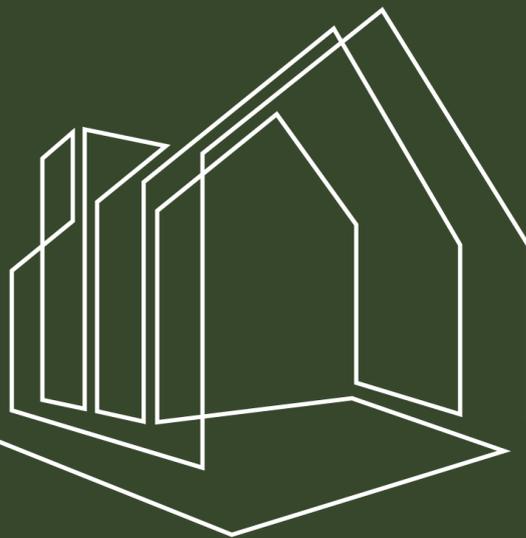


WDC LIM REPORT



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Land Information Memorandum

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

LIM number: LM2600192

Received: 30 Jan 2026

Issued: 18 Feb 2026

Applicant

A Singh, J Kaur
44 Brenda Gardner Way
RD 9
Whangarei 0179

Site Information

Property ID: 163867

Street Address: 44 Brenda Gardner Way (Pvt)
Whangarei 0179

Legal Description: LOT 8 DP 481012

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: 673456
- Deposited Plan: DP 481012

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

- Interest Number 9909402.4 Dated – 11/12/2014

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 9909402.4 Dated – 11/12/2014 together with Site Suitability Report by Cook Costello dated 05/09/2013 reference 12037.

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

No Whangarei District Council services are available in this area.

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

- As Built Services Plan from BC1800047

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

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

s44A(2)(d) Any permit, consent, certificate, notice, order or requisition affecting the land or buildings; 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:

- BC1800047 – New Dwelling
Building Consent Issued – 02/03/2018
Code Compliance Certificate Issued – 23/01/2019

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

This property is located in a Large Lot 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

Whangarei District Council is not aware of any classification attached to the land or building/s.

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

Whangarei District Council recommends that all Whangarei 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 Whangarei 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

This property is mapped under PC1 as **Moderate Land Instability**. The Whangarei District Council notified PC1 on 31 May 2023. The Plan Change introduces new provisions relating to natural hazards to the District Plan, including updated hazard maps and rules for land use, development, and subdivision in hazard susceptible areas. As of 4 December 2024 the Decision Version PC1 rules have legal effect.

Refer to map attached and for more information on the proposed plan change please visit <https://www.wdc.govt.nz/PlanChanges>

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 Taitokerau 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.

This property is not in an area identified by Northland Regional Council as a River or Coastal Flood Hazard Zone.

Land Instability

Whangarei 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. Whangarei 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 & moderate**. These maps are based on a district wide study entitled 'Landslide Susceptibility Assessment for Whangarei 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 Whangarei 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 Whangarei District Council
2. Report date:	October 2022
3. Report prepared by:	Tonkin & Taylor Ltd
4. Report commissioned by:	Whangarei 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 Whangarei 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:	Whangarei 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 Whangarei District Council.

Whangarei 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 Taitokerau 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 Taitokerau Northland.

Northland Regional Council has identified erosion prone land and this is mapped as part of our Proposed Regional Plan.

<https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=31f5c66ea0074f59908767452bcbc60d>

Technical Reports for erosion prone land

1. Scope of report	Regional
2. Report Title:	Sediment Process-Attribute Layer for Northland, Report 2018/35
3. Report date:	2019
4. Report prepared by:	Land and Water Science
5. Report commissioned by	Northland Regional Council
6. Purpose of the report:	This work uses regional airborne gamma-ray data, elevation maps, and geological information to understand how different natural features - like rock and sediment types, faults, and landforms - affect how likely the Northland region is to experience landslides, erosion, and better understanding sediment supply to the region's waterways, estuaries, and harbours.
7. Where or how to access report	Report available upon request from Northland Regional Council

1. Scope of report	Regional
2. Report Title:	Regional Water and Soil Plan for Northland
3. Report date:	2024
4. Report prepared by:	Northland Regional Council
5. Report commissioned by	Northland Regional Council
6. Purpose of the report:	This Plan has combined regional air, land, water and coastal plan, which sets controls for the sustainable management of natural and physical resources of the Northland Region.
7. Where or how to access report	Proposed Regional Plan 2024 https://www.nrc.govt.nz/your-council/about-us/council-projects/new-regional-plan/

Drought

Drought in Te Taitokerau 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 Taitokerau 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 Whangarei 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:



P Luwes
Property Information Officer

Property Map



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

17 February 2026
Scale 1:1,500



Aerial Photography



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

17 February 2026

Scale 1:1,500



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.



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD**

**Guaranteed Search Copy issued under Section 60 of the Land
Transfer Act 2017**




R.W. Muir
Registrar-General
of Land

Identifier **673456**
Land Registration District **North Auckland**
Date Issued 19 December 2014

Prior References
NA107A/653

Estate Fee Simple
Area 2090 square metres more or less
Legal Description Lot 8 Deposited Plan 481012
Registered Owners
Avondeep Singh and Jasleen Kaur

Interests

Subject to a right to transmit electricity and telecommunications over part marked Q on DP 481012 specified in Easement Certificate D068332.6 - 15.11.1996 at 2.13 pm

Appurtenant hereto are rights to convey water and transmit electricity specified in Easement Certificate D068332.6 - 15.11.1996 at 2.13 pm

Some of the easements specified in Easement Certificate D068332.6 are subject to Section 243 (a) Resource Management Act 1991(see DP 174535)

Appurtenant hereto is a right to transmit electricity and telecommunications created by Transfer D068332.7 - 15.11.1996 at 2.13 pm

The easements created by Transfer D068332.7 are subject to Section 243 (a) Resource Management Act 1991
9909402.4 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 19.12.2014 at 10:47 am

Subject to a right (in gross) to convey electricity, telecommunications & computer media over parts marked Q, AC & AD on DP 481012 in favour of Northpower Limited created by Easement Instrument 9909402.5 - 19.12.2014 at 10:47 am

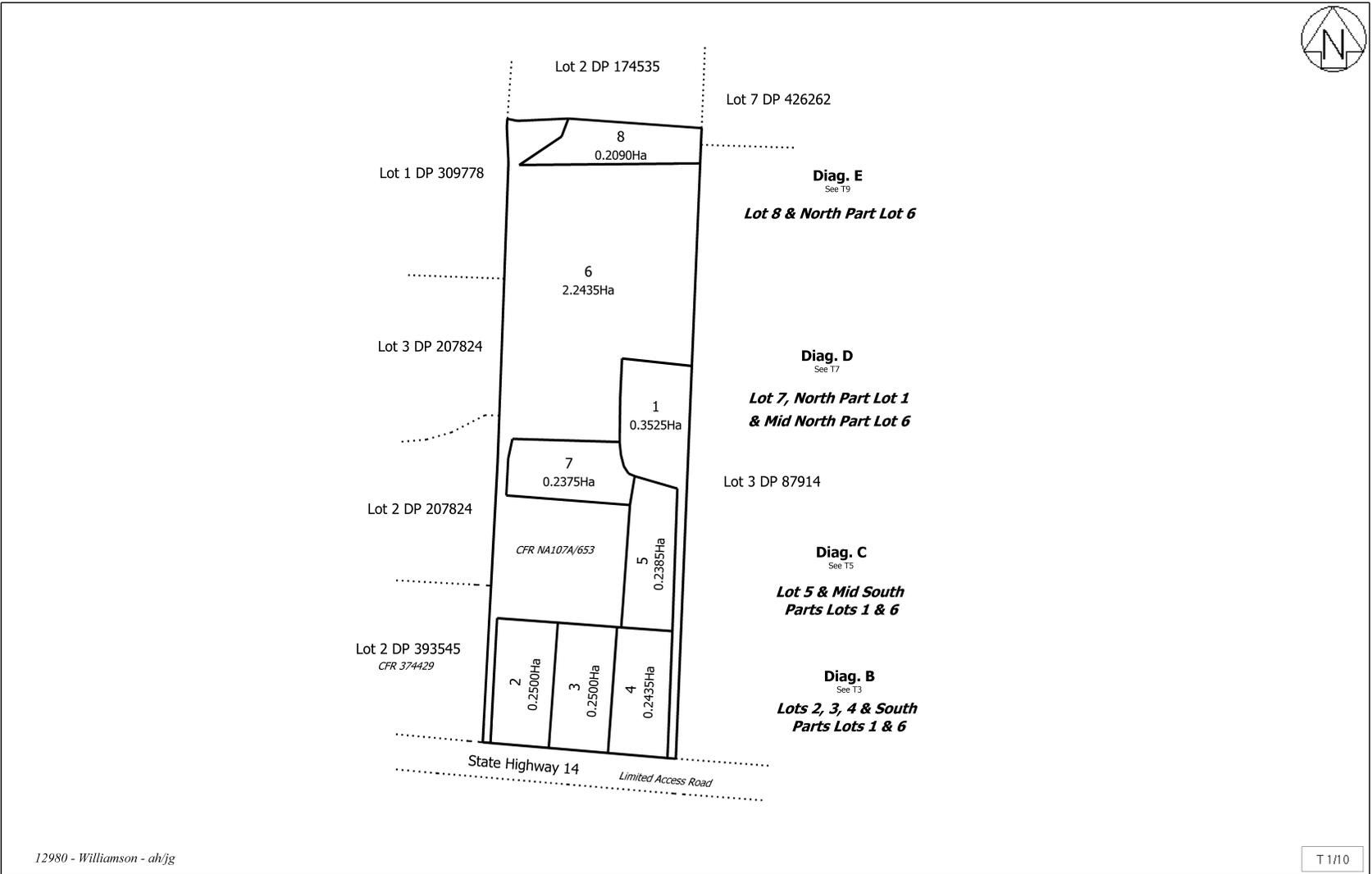
The easements created by Easement Instrument 9909402.5 are subject to Section 243 (a) Resource Management Act 1991

Subject to a right to convey electricity, telecommunications & computer media over parts marked Q, AC & AD on DP 481012 created by Easement Instrument 9909402.6 - 19.12.2014 at 10:47 am

Appurtenant hereto is a right of way created by Easement Instrument 9909402.6 - 19.12.2014 at 10:47 am

The easements created by Easement Instrument 9909402.6 are subject to Section 243 (a) Resource Management Act 1991
Land Covenant in Easement Instrument 9967413.1 - 9.2.2015 at 2:53 pm (Limited as to duration)

12418041.3 Mortgage to Bank of New Zealand - 1.4.2022 at 5:44 pm



<p>Land District: North Auckland</p> <p>Digitally Generated Plan Generated on: 15/01/2015 12:09am Page 5 of 14</p>	<p>LOTS 1 - 8 BEING A SUBDIVISION OF LOT 1, DP 174535 & EASEMENT OVER LOT 2, DP 393545</p>	<p>Surveyor: Phillip John Lash Firm: Reyburn & Bryant 1999 Ltd</p>	<p>Title Plan LT 481012 Approved on: 15/01/2015</p>
---	---	--	--

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. 481012

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. 481012 ("the plan")

1. Any development undertaken on Lots 2 through 8 on the plan shall comply with the restrictions and recommendations identified in the engineering site suitability report ref: 12037 compiled by Cook Costello Ltd dated 5 September 2013, a copy of which is attached hereto, unless an alternative engineering report prepared by a suitably experienced chartered professional engineer ("CPE") is approved in writing by the Council.
2. At the time of application for a building consent for any building to be constructed on lots 2, 3, 4, 5, 7 and 8 on the plan suitable evidence/design shall be provided to illustrate that stormwater attenuation will be provided for all impervious surfaces to ensure compliance with Chapter 4, and more specifically Section 4.11 of the Council's Environmental Engineering Standards 2010, to the satisfaction of the Council's Senior Environmental Engineering Officer.
3. The owners of Lots 2 through 7 on the plan shall be made aware that the common water tanks constructed as part of subdivision works within the southern portion of the avocado orchard on Lot 6 on the plan are for the purposes of fire fighting water supply and must be maintained full with a minimum water volume of 45m³ in accordance with the New Zealand Fire Service Firefighting Water Supplies Code of Practice SNZ PAS 4509:2009.
4. The owners of Lot 8 on the plan shall be made aware that at the time of the application for a building consent for a residential dwelling to be constructed on such property that an individual water tank shall be constructed for the purposes of fire fighting water supply and must be maintained full with a minimum water volume of 45m³ (or 7m³ if a domestic sprinkler system has been installed) in accordance with the New Zealand Fire Service Firefighting Water Supplies Code of Practice SNZ PAS 4509:2009.



Christchurch
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Sydenham
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office.chch@ccco.co.nz
www.cookcostello.co.nz



SITE SUITABILITY REPORT

*626 Maunu Road (S.H.14), Maunu
Proposed subdivision of Lot 1 DP
174535*

For J.D. and M.A. Williamson



cook | costello

Consulting Engineers

05 September 2013

Project Number: 12037

J.D. and M.A. Williamson
 626 Maunu Road (SH14), Maunu



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1. INTRODUCTION

Cook Costello Ltd has been briefed to provide a subdivision suitability report for a proposed 8 lot subdivision at 626 Maunu Road (State Highway 14), Maunu. The proposed subdivision intends to create seven new allotments (proposed Lots 2 to 8) from the existing Lot 1 DP174535. Proposed Lot 1 will contain the existing dwelling. The report considers the following aspects of the subdivision development:

- Existing stability of the site
- Effects on stability of the development
- Building foundations and building suitability
- On-site wastewater management
- Stormwater management
- Potable water supply and fire fighting requirements
- Access suitability

A site plan at 1:2000 is attached in Appendix 1 showing the existing and proposed property boundaries. Four site suitability plans at 1:500 are also included in Appendix 1 showing possible building platforms, effluent fields and site investigation details within the proposed lots. A standard detail for a wastewater dose loaded LPED irrigation system is also included in Appendix 1.

Cook Costello has also completed a National Environmental Standards (NES) report assessing the Ministry for the Environment (MFE) guidelines which should be read in conjunction with this report.

1.1. Relevant Documentation

- AS/NZS 1547:2012 – On-site domestic wastewater management.
- AS2870:2011 – Construction of residential slabs and footings.
- NZS 3604:2011 – Timber framed buildings.
- NZS 4402:1986 – Methods of testing soils for civil engineering purposes.
- SNZ PAS 4509:2008 – New Zealand Fire Service firefighting water supplies code of practice.
- NZ Building Code: B1/VM4

Good Ground – means any soil or rock capable of permanently withstanding an ultimate bearing pressure of 300kPa (i.e. an allowable bearing 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 NZS4402 Test 2.2 and a linear shrinkage of more than 15% when tested from the liquid limit in accordance with NZS 4402 Test 2.6 and,
- c) Any ground which could foreseeably experience movement of 25mm or greater for any reason including one or a combination of the following: land instability, ground creep, subsidence, seasonal swelling and shrinking, frost heave, changing ground water level, erosion, dissolution of soil in water, and effects of tree roots.
- Whangarei District Council Land Resources and Hazard maps (2013).
 - GNS Science (Institute of Geological & Nuclear Sciences) 1:250,000 Geological Map 2 – Geology of the Whangarei Area.
 - Northland Regional Council – Regional Water and Soil Plan for Northland

2. SITE DESCRIPTION

The property is located in Maunu on the northern side of State Highway 14, 150m east of the intersection of State Highway 14 and Golf Harbour Drive. The property is approximately 500m east of Sherwood Park Golf Club. The legal description of the lot to be subdivided is Lot 1 DP 174535 and has a total area of 4.0260ha.

The site predominately is flat to rolling having gentle slopes of 1-2° with an isolated mound on the eastern side of proposed Lot 7 which spreads down into proposed Lot 6. The north western corner of the property in proposed Lot 8 is also slightly elevated above the adjacent land. Proposed Lots 2, 3 and 4 are situated to the south of the property and have a gentle slope of 1° - 2° grading down to the road. These lots each have a proposed area of 2500m² and situate the proposed building platforms in the middle to northern part of the lots. Proposed Lot 5 is situated directly north of proposed Lot 4 with the existing farm house to the north and the avocado orchard to the west. It has a proposed area of 2500m² and gently grades north at a slope of 1° - 2°. Proposed Lot 6 has an area of 2.3077ha and is split up into two main portions. Portion one, to the south, is surrounded by proposed Lots 2 to 7 and the majority is currently an avocado orchard apart from the northern section, which is where the proposed development of the lot is planned, having a gentle slope of 1° - 2°. Portion two is the northern part of the property and is also currently an avocado orchard. Portion two has not been considered as part of our investigations as no building platform is proposed in this portion of proposed Lot 6. Proposed Lot 7 has a proposed area of 2500m² and is situated west of the existing house. Proposed Lot 7 has a large mound on the eastern edge which spreads down into proposed Lot 6. The remainder of proposed 7 is gentle sloping predominately having grades of 1° - 2°. Proposed Lot 8, having an area of 2183m², is situated in the most northern part of the property north of the existing stone wall. It is proposed that a building platform be situated in the eastern part of this lot having existing grades of between 5° - 10°. Proposed Lot 1 contains the existing dwelling and has not been assessed as part of this report.

Maunu has fertile, well drained soils which are conducive for horticulture activities. By retaining the horticulture aspect within the subdivision the feeling of the area will be maintained and this will give the proposed Lots a sense of rural living and privacy. This will make this subdivision an attractive place to live.

J.D. and M.A. Williamson
 626 Maunu Road (SH14), Maunu

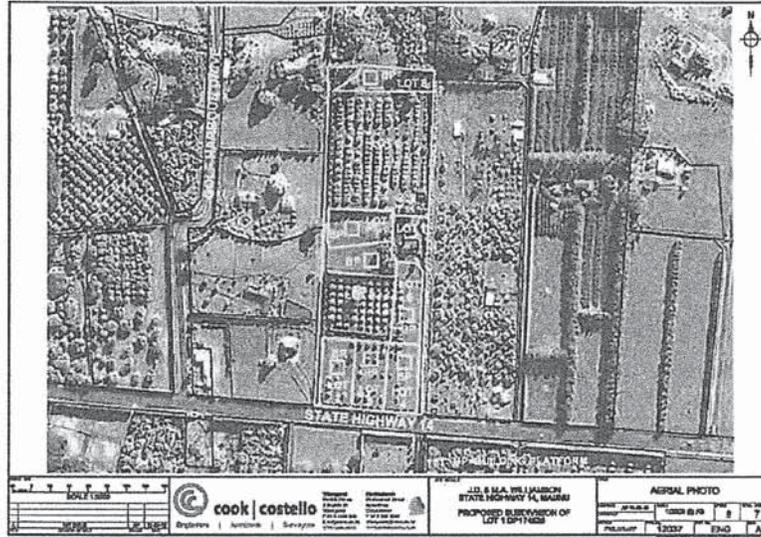


Figure 1: Cook Costello cad file with aerial photograph imported showing the 8 lot subdivision of Lot 1 DP174535 highlighted and location of the proposed building platforms.

Proposed Lots 2 – 5 and 7 – 8 are mainly covered with pasture with a few scattered avocado trees. The majority of proposed Lot 6 is an avocado orchard. No evidence of accelerated surface creep, deep-seated instability or slippage was observed within the site.

Whangarei District Council planning maps indicate that the proposed subdivision is zoned as Urban Transition Environment. The entire proposed subdivision is mapped as Low Instability Hazard. There is no Flood Susceptibility Hazard mapped. See figure 2 below.



Figure 2: WDC GIS hazard map (2013)

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No permanent or ephemeral watercourses were observed on site. A stream runs approximately 120m north of the subdivision. The site appears to be well draining with no ground water encountered during soil investigations. According to the WDC GIS maps the land is situated above an aquifer.

Whangarei District Council planning maps indicate all proposed lots have Medium Effluent Unsuitability with Medium Effluent Disposal Potential.

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3. GEOLOGY

The soil type in the area is defined on NZMS290 Sheet Q06/07 Hukerenui - Whangarei (SOILS) as Maunu silt loam + Maunu bouldery silt loam (**MU + MUb**), well to moderately well drained soils of the rolling and hilly land.

The rock type in the area is defined on NZMS290 Sheet Q06/07 Hukerenui - Whangarei (ROCK TYPES) as Basalt with Scoria (**F6₁**); flows and cones of glassy and very fine to medium grained crystalline basalt, dense or vesicular, interbedded with scoria (**B1**) in places, moderately fractured; hard to very hard. Weathered to soft brown clay to depths of 10m.

The Institute of Geological and Nuclear Sciences Geology of the Whangarei Area defines the geology of the site as KERIKERI VOLCANIC GROUP Basalt flows (**Qvb**).

Site observation of paddock boulders, and the soils texture and colour encountered during borehole investigations, indicate volcanic material covers the site. Large boulders are visible on the surface and in many cases were the cause for the end of borehole investigation. The lay of the land is predominately very gently graded with a large mound on proposed Lot 7 which spreads down into proposed Lot 6. The large mound is probably due to large boulders under the surface with silt and volcanic ash being eroded away around the extents of this mound. Another possibility is volcanic lava flows pushing up through the earth's surface forming a volcanic cone. Proposed Lot 8 is also slightly elevated in the north west corner above the adjacent ground.

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4. SITE INVESTIGATIONS

Geotechnical field investigations were carried out on the 25th of July, 2013. These investigations comprised of:

- Visual inspections and walkover.
- Eight hand augered boreholes (BH) with shear vane measurements to identify subsurface soil properties.
- Fifteen dynamic cone scale penetrometer tests (SP) to confirm bearing pressures and uniformity of the soil.

The location of all field investigations are shown on the site suitability plans attached as Appendix 1.

The results of all field investigations are attached as Appendix 2.

4.1. Borehole Results

4.1.1. Subsoil

BH1 was located at the building platform within proposed Lot 8 on the 5° slope in the north west corner and identified approximately 50mm of topsoil overlying moist, friable, highly plastic, stiff, moderately sensitive, reddish brown silty CLAY with traces of gravel to 20mm to a depth of 1.3m, overlying moist, friable, highly plastic, very stiff, moderately sensitive to non-sensitive, reddish brown with very minor black speckles/mottling silty CLAY with traces of sand/very weak gravel to 5mm to a depth of 2.2m. End of bore at 2.2m as hit rock. The ground water was not encountered.

BH2 was located at the proposed effluent disposal location for proposed Lot 8 on the flat and identified approximately 100mm of topsoil overlying moist, friable, highly plastic, hard, moderately sensitive, brown silty CLAY with traces of gravel to 10mm to a depth of 1.25m. End of bore at 1.25m as too hard to continue. The water table was not encountered.

BH3 was located at the building platform within proposed Lot 7 on the flat west of the mound and identified approximately 100mm of topsoil overlying moist, friable, highly plastic, very stiff, moderately sensitive, brown silty CLAY with traces of sand and minor roots to a depth of 1.0m, overlying moist, friable, highly plastic, hard, moderately sensitive, brown with very minor black silty CLAY with traces of sand and minor hard black gravel to 5mm to a depth of 1.8m overlying moist, friable, highly plastic, hard, moderately sensitive, brown to orangey brown silty CLAY with traces of sand/gravel to a depth of 2.5m. End of bore at 2.5. The water table was not encountered.

BH4 was located at the building platform within proposed Lot 6 on the flat and identified approximately 100mm of topsoil overlying moist, friable, highly plastic, very stiff to hard, insensitive to moderately sensitive, orangey brown silty CLAY with traces of sand/gravel to a

depth of 1.1m, overlaying moist, friable, highly plastic, very stiff, sensitive, orangey brown silty CLAY with minor sand/gravel to 20mm to a depth of 1.6m. End of bore at 1.6m as too hard to continue. The water table was not encountered.

BH5 was located at the building platform within proposed Lot 5 and identified approximately 100mm of topsoil overlying moist, friable, highly plastic, very stiff, moderately sensitive, orangey brown silty CLAY to a depth of 1.0m, overlaying moist, friable, highly plastic, very stiff, moderately sensitive to sensitive, orangey brown with minor grey silty CLAY with traces of sand/gravel to 5mm with gravel getting larger with depth to 20mm to a depth of 1.7m. End of bore at 1.7m as hit rock. The water table was not encountered.

BH6 was located south of the building platform at the approximate effluent disposal site within proposed Lot 2 and identified approximately 200mm of topsoil overlying moist, friable, highly plastic, hard, orangey brown with minor purple silty CLAY with minor weak gravel to 20mm to a depth of 0.9m. End of bore at 0.9m as hit rock. The water table was not encountered.

BH7 was located at the building platform within proposed Lot 3 and identified approximately 200mm of topsoil overlying moist, friable, highly plastic, very stiff, moderately sensitive, orangey brown silty CLAY with some shallow charcoal to a depth of 1.3m, overlaying moist, friable, highly plastic, very stiff, sensitive, orangey brown with some reddy orange silty CLAY with some sand/extremely weak gravel to a depth of 2.1m overlaying very moist to wet, friable, highly plastic, very stiff, sensitive, orangey brown with minor reddy brown silty CLAY with some sand/extremely weak gravel to 20mm to a depth of 2.2m. End of bore at 2.2m as hit rock. The water table was not encountered.

BH8 was located at the building platform within proposed Lot 4 and identified approximately 100mm of topsoil overlying moist, friable, highly plastic, very stiff to hard, moderately sensitive, orangey brown silty CLAY to a depth of 1.8m, overlaying moist, friable, highly plastic, stiff to very stiff, moderately sensitive, orangey brown very silty CLAY with traces of sand/gravel to a depth of 2.5m. End of bore at 2.5m. The water table was not encountered.

The boreholes are consistent with the geological description of the site.

4.1.2. Shear Strength

Shear strengths were measured at 0.5m intervals during Boreholes to determine the soils in-situ shear strength properties with a summary of the results and associated soil sensitivities shown in Table 1 below.

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Depth (m)	BH1 (max/ residual kPa)	BH1 Soil Sensitivity	BH2 (max/ residual kPa)	BH2 Soil Sensitivity	BH3 (max/ residual kPa)	BH3 Soil Sensitivity	BH4 (max/ residual kPa)	BH4 Soil Sensitivity
0.5	>248	-	226/69	3.3	152/44	3.5	219/124	1.8
1.0	99/28	3.5	202/65	3.1	244/88	2.8	191/55	3.5
1.5	163/103	1.6	-	-	>248	-	141/21*	6.7
2	141/46	3.1	-	-	216/71	3.0	-	-
2.5	-	-	-	-	177/83	2.1	-	-
Depth (m)	BH5 (max/ residual kPa)	BH5 Soil Sensitivity	BH6 (max/ residual kPa)	BH6 Soil Sensitivity	BH7 (max/ residual kPa)	BH7 Soil Sensitivity	BH8 (max/ residual kPa)	BH8 Soil Sensitivity
0.5	195/53	3.7	>248*	-	150/53	2.8	205/60	3.4
1.0	127/41	3.1	-	-	180/60	3.0	173/71	2.4
1.5	140/21*	6.7	-	-	219/53	4.1	205/71	2.9
2	-	-	-	-	138/25	5.5	129/50	2.6
2.5	-	-	-	-	-	-	95/35	2.7

Table 1: Shear strengths and soil sensitivity (*=inaccurate due to gravel)

BH1 Soil Strength - The shear strength of the soil at BH1 is stiff to hard. The soil sensitivity is insensitive, normal to moderately sensitive.

BH2 Soil Strength - The shear strength of the soil at BH2 is hard. The soil sensitivity is moderately sensitive.

BH3 Soil Strength - The shear strength of the soil at BH3 is very stiff to hard. The soil sensitivity is moderately sensitive.

BH4 Soil Strength - The shear strength of the soil at BH4 is very stiff to hard. The soil is insensitive, normal to moderately sensitive.

BH5 Soil Strength - The shear strength of the soil at BH5 is very stiff. The soil is moderately sensitive.

BH6 Soil Strength - The shear strength of the soil at BH6 is hard.

BH7 Soil Strength - The shear strength of the soil at BH7 is very stiff to hard. The soil is moderately sensitive to sensitive.

BH8 Soil Strength - The shear strength of the soil at BH8 is stiff to hard. The soil is moderately sensitive.

4.2. Scala Penetrometer Results

Fifteen dynamic cone scala penetrometer tests (SP) were undertaken at the site to determine the inferred allowable bearing capacity to assist in the design of foundations for the proposed development. Seven tests were carried out from existing ground level adjacent to the boreholes and eight were taken from the base of each borehole. The site plan attached in Appendix 1 shows the location of these.

SP1 was located adjacent to BH1 and taken to a depth of 2.35m. SP1 indicated an allowable bearing capacity of 95kPa between depths of 0.95-1.10 but otherwise had an allowable bearing capacity in excess of above 100kPa. **(Lot 8)**

SP2 was undertaken from the base of BH1 from 2.2m to a depth of 4.11m. SP2 indicated an allowable bearing capacity in excess of 32kPa. **(Lot 8)**

SP3 was undertaken from the base of BH2 from 1.25m to a depth of 2.06m. SP3 indicated an allowable bearing capacity in excess of 100kPa throughout. **(Lot 8)**

SP4 was located adjacent to BH3 and taken to a depth of 1.41m. SP4 indicated an allowable bearing capacity in excess of 100kPa at normal foundations depths. **(Lot 7)**

SP5 was undertaken from the base of BH3 from 2.5m to a depth of 5.22m. SP5 indicated an allowable bearing capacity in excess of 55kPa. **(Lot 7)**

SP6 was located adjacent to BH4 and taken to a depth of 1.72m. SP6 indicated an allowable bearing capacity in excess of 100kPa at normal foundations depths. **(Lot 6)**

SP7 was undertaken from the base of BH4 from 1.6m to a depth of 1.86m. SP7 indicated an allowable bearing capacity in excess of 78kPa. **(Lot 6)**

SP8 was located adjacent to BH5 and taken to a depth of 1.93m. SP8 indicated an allowable bearing capacity in excess of 100kPa at normal foundations depths. **(Lot 5)**

SP9 was undertaken from the base of BH5 from 1.7m to a depth of 2.37m. SP9 indicated an allowable bearing capacity in excess of 40kPa. **(Lot 5)**

SP10 was located adjacent to BH6 and taken to a depth of 0.77m. SP10 indicated an allowable bearing capacity in excess of 100kPa at normal foundations depths. **(Lot 2)**

SP11 was undertaken from the base of BH6 from 0.9m to a depth of 1.01m. SP11 indicated an allowable bearing capacity in excess of 100kPa throughout. **(Lot 2)**

SP12 was located adjacent to BH7 and taken to a depth of 1.54m. SP12 indicated an allowable bearing capacity in excess of 100kPa at normal foundations depths. **(Lot 3)**

SP13 was undertaken from the base of BH7 from 2.2m to a depth of 2.72m. SP13 indicated an allowable bearing capacity in excess of 100kPa throughout. **(Lot 3)**

SP14 was located adjacent to BH8 and taken to a depth of 1.44m. SP14 indicated an allowable bearing capacity in excess of 100kPa at normal foundations depths. **(Lot 4)**

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SP15 was undertaken from the base of BH8 from 2.5m to a depth of 4.58m. SP15 indicated an allowable bearing capacity in excess of 26kPa throughout. **(Lot 4)**

At all locations within the property an inferred allowable bearing capacity in excess of 100kPa is available at normal shallow foundation depths. However at proposed Lots 5 – 8 the allowable bearing capacity is not achieved at depths below normal foundation depths.

Laboratory testing of soil samples from the site were not undertaken. Atterberg Limits and Linear Shrinkage tests at other sites on similar basalt derived soils of the Puhipuhi-Whangarei Volcanic Field have previously been undertaken. These tests have determined liquid limits in excess of 50% in each case, ranging up to 88%, and have determined linear shrinkage in excess of 15% in each case, ranging up to 24%. These results exceed the NZ Building Code threshold value for the definition of Good Ground, described in Section 1.1 of this report, and indicate that the soil has an extremely high shrinkage potential. The soils at this subdivision are expected to behave similarly.

At proposed Lots 2, 3 and 4 there is an inferred shallow depth to rock at the effluent field locations.

5. SITE STABILITY

The Kerikeri Volcanics are at ground surface over a significant proportion of the Maunu area. They are predominantly basaltic. The lavas erupted sub-aerially and are inferred to be intra-plate. They consist of tuffs, scoria cones and ridge-top remnants and flows, constrained by modern topography. They are up to 80m thick and tend to be very well drained. Kerikeri basalts overlie blue clays, sands and greywacke gravels. They are of Plio-Pleistocene age (around 2-4 million years). Land underlain by extrusive rock of the Kerikeri Volcanics can be steep but tends to be stable. The site is considered to be consistent with the above geological description. No recent or relic land instabilities were observed at the site. This site therefore is considered as presently stable.

6. FOUNDATIONS

The surficial soils observed during the field investigations are considered to be very stiff, highly plastic and highly expansive and are likely to be subject to shrink swell effects. The soils are interpreted as Class H in accordance with AS2870 for highly expansive soils. The allowable bearing capacity is inferred as in-excess of 100kPa at normal foundation depth of 0.45m – 0.6m below ground level, which is an ultimate bearing capacity of 300kPa and a dependable bearing capacity of 150kPa with a strength reduction factor of 0.5.

It is considered that the proposed building sites do not meet the requirements for Good Ground as defined in the New Zealand Building Code. Any foundations will therefore require specific design by a suitably qualified Chartered Professional Engineer with consideration given to the expansive nature of the soils.

The soil investigations indicate that there is an overlying firm layer below the topsoil down to between 1.6m - 2.2m. Below this solid crust the soil weakens considerably as recorded in the scala penetrometer tests taken at the bottom of the boreholes which is likely attributed to an increased moisture content with depth. Therefore due to the expansive soils and reduction in bearing capacity with depth it is recommended that shallow foundations be used. A slab on grade floor system (stiffened or rib raft) would be suitable. Alternatively shallow timber piles and subfloor is considered appropriate.

Cut/fill operations greater than 400mm for proposed Lots 5 and 6, and 600mm for proposed Lots 7 and 8 will need to be taken into account when the foundation is designed by a suitably qualified Chartered Professional Engineer to check the differential bearing in the underlying layers.

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7. EFFLUENT TREATMENT AND DISPOSAL SYSTEM

The proposed design of the effluent treatment and disposal system is in accordance with the standard AS/NZS 1547:2012 for onsite domestic wastewater management.

The proposed dwellings will likely be serviced by roof water supply and it is assumed that standard water reduction fixtures will be in use, resulting in a daily flow rate of 145 L/person/day. Were water supply serviced by ground bore without reduction fixtures the daily flow rate is 200 L/person/day and the disposal field sizing's given below should be adjusted accordingly. The minimum separation distance of 20m between an effluent field and a ground water bore will need to be considered between adjacent lots before any ground water bore is installed.

For design purposes a four bedroom dwelling is assumed. The design occupancy for a 4 bedroom dwelling is 7 persons giving a design daily flow rate of 1015 L/day for disposal system treatment.

Several ground water bores are indicated in vicinity of the disposal fields with the nearest being in excess of 80m distance to the east of the proposed Lot 8 effluent field (See Figure 3 below). A permanent watercourse is located 120m north of the proposed subdivision. Otherwise no other surface water courses are present. During ground investigations no water tables were encountered however it needs to be noted that the subdivision is situated over an aquifer.

A minimum reserve area of 30% for application of secondary treated wastewater and 100% for application of primary treated wastewater is required by the Northland Regional Council Water and Soil Plan.

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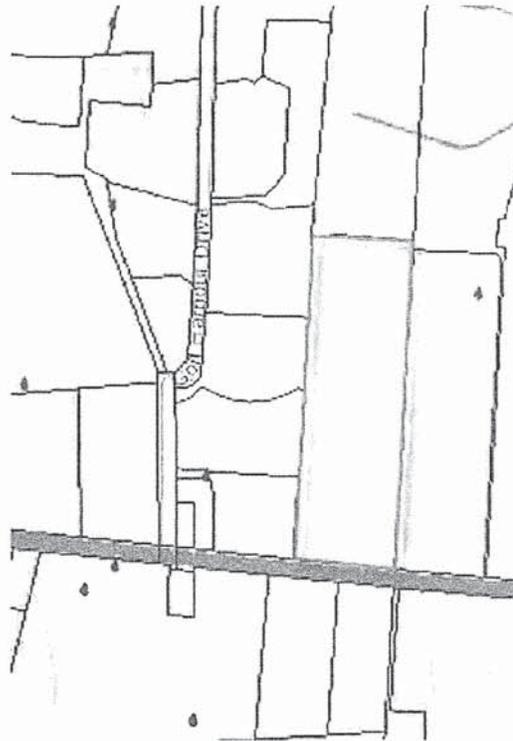


Figure 3: NRC GIS mapped ground water bores

7.1. Proposed Lots 2, 3 and 4

The friable volcanic derived silty clay soils at the proposed Lots 2, 3 and 4 disposal fields behave as a clay loam and therefore have an effluent disposal category of 4, being moderately structured with an indicative permeability K_{sat} of 0.5 - 1.5 m/day.

Proposed Lots 2, 3 and 4 are shown to have a proposed disposal field location towards the southern edge of the proposed site. The slope configuration here is linear planar with gentle slopes of 1° - 2° sloping down from north to south.

At this proposed disposal field location there is a site constraint of shallow rock. Due to the inferred shallow depth of rock shown in BH6, and a minimum depth to groundwater separation requirement of 1.2m for primary treated effluent disposal, it is recommended the proposed method for effluent disposal for proposed Lots 2, 3 and 4 to be the pressure compensative dripper irrigation system, which requires secondary treatment effluent. Secondary treated effluent reduces the minimum depth to groundwater to 0.6m.

This method utilises a low-pressure network of 16mm diameter pipe with spaced, self-compensating drippers providing a uniform distribution of the wastewater to the area. For sub-surface irrigation the drip line is laid approximately 100mm below the ground surface. An adequate topsoil layer is present at the disposal field for this disposal method and slope without the requirement for further media to be brought in and spread.

The secondary treatment system will be required to produce effluent of a quality meeting or exceeding the requirements of secondary treated effluent (<20g/m³ BOD₅ and <30g/m³ SS). This can be achieved using an aerated treatment plant, by use of a recirculating sand filter or other certified secondary treated system.

Form EES-SEW1 attached in Appendix 3.

7.1.1. Proposed Lots 2, 3 and 4 - Pressure Compensating Dripper Irrigation

$Q = 145 \text{ litres/person/day} \times 7 \text{ persons} = 1015 \text{ litres/day}$

DIR slope adjustment = 0%

DIR = 3.5mm/day

Line spacing (max) = 1m

Field area = $1015 \text{ litres/day} / 3.5 \text{ mm/day} = 290\text{m}^2$

Reserve area = 30% of field area = 90m^2

Total field area = 380m^2

7.1.2. Proposed Lots 2, 3 and 4 - Site Specific Mitigation Measures

The recommended location for the effluent disposal field is shown on the site plan attached in Appendix 1. Specific mitigation measures are recommended for on-site wastewater systems utilising a secondary treatment system as detailed above should adhere to the following recommendations:

1. The system shall be constructed by a registered drainlayer.
2. The secondary treatment system and the accompanying effluent disposal field shall have a minimum separation distance of 3m from buildings and 1.5m from boundaries. The secondary treatment system and the accompanying effluent disposal field shall have a minimum separation distance of 15m from watercourses and surface water. Groundwater and surface water clearance has been confirmed to be in excess of the NRC RWSP for secondary treated effluent.
3. A maximum distance of 1.0m between the irrigation lines in clay soils to provide an effective even distribution of effluent over the whole of the design area.
4. The irrigation area shall have an adequate depth of natural good quality topsoil (or imported topsoil if necessary) to store the applied effluent and to support the growth of vegetation to maximise evapotranspiration.

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5. It is recommended the land application areas are to be planted with suitable high water use vegetation to aid in evapotranspiration. The proposed disposal field site is north facing, unshaded and exposed. These attributes provide good potential for effluent disposal in part by evapotranspiration (ETS). See Appendix 4.
6. A reserve area of 30% is to be set aside for the future extension of the land application area in accordance with NRC RWSP.
7. If final house plans are for other than a 4 bedroom dwelling using standard water reduction fittings then effluent disposal design calculations will require revising. In any case there is sufficient space at the site for extension of the disposal field.
8. A service agreement between the property owner and the supplier of the treatment plant shall be entered into to ensure effective ongoing operation and performance. A maintenance strategy and contract for the system shall be put into place, which will include programmed inspections and maintenance of both secondary treatment systems and application areas.

7.2. Proposed Lots 5 and 6

The friable volcanic derived silty clay soils at the proposed Lots 5 and 6 disposal fields behave as a clay loam and therefore have an effluent disposal category of 4, being moderately structured with an indicative permeability K_{sat} of 0.5 - 1.5 m/day.

Proposed Lot 5 is shown to have a proposed disposal field location towards the northern edge of the lot. The slope configuration here is linear planar with gentle slopes of 1° - 2° sloping down from south to north.

Proposed Lot 6 is shown to have a proposed disposal field location towards the western edge of the lot. The slope configuration here is linear planar with gentle slopes of no more than 5° sloping down from north to south.

Due to the soils, topography and depth to ground water most land application method are appropriate. Calculations for primary treated effluent disposal have been shown below for which either conventional trench or low pressure effluent disposal as methods are appropriate. Refer to Appendix 1 sheet 7 for more details of the LPED system.

Form EES-SEW1 attached in Appendix 3.

7.2.1. Proposed Lots 5 and 6 - Conventional Bed Option

$$Q = 145 \text{ litres/person/day} \times 7 \text{ persons} = 1015 \text{ litres/day}$$

$$\text{DLR Conservative} = 10 \text{ mm/day}$$

$$\text{Bed Width} = 1.25 \text{ m}$$

$$\text{Bed Length} = 1015 \text{ litres/day} / (10 \text{ mm/day} \times 1.25 \text{ m}) = 81 \text{ m}$$

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Maximum individual bed length = 20m
 Number bed rows = $81 / 20 = 4$
 Bed spacing (centre to centre) = 2.25m min
 Field area = $20\text{m} \times 2.25\text{m} \times 4 = 180\text{m}^2$
 Reserve area = 100% of field area = 180m^2
 Total field area = 360m^2

7.2.2. Proposed Lots 5 and 6 - Low Pressure Effluent Distribution Option (LPED)

$Q = 145 \text{ litres/person/day} \times 7 \text{ persons} = 1015 \text{ litres/day}$
 DIR = 3mm/day
 Slope Adjustment for DIR = 0
 Trench Dimensions = 200 x 200mm
 Trench spacing (min) = 1m
 Field area = $1015 \text{ litres/day} / 3 \text{ mm/day} = 338\text{m}^2$
 Reserve area = 100% of field area = 338m^2
 Total field area = 676m^2

7.2.3. Proposed Lots 5 and 6 - Site Specific Mitigation Measures

The recommended location for the effluent disposal field is shown on the site plan attached in Appendix 1. Specific mitigation measures are recommended for on-site wastewater systems utilising a primary treatment system as detailed above should adhere to the following recommendations:

1. The system shall be constructed by a registered drainlayer.
2. The primary treatment system shall be fitted with an appropriately sized outlet filter. The outlet filter shall be checked and flushed periodically, initially at 6 monthly intervals as a minimum until the performance history is established.
3. The primary treatment system and the accompanying effluent disposal field shall have a minimum separation distance of 3m from buildings and 1.5m from boundaries. The primary treatment system and the accompanying effluent disposal field shall have a minimum separation distance of 20m from watercourses and surface water. Groundwater and surface water clearance has been confirmed to be in excess of the NRC RWSP for secondary treated effluent.
4. A minimum distance of 1.0m between trenches (wall to wall).
5. The irrigation area shall have an adequate depth of natural good quality topsoil (or imported topsoil if necessary) to store the applied effluent and to support the growth of vegetation to maximise evapotranspiration.

6. It is recommended the land application areas are to be planted with suitable high water use vegetation to aid in evapotranspiration. The proposed disposal field site is north facing, unshaded and exposed. These attributes provide good potential for effluent disposal in part by evapotranspiration (ETS). See Appendix 4.
7. Sequenced dose loading of the disposal trenches by pump or syphon is required to extend the field life. A pumped system will most likely be required due to insufficient fall for a syphon system.
8. A reserve area of 100% is to be set aside for the future extension of the land application area in accordance with NRC RWSP.
9. If final house plans are for other than a 4 bedroom dwelling using standard water reduction fittings then effluent disposal design calculations will require revising. In any case there is sufficient space at the site for extension of the disposal field.
10. If the final disposal field is not sited within the plateau with slope less than 5° or if the soils encountered are inconsistent with those described then the effluent disposal design will require revision by a suitably qualified Chartered Professional Engineer.

7.3. Proposed Lot 7

The friable volcanic derived silty clay soils at the proposed Lot 7 disposal fields behave as a clay loam and therefore have an effluent disposal category of 4, being moderately structured with an indicative permeability K_{sat} of 0.5 - 1.5 m/day.

Proposed Lot 7 is shown to have a proposed disposal field location towards the eastern edge of the proposed site. This proposed disposal field is shown located on a large mound with a slope for 2/3rd of the effluent field being less than 10° with the remaining 1/3rd being less than 15°.

Due to the slope and the required pumping up to the effluent field, it is recommended the proposed method for effluent disposal for proposed Lot 7 to be the pressure compensative dripper irrigation system which requires secondary treatment effluent.

This method utilises a low-pressure network of 16mm diameter pipe with spaced, self-compensating drippers providing a uniform distribution of the wastewater to the area. For sub-surface irrigation the drip line is laid approximately 100mm below the ground surface. An adequate topsoil layer is present at the disposal field for this disposal method and slope without the requirement for further media to be brought in and spread.

The secondary treatment system will be required to produce effluent of a quality meeting or exceeding the requirements of secondary treated effluent (<20g/m³ BOD₅ and <30g/m³ SS). This can be achieved using an aerated treatment plant, by use of a recirculating sand filter or other certified secondary treated system.

Form EES-SEW1 attached in Appendix 3.

7.3.1. Proposed Lot 7 - Pressure Compensating Dripper Irrigation

$Q = 145 \text{ litres/person/day} \times 7 \text{ persons} = 1015 \text{ litres/day}$

$DIR = 3.5\text{mm/day}$

$DIR \text{ slope adjustment } 2/3^{\text{rd}} \text{ area} = 3.5\text{mm/day} \times 0.8 \text{ (for slope between } 10\%-20\%) = 2.8\text{mm/day}$

$DIR \text{ slope adjustment } 1/3^{\text{rd}} \text{ area} = 3.5\text{mm/day} \times 0.5 \text{ (for slope between } 20\%-30\%) = 1.75\text{mm/day}$

Line spacing (max) = 1m

Field area = $1015 \times 2/3^{\text{rd}} \text{ litres/day} / 2.8 \text{ mm/day} = 242\text{m}^2$

Field area = $1015 \times 1/3^{\text{rd}} \text{ litres/day} / 1.75 \text{ mm/day} = 193\text{m}^2$

Total Field area = 435m^2

Reserve area = 30% of field area = 131m^2

Total field area = 566m^2

7.3.2. Proposed Lot 7 - Site Specific Mitigation Measures

The recommended location for the effluent disposal field is shown on the site plan attached in Appendix 1. Specific mitigation measures are recommended for on-site wastewater systems utilising a secondary treatment system as detailed above should adhere to the following recommendations:

1. The system shall be constructed by a registered drainlayer.
2. The secondary treatment system and the accompanying effluent disposal field shall have a minimum separation distance of 3m from buildings and 1.5m from boundaries. The secondary treatment system and the accompanying effluent disposal field shall have a minimum separation distance of 15m from watercourses and surface water. Groundwater and surface water clearance has been confirmed to be in excess of the NRC RWSP for secondary treated effluent.
3. A maximum distance of 1.0m between the irrigation lines in clay soils to provide an effective even distribution of effluent over the whole of the design area.
4. The irrigation area shall have an adequate depth of natural good quality topsoil (or imported topsoil if necessary) to store the applied effluent and to support the growth of vegetation to maximise evapotranspiration.
5. It is recommended the land application areas are to be planted with suitable high water use vegetation to aid in evapotranspiration. The proposed disposal field site is north facing, unshaded and exposed. These attributes provide good potential for effluent disposal in part by evapotranspiration (ETS). See Appendix 4.
6. A reserve area of 30% is to be set aside for the future extension of the land application area in accordance with NRC RWSP.

7. If final house plans are for other than a 4 bedroom dwelling using standard water reduction fittings then effluent disposal design calculations will require revising. In any case there is sufficient space at the site for extension of the disposal field.
8. A service agreement between the property owner and the supplier of the treatment plant shall be entered into to ensure effective ongoing operation and performance. A maintenance strategy and contract for the system shall be put into place, which will include programmed inspections and maintenance of both secondary treatment systems and application areas.

7.4. Proposed Lot 8

The friable volcanic derived silty clay soils at the proposed Lot 8 disposal fields behave as a clay loam and therefore have an effluent disposal category of 4, being moderately structured with an indicative permeability K_{sat} of 0.5 - 1.5 m/day. However due to the area being very shaded the adjusted soil category of 5 with an indicative permeability K_{sat} of 0.12 - 0.5 m/day has been adopted.

Proposed Lot 8 is shown to have a proposed disposal field location towards the north eastern edge of the lot. The slope configuration here is linear planar with gentle slopes of 1° - 2° towards the east.

Due to the soils, topography, depth to ground water and space available the primary treated conventional bed option for effluent disposal has been considered with calculations shown below. Refer to Appendix 1 sheet 7 for more details of the Conventional Bed system.

Form EES-SEW1 attached in Appendix 3.

7.4.1. Proposed Lot 8 - Conventional Bed Option

$Q = 145 \text{ litres/person/day} \times 7 \text{ persons} = 1015 \text{ litres/day}$

DLR Conservative = 5mm/day

Bed Width = 2.5m

Bed Length = $1015 \text{ litres/day} / (5 \text{ mm/day} \times 2.5\text{m}) = 81\text{m}$

Maximum individual bed length = 20m

Number bed rows = $81 / 20 = 4$

Bed spacing (centre to centre) = 3.5m min

Field area = $20\text{m} \times 3.5\text{m} \times 4 = 280\text{m}^2$

Reserve area = 100% of field area = 280m^2

Total field area = 560m^2

7.4.2. Proposed Lot 8 - Site Specific Mitigation Measures

The recommended location for the effluent disposal field is shown on the site plan attached in Appendix 1. Specific mitigation measures are recommended for on-site wastewater systems utilising a primary treatment system as detailed above should adhere to the following recommendations:

1. The system shall be constructed by a registered drainlayer.
2. The primary treatment system shall be fitted with an appropriately sized outlet filter. The outlet filter shall be checked and flushed periodically, initially at 6 monthly intervals as a minimum until the performance history is established.
3. The primary treatment system and the accompanying effluent disposal field shall have a minimum separation distance of 3m from buildings and 1.5m from boundaries. The primary treatment system and the accompanying effluent disposal field shall have a minimum separation distance of 20m from watercourses and surface water. Groundwater and surface water clearance has been confirmed to be in excess of the NRC RWSP for secondary treated effluent.
4. A minimum distance of 1.0m between trenches (wall to wall).
5. The irrigation area shall have an adequate depth of natural good quality topsoil (or imported topsoil if necessary) to store the applied effluent and to support the growth of vegetation to maximise evapotranspiration.
6. Sequenced dose loading of the disposal trenches by pump or syphon will be required to extend the field life. There is to be two distribution pipes per bed.
7. A reserve area of 100% is to be set aside for the future extension of the land application area in accordance with NRC RWSP.
8. If final house plans are for other than a 4 bedroom dwelling using standard water reduction fittings then effluent disposal design calculations will require revising. In any case there is sufficient space at the site for extension of the disposal field.
9. If the final disposal field is not sited within the plateau with slope less than 5° or if the soils encountered are inconsistent with those described then the effluent disposal design will require revision by a suitably qualified Chartered Professional Engineer.

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8. STORMWATER MANAGEMENT

Currently the site drainage is by general surface runoff following the natural topography of the site. The site geology and ground investigations indicate well drained soils and there are no defined watercourses on the site.

All stormwater created from the newly formed impermeable surfaces should be collected and conveyed away from the habitable areas. Scour protection is required at outlets and overflow from storage tanks. It is also recommended that cut and fill batter slopes be replanted with suitable vegetation to reduce the potential for erosion post development.

8.1. Stormwater attenuation

Whangarei District Council requires attenuation of stormwater runoff in certain circumstances.

For proposed Lots 2 – 5 and 7 – 8, because they are less than one hectare in size, WDC requires that the stormwater runoff from the developed site is to be less than 80% of the existing site including an allowance of 20% for climate change for a 100 year rainfall event. This rule will also apply to proposed Lot 6 if development creates more than 2% impervious areas within the lot, including right of ways, roofs, hardstanding areas and driveways. The most convenient means to achieve this is to collect roof runoff from the buildings and direct to a storage tank. Once the storage tank is full, overflow the runoff into an attenuation tank. This method can also be used to compensate for other impervious surfaces which cannot be readily collected and attenuated (i.e. driveways, paved areas, paths).

Specific design of stormwater attenuation will be required once the layout and final configuration of the development is established and can be detailed at the building consent stage of development. Stormwater attenuation design shall be in accordance with WDC Environmental Engineering Standards 2010.

9. WATER SUPPLY

There is currently no potable water supply available to these lots. The nearest potable water supply in the area is approximately 400m from the proposed subdivision to the east along S.H.14 (where the urban area finishes). Many of the surrounding residents currently with no potable water supply obtain water via on-site rainwater capture. The viability of bore water supply at the site has not been specifically investigated though it is considered very possible as the subdivision is situated above an aquifer and there are several existing bores in the surrounding area with two within 100m of the proposed subdivision.

The most convenient method of potable water supply for new households is by means of individual household on-site rainwater harvesting. The use of rainwater harvesting has the added benefit of contributing to stormwater retention and minimising the impact of post development stormwater runoff. This can provide significant benefits to the design and operations of downstream stormwater systems.

It is important to ensure that the rainwater tanks are sized correctly to suit the household needs. Generally, the larger the tank, the more reliable and effective it is in conserving water or managing stormwater. The water tank size will depend on the volume of water needed, the amount of rainfall in the area, the area of the collection surface, and the security of the supply needed. The specific sizing and details of rainwater tanks will be household specific.

It is presumed that the UTE zoning will be a part of the rural fire district and the SNZ PAS 4509:2008 New Zealand Fire Service Firefighting Water Supplies Code of Practice is a guideline only for fire fighting in a rural district and does not pose compliance requirements. However it is recommended that firefighting be considered by the owner during site development. Appropriate couplings or tank manhole access more than 6m from a combustible source is recommended. Current guidelines recommend 45m³ designated firefighting storage volume within 90m of a dwelling or this can be reduced to 7m³ with an approved sprinkler system installed.

10. VEHICLE ACCESS

Vehicle access onto proposed Lots 2 to 8 is proposed via a ROW off Golf Harbour Drive. Access to proposed Lot 1 which contains the existing dwelling will utilise the existing driveway that services the entire existing property at present.

Site distances required for the ROW servicing the proposed 7 Lots (Lots 2-8) is required to be 55m for a vehicle entrance off a local road with a speed environment of 60km/hr. As shown on the site plan the subdivision has in excess of 80m. The site distance for proposed Lot 1 will stay as current and there is plenty of site distance in both directions.

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All right of ways are to be constructed to the WDC environmental Engineering Standards and as stated in section 8.1 may require stormwater attenuation if the total right of way area exceeds more than 2% of existing area of Lot 1 DP174535.

11. POWER AND TELECOMMUNICATIONS

The proposed development can be adequately serviced with power and telecommunications. Existing telecommunications and power infrastructure are located on State Highway 14 and Golf Harbour Drive. It is considered that this can be extended where necessary to service the development. Further confirmation from the appropriate service providers will be required at the design stage of the project.

12. CONCLUSIONS AND RECOMMENDATIONS

Geotechnical investigations indicate that the proposed building sites are presently stable. Development will need to be carried out in accordance with proper engineering practice and the following guidelines:

12.1. Building Sites

1. The founding soils do not meet the New Zealand Building Code definition of Good Ground due to their highly to extremely expansive properties and foundations will require specific design by a Chartered Professional Engineer.
2. Conventional slab on grade or similar timber pile foundations are considered suitable for use at the site. A dependable bearing capacity of 150KPa is available for design of shallow foundations.
3. All earthworks shall be designed to have a net stabilising effect. Future development of the site may include earthworks which may involve cuts and filling. As a minimum earthworks shall be conducted as outlined in section 6 of this report.
4. Controlled fill and any replacement fill at the site is to be suitably compacted and tested to NZS 4431 by a suitably qualified Chartered Professional Engineer.
5. Cut/fill operations greater than 600mm will need to be designed by a suitably qualified Chartered Professional Engineer to check the limits of differential bearing strength in the underlying layers.

12.2. Wastewater Disposal for Proposed Lots 2, 3 and 4

1. All wastewater resulting from future development within the proposed Lots 2, 3 and 4 shall be treated via an on-site secondary treatment system as detailed in section 7 of this report. The recommended location for the effluent disposal field is shown on the attached site plan.
2. Disposal shall be via sub-surface drip irrigation. For a 4 bedroom dwelling with standard water reduction fittings the area required for irrigation is 290m². Dripper lines shall be laid to follow land contours with 1m spacing between adjacent dripper lines.
3. A reserve area of 90m² shall be set aside for future extensions.

12.3. Wastewater Disposal for Proposed Lots 5 and 6

1. All wastewater resulting from future development within the proposed Lots 5 and 6 shall be primary treated by septic tank and disposed by conventional bed or LPED as detailed in section 7 of this report. The recommended location for the effluent disposal field is shown on the attached site plan.

2. For a 4 bedroom dwelling with standard water reduction fittings the conventional trench disposal area is 180m² plus an additional 180m² reserve area. 1.25m trenches are proposed with a 1m wall to wall spacing. The maximum bed length is 20m. Alternatively disposal by LPED requires a 338m² field area plus an additional 338m² reserve area. The proposed LPED line spacing is 1m. It is recommended that the disposal is sequence dose loaded.
3. If the ground encountered during construction differs from that described in this report within proposed Lots 5 and 6, input from a suitably qualified Chartered Professional Engineer shall be required to confirm the design.

12.4. Wastewater Disposal for Proposed Lot 7

4. All wastewater resulting from future development within the proposed Lot 7 shall be treated via an on-site secondary treatment system as detailed in section 7 of this report. The recommended location for the effluent disposal field is shown on the attached site plan.
5. Disposal shall be via sub-surface drip irrigation. For a 4 bedroom dwelling with standard water reduction fittings the area required for irrigation is 435m². Dripper lines shall be laid to follow land contours with 1m spacing between adjacent dripper lines.
6. A reserve area of 131m² shall be set aside for future extensions.

12.5. Wastewater Disposal for Proposed Lot 8

4. All wastewater resulting from future development within the proposed Lot 8 shall be primary treated by septic tank and disposed by conventional bed as detailed in section 7 of this report. The recommended location for the effluent disposal field is shown on the attached site plan.
5. For a 4 bedroom dwelling with standard water reduction fittings the conventional trench disposal area is 280m² plus an additional 280m² reserve area. 2.5m beds are proposed with a 1m wall to wall spacing. The maximum bed length is 20m. It is recommended that the disposal is sequence dose loaded with two distribution pipes per bed.
6. If the ground encountered during construction differs from that described in this report within proposed Lot 8, input from a suitably qualified Chartered Professional Engineer shall be required to confirm the design.

12.6. Stormwater

1. All storm water resulting from development works shall be collected and piped away from the building sites and away from slopes in the vicinity of these structures to ensure that

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the concentrated stormwater does not have a detrimental effect on slope stability. The outlets shall be scour protected.

2. Subject to development plans stormwater attenuation may be required on Lot 6 if the impervious surface exceeds 2%, or approximately 385m² of roof and paving. Rainwater harvesting does allow offset of some of the attenuation volume.
3. All lots under 1 hectare will require stormwater attenuation to be designed at building consent stage as per section 8.1.

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13. LIMITATIONS

This report has been prepared for the benefit of J.D. & M.A. Williamson as our client with respect to site suitability for subdivision and for Whangarei District Council approval of the proposal as defined in the brief. It shall not be relied upon for any other purpose. The reliance by other parties on the information or opinions contained in this report shall, without our prior review and agreement in writing, be at such parties' sole risk.

Opinions and judgments expressed herein are based on our understanding and interpretation of current regulatory standards, and should not be construed as legal opinions. Where opinions or judgments are to be relied on they should be independently verified with appropriate legal advice. Any recommendations, opinions, or guidance provided by Cook Costello Ltd in this report are limited to technical engineering requirements and are not made under the Financial Advisers Act 2008.

Recommendations and opinions in this report are based on data from eight hand augered borehole with In-situ shear vane tests and fifteen scala penetrometer tests undertaken at the building platform within proposed Lots 3 to 8 and the proposed effluent disposal locations on proposed Lots 2 and 8. The nature and continuity of subsoil conditions away from the borehole and scalas are inferred and it must be appreciated that actual conditions could vary considerably from the assumed model.

During excavation and construction the site should be examined by an Engineer or Engineering Geologist competent to judge whether the exposed subsoils are compatible with the inferred conditions on which the report has been based. It is possible that the nature of the exposed subsoils may require further investigation and the modification of the design based on this report. In any event it is essential that the firm is notified if there is any variation in subsoil conditions from those described in the report as it may affect the design parameters recommended in the report.

Cook Costello Ltd. have performed the services for this project in accordance with the standard agreement for consulting services and current professional standards for environmental site assessment. No guarantees are either expressed or implied.

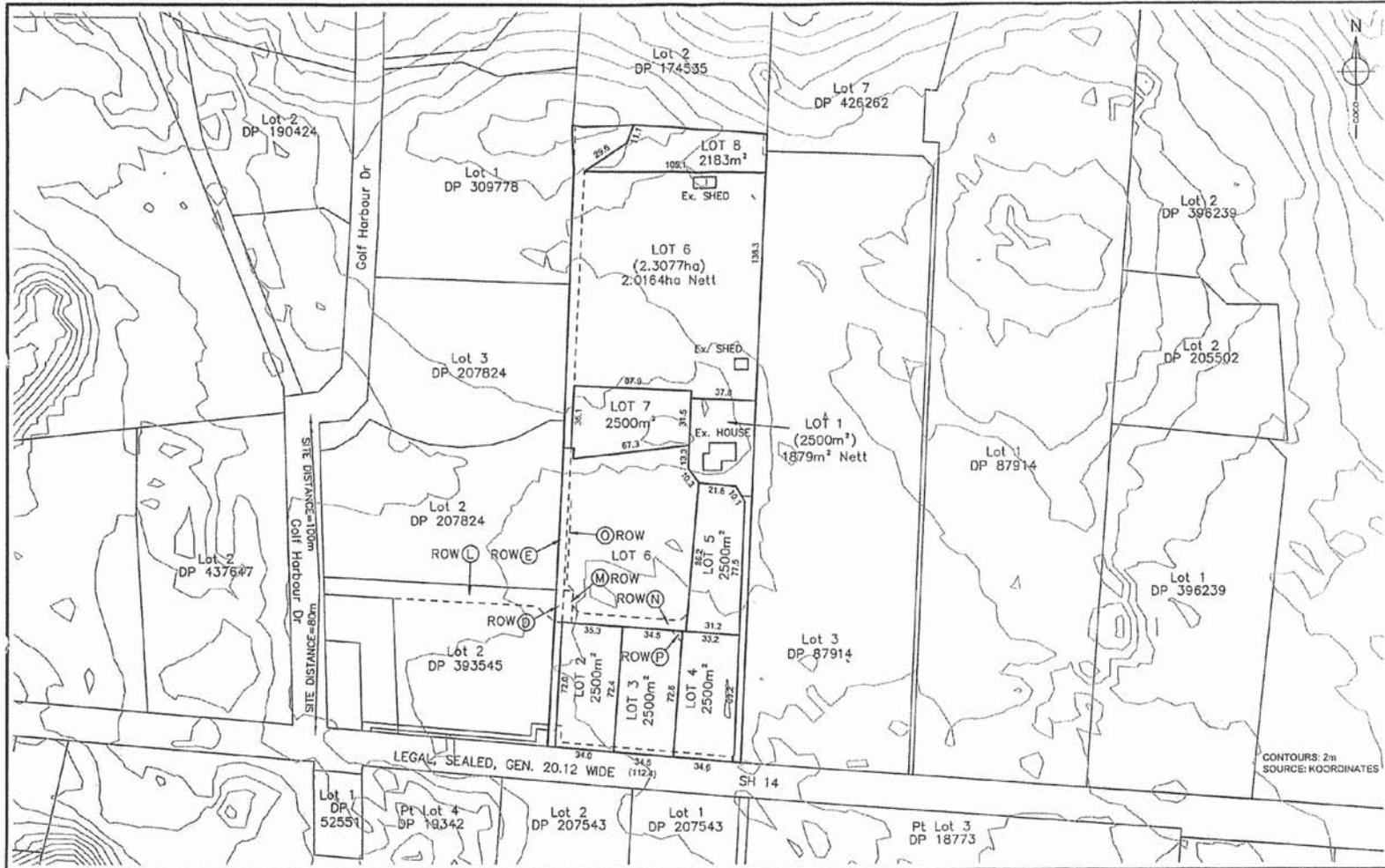
There is no investigation which is thorough enough to preclude the presence of materials at the site which presently, or in the future, may be considered hazardous. Because regulatory evaluation criteria are constantly changing, concentrations of contaminants present and considered to be acceptable now may in the future become subject to different regulatory standards which cause them to become unacceptable and require further remediation for this site to be suitable for the existing or proposed land use activities.

A J Parker
Engineering Technician
NZDE

REVIEWED BY:

A E Tonks
Engineer
BE (ESc), GIPENZ, IQP (WDC 024)

A S MacPherson
Chartered Professional Engineer
BE Civil (hons), CPEng, MIPENZ, IntPE(NZ)



SCALE BAR

SCALE 1:2000

20	0	20	40	60	80	100	120	140
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B	LOT CONFIGURATION AMENDED	AP	04-09-13
A	1ST ISSUE	AP	12-08-13
REV.	REVISION DETAILS	DRAWN	DATE

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ACLI NZ

SITE DETAILS

J.D. & M.A. WILLIAMSON
 STATE HIGHWAY 14, MAUNU

PROPOSED SUBDIVISION OF
 LOT 1 DP174535

DATE: 04/09/13

SCALE: 1:2000 @ A3

SHEET: 1

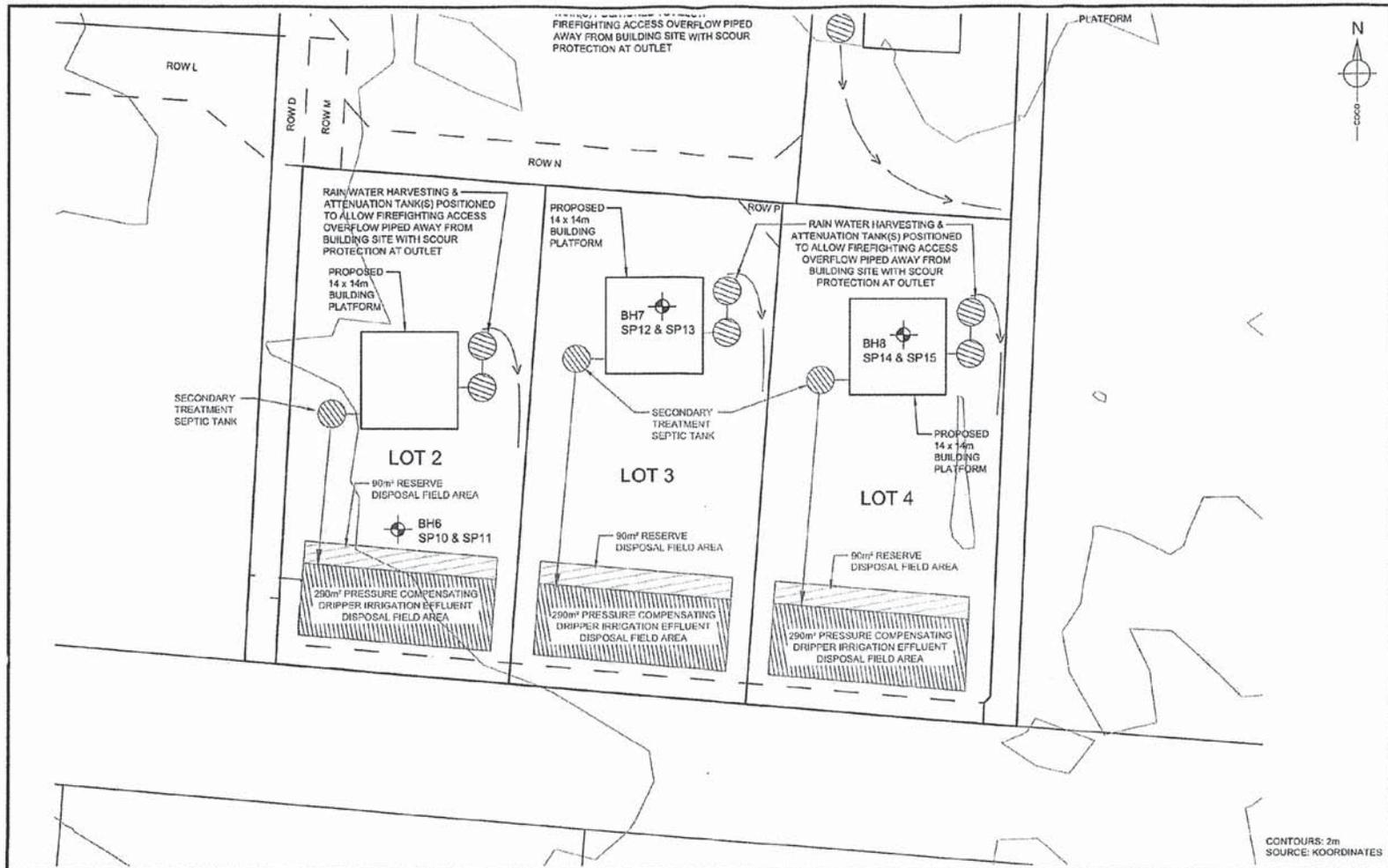
TOTAL SHEETS: 7

STATUS: PRELIMINARY

PROJ: 12037

DWG NO: ENG

REV: B



CONTOURS: 2m
SOURCE: KOORDINATES

SCALE BAR

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SCALE 1:500

B	LOT CONFIGURATION AMENDED	AP	04-09-13
A	1ST ISSUE	AP	13-09-13
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SITE DETAILS

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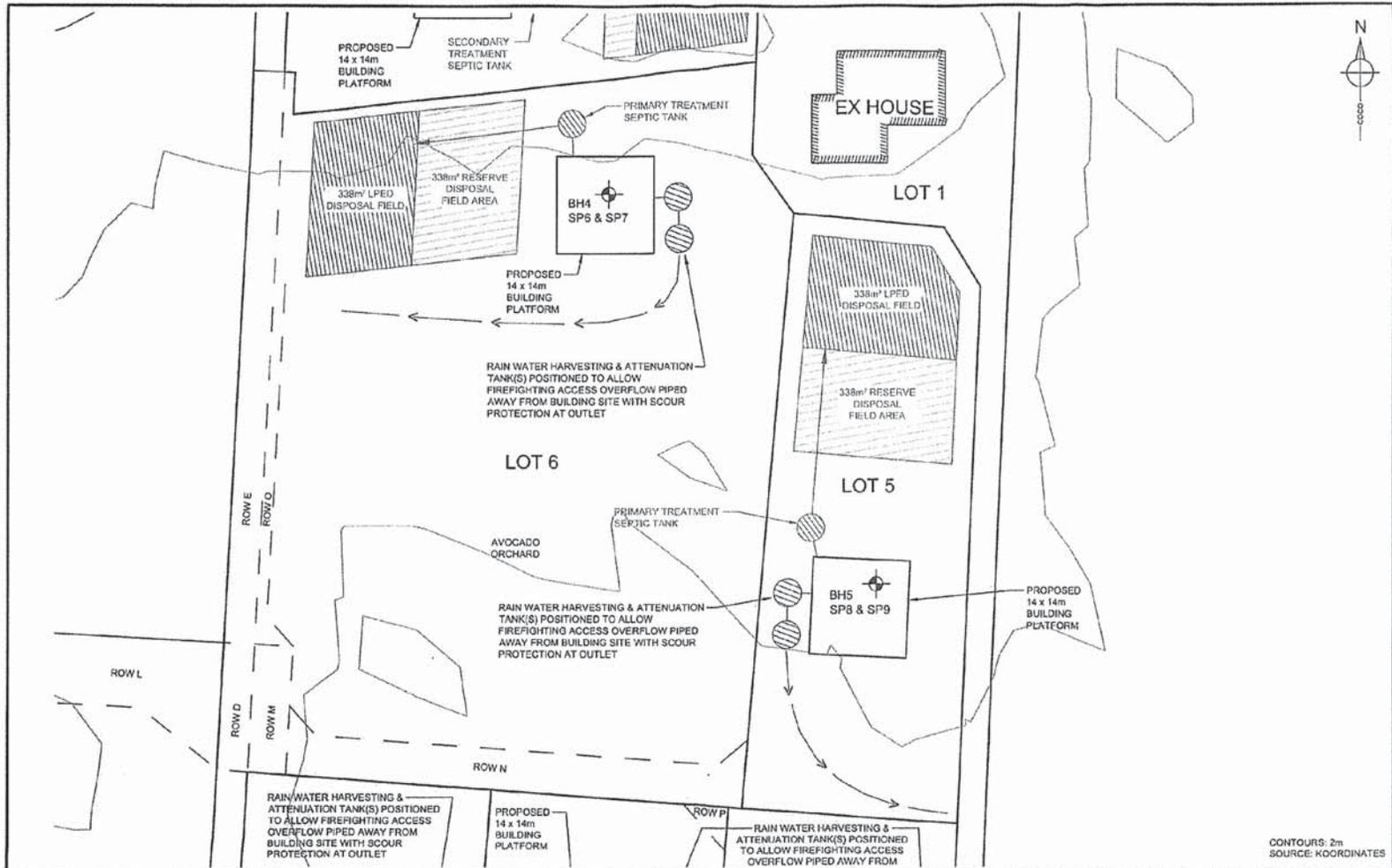
PROPOSED SUBDIVISION OF
LOT 1 DP174535

TITLE

LOT 2, 3 & 4 SITE SUITABILITY

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APPROVED							
STATUS	PRELIMINARY	PROJECT	12037	DWG. NO.	ENG	REV.	B

DATE PUBLISHED: 09/09/13 11:58 AM



SCALE BAR

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SCALE 1:500

B	LOT CONFIGURATION AMENDED	AP	04-09-13
A	1ST ISSUE	AP	13-08-13
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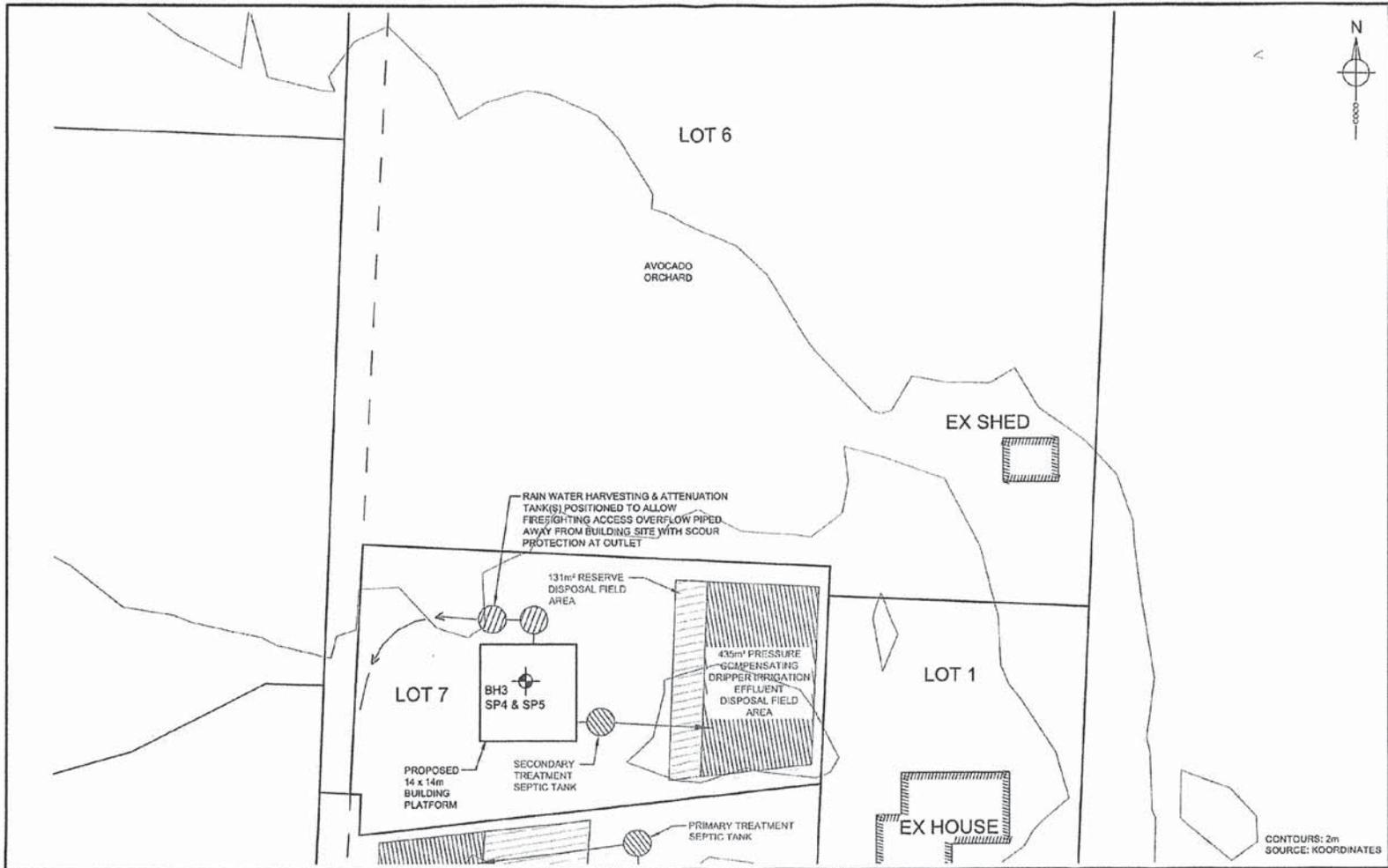
SITE DETAILS

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STATE HIGHWAY 14, MAUNU
PROPOSED SUBDIVISION OF
LOT 1 DP174535

LOT 5 & 6 SITE SUITABILITY

DESIGNED	AP 04-09-13	SCALE	1:500 @ A3	SHEET	3	TOTAL SHEETS	7
APPROVED							
STATUS	PRELIMINARY	PROJECT	12037	DWG NO	ENG	REV	B

DATE PLOTTED: 2013/08/28 10:58:11 AM FILE PATH: C:\Users\jwilliamson\Documents\12037_Prelim_3.dwg



CONTOURS: 2m
SOURCE: COORDINATES

SCALE BAR

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SCALE 1:500

REV	REVISION DETAILS	DRAWN	DATE
B	LOT CONFIGURATION AMENDED	AP	04-09-13
A	1ST ISSUE	AP	13-08-13

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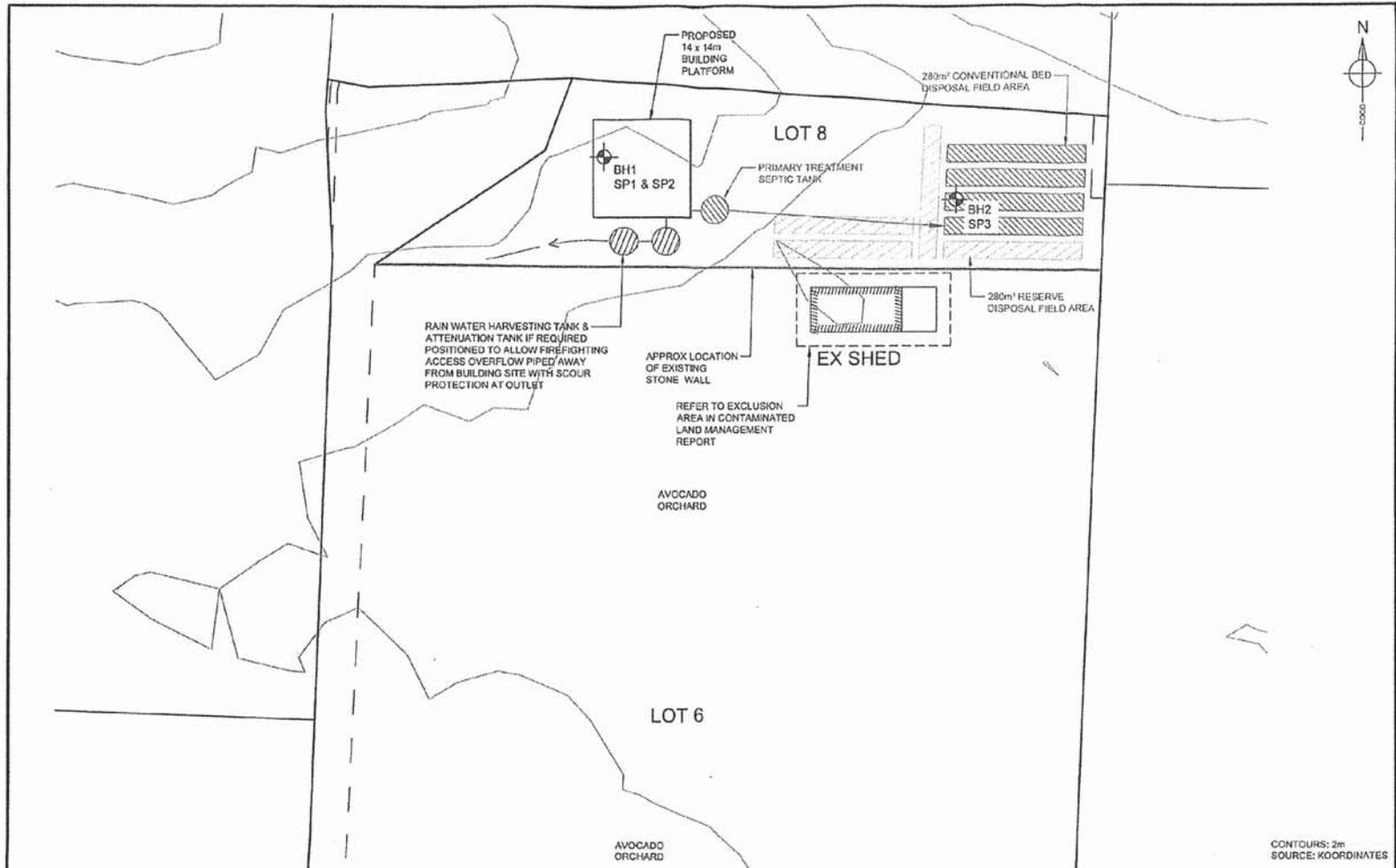
SITE DETAILS

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PROPOSED SUBDIVISION OF
LOT 1 DP174535

LOT 7 SITE SUITABILITY

RECORDED	AP 04-09-13	SCALE	1:500 @ A3	SHEET	4	TOTAL SHEETS	7
APPROVED							
STATUS	PRELIMINARY	PROJ NO	12037	DWG NO	ENG	REV	B

DATE PLOTTED: 10/09/13 FILE PATH: G:\3000\12037\DWG\12037_04.dwg



SCALE 1:500

REV.	REVISION DETAILS	DESIGN	DATE
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A	1ST ISSUE	AP	13-08-13

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LOT 8 SITE SUITABILITY

DESIGNED	AP 04-08-13	SCALE	1:500 @ A3	SHEET	5	TOTAL SHEETS	7
APPROVED							
STATUS	PRELIMINARY	PROJECT	12037	DATE	ENG	REV.	B

DATE PLOTTED: 2013/08/14 11:29:20



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SCALE 1:2000

B	LOT CONFIGURATION AMENDED	AP	04-09-13
A	1ST ISSUE	AP	13-09-13
REV.	REVISION DETAILS	DRAWN	DATE

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SITE DETAILS

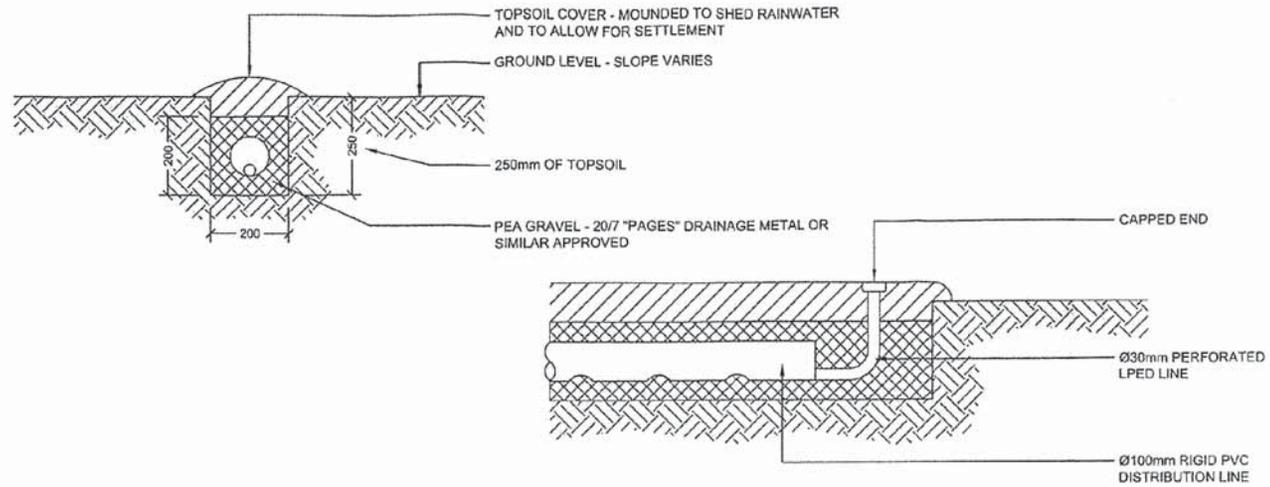
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STATE HIGHWAY 14, MAUNU
PROPOSED SUBDIVISION OF
LOT 1 DP174535

TITLE

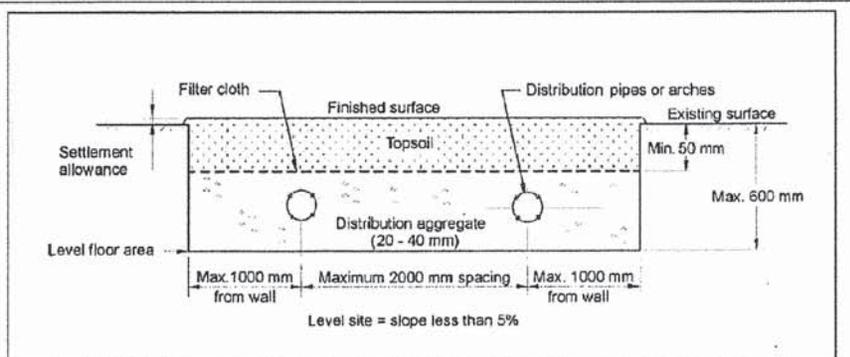
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APPROVED							
STATUS	PRELIMINARY	PROJ No	12037	DWG No	ENG	REV	B

DATE PLOTTED: 09/09/13 FILE PATH: Z:\12037\12037\12037.dwg



DOSE LOADED LPED IRRIGATION
STANDARD DETAIL



NOTE: LPED lines can be used instead of distribution pipes when dose loading effluent into beds.

FIGURE L5 CONVENTIONAL BED

REV	REVISION DETAILS	DATE
B	CONVENTIONAL BED DETAIL ADDED	AP 04-09-13
A	1ST ISSUE	AP 13-08-13

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AGENZ

SITE DETAILS
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STATE HIGHWAY 14, MAUNU
PROPOSED SUBDIVISION OF
LOT 1 DP174535

TITLE DOSE LOADED LPED IRRIGATION & CONVENTIONAL BED STANDARD DETAILS			
DESIGNED AP 04-09-13	SCALE NTS @ A3	D SET 7	TOTAL SHEETS 7
APPROVED			
STATUS PRELIMINARY	PROJECT 12037	DWG No ENG	REV B



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TEST REPORT

Lab Job No: 8020-907
Your ref.: 12037
Date of issue: 07-08-2013
Date of Re-Issue: -
Page: 1 of 25

Test Report

No.13-98

PROJECT: Williamson Subdivision, Maunu
CLIENT: Cock Costello Ltd
2 Norfolk Street
Whangarei
ATTENTION: Aaron Parker
INSTRUCTIONS: Augerholes where required (not accredited)
Hand Held Shear Vane Test
Determination of the penetration resistance using a dynamic cone (scala)
Penetrometer
TEST METHOD: NZGS December 2005 (not accredited)
NZGS: August 2001
NZS 4402: 1988 Test 6.5.2
SAMPLING METHOD: N/A
TEST RESULTS: As Per Laboratory Sheets attached

D.Krissansen

Laboratory Manager

S.Kokich

Approved Signatory



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

-CPT – Aggregates – Soil – Roading-

This report shall not be reproduced except in full, without written approval of the laboratory



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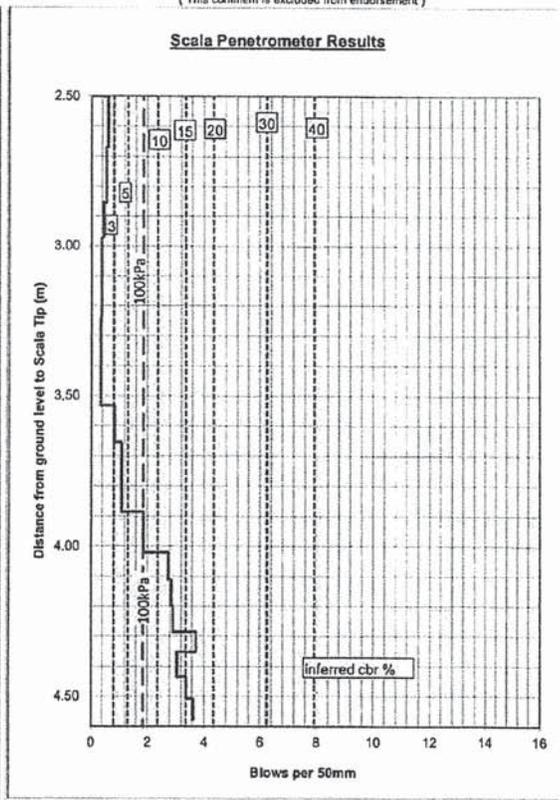
DYNAMIC CONE (SCALA) PENETROMETER
NZS 4402 :1988 Test 6.5.2

Lab Job No: 8020-907
Client: Cook Costello Ltd
Job: Williamson Subdivision
Location: Base of BH8
Start Depth (m): 2.5

Scala No: SP15
Ref : 12037
Report No: 13-98
Page: 24 of 25

The lines are the suggested correlation of CBR values based on Figure 5.3, Correlation of Dynamic Cone Penetration and CBR AUSTRROADS (2004) "Pavement Design - a guide to the design of road Pavements"
(This comment is excluded from endorsement)

No. Blows	Tip to ref (cm)	mm / blow	blows / 50mm	Blows / 300mm	Total Blows	depth (m)
0	53.6	0	0	0	0	2.50
2	36.3	65	1	4	2	2.57
2	18.3	93	1	3	4	2.65
1	6.7	116	0	3	5	2.97
0	82.4	0	0	0	5	2.97
2	65.4	135	0	2	7	3.24
2	36.3	146	0	2	9	3.53
2	24.1	61	1	5	11	3.65
5	1	46	1	8	16	3.89
0	106.5	0	0	0	16	3.89
5	93	27	2	11	21	4.02
5	83.0	18	3	16	26	4.11
5	75.1	18	3	17	31	4.20
5	66.5	17	3	17	36	4.29
5	59.5	13	4	22	41	4.35
5	51.8	16	3	18	46	4.43
5	44.2	15	3	20	51	4.51
5	37.3	14	4	22	56	4.58



Recorded By: S.K / G.R
Date: 25/07/2013
Checked by: [Signature]
Date: 8/8/13

Note: All readings taken below 1.5m from start depth are outside the scope of this test

SP15
8020-907,CCL 12037,Williamson Subdivision,SH14 Whangarei,5-8-13
9/08/2013

Issue 2

[Signature]
S. Kokich
Approved Signatory

WHANGAREI DISTRICT COUNCIL

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 Telephone (09) 430 4200 · 0800 WDC INFO · 0800 932 463 · Facsimile (09) 438 7632
 Website <http://www.wdc.govt.nz> · E-mail mailroom@wdc.govt.nz



Creating the ultimate living environment

Form EES-SEW1

**On-Site Wastewater Disposal Investigation/Site Evaluation Checklist for
Resource Consent Application**

This form is to be read in conjunction with AS/NZS 1547:2000 (or any amendments as applicable), and, in particular with Part 4: Means of Compliance

Part A - Contact Details**1 applicant**Name J.O. and M.A. WilliamsonProperty Address State Highway 14, MaunuLot/DP Number LOT 1, DP174535 - Proposed Lots 2-8**2 Consultant/Site Evaluator**Site Evaluator Name Aaron ParkerCompany Name Cook Costello LtdPostal Address 2 Norfolk St, Whangarei 0110Business Phone 09 4389529 Fax _____Mobile _____ Email aaronp@coco.co.nzIQP Registered²⁵ (See note 1 below)
 Yes No If no, details of suitably registered IQP who will countersign the report are to be supplied below
Name of IQP who is Countersigning Report Adrian TonksCompany Name Cook Costello LtdPostal Address 2 Norfolk St, Whangarei 0110Business Phone 09 4389529 Fax _____Mobile 021 891 401 Email Adrian@coco.co.nz

IQP024
20/8/2013

²⁵ It is a requirement that the Evaluator be IQP registered to carry out on-site effluent investigations/designs. If not, then evaluation/design will need to be counter-signed by a suitably registered IQP

Part B - Site and Soil Evaluation**1 Desk Study**

Requirements (✓ appropriate box)

Please complete all options. (If more than one option applies to land under consideration, please clarify with supporting information)

WDC Requirement	Applies to Lot(s)	Comments	
1 Hazard maps/GIS hazard layer - stability			
<input checked="" type="checkbox"/> Low Instability risk	All Lots		
<input type="checkbox"/> Medium Instability risk			
<input type="checkbox"/> High Instability risk			
2 GIS hazard layer – effluent on slope stability			
<input type="checkbox"/> Low disposal potential			
<input checked="" type="checkbox"/> Moderate disposal potential	All Lots		
<input type="checkbox"/> High disposal potential			
3 GIS hazard layer – effluent suitability			
<input checked="" type="checkbox"/> Medium unsuitability	All Lots		
<input type="checkbox"/> High unsuitability			
4 GIS hazard layer – flood susceptibility			
<input type="checkbox"/> Is flood susceptible			
<input type="checkbox"/> Is partially flood susceptible			
<input checked="" type="checkbox"/> Is not flood susceptible	All Lots		
5 GIS land resources layer - streams			
Are there streams on or adjacent to land under investigation?	<input checked="" type="checkbox"/> Yes	Lot 8	120m north of Lot 8
	<input type="checkbox"/> No		
6 GIS land resources layer – aquifers at risk			
Is land situated over or adjacent to aquifer?	<input checked="" type="checkbox"/> Yes	All Lots	No water tables encountered during field investigations
	<input type="checkbox"/> No		
7 Annual rainfall (HIRDS)	1585 mm / Yr WRENZ		

Important Note

It is to be noted that all information obtained off WDC GIS/Hazard Maps is to be taken as a guide only.

All information obtained from the above sites is to be confirmed by a specific site investigation as localised conditions could vary substantially. However, should the above data checks indicate the potential for a hazard/non-complying activity etc, this must be further investigated to confirm/deny the indicated situation.

2 On-Site Evaluation**a Determination of Soil Category** (refer table 4.1.1 AS/NZS 1547:2000) (✓ appropriate box)

Soil Category	Structure	Applies to lot(s)	Comments
1 Gravels & Sands	<input type="checkbox"/> Structureless (massive)		
2 Sandy loams	<input type="checkbox"/> Weakly Structured		
	<input type="checkbox"/> Massive		
3 Loams	<input type="checkbox"/> High/Moderate structured		
	<input type="checkbox"/> Weakly structured or Massive		
4 Clay loams	<input checked="" type="checkbox"/> High/moderate structured	Lots 2-7	Refer to suitability report of Bore logs.
	<input type="checkbox"/> Weakly structured		
	<input type="checkbox"/> Massive		
5 Light clays	<input checked="" type="checkbox"/> Strongly structured	Lot 8	Used this category as the lot is shaded.
	<input type="checkbox"/> Moderately structured		
	<input type="checkbox"/> Weakly structured or massive		
6 Medium to heavy clays	<input type="checkbox"/> Strongly structured		
	<input type="checkbox"/> Moderately structured		
	<input type="checkbox"/> Weakly structured or massive		

Notes

Refer 4.1 A4 – Soil Assessment AS/NZS 1547:2000 for assessment criteria.

Details of the method used to determine soil type etc are to be clearly stated, along with positions of boreholes/test pits etc clearly marked on a site plan. Bore logs are to be provided. Photos should be included.

The site plan should also clearly show the intended area for effluent disposal, along with any site features such as drains, water bores, overland flows etc, along with separation distance achieved.

On-Site Evaluation Continued

b Site Characteristics for Proposed Disposal Area: (If there is a marked difference between sites, please fill in a separate form for each site and clearly note which site the assessment applies to) (✓ appropriate box)

Details	Applies to Site/s	
1 Flooding potential to proposed field and reserve field (refer note 1 below)		
<input checked="" type="checkbox"/> Fields will not flood, or	All Lots	
Fields will flood in:		
<input type="checkbox"/> 20% AEP event		
<input type="checkbox"/> 5% AEP event		
<input type="checkbox"/> 1% AEP event		
2 Surface water separation to proposed field and reserve field (refer note 2 below)		
<input checked="" type="checkbox"/> Main/reserve disposal field comply with NRC rules	All Lots	
<input type="checkbox"/> Main/reserve disposal field do not comply with NRC rules		
3 Winter ground water separation to proposed field and reserve field (refer note 3 below)		
<input checked="" type="checkbox"/> Main and reserve disposal field comply with NRC rules	All Lots	
<input type="checkbox"/> Main and reserve disposal field do NOT comply with NRC rules		
4 Slope of ground of proposed field and reserve field (refer note 4 below)		
Description Lot 1-6 & Lot 8 = 1°-2°, Lot 7 = 10°-15°		
5 Shape of ground of proposed field and reserve field (refer note 5 below)		
<input type="checkbox"/> Waxing divergent	<input checked="" type="checkbox"/> Linear divergent Lot 7	<input type="checkbox"/> Waning divergent
<input type="checkbox"/> Waxing planar	<input checked="" type="checkbox"/> Linear planar Lots 1-6 & 8	<input type="checkbox"/> Waning planar
<input type="checkbox"/> Waxing convergent	<input type="checkbox"/> Linear convergent	<input type="checkbox"/> Waning convergent
Comments		

6 Intended water supply source	Applies to Site/s
<input type="checkbox"/> Public supply	
<input checked="" type="checkbox"/> Rainwater	All Lots
<input type="checkbox"/> Bore	

7 Proposed method of disposal and recommended Daily Loading rate (DLR) (refer note 6 below)
Description Lots 1-3 by Drip Irrigation @ 3.5mm/day
Lots 5-6 by Conventional Trenches or LPED @ 3.0mm/day
Lot 7 by Drip Irrigation @ 2.8mm/day (2/3) & 1.75mm/day (1/3)
Lot 8 by conventional Bed @ 5.0mm/day
Peak Loading factored in? (refer note 6 below) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Comments Residential

8 Site Exposure (refer note 7 below)	Description	Applies to Site/s
Site/s aspect	North	All Lots
	Note // Lot 8 shaded in North East corner.	

Pre-dominant wind direction		
Presence of shelter belts	East & Part of West	All Lots
Presence of topographical features or structures		

9 Proximity of water bores. (include adjacent properties). (refer note 9 below)

80m (from Lot 8) to East
100m (from Lot 2) to West

10 Visible evidence of slips/Instability (refer note 8 below)

No

11 Total suitable area available for type of effluent disposal proposed (including reserve area)

In excess of the required areas as shown in the suitability report.

12 Setback areas proposed (if any) (refer note 10 below)

Building min. 3m, Property Boundaries min 1.5m, Water bodies min 20m if primary treated & otherwise 15m.

Notes

- 1 If the WDC hazard maps/GIS indicate a flooding susceptibility on the site being evaluated, an on-site evaluation is to be carried out to determine the effects from 20%, 5% and 1% AEP storm events. This evaluation is to include all calculations to substantiate conclusions drawn. If necessary, include a detailed contour plan and photos.
- 2 NRC Water & Soil plan defines surface water as 'All water, flowing or not, above the ground. It includes water in continually or intermittently flowing rivers, artificial watercourses, lakes and wetlands, and water impounded by structures such as dams or weirs but does not include water while in pipes, tanks, cisterns, nor water within the Coastal Marine Area'. By this definition, separation (complying with NRC rules) is to be maintained by both the proposed disposal and reserve areas from any overland flowpaths and/or swale drains etc or R/C will be required from NRC. Surface water is to be clearly marked on each site plan, showing the extent of a 1% AEP storm event, and detailing separation distances to main/reserve disposal areas.
- 3 Positions of test borehole/s to be shown, and bore logs to be provided. Separation (complying with NRC rules) is to be maintained by both the proposed disposal and reserve areas from winter ground water level or R/C will be required from NRC. If the investigation is done outside of the winter period, allowance is to be made in determining the likely winter level.
- 4 Slopes of ground are to be compared with those recommended maximums for type of system proposed (refer Appendix 4.2B AS/NZS 1547:2000). Designs exceeding those maximums will require specific design to justify the proposal, and may also need Resource Consent from NRC.
- 5 Shape of ground is important as it will determine whether there is potential for concentrated overland flows from the upper slopes and also if effluent might be concentrated at base of slope if leaching occurs. Refer Figure 4.1B2 AS/NZS 1547:2000.
- 6 The proposed system (for residential developments) should be sized to accommodate an average 3 bedroom house with 5 people. Sites in holiday areas need to take peak loading into effect in determining daily volumes. The design must state what DLR was used to determine area necessary (including reserve area). If ground conditions are marginal for type of disposal proposed, then a soil permeability test utilising the constant head method is to be carried out across the proposed disposal area. Refer Appendix 4.1F AS/NZS 1547:2000.
- 7 The site aspect is important as a north-facing site that is not sheltered from wind and sun by shelterbelts or other topographical features or structures will perform far better than a south-facing site on the lee of a hill that is shaded from wind and sun etc
- 8 If any effluent disposal area (including any reserve area) proposed has or is adjacent to areas that show signs of instability, then a full report from a CPEng (Geotech) will be required to justify the viability of the area for effluent disposal.
- 9 If there are any water bores on the subject property or adjacent properties then a site plan will be required showing bore positions in relation to any proposed effluent field(s).
- 10 If setback areas are proposed to mitigate effects, the extent and position/s need to be shown on a site plan.

J.D. and M.A. Williamson
626 Maunu Road (SH14), Maunu



17. APPENDIX 4: SUITABLE PLANT SPECIES FOR ETS

KEY:

HEIGHT

1. Around 1 metre or lower
2. Around 2 metres
3. Above 3 metres

DURABILITY

- A. Very hardy
- B. Hardy
- C. Soft

Trees - General

Should preferably be evergreens although some deciduous trees offer very good transpiration, e.g.

Elms, 3A
American Oaks, 3A
Birch, 3A
Shrubby Pussy Willow, Bitter Willow 3A
Hydrangea, 2A
Catalpa, 3B

Fringe Trees

KawaKawa, 3A
Geniostoma, 3A
Hibiscus (various indigenous and exotic), 1-2B
Catalpa, 3B
Karaka, 3A
Pukatea (for very wet conditions), 3A
Kohekohe, 3A
Puka (Meryta), 3B
Puriri, 3A
Makomako, 3A
Lemonwood (Pittosporus), 3A
Parapara, 3C

(Shelter at least for initial establishment may be very important)

Plants and Evergreens

Canna, 1B
 Taro, 1C
 Aralias, 1-2B
 Rhubarb, 1A
 Rock Lily (Arthropodium), 1B
 Rangiora, 2A
 Fuchsia, 2A
 Philodendrons (large range), 1C
 Flax (Phormium tenax), 2A
 Agapanthus, 1B
 Kaka Beak (Cilanthus), 1-2A
 Swan Plant, 2-3A
 Gunneras (larger varieties), 1-2A
 Geraniums (large range), 1A

Begonias (large range of species), 1C
 -very useful as an underplant in sheltered places

Grasses

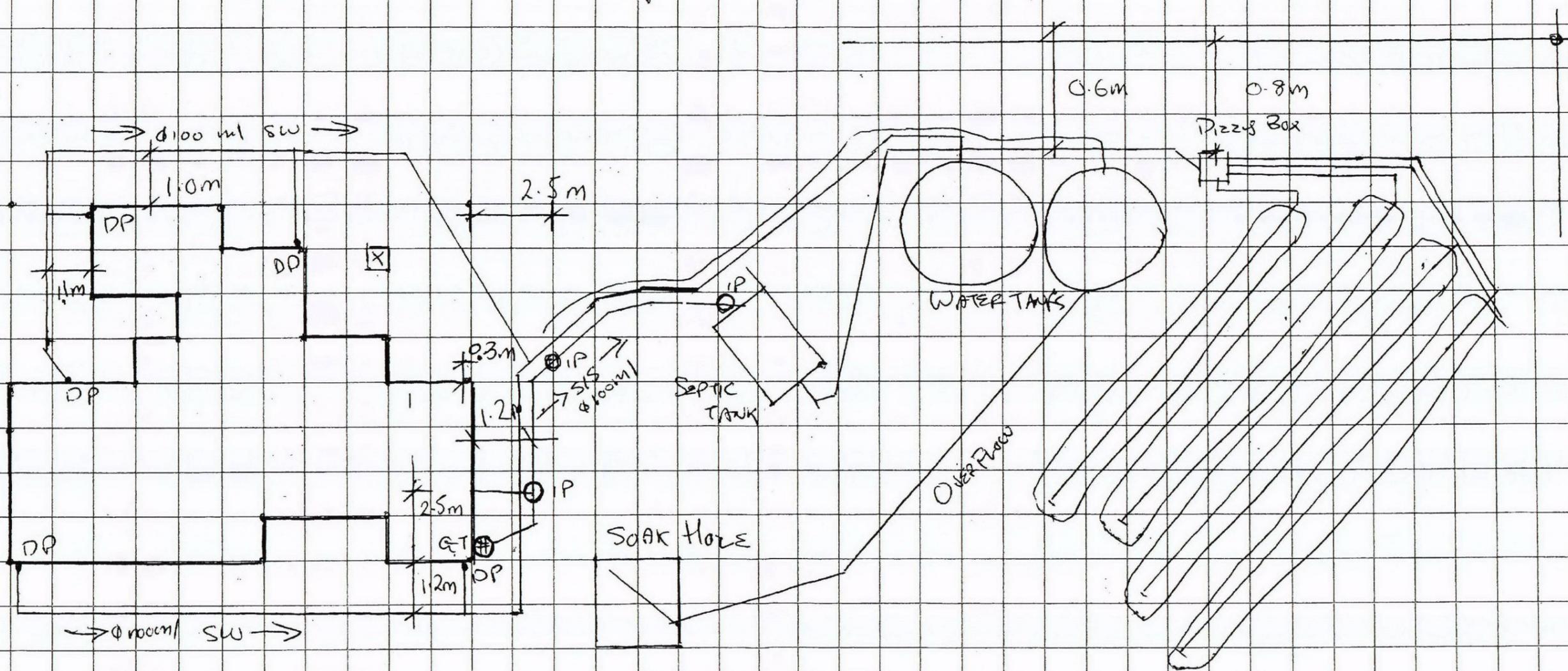
Paspalum (will tolerate extreme wet and dry)
 Poa species
 Crested Dogs Tail (Cynosurus cristatus)
 Yorkshire Fog (if fairly regularly wet)
 Canary Reed Grass (Phalarus Arundinacea)

Ground Covers

Mercury Bay Weed (Dichondra) could be useful on light soils
 Yellow clovers (or pseudo clovers) - good where extra wet

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)



Scale _____ in _____
Site address 411 BRENDA GARONER WAY



Whangarei District Council
Private Bag 9023, Te Mai
Whangarei 0143
Ph:0-9-430 4200
Email: mailroom@wdc.govt.nz

Rates LIM Report

As at: Tuesday, 17 February, 2026

Property Number 163867
Legal Description LOT 8 DP 481012
Assessment Number 0035010629
Address 44 Brenda Gardner Way (Pvt) Whangarei 0179
Record of Title(s) 673456
Land Value \$435,000
Capital Value \$1,075,000
Date of Valuation 01-July-2024
Effective Date (used for rating purposes) 01-July-2025
Meter Location

Rates Breakdown (up to 30 June 2026)

Rates Charge	Charge Total
Regional Land and Freshwater Management	131.63
Regional Pest Management	109.47
Regional Urban Rivers Management - Gen Catchment	40.34
General Residential	1,269.03
Uniform Annual General Charge	901.00
Regional Emergency & Hazard Management	67.31
Stormwater	79.00
Regional Rescue Services	8.87
Regional Sporting Facilities	16.09
Regional Flood Infrastructure	41.66
Regional Economic Development	13.22
Regional Council Services	229.89
Regional Transport Rate	30.40
Annual Charge Total	\$2,937.91

Opening Balance as at 01/07/2025 **\$0.00**

Rates Instalments	Total
20/07/2025 Instalment	\$735.91
20/10/2025 Instalment	\$734.00
20/01/2026 Instalment	\$734.00
20/04/2026 Instalment	\$734.00
Rates Total	\$2,937.91

Balance to Clear **\$1,468.00**

Building Consent No: BC1800047

Section 51, Building Act 2004

Issued: 2 March 2018

COPY

The Building

Street address of building: 44 Brenda Gardner Way (Pvt)
Whangarei 0179

Legal description of land where building is located: LOT 8 DP 481012
LLP: 127596

Building name: N/A
Location of building within site/block number: N/A
Level/unit number: N/A

The Owner

A L House
J J Gavin
172a Western Hills Drive
Whangarei 0112

Phone number: N/A
Mobile number: 02102480404
Facsimile number: N/A
Email address: amandahouse@hotmail.co.nz
Website: N/A

Street address/registered office: 44 Brenda Gardner Way (Pvt)
Whangarei 0179

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

Contact Person

Classic Builders Whangarei Limited
PO Box 3302
Onerahi
Whangarei 0142

Phone number: 4360299
Mobile number: 021436167
Facsimile number: N/A
Email address: scott.coutts@classicbuilders.co.nz
Website: www.classicbuilders.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, pass, subject to remedial work or failed status.

1. See attached schedule of site requirements for inspections and documentation required.
2. All fills at the proposed building site to be tested for compaction generally in accordance with NZS4431:1989 by a Chartered Professional Engineer.
3. Engineer to confirm with PS4 of ground conditions supporting raft floors, as per recommendations in Site Suitability Report by Cook Costello Engineers, Architects & Surveyors (Ref# 12037, dated 5th September 2013).
4. Foundation depths for modified RibRaft system to be as per engineer's design by E3 Professional Consulting Engineers.
5. To confirm compliance a Producer Statement 3 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:
 - Waterproof membrane application to all internal wet areas (including the forming and dressing of all penetrations, change of direction and upstands).
6. A Producer Statement PS3 required from the registered drainlayer for the installation of the onsite wastewater treatment system.

Compliance Schedule

A compliance schedule is not required for the building.

Attachments

No attachments.

Additional Information

The applicant must control dust nuisance created by any site or building works.

Toilet facilities must be provided within reasonable distance of the construction site. Ground discharge is no longer acceptable.

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.

To confirm compliance an Energy Works Certificate will be required (Electrical).



Tilly Selwyn
Support Assistant – Building Processing
On behalf of Whangarei District Council

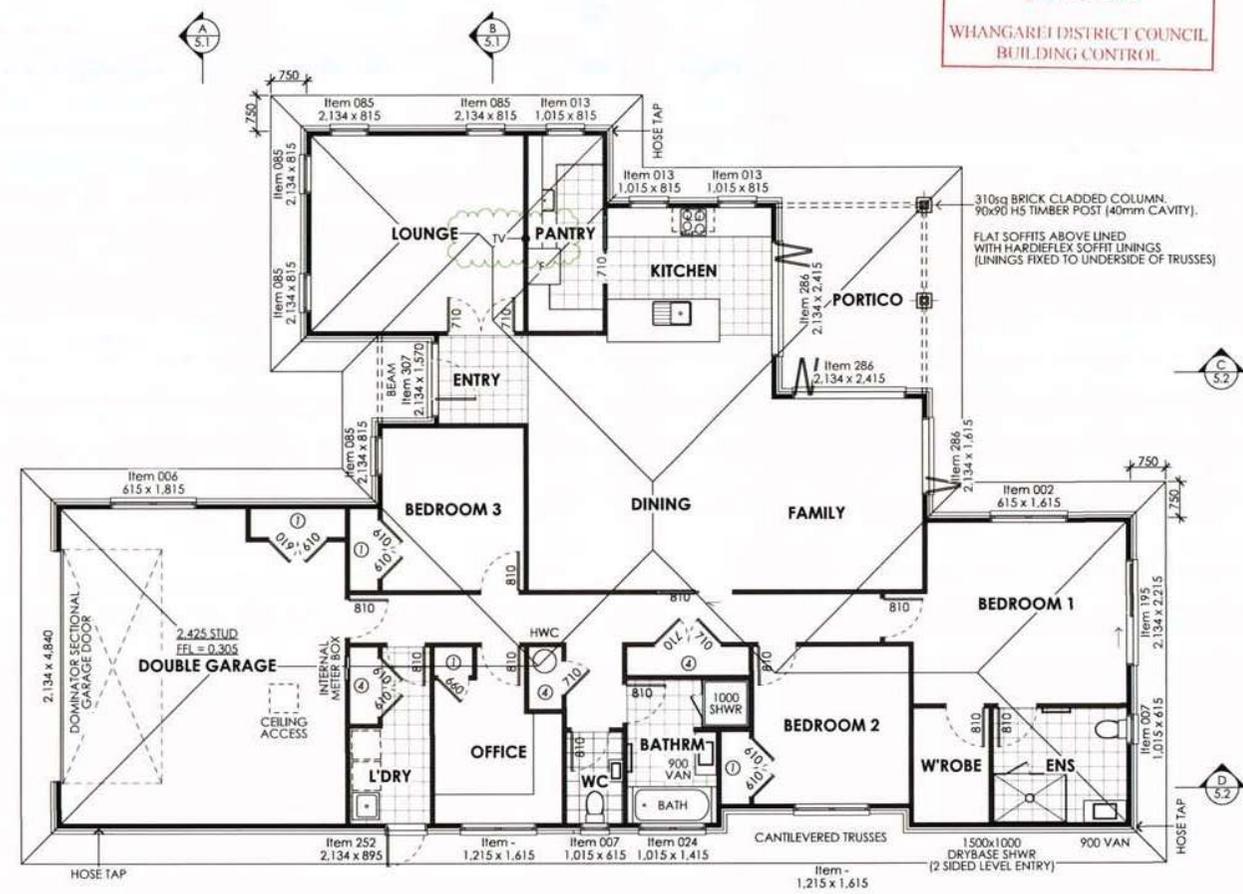
2 March 2018

Date

RECEIVED
23 FEB 2018
WHANGAREI DISTRICT COUNCIL
BUILDING CONTROL

THESE PLANS REMAIN THE PROPERTY OF CLASSIC BUILDERS UNTIL A DESIGN CONTRACT HAS BEEN AGREED UPON. THESE PLANS MAY NOT BE USED TO CONSTRUCT A PROJECT WITHOUT THE WRITTEN APPROVAL OF CLASSIC BUILDERS

- GENERAL NOTES:**
- ④ = No. OF SHELVES IN CUPBOARDS / WARDROBES
- DOMESTIC SMOKE ALARMS ARE REQUIRED WITHIN A 3.0m RADIUS OF EVERY SLEEPING ROOM AND IS TO BE HEARD FROM THE OTHER SIDE OF THE CLOSED DOOR.
- ALL STRUCTURAL FIXINGS TO BE HOT-DIPPED GALVANIZED STEEL
- STUD SIZE AND SPACING:**
STUDS IN LOADBEARING WALLS FOR SINGLE OR TOP STOREY FOR STUDS UP TO 2.4m 90x45 AT 400mm CRS.
STUDS IN NON LOADBEARING WALLS FOR STUDS UP TO 2.4m 90x45 AT 600mm CRS.
- TIMBER TREATMENT:**
H1.2 EXTERNAL FRAMING
H1.2 INTERNAL FRAMING
- TIMBER GRADE:**
ALL STRUCTURAL TIMBER - MIN SGB UNLESS NOTED OTHERWISE.
- INSULATION:**
WALL R2.2 PINK BATTS CLASSIC
CEILING R3.2 PINK BATTS CLASSIC (INC. GARAGE)
- WALL CLADDINGS:**
70 SERIES PREMIER CONCRETE BRICK VENEER EXTERIOR CLADDING
- UNDERLAY - FLEXIBLE WALL UNDERLAY
FAST WRAP BUILDING WRAP
- ROOF CLADDING:**
MONIER 'HACIENDA' CONCRETE TILE ROOFING - 25° PITCH, O/HANG AS SHOWN
- UNDERLAY - R2 SELF-SUPPORTING ROOF UNDERLAY
SISALATION BITUMAC@ 750
- STEEL & TUBE MULTILINE 150 FASCIA & CUSTOMLINE GUTTER.
- WET AREAS:**
FLOOR FINISH - NON SLIP TILES
TILES TO HAVE MINIMUM SLIP RESISTANCE CO-EFFICIENT OF 0.4 TO COMPLY WITH NZBC D11/AS1 SLIP RESISTANCE
- KITCHEN & BATHROOM FLOOR & WALL LININGS TO COMPLY WITH E3/AS1 SECTION 3.1.1 & 3.1.2
- KITCHEN LAYOUT IS INDICATIVE ONLY.
- EXTERNAL ACCESS SURFACE:**
SURFACE UNDER THE EXPECTED CONDITIONS OF USE TO HAVE A CO-EFFICIENT OF FRICTION = 0.4 + 0.0125 S
NZBC D11/AS1 1.0.1 SLIP RESISTANCE
- WINDOW & DOOR JOINEY:**
ALL GLAZING TO COMPLY WITH NZS #223.
- WINDOW & DOOR SIZES SHOWN ARE TO TRIMMED OPENINGS.
- INTERNAL DOOR TRIM HEIGHT = 2040



DWELLING AREAS

- GROUND FLOOR (OVER FRAME) = 223.1m²
- GROUND FLOOR (OVER CLADDING) = 232.9m²
- ROOF PLAN (GROUND FLOOR) = 300.2m²

SITE INFORMATION

- WIND ZONE VERY HIGH
- EARTHQUAKE ZONE I
- EXPOSURE ZONE C

APPROVED 2018
BC NUMBER [DAY] [MTH]
00047 2802
WHANGAREI DISTRICT COUNCIL
BCA

<p>140 17th AVE PO Box 864 TAURANGA PH: (07) 571 6151 FAX: (07) 571 6152 www.classicbuilders.co.nz</p>	CLIENT: AMANDA & JESSE FAMILY TRUST
	LEGAL DESCRIPTION: LOT 8 - DP 481012
	SITE ADDRESS: 44 BRENDA GARDNER WAY MAUNU
	CITY: WHANGAREI
	COUNCIL: WHANGAREI DISTRICT COUNCIL

AMANDA & JESSE FAMILY TRUST
44 BRENDA GARDNER WAY, WHANGAREI

DRAWN: L.VANDERHULST	PROJECT NUMBER: WH10335
CHECK SCH: - WD: -	PROJECT STATUS: WORKING DRAWINGS
CB CONSULTANT: J.FIELDEN	DATE: 22/02/2018 REVISION: REV. 03
GROUND FLOOR PLAN	SCALE: 1:100 AT A3
	SHEET NUMBER: 2.1

\\vgp001\contracts and schedules\clients\System\DPN\1010335\Working Drawings\Revision 03\CAD\AMANDA & JESSE - WH10335 - REV 03.rvt



DEC

Private Bag 9023 | Whangarei 0148 | New Zealand
T: 09 430 4200 | 0800 WDC INFO | 0800 932 463 | F: 09 438 7632
W: www.wdc.govt.nz | E: mailroom@wdc.govt.nz



Form 7

Code Compliance Certificate BC1800047

Section 95, Building Act 2004

Issued: 23 January 2019

The Building

Street address of building: 44 Brenda Gardner Way (Pvt)
Whangarei 0179

Legal description of land where building is located: LOT 8 DP 481012

LLP: 127596

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: 2018

The Owner

A L House
J J Gavin
44 Brenda Gardner Way (Pvt)
Whangarei 0179

Phone number: N/A

Mobile number: 02102480404

Facsimile number: N/A

Email address: amandahouse@hotmail.co.nz

Website: N/A

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

Contact Person

Classic Builders Whangarei Limited
PO Box 3302
Onerahi
Whangarei 0142

Phone number: 4360299

Mobile number: 021436167

Facsimile number: N/A

Email address: scott.coutts@classicbuilders.co.nz

Website: www.classicbuilders.co.nz

Street address/registered office: 44 Brenda Gardner Way (Pvt)
Whangarei 0179



Building Work

New Dwelling

Building Consent Number:

BC1800047

Issued by:

Whangarei District Council

Code Compliance

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

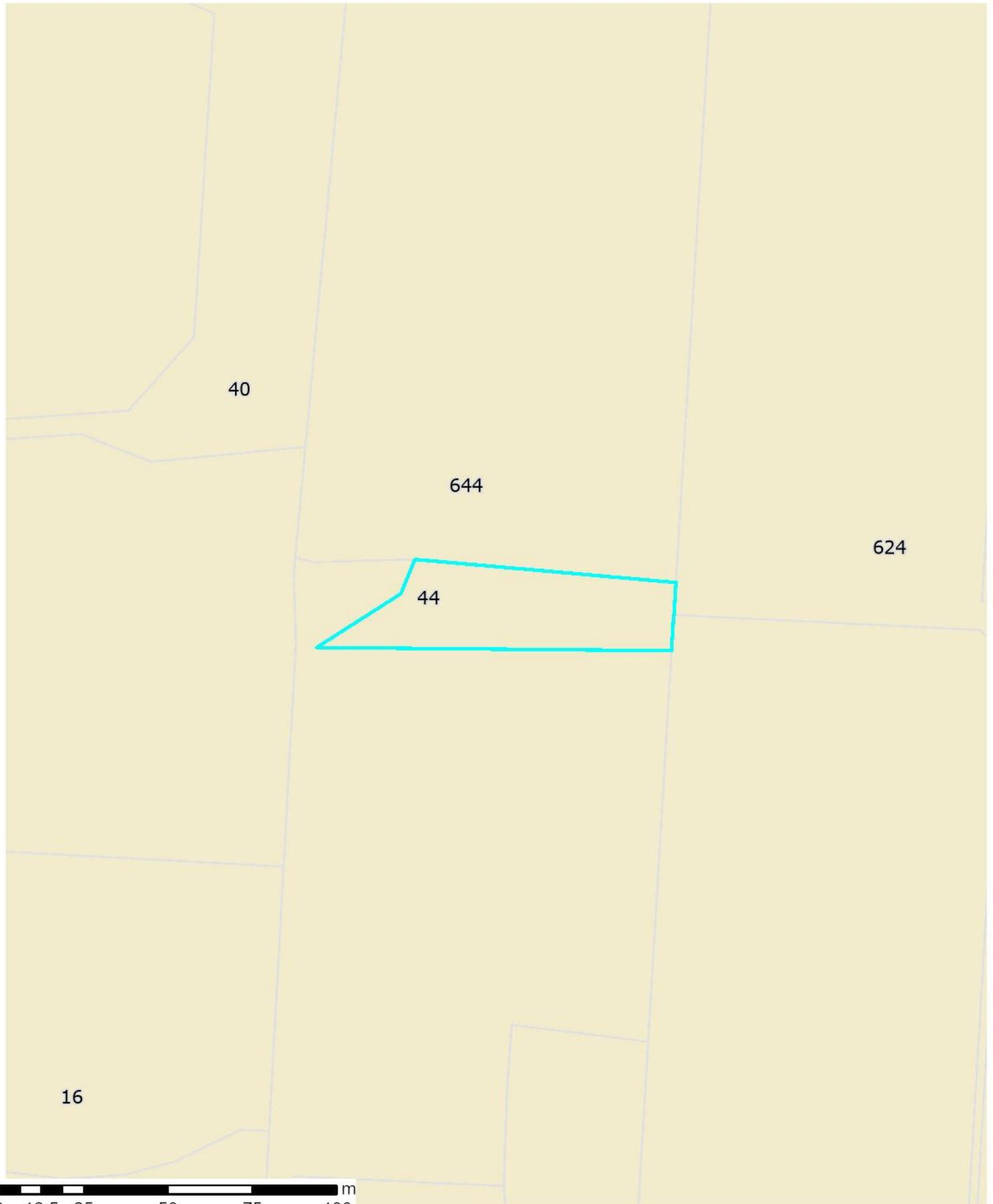
- (a) The building work complies with the building consent.

A handwritten signature in black ink, appearing to read "Eg.", positioned above a horizontal line.

Enka Stephenson
Support Assistant – Building Processing
On behalf of Whangarei District Council

23 January 2019

Date



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.

17 February 2026
Scale 1:1,500

Parcel Information is sourced from the Land Information New Zealand (LINZ) Data Service.
CROWN COPYRIGHT RESERVED. © Copyright Whangarei District Council.



Operative District Plan – Map Legend

District-Wide Matters

Energy, Infrastructure and Transport

-  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
-  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

Hazards and Risks

-  Coastal Erosion Hazard 1
-  Coastal Erosion Hazard 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
-  Heritage Area Overlay
-  Sites of Significance to Maori
-  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

-  Air 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

The information displayed is schematic only and serves as a guide.

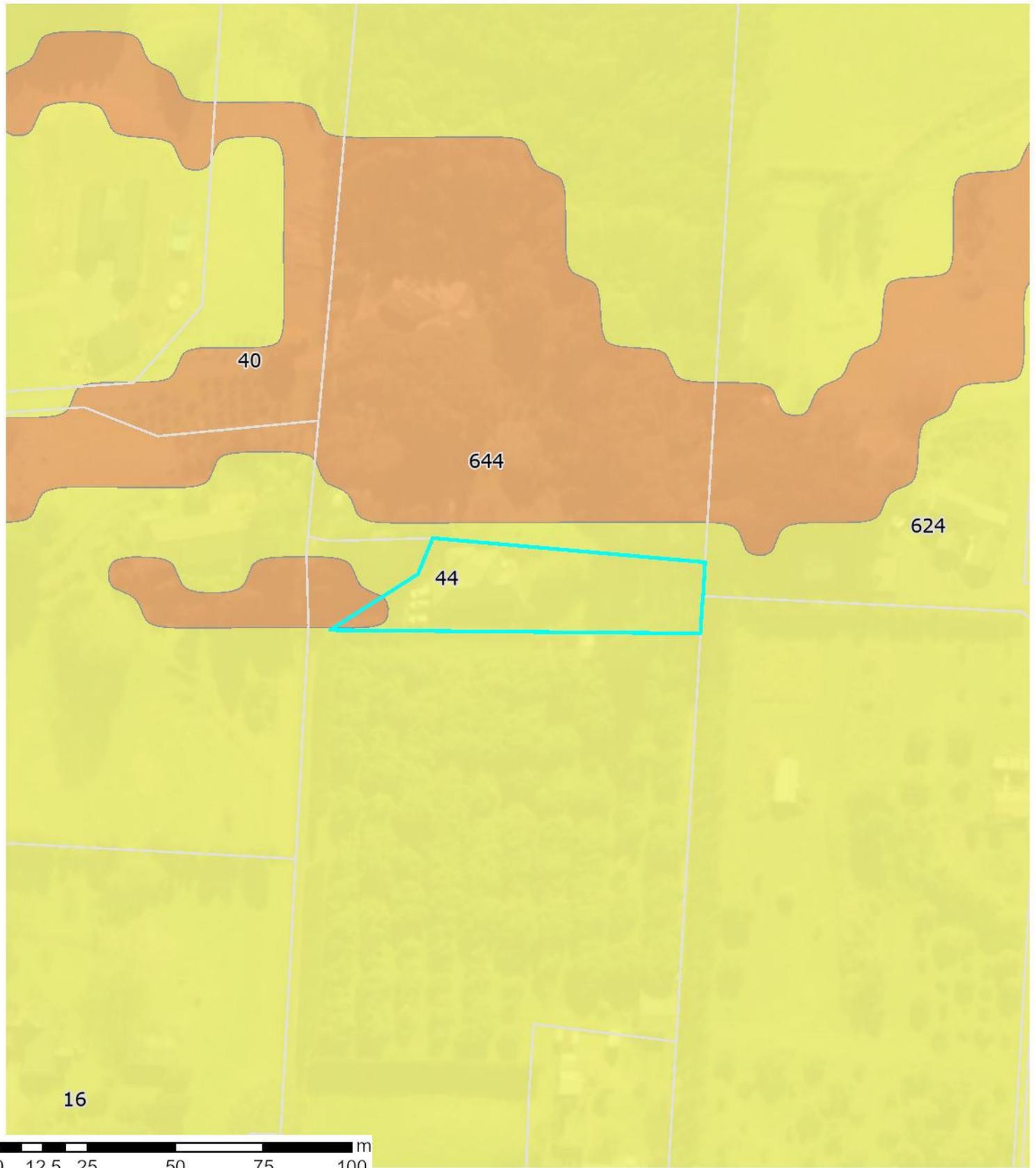
It has been compiled from Whangarei District Council records and is made available in good faith, but its accuracy or completeness is not guaranteed.

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



Landslide Susceptibility Zone

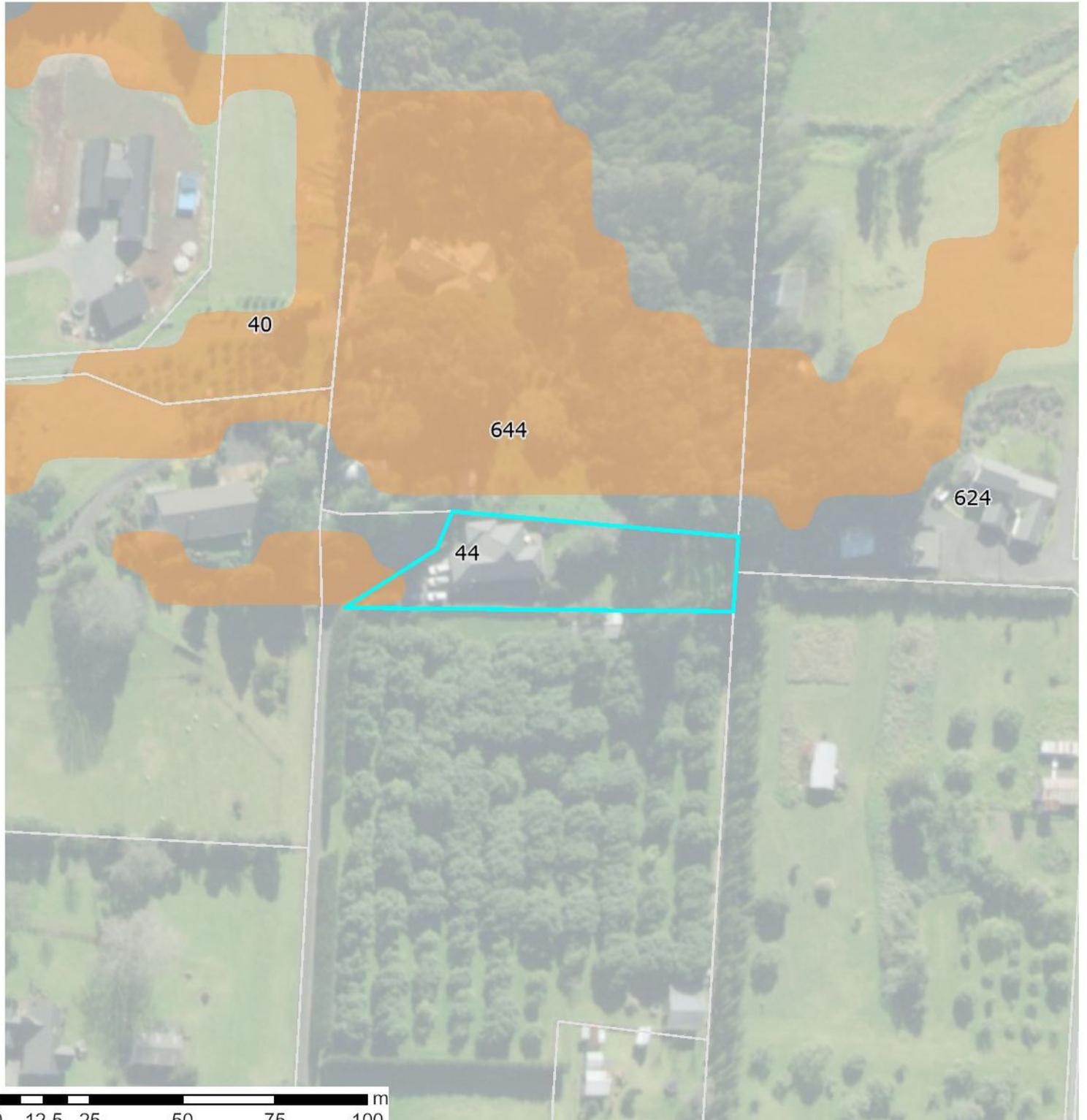
-  High
-  Moderate
-  Low

Whangārei District Council holds indicative information on land stability hazard for Whangārei. The Whangārei 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/v2/documents/council/reports/hazard-reports/land-stability/landslide-susceptibility-technical-report.pdf>

17 February 2026
Scale 1:1,500



District Plan Change 1 - Natural Hazards Land Instability



PC1 - Natural Hazards

Land Instability

-  High Susceptibility to Land Instability
-  Moderate Susceptibility to Land Instability

17 February 2026

Scale 1:1,500



Information provided on this map forms part of Plan Change 1 – Natural Hazards.
To view the maps and see how the changes may affect the property please visit:
<https://www.wdc.govt.nz/Services/Planning/District-Plan-changes/Current-plan-changes>.

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.
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