WDC
LIM REPORT

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Land Information Memorandum

Sections 44A-C Local Government Official Information and Meetings Act 1987

LIM number: LM2601199

Received: 22 Jul 2026

Issued: 29 Jul 2026

Applicant

F A Pooley, R M Pooley
34 Wainui Avenue
Whangārei 0112

Site Information

Property ID: 167118

Street Address: 34 Wainui Avenue
Whangārei 0112

Legal Description: LOT 43 DP 507433

Disclaimer

The information included in this LIM is based on a search of Council records only and there may be other information relating to the land which is unknown to the Council.

Please note that other agencies may also have information relevant to the use of the land, for example, the Northland Regional Council, Heritage New Zealand Pouhere Taonga, and Land Information New Zealand.

The applicant is solely responsible for undertaking comprehensive due diligence of this property.

Council records may not show illegal or unauthorised building or works on the property. Council has not carried out an inspection of the land or buildings for the purpose of preparing this LIM.

The LIM also includes information that identifies natural hazards known to Council. The existence of a natural hazard or potential natural hazard does not equal likelihood of that hazard occurring.

The LIM is not a risk assessment and does not quantify risk. The applicant is advised to seek further information to ensure that the land is suitable for a particular purpose.

A LIM is only valid at the date of issue as information is based only on information that was known to the Council at the time of that LIM application being made.

Further information about the property may be available in the Council records or the current Record of Title. The LIM and any attachments should be read together.

You may wish to seek independent advice to aid the understanding of any of the information included in this LIM.

Property details

- Location Map
- Aerial Photo
- Record of Title: 770884
- Deposited Plan: DP 507433

This property is subject to a Consent Notice, information attached.

- Interest Number 10797265.7 dated 10/07/2017

s44A(2)(aa) Information identifying special features or characteristics of the land

Information identified on a site-specific scale for this property is attached for your information.

1. Refer Consent Notice 10797265.7 dated 10/07/2017 together with Subdivision Baseline Geotechnical Report prepared by Harrison Grierson dated June 2008 reference 1050-125904-01 from SD1200080
2. Refer also to copy of following report as attached:
    a) Suitability Report prepared by Richardson Stevens Consulting Engineers dated 26/04/2017 reference 15037 from BC1701262

s44A(2)(b) Information on private and public stormwater and sewerage drains; s44A(2)(bb) Information Council holds regarding drinking water supply to the land

Information relating to Council Utility Services for this property is attached.

- Water, Wastewater and Stormwater Map

As-Built, House Connection or Drainage Plan for this property from the building file is attached.

- As-Built Services Plan from BC1701262

This property is connected to Council Water Supply, for more information please refer: https://www.wdc.govt.nz/WaterSupply

s44A(2)(c)(ca)(cb) Information relating to any rates owning in relation to the land

Information on Valuation, Rates and Water Meter location (if applicable) for the current financial year, is attached.

Outstanding water balance as at today's date is $0.00.

A final reading of the water meter will be required.

s44A(2)(d) Any permit, consent, certificate, notice, order or requisition affecting the land or buildings;
s44A(2)(daa) Information relating to non-consented small stand-alone dwellings
s44A(2)(da) Information provided under s362T of the Building Act 2004;
s44A(2)(e) Certificate issued by a building certifier;
s44A(2)(ea) Information notified under s124 of the Weathertight Homes Resolution Services Act 2006

Copy of Building Consent and Code Compliance Certificate issued for this property is attached as listed below:

- BC1701262 – New Dwelling
  Building Consent – Issued 21/11/2017
  Code Compliance Certificate – Issued 25/02/2020

Copy of Applications (e.g. Vehicle Crossing Permit and Public Utility Service) for this property are attached as listed below:

- PU171318 – Water Meter Only
  Approved 24/10/2017

- VC170165 – Vehicle Crossing
  Issued 28/03/2018

Council holds no records of a swimming pool or spa at this property.

s44(2)(f) Information relating to the use to which the land may be put and conditions attached to that use

Plan Change 4A and 4C are currently progressing through the statutory planning process and may affect how the District Plan applies to this property.
Further information is available here:
<https://www.wdc.govt.nz/Services/Planning/District-Plan/District-Plan-changes/Current-plan-changes/PC4A-and-PC4C>

As part of Plan Change 4C - Minor Improvements, the Road Hierarchy mapping in the Whangārei District Plan is proposed to be updated. The updated layer identifies road centrelines and their classifications, which in turn influence various transport and setback rules in the District Plan. The proposed mapping updates can be viewed by selecting the “District Plan Changes’ tile here:
<https://gismaps.wdc.govt.nz/GISMapsGallery/>

This property is located in a General Residential Zone.

See map attached and for more information search the property address on Council’s ePlan:
https://eplan.wdc.govt.nz/plan

s44(2)(g) Information regarding the land which has been notified to Council by another statutory organisation

Whangārei District Council is not aware of any classification attached to the land or building.

s44(2)(h) Information regarding the land which has been notified to Council by a network utility operator pursuant to Building Act 1991 or Building Act 2004

Information relating to any utility service other than Councils such as telephone, electricity, gas and regional council will need to be obtained from the relevant utility operator.

Further information may be available from other authorities; Northpower; Spark; Vector Limited; etc.

S44A(3) Other information Council considers relevant to the land

Whangārei District Council recommends that all Whangārei District residents visit the Northland Regional Council website for information on Civil Defence hazard response: https://www.nrc.govt.nz.

This information includes Tsunami evacuation zones, maps and community response plans for flooding and extreme weather events etc.

Copies of site plan, floor plan and elevations are attached for your information.

s44B(2) Natural Hazards

This LIM includes natural hazard information held by Northland Regional Council and Whangārei District Council, however:

- There may be hazards the Councils do not have information about.
- Some hazard information may be held by other organisations.
- If a hazard is not mentioned in this LIM, it does not necessarily mean the hazard does not exist.

Information about a single hazard (such as flooding, erosion, or land instability) may be included in more than one part of this report. Please check all relevant sections to ensure you have a complete understanding of the hazard.

District Plan Information about Natural Hazards

No District Plan information regarding natural hazards applies to this property.

Building Act Information about Natural Hazards

No Building Act Information about natural hazards applies to this property.

Flooding

Flooding occurs when rainfall exceeds the capacity of the river, land or urban stormwater systems to hold the water. In steep terrain or around rivers, floods can be fast-moving; in low-lying areas and wetlands, floods can cause ponding.

In coastal areas, storm surges can cause flooding affecting land.

Northland Regional Council has modelled the flood risk across Te Tai Tokerau Northland and maintains a monitoring and forecasting programme to predict flooding. However, the absence of flooding information contained in this report does not exclude the possibility of site flooding, including from local depressions or overland flow paths on nearby properties.

River flood maps

Modelling by Northland Regional Council does not identify a River Flood Hazard for this property.

A river flood occurs when a river, lake or stream overflows its banks due to excessive rain. The duration and intensity (volume) of rainfall in the catchment area of the river determine the severity of a river flood. Other factors include soil water saturation due to previous rainfall, and the terrain surrounding the river system. In flatter areas, floodwater tends to rise more slowly and be shallower, and it often remains for days. In hilly or mountainous areas, floods can occur within minutes after a heavy rain, drain very quickly, and cause damage due to debris flow.

To determine the probability of river flooding, models consider past precipitation, forecasted precipitation, current river levels, as well as soil and terrain conditions. Flood risk will increase with climate change with the forecast increase in rainfall. Northland Regional Council's flood hazard models include predicted climate change impacts.

Draft river flood reports

Northland Regional Council are continuing with their flood hazard modelling programme to improve the information about the potential for flooding in the region. The reports on these models are not currently published as they are going through peer review and quality checks, however they are available upon request from the Northland Regional Council.

The following reports are available:

- Whangārei Catchment Upgrade and Options Model. Project objectives include providing an appropriate modelling capability for catchment management, asset management and flood risk management. The completed model as well as the Whangārei urban areas detailed level which is closely related to the drainage system management. The report was prepared April 2023 by EWaters and updated in 2025.

- Report on the Northern Wairoa Rainfall, Tidal and Storm-Surge Model is designed to simulate rainfall-induced flooding, tidal influences, and storm surge effects for the Northern Wairoa catchment, with a focus on the Dargaville area. The model has been calibrated using multiple flood events at all river gauge locations within the catchment. The report was prepared in September 2025 by Submergent Limited for Northland Regional Council.

Since 2008, Northland Regional Council has undertaken detailed flood modelling of priority catchments, i.e. those catchments and rivers determined present the highest risk to our communities. The flood extent shown on the maps are produced at a catchment scale and is not intended to depict specific flooding details for individual properties. We recommend obtaining site-specific engineering assessments to assess flood risk. Priority catchment flood maps are available on the Northland Regional Council Natural Hazards Map viewer https://www.nrc.govt.nz/environment/natural-hazards-portal/hazard-maps/advanced-hazard-map-viewer/

The priority flood hazard maps include the following flood hazard zones:

- *River Flood Hazards Zone - Priority Rivers (10 year extent).* Flood extent for the most common scenario - a flood with a 10% chance of happening in any year.
- *River Flood Hazards Zone - Priority Rivers (50 year extent).* The extent of a flood that has a 2% annual probability of happening.
- *River Flood Hazards Zone - Priority Rivers (100 year extent CC).* The extent of a flood that has a 1% annual probability of happening, taking the effects of climate change into account.

In 2019 - 2021 Northland Regional Council undertook regionwide flood modelling to model catchments not covered by the priority rivers programme. The flood extent shown on the maps are produced at a catchment scale and is not intended to depict specific flooding details for individual properties. We recommend obtaining site-specific engineering assessments to assess flood risk. The regionwide flood hazard maps are available on the Northland Regional Council Natural Hazards Map viewer https://www.nrc.govt.nz/environment/natural-hazards-portal/hazard-maps/advanced-hazard-map-viewer/

The regionwide flood hazard maps include the following flood hazard zones:

- *River Flood Hazards Zone - Regionwide models (10 year extent).* Flood extent for the most common scenario - a flood with a 10% chance of happening in any year.
- *River Flood Hazards Zone - Regionwide models (50 year extent).* The extent of a flood that has a 2% annual probability of happening.
- *River Flood Hazards Zone - Regionwide models (100 year extent CC).* The extent of a flood that has a 1% annual probability of happening, taking the effects of climate change into account.

Northland Regional Council are continuing with their flood hazard modelling programme and as at October 2025 currently has draft flood models for Whangārei, Kerikeri, Northern Wairoa, Waima and Punakitere, Catchments. These models are not currently published as they go through peer review and quality checks. Flood hazards for these catchments can be requested from Northland Regional Council.

Surveyed and observed flood levels

Northland Regional Council records flood levels during flood and storm events which provides evidence of lands that are effected by flooding.

Surveyed River Flood Levels are available on the Northland Regional Council Natural Hazards Maps viewer.
https://www.nrc.govt.nz/environment/natural-hazards-portal/hazard-maps/advanced-hazard-map-viewer/

Information about observed Coastal Flood Levels is available on the Northland Regional Council's website.
https://www.nrc.govt.nz/media/jtmbbgr1/historicobservedcoastalfloodlevelsnorthland2017.pdf

River Flood Hazard Technical Reports

1. Scope of report:	Whangārei Catchments
2. Report Title:	NRC Priority Rivers Modelling Report and Whangārei Modelling Report
3. Report date:	March 2011, October 2013
4. Report prepared by:	URS
5. Report commissioned by:	Northland Regional Council
6. Purpose of the report:	This report explains the technical aspects relating to the development of the Priority Rivers Flood Risk reduction project and specifically rivers in the Whangārei catchment. The 2013 report details the work that was done to merge the Hatea and Wairarohia/Raumanaga models and to recalibrate the new Hatea model.
7. Where or how to access report:	River modelling technical reports https://www.nrc.govt.nz/resource-library-summary/research-and-reports/river-modelling-technical-reports/

1. Scope of report:	Whangārei Catchment (Catchment M01)
2. Report Title:	Design Modelling Whangārei Catchment (M01)
3. Report date:	May 2021
4. Report prepared by:	Water Technology
5. Report commissioned by:	Northland Regional Council
6. Purpose of the report:	This report documents the calibration and design modelling methodology for Whangārei Catchment (M01), noting that this catchment was calibrated to the July 2020 flood event.
7. Where or how to access report:	River modelling technical reports https://www.nrc.govt.nz/resource-library-summary/research-and-reports/river-modelling-technical-reports/

Land Instability

Whangārei District Council holds indicative information on land stability hazard for Whangārei. Information on land stability.

A landslide is defined as the downslope movement of a mass of earth, rock or debris under the influence of gravity. Whangārei District is susceptible to landslides due to a combination of steep topography, subtropical climate and the underlying geology which includes weak or expansive soil, weak rock and highly weathered, clay rich soils. Landslides are often triggered by intense or prolonged rainfall (as well earthquakes, loss of vegetation cover, leaky water infrastructure and earthworks) which will increase with the effects of climate change.

It is not possible to identify all potential or actual landslides or land instability. The absence of information in this section does not necessarily indicate the absence of a landslide risk.

'Landslide susceptibility' is the relative likelihood of future landsliding occurring based on underlying properties compared with surrounding areas. It does not indicate the size or frequency of potential landslides, or the potential for landslides to cause damage or loss.

This LIM includes maps which indicate Landslide Susceptibility in relation to this property and its surrounds - is **Low.** These maps are based on a district wide study entitled 'Landslide Susceptibility Assessment for Whangārei District Council, October 2022.

These maps are a generalisation of available data, and do not represent site specific assessment. They are not intended to be viewed or relied upon on a property-level scale.

The Whangārei District Council may require site-specific investigations before granting future subdivision or building consent for the property, the level of investigation or assessment would depend on the level of stability risk of the area the property is in.

Technical report

1. Report Title:	Landslide Susceptibility Assessment for Whangārei District Council
2. Report date:	October 2022
3. Report prepared by:	Tonkin & Taylor Ltd
4. Report commissioned by:	Whangārei District Council
5. Purpose of the report:	The purpose and outcomes of this analysis and mapping is to: Provide a landslide susceptibility assessment and map that covers the Whangārei District and follows on from the landslide susceptibility assessment and mapping done previously but covered discrete areas of the district only.
6. Scope of report:	Whangārei District
7. Where or how to access report:	You can find the above report under the Land Instability section on our Natural Hazards webpage. Additional reports that may be relevant to Land Instability are also available at: https://www.wdc.govt.nz/NaturalHazards

Liquefaction

This property is located within an area classified as Liquefaction vulnerability category: **Undetermined** and can be viewed on the Council Hazard viewer: https://www.wdc.govt.nz/HazardsGISMap

Please note: To view the liquefaction layer your map scale must be greater than 1:5000.

Liquefaction is a natural process where earthquake shaking increases water pressure in the ground in granular soils, resulting in temporary loss of soil bearing capacity. Liquefaction commonly leads to buildings ‘sinking’ on their foundations during the shaking - in line with that experienced in the 2011 Canterbury earthquakes.

Climate change is expected to cause sea level rise, and in turn an elevation of groundwater levels. Elevated ground water levels are likely to increase liquefaction susceptibility, but the extent of the increase has not been quantified by the report, nor Whangārei District Council.

Whangārei District Council commissioned Tonkin and Taylor Ltd to complete a district wide Liquefaction Vulnerability Study in August 2020. The report identifies and analyses the risk of liquefaction to help inform decisions about future development of land and buildings.

You can find the report under the Liquefaction section on our Natural Hazards web page: https://www.wdc.govt.nz/NaturalHazards

Tsunami

Tsunami are a series of waves, typically created by submarine or coastal earthquakes, landslides (including underwater landslides) and offshore submarine volcanic eruptions. Tsunami may travel hundreds of kilometres an hour and pass by unnoticed at sea, but slow down and grow as they move to shallow water, causing significant damage when they make landfall.

This property is located in an area identified as **Green Zone - Safe Area.**

With funding from the Natural Hazards Commission Northland Civil Defence and Emergency Management have modelled the tsunami risk and created Tsunami Evacuation Zone and Safe Zone map:
<https://northlandcdem.maps.arcgis.com/apps/webappviewer/index.html?id=00bf741d369b4eb7802021004d123e3b>

Technical Report for Tsunami Evacuation Zone and Safe Zone map

1. Scope of report	Regional
2. Report Title:	Tsunami Inundation Modelling for Evacuation Planning in Northland
3. Report date:	2024
4. Report prepared by:	Orca Consulting
5. Report commissioned by:	Natural Hazards Commission
6. Purpose of the report:	The objective of this study was to produce tsunami inundation and evacuation zones for the Northland region that are compliant with guidelines set forth in the document 'Tsunami Evacuation Zones: Director's Guidelines for Civil Defence Emergency Management Groups' (MCDEM, 2016). To define these zones, numerical modelling was undertaken to determining the extents of the tsunami inundation zones for the Northland Region. The study used a Level 3/Level 4 modelling approach (as defined in MCDEM 2016) whereby a physics based numerical model was used to model the evolution of the tsunami from source through to inundation. The study used multiple sources, both local and distant.
7. Where or how to access report	A copy is available upon request from Northland Regional Council

Erosion and Landslide

Erosion is any movement of soil, rocks or sand, under the influence of wind, water or gravity. Landslides are a type of erosion. A landslide is the downslope movement of a mass of earth, rock or debris under the influence of gravity. Te Tai Tokerau Northland is susceptible to landslides due to its steep topography, subtropical climate, and underlying geology. Landslides are often triggered by intense or prolonged rainfall (as well as earthquakes, loss of vegetation cover, leaky water infrastructure and earthworks), which will increase with the effects of climate change. Climate change is expected to increase erosion in Te Tai Tokerau Northland.

Northland Regional Council has modelled the region's relative risk of erosion and sediment loss to water and these have been published as Erosion and Sediment Risk at this link - <https://experience.arcgis.com/experience/bf65abc23bc144e2a32cd1efd6094167>.
The maps are based on a predictive model created using a range of information, including LiDAR (remote sensing technology that uses lasers to create 3D maps), soil and geology type, slope and climate data. The maps are designed as a tool to help landowners manage risks to water quality as a result of sediment loss to water - they provide an assessment of the relative risk of erosion and risk of sediment reaching waterways across Northland.

The maps do not provide a geotechnical assessment of land suitability for subdivision or built development, nor do they quantify the likelihood of future landslides or slips.

Technical Reports for erosion prone land

1. Scope of report	Regional
2. Report Title:	Northland's Landscape Driven Erosion Map: A Resources for Decision-Makers and Communities
3. Report date:	2025
4. Report prepared by:	Land and Water Science
5. Report commissioned by	Northland Regional Council
6. Purpose of the report:	This report was created for people across Northland-farmers, council staff, iwi and hapū, community leaders, and planners-who want to better understand a new regional tool called the Sediment-Process Attribute Layer, or S-PAL. S-PAL does not replace older soil or geology maps. Instead, it builds on those valuable foundations by adding a new layer of information made possible through modern datasets.
7. Where or how to access report	Northland Regional Council website: <https://www.nrc.govt.nz/media/tr4ng33g/northlands-landscape-driven-erosion-map-lws-2025.pdf>

1. Scope of report	Regional
2. Report Title:	The S-PAL Framework: Technical User Guide for Erosion Susceptibility Assessment and Mitigation
3. Report date:	2026
4. Report prepared by:	Land and Water Science
5. Report commissioned by	Northland Regional Council
6. Purpose of the report:	This User Guide explains how to use the S-PAL v 2.0 Framework to identify land that is prone to erosion across Northland. S-PAL stands for Sediment-Process Attribute Layers - a system that combines detailed maps and measurements to show where the land is most likely to erode and shed sediment into waterways.
7. Where or how to access report	Northland Regional Council website: <https://www.nrc.govt.nz/media/gkofckd2/northland-erosion-and-sediment-risk-map-technical-user-guide-11jan2026.pdf>

Drought

Drought in Te Tai Tokerau Northland is a complex hazard to define and detect, and its impacts vary from one area to the other.

Technical Report for Northland Drought Assessment

1. Scope of report	Regional
2. Report Title:	Droughts in Northland: A Local and Regional Analysis
3. Report date:	2024
4. Report prepared by:	National Institute of Water and Atmosphere
5. Report commissioned by:	Northland Regional Council
6. Purpose of the report:	Analysis of the development, occurrence and severity of droughts in Northland Region.
7. Where or how to access report	Envirolink website: Droughts in Northland: A local and regional analysis https://www.envirolink.govt.nz/assets/Envirolink/2403-NLRC240-Droughts-in-Northland-A-Local-and-Regional-Analysis.pdf

In September 2024 the Ministry for the Environment and NIWA published national climate projections.

Droughts are expected to become more frequent and more severe in Te Tai Tokerau Northland by 2090.

Volcanic, Geothermal and Earthquake

There are many processes associated with volcanic eruptions, and these can be hazardous when they interact with people and/or infrastructure. The type and intensity of volcanic process will vary from volcano to volcano. There are two areas of past local volcanic activity in Northland, at Puhipuhi-Whangārei and at Kaikohe-Bay of Islands. While climate change does not affect volcanic eruptions, it can affect the risk from volcanic hazards such as lahars (volcanic mudflows) because of the forecast changes in rainfall.

Earthquakes occur when stress that has built up along a fault - a break in the Earth's crust - is suddenly released. Earthquakes can cause ground shaking, fault rupture, permanent ground movement, subsidence or lateral spreading, liquefaction, landslides, rock falls and tsunami. Although climate change does not affect earthquakes, it can make some of the problems earthquakes cause, such as subsidence, liquefaction, and landslides, more likely or more severe. This is because climate change affects rainfall and groundwater, which play roles in these hazards.

While the earthquake risk in Northland is low, there have been earthquakes recorded in the region.

Northland Regional Council does not have a map of volcanic, geothermal or earthquake risk but did commission information on volcanic hazards as part of the review of natural hazards information for Northland region. This information relates to region-wide studies and may not reflect the on-site situation or natural hazard investigations and mitigation done on a site-specific property level.

Technical Report for earthquake information

1. Scope of report	Regional
2. Report Title:	A review of natural hazards information for Northland region Section 2.0 Seismic Hazards
3. Report date:	2004
4. Report prepared by:	Institute of Geological & Nuclear Sciences Limited
5. Report commissioned by:	Northland Regional Council and Whangārei District Council
6. Purpose of the report:	The aim of this report is to assemble and present a review of existing information on natural hazards, including earthquakes. The report identifies gaps and possible future work. Please note sections on flooding and erosion prone land have been superseded by more recent work and modelling.
7. Where or how to access report:	Northland Regional Council Website https://www.nrc.govt.nz/media/2itixwuo/naturalhazards.pdf

Signed for and on behalf of Council:

Tegan Tinsley
Property Information Officer

Property Map

Whangarei District Council

New Subdivisions

- Proposed Pre-223
- 223 Certificate

New subdivisions: Proposed as accepted, pre-223 and 223 Certificate with set Conditions.

Land Parcel boundaries are indicative only and are not survey accurate. Area measurement is derived from the displayed geometry and is approximate. True accurate boundary dimensions can be obtained from LINZ survey and title plans

29 July 2026

Scale 1:500

The information displayed is schematic only and serves as a guide. It has been compiled from Whangarei District Council records and is made available in good faith but its accuracy or completeness is not guaranteed. Parcel Information is sourced from the Land Information New Zealand (LINZ) Data Service. CROWN COPYRIGHT RESERVED. © Copyright Whangarei District Council.

Aerial Photography

Whangarei District Council

This map includes New Zealand's most current publicly owned aerial imagery and is sourced from the LINZ Data Service.

29 July 2026

Scale 1:500

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RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **770884**

Land Registration District **North Auckland**

Date Issued 17 July 2017

Prior References
738169

Estate Fee Simple

Area 677 square metres more or less

Legal Description Lot 43 Deposited Plan 507433

Registered Owners

Robert Murray Pooley and Fidelis Anne Pooley

Interests

10797265.7 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.7.2017 at 3:08 pm

Land Covenant in Easement Instrument 10797265.13 - 17.7.2017 at 3:08 pm

Fencing Covenant in Transfer 10862380.3 - 3.8.2017 at 1:46 pm

Title Plan - DP 507433

Survey Number	DP 507433
Surveyor Reference	11008 S3
Surveyor	Charlotte Frances Nijssen
Survey Firm	Blue Wallace Surveyors
Surveyor Declaration	I Charlotte Frances Nijssen, 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 21 Jul 2017 10:07 AM

Survey Details

Dataset Description	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849		
Status	Deposited		
Land District	North Auckland	**Survey Class**	Class A
Submitted Date	21/07/2017	**Survey Approval Date**	21/07/2017
		Deposit Date	17/07/2017

Territorial Authorities

Whangarei District

Comprised In

CT 738169

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Lot 511 Deposited Plan 507433	Vesting on Deposit for Local Purpose Reserve	0.1655 Ha	770899
Lot 512 Deposited Plan 507433	Vesting on Deposit for Local Purpose Reserve	0.8291 Ha	770899
	Road	0.7932 Ha	
Lot 515 Deposited Plan 507433	Vesting on Deposit for Local Purpose Reserve	0.0246 Ha	770899
Lot 516 Deposited Plan 507433	Vesting on Deposit for Local Purpose Reserve	2.0765 Ha	770898
Lot 517 Deposited Plan 507433	Fee Simple Title	0.1056 Ha	Multiple
Lot 518 Deposited Plan 507433	Fee Simple Title	0.1081 Ha	Multiple
Lot 519 Deposited Plan 507433	Fee Simple Title	0.0800 Ha	Multiple
Lot 520 Deposited Plan 507433	Fee Simple Title	6.0806 Ha	770897
Lot 521 Deposited Plan 507433	Fee Simple Title	15.2945 Ha	770897
Lot 528 Deposited Plan 507433	Vesting on Deposit for Local Purpose Reserve	0.5668 Ha	770899
Lot 529 Deposited Plan 507433	Vesting on Deposit for Local Purpose Reserve	0.1755 Ha	770898
Lot 1 Deposited Plan 507433	Fee Simple Title	0.0893 Ha	770842
Lot 2 Deposited Plan 507433	Fee Simple Title	0.0900 Ha	770843

Title Plan - DP 507433

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Lot 3 Deposited Plan 507433	Fee Simple Title	0.0827 Ha	770844
Lot 4 Deposited Plan 507433	Fee Simple Title	0.0806 Ha	770845
Lot 5 Deposited Plan 507433	Fee Simple Title	0.0797 Ha	770846
Lot 6 Deposited Plan 507433	Fee Simple Title	0.0859 Ha	770847
Lot 7 Deposited Plan 507433	Fee Simple Title	0.0845 Ha	770848
Lot 8 Deposited Plan 507433	Fee Simple Title	0.0829 Ha	770849
Lot 9 Deposited Plan 507433	Fee Simple Title	0.0804 Ha	770850
Lot 10 Deposited Plan 507433	Fee Simple Title	0.0605 Ha	770851
Lot 11 Deposited Plan 507433	Fee Simple Title	0.0618 Ha	770852
Lot 12 Deposited Plan 507433	Fee Simple Title	0.0632 Ha	770853
Lot 13 Deposited Plan 507433	Fee Simple Title	0.0676 Ha	770854
Lot 14 Deposited Plan 507433	Fee Simple Title	0.0688 Ha	770855
Lot 15 Deposited Plan 507433	Fee Simple Title	0.0700 Ha	770856
Lot 16 Deposited Plan 507433	Fee Simple Title	0.0678 Ha	770857
Lot 17 Deposited Plan 507433	Fee Simple Title	0.0678 Ha	770858
Lot 18 Deposited Plan 507433	Fee Simple Title	0.0666 Ha	770859
Lot 19 Deposited Plan 507433	Fee Simple Title	0.0665 Ha	770860
Lot 20 Deposited Plan 507433	Fee Simple Title	0.0674 Ha	770861
Lot 21 Deposited Plan 507433	Fee Simple Title	0.0674 Ha	770862
Lot 22 Deposited Plan 507433	Fee Simple Title	0.0680 Ha	770863
Lot 23 Deposited Plan 507433	Fee Simple Title	0.0806 Ha	770864
Lot 24 Deposited Plan 507433	Fee Simple Title	0.0672 Ha	770865
Lot 25 Deposited Plan 507433	Fee Simple Title	0.0685 Ha	770866
Lot 26 Deposited Plan 507433	Fee Simple Title	0.0750 Ha	770867
Lot 27 Deposited Plan 507433	Fee Simple Title	0.0830 Ha	770868
Lot 28 Deposited Plan 507433	Fee Simple Title	0.0661 Ha	770869
Lot 29 Deposited Plan 507433	Fee Simple Title	0.0847 Ha	770870
Lot 30 Deposited Plan 507433	Fee Simple Title	0.0804 Ha	770871
Lot 31 Deposited Plan 507433	Fee Simple Title	0.0846 Ha	770872
Lot 32 Deposited Plan 507433	Fee Simple Title	0.0663 Ha	770873
Lot 33 Deposited Plan 507433	Fee Simple Title	0.0668 Ha	770874
Lot 34 Deposited Plan 507433	Fee Simple Title	0.0637 Ha	770875
Lot 35 Deposited Plan 507433	Fee Simple Title	0.0640 Ha	770876
Lot 36 Deposited Plan 507433	Fee Simple Title	0.0633 Ha	770877
Lot 37 Deposited Plan 507433	Fee Simple Title	0.0632 Ha	770878
Lot 38 Deposited Plan 507433	Fee Simple Title	0.0521 Ha	770879
Lot 39 Deposited Plan 507433	Fee Simple Title	0.0609 Ha	770880
Lot 40 Deposited Plan 507433	Fee Simple Title	0.0637 Ha	770881
Lot 41 Deposited Plan 507433	Fee Simple Title	0.0651 Ha	770882
Lot 42 Deposited Plan 507433	Fee Simple Title	0.0651 Ha	770883
Lot 43 Deposited Plan 507433	Fee Simple Title	0.0677 Ha	770884
Lot 44 Deposited Plan 507433	Fee Simple Title	0.0631 Ha	770885
Lot 45 Deposited Plan 507433	Fee Simple Title	0.0715 Ha	770886
Lot 46 Deposited Plan 507433	Fee Simple Title	0.0685 Ha	770887

Title Plan - DP 507433

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Lot 47 Deposited Plan 507433	Fee Simple Title	0.0624 Ha	770888
Lot 48 Deposited Plan 507433	Fee Simple Title	0.0683 Ha	770889
Lot 49 Deposited Plan 507433	Fee Simple Title	0.0645 Ha	770890
Lot 50 Deposited Plan 507433	Fee Simple Title	0.0626 Ha	770891
Lot 51 Deposited Plan 507433	Fee Simple Title	0.0624 Ha	770892
Lot 52 Deposited Plan 507433	Fee Simple Title	0.0625 Ha	770893
Lot 53 Deposited Plan 507433	Fee Simple Title	0.0616 Ha	770894
Lot 54 Deposited Plan 507433	Fee Simple Title	0.0608 Ha	770895
Lot 55 Deposited Plan 507433	Fee Simple Title	0.0606 Ha	770896
Area A Deposited Plan 507433	Easement		
Area B Deposited Plan 507433	Easement		
Area C Deposited Plan 507433	Easement		
Area D Deposited Plan 507433	Easement		
Area E Deposited Plan 507433	Easement		
Area F Deposited Plan 507433	Easement		
Area G Deposited Plan 507433	Easement		
Area H Deposited Plan 507433	Easement		
Area I Deposited Plan 507433	Easement		
Area J Deposited Plan 507433	Easement		
Area K Deposited Plan 507433	Easement		
Area L Deposited Plan 507433	Easement		
Area M Deposited Plan 507433	Easement		
Area N Deposited Plan 507433	Easement		
Area O Deposited Plan 507433	Easement		
Area P Deposited Plan 507433	Easement		
Area Q Deposited Plan 507433	Easement		
Area R Deposited Plan 507433	Easement		
Area S Deposited Plan 507433	Easement		
Area T Deposited Plan 507433	Easement		
Area U Deposited Plan 507433	Easement		
Area V Deposited Plan 507433	Easement		
Area W Deposited Plan 507433	Easement		
Area X Deposited Plan 507433	Easement		
Area Y Deposited Plan 507433	Easement		
Area Z Deposited Plan 507433	Easement		
Area AA Deposited Plan 507433	Easement		
Area AB Deposited Plan 507433	Easement		
Area AC Deposited Plan 507433	Easement		
Area AD Deposited Plan 507433	Easement		
Area AE Deposited Plan 507433	Easement		
Area AF Deposited Plan 507433	Easement		
Area AG Deposited Plan 507433	Easement		
Area AH Deposited Plan 507433	Easement		
Area AI Deposited Plan 507433	Easement		

Title Plan - DP 507433

Created Parcels

Parcels	Parcel Intent	Area	CT Reference
Area AJ Deposited Plan 507433	Easement		
Area AK Deposited Plan 507433	Easement		
Area AL Deposited Plan 507433	Easement		
Area AM Deposited Plan 507433	Easement		
Area AN Deposited Plan 507433	Easement		
Area AO Deposited Plan 507433	Easement		
Area AP Deposited Plan 507433	Easement		
Area AQ Deposited Plan 507433	Easement		
Area AR Deposited Plan 507433	Easement		
Area AS Deposited Plan 507433	Easement		
Area AT Deposited Plan 507433	Easement		
Area AU Deposited Plan 507433	Easement		
Area AW Deposited Plan 507433	Easement		
Area AX Deposited Plan 507433	Easement		
Area AY Deposited Plan 507433	Easement		
Area AZ Deposited Plan 507433	Easement		
Lot 527 Deposited Plan 507433	Vesting on Deposit for Local Purpose Reserve	2.7530 Ha	770899
Total Area		32.8932 Ha	

Schedule / Memorandum

Land Registration District	Plan Number
NORTH AUCKLAND	DP 507433

Territorial Authority (the Council)

WHANGAREI DISTRICT COUNCIL

Memorandum of Easements			
Purpose	**Shown**	**Servient Tenement**	**Dominant Tenement**
Right of Way Right to Convey Electricity, Telecommunications and Computer Media, Gas & Water Right to Drain Sewage and Water	A	Lot 518 DP 507433	Lots 19-28, 50 & 53-55 DP 507433
	B	Lot 519 DP 507433	Lots 33-40, 47 & 49 DP 507433
	C	Lot 517 DP 507433	Lots 4-15 DP 507433

Schedule of Easements			
Purpose	**Shown**	**Servient Tenement**	**Dominant Tenement**
Right to Drain Sewage	J	Lot 47 DP 507433	Lot 46 DP 507433
	L	Lot 30 DP 507433	Lot 29 DP 507433
	M	Lot 50 DP 507433	Lot 51 DP 507433
	P	Lot 53 DP 507433	Lot 52 DP 507433

Memorandum of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right of Way	S, T	Lot 520 DP 507433	Whangarei District Council
	W	Lot 521 DP 507433	
Right to Drain Water	R, AU	Lot 24 DP 507433	
	AB, AK, AL	Lot 521 DP 507433	
Right to Drain Sewage & Water	A	Lot 518 DP 507433	
	B	Lot 519 DP 507433	
	C	Lot 517 DP 507433	

Schedule / Memorandum

Land Registration District	Plan Number
NORTH AUCKLAND	DP 507433

Territorial Authority (the Council)

WHANGAREI DISTRICT COUNCIL

Memorandum of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Drain Water	E	Lot 40 DP 507433	Whangarei District Council
	F	Lot 41 DP 507433	
	N	Lot 51 DP 507433	
	O	Lot 52 DP 507433	
	P	Lot 53 DP 507433	
	R, AU	Lot 24 DP 507433	
	AD	Lot 520 DP 507433	
	AK	Lot 521 DP 507433	
	D	Lot 25 DP 507433	
Right to Drain Sewage	G, AJ	Lot 47 DP 507433	
	H	Lot 45 DP 507433	
	I	Lot 44 DP 507433	
	K	Lot 31 DP 507433	
	Q	Lots 26 DP 507433	
	T, U	Lot 520 DP 507433	
	V, W, X, Y,Z, AA, AB,AC	Lot 521 DP 507433	
	AD	Lot 520 DP 507433	

Schedule / Memorandum

Land Registration District	Plan Number
NORTH AUCKLAND	DP 507433

Territorial Authority (the Council)

WHANGAREI DISTRICT COUNCIL

Memorandum of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Convey Electricity	A	Lot 518 DP 507433	Whangarei District Council
	B	Lot 519 DP 507433	
	C	Lot 517 DP 507433	
	AM	Lot 39 DP 507433	
	AN	Lot 38 DP 507433	
	AO	Lot 37 DP 507433	
	AP	Lot 36 DP 507433	
	AQ	Lot 35 DP 507433	
	AR	Lot 33 DP 507433	
	AS	Lot 28 DP 507433	
	AT	Lot 25 DP 507433	
	AU	Lot 24 DP 507433	
	AW	Lot 21 DP 507433	
	AX	Lot 19 DP 507433	

Schedule / Memorandum

Land Registration District	Plan Number
NORTH AUCKLAND	DP 507433

Territorial Authority (the Council)

WHANGAREI DISTRICT COUNCIL

Memorandum of Easements in Gross			
Purpose	**Shown**	**Servient Tenement**	**Grantee**
Right to Convey Electricity, Telecommunications and Computer Media	A	Lot 518 DP 507433	Northpower Limited, Northpower Fibre Limited
	B	Lot 519 DP 507433	
	C	Lot 517 DP 507433	
	AE	Lot 10 DP 507433	
	AF	Lot 12 DP 507433	
	AG	Lot 13 DP 507433	
	AH	Lot 14 DP 507433	
	AI	Lot 15 DP 507433	
	AJ	Lot 47 DP 507433	
	AM	Lot 39 DP 507433	
	AN	Lot 38 DP 507433	
	AO	Lot 37 DP 507433	
	AP	Lot 36 DP 507433	
	AQ	Lot 35 DP 507433	
	AR	Lot 33 DP 507433	
	AS	Lot 28 DP 507433	
	AT	Lot 25 DP 507433	
	AU	Lot 24 DP 507433	
	AW	Lot 21 DP 507433	
	AX	Lot 19 DP 507433	
	AY	Lot 15 DP 507433	
	AZ	Lot 16 DP 507433	

Schedule / Memorandum

Land Registration District	Plan Number
NORTH AUCKLAND	DP 507433

Territorial Authority (the Council)

WHANGAREI DISTRICT COUNCIL

Amalgamation Conditions
(Pursuant to S220 Resource Management Act 1991)

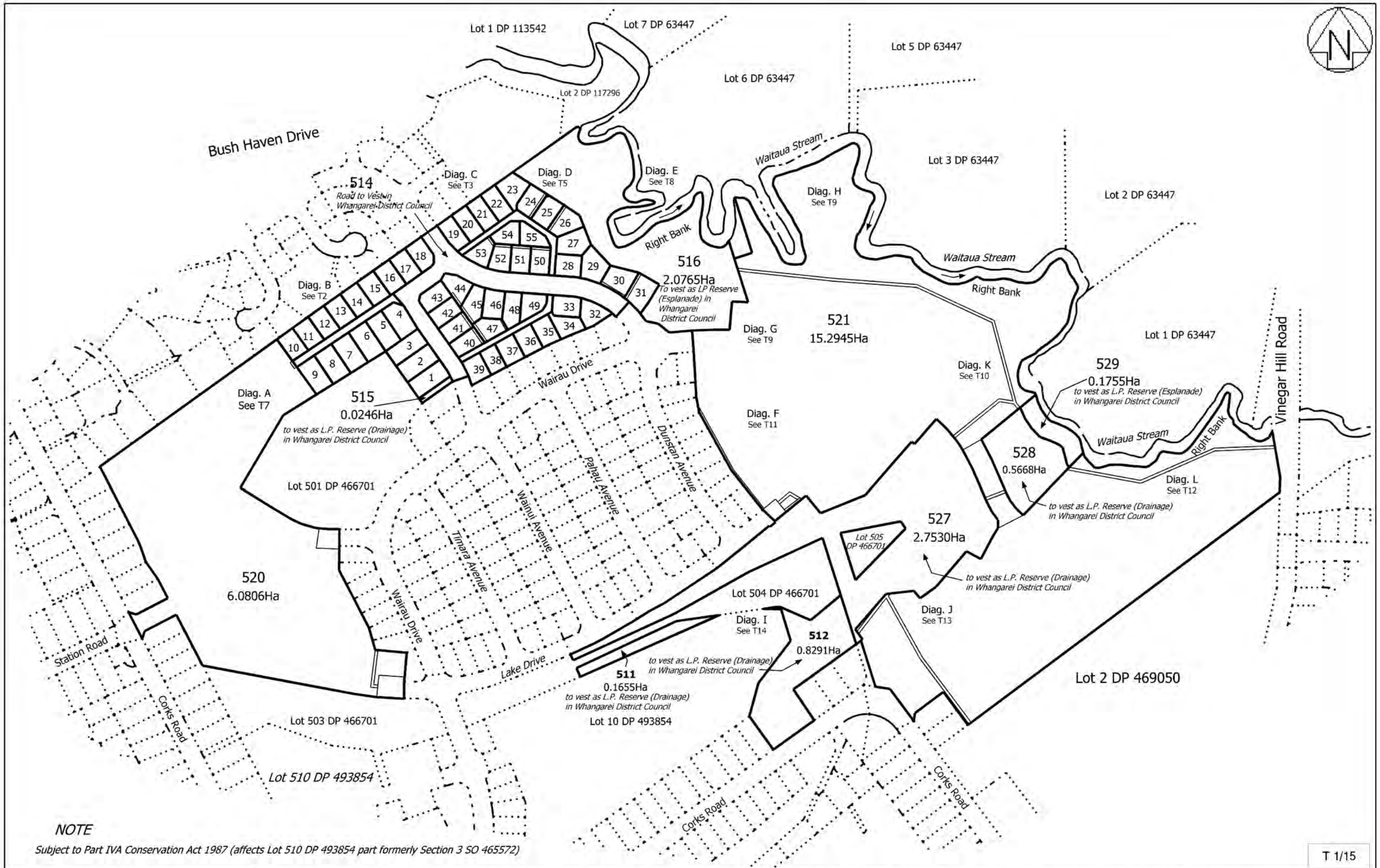
That Lot 517 DP 507433 be held as twelve one-twelfth undivided shares by the owners of lots 4 to 15 DP 507433, and that individual Computer Freehold Registers be issued in accordance therewith.

That Lot 518 DP 507433 be held as fourteen one-fourteenth undivided shares by the owners of Lots 19 to 28, 50, and 53 to 55 DP 507433, and that individual Computer Freehold Registers be issued in accordance therewith.

That Lot 519 DP 507433 be held as ten one-tenth undivided shares by the owners of Lots 33 to 40, 47, and 49 DP 507433, and that individual Computer Freehold Registers be issued in accordance therewith.

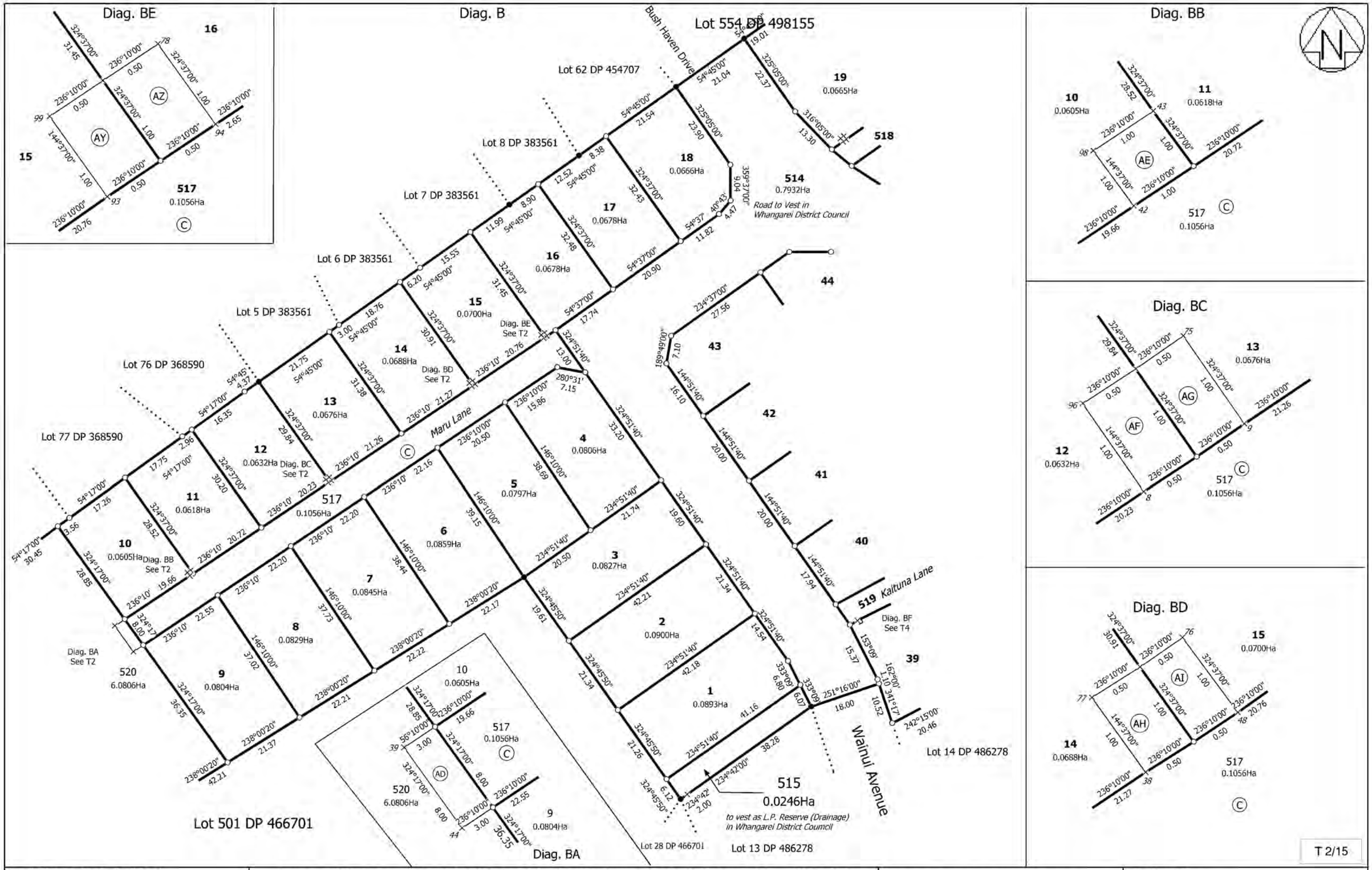
That Lots 520 & 521 DP 507433 and lot 510 DP 493854 be held in one Computer Freehold Register.

(See LINZ request 1430036)



T 1/15

Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 10 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017



Land District: North Auckland

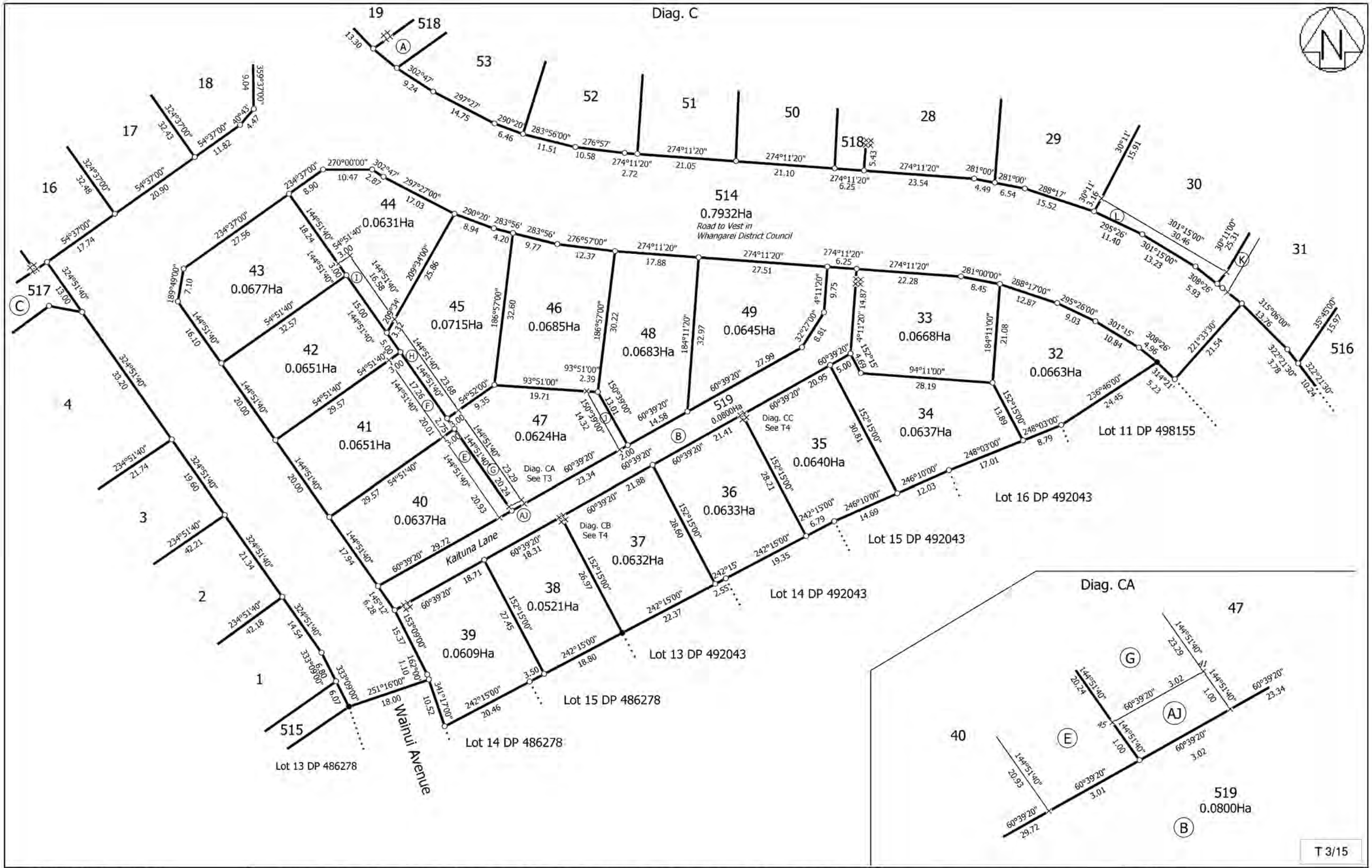
Digitally Generated Plan
Generated on: 27/07/2017 2:59pm Page 11 of 24

Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849

Surveyor: Charlotte Frances Nijssen
Firm: Blue Wallace Surveyors

Title Plan
DP 507433

Deposited on: 17/07/2017



Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 12 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017

Diag. BF

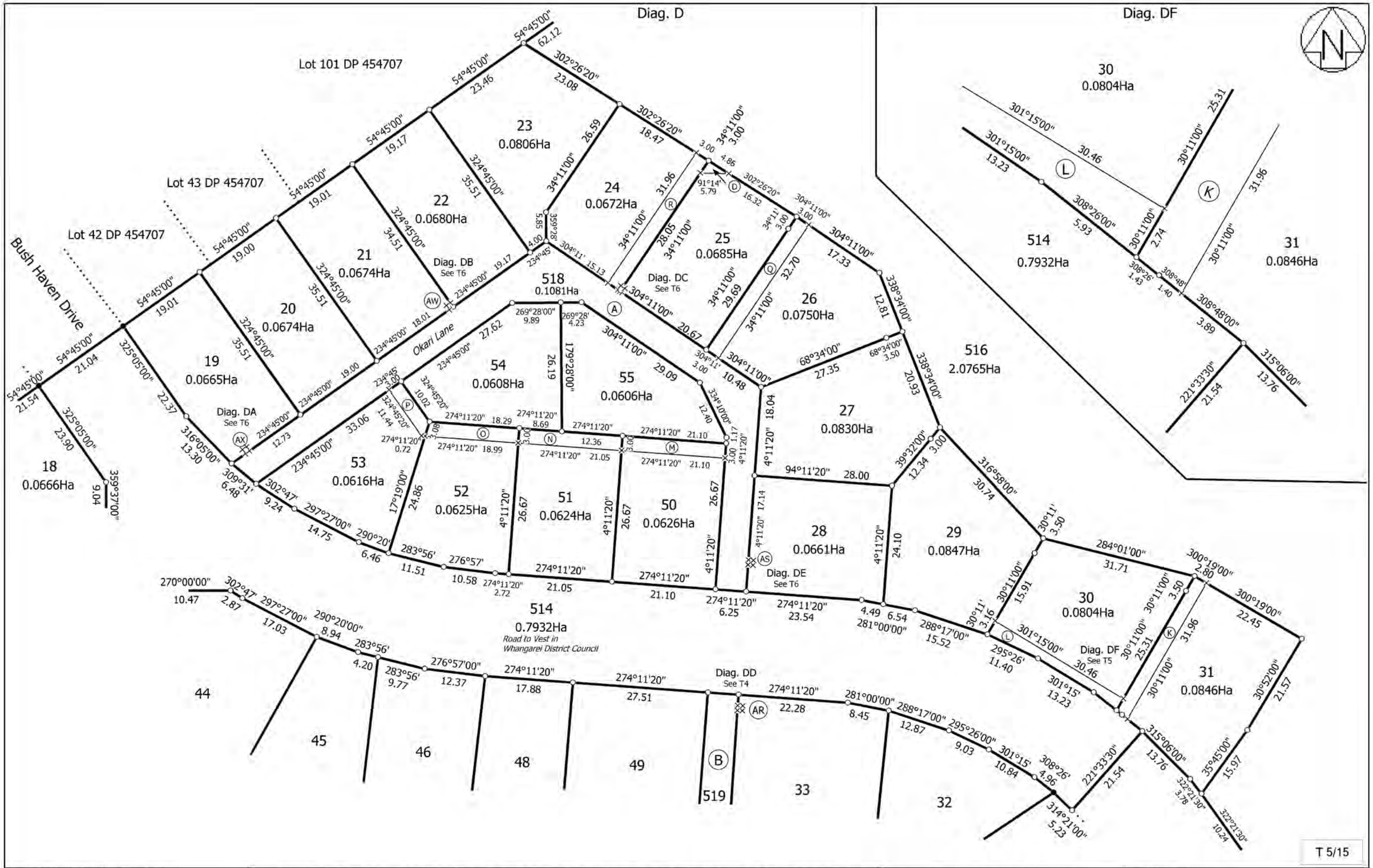
Diag. CB

Diag. CC

Diag. DD

T 4/15

Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 13 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017



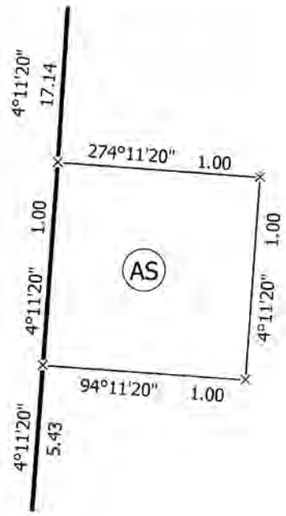
Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 14 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017

Diag. DA

Diag. DB

Diag. DC

Diag. DE



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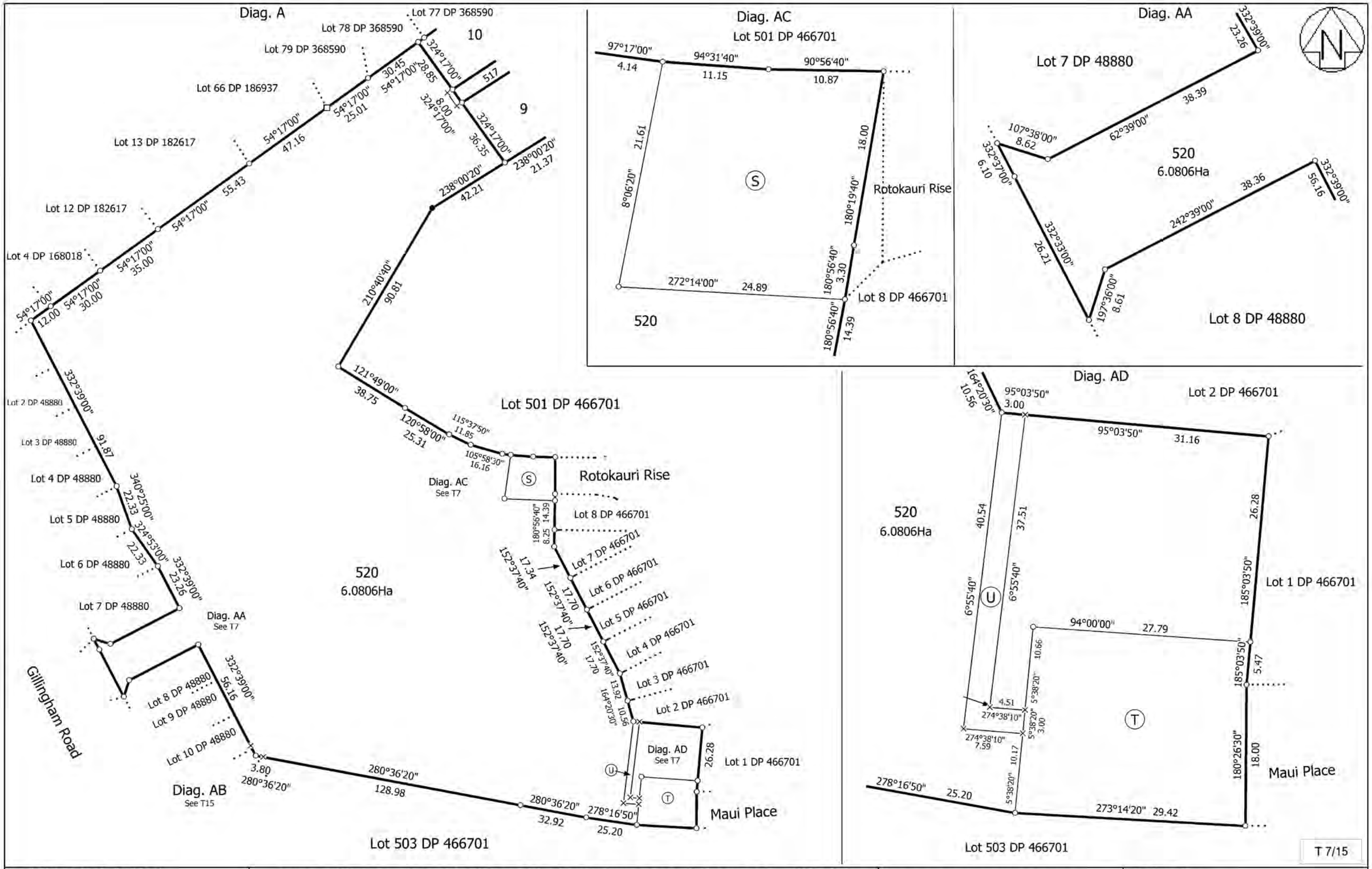
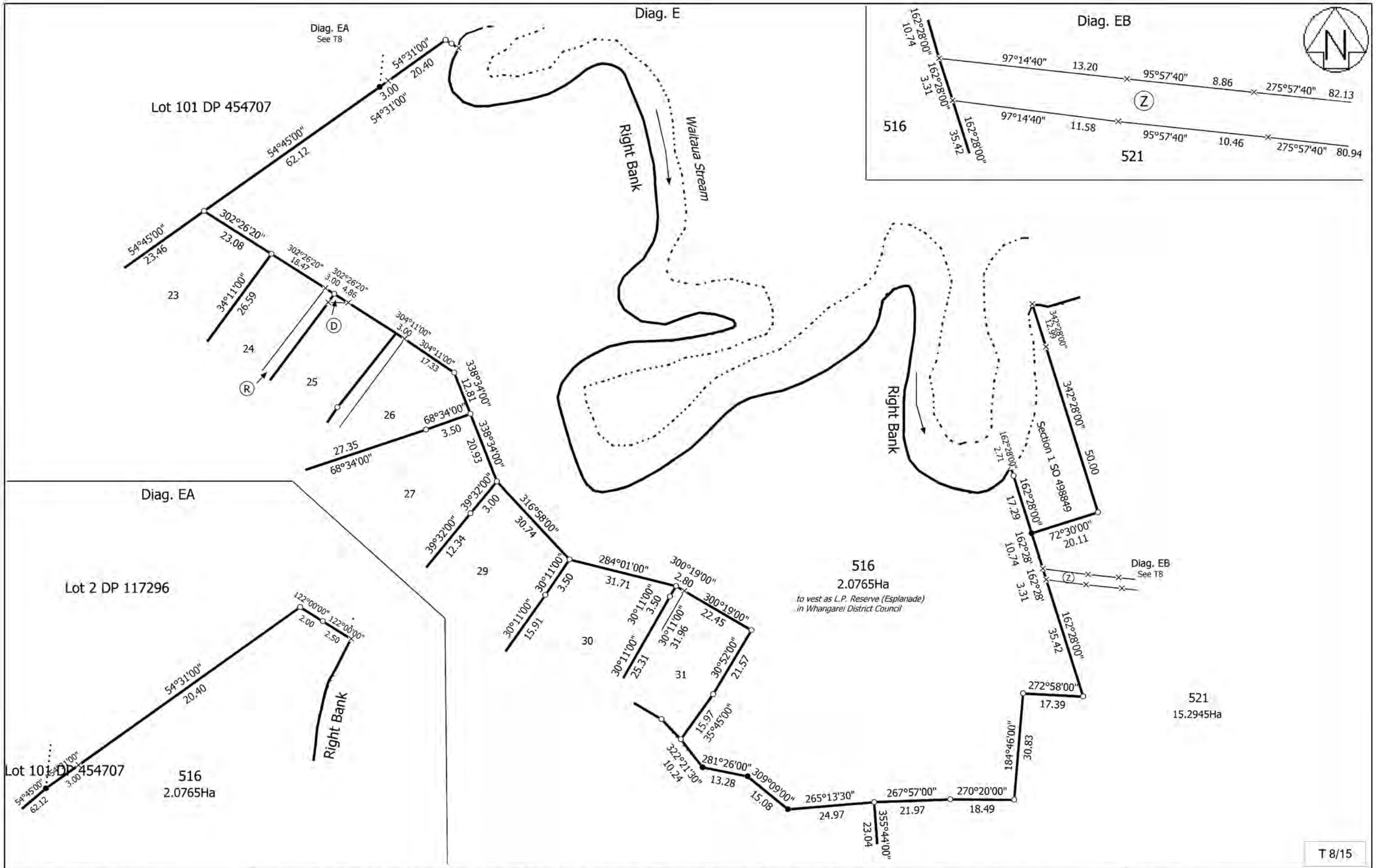
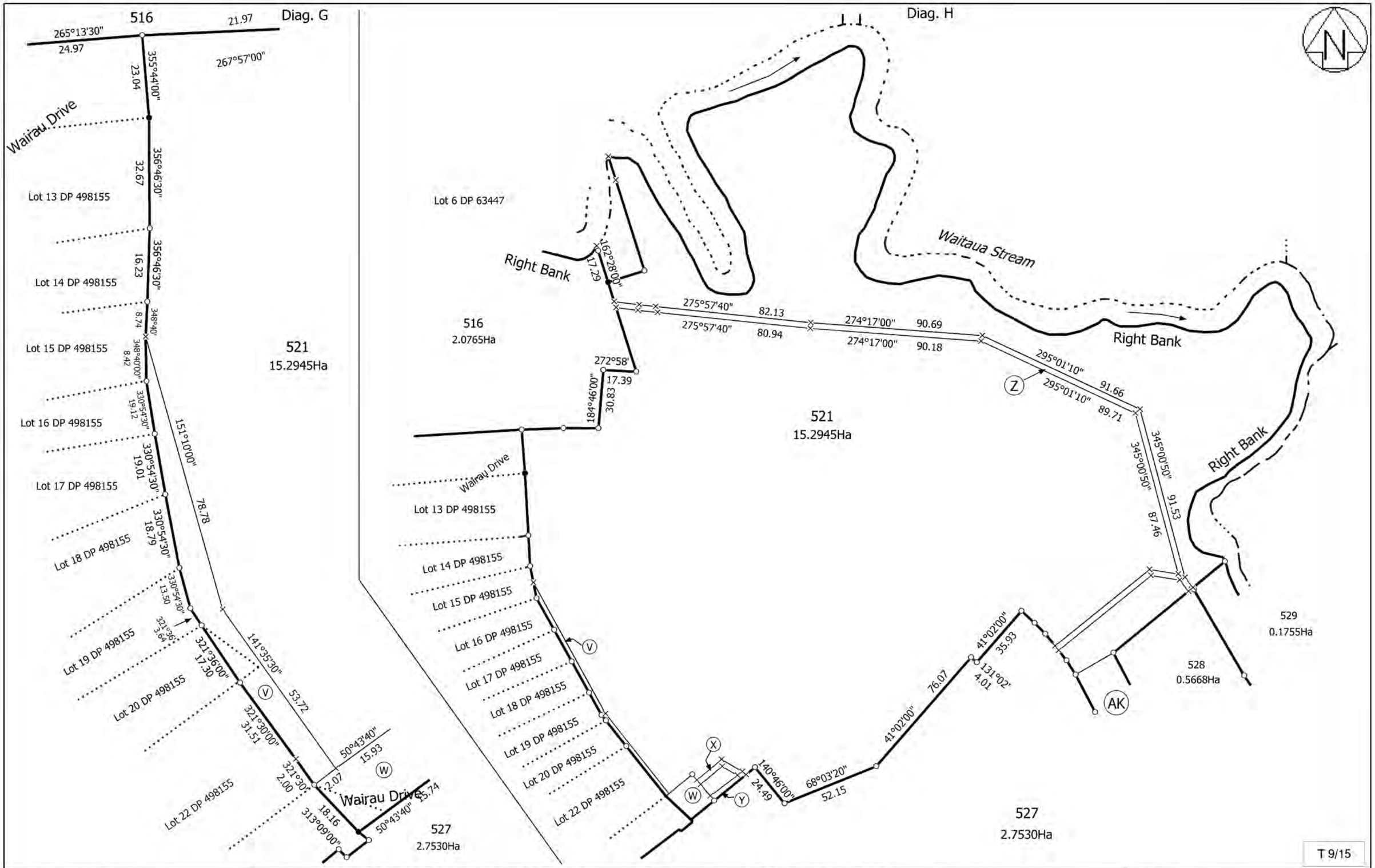
Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 15 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017



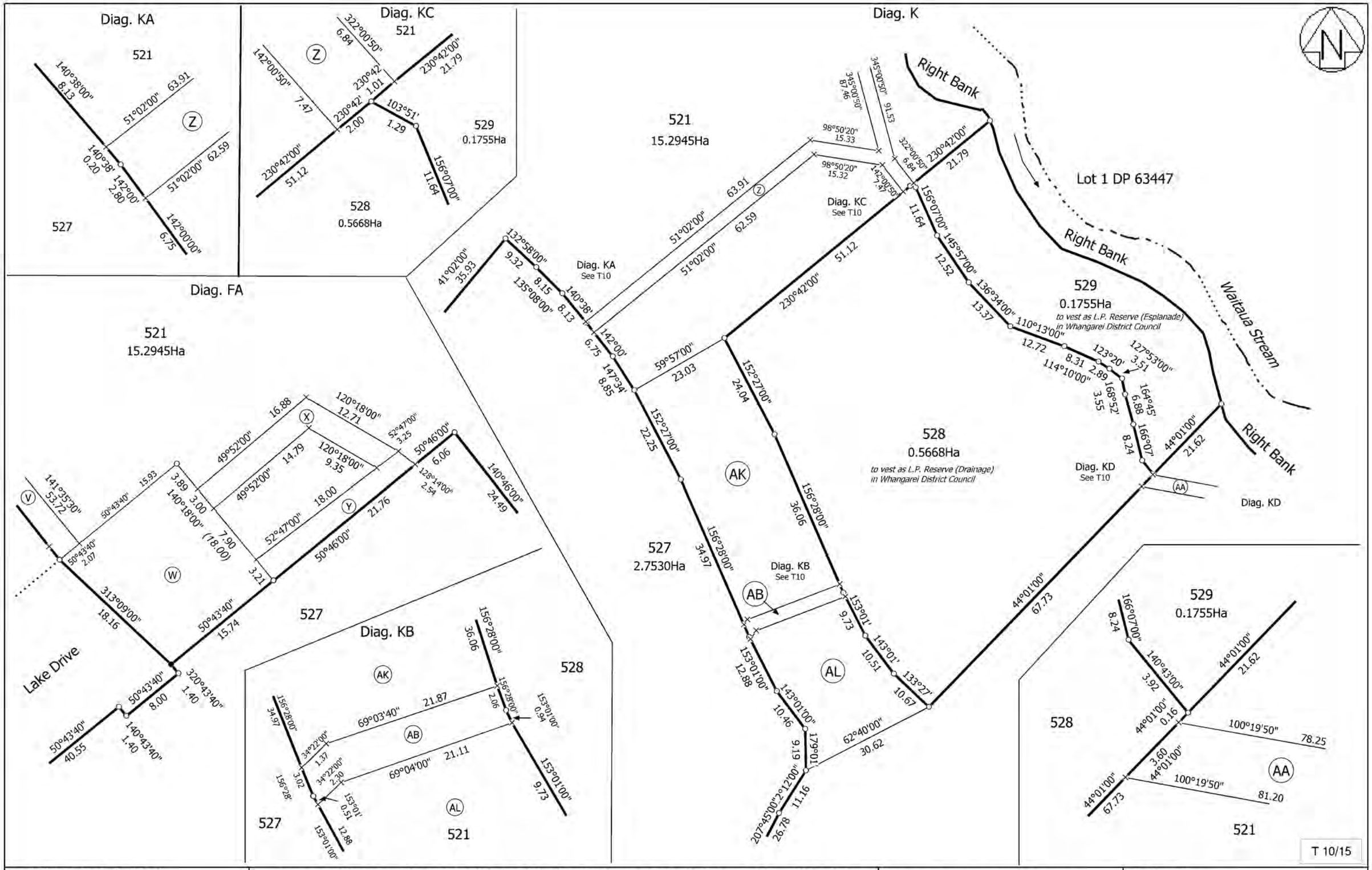
Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 16 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017



Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 17 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017



Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 18 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017



Land District: North Auckland

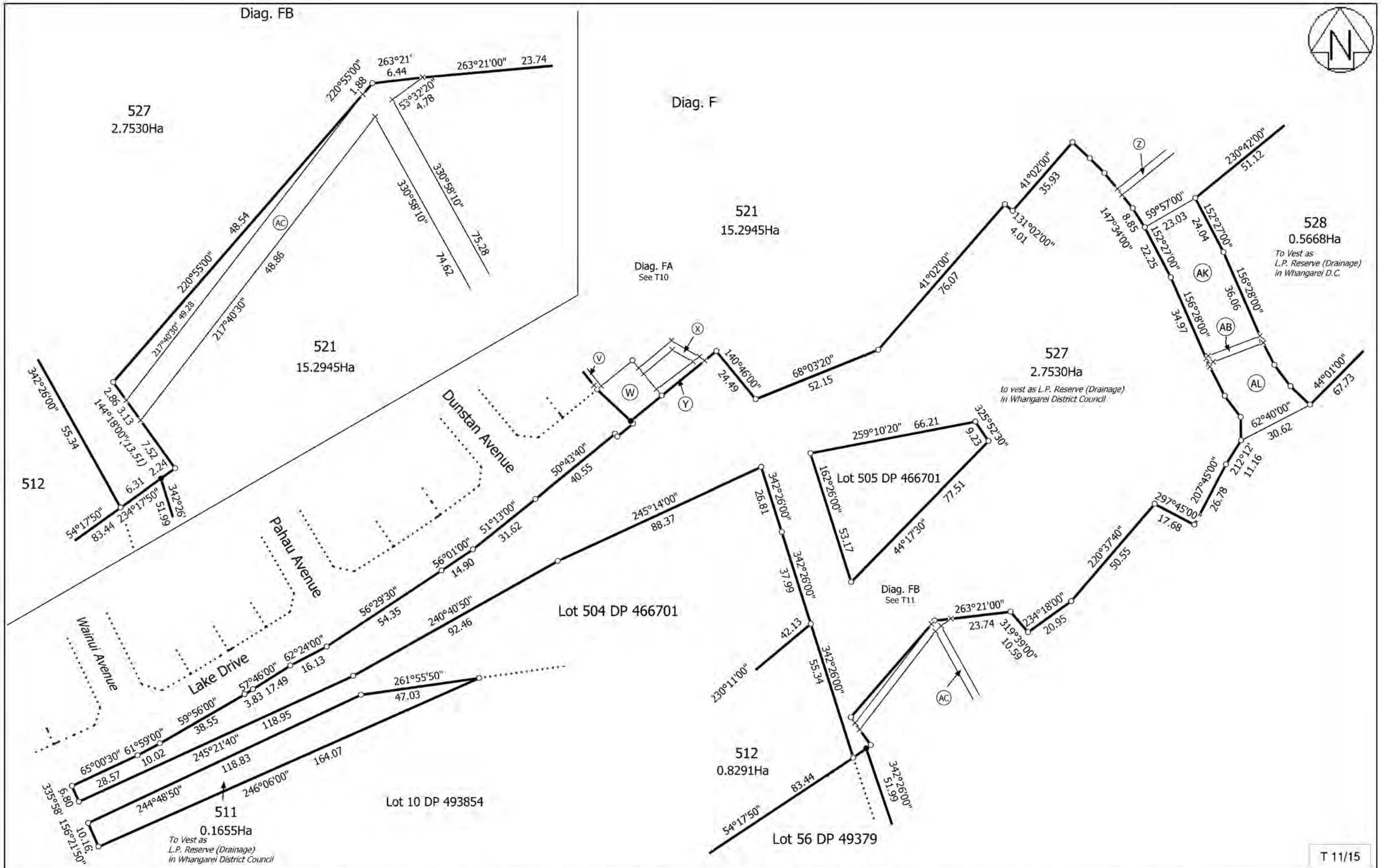
Digitally Generated Plan
Generated on: 27/07/2017 2:59pm Page 19 of 24

Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849

Surveyor: Charlotte Frances Nijssen
Firm: Blue Wallace Surveyors

Title Plan
DP 507433

Deposited on: 17/07/2017



Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 20 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017

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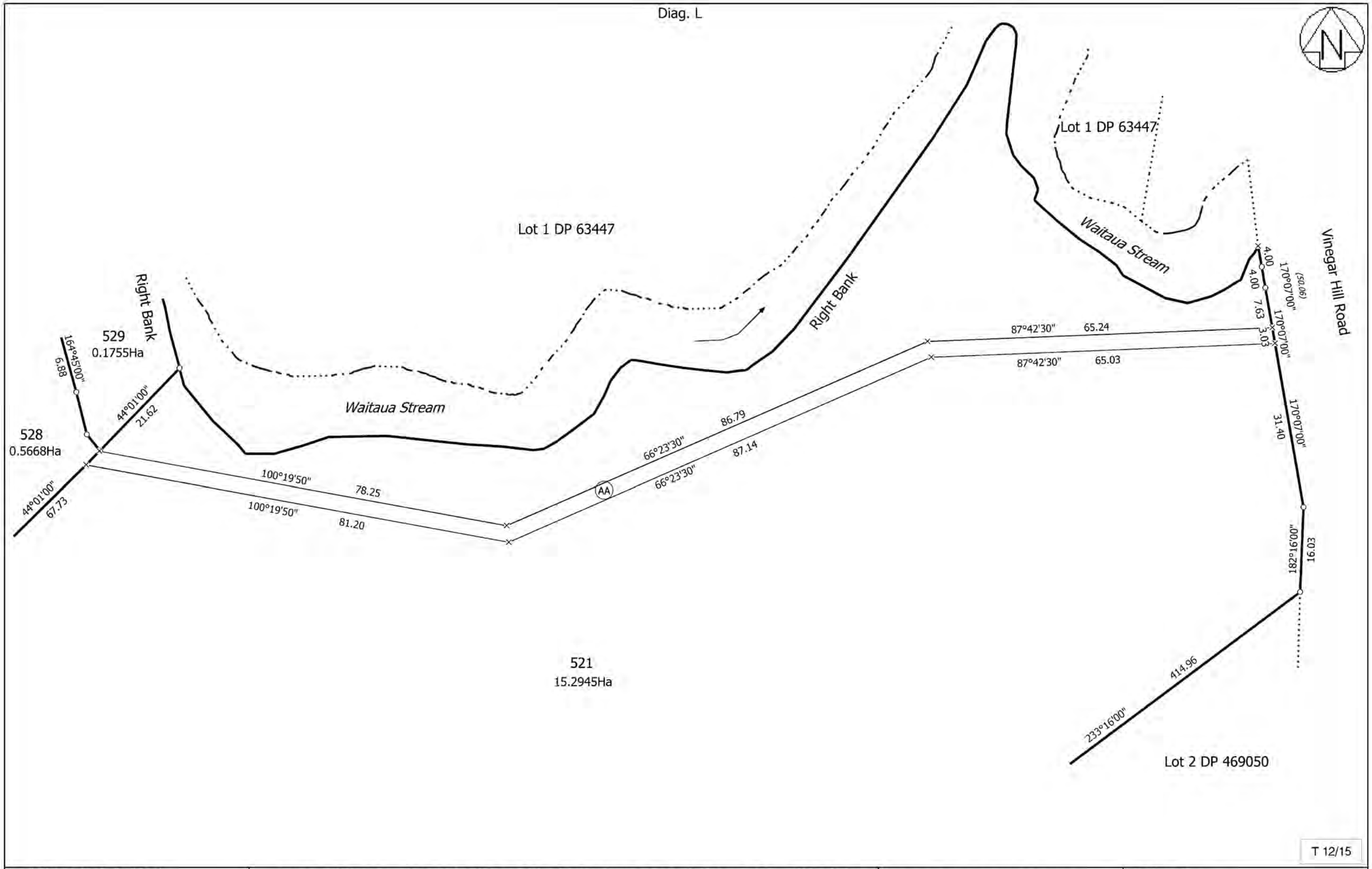

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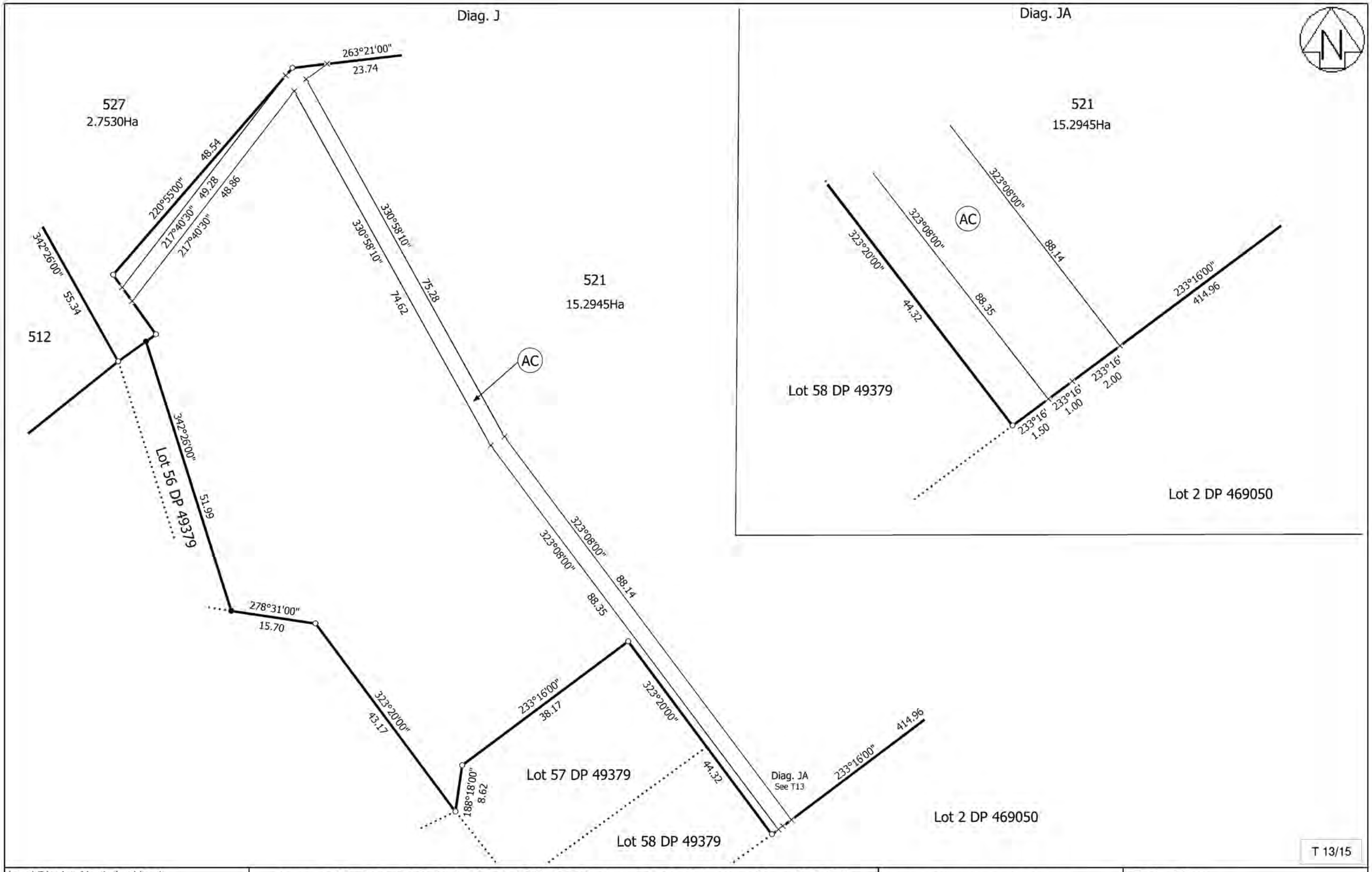
Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 21 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017



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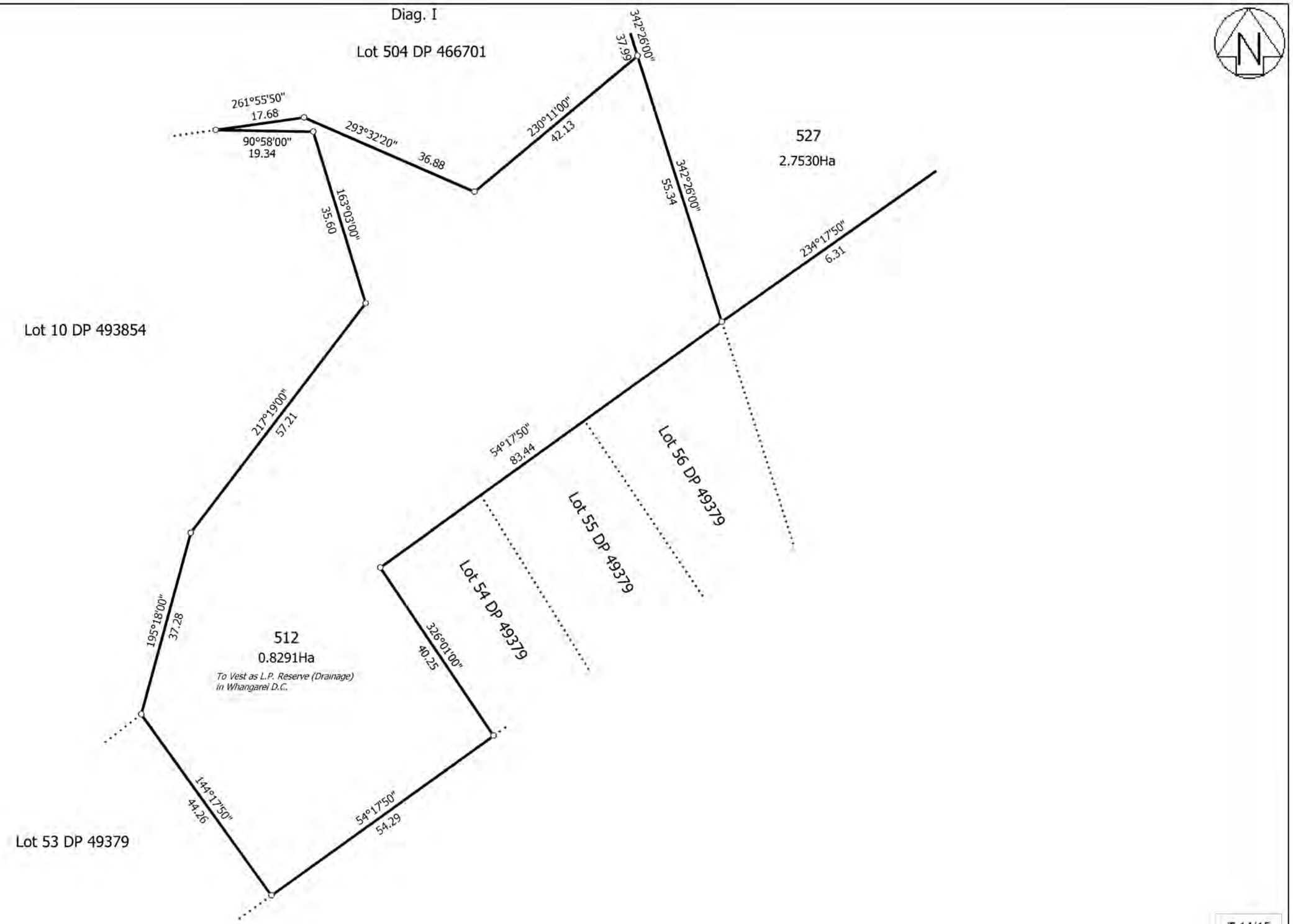
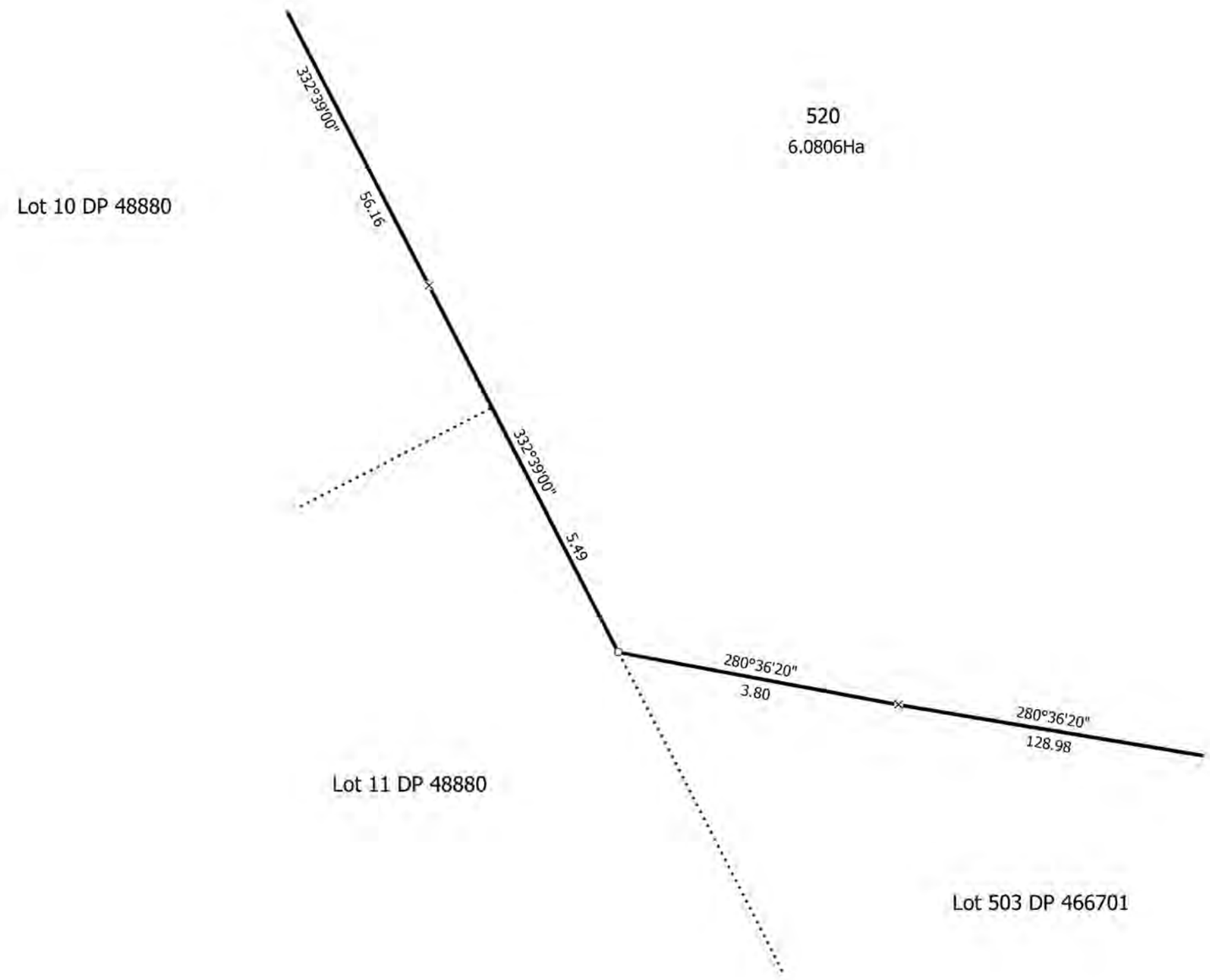
Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 22 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017



T 14/15

Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 23 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017



T 15/15

Land District: North Auckland Digitally Generated Plan Generated on: 27/07/2017 2:59pm Page 24 of 24	Lots 1-55, 511, 512 514-521 & 527-529 Being a Subdivision of Lot 509 DP 466701, Lots 511 & 512 DP 493854, Lot 554 DP 498155 & Section 2 SO 498849	Surveyor: Charlotte Frances Nijssen Firm: Blue Wallace Surveyors	Title Plan DP 507433 Deposited on: 17/07/2017

IN THE MATTER	of the Resource Management Act 1991 ("the Act")
A N D	
IN THE MATTER	of a subdivision consent as evidenced by Land Transfer Plan No. 507433
A N D	
IN THE MATTER	of a Consent Notice issued pursuant to Section 221 of the Act by **WHANGAREI DISTRICT COUNCIL** ("the Council")

IT IS HEREBY CERTIFIED that the following conditions to be complied with on a continuing basis by the subdividing owner and subsequent owners were imposed by the Council as conditions of approval for the subdivision as effected by Land Transfer Plan No. 507433 ("the plan")

1. The foundations of any building constructed on Lots 23 through 31 on the plan shall be designed in accordance with the restrictions and recommendations identified in the report 'Subdivision flood levels for Totara Parklands for minimum floor levels' ref: 7320 prepared by Ashby Consulting Engineering Limited dated September 2012, a copy of which is available from the Council under file reference SD1200080, such noting the location of instability and flood susceptible areas on the Council's Geographic Information Systems maps unless an alternative engineering report prepared by a suitably experienced chartered professional engineer is approved in writing by the Council.

2. Any development of Lots 1 through 55 shall comply with the restrictions and recommendations identified in the report 'Subdivision Baseline Geotechnical Investigation' ref 1050-125904-01 compiled by Harrison Grierson Consultants Limited dated June 2008, a copy which is available from Council under file reference SD1200080, unless an alternative engineering report prepared by a suitably experienced chartered professional engineer is approved in writing by the Council.

DATED at Whangarei this 10th day of JULY 2017

SIGNED for **WHANGAREI DISTRICT COUNCIL** pursuant to the authority of the Council given pursuant to the Local Government Act 2002 and the Resource Management Act 1991

R G Zucchetto

Authorised Signatory
Ricardo Giovanni Zucchetto
Post Approval & Development Contributions Officer

990436.326.69 gjm dy

Extract Copy

HARRISON GRIERSON

TASMASTER INVESTMENT LTD

Proposed Subdivision, 1a Gillingham Road, Kamo

Subdivision Baseline Geotechnical Investigation

[redacted]

June 2008
HG Ref 1050-125904-01
Doc Ref rep-til-GE001V2-mmk-jag

HARRISON GRIERSON CONSULTANTS LIMITED

Document Control Record

Client	TASMASTER INVESTMENT LTD
Project	Proposed Subdivision, 1a Gillingham Road, Kamo
HG Ref.	1050-125904-01
Doc Ref.	rep-til-GE001V2-mmk-jag
Document	Subdivision Baseline Geotechnical Investigation Report

ISSUE AND REVISION RECORD

Status	Final
Date of Issue	June 2008
Originator	Mark Kiryakos - Manager Geotechnical Engineering
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TASMASTER INVESTMENT LTD

Proposed Subdivision, 1a Gillingham Road, Kamo

Subdivision Baseline Geotechnical Investigation

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125904 GE 04 Cross Section D-D' Cross Section E-E'
125904 GE 05 Subdivision Areas and Flood Zones

1.0 INTRODUCTION

Harrison Grierson Consultants Limited (HGCL) was engaged by Tasmaster Investment Limited (Tasmaster) to undertake geotechnical investigation and assessment for proposed subdivision at 1a Gillingham Road in Kamo.

The investigation was undertaken in order to assess the subsurface conditions and to identify potential geotechnical issues and recommended solutions for the proposed subdivision. The objective of the investigation was also to provide geotechnical information to support Subdivision and Landuse Consent applications to the local Territorial Authority.

A geotechnical investigation was carried in December 2007 at this site followed by interpretation of the results and geotechnical assessment.

The investigation comprised a site walkover assessment, machine excavated test pits, machine borehole drilling and insitu testing. This was accompanied by a desk study and was followed by laboratory testing and engineering assessment. The site's current stability was assessed together with the site's suitability for development. The assessment took into consideration the Whanagarei District Council (WDC) requirements for subdivision consent.

This report presents the factual results of the investigation together with the results of the geotechnical assessment. The report summarises the evaluation of geotechnical constraints and provides engineering recommendations where appropriate.

2.0 SITE DESCRIPTION

2.1 LOCATION

The site is located approximately 1.5km North-East of Kamo Township and approximately 5km North of Whangarei Central Business District (CBD).

The site consists of three adjoining properties with a total area of approximately 57ha. The legal description of the site consists of three amalgamated titles.

These are:

- LOT 1 DP 389692
- LOT 2 DP 389692
- LOT 6 DP 1583

There is a paper road showing crossing the site towards the north. As shown in HGCL Drawing No. 125904-GE01, the site is irregularly shaped and is mostly

pastoral land. Residential properties border most of the site along the western and southern boundaries. Vacant land borders the site along the eastern portion of the southern boundary. There is a school on the south-western corner of the site, near a 90° bend along Corks Road.

The northern boundary is bordered by residential properties and vacant land. Along the eastern boundary, the meandering Waitaua Stream borders the site.

2.2 TOPOGRAPHY

The attached site plan (HGCL Drawing No. 125904-GE01) includes contour lines of the existing ground levels. The site is predominantly north and northeast facing and slopes moderately (average slope angles of 5° to 10°) from Gillingham and Corks Road towards Waitaua Stream, where it becomes reasonably flat. The site is divided into the following main areas of differing topographical features: (refer Drawing No. HGCL 125904-GE05).

- Area 1: The ground within the central part of the site, north of the watercourse, slopes generally at 5°. This area occupies approximately 50% of the site total area.

- Area 2: This is the area on the southern side of the watercourse behind the residential properties along Corks Street. The ground also generally slopes to the northeast at 5°.

- Area 3: The area within the south-eastern corner of the site. The ground generally slopes to the north at 5°. It is divided by a short watercourse which is identified in the WDC GIS map to be a potential flood zone. This flood zone extends to the site's southern boundary where it runs through vacant land.

- Area 4: The area within the north-western corner of the site. On average the ground slopes at 10°-15°. It is bordered by residential properties along the northern and western boundaries.

- Area 5: The area near the south-western corner below Lot 7 of DP 1583, which is currently occupied by a school, is sloping down towards the north and northeast by 10° and 5° respectively. The ground in this area has been identified in the WDC GIS map to be within a Mining Hazard Area 3.

- Area 6: A narrow watercourse runs through the middle of the site starting at the Corks Road end of the site, and runs the entire length of the site towards the east. The ground on both sides of the watercourse has moderate to steep sloping ground (10° to 20°) towards the watercourse within the upper portion of the watercourse. The ground in this area has been identified in the WDC GIS map to be within a potential flood zone as well as a Mining Hazard Area 3 area.

- Area 7: The ground on both sides of the watercourse becomes moderately sloping (5° to 10°) along the majority of the watercourse until it joins up with the Waitaua Stream. This area has been identified in the WDC GIS map to be within a potential flood zone.

- Area 8: This is the area along the western bank of the meandering Waitaua Stream, which is rather complex, with the ground topography varying from a flat to a steeply sloping topography towards the stream. Steep banks are present at some locations with slope angles of up to 20°. This area has been identified in the WDC GIS map to be within a potential flood zone. There are some trees leaning towards the stream or growing in a curved direction due to slope movement downslope or towards the stream.

Basalt outcrops were observed at various locations along the Waitaua Stream as well as within the lower portion of the watercourse. Basalt boulders were observed at various locations within the north-eastern portion of Area 1 as well as within Waitaua Stream and the lower portion of the watercourse.

The locations of the above areas are shown on the attached HGCL Drawing No. 125904-GE05.

2.3 DRAINAGE AND FLOODING

The site generally drains into the above-mentioned watercourse and also directly into the Waitaua Stream. No evidence of surface water ponding was observed throughout the site except for the low-lying areas in the immediate vicinity of the watercourse and Waitaua Stream as well as areas near the water troughs and dirt track in the centre of the site.

No flood assessment has been carried out as part of the investigation. However, the GIS maps of the WDC indicate a potential flood zone along the banks of the Waitaua Stream and the watercourse as discussed in Section 2.2.

2.4 VEGETATION AND TREES

At the time of fieldwork, the site was predominantly vegetated by pasture. Shrubs and mature small and large trees are located along the boundaries and along the watercourse and stream. Groves of tall Totara trees were also scattered around the site with the main grove located towards the north-eastern end of the site. These were roughly twenty to thirty meters in height. Some other small and large trees were found scattered throughout the site.

2.5 EXISTING STRUCTURES

The site is currently vacant, mostly covered in fenced grass paddocks used for grazing cattle. Although the site appears cleared of most of the original native

vegetation, it does not appear to have been developed for any other use in the past.

There is a residential building and garage located at the Gillingham Road entrance. A large shed is located near the Gillingham Road entrance, which is used to house farm equipment and a tractor. There is also a very large hay shed located amongst the large grove of Totara trees towards the north-western section of the site.

For ease of access of livestock and farm machinery the watercourse is bridged in places by concrete culverts. The remains of what appears to be an old concrete weir were observed within the south-eastern portion of the stream.

Water troughs are scattered throughout the site, which are fed by black 30mm diameter PVC flexible piping, which runs down the centre of the site from the entrance, off Gillingham Road.

The presence of an approximately 100mm diameter PVC pipe was noted running from the centre of the site down slope towards the south of the site and exiting near the watercourse. This most probably is transporting ponding water that collects near the livestock water troughs and dirt track in the centre of the site.

A WDC GIS map shows a municipal concrete sanitary sewage pipe is connected to the residential properties along Corks Road and Gillingham Road. The pipe is approximately 400mm in diameter, generally buried beneath the ground surface at varying depths and connected by a series of manholes. The pipe is exposed above ground at various sections along its route where the grounds elevation is too low. This is notable in the north-eastern portion of the site where Waitaua Stream enters the site.

The pipeline runs along the north-eastern boundary of the site, along and crossing Waitaua Stream. The pipeline is supported above ground on concrete piers and is bridging a low-lying section of the stream.

A similar pipeline runs along the bottom of the watercourse joining up with the northern end pipeline where the watercourse joins the Waitaua Stream. Another pipeline runs along the boundary line on the north-western corner of the site where a section of the pipeline runs along the boundary parallel to Gillingham Road. There is also a section of a sanitary sewage pipeline that runs along the boundary parallel to Corks road that leads into the adjacent school property site.

3.0 PROPOSED DEVELOPMENT

The proposed development is understood to consist of a residential subdivision comprising residential lots of varying sizes.

It is also understood that it is intended to preserve the existing watercourse and the trees near the north-western corner. The access to the future subdivision will be via vacant access lots on the site's western and southern boundaries, as shown on the attached site plan. Typically, internal roads and Rows' will be required to access the subdivision lots.

In order to undertake the proposed development, some earthworks will typically be required involving cut and fill operations to prepare building platforms and the internal roads. Bridges or culverts may be required to allow vehicle access over the existing watercourse as well as connections to the underground services.

Given the size of the site drainage measures will also be required and are envisaged to utilise the existing watercourse and Waitaua Stream.

4.0 EXISTING DEVELOPMENTS IN THE VICINITY OF THE SITE

Residential properties are present along the site's south-eastern and south-western boundaries as well as along the north-western boundary. The types of buildings vary from lightweight timber frame structures to brick and tile ones.

A new subdivision has been developed near the north-western boundary. The types of buildings under construction were brick and tile over a slab on grade on likely a rib-raft foundation system. The new development included minor cut and fills for the building platforms.

There is also the possibility, since the land is being used as pasture and grazing land, the presence on site of buried silage pits, offal pits, buried animals, dips and rubbish pits even though none were found during the investigation.

5.0 GEOLOGY

In assessing the geology of the site we have referred to the following geological map:

- White, P.J.; Perrin, N.D. 2003. Geology of the Whangarei Urban Area. Scale 1:25000. IGNS Geological Map 26, Lower Hutt, New Zealand.

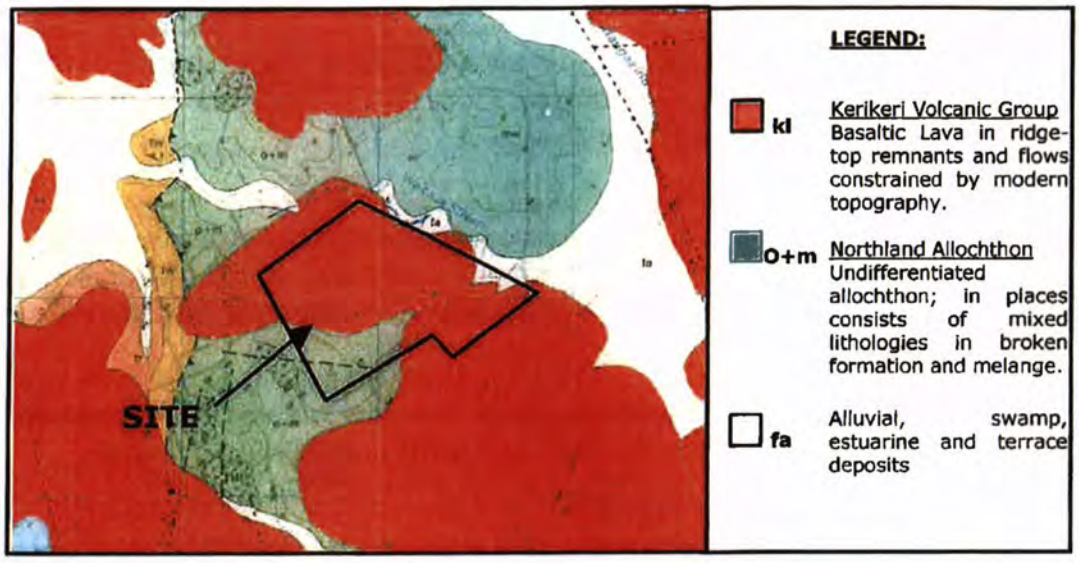

Figure 1: Geological Map of the Site from IGNS, Map 26, 1:25000, 2003.

The geological map, as shown in Figure 1, indicates that the area to the north of the watercourse and bordered by Waitaua Stream is underlain by basaltic lava of the Kerikeri Volcanic Group. On the southern side of the watercourse the site is inferred to be underlain by undifferentiated Northland Allochthon. The formation can include material of the Motatau Complex and the Mangakahia Complex. These materials consist of a mixture of sheared and shattered muddy limestone, calcareous sandstone and mudstone, as well as siliceous mudstone. Alluvial soils including swamp deposits are also shown to be present along the banks of the Waitaua Stream along the site's eastern boundary.

According to the geological map, the age of Kerikeri Volcanic Group has been estimated as Late Pliocene (5-1.8 million years ago) to Late Pleistocene (1.8 to 10,000 years ago). The Northland Allochthon is much older with the age estimated as Early Cretaceous (144 to 65 million years ago) to Early Oligocene (34-24 million years ago). The alluvial deposits are estimated as Pleistocene age.

Areas shown in the geological map to be historic landslides with unknown ages have been identified on the other side of Gillingham Road near the site northeast and southwest corners. The map also shows a short fault line to the southwest of the site, running mostly within the school and extending into the site's south-western corner. There is no available information at the time of writing to indicate whether the fault is active. The fault has not been listed in the GNS "Active Faults Database Web Map".

6.0 EVIDENCE OF INSTABILITY

No signs of large mass movement on the site were noted. However, numerous shallow-seated slumps and minor erosion channels were observed in the vicinity of the watercourse and Waitaua Stream. The following is a summary of the observations made and assessment made by WDC for each area on this site.

- Area 1: No obvious signs of land instability were observed.
- Area 2: No obvious signs of land instability were observed.
- Area 3: No obvious signs of land instability were observed.
- Area 4: No obvious signs of land instability were observed. However, the site is assessed to have a potential for land movement.
- Area 5: This area has been identified in the WDC GIS map to have minor potential for instability and to be within area designated as Mining Zone 3.
- Area 6: The ground within this area has been identified in the WDC GIS map to have moderate potential of instability and to be within an area designated as Mining Zone 3. Evidence of previous instability was observed in the form of steep slopes and erosional features near the edges of the watercourse.
- Area 7: Evidence of previous instability was observed in the form of steep slopes, and erosion features along the edges of the watercourse.
- Area 8: Evidence of previous instability was observed in the form of near vertical slopes, small amphitheatre shaped erosion features, translational slides and slip/slump debris.

7.0 FIELDWORK

7.1 METHODS

The fieldwork phase of the geotechnical investigation was carried out during the period of 10 to 20 December 2007. It comprised of a site walkover assessment, the excavating of 41 test pits and 5 machine drilled boreholes. Approximate test pit and machine borehole locations can be found on the attached Harrison Grierson Consultants Limited Drawing No. 125904-GE01.

The fieldwork was carried out under the direction of a Geotechnical Engineering Engineer and Technician, who nominated sampling and testing depths, and logged the recovered soil and rock cores. The descriptions of the soils and rocks were logged in accordance with the New Zealand Geotechnical Society (NZGS) Guidelines for Soil and Rock Descriptions.

7.2 MACHINE BOREHOLES

The machine drilled exploratory boreholes were advanced using rotary coring techniques, with in-situ testing by Standard Penetration Test (SPT).

SPT comprises the measurement of the penetration resistance of the soil or rock to a 60kg hammer falling 760mm driving a 50mm diameter split sampler tube or solid nose cone. The number of blows to drive an initial 150mm (for "seating" the apparatus into the testing stratum) is recorded, and similarly the number of blows required to drive the next two increments of 150mm is also recorded.

The number of blows required to drive 300mm following the seating is summed as the Raymond (or "N") number. In cases where the hammer is bouncing on the anvil, and where the resistance results in negligible penetration, or where the total number of blows following "seating" reaches 50, then "SPT refusal" is deemed to have occurred. This is not intended to imply that rock has been encountered, however.

7.3 MACHINE EXCAVATED TEST PITS

The test pits were to be excavated to a target depth of 5.0m below the existing ground level, with in-situ shear vane readings taken on undisturbed soil samples at nominal intervals of 0.5m. The shear vane values obtained from in-situ testing are shown on the attached borehole logs.

7.4 SOIL SHEAR STRENGTH

Shear Vane testing provides a measure of the in-situ shear strength of the soil. The peak and remoulded shear strengths were measured, and the dial readings were corrected in accordance with BS1377. The results are reported in terms of undrained shear strength (c_u, in kPa).

It is important to note, that shear vane testing is only appropriate in soils exhibiting cohesive properties (i.e. clays and silts), shear vane readings in granular soils are not applicable.

In instances where the vane could not be pushed the required 70mm into the intended soil stratum, a strength designation of UTP (Unable To Penetrate) is assigned. On the logs, this is recorded as approximately 229+UTP.

7.5 PIEZOMETERS

Standpipe piezometers (50mm PVC) were installed in two machine boreholes (MB02, and MB03) and were screened from 1.5m and 2.0m bgl respectively to 7.0m bgl. The standpipe piezometers were installed in order to monitor groundwater conditions that may be influential during construction and to assist in stormwater design.

8.0 LABORATORY TESTING

Laboratory testing in accordance with New Zealand Standards NZS 4402:1986 "Methods Of Testing Soils For Civil Engineering purposes" has been carried out by *geolab* (the trading name of the soil laboratory of Harrison Grierson Consultants Limited) on selected samples from the boreholes and test pits. The following tests were carried out:

- Four Particle Size Distribution (hydrometer method) tests
- Four sets of Atterberg Limits and Linear Shrinkage tests
- Three Clay Index tests
- Three Standard Compaction tests

Details of the sample depths and the test results are summarised in tables 4 and 5 in Appendix 1. The full test reports are attached as Appendix 3.

The basic objective of particle size analysis is to determine the composition and distribution of particle sizes within the soils sampled. The objective of the Atterberg Limits, Linear Shrinkage and Clay Index tests is to determine the engineering characteristics of the soils. Standard Compaction tests were undertaken in order to determine the optimum compaction parameters, such as the maximum dry density, optimum moisture content and the relevant percentage of air voids that will be required to set a compaction specification.

The laboratory test results are discussed in the following sections for assessing the characteristics of the subsurface soils, the geotechnical constraints and the engineering solutions.

9.0 GROUND CONDITIONS

9.1 GEOTECHNICAL PROFILE

The results of the machine borehole and test pit investigations were used to assess the ground conditions at this site. Based on the borehole and test pit data there appears to be some discrepancy between the actual ground conditions and the published geological map in some areas of this site. The actual ground conditions encountered are more complex than what is shown in the geological map. The typical soils recovered during the investigation are inferred to be predominantly ash and alluvial soils. The alluvial soils are inferred to be derived from the insitu ash and residual Northland Allochthon soils. Residual soils of the Northland Allochthon Group were encountered. Basalt of the Kerikeri Volcanic Group was encountered at some locations underlying alluvial and ash soils. Siltstone of the Northland Allochthon was also encountered at some locations. Alluvial soils were also encountered overlying

residual soils of the Northland Allochthon in some locations and basalt cobbles and boulders in some other locations. No obvious voids (cavities) were encountered in the investigative boreholes and test pits, in areas 5 and 6 in particular, where these areas are designated to be within a Mining Zone 3 area.

The depositional model of the site, post the deposition of the Northland Allochthon is inferred to include the following:

- The site was underlain by Northland Allochthon residual soils overlying Northland Allochthon rock. Two paleo-gullies were inferred along the existing watercourse and the Waitaua Stream. Residual Northland Allochthon soils were encountered in the borehole (MB02) drilled in the north-western portion of the site.

- Following a regional volcanic event, basalt lava infilled the paleo-gullies which covered the entire areas 3 and 8 as well as the eastern portions of areas 1, 2 and 7. The basalt lava extended to the middle portions of areas 1 and 2 as encountered in boreholes MB03 and MB04.

- Some basalt cobbles and boulders were deposited in the watercourse and Waitaua Stream (areas 7 and 8) and Area 3.

- Alluvial soils derived from Northland Allochthon soils were deposited over the basalt lava and covered the majority of the site.

- Ash soils were deposited on site following another volcanic event in the region. Thick ash deposits are present within area 4 and the western portion of Area 1.

- Alluvial soils derived from volcanic ash were deposited over the basalt lava and covered the majority of the site.

The ground conditions encountered in each area are summarised below:

- Area 1: The majority of the site is underlain by ash over alluvial (Northland Allochthon derived) deposits overlying residual Northland Allochthon at depth. Within the eastern portion, the ground conditions comprise thick alluvial deposits overlying basalt at depth.

- Area 2: The site within the western portion is underlain by ash over alluvial (Northland Allochthon derived) deposits overlying residual Northland Allochthon at depth. Within the eastern portion, the ground conditions comprise thick alluvial deposits overlying basalt at depth.

- Area 3: Thick alluvial deposits (Northland Allochthon and volcanic ash derived), gravely cobbles and boulders, and possibly basalt lava at some locations, at depth.

- Area 4: Ash over alluvial (Northland Allochthon derived) deposits overlying residual Northland Allochthon at depth.
- Area 5: Ash over alluvial (Northland Allochthon derived) deposits overlying residual Northland Allochthon at depth.
- Area 6: Ash over alluvial (Northland Allochthon derived) deposits overlying residual Northland Allochthon at depth.
- Area 7: Alluvial deposits (Northland Allochthon and volcanic ash derived) overly cobbles and boulders, and possibly basalt lava at some locations, at depth.
- Area 8: Alluvial deposits (Northland Allochthon and volcanic ash derived) as well as swamp deposits were encountered along the banks of the Waitaua Stream. Numerous basalt boulders were observed scattered throughout the banks of the stream. Basalt outcrops were also observed at some locations along the western bank of the stream.

The geotechnical profiles throughout the site are represented by cross sections A-A' through E-E', inclusive. The locations of these cross-sections are shown on the attached HGCL Drawing No. 125904-GE01. The cross sections are shown on the attached drawings 125904-GE02 to GE04 inclusive.

9.2 CHARACTERSITICS OF MATERIALS ENCOUNTERED

The following is a brief characterisation of the soils encountered in the boreholes and test pits.

Topsoil

Topsoil was encountered in the all investigative boreholes and test pits, with layer thicknesses ranging from 100mm at most of the tests locations to 500mm in TP22. The topsoil encountered was generally described as organic silt with trace to minor amounts and clay, dark brown in colour, low to moderately plastic and moist. The topsoil is typically a weak material that will require removal from the footprint of any development apart from landscaping.

Volcanic Ash

Thick deposits of the Kerikeri volcanic ash were encountered in the majority of the boreholes and test pits carried out to the north of the watercourse. The material is generally described as brown to orange silt with minor clays. The insitu shear strength measurements in the boreholes and the test pits in the ash were generally high indicating a stiff to very stiff consistency. The material was described to have a low to moderate plasticity and a moderate sensitivity.

Two ash silt samples were tested in the laboratory (TP12 at 1.0m bgl and TP40 at 1.0m bgl). The results indicate high Liquid Limits (76 and 82%) as well as high Plasticity Indices (37 and 35) for these samples respectively. The Linear Shrinkage for these samples was 19 and 17 respectively. The grading test results confirm the classification of the soils to be clayey sandy silt with clay content in the order of 35%. The Clay Index was 6.2 and 5.7 respectively. The clay content will significantly influence the engineering properties of the ash. The permeability of the silts is therefore assessed to be moderate.

Three standard compaction tests were carried out on samples of TP12 at 1.0m bgl, TP29 at 1.25m bgl and TP40 at 1.0m bgl. The results indicate optimum moisture content (OMC) ranging from 32.5 to 44%, and maximum dry density (MDD) ranging from 1.18 to 1.26t/m^3. The laboratory test results indicate that the natural moisture content ranges from 43 to 51%.

Based on the borehole and test pit data, the compressibility of the ash soils at this site is assessed to be generally moderate.

Alluvial Soils

The majority of the alluvial soils encountered in the boreholes and test pits are derived from Northland Allochthon soils. Alluvial soils derived from volcanic ash were also encountered in the low-lying areas. The characteristics discussed here are for the Northland Allochthon derived alluvials.

These Northland Allochthon derived alluvial soils comprise of silts and clays, which were encountered in the majority of the boreholes and test pits underlying the topsoil and ash soils to variable depths throughout the site. The material can be described to be generally brown in some areas and creamy grey in colour in some other areas.

The silts had a variable content of sands and clays intermittently throughout the depth of the boreholes in the test pits. The silts were described to have generally low to moderate plasticity. The clays were described to be generally highly plastic. Two clay samples were tested in the laboratory (MB01 at 8.0m bgl and MB03 at 5.0m bgl). The results indicate very high Liquid Limits (103 and 130%), very high Plasticity Indices (75 and 99) for these samples respectively. The Linear Shrinkage for these samples was high, 20 and 22 respectively. The Clay Index of sample MB01 at 8.0m was 16.5.

The Northland Allochthon residual soils typically include montmorillonite rich clays (in the siliceous soils in particular). These soils are typically highly plastic and have a high susceptibility to shrinkage and swelling with change to the soil moisture content. The alluvials are assessed to retain the properties of the residual soils. The results of the laboratory testing on (MB01 at 8.0m bgl and MB03 at 5.0m bgl) confirm this assessment.

The Residual Northland Allochthon soils are known for their low shear strength and high tendency to creep at relatively moderate slope angles. However, the shear strength measurements in the boreholes and the test pits were generally high indicating a stiff to very stiff consistency with soil sensitivities generally being insensitive to moderately sensitive (<2 to 4). Area 5 and 6 had a sensitive (4 to 8) soil layer between 2.0 and 2.5m bgl as well as the lower regions of area 1 at a depth of 1.5 to 2.0m bgl. Area 3 exhibited an extra sensitive (8 to 16) layer at 2.0m bgl in places. Low shear strengths were recorded in some of the boreholes and test pits, as well as low SPT 'N' values, which indicate the presence of soft zones underlying the site.

The grading tests on the clays indicate a clay content of up to up to 70%. Due to the cohesive nature of the materials of the Northland Allochthon, they typically have low permeability.

Alluvials soils derived of the volcanic ash are also assessed to retain some of the properties of the insitu soils. These soils are much younger than the Northland Allochthon derived alluvials. They are assessed to be generally weaker and have higher susceptibility to erosion in comparison to the Northland Allochthon derived alluvials.

Alluvial soils within shallow depths below ground level are typically normally consolidated. Based on the borehole and test pit data, the compressibility of the alluvial soils at this site, except soils within areas 7 and 8, is assessed to be generally moderate. Within areas 7 and 8, the shallow depth alluvial soils are assessed to have high compressibility.

Cemented Silt

A hard whitish grey silt layer was encountered in some of the test pits that were located randomly scattered on both sides of the watercourse within the central and western portions of the site (TP13, TP15, TP18, TP20, TP22, TP23 and TP27). This layer was initially thought to be residual soils of the insitu Northland Allochthon material. However, as basalt rock of the Kerikeri Formation was encountered below this material in borehole MB03 and MB04, the material was inferred to be possibly cemented calcareous silts of Northland Allochthon derived alluvials.

Residual Northland Allochthon

Residual soils of the Northland Allochthon were not clearly identified in the boreholes and the test pits. However, it was encountered at approximately 9.0m bgl in borehole MB02. The material was characterised by its blocky fabric and the high SPT 'N' values, which ranged between 16 to 28 blows/300mm. These soils are assessed to be very stiff and have low compressibility.

Northland Allochthon rock was not encountered in any of the boreholes and test pits carried out at this site during this investigation.

Cobbles and Boulders

Basaltic rounded and sub-rounded cobbles and boulders were encountered in the test pits that were positioned in areas 3, 7 and 8, particularly in the flood potential zones. The test pits that cobbles and gravels were encountered are; TP01, TP03, TP06, TP08, TP11, TP26, TP28, TP30, TP31, TP32 and TP38.

Refusal was encountered at shallow depths during the excavation of some other test pits positioned in areas 3, 7 and 8. As no samples of the hard material were recovered, the hard material was inferred to be either basalt lava or a matrix of cobbles and boulders. These test pits are; TP02, TP04, TP05, TP07, TP10, TP12 and TP14. TP12 is positioned within the lower portion of Area 2.

These cobbles and boulders are believed to be present in matrix of alluvial soils underlain by the Kerikeri Group Basalt. The boulders in some test pits were able to be excavated however some of the tests pits were ended at shallow depths due to the presence of large numbers of cobbles and boulders that were encountered.

The material will present a problem for foundation excavations if encountered at shallow depth. Although a matrix of cobbles and boulders should generally provide a suitable platform for buildings and embankments, construction would be accompanied with some risk if soft alluvial deposits underlay the cobbles and boulders. This is assessed to be possible in areas 7 and 8.

Basalt

Basalt of the Kerikeri Volcanic Group was encountered at approximately 9.3 and 8.9m bgl in boreholes MB03 and MB04 respectively. Basalt was also inferred to be underlying the cobbles and boulders and/or at the refusal depth encountered in the test pits positioned in areas 2, 3, 7 and 8, as is discussed above.

The basalt lava flow is described as dark grey, strong and moderately to slightly weathered. The measured SPT 'N' values were significantly greater than 50 blows/300mm. Rock Quality Designation (RQD) of the basalt lava was measured to be generally high. Based on our experience, the unconfined compressive strength of basalt is typically high (greater than 3000kPa).

9.3 GROUNDWATER

The depths of the groundwater level as encountered in the test pits and machine boreholes during the fieldwork are recorded in Table 4 in Appendix 1. It should be noted that the investigation was carried out during a period of heavy rain. However, summer 2007 was relatively a very dry season.

Typically, groundwater levels measured in machine boreholes immediately after drilling may not be accurate due to the use of drilling water. Standpipe piezometers were installed in boreholes MB02 and MB03 following drilling. The groundwater level can be measured and monitored to measure the actual groundwater levels. The groundwater levels measured in the test pits are more accurate and were used in establishing inferred groundwater levels shown in the geotechnical cross sections A-A', B-B' and C-C'. It is important to note that groundwater levels and flows are transient, and are affected by such factors as soil and rock permeability, integrity of buried services and preceding climatic conditions.

Below is a general assessment of the likely depth of the groundwater level below the existing ground level in each area established based on the borehole and test pit data:

- Area 1: 4.0 to 5.0m bgl.
- Area 2: 4.0 to 5.0m bgl.
- Area 3: 4.0 to 5.0m bgl in the high areas and 1.0 to 2.0m bgl in the low-lying areas.
- Area 4: 4.0 to 5.0m bgl.
- Area 5: 3.0 to 4.0m bgl.
- Area 6: 4.5 to 5.0m bgl. The groundwater level is expected to be shallower closer to the watercourse.
- Area 7: 2.0 to 3.0m bgl. The groundwater level is expected to be shallower closer to the watercourse.
- Area 8: Generally between 3.0 and 5.0m bgl above the bank. The groundwater level is expected to be shallower closer to the stream.

As mentioned, the groundwater level is expected to be shallower in some locations (areas 6, 7 and 8). This is basically due to the test pits being excavated at some distance away from the water and also due to the presence of impervious mantle of alluvial and residual soils overlying the porous basalt and basalt cobbles and boulder matrix.

10.0 GEOTECHNICAL ASSESSMENT

10.1 GENERAL

The geotechnical assessment and recommendations contained below relate to the existing ground conditions with reference to the inferred concept of the

subdivision development. In this assessment, consideration was made to the requirements of WDC in terms of site stability and suitability for development.

10.2 STABILITY

A qualitative assessment was carried out for the stability of the existing ground profiles on site. A similar approach was used for assessing the stability of the envisaged earthwork profiles of the proposed development as limited earthworks are envisaged to be undertaken as part of the subdivision development and no major cutting and filling will be required.

As discussed in sections 2.2 and 6.0, there are numerous features indicating previous creep movement in the shallow soils towards the watercourse and Waitaua Stream (areas 7 and 8). As these areas are within a flood zone, no development is expected to take place, unless a detailed assessment was carried out. Any earthworks within these areas should be subject to careful assessment and design to avoid influencing the flood capacity of theses zones.

Area 4 has been assessed to be relatively steep. Although no signs of instability were observed, earthworks in this area should be limited to minor reshaping to avoid any risk of instability to the adjacent properties that may result from cutting. There are also areas 5 and 6, which are highlighted by the WDC GIS map to have potential of instability and to be within an area designated as Mining Zone 3. Development in area 6 should be restricted. However, should any cutting be required, earth retention systems (retaining walls) or slope mitigation measures (such as counterfort drains, or palisade pile in-ground wall) will likely be required for both areas.

For areas 1, 2 and 3 the stability of the existing ground profiles appear to be stable at this stage. As limited earthworks are envisaged to take place, we don't envisage that there will be any instability issues for development in these areas.

Nevertheless, due to the site being predominately underlain by Northland Allochthon derived alluvial soils, it would be prudent to allow for creep in the design of earthworks near the boundaries of all the eight areas categorised in this report. It would also be prudent to design any above and belowground structure for the potential of creep within the alluvial soils.

10.3 POTENTIALLY COMPRESSIBLE GROUND

The natural soil strata encountered at the site was assessed to be generally moderately compressible. However, highly compressible soils are present in areas 7 and 8. As no development will take place within these areas (unless a detailed assessment is carried out), no assessment has been undertaken to estimate the potential consolidation settlement in soils within these areas.

Typically, further assessment will be undertaken of the ground settlement issue by a geotechnical engineer during construction. If soft alluvial soils and non-engineered fill is encountered during earthworks, depending on the thickness of the deposits, the materials should be:

- Excavated and either sorted or removed from site and replaced/compacted to the design level with additional soils sourced onsite, or
- The materials are improved by methods such as preloading or dynamic compaction.

10.4 BEARING CAPACITY

Except areas 7 and 8, the subsurface soils are assessed to have in general a geotechnical ultimate bearing capacity of 300kPa for shallow foundations founded at 0.6m below the existing ground level. The allowable and dependable bearing capacity is assessed to be 100kPa and 150kPa respectively.

As limited earthworks is envisaged to take place as part of the site development, this assessment will still apply for shallow foundations in areas 1 to 6, subject to further investigation and assessment for each building platform.

If pile foundations will be required, for bridges crossing the watercourse for instance or for buildings, piles can be designed to geotechnical ultimate end bearing capacity of 540kPa if embedded in soils. The allowable and dependable end bearing capacity is assessed to be 270kPa and 180kPa respectively. The geotechnical ultimate shaft resistance is estimated to be in the order of 40kPa. The allowable and dependable shaft resistance is assessed to be 20kPa and 13kPa respectively.

10.5 EXPANSIVE SOILS

Expansive soils are clays and silts that undergo significant volume change (swelling and shrinking) in response to changes in the soil moisture content.

The effect of such changes is to cause distortion of inflexible construction materials due to desiccation and shrinkage of the surface layers, with the consequent loss of support. Such effects can generally not be entirely eliminated, but with careful design and choice of appropriate building materials, they can be minimised.

With reference to NZS3604: 1999 "Light Timber-Framed Buildings", soils with Liquid Limit (LL) greater than 50% and Linear Shrinkage (LS) greater than 15% are classified as expansive.

As discussed in Section 9.2, both the ash and alluvial soils (whether ash or Northland Allochthon derived) are assessed to be expansive based on the Liquid

Limit and the Linear Shrinkage determined on samples of both materials tested. The ash silt samples are classified as moderately to highly reactive (M to H) soils, "which can experience moderate to high ground movement from moisture change". The Northland Allochthon clay samples are classified as highly reactive (H) soils, "which can experience high ground movement from moisture change".

The potential effects of expansive soils must therefore be taken into consideration in the foundation design of residential buildings on this site.

10.6 COMPLIANCE WITH THE DEFINITION OF "GOOD GROUND"

Residential buildings for the proposed subdivision development will typically be in accordance with NZS3604: 1999 "Light Timber-Framed Buildings". NZS 3604:1999 includes details for "standard" footings constructed on "good ground". The definition of "Good Ground" in NZS3604: 1999 is as follows:

"Any soil or rock capable of permanently withstanding an ultimate bearing *capacity of 300kPa (i.e. an allowable bearing pressure of 100kPa using a factor of safety of 3.0), but excludes":*

a) Potentially compressible ground such as topsoil, soft soils such as clay which can be moulded easily in the fingers, and uncompacted loose gravel which contains obvious voids;

b) Expansive soils being those that have a liquid limit of more than 50% when tested in accordance with NZS 4402 Test 2.2, and a linear shrinkage of more than 15% when tested in accordance with NZS 4402 Test 2.5, and

c) Any ground which could foreseeable experience movement of 25mm or greater for any reason including one or a combination of:

- Land instability
- Ground creep
- Subsidence
- Seasonal swelling and shrinking
- Frost heave
- Changing groundwater level, erosion
- Dissolution of soil in water, and
- Effects of tree roots

Based on the results of the field investigation and laboratory testing, it is considered that the soils at the site do not satisfy the definition of "Good Ground", with respect to items a), b) and c) above.

11.0 RECOMMENDATIONS

11.1 SUITABLE BUILDING AREAS

Based on the results of the geotechnical assessment the suitability of different areas of the site has been assessed and summarised below.

- Area 1: The area is generally suitable for residential development taking into account the potential effects of swell-shrinkage and differential settlement in the foundation design and subject to further investigation within the footprint of each building platform.

- Area 2: The area is generally suitable for residential development taking into account the potential effects of swell-shrinkage and differential settlement in the foundation design and subject to further investigation within the footprint of each building platform.

- Area 3: The area is generally suitable for residential development taking into account the potential effects of swell-shrinkage and differential settlement in the foundation design and subject to further investigation within the footprint of each building platform.

- Area 4: This area can be developed in a similar way to areas 1, 2 and 3 and subject to further investigation within the footprint of each building platform. However, the foundations should be specifically designed for a potential creep in the soils due to the moderate sloping of the existing ground. Earthworks should be minimised as much as possible to avoid cutting along the boundaries of the existing residential properties. Should significant cutting (greater than 0.5m in depth) be required, and then a retaining wall should be specifically designed to avoid exposing the cut for a length of time without support.

- Area 5: This area can be developed in a similar way to areas 1, 2 and 3 and subject to further investigation within the footprint of each building platform. However, the foundations should be specifically designed for potential creep in the soils due to the moderate sloping of the existing ground. Earthworks should be minimised as much as possible to avoid cutting along the boundaries with the existing residential properties and school. Should significant cutting (greater than 0.5m in depth) be required, then a retaining wall should be specifically designed to avoid exposing the cut for long term without support.

- Area 6: Buildings should be restricted in this area due to the potential instability and flooding issues unless a detailed assessment is carried out.
- Area 7: Buildings should be restricted in this area due to the potential instability and flooding issues unless a detailed assessment is carried out.
- Area 8: Buildings should be restricted in this area due to the potential instability and flooding issues unless a detailed assessment is carried out.

Development within areas suitable for building should be constructed in accordance with the New Zealand Building Code and relevant standards. These areas do not require remedial action against slope instability unless earthworks will involve significant cutting and filling. Buildings should not be constructed on slopes with a gradient steeper than 1V:3H without specific geotechnical investigation and structural design.

11.2 GEOTECHNICAL SOIL AND ROCK PARAMETERS

The following soil and rock parameters are estimated based on the borehole and test pit data and are presented here only for preliminary analysis and design purposes.

Table 1: Soil and Rock Parameters

Material	Unit Weight γ (kN/m^3)	Effective Cohesion c' (kPa)	Effective Friction Angle ϕ' (°)	Undrained Shear Strength Su (kPa)
Ash	18	5	30	80
Alluvium (Ash Derived)	17	3	28	60
Alluvium *(Northland Allochthon derived) *FOR SLOPE STABILITY ANALYSIS*	17	0	25	30
Alluvium (Northland Allochthon derived) *FOR BEARING CAPACITY*	17	3	28	60
Residual Northland Allochthon	18	5	30	80
Basalt	22	500	50	1500

* - The behaviour of the soil varies depending on the orientation of the applied stresses.

If the earthworks will involve substantial cutting and filling, then it is recommended that further geotechnical assessment and testing is carried out to provide refined parameters for the detailed design of earthworks.

Construction of temporary steep cut batters to allow construction of retaining walls is a common practice. We are unable to make any recommendations with regard to how long a cut face will remain stable, due to the large number of

variable parameters involved that cannot be readily assessed. Consideration should be given to temporary support of excavations where practicable.

The selection of safe temporary cut slopes is therefore at the discretion of the contractor based on the soils encountered in the excavated face, surcharges, prevalent weather conditions, season or time of year, and their previous experience with these types of soils.

Wet weather may cause an increase in soil pressure and potentially cause instability in the cut slope. It is with that in mind that we make the following recommendations:

Protection of the cut slopes against infiltration and overland flow should be incorporated while unretained during construction.

All excavations of the cut slopes are to be completed in stages. It is suggested that retaining walls are completed during these stages in order to protect the exposed slope from collapse.

11.3 FOUNDATIONS AND RETAINING WALLS

The preliminary design of foundations (for residential buildings and small bridges) and retaining walls can be carried out using the parameters summarised in Table 1 above.

The design for shallow and deep foundations should be carried out in accordance with the New Zealand Building code and the relevant standards (NZS3604: 1999). Capacity reduction factors must be applied in accordance with the building code. Preliminary design parameters are also provided in Section 10.4.

Where only minor cut and fill will be required, residential buildings can be designed using a rib-raft system or short piles if assessed suitable by the structural engineer.

The design of the retaining walls can be based on Rankin active and passive earth pressures where deflections of up to 10% of the wall height are tolerable. Where zero deflection is required, then the earth pressures will need to be assessed based on at-rest (Ko) conditions.

All surcharge, including loading due to sloping backfill and dead and live loads on the supported slope are to be assessed.

Due to the geotechnical issues at this site, a cantilever timber pole wall system constructed in staged excavation is assessed as the most suitable and practical.

Any other relevant criteria should also be assessed by the designer of the foundations and the retaining walls. The parameters in Table 1 can be modified by further specific investigation for each building platform.

11.4 SLOPE STABILITY

Following the preparation of a concept earthworks plan the stability of the site will require re-evaluation and if necessary (for significant cuts and fills) slope stability analysis to be carried out for any proposed cuts and fills. The analysis should be carried out using a computer program such as Slope/W or similar capable of undertaking Limiting Equilibrium Analysis for different groundwater scenarios. These scenarios will include normal and elevated groundwater levels. Surcharge loads will be applied as required. For slope stability analysis, the parameters provided in Table 1 can be used as a preliminary stage.

11.5 EARTHWORKS

All earthworks required to develop the site should be undertaken to the requirements of NZS 4431:1989 "Code of Practice for Earthfill for Residential Development" and must be carried out under the control of an Engineer experienced in earthworks construction and familiar with the contents of this report.

Particular attention should be paid to all earth moving operations undertaken adjacent to Restricted Building Areas (flood zone) in order to mitigate the potential for activating slope instability. (HGCL drawing No. 125904-GE05).

11.5.1 Site Preparation

The following suggested site preparation measures are provided for inclusion into the earthworks program where the natural ground surface is to be subject to earthworks.

- Strip all vegetation, topsoil and root-affected soil and stockpile for landscaping purposes or else remove from the site.
- Excavate to the design level in areas of cut (if any). Excavations deeper than 0.5m should be observed by an Engineering Geologist or Geotechnical Engineer during construction in order to advise of potential instability due to defects of unforeseeable orientation. Adequate temporary or permanent support is to be engineered for all natural slopes and excavations unless battered flatter than 1V:3H and protected against erosion.
- Proof-Roll the exposed surface in the presence of a Geotechnical Engineer or experienced soil technician in order to detect any soft/loose zones that should be either excavated and replaced with approved material or else subjected to engineered ground improvement techniques.

11.5.2 Excavation

Excavations may be required following preliminary earthworks. Excavations in engineered fills and firm to stiff natural soils should be supported by an engineer-designed retaining wall or else battered at 1V:3H, or flatter and protected against erosion. The maximum depth of excavations without specific geotechnical appraisal is to be 0.5m. Excavations should not be carried out at the toe of slopes without specific geotechnical assessment.

Due to the presence of cobbles and basalt at the site, cognisance should be taken of their possible implications upon earthworks and subsequent development. In particular, the need for specialised equipment required for their removal and complications associated with the installation of services and or drainage. It is also recommended that all boulders be removed prior to backfilling service trenches and replaced with compacted hardfill or suitable soils sourced onsite, where appropriate.

Other precautions that should be addressed include the avoidance of external load from construction vehicles and unearthed spoil being stockpiled too close to excavations. Upon construction, particular attention should be paid to the prevention of excessive surface water entering the excavations. This can largely be achieved through prudent placement of plastic sheeting along trench margins.

11.5.3 Filling

Filling, where required, should be placed in accordance with the guidelines stated in Section 11.5.

As a general rule, soils compacted to ± 3% of it's optimum moisture content generally achieve a reasonable compaction level provided normal compactive effort is applied. For natural soils outside this range, drying or wetting is generally required.

Based on the laboratory test results and as discussed in Section 9.2, the natural moisture content of the insitu soils appears to be generally on the wet side of the optimum.

The following are the preliminary compaction parameters to be used as a guide during the fill operations:

Optimum Moisture Content = 40 to 47%

Maximum Dry Density = 1.18 to 1.27t/m^3

% Of Air Voids at Optimum Moisture Content = 5 to 7%

Undrained Shear Strength at Optimum Moisture Content = 184 to 194kPa

Fill should be supported by an engineer-designed retaining wall or else battered at 1V:3H or flatter, and protected against erosion.

Details of filling earthworks in excess of 0.5m vertical are to be provided to a Geotechnical Engineer in order to assess the impact on the stability of the works.

11.6 PAVEMENTS AND ROADING

11.6.1 Pavements

Based on the information gathered across the site, it is suggested that the design of pavements should be based on a preliminary design subgrade California Bearing Ratio (CBR) of 5%. All pavements should be designed with adequate engineered drainage.

This value may be reviewed depending on the earthworks plan and compactive effort anticipated on engineered earthfill during bulk earthworks.

11.6.2 Roading

A minimum shoulder width of 2.0m is required either side of any proposed roadway in order to provide a suitable setback from the crest of the batter to the roadway against potential slope instability of surficial soils. This minimum shoulder width is also required to provide adequate space for trenching of potential services that may need to be placed.

It is anticipated that roading culverts are to be possibly constructed over the waterway that runs the length of one end of the site.

The drainage measures for the culverts should be designed and constructed in cognisance of the statements made in Section 11.5, a batter slope of 1V: 3H is considered appropriate for the fill material anticipated (i.e - sourced onsite).

11.7 STORMWATER DISCHARGE

On-site trench soakage of stormwater is considered inappropriate, due to the potential geotechnical issues. Stormwater should be collected from each building developed in the future and discharged to the local stormwater system, which may include the existing watercourse and Waitaua Stream.

Appropriate scour protection must be provided for all open drains, culvert outlets and overland flowpath routes. If inadequate attention is paid to scour protection, small drains can possibly become very rapidly, deep chasms.

12.0 CONCLUSIONS

Based on the results of the geotechnical investigation and assessment, the site is suitable for the proposed residential subdivision development providing that the recommendations made in this report are followed. The following is a summary of the main results and recommendations:

- The site has been divided into eight areas based on the ground conditions encountered and the geotechnical issues assessed.

- The typical soils encountered during the investigation, comprise generally Kerikeri volcanic ash overlying alluvial soils and basalt. The alluvial soils are derived from the insitu ash and residual Northland Allochthon soils. Residual soils of the Northland Allochthon were encountered at depth underlying the alluvial soils in the north western corner of the site. Basalt of the Kerikeri Volcanic Group was encountered at the eastern and south eastern areas of the site underlying alluvial and ash soils.

- Groundwater was encountered in most of the investigation boreholes and test pits. The water table is deep (3.0 to 5.0m bgl) within the majority of areas within the central and western portions (areas 1, 2, 4 and 5) as well as in the western portion of Area 3. The water table is shallower (2.0 to 3.0m bgl) within the lower portions of the site (ie areas 7 and 8 and the eastern portion of Area 3). These areas are in the vicinity of the watercourse and Waitaua Stream.

- No obvious voids (cavities) were encountered in the boreholes and test pits positioned in areas 5 and 6, where these areas are shown on the WDC GIS map to be within a Mining Zone 3.

- There are no current issues in regards to instability in areas 1,2 and 3 in general as well as in Area 4. However, due to moderate steepness and the presence of existing buildings on the uphill side of Area 4, instability could be a potential if earthworks were to be undertaken. The ground within areas 5 and 6 has been identified in the WDC GIS map to have minor and moderate potential of instability according to the WDC GIS map. Instability is evident in areas 7 and 8, which are within a flood zone according to the WDC GIS map.

- Nor major cuts and fills are envisaged to be required for the proposed residential subdivision development at this site. The stability of the site based on the concept earthworks plan will require evaluation and detailed slope stability analysis for significant cuts and fills.

- A geotechnical ultimate bearing capacity of 300kPa has been estimated for shallow foundations founded at 0.6m below the existing ground level.

Recommended design parameters for shallow and deep foundations are provided.

- The natural alluvial soils encountered in areas 1 to 6 are assessed to have in general moderate compressibility. The natural alluvial soils encountered in areas 7 and 8 are assessed to have high compressibility.

- Laboratory tests carried out on samples of the ash silts and the Northland Allochthon derived alluvials indicate the materials to be moderately to highly reactive (M-H) highly reactive (H), respectively.

- The soils at the site do not satisfy the definition of "Good Ground" as defined in NZ 3604:1999. The proposed residential development on this site will therefore require a specific foundation design to AS 2870:1996 requirements.

- A rib-raft slab or short pile is likely to be required for residential buildings for reasonably level platforms where minor cut and fill has taken place, in accordance with recommendations made above regarding the suitability of areas 1 to 8 for development and subject to assessment by a structural engineer.

- Areas 1, 2 and 3 are generally suitable for residential development taking into account the potential effects of swell-shrinkage and differential settlement in the foundation design and subject to further investigation within the footprint of each building platform.

- Any development within areas 4 and 5 can be undertaken in a similar way to areas 1, 2 and 3 subject to further investigation within the footprint of each building platform. The foundations will require specific design for potential creep in the soils. Earthworks should be minimised as much as possible to avoid cutting along the boundaries with the existing residential properties and school. A retaining wall will be required for cuts greater than 0.5m in depth.

- Due to the potential instability and flooding issues, buildings should be restricted in areas 6, 7 and 8 unless a detailed assessment is carried out.

- For any earth retention works a cantilever timber pole walls constructed in staged excavations is assessed to be the most suitable and practicable wall system. Soil parameters are provided for the purpose of preliminary design. Any retaining wall design will require specific geotechnical investigation to confirm the design parameters.

- Laboratory test carried on soils samples collected from shallow depths are assessed suitable for standard earthworks operations, subject to adjustment of the moisture content. In some areas (in the vicinity of the

watercourse and Waitaua Stream in particular), the insitu soils will require significant drying prior to use in the fill operation.

- All earthworks should be undertaken to the requirements of NZS 4431:1989, and be carried out under the control of an Engineer experienced in earthworks construction and familiar with the contents of this report. Recommended specifications are provided together with preliminary compaction parameters.

- Earth filling should be monitored on the basis of % compaction as well as soil undrained shear strength testing or scala penetrometer testing, with additional monitoring of moisture contents.

13.0 LIMITATIONS

This report has been prepared for the particular project described to us and its extent is limited to the scope of work agreed between the client and Harrison Grierson Consultants Limited. No responsibility is accepted by Harrison Grierson Consultants Limited or its directors, servants, agents, staff or employees for the accuracy of information provided by third parties and/or the use of any part of this report in any other context or for any other purposes.

The recommendations and opinions contained in this report are based on our visual reconnaissance of the site, information from geological maps, and the data from the field investigation. Inferences about the nature and continuity of sub surface conditions away from and beyond the borehole logs are made, but cannot be guaranteed. The descriptions detailed on the borehole logs are based on the NZ Geotechnical Society Guidelines for the Field Description of Soils and Rocks for Engineering Purposes.

During construction, an engineer competent to judge whether the conditions are compatible with the assumptions made in this report should examine the site. In all circumstances, if variations in the sub surface conditions occur which differ from those described or assumed to exist, then the matter should be referred back to Harrison Grierson Consultants Limited.

This report is for the use by Tasmaster Investment Limited only, and should not be used or relied upon by any other person or entity or for any other project, with the exception that the relevant Territorial Authority and Regional Council can rely on it for the purpose of processing those consent applications for which this report has been prepared.

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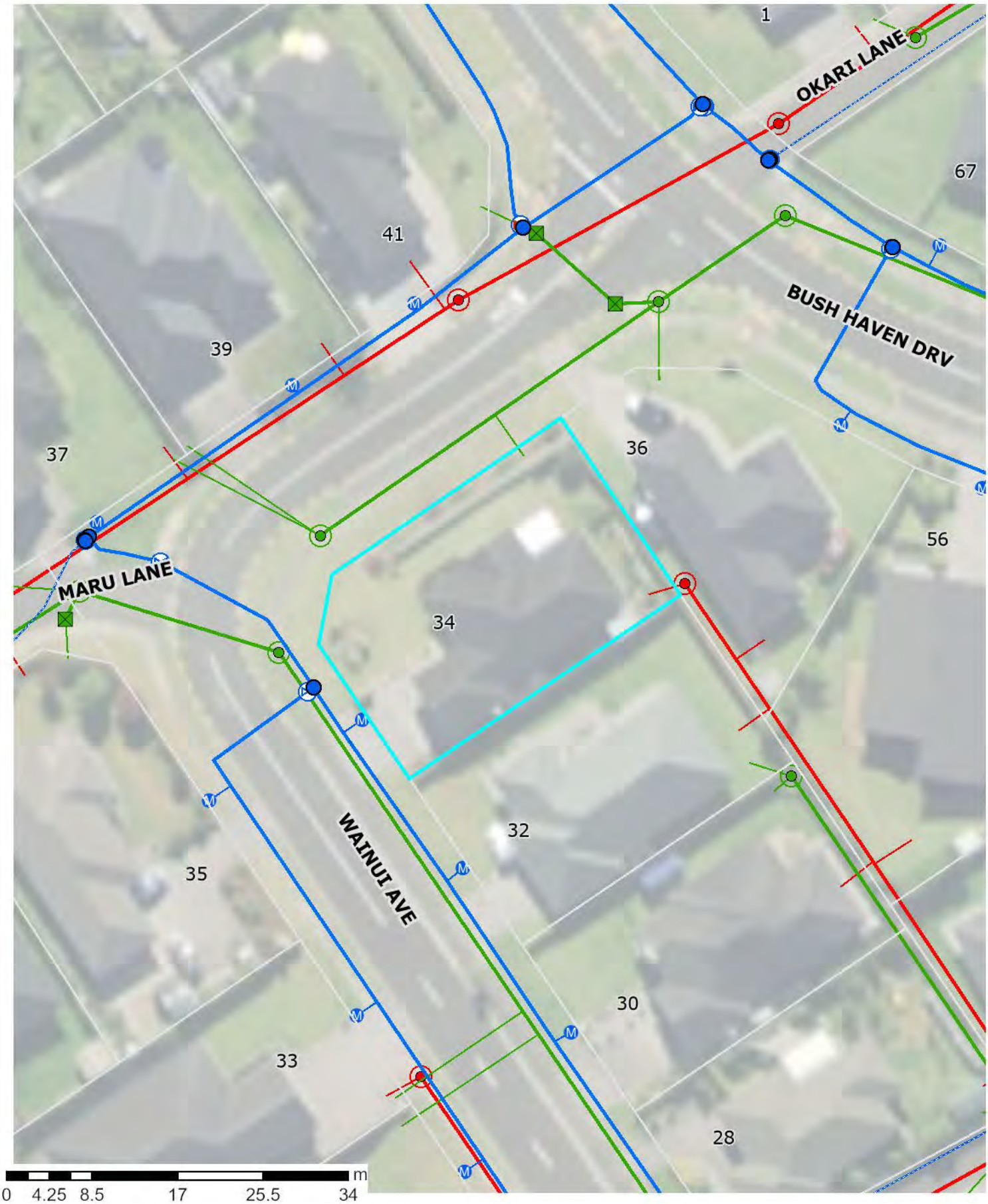
Water, Wastewater and Stormwater

Whangarei District Council



This information is generalized and shows the approximate location of the known pipeline services.
For digging, the As-Built engineering drawings must be used to accurately locate the services.
See WDC Customer Services.

29 July 2026
Scale 1:500

The information displayed is schematic only and serves as a guide. It has been compiled from Whangarei District Council records and is made available in good faith but its accuracy or completeness is not guaranteed. Parcel Information is sourced from the Land Information New Zealand (LINZ) Data Service. CROWN COPYRIGHT RESERVED. © Copyright Whangarei District Council.

Water, Wastewater and Stormwater – Map Legend

Whangarei District Council

Water

Water Point

Actuator
- WDC
- Private

Backflow Device
- WDC
- Private

Bore
- WDC
- Private

End Structure
- WDC
- Private

Fitting Node
- WDC
- Private

Hydrant
- WDC
- Private

Meter
- WDC

Meter Manifold
- WDC
- Private

Pump
- WDC
- Private

Valve
- WDC
- RED
- Private

Water Line

Abandoned Pipe

Raw Water Main
- WDC
- Private

Trunk Main
- WDC
- Private

Other Main
- WDC
- Private

Process Pipework
- WDC
- Private

Reticulation
- WDC
- Private

Service Line
- WDC
- Private

Water Area

Chamber
- WDC
- Private

Reservoir
- WDC
- Private

Stormwater

Stormwater Point

End Structure
- WDC
- Private

Fitting Node
- WDC
- Private

GPT
- WDC
- Private

Manhole
- WDC
- Private

Pump
- WDC
- Private

Stormwater Inlet
- WDC
- Private

Valve
- WDC
- Private

Stormwater Line

Abandoned Pipe

Culvert
- WDC
- Private

Drainage
- WDC
- Private

Main
- WDC
- Private

Service Line
- WDC
- Private

Surface Drain
- WDC
- Private

Stormwater Area

Basin
- WDC
- Private

Chamber
- WDC
- Private

Wastewater

Wastewater Point

Backflow Device
- WDC
- Private

End Structure
- WDC
- Private

Fitting Node
- WDC
- Private

Manhole
- WDC
- Private

Meter
- WDC
- Private

Motor Control Centre
- WDC
- Private

Pump
- WDC
- Private

Valve
- WDC
- Private

Wastewater Line

Abandoned Pipe

Main
- Rising Main (Pressure)
- Sewer Gravity Main
- Private
- Other

Process Pipework
- WDC
- Private

Service Line
- WDC
- Private

Wastewater Area

Chamber
- WDC
- Private

Pressure Sewer System
- Public
- Private

WHANGAREI DISTRICT COUNCIL

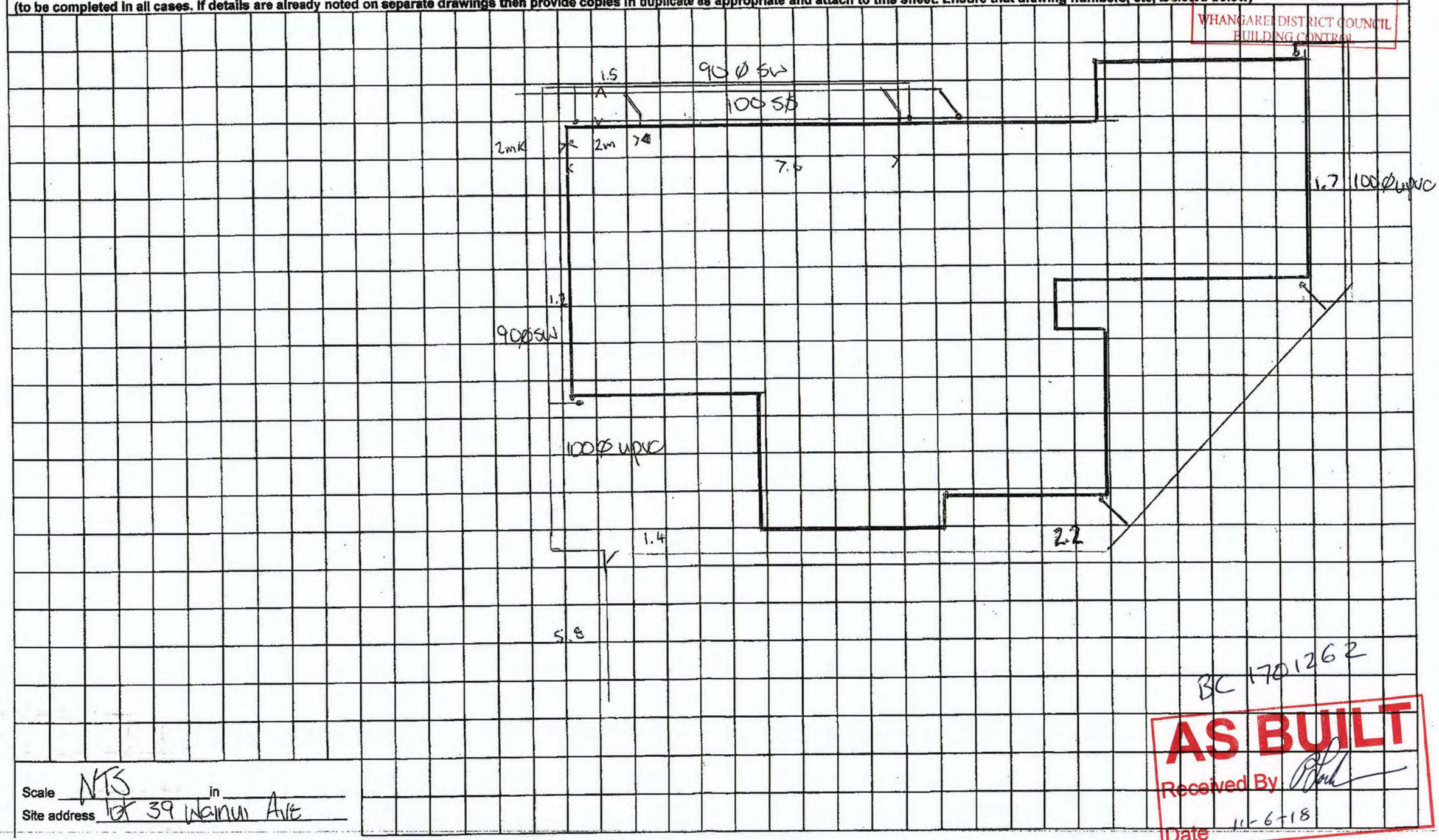
RECEIVED

29 MAY 2018

WHANGAREI DISTRICT COUNCIL
BUILDING CONTROL

PART C As-built services plan

(to be completed in all cases. If details are already noted on separate drawings then provide copies in duplicate as appropriate and attach to this sheet. Ensure that drawing numbers, etc, is noted below)



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Whangarei 0143
Ph:0-9-430 4200
Email: mailroom@wdc.govt.nz

Rates LIM Report

As at: Wednesday, 29 July, 2026

Property Number	167118
Legal Description	LOT 43 DP 507433
Assessment Number	0072205964
Address	34 Wainui Avenue Whangarei 0112
Record of Title(s)	770884
Land Value	$370,000
Capital Value	$840,000
Date of Valuation	01-July-2024
Effective Date (used for rating purposes)	01-July-2025
Meter Location	6m RHB, 2.5m path, #34

Rates Breakdown (up to 30 June 2027)

Rates Charge	Charge Total
General Residential	1,140.34
Regional Flood Infrastructure	43.11
Regional Economic Development	13.02
Regional Whangarei Transport Rate	29.70
Stormwater	124.00
Regional Rescue Services	11.09
Uniform Annual General Charge	996.00
Regional Emergency & Hazard Management	58.36
Regional Land and Freshwater Management	103.45
Regional Sporting Facilities	7.94
Regional Pest Management	110.40
Regional Whangarei Urban Riv Mgt Gen Catchment	39.83
Sewage Disposal - Residential	991.00
Regional Council Services	214.35
Annual Charge Total	**$3,882.59**

Opening Balance as at 01/07/2026 — $0.00

Rates Instalments	Total
20/07/2026 Instalment	$972.59
20/10/2026 Instalment	$970.00
20/01/2027 Instalment	$970.00
20/04/2027 Instalment	$970.00
Rates Total	**$3,882.59**

Balance to Clear — $3,882.59

COPY

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T: 09 430 4200 | 0800 WDC INFO | 0800 932 463 | F: 09 438 7632
W: www.wdc.govt.nz | E: mailroom@wdc.govt.nz

WHANGAREI DISTRICT COUNCIL

Building Consent No: BC1701262

Section 51, Building Act 2004

Issued: 21 November 2017

The Building

Street address of building:	34 Wainui Avenue Whangarei 0112
Legal description of land where building is located:	LOT 43 DP 507433 LLP: 129218
Building name:	N/A
Location of building within site/block number:	N/A
Level/unit number:	N/A

The Owner

R M Pooley
F A Pooley
19 Pebble Beach Boulevard
Kamo 0112

Phone number:	4380904
Mobile number:	021678358
Facsimile number:	N/A
Email address:	robpooley@xtra.co.nz
Website:	N/A
Street address/registered office:	34 Wainui Avenue Whangarei 0112

First point of contact for communications with Council/building consent authority.

Contact Person

Versatile Homes and Buildings Whangarei
PO Box 6038
Otaika
Whangarei 0147

Phone number:	094388871
Mobile number:	0276623011
Facsimile number:	094398816
Email address:	whangarei@versatile.co.nz
Website:	www.versatile.co.nz

Building Work

The following building work is authorised by this consent:

New Dwelling

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

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

This building consent is subject to the following conditions:

Section 90 Building Act 2004

Section 90 Building Act 2004 Inspections by Building Consent Authorities applies. This building consent is subject to the condition that agents authorised by the building consent authority are entitled at all times during normal working hours or while work is being done to inspect land on which building work is being or is proposed to be carried out and building work that has been or is being carried out on or off the building site and any building.

Nominated Inspections are carried out to ensure that the building work is in accordance with the building consent. Completed Inspections will be classified as pass, or pass subject to remedial work or failed status.

See attached schedule of site requirements for inspections and documentation required.

Compliance Schedule

A compliance schedule is not required for the building.

Attachments

No attachments.

Additional Information

1. The applicant must control dust nuisance created by any site or building works.
2. Toilet facilities must be provided within reasonable distance of the construction site. Ground discharge is no longer acceptable.
3. Lapsing of building consent. For the purposes of S52(b) of the Building Act 2004, the period after which this consent will lapse if the building work to which it relates does not commence will be 12 months from the date of issue.
4. A copy of your Gas Certificate will be required.
5. A copy of your Electrical Certificate will be required.
6. The prepared building platform is required to be checked by a qualified engineer.
7. To confirm compliance of the specific engineered foundation, structure and durability a Producer Statement PS4 for the construction monitoring is required to ensure the building work performed is in accordance with the approved building consent and the engineering assumptions and design parameters are met.
8. All fills at the building site should be tested for compaction generally in accordance with NZS4431:1981 by a Charted Professional Engineer.
9. To confirm compliance a Producer Statement PS3 construction is required from a suitably qualified and experienced person the constructor/ contractor to ensure the building work performed is in accordance with the approved building consent:
   - Membrane application to all internal wet areas (including the forming and dressing of all penetrations, change of direction and upstands).

DSoanes

Donna Soanes
Support Assistant – Building Processing
On behalf of Whangarei District Council

21 November 2017

Date

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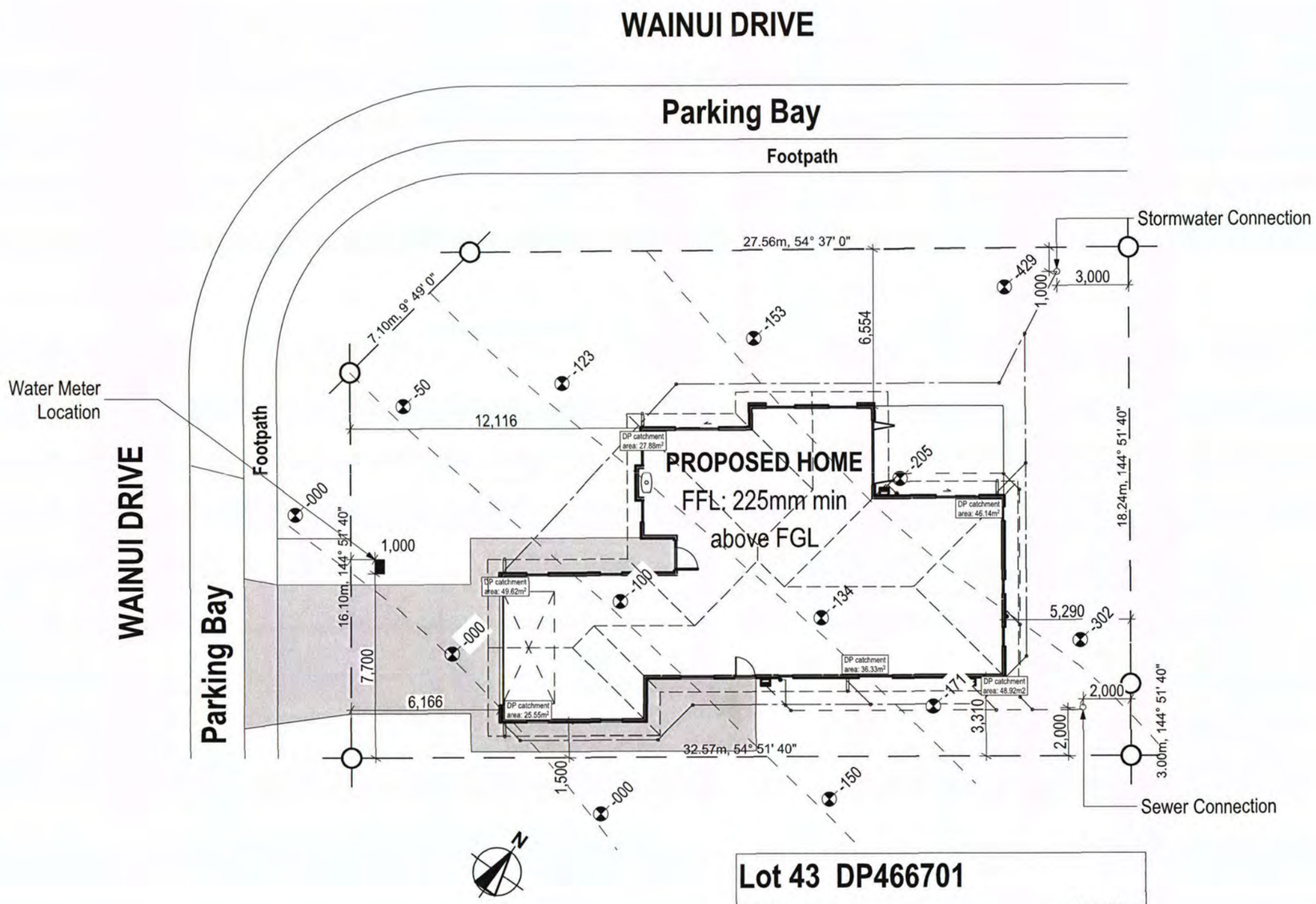

Lot 43 DP466701

Site area	677.00m²
Proposed Building Area	184.31m²
Proposed Total Site Coverage	27.22%

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PROPOSED BUILDING FOR:
DELL & ROB POOLEY,
LOT 43 STAGE 3 TOTARA PARKLANDS

DRAWING TITLE
SITE PLAN

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File Location: C:\Users\rmowbray\Desktop\170616 RFI 2\170616 AC20.pln

SCALE:	DATE:	SHEET:
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LEGEND

- SA Smoke Alarm (with hush button, required within 3m of all sleeping areas to comply with NZS4514)
- Safety Glass
- Tiled Flooring
- Laminate Wood Flooring
- Outside Tap
- Meter Box
- Switch Board
- Extraction Fan
- MH Manhole (600x600)

SITE DATA

Exposure/ Corrosion Zone:	C
Climate Zone:	1
Building Importance:	2
Snow Zone:	N0
Snow Load:	None
Wind Zone:	High
Wind Region:	A
Ground Roughness:	Open
Site Exposure:	Exposed
Topographic Class:	T1
Earthquake Zone:	1

Slip Resistance
Level Access routes including walking surfaces such as decks, patios and steps on the approach to the main entrance of housing and level accessible routes shall have a mean coefficient of friction (U), of not less than 0.4 when tested in accordance with AS/NZS 3661.1. for other access routes a coefficient of friction of less than 0.4 may be acceptable, but account should be taken of the effectiveness of the surface when wet. Foot paths to comply with antislip requirements of NZBCD1/AS1 table 2. External steps and porches to be broomed finish concrete.

NOTES
Stud Height: 2.420m (2.455m over ceiling plate)
Stud Centres: 600crs max.
Dwangs: 800crs max
Lintels: All lintels to be Hy90 unless otherwise stated. Lintel fixing types stated. For fixing details please refer to sheet 26.
Wall Cladding: James Hardie Linea Weatherboard, Schist Brick Veneer
Roofing: Metal Tile
Roof Pitch: 25 degrees
Ventilation: Bathroom, Ensuite, WIP & Laundry direct ventilation to exterior. Bathroom automated extractor fans to be placed to adequately deal with steam.

Windows & Doors Schedule (Opening Size)

N2	2130H x 900W
N3	2130H x 1200W
N6	1430H x 1400W
ND8	2130H x 1800W
ND13	2130H x 900W
W8	1000H x 600W
FES	2130H x 1252W

Non-Standard Windows & Doors (Opening Size)

SP1	2130H x 2700W
SP2	1000H x 800W

Note: All windows must be site measured.

Floor Area (Over Framing)	181.88 m²
Floor Area (Over Cladding)	182.23 m²
Site Coverage Area	184.31 m²

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PROPOSED BUILDING FOR:
DELL & ROB POOLEY,
LOT 43 STAGE 3 TOTARA PARKLANDS

DRAWING TITLE
FLOOR PLAN

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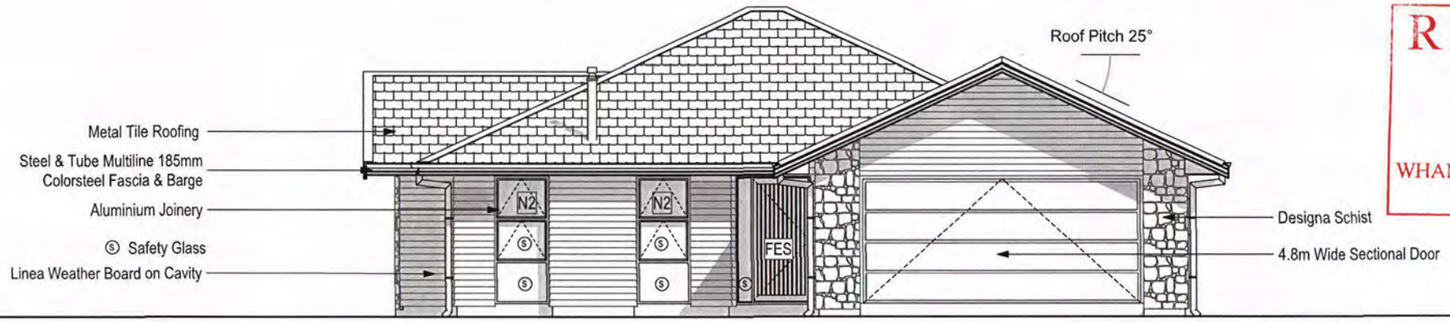
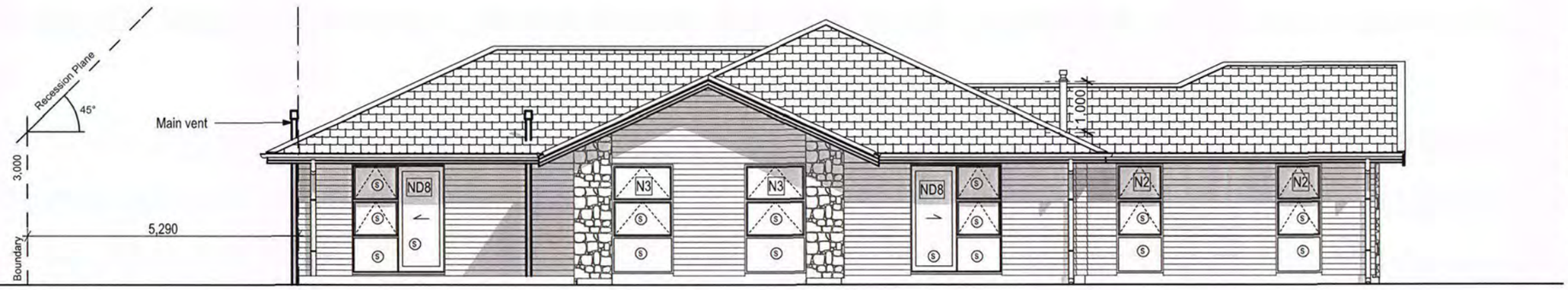


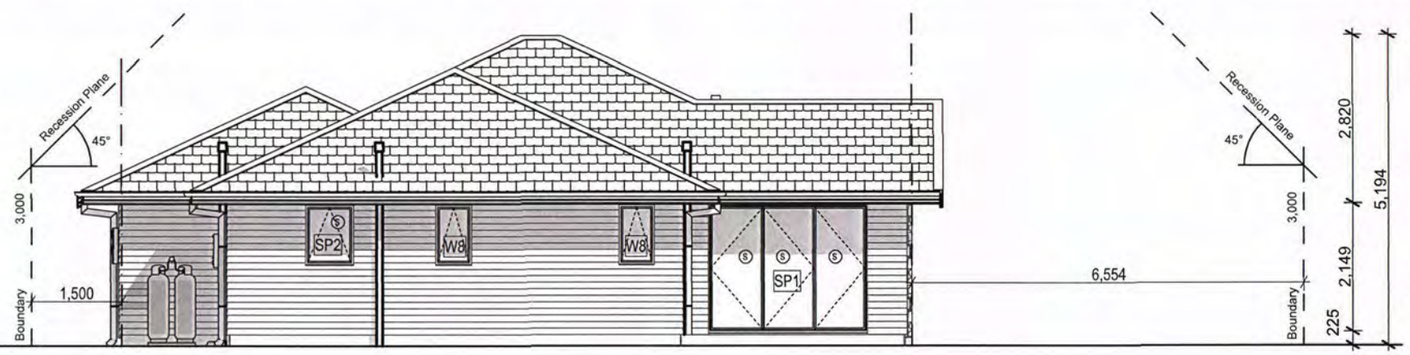
FRONT ELEVATION

BUILDING ENVELOPE RISK MATRIX		
Front Elevation		
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	0
Eaves width	Low	0
Envelope complexity	Medium risk	1
Deck design	Low	0
Total Risk Score:		2



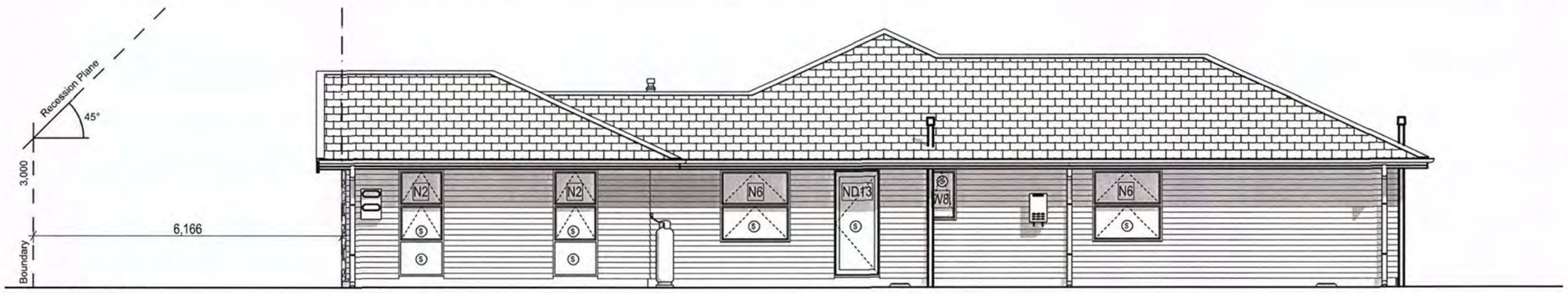
LEFT ELEVATION

BUILDING ENVELOPE RISK MATRIX		
Left Elevation		
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	0
Eaves width	Low	0
Envelope complexity	Medium risk	1
Deck design	Low	0
Total Risk Score:		2



REAR ELEVATION

BUILDING ENVELOPE RISK MATRIX		
Rear Elevation		
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	0
Eaves width	Low	0
Envelope complexity	Low	0
Deck design	Low	0
Total Risk Score:		1



RIGHT ELEVATION

BUILDING ENVELOPE RISK MATRIX		
Right Elevation		
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	0
Eaves width	Low	0
Envelope complexity	Low	0
Deck design	Low	0
Total Risk Score:		1

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PROPOSED BUILDING FOR:
DELL & ROB POOLEY,
LOT 43 STAGE 3 TOTARA PARKLANDS

DRAWING TITLE
ELEVATIONS

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Richardson·Stevens
CONSULTING ENGINEERS

File: 15037
26 April 2017

SUITABILITY REPORT

Wainui Avenue, Tikipunga

(Lot 43 Stage 3)

1.0 Introduction

Our client, Versatile Homes & Buildings, propose to construct a new dwelling on Lot 43 Wainui Avenue, Tikipunga. Richardson Stevens Consultants (1996) Ltd has been commissioned to make a suitability assessment of the property for the proposed dwelling.

The proposal includes the construction of a new single level dwelling founded on a RibRaft floor system.

2.0 Site Description

The property is located on the eastern side of Wainui Avenue, approximately 140m from its intersection with Wairau Drive. The property is near level and currently has a thin layer of topsoil covered in regenerating pasture.

3.0 Site Investigations

A Technician from this office visited this property on 20 and 24 April 2017 to undertake field investigations. This included a walkover inspection, a hand augered borehole, and two Scala Penetrometer tests.

The walkover inspection did not encounter any signs of concern at the building site.

The borehole was dug to a depth of 1.2m below ground level where it encountered stiff, low plasticity silt clays. Pilcon Shear Vane readings were taken at regular intervals within the borehole. The in-situ undrained shear strengths all exceeded 190kPa. Two Scala Penetrometer tests were taken at the east and western sides of the site. The Ultimate Bearing Capacities all exceeded 300 kPa from just below the surface.

2 Seaview Rd, Whangarei 0110, Ph 09 438 3273, Fax 09 438 5734, email engineers@richardsonstevens.co.nz

ACENZ

These investigations are attached in Appendix A.

4.0 Desk Study

A desk study has been undertaken which included the review of local geological maps and the underlying subdivision report for this property.

4.1 Geology

The GNS 1:250,000 scale geological map for Whangarei shows that the property is located within an area underlain by Kerikeri Volcanics, which is described as follows: *"Basalt lava, volcanic plugs and minor tuff."*

4.2 Previous Engineering Report

The underlying subdivision was reported on by Harrison Grierson Consultants Ltd in June 2008. The report is entitled *"Tasmaster Investment Ltd, Proposed Subdivision, 1a Gillingham Road, Kamo, Subdivision Baseline Geotechnical Investigation.* The report concludes that there are no signs of instability inside Area 1 of the subdivision. The report also states that the clayey SILTS on-site are classed as moderately to highly expansive in terms of AS2870, and that the land generally falls outside that required of "good ground" in NZS: 3604.

5.0 Geotechnical Assessment

The Whangarei District Council has designated this property to be in a zone of Low Instability Hazard. The following is a description of the Low Instability Hazard Zone: *"Erosion or landslide morphology is not apparent. Not considered to be at risk of instability. May however, be at risk as a result of natural events, or development. Steeper slopes may be subject to soil creep".*

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Given the investigations detailed within this report, our local experience and the following assessment we concur with the Low Instability Hazard Zoning.

5.1 Expansive Soils

The clayey soils encountered on-site are likely to be subject to volumetric change with seasonal changes in moisture content (wet winters / dry summers); this is known as expansive or reactive soils. Apart from seasonal changes in moisture content other factors that can influence soil moisture content include:

- Influence of garden watering and site drainage.
- The presence of large trees close to buildings.
- Initial soil moisture conditions during construction, especially during summer and more so during a drought. Building platforms that have dried out after initial excavation should be thoroughly wet prior to any floor slabs being poured.

Based on the visual characteristics of the subsoils encountered in the borehole investigations at the building site, we consider that the soils are Class M (moderately reactive clays and/or silts) as per AS2870.

5.2 Earthworks

To form a level building platform, minor earthworks are required. To suitably develop the property, we make the following recommendations:

- Cuts or fills exceeding 1.5m or within 1.0m of the boundary should be retained by a wall specifically designed by a Chartered Professional Engineer.
- Cut and fill batter should not exceed a slope of 1V to 3H.

At the time of inspection minimal topsoil was present, however we are assuming topsoil may spread as part of the subdivision works prior to commencement of building. We recommend that the following earthwork methodology be adopted: Topsoil should be stripped from all cut and fill areas, stripping operations extending well beyond cut and fill extents to avoid peripheral (outer boundary) fill contamination. Stockpiles of topsoil and unsuitable material should be sited well clear of the works on suitable areas of natural ground. All sloping ground should be benched prior to the placement of any fills or drainage works and be inspected by a suitably qualified engineer. Once filling is completed it should be tested for its compaction by a suitably qualified engineer generally in accordance with NZS4431:1981 (Earthfill for Residential Development).

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5.3 Foundations

It is proposed to construct a single storey dwelling on a RibRaft floor slab. To suitably found the proposed RibRaft we recommend that it is designed to account for the moderately expansive soils. To account for this, we recommend that the RibRaft slab be placed on a minimum of 100mm of compacted granular hardfill extending 1.0m beyond the building envelope. We also recommend increasing the floor mesh size to SE72, and adding an additional HD12 bar in the base of the perimeter footing.

6.0 Conclusions

It is the conclusion of Richardson Stevens Consultants (1996) Ltd that the property is suitable for residential construction generally in accordance with NZS3604 provided the recommendations of this report are followed. We also conclude that in terms of Section 72 of the Building Act 2004;

(a) the building work to which an application for a building consent relates will not accelerate, worsen, or result in subsidence or slippage on the land on which the building work is to be carried out or any other property; and

(b) the land is neither subject to nor likely to be subject to subsidence or slippage.

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7.0 Limitations

This report has been prepared solely for the benefit of our client and the Whangarei District Council. The purpose is to determine the engineering suitability of the proposed residential building, in relation to the material covered by the report. The reliance by other parties on the information or opinions contained therein shall, without our prior review and agreement in writing, do so at their own risk. This report does not address matters relating to the National Environmental Standard for Contaminated Sites, and if applicable separate advice should be sought on this matter from a suitably qualified person.

Recommendations and opinions in this report are based on data obtained as previously detailed. The nature and continuity of subsoil conditions away from the test locations are inferred and it should be appreciated that actual conditions could vary from those assumed.

If during excavation and construction conditions are encountered that differ from the inferred conditions on which the report has been based, the site should be examined by a suitably qualified engineer to determine if any modification of the design based upon this report is required.

Prepared by:

Bradley Vuletich
Engineering Technician

Approved by:

Steve Turner
Chartered Professional Engineer

Richardson Stevens Consultants (1996) Ltd

Whangarei District Council
Private Bag 9023, Whangarei 0148, New Zealand
P +64 9 430 4200 | 0800 WDC INFO | 0800 932 463 F +64 9 438 7632
E mailroom@wdc.govt.nz www.wdc.govt.nz

DEC

Form 7

Code Compliance Certificate BC1701262

Section 95, Building Act 2004

Issued: 25 February 2020

The Building

Street address of building:	34 Wainui Avenue Whangarei 0112
Legal description of land where building is located:	LOT 43 DP 507433 LLP: 129218
Building name:	N/A
Location of building within site/block number:	N/A
Level unit number:	N/A
Current, lawfully established use:	Detached Dwelling
Year first constructed:	2017

The Owner

F A Pooley
R M Pooley
34 Wainui Avenue
Whangarei 0112

Phone number:	N/A
Mobile number:	021678358
Facsimile number:	N/A
Email address:	N/A
Website	N/A
Street address/registered office:	34 Wainui Avenue Whangarei 0112

First point of contact for communications with the building consent authority:

Contact Person

Versatile Homes and Buildings Whangarei
PO Box 6038
Otaika
Whangarei 0147

Phone number:	4388871
Mobile number:	0276623011
Facsimile number:	N/A
Email address:	steve.burns@versatile.co.nz
Website:	www.versatile.co.nz

Whangarei District Council

Building Work | **New Dwelling**

Building Consent Number: BC1701262

Issued by: Whangarei District Council

Code Compliance

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

(a) The building work complies with the building consent.

Stephanie Brown
Support Assistant – Building Processing
On behalf of Whangarei District Council

25 February 2020
Date

WT027405

Forum North | Private Bag 9023 | Whangarei 0148 | New Zealand
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WHANGAREI DISTRICT COUNCIL

PU171318

Application for public utility service ~~fast track~~ water meter only

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This form is not required for a subdivision

General

(To be completed in all cases, ✓ each box as appropriate. The applicant must be the owner of the land, or the lease-holder, or a person who has agreed either conditionally or unconditionally to purchase the land or any leasehold)

Application type

1 ☑ Public utility service – water meter only

2 ☑ Application linked to building consent no 1701262

Applicant/owner

Name Robert Murray POOLEY and Fidelis Anne POOLEY

Postal address 19 Pebble Beach Blvd, Kamo, Whangarei Post code 0112

Phone 09 438 0904 Fax

Payer (mandatory)

Full legal name of payer Versatile Homes and Buildings Whangarei

Postal address of payer PO Box 6038, Whangarei Post code 0147

Phone 027 662 3011 (Steve Burns) Email steve.burns@versatile.co.nz

Agent

Name Versatile Homes and Buildings Whangarei

Postal address PO Box 6038, Whangarei Post code 0147

Phone 027 662 3011 (Steve Burns) Fax

Site

Street/road no Lot 43 Road name Wainui Avenue, Totara Parkland

Town or area Whangarei

Legal description

Valuation roll no Lot 43 DP 507433

Connection size (mm) 20mm Meter size (mm) 20mm

Distance to nearest hydrant (m) approx 25 metres

Use of water ☑ domestic ☐ other *(if other, please specify)*

Office use

Property ID 167118 Classified use

LLP number 129218 Date 13/10/17.

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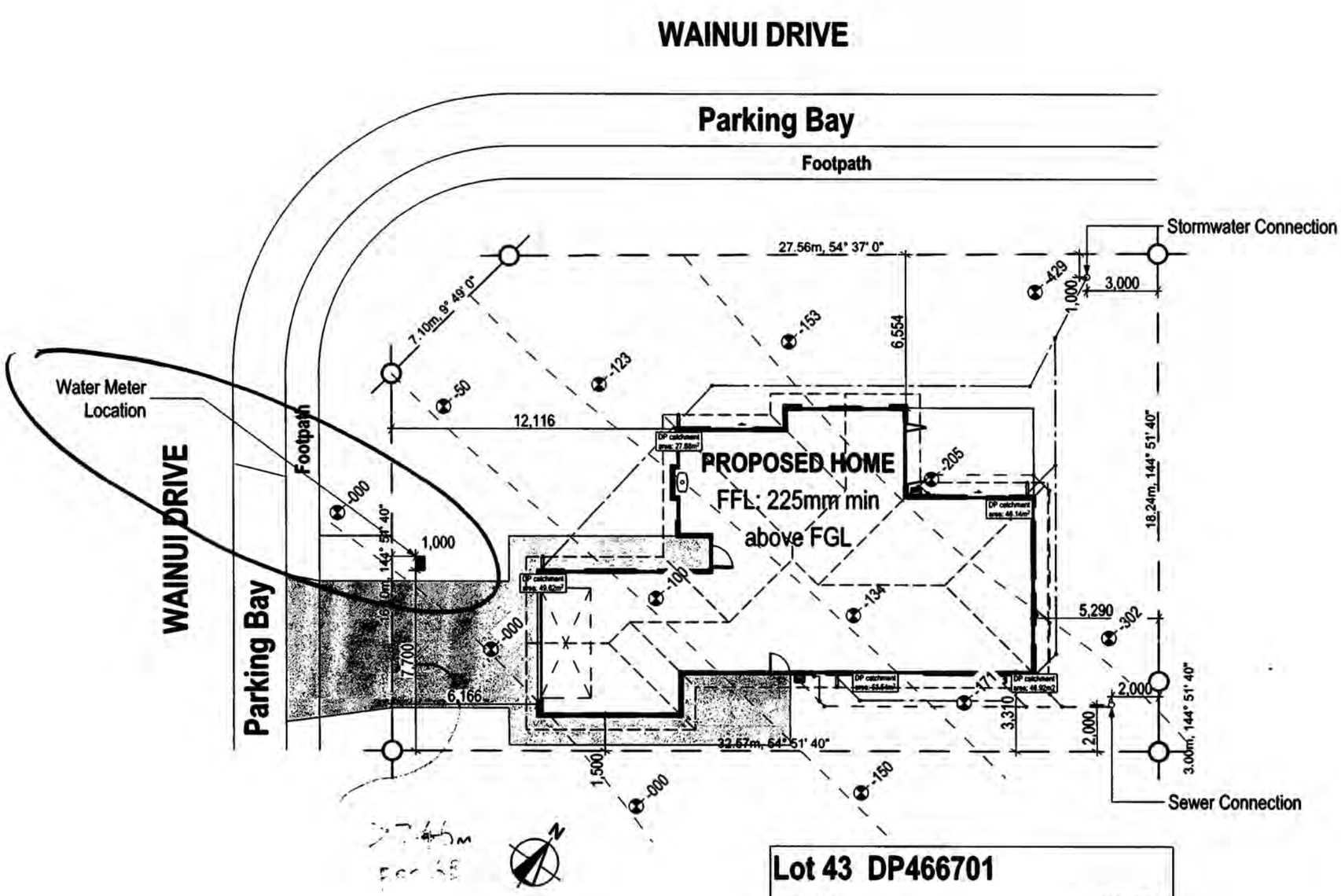

Water Services
Meter Installation
Approved
Signed
Date 24.10.17

Lot 43 DP466701	
Site area	677.00m²
Proposed Building Area	184.31m²
Proposed Total Site Coverage	27.22%

VERSATILE
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PROPOSED BUILDING FOR:
DELL & ROB POOLEY,
LOT 43 STAGE 3 TOTARA PARKLANDS

DRAWING TITLE
SITE PLAN

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FORUM NORTH PRIVATE BAG 9023, WHANGAREI, NEW ZEALAND TELEPHONE 09 430 4200 FAX 09 438 7632

Issue Document

VEHICLE CROSSING PERMIT APPLICATION NO: VC170165
Whangarei District Council Public Places ByLaw
Received: 9 October 2017
Issued: 28 March 2018

Applicant

F A Pooley, R M Pooley
19 Pebble Beach Boulevard
Kamo 0112

Agent

Site Information

Property ID: 167118
Street Address: 34 Wainui Avenue
Whangarei 0112
Legal Description: LOT 43 DP 507433

Project Information

THIS IS A VEHICLE CROSSING PERMIT APPLICATION ONLY

Fees

COUNCIL'S TOTAL CHARGES FOR THIS VEHICLE CROSSING PERMIT
ARE:
PAYMENTS RECEIVED TO DATE:
RECEIPT NUMBER: DATE: 28 March 2018 AMOUNT: $392.00

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ALL WINDOWS TO BE SITE MEASURED

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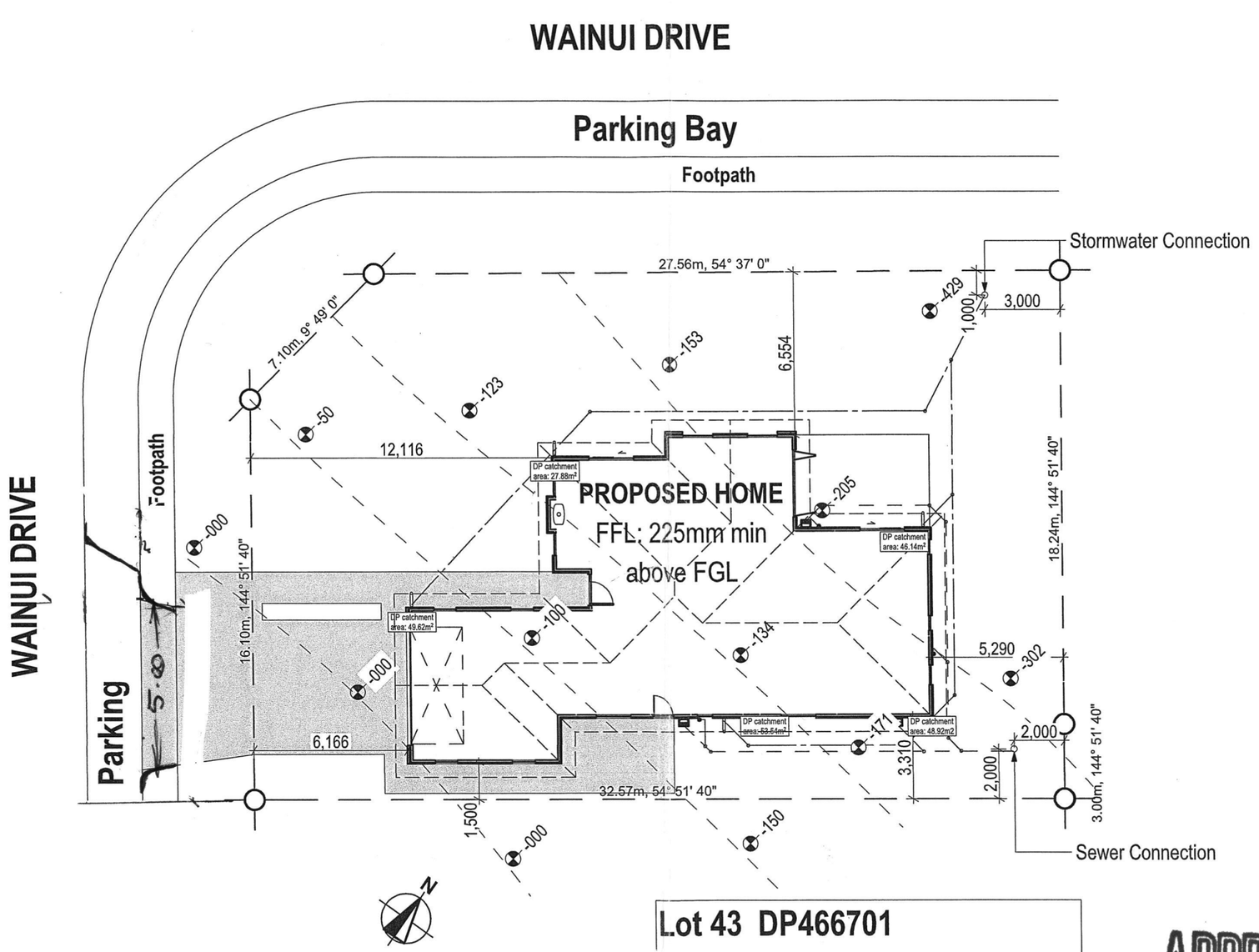
WHANGAREI
DISTRICT COUNCIL



Lot 43 DP466701	
Site area	677.00m²
Proposed Building Area	184.31m²
Proposed Total Site Coverage	27.22%

APPROVED
27-03-18
DJF

VERSATILE®
HOMES & BUILDINGS

PROPOSED BUILDING FOR:
DELL & ROB POOLEY,
LOT 43 STAGE 3 TOTARA PARKLANDS

DRAWING TITLE
SITE PLAN

Last Saved by rmowbray
File Location C:\Users\rmowbray\Desktop\Current Jobs\Jobs 25\170616\170616 AC20.pln

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Operative District Plan - Area Specific Matters

Whangarei District Council

The information displayed is schematic only and serves as a guide. It has been compiled from Whangarei District Council records and is made available in good faith but its accuracy or completeness is not guaranteed.

29 July 2026

Scale 1:500

Parcel Information is sourced from the Land Information New Zealand (LINZ) Data Service.
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Operative District Plan – Map Legend

Whangarei District Council

District-Wide Matters

Energy, Infrastructure and Transport

- National Grid Tower
- Northpower Tower CEL-Cat1
- National Grid Line
- Northpower Overhead Critical Line Cel-Cat1
- Northpower Critical Overhead Lines CEL
- Northpower Critical Underground Lines CEL
- Airport Runway
- Indicative Road
- National Road
- Regional Road
- Arterial Road
- Primary Collector Road
- Secondary Collector Road
- Low Volume Road
- Access Road
- Strategic Road Protection Area
- Strategic Railway Protection Line

Hazards and Risks

- Coastal Hazard Area 1
- Coastal Hazard Area 2
- Flood Susceptible Areas
- Mining Hazard Area 1
- Mining Hazard Area 2
- Mining Hazard Area 3

Historical and Cultural Values

- Notable Tree Overlay
- Heritage Item Overlay
- Sites of Significance to Maori
- Heritage Area Overlay
- Areas of Significance to Maori

Natural Environment Values

- Esplanade Priority Area
- Coastal Marine Area (CMA) boundary
- Goat Control Areas
- Outstanding Natural Feature
- Outstanding Natural Landscape

General District-Wide Matters

- Airport Noise Boundary
- Outer Control Boundary
- Helicopter Hovering Area
- Noise Control Boundary Overlay
- Rail noise alert area
- Rail vibration alert area
- QRA Quarrying Resource Area
- QRA Mining Area
- QRA Buffer Area
- QRA 500m Indicative Setback
- Coastal Environment Overlay
- Outstanding Natural Character Area
- High Natural Character Area

Area Specific Matters

- Designation
- Precinct
- Development Area

Residential Zones

- Large Lot Residential Zone
- Low Density Residential Zone
- General Residential Zone
- Medium Density Residential Zone

Rural Zones

- Rural Production Zone
- Rural Lifestyle Zone
- Settlement Zone Residential Sub-Zone
- Settlement Zone Centre Sub-Zone
- Settlement Zone Industry Sub-Zone

Commercial and Mixed Use Zones

- Local Centre Zone
- Neighbourhood Centre Zone
- Commercial Zone
- Mixed Use Zone
- Town Centre Zone
- City Centre Zone

Industrial Zones

- Light Industrial Zone
- Heavy Industrial Zone

Open Space and Recreation Zones

- Natural Open Space Zone
- Open Space Zone
- Sport and Active Recreation Zone

Special Purpose Zones

- Airport Zone
- Future Urban Zone
- Fonterra Kauri Milk Processing SRIZ – Ancillary Irrigation Farms
- Hospital Zone
- Port Zone
- Ruakaka Equine Zone
- Shopping Centre Zone
- Strategic Rural Industries Zone
- Waterfront Zone

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The Whangarei District Council district plan GIS data was created at a specific point in time.
Land parcel Information is sourced from the Land Information New Zealand (LINZ) Data Service. The LINZ land parcel information may be updated by LINZ at any time from that time, which may result in misalignments with Whangarei District Council information.

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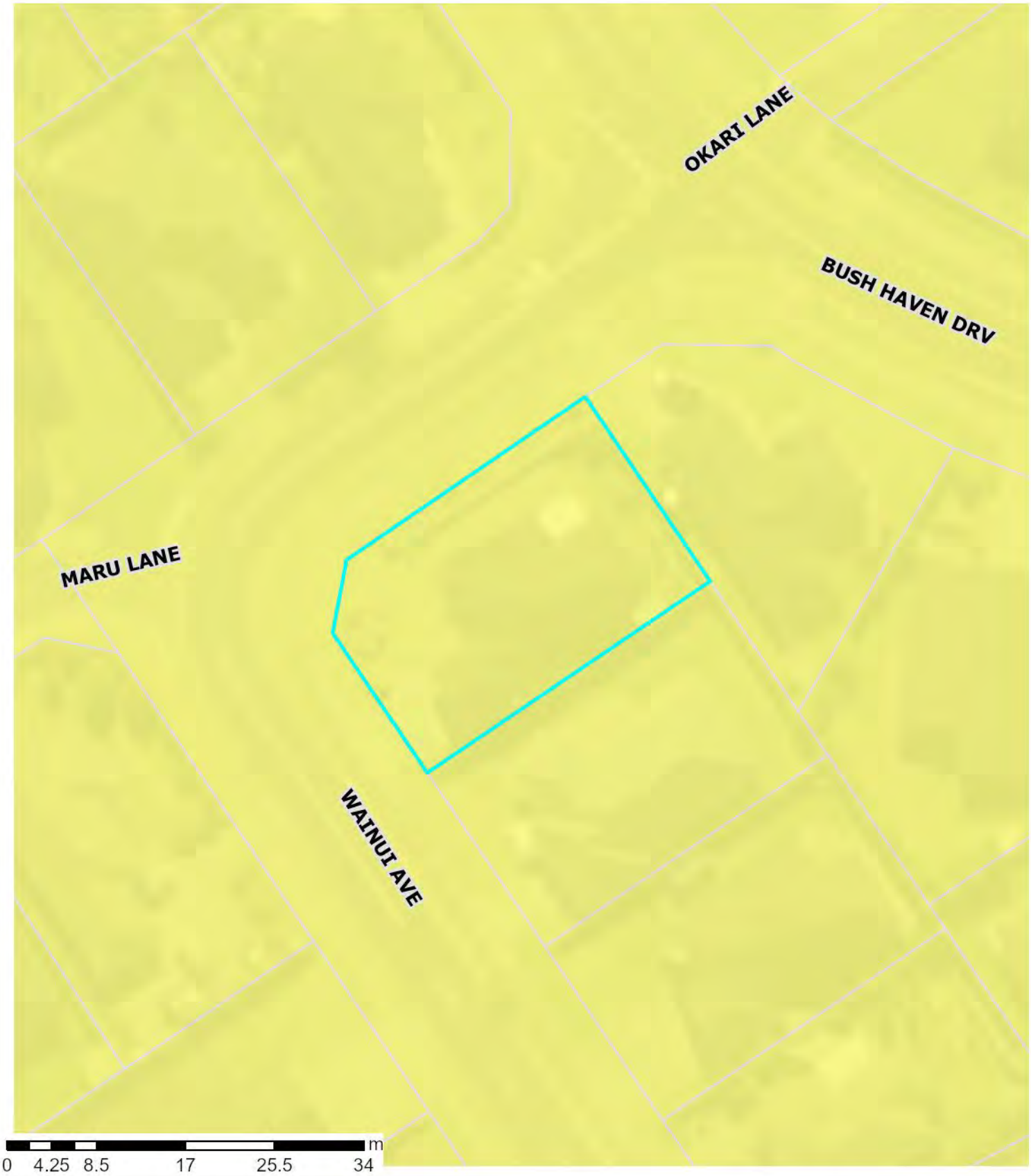
Land Instability

Whangarei District Council



Landslide Susceptibility Zone

- High
- Moderate
- Low

29 July 2026

Scale 1:500

Whangārei District Council holds indicative information on land stability hazard for Whangārei. The Whangarei District Council may require site-specific investigations before granting future subdivision or building consent for the property, depending on the level of stability risk of the area the property is in. Tonkin + Taylor Ltd Landslide Susceptibility assessment report: https://www.wdc.govt.nz/files/assets/public/v/2/documents/council/reports/hazard-reports/land-stability/landslide-susceptibility-technical-report.pdf

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