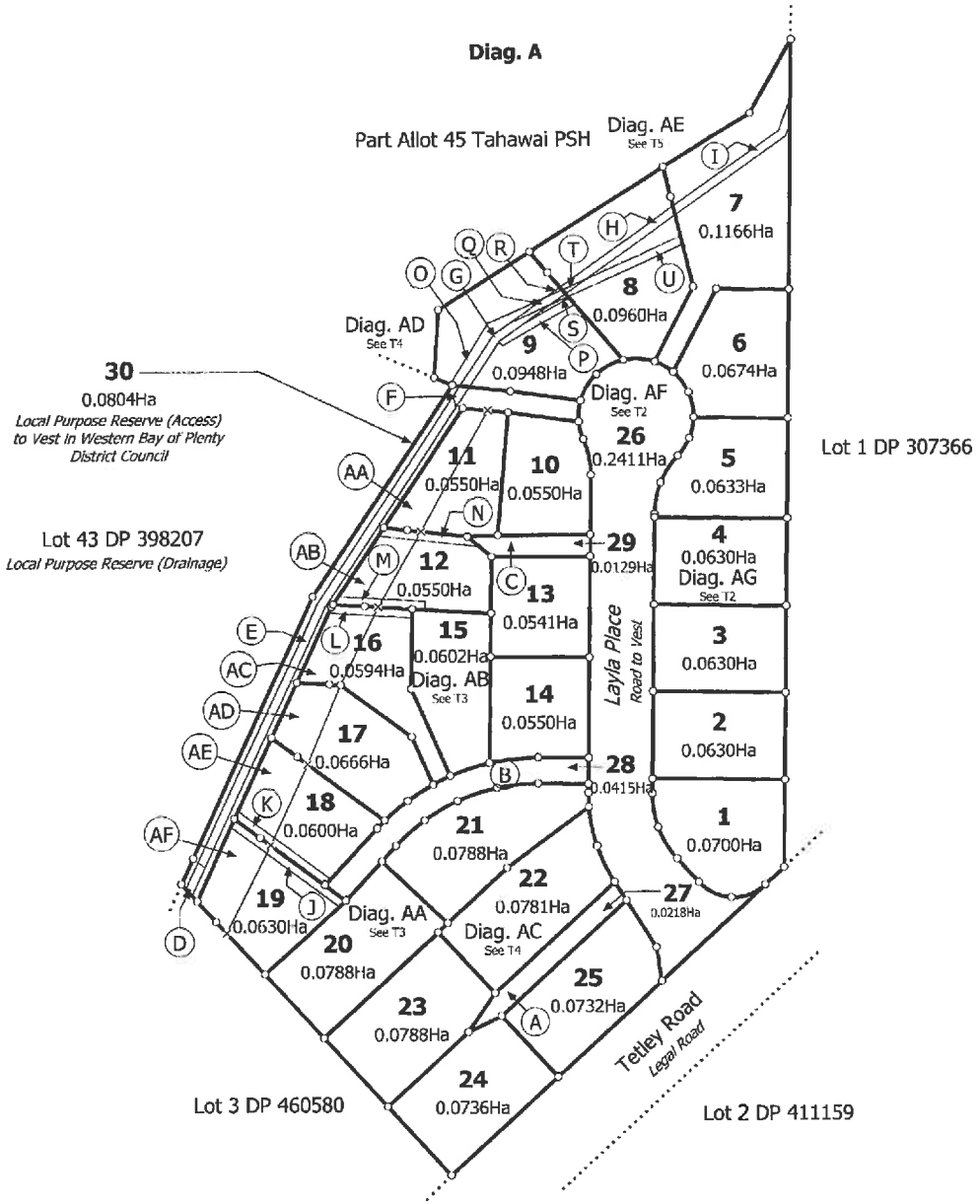
S&L File: 21377 Mitchell

Amalgamation Condition
That Lot 27 hereon (legal access) be held as to two undivided one half shares by the owners of Lots 23 and 24 hereon as tenants in common in the said shares and that individual computer freehold registers be issued in accordance therewith. (LINZ Request 1367599)

That Lot 28 hereon (legal access) be held as to six undivided one sixth share by the owners of Lots 15, 16, 17, 18, 19 and 20 hereon as tenants in common in the said shares and that individual computer freehold registers be issued in accordance therewith. (LINZ Request 1367599)

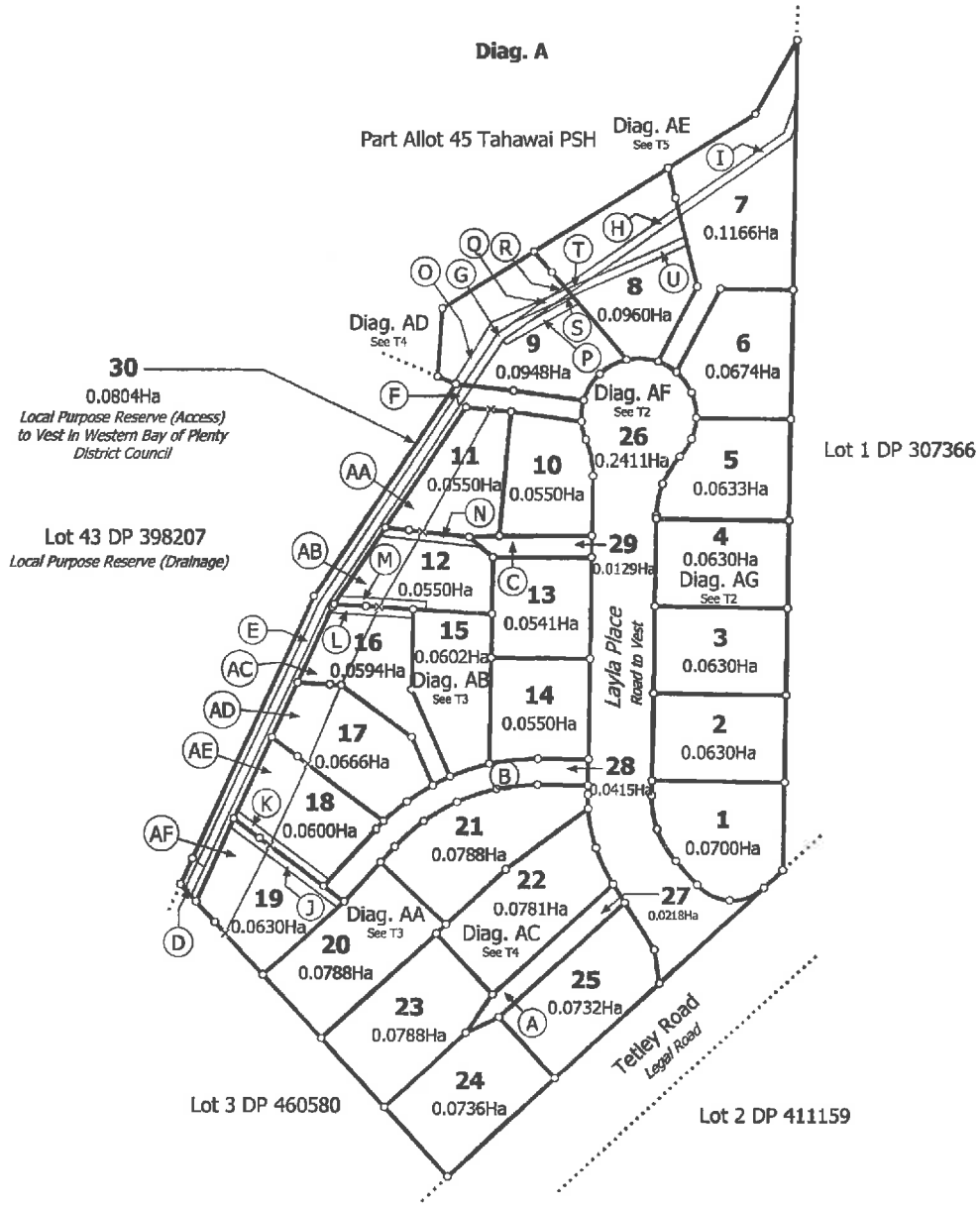
That Lot 29 hereon (legal access) be held as to two undivided one half shares by the owners of Lots 11 and 12 hereon as tenants in common in the said shares and that individual computer freehold registers be issued in accordance therewith. (LINZ Request 1367599)

Consent Notice
Lots 1 to 25 to be subject to a Consent Notice.



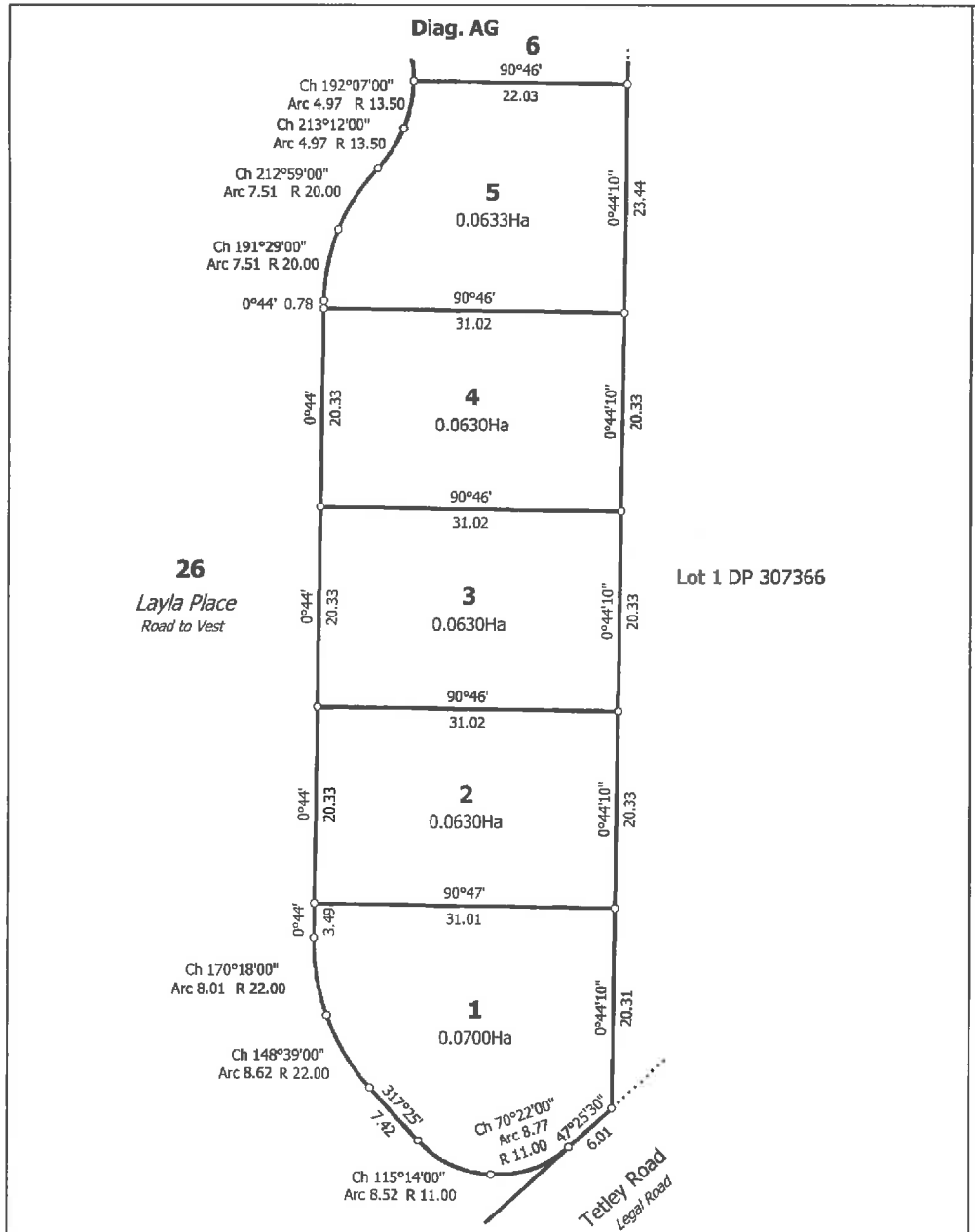
T 1/6

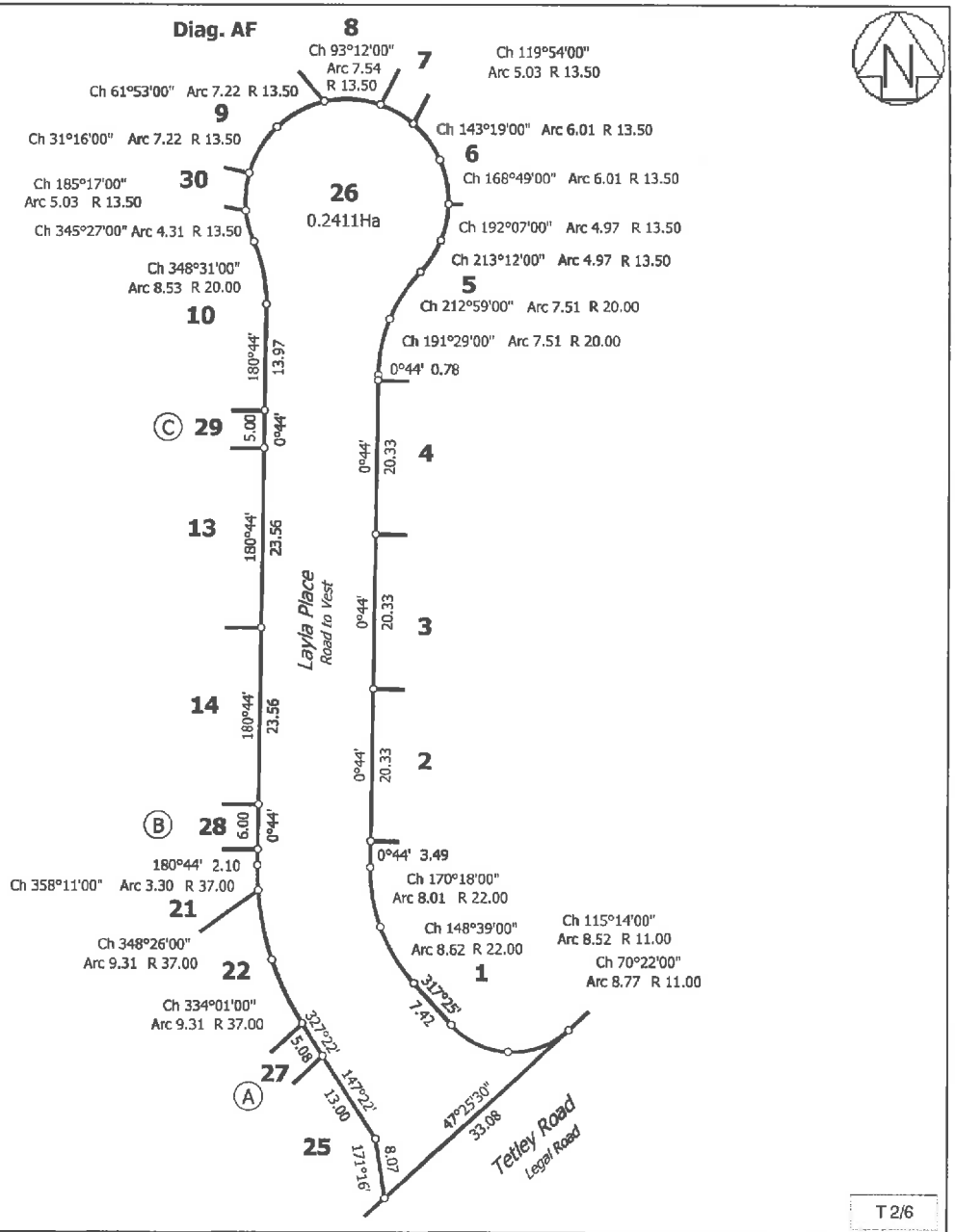
Land District: South Auckland Digitally Generated Plan Generated on: 26/03/2018 5:23pm Page 6 of 11	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan LT 521037 DRAFT



T 1/6

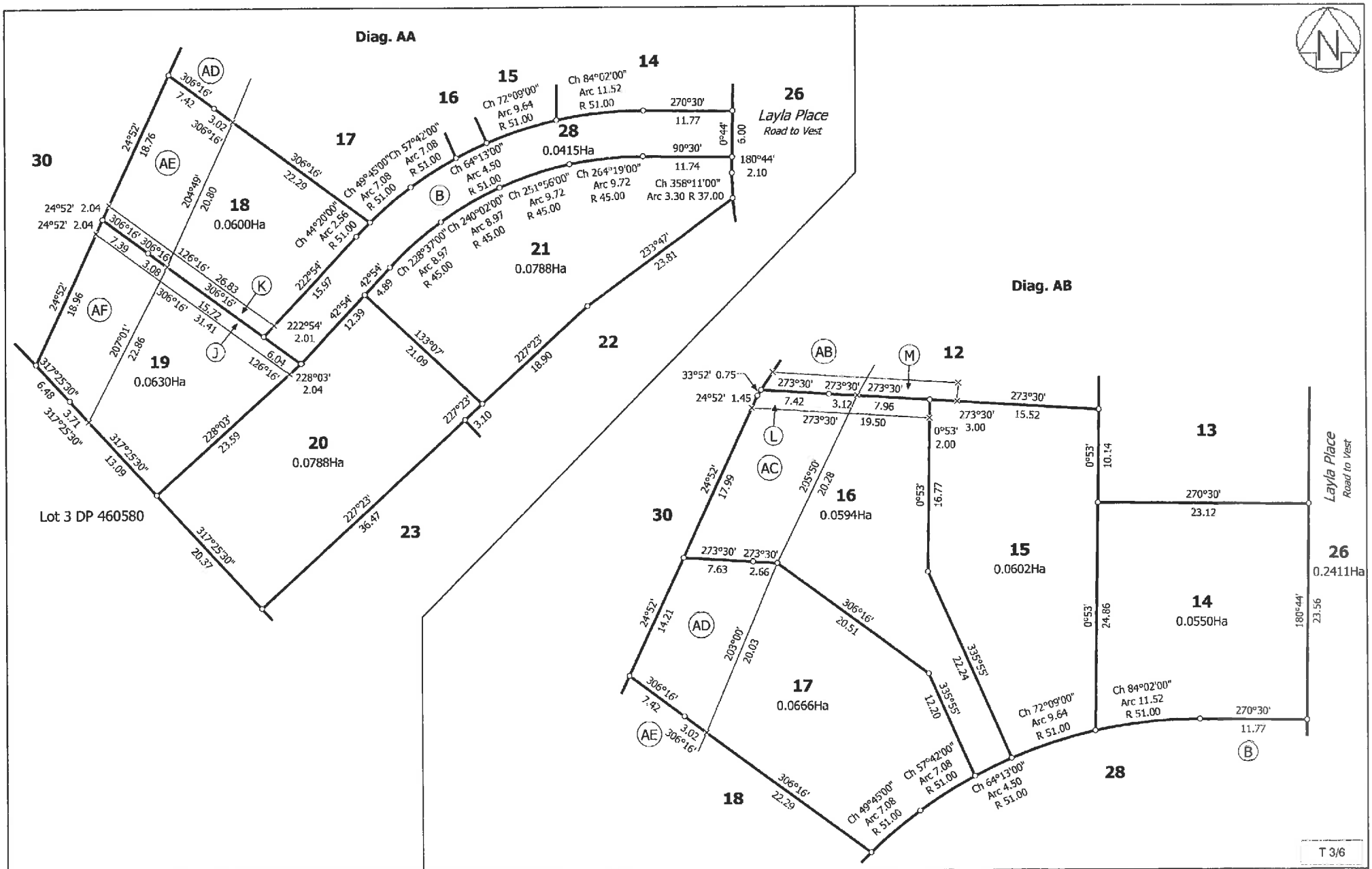
Land District: South Auckland Digitally Generated Plan Generated on: 26/03/2018 5:23pm Page 6 of 11	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan LT 521037 DRAFT



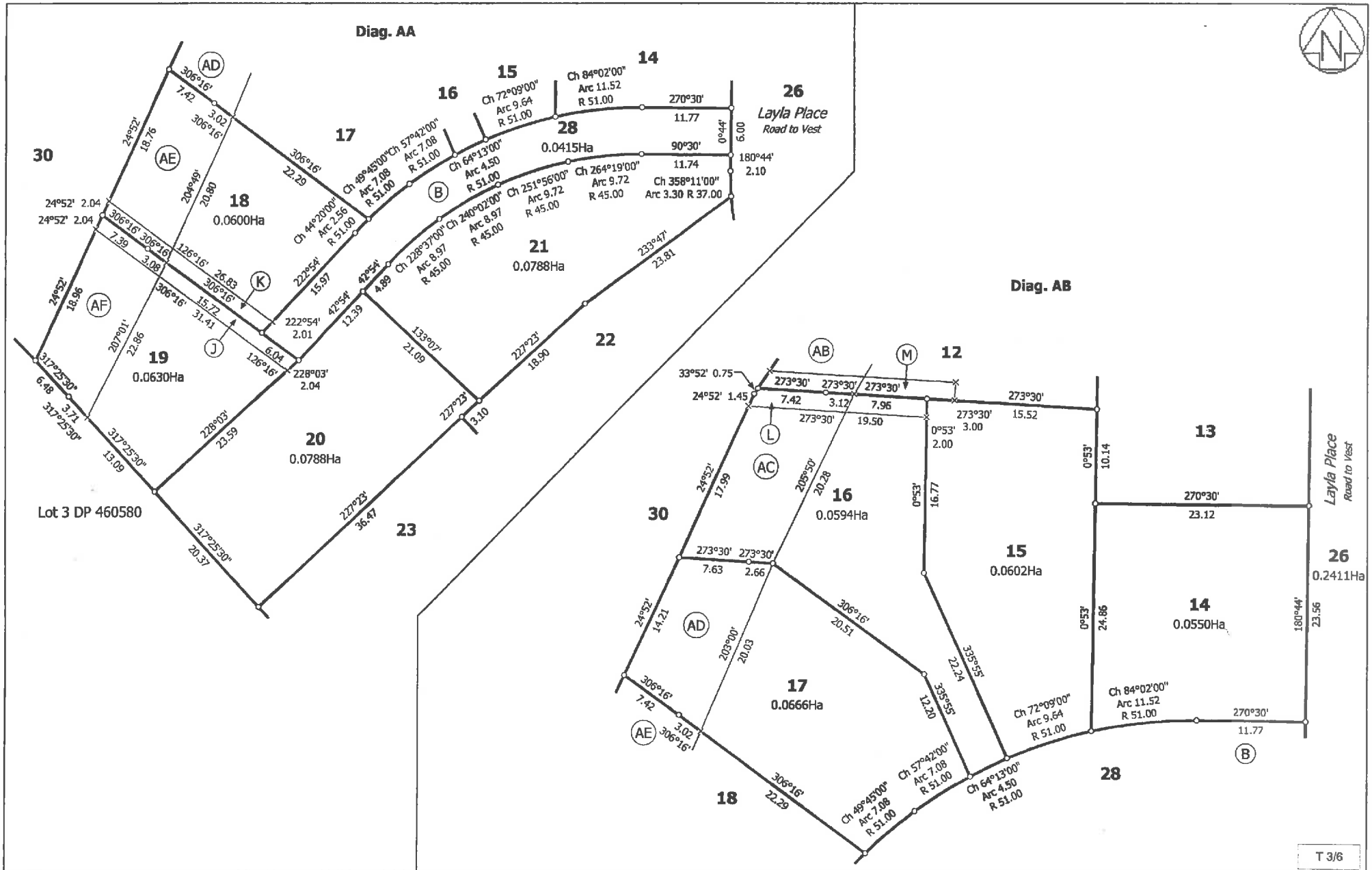


T 2/6

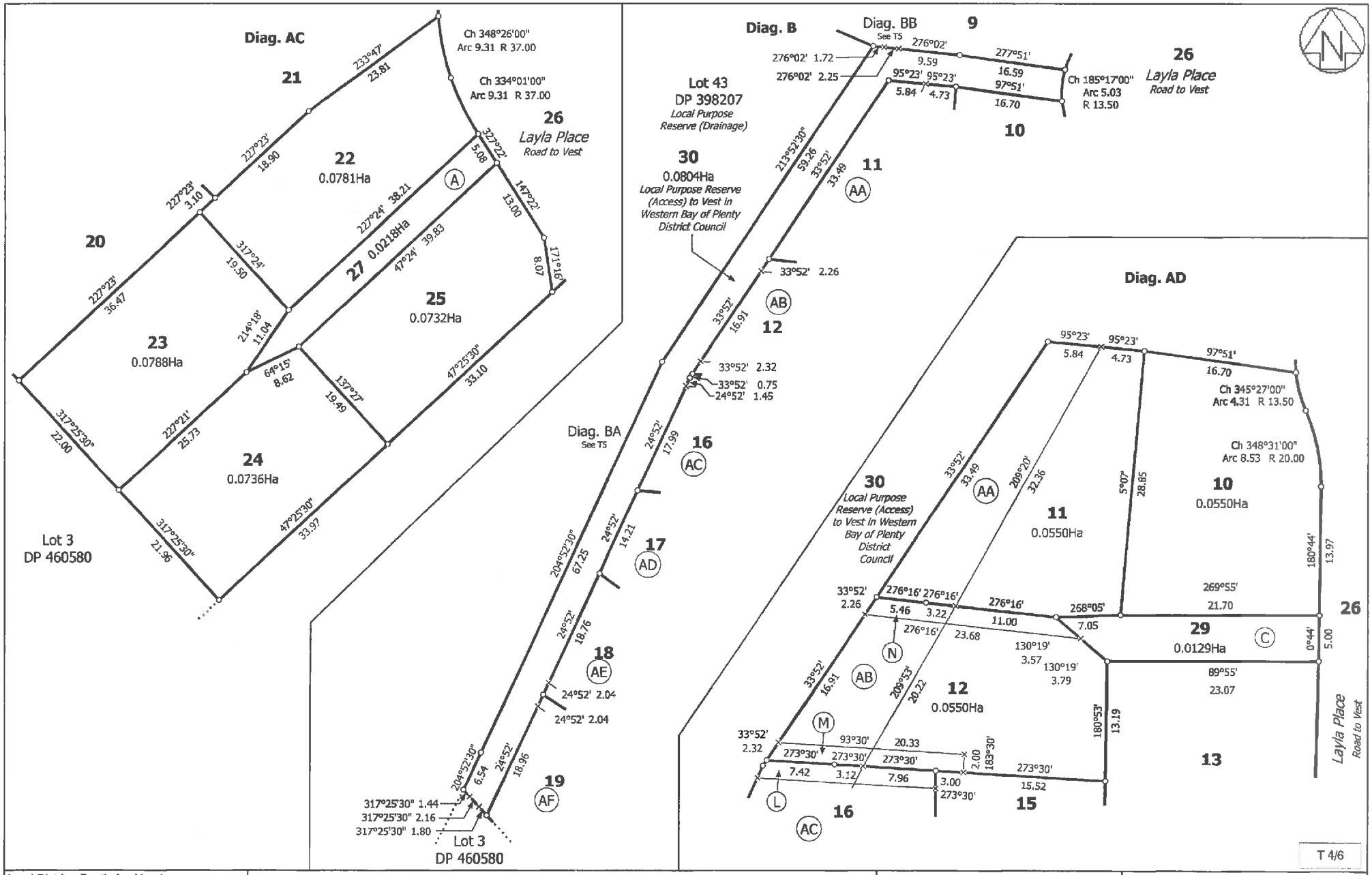
Land District: South Auckland Digitally Generated Plan Generated on: 26/03/2018 5:23pm Page 7 of 11	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan LT 521037 DRAFT



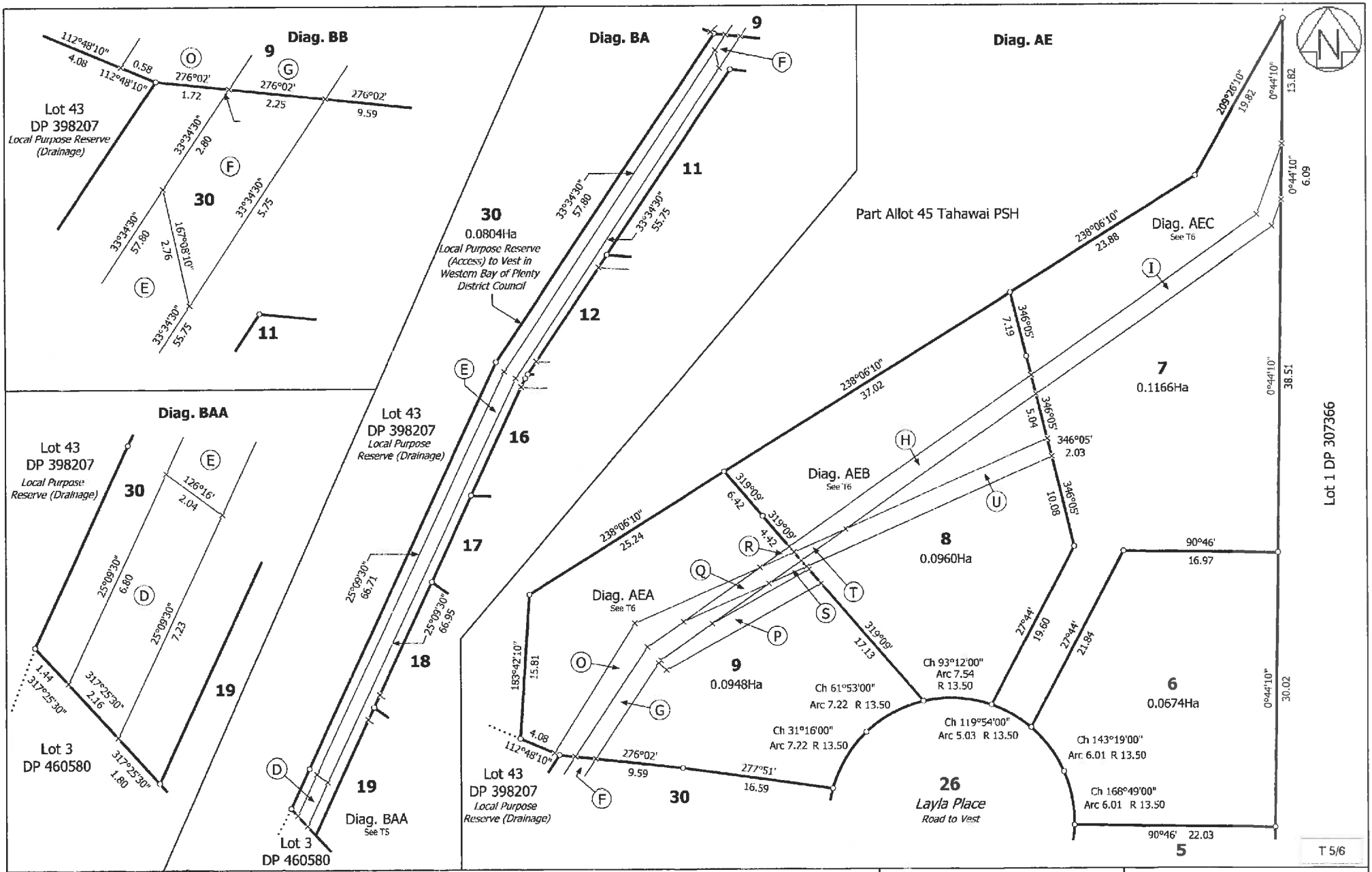
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Land District: South Auckland Digitally Generated Plan Generated on: 26/03/2018 5:23pm Page 8 of 11	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan LT 521037 DRAFT



Land District: South Auckland Digitally Generated Plan Generated on: 28/03/2018 5:23pm Page 9 of 11	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan LT 521037 DRAFT



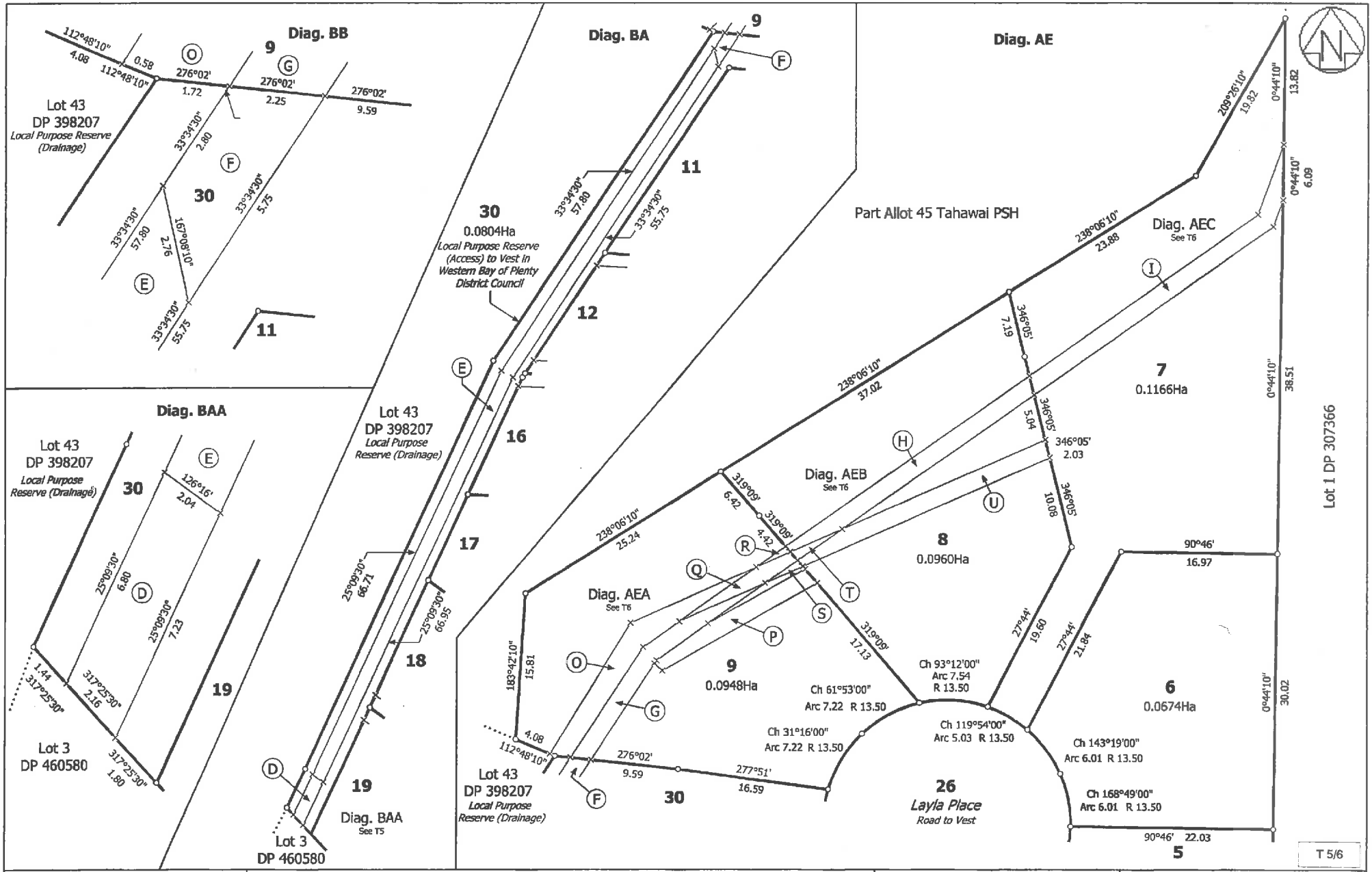
Land District: South Auckland

Digitally Generated Plan
Generated on: 26/03/2018 5:23pm Page 10 of 11

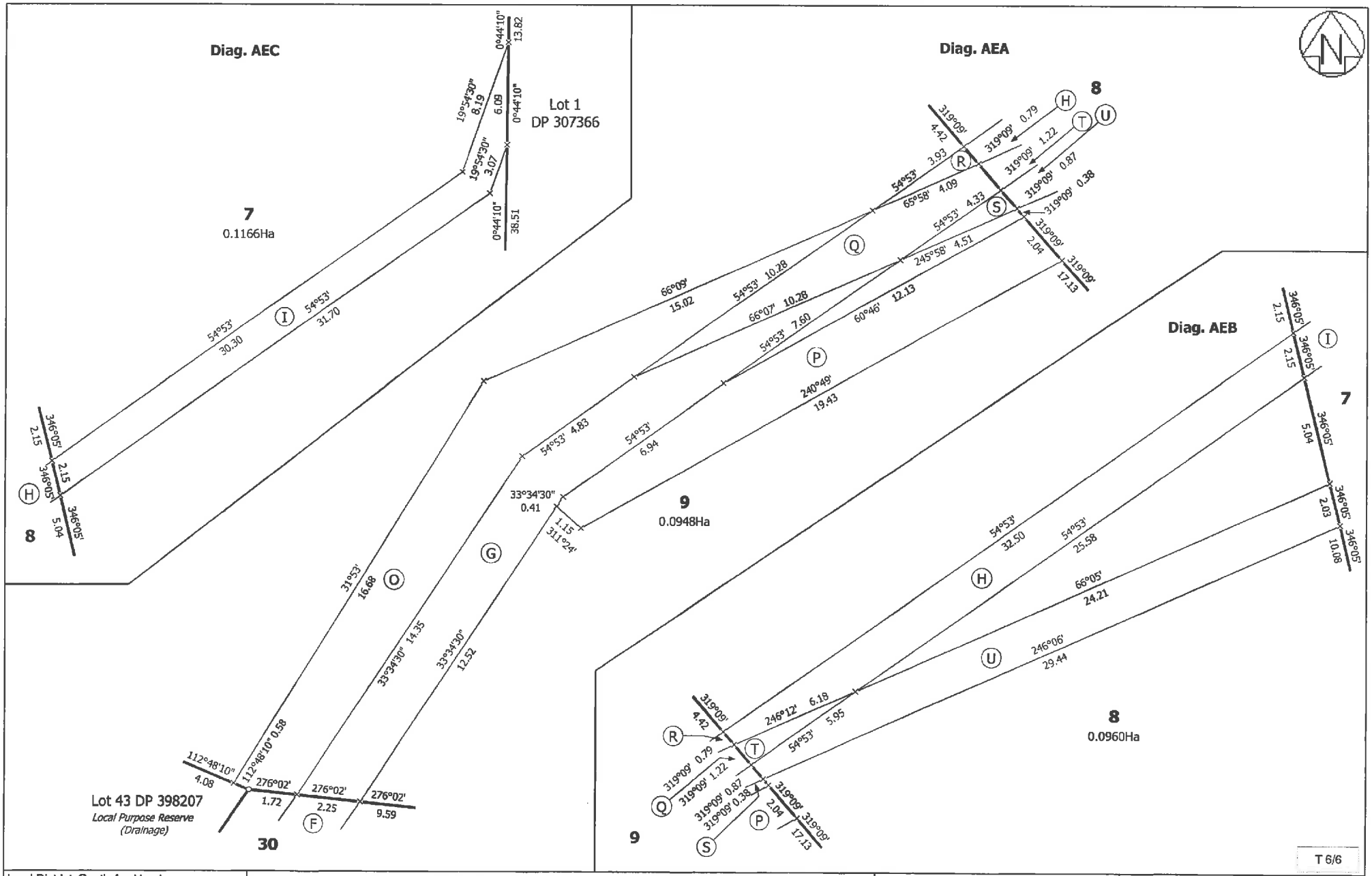
Lots 1 - 30 being Subdivision of Lot 2 DP 460580

Surveyor: Timothy Andrew McBride
Firm: S & L Consultants Ltd

Title Plan
LT 521037
DRAFT



Land District: South Auckland Digitally Generated Plan Generated on: 26/03/2018 5:23pm Page 10 of 11	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan LT 521037 DRAFT



Land District: South Auckland Digitally Generated Plan Generated on: 26/03/2018 5:23pm Page 11 of 11	Lots 1 - 30 being Subdivision of Lot 2 DP 460580	Surveyor: Timothy Andrew McBride Firm: S & L Consultants Ltd	Title Plan LT 521037 DRAFT

APPENDIX II

Statement of Professional Opinion Cert 10C

To: Western Bay of Plenty District Council

STATEMENT OF PROFESSIONAL OPINION AS TO THE GEOTECHNICAL SUITABILITY OF LAND FOR BUILDING

Development: Sophia Rose Estate Residential Subdivision
Owner: TIGR Investments Ltd
Location: Layla Place, Katikati

I Michael William Hughes of S&L Consultants Ltd
PO Box 231, Tauranga

Hereby confirm that:

1. I am a professional person, appropriately qualified with experience in geotechnical engineering to ascertain the suitability of the land for building development and was retained as the Soils Engineer for the above development.
2. An appropriate level of site investigation and construction supervision has been carried out under my direction and is described in my development evaluation report dated: 21 March 2018
3. In my professional opinion, not to be construed as a guarantee, I consider that:
   a. The areas shown in my report dated 21 March 2018 of each new allotment or on the development site are suitable for the erection thereon of the building types appropriate to the zoning of the land, provided that
      - No building or filling is undertaken over or beyond the wastewater easement on lots 7, 8 and 9
      - Foundations for buildings on lots 16 and 17 are specifically designed as potentially compressible soils are present below the subdivision filling.
      - A building set back from batters on lots 11, 12 and 16 to 19 is to be observed
   b. The completed works give due regard to all land slope and foundation stability considerations.
   c. The earth fills shown on the attached Plan No 20481-G01 have been placed in accordance with the Subdivision and Development Code of Practice of the Western Bay of Plenty District Council. The filled ground is suitable for the erection thereon of residential buildings not requiring specific design in terms of NZS 3604: 12011 and related documents except on lots 16 and 17.
   d. 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: 2011 and related documents.
4. This professional opinion is furnished to the Council and the owner 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 for any dwelling.

Sign: _____ Date: 21 March 2018

APPENDIX III

Results of Testing by Opus International Consultants

Pre subdivision Test Pit Log Sheets

Sophia Rose Estate

Summary of Tests by Opus

TEST NUMBER	DATE	LOT NUMBER	COMPLIANT
1	27/02/17	7	Yes
2	16/03/17	7	Yes
3	22/03/17	8	Yes
4	22/03/17	7	Yes
5	22/03/17	6	Yes
6	21/04/17	9	Yes
7	26/04/17	19	No - S/S
8	26/04/17	18	No - S/S
9	26/04/17	12	No - S/S
10	28/04/17	19	Yes – R (7)
11	28/04/17	18	Yes – R (8)
12	28/04/17	17	Yes
13	28/04/17	16	Yes
14	28/04/17	12	Yes – R (9)
15	2/05/17	8	No - S/S
16	2/05/17	8	No - S/S
17	5/05/17	19	Yes
18	5/05/17	18	Yes
19	5/05/17	17	Yes
20	5/05/17	16	Yes
21	5/05/17	12	Yes
22	5/05/17	11	Yes
23	10/10/17	19	Yes
24	10/10/17	18	Yes
25	10/10/17	17	Yes
26	10/10/17	16	Yes
27	10/10/17	12	Yes
POND	18/10/17	11	No - S/S
28	10/10/17	11	Yes
29	10/10/17	9	Yes – R (15,16)
30	17/11/17	17	Yes
31	17/11/17	18	Yes
32	17/11/17	19	Yes
33	24/11/17	16	Yes
34	24/11/17	12	Yes
35	24/11/17	11	Yes – R (Pond)
36	24/11/17	11	Yes – R (Pond)
37	24/11/17	9	Yes
38	24/11/17	9	Yes

S/S – Low Shear Strength

R (8) Retest of 8

SOLID PARTICLE DENSITY TEST REPORT

OPUS

Project :	193 Tetley Road Subdivision, Bulk Fill
Location :	193 Tetley Road
Client :	Moon Civil & Drainage Ltd
Sampled by :	Client
Date Received :	3/3/17
Sampling Method :	Unknown
Sample Condition :	As received

Project No :	2-55130.00
Lab Ref No :	TG678
Client Ref No :	

Test Results

Sample ID:	TG678
Sample Description	SILT, brown
Solid Particle Density (t/m^3):	2.59

Test Method		Notes
Solid Particle Density:	NZS 4402 : 1986 Test 2.7.2	1) whole soil tested

Date tested : 6/03/2017
Date reported : 9/03/2017

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*
Date : 9/03/2017

CSP 2804 (22/08/03)

Testing is covered by IANZ Accreditation
This report may only be reproduced in full

IANZ ACCREDITED LABORATORY — All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Opus International Consultants Limited
Hamilton Laboratory
Quality Management Systems Certified to ISO 9001

Fox Street
Private Bag 3057, Waikato Mail Centre
Hamilton, New Zealand

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f: +64 7 856 2873
w: www.opus.co.

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Moon Civil & Drainage Ltd**
Tested by :	**G Cleaver (Opus Laboratory)**
Date tested :	**27 February 2017**
Nuclear densometer no :	**3440-13867**
Solid Density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56 %**
Shear vane no :	**Geo Vane 1025**
Shear vane correction :	**1.505**
Material description:	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG685**
Client Ref No :	**–**

Nuclear Densometer Test Results									
Test Number	1								
GPS co-ordinates (BOP Circuit 2000)	N821868.9 E352001.9								
Fill Level	0.75m approx.								
Test Probe Depth (mm)	300								
Wet Density (t/m³)	1.44								
Dry Density (t/m³)	0.94								
Water Content (%)	53.5								
Air Voids (%)	13.4								
% of MDD	99								

Oven Corrected Test Results								
Dry Density (t/m³)	0.90							
Water Content (%)	61.3							
Air Voids (%)	10.6							
% of MDD	94							

Shear Vane Test Results								
Shear Vane Reading	UTP							
Shear Strength (kPa) - Ave. of 4 tests	UTP							

Test Method	Notes
In-situ Density : NZS 4407 : 1991, Test 4.2.1 for Direct Transmission Mode Water Content : NZS 4402 : 1986, Test 2.1 for soils Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	The test position was selected by Andrew Young Earthmovers staff and is approximate only. UTP = unable to penetrate. The solid density, maximum dry density and optimum water content values were obtained from TG678 Report 2, dated 9 March 2017.

* IANZ accreditation excludes the nuclear density & oven corrected results as the wet density value fell outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Date reported : 10 March 2017

IANZ Approved Signatory

Designation : *Laboratory Manager*
Date : 10 March 2017

Opus International Consultants Ltd
Tauranga Laboratory
Quality Management Systems Certified to ISO 9001

278 Chadwick Road, Greerton
PO Box 9057, Tauranga 3142, New Zealand

Telephone +64 7 578 5425
Facsimile +64 7 578 3382
Website www.opus.co.nz

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Moon Civil & Drainage Ltd**
Tested by :	**Greg Cleaver (Opus Laboratory)**
Date tested :	**16 March 2017**
Nuclear densometer no :	**3440-13867**
Solid density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56.0 %**
Shear vane no :	**DR2410**
Shear vane correction :	**1.421**
Material description :	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG758**
Client Ref No :	**–**

Nuclear Densometer Test Results								
Test Number	2							
GPS co-ordinates (BOP Circuit 2000)	N821861.4 E351992.4							
Fill Level (approx.)	2.0m							
Test Probe Depth (mm)	300							
Wet Density (t/m³)	1.62							
Dry Density (t/m³)	1.06							
Water Content (%)	52.6							
Air Voids (%)	3.4							
% of MDD	111							

Oven Corrected Test Results								
Dry Density (t/m³)	1.06							
Water Content (%)	51.8							
Air Voids (%)	**3.8**							
% of MDD	**112**							

Shear Vane Test Results								
Shear Vane Reading	111							
Shear Strength (kPa) - Ave. of 4	**158**							

Test Methods	Notes
In-situ Density & Water Content : NZS 4407 : 2015 Test 4.2 Water Content : NZS 4402 : 1986, Test 2.1 for soils Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	The test position was selected by Andrew Young Earthmovers staff and is approximate only.

IANZ accreditation excludes the nuclear density & oven corrected results as the wet density value fell outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

The solid density value was obtained from Opus Hamilton report TG678, dated 9/3/17.

The maximum dry density & optimum water content values were obtained from report TG678 Report 2, dated 9/3/17.

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Date reported : 22 May 2017

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 22 May 2017

IANZ ACCREDITED LABORATORY

Tests indicated as not accredited are outside the scope of the laboratory's accreditation

Opus International Consultants Ltd
Tauranga Laboratory
Quality Management Systems Certified to ISO 9001

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Telephone +64 7 578 5425
Facsimile +64 7 578 3382
Website www.opus.co.nz

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Moon Civil & Drainage Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**22 March 2017**
Nuclear densometer no :	**3440-13867**
Solid density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56.0 %**
Shear vane no :	**DR 2410**
Shear vane correction :	**1.421**
Material description :	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG781**
Client Ref No :	**–**

Nuclear Densometer Test Results

Test Number	3	4	5					
Lot	8	7	6					
GPS co-ordinates (BOP Circuit 2000)	N821845.9 E351978.5	N821866.0 E352008.8	N821823.8 E352002.3					
Fill Level	Finished Level	Finished Level	Finished Level					
Test Probe Depth (mm)	300	300	300					
Wet Density (t/m³)	1.56	1.53	1.55					
Dry Density (t/m³)	1.00	0.95	1.02					
Water Content (%)	54.9	61.5	52.8					
Air Voids (%)	6.1	5.3	7.1					
% of MDD	106	100	107					

Oven Corrected Test Results

Dry Density (t/m³)	1.00	0.95	1.02					
Water Content (%)	54.9	61.5	52.8					
Air Voids (%)	6.1	5.3	7.1					
% of MDD	106	100	107					

Shear Vane Test Results

Shear Vane Reading	UTP	UTP	UTP					
Shear Strength (kPa) - Ave. of 4 tests	UTP	UTP	UTP					

Test Methods	Notes
In-situ Density : NZS 4407 : 1991, Test 4.2.1 for Direct Transmission Mode	The test positions were selected by Shane Macdonald of Moon Civil & Drainage and are approximate only.
Water Content : NZS 4402 : 1986, Test 2.1 for soils	The solid density, maximum dry density and optimum water content values were obtained from TG678 Report 2, dated 9 March 2017.
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

IANZ accreditation excludes the nuclear density & oven corrected results as the wet density values fell outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

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IANZ ACCREDITED LABORATORY

Tests indicated as not accredited are outside the scope of the laboratory's accreditation

Date reported : 27 March 2017

IANZ Approved Signatory

Designation : *Laboratory Manager*
Date : 27 March 2017

Opus International Consultants Ltd
Tauranga Laboratory
Quality Management Systems Certified to ISO 9001

278 Chadwick Road, Greerton
PO Box 9057, Tauranga 3142, New Zealand

Telephone +64 7 578 5425
Facsimile +64 7 578 3382
Website www.opus.co.nz

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Moon Civil & Drainage Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**21 April 2017**
Nuclear densometer no :	**3440-13867**
Solid density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56.0 %**
Shear vane no :	**GEO 1025**
Shear vane correction :	**1.505**
Material description :	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG887**
Client Ref No :	**–**

Nuclear Densometer Test Results									
Test Number	6								
Lot	9								
GPS co-ordinates (BOP Circuit 2000)	N821850.5 E351967.3								
Fill Level	Finished Level								
Test Probe Depth (mm)	300								
Wet Density (t/m³)	1.51								
Dry Density (t/m³)	0.92								
Water Content (%)	65.0								
Air Voids (%)	5.2								
% of MDD	96								

Oven Corrected Test Results									
Dry Density (t/m³)	0.91								
Water Content (%)	65.3								
Air Voids (%)	5.1								
% of MDD	96								

Shear Vane Test Results									
Shear Vane Reading	110								
Shear Strength (kPa) - Ave. of 4	166								

Test Methods	Notes
In-situ Density : NZS 4407 : 2015, Test 4.2 for Direct Transmission Mode Water Content : NZS 4402 : 1986, Test 2.1 for soils Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	The test positions were selected by Andrew Young Contracting staff and are approximate only. The solid density, maximum dry density and optimum water content values were obtained from reports TG678, dated 6 & 9 March 2017.

IANZ accreditation excludes the nuclear density & oven corrected result as the wet density value fell outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

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IANZ ACCREDITED LABORATORY

Tests indicated as not accredited are outside the scope of the laboratory's accreditation

Date reported : 28 April 2017

IANZ Approved Signatory

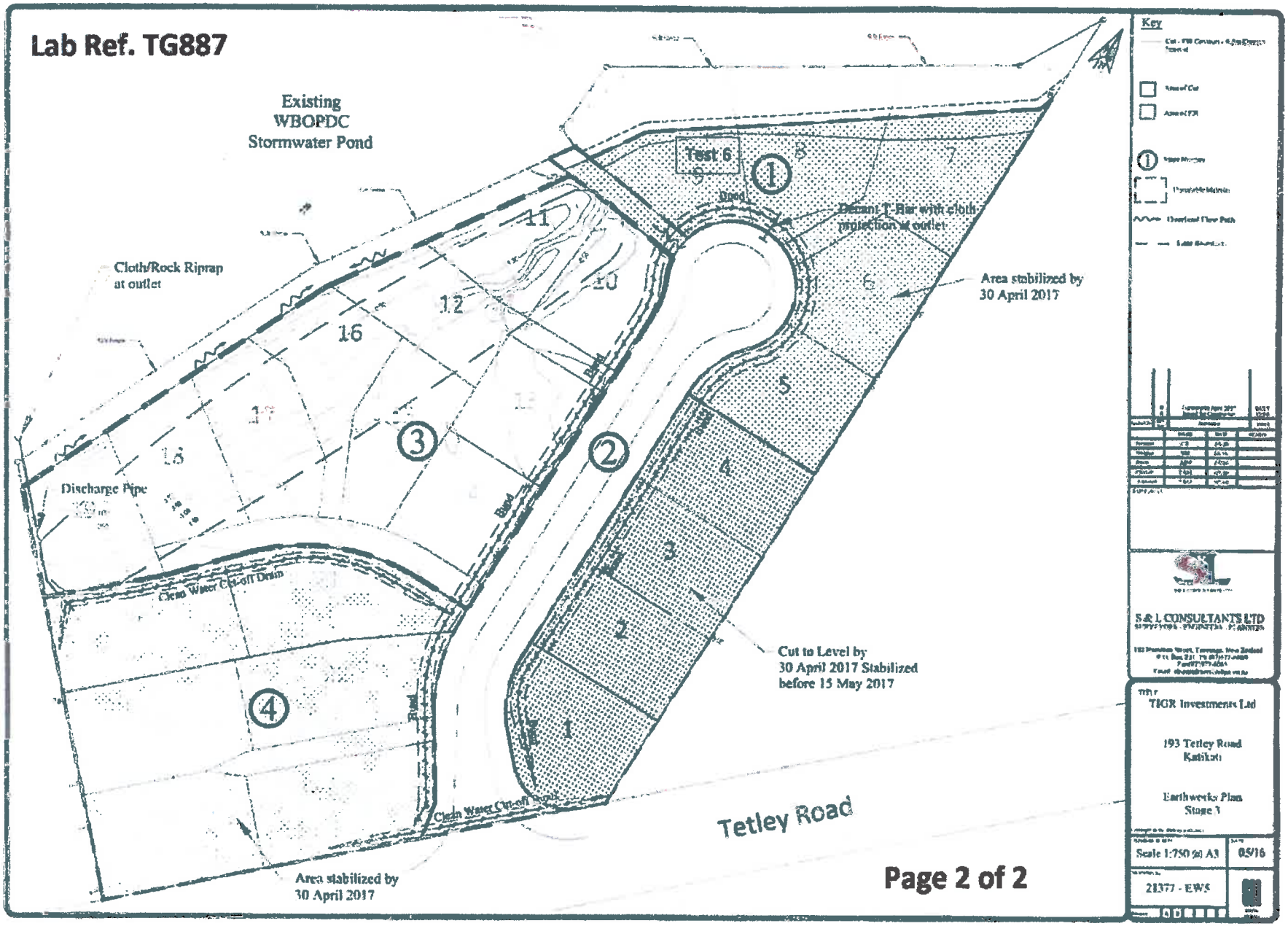
Designation : *Senior Civil Engineering Technician*

Date : 28 April 2017

Opus International Consultants Ltd
Tauranga Laboratory
Quality Management Systems Certified to ISO 9001

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PO Box 9057, Tauranga 3142, New Zealand

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Website www.opus.co.nz


Lab Ref. TG887
Existing
WBOPDC
Stormwater Pond
Test 6
Bund
Detant T-Bar with cloth
protection at outlet
Area stabilized by
30 April 2017
Cloth/Rock Riprap
at outlet
Discharge Pipe
Clean Water Cut-off Drain
Cut to Level by
30 April 2017 Stabilized
before 15 May 2017
Tetley Road
Area stabilized by
30 April 2017
Page 2 of 2
Key
S & L CONSULTANTS LTD
TIGR Investments Ltd
193 Tetley Road
Katikati
Earthworks Plan
Stage 3
Scale 1:750 @ A3
05/16
21377 - EW5

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Moon Civil & Drainage Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**26 April 2017**
Nuclear densometer no :	**3440-13867**
Solid density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56 %**
Shear vane no :	**GEOVANE 1025**
Shear vane correction :	**1.505**
Material description :	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG898**
Client Ref No :	**–**

Nuclear Densometer Test Results

Test Number	7	8	9					
GPS co-ordinates (BOP Circuit 2000)	N821713.8 E351895.4	N821733.0 E351900.7	N821776.6 E351918.0					
Fill Level (approx.)	0.75m	0.75m	0.3m					
Lot Number	19	18	12					
Test Probe Depth (mm)	300	300	300					
Wet Density (t/m³)	1.49	1.47	1.47					
Dry Density (t/m³)	0.89	0.86	0.86					
Water Content (%)	68.3	72.3	71.4					
Air Voids (%)	5.2	5.1	5.7					
% of MDD	93	90	90					

Oven Corrected Test Results

Dry Density (t/m³)	0.78	0.82	0.81					
Water Content (%)	91.3	79.9	81.2					
Air Voids (%)	**0.0**	**2.9**	**2.8**					
% of MDD	**82**	**86**	**85**					

Shear Vane Test Results

Shear Vane Reading	69	57	61					
Shear Strength (kPa) - Ave. of 4	**104**	**86**	**92**					

Test Methods	Notes
In-situ Density & Water Content : NZS 4407 : 2015, Test 4.2 Water Content : NZS 4402 : 1986, Test 2.1 for soils Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	The test positions were selected by Richard McGee of Opus Laboratory and are approximate only.

IANZ accreditation excludes the nuclear density & oven corrected results as the wet density values fell outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

The solid density value was obtained from Opus's Hamilton Laboratory report TG678, dated 9/3/17.

The maximum dry density & optimum water content values were obtained from report TG678 Report 2, dated 9/3/17.

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Date reported : 22 May 2017

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 22 May 2017

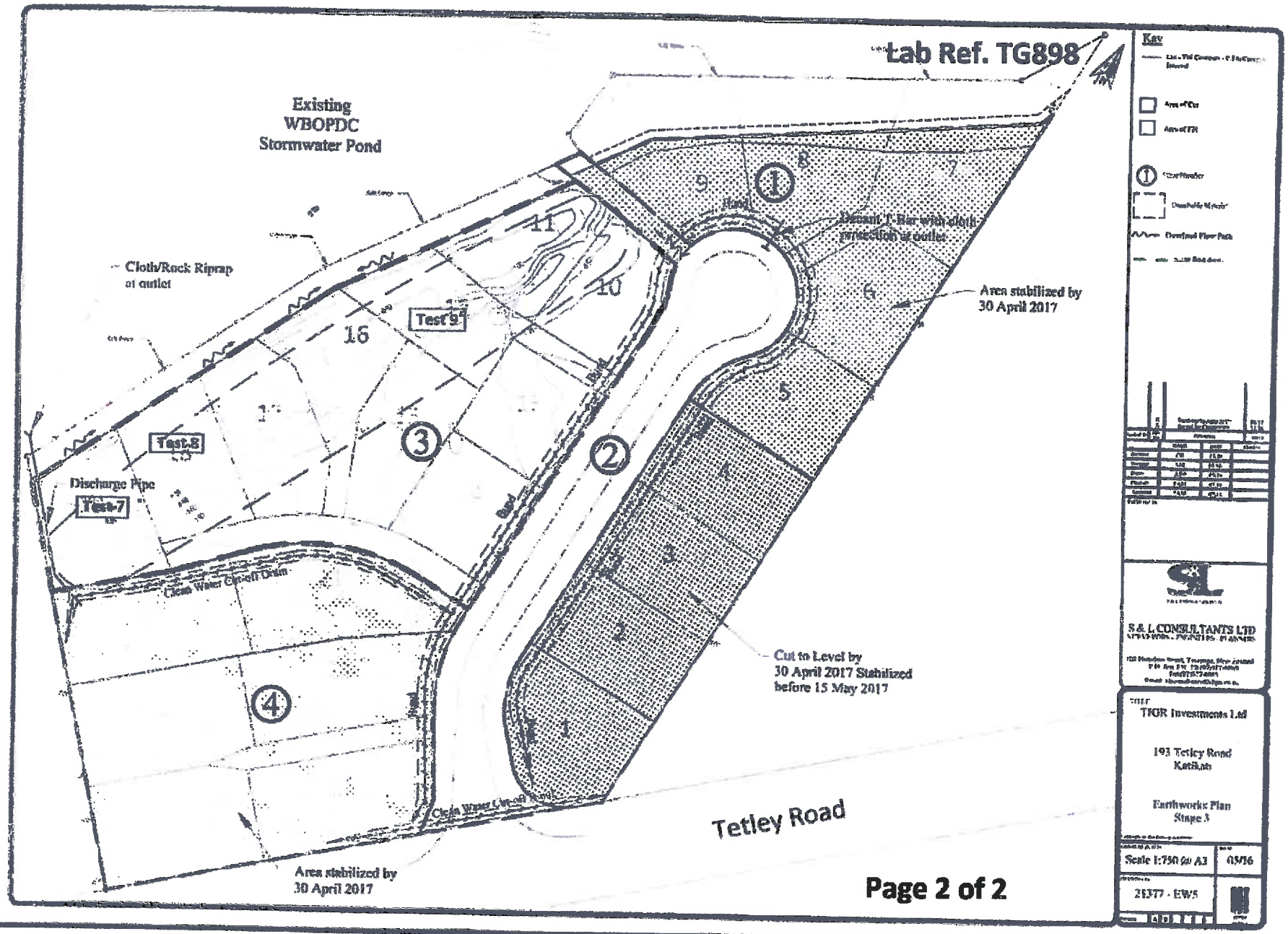
IANZ ACCREDITED LABORATORY

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278 Chadwick Road, Greerton
PO Box 9057, Tauranga 3142, New Zealand

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Website www.opus.co.nz


Lab Ref. TG898
Existing
WBOPDC
Stormwater Pond
Cloth/Rock Riprap
at outlet
Test 9
Test 8
Test 7
Discharge Pipe
Clean Water Cut-off Drain
Area stabilized by
30 April 2017
Cut to Level by
30 April 2017 Stabilized
before 15 May 2017
Area stabilized by
30 April 2017
Tetley Road
Page 2 of 2
Key
S & L CONSULTANTS LTD
TIGR Investments Ltd
193 Tetley Road
Katikati
Earthworks Plan
Stage 3
Scale 1:750 @ A3
05/16
25377 - EW5

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Moon Civil & Drainage Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**28 April 2017**
Nuclear densometer no :	**3440-13867**
Solid density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56 %**
Shear vane no :	**GEOVANE 1025**
Shear vane correction :	**1.505**
Material description :	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG909**
Client Ref No :	**–**

Nuclear Densometer Test Results

Test Number	10	11	12	13	14			
GPS co-ordinates (BOP Circuit 2000)	N821712.3 E351883.4	N821728.7 E351893.8	N821752.2 E351905.9	N821766.3 E351909.4	N821784.8 E351923.7			
Fill Level (approx.)	0.75m	0.75m	0.75m	0.75m	0.5m			
Lot Number	19	18	17	16	12			
Test Probe Depth (mm)	300	300	300	300	300			
Wet Density (t/m³)	1.54	1.51	1.52	1.51	1.50			
Dry Density (t/m³)	0.93	0.93	0.94	0.93	0.93			
Water Content (%)	65.4	62.1	62.0	62.5	61.4			
Air Voids (%)	3.5	6.4	5.4	6.3	7.1			
% of MDD	98	98	99	98	98			

Oven Corrected Test Results

Dry Density (t/m³)	0.95	0.93	0.94	0.92	0.95			
Water Content (%)	61.8	62.1	62.0	63.2	58.6			
Air Voids (%)	4.7	6.4	5.4	6.1	8.1			
% of MDD	100	98	99	97	99			

Shear Vane Test Results

Shear Vane Reading	103	96	103	102	104			
Shear Strength (kPa) - Ave. of 4	155	144	155	154	157			

Test Methods	Notes
In-situ Density & Water Content : NZS 4407 : 2015, Test 4.2 Water Content : NZS 4402 : 1986, Test 2.1 for soils Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	The test positions were selected by Richard McGee of Opus Laboratory and are approximate only.

IANZ accreditation excludes the nuclear density & oven corrected results as the wet density values fell outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

The solid density value was obtained from Opus's Hamilton Laboratory report TG678, dated 9/3/17.

The maximum dry density & optimum water content values were obtained from report TG678 Report 2, dated 9/3/17.

This report may only be reproduced in full.

Date reported : 22 May 2017

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 22 May 2017

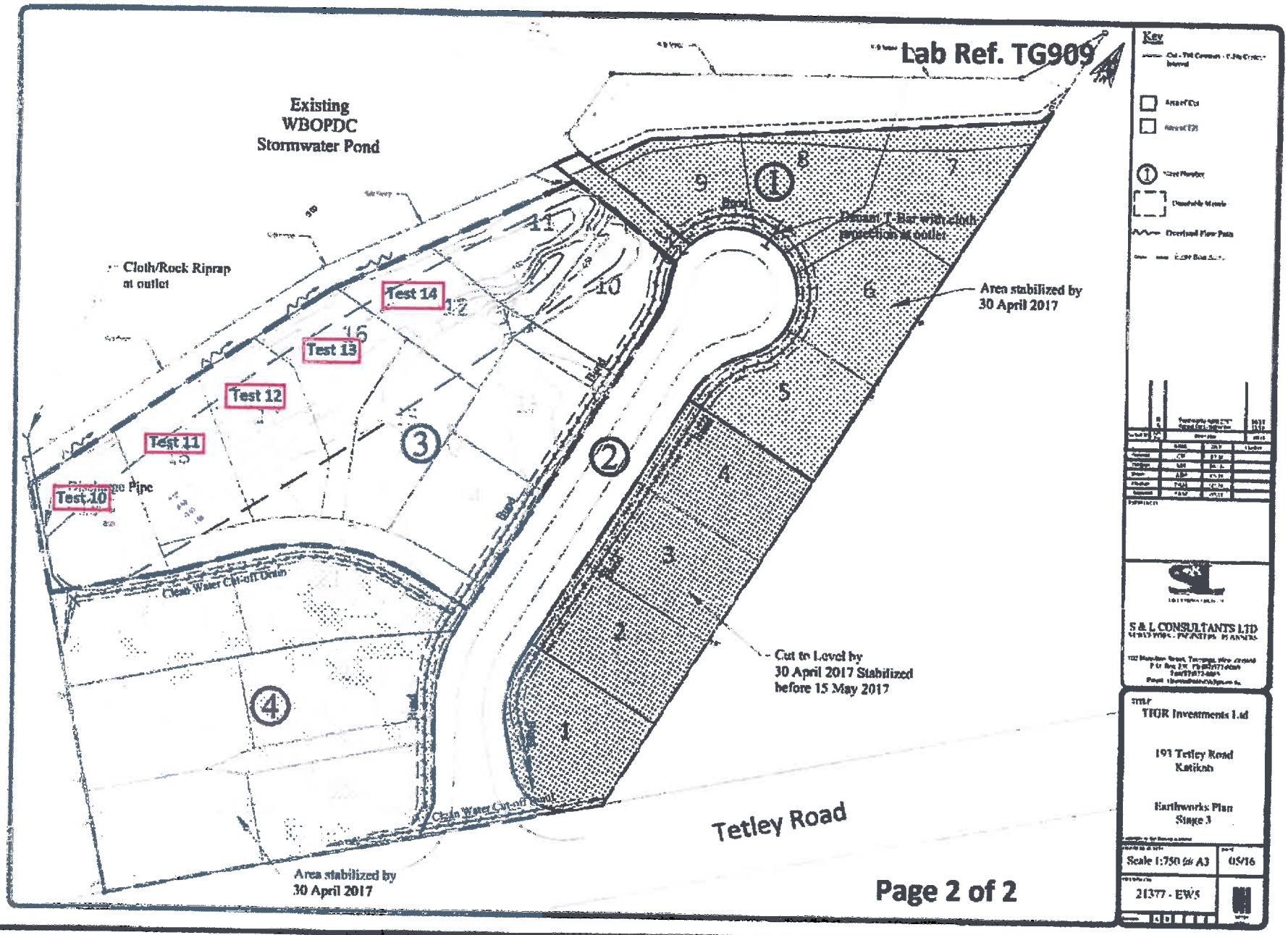
IANZ ACCREDITED LABORATORY

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PO Box 9057, Tauranga 3142, New Zealand

Telephone +64 7 578 5425
Facsimile +64 7 578 3382
Website www.opus.co.nz


Lab Ref. TG909
Existing
WBOPDC
Stormwater Pond
Cloth/Rock Riprap
at outlet
Test 14
Test 13
Test 12
Test 11
Test 10
Clean Water Cut-off Drain
Clean Water Cut-off Drain
Area stabilized by
30 April 2017
Area stabilized by
30 April 2017
Cut to Level by
30 April 2017 Stabilized
before 15 May 2017
Tetley Road
Page 2 of 2
Key
S & L CONSULTANTS LTD
TIOR Investments Ltd
193 Tetley Road
Katikati
Earthworks Plan
Stage 3
Scale 1:750 @ A3
05/16
21377 - EW5

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Moon Civil & Drainage Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**2 May 2017**
Nuclear densometer no :	**3440-31344**
Solid density for test 15 (assumed) :	**2.59 t/m³**
Solid density for test 16 (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56 %**
Shear vane no :	**DR 2410**
Shear vane correction :	**1.421**
Material description :	**(15) Bulk Fill (orange-brown silt)**
	(16) Natural Ground

Project No :	**255130.00/0TL**
Lab Ref No :	**TG917**
Client Ref No :	**--**

Nuclear Densometer Test Results

Test Number	15	16						
GPS co-ordinates (BOP Circuit 2000)	N821840.7 E351974.7	N821848.7 E351973.4						
Depthe below Surface	0.7m	0.1m						
Lot Number	9	9						
Test Probe Depth (mm)	300	300						
Wet Density (t/m³)	1.74	1.52						
Dry Density (t/m³)	1.27	0.90						
Water Content (%)	37.0	68.8						
Air Voids (%)	4.1	3.2						
% of MDD	--	95						

Oven Corrected Test Results

Dry Density (t/m³)	1.19	0.86						
Water Content (%)	45.7	77.4						
Air Voids (%)	**0.0**	**0.5**						
% of MDD	--	**90**						

Shear Vane Test Results

Shear Vane Reading	60	43						
Shear Strength (kPa) - Ave. of 4	**85**	**61**						

Test Methods	Notes
In-situ Density & Water Content : NZS 4407 : 2015 Test 4.2	The test positions were selected by S & L Consultants
Water Content : NZS 4402 : 1986, Test 2.1	and are approximate only.
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	This report may only be reproduced in full.

IANZ accreditation excludes the nuclear density & oven corrected results of test 16 as the wet density value fell outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

IANZ accreditation excludes the air void values for test 15 (natural ground).

The solid density value was obtained from Opus Hamilton report TG678, dated 9/3/17.

The maximum dry density & optimum water content values were obtained from report TG678 Report 2, dated 9/3/17.

Date reported : 28 June 2017

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 28 June 2017

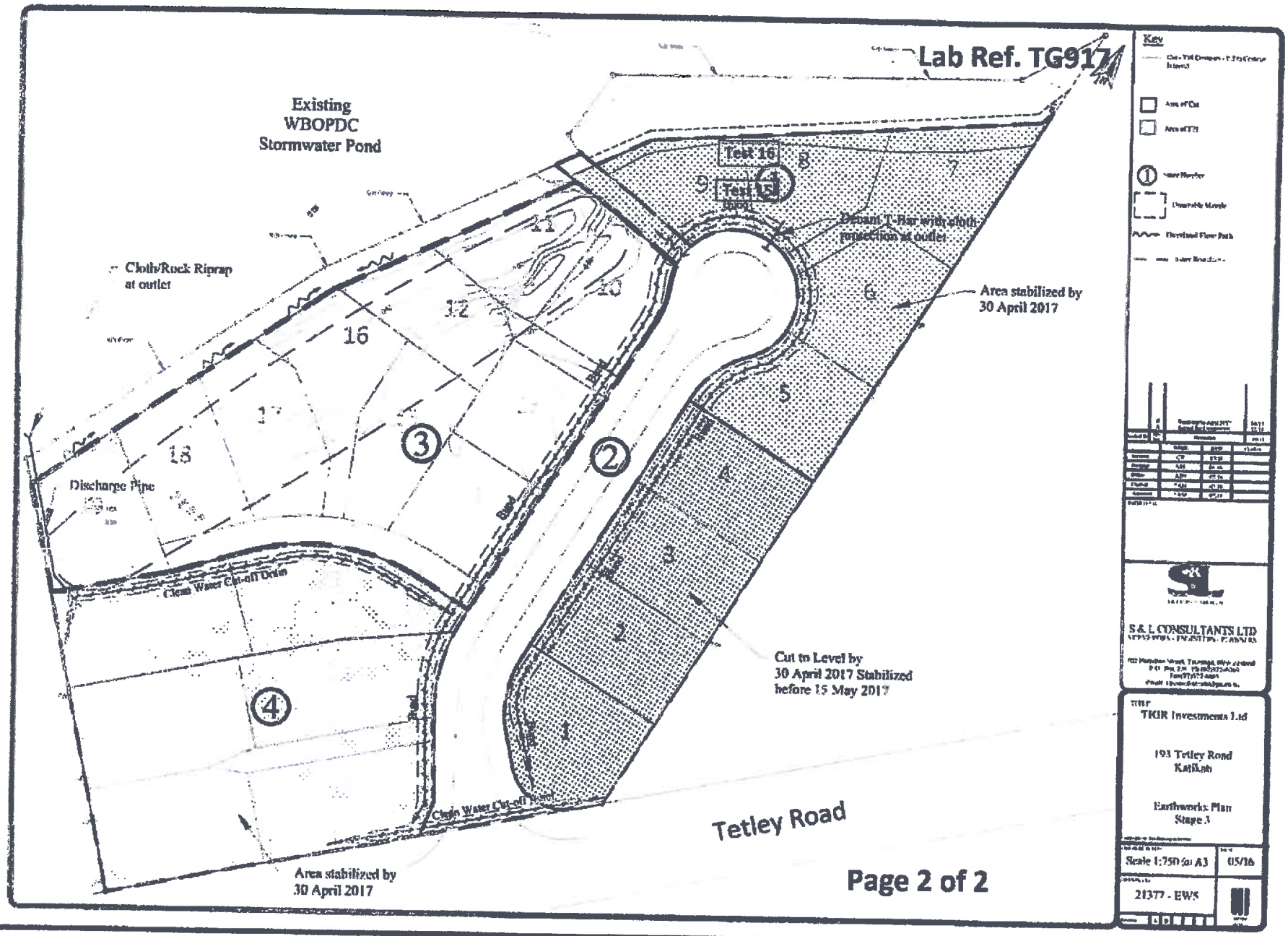
IANZ ACCREDITED LABORATORY

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PO Box 9057, Tauranga 3142, New Zealand

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Facsimile +64 7 578 3382
Website www.opus.co.nz


Lab Ref. TG917
Existing
WBOPDC
Stormwater Pond
Test 16
Test 15
Cloth/Rock Riprap
at outlet
Discharge Pipe
Clean Water Cut-off Drain
Clean Water Cut-off Drain
Tetley Road
Area stabilized by
30 April 2017
Area stabilized by
30 April 2017
Cut to Level by
30 April 2017 Stabilized
before 15 May 2017
Key
S & L CONSULTANTS LTD
TKR Investments Ltd
193 Tetley Road
Katikati
Earthworks Plan
Stage 3
Scale 1:750 @ A3
05/16
21377 - EW5

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Moon Civil & Drainage Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**5 May 2017**
Nuclear densometer no :	**3440-31344**
Solid density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56 %**
Shear vane no :	**DR 2410**
Shear vane correction :	**1.421**
Material description :	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG938**
Client Ref No :	**--**

Nuclear Densometer Test Results

Test Number	17	18	19	20	21	22		
Lot Number	19	18	17	16	12	11		
GPS co-ordinates (BOP Circuit 2000)	N821713.7 E351893.4	N821730.8 E351895.7	N821747.0 E351902.1	N821759.2 E351906.7	N821781.7 E351918.9	N821800.0 E351928.2		
Fill Level (approx.)	1.5m	1.5m	1.5m	1.0m	1.0m	0.5m		
Test Probe Depth (mm)	300	300	300	300	300	300		
Wet Density (t/m³)	1.54	1.51	1.51	1.51	1.50	1.53		
Dry Density (t/m³)	0.94	0.93	0.93	0.94	0.95	0.95		
Water Content (%)	64.9	61.4	62.5	60.8	57.5	61.6		
Air Voids (%)	3.2	6.5	6.0	6.5	8.8	5.2		
% of MDD	98	98	98	99	100	100		

Oven Corrected Test Results

Dry Density (t/m³)	0.94	0.91	0.92	0.92	0.91	0.93		
Water Content (%)	64.3	65.4	64.3	65.1	64.3	63.8		
Air Voids (%)	3.4	5.1	5.4	5.0	6.4	4.4		
% of MDD	99	96	97	96	96	98		

Shear Vane Test Results

Shear Vane Reading	106	113	106	114	118	112		
Shear Strength (kPa) - Ave. of 4	151	161	151	162	168	159		

Test Methods	Notes
In-situ Density & Water Content : NZS 4407 : 2015 Test 4.2 Water Content : NZS 4402 : 1986, Test 2.1 for soils Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	The test positions were selected by Richard McGee of Opus Laboratory and are approximate only.

IANZ accreditation excludes the nuclear density & oven corrected results as the wet density values fall outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

The solid density value was obtained from Opus Hamilton report TG678, dated 9/3/17.

The maximum dry density & optimum water content values were obtained from report TG678 Report 2, dated 9/3/17.

This report may only be reproduced in full.

Date reported : 28 June 2017

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 28 June 2017

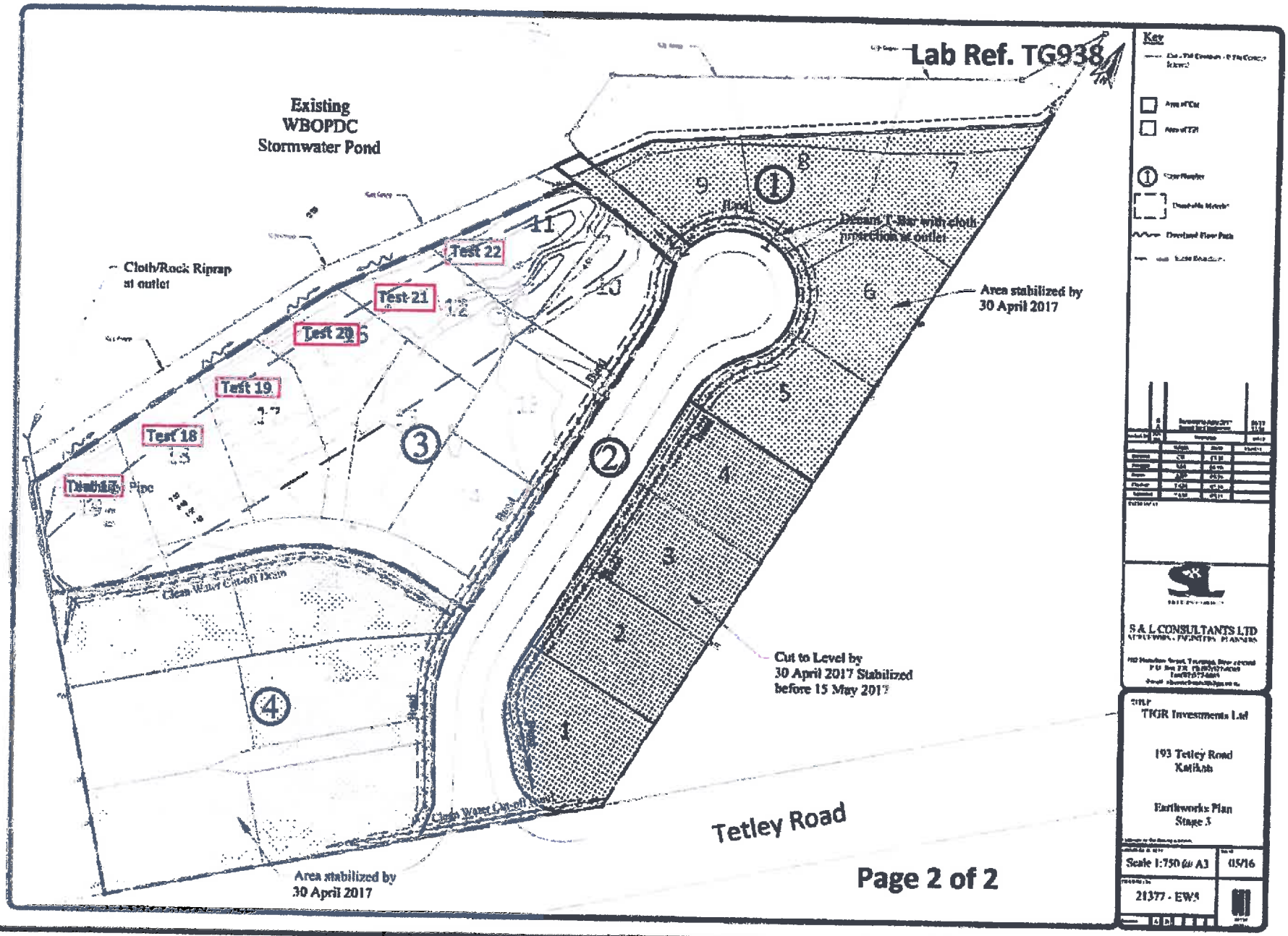
IANZ ACCREDITED LABORATORY

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Facsimile +64 7 578 3382
Website www.opus.co.nz


Lab Ref. TG938
Existing
WBOPDC
Stormwater Pond
Test 22
Test 21
Test 20
Test 19
Test 18
Cloth/Rock Riprap
at outlet
Area stabilized by
30 April 2017
Cut to Level by
30 April 2017 Stabilized
before 15 May 2017
Area stabilized by
30 April 2017
Tetley Road
Page 2 of 2
Key
S & L CONSULTANTS LTD
TGR Investments Ltd
193 Tetley Road
Katikati
Earthworks Plan
Stage 3
Scale 1:750 @ A3
05/16
21377 - EW5

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Andrew Young Earthmovers Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**16 October 2017**
Nuclear densometer no :	**3440-64130**
Solid density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56 %**
Shear vane no :	**DR2410**
Shear vane correction :	**1.406**
Material description :	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG1502**
Client Ref No :	**--**

Nuclear Densometer Test Results

Test Number	23	24	25	26	27			
GPS co-ordinates (BOP Circuit 2000)	N821708.0 E351902.6	N821727.5 E351915.9	N821744.1 E351905.2	N821763.6 E351916.5	N821782.9 E351924.8			
Fill Depth (approx.)	1.0m	0.5m	2.0m	2.0m	1.5m			
Test Probe Depth (mm)	300	300	300	300	300			
Wet Density (t/m³)	1.48	1.64	1.52	1.55	1.53			
Dry Density (t/m³)	0.87	1.03	0.93	0.99	0.95			
Water Content (%)	70.9	58.3	62.8	57.1	61.8			
Air Voids (%)	5.2	0.0	5.6	5.5	4.9			
% of MDD	91	109	98	104	100			

Oven Corrected Test Results

Dry Density (t/m³)	0.93	1.04	0.96	1.00	0.93			
Water Content (%)	59.2	57.0	57.2	55.2	64.7			
Air Voids (%)	**9.1**	**0.2**	**7.7**	**6.3**	**3.9**			
% of MDD	**98**	**110**	**101**	**105**	**98**			

Shear Vane Test Results

Shear Vane Reading	113	124	107	≥126	120			
Shear Strength (kPa) - Ave. of 4	**159**	**174**	**150**	**≥177***	**169**			

Test Methods	Notes
In-situ Density & Water Content : NZS 4407 : 2015 Test 4.2	The test positions were selected by Andrew Young Earthmovers staff and are approximate only.
Water Content : NZS 4402 : 1986, Test 2.1	* Contains 1 or more UTP results.
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	UTP = unable to penetrate.

IANZ accreditation excludes the nuclear density & oven corrected results as the wet density values fell outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

The solid density value was obtained from Opus Hamilton report TG678, dated 9/3/17.

The maximum dry density & optimum water content values were obtained from report TG678 Report 2, dated 9/3/17.

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IANZ ACCREDITED LABORATORY

Tests indicated as not accredited are outside the scope of the laboratory's accreditation

Date reported : 10 December 2017

IANZ Approved Signatory

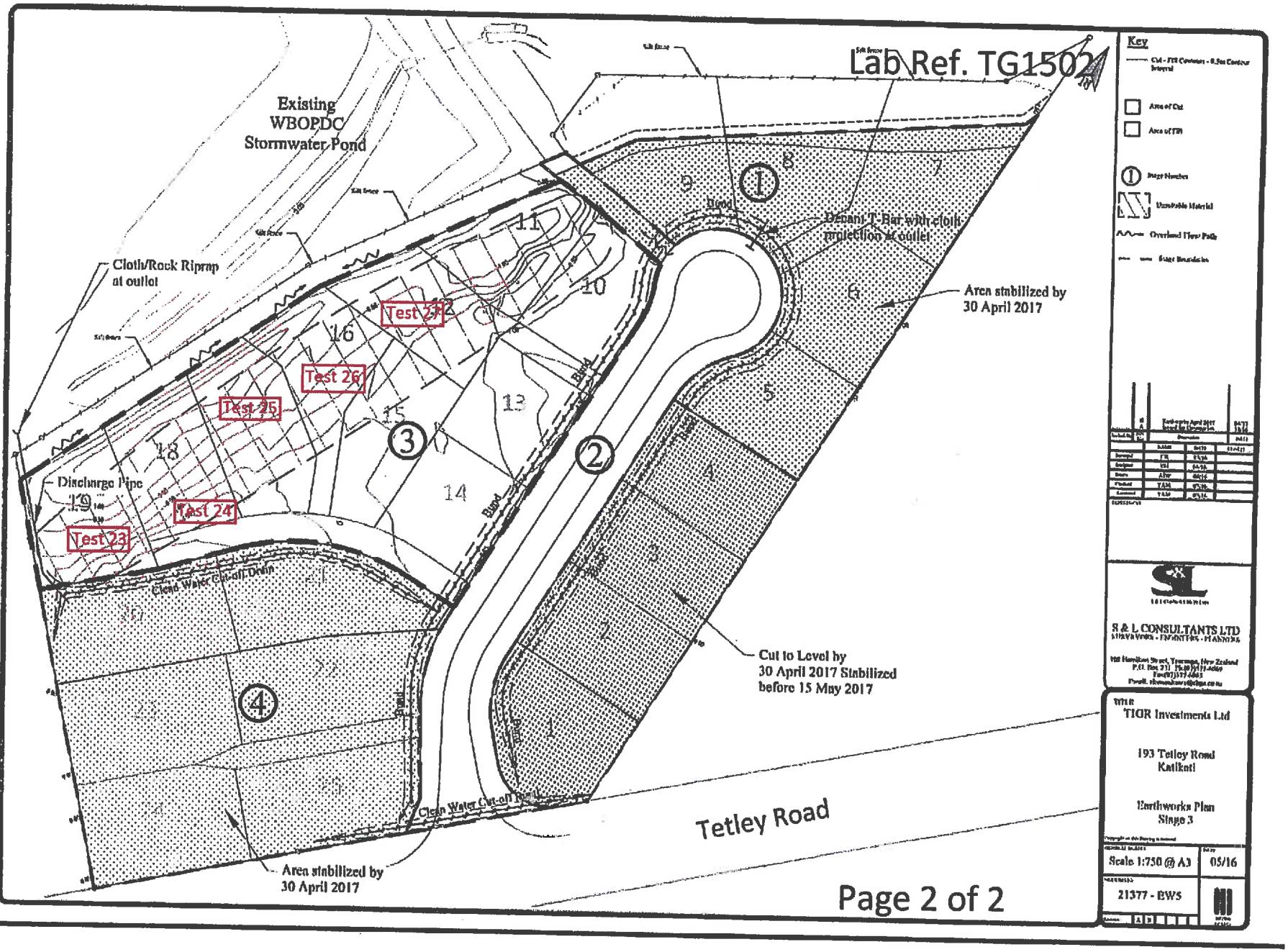
Designation : *Laboratory Manager*

Date : 10 December 2017

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PO Box 9057, Tauranga 3142, New Zealand

Telephone +64 7 578 5425
Facsimile +64 7 578 3382
Website www.opus.co.nz


Lab Ref. TG1502
Existing
WBOPDC
Stormwater Pond
Cloth/Rock Riprap
at outlet
Test 27
Test 26
Test 25
Test 24
Test 23
Discharge Pipe
Clean Water Cut-off Drain
Bund
Decant T-Bar with cloth
protection at outlet
Area stabilized by
30 April 2017
Cut to Level by
30 April 2017 Stabilized
before 15 May 2017
Area stabilized by
30 April 2017
Clean Water Cut-off Drain
Tetley Road
Key
Area of Cut
Area of Fill
Unsuitable Material
Overland Flow Path
S & L CONSULTANTS LTD
TIGR Investments Ltd
193 Tetley Road
Katikati
Earthworks Plan
Stage 3
Scale 1:750 @ A3
05/16
21377 - EWS

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Moon Civil & Drainage Ltd**
Tested by :	**Greg Cleaver (Opus Laboratory)**
Date tested :	**10 November 2017**
Nuclear densometer no :	**3440-64130**
Solid density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56 %**
Shear vane no :	**DR2410**
Shear vane correction :	**1.406**
Material description :	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG1607**
Client Ref No :	**--**

Nuclear Densometer Test Results

Test Number	28	29						
GPS co-ordinates	N821812.8	N821824.2						
(BOP Circuit 2000)	E351945.9	E351944.6						
Fill Depth	1.2m approx	0.8m approx						
Test Probe Depth (mm)	300	300						
Wet Density (t/m³)	1.63	1.57						
Dry Density (t/m³)	1.09	1.05						
Water Content (%)	49.5	50.1						
Air Voids (%)	3.7	7.0						
% of MDD	115	110						

Oven Corrected Test Results

Dry Density (t/m³)	1.10	1.07						
Water Content (%)	48.8	47.1						
Air Voids (%)	4.0	8.3						
% of MDD	116	113						

Shear Vane Test Results

Shear Vane Reading	130	UTP						
Shear Strength (kPa)	183	UTP						

Test Methods	Notes
In-situ Density & Water Content : NZS 4407 : 2015 Test 4.2	The test positions were selected by Andrew Young Earthmovers
Water Content : NZS 4402 : 1986, Test 2.1	Staff and are approximate only.
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	UTP = unable to penetrate.
	This report may only be reproduced in full.

The solid density value was obtained from Opus Hamilton report TG678, dated 9/3/17.

The maximum dry density & optimum water content values were obtained from report TG678 Report 2, dated 9/3/17.

Date reported : 16 November 2017

Approved

Designation : *Senior Civil Engineering Technician*

Date : 16 November 2017

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Quality Management Systems Certified to ISO 9001

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PO Box 9057, Tauranga 3142, New Zealand

Telephone +64 7 578 5425
Facsimile +64 7 578 3382
Website www.opus.co.nz

SHEAR STRESS TEST REPORT

Project :	**193 Tetley Road Subdivision**
Location :	**Pond Base**
Client :	**Moon Civil & Drianage Ltd**
Contractor :	**Andrew Young Earthmovers Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**18 October 2017**
Material description :	**Natural Ground**
Shear vane :	**DR2410**
Shear vane correction :	**1.406**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG1520**
Client Order No :	**--**

Test Number	GPS Coordinates - (BOP Circuit 2000)	Depth	Shear Stress (kPa)
1	N821830.0 / E351955.1	0.05m	**186**
		0.2m	**131**
		0.4m	**125**
		0.6m	**104**
		0.8m	**UTP**
		1.0m	**UTP**
2	N821828.0 / E351955.2	0.05m	**134**
		0.2m	**167**
		0.4m	**86**
		0.6m	**>202**
		0.8m	**UTP**
		1.0m	**UTP**

Test Method	Notes
Shear Strength using a Hand Held Shear Vane - NZGS 8/2001	The test positions were selected by Richard McGee of Opus Laboratory and Ropsey of Andrew Young Earthmovers and are approximate only.

UTP = unable to penetrate.

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IANZ ACCREDITED LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Date reported : 10 December 2017

IANZ Approved Signatory

Designation : *Laboratory Manager*
Date : 10 December 2017

Opus International Consultants Ltd
Tauranga Laboratory
Quality Management Systems Certified to ISO 9001

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PO Box 9057, Tauranga 3142, New Zealand

Telephone +64 7 578 5425
Facsimile +64 7 578 3382
Website www.opus.co.nz

SHEAR STRESS TEST REPORT

Project :	**193 Tetley Road Subdivision**
Location :	**Pond Base**
Client :	**Moon Civil & Drianage Ltd**
Contractor :	**Andrew Young Earthmovers Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**18 October 2017**
Material description :	**Natural Ground**
Shear vane :	**DR2410**
Shear vane correction :	**1.406**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG1520**
Client Order No :	**--**

Test Number	GPS Coordinates - (BOP Circuit 2000)	Depth	Shear Stress (kPa)
3	N821822.6 / E351944.4	0.05m	63
		0.2m	66
		0.4m	49
		0.6m	97
		0.8m	39
		1.0m	77
		1.2m	76
4	N821820.6 / E351944.4	0.05m	93
		0.2m	59
		0.4m	46
		0.6m	156
		0.8m	66
		1.0m	77
		1.2m	69

Test Method	Notes
Shear Strength using a Hand Held Shear Vane - NZGS 8/2001	The test positions were selected by Richard McGee of Opus Laboratory and Ropsey of Andrew Young Earthmovers and are approximate only.

UTP = unable to penetrate.

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Date reported : 10 December 2017

IANZ Approved Signatory

Designation : *Laboratory Manager*
Date : 10 December 2017

IANZ ACCREDITED LABORATORY

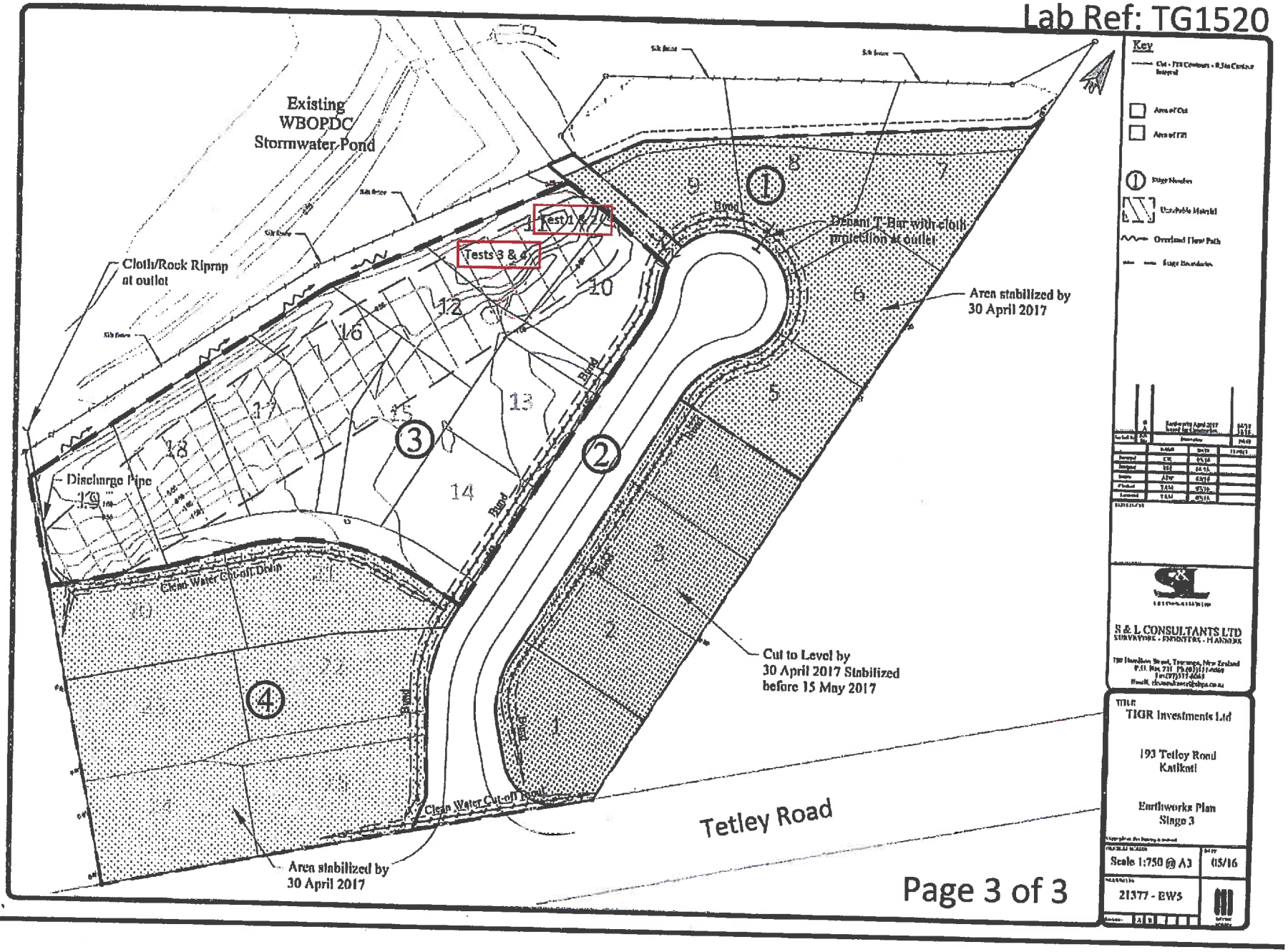
All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

Opus International Consultants Ltd
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Website www.opus.co.nz

Lab Ref: TG1520



EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Andrew Young Earthmovers Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**17 November 2017**
Nuclear densometer no :	**3440-64130**
Solid density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56 %**
Shear vane no :	**DR2410**
Shear vane correction :	**1.406**
Material description :	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG1632**
Client Ref No :	**–**

Nuclear Densometer Test Results								
Test Number	30	31	32					
GPS co-ordinates (BOP Circuit 2000)	N821742.1 E351918.6	N822121.5 E351891.7	N821706.8 E351894.3					
Fill Depth (approx.)	Finished	Finished	Finished					
Test Probe Depth (mm)	300	300	300					
Wet Density (t/m³)	1.55	1.54	1.50					
Dry Density (t/m³)	0.99	0.95	0.93					
Water Content (%)	57.1	61.6	60.5					
Air Voids (%)	5.3	4.6	7.6					
% of MDD	104	100	98					

Oven Corrected Test Results								
Dry Density (t/m³)	0.96	0.95	0.90					
Water Content (%)	61.4	61.9	65.4					
Air Voids (%)	**3.7**	**4.5**	**5.9**					
% of MDD	**101**	**100**	**95**					

Shear Vane Test Results								
Shear Vane Reading	123	98	102					
Shear Strength (kPa) - Ave. of 4	**173**	**138**	**143**					

Test Methods	Notes
In-situ Density & Water Content : NZS 4407 : 2015 Test 4.2 Water Content : NZS 4402 : 1986, Test 2.1 Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	The test positions were selected by Andrew Young Earthmovers staff and are approximate only.

IANZ accreditation excludes the nuclear density & oven corrected results as the wet density values fall outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

The solid density value was obtained from Opus Hamilton report TG678, dated 9/3/17.

The maximum dry density & optimum water content values were obtained from report TG678 Report 2, dated 9/3/17.

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Date reported : 28 November 2017

IANZ Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 28 November 2017

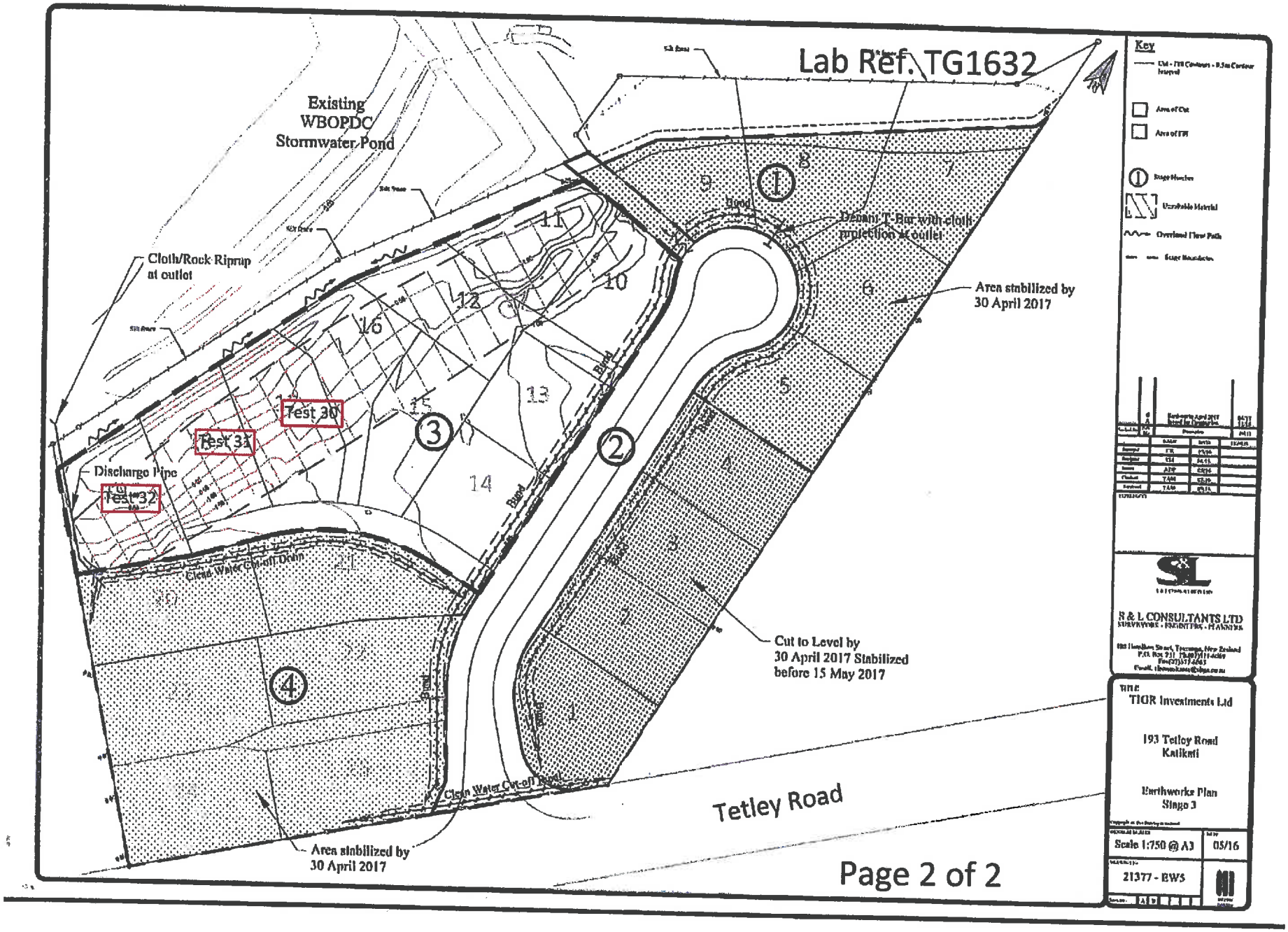
IANZ ACCREDITED LABORATORY

Tests indicated as not accredited are outside the scope of the laboratory's accreditation

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Lab Ref. TG1632
Existing
WBOPDC
Stormwater Pond
Cloth/Rock Riprap
at outlet
Test 30
Test 31
Test 32
Discharge Pipe
Clean Water Cut-off Drain
Bund
Decant T-Bar with cloth
protection at outlet
Area stabilized by
30 April 2017
Cut to Level by
30 April 2017 Stabilized
before 15 May 2017
Area stabilized by
30 April 2017
Tetley Road
Key
S & L CONSULTANTS LTD
TIGR Investments Ltd
193 Tetley Road
Katikati
Earthworks Plan
Stage 3
Scale 1:750 @ A3
05/16
21377 - EWS

EARTHWORKS COMPACTION CONTROL TEST RESULTS

OPUS

Project :	**193 Tetley Road Subdivision**
Location :	**Katikati**
Client :	**Moon Civil & Drainage Ltd**
Contractor :	**Andrew Young Earthmovers Ltd**
Tested by :	**Richard McGee (Opus Laboratory)**
Date tested :	**24 November 2017**
Nuclear densometer no :	**3440-31344**
Solid density (tested) :	**2.59 t/m³**
Max dry density (tested) :	**0.95 t/m³**
Optimum water content (tested) :	**56 %**
Shear vane no :	**DR2410**
Shear vane correction :	**1.406**
Material description :	**Bulk Fill (orange-brown silt)**

Project No :	**255130.00/0TL**
Lab Ref No :	**TG1663**
Client Ref No :	**–**

Nuclear Densometer Test Results								
Test Number	33*	34	35*	36*	37*	38*		
GPS co-ordinates (BOP Circuit 2000)	N821772.0 E351927.2	N821791.1 E351929.5	N821803.3 E351937.1	N821802.8 E351950.1	N821835.1 E351957.9	N821838.4 E351966.8		
Fill Depth (approx.)	Finished	Finished	Finished	Finished	Finished	Finished		
Test Probe Depth (mm)	300	300	300	300	300	300		
Wet Density (t/m³)	1.69	1.75	1.62	1.54	1.60	1.58		
Dry Density (t/m³)	1.15	1.22	1.14	1.02	1.05	1.09		
Water Content (%)	46.4	43.4	42.7	50.4	52.7	45.1		
Air Voids (%)	2.2	0.0	7.6	9.0	4.4	9.1		
% of MDD	121	128	120	108	110	114		

Oven Corrected Test Results								
Dry Density (t/m³)	1.15	1.21	1.10	1.00	1.06	1.03		
Water Content (%)	47.1	44.9	47.4	54.0	51.1	53.7		
Air Voids (%)	**1.8**	**0.0**	**5.4**	**7.5**	**5.1**	**5.3**		
% of MDD	**121**	**127**	**116**	**105**	**111**	**108**		

Shear Vane Test Results								
Shear Vane Reading	UTP	UTP	UTP	UTP	UTP	UTP		
Shear Strength (kPa) - Ave. of 4	**UTP**	**UTP**	**UTP**	**UTP**	**UTP**	**UTP**		

Test Methods	Notes
In-situ Density & Water Content : NZS 4407 : 2015 Test 4.2 Water Content : NZS 4402 : 1986, Test 2.1 Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	The test positions were selected by Andrew Young Earthmovers staff and are approximate only. UTP = unable to penetrate.

*IANZ accreditation excludes the nuclear density & oven corrected results of tests 33, 35, 36, 37 & 38 as the wet density values fell outside the nuclear densometer calibration range of 1700 - 2650kg/m3.

The solid density value was obtained from Opus Hamilton report TG678, dated 9/3/17.

The maximum dry density & optimum water content values were obtained from report TG678 Report 2, dated 9/3/17.

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Date reported : 28 November 2017

IANZ Approved Signatory

IANZ ACCREDITED LABORATORY

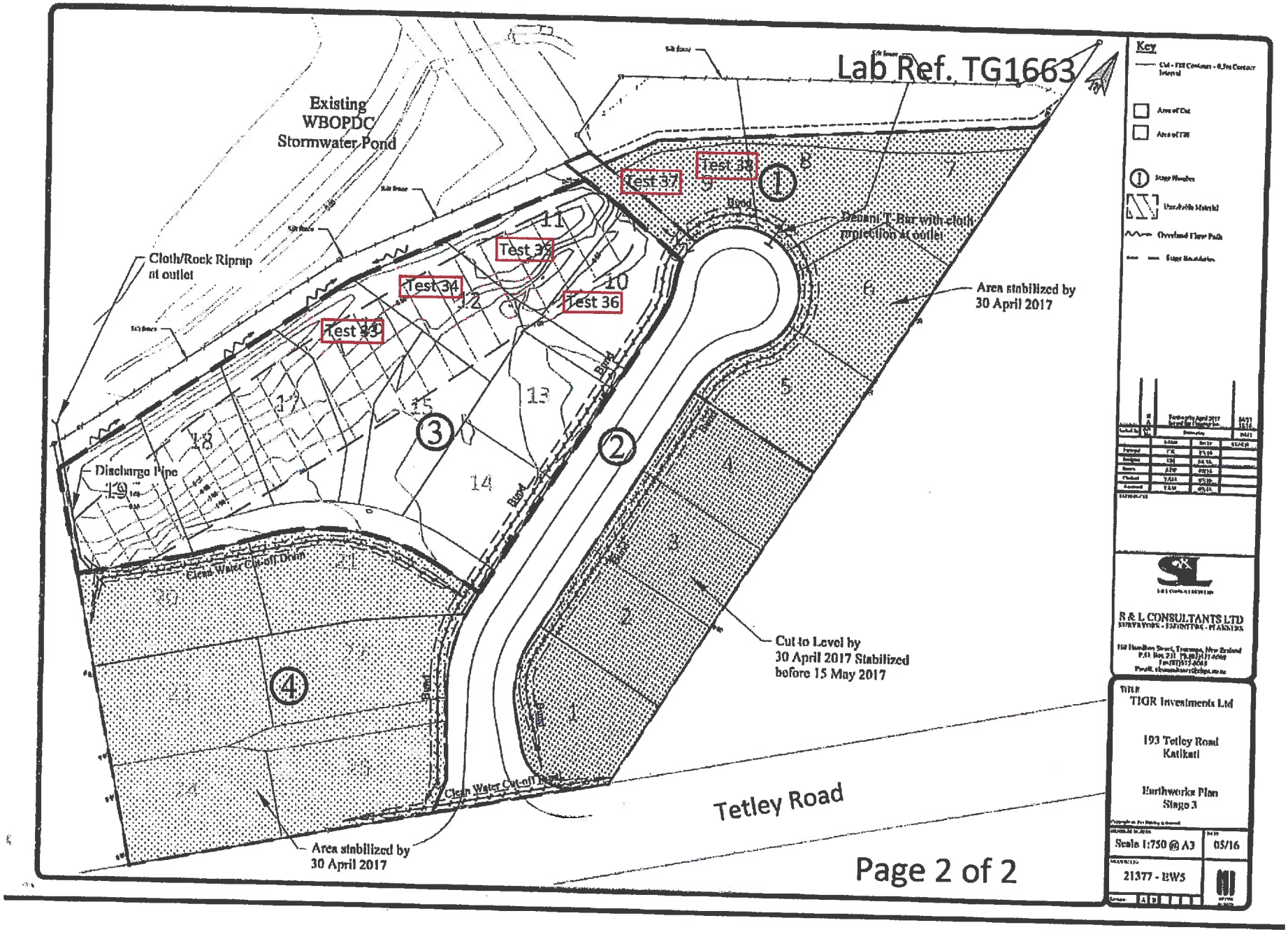
Tests indicated as not accredited are outside the scope of the laboratory's accreditation

Designation : *Senior Civil Engineering Technician*
Date : 28 November 2017

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Website www.opus.co.nz


Lab Ref. TG1663
Existing
WBOPDC
Stormwater Pond
Cloth/Rock Riprap
at outlet
Test 33
Test 34
Test 35
Test 36
Test 37
Test 38
Bund
Bund
Bund

SHRIMPTON & LIPINSKI

Testpit 16

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 13.6 m Moturiki Datum | Logged By: N.I.

Description of Soil	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL				
SILT; clayey; moist; stiff; moderately plastic; light brown	0.5			79
becomes sandy	1.0		Not found	95
SAND; silty; moist; fine to medium grained; moderately dense; light brown	1.5			57
SILT; clayey; moist; very stiff; high plasticity; dark brown (chocolate coloured)	2.0			152
End of testpit 2.2m	2.5			utp
	3.0			

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & ZIPINSKI

Testpit 17

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 14.2 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
SILT; slightly sandy; moist; stiff; moderately plastic; brown; dark brown mottles; FILL	FILL				
GRAVEL; sandy; grey; lumps of concrete	FILL				
TOPSOIL	FILL				
SILT; moist; stiff; friable; brown; dark brown mottles; FILL	FILL	0.5			108
SILT; moist; very stiff; friable; brown	NATURAL	1.0		Not found	171
	NATURAL	1.5			116
becomes sandy	NATURAL	2.0			174
SAND; silty; moist; fine to medium grained; moderately dense; brown	NATURAL				
SILT; clayey; moist; stiff; moderately plastic; dark brown	NATURAL				63
very stiff; high plasticity; (chocolate coloured)	NATURAL	2.5			142
End of testpit 2.5m		3.0			

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit 18

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 14.2 m Moturiki Datum | Logged By: N.I.

Description of Soil	Depth (m)	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL		
SILT; moist; very stiff; friable; brown	0.5	
becomes slightly clayey; low plasticity	1.0	126
becomes sandy	1.5	155
SAND; silty; moist; fine to medium grained; moderately dense; brown	2.0	168
SILT; clayey; moist; stiff; moderately plastic; dark brown		79
very stiff; high plasticity; (chocolate coloured)	2.5	187
End of testpit 2.4m	3.0	

Groundwater: Not found

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit 19

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 13.5 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL					
SILT; moist; very stiff; friable; brown	Younger Ashes	0.5		Not found	130
clayey; very stiff; moderately plastic;		1.0			104
becomes sandy; stiff; friable		1.5			66
SAND; silty; moist; fine to medium grained; moderately dense; light brown					
SILT; clayey; moist; very stiff; high plasticity;grey contains roots; gravels; boulders; ALLUVIAL		2.0			152
SILT; clayey; moist; very stiff; high plasticity; dark brown; (chocolate coloured)	Hamilton Ashes	2.5			
End of testpit 2.4m		3.0			

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & ZIPINSKI

Testpit 20

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 13.5 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL	Younger Ashes	0.0		Not found	
SILT; moist; stiff; friable; brown					158
clayey; very stiff; moderately plastic		0.5			
		1.0			149
slightly sandy; friable		1.5			
SAND; silty; fine to medium grained; mod. dense; brown	Alluvial				79
SILT; clayey; moist; stiff; moderately plastic; grey contains gravels and boulders to 200 dia.		2.0			95
					63
SILT; clayey; moist; very stiff; highly plastic; dark brown (chocolate coloured)	Hamilton Ashes	2.5			200+
End of testpit 2.6m		3.0			

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LICINSKI

Testpit 21

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 13.00 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL	Younger Ashes	0.0		Not found	
SILT; moist; stiff; friable; brown contains roots clayey; very stiff; moderately plastic end of roots		0.5			158
slightly sandy		1.0			95
SAND; silty; fine to medium grained; mod. dense; brown		1.5			
SILT; clayey; moist; stiff; moderately plastic; grey contains fine roots and roots to 5mm dia.; rare gravels to 100mm dia.	Alluvial				117
SILT; clayey; moist; very stiff; highly plastic; dark brown; (chocolate coloured	Hamilton Ashes	2.0			
End of testpit 2.2m		2.5			
		3.0			

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit 22

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 13.5 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL	Younger Ashes	0.0		Not found	Shear Vane not functional
SILT; moist; firm to stiff; friable; brown dark brown mottles; FILL		0.5			
SILT; moist; firm to stiff; friable; brown becomes slightly clayey; stiff; low plasticity		1.0			
becomes sandy		1.5			
SAND; silty; moist; fine to medium grained; moderately dense; brown					
SILT; clayey; moist; firm; moderately plastic; grey brown mottles; becomes very stiff	Alluvial	2.0			
SILT; clayey; moist; very stiff; highly plastic; dark brown; (chocolate coloured)	Hamilton Ashes	2.5			
End of testpit 2.6m		3.0			

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit 23

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 13.3 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL					
SILT; moist; firm to stiff; friable; brown; contains roots	Younger Ashes	0.5		Not found	Shear Vane not functional
becomes slightly clayey; stiff; low plasticity; end of roots		1.0			
becomes sandy		1.5			
SAND; silty; moist; fine to medium grained; moderately dense; brown					
SILT; clayey; moist; firm to stiff; moderately plastic; brownish grey; brown mottles;	Alluvial	2.0			
becomes very stiff					
SILT; clayey; moist; very stiff; highly plastic; dark brown; (chocolate coloured)	Hamilton Ashes	2.5			
End of testpit 2.6m		3.0			

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & ZIPINSKI

Testpit 24

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 11.7 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)	Undrained Shear Strength (kPa) 50 100 150
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL						
SILT; moist; firm to stiff; friable; brown; contains rare roots	Younger Ashes	0.5		Not found	Shear Vane not functional	
clayey; very stiff; moderately plastic end of roots		1.0				
sandy						
SAND; silty; moist; fine to medium grained; moderately dense; brown		1.5				
SILT; clayey; moist; firm; moderately plastic; grey contains rare roots	Alluvial	2.0				
becomes very stiff						
SILT; clayey; moist; very stiff; highly plastic; dark brown; (chocolate coloured)	Hamilton Ashes	2.5				
End **of testpit 2.3m**		3.0				

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit 25

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 9.0 m Moturiki Datum | Logged By: N.I.

Description of Soil		Depth (m)	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL	FILL			
SILT; moist; firm; friable; brown; dark brown mottles; FILL	FILL	0.5		41
SILT; moist; very stiff; friable; brown clayey; moderately plastic	Younger Ashes	1.0	Not found	111
		1.5		108
SILT; clayey; moist; stiff; high plasticity; grey; brown mottles	Alluvial	2.0		73
				117
SILT; clayey; moist; stiff; moderately plastic; light creamy brownish grey; brown mottles		2.5		63
		3.0		
End of testpit 3.5m		3.5		

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIFENSKI

Testpit 26

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 8.7 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL	Younger Ashes				
SILT; moist; very stiff; friable; brown; contains roots		0.5			123
becomes sandy clayey; moderately plastic					
end of roots		1.0			133
SILT; clayey; moist; stiff; high plasticity; greyish brown brown	Alluvials			Not found	92
brownish grey; reddish brown mottles		1.5			158
stiff; contains rounded gravels and cobbles to 200mm dia brown; grey mottles		2.0			
BOULDERS; gravels; silty; moist; boulders to 200+mm		2.5			
SILT; moist; firm; high plasticity; light creamy greyish brown		3.0			40
End of testpit 3.2m					

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit 27

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 11.3 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL	FILL	0.0			
SILT; moist; firm; friable; brown; dark brown mottles; FILL	FILL				44
SILT; moist; very stiff; friable; brown;contains roots to 0.6m	Younger Ashes	0.5			
clayey; low plasticity	Younger Ashes				165
	Younger Ashes	1.0			117
sandy	Younger Ashes				
SAND; silty; fine to medium grained; mod. dense; brown	Younger Ashes	1.5		Not found	
SILT; clayey; moist; very stiff; highly plastic; brownish grey; brown mottles	Alluvial				158
SILT; clayey; moist; very stiff; highly plastic; dark brown; (chocolate coloured)	Hamilton Ashes	2.0			
End of testpit 2.3m		2.5			
		3.0			

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit 28

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 7.5 m Moturiki Datum | Logged By: N.I.

Description of Soil		Depth (m)	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL	FILL		
SILT; clayey; moist; stiff; highly plastic; brown; brown mottles; FILL			
SILT; clayey; moist; very stiff; highly plastic; brown; brown mottles; FILL	Younger Ashes	0.5	142
BOULDERS; gravels; silty; moist; brownish grey boulders to 200+mm dia.; boulders and gravels rounded	Alluvials	1.0	79
		1.5	
		2.0	
boulders to 300mm dia.; wet; silty; grey		2.5	
End of testpit 3.0m		3.0	

Groundwater level 2.90m

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & SIPINSKI

Testpit 29

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 28/05/07 | RL 10.2 m Moturiki Datum | Logged By: N.I.

Description of Soil		Depth (m)	Undrained Shear Strength (kPa)
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL	FILL		
SILT; moist; stiff; friable; brown; dark brown mottles; FILL contains rare roots	FILL	0.5	70
ORGANIC SILT; moist;stiff; moderately plastic; dark brown TOPSOIL	FILL		
SILT; moist; stiff; friable; brown; dark brown mottles; FILL contains rare roots	FILL	1.0	85
SILT; moist; very stiff; friable; brown; becomes clayey; stiff; moderately plastic	Younger Ashes	1.5	142
becomes light greyish brown	Younger Ashes		
SAND; silty; moist; fine to medium grained; moderately dense; brown	Younger Ashes	2.0	76
SILT; sandy; moist; firm; friable; light creamy brown stiff; grey	Alluvials	2.5	
BOULDERS; gravels; silty; moist; brownish grey boulders to 300mm dia.; boulders and gravels rounded	Alluvials	3.0	
End of testpit 3.2m			

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit No. 37

Site: Tetley Road, Katikati

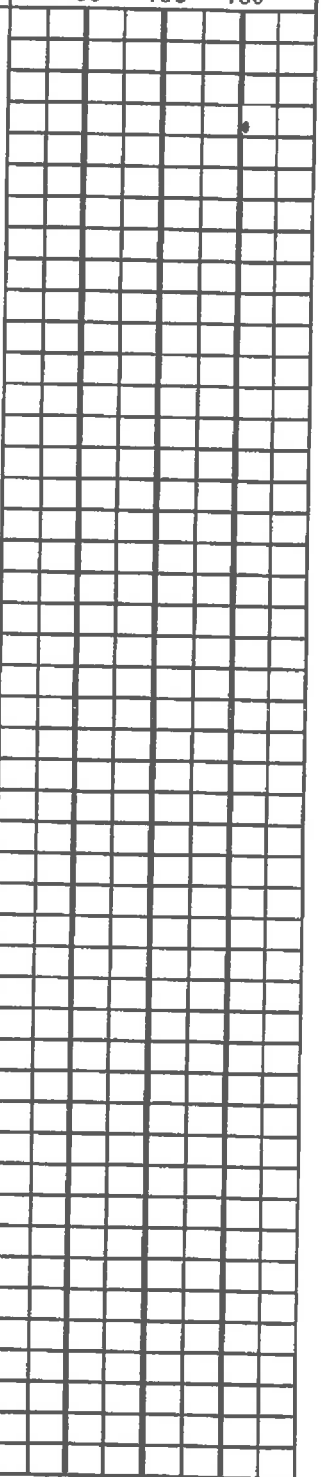
Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 12/07/07 | RL 9.0 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist; firm, friable; dark brown; TOPSOIL	FILL	0.0			
SILT; clayey; moist; very stiff; moderately plastic; brown dark brown mottles; FILL contains roots	FILL	0.5		0.4m	152
End of testpit 0.7m unable to log deeper due to large influx of groundwater		1.0 1.5 2.0 2.5 3.0 3.5 4.0			

Undrained Shear Strength (kPa)

50 100 150



EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit No. 38

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 12/07/07 | RL 10.5 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist; firm, friable; dark brown; TOPSOIL					
SILT; clayey; moist; stiff; moderately plastic; brown dark brown mottles; FILL	FILL	0.5		not found	92 98
SILT; GRAVELS; BOULDERS to 200mm dia	ALLUVIAL	1.0 1.5			73 utp
End of testpit 1.6m		2.0 2.5 3.0 3.5 4.0			

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit No. 39

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 12/07/07 | RL 13.2 m Moturiki Datum | Logged By: N.I.

Description of Soil	Depth (m)	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist; firm, friable; dark brown; TOPSOIL			
SILT; clayey; moist; stiff; moderately plastic; brown contains roots	0.5		89
end of roots 0.6m	1.0	Groundwater 2.0m	98
	1.5		101
SILT; clayey; moist; hard; high plasticity; darkish brown (chocolate coloured)	2.0		utp
End of testpit 2.1m	2.5		
	3.0		
	3.5		
	4.0		

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LEPINSKI

Testpit No. 40

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 12/07/07 | RL 8.5 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)	Undrained Shear Strength (kPa) 50 100 150
ORGANIC SILT; moist; firm, friable; dark brown; TOPSOIL						
SILT; clayey; moist; stiff; moderately plastic; brown dark brown mottles; FILL contains roots	FILL	0.5		Groundwater 1.0m	79	
underlayen by PEAT; LOGS; depth unknown due to large influx of water		1.0			70	
		1.5				
		2.0				
		2.5				
		3.0				
		3.5				
		4.0				

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit No. 41

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 12/07/07 | RL 11.0 m Moturiki Datum | Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)
ORGANIC SILT; moist; firm, friable; dark brown; TOPSOIL	FILL	0.0			
SILT; clayey; moist; stiff; moderately plastic; brown dark brown mottles; FILL contains roots bands of topsoil		0.5			108
		1.0			92
		1.5		Groundwater 2.2m	66
sheet of iron within filling		2.0			
SILT; GRAVELS; moist; sandy; grey	ALLUVIAL				
End of testpit 2.2m		2.5			
		3.0			
		3.5			
		4.0			

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit No. 42

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 12/07/07 | RL 14.2 m Moturiki Datum | Logged By: N.I.

Description of Soil	Depth (m)	Undrained Shear Strength (kPa)
ORGANIC SILT; moist; firm, friable; dark brown; TOPSOIL		
SILT; clayey; moist; stiff; moderately plastic; brown	0.5	123
	1.0	98
sandy	1.5	98
	2.0	
SILT; clayey; moist; very stiff; high plasticity;darkish brown (chocolate coloured)	2.5	146
End of test pit 2.5m	3.0	
	3.5	
	4.0	

Groundwater 2.4m

Undrained Shear Strength (kPa)

50 100 150

EXCAVATION METHOD: 20 Tonne Digger

SHRIMPTON & LIPINSKI

Testpit No. 43

Site: Tetley Road, Katikati

Sheet: 1 Of: 1

Job No. 18401 | Date Excavated: 12/07/07 | RL 14.3 m Moturiki Datum | Logged By: N.I.

Description of Soil	Depth (m)	Undrained Shear Strength (kPa)
ORGANIC SILT; moist; firm, friable; dark brown; TOPSOIL		
SILT; clayey; moist; very stiff; moderately plastic; brown	0.5	101
	1.0	142
sandy	1.5	105
stiff	2.0	71
SILT; clayey; moist; very stiff; high plasticity;darkish brown (chocolate coloured)		
End of testpit 2.4m	2.5	
	3.0	
	3.5	
	4.0	

Groundwater 2.2m

Undrained Shear Strength (kPa): 50 100 150

EXCAVATION METHOD: 20 Tonne Digger

			Testpit No. 44
Site: Tetley Road, Katikati			Sheet: 1 Of: 1
Job No. 18401	Date Excavated: 12/07/07	RL 14.2 m Moturiki Datum	Logged By: N.I.

Description of Soil	Soil Symbol	Depth (m)	SPT	Groundwater	Undrained Shear Strength (kPa)	Undrained Shear Strength (kPa) 50 100 150
ORGANIC SILT; moist; firm, friable; dark brown; TOPSOIL						
SILT; clayey; moist; very stiff; moderately plastic; brown		0.5			127	
		1.0			127	
sandy		1.5		Groundwater 2.2m	142	
		2.0			161	
SILT; clayey; moist; very stiff; high plasticity;darkish brown (chocolate coloured)					utp	
End of testpit 2.4m		2.5				
		3.0				
		3.5				
		4.0				

EXCAVATION METHOD: 20 Tonne Digger

Geohazard Environmental

Detailed Site Investigation Report

193 Tetley Rd, Katikati

Date 14-03-2016
Job# 151209

Detailed Site Investigation Report
193 Tetley Rd, Katikati

This report has been prepared for Tigr Investments Ltd ("the Client") by Geohazard Environmental Ltd. No liability is accepted by this company or any employee or sub-consultant of this company with respect to its use by any other parties.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval to fulfil a legal requirement.

The contents of this report comply with good practice and professional standards. It has been approved for release and signed by a Suitably Qualified and Experienced Practitioner.

Quality Assurance Statement		
Task	Responsibility	Signature
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Reviewed	Jonathan Findon	
Approved for issue	Jonathan Findon	

Revision Schedule		
Revision	Reason	Date
Original Report	-	14 March 2016

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Job No.: 151209

Geohazard Environmental
Contaminated Site Investigation Specialists

Detailed Site Investigation Report
193 Tetley Rd, Katikati

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EXECUTIVE SUMMARY

Tigr Investments Ltd has commissioned Geohazard Environmental Ltd to prepare a Detailed Site Investigation (DSI) Report to investigate 193 Tetley Rd, Katikati for the presence of contaminants. The primary purpose of this is to investigate whether contaminants are present at high levels that would warrant further action prior to use for residential purposes.

This report summarises Geohazard Environmental Ltd.'s investigation, and has been prepared following the Ministry for the Environment's Guidelines for investigations involving potentially contaminated land (referred to herein as the MfE Guidelines). The DSI consisted of a desktop study and interviews, to gather information about the site and its history, and a site inspection; this information was used to develop an initial conceptual site model, which identifies potential sources of contamination, pathways for release, and potential effects.

Additionally, for this DSI, Geohazard Environmental Ltd originally took 24 individual surface soil samples, each of which were analysed for a suite of metals. In addition, the samples were composited (mixed) in the laboratory and analysed for a suite of persistent pesticides. The results from analysis of these original samples indicated that some contaminant concentrations around a number of the former buildings on-site exceed guideline values. As a result, additional testing for arsenic and other metals was undertaken on 24 February 2016 to delineate and refine the affected area. One further exceedance of arsenic was identified within the 10 additional surface level soil samples taken within the vicinity of the former structures situated in the south of the site.

The findings reported herein indicate that contaminants are present within the south of the site at levels that are in excess of relevant soil guideline values for use residential use. Based on the results of this DSI, Geohazard Environmental Ltd recommend to the Client that further assessment of the southern area of the site be conducted to better constrain the nature, extent and impact contaminants detected in soil samples taken from the site, in accord with the MfE Guidelines for the Management of Contaminated Land.

The presence of any contaminants at site, even at levels that exceed the relevant soil guideline values, does not necessarily mean that an unacceptable human health risk or environmental risk exists.

Specific conclusions and recommendations based on findings herein are summarised as follows:

- The site currently supports a number of grass-covered grazing paddocks. It is understood that the site is planned to be redeveloped for residential purposes.

- No evidence of previous ground contamination investigations was identified during the course of undertaking this DSI.

- The site historically supported land assumed to have been utilised for grazing purposes. From at least 1960 until pre-2007, the site supported an orchard and a potential chicken shed. From at least 2010 until present, the site has supported undeveloped land utilised for grazing purposes. The historical pastoral farm use and subsequent orchard use of the site represents a potential source of contamination from the potential broadcast application of fertilisers and persistent pesticides, as well as the potential stockpiling and/or spreading of chicken litter, potentially containing arsenic from mite control.

- A number of structures (assumed sheds and a possible propagation greenhouse or chicken shed) have historically been present on-site, the earliest of which dated back to pre-1943. The types of materials stored within these structures is unknown, therefore,

these too represent a potential source of contamination (from the potential bulk storage of fertilisers, persistent pesticides etc).

- It should be noted that earthworks (assumed stripping of topsoil on-site, potentially associated with near-by large-scale residential development to the west of the site) appear to have taken place within the eastern and western areas of the site between 2007 and 2010. However no evidence of infilling has been identified.

- A site inspection of the entire site area of 2.1 hectares was conducted on 24 December 2015. From the visible indications, there is no evident sign of contamination at the site.

- Geohazard Environmental Ltd originally took 24 individual surface soil samples, each of which were analysed for a suite of metals. 16 of the 24 samples were taken along a 34m grid basis to allow for valid statistical analysis. The remaining 8 samples were taken within the vicinity of a number of the former structures on-site. In addition, the samples were composited (mixed) in the laboratory and analysed for a suite of persistent pesticides.

- The results from analysis of these original samples indicated that some contaminant concentrations around a number of the former buildings on-site exceed guideline values. As a result, additional testing for arsenic and other metals was undertaken on 24 February 2016 to delineate and refine the affected area. One further exceedance of arsenic was identified within the 10 additional surface level soil samples taken within the vicinity of the former structures situated in the south of the site.

- The source of the contamination is not confirmed, however potential sources include the historical broadcast application and/or bulk storage of persistent pesticides, spreading or poultry waste with elevated arsenic, or stockpiled treated old fence posts that have leached to the ground. Given that the majority of samples taken across the site found arsenic and lead to be evaluated above natural background levels, this indicates that the source is more likely from the potential historical broadcast application. Given that the exceedances of arsenic were detected within the area of the site which historically supported a number of sheds, the potential for the bulk storage of pesticides to have taken place on-site cannot be discounted. An alternative likely scenario is arsenic-based additives in poultry food, used to control mites.

- Given that two individual results of arsenic detected within the surface level soil samples taken at HA14 and HA23 were more than twice the published SCS for residential use, a 95% UCL cannot be used for this site.

- Organochlorine pesticides were detected in site soils, albeit at a low level.

- The results show elevated arsenic above SCS within three samples taken in the south of the site (within the vicinity of a number of former sheds and a former assumed chicken shed or propagation greenhouse), indicating the potential for historical bulk storage of persistent pesticides, bulk storage of poultry food with arsenic-based additives, or stockpiling/spreading of chicken litter with elevated arsenic to have occured. Furthermore, elevated contaminants above natural background levels (including lead and arsenic) were found within a number of samples taken across the site (including HA02, HA08, HA16, HA17, and HA21), indicating the potential for historical broadcast application of persistent pesticides or spreading of chicken litter with elevated arsenic to have occurred. It is more likely than not that persistent pesticide application and bulk storage (HAIL A10) occurred, and/or HAIL I, land subject to intentional or accidental release of hazardous substances. The site is considered to be a "piece of land' under NES legislation.

- A Controlled Activity consent requires a DSI to state that the soil contamination does not exceed the applicable standards, whereas a "Restricted Discretionary" consent is for where contaminants are present above applicable guidelines. This report states soil contamination exceeds applicable standards, therefore a Restricted Discretionary Consent is most appropriate.

- The site is approximately 21380m^2. Based on calculations provided in the NES, approximately 1,069m^3 may be disturbed as a permitted activity. Geohazard Environmental Ltd has not been provided with details relating to the potential earthworks associated with the development of the proposed residential dwellings.

- Results from analysis of samples found arsenic above human health guidelines within some areas of the site. Therefore, it is considered likely that the southern area of the site (within the vicinity of the former structures historically located on-site) will likely present a risk to human health for the "soil disturbance activity" during the proposed redevelopment earthworks.

- Soils within the southern area of the site (within the vicinity of the former structures on-site) have been identified as containing elevated levels of contaminants, specifically arsenic. Remediation and/or site management is likely to be required. Potential works includes remediation earthworks, installing a soil cap, or soil mixing (see Section 6). The Client may elect which option they choose and advise the Western Bay of Plenty District Council accordingly.

- A full Remediation Action Plan and/or Site Management Plan is likely to be required as part of any Resource Consent application.

- Given that elevated arsenic above SCS was identified on-site and remediation is recommended, consent for remediation and disturbance of a contaminated site will likely be required from the Bay of Plenty Regional Council.

- Based on the results of this DSI, Geohazard Environmental Ltd recommend to the Client that further assessment of the site be conducted to better constrain the nature, extent and impact contaminants detected in soil samples taken from the site, in accord with the MfE Guidelines for the Management of Contaminated Land.

- The area requiring further investigation is situated within the south of the site, within the vicinity of the former structures which were historically present on-site. It is envisaged that the assessment would initially require the following:
    - Additional soil sampling at surface and at depth to delineate the extent of the arsenic contamination.
    - Assessment of risks to human health and/or the environment based on expanded results from additional investigation.
    - Preparation of a Remediation Action Plan or Site Management Plan detailing proposed remedial works, most likely one of the options outlined in Section 6.0 of this report.

1.0 INTRODUCTION

1.1 Background and Objectives

Historically, the site at 193 Tetley Rd, Katikati has been used pastoral farming and orchard purposes. Recently, it has been planned to be used for residential purposes. Tigr Investments Ltd requested that Geohazard Environmental Ltd investigate the site to determine whether environmental contamination might be present. The Client's brief specifically included field testing to enhance confidence in results. The primary deliverable of the work is this Detailed Site Investigation (DSI) Report, which includes conclusions as to the site's disposition with respect to known or potential environmental contamination, and, as appropriate, recommended steps needed to ensure that contaminant risk is mitigated for end-users of the site.

1.2 Scope of Work

Consistent with the MfE Guidelines for DSI of potentially contaminated land, the following scope of work was undertaken:

(i) Review of all relevant information, including searching for any previous reports pertaining to 193 Tetley Rd, Katikati. Sources were as follows:

- Western Bay of Plenty District Council property file records.
- Bay of Plenty Regional Council property file records.
- Historic Certificates of Title.
- Historic aerial images.

(ii) Inspection of the site to assess its present state and any indications of potentially contaminating activities that have taken place historically or are currently occurring at the site.

(iii) Preparation of this DSI report, which includes all relevant information (collected from above), and complies with relevant reporting guidelines (MfE, 2003). Herein, this report will assess the following:

- Whether previous and/or current on-site activities had or have the potential to cause on-site contamination.
- The likely nature of any contamination.
- The risks to future site users from any contamination.
- The requirement for further on-site investigations to define the extent of any contamination.

1.3 Limitations

Geohazard Environmental Ltd has performed services for this project in accordance with current professional standards for environmental site assessments. No guarantees are either expressed or implied. This report does not attempt to fulfil the requirements of legal due diligence.

There is no investigation that is thorough enough to preclude the presence of materials at the site that presently, or in the future, may be considered hazardous. As regulatory criteria are subject to change, contaminant concentrations present and considered to be acceptable may, in the future, become subject to different regulatory standards that cause them to become unacceptable for existing or proposed land use activities.

Any recommendations, opinions or findings stated in this report are based on circumstances, facts and regulatory criteria as they existed at the time that Geohazard Environmental Ltd performed the work and on data obtained from the investigations and site observations as detailed in this report. Opinions and judgements expressed in this report, which are based on an understanding and interpretation of current regulatory standards, should not be construed as legal opinions. This report and the information it contains have been prepared solely for the use of Tigr Investments Ltd. Any reliance on this report by other parties shall be at such party's own risk.

2.0 SITE OVERVIEW

2.1 Site Identification

The site is located at 193 Tetley Rd, Katikati. The site is listed on the Western Bay of Plenty files as19 Tetley Road. Figure 1 illustrates the general locale of the site. The site is legally described as Lot 2 DP 460580. The land parcel site is approximately 21380m² in size. In this report, reference to the site constitutes the whole of the parcel generally.

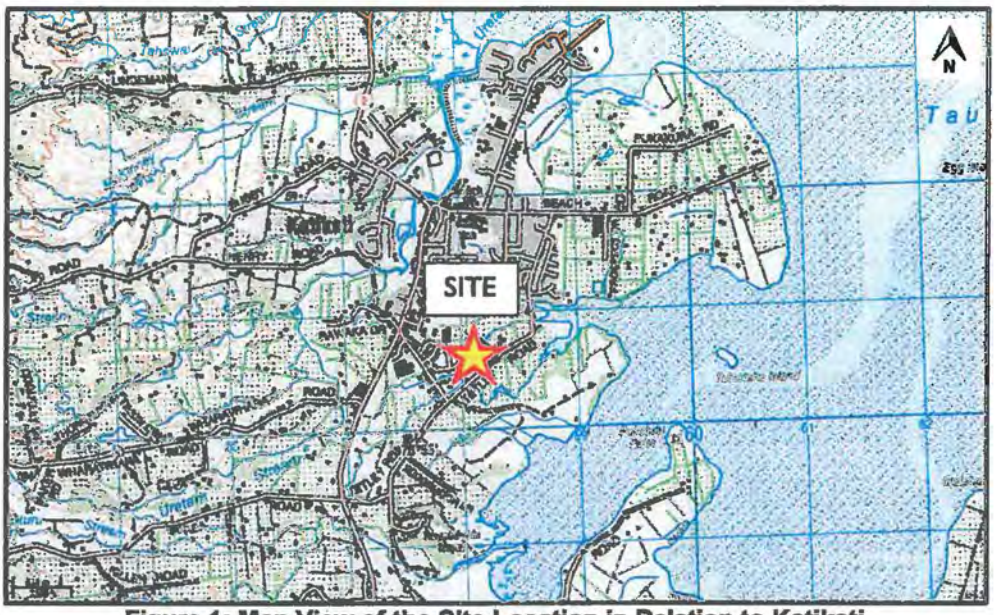


Figure 1: Map View of the Site Location in Relation to Katikati

In Figure 2, the area located inside the red box is the site under investigation.



Figure 2: The Site at 193 Tetley Rd, Katikati

2.2 History of Site Ownership and Use

The site history is reviewed to give an indication of potential contaminants at the site. This includes review of past ownership, council file review, historic photo review, and where possible discussions with occupiers. Hazardous Activities and Industries List (HAIL) codes are given where appropriate.

2.2.1 Historic Certificates of Title

Historic Certificates of Title (CT) are used to give an indication of the occupation of land owners. Whilst not definitive that an activity did occur, in many cases it can be reasonably assumed that the owner's occupation correlated with site use.

The earliest documents available for the site indicate that in January 1917, William Katterns (clerk in holy orders) was seised of the wider estate on which the site was historically located.

In May 1952, the title was transferred to William George Elliott (gardener) and Joyce Elalene Elliott. A **farmer**, Earnest Frederick Wigg, took ownership in 1957.

In October 1975, the title was transferred to Douglas Gillam Wigg (**poultry farmer**) and Glenys Heather Wigg. In December 1979, Douglas Gillam Wigg and Glenys Heather Wigg were seised of the estate.

In February 2005, the title to 'Lot 1' was transferred to Murray Donald George Stewart, M.S. Trustees Limited and Susan Meryl Stewart. In April 2005, the title to 'Lot 1' was transferred to Ryedale Investments Limited. In October 2006, the title to 'Lot 2' was transferred to Tetley Partners Limited and in April 2011 to Tetley Limited Partnership.

A Computer Freehold Register record issued on 01 February 2013 listed Tigr Investments Limited as the proprietors.

2.2.2 Western Bay of Plenty District Council Files

The property file relating to the site was provided by Western Bay of Plenty District on USB, dated 24 December 2015. The following information was identified on the property file:

- According to a record referencing a meeting between the Council and Paul Ellison and Terry Molloy dated 08 December 2015, the proposed subdivision comprises 13 lots with 2 access ways. The site is reportedly serviceable by water and wastewater and archaeological sites registered with Heritage NZ are reportedly affecting the property.

2.2.3 Bay of Plenty Regional Council Files

The Bay of Plenty Regional Council noted in a letter dated 6 January 2016 that it holds information on the Selected Land Use Register relating to Hazardous Activities and Industry List (HAIL) activity. The file number is WBOP_1038. Records held by the Council reportedly show that the site supported HAIL A.10 activates (persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds) over an unknown period.

A record dated December 2014 stated that "*the aerial photograph from 2003 has confirmed an orchard was located on this property, where persistent pesticides have been stored or used. However, the aerial photograph from 2007 confirmed the orchard has been removed.*"

The Bay of Plenty Regional Council GIS system shows approximately 80 HAIL sites within 500m of the site. The majority of these HAIL sites have been listed as HAIL A.10, apart from the following:

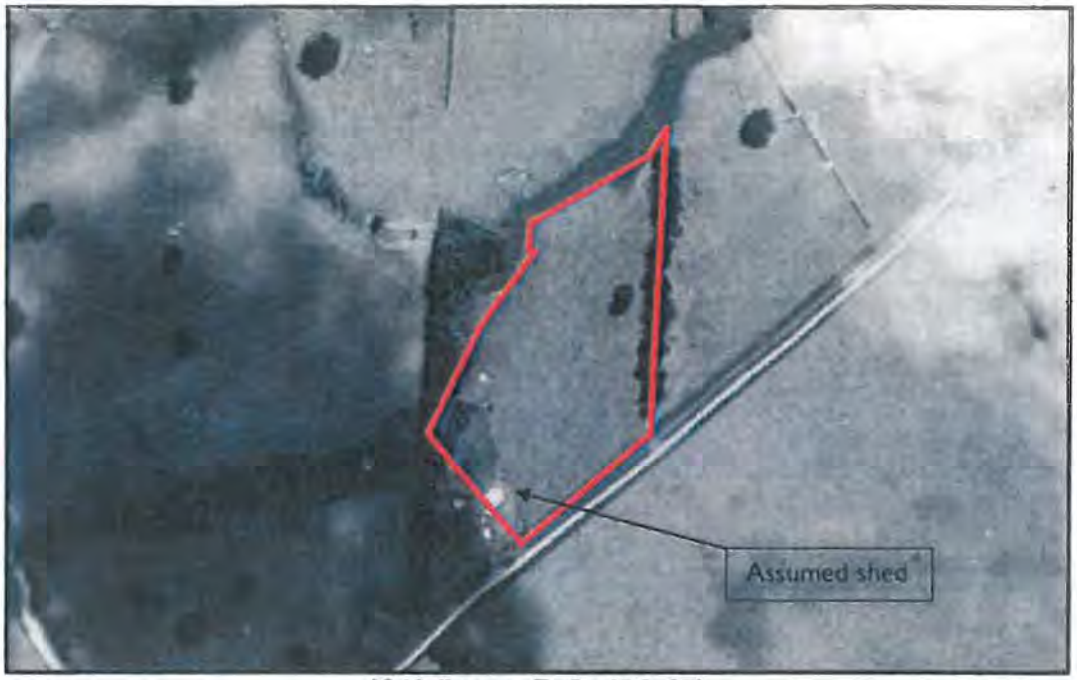
- HAIL F.4 (Motor vehicle workshops) located approximately 315m southwest of the site.
- HAIL E.4 (Commercial concrete manufacture or commercial cement storage) located approximately 380m southwest of the site.

2.2.4 Historic Aerial Images

Aerial images are reviewed to present a snapshot in time, and give an indication of what activities may have been undertaken at the site.

The earliest reviewed image dated 1943 (below) indicates that the majority of the site historically supported undeveloped land, assumed to have been utilised for grazing purposes. A section of an assumed shed encroached onto the south-western boundary of the site.

The surrounding area at this time predominately supported undeveloped land assumed to have been utilised for grazing purposes.



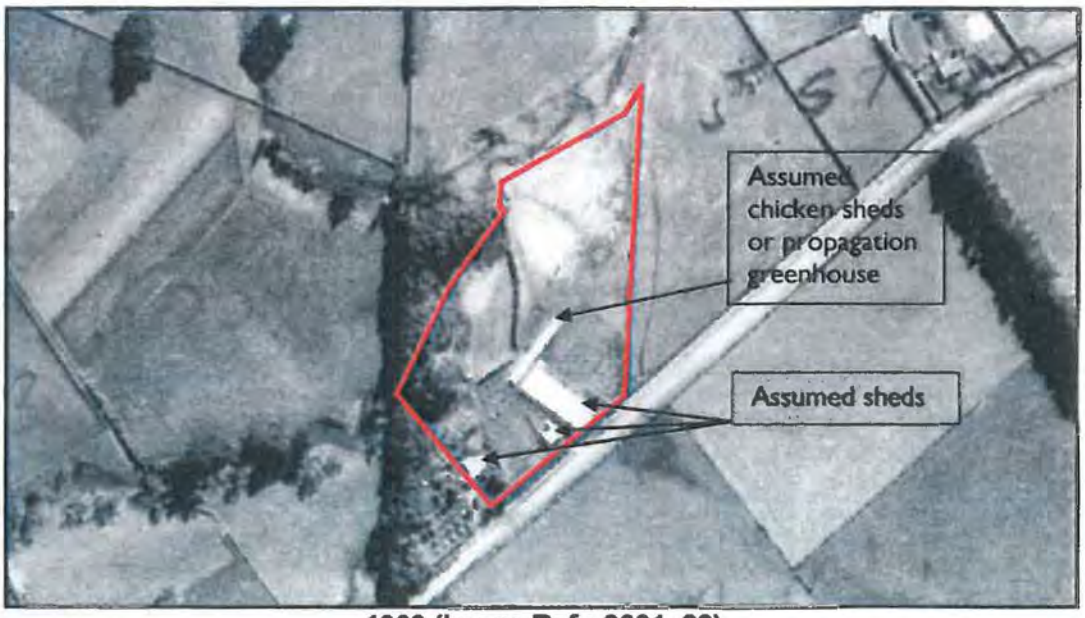
1943 (Image Ref.: 494_37)



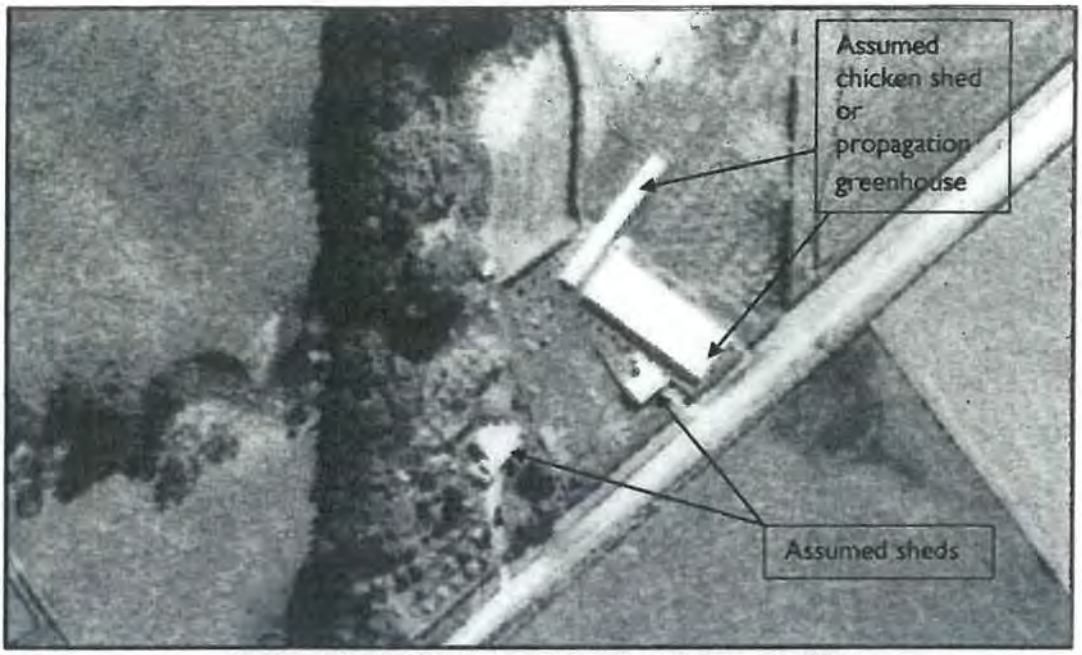
1943 – Close-Up View of the Assumed Shed On-Site

The aerial image dated 1960 (below) indicates that between 1943 and 1960, the majority of the site had been redeveloped into an orchard and an elongated structure (assumed chicken sheds or propagation greenhouse) and two further assumed sheds had been constructed within the southern area of the site.

The predominant land use within the surrounding area remained as pastroal farming, however, the orchard on-site extended off-site to the southwest at this time.



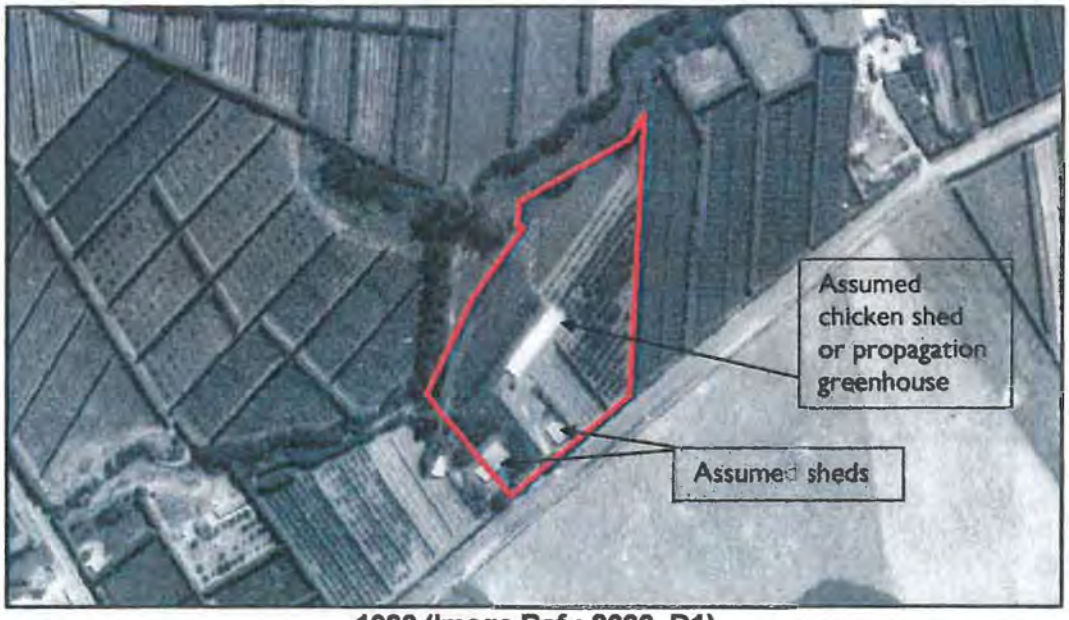
1960 (Image Ref.: 3001_22)



1960 – Close-Up View of the Structures On-Site

The aerial image dated 1986 (below) indicates that between 1960 and 1986, the orchard on-site had been expanded, and extended up to the northern boundary of the site. Furthermore during this time, one of the assumed sheds situated within the southern area of the site had been cleared.

Between 1960 and 1986, the majority of the surrounding area had been redeveloped into numerous orchard.

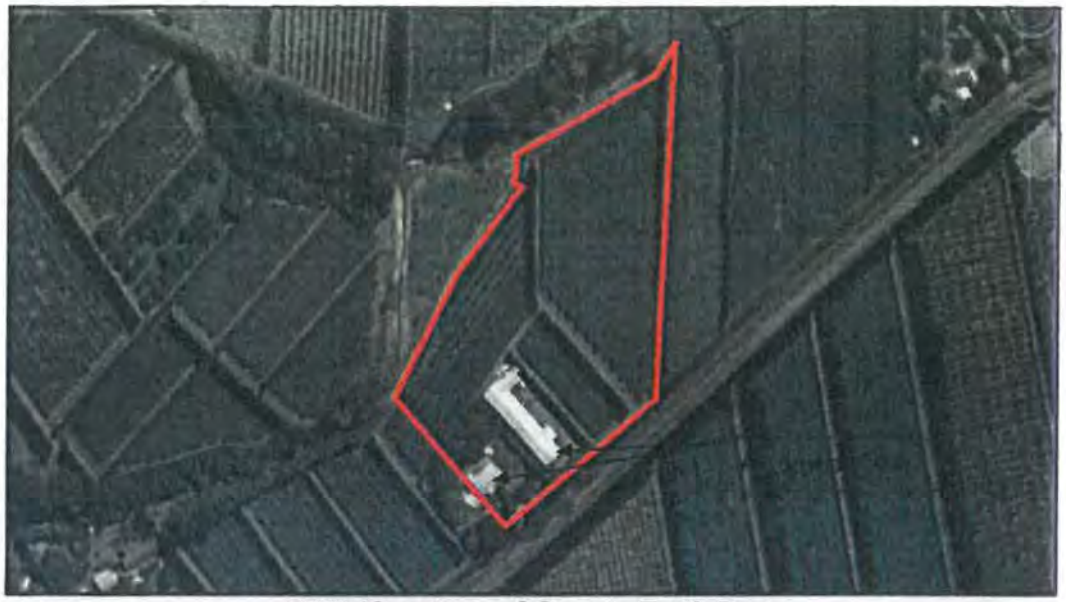


1986 (Image Ref.: 8626_D1)

The aerial image dated 2003 (below) indicates that between 1986 and 2003, the row structure of the area of orchard within the eastern area of the site has been altered and the assumed chicken shed or propagation greenhouse, and one of the assumed sheds on-site had been cleared.

Furthermore during this time, an elongated assumed shed had been developed within the southern area of the site.

By 2003, numerous additional orchards had been developed within the surrounding area.



2003 (Courtesy of Google Earth Pro)

The aerial image dated 2007 indicates that between 2003 and 2007, the orchard on-site had been cleared. Furthermore, the larger of the two sheds on-site had been cleared and the majority of the site supported grass cover. The section of the shed which encroached onto the south-western boundary of the site remained present at this time. By 2007, construction of a large-scale residential development had commenced off-site, to the west of the site.



2007 (Courtesy of Google Earth Pro)

The aerial image dated 2010 indicates that between 2007 and 2010, the shed which encroached onto the south-western boundary of the site had been cleared. Furthermore, by 2010, earthworks (assumed stripping of topsoil on-site, potentially associated with near-by large-scale residential development to the west of the site) appear to have been undertaken within the eastern and western areas of the site and three possible stockpiles of soil were evident within the north-western area of the site.



2010 (Courtesy of Google Earth Pro)

By 2011, the areas of earthworks on-site had become vegetated with grass and the current site layout was present.



2011 (Courtesy of Google Earth Pro)

2.3 Previous Investigations

No evidence of previous ground contamination investigations was identified during the course of undertaking this DSI.

2.4 Current and Future Use

The site currently supports a number of grass-covered grazing paddocks. It is understood that the site is planned to be redeveloped for residential purposes.

2.5 Geology and Hydrology

The site is generally flat in topography. The geology is mapped as Middle Quaternary aged alluvium and colluvium described as "*alluvial and colluvial gravel, sand and mud, commonly pumice-rich in central areas, with intercalated lignite or peat; locally includes non-welded ignimbrite and tephra, and, in the south and east, loess.*"

A stream is located adjacent to the north and west of the site and Tauranga Harbour is located from approximately 980m southeast of the site.

Two groundwater abstraction bores are recorded within a 500m radius of the site, the nearest of which is located approximately 140m east of the site. The bore (Well Number 1322) is shown on the Bay of Plenty Regional Council GIS website as being 181m deep, however the standing water is not recorded. The bore was drilled in July 1983 and is recorded as 'current'.

2.6 Additional Site Information

Additional details concerning the site's present disposition are summarised in Table 1 below.

Table 1: Summary of Additional Site Information

Ownership	– The occupations of the previous site owners have included a clerk and a poultry farmer prior to the title being transferred to 'Ryedale Investments Limited', 'Tetley Partners Limited', 'Tetley Limited Partnership' and then to 'Tigr Investments Limited'.
Zoning/Classifications	– The site are zoned "residential" in the Western Bay of Plenty District Plan, and the north-western boundary of the site is listed as a "floodable area".
Caveats / Covenants	– None identified.
Easements	– It is understood that the property is subject to a right (in gross) to drain sewage.
Building Consents / Permits	– The Western Bay of Plenty District Council property files were reviewed on 09 February 2016 by Geohazard Environmental staff. The property files contained no building permits/PIMs issued for the site however, according to a record dated 08 December 2015, the proposed subdivision comprises 13 lots with 2 access ways.
Resource Consents	– A current consent for 'permanent storm water discharge and structure' is recorded at the site (consent ID - 65337.0.01-DC) – No other resource consents have been identifed with respect to activities on the site from either the Bay of Plenty Regional Council or the Western Bay of Plenty District Council.
Underground / Aboveground Storage Tanks	– None identified.
Sewerage and Services	– It is understood that the site is serviceable by water and wastewater however, no further information has been identified with regards to on-site sewerage and services.

2.7 Summary of Desktop Information

The site historically supported land assumed to have been utilised for grazing purposes. From at least 1960 until pre-2007, the site supported an orchard. From at least 2010 until present, the site has supported undeveloped land utilised for grazing purposes. The historical pastoral farm use and subsequent orchard use of the site represents a potential source of contamination from the potential broadcast application of fertilisers and persistent pesticides, as well as the potential stockpiling and/or spreading of chicken litter, potentially containing arsenic from mite control.

A number of structures (assumed sheds and a possible propagation greenhouse or chicken shed) have historically been present on-site, the earliest of which dated back to pre-1943. The types of materials stored within these structures is unknown, therefore, these too represent a potential source of contamination (from the potential bulk storage of fertilisers, persistent pesticides etc).

It should be noted that earthworks (assumed stripping of topsoil on-site, potentially associated with near-by large-scale residential development to the west of the site) appear to have taken place within the eastern and western areas of the site between 2007 and 2010. However no evidence of infilling has been identified.

Table 2, below outlines typical contaminants found on land uses similar to the site. It does not imply some or all the contaminants will be found on site.

Table 2: Contaminants on Similar Sites

Activity or Industry	Possible Contaminants	Possible Locations	Possible Vertical Extent	Notes
Pastoral Farming	Pesticides, heavy metals	Elevated concentrations in and around sheds, near water supplies (mixing chemicals), animal holding yards and dips. Lower or residual levels across paddocks from fertiliser and pesticide broadcast application.	Surface soils (0.0 to 0.1m) likely to be affected by surface application of pesticides. Deeper soils may be affected where ploughing has occurred. Deeper soils may be affected by point-source spills etc.	A number of assumed sheds have historically been present on-site.
	Hydrocarbons	Fuel storage areas, sheds and workshops on farm	Deeper soils (to groundwater) may be affected by downward migration of hydrocarbons.	No fuel storage areas have been identified on-site.
Poultry Farming	Heavy metals	Metals such as arsenic used for mite control may be found in manure stockpiles and poultry litter. May be spread over farmland.	Surface soils (0.0 to 0.1m) likely to be affected by surface application of pesticides. Deeper soils may be affected where ploughing has occurred.	A number of assumed sheds have historically been present on-site which may have housed chickens.
Orchards	Pesticides, heavy metals	Elevated concentrations in and around sheds, near water supplies (mixing chemicals), lower or residual levels in orchard areas	Surface soils (0.0 to 0.1m) likely to be affected by surface application of pesticides. Deeper soils may be affected where ploughing has occurred. Deeper soils may be affected by point-source spills etc.	A number of assumed sheds and a possible propagation greenhouse associated with the orchard use of the site have historically been present on-site
	Hydrocarbons	Fuel storage areas, sheds and workshops on farm	Deeper soils (to groundwater) may be affected by downward migration of hydrocarbons	No fuel storage areas have been identified on-site.

3.0 SITE CONDITION AND SURROUNDING ENVIRONMENT

3.1 Site Inspection

A site inspection of the entire site area of 2.1 hectares was conducted on 24 December 2015. The inspection was conducted by Geohazard Environmental Ltd staff to examine the site and observe any evidence of contamination. Specific points noted are conditions at the site boundaries and visible signs of contamination or odours that might suggest contamination. A cursory inspection of factors that relate to site geology and hydrology is also performed to ensure consistency with what is known of the surrounding area. An overall picture of the site geology and hydrology is useful in assessing the transport potential of contaminants to or from the site.

3.2 Conditions at Site Boundaries

Conditions at the site boundaries are as described below:

North – Stream, beyond which an orchard is located
East – Orchard
South – Tetley Road, beyond which an orchard is located
West – Grazing land and a residential dwelling

The majority of the site boundaries are defined with vegetation and fences, however the northern and western boundaries of the site are not currently defined. Fencing will not affect migration of any contaminants onto or off the site.

3.3 Visible Inspection, Signs of Contamination and Odours

The ground surface at the area of the site is currently in pasture, in good condition. There were no noticeable bare patches. No remnants of any structures were observed during the site walkover.

Photographs 1 and 2 show the general nature of the site. No specific features were observed requiring photographs.

From the visible indications, there is no evident sign of contamination at the site. The absence of odour is consistent with there being no obvious indications of gross contamination from site inspection.



Photograph 1: General view of the site looking west



Photograph 2: General view of the site looking northeast

4.0 DISPOSITION OF SITE CONTAMINATION

The disposition of any contamination at site must be confirmed with results from field sampling and analysis, and, for contaminated land, these results must be evaluated against soil guideline values (SGV), also known as soil contaminant standards (SCS). This section summarises appropriate SCS for the site, followed by Geohazard Environmental Ltd review of readily available information concerning the disposition of site contamination.

4.1 Basis for Soil Contaminants Standards (SCS)

A SCS is a first stage screening value that provides the concentration of a contaminant in soil to which people (and/or ecological receptors) on or near a site can be exposed without creating an unacceptable level of risk to health. For the protection of human health, SCS are derived by defining a critical receptor (e.g. a child of a certain age and weight) and defining tolerable daily intake for a particular contaminant. Then, using assumptions regarding exposure (e.g. amount, duration, pathway), the soil concentrations that would equal the tolerable daily intake are calculated. Exposure pathways reflect how people are exposed to contaminants.

SCS are based on generic exposure scenarios based on use. An exposure scenario is a combination of exposure pathways typical of a particular activity or use in which exposure to soil contaminants is likely to occur; an activity could be, for instance, a child playing in a residential area. The intent is to estimate the intake of a contaminant for each particular scenario. For simple risk assessment, generic use scenarios are used, with a standard combination of exposure pathways for each scenario. The generic use scenarios used for the SCS are intended to be typical of the great majority of situations in which New Zealanders may be exposed to soil contaminants.

The site investigated here is classed as residential by the Western Bay of Plenty District Council, and also considering the site's residential use, the "residential grown produce consumption (up to 10 %)" use scenario, described in Table 3 below, is most relevant to this investigation. As a result, based on the MfE Guidelines, any results should be assessed against SCS given for this scenario. There are both more conservative and more liberal standards that could be applied; however, the one presented is appropriate both to the use classification of the site based on the information available.

Table 3: Use Scenario Most Relevant to this DSI.

Parks / Recreational	Covers exposure at public and private green areas and reserves that are used for active sports and recreation. This scenario is intended to cover playing fields and suburban reserves where children play frequently. It can also reasonably cover secondary school playing fields but not primary school playing fields.
Residential grown produce consumption (up to 10 %)	Covers standard residential lots for single dwelling sites with gardens, including home-grown produce consumption (up to 10 %).
Rural/ lifestyle block	Rural residential use, including home-grown produce consumption. Applicable to the residential portion of farms, but not productive parts of agricultural land.
Industrial	Commercial / industrial sites with varying degrees of exposed soil.

SCS in this report, tabulated in Section 4.3, are taken from the National Environmental Standards (NES) and New Zealand Ministry for the Environment (MfE) wherever possible. In some cases, the MfE has not developed a specific SGV for some contaminants under some use scenarios. When MfE values are unavailable, guideline values from reputable sources such as the Australian

National Environmental Protection Council (NEPC) are used, according to acceptable SGV sources and the hierarchy of use for these sources that is specified by the MfE (2007).

The NES for contaminated land was introduced in order to address a legacy of soil contamination in New Zealand that has resulted from the use, and improper storage and disposal, of chemicals in industry and agriculture.

The NES controls apply to "Land use change, subdivision, and disturbance of any land where, according to the best information available to the local authority, there has been a facility on the land or a hazardous activity carried out on the land that may have involved the intentional or accidental discharges of hazardous substances that could now be a risk to human health". Hence the NES is applicable to the present site due to the proposed residential development. The NES contains SCS, and where present these supersede those previously published in MfE industry-specific guidelines.

4.1.1 Regional Council Guidelines

In addition to human health standards, the Bay of Plenty Regional Council requires that contaminants be assessed against guidelines for the protection of the environment. Rule 35 of the Regional plan states that disturbance of contaminated soils is a Restricted Discretionary Activity. This includes creating access ways or services. The applicable guidelines are shown in the tables below.

The BOPRC also presents "background" trace elements data with respect to land use. The background data is based on limited sample numbers from soils under varying land use and is not considered to be a suitable representation of natural background concentrations. The NES defines background as "natural background" levels, and so the Indigenous Forest levels described in the BOPRC report must be used.

4.2 Field Sampling and Analysis

For this DSI, the Client's brief specifically entailed conducting field sampling and analysis, and this provides an evidentiary basis for determination of the disposition of contaminants at the site. Geohazard Environmental Ltd took 24 individual surface soil samples, each of which were analysed for a suite of metals. 16 of the 24 samples were taken along a 34m grid basis to allow for valid statistical analysis. The remaining 8 samples were taken within the vicinity of a number of the former structures on-site. In addition, the samples were composited (mixed) in the laboratory and analysed for a suite of persistent pesticides. The purpose of taking composite samples, i.e. samples that represent a mixture of several sub-samples taken from different locations, is to reduce needless laboratory expense – if contamination is present at high levels, even if some of the sub-samples are uncontaminated, the resulting sample will still reflect the presence of the contaminated sub-samples that went into the composite.

Samples were collected using a hand auger. The auger was cleaned between each sample location using Decon90 (a non-phosphate laboratory grade detergent) and deionised water. Samples were placed into laboratory supplied jars, and placed into a chillibin with ice. Samples were couriered to Hill Laboratories in Hamilton under Chain of Custody documentation.

Information about the site indicates that HAIL (Hazardous Activities and Industries List) associated use has occurred (HAIL A.10), hence HAIL compounds associated with this use were chosen for analysis.

4.3 Results

The results from analysis of samples, summarised in this section, indicate that some contaminant concentrations exceed guideline values. Per MfE Guidelines, all results reported herein that exceed SCS are highlighted; this report uses grey highlighting to emphasise any results over guideline values. The results from analysis of samples for heavy metals are summarised in Table 4 below.

Table 4: Results from Analysis for Heavy Metals (all results in mg/kg).

Sample	Arsenic mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Nickel mg/kg	Zinc mg/kg
General former Orchard Area							
HA01	9	0.42	9	46	13.6	3	125
HA02	11	0.26	14	33	29	8	94
HA03	7	0.35	6	35	12.5	3	72
HA04	6	0.7	8	100	13	4	230
HA05	7	0.34	6	42	14.1	3	90
HA06	7	0.33	6	55	13.1	2	98
HA08	10	0.39	5	31	18.6	5	196
HA09	6	0.39	8	35	14.8	4	101
HA10	6	0.15	10	17	15.4	6	65
HA11	7	0.59	10	31	13.9	5	108
HA12	6	0.24	8	18	14.6	5	68
Within the Vicinity of the Former Structures On-Site							
HA07	6	0.21	5	25	14.5	< 2	92
HA13	7	0.35	6	39	23	2	151
HA14	54	0.36	46	62	47	2	156
HA15	8	0.19	7	30	23	2	93
HA16	11	0.27	9	30	34	< 2	96
HA17	10	0.5	10	42	43	5	210
HA18	7	0.27	8	31	36	3	156
HA19	7	0.24	9	22	30	4	168
HA20	6	0.21	10	26	34	3	186
HA21	10	0.55	8	35	34	4	185
HA22	8	0.27	10	25	24	3	129
HA23	80	0.38	23	66	58	3	330
HA24	8	0.29	7	35	26	2	187
SGV (Residential)	20 [a]	3 [a]	460 [a]	>10,000 [a]	210 [a]	400 [b]	7400 [b]
Environmental [c]	100	7.5	400	325	250	105	400
"Background" (indigenous forest) [d]	6.4	0.08	3.0	15.0	8.4	1.4	29.6

Cells highlighted in grey exceed SGV.

a) MfE 2012 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health,
b) National Environment Protection Council (NEPC) updated 2013. Guideline on Health-Based Investigation Levels and Ecological Investigation Levels. *=standard residential
c) Bay of Plenty Regional Council Interim Environmental Guidelines
d) Bay of Plenty Regional Council (2011) Trace Elements in Bay of Plenty Soils

Table 6 below summarises results from analysis for *detected* pesticides.

Table 6: Results from Analysis for Detected Pesticides (all results in mg/kg).

Sample	4,4'-DDE	2,4'-DDT	4,4'-DDT	Total DDT Isomer
Composite of HA01 - HA04	0.143	< 0.010	0.052	0.2
Composite HA05 - HA08	0.178	0.014	0.068	0.26
Composite HA09 - HA12	0.014	< 0.010	< 0.010	< 0.06
Composite HA13, HA16, HA23 and HA24	< 0.010	< 0.010	< 0.010	< 0.06
Composite HA15, HA17, HA18 and HA19	< 0.010	< 0.010	< 0.010	< 0.06
Composite HA14, HA20, HA21 and HA22	0.012	< 0.010	< 0.010	< 0.06
SGV (Residential)	-	-	-	70[a]
Adjusted SGV	-	-	-	17.5
Environmental [c]	-	-	-	0.7

a) MfE 2012 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health,
b) National Environment Protection Council (NEPC) updated 2013. Guideline on Health-Based Investigation Levels and Ecological Investigation Levels. *=standard residential
c) Bay of Plenty Regional Council Interim Environmental Guidelines

4.3.1. Additional Testing

Additional testing for arsenic and heavy metals was undertaken on 24 February 2016 by Geohazard Environmental Ltd staff. Individual surface soil samples were collected 5m north, south, east and west of HA14 and HA23 and tested for arsenic only. Furthermore, individual surface soil samples were collected to the north of one of the former sheds which was demolished pre 2007 (HA25) and within the footprint of another smaller former shed which was demolished pre 2003 (HA26). HA25 and HA26 were tested for heavy metals.

The results from analysis of samples indicate that one exceedance of arsenic was identified at HA26 (within the footprint of a former small shed situated within the south of the site dating from at least 1960 until pre 2003). No other exceedances of contaminants were identified within the additional samples taken, however it is noted that the majority of contaminants were found to be elevated above natural background levels (but within guidelines for the protection of human health). The results from analysis of the additional samples taken are summarised in Table 7 below.

Table 7: Results from Analysis of the Additional Samples Taken (all results in mg/kg).

Sample	Arsenic mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Nickel mg/kg	Zinc mg/kg
HA14-5MN	13	-	-	-	-	-	-
HA14-5ME	9	-	-	-	-	-	-
HA14-5MS	16	-	-	-	-	-	-
HA14-5MW	9	-	-	-	-	-	-
HA23-5MN	8	-	-	-	-	-	-
HA23-5ME	10	-	-	-	-	-	-
HA23-5MS	11	-	-	-	-	-	-
HA23-5MW	5	-	-	-	-	-	-
HA25	6	0.32	7	24	45	2	185
HA26	33	0.46	26	39	43	3	210
SGV (Residential)	20 [a]	3 [a]	460 [a]	>10,000 [a]	210 [a]	400 [b]	7400 [b]
Environmental [c]	100	7.5	400	325	250	105	400
"Background" (indigenous forest) [d]	6.4	0.08	3.0	15.0	8.4	1.4	29.6

Cells highlighted in grey exceed SGV

a) MfE 2012 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health,
b) National Environment Protection Council (NEPC) updated 2013. Guideline on Health-Based Investigation Levels and Ecological Investigation Levels. *=standard residential
c) Bay of Plenty Regional Council Interim Environmental Guidelines
d) Bay of Plenty Regional Council (2011) Trace Elements in Bay of Plenty Soils

Copies of all laboratory results are given in Appendix C.

5.0 SITE CHARACTERISATION

5.1 Type of Environmental Contamination

The term contaminant refers to a substance that is not normally present in the environment. For this report however, the following operational definition is used: a contaminant is a substance that is present at levels that might cause harmful effects to humans or the environment. Therefore, this report does not consider whether or not the levels present are from natural sources or not, but only whether or not contamination is likely to, or does, exist above safe levels, i.e. SCS.

The results from analysis of samples taken at site indicate that contaminants are present at levels above SCS, and therefore, the site is contaminated with respect to the operational definition given above. Results of exceedances are summarised in Table 8 below.

Table 8: Summary of Environmental Contamination at Site.

Contaminant	Exceeds the SGV by a factor of
Arsenic	165% – 400%

The Upper Confidence Limit (UCL) gives an indication of the expected levels of contaminants across a site. In accordance with Ministry for the Environment guidelines, a 95% UCL for a site that is less than SCS is considered acceptable, provided no individual result is more than twice the published SCS. Given that two individual results of arsenic detected within the surface level soil samples taken at HA14 and HA23 were more than twice the published SCS for residential use, a 95% UCL cannot be used for this site.

5.2 Extent of Environmental Contamination

Arsenic was originally detected in two samples (HA14, located within the southern area of the site, adjacent to the north of a number of former structures on-site, and HA23, located adjacent to the southeast of the former shed which historically encroached onto the south-western area of the site). Following undertaking additional soil sampling around HA14 and HA23 in an attempt to delineate the extent of the arsenic contamination, no exceedances of arsenic were identified above guideline values in the additional samples taken five metres north, east and west of the original sample locations. However, an additional surface level soil sample taken within the footprint of a former shed location situated near to the south-eastern boundary of the site (HA26) also found to be exceeding the guideline values for arsenic for a residential land use. Furthermore, a number of other samples contained contaminants (including cadmium, chromium, copper, lead and zinc) above natural background levels, but within guidelines for the protection of human health (including HA02, HA08, HA16, HA17, and HA21).

The source of the contamination is not confirmed, however potential sources include the historical broadcast application and/or bulk storage of persistent pesticides, spreading or poultry waste with elevated arsenic, or stockpiled treated old fence posts that have leached to the ground. Given that the majority of samples taken across the site found arsenic and lead to be evaluated above natural background levels, this indicates that the source is more likely from the potential historical broadcast application. Given that the exceedances of arsenic were detected within the area of the site which historically supported a number of sheds, the potential for the bulk storage of pesticides to have taken place on-site cannot be discounted. An alternative likely scenario is arsenic-based additives in poultry food, used to control mites.

The foregoing provides an assessment of the extent of the contamination at the site based on the information at hand, however it should not be regarded as definitive due to the nature of this investigation.

5.3 Potential for Degradation and Interaction

The following information has been identified following a review of the book Soil Degradation, Conservation and Remediation, prepared by Khan Towhid Osman, dated 2014. It should be noted however that Geohazard Environmental Ltd cannot warrant the work of others:

5.3.1 Arsenic

All rocks contain some arsenic. Some igneous and sedimentary rocks may contain higher arsenic concentrations. The sources of arsenic in soils are both geochemical and anthropogenic. Metallic arsenic is mainly used for strengthening alloys or copper and lead. Arsenic is used in semiconductor electronic devices. Arsenic compounds where historically used for the production of pesticides. Indiscriminate use of arsenic pesticides during the early to mid-1900s has led to extensive contamination of soils worldwide.

Arsenic is considered to be persistent in the environment, and unlikely to degrade at a rate that would be beneficial to occupiers. Inhalation and ingestion are the two routes of exposure. Long-term exposure to arsenic in drinking water is causally related to increased risks of cancer in the skin, lungs, bladder and kidney. Occupational exposure to arsenic by inhalation is causally associated with lung cancer. Arsenic can cause clastogenic damage in different cell types with different end-points in exposed individuals and in cancer patients. For point mutations, the results are largely negative. Arsenic can also inhibit degradation of any organics by adversely affecting microbial action in site soils if levels are high enough.

5.4 Additional Risk Assessment

5.4.1 Arsenic

The results show elevated arsenic above SCS within three samples taken in the south of the site (within the vicinity of a number of former sheds), indicating the likely source is processes or storage of contaminants in and around those sheds.

Furthermore, elevated contaminants above natural background levels (including lead and arsenic) were found within a number of samples taken across the site (including HA02, HA08, HA16, HA17, and HA21), indicating the potential for historical broadcast application of persistent pesticides or spreading of chicken manure containing arsenic to have occurred. In general the broadcast application/spreading does not appear to have raised background concentrations to unacceptable levels.

5.5 Exposure Routes and Risks to Exposed Populations

For human health, exposure is the primary concern, and below we summarise ways by which exposure is most likely to occur:

- Surface soils (0-1 m)
  - Soil ingestion;
  - Dermal contact (absorption through skin); and
  - Inhalation of soil, dust, or volatised contaminants.

- Sub-surface soils (> 1 m)
  - Water-borne migration of contaminants to surface during times of high rainfall (enabling exposure via all three routes above); and
  - Inhalation via diffusion of vapour-phase contaminants to the surface.

Of these exposure routes, soil ingestion and dermal contact are likely because of the proposed use of the site for residential purposes. Inhalation of dust provides a minor pathway.

There are contaminants at levels that exceed SCS, and there are exposure routes by which site users could be exposed. Since guideline values are risk-based and designed to minimise human health risks, these two points for the basis for identifying a potential unacceptable risk to users.

There are contaminants detected at levels that exceed SGV. Table 9 therefore shows a conceptual site model **with linkage** between contamination source, pathways and receptors.

Table 9: Conceptual Site Model

Source	Pathway	Receptor	Linkage Present
Non-volatile contaminants (e.g. heavy metals)	Ingestion, dermal contact, inhalation	Site occupiers	Possible, elevated contaminants present on site

5.6 NES Consents

The National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health (NES) outlines various 'Permitted Activities' (not requiring consent) and 'Controlled, Restricted Discretionary and Discretionary Activities' (requiring resource consent). The advice of a planner should be sought to ensure all consent requirements are met.

The results show elevated arsenic above SCS within three samples taken in the south of the site (within the vicinity of a number of former sheds and a former assumed chicken shed or propagation greenhouse), indicating the potential for historical bulk storage of persistent pesticides, bulk storage of poultry food with arsenic-based additives, or stockpiling/spreading of chicken litter with elevated arsenic. Furthermore, elevated contaminants above natural background levels (including lead and arsenic) were found within a number of samples taken across the site (including HA02, HA08, HA16, HA17, and HA21), indicating the potential for historical broadcast application of persistent pesticides or spreading of chicken litter with elevated arsenic to have occurred. It is more likely than not that persistent pesticide application and bulk storage (HAIL A10) occurred, and/or HAIL I, land subject to intentional or accidental release of hazardous substances. The site is considered to be a "piece of land' under NES legislation.

5.6.1 Land Use Change

Section 8(4) of the NES states that subdivision or land use change is a Permitted Activity, provided a PSI exists, and the PSI states that it is highly unlikely that there will be a risk to human health. A PSI has not been undertaken (although desktop information is this report is identical to that of a PSI). Due to the presence of unacceptable levels of contaminants, it cannot be stated that it is highly unlikely there is a risk to human health. The proposed change of land use cannot be considered a "Permitted Activity" under NES legislation.

A Controlled Activity consent requires a DSI to state that the soil contamination does not exceed the applicable standards, whereas a "Restricted Discretionary" consent is for where contaminants are present above applicable guidelines. This report states soil contamination **exceeds** applicable standards, therefore a **Restricted Discretionary Consent** is most appropriate.

5.6.2 Earthworks

The NES sets permitted standards in relation to soil disturbance under Regulation 8(3).

The site is approximately 21380m^2. Based on calculations provided in the NES, approximately 1,069m^3 may be disturbed as a permitted activity. There are other criteria regarding permitted activities that a planner will be able to assist with. Exceedance of permitted volumes and other criteria means a consent may be required by the local council.

Geohazard Environmental Ltd has not been provided with details relating to the potential earthworks associated with the development of the proposed residential dwellings. Therefore, the potential for the earthworks associated with the development to require consent cannot be confirmed at this stage.

Results from analysis of samples found arsenic above human health guidelines within some areas of the site. Therefore, it is considered likely that the southern area of the site (within the vicinity of the former structures historically located on-site) will likely present a risk to human health for the "soil disturbance activity" during the proposed redevelopment earthworks.

Soils are unlikely to be suitable for disposal to cleanfill, and will likely have to go to landfill. Landfills may require a leachate generation (TCLP) test to confirm acceptance. The nearest Class A landfills are in Tauranga and Rotorua. A landfill site in Te Aroha may accept some waste.

Where material is required to be removed from site, the contractor should assess suitability of disposal site in liaison with councils and fill site operators. Earthworks at the site should be undertaken in accordance with best practice. This includes:

- Minimising dust generation by watering the earthworks are if required, or using other dust suppression substances.
- Wearing full-sleeved clothing and gloves to minimise skin exposure to soils.
- Providing dust masks to workers for use in dusty conditions.
- Avoid stockpiling material on site prior to offsite disposal where possible.
- Reinstate surfaces at the works area as soon as practical after earthworks.

5.7 Other Consent Requirements

The Bay of Plenty Regional Water and Land Plan Rule 35 requires consent for remediation or disturbance of a contaminated site. The BOPRC defines a contaminated site as "*a location at which hazardous substances in soil, groundwater or surface water occur at concentrations above background levels....and where assessment indicates those substances pose....a hazard to human health or the environment*".

Given that elevated arsenic above SCS was identified on-site and remediation is recommended, consent for remediation and disturbance of a contaminated site will likely be required from the Bay of Plenty Regional Council.

The advice of a planner should be sought to ensure all consent requirements are met.

6.0 PROPOSED SITE REMEDIATION OPTIONS

Soils within the southern area of the site have been identified as containing elevated levels of contaminants, specifically arsenic. Remediation is likely to be required. Potential works includes several options, which are outlined below. The Client may elect which option they choose and advise the Western Bay of Plenty District Council accordingly.

A full Remediation Action Plan and/or Site Management Plan is likely to be required as part of any Resource Consent application.

6.1 Remediation Objectives

The objectives of any remediation are to remove linkages between the source (contaminated soils) and receptors (residential site occupiers). The linkages can be removed by either:

- Excavation of all affected soils, thereby removing the source.
- Restricting access to affected soils (by importation of clean soils, placement of hard surfaces such as driveways and the dwellings themselves) and utilising raised vegetable gardens.
- Soil mixing.
- A combination of the above.

The remediation techniques are briefly described below. A Remediation Plan or Site Management Plan is likely to be required as a consent condition, which would further detail the proposed remediation.

6.2 Option 1: Remediation Earthworks (Excavation & Importation of Clean Topsoil)

Excavation of all soils within an appropriate radius of the former structures on-site to a depth of at least 200mm across the southern area of the site which historically supported a number of former structures (including numerous sheds and a greenhouse). To be conservative, a depth of 300mm soil removal is preferred. Delineating the horizontal and vertical extent of the affected area is recommended prior to undertaking the remediation earthworks.

Excavated soils are to be removed from the site and taken to an appropriate disposal location. Class A and B landfill operators may request additional leachate generation potential tests prior to acceptance. The nearest landfill site that *may* accept the waste is located near Te Aroha.

On-site disposal elsewhere could be explored, depending on the intended use of that area of the site. The Bay of Plenty Regional Council will require consent for this, and consent is typically not readily granted.

Imported soils bought onto the site must be verified as clean. This is best done at source rather than importing soils then testing.

6.3 Option 2 -Site Management (Soil Cap)

A cap over affected soils removes the pathway between the source and the receptor. The cap may include concrete or gravel driveways, the dwelling(s) and/or imported clean soils.

Imported soils can be sourced from any suitable location. Testing of imported soils is required to ensure that additional contaminants are not bought onto site soils. A minimum depth of verified clean imported soils includes:

- 300mm of clean soils if vegetables are grown in site soils.
- 100mm if raised vegetable gardens are to be used.

Topsoil excavated for placement of a driveway or roadway will need to be handled and disposed of correctly. The depth of soil removed under driveways can be limited to the minimum required to develop a suitable sub-base, and may be less than 300mm.

6.4 Option 3- Soil Mixing

Soil mixing involves ploughing site soils to mix affected surface soils with unaffected deeper soils. It is suitable for sites such as this where contaminant concentrations are relatively low, uniform across the site, and likely to be at shallow depths.

The calculation provided by PDP in their report *Guideline for Contaminated Land Remediation by Soil Mixing* is used to estimate the appropriate mixing depth. The mixing depth in this section is provisional and dependant on further information regarding the vertical extent of contamination and additional data to determine a suitable site average.

Mixing depth calculation:

$$Y = \frac{x(a-b)}{0.9(SCS)-b}$$

Where:
Y = estimated vertical mixing depth (mm)
x = depth of soil profile where contamination is expected at level "a"
a = average concentration of contaminant at depth x (mg/kg)
b = average concentration of contaminant in underlying soils
SCS = soil contaminant standard.

For this site, the calculation is:
Y = estimated vertical mixing depth (mm)
x = 100mm, based on auger sample head length
a = 14.9 mg/kg, based on average of the 23 samples collected within the vicinity of the former structures on-site.
b = 5 (expected approximate background)
SCS = 20

$$Y = \frac{100(14.9-5)}{0.9(20)-5}$$

Where Y=76mm.

To be conservative, a mixing depth of approximately 150mm is recommended.

The mixing methodology is as follows:

- Tractor ripping to break up soils
- Disking
- Rotary hoeing

The disadvantages to soil mixing are:

- Validation sampling is typically required.
- The mixing may not be 100% effective, resulting in a larger volume of soil affected.

The advantages of soil mixing are:

- The relative speed of the works.
- Low cost.
- Other remedial works can be undertaken if mixing is unsuccessful.

6.5 Completion Reporting

A Completion Report, known as a "Site Validation Report" (SVR) is usually required when remedial works are undertaken. The following information is typically retained and presented at completion of the works:

- Volumes and locations of soil excavated from the site.
    - Includes provision of as-built plans.
- Transport operator details.
- Details of disposal location.
- Receipts from landfill operators showing the date and volume or tonnage of soil disposed.
- Details of any contingency measures invoked.
- Details of any additional sampling undertaken.
- A photographic record of works as they progress.

Where soil mixing is the chosen option, validation sampling is required.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Summary and Conclusions

The following summarises results from Geohazard Environmental Ltd.'s investigation of the site:

- The site currently supports a number of grass-covered grazing paddocks. It is understood that the site is planned to be redeveloped for residential purposes.
- No evidence of previous ground contamination investigations was identified during the course of undertaking this DSI.
- The site historically supported land assumed to have been utilised for grazing purposes. From at least 1960 until pre-2007, the site supported an orchard. From at least 2010 until present, the site has supported undeveloped land utilised for grazing purposes. The historical pastoral farm use and subsequent orchard use of the site represents a potential source of contamination from the potential broadcast application of fertilisers and persistent pesticides, as well as the potential stockpiling and/or spreading of chicken litter, potentially containing arsenic from mite control.
- A number of structures (assumed sheds and a possible propagation greenhouse or chicken shed) have historically been present on-site, the earliest of which dated back to pre-1943. The types of materials stored within these structures is unknown, therefore, these too represent a potential source of contamination (from the potential bulk storage of fertilisers, persistent pesticides etc).
- It should be noted that earthworks (assumed stripping of topsoil on-site, potentially associated with near-by large-scale residential development to the west of the site) appear to have taken place within the eastern and western areas of the site between 2007 and 2010. However no evidence of infilling has been identified.
- A site inspection of the entire site area of 2.1 hectares was conducted on 24 December 2015. From the visible indications, there is no evident sign of contamination at the site.
- Geohazard Environmental Ltd originally took 24 individual surface soil samples, each of which were analysed for a suite of metals. 16 of the 24 samples were taken along a 34m grid basis to allow for valid statistical analysis. The remaining 8 samples were taken within the vicinity of a number of the former structures on-site. In addition, the samples were composited (mixed) in the laboratory and analysed for a suite of persistent pesticides.
- The results from analysis of these original samples indicated that some contaminant concentrations around a number of the former buildings on-site exceed guideline values. As a result, additional testing for arsenic and other metals was undertaken on 24 February 2016 to delineate and refine the affected area. One further exceedance of arsenic was identified within the 10 additional surface level soil samples taken within the vicinity of the former structures situated in the south of the site.
- The source of the contamination is not confirmed, however potential sources include the historical broadcast application and/or bulk storage of persistent pesticides, spreading or poultry waste with elevated arsenic, or stockpiled treated old fence posts that have leached to the ground. Given that the majority of samples taken across the site found arsenic and

lead to be evaluated above natural background levels, this indicates that the source is more likely from the potential historical broadcast application. Given that the exceedances of arsenic were detected within the area of the site which historically supported a number of sheds, the potential for the bulk storage of pesticides to have taken place on-site cannot be discounted. An alternative likely scenario is arsenic-based additives in poultry food, used to control mites.

- Given that two individual results of arsenic detected within the surface level soil samples taken at HA14 and HA23 were more than twice the published SCS for residential use, a 95% UCL cannot be used for this site.

- Organochlorine pesticides were detected in site soils, albeit at a low level.

- The results show elevated arsenic above SCS within three samples taken in the south of the site (within the vicinity of a number of former sheds and a former assumed chicken shed or propagation greenhouse), indicating the potential for historical bulk storage of persistent pesticides, bulk storage of poultry food with arsenic-based additives, or stockpiling/spreading of chicken litter with elevated arsenic. Furthermore, elevated contaminants above natural background levels (including lead and arsenic) were found within a number of samples taken across the site (including HA02, HA08, HA16, HA17, and HA21), indicating the potential for historical broadcast application of persistent pesticides or spreading of chicken litter with elevated arsenic to have occurred. It is more likely than not that persistent pesticide application and bulk storage (HAIL A10) occurred, and/or HAIL I, land subject to intentional or accidental release of hazardous substances. The site is considered to be a "piece of land' under NES legislation.

- A Controlled Activity consent requires a DSI to state that the soil contamination does not exceed the applicable standards, whereas a "Restricted Discretionary" consent is for where contaminants are present above applicable guidelines. This report states soil contamination exceeds applicable standards, therefore a Restricted Discretionary Consent is most appropriate.

- The site is approximately 21380m^2. Based on calculations provided in the NES, approximately 1,069m^3 may be disturbed as a permitted activity. Geohazard Environmental Ltd has not been provided with details relating to the potential earthworks associated with the development of the proposed residential dwellings.

- Results from analysis of samples found arsenic above human health guidelines within some areas of the site. Therefore, it is considered likely that the southern area of the site (within the vicinity of the former structures historically located on-site) will likely present a risk to human health for the "soil disturbance activity" during the proposed redevelopment earthworks.

- Soils within the southern area of the site (within the vicinity of the former structures on-site) have been identified as containing elevated levels of contaminants, specifically arsenic. Remediation and/or site management is likely to be required. Potential works includes remediation earthworks, installing a soil cap, or soil mixing (see Section 6). The Client may elect which option they choose and advise the Western Bay of Plenty District Council accordingly.

- A full Remediation Action Plan and/or Site Management Plan is likely to be required as part of any Resource Consent application.

- Given that elevated arsenic above SCS was identified on-site and remediation is recommended, consent for remediation and disturbance of a contaminated site will likely be required from the Bay of Plenty Regional Council.

7.2 Recommendations

The advice of a planner should be sought, or contact made with the District and Regional Councils, prior to undertaking any earthworks at the site, to ensure all rules are complied with.

Based on the results of this DSI, Geohazard Environmental Ltd recommend to the Client that further assessment of the site be conducted to better constrain the nature, extent and impact contaminants detected in soil samples taken from the site, in accord with the MfE Guidelines for the Management of Contaminated Land.

The area requiring further investigation is situated within the south of the site, within the vicinity of the former structures which were historically present on-site. It is envisaged that the assessment would initially require the following:

- Additional soil sampling at surface and at depth to delineate the extent of the arsenic contamination.
- Assessment of risks to human health and/or the environment based on expanded results from additional investigation.
- Preparation of a Remediation Action Plan or Site Management Plan detailing proposed remedial works, most likely one of the options outlined in Section 6.0 of this report.

7.0 REFERENCES

GNS Science (GNS) GeoAtlas, http://data.gns.cri.nz/geology/ accessed 09.01.2016.

Leonard, G.S; Begg, J.G; Wilson, C.J.N *Geology of the Tauranga Area*

MfE 2011a. *Contaminated Land Management Guidelines No.1: Reporting on Contaminated Site's in New Zealand.*

MfE 2011b. *Contaminated Land Management Guidelines No. 2: Hierarchy and Application in New Zealand of Environmental Guideline Values.*

MfE 2011c. *Contaminated Land Management Guidelines No.5: Site Investigation and Analysis of Soils.*

MfE 2011d *Hazardous Activities and Industries List (HAIL).*

MfE 2012 *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.*

National Environment Protection Council (NEPC) 1999. *Guideline on Health Based Investigation Levels (updated 2013).*

PDP (October 2015) *Guideline for Contaminated Land Remediation by Soil Mixing*

Geohazard Environmental
Contaminated Site Investigation Specialists

APPENDIX A

Historic Certificates of Title

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**604083**
Land Registration District	**South Auckland**
Date Issued	01 February 2013

Prior References
225678 392107 392108

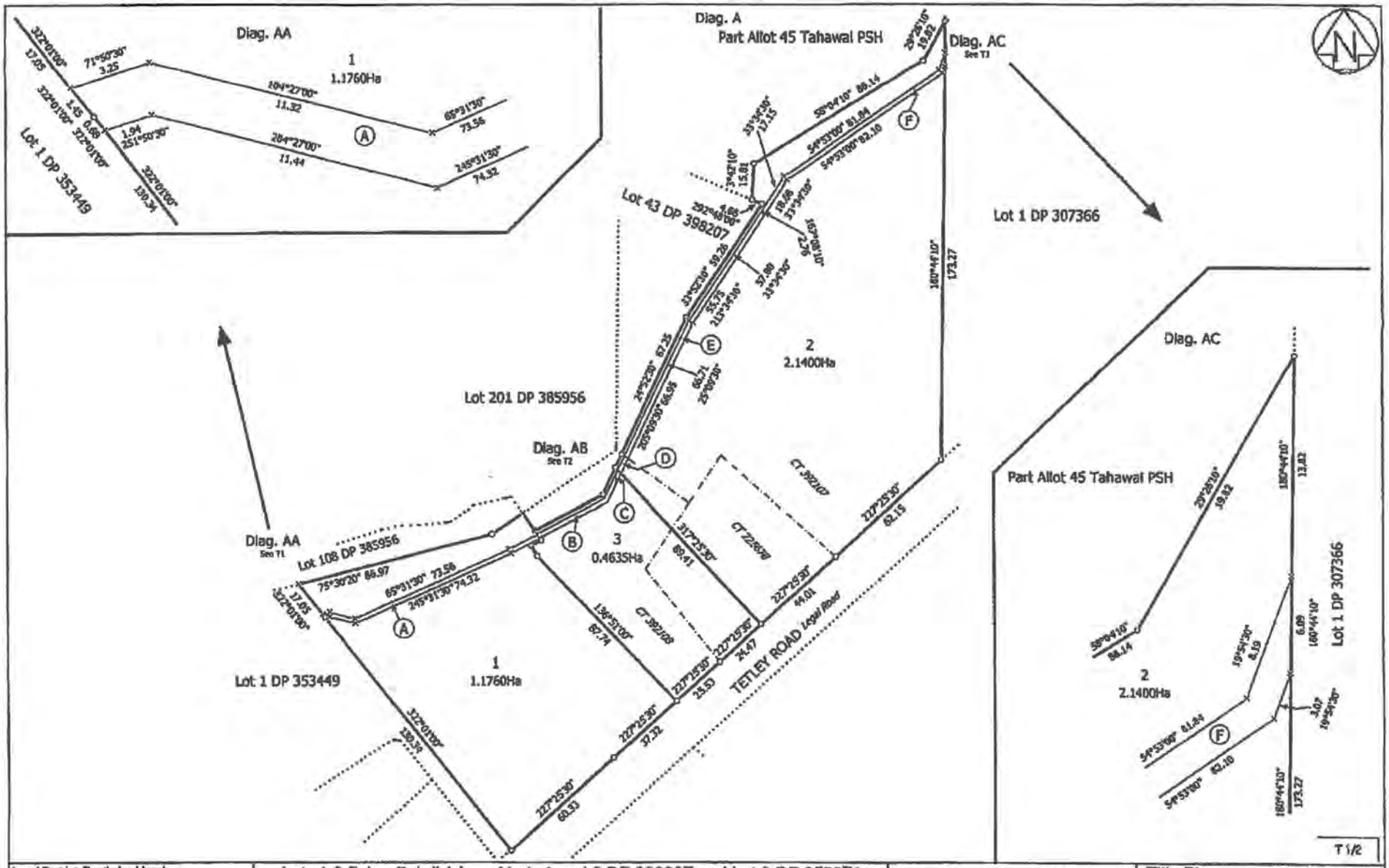
Estate	Fee Simple
Area	2.1400 hectares more or less
Legal Description	Lot 2 Deposited Plan 460580

Proprietors
Tigr Investments Limited

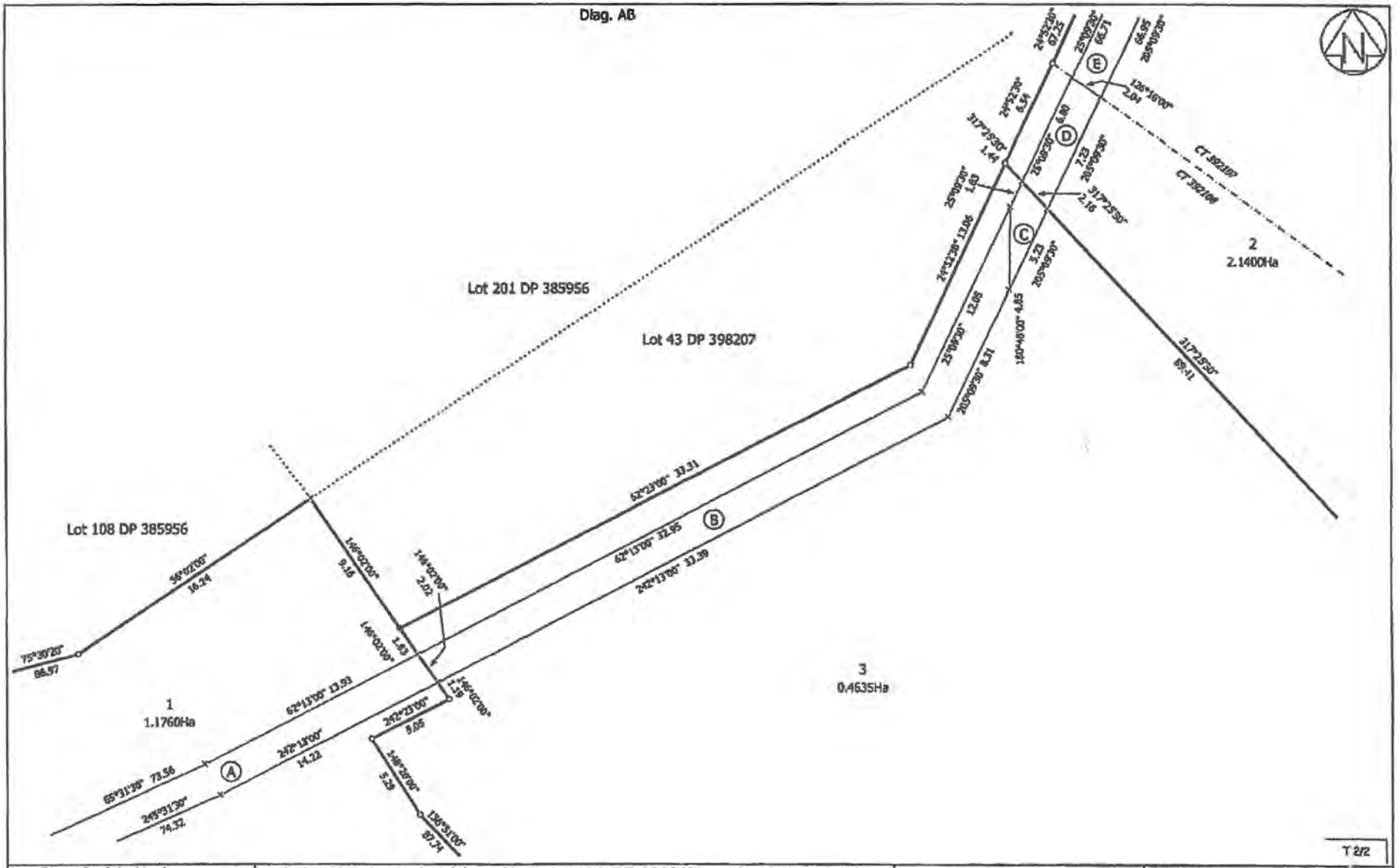
Interests

Subject to a right (in gross) to drain sewage over parts marked D, E & F on DP 460580 in favour of Western Bay of Plenty District Council created by Easement Instrument 6685670.1 - 12.12.2005 at 9:00 am

9300460.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 1.2.2013 at 4:28 pm



Land District South Auckland Digitally Generated Plan Generated on: 12/02/2013 11:42am Page 3 of 4	Lots 1-3 Being Subdivision of Lots 1 and 2 DP 398207 and Lot 2 DP 353071	Surveyor: Cameron Alastair Martin Firm: S & L Consultants Ltd	Title Plan DP 460580 Deposited on: 1/02/2013



Land District: South Auckland Digitally Generated Plan Generated on: 12/02/2013 11:42am Page 4 of 4	Lots 1-3 Being Subdivision of Lots 1 and 2 DP 398207 and Lot 2 DP 353071	Surveyor: Cameron Alastair Martin Firm: S & L Consultants Ltd	Title Plan DP 460580 Deposited on: 1/02/2013

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General of Land

Identifier 225678 **Cancelled**
Land Registration District South Auckland
Date Issued 18 November 2005

Prior References
SA25C/674 SA25C/675

Estate	Fee Simple
Area	3724 square metres more or less
Legal Description	Lot 2 Deposited Plan 353071

Original Proprietors
Rycdale Investments Limited

Interests

6582198.1 Mortgage to ASB Bank Limited - 22.9.2005 at 9:00 am

6942403.1 CAVEAT BY TETLEY PARTNERS LIMITED - 11.7.2006 at 9:00 am

7092445.1 Discharge of Mortgage 6582198.1 - 31.10.2006 at 9:00 am

7092445.2 Withdrawal of Caveat 6942403.1 - 31.10.2006 at 9:00 am

7092445.3 Transfer to Tetley Partners Limited - 31.10.2006 at 9:00 am

7092445.4 Mortgage to ASB Bank Limited - 31.10.2006 at 9:00 am

8705720.1 Discharge of Mortgage 7092445.4 - 29.4.2011 at 4:08 pm

8705720.2 Transfer to Tetley Limited Partnership - 29.4.2011 at 4:08 pm

8705720.3 Mortgage to ASB Bank Limited - 29.4.2011 at 4:08 pm

9300460.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 1.2.2013 at 4:28 pm (affects Lot 2 & 3 DP 460580)

9300460.2 CTs issued - 1.2.2013 at 4:28 pm

Legal Description	**Title**
Part Lot 2 Deposited Plan 460580	604083
Part Lot 3 Deposited Plan 460580	604084

CANCELLED

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General of Land

Identifier SA25C/674 **Cancelled**
Land Registration District South Auckland
Date Issued 04 December 1979

Prior References
SA1031/241

Estate	Fee Simple
Area	1.3734 hectares more or less
Legal Description	Lot 1 Deposited Plan 30424

Original Proprietors
Douglas Gillam Wigg and Glenys Heather Wigg

Interests

B117826.2 Mortgage to Ernest Frederick Gillam Wigg - 14.12.1992 at 9.05 am

5326648.2 Transmission of Mortgage B117826.2 to Evelyn Grace Gray, Graeme William Elvin and Norma Catherine Wigg as executors - 27.8.2002 at 11:38 am

5332926.1 Discharge of Mortgage B117826.2 - 3.9.2002 at 1:24 pm

6301114.3 Transfer to Murray Donald George Stewart and M.S. Trustees (Katikati) Limited (1/2 share) and Susan Meryl Stewart and M.S. Trustees (Katikati) Limited (1/2 share) - 4.2.2005 at 9:00 am

6301114.4 Mortgage to Bank of New Zealand - 4.2.2005 at 9:00 am

6381034.1 Discharge of Mortgage 6301114.4 - 13.4.2005 at 9:00 am

6381034.2 Transfer to Ryedale Investments Limited - 13.4.2005 at 9:00 am

6582198.1 Mortgage to ASB Bank Limited - 22.9.2005 at 9:00 am

6653652.1 CTs issued - 18.11.2005 at 9:00 am

Legal Description	Title
Part Lot 2 Deposited Plan 353071	225678
Part Lot 3 Deposited Plan 353071	225679

CANCELLED

References
Prior C/T 1031/241

Transfer No.
N/C. Order No. H.265136.2

Land and Deeds 69

REGISTER

No. 25C / 674

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 4th day of December one thousand nine hundred and seventy nine under the seal of the District Land Registrar of the Land Registration District of SOUTH AUCKLAND

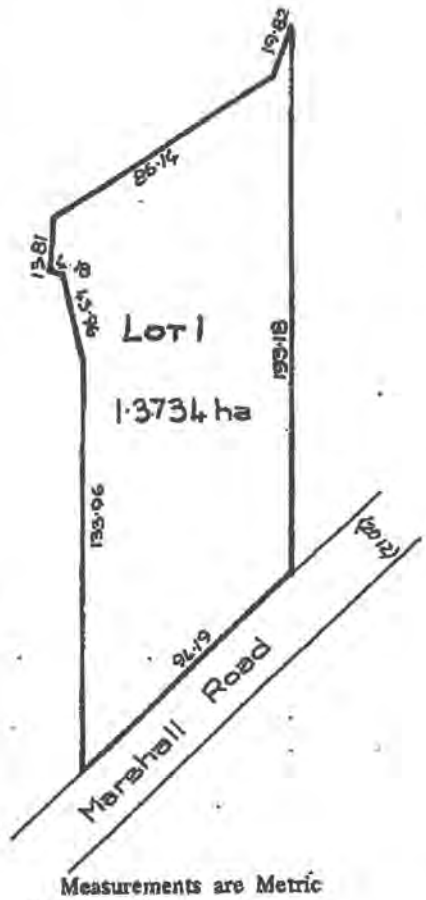
WITNESSETH that DOUGLAS GILLAM WIGG of Katikati poultry farmer and GLENYS HEATHER WIGG his wife are

As seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 1.3734 HECTARES more or less being Lot 1 on Deposited Plan 30424 and being Allotment 45 Parish of Tahawai

DISTRICT LAND REGISTRAR SOUTH AUCKLAND, N.Z.

ASSISTANT LAND REGISTRAR

Blk IX Katikati S.D.



Measurements are Metric

H.296164 Mortgage to The Rural Banking and Finance Corporation of New Zealand produced 17.7.1980 at 9.11 o'c

H 673671.3 varing Mortgage H.296164 for A.L.R.

H.350674.5 Mortgage to The Rural Banking and Finance Corporation of New Zealand produced 2.7.1981 at 2.29 o'c

H673671.4 for A.L.R.

H.350674.6 Mortgage to David Joseph Giacon and Roberta Huia Giacon produced 2.7.1981 at 2.29 o'c

H673671.2 for A.L.R.

H.382927 Transfer of Mortgage H.350674.6 to Commercial Bank of Australia Limited produced 15.12.1981 at 9.01 o'c for A.L.R.

H.673671.1 Transfer of Mortgage H.350674.6 to David Joseph Giacon and Roberta Huia Giacon produced 12.8.1986 at 1.30 o'c for A.L.R.

H.673671.5 Mortgage to The Rural Banking and Finance Corporation of New Zealand produced 12.8.1986 at 1.30 o'c

H971532.2 for A.L.R.

H.673671.6 Mortgage to The Rural Banking and Finance Corporation of New Zealand produced 12.8.1986 at 1.30 o'c

H971532.1 for A.L.R.

...over...

No. 25C / 674

CERTIFICATE OF TITLE 25C/674

H.756484 Variation of terms of Mortgage H.673671.6 produced 15.10.1987 at 9.00 o'c

for A.L.R.

B.117826.2 Mortgage to Ernest Frederick Gillam Wigg - 14.12.1992 at 9.05 o'c

for A.L.R.

(Issued under Section 4.)

NEW ZEALAND REGISTER

Form B.

Register-book Vol. 1031, folio 241

References: Vol. 260, folio 189 / Transfer No. A 32769 / Application No. / Order for N/C No.

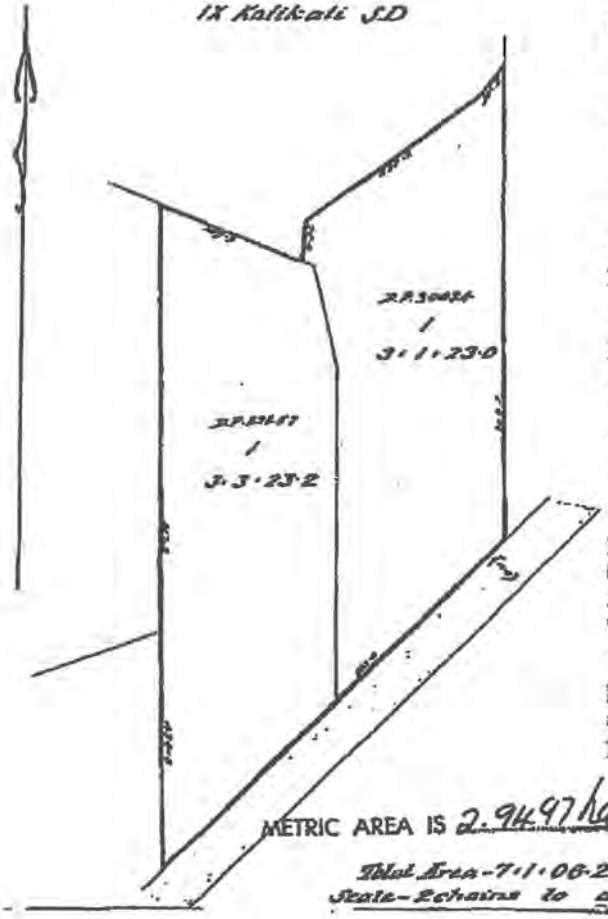
CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate, dated the nineteenth day of May one thousand nine hundred and fifty-two under the hand and seal of the District Land Registrar of the Land Registration District of AUCKLAND Witnesseth that WILLIAM GEORGE ELLIOTT of Kati Kati, gardener and JOYCE ELAINE ELLIOTT his wife, are

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon, subject also to any existing right of the Crown to take and lay off roads under the provisions of any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon bordered green, be the several admeasurements a little more or less, that is to say: All that parcel of land containing seven acres one rood six decimal two perches more or less being Lot 1 Deposited Plan 29257 and Lot 1 Deposited Plan 30624 part Allotment 45 Parish of Tahawai.

Assistant District Land Registrar.

IX Katikati S.D



METRIC AREA IS 2.9497 ha.

Total Area - 7·1·06·2
State - Schedule to and back.

S.32370 Mortgage the registered proprietors to The State Advances Corporation of New Zealand. Produced 19/5/1952 at 1.52 o'c. A. L. R.

S 123213 Transfer to Ernest Frederick Gillam Wigg of Tauranga, farmer Produced 21.6.1972 at 11.54 o'c. A.L.R.

S 123217 Discharge of The State Advances Corporation of New Zealand Produced 21.6.1972 at 11.54 o'c. A.L.R.

H.054667.2 $40000 Mortgage to Australia and New Zealand Banking Group Limited Produced 30.9.1975 at 9.18 o'c. A.L.R.

H.054667.3 Transfer to Douglas Gillam Wigg of Katikati poultry farmer and Glenys Heather Wigg his wife produced 7.10.1975 at 1.36 o'c for A.L.R.

H.054667.4 Mortgage to Rural Banking and Finance Corporation of New Zealand produced 7.10.1975 at 1.36 o'c for A.L.R.

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL REGISTER FOR THE PURPOSES OF SECTION 215A LAND TRANSFER ACT 1952.

H.265136.2 ONCT } Cancelled and the
4.12.1979 } following C'sT issued

Lot 1 Plan 30424 - 25C/674
Lot 1 Plan 29257 - 25C/675

A.L.R.

CANCELLED
DUPLICATE DESTROYED

CANCELLED

NEW ZEALAND.

Section 1.

References: Warrant No. 1894
P.R. folio Vol. 217/63
Transfer No.

Register-book, Vol. 260, folio 181

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT.

This Certificate, dated the ninth day of January, one thousand nine hundred and seventeen, under the hand and seal of the District Land Registrar of the Land Registration District of Auckland, being a Certificate in lieu of Grant, under Warrant of His Excellency the Governor, in exercise of the powers enabling him in that behalf, Witnesseth that William Kattens of Kaitaia in the Provincial District of Auckland Clerk in Holy Orders

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial under written or endorsed hereon; subject also to any existing rights of the Crown to take and lay off roads under any Act of the General Assembly of New Zealand) in the land hereinafter described, as the same is delineated by the plan hereon, bordered green, to the several admeasurements a little more or less, which said land is in the said Warrant expressed to have been originally acquired by the Government

as from the ninth day of June, one thousand nine hundred and sixteen, under Section 31 of the Land Laws Amendment Act 1912, that is to say: All that parcel of land containing twenty-two (22) acres three (3) roods and sixteen (16) perches more or less being Allotment No. 415 (Parish Plan) of the Parish of Takahuai —





District Land Registrar

All dispositions of this land are subject to the restrictions imposed by Part IV of the Land Act 1908

District Land Registrar

Transmission No 22058 to Rebecca Kattens widow and William James Kattens farmer both of Kaitaia Retired 10th November 1920 at 10.20 a.m.

A.L.R.

Transfer No 22059 Rebecca Kattens and William James Kattens to Edwin Marshall of Kaitaia farmer produced 23/9/1926 at 10.55 a.m.

Transfer No 36572 Everything Lot 1 Plan 20257 and Lot 1 Plan 20629 Edwin Marshall to Blanche Nina Shaw, produced 8/12/1932 at 2 p.m.

810/213 A.L.R.

S 32369 Transfer of the residue Edwin Marshall to William George Elliott and Joyce Ekaterine Elliott - produced 19-5-1952 at 1.50 p.m.

1031/241 A.L.R.

Cancelled

Sheet ... (Duplicate to be used)
N.Z. SHEET
L.C. Auckland

260/181

THIS REPRODUCTION (ON A REDUCED SCALE) CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL REGISTER FOR THE PURPOSES OF SECTION 215A LAND TRANSFER ACT 1952.

D.L.R.

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General of Land

Identifier SA25C/675 **Cancelled**
Land Registration District South Auckland
Date Issued 04 December 1979

Prior References
SA1031/241

Estate	Fee Simple
Area	1.5762 hectares more or less
Legal Description	Lot 1 Deposited Plan 29257

Original Proprietors
Douglas Gillam Wigg and Glenys Heather Wigg

Interests

B564080.1 Mortgage to TEA Custodians Limited - 27.8.1999 at 3.06 pm

6301114.1 Discharge of Mortgage B564080.1 - 4.2.2005 at 9:00 am

6301114.3 Transfer to Murray Donald George Stewart and M.S. Trustees (Katikati) Limited (1/2 share) and Susan Meryl Stewart and M.S. Trustees (Katikati) Limited (1/2 share) - 4.2.2005 at 9:00 am

6301114.4 Mortgage to Bank of New Zealand - 4.2.2005 at 9:00 am

6381034.1 Discharge of Mortgage 6301114.4 - 13.4.2005 at 9:00 am

6381034.2 Transfer to Ryedale Investments Limited - 13.4.2005 at 9:00 am

6582198.1 Mortgage to ASB Bank Limited - 22.9.2005 at 9:00 am

6653652.1 CTs issued - 18.11.2005 at 9:00 am

Legal Description	Title
Part Lot 1 Deposited Plan 353071	225677
Part Lot 2 Deposited Plan 353071	225678
Part Lot 3 Deposited Plan 353071	225679

CANCELLED

References
Prior C/T 1031/241

Transfer No.
N/C. Order No. H.265136.2

Land and Deeds 69

REGISTER

No. 25C / 675

CERTIFICATE OF TITLE UNDER LAND TRANSFER ACT

This Certificate dated the 4th day of December one thousand nine hundred and seventy nine under the seal of the District Land Registrar of the Land Registration District of SOUTH AUCKLAND

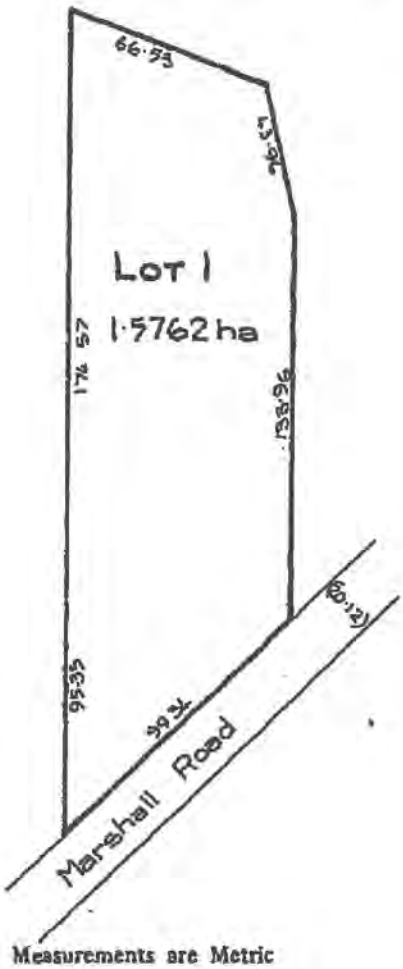
WITNESSETH that DOUGLAS GILLAM WIGG of Katikati poultry farmer and GLENYS HEATHER WIGG his wife are

is seised of an estate in fee-simple (subject to such reservations, restrictions, encumbrances, liens, and interests as are notified by memorial underwritten or endorsed hereon) in the land hereinafter described, delineated with bold black lines on the plan hereon, be the several admeasurements a little more or less, that is to say: All that parcel of land containing 1.5762 HECTARES more or less being Lot 1 on Deposited Plan 29257 and being part Allotment 45 Parish of Tahawai

DISTRICT LAND REGISTRAR SOUTH AUCKLAND, N.Z.

ASSISTANT LAND REGISTRAR

Blk IX Katikati S.D.



Measurements are Metric

E.G.

H.296164 Mortgage to The Rural Banking and Finance Corporation of New Zealand produced 17.7.1980 at 9.01 o'c

H673671.3 for A.L.R.

varying Mortgage H.296164

H.350674.5 Mortgage to The Rural Banking and Finance Corporation of New Zealand produced 2.7.1981 at 2.29 o'c

H673671.4 for A.L.R.

H.381372 Mortgage to ANZ Banking Group (New Zealand) Limited produced 4.12.1981 at 12.15 o'c

B72154.1 for A.L.R.

H.673671.5 Mortgage to The Rural Banking and Finance Corporation of New Zealand produced 12.8.1986 at 1.30 o'c

H971582.2 for A.L.R.

H.673671.6 Mortgage to The Rural Banking and Finance Corporation of New Zealand produced 12.8.1986 at 1.30 o'c

H971582.1 for A.L.R.

H.673671.7 Memorandum of Priority making Mortgage H.673671.5 a first mortgage, Mortgage H.673671.6 a second mortgage and Mortgage H.381372 a third mortgage produced 12.8.1986 at 1.30 o'c

for A.L.R.

H.756484 Variation of terms of Mortgage H.673671.6 produced 15.10.1987 at 9.00 o'c
(with consent of Mortgagee in Mortgage H.381372)

for A.L.R.

OVER . . .

CERTIFICATE OF TITLE 25C/675

B564080.1 Mortgage to TEA Custodians Limited - 27.8.1999 at 3.06

for RGK

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier 392107 **Cancelled**
Land Registration District South Auckland
Date Issued 17 June 2009

Prior References
225679

Estate	Fee Simple
Area	1.8540 hectares more or less
Legal Description	Lot 1 Deposited Plan 398207

Original Proprietors
Tetley Partners Limited

Interests

7092445.4 Mortgage to ASB Bank Limited - 31.10.2006 at 9:00 am

Subject to a right (in gross) to drain sewage over parts marked B & C2 on DP 398207 in favour of Western Bay of Plenty District Council created by Easement Instrument 6685670.1 - 12.12.2005 at 9:00 am

8705720.1 Discharge of Mortgage 7092445.4 - 29.4.2011 at 4:08 pm

8705720.2 Transfer to Tetley Limited Partnership - 29.4.2011 at 4:08 pm

8705720.3 Mortgage to ASB Bank Limited - 29.4.2011 at 4:08 pm

9300460.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 1.2.2013 at 4:28 pm (affects Lot 2 DP 460580)

9300460.2 CTs issued - 1.2.2013 at 4:28 pm

Legal Description	**Title**
Part Lot 2 Deposited Plan 460580	604083

CANCELLED

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier 225679 **Cancelled**
Land Registration District South Auckland
Date Issued 18 November 2005

Prior References
SA25C/674 SA25C/675

Estate	Fee Simple
Area	2.2596 hectares more or less
Legal Description	Lot 3 Deposited Plan 353071

Original Proprietors
Ryedale Investments Limited

Interests

6582198.1 Mortgage to ASB Bank Limited - 22.9.2005 at 9:00 am

Subject to a right (in gross) to drain sewage over part marked B and C on DP 358311 in favour of Western Bay of Plenty District Council created by Easement Instrument 6685670.1 - 12.12.2005 at 9:00 am

6942403.1 CAVEAT BY TETLEY PARTNERS LIMITED - 11.7.2006 at 9:00 am

7092445.1 Discharge of Mortgage 6582198.1 - 31.10.2006 at 9:00 am

7092445.2 Withdrawal of Caveat 6942403.1 - 31.10.2006 at 9:00 am

7092445.3 Transfer to Tetley Partners Limited - 31.10.2006 at 9:00 am

7092445.4 Mortgage to ASB Bank Limited - 31.10.2006 at 9:00 am

the part Lot 43 DP 398207 is vested in Western Bay of Plenty District Council as Local Purpose (Drainage) Reserve pursuant to Section 239(1)(a) Resource Management Act 1991 subject to the Reserves Act 1977

8198269.1 CTs issued - 17.6.2009 at 9:00 am

Legal Description	Title
Lot 1 Deposited Plan 398207	392107
part Lot 43 Deposited Plan 398207	392109

CANCELLED

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier 392108 **Cancelled**
Land Registration District South Auckland
Date Issued 17 June 2009

Prior References
225677

Estate	Fee Simple
Area	1.5530 hectares more or less
Legal Description	Lot 2 Deposited Plan 398207

Original Proprietors
Tetley Partners Limited

Interests

Subject to a right (in gross) to drain sewage over parts marked C1 & D on DP 3398207 in favour of Western Bay of Plenty District Council created by Easement Instrument 6685670.1 - 12.12.2005 at 9:00 am

7092445.4 Mortgage to ASB Bank Limited - 31.10.2006 at 9:00 am

8705720.1 Discharge of Mortgage 7092445.4 - 29.4.2011 at 4:08 pm

8705720.2 Transfer to Tetley Limited Partnership - 29.4.2011 at 4:08 pm

8705720.3 Mortgage to ASB Bank Limited - 29.4.2011 at 4:08 pm

9300460.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 1.2.2013 at 4:28 pm (affects Lot 2 & 3 DP 460580)

9300460.2 CTs issued - 1.2.2013 at 4:28 pm

Legal Description	Title
Lot 1 Deposited Plan 460580	604082
Part Lot 2 Deposited Plan 460580	604083
Part Lot 3 Deposited Plan 460580	604084

CANCELLED

COMPUTER FREEHOLD REGISTER
UNDER LAND TRANSFER ACT 1952

Historical Search Copy

R.W. Muir
Registrar-General
of Land

Identifier 225677 **Cancelled**
Land Registration District South Auckland
Date Issued 18 November 2005

Prior References
SA24C/454 SA25C/675

Estate	Fee Simple
Area	1.6033 hectares more or less
Legal Description	Lot 1 Deposited Plan 353071

Original Proprietors
Ryedale Investments Limited

Interests

6582198.1 Mortgage to ASB Bank Limited - 22.9.2005 at 9:00 am

Subject to a right (in gross) to drain sewage over part marked D on DP 358311 in favour of Western Bay of Plenty District Council created by Easement Instrument 6685670.1 - 12.12.2005 at 9:00 am

6942403.1 CAVEAT BY TETLEY PARTNERS LIMITED - 11.7.2006 at 9:00 am

7092445.1 Discharge of Mortgage 6582198.1 - 31.10.2006 at 9:00 am

7092445.2 Withdrawal of Caveat 6942403.1 - 31.10.2006 at 9:00 am

7092445.3 Transfer to Tetley Partners Limited - 31.10.2006 at 9:00 am

7092445.4 Mortgage to ASB Bank Limited - 31.10.2006 at 9:00 am

the part Lot 43 DP 398207 is vested in Western Bay of Plenty District Council as Local Purpose (Drainage) Reserve pursuant to Section 239(1)(a) Resource Management Act 1991 subject to the Reserves Act 1977

8198269.1 CTs issued - 17.6.2009 at 9:00 am

Legal Description	Title
Lot 2 Deposited Plan 398207	392108
part Lot 43 Deposited Plan 398207	392109

CANCELLED

Geohazard Environmental
Contaminated Site Investigation Specialists

APPENDIX B

Sample Location Plan



Geohazard Environmental

Contaminated Site Investigation Specialists

Dwg Title: 193 Tetley Rd		
Client: Tigr Investments Ltd		SCALE: 1:1000@ A4
JOB # 151209	DATE: 08/03/16	DRAWN BY: NS
DRG No. 001		REV. -

Geohazard Environmental
Contaminated Site Investigation Specialists

APPENDIX C

Laboratory Results

Hill Laboratories
BETTER TESTING BETTER RESULTS

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

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

ANALYSIS REPORT

Client:	Geohazard Environmental Limited	**Lab No:**	1520033	SPv1
Contact:	J Findon	**Date Registered:**	29-Dec-2015	
	C/- Geohazard Environmental Limited	**Date Reported:**	11-Jan-2016	
	PO Box 7053	**Quote No:**	73913	
	ROTORUA 3042	**Order No:**		
		Client Reference:	193 Tetley Rd	
		Submitted By:	J Findon	

Sample Type: Soil

Sample Name:		HA01 0.0m 24-Dec-2015 10:15 am	HA02 0.0m 24-Dec-2015 10:15 am	HA03 0.0m 24-Dec-2015 10:15 am	HA04 0.0m 24-Dec-2015 10:15 am	HA05 0.0m 24-Dec-2015 10:15 am
Lab Number:		1520033.1	1520033.2	1520033.3	1520033.4	1520033.5
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	9	11	7	6	7
Total Recoverable Cadmium	mg/kg dry wt	0.42	0.26	0.35	0.70	0.34
Total Recoverable Chromium	mg/kg dry wt	9	14	6	8	6
Total Recoverable Copper	mg/kg dry wt	46	33	35	100	42
Total Recoverable Lead	mg/kg dry wt	13.6	29	12.5	13.0	14.1
Total Recoverable Nickel	mg/kg dry wt	3	8	3	4	3
Total Recoverable Zinc	mg/kg dry wt	125	94	72	230	90

Sample Name:		HA06 0.0m 24-Dec-2015 10:15 am	HA07 0.0m 24-Dec-2015 10:15 am	HA08 0.0m 24-Dec-2015 10:15 am	HA09 0.0m 24-Dec-2015 10:15 am	HA10 0.0m 24-Dec-2015 10:15 am
Lab Number:		1520033.6	1520033.7	1520033.8	1520033.9	1520033.10
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	7	6	10	6	6
Total Recoverable Cadmium	mg/kg dry wt	0.33	0.21	0.39	0.39	0.15
Total Recoverable Chromium	mg/kg dry wt	6	5	5	8	10
Total Recoverable Copper	mg/kg dry wt	55	25	31	35	17
Total Recoverable Lead	mg/kg dry wt	13.1	14.5	18.6	14.8	15.4
Total Recoverable Nickel	mg/kg dry wt	2	<2	5	4	6
Total Recoverable Zinc	mg/kg dry wt	98	92	196	101	65

Sample Name:		HA11 0.0m 24-Dec-2015 10:15 am	HA12 0.0m 24-Dec-2015 10:15 am	HA13 0.0m 24-Dec-2015 10:15 am	HA16 0.0m 24-Dec-2015 10:15 am	HA23 0.0m 24-Dec-2015 10:15 am
Lab Number:		1520033.11	1520033.12	1520033.13	1520033.14	1520033.15
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	7	6	7	54	8
Total Recoverable Cadmium	mg/kg dry wt	0.59	0.24	0.35	0.36	0.19
Total Recoverable Chromium	mg/kg dry wt	10	8	6	46	7
Total Recoverable Copper	mg/kg dry wt	31	18	39	62	30
Total Recoverable Lead	mg/kg dry wt	13.9	14.6	23	47	23
Total Recoverable Nickel	mg/kg dry wt	5	5	2	2	2
Total Recoverable Zinc	mg/kg dry wt	108	68	151	156	93

Sample Name:		HA24 0.0m 24-Dec-2015 10:15 am	HA15 0.0m 24-Dec-2015 10:15 am	HA17 0.0m 24-Dec-2015 10:15 am	HA18 0.0m 24-Dec-2015 10:15 am	HA19 0.0m 24-Dec-2015 10:15 am
Lab Number:		1520033.16	1520033.17	1520033.18	1520033.19	1520033.20
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	11	10	7	7	6

IANZ ACCREDITED LABORATORY

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked *, which are not accredited.

Sample Type: Soil						
	Sample Name:	HA24 0.0m 24-Dec-2015 10:15 am	HA15 0.0m 24-Dec-2015 10:15 am	HA17 0.0m 24-Dec-2015 10:15 am	HA18 0.0m 24-Dec-2015 10:15 am	HA19 0.0m 24-Dec-2015 10:15 am
	Lab Number:	1520033.16	1520033.17	1520033.18	1520033.19	1520033.20
Heavy Metals, Screen Level						
Total Recoverable Cadmium	mg/kg dry wt	0.27	0.50	0.27	0.24	0.21
Total Recoverable Chromium	mg/kg dry wt	9	10	8	9	10
Total Recoverable Copper	mg/kg dry wt	30	42	31	22	26
Total Recoverable Lead	mg/kg dry wt	34	43	36	30	34
Total Recoverable Nickel	mg/kg dry wt	< 2	5	3	4	3
Total Recoverable Zinc	mg/kg dry wt	96	210	156	168	186

	Sample Name:	HA14 0.0m 24-Dec-2015 10:15 am	HA20 0.0m 24-Dec-2015 10:15 am	HA21 0.0m 24-Dec-2015 10:15 am	HA22 0.0m 24-Dec-2015 10:15 am	Composite of HA01 0.0m, HA02 0.0m, HA03 0.0m and HA04 0.0m
	Lab Number:	1520033.21	1520033.22	1520033.23	1520033.24	1520033.25
Individual Tests						
Dry Matter	g/100g as rcvd	-	-	-	-	59
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	10	8	80	8	-
Total Recoverable Cadmium	mg/kg dry wt	0.55	0.27	0.38	0.29	-
Total Recoverable Chromium	mg/kg dry wt	8	10	23	7	-
Total Recoverable Copper	mg/kg dry wt	35	25	66	35	-
Total Recoverable Lead	mg/kg dry wt	34	24	58	26	-
Total Recoverable Nickel	mg/kg dry wt	4	3	3	2	-
Total Recoverable Zinc	mg/kg dry wt	185	129	330	187	-
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	-	-	< 0.010
alpha-BHC	mg/kg dry wt	-	-	-	-	< 0.010
beta-BHC	mg/kg dry wt	-	-	-	-	< 0.010
delta-BHC	mg/kg dry wt	-	-	-	-	< 0.010
gamma-BHC (Lindane)	mg/kg dry wt	-	-	-	-	< 0.010
cis-Chlordane	mg/kg dry wt	-	-	-	-	< 0.010
trans-Chlordane	mg/kg dry wt	-	-	-	-	< 0.010
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	-	-	-	-	< 0.04
2,4'-DDD	mg/kg dry wt	-	-	-	-	< 0.010
4,4'-DDD	mg/kg dry wt	-	-	-	-	< 0.010
2,4'-DDE	mg/kg dry wt	-	-	-	-	< 0.010
4,4'-DDE	mg/kg dry wt	-	-	-	-	0.143
2,4'-DDT	mg/kg dry wt	-	-	-	-	< 0.010
4,4'-DDT	mg/kg dry wt	-	-	-	-	0.052
Total DDT Isomers	mg/kg dry wt	-	-	-	-	0.20
Dieldrin	mg/kg dry wt	-	-	-	-	< 0.010
Endosulfan I	mg/kg dry wt	-	-	-	-	< 0.010
Endosulfan II	mg/kg dry wt	-	-	-	-	< 0.010
Endosulfan sulphate	mg/kg dry wt	-	-	-	-	< 0.010
Endrin	mg/kg dry wt	-	-	-	-	< 0.010
Endrin aldehyde	mg/kg dry wt	-	-	-	-	< 0.010
Endrin ketone	mg/kg dry wt	-	-	-	-	< 0.010
Heptachlor	mg/kg dry wt	-	-	-	-	< 0.010
Heptachlor epoxide	mg/kg dry wt	-	-	-	-	< 0.010
Hexachlorobenzene	mg/kg dry wt	-	-	-	-	< 0.010
Methoxychlor	mg/kg dry wt	-	-	-	-	< 0.010
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	-	-	-	-	< 0.08
Alachlor	mg/kg	-	-	-	-	< 0.05
Atrazine	mg/kg	-	-	-	-	< 0.08
Atrazine-desethyl	mg/kg	-	-	-	-	< 0.08
Atrazine-desisopropyl	mg/kg	-	-	-	-	< 0.16

Sample Type: Soil						
Sample Name:		HA14 0.0m 24-Dec-2015 10:15 am	HA20 0.0m 24-Dec-2015 10:15 am	HA21 0.0m 24-Dec-2015 10:15 am	HA22 0.0m 24-Dec-2015 10:15 am	Composite of HA01 0.0m, HA02 0.0m, HA03 0.0m and HA04 0.0m
Lab Number:		1520033.21	1520033.22	1520033.23	1520033.24	1520033.25
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Azaconazole	mg/kg	-	-	-	-	< 0.04
Azinphos-methyl	mg/kg	-	-	-	-	< 0.16
Benalaxyl	mg/kg	-	-	-	-	< 0.04
Bitertanol	mg/kg	-	-	-	-	< 0.16
Bromacil	mg/kg	-	-	-	-	< 0.08
Bromopropylate	mg/kg	-	-	-	-	< 0.08
Butachlor	mg/kg	-	-	-	-	< 0.08
Captan	mg/kg	-	-	-	-	< 0.16
Carbaryl	mg/kg	-	-	-	-	< 0.08
Carbofuran	mg/kg	-	-	-	-	< 0.08
Chlorfluazuron	mg/kg	-	-	-	-	< 0.08
Chlorothalonil	mg/kg	-	-	-	-	< 0.08
Chlorpyrifos	mg/kg	-	-	-	-	< 0.08
Chlorpyrifos-methyl	mg/kg	-	-	-	-	< 0.08
Chlortoluron	mg/kg	-	-	-	-	< 0.16
Cyanazine	mg/kg	-	-	-	-	< 0.08
Cyfluthrin	mg/kg	-	-	-	-	< 0.10
Cyhalothrin	mg/kg	-	-	-	-	< 0.08
Cypermethrin	mg/kg	-	-	-	-	< 0.19
Deltamethrin (including Tralomethrin)	mg/kg	-	-	-	-	< 0.08
Diazinon	mg/kg	-	-	-	-	< 0.04
Dichlofluanid	mg/kg	-	-	-	-	< 0.08
Dichloran	mg/kg	-	-	-	-	< 0.2
Dichlorvos	mg/kg	-	-	-	-	< 0.09
Difenoconazole	mg/kg	-	-	-	-	< 0.11
Dimethoate	mg/kg	-	-	-	-	< 0.16
Diphenylamine	mg/kg	-	-	-	-	< 0.16
Diuron	mg/kg	-	-	-	-	< 0.08
Fenpropimorph	mg/kg	-	-	-	-	< 0.08
Fluazifop-butyl	mg/kg	-	-	-	-	< 0.08
Fluometuron	mg/kg	-	-	-	-	< 0.08
Flusilazole	mg/kg	-	-	-	-	< 0.08
Fluvalinate	mg/kg	-	-	-	-	< 0.06
Furalaxyl	mg/kg	-	-	-	-	< 0.04
Haloxyfop-methyl	mg/kg	-	-	-	-	< 0.08
Hexaconazole	mg/kg	-	-	-	-	< 0.08
Hexazinone	mg/kg	-	-	-	-	< 0.04
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	-	-	-	-	< 0.4
Kresoxim-methyl	mg/kg	-	-	-	-	< 0.04
Linuron	mg/kg	-	-	-	-	< 0.08
Malathion	mg/kg	-	-	-	-	< 0.08
Metalaxyl (Mefenoxam)	mg/kg	-	-	-	-	< 0.08
Methamidophos	mg/kg	-	-	-	-	< 0.4
Metolachlor	mg/kg	-	-	-	-	< 0.05
Metribuzin	mg/kg	-	-	-	-	< 0.08
Molinate	mg/kg	-	-	-	-	< 0.16
Myclobutanil	mg/kg	-	-	-	-	< 0.08
Naled	mg/kg	-	-	-	-	< 0.4
Norflurazon	mg/kg	-	-	-	-	< 0.16
Oxadiazon	mg/kg	-	-	-	-	< 0.08
Oxyfluorfen	mg/kg	-	-	-	-	< 0.04
Paclobutrazol	mg/kg	-	-	-	-	< 0.08
Parathion-ethyl	mg/kg	-	-	-	-	< 0.08

Sample Type: Soil						
	Sample Name:	HA14 0.0m 24-Dec-2015 10:15 am	HA20 0.0m 24-Dec-2015 10:15 am	HA21 0.0m 24-Dec-2015 10:15 am	HA22 0.0m 24-Dec-2015 10:15 am	Composite of HA01 0.0m, HA02 0.0m, HA03 0.0m and HA04 0.0m
	Lab Number:	1520033.21	1520033.22	1520033.23	1520033.24	1520033.25
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Parathion-methyl	mg/kg	-	-	-	-	< 0.08
Pendimethalin	mg/kg	-	-	-	-	< 0.08
Permethrin	mg/kg	-	-	-	-	< 0.03
Pirimicarb	mg/kg	-	-	-	-	< 0.08
Pirimiphos-methyl	mg/kg	-	-	-	-	< 0.08
Prochloraz	mg/kg	-	-	-	-	< 0.4
Procymidone	mg/kg	-	-	-	-	< 0.08
Prometryn	mg/kg	-	-	-	-	< 0.04
Propachlor	mg/kg	-	-	-	-	< 0.08
Propanil	mg/kg	-	-	-	-	< 0.2
Propazine	mg/kg	-	-	-	-	< 0.04
Propiconazole	mg/kg	-	-	-	-	< 0.06
Pyriproxyfen	mg/kg	-	-	-	-	< 0.08
Quizalofop-ethyl	mg/kg	-	-	-	-	< 0.08
Simazine	mg/kg	-	-	-	-	< 0.08
Simetryn	mg/kg	-	-	-	-	< 0.08
Sulfentrazone	mg/kg	-	-	-	-	< 0.4
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	-	-	-	-	< 0.16
Tebuconazole	mg/kg	-	-	-	-	< 0.08
Terbacil	mg/kg	-	-	-	-	< 0.08
Terbufos	mg/kg	-	-	-	-	< 0.08
Terbumeton	mg/kg	-	-	-	-	< 0.08
Terbuthylazine	mg/kg	-	-	-	-	< 0.04
Terbuthylazine-desethyl	mg/kg	-	-	-	-	< 0.08
Terbutryn	mg/kg	-	-	-	-	< 0.08
Thiabendazole	mg/kg	-	-	-	-	< 0.4
Thiobencarb	mg/kg	-	-	-	-	< 0.08
Tolylfluanid	mg/kg	-	-	-	-	< 0.04
Triazophos	mg/kg	-	-	-	-	< 0.08
Trifluralin	mg/kg	-	-	-	-	< 0.08
Vinclozolin	mg/kg	-	-	-	-	< 0.08

	Sample Name:	Composite of HA05 0.0m, HA06 0.0m, HA07 0.0m and HA08 0.0m	Composite of HA09 0.0m, HA10 0.0m, HA11 0.0m and HA12 0.0m	Composite of HA13 0.0m, HA16 0.0m, HA23 0.0m and HA24 0.0m	Composite of HA15 0.0m, HA17 0.0m, HA18 0.0m and HA19 0.0m	Composite of HA14 0.0m, HA20 0.0m, HA21 0.0m and HA22 0.0m
	Lab Number:	1520033.26	1520033.27	1520033.28	1520033.29	1520033.30
Individual Tests						
Dry Matter	g/100g as rcvd	59	56	58	64	60
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
alpha-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
beta-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
delta-BHC	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
gamma-BHC (Lindane)	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
cis-Chlordane	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
trans-Chlordane	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Chlordane [(cis+trans)* 100/42]	mg/kg dry wt	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
2,4'-DDD	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
4,4'-DDD	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
2,4'-DDE	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
4,4'-DDE	mg/kg dry wt	0.178	0.014	< 0.010	< 0.010	0.012
2,4'-DDT	mg/kg dry wt	0.014	< 0.010	< 0.010	< 0.010	< 0.010

Sample Type: Soil						
Sample Name:		Composite of HA05 0.0m, HA06 0.0m, HA07 0.0m and HA08 0.0m	Composite of HA09 0.0m, HA10 0.0m, HA11 0.0m and HA12 0.0m	Composite of HA13 0.0m, HA16 0.0m, HA23 0.0m and HA24 0.0m	Composite of HA15 0.0m, HA17 0.0m, HA18 0.0m and HA19 0.0m	Composite of HA14 0.0m, HA20 0.0m, HA21 0.0m and HA22 0.0m
Lab Number:		1520033.26	1520033.27	1520033.28	1520033.29	1520033.30
Organochlorine Pesticides Screening in Soil						
4,4'-DDT	mg/kg dry wt	0.068	< 0.010	< 0.010	< 0.010	< 0.010
Total DDT Isomers	mg/kg dry wt	0.26	< 0.06	< 0.06	< 0.06	< 0.06
Dieldrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan I	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan II	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endosulfan sulphate	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin aldehyde	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Endrin ketone	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor epoxide	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobenzene	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Methoxychlor	mg/kg dry wt	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Acetochlor	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Alachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Atrazine	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Atrazine-desethyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Atrazine-desisopropyl	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Azaconazole	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Azinphos-methyl	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Benalaxyl	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Bitertanol	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Bromacil	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Bromopropylate	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Butachlor	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Captan	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Carbaryl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Carbofuran	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Chlorfluazuron	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Chlorothalonil	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Chlorpyrifos	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Chlorpyrifos-methyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Chlortoluron	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Cyanazine	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Cyfluthrin	mg/kg	< 0.10	< 0.11	< 0.10	< 0.09	< 0.10
Cyhalothrin	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Cypermethrin	mg/kg	< 0.2	< 0.3	< 0.2	< 0.18	< 0.19
Deltamethrin (including Tralomethrin)	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Diazinon	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Dichlofluanid	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Dichloran	mg/kg	< 0.2	< 0.3	< 0.3	< 0.2	< 0.2
Dichlorvos	mg/kg	< 0.09	< 0.09	< 0.09	< 0.09	< 0.09
Difenoconazole	mg/kg	< 0.12	< 0.12	< 0.12	< 0.11	< 0.11
Dimethoate	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Diphenylamine	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Diuron	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Fenpropimorph	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Fluazifop-butyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Fluometuron	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Flusilazole	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Fluvalinate	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Furalaxyl	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04

Sample Type: Soil						
Sample Name:		Composite of HA05 0.0m, HA06 0.0m, HA07 0.0m and HA08 0.0m	Composite of HA09 0.0m, HA10 0.0m, HA11 0.0m and HA12 0.0m	Composite of HA13 0.0m, HA16 0.0m, HA23 0.0m and HA24 0.0m	Composite of HA15 0.0m, HA17 0.0m, HA18 0.0m and HA19 0.0m	Composite of HA14 0.0m, HA20 0.0m, HA21 0.0m and HA22 0.0m
Lab Number:		1520033.26	1520033.27	1520033.28	1520033.29	1520033.30
Organonitro&phosphorus Pesticides Screen in Soil by GCMS						
Haloxyfop-methyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Hexaconazole	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Hexazinone	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
IPBC (3-Iodo-2-propynyl-n-butylcarbamate)	mg/kg dry wt	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
Kresoxim-methyl	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Linuron	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Malathion	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Metalaxyl (Mefenoxam)	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Methamidophos	mg/kg	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
Metolachlor	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Metribuzin	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Molinate	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Myclobutanil	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Naled	mg/kg	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
Norflurazon	mg/kg	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Oxadiazon	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Oxyfluorfen	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Paclobutrazol	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Parathion-ethyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Parathion-methyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Pendimethalin	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Permethrin	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Pirimicarb	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Pirimiphos-methyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Prochloraz	mg/kg	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
Procymidone	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Prometryn	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Propachlor	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Propanil	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Propazine	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Propiconazole	mg/kg	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Pyriproxyfen	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Quizalofop-ethyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Simazine	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Simetryn	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Sulfentrazone	mg/kg	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
TCMTB [2-(thiocyanomethylthio) benzothiazole,Busan]	mg/kg dry wt	< 0.16	< 0.17	< 0.17	< 0.15	< 0.16
Tebuconazole	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Terbacil	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Terbufos	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Terbumeton	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Terbuthylazine	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Terbuthylazine-desethyl	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Terbutryn	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Thiabendazole	mg/kg	< 0.4	< 0.5	< 0.5	< 0.4	< 0.4
Thiobencarb	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Tolylfluanid	mg/kg	< 0.04	< 0.05	< 0.05	< 0.04	< 0.04
Triazophos	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Trifluralin	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08
Vinclozolin	mg/kg	< 0.08	< 0.09	< 0.09	< 0.08	< 0.08

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	1-24
Organochlorine/nitro&phosphorus Pest.s Screen in Soils, GCMS	Sonication extraction, Dilution cleanup, GC-MS analysis. Tested on as received sample	-	25-30
Dry Matter (Env)	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. US EPA 3550. (Free water removed before analysis).	0.10 g/100g as rcvd	25-30
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	1-24

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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Ara Heron BSc (Tech)
Client Services Manager - Environmental Division

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ANALYSIS REPORT

Client:	Geohazard Environmental Limited	**Lab No:**	1542699	POPv1
Contact:	Nikki Sandercock	**Date Registered:**	25-Feb-2016	
	C/- Geohazard Environmental Limited	**Date Reported:**	03-Mar-2016	
	PO Box 7053	**Quote No:**	74658	
	Rotorua 3042	**Order No:**		
		Client Reference:	193 Tetley Road	
		Submitted By:	Nikki Sandercock	

Sample Type: Soil

Sample Name:	HA14-5MN 0.0m 24-Feb-2016 11:00 am	HA14-5ME 0.0m 24-Feb-2016 11:00 am	HA14-5MS 0.0m 24-Feb-2016 11:00 am	HA14-5MW 0.0m 24-Feb-2016 11:00 am	HA23-5MN 0.0m 24-Feb-2016 11:00 am
Lab Number:	1542699.1	1542699.2	1542699.3	1542699.4	1542699.5
Individual Tests					
Total Recoverable Arsenic mg/kg dry wt	13	9	16	9	8

Please refer to the detection limits table for the list of analytes screened and their detection limits.

Sample Name:	HA23-5ME 0.0m 24-Feb-2016 11:00 am	HA23-5MS 0.0m 24-Feb-2016 11:00 am	HA23-5MW 0.0m 24-Feb-2016 11:00 am	HA25 0.0m 24-Feb-2016 11:00 am	HA26 0.0m 24-Feb-2016 11:00 am
Lab Number:	1542699.6	1542699.7	1542699.8	1542699.9	1542699.10
Heavy Metals, Screen Level					
Analytes Detected:	Not Analysed	Not Analysed	Not Analysed	7	7
Total Recoverable Arsenic mg/kg dry wt				6	33
Total Recoverable Cadmium mg/kg dry wt				0.32	0.46
Total Recoverable Chromium mg/kg dry wt				7	26
Total Recoverable Copper mg/kg dry wt				24	39
Total Recoverable Lead mg/kg dry wt				45	43
Total Recoverable Nickel mg/kg dry wt				2	3
Total Recoverable Zinc mg/kg dry wt				185	210
Individual Tests					
Total Recoverable Arsenic mg/kg dry wt	10	11	5	-	-

Please refer to the detection limits table for the list of analytes screened and their detection limits.

SUMMARY OF METHODS

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively clean matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Preparation	Air dried at 35°C and sieved, <2mm fraction. Used for sample preparation. May contain a residual moisture content of 2-5%.	-	1-8
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion US EPA 200.2. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required.	0.10 - 4 mg/kg dry wt	9-10
Total Recoverable digestion	Nitric / hydrochloric acid digestion. US EPA 200.2.	-	1-8
Total Recoverable Arsenic	Dried sample, sieved as specified (if required). Nitric/Hydrochloric acid digestion, ICP-MS, screen level. US EPA 200.2.	2 mg/kg dry wt	1-8

ilac-MRA IANZ ACCREDITED LABORATORY

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked *, which are not accredited.

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Samples are held at the laboratory after reporting for a length of time depending on the preservation used and the stability of the analytes being tested. Once the storage period is completed the samples are discarded unless otherwise advised by the client.

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Ara Heron BSc (Tech)
Client Services Manager - Environmental Division

Detection Limits

Analytes	Detection Limit
Heavy Metals, Screen Level	
Total Recoverable Arsenic	2 mg/kg dry wt
Total Recoverable Cadmium	0.10 mg/kg dry wt
Total Recoverable Chromium	2 mg/kg dry wt
Total Recoverable Copper	2 mg/kg dry wt
Total Recoverable Lead	0.4 mg/kg dry wt
Total Recoverable Nickel	2 mg/kg dry wt
Total Recoverable Zinc	4 mg/kg dry wt

Western Bay of Plenty District Council

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RC 12354S
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P/1189/8
P/1189/9

Western Bay of Plenty District Council
Policy, Planning and Regulatory Services Group

Application for Resource Consent – Non-Notified - TIGR INVESTMENTS LIMITED

Delegated Authority

Recommendation:

(a) THAT pursuant to sections 95A and 95D of the Resource Management Act 1991, the Western Bay of Plenty District Council resolves that the adverse effects of the proposal will be less than minor and the application need not be publicly notified.

(b) THAT Western Bay of Plenty District Council is satisfied after taking into due consideration the requirements of sections 95E and 95F of the Resource Management Act 1991, that there are no persons or order holders affected by the activity and therefore limited notification in accordance with section 95B of the Resource Management Act 1991 is not required.

(c) THAT Western Bay of Plenty District Council is satisfied that no special circumstances exist that require notification of this consent application in accordance with sections 95A(9) and 95B(10) of the Resource Management Act 1991.

(d) THAT pursuant to Sections 104, 104B, 108 and 220 of the Resource Management Act 1991, the Western Bay of Plenty District Council grants consent to the application by Tigr Investments Ltd for a subdivision consent being a discretionary activity to subdivide three lots into seven lots plus an access lot within the Residential Zone and Flood Hazard Area at 14, 16 and 19 Layla Place, Katikati, legally described as Lots 7-9 DP 521037, subject to the following conditions:

1. THAT the subdivision be carried out in accordance with the application submitted, including:

   a) Application for resource consent prepared by S & L Consultants Ltd entitled 'Lots 7-9 DP 521037, Layla Place, Katikati', reference 20-30927-01-RCA and dated 18 June 2020.

   b) Geotechnical assessment prepared by S & L Consultants Ltd entitled 'Subdivision of Lots 7-9 DP 521037', reference 30927 and dated 1 July 2020.

c) Transportation assessment prepared by Harrison Transportation entitled 'Sophia Rose Estate Development – Transportation', reference 406 and dated 11 September 2020.

d) Existing Tenure Planning Zones Plan prepared by S & L Consultants Ltd entitled 'Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037, 14-19 Layla Place', reference 20-30927-01-C1 rev 2 and dated 11 September 2020.

e) Scheme Plan Planning Overlays Plan prepared by S & L Consultants Ltd entitled 'Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037, 14-19 Layla Place', reference 20-30927-01-C2 rev 2 and dated 11 September 2020.

f) Scheme Plan prepared by S & L Consultants Ltd entitled 'Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037, 14-19 Layla Place', reference 20-30927-01-C3 rev 3 and dated 11 September 2020.

g) Exit Tracking Curves Plan prepared by S & L Consultants Ltd entitled 'Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037, 14-19 Layla Place', reference 20-30927-01-C4 rev 4 and dated 11 September 2020.

h) Stopping Sight Distance Plan prepared by S & L Consultants Ltd entitled 'Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037, 14-19 Layla Place', reference 20-30927-01-C5 rev 2 and dated 11 September 2020.

i) Entry Tracking Curves Plan prepared by S & L Consultants Ltd entitled 'Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037, 14-19 Layla Place', reference 20-30927-01-C6 rev 2 and dated 11 September 2020.

Except where modified by any conditions of this consent.

2. THAT the Memorandum of Easements shown on the plan of subdivision be duly granted or reserved.

3. THAT the following financial contributions be paid for four additional residential allotments:

a)	Water (Western)	$4,507 x 3	= $13,521 + GST
b)	Wastewater (Katikati)	$6,114 x 3	= $18,342 + GST
c)	Stormwater (Katikati)	$5,089 x 3	= $15,267 + GST
d)	Ecological	$501 x 3	= $1,503 + GST
e)	Recreation and Leisure	$9,796 x 3	= $29,388 + GST
f)	Transportation (District Wide)	$3,313 x 3	= $9,939 + GST
g)	Rural Roading (Katikati)	$8,980 x 3	= $26,940 + GST

4. THAT with regard to Condition (3), the financial contributions calculated in accordance with the provisions of the Operative District Plan, shall be paid within full within two years of the date of commencement of the consent provided that:

a) Any financial contribution which is not paid in full within two years from the date of commencement of the consent shall be adjusted so that the amount of the financial contribution required by the resource consent shall be the amount calculated in accordance with the relevant formulae using the updated inputs to those formulae as set out in Council's Annual Plan current at the date of payment.

b) Any financial contributions not paid within two years from the date of the commencement of the consent shall be (where applicable) paid prior to the issue of a Building Consent under the Building Act 2004, subject to the adjustments referred to in sub-paragraph (a) herein.

5. THAT a Chartered Professional Engineer, suitably experienced to the satisfaction of the Chief Executive Officer or duly authorised officer; shall supervise all earthworks and shall prepare a Geotechnical Completion report which describes the extent of the earthworks, the extent of inspection, provide copies of test data, including compaction results achieved and a statement of professional opinion that all lots subject to filling contain a buildable area suitable for building development with standard foundations in accordance with NZS 3604 and that all filling has been carried out in accordance with NZS 4431.

6. THAT a building line restriction be determined in accordance with the recommendations of the geotechnical report prepared by S&L Consultants dated 1 July 2020 or as amended in the Geotechnical Completion report.

7. THAT a consent notice pursuant to Section 221 of the Resource Management Act 1991 be issued against the title of Lots 1 to 6 to state that these Lots are subject to a building restriction lines as defined on the land transfer plan.

8. THAT any steep batters within Lot 7 have been retained. Any walls greater than 1.5 m in height or subject to surcharge loadings will need to be approved via a building consent.

9. THAT a vehicle crossing to serve proposed Lots 1, 2, 3, the Lot 5 car park and Private way I shall be constructed in accordance with Council's Standard Specification Drawing No W435 Residential.

10. THAT Lot 5 be provided with a carpark space constructed to the same standard of the ROW and shall be pavement marked as a car park for Lot 5. Details shall be provided in the Engineering Documents submission.

11. THAT power and telecommunications reticulation shall be installed to serve the development with the capacity and ability to later provide all proposed residential with individual connections (lead ins). Written confirmation is required from power and telecom authorities confirming that this condition has been met to their satisfaction.

12. That live water connections be provided to serve all allotments in accordance with the Development Code requirements. The existing water connections and power junction boxes are to be located adjoining the property boundaries to the standard locations as per the Council's Development Code. The location of these services shall be included in the engineering document submission.

13. THAT a 20 mm internal diameter water supply pipe to serve proposed Lots 4 to 7 shall be constructed along proposed private way I in accordance with Council's Development Code, with the alignment to be selected by the consent holder's representative and the ends capped and clearly pegged.

14. THAT wastewater reticulation shall be provided to serve the subdivision with connections to serve all Lots in accordance with Council's Development Code.

15. THAT a wastewater easement shall be created over the wastewater mains on Lots 1 to 6 in favour of Council as dominant tenement and that this be shown on the land transfer plan.

16. THAT a wastewater easement shall be created over the private wastewater connection where it crosses over Lot 6 and that this be shown on the land transfer plan.

17. THAT storm water reticulation shall be provided to serve the subdivision with connections to serve all Lots in accordance with Council's Development Code.

18. THAT a storm water easement shall be created over the stormwater mains on Lots 1 to 6 in favour of Council as dominant tenement and that this be shown on the land transfer plan.

19. THAT storm water easements shall be created over the private wastewater connection where it crosses over Lot 6 and that this be shown on the land transfer plan.

20. THAT design and construction shall be carried out to ensure that stormwater overland flowpaths are provided clear of the buildable area of each Lot and to take into account the runoff from areas of road, including adjacent catchment where relevant.

21. THAT the consent holder's representative shall submit to the Chief Executive Officer or duly Authorised Officer for approval, with the appropriate engineering inspection fee; construction drawings, specifications, calculations and project cost estimate; covering all sections of work which it is proposed to be built in accordance with Council's Development Code and vest in Council. Construction shall not commence until written approval of the plans and specification has been provided by Council. No pressure testing of sewer mains to be vested in Council, shall be observed by a Council official, unless prior written approval of the plans and specification have been provided by Council.

22. THAT as-built information and drawings shall be provided for all vested assets and service connections in accordance with Council's Development Code.

23. THAT at the end of the maintenance period, all maintenance items are required to be certified as complete for vested assets.

24. THAT the consent holder's representative shall submit to the Chief Executive Officer or duly Authorised Officer, all quality assurance and testing records that are required in accordance with Council's Development Code.

25. THAT the work required by conditions 5-24 shall be supervised and certified as complete in accordance with the conditions by the consent holder's

representative (refer Section 12.3.9 and 12.3.10) to the satisfaction of the Chief Executive Officer or duly Authorised Officer, except that a Chartered Professional Engineer shall be responsible for providing certification of earthworks in accordance with Council's Development Code.

ADVICE NOTES:

1. Please be aware that in accordance with Council's publically notified Annual Plan, all subdivision applications within urban areas of the District, on reaching the Section 223 stage prior to 30 June in any year will be rated a charge on their rates account for the following year. This charge will be calculated as one charge per approved additional lot and will remain in place until such a time as the original property is subdivided into properties that can be individually rated.

2. Please note that unless given effect to by the submission to Council of a survey plan pursuant to Section 223 of the Act this consent shall expire five years after the date of Council's decision.

3. A building consent will be required for any subsequent building work including stormwater and effluent disposal systems.

4. Any lack of recorded archaeological sites on this property may be due to one of two factors. This may be because there are no sites present, or there has not been an archaeological survey undertaken of the site. Work that may modify, damage or destroy any archaeological site(s), such as earthworks, fencing or landscaping, is subject to a consenting process under the Historic Places Act 1993.

5. Should the proposed activity uncover an archaeological site/s, the NZHPT confirms that an Archaeological Authority is required prior to any works commencing on the site. The applicant is advised to contact the New Zealand Historic Places Trust for further information. Please contact the Lower Northern Area Archaeologist, on (07) 577 4534 or AsstArchaeologistLN@historic.org.nz. It is an offence to modify, damage or destroy a site for any purpose without an Authority and the Historic Places Act 1993 contains penalties for unauthorised site damage.

6. You may object to this decision, including any conditions of consent, by notifying Council within 15 working days of receipt of this decision. However you are advised that you may not commence the activity as authorised by this consent until your Appeal is resolved as prescribed by section 116 of the Resource Management Act 1991.

7. The consent holder should notify Council, in writing, of their intention to begin works prior to commencement. Such notification should be sent to the Council's Compliance & Monitoring Team (fax: 07 577 9820) and include the following details:

    - name and telephone number of the project manager and site owner
    - site address to which the consent relates
    - activity to which the consent relates
    - expected duration of works.

    Notifying Council of the intended start date enables cost effective monitoring to take place. The consent holder is advised that additional visits and administration required by Council officers to determine compliance with consent conditions will be charged to the consent holder on an actual and reasonable basis.

8. Full compliance with the conditions of consent is necessary to carry out the activity to which this consent relates. Your progress towards satisfying the conditions of consent will be monitored by a Council representative and failure to meet these conditions may result in enforcement action being taken in accordance with Council's Monitoring, Compliance and Enforcement Strategy. This may involve the issuing of an Infringement Notice (instant fine), Abatement Notice and/or additional monitoring fees.

REASONS FOR DECISION:

1. The notification date of the Operative District Plan 2012 was 18 June 2012 and all appeals have been resolved. The Council has however notified several plan changes. Those plan change provisions which have not been appealed, or where any appeals have been resolved, or where no submission has been received, have been treated as if they were operative in accordance with Section 86F of the Resource Management Act 1991. Those plans changes where a submission or appeal has been lodged, but not determined or resolved, have been considered but are found to have no relevance to this application.

Site Description

2. The site is legally described as Lots 7-9 DP 521037, which is held in three separate records of title, with a total combined area of 3,074 m^2. The site is located within the Residential Zone, with the northern half of the site also located within the Flood Hazard Area.

3. The site is located at the northern end of Layla Place. The site has been recently earth worked to create flat building platforms on the southern part of the site, at levels above 9 m RL Moturiki Datum. Site levels to the north reduce to 7 m RL.

4. A 100 mm water main is located within Layla Place. A 150 mm stormwater pipe is located across the northern half of 16 and 19 Layla Place, which drains to a Council stormwater reserve to the west. A 300 mm sewer main is located across the northern half of the site.

5. The site adjoins existing residential development to the south and west. Kiwifruit orchards are located to the north and east.

Proposal

6. The applicant proposes to subdivide Lots 7-9 DP 521037 to create seven residential lots and an access lot. The seven lots are:

    - Lot 1 – 413 m^2
    - Lot 2 – 442 m^2
    - Lot 3 – 472 m^2
    - Lot 4 – 375 m^2
    - Lot 5 – 350 m^2
    - Lot 6 – 353 m^2

- Lot 7 – 514 m^2
- Lot 8 (access lot and parking space for Lot 5) – 156 m^2

7. Lot 8 will provide access to Layla Place for Lots 4-7. An amalgamation condition is proposed for Lot 8 to be held in undivided shares by the owners of Lots 4-7. Lots 1-3 will have individual direct vehicle access to Layla Place. All lots will have two on site parking spaces, aside from Lot 5, which will have a dedicated parking spaces within the access lot. Reverse manoeuvring is available on site or within the right of way.

8. All lots will have separate wastewater, stormwater and water supply connections to Council infrastructure.

9. Financial contributions are required for the four additional allotments.

Activity Status

10. Rule 13.3.2(e) provides for subdivision in accordance with 13.4.2 as a controlled activity. All lots are at least 350 m^2 in area, which complies with 13.4.2(a) for Katikati.

11. Privateways serving 3-6 units require a legal width of 5 m and a formed width of 3.5 m under performance standard 12.4.4.2. Proposed right of way I will serve four lots and is between 3 m and 3.9 m wide. The right of way is 3.5 m wide between Lot 5 and Lot 7 and 3.9 m wide between Lot 5 and Lot 4. The right of way then reduces to 3 m wide between Lot 4 and Layla Place (the length of the off site Lot 5 parking space). The right of way doesn't comply with the legal or formed width and is therefore a restricted discretionary activity under Rule 12.3.4.1.

12. Two car parking spaces are required on site for all dwellings under Rule 4B.4.7. The second parking space for Lot 5 is located within the right of way, which doesn't comply with this rule, and is a restricted discretionary activity under Rule 4B.3.2(a).

13. Subdivision in a Floodable Area is a discretionary activity under Rule 8.3.4(c)(i).

14. The subdivision complies with all other relevant rules for Transportation, Subdivision and Development, and the Residential Zone.

15. The NESCS (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) came into effect on 1 January 2012. The primary objective of the NESCS is to ensure land affected by contaminated soil is appropriately identified and assessed when soil disturbance and/or land development activities take place and, if necessary, remediated or the contaminants contained to make the land safe for human use.

16. The subject site is not considered to be a piece of land under clause 5(7) of the NESCS. The site was subject to a detailed site investigation as part of the parent subdivision (RC9975). The parent site was identified as a 'piece of land' and elevated levels of contamination were identified through that investigation. The samples taken from land within the subject site were below SCS thresholds for inorganic substances and organic compounds. The site has also been subject to remediation and site validation reporting in accordance with the consent conditions for RC9975.

17. Overall, the subdivision is a discretionary activity.

Notification Decision: Sections 95A through to 95F

Notification checklist	
Section 95A Step 1 – Mandatory notification in certain circumstances	There are no provisions that require mandatory notification of the application and the applicant has not requested public notification.
Section 95A Step 2 – Notification precluded in certain circumstances	Public notification is precluded as the discretionary activity is for the subdivision of land.
Section 95A Step 3 – Notification if required by a NES or adverse effects more than minor	Step 3 is not required as public notification is precluded through Step 2.
Section 95A Step 4 – Special circumstances	No special circumstances exist.
Section 95B Step 1 – Certain affected groups	No customary rights groups are affected and the land is not affected by any statutory acknowledgment.
Section 95B Step 2 – Limited notification precluded in certain circumstances	There are no rules or NES standards that preclude limited notification.
Section 95B Step 3 – Affected parties	No other people are considered to be affected as any adverse effects are less than minor.
Section 95B Step 4 – Special circumstances	No special circumstances exist for limited notification.

Potentially affected persons – Sections 95E and 95F

18. No adjoining landowners or any other people are considered to be affected, given the assessment further below in this report.

Assessment

Act requirement	Assessment
Section 104(1) Part 2 matters	The proposal is consistent with Section 6(h) 'the management of significant risks from natural hazards', Section 7(c) 'the maintenance and enhancement of amenity values' and Section 7(f) 'maintenance and enhancement of the quality of the environment'.
Section 104(1)(a) Any actual and potential effects on the environment of allowing the activity	The subdivision results in an additional four residential lots that comply with the relevant performance standards of the District Plan, aside for transportation non-compliances, for which the adverse effects are deemed acceptable.
Section 104(1)(b)(i)-(iii) Any relevant provisions of: (i) A national environment standard; (ii) Other	All subdivisions trigger assessment against the NES for Assessing and Managing Contaminants in Soils to

regulations; (iii) A national policy statement	Protect Human Health. The subdivision is not changing the use. The NES therefore does not apply to this subdivision.
Section 104(1)(b)(v) Any relevant provisions of an operative or proposed regional policy statement or plan	There are no relevant provisions of an operative or proposed regional policy statement or regional plan that are particularly relevant to this activity.
Section 104(1)(c) Any other matter	There are no other matters relevant to the determination of the application.
Section 104(1)(b)(vi) Relevant provisions of the Operative District Plan (or Proposed District Plan)	The relevant objectives and policies of the District Plan are considered later in this report.

Assessment of effects in accordance with other provisions of the Act

Act requirement	Assessment
Section 106 Consent authority may refuse subdivision consent in certain circumstances	Vehicle access is provided for all lots to Layla Place. The flood hazard located on the property has been adequately mitigated by raising the ground level. The activity is consistent with Section 106.

19. Overall the activity has been assessed as a discretionary activity. Matters of control for subdivision are listed in 13.5.1, flooding matters for assessment are listed in 8.5.2(c) and matters for discretion for transportation are listed in 4B.6.2. No matters of discretion for the off site parking infringement are listed in the District Plan.

Subdivision

20. The relevant matters of control in Rule 13.5.1 state:

(a) The location of roads, footpaths, walkways and cycleways and the orientation of allotments or dwellings to road boundaries to ensure good urban design outcomes.

(b) The interface between public and private space to achieve good urban design outcomes.

(c) The provision of access for emergency services/refuse collection (need to be able to access and manoeuvre on site).

(d) The effect of additional driveways on public safety and amenity along footpaths.

(e) The provision of easements or alignment of boundaries to facilitate servicing the subject area.

(f) The timing of the development in accordance with the sequential development of the urban areas as identified on the structure plan.

(g) The provision of access from Lot 2 DPS 312635, Pt Allot 64 Parish Te Puna, Pt Lot 2 58259 to Lot 1 DPS 58259 and Allot 63 Te Puna Parish in Omokoroa (see 12.4.4.4(c)).

(h) The application of financial contributions.

21. The proposed subdivision is consistent with the underlying zoning of the site and will be complimentary to surrounding development. Surrounding land uses are Residential.

22. The matters of control outlined by Rule 13.5.1 of the District Plan generally relate to urban design matters. Lots 4-7 will share right of way access while Lots 1-3 will have individual vehicle access directly to Layla Place.

23. Council is satisfied sufficient provision has been made to provide each allotment with reticulated services. Conditions of consent have been imposed to ensure each allotment is serviced prior to title being issued. Council's Development Engineer has reviewed this information and are satisfied engineering effects can managed through the imposition of conditions.

24. Easements are provided to protect service provision to the proposed lots.

25. Financial contributions are applicable for the additional four allotments.

Flooding

26. The relevant flooding matters under 8.5.2(c) are:

(i) The effect of the proposed subdivision (including, but not limited to any building site, building/structure or earthworks) on the capacity of ponding areas and function of overland flow paths.

(ii) The provision of finished site levels to mitigate adverse effects associated with inundation. For Waihi Beach (Planning Maps A03 and U01-U04) the flood level shall be based on the 2% AEP (inclusive of climate change).

(iii) In the case of Floodable Areas, any verifiable new information which demonstrates that the subject site is not in fact under threat from flooding.

27. The Flood Hazard does not correspond to the ground levels on the site, which sit above the adjoining stormwater gully to the north. The subdivision approval under RC9975 identified the flood level for the site is RL 4.6 m Moturiki Datum. The Geotechnical Completion Report (GCR) submitted under RC9975 identifies the finished ground contours to the south of the wastewater and stormwater main as RL 9 m, resulting from the placement of engineered fill. Therefore it is considered that the proposed subdivision, and any future development of the lots, will not result in any adverse effects on the capacity of ponding areas or the function of overland flow paths.

Transportation

28. The application includes a shortfall in on site parking for Lot 5 of one space. This additional space is located 15 m away from Lot 5, within the access Lot 8, but outside of the width required for access for Lots 4-7. This parking space is protected by easement J. The parking space is 2.9 m wide and adjoins the 3 m wide private way in this location. The parking space will be marked.

29. A transportation assessment has been provided by Harrison Transportation in relation to the parking for Lot 5. This assessment concludes that given the parking

space is within a short distance of the dwelling and complies with the parking dimension requirements of the District Plan, the parking space provides suitable parking for a dwelling on Lot 5. Council's Development Engineer is satisfied that the parking space will be appropriate and that sufficient access to Lots 4-7 can be provided alongside.

30. The proposed privateway (Lot 8) serves Lots 4-7 and has a formed width between 3 m and 3.9 m wide. This is less than the legal width requirement of 5 m and the formed width requirement of 3.5 m. The length of right of way where it is less than 3.5 m wide is limited, being alongside the Lot 5 parking space near Layla Place, where it is 3 m wide. This is a length of 6 m.

31. The reduced right of way width in this location isn't anticipated to cause traffic safety issue, given the limited length of encroachment. Also, the reduced legal width across the right of way isn't considered to cause access issues, given the very limited ability for additional subdivision on this right of way (Lots 4-7 are between 350 m^2 and 514 m^2).

32. There is a single curve on the right of way of approximately 65^o (adjacent to Lot 5). The Harrison Transportation assessment confirms that available sight distances on this curve exceeds the minimum required for the design speed specified in NZS 4404. Council's Development Engineer is satisfied that adequate sight distances can be achieved on the right of way.

Objectives and Policies

33. The relevant objectives and policies of the District Plan area as follows:

4B.2.1 Objectives – Transportation, Access, Parking and Loading
4B.2.2 Policies – Transportation, Access, Parking and Loading

8.2.1 Objectives – Natural Hazards
8.2.2 Policies – Natural Hazards

11.2.1 Objectives – Financial Contributions
11.2.2 Policies – Financial Contributions

12.2.1 Objectives – Subdivision & Development
12.2. Policies – Subdivision & Development

13.2.1 Objectives – Residential Zone
13.2.13 Policies – Residential Zone

34. The application is consistent with the relevant objectives and policies listed above. The proposal will create complying lots and the subdivision is in accordance with the zoning. The flood hazard has been mitigated by the increase in ground levels which will avoid any risk to people or property. Any adverse effects related to transportation will not affect the safety of the road network.

35. Growth in the District needs to be supported by infrastructure provided at appropriate levels of service. Financial contributions from development are imposed to mitigate potential adverse effects on the environment. Financial contributions are payable in relation to subdivision and have been applied in accordance with Section 11 – Financial Contributions of the District Plan.

Conclusion

36. In having regard to the above, Council is satisfied that any adverse effects of the development are less than minor and are adequately avoided, remedied or mitigated by the conditions of consent and the performance standards required to be met and do not adversely affect any other parties. Granting of this consent allows for the efficient use of land for residential development in an area zoned for residential land use.

37. In addition, the development is of a scale, intensity and character envisaged by the District Plan and as the adverse effects are appropriately managed, the proposal is considered to be consistent with the relevant objectives and policies of the Operative District Plan and the purpose and principles of Part 2 of the Resource Management Act 1991 and accordingly Council has granted the consent.

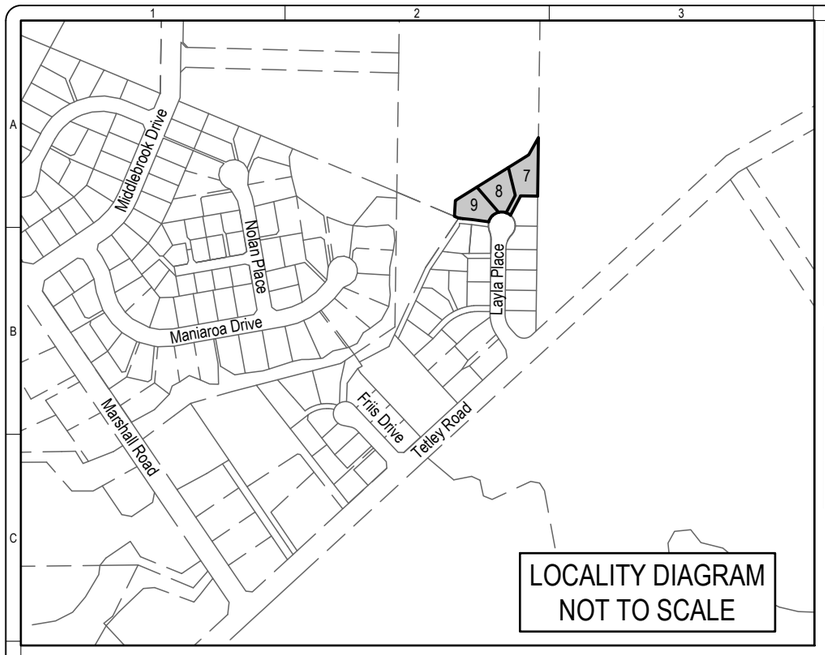


Kahurangi Tapsell
Environmental Consents Contractor
28 September 2020

Approved under delegated authority.



Chris Watt
Environmental Consents Manager
Date: 28/09/2020



LOCALITY DIAGRAM
NOT TO SCALE

EXISTING EASEMENTS IN GROSS

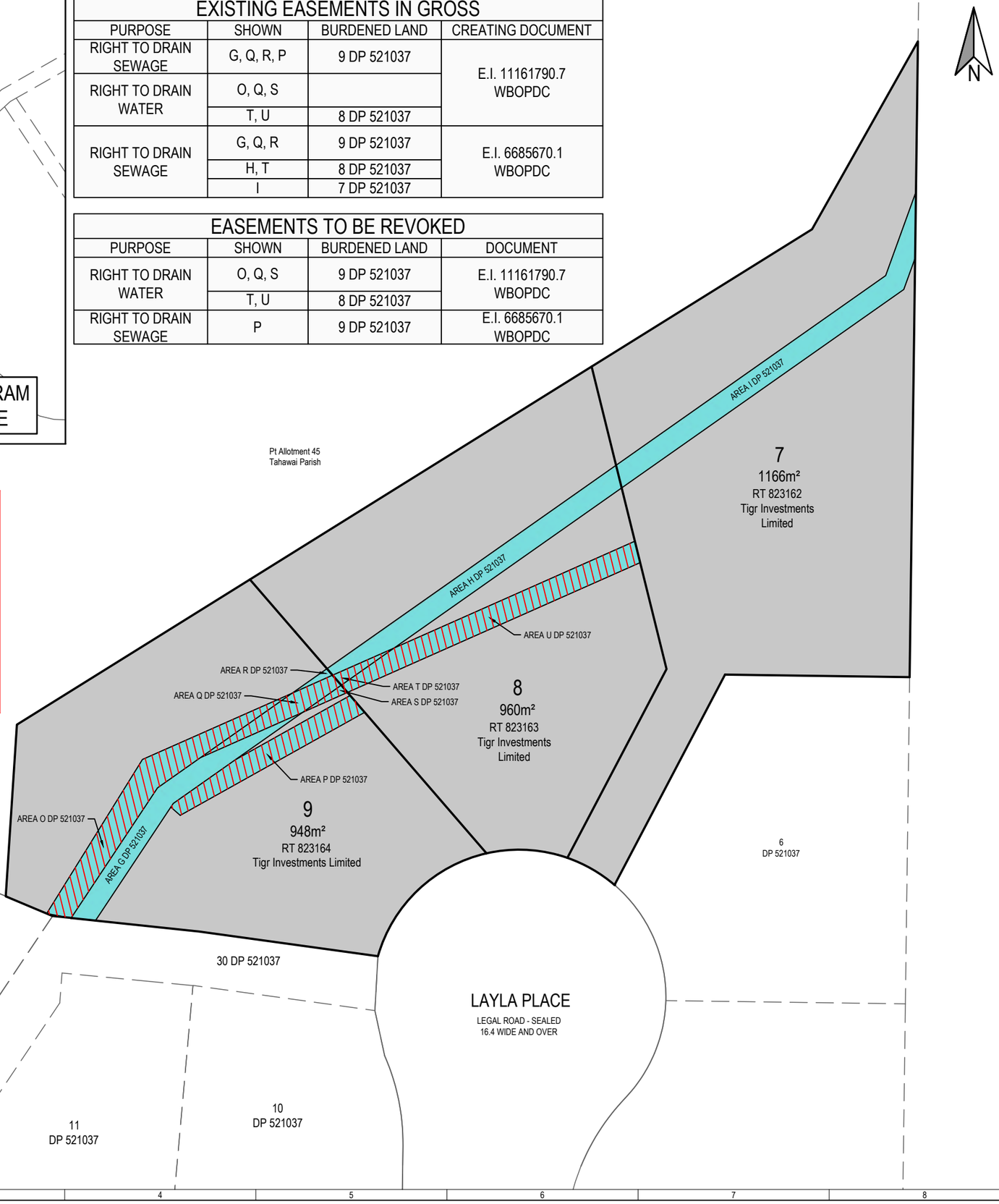
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RIGHT TO DRAIN SEWAGE	G, Q, R, P	9 DP 521037	E.I. 11161790.7 WBOPDC
RIGHT TO DRAIN WATER	O, Q, S		
	T, U	8 DP 521037	
RIGHT TO DRAIN SEWAGE	G, Q, R	9 DP 521037	E.I. 6685670.1 WBOPDC
	H, T	8 DP 521037	
	I	7 DP 521037	

EASEMENTS TO BE REVOKED

PURPOSE	SHOWN	BURDENED LAND	DOCUMENT
RIGHT TO DRAIN WATER	O, Q, S	9 DP 521037	E.I. 11161790.7 WBOPDC
	T, U	8 DP 521037	
RIGHT TO DRAIN SEWAGE	P	9 DP 521037	E.I. 6685670.1 WBOPDC

Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC12354S
Reference: RCA200702282

Chris Watt
Environmental Consents Manager
Date: 28/09/2020



Areas and dimensions are approximate only and subject to survey.

This plan has been prepared for the purposes of Section 88 of the Resource Management Act 1991 and should not be relied on for any other purpose.

LEGEND:

- EXISTING BOUNDARY
- ABBUTTALS (DCDB)
- EXISTING EASEMENTS
- RESIDENTIAL ZONE
- EXISTING EASEMENTS TO BE REVOKED

Rev	Description	Drn	Ckd	App	Date
2	RFI - RC Application	NP	GC	GC	13/2020
1	Preliminary	NP	GC	GC	05/2020

	Name	Date		Name	Date
Surveyed	CR		Designed	TM	

Coordinate System: Bay of Plenty Circuit Geodetic 2000
Origin of Coordinates: Maketu
Height Datum:
Origin of Height:

S&L
Land Development and Design Specialists
Ph. 07 577 6069
Email: info@sltga.co.nz
36 Kereiti Street, Mt Maunganui, Tauranga 3116
P.O. Box 231, Tauranga 3140
www.sltga.co.nz

Title
Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037 14-19 Layla Place

Prepared For
Existing Tenure Planning Zones

Original Scales @ A3: 1:400
Do Not Scale Dimensions
Status: FOR APPROVAL

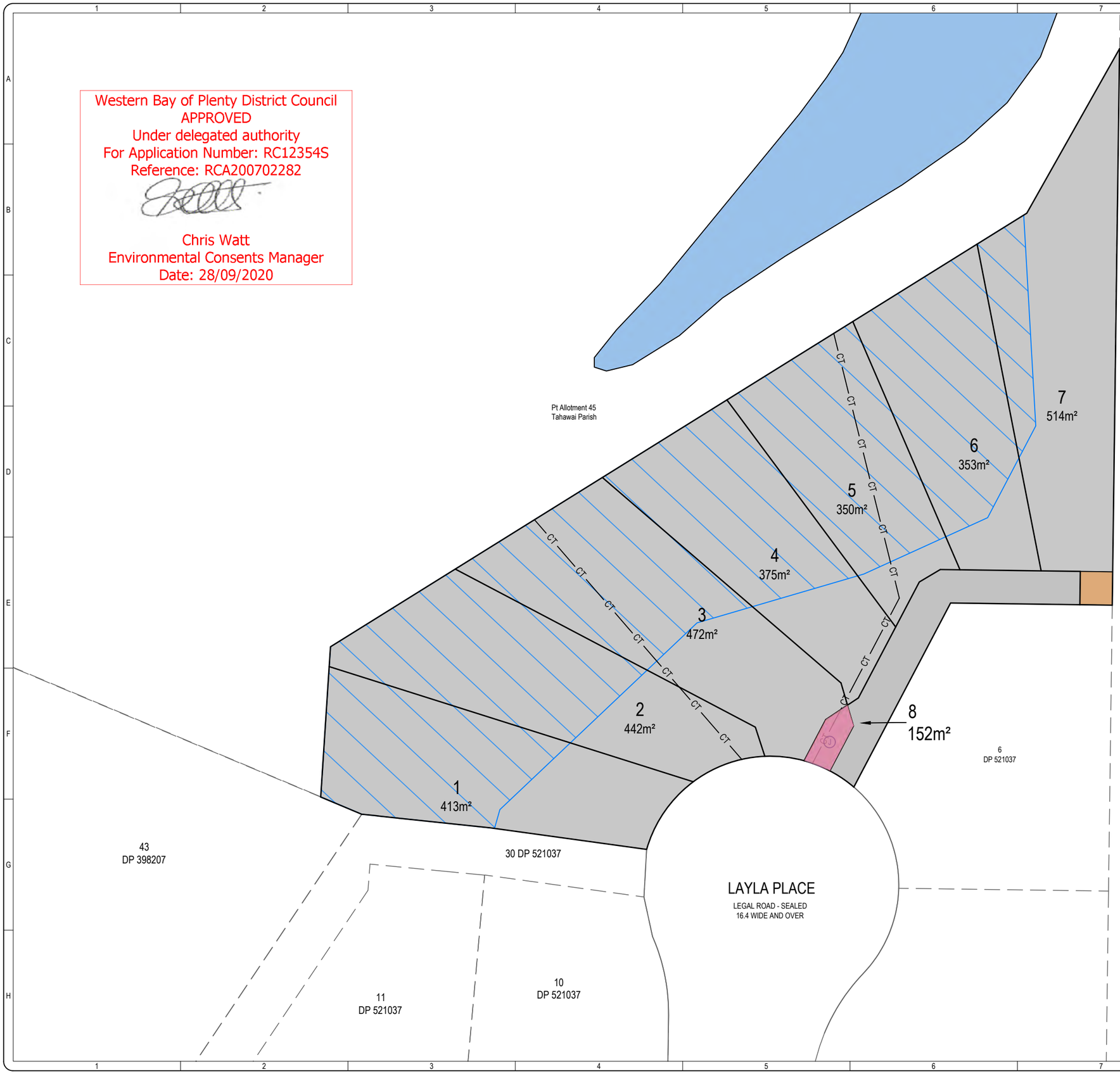
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Revision: 2

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Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC12354S
Reference: RCA200702282

Chris Watt
Environmental Consents Manager
Date: 28/09/2020



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LEGEND:

- EXISTING BOUNDARY
- ABBUTTALS (DCDB)
- RESIDENTIAL ZONE
- FLOODABLE AREA
- STORMWATER POND
- AREA FOR LOT 7
- AREA FOR LOT 5

Rev	Description	Drn	Ckd	App	Date
2	RFI - RC Application	NP	GC	GC	13/2020
1	Preliminary	NP	GC	GC	05/2020

	Name	Date		Name	Date
Surveyed	CR		Designed	TM	

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Title

Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037 14-19 Layla Place

Prepared For

Scheme Plan
Planning Overlays

Original Scales @ A3
1:400
Do Not Scale Dimensions

Status
FOR APPROVAL

Drawing No
20-30927-01-C2

Revision
2

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PROPOSED EASEMENTS

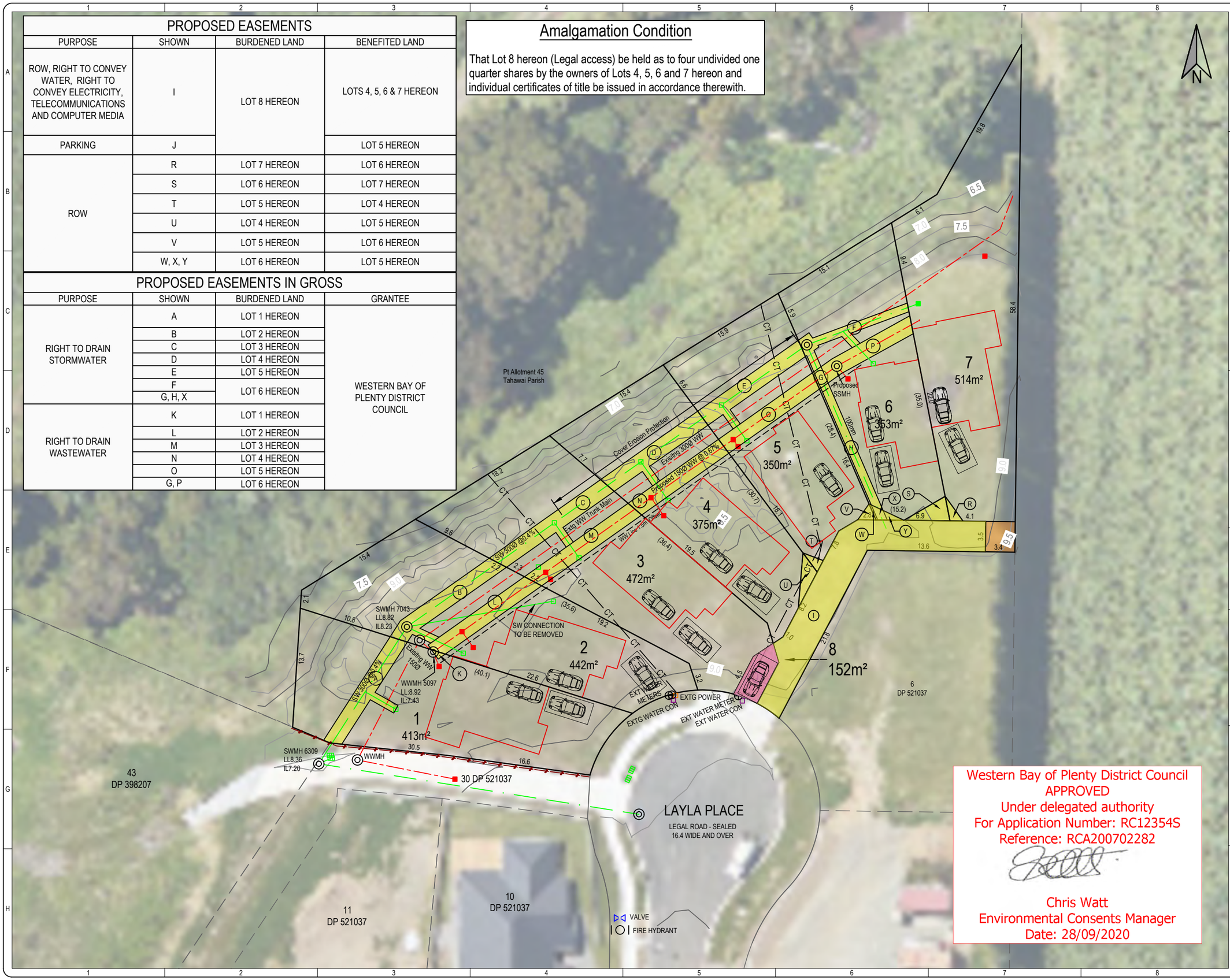
PURPOSE	SHOWN	BURDENED LAND	BENEFITED LAND
ROW, RIGHT TO CONVEY WATER, RIGHT TO CONVEY ELECTRICITY, TELECOMMUNICATIONS AND COMPUTER MEDIA	I	LOT 8 HEREON	LOTS 4, 5, 6 & 7 HEREON
PARKING	J		LOT 5 HEREON
ROW	R	LOT 7 HEREON	LOT 6 HEREON
	S	LOT 6 HEREON	LOT 7 HEREON
	T	LOT 5 HEREON	LOT 4 HEREON
	U	LOT 4 HEREON	LOT 5 HEREON
	V	LOT 5 HEREON	LOT 6 HEREON
	W, X, Y	LOT 6 HEREON	LOT 5 HEREON

PROPOSED EASEMENTS IN GROSS

PURPOSE	SHOWN	BURDENED LAND	GRANTEE
RIGHT TO DRAIN STORMWATER	A	LOT 1 HEREON	WESTERN BAY OF PLENTY DISTRICT COUNCIL
	B	LOT 2 HEREON	
	C	LOT 3 HEREON	
	D	LOT 4 HEREON	
	E	LOT 5 HEREON	
	F	LOT 6 HEREON	
	G, H, X		
RIGHT TO DRAIN WASTEWATER	K	LOT 1 HEREON	
	L	LOT 2 HEREON	
	M	LOT 3 HEREON	
	N	LOT 4 HEREON	
	O	LOT 5 HEREON	
	G, P	LOT 6 HEREON	

Amalgamation Condition

That Lot 8 hereon (Legal access) be held as to four undivided one quarter shares by the owners of Lots 4, 5, 6 and 7 hereon and individual certificates of title be issued in accordance therewith.



Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC12354S
Reference: RCA200702282

Chris Watt
Environmental Consents Manager
Date: 28/09/2020

Areas and dimensions are approximate only and subject to survey.

This plan has been prepared for the purposes of Section 88 of the Resource Management Act 1991 and should not be relied on for any other purpose.

LEGEND:

- EXISTING BOUNDARY
- ABBUTTALS (DCDB)
- MAJOR CONTOUR (1.0)
- MINOR CONTOUR (0.5)
- FENCE
- PROPOSED EASEMENTS
- RESIDENTIAL ZONE
- INDICATIVE BUILDING
- AREA FOR LOT 7
- AREA FOR LOT 5
- WATER METER
- POWER
- TELECOMM.
- CESSPIT

Rev	Description	Drn	Ckd	App	Date
3	RFI - RC Application	NP	GC	GC	09/2020
2	RFI - RC Application	NP	GC	GC	09/2020
1	Preliminary	NP	GC	GC	05/2020

	Name	Date		Name	Date
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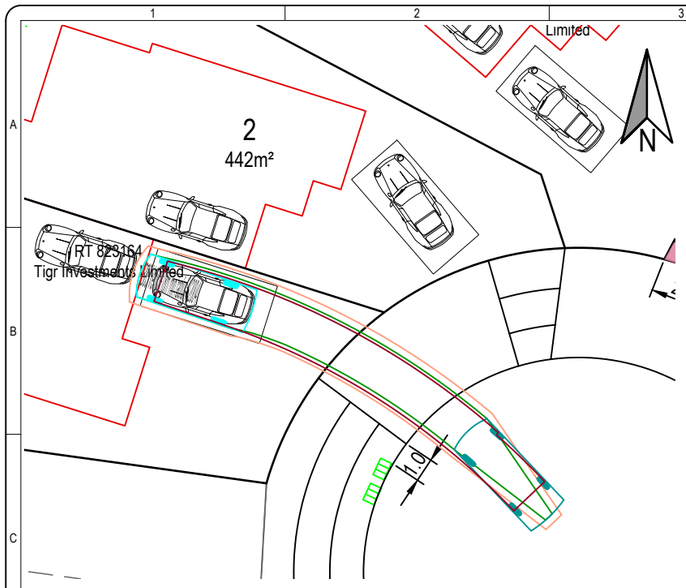
Scheme Plan

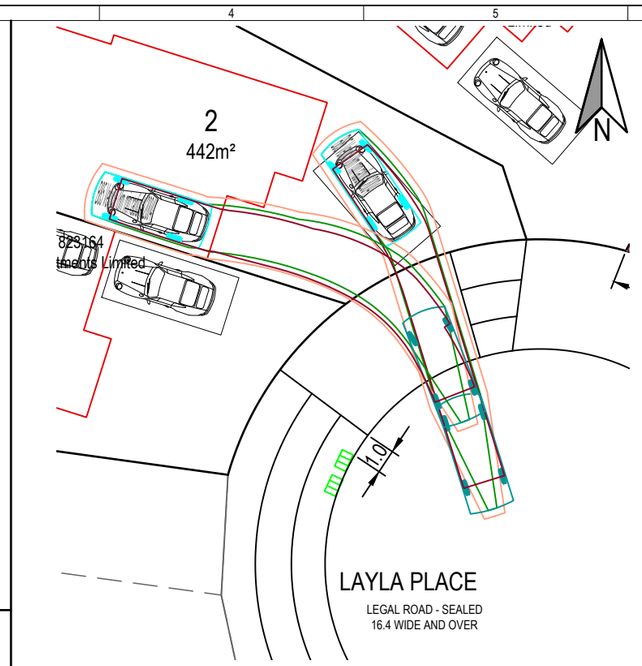
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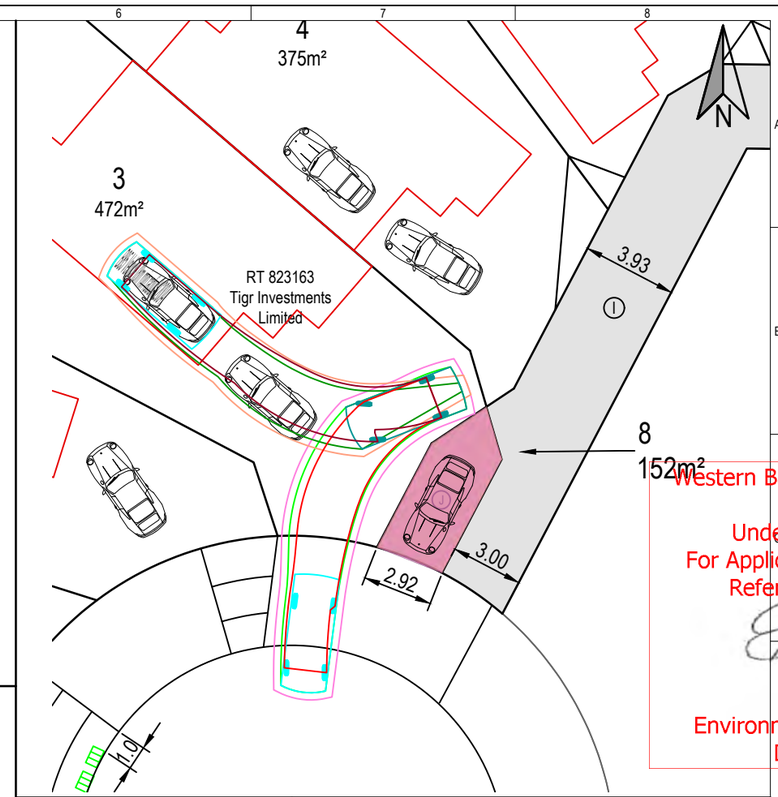
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Revision: 3

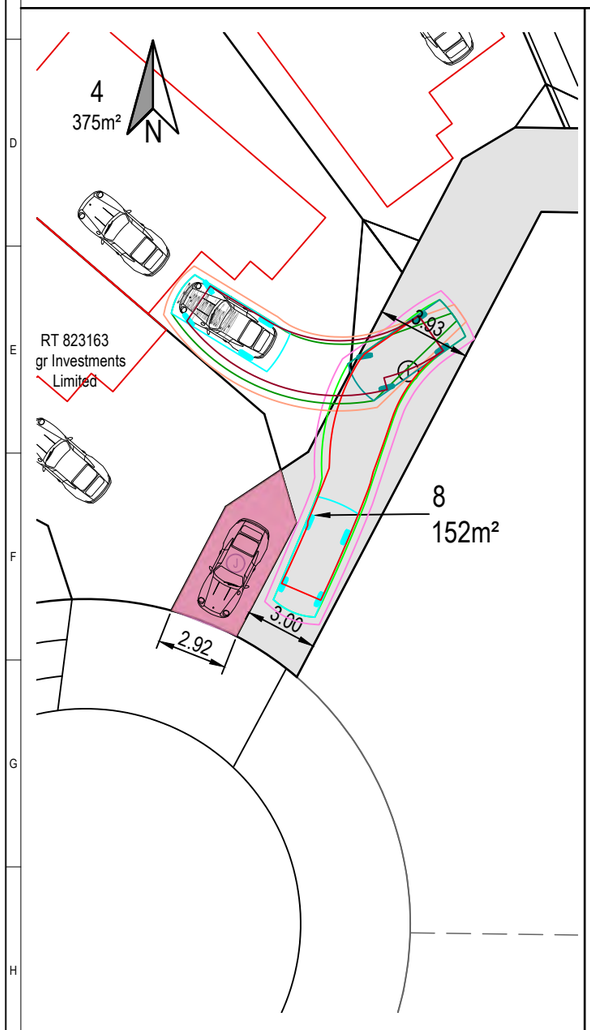
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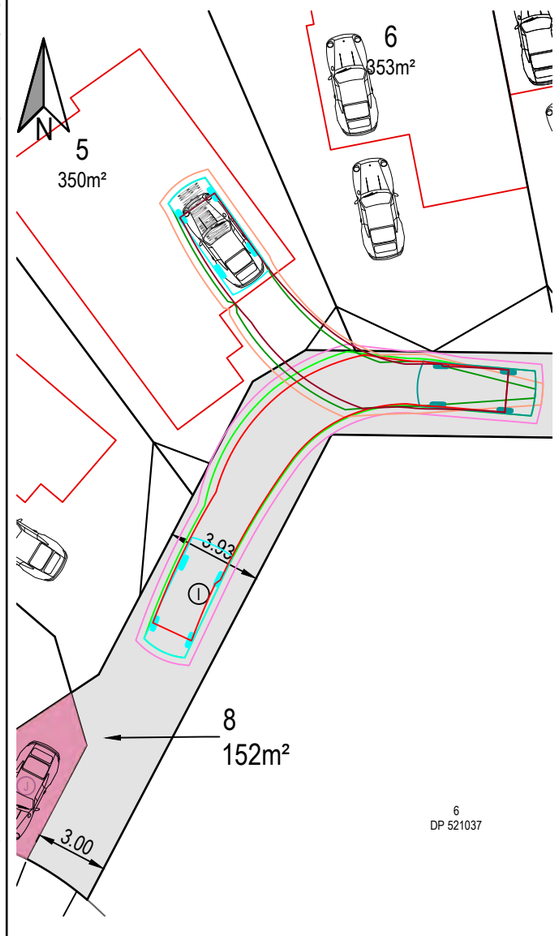
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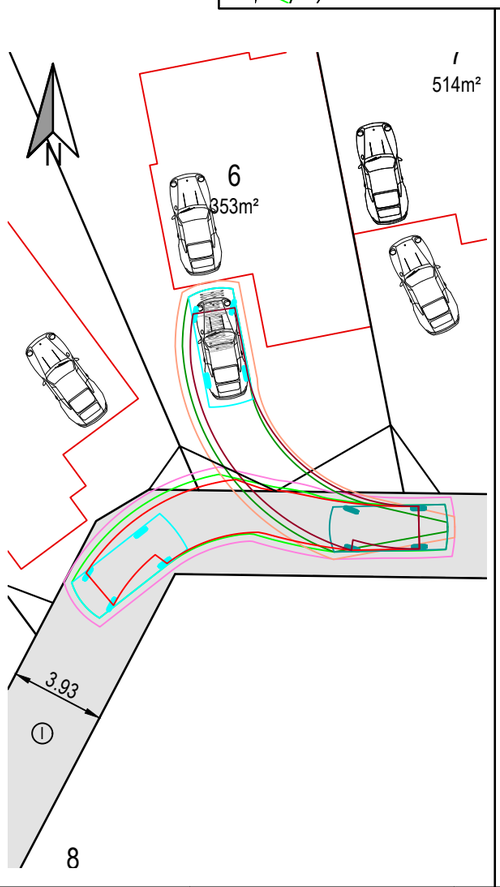


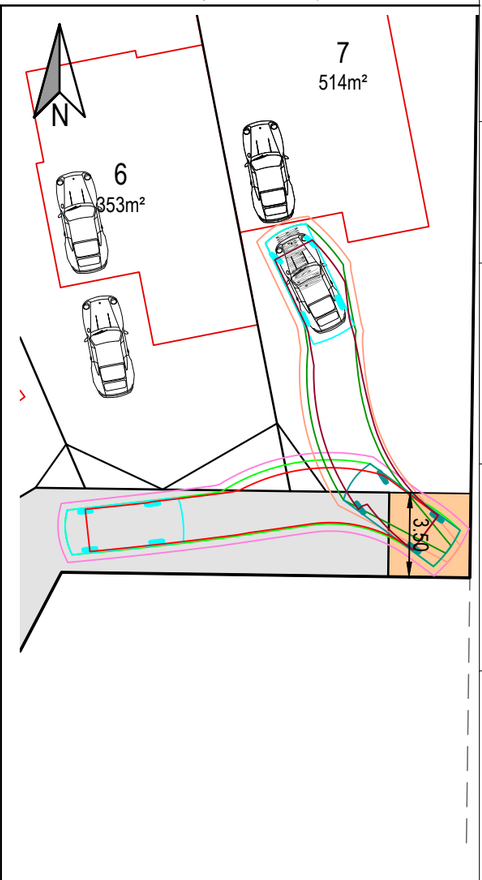












Areas and dimensions are approximate only and subject to survey.

This plan has been prepared for the purposes of Section 88 of the Resource Management Act 1991 and should not be relied on for any other purpose.

Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC12354S
Reference: RCA200702282

Chris Watt
Environmental Consents Manager
Date: 28/09/2020

Rev	Description	Drn	Ckd	App	Date
4	DIAGRAMS UPDATED	NP	SC	SC	09/2020
3	RFI - RC Application	NP	GC	GC	13/2020
2	Tracking Curve changes	NP	GC	GC	07/2020
1	Preliminary	NP	GC	GC	05/2020

	Name	Date		Name	Date
Surveyed	CR		Designed	TM	

Coordinate System: Bay of Plenty Circuit Geodetic 2000
Origin of Coordinates: Maketu
Height Datum:
Origin of Height:

S&L
Land Development and Design Specialists
Ph. 07 577 6069
Email: info@sltga.co.nz
36 Kereiti Street, Mt Maunganui, Tauranga 3116
P.O. Box 231, Tauranga 3140
www.sltga.co.nz

Title
Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037 14-19 Layla Place

Prepared For
Exit Tracking Curves

Original Scales @ A3
1:250
Do Not Scale Dimensions

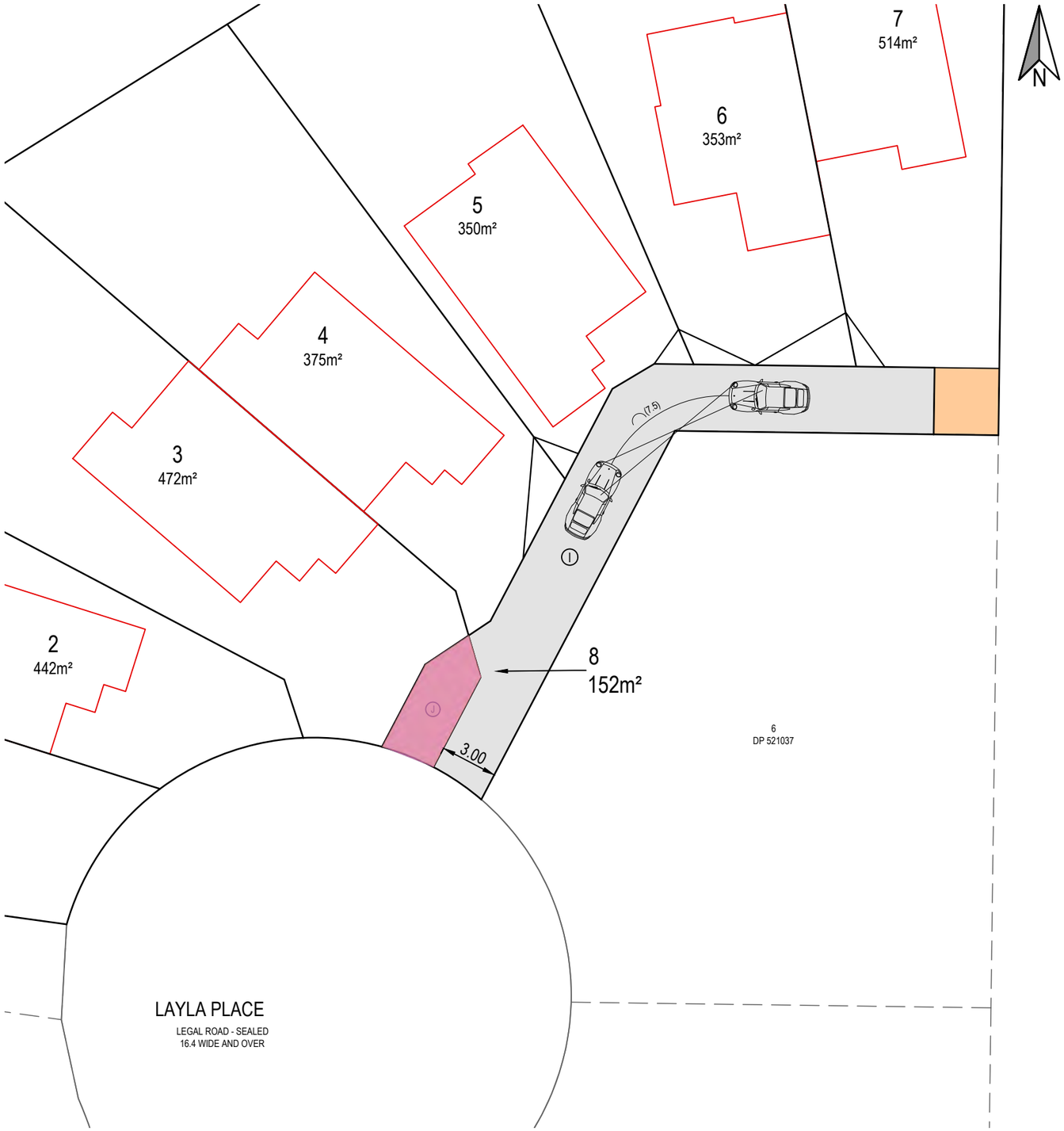
Status
FOR APPROVAL

Drawing No
20-30927-01-C4

Revision
4

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Stopping Sight Distance (SSD) = $\frac{RV}{3.6} + \frac{V^2}{254(d + 0.01a)}$

R = Reaction time = 1.5s (Alert Driving conditions: restricted low speed urban area - Austroads 2009 Part 3 page 102 Table 5.2)

V = Operating speed = 10km/h

d = coefficient of deceleration = 0.46 (low volume roads - Austroads 2009 Part 3 page 103 Table 5.3)

a = longitudinal grade = 1%

SSD = 5.004m

Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC12354S
Reference: RCA200702282

Chris Watt
Environmental Consents Manager
Date: 28/09/2020

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Rev	Description	Drn	Ckd	App	Date
2	RFI - RC Application	NP	GC	GC	13/2020
1	Preliminary	JL	GC	GC	06/2020

	Name	Date		Name	Date
Surveyed	CR		Designed	TM	

Coordinate System: Bay of Plenty Circuit Geodetic 2000
Origin of Coordinates: Maketu
Height Datum:
Origin of Height:

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Title

Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037 14-19 Layla Place

Prepared For

Stopping Sight Distance

Original Scales @ A3
1:250
Do Not Scale Dimensions

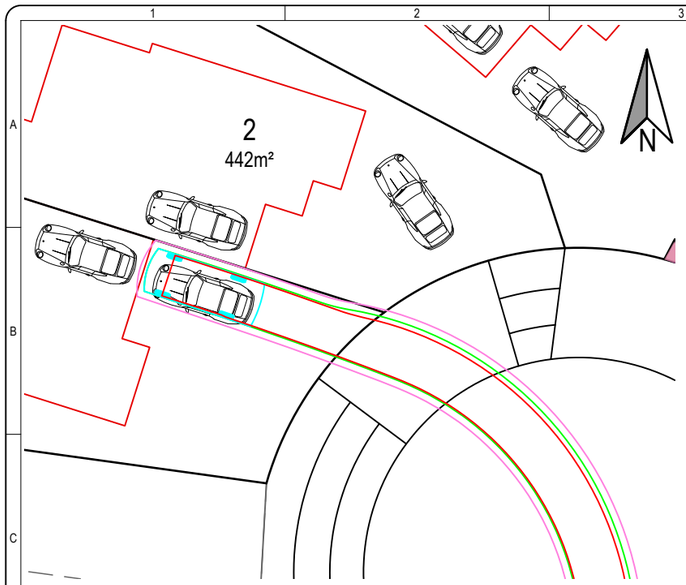
Status
FOR APPROVAL

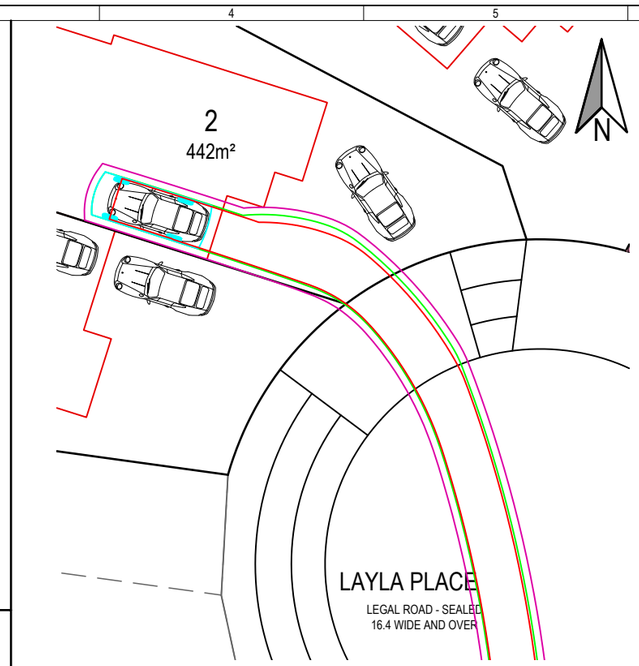
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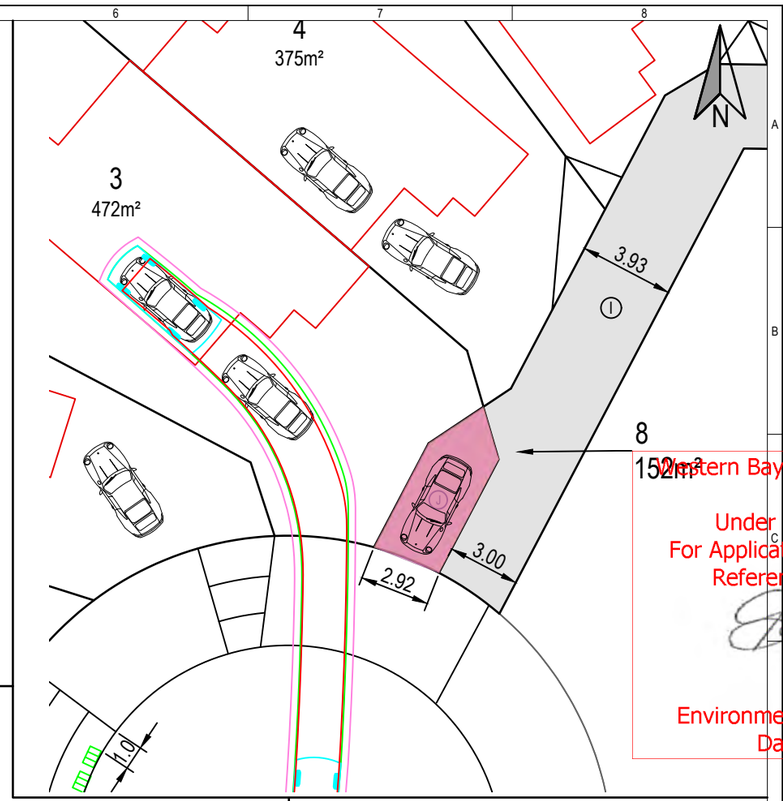
Revision
2

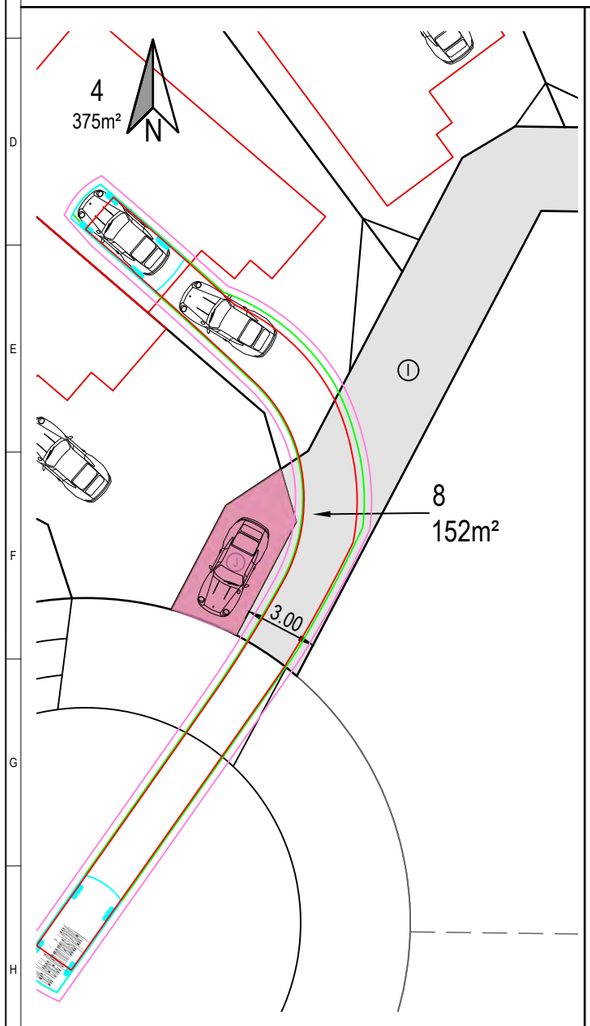
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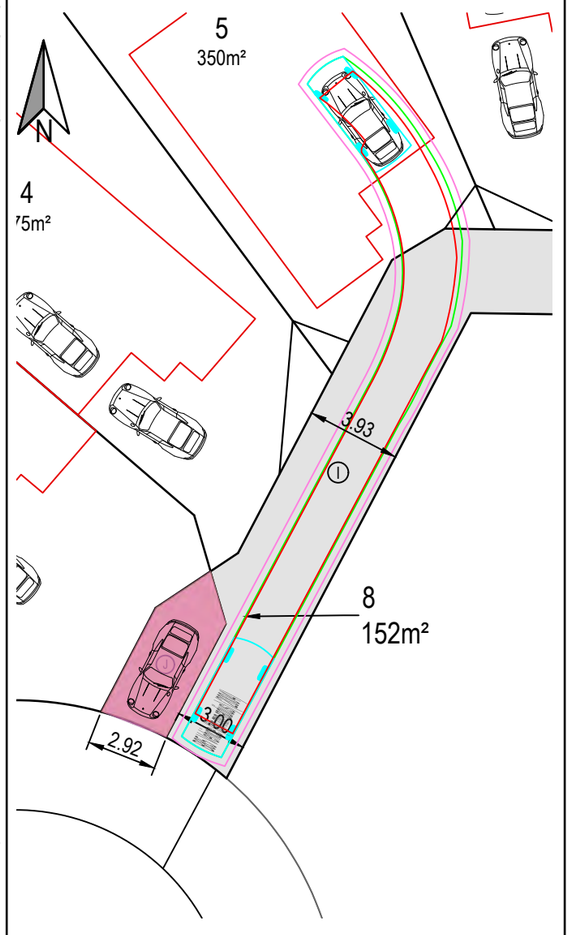
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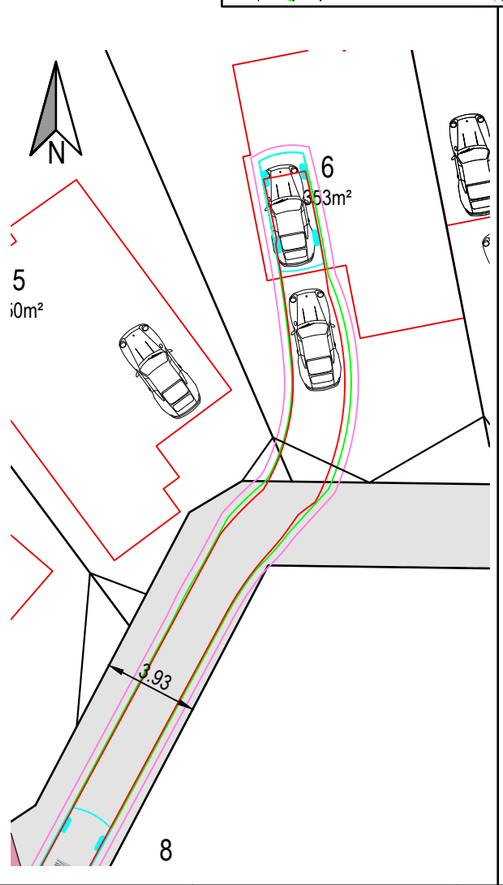


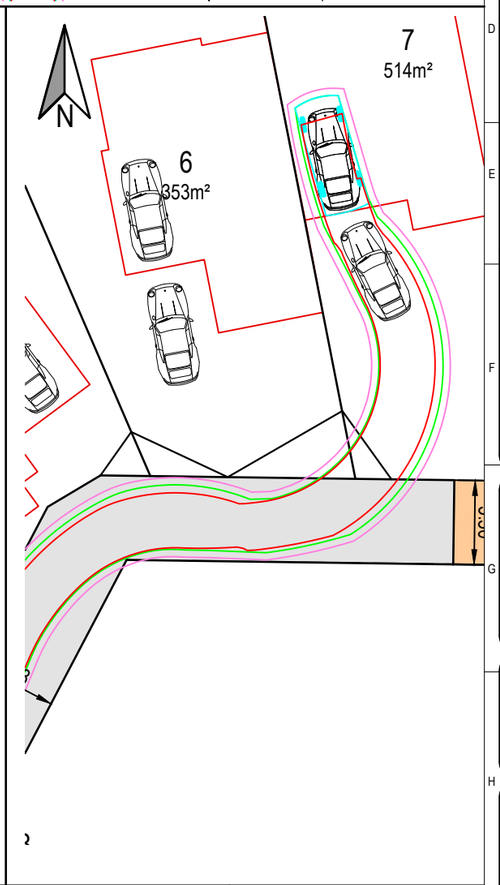












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Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC12354S
Reference: RCA200702282

Chris Watt
Environmental Consents Manager
Date: 28/09/2020

Rev	Description	Drn	Ckd	App	Date
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Lots 1-8 Being a Subdivision of Lots 7-9 DP 521037 14-19 Layla Place

Prepared For

Entry Tracking Curves

Original Scales @ A3: 1:250
Do Not Scale Dimensions

Status: FOR APPROVAL

Drawing No: 20-30927-01-C6

Revision: 2

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Western Bay of Plenty District Council
1484 Cameron Road,
Greerton, Tauranga 3112
P 07 571 8008
E customer.service@westernbay.govt.nz
westernbay.govt.nz

RCA211227888
RC13345*L
14 January 2022

Western Bay of Plenty District Council
Policy, Planning and Regulatory Services Group

Application for Resource Consent – Non-Notified – TIGR INVESTMENTS LIMITED

Delegated Authority **P/1189/7**

DECISION:

(a) THAT pursuant to sections 95A and 95D of the Resource Management Act 1991, the Western Bay of Plenty District Council resolves that the adverse effects of the proposal will be no more than minor and the application need not be publicly notified; and

(b) THAT the Western Bay of Plenty District Council is satisfied after taking into due consideration the requirements of sections 95B and 95E of the Resource Management Act 1991 that there are no persons or groups affected by the activity, and therefore limited notification in accordance with section 95B of the Resource Management Act 1991 is not required; and

(c) THAT the Western Bay of Plenty District Council is satisfied that no special circumstances exist that require notification of this resource consent application in accordance with sections 95A or 95B of the Resource Management Act 1991; and

(d) THAT pursuant to Sections 34A, 104, 104C and 108 of the Resource Management Act 1991 the Western Bay of Plenty District Council grants consent to the application by Classic Builders Bay of Plenty Ltd for a land use consent, being a controlled activity for a minor dwelling within the residential zone at 14 Layla Place, Katikati legally described as Lot 7 DP521037, subject to the following conditions:

1. THAT the activity be carried out in accordance with the plans and information submitted as part of this application, except where modified by any conditions of this consent:

a. Drawings prepared by Classic Builders, titled "*Charanjeet Singh",* dated 22/12/2021, ref TG14667, rev 02, including:
   (i) Sheet 1.1 – Site Plan
   (ii) Sheet 2.1 – Ground Floor Plan
   (iii) Sheet 3.1 – Elevations
   (iv) Sheet 3.1.1 – Elevations; and
   (v) Sheet 3.2 – 3D Elevations

2. THAT the following financial contributions shall be paid in respect of the minor dwelling at the time of application for building consent/when consent is given effect to:

(a) Urban Roading (Katikati)
$6,257.00 x 0.5 = $3,128.50 + GST

(b) Transportation (Strategic)
$2,144.00 x 0.5 = $1,072.00 + GST

(c) Water (Western)
$4,929.00 x 0.5 = $2,464.50 + GST

(d) Ecological
$501 x 0.5 = $250.50 + GST

(e) Stormwater (Katikati)
$7,154.00 x 0.5 = $3,577.00 + GST

(f) Wastewater (Katikati)
$7,279.00 x 0.5 = $3,639.50 + GST

(e) Recreation and Leisure
$11,141.00 x 0.5 = $5,570.50 + GST

3. THAT with regard to Condition (2), the financial contributions calculated in accordance with the provisions of the Operative District Plan, shall be paid within full within two years of the date of commencement of the consent provided that:

1. Any financial contribution which is not paid in full within two years from the date of commencement of the consent shall be adjusted so that the amount of the financial contribution required by the resource consent shall be the amount calculated in accordance with the relevant formulae using the updated inputs to those formulae as set out in Council's Annual Plan current at the date of payment.

2. Any financial contributions not paid within two years from the date of the commencement of the consent shall be (where applicable) paid prior to the issue of a Building Consent under the Building Act 2004, subject to the adjustments referred to in sub-paragraph (a) herein.

ADVICE NOTES:

1. The above consent lapses on the expiry of 5 years after the date of receiving this letter, unless the consent is given effect to.

2. For health reasons the NZ Building Code requires the water supply to new dwellings to be safe for drinking. Water taken from a Council watermain is of acceptable quality. Where the water supply is to be taken from any other source, Council will require evidence that the water meets the drinking water standards before a code compliance certificate is issued for any new building consent. This is because most other water sources are known to be below the required standard and will require some form of treatment. Council will accept water achieving the quality set out in the publication 'Drinking- Water Standards for New Zealand 2000 (DWSNZ 2000) as meeting the minimum standard.

3. The consent holder should notify Council, in writing, of their intention to begin works prior to commencement. Such notification should be sent to the Council's Compliance Monitoring Team (consentsadmin@westernbay.govt.nz) and include the following details:
    - Resource consent reference number: RC13075L
    - name and telephone number of the project manager and site owner
    - site address to which the consent relates
    - activity to which the consent relates
    - expected duration of works.

    Notifying Council of the intended start date enables cost effective monitoring to take place. The consent holder is advised that additional visits and administration required by Council officers to determine compliance with consent conditions will be charged to the consent holder on an actual and reasonable basis.

4. It is possible that archaeological sites may be affected by the proposed work. Evidence of archaeological sites may include burnt and fire cracked stones, charcoal, rubbish heaps including shell, bone and/or glass and crockery, ditches, banks, pits, old building foundations, artefacts of Maori and European origin or human burials. The applicant is advised to contact Heritage New Zealand Pouhere Taonga if the presence of an archaeological site is suspected. Work affecting archaeological sites is subject to a consenting process under Heritage New Zealand Pouhere Taonga Act 2014. If any activity associated with this proposal, such as earthworks, fencing or landscaping, may modify, damage or destroy any

archaeological site(s), an authority (consent) from Heritage New Zealand Pouhere Taonga must be obtained for the work to proceed lawfully. The Heritage New Zealand Pouhere Taonga Act 2014 contains penalties for unauthorised site damage.

5. Full compliance with the conditions of consent is necessary to carry out the activity to which this consent relates. Your progress towards satisfying the conditions of consent will be monitored by a Council representative and failure to meet these conditions may result in enforcement action being taken in accordance with Council's Monitoring, Compliance and Enforcement Strategy. This may involve the issuing of an Infringement Notice (instant fine), Abatement Notice and/or additional monitoring fees.

REASONS FOR DECISION:

1. The notification date of the Operative District Plan 2012 was 18 June 2012 and all appeals have been resolved. Council has notified a number of plan changes since this time, with all but two now being operative. The remaining plan changes which are yet to be operative are Plan Change 93 (Te Puna Springs - Commercial) and 94 (Washer Road Business Park - Industrial) which has no relevance to this application.

Property File Review and Referrals

2. *Property file review – P/1189/7*
    - The building consent to construct a minor dwelling (BC96290) has been applied for. Building Permit for the old packhouse on the site prior to the subdivision is also on the file, not relevant to this application.
    - Consent notices & Geotechnical Report as part of the underlying subdivision.
    - No other relevant information relating to the proposed activity has been identified.

3. The application was not required to be referred to any our Council staff or external parties.

Site Description and Proposal

<u>The Site</u>

4. The application site is located 14 Layla Place, Katikati. The site is zoned Residential and comprises 1166m^2. The site is currently vacant and is part of a recent subdivision development of Layla Place. Access is currently via an existing vehicle crossing and assess leg tot Layla Place. The applicant proposes to construct a

minor dwelling (60m²) attached to the proposed new dwelling which will connect to Council's sewer, storm and water reticulated services.

5. No hazards, designations or archaeological sites are identified on the District Plan maps.

The Proposal

6. The applicant is proposing to construct a 60m² single storey, 2 bedroom minor dwelling. The minor dwelling will be attached to the proposed new primary dwelling to be built on the site. The minor dwelling will share the same access via the existing vehicle crossing to Layla Place.

Activity Status

7. Under Rule 13.3.2(b) of the Operative District Plan 2012, minor dwellings in addition to 13.3.1(a) subject to performance standard 13.4.1(h) are a controlled activity. The application complies with this standard and accordingly is considered a **Controlled activity**.

8. Overall, the application has been assessed as a **Controlled Activity.**

Assessment of Effects in accordance with Section 104

Act requirement	Assessment
Section 104(1) Part II matters	The proposal is consistent with Section 7(c) and (f) of the Resource Management Act, 'maintaining and enhancing amenity values and the quality of the environment.' There are no other Part II matters considered relevant in this instance.
Section 104(1)(a) Any actual and potential effects on the environment of allowing the activity	The proposal results in an activity that comply with the majority of relevant standards of the District Plan.
Section 104(1)(b)(i)-(iii) Any relevant provisions of: (i) A national environment standard; (ii) Other regulations; (iii) A national policy statement	Consideration has been given to the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health ("NESCS") under the recently completed subdivision consent, no further comment is required.
Section 104(1)(b)(v) Any relevant provisions of an operative or proposed regional policy statement or plan	There are no relevant provisions of an operative or proposed regional policy statement or regional plan that are particularly relevant to this activity.

Section 104(1)(c) Any other matter	There are no other matters relevant to the determination of the application.
Section 104(1)(b)(vi) Relevant provisions of the Operative District Plan (or Proposed District Plan)	The relevant provisions of the Operative District Plan that relate to the proposal are outlined above.

NOTIFICATION DECISION: Sections 95A through to 95F

9. Rule 4A.6.1 of the Operative District Plan explicitly allows for controlled activities to be granted approval without requiring the written consent of, or service of notice on, any potentially adversely affected parties.

Assessment of effects

Minor dwelling

10. Under the Operative District Plan 2012, a 'Minor Dwelling' means "a dwelling of not more than 60m² gross floor area plus any proposed attached or detached garage or carport (for the purpose of vehicle storage, general storage and laundry facilities). The garage area shall not be used for living accommodation". The proposed development is consistent with this definition as the gross floor area is 60m^2. There is no garage proposed form the minor dwelling.

11. The proposed minor dwelling complies with the relevant activity performance standards for minor dwellings in the Residential zone (Rule 13.4.1(h)), namely it will share vehicle access with the principal dwelling; there is no garage proposed for the minor dwelling; and financial contributions will be applied at the 50% rate of the value that applies for the subdivision of land by imposing relevant conditions of consent.

Financial Contributions

12. Financial contributions are imposed to mitigate the effects on Council's infrastructure. Growth in the District needs to be supported by infrastructure provided at appropriate levels of service. Financial contributions from development are imposed to mitigate potential adverse effects on the environment. Financial contributions are imposed at a rate of 0.5 of a household equivalent (HHE), for a minor dwelling, in accordance with Rule 11.5.3.1(i).

Conditions

13. As a controlled activity the application must be granted but conditions of consent may be imposed under s108. The conditions imposed by the council are set out in the attached consent.

Conclusion

14. Council is satisfied that any adverse effects are less than minor and are adequately avoided, remedied or mitigated by the conditions of consent and by the performance standards required to be met and do not adversely affect any other parties.

15. The proposal is also considered to be consistent with the relevant objectives and policies of the Operative District Plan and the purpose and principles of Part II of the Resource Management Act 1991 and accordingly Council has granted the consent subject to the conditions set out above.



Anna Price
Senior Consents Planner
Date: 14 January 2022

Having reviewed this report, I concur with the Senior Planner's, recommendation to process this Application for resource consent on a non-notified basis for the reasons set out in this report.

Approved under delegated authority.



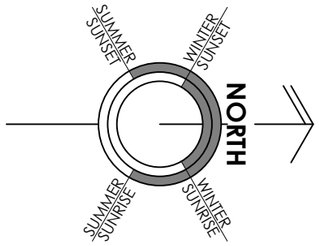
Chris Watt
Environmental Consents Manager
Date: 14/01/2022

Having reviewed this report, I concur with the Senior Planner's recommendation to grant the resource consent sought for the reasons set out in this report.

Approved under delegated authority.

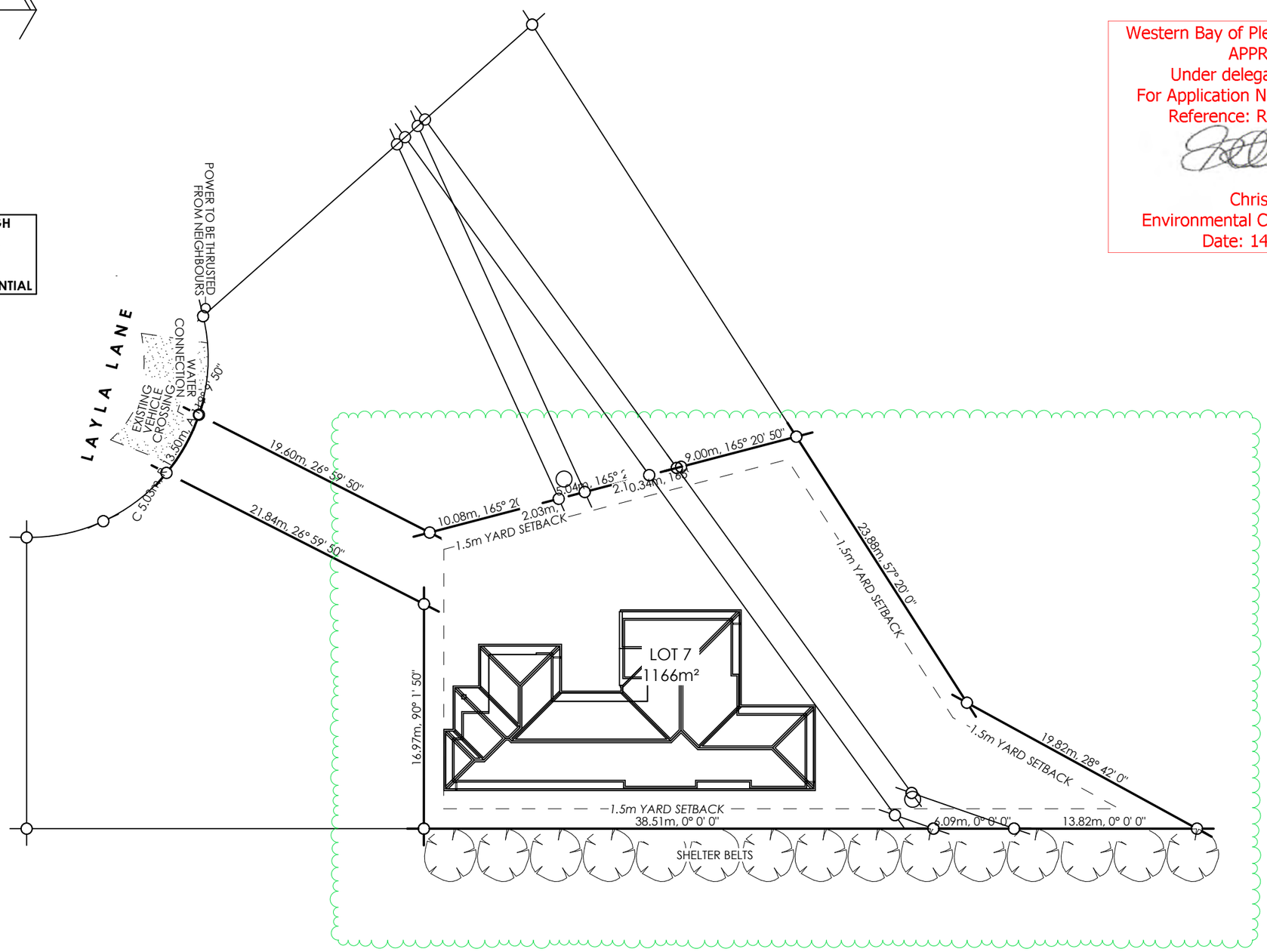


Chris Watt
Environmental Consents Manager
Date: 14/01/2022



LOT 7
DP 521037
SITE AREA 1166m²

WIND ZONE	HIGH
EQ ZONE	1
EXPOSURE ZONE	C
CLIMATE ZONE	2
SUBSOIL CLASS	-
PLANNING ZONE	RESIDENTIAL



Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC13345L
Reference: RCA211227888

Chris Watt
Environmental Consents Manager
Date: 14/01/2022

classic builders®
160 17TH AVE
TAURANGA SOUTH,
TAURANGA
P: (07) 571 2761
F: (07) 571 6152
W: classicbuilders.co.nz

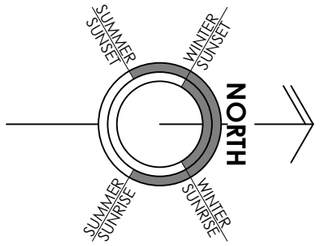
	CLASSIC BUILDERS DESIGN & BUILD
LEGAL DESCRIPTION :	LOT 7 - DP 521037
SITE ADDRESS :	14 LAYLA PLACE KATIKATI
CITY :	TAURANGA
COUNCIL :	TAURANGA DISTRICT COUNCIL

CHARANJEET SINGH

CLIENT SIGNATURE / DATE :

THESE PLANS REMAIN THE PROPERTY OF **CLASSIC BUILDERS©** UNTIL A DESIGN CONTRACT HAS BEEN AGREED UPON.
THESE PLANS MAY NOT BE USED TO CONSTRUCT A PROJECT WITHOUT THE WRITTEN APPROVAL OF **CLASSIC BUILDERS©**

DRAWN:	REYHAN RIYAZ	PROJECT NUMBER :	TG14667
CHECK SCH:	- WD: -	PROJECT STATUS :	WORKING DRAWINGS
CB CONSULTANT:	MARK HOOPER	DATE : 22/12/2021	REVISION : EV. REV 02
		SCALE :	1:350 AT A3
LOCATION PLAN		SHEET NUMBER :	**1.0**



LOT 7
DP 521037
SITE AREA 1166m²

WIND ZONE	**HIGH**
EQ ZONE	**1**
EXPOSURE ZONE	**C**
CLIMATE ZONE	**2**
SUBSOIL CLASS	**-**
PLANNING ZONE	**RESIDENTIAL**

SITE COVERAGE - 40% MAX.

DWELLING (O/CLADDING) = 166.84m²
FLAT (O/CLADDING) = 59.66m²
TOTAL = 226.5

SITE AREA = 1166m²
= 19.42%

FGL = MIN. 110mm BELOW FFL TO PAVED AREAS FOR BRICK VENEER
FGL = MIN. 150mm BELOW FFL TO PAVED AREAS FOR ALL OTHER CLADDINGS

FGL = MIN. 185mm BELOW FFL TO UNPAVED AREAS FOR BRICK VENEER
FGL = MIN. 225mm BELOW FFL TO UNPAVED AREAS FOR ALL OTHER CLADDINGS

ENTRY TO DWELLING TO COMPLY WITH D1/AS1 TABLE 2 - MAX. STEP OF 190mm WITH A NON SLIP MATERIAL (CONCRETE - EXPOSED AGGREGATE)

DRIVEWAY AREA IS TO BE FORMED AND SEALED WITH AN ALL-WEATHER SURFACE

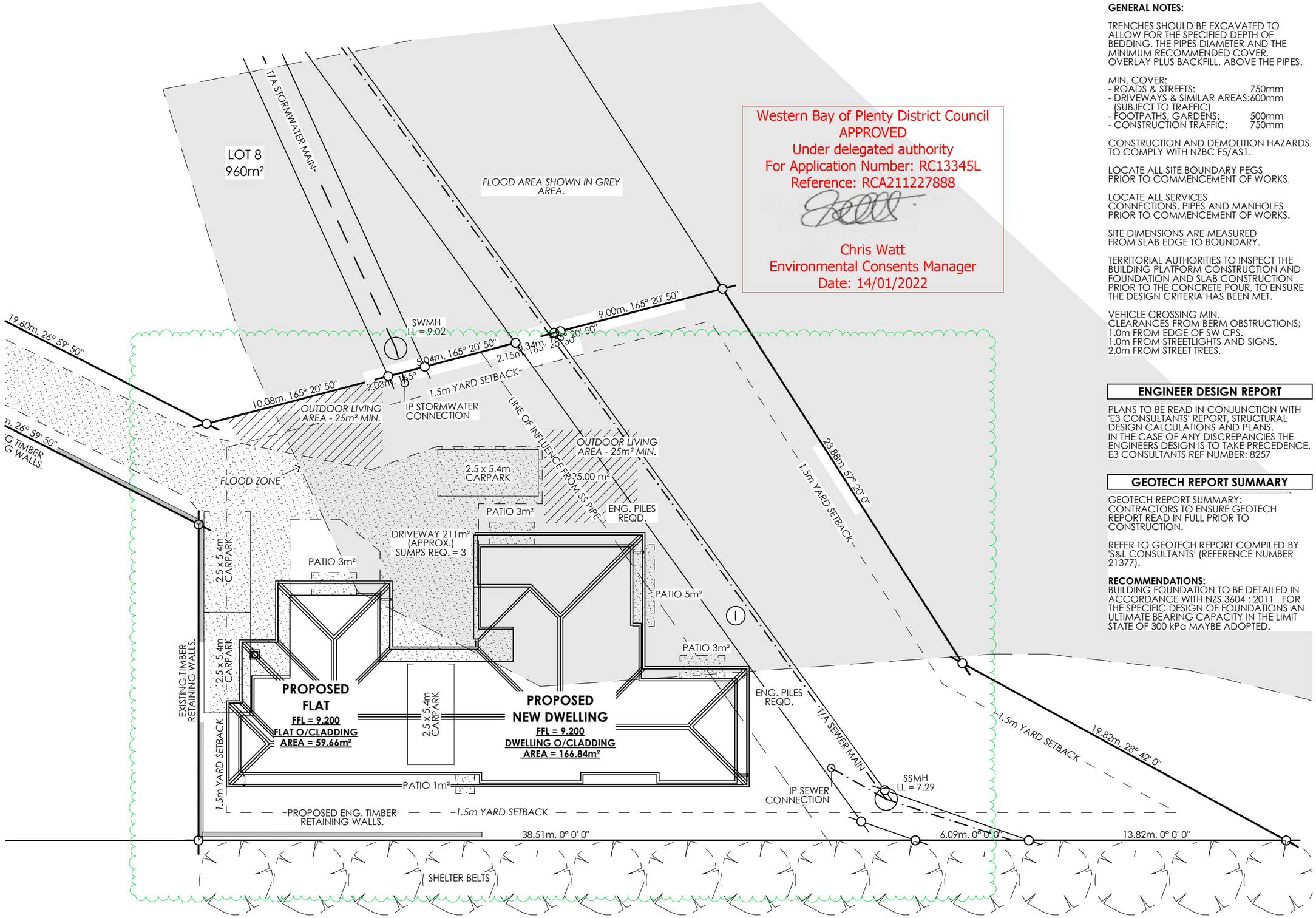
SUBJECT TO A RIGHT (IN GROSS) TO DRAIN SEWAGE OVER PART MARKED 'I' IN FAVOR OF THE TAURANGA CITY COUNCIL

CONSENT NOTICE

NO GRANTOR SHALL ERECT OR ALLOW TO BE ERECTED A DWELLINGHOUSE OF A FLOOR AREA LESS THAN 180 SQUARE METRES (INCLUSIVE OF AN INTERNAL TWO CAR GARAGE BUT EXCLUDING DECKING, BREEZEWAYS, ENTRY PORCHES, VERANDAHS AND ROOF OVERHANG).

SCHEDULE B
No.10- DEVELOPER APPROVAL REQUIRED FOR ADDITIONAL SELF CONTAINED LIVING AREA.

No.20 - NO MORE THAN ONE DWELLING HOUSE TO BE ERECTED.



Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC13345L
Reference: RCA211227888

Chris Watt
Environmental Consents Manager
Date: 14/01/2022

GENERAL NOTES:

TRENCHES SHOULD BE EXCAVATED TO ALLOW FOR THE SPECIFIED DEPTH OF BEDDING, THE PIPES DIAMETER AND THE MINIMUM RECOMMENDED COVER, OVERLAY PLUS BACKFILL, ABOVE THE PIPES.

MIN. COVER:
- ROADS & STREETS: 750mm
- DRIVEWAYS & SIMILAR AREAS: 600mm (SUBJECT TO TRAFFIC)
- FOOTPATHS, GARDENS: 500mm
- CONSTRUCTION TRAFFIC: 750mm

CONSTRUCTION AND DEMOLITION HAZARDS TO COMPLY WITH NZBC F5/AS1.

LOCATE ALL SITE BOUNDARY PEGS PRIOR TO COMMENCEMENT OF WORKS.

LOCATE ALL SERVICES CONNECTIONS, PIPES AND MANHOLES PRIOR TO COMMENCEMENT OF WORKS.

SITE DIMENSIONS ARE MEASURED FROM SLAB EDGE TO BOUNDARY.

TERRITORIAL AUTHORITIES TO INSPECT THE BUILDING PLATFORM CONSTRUCTION AND FOUNDATION AND SLAB CONSTRUCTION PRIOR TO THE CONCRETE POUR, TO ENSURE THE DESIGN CRITERIA HAS BEEN MET.

VEHICLE CROSSING MIN. CLEARANCES FROM BERM OBSTRUCTIONS;
1.0m FROM EDGE OF SW CPS.
1.0m FROM STREETLIGHTS AND SIGNS.
2.0m FROM STREET TREES.

ENGINEER DESIGN REPORT

PLANS TO BE READ IN CONJUNCTION WITH 'E3 CONSULTANTS' REPORT, STRUCTURAL DESIGN CALCULATIONS AND PLANS.
IN THE CASE OF ANY DISCREPANCIES THE ENGINEERS DESIGN IS TO TAKE PRECEDENCE.
E3 CONSULTANTS REF NUMBER: 8257

GEOTECH REPORT SUMMARY

GEOTECH REPORT SUMMARY:
CONTRACTORS TO ENSURE GEOTECH REPORT READ IN FULL PRIOR TO CONSTRUCTION.

REFER TO GEOTECH REPORT COMPILED BY 'S&L CONSULTANTS' (REFERENCE NUMBER 21377).

RECOMMENDATIONS:
BUILDING FOUNDATION TO BE DETAILED IN ACCORDANCE WITH NZS 3604 : 2011 . FOR THE SPECIFIC DESIGN OF FOUNDATIONS AN ULTIMATE BEARING CAPACITY IN THE LIMIT STATE OF 300 kPa MAYBE ADOPTED.

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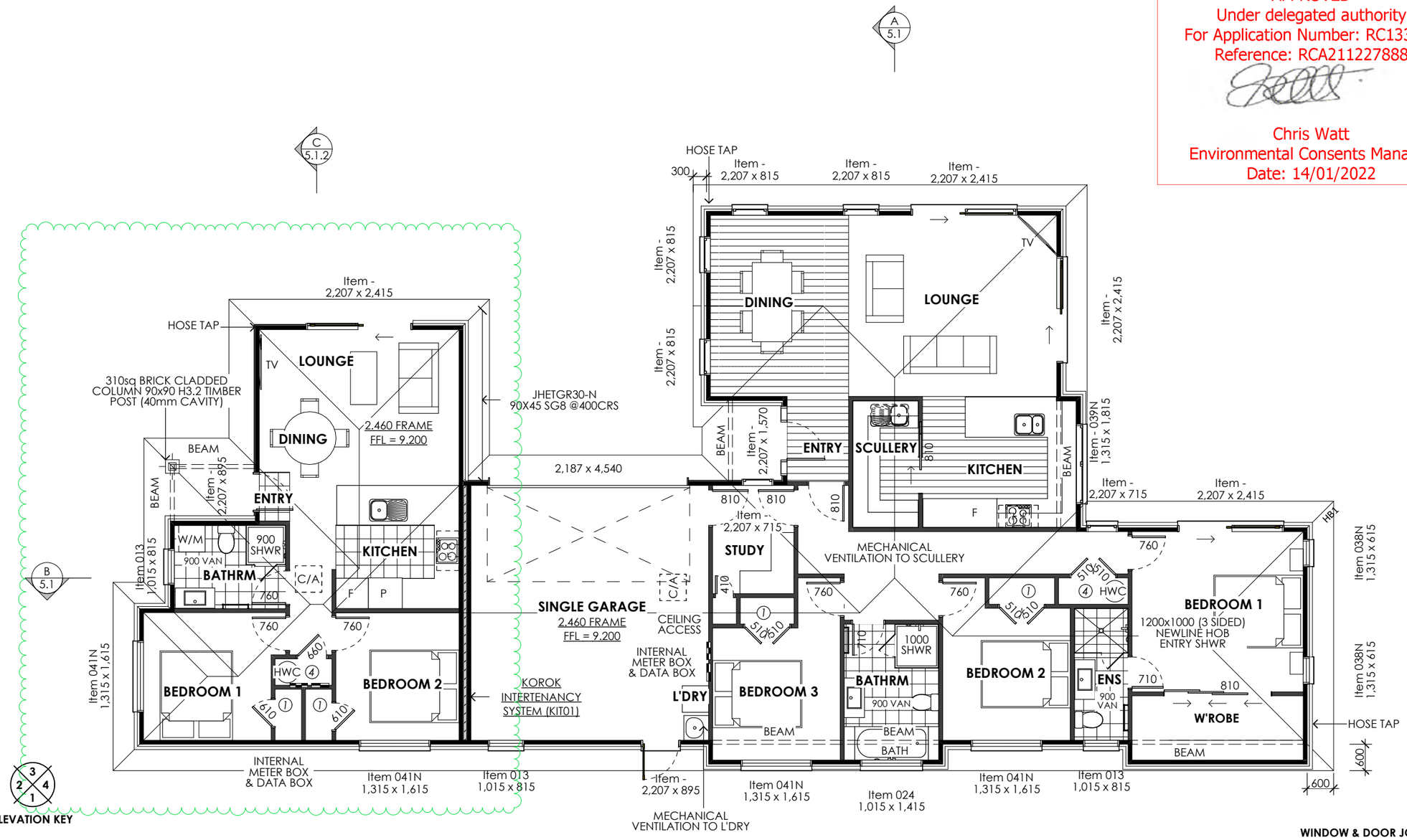
	CLASSIC BUILDERS DESIGN & BUILD
LEGAL DESCRIPTION :	**LOT 7 - DP 521037**
SITE ADDRESS :	**14 LAYLA PLACE KATIKATI**
CITY :	**TAURANGA**
COUNCIL :	**TAURANGA DISTRICT COUNCIL**

CHARANJEET SINGH

CLIENT SIGNATURE / DATE :

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DRAWN:	REYHAN RIYAZ	PROJECT NUMBER :	**TG14667**
CHECK SCH:	- WD: -	PROJECT STATUS :	**WORKING DRAWINGS**
CB CONSULTANT:	MARK HOOPER	DATE : **22/12/2021**	REVISION : **EV. REV 02**
SITE PLAN		SCALE :	**1:200 AT A3**
		SHEET NUMBER :	**1.1**



ELEVATION KEY

Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC13345L
Reference: RCA211227888

Chris Watt
Environmental Consents Manager
Date: 14/01/2022

GENERAL NOTES:

(4) = No. OF SHELVES IN CUPBOARDS / WARDROBES

DOMESTIC SMOKE ALARMS ARE REQUIRED WITHIN A 3.0m RADIUS OF EVERY SLEEPING ROOM AND IS TO BE HEARD FROM THE OTHER SIDE OF THE CLOSED DOOR.

ALL STRUCTURAL FIXINGS TO BE HOT DIPPED GALVANISED STEEL

STUD SIZE AND SPACING:
STUDS IN LOADBEARING WALLS FOR 'SINGLE OR TOP STOREY' FOR STUDS UP TO 2.4m 90 x 45 AT 600mm CRS.
STUDS IN NON LOADBEARING INTERNAL WALLS FOR STUDS UP TO 2.4m 90 x 45 AT 600mm CRS.

TIMBER TREATMENT:
H1.2 EXTERNAL FRAMING
H1.2 INTERNAL FRAMING

TIMBER GRADE:
ALL STRUCTURAL TIMBER - MIN SG8 UNLESS NOTED OTHERWISE.

INSULATION:
WALL R2.2 ECOINSULATION
CEILING R3.6 ECOINSULATION (INC. GARAGE)

WALL CLADDINGS:
70 SERIES BRICK VENEER EXTERIOR CLADDING

JH AXON PANEL EXTERIOR CLADDING OVER VENTILATED DRAINED CAVITY

UNDERLAY -
BUILDING UNDERLAY
FAST WRAP BUILDING WRAP

ROOF CLADDING:
MONIER 'HACIENDA' CONCRETE TILE ROOFING - 25° PITCH , O/HANG AS SHOWN

UNDERLAY -
R2 SELF SUPPORTING BUILDING UNDERLAY
SISALATION BITUMAC® 750

STEEL & TUBE MULTILINE 150 FASCIA & CUSTOMLINE GUTTER

WET AREAS;
FLOOR FINISH - NON SLIP TILES
TILES TO HAVE MINIMUM SLIP RESISTANCE CO-EFFICIENT OF 0.4 TO COMPLY WITH *NZBC: D1/AS1 SLIP RESISTANCE*

KITCHEN & BATHROOM.
FLOOR & WALL LININGS TO COMPLY WITH, E3/AS1 SECTION 3.1.1 & 3.1.2

KITCHEN LAYOUT IS INDICATIVE ONLY.

EXTERNAL ACCESS SURFACE:
NZBC: D1/AS1 TABLE 2: SLIP RESISTANCE FOR WALKING SURFACES

CONCRETE: - *BROOM FINISH*
- ACCEPTABLE SLIP RESISTANCE WET OR DRY
- LEVEL SURFACES INCLUDING SLOPES NO STEEPER THAN 1:50.

PAVING: - *WIRE CUT*
- ACCEPTABLE SLIP RESISTANCE WET OR DRY
- LEVEL SURFACES INCLUDING SLOPES NO STEEPER THAN 1:50.

MAIN FRONT ENTRY: - *TIMBER*
- MIN. 100mm STEP DOWN FROM FFL
- MIN. H4 TREATED TIMBER WITH GROUND CONTACT.
- MIN. H3.2 FOR ALL OTHER TIMBERS

DWELLING AREAS

GROUND FLOOR (OVER FRAME) = 215.9m²
GROUND FLOOR (OVER CLADDING) = 226.5m²
ROOF PLAN (GROUND FLOOR) = 267.4m²
MINOR HOUSE FLOOR (OVER FRAME) = 56.8m²
MINOR HOUSE FLOOR (OVER CLADDING) = 59.6m²

NORTH

SITE INFORMATION

WIND ZONE HIGH
EARTHQUAKE ZONE 1
EXPOSURE ZONE C

WINDOW & DOOR JOINERY:
ALL GLAZING TO COMPLY WITH *NZS 4223*.

WINDOW & DOOR SIZES SHOWN ARE TO TRIMMED OPENINGS.

INTERNAL DOOR TRIM HEIGHT = 2040

HEATING:
RHEEM 180L MAINS PRESSURE ELECTRIC WATER HEATER
SIZE = 1770(H)x490(W) - 44kg APP. WT EMPTY

HEAT PUMP
INDOOR UNIT TBC
SIZE = (H)x(W)x(D) - kg
OUTDOOR UNIT TBC
SIZE = (H)x(W)x(D) - kg

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DRAWN:	REYHAN RIYAZ
CHECK SCH:	- WD: -
CB CONSULTANT:	MARK HOOPER

GROUND FLOOR PLAN

PROJECT NUMBER :	TG14667
PROJECT STATUS :	WORKING DRAWINGS
DATE :	22/12/2021
REVISION :	EV. REV 02
SCALE :	1:100 AT A3
SHEET NUMBER :	2.1

COMPACTED HARDFILL OVER 600mm TO BE CERTIFIED BY A CPENG AND A CERTIFICATE TO BE PROVIDED TO COUNCIL AT FOUNDATION INSPECTION.

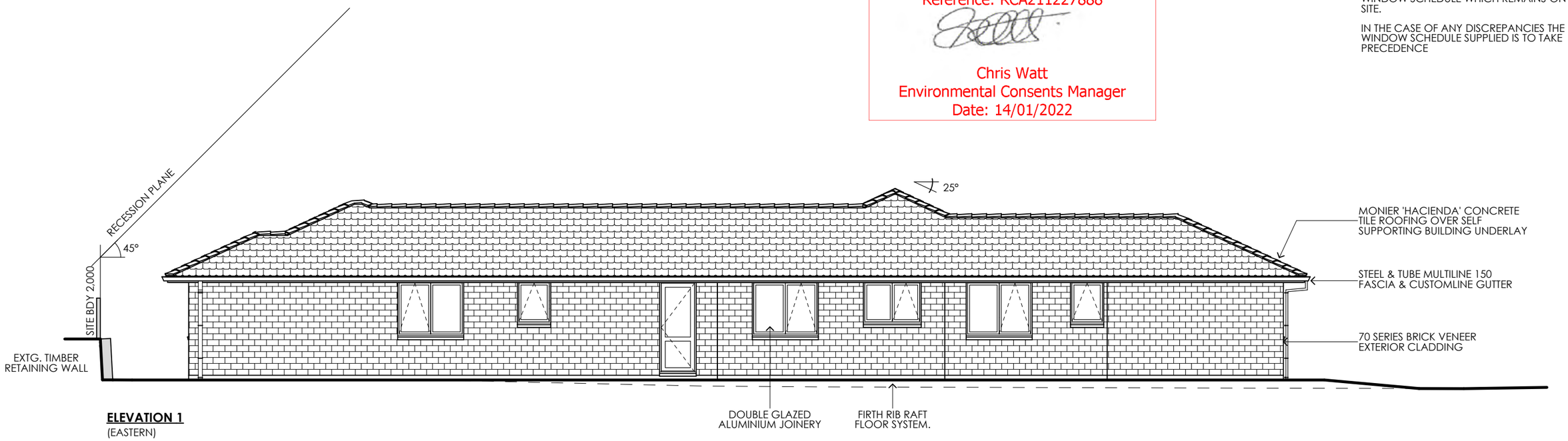
SAFETY GLAZING
ALL GLAZING PANELS WITHIN 800mm OF FFL AND MORE THAN 500mm WIDE. SAFETY GLASS TO ALL BATHROOM, ENS & HINGED DOORS TO COMPLY WITH NZS 4223.3.2016.

ALL SAFETY GLAZING IS CALCULATED BY 'NZ WINDOWS' AND IDENTIFIED ON THE FINAL WINDOW SCHEDULE WHICH REMAINS ON SITE.

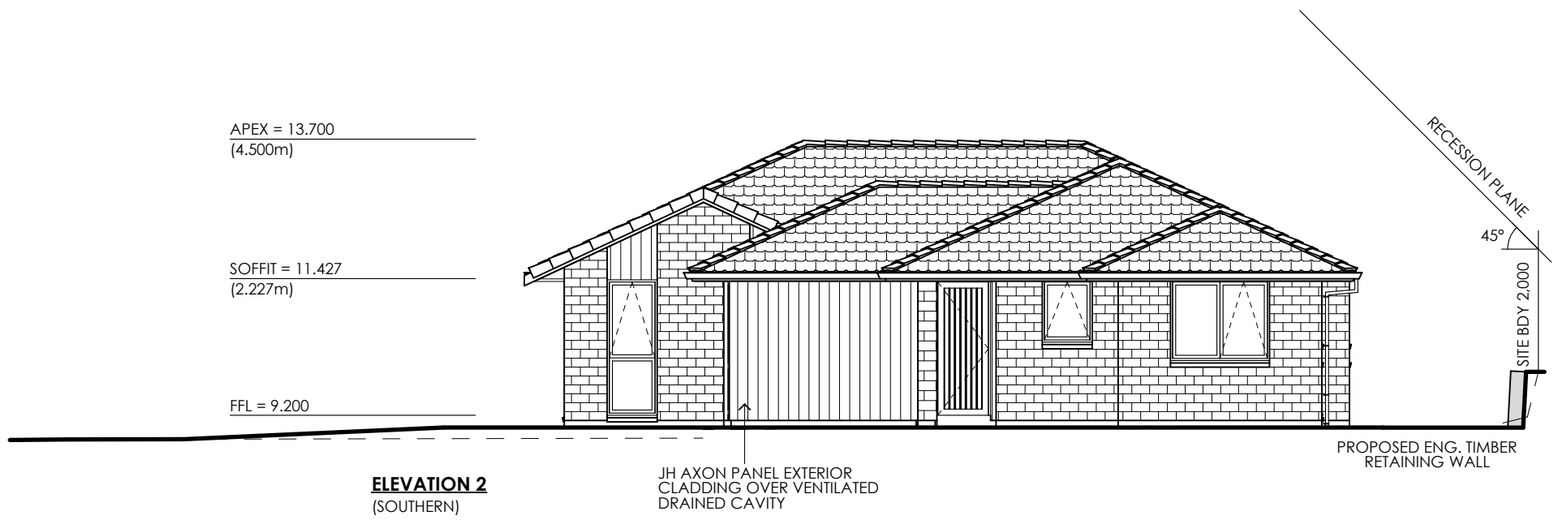
IN THE CASE OF ANY DISCREPANCIES THE WINDOW SCHEDULE SUPPLIED IS TO TAKE PRECEDENCE

Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC13345L
Reference: RCA211227888

Chris Watt
Environmental Consents Manager
Date: 14/01/2022



ELEVATION 1
(EASTERN)



ELEVATION 2
(SOUTHERN)

BUILDING ENVELOPE RISK MATRIX		
ELEVATION 1		
Risk Factor	**Risk Severity**	**Risk Score**
Wind zone (per NZS 3604)	High risk	1
Number of storeys	Low risk	0
Roof/wall intersection design	Low risk	0
Eaves width	Medium risk	1
Envelope complexity	Low risk	0
Deck design	Low	0
Total Risk Score:		**2**

BUILDING ENVELOPE RISK MATRIX		
ELEVATION 2		
Risk Factor	**Risk Severity**	**Risk Score**
Wind zone (per NZS 3604)	High risk	1
Number of storeys	Low risk	0
Roof/wall intersection design	Low risk	0
Eaves width	High risk	2
Envelope complexity	Medium risk	1
Deck design	Low	0
Total Risk Score:		**4**

INFO REQUIRED FOR DESIGNER:

1. -
2. -
3. -

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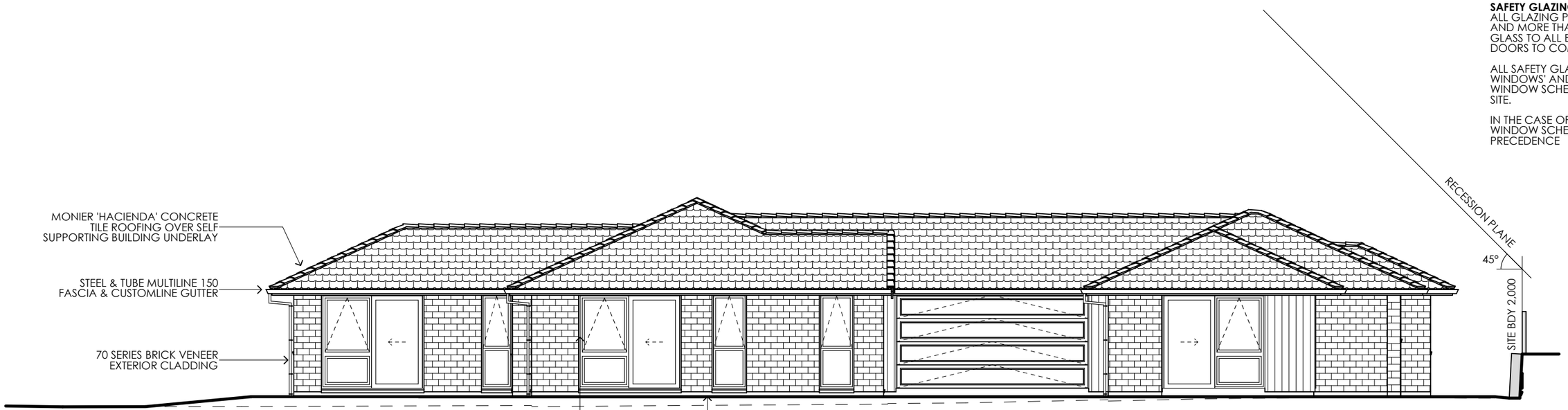
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CB CONSULTANT:	MARK HOOPER	DATE : **22/12/2021**	REVISION : **EV. REV 02**
ELEVATIONS		SCALE :	**1:100, 1:10 AT A3**
		SHEET NUMBER :	**3.1**

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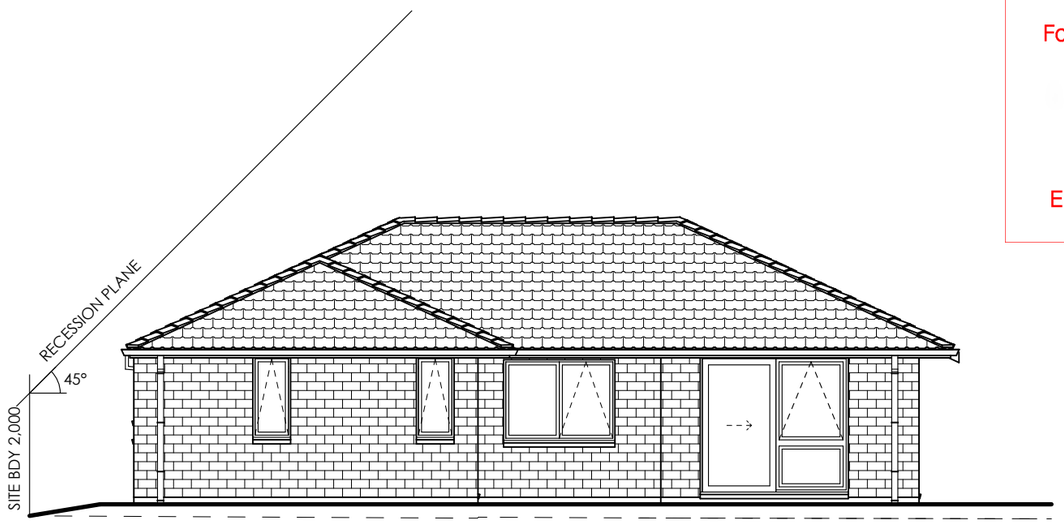
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ELEVATION 3
(WESTERN)



ELEVATION 4
(NORTHERN)

Western Bay of Plenty District Council
APPROVED
Under delegated authority
For Application Number: RC13345L
Reference: RCA211227888

Chris Watt
Environmental Consents Manager
Date: 14/01/2022

BUILDING ENVELOPE RISK MATRIX		
ELEVATION 3		
Risk Factor	**Risk Severity**	**Risk Score**
Wind zone (per NZS 3604)	High risk	1
Number of storeys	Low risk	0
Roof/wall intersection design	Low risk	0
Eaves width	Medium risk	1
Envelope complexity	Medium risk	1
Deck design	Low	0
Total Risk Score:		**3**

BUILDING ENVELOPE RISK MATRIX		
ELEVATION 4		
Risk Factor	**Risk Severity**	**Risk Score**
Wind zone (per NZS 3604)	High risk	1
Number of storeys	Low risk	0
Roof/wall intersection design	Low risk	0
Eaves width	High risk	2
Envelope complexity	Low risk	0
Deck design	Low	0
Total Risk Score:		**3**

INFO REQUIRED FOR DESIGNER:

1. -
2. -
3. -

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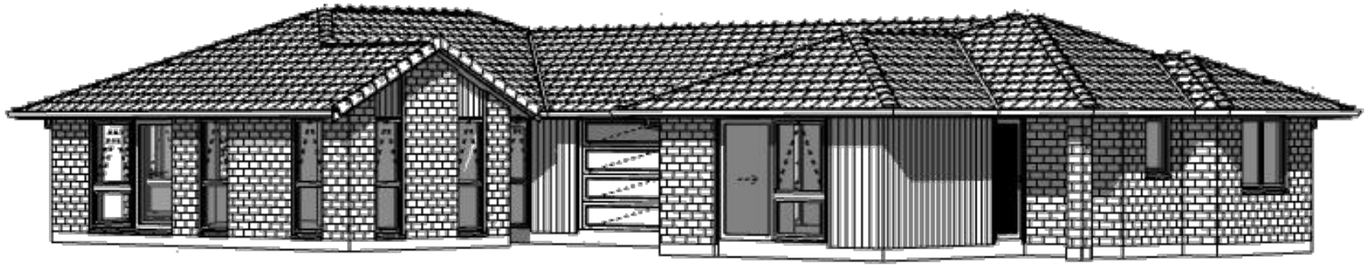
CHARANJEET SINGH

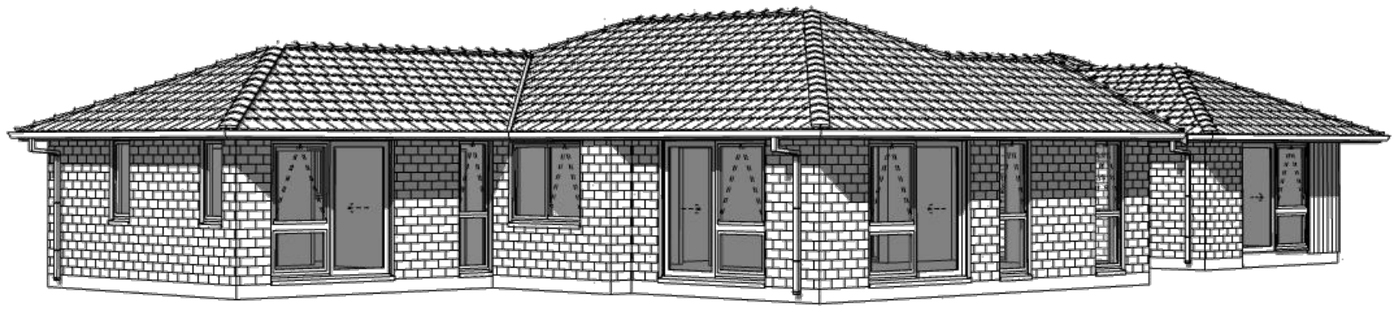
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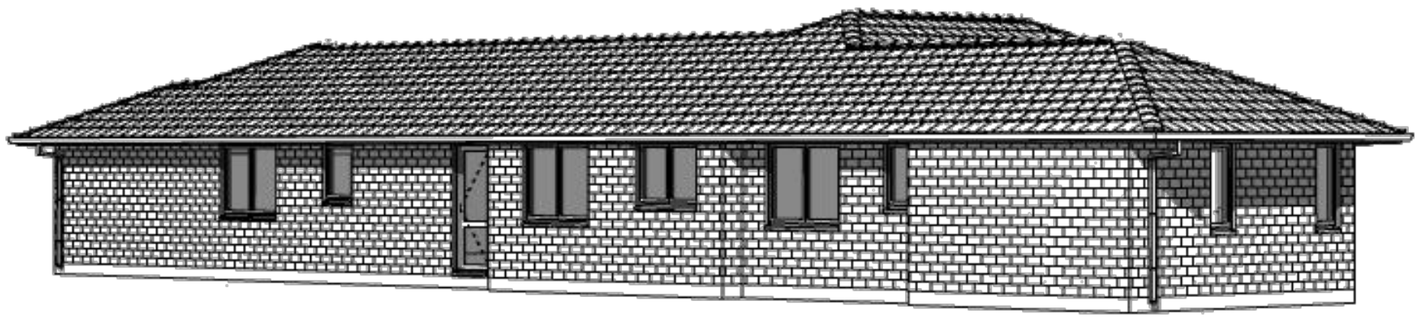
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ELEVATIONS		SCALE :	**1:100, 1:10 AT A3**
		SHEET NUMBER :	**3.1.1**

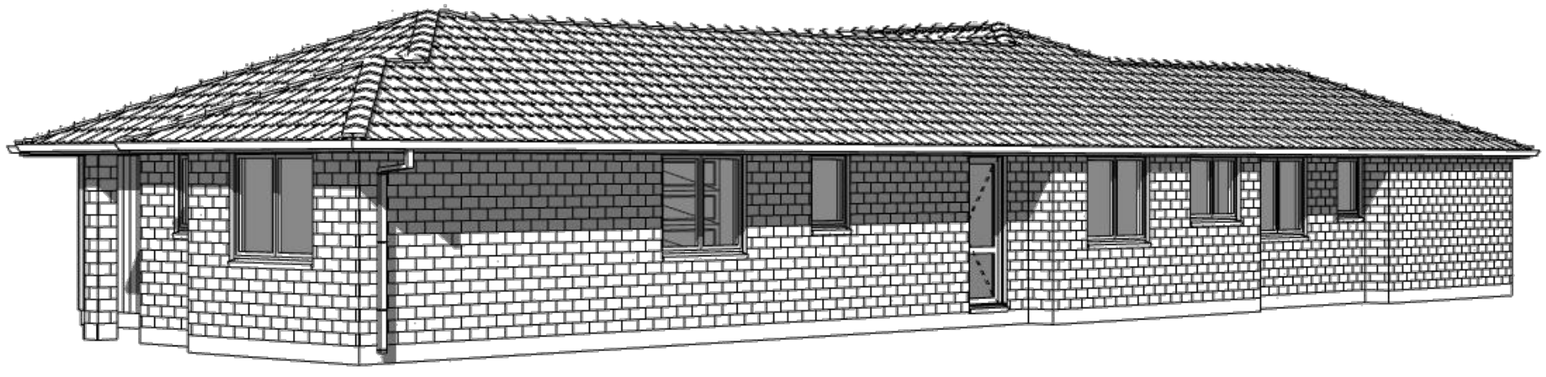






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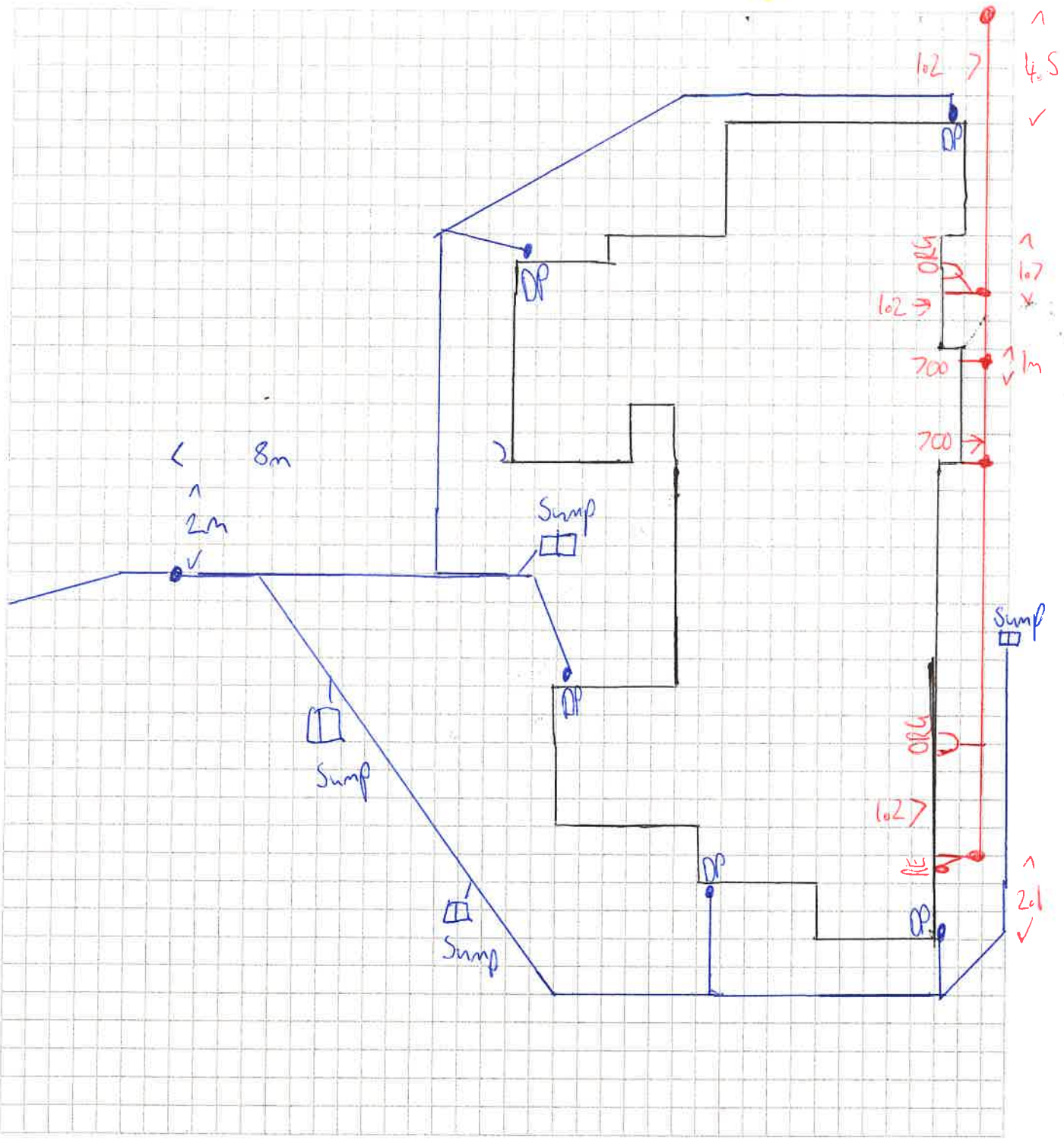
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		SCALE : **1:33.33 3.5294, 1:22.2222, 1:30.7692 AT A3**	
3D ELEVATIONS		SHEET NUMBER :	**3.2**

Services As Laid Plan

Western Bay of Plenty District Council



Owner Name	Consent Number
Charanjeet Singh	96290

Project Location
Lot 7, 14 Layla Place, Katikati

Details – Plumber/Drainlayer	Registration Number
Rob Moore	11605

A139541

Land Use Site Details

Site ID :	LUR-WBP-01038	Printed :	25/03/2025

Site Address(es) :	17A Layla Place, Katikati, Western Bay of Plenty District
	10 Layla Place, Katikati, Western Bay of Plenty District
	14 Layla Place, Katikati, Western Bay of Plenty District
	17 Layla Place, Katikati, Western Bay of Plenty District
	11 Layla Place, Katikati, Western Bay of Plenty District
	4 Layla Place, Katikati, Western Bay of Plenty District
	9 Layla Place, Katikati, Western Bay of Plenty District
	12 Layla Place, Katikati, Western Bay of Plenty District
	16 Layla Place, Katikati, Western Bay of Plenty District
	13 Layla Place, Katikati, Western Bay of Plenty District
	7 Layla Place, Katikati, Western Bay of Plenty District
	2 Layla Place, Katikati, Western Bay of Plenty District
	8 Layla Place, Katikati, Western Bay of Plenty District
	15 Layla Place, Katikati, Western Bay of Plenty District
	1 Layla Place, Katikati, Western Bay of Plenty District
	19 Layla Place, Katikati, Western Bay of Plenty District
	6 Layla Place, Katikati, Western Bay of Plenty District
	6 Pamment Lane, Katikati, Western Bay of Plenty District
	1 Pamment Lane, Katikati, Western Bay of Plenty District
	8 Pamment Lane, Katikati, Western Bay of Plenty District
	4 Pamment Lane, Katikati, Western Bay of Plenty District
	10 Pamment Lane, Katikati, Western Bay of Plenty District
	2 Pamment Lane, Katikati, Western Bay of Plenty District

Parcel(s)/Lot(s) :	7432587_1 : LOT 2 DP 460580 BLK IX KATIKATI SD
	7886435 : Lot 1 DP 521037
	7886436 : Lot 2 DP 521037
	7886437 : Lot 3 DP 521037
	7886438 : Lot 4 DP 521037
	7886439 : Lot 5 DP 521037
	7886440 : Lot 6 DP 521037
	7886441 : Lot 7 DP 521037
	7886442 : Lot 8 DP 521037
	7886443 : Lot 9 DP 521037
	7886444 : Lot 10 DP 521037
	7886445 : Lot 11 DP 521037
	7886446 : Lot 12 DP 521037
	7886447 : Lot 13 DP 521037

	7886448 : Lot 14 DP 521037 7886449 : Lot 15 DP 521037 7886450 : Lot 16 DP 521037 7886451 : Lot 17 DP 521037 7886452 : Lot 18 DP 521037 7886453 : Lot 19 DP 521037 7886454 : Lot 20 DP 521037 7886455 : Lot 21 DP 521037 7886456 : Lot 22 DP 521037 7886459 : Lot 25 DP 521037 7886460 : 7886461 : Lot 27 DP 521037 7886462 : Lot 28 DP 521037 7886463 : Lot 29 DP 521037 7886464 :
Site Classification :	Suitable for Land Use - Residential

Description

The land use history has been confirmed. The site has been confirmed as one that appears on the Hazardous Activities and Industries List (https://www.mfe.govt.nz/land/hazardous-activities-and-industries-list-hail). The information used in making this classification of the site contamination status is available in file held by Western Bay of Plenty District and file held by Bay of Plenty Regional Council.

Land Use

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

Site Information

14 May 2024 – A copy of the NESCS consent RC9975S and the Site Validation Report (SVR) required by condition (d)(4) of RC 9975S for 193 Tetley Road, Katikati was provided to Bay of Plenty Regional Council on 14 May 2024 by Western Bay of Plenty District Council. The SVR was prepared by Geohazard Environmental dated 28 July 2017. The SVR details that remediation commenced on 21 April 2017 with approximately 27.3 tonnes removed and disposed of at Tirohia Landfill, Waikato. The validation sampling completed on 24 April 2017 showed the remaining soils were below the residential soil contaminant standards and representative of expected natural background concentrations for arsenic.

20 May 2016: Bay of Plenty Regional council (BoPRC) wrote to Western Bay of Plenty District Council stating the proposal includes the disturbance of contaminated land, therefore a Remediation Action Plan is required to address what excavation is planned and how excavations will be managed to control potential adverse effects. A consent from BoPRC is required under Rule 35 of the regional water and land plan for the disturbance of contaminated land.

14 March 2016: Detailed Site Investigation Report (DSI), 193 Tetley Road, Katikati, Geohazard Environmental.
The DSI consisted of a desktop study and interviews, to gather information about the site and its history, and a site inspection. From at least 1960 until pre-2007, the site supported an orchard and a potential chicken shed. From at least 2010 until present, the site has supported undeveloped land utilised for grazing purposes. The historical pastoral farm use and subsequent orchard use of the site represents a potential source of contamination from the potential broadcast application of fertilisers and persistent pesticides, as well as the potential stockpiling and/or spreading of chicken litter, potentially containing arsenic from mite control. A number of structures (assumed sheds and a possible propagation greenhouse or chicken shed) have historically been present on-site, the earliest of which dated back to pre-1943.
The DSI also included 24 individual surface soil samples, each of which were analysed for a suite of metals a suite of persistent pesticides. The results from analysis of these original samples indicated that some contaminant concentrations around a number of the former buildings on-site exceed guideline values. As a result, additional testing for arsenic and other metals was undertaken on 24 February 2016 to delineate and refine the affected area. One further exceedance of arsenic was identified within the 10 additional surface level soil samples taken within the vicinity of the former structures situated in the south of the site. A total of three samples in the area within the south of the site exceeds the NES Soil Contaminant Standards (SCS) for arsenic. Geohazard Environmental Ltd recommend that further assessment of the southern area of the site be conducted to better constrain the nature, extent and impact contaminants detected in soil samples taken from the site.

December 2014: A review of the aerial photograph from 2003 has confirmed an orchard was located on this property, where persistent pesticides have been stored or used. However, the aerial photograph from 2007 confirmed the orchard has been removed.

Other Information

The enclosed information is derived from the Western Bay of Plenty District Council and Bay of Plenty Regional Council's Selected Land Use register and is made available to you under the Local Government Official and Information Meetings Act 1987 (LGOIMA), Building Act 1991 or Privacy Act 2020.

The database has been established by the Western Bay of Plenty District Council and Bay of Plenty Regional Council for the purpose of performing its functions under the Resource Management Act 1991.

It has been compiled in accordance with national Site Classification and Information Management Protocols for Land Contamination.

This information reflects the Western Bay of Plenty District Council and Bay of Plenty Regional Council's current understanding of this site. The Western Bay of Plenty District Council, the Bay of Plenty Regional Council and their officers, employees and agents accept no liability for any inaccuracy in, or omission from, this information; or liability for any loss of damage suffered by any person which may directly or indirectly result from any person acting or refraining from acting on this information. This information has been prepared for the recipient to whom it is addressed and is intended for the recipient's use only. This is not intended to be relied on by any other party.



BAY OF PLENTY REGIONAL COUNCIL TOI MOANA

HORIZONTAL DATUM: New Zealand Geodetic Datum 2000 For practical purposes, NZGD2000 equates to WGS84 VERTICAL DATUM: Mean Sea Level PROJECTION: New Zealand Transverse Mercator 2000 © Bay of Plenty Regional Council, 2013 © Sourced from Land Information New Zealand data. CROWN COPYRIGHT RESERVED

LUR-WBP-01038 Polygon Map

Projection: NZGD_2000_New_Zealand_Transverse_Mercator

Date Printed: 17 May 2024

SCALE 1: 1,500