THOMSON SURVEY LIMITED

SURVEYORS AND RESOURCE PLANNERS

Our Reference: 10824.1 (FNDC)

17 December 2025

Resource Consents Department
Far North District Council
JB Centre
KERIKERI

Dear Sir/Madam

RE: Proposed Subdivision at McDonald Road, Kawakawa – Herk & Ellison

I am pleased to submit application on behalf of T Herk and L Ellison, for a proposed subdivision of land zoned Rural Production, to create one additional lot as a discretionary activity.

The application fee of $3,044 has been paid separately via direct credit.

Regards

Lynley Newport
Senior Planner
THOMSON SURVEY LTD

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Background picture represents a New Zealand surveying trig station, used to beacon control survey marks

Te Kaunihera o Te Hiku o te Ika
Far North District Council

Office Use Only
Application Number:

Application for resource consent or fast-track resource consent

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA)) (If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of Form 9). Prior to, and during, completion of this application form, please refer to Resource Consent Guidance Notes and Schedule of Fees and Charges — both available on the Council's web page.

1. Pre-Lodgement Meeting

Have you met with a council Resource Covnsent representative to discuss this application prior to lodgement?

◯ **Yes** ☑ **No**

2. Type of consent being applied for

(more than one circle can be ticked):

◯ **Land Use**
◯ **Fast Track Land Use***
☑ **Subdivision**
◯ **Consent under National Environmental Standard** (e.g. Assessing and Managing Contaminants in Soil)
◯ **Discharge**
◯ **Change of Consent Notice (s.221(3))**
◯ **Extension of time (s.125)**
◯ **Other (please specify)** _____

**The fast track is for simple land use consents and is restricted to consents with a controlled activity status.*

3. Would you like to opt out of the fast track process?

☑ **Yes** ◯ **No**

4. Consultation

Have you consulted with Iwi/Hapū? ◯ **Yes** ☑ **No**

If yes, which groups have you consulted with?

Who else have you consulted with?

For any questions or information regarding iwi/hapū consultation, please contact Te Hono at Far North District Council, tehonosupport@fndc.govt.nz

5. Applicant details

Name/s: Tony Herk & Letitia Ellison

Email: [redacted]

Phone number:

Postal address:
(or alternative method of service under section 352 of the act)

Have you been the subject of abatement notices, enforcement orders, infringement notices and/or convictions under the Resource Management Act 1991? ◯ **Yes** ☑ **No**

If yes, please provide details.

6. Address for correspondence

Name and address for service and correspondence (if using an Agent write their details here)

Name/s: Lynley Newport

Email: [redacted]

Phone number:

Postal address:
(or alternative method of service under section 352 of the act)

All correspondence will be sent by email in the first instance. Please advise us if you would prefer an alternative means of communication.

7. Details of property owner/s and occupier/s

Name and Address of the owner/occupiers of the land to which this application relates (where there are multiple owners or occupiers please list on a separate sheet if required)

Name/s: Taraire Farm Holdings Limited

Property address/
location: 62 McDonald Road
KAWAKAWA
Postcode

8. Application site details

Location and/or property street address of the proposed activity:

Name/s: as above

Site address/ location: 62 McDonald Road
KAWAKAWA
Postcode

Legal description: Lot 2 DP 432775 **Val Number:**

Certificate of title: 525508

Please remember to attach a copy of your Certificate of Title to the application, along with relevant consent notices and/or easements and encumbrances (search copy must be less than 6 months old)

Site visit requirements:

Is there a locked gate or security system restricting access by Council staff? ☑ **Yes** ○ **No**

Is there a dog on the property? ○ **Yes** ☑ **No**

Please provide details of any other entry restrictions that Council staff should be aware of, e.g. health and safety, caretaker's details. This is important to avoid a wasted trip and having to re-arrange a second visit.

Nil

9. Description of the proposal

Please enter a brief description of the proposal here. Please refer to Chapter 4 of the *District Plan, and Guidance Notes*, for further details of information requirements.

Subdivision in the Rural Production Zone to create one additional lot, as a discretionary activity.

If this is an application for a Change or Cancellation of Consent Notice conditions (s.221(3)), please quote relevant existing Resource Consents and Consent Notice identifiers and provide details of the change(s), with reasons for requesting them.

10. Would you like to request public notification?

○ **Yes** ☑ **No**

11. Other consent required/being applied for under different legislation

(more than one circle can be ticked):

○ **Building Consent** Enter BC ref # here (if known)

○ **Regional Council Consent (ref # if known)** Ref # here (if known)

○ **National Environmental Standard Consent** Consent here (if known)

○ **Other (please specify)** Specify 'other' here

12. National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health:

The site and proposal may be subject to the above NES. In order to determine whether regard needs to be had to the NES please answer the following:

Is the piece of land currently being used or has it historically ever been used for an activity or industry on the Hazardous Industries and Activities List (HAIL)? ◯ **Yes** ☑ **No** ◯ **Don't know**

Is the proposed activity an activity covered by the NES? Please tick if any of the following apply to your proposal, as the NESCS may apply as a result? ☑ **Yes** ◯ **No** ◯ **Don't know**

☑ **Subdividing land**
◯ **Changing the use of a piece of land**
◯ **Disturbing, removing or sampling soil**
◯ **Removing or replacing a fuel storage system**

13. Assessment of environmental effects:

Every application for resource consent must be accompanied by an Assessment of Environmental Effects (AEE). This is a requirement of Schedule 4 of the Resource Management Act 1991 and an application can be rejected if an adequate AEE is not provided. The information in an AEE must be specified in sufficient detail to satisfy the purpose for which it is required. Your AEE may include additional information such as written approvals from adjoining property owners, or affected parties.

Your AEE is attached to this application ☑ **Yes**

14. Draft conditions:

Do you wish to see the draft conditions prior to the release of the resource consent decision? ☑ **Yes** ◯ **No**

If yes, please be advised that the timeframe will be suspended for 5 working days as per s107G of the RMA to enable consideration for the draft conditions.

15. Billing Details:

This identifies the person or entity that will be responsible for paying any invoices or receiving any refunds associated with processing this resource consent. Please also refer to Council's Fees and Charges Schedule.

Name/s: (please write in full) Tony Reginald Herd Lottie Lyn Ellison

Email: [redacted]

Phone number:

Postal address:
(or alternative method of service under section 352 of the act)

Fees Information
An instalment fee for processing this application is payable at the time of lodgement and must accompany your application in order for it to be lodged. Please note that if the instalment fee is insufficient to cover the actual and reasonable costs of work undertaken to process the application you will be required to pay any additional costs. Invoiced amounts are payable by the 20th of the month following invoice date. You may also be required to make additional payments if your application requires notification.

15. *Billing details* continued...

Declaration concerning Payment of Fees

I/we understand that the Council may charge me/us for all costs actually and reasonably incurred in processing this application. Subject to my/our rights under Sections 357B and 358 of the RMA, to object to any costs, I/we undertake to pay all and future processing costs incurred by the Council. Without limiting the Far North District Council's legal rights if any steps (including the use of debt collection agencies) are necessary to recover unpaid processing costs I/we agree to pay all costs of recovering those processing costs. If this application is made on behalf of a trust (private or family), a society (incorporated or unincorporated) or a company in signing this application I/we are binding the trust, society or company to pay all the above costs and guaranteeing to pay all the above costs in my/our personal capacity.

Name: (please write in full) Letitia Lyn Ellison

Signature: [redacted] Date 16.12.25

(signature of bill payer) MANDATORY

16. Important Information:

Note to applicant

You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.

You may apply for 2 or more resource consents that are needed for the same activity on the same form.

You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991.

Fast-track application

Under the fast-track resource consent process, notice of the decision must be given within 10 working days after the date the application was first lodged with the authority, unless the applicant opts out of that process at the time of lodgement.

A fast-track application may cease to be a fast-track application under section 87AAC(2) of the RMA.

Privacy Information:

Once this application is lodged with the Council it becomes public information. Please advise Council if there is sensitive information in the proposal. The information you have provided on this form is required so that your application for consent pursuant to the Resource Management Act 1991 can be processed under that Act. The information will be stored on a public register and held by the Far North District Council. The details of your application may also be made available to the public on the Council's website, www.fndc.govt.nz. These details are collected to inform the general public and community groups about all consents which have been issued through the Far North District Council.

17. Declaration

The information I have supplied with this application is true and complete to the best of my knowledge.

Name (please write in full) Letitia Lyn Ellison

Signature [redacted] Date 16.12.25

A signature is not required if the application is made by electronic means

See overleaf for a checklist of your information...

Checklist

Please tick if information is provided

- ◯ Payment (cheques payable to Far North District Council)
- ◯ A current Certificate of Title (Search Copy not more than 6 months old)
- ◯ Details of your consultation with Iwi and hapū
- ◯ Copies of any listed encumbrances, easements and/or consent notices relevant to the application
- ◯ Applicant / Agent / Property Owner / Bill Payer details provided
- ◯ Location of property and description of proposal
- ◯ Assessment of Environmental Effects
- ◯ Written Approvals / correspondence from consulted parties
- ◯ Reports from technical experts (if required)
- ◯ Copies of other relevant consents associated with this application
- ◯ Location and Site plans (land use) AND/OR
- ◯ Location and Scheme Plan (subdivision)
- ◯ Elevations / Floor plans
- ◯ Topographical / contour plans

Please refer to Chapter 4 of the District Plan for details of the information that must be provided with an application. Please also refer to the RC Checklist available on the Council's website. This contains more helpful hints as to what information needs to be shown on plans.

Herk & Ellison

PROPOSED SUBDIVISION PURSUANT TO FNDC OPERATIVE DISTRICT PLAN

McDonald & McIntyre Roads, Kawakawa

PLANNER'S REPORT & ASSESSMENT OF ENVIRONMENTAL EFFECTS

Thomson Survey Ltd
Kerikeri

1.0 INTRODUCTION

1.1 The Proposal

The applicants propose to subdivide a 4.33ha lot off a large rural holding at McDonald and McIntyre Roads. The subdivision will create Lot 1 of 4.33ha and balance Lot 2 of 72.0152ha. The proposed smaller lot will gain access off McIntyre Road, via unformed paper road. The balance Lot 2 can also be access via that paper road, but has frontage at its north end to McDonald Road, which is where the existing residential dwelling and other buildings are located.

Both McDonald and McIntyre Roads are Council maintained metal surface roads.

The proposed lot will not have access to any Council 3 waters reticulated services and will be reliant on on-site water supply; wastewater treatment and disposal; and stormwater management. A Civil Site Suitability Report supports this application, investigating Lot 1 only. Because Lot 2 is part of a larger farming unit where there is residential development elsewhere.

A copy of the scheme plan(s) is attached in Appendix 1 and location map in Appendix 2.

1.2 Scope of this Report

This assessment and report accompanies the Resource Consent Application made by the applicant, and is provided in accordance with Section 88 and Schedule 4 of the Resource Management Act 1991. The application seeks consent to subdivide an existing site to create one additional lot, as a discretionary activity.

The information provided in this assessment and report is considered commensurate with the scale and intensity of the activity for which consent is being sought. Applicant details are contained within the Application Form 9.

2.0 PROPERTY DETAILS

Location:	McIntyre Road, Kawakawa
Legal description & RT's:	Lot 2 DP 432775; held in Record of Title 525508, copy attached in Appendix 3.

3.0 SITE DESCRIPTION

3.1 Site Characteristics

The site is zoned Rural Production in the Operative District Plan (ODP) and Proposed District Plan (PDP). No resource features apply in either the ODP or PDP.

The site has frontage to McDonald Road and can also be accessed via the unformed paper road coming off McIntyre Road in the south. There are buildings at the north end of large balance Lot 2, including a residential dwelling. There are no buildings on the land proposed to be within Lot 1.

The site is currently in grazing with areas of vegetation, one of which is an area of indigenous vegetation already subject to a Bush Protection Covenant (Consent Notice). The other vegetation, some of which is within proposed Lot 1 is a mixture of indigenous and exotic with high incidence of gorse and tobacco plant.

To quote from the Civil Site Suitability Report supporting the application, "Topographically speaking, the site (Lot 1) is set around a well elevated, gently inclined, narrow crest land along the eastern boundary, that is bound by moderate to very steeply sloping side flanks". It is proposed that all development within Lot 1 will take place on the above referenced narrow crest land along the eastern boundary.

Looking west down into deep vegetation filled gully, the south side (left) of which will be within Lot 1.

Looking south along the crest, the area within which on-site wastewater disposal areas will likely be situated

The site is not mapped as having any natural hazards, including erosion.

The site is not mapped as containing any archaeological, cultural or heritage resources or values.

There is no Protected Natural Area vegetation or habitat within proposed Lot 1. There is, however, a piece of indigenous vegetation within the large balance lot, already subject to bush protection covenant – refer to Scheme Plan.

The site is within a kiwi present area.

There are no wetlands or water bodies within the area proposed for development.

LUC maps show the site as containing LUC 4 and 6 soils *(Far North Maps, Soil layer)*.

3.2 Legal Interests

The property is subject to Consent Notice 8584536.2, registered in 2010. A copy is attached as part of Appendix 3. This will carry over automatically although clause (ii) has no relevance to the proposed 4.33ha lot as it refers solely to the area of bush protection to be on the large balance Lot 2.

3.3 Consent History

Subdivision consent history shows the property is one of two created by RC 2100630, issued in 2010.

Building consent is all related to buildings outside of the proposed additional lot:

BP842863, issued in 1974 for a haybarn;
BP1149214, issued in 1981 for a woolshed;

BP1149328, also issued in 1981 for covered yards;
BP2097286, issued in 1984 for a Skyline shed;
COA for a pole shed, issued in 2022;
EBC-2022-1353, issued in 2022 for alterations to an existing building, including installation of new on-site wastewater disposal system.

4.0 SCHEDULE 4 – INFORMATION REQUIRED IN AN APPLICATION

Clauses 2 & 3: Information required in all applications

(1) An application for a resource consent for an activity must include the following:	
(a) a description of the activity: .	Refer Sections 1 and 5 of this Planning Report.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Section 6 of this Planning Report.
(b) a description of the site at which the activity is to occur:	Refer to Section 3 of this Planning Report.
(c) the full name and address of each owner or occupier of the site:	This information is contained in the Form 9 attached to the application.
(d) a description of any other activities that are part of the proposal to which the application relates:	No other activities are part of the proposal. The application is for subdivision pursuant to the FNDC's ODP.
(e) a description of any other resource consents required for the proposal to which the application relates:	None are required.
(f) an assessment of the activity against the matters set out in Part 2:	Refer to Section 7 of this Planning Report.
(g) an assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b), including matters in Clause (2): *(a) any relevant objectives, policies, or rules in a document; and* *(b) any relevant requirements, conditions, or permissions in any rules in a document; and* *(c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).*	Refer to Sections 5 and 7 of this Planning Report.

(3) An application must also include any of the following that apply:	
(a) if any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1)):	Refer to section 5.
(b) if the application is affected by section 124 or 165ZH(1)(c) (which relate to existing resource consents), an assessment of the value of the investment of the existing consent holder (for the purposes of section 104(2A)):	There is no existing resource consent. Not applicable.
(c) if the activity is to occur in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai Moana) Act 2011, an assessment of the activity against any resource management matters set out in that planning document (for the purposes of section 104(2B)).	The site is not within an area subject to a customary marine title group. Not applicable.
(4) An application for a subdivision consent must also include information that adequately defines the following:	
(a) the position of all new boundaries: *(b) the areas of all new allotments, unless the subdivision involves a cross lease, company lease, or unit plan:* *(c) the locations and areas of new reserves to be created, including any esplanade reserves and esplanade strips:* *(d) the locations and areas of any existing esplanade reserves, esplanade strips, and access strips:* *(e) the locations and areas of any part of the bed of a river or lake to be vested in a territorial authority under section 237A:* *(f) the locations and areas of any land within the coastal marine area (which is to become part of the common marine and coastal area under section 237A):* *(g) the locations and areas of land to be set aside as new roads.*	Refer to Scheme Plans in Appendix 1.

Clause 6: Information required in assessment of environmental effects

(1) An assessment of the activity's effects on the environment must include the following information:	
(a) if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:	Refer to Section 6 of this planning report. The activity will not result in any significant adverse effect on the environment.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Section 6 of this planning report.
(c) if the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use:	Not applicable as the application does not involve hazardous installations.
(d) if the activity includes the discharge of any contaminant, a description of— *(i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and* *(ii) any possible alternative methods of discharge, including discharge into any other receiving environment:*	The subdivision does not involve any discharge of contaminant.
(e) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:	Refer to Section 6 of this planning report.
(f) identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted:	Refer to Section 8 of this planning report. No affected persons have been identified.
g) if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved:	No monitoring is required as the scale and significance of the effects do not warrant it.
(h) if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).	No protected customary right is affected.

Clause 7: Matters that must be addressed by assessment of environmental effects (RMA)

(1) An assessment of the activity's effects on the environment must address the following matters:	
(a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:	Refer to Sections 6 and 8 of this planning report and also to the assessment of objectives and policies in Section 7.
(b) any physical effect on the locality, including any landscape and visual effects:	Refer to Section 6. The site has no high or outstanding landscape or natural character values.
(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:	Refer to Section 6. The subdivision has no effect on ecosystems or habitat.
(d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations:	Refer to Section 6. The site has no aesthetic, recreational, scientific, historical, spiritual or cultural values that I am aware of, that will be adversely affected by the act of subdividing.
(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:	The subdivision will not result in the discharge of contaminants, nor any unreasonable emission of noise.
(f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.	The subdivision site is not subject to hazard. The proposal does not involve hazardous installations.

5.0 ACTIVITY STATUS

5.1 Operative District Plan

The site is zoned Rural Production and has no resource features.

Table 13.7.2.1: Minimum Lot Sizes

(i) RURAL PRODUCTION ZONE

Controlled Activity Status (Refer also to 13.7.3)	**Restricted Discretionary Activity Status (Refer also to 13.8)**	**Discretionary Activity Status (Refer also to 13.9)**
The minimum lot size is 20ha.	1. The minimum lot size is 12ha; or 2. The minimum lot size is 12ha; or 3. A maximum of 3 lots in any subdivision, provided that the minimum lot size is 4,000m2 and there is at least 1 lot in the subdivision with a minimum lot	**1. The minimum lot size is 4ha**; or 2. A maximum of 3 lots in any subdivision, provided that the minimum lot size is 2,000m² and there is at least 1 lot in the subdivision with a minimum size of 4ha, and provided further that the subdivision is of sites which existed at or prior to 28

	size of 4ha, and provided further that the subdivision is of sites which existed at or prior to 28 April 2000, or which are amalgamated from titles existing at or prior to 28 April 2000; or 4. A maximum of 5 lots in a subdivision (including the parent lot) where the minimum size of the lots is 2ha, and where the subdivision is created from a site that existed at or prior to 28 April 2000; Option 5. N/A as the proposal does not utilise remaining rights.	April 2000, or which are amalgamated from titles existing at or prior to 28 April 2000; or 3. A subdivision in terms of a management plan as per Rule 13.9.2 may be approved. Option 4 N/A

The Title is younger than April 2000. Both lots are 4ha in area or greater. The subdivision is therefore a **discretionary** subdivision activity.

Other Rules:

Zone Rules:

The proposal does not result in any breaches of Rural Production Zone rules.

District Wide Rules:

Chapter 12.1 Landscapes and Natural Features does not apply as there is no landscape or natural feature overlay applying to the site.

Chapter 12.2 Indigenous Flora and Fauna does not apply as no clearance of indigenous vegetation is proposed.

Chapter 12.3 Soils and Minerals does not apply/ is complied with. Only minor subdivision earthworks will be required for access, highly unlikely to breach the zone's permitted activity thresholds.

Chapter 12.4 Natural Hazards does not apply as the site is not subject to any coastal hazard as currently mapped in the Operative District Plan (the only hazards with rules). Whilst there is scrubland on the slopes below the likely house site, a 20m buffer area can readily be achieved (with clearance) in regard to the rules in Chapter 12.4 about Fire Risk to Residential Unit.

Rules in Chapters 12.5, 5A and 5B Heritage do not apply as the site contains no heritage values or sites, no notable trees, no Sites of Cultural Significance to Maori and no registered archaeological sites. The site is not within any Heritage Precinct.

Chapter 12.7 Waterbodies does not apply as the subdivision provides for building / development area well away from any water courses.

Chapter 12.8 Hazardous Substances does not apply as the activity being applied for is not a hazardous substances facility.

Chapter 12.9 does not apply as the activity does not involve renewable energy.

Chapter 14 Financial Contributions (esplanade reserve) is not relevant as there is no qualifying water body and no lot of less than 4ha.

Chapter 15.1 Traffic, Parking and Access

Rules in Chapter 15.1.6A are not considered relevant to the proposal. This is because the traffic intensity rules apply to land use activities, not subdivisions. Similarly rules in Chapter 15.1.6B (parking requirements) also relate to proposed land use activities, not subdivisions. Notwithstanding this, no breaches of either traffic intensity, or parking, rules have been identified.

Chapter 15.1.6C (access) is the only part of Chapter 15.1 relevant to a subdivision. I have not identified any breaches. The site has frontage to an unformed paper road. This intersects with McIntyre at an existing entrance/crossing. It is proposed to form the paper road to 3m wide metal carriageway, with drainage as required by private access standards in Appendix 3B-1 of the ODP. Although paper road, it is appropriate to regard it as private access as it highly unlikely to ever be taken over by the Council as public road. Too few properties utilise it.

In summary, I have not identified any land use breaches, and the subdivision remains a discretionary subdivision activity.

5.2 Proposed District Plan

The FNDC publicly notified its PDP on 27th July 2022. Whilst the majority of rules in the PDP will not have legal effect until such time as the FNDC publicly notifies its decisions on submissions, there are certain rules that have been identified in the PDP as having immediate legal effect and that may therefore need to be addressed in this application and may affect the category of activity under the Act. These include:

Rules HS-R2, R5, R6 and R9 in regard to hazardous substances on scheduled sites or areas of significance to Maori, significant natural areas or a scheduled heritage resource.

The proposal does not involve hazardous substances.

Heritage Area Overlays – N/A as none apply to the application site.

Historic Heritage rules and Schedule 2 – N/A as the site does not have any identified (scheduled) historic heritage values.

Notable Trees – N/A – no notable trees on the site.

Sites and Areas of Significance to Maori – N/A – the site does not contain any site or area of significance to Maori.

Ecosystems and Indigenous Biodiversity – Rules IB-R1 to R5 inclusive.

No indigenous vegetation clearance is proposed.

Subdivision (specific parts) – only subdivision provisions relating to land containing Significant Natural Area or Heritage Resources have immediate legal effect. The site contains no scheduled or mapped Significant Natural Areas or Heritage Resources.

Activities on the surface of water – N/A as no such activities are proposed.

Earthworks – Only some rules and standards have legal effect. These are Rules EW-R12 and R13 and related standards EW-S3 and ES-S5 respectively. EW-R12 and associated EW-S3 relate to the requirement to abide by Accidental Discovery Protocol if carrying out earthworks and artefacts are discovered. EW-R13 and associated EW-S5 refer to operating under appropriate Erosion and Sediment Control measures. The only earthworks required to give effect to the subdivision is related to access. This can be carried out in compliance with the above referenced rules/standards.

Signs – N/A – signage does not form part of this application.

Orongo Bay Zone – N/A as the site is not in Oronga Bay Zone.

There are no zone rules in the PDP with immediate legal effect that affect the proposal's activity status.

6.0 ASSESSMENT OF ENVIRONMENTAL EFFECTS

6.1 Allotment Sizes and Dimensions

The proposed additional lot is large and can easily accommodate a 30m x 30m square building envelope. The site is suitable for residential development associated with rural and lifestyle activities.

The Civil Site Suitability Report in Appendix 4 confirms that the proposed lot is suitable for its intended use in regard to civil engineering and geotechnical matters.

6.2 Natural and Other Hazards

The application is supported by a Geotechnical Site Assessment Report – refer to Appendix 5. This confirms that in terms of section 106 of the Resource Management Act, either

a) No land in respect of which the consent is sought, nor any structure on that land, is, nor is likely to be subject to material damage by erosion, falling debris, subsidence, or slippage from any source, or
b) No subsequent use that is likely to be made of the land is likely to accelerate, worsen, or result in material damage to that land, other land, or structure, by erosion, falling debris, subsidence, or slippage form any source.

The site is not coastal, is well elevated, and is not subject to inundation. There are no water courses within the area to be developed. The site is not known to contain contaminated land.

6.3 Water Supply

There is no Council reticulated water supply available to the property and the Council can impose its standard requirement in regard to potable and fire fighting water supply for the additional lot. The balance Lot 2 does require such a notice given that it already supports residential development.

6.4 Energy Supply & Telecommunications

Power and phone is not a requirement for rural subdivision. Council can impose a consent notice advising future lot owners that the provision of power and telecoms to Lot 1 boundaries was not a requirement of the subdivision and remains the responsibility of the lot owner.

6.5 Stormwater Disposal

Refer to the Civil Site Suitability Report in Appendix 4, specifically Section 7 of that report. This confirms that impermeable coverage on the additional lot will readily comply with the zone's permitted activity threshold. As such, the report concludes that a stormwater attenuation report will not be required for any future residential development of the proposed lot. To appropriately mitigate stormwater runoff from existing and future proposed impermeable areas, the report recommends the use of Low Impact Design Methods.

The Geotechnical Site Assessment Report notes that concentrated overflows from any source discharge should not be allowed into or onto the ground in an uncontrolled fashion, especially the downslope flank below the building site.

Section 7.4 of the Civil Site Suitability Report contains an assessment of effects of stormwater disposal (13.10.4).

6.6 Sanitary Sewage Disposal

Refer to Section 6 of the Civil Site Suitability Report in Appendix 4. The report finds that there will be no issues in achieving permitted activity status for a future on-site system within Lot 1, and that the lot contains sufficient undeveloped natural ground to accommodate both primary and reserve wastewater disposal areas. Final sizing and positioning will be confirmed a building consent stage.

In regard to Lot 1, the report notes that a requirement of TP58 is that disposal of treated wastewater must not occur over any area containing fill due to potential risks to system performance and long term stability. For this reason, noting the proposed location of wastewater disposal areas, the report recommends the disposal field location be assessed for fill during building consent stage to ensure compliance.

This precautionary approach does not alter the overall findings of the report, which is that on-site wastewater treatment and disposal is possible, in compliance with the Regional Plan's permitted activity standards.

6.7 Easements for any purpose

No existing easements apply and no proposed easements are required.

6.8 Property Access

Property access into the lots will be via unformed paper road coming off McIntyre Road.

Existing paper road standard looking north east.
Proposed additional lot is over the crest.

Crossing to McIntyre Road

The paper road access serves the application site and one other farm (no residential dwellings currently). It will serve one additional lot, intended to support residential living. It is proposed to upgrade the formation within paper road to 3m wide metal carriageway, with passing bays as and where required.

The creation of one additional lot in this location will not have adverse effects in terms of traffic movements.

6.9 Earthworks

Only minimal earthworks will be required to give effect to the subdivision and this is largely within paper road. Works will be subject to erosion and sediment control measures.

6.10 Building Locations

A preferred building envelope has been identified by the applicants. The engineering site assessments based their findings on that preferred location. The Geotechnical Site Assessment emphasises that any proposed building platform not be positioned any further northwest of the location assessed in their report. There is no other restriction in regard to building location.

6.11 Preservation and enhancement of heritage resources (including cultural), vegetation, fauna and landscape, and land set aside for conservation purposes

Vegetation, fauna and landscape

The site has no resource feature overlays. It contains no features mapped in the Regional Policy Statement (or PDP) as having any high or outstanding landscape or natural values and there are no mapped biodiversity wetlands. The site contains an area of indigenous vegetation, already subject to bush protection covenant and located within the large balance Lot 2.

The property is mapped as 'kiwi present'. The title is not subject to any restriction on the keeping of cats and dogs. I believe no restriction is necessary. A consent notice requiring any cats or dogs kept on Lot 1 to be kept inside at night would be appropriate. The large Lot 2 will require working dogs to be allowed to be present on the lot.

Heritage/Cultural

The site does not contain any historic sites, nor any archaeological sites. Neither does the site contain any Sites of Cultural Significance to Maori (as scheduled in the ODP or PDP).

6.12 Soil

The soils on the property are predominantly mapped as being LUC 4 (on level area), and LUC 6 in the gullies. The level area is already largely cleared in preparation for residential use, including gardens. I do not believe the proposal will adversely affect the life supporting capacity of soil.

6.13 Access to, and protection of, waterbodies

There is no qualifying water body along which, or around which, public access is required to be provided. Water quality will not be adversely impacted by the act of subdivision. There is considerable distance between where built development will likely be restricted to, and qny waterbody in the gully area. On site wastewater treatment and disposal systems can be established in compliance with permitted activity standards in the Regional Plan.

6.14 Land use compatibility (reverse sensitivity)

The proposal is consistent with rural character where residential living is interspersed with larger holdings. I do not believe this subdivision unduly increases any risk of reverse sensitivity effects arising.

6.15 Proximity to Airports

The site is outside of any identified buffer area associated with any airport.

6.16 Natural Character of the Coastal Environment

The site is not within the coastal environment.

6.17 Energy Efficiency and renewable Energy Development/Use

The proposal has not considered energy efficiency. This is an option for future lot owners

6.18 National Grid Corridor

The National Grid does not run through the application site.

6.19 Effects on Rural Character and Amenity

The lots are rural in nature/character. The size of the lots means that rural amenity will be maintained. In my opinion, the proposal will have no adverse effects on rural character.

6.20 Cumulative and Precedent Effects

Cumulative Effect:

The proposal will create one additional lot. There is no other built development within the application site in the location of the additional lot. The proposal does not create an adverse cumulative effect.

Precedent Effect:

Precedent effects are a matter for consideration when a consent authority is considering whether or not to grant a consent. Determining whether there is an adverse precedent effect is, however, generally reserved for non complying activities, which this is not. In any event, the proposed subdivision does not set an adverse precedent effect and does not threaten the integrity of the ODP or those parts of the PDP with legal effect.

7.0 STATUTORY ASSESSMENT

7.1 Operative District Plan Objectives and Policies

Objectives and policies relevant to this proposal are considered to be primarily those listed in Chapter 8.6 (Rural Production Zone); and 13 (Subdivision), of the District Plan. These are listed and discussed below where relevant to this proposal.

Subdivision Objectives & Policies

Objectives

13.3.1 To provide for the subdivision of land in such a way as will be consistent with the purpose of the various zones in the Plan, and will promote the sustainable management of the natural and physical resources of the District, including airports and roads and the social, economic and cultural well being of people and communities

This is an enabling objective. The Rural Production Zone is predominantly, but not exclusively, a working productive rural zone. The additional site being created, whilst over 4ha in area, is largely bush/vegetation covered, and not suitable for arable use. The use of the lot for residential lifestyle purposes is the best use of the land, and a sustainable use of the land.

13.3.2 To ensure that subdivision of land is appropriate and is carried out in a manner that does not compromise the life-supporting capacity of air, water, soil or ecosystems, and that any actual or potential adverse effects on the environment which result directly from subdivision, including reverse sensitivity effects and the creation or acceleration of natural hazards, are avoided, remedied or mitigated.

The Assessment of Environmental Effects and supporting report conclude that the proposed subdivision is appropriate for the site and that the subdivision can avoid, remedy or mitigate any potential adverse effects.

Objectives 13.3.3 and 13.3.4 refer to outstanding landscapes or natural features; and scheduled heritage resources; and to land in the coastal environment. The site exhibits none of these features.

13.3.5 To ensure that all new subdivisions provide a reticulated water supply and/or on-site water storage and include storm water management sufficient to meet the needs of the activities that will establish all year round.

The additional lot will be required to be self sufficient in terms of on-site water storage and appropriate stormwater management. The supporting Site Suitability Report confirms this is achievable.

13.3.6 To encourage innovative development and integrated management of effects between subdivision and land use which results in superior outcomes to more traditional forms of subdivision, use and development, for example the protection, enhancement and restoration of areas and features which have particular value or may have been compromised by past land management practices.

This objective is likely intended to encourage Management Plan applications, and does not have a lot of relevance to this proposal.

13.3.7 To ensure the relationship between Maori and their ancestral lands, water, sites, wahi tapu and other taonga is recognised and provided for.

And related Policy

13.4.11 That subdivision recognises and provides for the relationship of Maori and their culture and traditions, with their ancestral lands, water, sites, waahi tapu and other taonga and shall take into account the principles of the Treaty of Waitangi.

The site is not known to contain any sites of cultural significance to Maori, or wahi tapu. The subdivision will have minimal, if any, impact on water quality. I do not believe that the proposal adversely impacts on the ability of Maori to maintain their relationship with ancestral lands, water, sites, wahi tapu and other taonga.

13.3.8 To ensure that all new subdivision provides an electricity supply sufficient to meet the needs of the activities that will establish on the new lots created.

The provision of power is not a requirement for rural allotments.

13.3.9 To ensure, to the greatest extent possible, that all new subdivision supports energy efficient design through appropriate site layout and orientation in order to maximise the ability to provide light, heating, ventilation and cooling through passive design strategies for any buildings developed on the site(s).

13.3.10 To ensure that the design of all new subdivision promotes efficient provision of infrastructure, including access to alternative transport options, communications and local services.

The subdivision has not considered energy efficiency, however, the additional lot can provide a building site with a northerly orientation and abundant access to sunlight.

Objective 13.3.11 is not discussed further as there is no National Grid on or near the subject site.

Policies

13.4.1 That the sizes, dimensions and distribution of allotments created through the subdivision process be determined with regard to the potential effects including cumulative effects, of the use of those allotments on:
(a) natural character, particularly of the coastal environment;
(b) ecological values;
(c) landscape values;
(d) amenity values;
(e) cultural values;
(f) heritage values; and
(g) existing land uses.

The values outlined above, where relevant to the proposal, have been discussed earlier in this report. I believe regard has been had to items (a) through (g) in the design of the subdivision.

13.4.2 That standards be imposed upon the subdivision of land to require safe and effective vehicular and pedestrian access to new properties. And

13.4.5 That access to, and servicing of, the new allotments be provided for in such a way as will avoid, remedy or mitigate any adverse effects on neighbouring property, public roads (including State Highways), and the natural and physical resources of the site caused by silt runoff, traffic, excavation and filling and removal of vegetation.

Safe access can be provided. Any upgrading work required on the paper road can occur in such a way so as to have no adverse effects on natural and physical resources.

13.4.3 That natural and other hazards be taken into account in the design and location of any subdivision.

The site is not identified as being subject to any hazard that impacts on location of future built development. Notwithstanding this, the Geotechnical Site Assessment Report does recommend an outer limit as to how near a dwelling should be located in relation to the steeper portion of the sloping ground near the building area.

13.4.4 That in any subdivision where provision is made for connection to utility services, the potential adverse visual impacts of these services are avoided.

Power and telecommunications are not a requirement for rural allotments.

13.4.6 That any subdivision proposal provides for the protection, restoration and enhancement of heritage resources, areas of significant indigenous vegetation and significant habitats of indigenous fauna, threatened species, the natural character of the coastal environment and riparian margins, and outstanding landscapes and natural features where appropriate.

The site does not contain any heritage resources. There are areas of mixed exotic/indigenous vegetation in the gully and its slopes, however this is not affected by the proposal. The site is not in the coastal environment and there are no riparian margins anywhere near the area likely to be developed. The site contains no outstanding landscape or natural features.

Policy 13.4.7 is not relevant as there is no qualifying water body to which esplanade requirements apply.

13.4.8 That the provision of water storage be taken into account in the design of any subdivision.

This is discussed earlier. The additional lot will require on-site water supply and storage.

Policies 13.4.9 and 13.4.10 are not discussed further. The former relates to bonus development donor and recipient areas, which are not contemplated in this proposal; whilst the latter only applies to subdivision in the Conservation Zone.

13.4.12 That more intensive, innovative development and subdivision which recognises specific site characteristics is provided for through the management plan rule where this will result in superior environmental outcomes.

The application is not lodged as a Management Plan application.

13.4.13 Subdivision, use and development shall preserve and where possible enhance, restore and rehabilitate the character of the applicable zone in regards to ***s6 matters****. In addition subdivision, use and development shall avoid adverse effects as far as practicable by using techniques including:*
(a) clustering or grouping development within areas where there is the least impact on natural character and its elements such as indigenous vegetation, landforms, rivers, streams and wetlands, and coherent natural patterns;
(b) minimising the visual impact of buildings, development, and associated vegetation clearance and earthworks, particularly as seen from public land and the coastal marine area;
(c) providing for, through siting of buildings and development and design of subdivisions, legal public right of access to and use of the foreshore and any esplanade areas;
(d) through siting of buildings and development, design of subdivisions, and provision of access that recognise and provide for the relationship of Maori with their culture, traditions and taonga including concepts of mauri, tapu, mana, wehi and karakia and the important contribution Maori culture makes to the character of the District (refer Chapter 2 and in particular Section 2.5 and Council's "Tangata Whenua Values and Perspectives" (2004);
(e) providing planting of indigenous vegetation in a way that links existing habitats of indigenous fauna and provides the opportunity for the extension, enhancement or creation of habitats for indigenous fauna, including mechanisms to exclude pests;
(f) protecting historic heritage through the siting of buildings and development and design of subdivisions.
(g) achieving hydraulic neutrality and ensuring that natural hazards will not be exacerbated or induced through the siting and design of buildings and development.

S6 matters (National Importance) are addressed later in this report.

In addition:

(a) The proposal creates one additional rural lot of 4ha or larger, and provides for an appropriate type and scale of activity for the zone;

(b) The proposal is in an area not displaying high or outstanding natural values;
(c) The site contains no significant indigenous vegetation;
(d) The site is not within the coastal environment;
(e) The proposal enables the maintenance of amenity and rural character values;
(f) The proposal is not believed to negatively impact on the relationship of Maori with their culture;
(g) There are no identified heritage values within the site; and
(h) The site is not subject to any natural hazards that would limit future development.

I consider the proposal to be consistent with Policy 13.4.13.

13.4.14 That the objectives and policies of the applicable environment and zone and relevant parts of Part 3 of the Plan will be taken into account when considering the intensity, design and layout of any subdivision.

The subdivision has had regard to the underlying zone's objectives and policies – see below.

13.4.15 That conditions be imposed upon the design of subdivision of land to require that the layout and orientation of all new lots and building platforms created include, as appropriate, provisions for achieving the following: (a) development of energy efficient buildings and structures; (b) reduced travel distances and private car usage; (c) encouragement of pedestrian and cycle use; (d) access to alternative transport facilities; (e) domestic or community renewable electricity generation and renewable energy use

The subdivision layout has taken the above matters into account.

Policy 13.4.16 is not considered relevant as it only relates to the National Grid.

In summary, I believe the proposal to be more consistent than not with the above Objectives and Policies.

<u>Rural Production Zone Objectives and Policies</u>

Objectives:

8.6.3.1 To promote the sustainable management of natural and physical resources in the Rural Production Zone.

8.6.3.2 To enable the efficient use and development of the Rural Production Zone in a way that enables people and communities to provide for their social, economic, and cultural well being and for their health and safety.

8.6.3.3 To promote the maintenance and enhancement of the amenity values of the Rural Production Zone to a level that is consistent with the productive intent of the zone.

8.6.3.4 To promote the protection of significant natural values of the Rural Production Zone.

8.6.3.6 To avoid, remedy or mitigate the actual and potential conflicts between new land use activities and existing lawfully established activities (reverse sensitivity) within the Rural Production Zone and on land use activities in neighbouring zones.

8.6.3.7 To avoid remedy or mitigate the adverse effects of incompatible use or development on natural and physical resources.

8.6.3.8 To enable the efficient establishment and operation of activities and services that have a functional need to be located in rural environments.

8.6.3.9 To enable rural production activities to be undertaken in the zone.

And policies

8.6.4.1 That a wide range of activities be allowed in the Rural Production Zone, subject to the need to ensure that any adverse effects on the environment, including any reverse sensitivity effects, on the environment resulting from these activities are avoided, remedied or mitigated and are not to the detriment of rural productivity.

8.6.4.2 That standards be imposed to ensure that the off site effects of activities in the Rural Production Zone are avoided, remedied or mitigated.

8.6.4.3 That land management practices that avoid, remedy or mitigate adverse effects on natural and physical resources be encouraged.

8.6.4.4 That the type, scale and intensity of development allowed shall have regard to the maintenance and enhancement of the amenity values of the Rural Production Zone to a level that is consistent with the productive intent of the zone.

8.6.4.5 That the efficient use and development of physical and natural resources be taken into account in the implementation of the Plan.

8.6.4.7 That although a wide range of activities that promote rural productivity are appropriate in the Rural Production Zone, an underlying goal is to avoid the actual and potential adverse effects of conflicting land use activities.

8.6.4.8 That activities whose adverse effects, including reverse sensitivity effects cannot be avoided remedied or mitigated are given separation from other activities

8.6.4.9 That activities be discouraged from locating where they are sensitive to the effects of or may compromise the continued operation of lawfully established existing activities in the Rural production zone and in neighbouring zones.

Objective 8.6.3.5 and Policy 8.6.4.6 are not considered relevant as they are solely related to Kerikeri Road.

The proposed subdivision promotes an efficient use and development of the land (Objective 8.6.3.2). Amenity values can be maintained (8.6.3.3). Reverse sensitivity effects are not considered to be a significant risk (Objectives 8.6.3.6-8.6.3.9 inclusive and Policies 8.6.4.8 and 8.6.4.9).

Policy 8.6.4.7 anticipates a wide range of activities that promote rural productivity, and the underlying goal is to avoid any actual and potential adverse effects of conflicting land use activities. I believe in the case of this proposal, given the site's location, and the existing and proposed land uses around it, that additional adverse reverse sensitivity effects are unlikely. The site does not contain any highly versatile soils.

The proposal provides for sustainable management of natural and physical resources (8.2.4.1). Off site effects can be avoided, remedied or mitigated (8.6.4.2 and 8.6.4.3). Amenity values can be maintained and enhanced (8.6.4.4). The proposal enables the efficient use and development of natural and physical resources (8.6.4.5).

In summary, I believe the proposal to be consistent with the objectives and policies as cited above.

7.2 Proposed District Plan Objectives and Policies

An assessment against the relevant objectives and policies in the Subdivision section of the Proposed District Plan (PDP) follows:

SUB-O1
Subdivision results in the efficient use of land, which:
a. achieves the objectives of each relevant zone, overlays and district wide provisions;
b. contributes to the local character and sense of place;
c. avoids reverse sensitivity issues that would prevent or adversely affect activities already established on land from continuing to operate;
d. avoids land use patterns which would prevent land from achieving the objectives and policies of the zone in which it is located;
e. does not increase risk from natural hazards or risks are mitigates and existing risks reduced; and
f. manages adverse effects on the environment.

SUB-O2
Subdivision provides for the:
a. Protection of highly productive land; and
b. Protection, restoration or enhancement of Outstanding Natural Features, Outstanding Natural Landscapes, Natural Character of the Coastal Environment, Areas of High Natural Character, Outstanding Natural Character, wetland, lake and river margins, Significant Natural Areas, Sites and Areas of Significance to Māori, and Historic Heritage.

SUB-O3 *Infrastructure is planned to service the proposed subdivision and development where:*
a. there is existing infrastructure connection, infrastructure should provided in an integrated, efficient, coordinated and future-proofed manner at the time of subdivision; and
b.where no existing connection is available infrastructure should be planned and consideration be give n to connections with the wider infrastructure network.

SUB-O4
Subdivision is accessible, connected, and integrated with the surrounding environment and provides for:
a. public open spaces;
b. esplanade where land adjoins the coastal marine area; and
c. esplanade where land adjoins other qualifying water bodies

I consider the subdivision to achieve the objectives of the relevant zone, and district wide provisions. Local character is not affected; significant additional reverse sensitivity issues will not result; risk from natural hazards will not be increased. Adverse effects on the environment are considered to be less than minor and not requiring mitigation (SUB-O1).

The site does not contain any 'highly productive land'. The site contains no ONF's or ONL's, nor any areas of high or outstanding natural character. There are no wetlands affected and no lakes or rivers, nor Sites and Areas of Significance to Maori and no Historic Heritage areas. There are no areas of significant indigenous vegetation (SUB-O2).

The proposal is consistent with SUB-O3 and SUB-O4 does not apply.

SUB-P1
Enable boundary adjustments that:

Not relevant – application is not a boundary adjustment.

SUB-P2
Enable subdivision for the purpose of public works, infrastructure, reserves or access.

Not relevant – application does not involve public works, infrastructure, reserves or access lots.

SUB-P3
Provide for subdivision where it results in allotments that:
a. are consistent with the purpose, characteristics and qualities of the zone;
b. comply with the minimum allotment sizes for each zone;
c. have an adequate size and appropriate shape to contain a building platform; and
d. have legal and physical access.

The subdivision results in an additional lot that is less than the zone's minimum allotment size. However, the lot is of an adequate size and appropriate shape to contain a building platform and has legal and physical access. The proposal is consistent with the characteristics and qualities of the zone in this location.

SUB-P4
Manage subdivision of land as detailed in the district wide, natural environment values, historical and cultural values and hazard and risks sections of the plan

The subdivision has had regard to all the matters listed, where relevant.

SUB-P5
Manage subdivision design and layout in the General Residential, Mixed Use and Settlement zoneto provide for safe, connected and accessible environments by.....:

Not relevant. The site is not zoned any of the zones referred to.

SUB-P6 *Require infrastructure to be provided in an integrated and comprehensive manner by:*
a. demonstrating that the subdivision will be appropriately serviced and integrated with existing and planned infrastructure if available; and
b. ensuring that the infrastructure is provided is in accordance the purpose, characteristics and qualities of the zone.

The subdivision is rural with no nearby Council administered or operated infrastructure except for the road.

SUB- P7
Require the vesting of esplanade reserves when subdividing land adjoining the coast or other qualifying water bodies.

No qualifying water body and no lot less than 4ha in area.

SUB-P8 *Avoid rural lifestyle subdivision in the Rural Production zone unless the subdivision:*

a. *will protect a qualifying SNA in perpetuity and result in the SNA being added to the District Plan SNA schedule; and*
b. *will not result in the loss of versatile soils for primary production activities.*

There is no qualifying SNA or any indigenous vegetation or habitat of significance, with no protection therefore being offered. The proposal is therefore unable to be consistent with part (a) above. However, the proposal will not result in the loss of versatile soils for primary production activities, because there are none. The proposal is therefore consistent with part (b).

SUB-P9
Avoid subdivision [sic] rural lifestyle subdivision in the Rural Production zone and Rural residential subdivision inthe Rural Lifestyle zone unless the development achieves the environmental outcomes required in the management plan subdivision rule.

Not relevant as a Management Plan is not being contemplated.

SUB-P10
To protect amenity and character by avoiding the subdivision of minor residential units from Principal residential
units where resultant allotments do not comply with minimum allotment size and residential density.

Not relevant. No minor residential units exist.

SUB-P11
Manage subdivision to address the effects of the activity ***requiring resource consent*** *including (but not limited to) consideration of the following matters where relevant to the application:*
a.consistency with the scale, density, design and character of the environment and purpose of the zone;
b. the location, scale and design of buildings and structures;
c.the adequacy and capacity of available or programmed development infrastructure to accommodate the proposed activity; or the capacity of the site to cater for on-site infrastructure associated with the proposed activity;
d. managing natural hazards;
e. Any adverse effects on areas with historic heritage and cultural values, natural features and landscapes, natural character or indigenous biodiversity values; and
f. any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.

The subdivision does not require resource consent under the PDP. Notwithstanding that, the subdivision has considered the above matters, where relevant.

In summary I believe the proposed subdivision to be consistent with the PDP's objectives and policies in regard to subdivision.

The site is zoned Rural Production in the Proposed District Plan.

RPROZ-O1
The Rural Production zone is managed to ensure its availability for primary production activities and its long-term protection for current and future generations.

The proposal does not impact unduly on the availability of land for primary production. Only a very small part of the area to be subject to subdivision is in cleared grass area, the rest in vegetative cover and of steep topography.

RPROZ-O2
The Rural Production zone is used for primary production activities, ancillary activities that support primary production and other compatible activities that have a functional need to be in a rural environment.

This objective is in a zone chapter, not subdivision, and is aimed at 'activities'. The application is for a subdivision that does not pre-determine the activities to take place within each lot.

RPROZ-O3
Land use and subdivision in the Rural Production zone:

a. *protects highly productive land from sterilisation and enables it to be used for more productive forms of primary production;*
b. *protects primary production activities from reverse sensitivity effects that may constrain their effective and efficient operation;*
c. *does not compromise the use of land for farming activities, particularly on highly productive land;*
d. *does not exacerbate any natural hazards; and*
e. *is able to be serviced by on-site infrastructure.*

There is no highly productive land within the site. Any primary production activity within the site or on adjacent sites will not be constrained as a result of the proposal. The part of the site proposed for development is not subject to any hazard that precludes future residential use. The site will be serviced on-site.

RPROZ-O4
The rural character and amenity associated with a rural working environment is maintained.

The subdivision will not adversely impact on rural character and amenity.

RPROZ-P1
Enable primary production activities, provided they internalise adverse effects onsite where practicable, while recognising that typical adverse effects associated with primary production should be anticipated and accepted within the Rural Production zone.

The proposal is not for a primary production activity. It is a subdivision.

RPROZ-P2
Ensure the Rural Production zone provides for activities that require a rural location by:

a. *enabling primary production activities as the predominant land use;*
b. *enabling a range of compatible activities that support primary production activities, including ancillary activities, rural produce manufacturing, rural produce retail, visitor accommodation and home businesses.*

Refer to earlier comments in regard to Objectives – this policy is related to land uses, not subdivision.

RPROZ-P3

Manage the establishment, design and location of new sensitive activities and other non-productive activities in the Rural Production Zone to avoid where possible, or otherwise mitigate, reverse sensitivity effects on primary production activities.

Refer to earlier comments in regard to reverse sensitivity.

RPROZ-P4

Land use and subdivision activities are undertaken in a manner that maintains or enhances the rural character and amenity of the Rural Production zone, which includes:

- *a. a predominance of primary production activities;*
- *b. low density development with generally low site coverage of buildings or structures;*
- *c. typical adverse effects such as odour, noise and dust associated with a rural working environment; and*
- *d. a diverse range of rural environments, rural character and amenity values throughout the District.*

The subdivision is a low-density development, consistent with the level of density provided for by the ODP. The area is not dominated by high intensity agriculture or horticultural use – which are the type of uses that can generate reverse sensitivity issues if not managed. I believe the proposal will maintain the rural character and amenity of the area.

RPROZ-P5

Avoid land use that: ….

N/A. Activity is not a land use.

RPROZ-P6

Avoid subdivision that:

- *a. results in the loss of highly productive land for use by farming activities;*
- *b. fragments land into parcel sizes that are no longer able to support farming activities, taking into account:*
  - *1. the type of farming proposed; and*
  - *2. whether smaller land parcels can support more productive forms of farming due to the presence of highly productive land.*
- *c. provides for rural lifestyle living unless there is an environmental benefit.*

The subdivision will not result in the loss of highly productive land. The proposed additional lot does not form an integral part of the overall property's grazing pattern and separating it will nil impact on productivity. The proposal will not be detrimental to the environment. Strictly speaking, however, the proposal cannot be consistent with part (c) of RPROZ-P6, as no specific environmental 'benefit' is proposed.

RPROZ-P7

Manage land use and subdivision to address the effects of the activity requiring resource consent, including (but not limited to) consideration of the following matters where relevant to the application:

- *a. whether the proposal will increase production potential in the zone;*
- *b. whether the activity relies on the productive nature of the soil;*
- *c. consistency with the scale and character of the rural environment;*
- *d. location, scale and design of buildings or structures;*
- *e. for subdivision or non-primary production activities:*
  - *i. scale and compatibility with rural activities;*
  - *ii. potential reverse sensitivity effects on primary production activities and existing infrastructure;*

iii. the potential for loss of highly productive land, land sterilisation or fragmentation

f. at zone interfaces:
i. any setbacks, fencing, screening or landscaping required to address potential conflicts;
ii. the extent to which adverse effects on adjoining or surrounding sites are mitigated and internalised within the site as far as practicable;

g. the capacity of the site to cater for on-site infrastructure associated with the proposed activity, including whether the site has access to a water source such as an irrigation network supply, dam or aquifer;

h. the adequacy of roading infrastructure to service the proposed activity;

i. Any adverse effects on historic heritage and cultural values, natural features and landscapes or indigenous biodiversity;

j. *Any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.*

The subdivision does not require consent under the PDP so the policy is of limited relevance. Relevant matters within RPROZ-P7 have, however, been taken into account.

7.3 Part 2 Matters

5 Purpose

(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

(2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—

(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.

The proposal provides for peoples' social and economic well being, and for their health and safety, while sustaining the potential of natural and physical resources, safeguarding the life-supporting capacity of air, water, soil and the ecosystems; and avoiding, remedying or mitigating adverse effects on the environment.

6 Matters of national importance

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:
(f) the protection of historic heritage from inappropriate subdivision, use, and development:
(g) the protection of protected customary rights:
(h) the management of significant risks from natural hazards.

The site does not exhibit the features listed above.

7 Other matters
In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—
(a) kaitiakitanga:
(aa) the ethic of stewardship:
(b) the efficient use and development of natural and physical resources:
(ba) the efficiency of the end use of energy:
(c) the maintenance and enhancement of amenity values:
(d) intrinsic values of ecosystems:
(e) [Repealed]
(f) maintenance and enhancement of the quality of the environment:
(g) any finite characteristics of natural and physical resources:
(h) the protection of the habitat of trout and salmon:
(i) the effects of climate change:
(j) the benefits to be derived from the use and development of renewable energy.

Regard has been had to any relevant parts of Section 7 of the RMA, "Other Matters". These include 7(b), (c), (d), (f) and (g). Proposed layout and lot size, along with appropriate waste water and stormwater management, will ensure the maintenance of amenity values and the quality of the environment. The proposal has had regard to the values of ecosystems. The subdivision does not materially affect the productive capacity of any rural zoned land.

8 Treaty of Waitangi
In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

The principles of the Treaty of Waitangi have been considered and it is believed that this proposed subdivision does not offend any of those principles.

In summary, it is considered that all matters under s5-8 inclusive have been adequately taken into account.

7.4 National Policy Statement – Highly Productive Land

The National Policy Statement for Highly Productive Land does not apply as the site does not contain any soils that meet the definition of highly productive land as defined in the above referenced NPS.

7.5 Other National Policy Statements and National Environmental Standards

NES Freshwater

The site does not contain any 'natural inland wetlands', nor any waterbodies in the vicinity of any future works.

NES Assessing and Management Contaminants in Soil to Protect Human Health

To my knowledge the land has not historically supported any activity to which the NES CS applies.

NPS Indigenous Biodiversity

The site contains indigenous vegetation, none of which is mapped as having any significance. No clearance is required. I consider the proposal is consistent with the NPS IB.

7.6 Regional Policy Statement

The Regional Policy Statement for Northland contains objectives and policies related to infrastructure and regional form and economic development. These are enabling in promoting sustainable management in a way that is attractive for business and investment. The proposal is consistent with these objectives and policies.

Objective 3.6 Economic activities – reverse sensitivity and sterilisation

The viability of land and activities important for Northland's economy is protected from the negative impacts of new subdivision, use and development, with particular emphasis on either:

(a) Reverse sensitivity for existing:

(i) Primary production activities; .....

The associated Policy to the above Objective is ***Policy 5.1.1 – Planned and coordinated development***.

Subdivision, use and development should be located, designed and built in a planned and co-ordinated manner which: ....

(c) Recognises and addresses potential cumulative effects of subdivision, use, and development, and is based on sufficient information to allow assessment of the potential long-term effects; ...

(e) Should not result in incompatible land uses in close proximity and avoids the potential for reverse sensitivity;

(f) Ensures that plan changes and subdivision to / in a primary production zone, do not materially reduce the potential for soil-based primary production on land with highly versatile soils, or if they do, the net public benefit exceeds the reduced potential for soil-based primary production activities; and ...

Policy 5.1.1 seeks to ensure that subdivision in a primary production zone does not "*materially reduce the potential for soil-based primary production on land with highly versatile soils, or if they do, the net public benefit exceeds the reduced potential for soil-based primary production activities*".

This has been discussed at length elsewhere in this planning report. The subdivision does not "*materially reduce the potential for soil-based primary production on land with highly versatile soils*".

5.1.3 Policy – Avoiding the adverse effects of new use(s) and development

Avoid the adverse effects, including reverse sensitivity effects of new subdivision, use and development, particularly residential development on the following:

(a) Primary production activities in primary production zones (including within the coastal marine area);.....

In regard to this subdivision, it is considered that no additional adverse reverse sensitivity issues are likely to arise as a result.

8.0 s95A-E ASSESSMENT & CONSULTATION

8.1 S95A Public Notification Assessment

A consent authority must follow the steps set out in s95A to determine whether to publicly notify an application for a resource consent. Step 1 specifies when public notification is mandatory in certain circumstances. No such circumstances exist. Step 2 of s95A specifies the circumstances that preclude public notification. No such circumstance exists and Step 3 of s95A must be considered. This specifies that public notification is required in certain circumstances. No such circumstance exists. In summary public notification is not required pursuant to Step 3 of s95A.

8.2 S95B Limited Notification Assessment

A consent authority must follow the steps set out in s95B to determine whether to give limited notification of an application for a resource consent, if the application is not publicly notified pursuant to s95A. Step 1 identifies certain affected groups and affected persons that must be notified. None exist in this instance. Step 2 of s95B specifies the circumstances that preclude limited notification. No such circumstance exists and Step 3 of s95B must be considered. This specifies that certain other affected persons must be notified. The application is not for a boundary activity and the s95E assessment below concludes that there are no affected persons to be notified. There is no requirement to limited notify the application pursuant to Step 3.

8.3 S95D Level of Adverse Effects

The AEE in this report assesses effects on the environment and concludes that these will be no more than minor.

8.4 S95E Affected Persons

A person is an 'affected person' if the consent authority decides that the activity's adverse effects on the person are minor or more than minor (but are not less than minor). A person is not an affected person if they have provided written approval for the proposed activity.

The activity is a discretionary activity and within the expected outcomes of subdivision and development of the Rural Production Zone. Built development can occur within the proposed new lot in compliance with all bulk and location rules applying to the zone. The proposal does not unduly increase reverse sensitivity effects. No dispensation is being sought in terms of access standards and supporting reports indicate that development can occur on the lot with no off-site adverse effects. Permitted base line considerations to take into account when assessing if there are affected properties include access and buildings. The site will utilise an existing paper road that comes off McIntyre Road – whereby the permitted baseline (and legal) allows for that to occur with or without the proposed additional lot. Residential development could also occur as of right at the proposed location given the large size of the underlying title. I have reached the conclusion that the proposal will not have any minor or more than minor effects on adjacent properties.

The site does not contain any heritage or cultural sites or values and no areas of significant indigenous vegetation. The site is not accessed off state highway. No pre lodgement consultation has been considered necessary with tangata whenua, Heritage NZ, Department of Conservation or Waka Kotahi.

9.0 CONCLUSION

The site is considered suitable for the proposed subdivision. Effects on the wider environment are no more than minor. The proposal is not considered contrary to the relevant objectives and policies of the Operative and Proposed District Plans, and is considered to be consistent with relevant objectives and policies of National and Regional Policy Statements.

Part 2 of the Resource Management Act has been had regard to. There is no District Plan rule or national environmental standard that requires the proposal to be publicly notified. No affected persons have been identified.

It is requested that the Council give favourable consideration to this application and grant consent.

Signed Dated 17th December 2025
Lynley Newport,
Senior Planner
Thomson Survey Ltd

10.0 LIST OF APPENDICES

Appendix 1 Scheme Plan(s)

Appendix 2 Location Plan

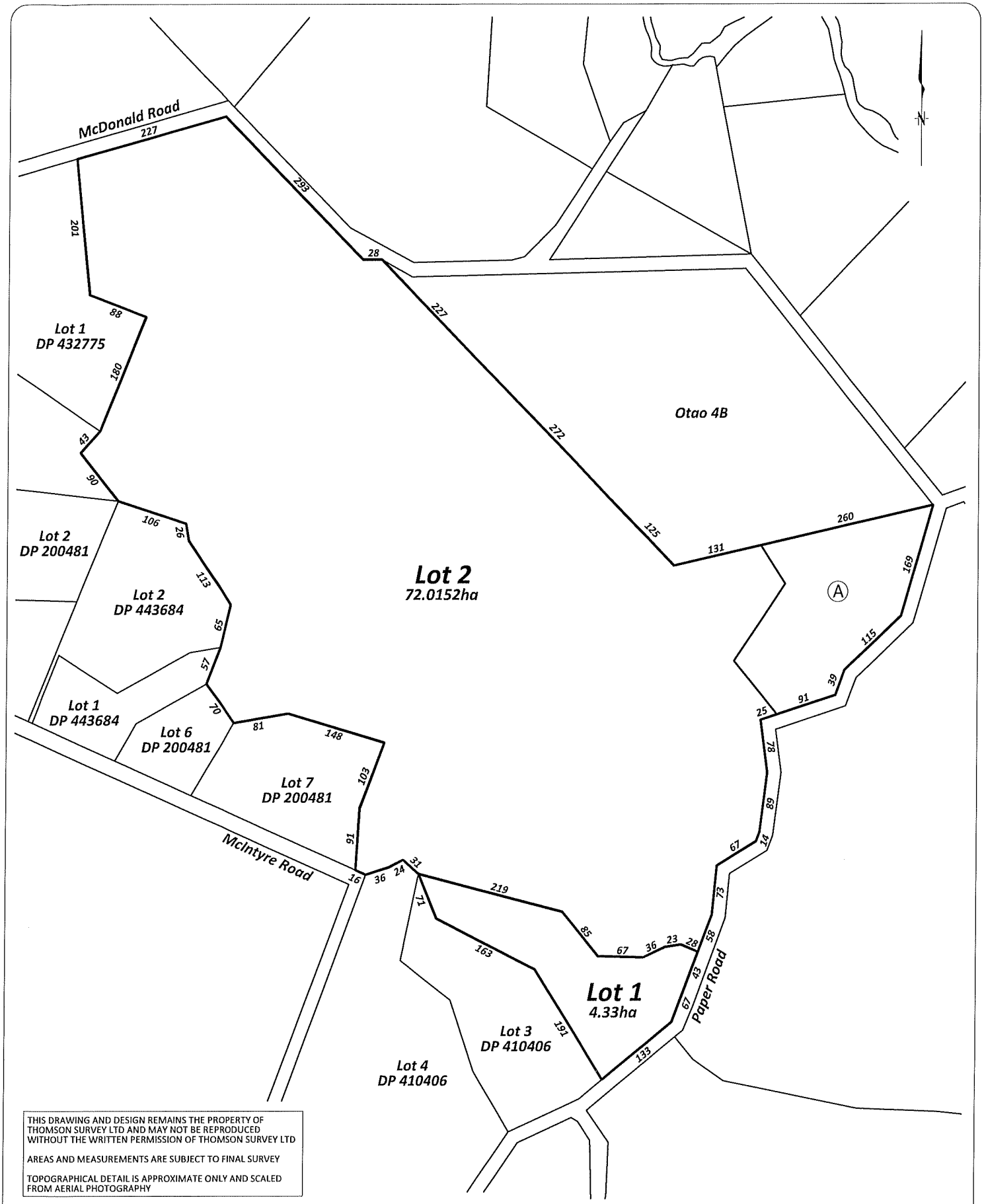
Appendix 3 Records of Title & Relevant Instruments

Appendix 4 Civil Site Suitability Report

Appendix 5 (Geotechnical) Site Assessment Report

Appendix 1

Scheme Plan(s)



Local Authority: Far North District Council
Comprised in: 525508
Total Area: 76.3452ha
Zoning: Rural Production
Resource features: NIL

AREA MARKED (A) IS SUBJECT TO AN EXISTING BUSH PROTECTION COVENANT. CREATED BY 8584536.2

0 50 250 500m

Bar Scale 1:5000 @ A3

THOMSON SURVEY LIMITED
315 Kerikeri Rd
P.O. Box 372 Kerikeri
Email: kerikeri@tsurvey.co.nz
Ph: (09) 4077360
www.tsurvey.co.nz
Registered Land Surveyors, Planners & Land Development Consultants

PROPOSED SUBDIVISION OF LOT 2 DP 432775

PREPARED FOR: HERK & ELLISON

	Name	Date
Survey		
Design		
Drawn	KY	08.09.25
Approved		
Rev	KY	12.09.25

10824 Scheme 20250912

ORIGINAL
SCALE 1:5000
SHEET SIZE A3

Surveyors Ref. No: 10824

Sheet 1 of 1

Local Authority: Far North District Council
Comprised in: 525508
Total Area: 76.3452ha
Zoning: Rural Production
Resource features: NIL

AREA MARKED (A) IS SUBJECT TO AN EXISTING BUSH PROTECTION COVENANT. CREATED BY 8584536.2

0 50 250 500m

Bar Scale 1:5000 @ A3

THOMSON SURVEY LIMITED
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PROPOSED SUBDIVISION OF LOT 2 DP 432775

PREPARED FOR: HERK & ELLISON

	Name	Date
Survey		
Design		
Drawn	KY	08.09.25
Approved		
Rev	KY	12.09.25

10824 Scheme 20250912

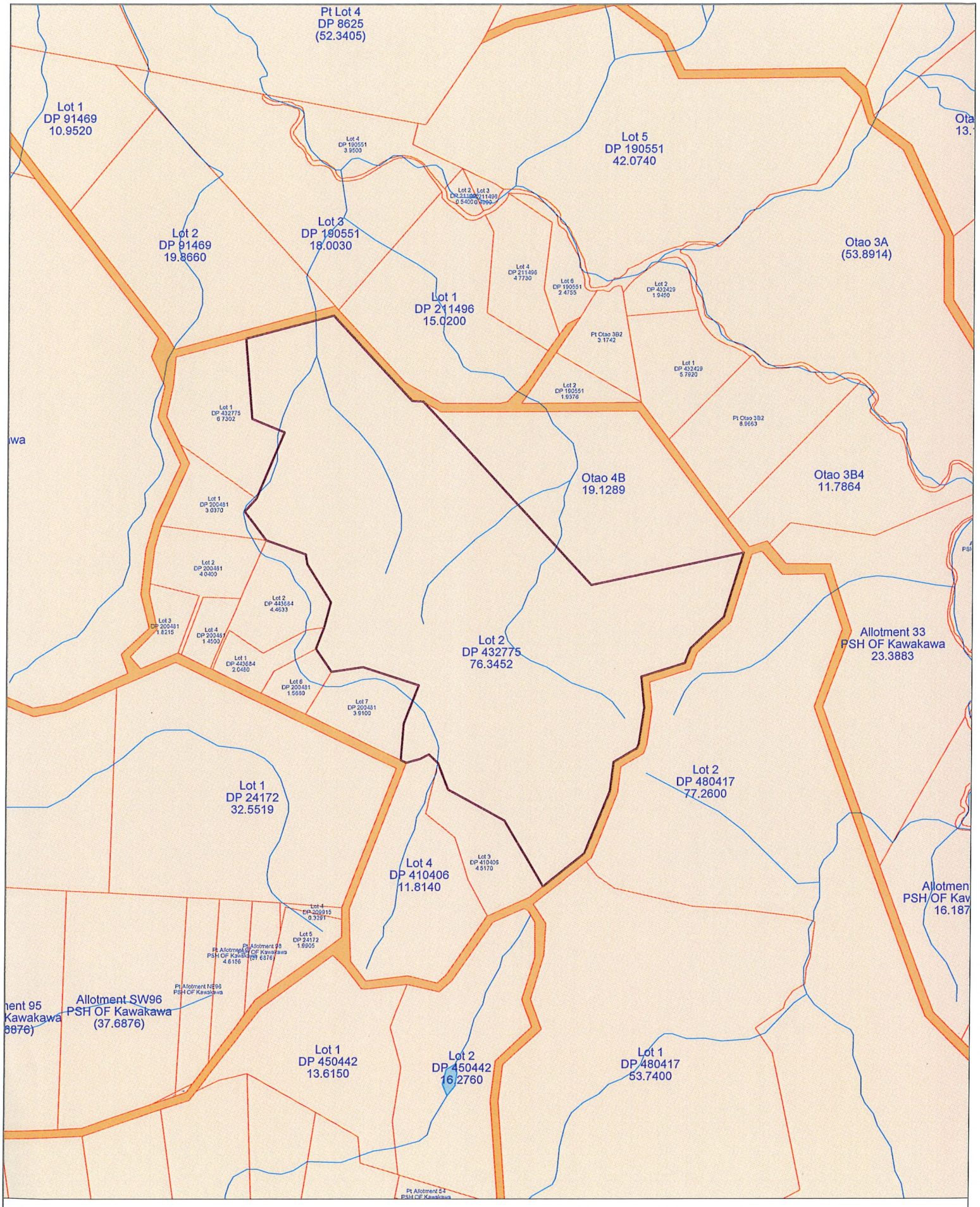
ORIGINAL
SCALE 1:5000
SHEET SIZE A3

Surveyors Ref. No: 10824

Sheet 1 of 1

Appendix 2

Location Plan



QuickMap
Custom Software Ltd

Any person wishing to rely on the information shown on this map must independently verify the information

Scale 1:12000 Topographical and Cadastral map derived from LINZ data. Printed: 10-Sept-2025 10:38.

Appendix 3

Records of Title & Relevant Instruments

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**525508**
Land Registration District	**North Auckland**
Date Issued	09 September 2010

Prior References

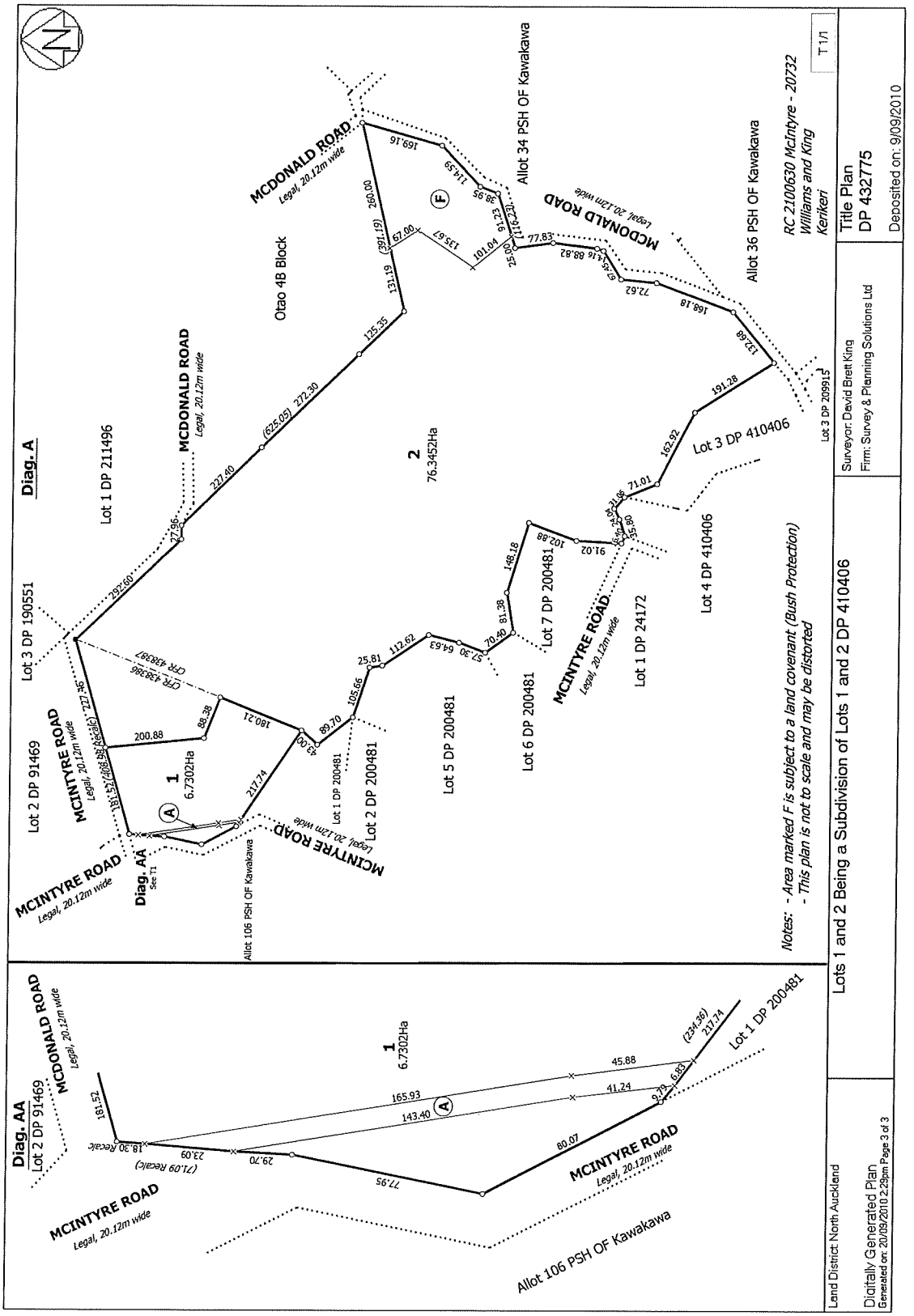
438386 438387

Estate	Fee Simple
Area	76.3452 hectares more or less
Legal Description	Lot 2 Deposited Plan 432775
Registered Owners	

Taraire Farm Holdings Limited

Interests

8584536.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 9.9.2010 at 10:28 am


Diag. A
Lot 1 DP 211496
MCDONALD ROAD
Legal, 20.12m wide
Otao 4B Block
Allot 34 PSH OF Kawakawa
Allot 36 PSH OF Kawakawa
RC 2100630 McIntyre - 20732
Williams and King
Kerikeri
T1/1
Lot 3 DP 190551
Lot 2 DP 91469
MCINTYRE ROAD
Legal, 20.12m wide
1
6.7302Ha
2
76.3452Ha
Lot 3 DP 410406
Lot 4 DP 410406
Lot 1 DP 24172
Lot 7 DP 200481
Lot 6 DP 200481
Lot 5 DP 200481
Lot 2 DP 200481
Lot 1 DP 200481
Lot 3 DP 209915
Diag. AA
See T1
Allot 106 PSH OF Kawakawa
Notes: - Area marked F is subject to a land covenant (Bush Protection)
- This plan is not to scale and may be distorted
Lots 1 and 2 Being a Subdivision of Lots 1 and 2 DP 410406
Title Plan
DP 432775
Deposited on: 9/09/2010
Surveyor: David Brett King
Firm: Survey & Planning Solutions Ltd
Land District: North Auckland
Digitally Generated Plan
Generated on: 20/09/2010 2:29pm Page 3 of 3
Diag. AA
Lot 2 DP 91469
MCDONALD ROAD
Legal, 20.12m wide
MCINTYRE ROAD
Legal, 20.12m wide
1
6.7302Ha
Lot 1 DP 200481
Allot 106 PSH OF Kawakawa

View Instrument Details

Instrument No	8584536.2
Status	Registered
Date & Time Lodged	09 September 2010 10:28
Lodged By	McMinn, Tania
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991

Affected Computer Registers	Land District
438386	North Auckland
438387	North Auckland

Annexure Schedule: Contains 2 Pages.

Signature

Signed by Rebecca Merry as Territorial Authority Representative on 03/09/2010 10:05 AM

***** End of Report *****

Far North District Council

Private Bag 752, Memorial Ave
Kaikohe 0440, New Zealand
Freephone: 0800 920 029
Phone: (09) 405 2750
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

THE RESOURCE MANAGEMENT ACT 1991

SECTION 221 : CONSENT NOTICE

REGARDING RC 2100630
Being the Subdivision of Lot 1 & Lot 2 DP 410406
North Auckland Registry

PURSUANT to Section 221 and for the purpose of Section 224 (c)(ii) of the Resource Management Act 1991, this Consent Notice is issued by the **FAR NORTH DISTRICT COUNCIL** to the effect that conditions described in the schedule below are to be complied with on a continuing basis by the subdividing owner and the subsequent owners after the deposit of the survey plan, and these are to be registered on the titles of the allotments specified under each condition below.

SCHEDULE

Lot 1 DP 432775

i) That upon construction of any habitable building it shall have a roof water collection system with a minimum tank storage of 45,000 litres. The tank(s) shall be positioned so that they are accessible (safely) for fire fighting purposes and fitted with an outlet compatible with rural fire service equipment. Where more than one tank is utilised they shall be coupled together and at least one tank fitted with an outlet compatible with rural fire service equipment. Alternatively, the dwelling can be fitted with a sprinkler system approved by Council.

ii) At the time of lodging an application for building consent on the lot, the applicant shall provide a report from a Chartered Professional Engineer with recognised competence in relevant geotechnical and structural matters, which addresses the site's investigation undertaken, sets out the specific design of the buildings foundations and indicates the programme of supervision of the foundation construction.

Lot 2 DP 432775

(i) That upon construction of any habitable building it shall have a roof water collection system with a minimum tank storage of 45,000 litres. The tank(s) shall be positioned so that they are accessible (safely) for fire fighting purposes and fitted with an outlet compatible with rural fire service equipment. Where more than one tank is utilised they shall be coupled together and at least one tank fitted with an outlet compatible with rural fire service equipment. Alternatively, the dwelling can be fitted with a sprinkler system approved by Council.

(ii) The owner shall preserve the part of the site shown as 'F' on DP 432775 as being subject to land covenant (bush protection) and shall not without prior written consent of the Council and then only in strict compliance with any conditions imposed by the Council, cut down, damage or destroy any of such trees or bush or suffer or permit the cutting down damaging or destruction of any such trees or bush.

The owner shall be deemed to be not in breach of this prohibition if any such trees or bush shall die from natural causes not attributable to any act or default by or on behalf of the owner or for which the owner is responsible.

SIGNED: Mr Patrick John Killalea
By the FAR NORTH DISTRICT COUNCIL
Under delegated authority:
PRINCIPAL PLANNER – RESOURCE MANAGEMENT

DATED at **KERIKERI** this 28th day of July 2010

Appendix 4

Civil Site Suitability Report

Wilton Joubert Limited
09 527 0196
196 Centreway Road,
Orewa, Auckland, 0931

SITE	**62 McDonald Road, Kawakawa**
LEGAL DESCRIPTION	**Lot 2 DP 432775**
PROJECT	**2-Lot Subdivision**
CLIENT	**Letitia Ellison**
REFERENCE NO.	**143416**
DOCUMENT	**Civil Site Suitability Report**
STATUS/REVISION NO.	**01– Resource Consent**
DATE OF ISSUE	**1 December 2025**

Report Prepared For	Email
Letitia Ellison	redredhorses333@gmail.com

Authored by	**G.M. Brant** *(Be (Hons) Civil)*	Civil Engineer	gustavo@wjl.co.nz	
Reviewed & Approved by	**B. Steenkamp** *(CPEng, BEng Civil, CMEngNZ, BSc (Geology))*	Senior Civil Engineer	bens@wjl.co.nz	

1 EXECUTIVE SUMMARY

The following table is intended to be a concise summary which must be read in conjunction with the relevant report sections as referenced herein.

Legal Description:	Lot 2 DP 432775
Lot Sizes:	Proposed Lot 1 – 4.33ha Proposed Lot 2 – 72.0152ha (existing dwelling)
Scope:	Civil Site Suitability Investigation: - Potable Water - Wastewater Assessment - Stormwater Assessment - Access Assessment
Development Proposals Supplied:	Subdivision Scheme Plan supplied by Thomson Survey (Ref No: 10824, dated: 12.09.2025)
District Plan Zone:	Rural Production Zone
Wastewater:	Recommendations for wastewater are provided in Section 6.
Stormwater Management – District Plan Rules:	Permitted Activity: 8.6.5.1.3 STORMWATER MANAGEMENT – The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 15%. Controlled Activity: 8.6.5.2.1 STORMWATER MANAGEMENT – The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 20%.
Stormwater Management:	To comply with the parameters of the Permitted Activity Rule (8.6.5.1.3), Lots 1 & 2 must not exceed an impermeable area of 6,495m² and 108,023m² respectively. Given the above, it is expected that any residential future development of the proposed lot would comply with Permitted Activity Rule (8.6.5.1.3). As such, it is not expected that a stormwater attenuation report will be required for any future residential development of the proposed lot. Stormwater mitigation recommendations are provided in Section 7.

2 SCOPE OF WORK

Wilton Joubert Ltd (WJL) was engaged by the client to undertake a civil site suitability assessment (potable water, wastewater, stormwater and access) to support a two-lot subdivision of Lot 2 DP 432775 as per the supplied Scheme Plan prepared by Thomson Survey (Ref No: 10824, dated: 12.09.2025).

Figure 1: Snip of scheme plan prepared by Thomson Survey (Ref No: 10824, dated: 12.09.2025)

A Geotechnical Site Suitability Report (WJL Ref. 143415) has been prepared by WJL for subject site which should be read in conjunction with this report.

Any revision of the supplied drawings and/or development proposals with potable water, wastewater, stormwater and/or access implications should be referred back to us for review. This report is not intended to support Building Consent applications for the future proposed lots, and any revision of supplied drawings and/or development proposals including those for Building Consent, which might rely on potable water, wastewater, stormwater and/or access assessments herein, should be referred to us for review.

3 SITE DESCRIPTION

The parent 76.35ha lot is located off southern side of McDonald Road, with the existing development within the lot accessed directly off McDonald Road.

Built development on-site comprises of a residential dwelling, multiple farm buildings and associated hardstand. The remaining ground cover consists predominantly of pasture.

Lot 1 will cover the southeasternmost corner of the parent block, encompassing an area of 4.3ha, and will be accessed off the western side of a paper road that borders the eastern boundary, extending from McIntyre Road.

Lot 1 is vacant of structures and is largely covered in dense regenerating bush, with minor pasture present along the southeastern boundary area.

Topographically speaking, the site is set around well elevated, gently inclined, narrow crest land along the eastern boundary that is bound by moderate to very steeply sloping side flanks, including intermittent minor spur features and gullies. Inclinations across the side flanks generally averages 1V:3H (18°) to 1V:2H (26°).

The Far North District Council (FNDC) on-line GIS Water Services Map indicates that public underground service connections are not available to the property.

Figure 2: Snip from FNDC Water Services Map showing site boundary (cyan)

4 PUBLISHED GEOLOGY

Local geology at the subject site is noted on the GNS Science New Zealand Geology Web Map, Scale 1:250,000 as; Waipapa Group Sandstone and Siltstone (Waipapa Composite Terrane), described as; "*Massive to thin bedded, lithic volcaniclastic metasandstone and argillite, with tectonically enclosed basalt, chert and siliceous argillite.*". Refer to GNS Science Website.

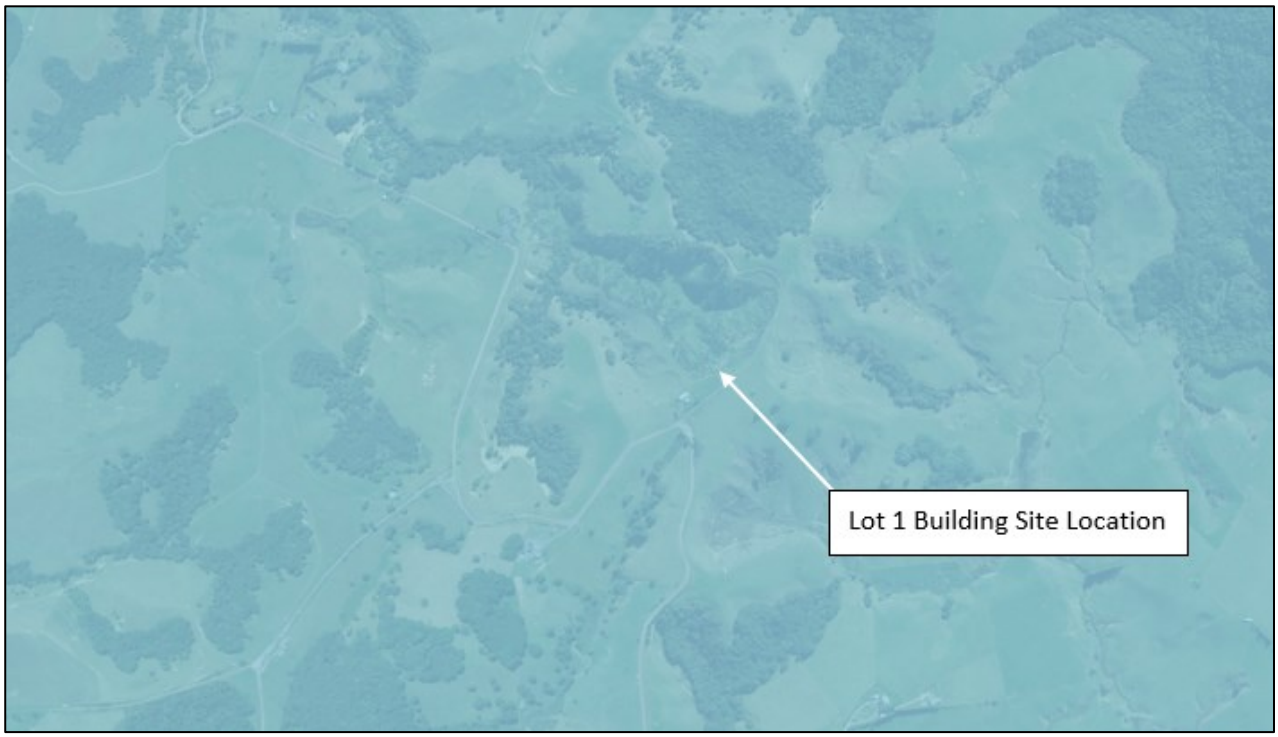


Figure 3: Screenshot aerial view from the New Zealand Geology Web Map. Blue marker depicts property location.

In addition to the above, hand auger testing was conducted by WJL within Lot 1.

The subsoils encountered during WJL's fieldwork consisted predominantly of Clayey SILT and SILT. Approximately 100mm-300mm of TOPSOIL was overlying the investigated area. No groundwater was found during our investigation. Refer to the appended 'BH Logs'.

Given the above, the site's subsoils have been classified as Category 5 in accordance with the TP58 design manual.

During WJL's field investigation, the presence of fill material was identified on-site.

5 POTABLE WATER SUPPLY

It is recommended that Lot 1's potable water be provided for by rainwater tanks in accordance with the Countryside Living Toolbox requirements. It is recommended to provide at least 2 x 25,000L tanks for potable water usage per new dwelling. The type of tank and volume is for the client to confirm.

6 WASTEWATER

Lot 1

No existing wastewater management system is present within proposed Lot 1. As such, a new site-specific design in accordance with the ASNZS: 1547 / TP58 design manual will be required by FNDC for any future development within the proposed lot.

In accordance with the requirements of TP58, disposal of treated wastewater must not occur over area containing fill due to potential risks to system performance and long-term stability. It is therefore recommended that the proposed wastewater disposal location be assessed for fill during Building Consent stage to ensure compliance. Based on current site observations, it is anticipated that adequate areas exist within the lot that are underlain by undisturbed natural soils suitable for effective disposal of treated effluent.

Lot 2

An existing on-site wastewater treatment system currently services Lot 2's residential dwelling.

Given the position of the existing dwelling relative to the proposed subdivision layout, the existing on-site wastewater treatment system and its disposal area are expected to fall entirely within the new boundaries of Lot 2. As a result, the system remains appropriately located and may continue to service the existing dwelling.

6.1 DESIGN PARAMETERS

The following table is intended to be a concise summary of the design parameters, which must be read in conjunction with the relevant report sections as referenced herein.

The below wastewater design has been completed to show feasibility of on-site wastewater management within the proposed lot. As no development proposals are available at this stage for the eventual residential development within Lot 1, our recommendations have been based on a moderate size dwelling containing 4 bedrooms.

Given the subsoils encountered during WJL's fieldwork investigation, we recommend secondary level treatment or higher for any new wastewater system within the lot.

Although dripper irrigation is recommended and shown below, alternative trench or bed setup with secondary level treatment may also be acceptable subject to specific design.

6.1.1 Summary of Preliminary Design Parameters for a PCDI Secondary Treatment System

Development Type:	Residential Dwellings
Effluent Treatment Level:	Secondary (<BOD5 20 mg/L, TSS 30 mg/L)
Fill Encountered in Disposal Areas:	Fill encountered at 1/3 hand auger locations – should be sufficient natural ground for disposal of treated effluent
Water Source:	Rainwater Collection Tanks
Site Soil Category (TP58):	Category 5 – Clayey SILT & SILT –Moderate Drainage
Estimate House Occupancy:	6 Persons
Loading Rate:	PCDI System – 4mm/day
Estimated Total Daily Wastewater Production:	1,080L/day
Typical Wastewater Design Flow Per Person:	Rainwater Supply: 180L/pp/day (Estimated –water conservation devices may enable lower design flows)

Application Method:	Surface Laid PCDI Lines
Loading Method:	Dosed
Minimum Tank size:	>1,080L
Emergency Storage:	24 hours
Estimated Min. Disposal Area Requirement:	270m²
Required Min. Reserve Area:	50%
Buffer Zone:	Not anticipated to be required
Cut-off Drain:	Not anticipated to be required

6.2 REQUIRED SETBACK DISTANCES

The disposal and reserve areas must be situated outside the relevant exclusion areas and setbacks described within Table 9 of the PRPN: Exclusion areas and setback distances for on-site domestic wastewater systems:

Table 9 of the PRPN (Proposed Regional Plan for Northland)			
Feature	Primary treated domestic wastewater	Secondary treated domestic wastewater	Greywater
Exclusion areas			
Floodplain	5% AEP	5% AEP	5% AEP
Horizontal setback distances			
Identified stormwater flow paths (downslope of disposal area)	5 meters	5 meters	5 meters
River, lake, stream, pond, dam or wetland	20 meters	15 meters	15 meters
Coastal marine area	20 meters	15 meters	15 meters
Existing water supply bore	20 meters	20 meters	20 meters
Property boundary	1.5 meters	1.5 meters	1.5 meters
Vertical setback distances			
Winter groundwater table	1.2 meters	0.6 meters	0.6 meters

6.3 NORTHLAND REGIONAL PLAN ASSESSMENT

The existing wastewater disposal system servicing Lot 2 should meet the compliance points below, stipulated within Section C.6.1.1 of the Proposed Regional Plan for Northland:

C.6.1.1 Existing on-site domestic type wastewater discharge – permitted activity	
The discharge of domestic type wastewater into or onto land from an on-site system that was a permitted activity at the notification date of this Plan, and the associated discharge of any odour into air from the onsite system, are permitted activities, provided:	
#	Rule
1	the discharge volume does not exceed:
	a) three cubic metres per day, averaged over the month of greatest discharge, and
	b) six cubic metres per day over any 24-hour period, and
2	the following reserve disposal areas are available at all times:
	a) one hundred percent of the existing effluent disposal area where the wastewater has received primary treatment or is only comprised of greywater, or
	b) thirty percent of the existing effluent disposal area where the wastewater has received at least secondary treatment, and
3	the on-site system is maintained so that it operates effectively at all times and maintenance is undertaken in accordance with the manufacturer's specifications, and
4	wastewater irrigation lines are at all times either installed at least 50 millimetres beneath the surface of the disposal area or are covered by a minimum of 50 millimetres of topsoil, mulch, or bark, and
5	the discharge does not contaminate any groundwater supply or surface water, and
6	there is no surface runoff or ponding of wastewater, and
7	there is no offensive or objectionable odour beyond the property boundary.

We envision that there will be no issue meeting the Permitted Activity Status requirements as outlined above.

Any future wastewater disposal system should meet the compliance points below, stipulated within Section C.6.1.3 of the Proposed Regional Plan for Northland:

C.6.1.3 Other on-site treated domestic wastewater discharge– permitted activity	
The discharge of domestic type wastewater into or onto land from an on-site system and the associated discharge of odour into air from the on-site system are permitted activities, provided:	
#	Rule
1	The on-site system is designed and constructed in accordance with the Australian/New Zealand Standard. On-site Domestic Wastewater Management (AS/NZS 1547:2012), and
2	The volume of wastewater discharged does not exceed two cubic metres per day, and
3	The discharge is not via a spray irrigation system or deep soakage system, and

4	The slope of the disposal area is not greater than 25 degrees, and
5	The wastewater has received secondary or tertiary treatment and is discharged via a trench or bed in soil categories 3 to 5 that is designed in accordance with Appendix L of Australian/New Zealand Standard. On-site Domestic Wastewater Management (AS/NZS 1547:2012); or is via an irrigation line system that is:
	a) dose loaded, and
	b) covered by a minimum of 50 millimetres of topsoil, mulch, or bark, and
6	For the discharge of wastewater onto the surface of slopes greater than 10 degrees:
	a) the wastewater, excluding greywater, has received at least secondary treatment, and
	b) the irrigation lines are firmly attached to the disposal area, and
	c) where there is an up-slope catchment that generates stormwater runoff, a diversion system is installed and maintained to divert surface water runoff from the up-slope catchment away from the disposal area, and
	d) a minimum 10 metre buffer area down-slope of the lowest irrigation line is included as part of the disposal area, and
	e) the disposal area is located within existing established vegetation that has at least 80 percent canopy cover, or
	f) the irrigation lines are covered by a minimum of 100 millimetres of topsoil, mulch, or bark, and
7	the disposal area and reserve disposal area are situated outside the relevant exclusion areas and setbacks in Table 9: Exclusion areas and setback distances for on-site domestic wastewater systems, and
8	for septic tank treatment systems, a filter that retains solids greater than 3.5 millimetres in size is fitted on the outlet, and
9	the following reserve disposal areas are available at all times:
	a) 100 percent of the existing effluent disposal area where the wastewater has received primary treatment or is only comprised of greywater, or
	b) 30 percent of the existing effluent disposal area where the wastewater has received secondary treatment or tertiary treatment, and
10	the on-site system is maintained so that it operates effectively at all times and maintenance is undertaken in accordance with the manufacturer's specifications, and
11	the discharge does not contaminate any groundwater water supply or surface water, and
12	there is no surface runoff or ponding of wastewater, and
13	there is no offensive or objectionable odour beyond the property boundary.

We envision that the lots will have no issue meeting the Permitted Activity Status requirements outlined above.

Based on current observations and topography, each lot contains sufficient undeveloped natural ground to accommodate both primary and reserve wastewater disposal areas in accordance with AS/NZS1547 and TP58. Final sizing and positioning will be confirmed at Building Consent stage.

7 STORMWATER MANAGEMENT

7.1 ASSESSMENT CRITERIA

The stormwater assessment has been completed in accordance with the recommendations and requirements contained within the Far North District Engineering Standards and the Far North District Council District Plan.

As below, the site resides in a Rural Production Zone.

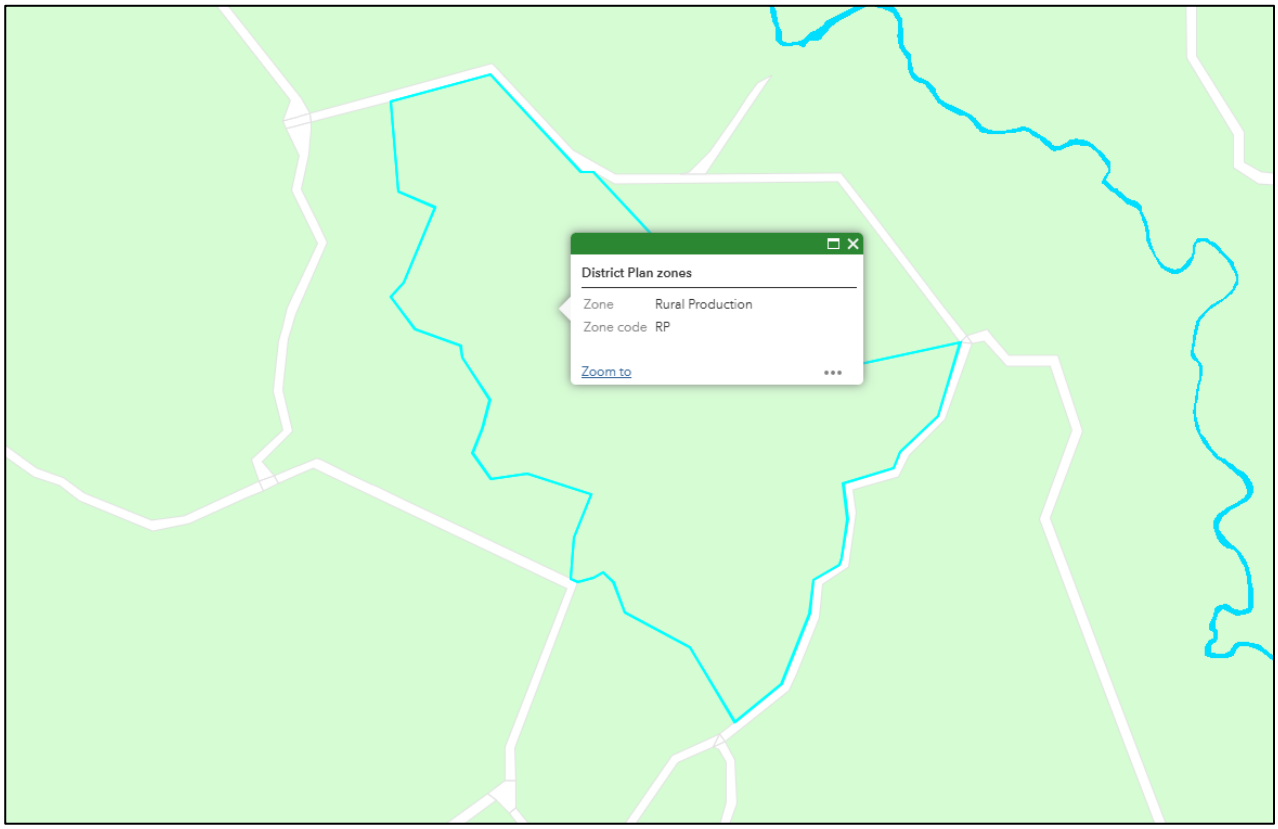


Figure 4: Snip of FNDC Maps showing site in Rural Production Zone.

The following Stormwater Management Rules Apply:

Permitted Activity: 8.6.5.1.3 STORMWATER MANAGEMENT – The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 15%.

Controlled Activity: 8.6.5.2.1 STORMWATER MANAGEMENT – The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 20%.

To comply with the parameters of the Permitted Activity Rule (8.6.5.1.3), Lots 1 & 2 must not exceed an impermeable area of 6,495m² and 108,023m² respectively.

Given the above, it is expected that any residential future development of the proposed lot would comply with Permitted Activity Rule (8.6.5.1.3). As such, it is not expected that a stormwater attenuation report will be required for any future residential development of the proposed lot.

To appropriately mitigate stormwater runoff from the existing and future proposed impermeable areas, we recommend utilising Low Impact Design Methods as a means of stormwater management. Design guidance should be taken from 'The Countryside Living Toolbox' design document, and where necessary, 'Technical Publication 10, Stormwater Management Devices – Design Guidelines Manual' Auckland Regional Council (2003).

Stormwater management recommendations are provided below.

7.2 PRIMARY STORMWATER

The Geotechnical Report specifies that stormwater from roof and driveway areas is to be collected and conveyed to an appropriate disposal point via a fully reticulated piped system.

7.2.1 Stormwater Runoff from Roof Areas

Stormwater runoff from the roof of any future buildings must be captured by a gutter system and conveyed to potable water tanks on the corresponding lot.

Discharge and overflow from the rainwater tanks should be directed to a discharge point as specified below via sealed pipes.

7.2.2 Stormwater Runoff from Hardstand Areas

Runoff from hardstand areas must be managed with swales to prevent erosion/scouring. These should be sized to manage and provide capacity for secondary flows and mitigate flow velocity where appropriate. Swales are to direct runoff to silt traps with suitably sized grate / scruffy dome inlets, from which runoff may be piped to the discharge point.

Alternatively, if sealed, driveways may be formed to shed runoff to catchpits installed per E1 of the NZ Building Code. Runoff collected via catchpits is to be directed to an outlet as specified below via sealed pipes.

Due to water quality concerns, runoff resulting from hardstand areas should not be allowed to drain to any potable water tanks.

7.2.3 Stormwater Runoff Discharge Point

Discharge and overflow from future potable water tanks and any hardstand catchpits / silt traps should be directed to an appropriately sized dispersal device. The dispersal device or discharge point should be positioned on/in stable ground downslope of any buildings and wastewater disposal, with setbacks as per the relevant standards.

It is recommended that a surface-pinned, sealed snaked draincoil be installed along the gully, discharging to a stable outlet location where a suitably sized spreader bar is provided.

The spreader bar is to be positioned at the base of the gully at or below RL150, as indicated on the site plan. If the discharge is directed toward the northeastern gully, the spreader bar must be installed at the point where the slope reduces to less than 1V:4H.

7.3 SECONDARY STORMWATER

Where required, overland flows and any concentrated runoff from higher ground should be intercepted by means of shallow surface drains or small bunds near structures to protect these from both saturation and erosion.

7.4 DISTRICT PLAN ASSESSMENT

This section has been prepared to demonstrate the likely effects of the activity on stormwater runoff and the means of mitigating runoff.

In assessing an application under this provision, the Council will exercise discretion to review the following matters below, (a) through (r). In respect of matters (a) through (r), we provide the following comments:

13.10.4 – Stormwater Disposal

(a) Whether the application complies with any regional rules relating to any water or discharge permits required under the Act, and with any resource consent issued to the District Council in relation to any urban drainage area stormwater management plan or similar plan.	No discharge permits are required. No resource consent issued documents stipulating specific requirements are known for the subject site or are anticipated to exist.

(b) Whether the application complies with the provisions of the Council's "Engineering Standards and Guidelines" (2004) - Revised March 2009 (to be used in conjunction with NZS 4404:2004).	The application is deemed compliant with the provisions of the Council's "Engineering Standards and Guidelines" (2004) - Revised March 2009
(c) Whether the application complies with the Far North District Council Strategic Plan - Drainage.	The application is deemed compliant with the Far North District Council Strategic Plan - Drainage
(d) The degree to which Low Impact Design principles have been used to reduce site impermeability and to retain natural permeable areas.	Stormwater management should be provided for the subject lot by utilising Low Impact Design Methods. Guidance for design should be taken from 'The Countryside Living Toolbox' design document, and where necessary, *"Technical Publication 10, Stormwater Management Devices – Design Guidelines Manual" Auckland Regional Council (2003).* All roof runoff will be collected by rainwater tanks for conveyance to a safe outlet point. Hardstand areas should be shaped to shed to swales/catchpits for runoff conveyance to a safe outlet location.
(e) The adequacy of the proposed means of disposing of collected stormwater from the roof of all potential or existing buildings and from all impervious surfaces.	As above. Runoff from new roof areas will be collected, directed to rainwater tanks and discharged in a controlled manner to a designated outlet, reducing scour and erosion. Hardstand areas should be shaped to shed to swales/catchpits for runoff conveyance to a safe outlet location.
(f) The adequacy of any proposed means for screening out litter, the capture of chemical spillages, the containment of contamination from roads and paved areas, and of siltation.	Runoff from roof areas is free of litter, chemical spillages, or contaminants from roads. Hardstand areas should be shaped to shed to swales/catchpits for runoff conveyance to a safe outlet location. Swales act as bio-filter strips to filer out entrained pollutants and catchpits/silt traps allow for the settlement of sediment.
(g) The practicality of retaining open natural waterway systems for stormwater disposal in preference to piped or canal systems and adverse effects on existing waterways.	No alteration to waterways is proposed.
(h) Whether there is sufficient capacity available in the Council's outfall stormwater system to cater for increased run-off from the proposed allotments.	Not applicable.
(i) Where an existing outfall is not capable of accepting increased run-off, the adequacy of proposals and solutions for disposing of run-off.	Not applicable.

(j) The necessity to provide on-site retention basins to contain surface run-off where the capacity of the outfall is incapable of accepting flows, and where the outfall has limited capacity, any need to restrict the rate of discharge from the subdivision to the same rate of discharge that existed on the land before the subdivision takes place.	Not applicable.
(k) Any adverse effects of the proposed subdivision on drainage to, or from, adjoining properties and mitigation measures proposed to control any adverse effects.	Outlet locations are to be determined during detailed design and are to be located such that there are no adverse effects on adjacent properties.
(l) In accordance with sustainable management practices, the importance of disposing of stormwater by way of gravity pipe lines. However, where topography dictates that this is not possible, the adequacy of proposed pumping stations put forward as a satisfactory alternative.	Not applicable.
(m) The extent to which it is proposed to fill contrary to the natural fall of the country to obtain gravity outfall; the practicality of obtaining easements through adjoining owners' land to other outfall systems; and whether filling or pumping may constitute a satisfactory alternative.	Not applicable.
(n) For stormwater pipes and open waterway systems, the provision of appropriate easements in favour of either the registered user or in the case of the Council, easements in gross, to be shown on the survey plan for the subdivision, including private connections passing over other land protected by easements in favour of the user.	Not applicable.
(o) Where an easement is defined as a line, being the centre line of a pipe already laid, the effect of any alteration of its size and the need to create a new easement.	Not applicable.
(p) For any stormwater outfall pipeline through a reserve, the prior consent of the Council, and the need for an appropriate easement.	Not applicable.
(q) The need for and extent of any financial contributions to achieve the above matters.	Not applicable.
(r) The need for a local purpose reserve to be set aside and vested in the Council as a site for any public utility required to be provided.	Not applicable.

8 ACCESS AND VEHICLE CROSSING

8.1 GENERAL

A basic access and vehicle crossing assessment has been completed for Lot 1 with recommendations provided in this section.

It is our understanding that access to Lot 1 will be via the Paper Road Reserve that extends from McIntyre Road and makes up the lot's eastern boundary. As such, the Paper Road will be utilised as a private accessway.

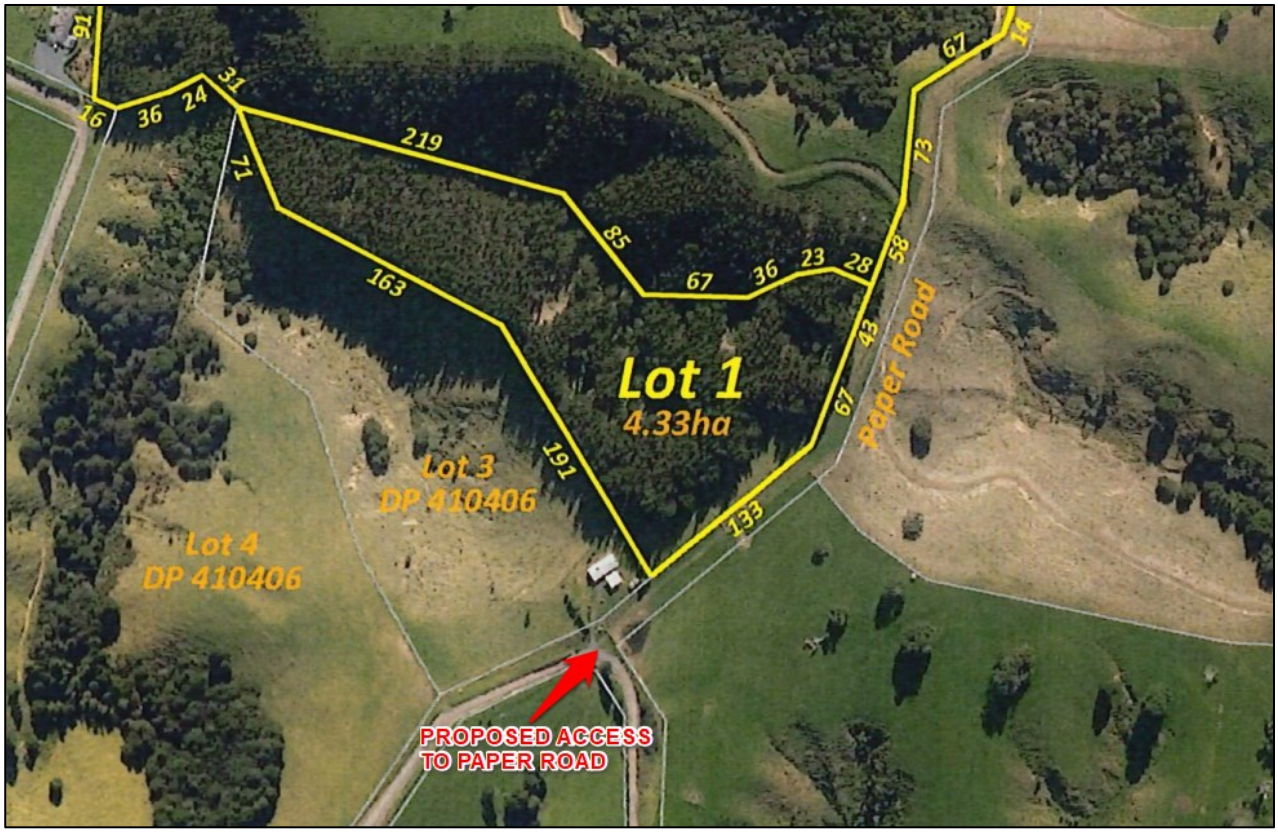


Figure 5: Snip of scheme plan showing indicative proposed access point location.

8.2 VEHICLE CROSSINGS

It is recommended that the existing vehicle crossing from McIntyre Road to Paper Road be upgraded to a Type 1A light-vehicle crossing in accordance with the FNDC Engineering Standards (2023).

The crossing shall not obstruct any drainage facilities within the berm. Where the drain is shallow and only carries low rain flow, the crossing can pass through the drain with no drainage culvert. Where the drain carries significant rain flow the drain shall be piped under the crossing. Pipes and end treatments shall be sized appropriately for the catchment intercepted but shall be a minimum 300mmØ.

8.3 VEHICLE ACCESS

The private accessway is to have minimum width requirements in accordance with Table 3-16 from FNDC's Engineering Standards (2023).

Table 3-16: Minimum Width Requirements – Private Accessways

Category	Criteria (Household Units)	Minimum Legal Width (m)	Minimum Carriageway Width (m)				Footpath Width (m)	Minimum Surfacing Requirement
			Unsealed Shoulder	Surfacing Width[17]	Total			
	Urban							
A	2 - 4	4.0	-	1 x 3.0	3.0		-	Seal or Concrete
A(Alt)[1]	2 - 4	5.0	-	1 x 4.0	4.0		-	Seal or Concrete
B	5 - 8	6.0	-	1 x 4.5	4.5		1 x 0.95	Seal or Concrete
	Rural							
C	2	4.0	2 x 0.25	1 x 3.0	3.5		-	Aggregate[18]
C(Alt) [16]	2	5.0	2 x 0.25	1 x 4.0	4.5		-	Aggregate[18]
D	3 - 5	6.0	2 x 0.25	1 x 4.0	4.5		-	Aggregate[18]
E	6 - 8	10.0	2 x 0.25	2 x 2.75	6.0		-	Seal

Figure 6: Snip of Table 3-16 from FNDC Engineering Standards (2023).

The Far North District Plan Section 15.1.6C.1.5 notes that "*All bends and corners on the private accessway are to be constructed to allow for the passage of a Heavy Rigid Vehicle*" and "*Runoff from impermeable surfaces shall, wherever practicable, be directed to grass swales and/or shall be managed in such a way as will reduce the volume and rate of stormwater runoff and contaminant loads*.".

8.4 PASSING BAYS

Passing bays are to be constructed on the accessway in accordance with the requirements of the Far North District Plan Section 15.1.6C.1.3, which sates the following:

"15.1.6C.1.3 PASSING BAYS ON PRIVATE ACCESSWAYS ALL ZONES

(a) Where required, passing bays on private accessways are to be at least 15m long and provide a minimum usable access width of 5.5m.

(b) Passing bays are required:

i. In rural and coastal areas at spacings not exceeding 100m;

ii. On all blind corners in all zones at locations where the horizontal and vertical alignment of the private accessway restricts the visibility.

(c) All accesses servicing 2 or more sites shall provide passing bays and vehicle queuing space at the vehicle crossing to the legal road."

8.5 SIGHT DISTANCES

McIntyre Road has an operating speed of 60km/hr (NZTA National Speed Limits Register). The Far North District Council Engineering Standards (2023) – Sheet 4 notes that the minimum required sight distance required is 90m.

The existing access point utilised by Paper Road allows for ~105m and ~50m of sight distance to the southwest and southeast respectively. As such, the access point does not comply with FNDC's sight distance requirements and approval is subject to Council's discretion.

We note that McIntyre Road is an unsealed rural road and that the proposed access point is situated on a horizontal curve. Given the gravel surface, tighter geometry, and general operating conditions of this section of McIntyre Road, it is expected that vehicles approaching from the southeast will be travelling at speeds significantly lower than the 60 km/hr speed limit. As a result, the available sight distance—while below the nominal FNDC standard—is considered appropriate for the actual operating environment and anticipated approach speeds.

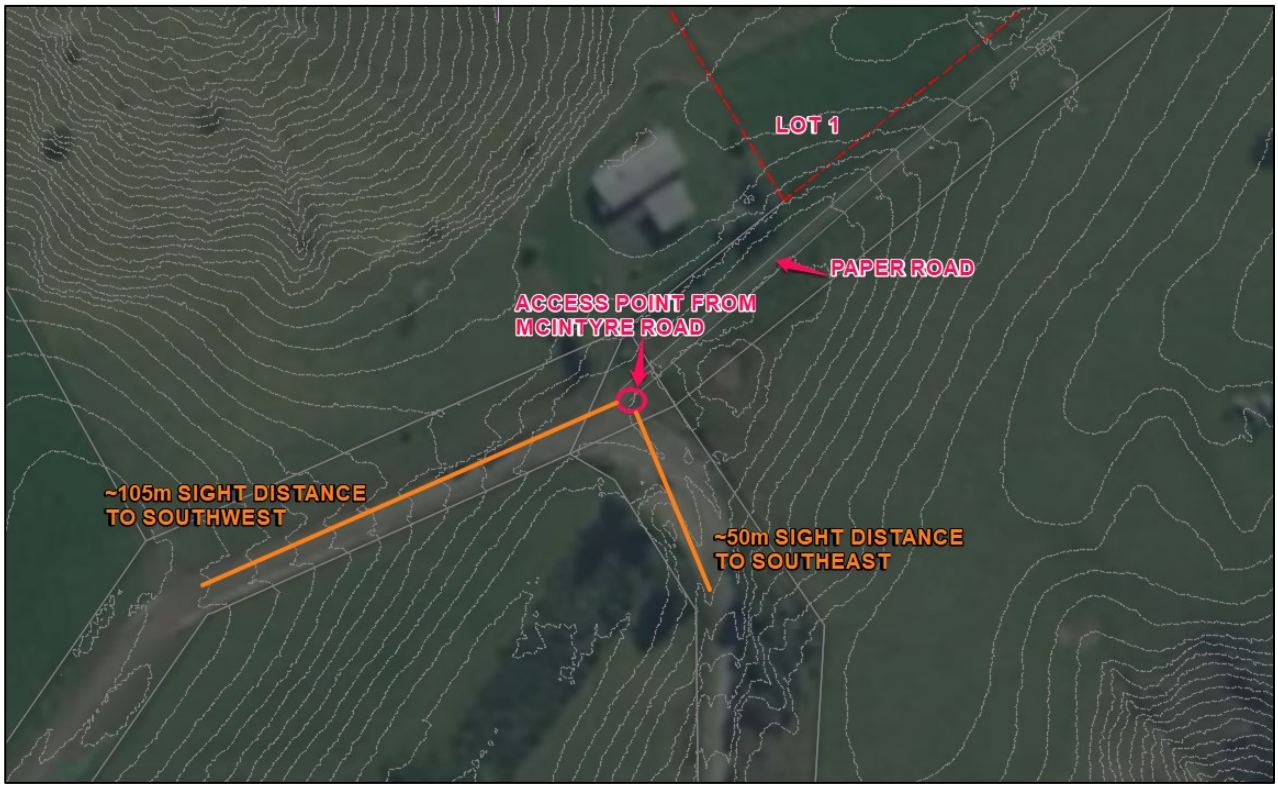


Figure 7: Snip from Civil3D site plan model showing available sight distances.

9 LIMITATIONS

We anticipate that this report is to be submitted to Council in support of a Resource/Subdivision Consent application.

This report has been commissioned solely for the benefit of our client, in relation to the project as described herein, and to the limits of our engagement, with the exception that the local Territorial Authority may rely on it to the extent of its appropriateness, conditions, and limitations, when issuing the subject consent. This report does not include a flood assessment or freeboard recommendations.

Any variations from the development proposals as described herein as forming the basis of our appraisal should be referred back to us for further evaluation. Copyright of Intellectual Property remains with Wilton Joubert Limited, and this report may NOT be used by any other entity, or for any other proposals, without our written consent. Therefore, no liability is accepted by this firm or any of its directors, servants, or agents, in respect of any other civil aspects of this site, nor for its use by any other person or entity, and any other person or entity who relies upon any information contained herein does so entirely at their own risk. Where other parties may wish to rely on it, whether for the same or different proposals, this permission may be extended, subject to our satisfactory review of their interpretation of the report.

Although this report may be submitted to a local authority in connection with an application for a consent, permission, approval, or pursuant to any other requirement of law, this disclaimer shall still apply and require all other parties to use due diligence where necessary and does not remove the necessity for the normal inspection of site conditions and the design of foundations as would be made under all normal circumstances.

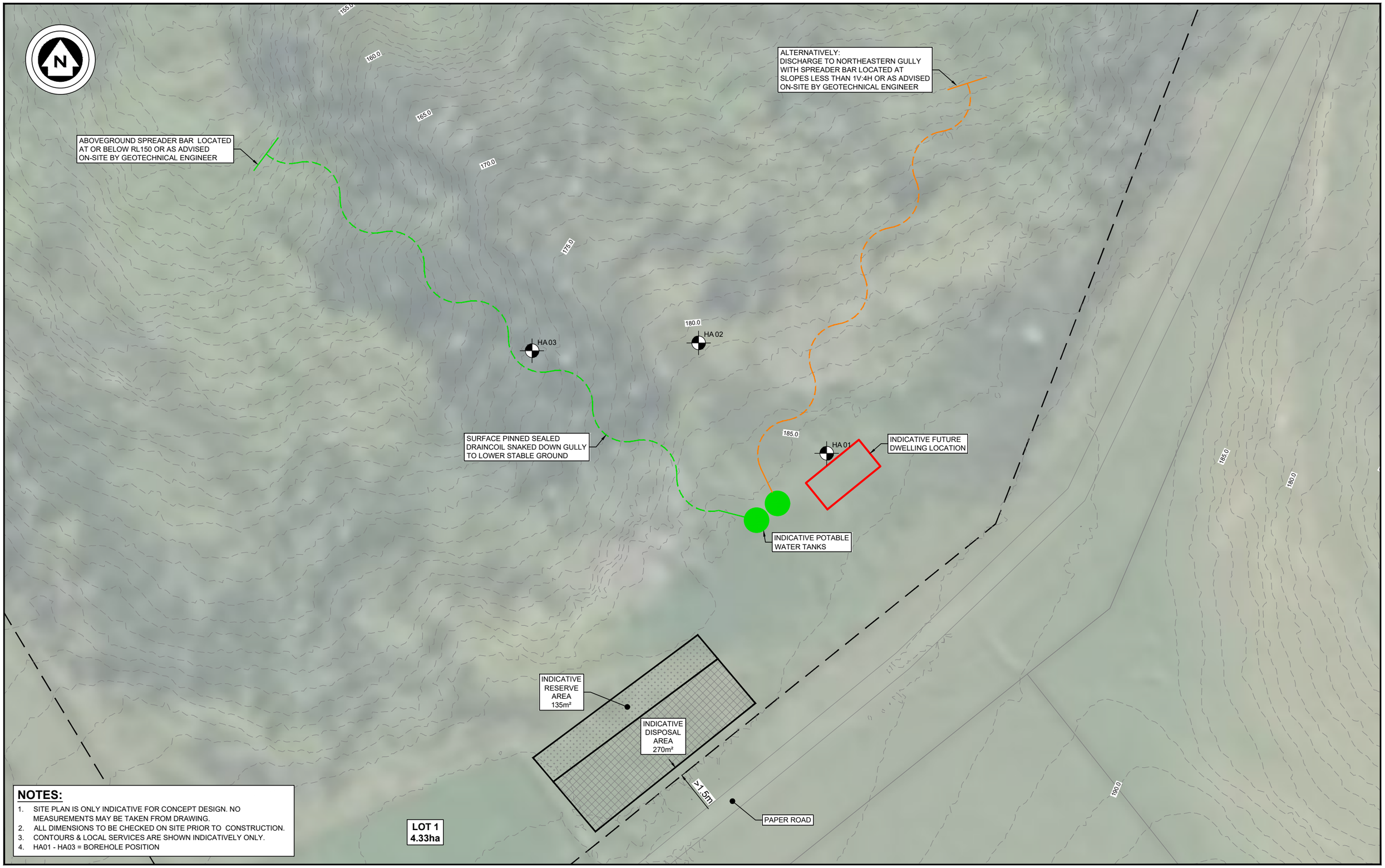
Thank you for the opportunity to provide our service on this project, and if we can be of further assistance, please do not hesitate to contact us.

Yours faithfully,

WILTON JOUBERT LIMITED

Enclosures:

- Site Plan – C001 (1 sheet)
- Hand Auger Borehole Records (3 sheets)



NOTES:

1. SITE PLAN IS ONLY INDICATIVE FOR CONCEPT DESIGN. NO MEASUREMENTS MAY BE TAKEN FROM DRAWING.
2. ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION.
3. CONTOURS & LOCAL SERVICES ARE SHOWN INDICATIVELY ONLY.
4. HA01 - HA03 = BOREHOLE POSITION

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ISSUE / REVISION

No.	DATE	BY	DESCRIPTION
01	DEC '25	GMB	CIVIL SITE SUITABILITY REPORT

DESIGNED BY: GMB
DRAWN BY: GMB
CHECKED BY: BGS
SURVEYED BY: N/A

SERVICES NOTE

WHERE EXISTING SERVICES ARE SHOWN, THEY ARE INDICATIVE ONLY AND MAY NOT INCLUDE ALL SITE SERVICES. WILTON JOUBERT LTD DOES NOT WARRANT THAT ALL, OR INDEED ANY SERVICES ARE SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PROTECT ALL EXISTING SERVICES PRIOR TO AND FOR THE DURATION OF THE CONTRACT WORKS.

BUILDING CONSENT

DESIGN / DRAWING SUBJECT TO ENGINEER'S APPROVAL

DRAWING TITLE: **SITE PLAN**

PROJECT DESCRIPTION: **CIVIL SITE SUITABILITY REPORT**

PROJECT TITLE: **PROPOSED SUBDIVISION OF LOT 2 DP 432775 62 MCDONALD ROAD KAWAKAWA NORTHLAND**

ORIGINAL DRAWING SIZE:	OFFICE:
A3	OREWA
DRAWING SCALE:	CO-ORDINATE SYSTEM:
1:500	NOT COORDINATED

DRAWING NUMBER: **143416-C001** ISSUE: **01**

HAND AUGER : HA01

JOB NO.: 143415 **SHEET:** 1 OF 1

START DATE: 10/11/2025 **NORTHING:** **GRID:**

CLIENT: Letita Ellison **DIAMETER:** 50mm **EASTING:**

PROJECT: 2-Lot Subdivision & New Dwelling **SV DIAL:** DR4802 **ELEVATION:** Ground

SITE LOCATION: 62 McDonald Road, Kawakawa **FACTOR:** 1.39 **DATUM:**

TOPSOIL | CLAY | SAND | PEAT | FILL | SILT | GRAVEL | ROCK

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE: PEAK STRENGTH (kPa)	SHEAR VANE: REMOULD STRENGTH (kPa)	SHEAR VANE: SENSITIVITY	DCP - SCALA (Blows / 100mm)	COMMENTS, SAMPLES, OTHER TESTS
FILL	NON-ENGINEERED FILL: Clayey SILT intermixed with TOPSOIL, brown, dark brown and yellow, firm to stiff, moist, low to moderate plasticity.		0.2	Groundwater Not Encountered					
Waipapa Group	NATURAL: Clayey SILT, yellow with occasional light orange streaks, very stiff, moist, low to moderate plasticity.		0.4		161	33	4.9		
	SILT, some clay, pale yellow with occasional light grey and light orange mottles, very stiff, moist, low plasticity.		0.6						
			0.8		156	36	4.3		
	Clayey SILT, yellow with occasional light grey and light orange mottles, very stiff, moist, low to moderate plasticity.		1.0						
			1.2		195+	-	-		
	1.5m: Becoming whitish grey with yellow mottles, low plasticity.		1.4						
			1.6		195+	-	-		
			1.8						
	2.0m: 100mm lense of bluish grey with white mottles.		2.0		UTP	-	-		
			2.2						
			2.4		195+	-	-		
			2.6						
	2.8m: 100mm lense of bluish grey with white mottles.		2.8		195+	-	-		
	SILT, minor clay, bluish grey with orange and white mottles, very stiff, moist, no to low plasticity.		3.0						
			3.2		195+	-	-		
	Clayey SILT, light yellow, very stiff, moist, low to moderate plasticity.		3.4						
	3.4m: Becoming whitish grey with light yellow mottles.								
	3.5m: 50mm lense of bluish grey with white mottles.		3.6						
	3.6m: Occasional light yellow mottles.				128	56	2.3		
			3.8						
	3.9m: 100mm lense of bluish grey with white mottles.		4.0		195+	-	-		
			4.2						
	4.2m: 150mm lense of bluish grey with white mottles.		4.4						
			4.6		195+	-	-		
	SILT, some clay, bluish grey with white mottles, very stiff, moist, low plasticity.		4.8						
			5.0						
	EOH: 5.00m - Target Depth				195+	-	-	7	
			5.2					8	
								10	
			5.4					15	
								15	
			5.6					15	
								15	
			5.8					15	
								20	
			6.0						
			6.2						
			6.4						

REMARKS

End of borehole @ 5.00m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP

CHECKED BY: CSH

▼ Standing groundwater level

▽ GW while drilling

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HAND AUGER : HA02

JOB NO.: 143415 **SHEET:** 1 OF 1

START DATE: 10/11/2025 **NORTHING:** **GRID:**

CLIENT: Letita Ellison **DIAMETER:** 50mm **EASTING:**

PROJECT: 2-Lot Subdivision & New Dwelling **SV DIAL:** 1994 **ELEVATION:** Ground

SITE LOCATION: 62 McDonald Road, Kawakawa **FACTOR:** 1.41 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE PEAK STRENGTH (kPa)	SHEAR VANE REMOULD STRENGTH (kPa)	SHEAR VANE SENSITIVITY	DCP - SCALA (Blows / 100mm)	COMMENTS, SAMPLES, OTHER TESTS
Topsoil	TOPSOIL, dark brown, dry.	TS	0.0	Groundwater Not Encountered					
Waipapa Group	NATURAL: Clayey SILT, yellowish brown, very stiff, dry, low plasticity.		0.2						
			0.4		197+	-	-		
			0.6						
	0.8m: Becoming white and yellow, dry to moist.		0.8		197+	-	-		
	1.0m: Occasional weakly cemented clasts, becoming grey with yellow mottles and occasional red streaks.		1.0						
			1.2		197+	-	-		
			1.4						
			1.6		197+	-	-		
			1.8						
			2.0		197+	-	-		
			2.2						
			2.4		197+	-	-		
			2.6						
			2.8		197+	-	-		
			3.0						
			3.2		197+	-	-		
	3.3m: Becoming moist, moderate plasticity.		3.4						
	3.4m: Frequent red streaks.		3.6		169	87	1.9		
			3.8						
			4.0		130	65	2.0		
			4.2						
			4.4		155	65	2.4		
			4.6						
			4.8		152	68	2.2		
	EOH: 5.00m - Target Depth		5.0					3	
			5.2					5	
			5.4					6	
			5.6					6	
			5.8					6	
			6.0					9	
			6.2					9	
			6.4					9	
								9	
								11	
								11	
								11	
								15	
								20	

REMARKS

End of borehole @ 5.00m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: JEM

CHECKED BY: CSH

▼ Standing groundwater level

▽ GW while drilling

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HAND AUGER : HA03

JOB NO.: 143415 **SHEET:** 1 OF 1

START DATE: 10/11/2025 **NORTHING:** **GRID:**

CLIENT: Letita Ellison **DIAMETER:** 50mm **EASTING:**

PROJECT: 2-Lot Subdivision & New Dwelling **SV DIAL:** DR4802 **ELEVATION:** Ground

SITE LOCATION: 62 McDonald Road, Kawakawa **FACTOR:** 1.39 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE PEAK STRENGTH (kPa)	SHEAR VANE REMOULD STRENGTH (kPa)	SHEAR VANE SENSITIVITY	DCP - SCALA (Blows / 100mm)	COMMENTS, SAMPLES, OTHER TESTS
Top soil	TOPSOIL, dark brown, moist.	TS	0.0	Groundwater Not Encountered					
Colluvium	COLLUVIUM: Clayey SILT intermixed with TOPSOIL, yellow with dark brown mottles, stiff, moist, low to moderate plasticity.		0.2						
			0.4		153	25	6.1		
	NATURAL: Clayey SILT, yellow, very stiff, moist, low to moderate plasticity.		0.6						
	SILT, some clay, yellow with reddish brown mottles, very stiff, moist, low plasticity.		0.8		195+	-	-		
			1.0						
			1.2		111	17	6.5		
	SILT, minor clay, yellow, reddish brown and white, very stiff, moist, no to low plasticity.		1.4						
	1.6m: Occasional weakly cemented clasts, becoming stiff.		1.6		67	8	8.4		
			1.8						
	2.0m: Becoming conglomerate colouring of whitish grey, pink, reddish brown and brown, occasional brown and dark brown weakly cemented clast seams, low plasticity.		2.0		92	31	3.0		
			2.2						
Waipapa Group			2.4		95	36	2.6		
			2.6						
	2.8m: Becoming very stiff.		2.8		195+	-	-		
			3.0						
			3.2		195+	-	-		
			3.4						
			3.6		195+	-	-		
	3.7m: 100mm lense of Gravelly SILT, yellow, very stiff to hard, wet, no plasticity.		3.8						
			4.0		195+	-	-		
			4.2		UTP	-	-	8	
	EOH: 4.20m - Too Hard To Auger		4.4					10	
			4.6					18	
			4.8					20	
			5.0						
			5.2						
			5.4						
			5.6						
			5.8						
			6.0						
			6.2						
			6.4						

SOIL DESCRIPTION: TOPSOIL, CLAY, SAND, PEAT, FILL, SILT, GRAVEL, ROCK

REMARKS

End of borehole @ 4.20m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP

CHECKED BY: CSH

▼ Standing groundwater level

▽ GW while drilling

WILTON JOUBERT Consulting Engineers

185 Waipapa Road, Kerikeri 0295
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Appendix 5

(Geotechnical) Site Assessment Report

Wilton Joubert Limited
09 945 4188
185 Waipapa Road,
Kerikeri

SITE	**62 McDonald Road, Kawakawa**
LEGAL DESCRIPTION	**Lot 2 DP 432775**
PROJECT	**Site Investigation for Proposed 2-Lot Subdivision**
CLIENT	**Letitia Ellison**
REFERENCE NO.	**143415**
DOCUMENT	**Site Assessment Report**
STATUS/REVISION NO.	**FINAL – Issued for Resource Consent**
DATE OF ISSUE	**18 November 2025**

Report Prepared For	Attention	Email
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1. EXECUTIVE SUMMARY

The following table is intended to be a concise summary which must be read in conjunction with the relevant report sections as referenced herein.

Development Type:	2-Lot subdivision (Future Lot 1 for assessment).
Development Proposals Supplied:	Yes - Subdivision Scheme Plan.
NZS3604 Type Structure(s):	Yes.
Maximum Fill Depth Proposed:	Anticipated to be minimal/none.
Maximum Cut Depth Proposed:	Anticipated to be minimal/none (associated with footing excavations).
Geology Encountered:	Waipapa Group.
Surficial Topsoil, Non-Engineered Fill & Colluvium Encountered:	Yes – Surficial layers were encountered at our test locations to depths ranging between 0.25m to 0.40m below present ground level.
Overall Site Gradient in Proximity to Designated Building Platforms:	Near level to gently inclined. The building footprint is setback a minimum of approximately 15m from the edge of a steep downslope gully.
Site Stability Risk:	Low risk of instability at the site. It is imperative that the proposed building platform is not positioned any further northwest of the location assessed in this report.
Liquefaction Risk:	Negligible risk of liquefaction susceptibility.
Suitable Foundation Type(s):	Bored, concrete encased, tanalised timber pile foundations.
Soil Bearing Capacity:	Yes – Natural soils only. Geotechnical Ultimate Bearing Capacity = 300kPa.
NZBC B1 Expansive Soil Classification:	Class H – Highly Expansive (ys = 78mm).
NZS1170.5:2004 Site Subsoil Classification:	Class C – Shallow soil stratigraphy.
Minimum Footing Embedment Depth:	0.90m below finished ground levels and 0.30m into competent natural ground, whichever is deeper.
Consent Application Report Suitable for:	Resource Consent. Once future development proposals have been finalised, they should be referred to us for review prior to submission of a Building Consent application. Any deviation of the future proposal assumptions of this report, may require additional Geotechnical investigations and assessments, depending on the magnitude of the proposal.

2. INTRODUCTION

2.1. SCOPE OF WORK

Wilton Joubert Limited (WJL) was engaged by **Letitia Ellison** (the Client) to undertake a geotechnical assessment of the above site, where we understand, it is proposed to subdivide the existing property into two individual allotments.

The primary purpose of this report is to provide Geotechnical assessments along with preliminary design recommendations pertaining to future residential development within vacant future Lot 1.

Future Lot 2 is excluded from our assessments and is essentially a balance Lot of 72ha that will contain the existing residential development and surrounding farm buildings at the northwestern end of the site.

It is our understanding that this report will be submitted to support a Resource Consent application for the proposed subdivision development.

2.2. SUPPLIED INFORMATION

At the time of preparing this report, we were supplied with an appended Subdivision Scheme Plan, dated 12 September 2025 (Ref: 10824), prepared by Thomson Survey.

Any revision of the Subdivision Scheme Plan with Geotechnical implications should be referred to us for review.

3. SITE DESCRIPTION

Future Lot 1 will be created within the following 76.3ha rural block (the site), which is currently accessed off the western side of McDonald Road, towards the northwestern end of the Kawakawa district:

- 62 McDonald Road, Kawakawa, legally described as Lot 2 DP 432775.

Future Lot 1 is shown on our appended Site Plan (Drawing No. 143415-G600), whilst the parent Lot is shown in Figure 1 below.

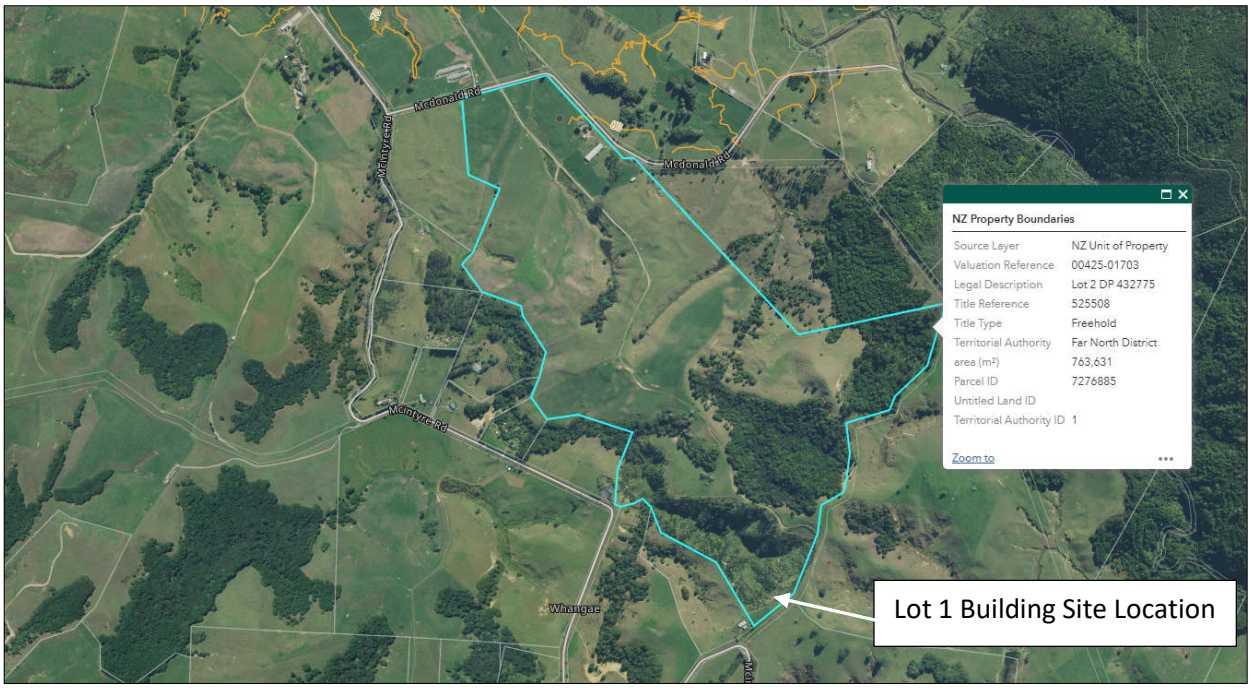

Figure 1: Aerial view with the subject property highlighted in cyan (from Northland Regional Council online GIS database).

Future Lot 1 will cover the southeasternmost corner of the parent block, encompassing an area of 4.3ha, and will be accessed off the western side of a paper road that borders the eastern boundary, extending from McIntyre Road.

The site is vacant of structures and is largely covered in dense regenerating bush, with minor pasture present along the southeastern boundary area.

Topographically speaking, the site is set around well elevated, gently inclined, narrow crest land along the eastern boundary that is bound by moderate to very steeply sloping side flanks, including intermittent minor spur features and gullies. Inclinations across the side flanks generally averages 1V:3H (18°) to 1V:2H (26°).

The Far North District Council (FNDC) on-line GIS Water Services Map indicates that public underground service connections are not available to the property.

4. DEVELOPMENT PROPOSALS

We have been engaged to provide Geotechnical assessments along with preliminary design recommendations pertaining to future residential development within the proposed Lot 1.

Figure 2: Subdivision scheme site plan (from Thompson Survey Limited).

The client has identified a building site location atop the level to gently inclined crest land that covers the southeastern boundary. Approximately 15m beyond the northwestern perimeter of the building site, a steep gully descends approximately 35m from the edge of the crest, generally at inclinations averaging between 1V:3H (18°) to 1V:2H (26°), down to a valley floor.

The client has advised that the dwelling will be founded on a timber subfloor, suspended on bored, concrete encased, tanalised timber pile foundations.

Due to the level to gently sloping nature of the proposed building site, we anticipate minimal earthworks for the future development, essentially associated with bored footing excavations for the dwelling

Figure 3: Site photograph looking northeasterly towards the future building site.

As a result, the principal objectives were to investigate and assess the suitability of foundation options for the site subsoils, not only primarily in terms of bearing capacity, but also for slope stability and differential foundation movement.

5. DESKTOP STUDY

5.1. PUBLISHED GEOLOGY

Local geology across future Lot 1 and the wider surrounding land is noted on the GNS Science New Zealand Geology Web Map, Scale 1:250,000, as; Waipapa Group Sandstone and Siltstone (Waipapa Composite Terrane).

These deposits are approximately 270 to 154 million years in age and described as; "*Massive to thin bedded, lithic volcaniclastic metasandstone and argillite, with tectonically enclosed basalt, chert and siliceous argillite*" (Ref: GNS Science Website).

Figure 4: Screenshot from the New Zealand Geology Web Map hosted by GNS Science.

5.2. HISTORICAL AERIAL PHOTOGRAPHY REVIEW

A historical aerial photography review was undertaken to evaluate any slope instability features or changes in landform at the property. Aerial images from 1953 have been reviewed and compared to the present-day conditions. In 1953, the southeastern boundary crest appeared to be covered in pasture, and the downslope flank was sparsely covered in bush, with denser vegetation present across the northeastern end, as shown in Figure 5 below.

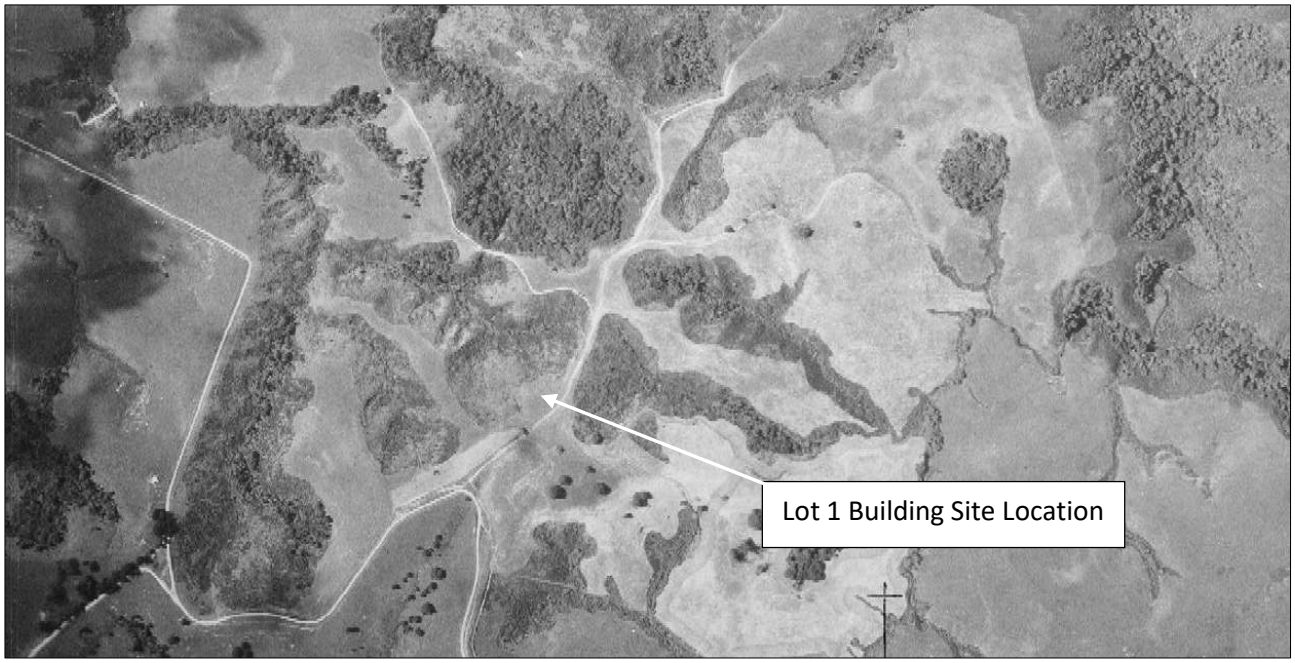

Figure 5: Historical aerial photo from 1953 (source: https://retrolens.co.nz).

By 1981, aside from the northern end of the future Lot, most of the bush had been cleared, as shown in Figure 6 below.

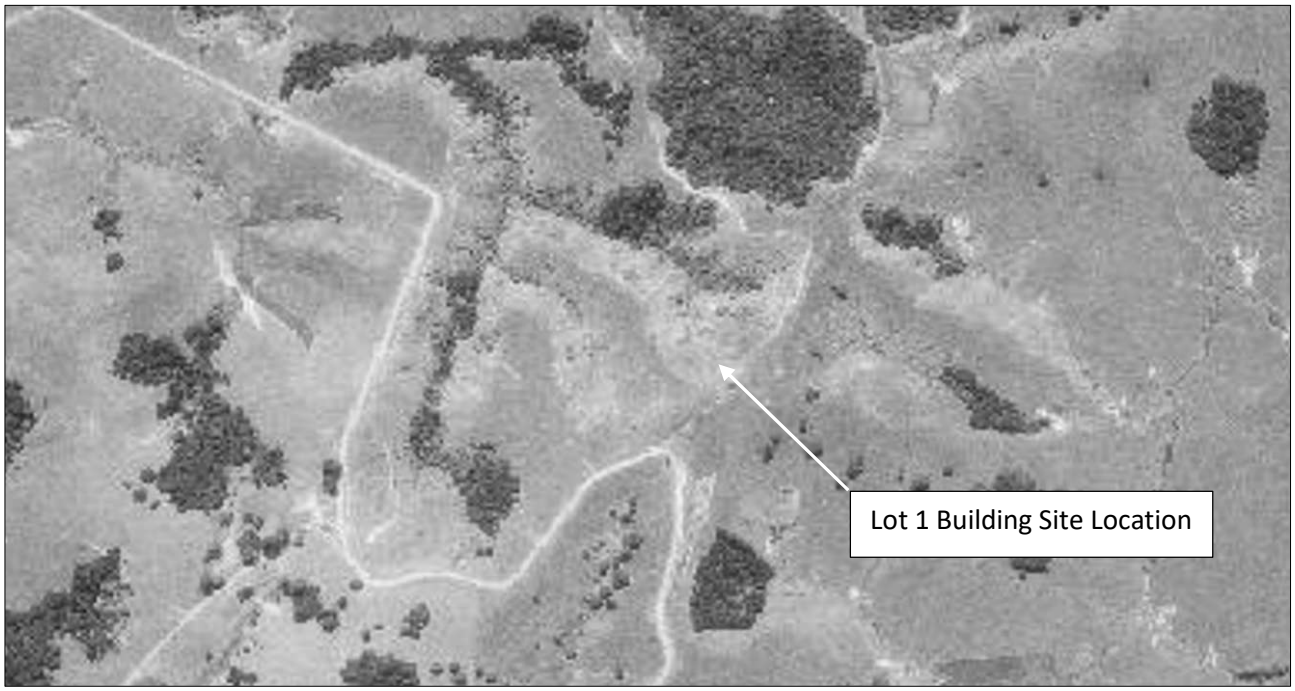

Figure 6: Historical aerial photo from 1981 (source: https://retrolens.co.nz).

At some point between 1981 and January 2004, the downslope flank had planted in dense regenerating bush, as shown in Figure 7 below.

Figure 7: Historical aerial photo from January 2004 (source: Google Earth Pro).

Aside from small pockets at the northern boundary, the bush had been felled between January 2017 and December 2018, as shown in Figure 8 below.

Figure 8: Historical aerial photo from December 2018 (source: Google Earth Pro).

At some point between July 2020 and January 2022, the downslope flank had planted in dense regenerating bush again, as shown in Figure 9 below.

Figure 9: Historical aerial photo from January 2022 (source: Google Earth Pro).

There were no visible significant geomorphological changes in the landscape or obvious features consistent with major ground instability, indicating a period of stable ground conditions between 1953 and November 2024, as depicted in Figures 5 to 9 above.

6. GEOTECHNICAL INVESTIGATION

Our fieldwork, as depicted on our appended Site Plan, was undertaken on 10 November 2025 and involved:

- Drilling 3 (no.) 50mm diameter hand auger boreholes (HA01 to HA03 inclusive) to depths ranging between 4.2m and 5.0m below present ground level (bpgl), and
- Undertaking Dynamic Cone Penetrometer (DCP-Scala) tests from the base of all three boreholes to refusal depths ranging between 4.6m and 6.4m bpgl.

Additionally, we have drawn appended Cross-section A-A' (Drawing No. 143415-G610), using LiDAR data sourced from the Land Information New Zealand (LINZ) database, to represent the topography of the proposed building site and surrounding influential land.

7. GEOTECHNICAL FINDINGS

The soil sample arisings from the boreholes were logged generally in accordance with the *"Field Description of Soil and Rock",* New Zealand Geotechnical Society (NZGS), December 2005.

The following is a summary of the ground conditions encountered in our investigations. Please refer to the appended logs for greater detail.

7.1. TOPSOIL

Surficial topsoil was encountered HA02 and HA03 to depths ranging between 0.10m to 0.25m bpgl.

7.2. FILLED GROUND

From ground surface in HA01, a minor veneer of fill, likely associated with the historical felling operations, was encountered to a depth of 0.25m bpgl. The fill was comprised of firm to stiff clayey SILT which was intermixed with TOPSOIL.

Considering the presence of topsoil within the fill material, we assess the in-situ fill as NON-ENGINEERED and unsuitable to support future permanent structures.

7.3. COLLUVIUM

Below surficial topsoil in downslope HA03, a minor veneer of colluvium, associated with relict, shallow landslide within the gully, was encountered to a depth of 0.40m bpgl. The colluvium was comprised of stiff clayey SILT which was intermixed with TOPSOIL.

7.4. NATURAL GROUND

The underlying natural deposits encountered were consistent with our expectations of Waipapa Group deposits, generally comprising of very stiff to hard, low to moderately plastic clayey SILT and SILT.

Measured in-situ, BS1377 adjusted peak Vane Shear Strengths generally ranged between 111kPa and greater than 195kPa and/or 197kPa, the latter two being where soil strength was in excess of the shear vane capacity, or the vane was unable to penetrate the soil (UTP). Measured strengths ranged between 67kPa and 95kPa within HA03 between depths of 1.6m and 2.8m bpgl in downslope HA03.

DCP-Scala testing below the base of each borehole generally returned blow counts that ranged from 5 to greater than 20 blows per 100mm penetration, indicating medium dense to very dense stratum. An isolated blow count of 3 was initially measured at the base of HA02.

The ratio of peak to remoulded vane shear strength values measured within the boreholes ranged between 1.9 and 8.4, indicating the underlying subgrade fluctuates between 'Moderately to extra sensitive'.

Sensitive soil sites require to protect the subgrade from rain, wind, etc., and to avoid (or minimise) construction traffic and vibrating plants.

7.5. GROUNDWATER

Groundwater was not encountered in any of the boreholes or on the retracted DCP-scala road on the day of our investigation, which coincided with intermittent rainfall events, and followed approximately 45mm of rainfall that fell across the two previous days.

7.6. SUMMARY TABLE

The following table summarises our inferred stratigraphic profiling:

Table 1: Stratigraphic Summary Table

Investigation Hole ID	Termination Depth (m)	Depth to Base of Surficial Topsoil, Non-Engineered Fill & Colluvium (m)	Vane Shear Strength Range within Cohesive Natural Ground (kPa)	DCP-Scala Blow Count Range Per 100mm Penetration Below Borehole Base	DCP-Scala Refusal (20+ Blows) Below Borehole Base (m)	Standing Groundwater Depth (m)
HA01	5.0	0.25	128 – 195+ / UTP	7 – 20+	5.9	NE
HA02	5.0	0.25	130 – 197+	3 – 20+	6.4	NE
HA03	4.2 (1)	0.40	67 – 195+ / UTP	8 – 20+	4.6	NE

Table Note: (1) Too hard to hand auger, NE Not encountered

7.7. EXPANSIVE SOILS

Naturally occurring, seasonal moisture variations are a strong characteristic of most Upper North Island soils, typically resulting in plastic soil masses swelling during winter months and then shrinking during summer months. Such volumetric changes in foundation soils (broadly termed 'Expansive Soils') vary according to clay mineralogy and geology and are a significant risk to buildings.

In this instance, in the absence of laboratory testing, but instead adopting the visual-tactile method as per AS2870, considering the moderately plastic nature of the clayey silt subsoils at anticipated foundations levels, we have adopted a conservative primary classification estimate of the soils underlying the site as follows:

- NZBC B1 Expansive Soil Class H
- Upper Limit of Characteristic surface movement (y_s) 78mm

Effects of expansive soils for the construction type proposed here, will require mitigation by way of specific engineering design (SED) deepened bored footings. Foundation design recommendations are given in the appropriate Conclusion and Recommendation sections below.

8. GEOTECHNICAL ASSESSMENTS

As appropriate to the site conditions, we have carried out the following geotechnical analyses:

- Qualitative and quantitative slope stability, and
- Liquefaction susceptibility.

8.1. QUALITATIVE SLOPE STABILITY

The client has identified a building site location atop the level to gently inclined crest land that covers the southeastern boundary. Approximately 15m beyond the northwestern perimeter of the building site, a steep gully descends approximately 35m from the edge of the crest, generally at inclinations averaging between 1V:3H (18°) to 1V:2H (26°), down to a valley floor.

Our assessment has also considered the following:

- Generally, very stiff to hard weathered soils of the Waipapa Group encountered during our investigations,
- DCP-Scala penetrometer testing below the base of the boreholes indicating medium dense to very dense stratum at depth,
- Groundwater was not encountered any of the boreholes or on the retracted DCP-scala road on the day of our investigation, which coincided with intermittent rainfall events, and followed approximately 45mm of rainfall that fell across the two previous days,
- The site is situated on broad, elevated crest feature, with good water-shedding characteristics,
- There are no known active faults traversing through or close to the site,
- Aside from surficial soil creep across the downslope moderate to steeply sloping flank, no visual signs of global ground instability were observed at the time of our investigation. A review of historical aerial photography confirms absence of any obvious global ground instability,
- Very dense, regenerating bush covers the downslope flank. Tree trunks were relatively vertical, indicating minimal shallow soil movement (soil creep), and
- The proposed development will be constructed on level to gently sloping crest land which is setback a minimum of 15m the edge of the downslope gully.

8.2. QUANTITATIVE SLOPE STABILITY

Cross-section A-A' was drawn using LiDAR data sourced from the Land Information New Zealand (LINZ) database to represent the topography of the proposed building site and surrounding influential land, as depicted on our appended Site Plan and Cross-section (Drawing No. 143415-G600 and 143415-G610).

Slope stability analyses were undertaken using computer program Slide 2, by Rocscience Limited. Theoretical non-circular (composite) surfaces were assessed using the Spencer and GLE / Morgenstern-Price methods.

An assumed Uniformly Distributed Load (UDL) of 10kPa was applied to represent the surcharge load of the proposed dwelling.

The stability analyses have been undertaken for existing conditions (moderate groundwater), worst-case ground conditions (elevated groundwater) and extreme scenarios (seismic loading).

A Peak Ground Acceleration (PGA) value of 0.19g (ULS) was used for the 500-year seismic event, with an effective earthquake magnitude of 6.5 as recommended by the NZGS (Earthquake Geotechnical Engineering Practice Module 1, Dated: November 2021).

Back Analysis:

Using the inferred original ground surface of Cross-section A-A' (i.e., before landslide and/or earthworks happened) and assuming a groundwater level at ground surface (fully saturated ground conditions), we have carried out back analyses based on our experience of the geology, along with measured soil and estimated rock strengths within our test locations, to determine the minimum effective stress parameters to achieve a safety factor of ≈1.0.

Table 2: Stability Analysis Results – Back Analysis

Section	Design Conditions	Factor of Safety (FoS)	
		Targeted	Calculated
A – A'	Inferred original ground surface, groundwater at ground surface	~1.0	0.96

Undrained soil strength parameters (no friction angle) were used to model the extreme conditions of a seismic event.

The soil strength parameters used in the stability assessment are shown in the following table:

Table 3: Effective Shear Stress (Shear Strength) Parameters

Soil Parameters	Weathered Waipapa Group Soils	Less Weathered Waipapa Group Soils
Unit Weight, γ (kN/m3)	18	18
Effective Cohesion c' (kPa)	6	10
Friction Angle, ϕ' (°)	32	36
Undrained (no ϕ') Su	60	200

We have adopted the following scenarios:

1. **Moderate Groundwater Level**: Long-term stability when modelling the existing ground conditions and assumed a groundwater level at a depth of approximately 3.0m below the building site.

   Factor of Safety (FoS) required >1.5

2. **Elevated Groundwater Level**: Transient (medium-term) stability when modelling the worst-case scenario and assumed a raised groundwater level at a depth of approximately 1.0m below building site.

   FoS required >1.3

   It is important to consider that the computer model conservatively does not assess the further beneficial effects of dense vegetation cover on the downslope flank below the site, such as root binding and negative pore water pressure generated by the vegetation.

3. **Seismic Loading**. Short-term stability when modelling extreme ground conditions under a 500-year seismic event and assumed a moderate groundwater level at a depth of approximately 3.0m below the building site.

   FoS required >1.1

A summary of the calculated minimum FoS against failure across the proposed development area for each of the above scenarios is shown in the the following table:

Table 4: Stability Analysis Results – Post-Development (Proposed)

Section	Design Conditions	Factor of Safety (FoS) within the Proposed Building Platform		Compliance
		Required	Calculated	
A-A'	Moderate Groundwater, plus Surcharge Load	≥1.5	>1.5	Yes
	Elevated Groundwater, plus Surcharge Load	≥1.3	>1.3	Yes
	Moderate Groundwater, plus Surcharge Load, plus Seismic Load	≥1.1	>1.1	Yes

8.3. STABILITY CONCLUSIONS

Our analyses indicate that satisfactory FoSs are available for the global stability of the site under all conditions. The outputs from our modelling (4 sheets) are appended.

It should be noted that during the elevated groundwater level scenario, unsatisfactory FoSs are present along the downslope flank below the building site, however, they cease approximately 6m from the northwestern perimeter of the dwelling. As such, **it is imperative that the proposed building platform is not positioned any further northwest of the location assessed in this report**.

8.4. LIQUEFACTION SUSCEPTIBILITY

Liquefaction is the loss of effective strength of a cohesionless soil (typically sand) due to pore-water pressures generated during a seismic event (earthquake). The partial or complete loss of effective strength of loose, saturated soils can result in vertical settlement and/or horizontal movement (lateral spreading) of the ground.

A commonly accepted definition is: "Areas susceptible to liquefaction generally correspond with geologically young deposits (less than 10,000 years) located in relatively flat areas close to active or abandoned waterways, in coastal or estuarine areas, and/or areas of uncompacted or poorly compacted fill." None of these characteristics apply to this site.

We have carried out liquefaction susceptibility assessments in order to identify the risk of ground damage during a seismic event, based on the following items:

- The FNDC online GIS Hazard Map categorises the site as an '*Unlikely*' Liquefaction Vulnerability area,
- Generally, very stiff to hard weathered soils of the Waipapa Group encountered during our investigations,

- DCP-Scala penetrometer testing below the base of the boreholes indicating medium dense to very dense stratum at depth,
- Groundwater was not encountered any of the boreholes or on the retracted DCP-scala road on the day of our investigation, which coincided with intermittent rainfall events, and followed approximately 45mm of rainfall that fell across the two previous days,
- The site is situated on broad, elevated crest feature, set no less than approximately RL190m New Zealand Vertical Datum (NZVD), with good water-shedding characteristics,
- There are no known active faults traversing through or close to the site, and
- Soils and rock of the Waipapa Group underlie the site (geological age +154My).

8.5. LIQUEFACTION ASSESSMENT CONCLUSION

Based on our susceptibility assessment, we conclude that the soils at the site have a negligible risk of liquefaction susceptibility, and therefore liquefaction induced ground damage is consequently unlikely.

9. CONCLUSIONS AND RECOMMENDATIONS

Based on our observations, site survey, record research, borehole investigation and in-situ testing as described herein, we consider on reasonable grounds that this report can be submitted to the Territorial Authority in support of a Resource Consent application for subdividing the subject site, substantiating that in terms of section 106 of the Resource Management Act and its current amendments, either

a) No land in respect of which the consent is sought, nor any structure on that land, is, nor is likely to be subject to material damage by erosion, falling debris, subsidence, or slippage from any source, or

b) No subsequent use that is likely to be made of the land is likely to accelerate, worsen, or result in material damage to that land, other land, or structure, by erosion, falling debris, subsidence, or slippage from any source.

Therefore, we are satisfied that the building site at Future Lot 1 should be generally suitable for future residential construction in terms of NZS3604:2011, provided:

- **The proposed building platform is not positioned any further northwest of the location assessed in this report, and**
- **Once future development proposals have been finalised, they should be referred to us for review prior to submission of a Building Consent application. Any deviation of the future proposal assumptions of this report, being a dwelling supported by a timber subfloor and piles, may require additional Geotechnical investigations and assessments, depending on the magnitude of the proposal.**

9.1 FOUNDATION DESIGN

It is our understanding that the dwelling will be found on a timber subfloor, suspended on bored, concrete encased, tanalised timber pile foundations.

Shallow foundations are considered to be to support the proposed dwelling provided they are designed to accommodate vertical movement of soil associated with Soil Reactivity **Class H – Highly Reactive.**

9.1.1. SHALLOW FOUNDATION BEARING CAPACITY

The following bearing capacity values are considered to be appropriate for the design of shallow foundations, subject to founding directly within competent natural ground, for which careful geo-professional inspections of the subgrade should be undertaken to check that underlying ground conditions are in keeping with our expectations:

Table 5: Bearing Capacity Values

Parameters	Kerikeri Volcanic Group Soils
Geotechnical Ultimate Bearing Capacity	300 kPa
ULS Dependable Bearing Capacity (Φ=0.5)	150 kPa

When finalising the development proposals, it should be checked that all foundations lie outside 45° envelopes rising from 0.50m below the invert of service trenches, unless such foundation details are found by SED to be satisfactory. Deeper foundation embedment or piles may be required for any surcharging foundations.

9.1.2. SHALLOW FOUNDATIONS ON EXPANSIVE SOILS

As described earlier in this report, we have estimated the classification of the soils as follows:

- NZBC B1 Expansive Soil Class H
- Upper Limit of Characteristic surface movement (y_s) 78mm

Given that the soils are not considered to lie within the definition of "*Good Ground*" in accordance with NZS3604:2011, the design of shallow foundations is no longer covered by NZS3604:2011. Care must be taken to mitigate against the potential seasonal shrinkage and swelling effects of expansive foundation soils on both superstructures and floors. We therefore recommend SED should be undertaken by a qualified engineer for the design of all proposed foundations.

All bored footing should be embedded a minimum of 0.90m below finished ground levels and 0.30m into competent natural ground, whichever is deeper.

9.2 NZS1170.5:2004 SITE SUBSOIL CLASSIFICATION

We consider the proposed building site to be underlain with a Class C – Shallow Soil stratigraphy.

9.3 SITE EARTHWORKS

We anticipate further minimal earthworks for the proposed development, essentially associated with bored footing excavations for the proposed dwelling.

All earthworks should be undertaken in accordance with the following standards:

- NZS4431:2022 "Code of Practice for Earth Fill Residential Development",
- Section 2 "Earthworks & Geotechnical Requirements" of NZS4404:2010 "Land Development and Subdivision Infrastructure", and
- The FNDC Engineering Standards (Version 0.6, dated May 2023).

9.4 SITE CLEARANCE & PREPARATION

The competency of the exposed subgrade at the invert of all bored footings should be confirmed by a Geo-Professional. Without such inspections being undertaken, a Chartered Professional Geotechnical Engineer is unable to issue a Producer Statement - PS4 – Design Review which could result in the failure to meet Building Consent requirements as set by Council as conditions of consent.

9.5 SUBGRADE PROTECTION

All bored footing inverts should be poured as soon as possible once inspected by a Geo-Professional or covered with a protective layer of site concrete.

9.6 GENERAL SITE WORKS

We stress that all work should be undertaken in a careful and safe manner so that Health and Safety is not compromised, and that suitable Erosion and Sediment control measures should be put in place. Any stockpiles placed should be done so in an appropriate manner so that land stability and/or adjacent structures are not compromised.

Furthermore:

- All works must be undertaken in accordance with the Health and Safety at Work Act 2015.
- Any open excavations should be fenced off or covered, and/or access restricted as appropriate.
- **Crests above steeply sloping ground should be isolated, and heavy plant should be kept away from these areas.**
- The location of all services should be verified at the site prior to the commencement of construction.
- The Contractor is responsible at all times for ensuring that all necessary precautions are taken to protect all aspects of the works, as well as adjacent properties, buildings and services.
- Should the contractor require any site-specific assistance with safe construction methodologies, please contact WJL for further assistance.

9.7 LONG-TERM FOUNDATION CARE & MAINTENANCE

The recommendations given above to mitigate the risk of expansive soils do not necessarily remove the risk of external influences affecting the moisture in the subgrade supporting the foundations.

All owners should also be aware of the detrimental effects that significant trees can have on building foundation soils, viz:

- Their presence can induce differential consolidation settlements beneath foundations through localised soil water deprivation, or conversely, and
- Foundation construction too soon after their removal can result in soil swelling and raising foundations as the soil rehydrates.

To this end, care should be taken to avoid:

- Having significant trees positioned where their roots could migrate beneath the house foundations, and

- Constructing foundations on soils that have been differentially excessively desiccated by nearby trees, whether still existing, or recently removed.

We recommend that homeowners make themselves familiar with the appended Homeowners' Guide published by CSIRO, with particular emphasis on maintenance of drains, water pipes, gutters, and downpipes.

10. STORMWATER & SURFACE WATER CONTROL

Uncontrolled stormwater flows from new development areas must not be allowed to run onto or over site slopes, or to saturate the ground, so as to adversely affect foundation conditions or slope stability.

All stormwater runoff from any new roof and paved areas should be collected in sealed pipes and be discharged to a Council approved stormwater system.

Under no circumstances should concentrated overflows from any source discharge into or onto the ground in an **uncontrolled fashion, especially the downslope flank below the building site**.

11. ON-SITE WASTEWATER DISPOSAL

No reticulated sanitary sewer is available for the site; therefore, an on-site wastewater treatment and disposal systems will be required to service future developments.

We recommend that all designs for future on-site wastewater systems should be carried out by an Engineer experienced in on-site wastewater disposal.

12. UNDERGROUND SERVICES

Underground services, public or private, mapped, or unmapped, of any type may be present, hence we recommend staying on the side of caution during the commencement of any work within the proposed development area.

13. FUTURE CONSTRUCTION MONITORING

The foregoing statements are Professional Opinion, based on a limited collection of information, some of which is factual, and some of which is inferred. Because soils are not a homogeneous, manufactured building component, there always exists a level of risk that inferences about soil conditions across the greater site, which have been drawn from isolated "pinprick" locations, may be subject to localized variations. Generally, any investigation is deemed less complete until the applicability of its inferences and the Professional Opinions arising out of those are checked and confirmed during the construction phase, to an appropriate level.

It is increasingly common for the Building Consent Authorities (BCA) to require a Producer Statement – Construction (PS4) which is an important document. The purpose of the PS4 is to confirm the Engineers' Professional Opinion to the BCA that specific elements of construction, such as the verification of design assumptions and soil parameters (NZBC clause B1/VM4 2.0.8), are in accordance with the approved Building Consent and its related documents, which should include the subject Geotechnical Report. Where site works will involve the placement of fill, the PS4 should reference NZBC clause B1/VM1 10.1.

For WJL to issue a PS4 to meet the above clauses of the NZBC, we will need to carry out the site inspections in accordance with the Building Consent and Council requirements. We require at least 48 hours' notice for site inspections.

Site inspections should be undertaken by a Chartered Professional Geotechnical Engineer or their Agent who is familiar with both this site and the contents of this geotechnical report.

Prior to works commencement, the above Engineer should be contacted to confirm the construction methodologies, inspection, and testing frequency.

The primary purpose of the site inspections is to check that the conditions encountered are consistent with those expected from the investigations and adopted for the design as discussed herein. If anomalies or uncertainties are identified, then further Professional advice should be sought from the Geo-Professional, which will allow the timely provision of solutions and recommendations should any engineering problems arise.

Upon satisfactory completion of the above work aspects, WJL would then be in a position to issue the PS4 as required by Council.

At this time, the following Geotechnical Site Inspections and Testing should include, but are not limited to:

- Pre-pour bored footing excavations.

14. LIMITATIONS

We anticipate that this report is to be submitted to Council in support of a Resource Consent application.

This report has been commissioned solely for the benefit of our Client, **Letitia Ellison,** in relation to the project as described herein, and to the limits of our engagement, with the exception that the local Territorial Authority may rely on it to the extent of its appropriateness, conditions and limitations, when issuing the subject consent. Any variations from the development proposals as described herein as forming the basis of our appraisal should be referred to us for further evaluation. Copyright of Intellectual Property remains with WJL, and this report may NOT be used by any other entity, or for any other proposals, without our written consent. Therefore, no liability is accepted by this firm or any of its directors, servants, or agents, in respect of any other geotechnical aspects of this site, nor for its use by any other person or entity, and any other person or entity who relies upon any information contained herein does so entirely at their own risk. Where other parties may wish to rely on it, whether for the same or different proposals, this permission may be extended, subject to our satisfactory review of their interpretation of the report.

Although this report may be submitted to a local authority in connection with an application for a consent, permission, approval, or pursuant to any other requirement of law, this disclaimer shall still apply and require all other parties to use due diligence where necessary and does not remove the necessity for the normal inspection of site conditions and the design of foundations as would be made under all normal circumstances.

Thank you for the opportunity to provide our service on this project, and if we can be of further assistance, please do not hesitate to contact us.

Yours faithfully,

WILTON JOUBERT LIMITED

Appendices:

WJL Site Plan & Cross-section (2 sheets)

Hand Auger Borehole Records (3 sheets)

Slope Stability Assessment Outputs (4 sheets)

'*Foundation Maintenance and Footing Performance*' homeowner's guide, published by CSIRO (4 sheets)

WJL's Construction Monitoring Information (1 sheet)

SYMBOL KEY	
HA	HAND AUGER LOCATIONS
A G610 — A' G610	CROSS SECTION LOCATION

GENERAL NOTES

1. SITE PLAN IS ONLY INDICATIVE FOR CONCEPT DESIGN. NO MEASUREMENTS MAY BE TAKEN FROM DRAWING.
2. BACKGROUND INFORMATION, CONTOURS & LOCAL SERVICES PROVIDED BY THE CLIENT & EXTRACTED FROM LOCAL COUNCIL GIS.
3. ALL DIMENSION AND LEVELS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
4. ALL WORK TO BE DONE IN ACCORDANCE WITH THE RELEVANT STANDARDS AND MUST BE UNDERTAKEN IN ACCORDANCE WITH THE HEALTH AND SAFETY AT WORK ACT 2015.

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ISSUE / REVISION

No.	DATE	BY	DESCRIPTION
A	NOV 2025	A.B	ISSUED WITH GEOTECHNICAL REPORT

DESIGNED BY:
DRAWN BY: A.B
CHECKED BY:
SURVEYED BY:

SERVICES NOTE

WHERE EXISTING SERVICES ARE SHOWN, THEY ARE INDICATIVE ONLY AND MAY NOT INCLUDE ALL SITE SERVICES. WILTON JOUBERT LTD DOES NOT WARRANT THAT ALL, OR INDEED ANY SERVICES ARE SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PROTECT ALL EXISTING SERVICES PRIOR TO AND FOR THE DURATION OF THE CONTRACT WORKS.

GEOTECHNICAL

DESIGN / DRAWING SUBJECT TO ENGINEER'S APPROVAL

DRAWING TITLE: **SITE PLAN**

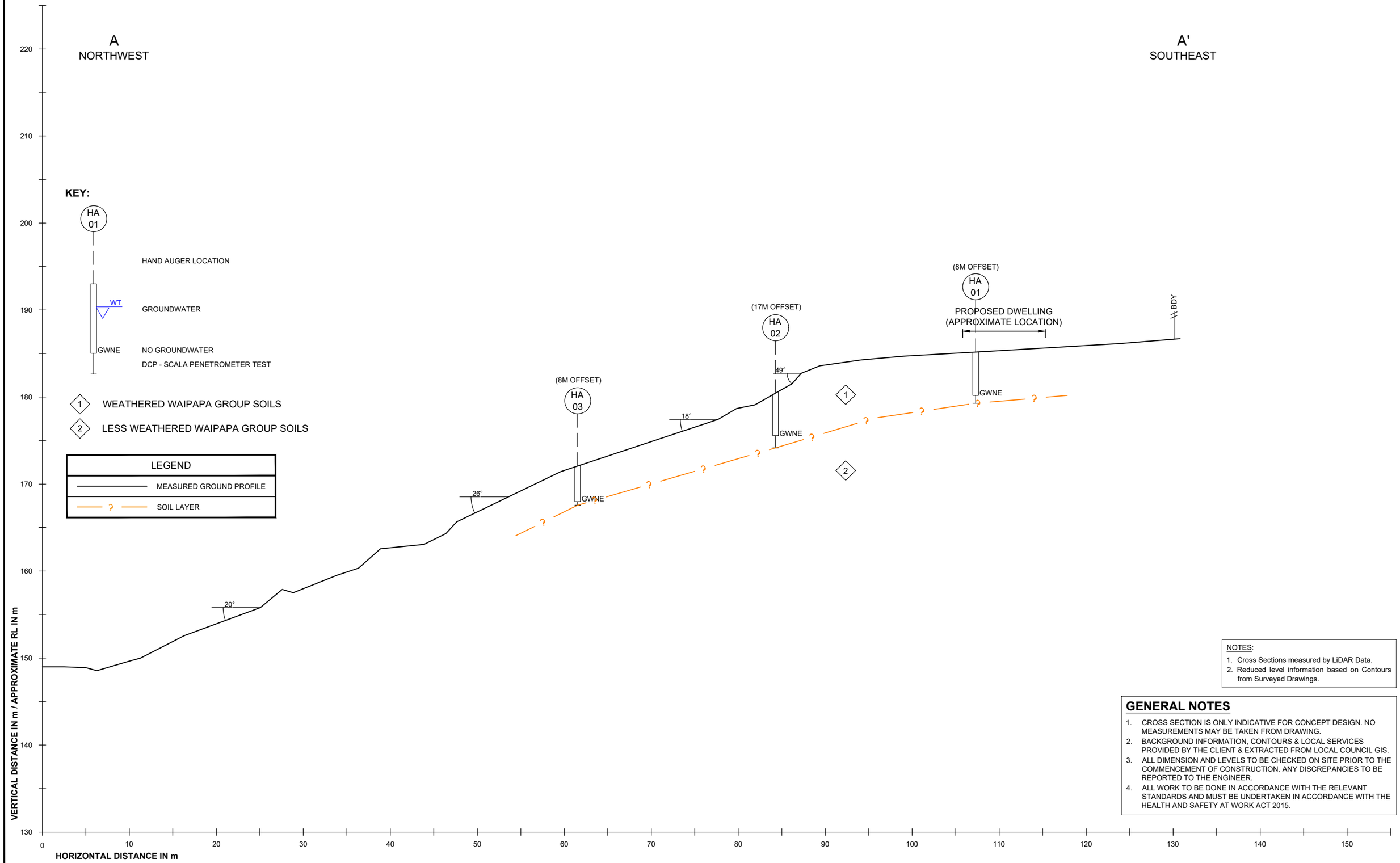
PROJECT DESCRIPTION: **PROPOSED DWELLING**

PROJECT TITLE: **LOT 2 DP 432775
62 MCDONALD ROAD
KAWAKAWA
NORTHLAND**

ORIGINAL DRAWING SIZE:	OFFICE:
A3	WHANGAREI
DRAWING SCALE: 1:500	CO-ORDINATE SYSTEM: NOT COORDINATED
DRAWING NUMBER: 143415-G600	ISSUE: A

A
NORTHWEST

A'
SOUTHEAST



NOTES:
1. Cross Sections measured by LiDAR Data.
2. Reduced level information based on Contours from Surveyed Drawings.

GENERAL NOTES

1. CROSS SECTION IS ONLY INDICATIVE FOR CONCEPT DESIGN. NO MEASUREMENTS MAY BE TAKEN FROM DRAWING.
2. BACKGROUND INFORMATION, CONTOURS & LOCAL SERVICES PROVIDED BY THE CLIENT & EXTRACTED FROM LOCAL COUNCIL GIS.
3. ALL DIMENSION AND LEVELS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
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ISSUE / REVISION

No.	DATE	BY	DESCRIPTION
A	NOV 2025	A.B	ISSUED WITH GEOTECHNICAL REPORT

DESIGNED BY:
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GEOTECHNICAL
DESIGN / DRAWING SUBJECT TO ENGINEER'S APPROVAL

DRAWING TITLE:
CROSS SECTION

PROJECT DESCRIPTION:
PROPOSED DWELLING

PROJECT TITLE:
LOT 2 DP 432775
62 MCDONALD ROAD
KAWAKAWA
NORTHLAND

ORIGINAL DRAWING SIZE:	OFFICE:
A3	WHANGAREI
DRAWING SCALE:	CO-ORDINATE SYSTEM:
1:400	NOT COORDINATED
DRAWING NUMBER:	ISSUE:
143415-G610	A

HAND AUGER : HA01

JOB NO.: 143415 **SHEET:** 1 OF 1

START DATE: 10/11/2025 **NORTHING:** **GRID:**

CLIENT: Letita Ellison **DIAMETER:** 50mm **EASTING:**

PROJECT: 2-Lot Subdivision & New Dwelling **SV DIAL:** DR4802 **ELEVATION:** Ground

SITE LOCATION: 62 McDonald Road, Kawakawa **FACTOR:** 1.39 **DATUM:**

TOPSOIL | CLAY | SAND | PEAT | FILL | SILT | GRAVEL | ROCK

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE: PEAK STRENGTH (kPa)	SHEAR VANE: REMOULD STRENGTH (kPa)	SHEAR VANE: SENSITIVITY	DCP - SCALA (Blows / 100mm)	COMMENTS, SAMPLES, OTHER TESTS
FILL	NON-ENGINEERED FILL: Clayey SILT intermixed with TOPSOIL, brown, dark brown and yellow, firm to stiff, moist, low to moderate plasticity.		0.2	Groundwater Not Encountered					
Waipapa Group	NATURAL: Clayey SILT, yellow with occasional light orange streaks, very stiff, moist, low to moderate plasticity.		0.4		161	33	4.9		
	SILT, some clay, pale yellow with occasional light grey and light orange mottles, very stiff, moist, low plasticity.		0.6						
			0.8		156	36	4.3		
	Clayey SILT, yellow with occasional light grey and light orange mottles, very stiff, moist, low to moderate plasticity.		1.0						
			1.2		195+	-	-		
	1.5m: Becoming whitish grey with yellow mottles, low plasticity.		1.4						
			1.6		195+	-	-		
			1.8						
	2.0m: 100mm lense of bluish grey with white mottles.		2.0		UTP	-	-		
			2.2						
			2.4		195+	-	-		
			2.6						
	2.8m: 100mm lense of bluish grey with white mottles.		2.8		195+	-	-		
	SILT, minor clay, bluish grey with orange and white mottles, very stiff, moist, no to low plasticity.		3.0						
			3.2		195+	-	-		
	Clayey SILT, light yellow, very stiff, moist, low to moderate plasticity.		3.4						
	3.4m: Becoming whitish grey with light yellow mottles.								
	3.5m: 50mm lense of bluish grey with white mottles.		3.6						
	3.6m: Occasional light yellow mottles.				128	56	2.3		
			3.8						
	3.9m: 100mm lense of bluish grey with white mottles.		4.0		195+	-	-		
			4.2						
	4.2m: 150mm lense of bluish grey with white mottles.		4.4						
			4.6		195+	-	-		
	SILT, some clay, bluish grey with white mottles, very stiff, moist, low plasticity.		4.8						
			5.0						
	EOH: 5.00m - Target Depth				195+	-	-	7	
			5.2					8	
								10	
			5.4					15	
								15	
			5.6					15	
								15	
			5.8					15	
								20	
			6.0						
			6.2						
			6.4						

REMARKS

End of borehole @ 5.00m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP

CHECKED BY: CSH

▼ Standing groundwater level

▽ GW while drilling

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HAND AUGER : HA02

JOB NO.: 143415 **SHEET:** 1 OF 1

START DATE: 10/11/2025 **NORTHING:** **GRID:**

CLIENT: Letita Ellison **DIAMETER:** 50mm **EASTING:**

PROJECT: 2-Lot Subdivision & New Dwelling **SV DIAL:** 1994 **ELEVATION:** Ground

SITE LOCATION: 62 McDonald Road, Kawakawa **FACTOR:** 1.41 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE PEAK STRENGTH (kPa)	SHEAR VANE REMOULD STRENGTH (kPa)	SHEAR VANE SENSITIVITY	DCP - SCALA (Blows / 100mm)	COMMENTS, SAMPLES, OTHER TESTS
Topsoil	TOPSOIL, dark brown, dry.	TS	0.0	Groundwater Not Encountered					
Waipapa Group	NATURAL: Clayey SILT, yellowish brown, very stiff, dry, low plasticity.		0.2						
			0.4		197+	-	-		
			0.6						
	0.8m: Becoming white and yellow, dry to moist.		0.8		197+	-	-		
	1.0m: Occasional weakly cemented clasts, becoming grey with yellow mottles and occasional red streaks.		1.0						
			1.2		197+	-	-		
			1.4						
			1.6		197+	-	-		
			1.8						
			2.0		197+	-	-		
			2.2						
			2.4		197+	-	-		
			2.6						
			2.8		197+	-	-		
			3.0						
			3.2		197+	-	-		
	3.3m: Becoming moist, moderate plasticity.		3.4						
	3.4m: Frequent red streaks.		3.6		169	87	1.9		
			3.8						
			4.0		130	65	2.0		
			4.2						
			4.4		155	65	2.4		
			4.6						
			4.8		152	68	2.2		
	EOH: 5.00m - Target Depth		5.0					3	
			5.2					5	
			5.4					6	
			5.6					6	
			5.8					6	
			6.0					9	
			6.2					9	
			6.4					9	
								9	
								11	
								11	
								11	
								15	
								20	

REMARKS

End of borehole @ 5.00m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: JEM

CHECKED BY: CSH

▼ Standing groundwater level

▽ GW while drilling

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HAND AUGER : HA03

JOB NO.: 143415 **SHEET:** 1 OF 1

START DATE: 10/11/2025 **NORTHING:** **GRID:**

CLIENT: Letita Ellison **DIAMETER:** 50mm **EASTING:**

PROJECT: 2-Lot Subdivision & New Dwelling **SV DIAL:** DR4802 **ELEVATION:** Ground

SITE LOCATION: 62 McDonald Road, Kawakawa **FACTOR:** 1.39 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE PEAK STRENGTH (kPa)	SHEAR VANE REMOULD STRENGTH (kPa)	SHEAR VANE SENSITIVITY	DCP - SCALA (Blows / 100mm)	COMMENTS, SAMPLES, OTHER TESTS
Top soil	TOPSOIL, dark brown, moist.	TS	0.0	Groundwater Not Encountered					
Colluvium	COLLUVIUM: Clayey SILT intermixed with TOPSOIL, yellow with dark brown mottles, stiff, moist, low to moderate plasticity.		0.2						
			0.4		153	25	6.1		
	NATURAL: Clayey SILT, yellow, very stiff, moist, low to moderate plasticity.		0.6						
	SILT, some clay, yellow with reddish brown mottles, very stiff, moist, low plasticity.		0.8		195+	-	-		
			1.0						
			1.2		111	17	6.5		
	SILT, minor clay, yellow, reddish brown and white, very stiff, moist, no to low plasticity.		1.4						
	1.6m: Occasional weakly cemented clasts, becoming stiff.		1.6		67	8	8.4		
			1.8						
	2.0m: Becoming conglomerate colouring of whitish grey, pink, reddish brown and brown, occasional brown and dark brown weakly cemented clast seams, low plasticity.		2.0		92	31	3.0		
			2.2						
Waipapa Group			2.4		95	36	2.6		
			2.6						
	2.8m: Becoming very stiff.		2.8		195+	-	-		
			3.0						
			3.2		195+	-	-		
			3.4						
			3.6		195+	-	-		
	3.7m: 100mm lense of Gravelly SILT, yellow, very stiff to hard, wet, no plasticity.		3.8						
			4.0		195+	-	-		
			4.2		UTP	-	-	8	
	EOH: 4.20m - Too Hard To Auger		4.4					10	
			4.6					18	
			4.8					20	
			5.0						
			5.2						
			5.4						
			5.6						
			5.8						
			6.0						
			6.2						
			6.4						

SOIL DESCRIPTION: TOPSOIL, CLAY, SAND, PEAT, FILL, SILT, GRAVEL, ROCK

REMARKS

End of borehole @ 4.20m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP

CHECKED BY: CSH

▼ Standing groundwater level

▽ GW while drilling

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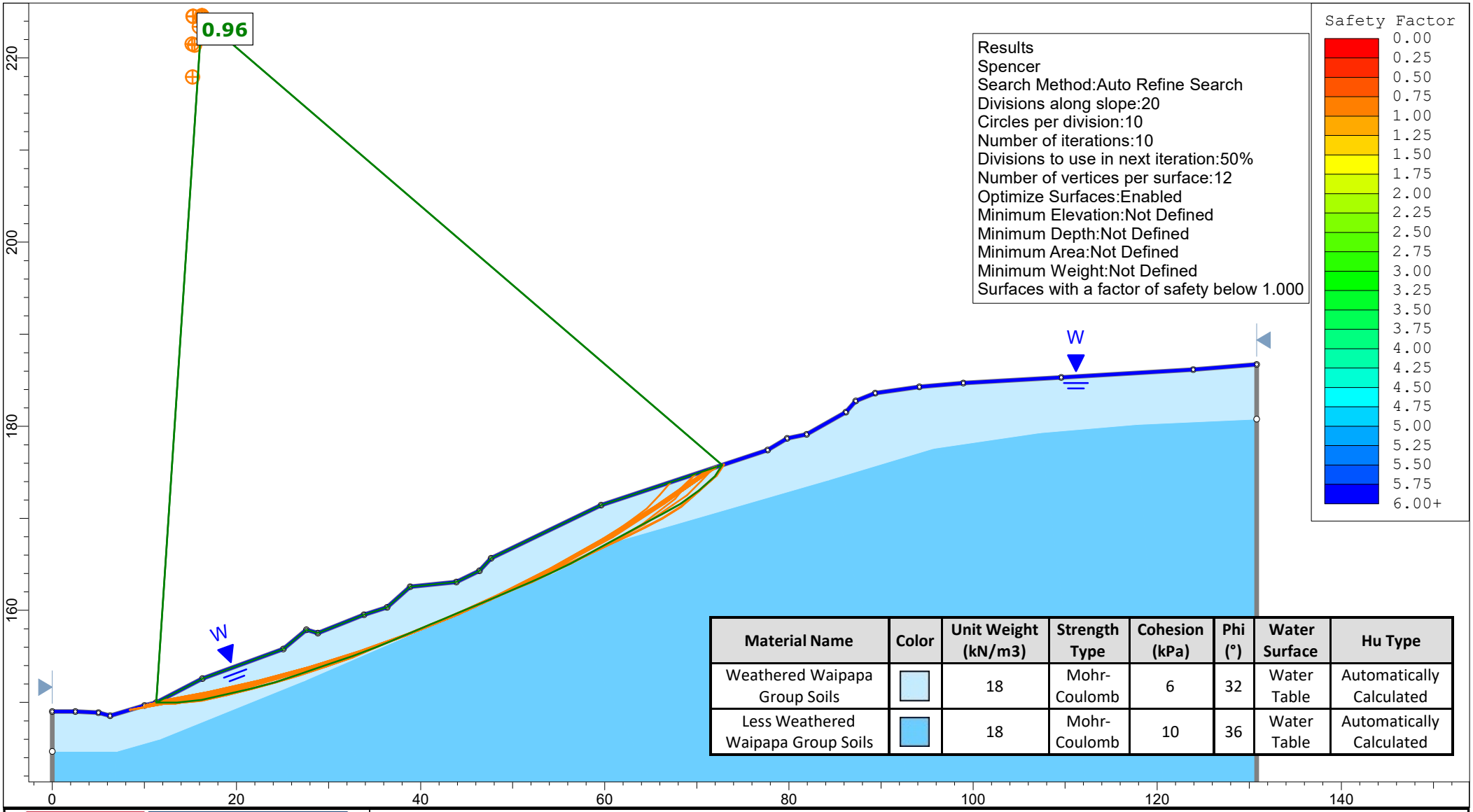


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type
Weathered Waipapa Group Soils		18	Mohr-Coulomb	6	32	Water Table	Automatically Calculated
Less Weathered Waipapa Group Soils		18	Mohr-Coulomb	10	36	Water Table	Automatically Calculated

WILTON JOUBERT
Consulting Engineers

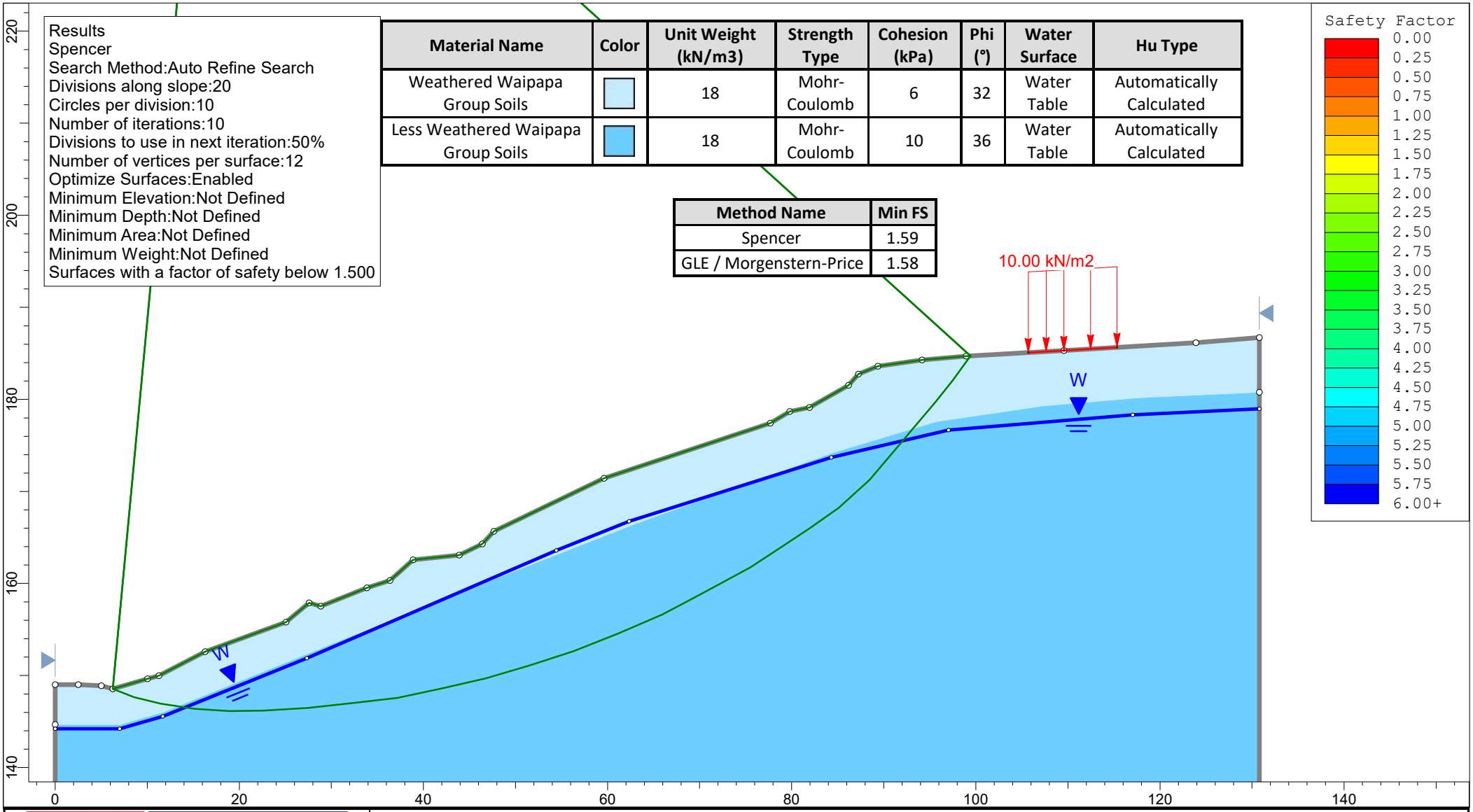
SLIDEINTERPRET 9.040

Project	143415 - 62 McDonald Road, Kawakawa		
Group	Cross Section A-A' - Post - Development	Scenario	Surficial Groundwater Level
Drawn By	A.B	Company	Wilton Joubert Limited
Date	14/11/2025	File Name	143415 - Back Analysis.slmd

Results
Spencer
Search Method:Auto Refine Search
Divisions along slope:20
Circles per division:10
Number of iterations:10
Divisions to use in next iteration:50%
Number of vertices per surface:12
Optimize Surfaces:Enabled
Minimum Elevation:Not Defined
Minimum Depth:Not Defined
Minimum Area:Not Defined
Minimum Weight:Not Defined
Surfaces with a factor of safety below 1.500

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type
Weathered Waipapa Group Soils		18	Mohr-Coulomb	6	32	Water Table	Automatically Calculated
Less Weathered Waipapa Group Soils		18	Mohr-Coulomb	10	36	Water Table	Automatically Calculated

Method Name	Min FS
Spencer	1.59
GLE / Morgenstern-Price	1.58



WILTON JOUBERT
Consulting Engineers

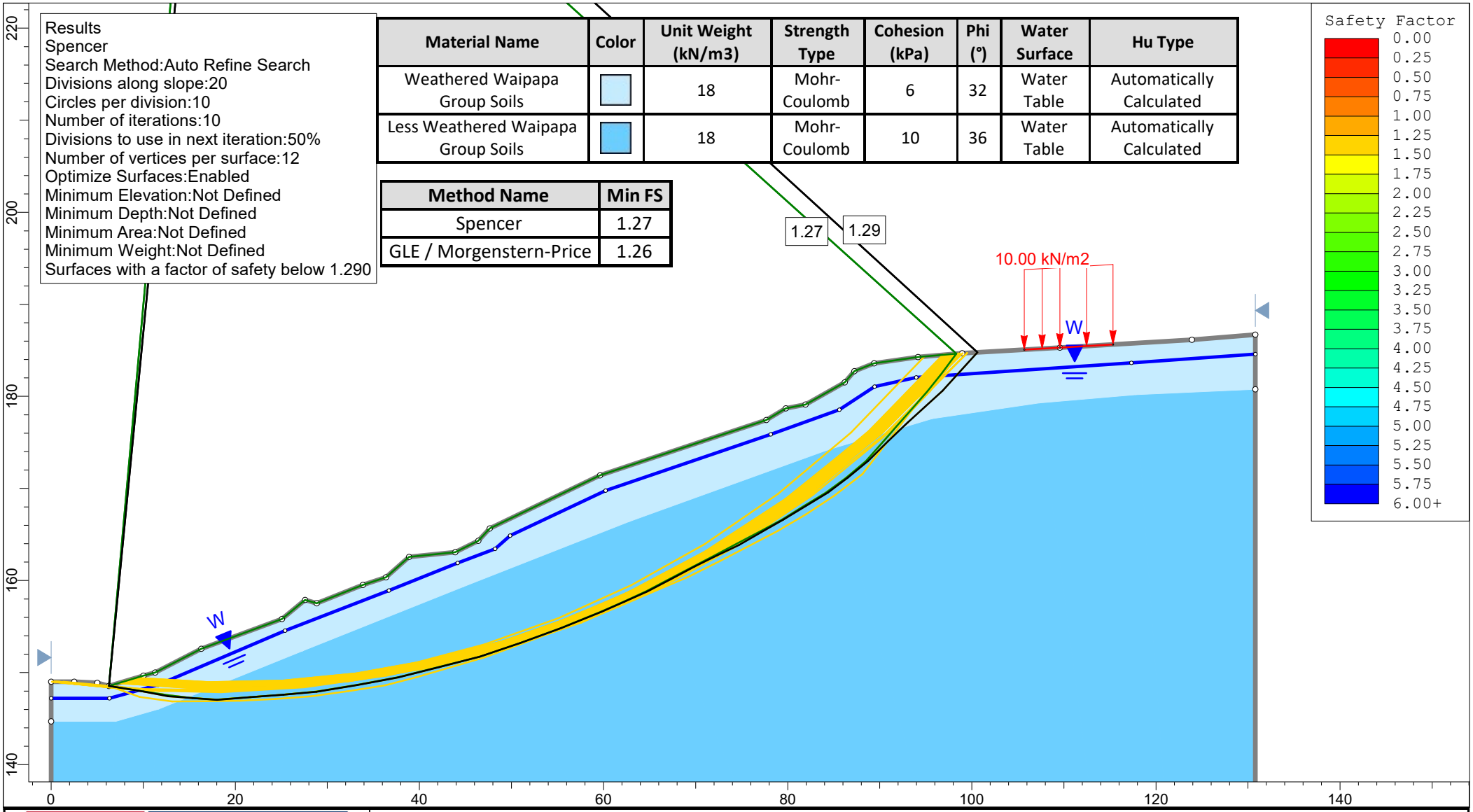
SLIDEINTERPRET 9.040

Project	143415 - 62 McDonald Road, Kawakawa		
Group	Cross Section A-A' - Post - Development	Scenario	Moderate Groundwater Level
Drawn By	A.B	Company	Wilton Joubert Limited
Date	14/11/2025	File Name	Slide Tamplate - Drained Materials.slmd

Results
Spencer
Search Method:Auto Refine Search
Divisions along slope:20
Circles per division:10
Number of iterations:10
Divisions to use in next iteration:50%
Number of vertices per surface:12
Optimize Surfaces:Enabled
Minimum Elevation:Not Defined
Minimum Depth:Not Defined
Minimum Area:Not Defined
Minimum Weight:Not Defined
Surfaces with a factor of safety below 1.290

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type
Weathered Waipapa Group Soils		18	Mohr-Coulomb	6	32	Water Table	Automatically Calculated
Less Weathered Waipapa Group Soils		18	Mohr-Coulomb	10	36	Water Table	Automatically Calculated

Method Name	Min FS
Spencer	1.27
GLE / Morgenstern-Price	1.26



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Consulting Engineers

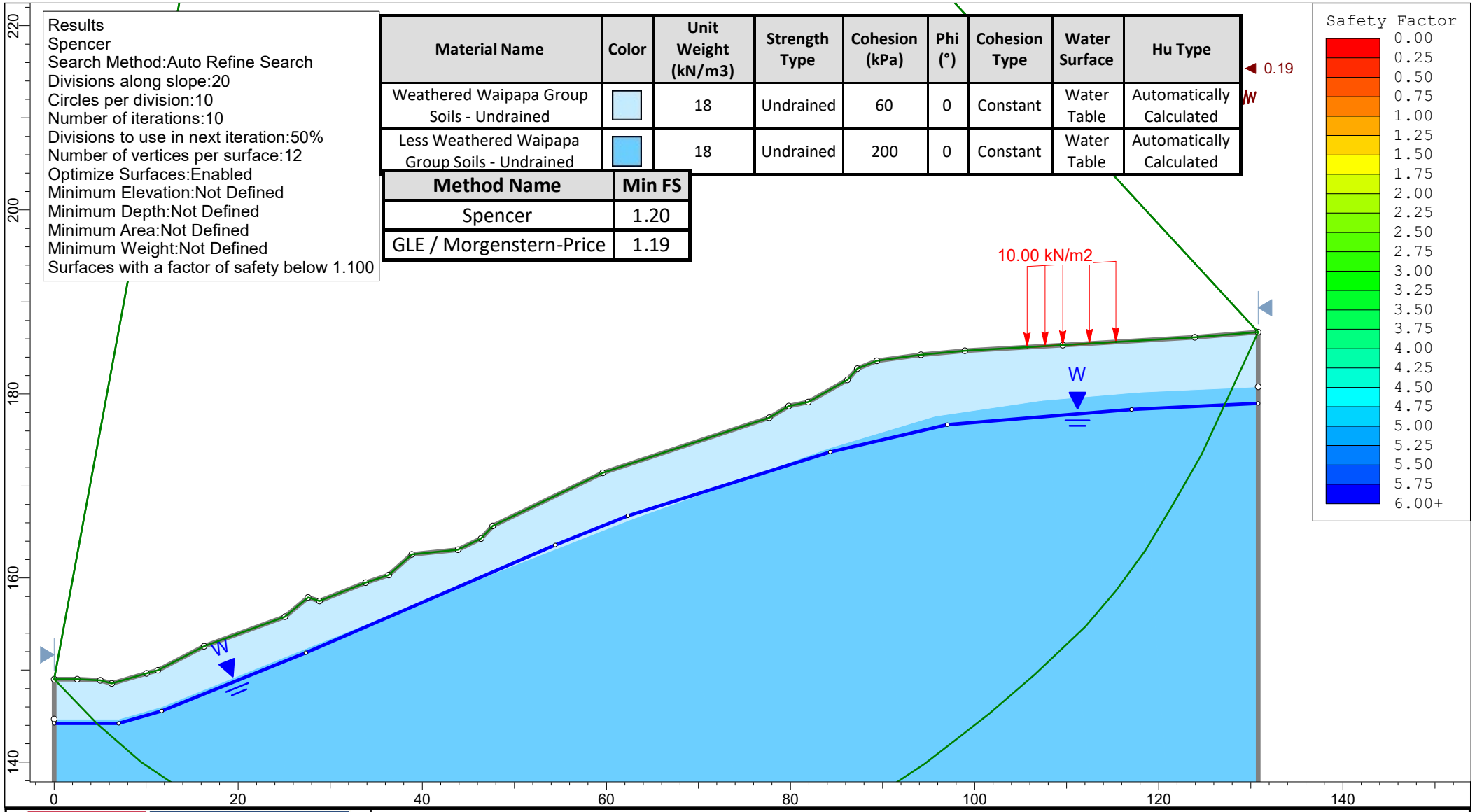
SLIDEINTERPRET 9.040

Project	143415 - 62 McDonald Road, Kawakawa		
Group	Cross Section A-A' - Post - Development	Scenario	Elevated Groundwater Level
Drawn By	A.B	Company	Wilton Joubert Limited
Date	14/11/2025	File Name	Slide Tamplate - Drained Materials.slmd

Results
Spencer
Search Method:Auto Refine Search
Divisions along slope:20
Circles per division:10
Number of iterations:10
Divisions to use in next iteration:50%
Number of vertices per surface:12
Optimize Surfaces:Enabled
Minimum Elevation:Not Defined
Minimum Depth:Not Defined
Minimum Area:Not Defined
Minimum Weight:Not Defined
Surfaces with a factor of safety below 1.100

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Cohesion Type	Water Surface	Hu Type
Weathered Waipapa Group Soils - Undrained		18	Undrained	60	0	Constant	Water Table	Automatically Calculated
Less Weathered Waipapa Group Soils - Undrained		18	Undrained	200	0	Constant	Water Table	Automatically Calculated

Method Name	Min FS
Spencer	1.20
GLE / Morgenstern-Price	1.19



WILTON JOUBERT
Consulting Engineers

SLIDEINTERPRET 9.040

Project	143415 - 62 McDonald Road, Kawakawa		
Group	Cross Section A-A' - Post - Development	Scenario	Moderate Groundwater Level - Seismic
Drawn By	A.B	Company	Wilton Joubert Limited
Date	14/11/2025	File Name	Slide Tamplate - Drained Materials.slmd

FOUNDATION MAINTENANCE AND FOOTING PERFORMANCE

Preventing soil-related building movement

This Building Technology Resource is designed as a homeowner's guide on the causes of soil-related building movement, and suggested methods to prevent resultant cracking.

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the home owner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement. Generally soil classification is provided by a geotechnical report.

SOIL TYPES

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. Table 1 below is a reproduction of Table 2.1 from Australian Standard AS 2870-2011, Residential slabs and footings.

CAUSES OF MOVEMENT

SETTLEMENT DUE TO CONSTRUCTION

There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction but has been known to take many years in exceptional cases.

These problems may be the province of the builder and should be taken into consideration as part of the preparation of the site for construction.

EROSION

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

SATURATION

This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume, particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

SEASONAL SWELLING AND SHRINKAGE OF SOIL

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below, from AS 2870). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

SHEAR FAILURE

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.

In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

TREE ROOT GROWTH

Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.

TABLE 1. GENERAL DEFINITIONS OF SITE CLASSES.

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes

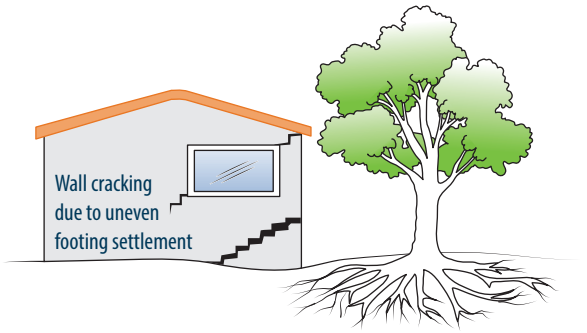


FIGURE 1 Trees can cause shrinkage and damage.

- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

UNEVENNESS OF MOVEMENT

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior through absorption. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Shrinkage usually begins on the side of the building where the sun's heat is greatest.

EFFECTS OF UNEVEN SOIL MOVEMENT ON STRUCTURES

EROSION AND SATURATION

Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpends).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

SEASONAL SWELLING/SHRINKAGE IN CLAY

Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated, and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry, and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

MOVEMENT CAUSED BY TREE ROOTS

In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

COMPLICATIONS CAUSED BY THE STRUCTURE ITSELF

Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

EFFECTS ON FULL MASONRY STRUCTURES

Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also

exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

EFFECTS ON FRAMED STRUCTURES

Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation causes a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

EFFECTS ON BRICK VENEER STRUCTURES

Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

WATER SERVICE AND DRAINAGE

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem. Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.
- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

SERIOUSNESS OF CRACKING

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. Table 2 below is a reproduction of Table C1 of AS 2870-2011.

AS 2870-2011 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

PREVENTION AND CURE

PLUMBING

Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

GROUND DRAINAGE

In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject may be regarded as an area for an expert consultant.

PROTECTION OF THE BUILDING PERIMETER

It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving should extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill.

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

CONDENSATION

In buildings with a subfloor void, such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

TABLE 2. CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS.

Description of typical damage and required repair	Approximate crack width limit	Damage category
Hairline cracks	<0.1 mm	0 – Negligible
Fine cracks which do not need repair	<1 mm	1 – Very Slight
Cracks noticeable but easily filled. Doors and windows stick slightly.	<5 mm	2 – Slight
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired.	5–15 mm (or a number of cracks 3 mm or more in one group)	3 – Moderate
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted.	15–25 mm but also depends on number of cracks	4 – Severe

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Warning: Although this Building Technology Resource deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders, and mould.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

THE GARDEN

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

EXISTING TREES

Existing trees may cause problems with the upheaval of footings by their roots, or shrinkage from soil drying. If the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. Soil drying is a more complex issue and professional advice may be required before considering the removal or relocation of the tree.

INFORMATION ON TREES, PLANTS AND SHRUBS

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information.

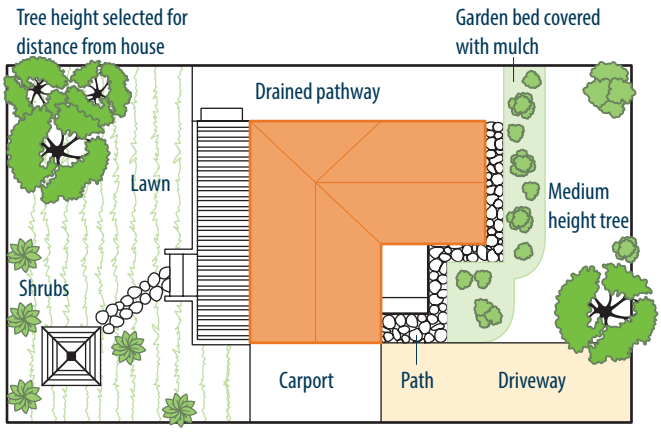

FIGURE 2 Gardens for a reactive site.

EXCAVATION

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

REMEDIATION

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the home owner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

WILTON JOUBERT
Consulting Engineers

Construction Monitoring Services

Northland, Auckland-Waikato, Canterbury, Southern Lakes

Need a PS4?

- Please read the conditions of your Building Consent to determine which section of the works Council wants an engineer to sign off on.
- Book an inspection with Wilton Joubert Ltd or with a suitable qualified engineer.
- Have the Consent documents on site at the time of the inspection
- Be sure to verify both the grounding conditions (soil parameters) as well as the structural elements of works in question
- If in doubt what to get inspected please clarify with Council.

Producer Statements 4 - Construction Review Documents (PS4's) relates to Building Consents (BC) only, not Resource Consents (RC), unless there is an element of the RC which requires a BC, e.g. a retaining wall needed to develop a subdivision.
In soils, RC's are usually verified with a "Statement of Professional Opinion as to Suitability for Building Development", or variations on that title.

CONSTRUCTION MONITORING SERVICES

Construction monitoring refers to the physical inspection of selective components of the design or works as required by Council and as specified in the Consented documents. It is up to the Consent holder to read the special conditions set out by Council and arrange for the required inspections to be done. No PS4 can be issued without the physical inspection of works and sighting of Consented plans either by the design engineer, his representative, or another qualified engineer. (download PDF with more info via our website)

It is also important to note that, more often than not, there are two physical components that needs verification:

1. Geotechnical or grounding Conditions –referring to the strength or bearing capacity of the soil
2. Structural Components – verify that works are done as per design and in accordance with the consented plans.

To complicate matters there can be multiple engineers that might be engaged on the same site:

- Civil Engineer – To do storm water and wastewater designs
- Geotechnical Engineer – to do a Geotech report and specificity soil parameters as required
- Structural Engineer – to design structural components such as retaining walls, raft floors, beams and so on.

In cases where engineers from different companies are appointed it is important to make sure all the required boxes are ticked as not to complicate matters when it comes to the issuing of all the relevant PS4's.
Note: sites in the Auckland area might requires multiple PS4's for the same component (e.g. a raft floor requires a Geotechnical Engineer to verify the bearing capacity of the platform and a Structural engineer needs to verify the structural components are according to the design.
Not to mention a Council inspection is also required on the same floor to verify position, plumbing and so on.

In Summary:

- Read the conditions as laid out in the Consent documents to which elements of the design requires a PS4's from the design engineer.
- Have Consented plans on site during inspection time
- Book inspections ahead of time (a minimum of 48 hours in advanced)
- Ensure both grounding conditions as well as structural components are inspected. In some cases, this might mean two separate inspections if different engineers are involved.
- If you have any further questions, feel free to contact us at any time during business hours.

Construction Monitoring Enquiries
Email: *jobs@wjl.co.nz*
or scan QR code to visit our website