THOMSON SURVEY LIMITED

SURVEYORS AND RESOURCE PLANNERS

Our Reference: 10675.1 (FNDC)

14 April 2025

Resource Consents Department
Far North District Council
JB Centre
KERIKERI

Dear Sir/Madam

RE: Proposed Subdivision at Takahue Saddle Road, Broadwood – Sigley Forests Limited

I am pleased to submit application on behalf of Sigley Forests Limited, for a proposed subdivision of land at Takahue Saddle Road, Broadwood, zoned Rural Production. The application is a restricted discretionary activity.

The application fee of $2,967 has been paid separately via direct credit.

Regards

Lynley Newport
Senior Planner
THOMSON SURVEY LTD

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After Hours: Office Manager: Sam Lee 021 1370060

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 Schedule 4). 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 Consent 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: Sigley Forests Limited

Email: [redacted]

Phone number: [redacted]

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

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: [redacted]

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

**** 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: as per Item 5

Property Address/ Location:

Postcode

8. Application Site Details

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

Name/s:	as per item 5 Sc -
Site Address/ Location:	Takahue Saddle Road BROADWOOD Postcode
Legal Description:	Section 58-59 Blk II Whangape SD **Val Number:**
Certificate of title:	NA947/241

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.

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 of land zoned Rural Production, with small portion of Outstanding Landscape, to create two additional lots (3 lots in total).

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**

13. Draft Conditions:

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

If yes, do you agree to extend the processing timeframe pursuant to Section 37 of the Resource Management Act by 5 working days? ✔ **Yes** ◯ **No**

14. 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) H. Sigley

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.

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) Hamish Albert Allin Sigley

Signature: (signature of bill payer) [redacted] Date 11/4/25

MANDATORY

15. 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.

15. Important information continued...

Declaration

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

Name: (please write in full) Hamish Albert Allin Sykes

Signature: [redacted] Date 11/9/25

A signature is not required if application made by electronic means

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.

Sigley Forests Ltd

Far North District Plan

PROPOSED SUBDIVISION

Takahue Saddle Road, Broadwood

PLANNING REPORT AND ASSESSMENT OF ENVIRONMENTAL EFFECTS

Thomson Survey Ltd
Kerikeri

1.0 INTRODUCTION

1.1 The Proposal

The applicants propose to carry out a subdivision of their land at Takahue Saddle Road, Broadwood. The proposal is to create two small rural lots and large rural balance Lot 3. Lot 1 is proposed to be 6020m², Lot 2 is proposed to be 7798m², and large balance Lot 3 is proposed to be 67.4795ha in area. The proposal includes formalising existing formed access into Lot 3 across Sections 12 & 13 Village of Mamari, also owned by the applicant.

A copy of the scheme plan(s) is attached in Appendix 1.

1.2 Scope of this Report

This assessment and report accompanies the Resource Consent Application and is provided in accordance with Section 88 and Schedule 4 of the Resource Management Act 1991. The application seeks consent under the District Plan for a restricted discretionary activity subdivision. The name and address of the owner of the property is contained in the Form 9 Application form.

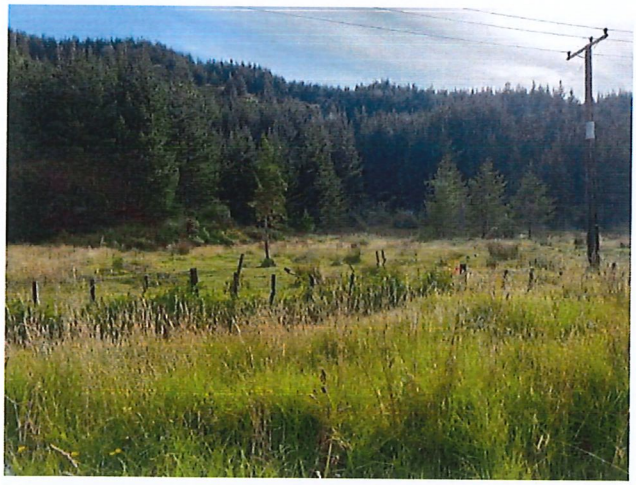
2.0 PROPERTY DETAILS

Location:	Takahue Saddle Road, Broadwood – refer to Location Map in Appendix 2.
Legal description:	Sections 58 & 59 Blk II Whangape SD; easement over Sections 12 & 13 Village of Mamari
Record of Title:	NA947/241 (Sections 58 & 59); and NA438/60 (Sectons 12-14 Village of Mamari. Refer to Appendix 3 for copies of titles.

3.0 SITE DESCRIPTION

3.1 Physical Site Characteristics

The site is in well-established pine trees/ bush across a predominant portion, with some areas of pasture. There are existing buildings located on land to be in the large balance lot. The site is considered moderately to steeply sloping, with the location of the proposed new lots generally the flattest areas on the entire site. The site is bounded by Takahue Saddle Road along the south-western boundary, with rural lots in all other directions.



Looking into the area that will accommodate the additional lots, from Takahue Saddle Road. Photo taken looking due east

Looking over potential house site on Lot 2, looking northwest from inside the site.

Whilst mostly in pine, there is an area of indigenous vegetation on the top most north eastern area, coincidentally mapped as an area having Outstanding Natural Landscape values in the Regional Policy Statement for Northland and in the Proposed District Plan. There is a double stand transformer/power pole structure within road reserve (seen slightly behind tree in above picture), and three wire low voltage power lines running parallel to the road.

There is an existing farm crossing into the area of Lots 1 & 2. The large balance Lot 3 is accessed further south, via an existing well formed crossing. The site is not connected to any Council reticulated wastewater, water or stormwater system.

3.2 Mapped Site Characteristics

The property is zoned Rural Production in the Operative District Plan, with partial Outstanding Landscape notation covering the north eastern portion of the title. The property is proposed to be zoned Rural Production in the Proposed District Plan, with a much smaller area in the north eastern corner, mapped as Outstanding Natural Landscape. The proposed Lots 1 & 2 are well outside any area mapped as having landscape values.

The Proposed District Plan has erroneously zoned the northern half of the fee simple freehold title Natural Open Space. Not only does this split a title with different zoning, it also imposes a zone intended to apply to public land, to private fee simple title. I have written to the Council requesting this error be acknowledged and that it be corrected at the earliest opportunity. At time of writing this report, no response had been received from the Council.

The Land Use Capability classifications (soil class) vary across the site with some LUC 4, some LUC 6 and a small amount of LUC 7 in the north eastern corner [*source: FNDC online land cover map*].

The site is not shown/listed as a HAIL site or Selected Land Use *[source: FNDC online HAIL sites map and NRC online SLU map]*. The site does not contain any mapped or scheduled historic sites, notable trees, archaeological sites or Sites of Significance to Maori *[source: FNDC online Historic sites map]*.

The site contains a 'finger' of the vast "Maungataniwha Forest" PNA (O05 009), roughly equating to the Outstanding Landscape mapped area, however it should be noted that both the Regional Policy Statement for Northland and Proposed District Plan substantially reduce the area mapped as Outstanding Landscape, reflecting the current situation on the ground.

The site has no areas set aside for Conservation but has a boundary with land zoned Conservation. The site does not contain any biodiversity wetlands *[source: NRC online maps]*. The site is mapped as being within a 'kiwi present' area *[source: FNDC online maps]*.

The site is not mapped as being subject to any flood hazard *[source: FNDC's PDP maps]*.

3.3 Legal Interests

The property is subject to a Climate Change Response Act notice, providing for the establishment and harvesting of plantation forestry.

3.4 Consent History

The property file showed no consent history.

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 & 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:	Refer to Section 3 of this Planning Report. The application is for subdivision only and there are no other activities that are part of the proposal.
(e) a description of any other resource consents required for the proposal to which the application relates:	Consent is only being sought for subdivision, pursuant to the Far North Operative District Plan.
(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 & 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)):	I am not aware of permitted activity being part of this proposal. Any built environment is within the large balance lot and well away from boundaries.
(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.

Clause 4: Additional information required in application for subdivision consent

(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:*	Refer to Scheme Plans in Appendix 1.

(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.*	

Clause 5: Additional information required for application for reclamation – not applicable.

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 are 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 effects does not warrant any.
(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 & 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 activity is a restricted discretionary activity and visual effects are not a matter to which the Council restricts its discretion. The site has a small area of outstanding landscape within the large balance allotment and this is not adversely affected by the proposed subdivision.
(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:	Refer to Section 6.
(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.
(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 natural hazards and does not involve hazardous installations.

5.0 ACTIVITY STATUS

5.1 Operative District Plan

The property is zoned Rural Production with an Outstanding Landscape overlay on a part of the property (refer to Scheme Plan in Appendix 1). The subdivision standards applying in the zones are contained in Table 13.7.2.1 as shown below.

TABLE 13.7.2.1: MINIMUM LOT SIZES
(viii) 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. Subdivision that complies with the controlled activity standard, but is within 100m of the boundary of the Minerals Zone; 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 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; 5.....	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 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. ....

The Title is dated 1949. This application seeks to create three lots, the smaller lots having areas in excess of 4,000m² but less than 2ha, and the large balance lot being greater than 4ha in area. This makes the application a restricted discretionary application utilising Option 3 in the above RD options.

(xix) OUTSTANDING LANDSCAPE, OUTSTANDING LANDSCAPE FEATURES AND OUTSTANDING NATURAL FEATURES

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 except in the General Coastal Zone.	1. The minimum lot size is 20ha in the General Coastal Zone.	1. For the Rural Production, General Coastal and Coastal Living Zones subdivision via a management plan as per Rule 13.9.2;....

Lot 3, containing Outstanding Landscape, is 67.5ha in area. The subdivision therefore remains restricted discretionary activity status under the ODP.

Zone Rules

I have not identified any zone rule breaches resulting from the proposed subdivision.

District Wide Rules

There are no potentially relevant rules in Chapter 12 of the Operative District Plan other than Excavation/Filling provisions. Rules relating to Outstanding Landscape and Indigenous Vegetation clearance only apply to land use applications, not subdivisions. Site works (access and entranceways) will not involve land in the outstanding landscape area, and will not involve indigenous vegetation clearance. Excavation and/or filling will be minimal, readily complying with the Rural Production's thresholds. There will not be any excavation/filling in the outstanding landscape area.

In regard to Chapter 15.1 (Traffic, Parking and Access), access to both proposed additional lots will be directly off Takahue Saddle Road. New crossings (Lots 1 & 2) are proposed to be formed to the appropriate Council standard. Takahue Saddle Road where it provides frontage to the additional lots, is wide and straight public metal road. See below photograph. I have not identified any breaches of district wide rules.

5.2 Proposed District Plan

The property is zoned Rural Production under the new Proposed District Plan, with a small area of Outstanding Natural Landscape in the north east corner. The Natural Open Space zoning applying to half the title is believed to be an error. The PDP was publicly notified on 27th July 2022 and is progressing slowly through the hearings phase. Immediate legal effect has been given to a limited number of rules and these are addressed below.

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.

As the application site and proposal does not involve hazardous substances, and the site does not contain any heritage resources of significant natural areas, these rules are not relevant to the proposal.

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.

As no clearance of any indigenous vegetation is proposed, these rules are not relevant.

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. The subdivision works will involve only very minor earthworks related to crossing upgrades. Such works can be subject to the ADP. EW-13 and associated EW-S5 relate to ensuring Erosion and Sediment Control measures are in place during earthworks. They cite compliance with GD05. Any earthworks necessary for the crossing upgrades can be subject to GD05.

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.

In summary, 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

The assessment of environmental effects below includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment, as required by Clause 2(3)(c) of Schedule 4 of the Act.

A restricted discretionary activity is described in s87A of the Act, clause (3).

If an activity is described in this Act, regulations (including any national environmental standard), a plan, or a proposed plan as a restricted discretionary activity, a resource consent is required for the activity and—

*(a)**the consent authority's power to decline a consent, or to grant a consent and to impose conditions on the consent, is restricted to the matters over which discretion is restricted** (whether in its plan or proposed plan, a national environmental standard, or otherwise); and*

(b)if granted, the activity must comply with the requirements, conditions, and permissions, if any, specified in the Act, regulations, plan, or proposed plan.

It is also subject to s104C of the Act:

*(1) When considering an application for a resource consent for a restricted discretionary activity, a consent authority must consider **only** those matters over which-*
(a) A discretion is restricted in national environmental standards or other regulations;
(b) It has restricted the exercise of its discretion in its plan or proposed plan; .....
*(3) ..... if it grants the application, the consent authority may impose conditions under section 108 **only** for those matters over which –*
(a) A discretion is restricted in national environmental standards or other regulations;
(b) It has restricted the exercise of its discretion in its plan or proposed plan.

The subdivision meets the restricted discretionary number/size of lots specified in Table 13.7.2.1. Far North District Plan lays out in 13.8.1, the matters to which it restricts its discretion in determining whether to grant consent to a restricted discretionary activity, and then lays out the matters to which it will restrict its discretion when considering whether to impose conditions.

13.8.1 SUBDIVISION WITHIN THE RURAL PRODUCTION ZONE

*..... In considering **whether or not to grant consent** on applications for restricted discretionary subdivision activities, the Council will restrict the exercise of its discretion to the following matters:*

(i) for applications under 13.8.1(a):
- *effects on the natural character of the coastal environment for proposed lots which are in the coastal environment.*

(ii) for applications under 13.8.1(b) or (c):
- *effects on the natural character of the coastal environment for proposed lots which are in the coastal environment;*
- *effects of the subdivision under (b) and (c) above within 500m of land administered by the Department of Conservation upon the ability of the Department to manage and administer its land;*
- *effects on areas of significant indigenous flora and significant habitats of indigenous fauna;*
- *the mitigation of fire hazards for health and safety of residents.*

*In considering **whether or not to impose conditions** on applications for restricted discretionary subdivision activities the Council will restrict the exercise of its discretion to the following matters:*
(1) the matters listed in 13.7.3;
(2) the matters listed in (i) and (ii) above

In the case of this application, the application is lodged pursuant to 13.8.1(b), and therefore clause (ii) applies. The matters listed under clause (ii) are all addressed below in the matters covered in the AEE, however a summary is provided below:

- *effects on the natural character of the coastal environment for proposed lots which are in the coastal environment;*

The property is not within the coastal environment.

- *effects of the subdivision under (b) and (c) above within 500m of land administered by the Department of Conservation upon the ability of the Department to manage and administer its land;*

The site adjoins land zoned Conservation, on a part of its eastern boundary. This is with the large balance lot (over 67ha in area). The land zoned Conservation is Crown Land (State Forest), administered by the Department of Conservation. The proposed subdivision does nothing to impact on the ability of the Department to manage and administer its land.

- *effects on areas of significant indigenous flora and significant habitats of indigenous fauna;*

The site does contain areas mapped as Protected Natural Area (Maungataniwha Forest). This is a huge PNA, only a small part of which extends into the application site. Any vegetation within the PNA is entirely within the large 67.5ha lot. The indigenous vegetation is not entirely contiguous, with breaks in canopy coverage. The area of indigenous vegetation mapped in the RPS and PDP as having outstanding natural landscape values, is proposed for ongoing protection.

- *the mitigation of fire hazards for health and safety of residents.*

Future residential buildings can be constructed well clear of any area of bush/trees.

In summary, there are no grounds for the Council to refuse consent.

In determining conditions of consent, the following AEE is offered.

6.1 Allotment sizes and dimensions

Both smaller lots can readily accommodate a 30m x 30m square building envelope complying with permitted activity boundary setbacks. The lots are considered of a suitable size and dimension to support future residential use with on-site services. The large balance lot is in excess of 64ha in area with numerous building sites.

Potential house site on Lot 1 (single pine tree to be removed)

6.2 Property Access

The access into the proposed additional lots will be formed off Takahue Saddle Road (Council maintained unsealed road). Visibility and site distance from proposed vehicle crossings is sufficient, given the reasonably straight approaches with no trees or other obstructions. Refer to photo in Section 3 of this report.

The site has an existing formed crossing and access road off Takahue Saddle Road, via Sections 12-14, Village of Mamari, also owned by the applicant. Given that this is a different title, the opportunity has been taken to formalise that access by way of easement. This is a 'no change' situation, with the existing formed access not serving any additional development. No upgrading is required.

Existing entrance into property, to be retained for large balance Lot 3.

6.3 Natural and Other Hazards & Ground Conditions

The site is not subject to any hazard as mapped on any regional or district hazard maps. There is no reason under section 106 of the Act to decline the subdivision. A Site Suitability report was commissioned and this is attached in Appendix 4. This looked at surface water

features and overland flowpaths, as well as potential flood hazard. The site itself is not affected by flood hazard, but land to the southeast, across Takahue Saddle Road is (downstream).

The Report's Section 11 contains a Natural Hazard Assessment. Many hazards are simply not applicable because of the site's location and characteristics. These include rockfall, alluvion, avulsion, unconsolidated fill, soil contamination, subsidence, fire hazard and sea level rise.

In regard to erosion risk, effects of the proposed development arising from subdivision and future building, are considered less than minor. Similarly effects of overland flowpaths, flooding and inundation are considered less than minor, as are effects of landslip, providing further geotechnical investigations are carried out at Building Consent stage.

In summary there is no reason pursuant to s106 of the Act as to why the Council cannot grant this subdivision.

The Site Suitability report's section 5 contains a preliminary geotechnical assessment. This recommends that further site-specific investigation be undertaken at the building consent stage. Preliminary geotechnical recommendations can be found in section 6 of that report.

Residential development on the proposed two smaller lots can occur.

6.4 Water Supply

In the absence of potable water infrastructure along Takahue Saddle Road, roof runoff water tanks are recommended for potable supply in the future. The volume of potable water supply on each of Lots 1 & 2 should consider the required stormwater detention volume identified in the Site Suitability Report (see below). Provision will also need to be made for fire fighting water supply.

6.5 Sanitary Sewage Disposal

The Site Suitability Report's Section 7 addresses Wastewater. Lot 3 has an existing wastewater treatment and disposal system identified within site boundaries.

In assessing site suitability for new Lots 1 & 2, the report assumes future dwellings of up to 5 bedrooms with a peak occupancy of 8 people. The report recommends secondary treatment, however, there should remain the ability of a future lot owner providing alternative design to that recommended in the Site Suitability Report, at building consent stage, subject to Council approval at that time.

The report finds that adequate disposal and reserve disposal areas can be accommodated and concludes that no discharge consent will be required.

6.6 Stormwater Disposal

The Site Suitability Report's Section 8 addresses Stormwater Management. There is little likelihood of any lots' future development exceeding the zone's permitted activity coverage. The Report bases its design /attenuation recommendations on 300m² potential roof area and up to 200m² potential driveway/parking area, per lot.

The report identifies the potential downstream flooding and therefore in order to comply with FNDC Engineering Standards, the concept design provided, attenuates the post development stormwater runoff peak discharge to 80% of the pre-development condition for the 1% AEP storm event.

Overflow from roof tank collection is recommended to be conveyed in sealed pipes to a designated discharge point down slope of proposed building footprints and wastewater fields. Roof water tanks are to provide off set detention for driveway runoff. Above ground level spreader dispersal is an option.

6.7 Energy Supply & Telecommunications

Power and telecoms are not a requirement for rural subdivisions. The Council can impose its standard consent notice in this regard.

6.8 Easements for any purpose

Refer to Scheme Plan (s) in Appendix 1. A feature of the application is to formalise existing physical access over land that is in a different title, but in the same ownership, by way of easement.

6.9 Preservation of heritage resources, vegetation, fauna and landscape, and land set aside for conservation purposes

The site contains none of the following items listed in Rule 13.7.3.9 of the District Plan. There are no Notable Trees (Appendix 1D of the DP); no Historic Sites, Buildings of Objects (1E); no Outstanding Natural Features or Outstanding Landscape Features (1A and 1B); and no archaeological sites (1G) or Sites of Cultural Significance to Māori (1F).

Indigenous Flora & Fauna:

The property contains an area of indigenous vegetation and/or habitat that was mapped as being a part of a Protected Natural Area (PNA). However the mapping is no longer current, with a smaller area of indigenous remaining, occupying the high point of the site. This area is mapped in the higher order Regional Policy Statement for Northland, and Proposed District Plan (PDP) as a reduced area of "Outstanding Natural Landscape" within the property boundaries.

I believe it adequate, in terms of indigenous vegetation protection, to require the area mapped as Outstanding Natural Landscape in the RPS and PDP to be protected by way of a

consent notice requiring that it not be cut down, damaged or destroyed without the prior consent of the Council. This area is shown "C" on the draft scheme plan.

The property is within a large mapped kiwi present area. In regard to cats and dogs, the site is a relatively isolated rural site, albeit not far from the Broadwood township. I do not believe it reasonable to impose a restriction on the keeping of cats and dogs on the large 67.5ha Lot 3, given (a) its size; and (b) its continuing rural production use. However, a restriction on the number of cats and dogs able to be kept on the smaller proposed lifestyle lots might be reasonable. I would suggest a limit of one (de-sexed) cat and two dogs (micro chipped, under control and inside or kennelled at night) per lot.

Outstanding Natural Landscape

Refer to the comment above. The values of the one area mapped as outstanding natural landscape in the RPS and PDP will be protected if the above proposed mechanism is implemented. The remainder of the site is rural in nature, being a mixture of grass land and mixed plantation / indigenous forest and scrubland. The land has been subject to rotational plantation forestry operations. The area within which the proposed additional lots are located, have no natural landscape values associated with them or their immediate vicinity.

6.10 Access to reserves and waterbodies

There are no qualifying waterbodies to which public access is required and no nearby reserves.

6.11 Earthworks

Very minor subdivision earthworks may be required for access. These can be subject to the ADP and to appropriate Erosion and Sediment Control measures. The Site Suitability Report estimates this at no more than 80m^3.

6.12 Land use compatibility (reverse sensitivity)

The property is not that far from the rural township/community of Broadwood. The creation of two lifestyle lots, with a balance to continue to be used for productive purposes is not considered to create significant additional reverse sensitivity effects. Dwellings can be established with ample setback from any area of trees on the adjacent balance lot.

7.0 STATUTORY ASSESSMENT

7.1 Operative District Plan Objectives and Policies

As a restricted discretionary subdivision activity, the proposal is considered consistent with the relevant Objectives and Policies in Chapter 13 Subdivision. The proposal promotes sustainable management of the natural and physical resources of the District and provides for the applicants' social and economic well being. It is an appropriate subdivision that does not compromise the life-supporting capacity of air, water, or ecosystems, and adverse effects are capable of mitigation. The smaller lots are not dissimilar in size to other lots in the immediate area (Objectives 13.3.1 and 2 and Policy 13.4.14).

The lots have ample scope for on-site wastewater treatment and disposal. The lots are, or will be, reliant on on-site water catchment and supply. On-site stormwater management is achievable (Objective 13.3.5 and related Policy 13.4.8).

I am not aware of any sites of significance to Māori or cultural values associated with the site. Building setbacks can readily meet requirements from overland flow paths. No major earthworks are required and no indigenous vegetation clearance is envisaged or required (Objective 13.3.7 and Policy 13.4.11)

Objectives 13.3.8-13.3.10 are about ensuring subdivisions have access to adequate services and make efficient use of infrastructure. I believe the proposal is consistent with these objectives. Power and telecoms are not a requirement of rural subdivisions.

The site displays no known cultural or heritage values but does contain a small area of Outstanding Landscape. This is entirely within the large balance area and not affected by the proposed additional lots. I do not believe the subdivision will prevent adjacent land uses from continuing to operate (Policy 13.4.1).

Safe and efficient access can be provided (Policies 13.4.2 and 3)

Relevant Rural Production Zone objectives and policies include:

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 satisfactorily addressed. The continued use of parts of the application site, and adjacent land for productive uses, is not threatened by the subdivision (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, whilst avoiding the actual and potential adverse effects of conflicting land use activities. The proposed subdivision does not affect the continued ability of a productive unit to continue to operate with the smaller lots being less than 1ha apiece. The immediate area supports an existing range of activities, including productive use and lifestyle residential. I am of the view that the subdivision does not create additional land use incompatibility effects of a minor or more than minor nature.

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 through the size of the lots (open space to built environment ratio) (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 Rural Production Zone objectives and policies.

Objectives and Policies relating to outstanding landscape values are found in Chapter 12.1 of the ODP. The proposal retains the qualities and values of the outstanding landscape (12.1.3.1 & 12.1.3.3). Adverse effects on the outstanding landscape are avoided (12.1.3.4).

The subdivision creates two additional lots where activities on those lots are able to avoid, remedy or mitigate significant adverse effects on natural character values (12.1.4.2). The proposal has no adverse cumulative effect on landscape values, with not development occurring within any landscape area (12.1.4.3 &12.1.4.5). Consideration has been given to the protection of indigenous vegetation within the outstanding landscape (12.1.4.9).

7.2 Proposed District Plan

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 be an efficient use of land, achieving the objectives of the proposed zoning. The subdivision is in keeping with the local character and does not create adverse reverse sensitivity effects. The site is not subject to any hazard. Adverse effects on the environment are considered to be minor and capable of mitigation (SUB-O1).

The subdivision creates additional titles outside of any area containing outstanding landscapes and is not in the coastal environment. The site has no areas of high or outstanding natural character. The site is not identified as having any Site or Areas of Significance to Maori or Heritage Resources. The site has limitations for any type of horticultural crop because of soil characteristics and climate (SUB-O2). A large part of the site has been in plantation forestry, now harvested.

The additional lots will have onsite servicing and have access to Council road network (SUB-O3). No Esplanade Reserve is required (SUB-O4).

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 proposal is considered to be consistent with the purpose, characteristics and qualities of the zone, particularly in the immediate environs; the lots are of an appropriate shape and size to support existing development; and have legal and physical access. The proposal does not meet the minimum lot size applying the PDP's Rural Production zone, but these lot sizes do not yet have legal effect and have been heavily submitted on.

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 as 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 site is reliant on existing on-site servicing. The sites have access to Council road network.

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

No Esplanade Reserve is required.

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.*

The smaller lots are less than 1ha in area and as such are likely regarded more 'residential' in nature than 'rural lifestyle'. The relevancy of the policy is therefore questionable. The proposal does include bush protection, and does not result in the loss of versatile soils for primary production activities (no such soils exist on the property).

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.

The subdivision is not a Management Plan.

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

As no consent is required under the PDP the relevancy of this policy is questionable. Notwithstanding that, any relevant matters listed in SUB-P11 have been considered to the appropriate level.

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, and contains no resource features.

Objectives

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.

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.

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.

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

The subdivision maintains rural character and amenity. The development can occur without exacerbating natural hazards and is able to be serviced with on-site infrastructure. RPROZ-O2 is written in a way that excludes any use other than primary production in the zone, yet zone rules provide for other activities as permitted activities, including residential living. This is contradictory. Residential use is an expected land use in the rural area.

The soils over the site are mixed classification, with no LUC class 1, 2 or 3. As such the site contains no highly productive land (by definition in the National Policy Statement Highly Productive Land). The proposal is not considered to have minor or more than minor adverse impact on the overall productivity of the soils on the site, given the very small area of land involved in Lots 1 & 2 as a percentage of the overall holding. The subdivision does not unduly increase any risk of reverse sensitivity and does not compromise the use of nearby land for rural production activities.

Policies

RPROZP1
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 application is not for a primary production activity.

RPROZP2

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.

Primary production will continue as the predominant land use of the underlying title. Residential activity is an accepted land use within a rural area.

RPROZP3

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.

Reverse sensitivity effects have been discussed elsewhere in this report and it is considered the proposal does not unduly or significantly increase the risk of reverse sensitivity.

RPROZP4

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.

I believe the proposal maintains rural character and amenity and continues a theme of primary production activities dominating. The proposal is low density, with low percentage site coverage by buildings or structures. Reverse sensitivity effects will not increase unduly.

RPROZP5

Avoid land use that:....

Not relevant as the proposal is not a land use.

RPROZP6

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 does not result in loss of highly productive land for use by farming activities. The soils are poor and a limited number (two in this case) of smaller parcels is considered a sustainable use of land.

RPROZP7

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.

As this application does not require resource consent under the PDP, the policy is of limited relevance. Notwithstanding this, relevant matters in RPROZ-P7 have been had regard to. There is a zone interface at the rear of the large balance lot, however no built development is proposed anywhere near this boundary.

The site is served by a Council road and the lots will be able to provide on-site servicing. The site does not exhibit any historic heritage or cultural values, and the one area of outstanding landscape on the site is proposed to be protected. There will be no adverse effects on indigenous biodiversity.

The very northeast corner of the property is Outstanding Natural Landscape where it is proposed to protect the indigenous vegetation within this area. The subdivision will not compromise the characteristics and qualities of the ONL (NFL-O2 & NFL-O3). Ongoing protection is provided for (NFL-O6). I consider the proposal to be consistent with the objectives and policies of Natural Features and Landscapes section of the PDP.

The PDP shows half of the freehold title application site zoned Natural Open Space, which is a zone used for public land such as Conservation estate and Crown Land. This is clearly an error and correspondence was sent to the Council in January of this year requesting this error be acknowledged and that the process for correcting it be commenced.

7.3 Part 2 Matters

The subdivision is a restricted discretionary subdivision activity. It is therefore deemed to be consistent with the Operative District Plan, a document prepared in order to give effect to Part 2.

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 application site is not in the coastal environment and does not contain any lake, river or wetlands (a). The outstanding natural landscape identified within the site will be protected (b). In doing so, the indigenous vegetation within that area will also be protected (c). There is no requirement for public access (d). The site has no historic heritage values, and no ancestral land or waahi tapu (e). There are no known customary rights associated with the site (f) and (g). There are no significant hazards on the site (h).

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) and (f). It is considered that the proposal represents efficient use and development of a site. Proposed layout, along with existing 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.

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 Statements

The proposal does not give offence to, and is not contrary to, the National Policy Statement for Freshwater. The National Policy Statement for Highly Productive Land (NPS-HPL) is not relevant as there are no LUC 1, 2 or 3 soils on the application site.

7.5 National Environmental Standards (NES)

The NES for Assessing and Managing Contaminants in Soil to Protect Human Health is not considered relevant as there is no known current or historic land use that would render the land a 'piece of land' subject to that NES.

The NES for Freshwater has also been considered. There are no natural inland wetlands affected by the proposal.

7.6 Regional Policy Statement for Northland (RPS)

The RPS 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.

The RPS also has policies ensuring that productive land is not subject to fragmentation and/or sterilisation to the point where productive capacity is materially reduced, and that reverse sensitivity effects be avoided, remedied or mitigated. It should be noted that this subdivision is a restricted discretionary subdivision application and the Council's powers and matters of discretion are restricted accordingly.

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; .....

In regard to this subdivision, it is considered that no additional reverse sensitivity issues arise as a result. The area around the site supports a mixture of agricultural and residential uses. In my opinion the proposal does not prevent or threaten the continuation of the adjacent land for ongoing production use. The site does not contain highly versatile soils as defined in the RPS.

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 ...

Objectives and Policies in the Regional Policy Statement for Northland (RPS) provide direction when examining the subdivision of land in production zones where the soils meet the definition of 'highly versatile', the RPS states that Class I, II and III soils are 'highly versatile'. The site does not contain any such 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);.....

The proposal does not, in my opinion, prevent the continued use of adjacent land for production use. Reverse sensitivity effects have been addressed earlier.

I believe the proposal is not contrary to any of the objectives or policies in the Regional Policy Statement for Northland.

7.7 Regional Plans

The subdivision does not result in any breaches of the Proposed Regional Plan (Appeals version).

8.0 S 95A-E & 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 circumstances exist. Step 3 of s95A must therefore be considered. This specifies that public notification is required in certain circumstances. These include:

(a) the application is for a resource consent for 1 or more activities, and any of those activities is subject to a rule or national environmental standard that requires public notification:

(b) the consent authority decides, in accordance with section 95D, that the activity will have or is likely to have adverse effects on the environment that are more than minor.

The application is not subject to a rule or national environmental standard that requires public notification. This report and AEE concludes that the activity will not have, nor is it likely to have, adverse effects on the environment that are more than minor. In summary public notification is not required pursuant to Step 3 of s95A.

Step 4 of s95A states that the consent authority is to determine if there are any special circumstances under which public notification may be warranted. No such circumstances exist.

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. No such group or persons are identified in this instance. Step 2 of s95B specifies the circumstances that preclude limited notification. No such circumstances exist and Step 3 of s95B must be considered. This specifies that certain other affected persons must be notified,

specifically the property affected by a boundary activity and any party identified pursuant to s95E as being "affected". Neither circumstance exists.

Step 4 of s95B states that the consent authority is to determine if there are any special circumstances under which limited notification may be warranted. No such circumstances exist.

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.

8.5 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 restricted discretionary activity and the proposal is consistent with the objectives and policies of the Operative District. No adjacent properties have been identified as affected.

The site does not contain any heritage or cultural sites or values. No pre lodgement consultation has been considered necessary with tangata whenua or Heritage NZ. The proposal does not create any adverse effects on land administered by DoC or on indigenous vegetation. No pre-lodgement consultation has been considered necessary with the Department of Conservation.

9.0 CONCLUSION

The site is considered suitable for the proposed subdivision, and effects on the wider environment are no more than minor. There is no District Plan rule or national environmental standard that requires the proposal to be publicly notified. No special circumstances have been identified that would suggest public notification is required. No affected persons are identified. I consider the proposal to be consistent with both the Operative and Proposed District Plans' objectives and policies, Part 2 of the Act and any relevant national or regional planning instrument. It is requested that the Council give favourable consideration to this application and grant approval, on a non notified basis.

Signed Dated 15th April 2025

Lynley Newport
Senior Planner
THOMSON SURVEY LTD

10.0 LIST OF APPENDICES

Appendix 1 Scheme Plan(s)

Appendix 2 Locality Plan

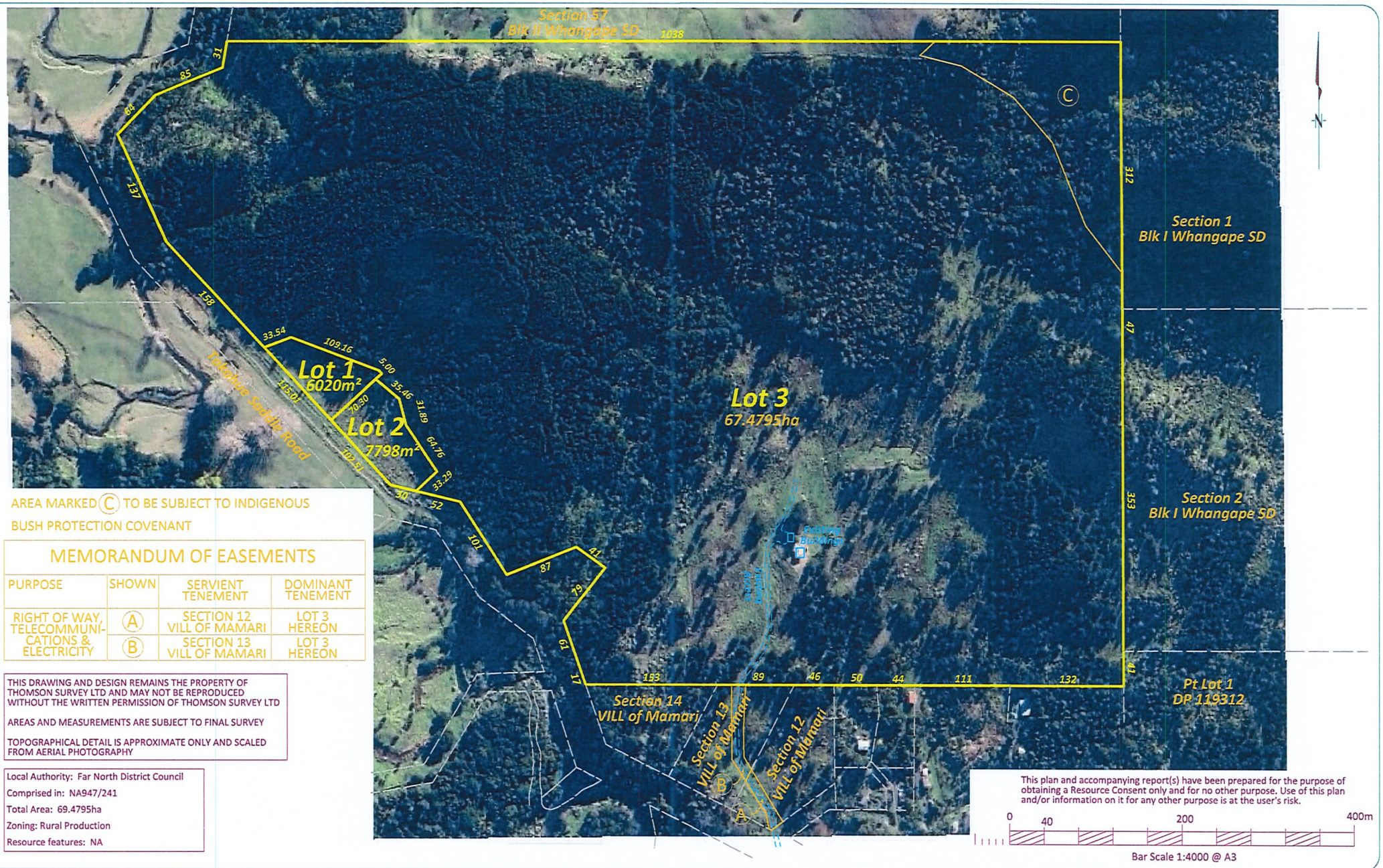
Appendix 3 Record of Title

Appendix 4 Subdivision Site Suitability Report

Appendix 5 Copy of correspondence sent to Council about zoning error

Appendix 1

Scheme Plan(s)



AREA MARKED (C) TO BE SUBJECT TO INDIGENOUS BUSH PROTECTION COVENANT

MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, TELECOMMUNI-CATIONS & ELECTRICITY	(A)	SECTION 12 VILL OF MAMARI	LOT 3 HEREON
	(B)	SECTION 13 VILL OF MAMARI	LOT 3 HEREON

AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY

TOPOGRAPHICAL DETAIL IS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY

Local Authority: Far North District Council
Comprised in: NA947/241
Total Area: 69.4795ha
Zoning: Rural Production
Resource features: NA

This plan and accompanying report(s) have been prepared for the purpose of obtaining a Resource Consent only and for no other purpose. Use of this plan and/or information on it for any other purpose is at the user's risk.

Bar Scale 1:4000 @ A3

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Registered Land Surveyors, Planners & Land Development Consultants

PROPOSED SUBDIVISION OF SECTIONS 58 & 59 BLOCK II WHANGAPE SD & EASEMENTS OVER SECTIONS 12 & 13 VILLAGE OF MAMARI

TAKAHUE SADDLE ROAD, BROADWOOD

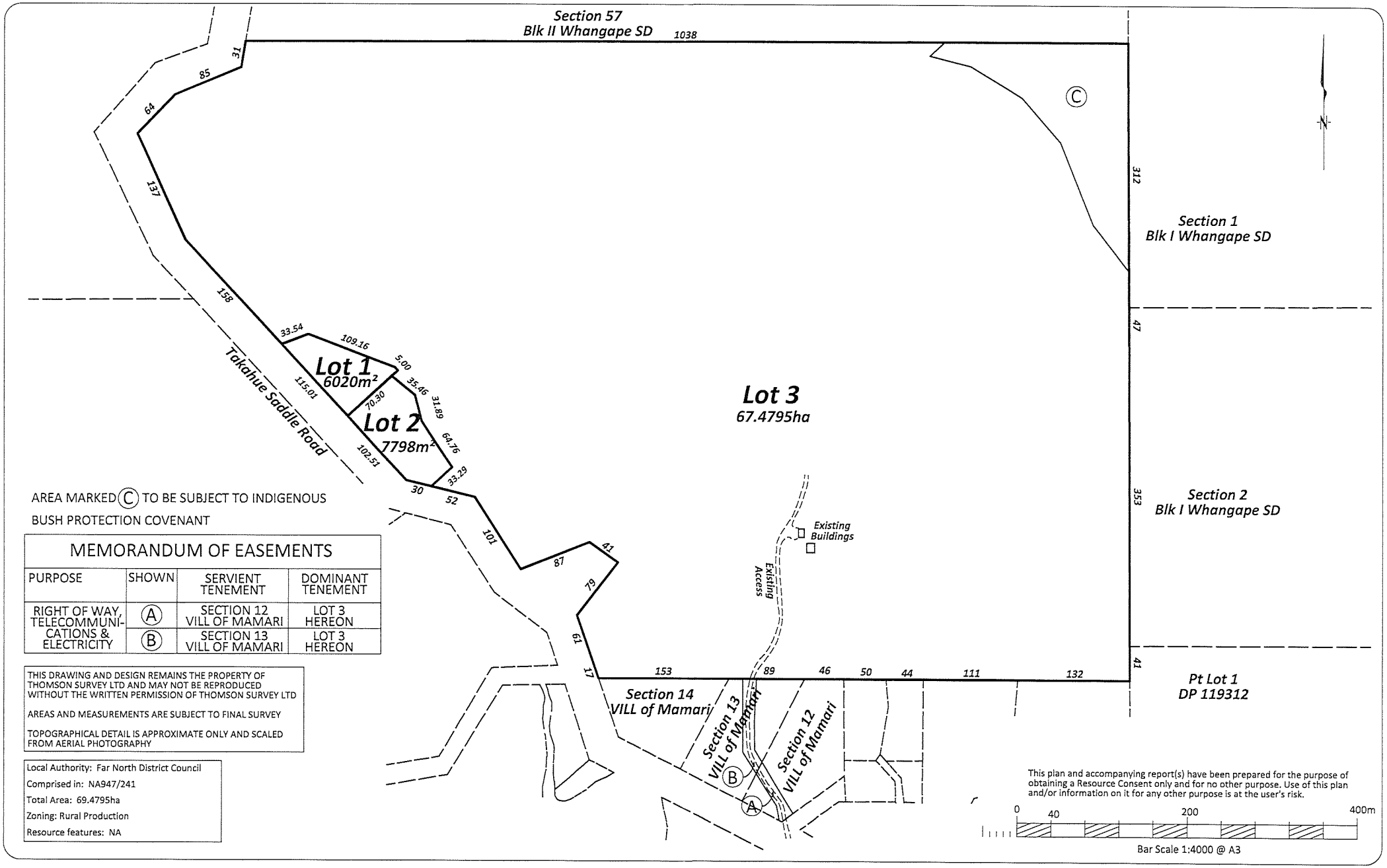
PREPARED FOR: SIGLEY FORESTS LTD

	Name	Date
Survey		
Design		
Drawn	SL	8.11.24
Approved		
Rev	KY	10.04.25

10675 Scheme 20250410

ORIGINAL
SCALE 1:4000
SHEET SIZE A3

Surveyors Ref. No: 10675
Series
Sheet of



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0 40 200 400m

Bar Scale 1:4000 @ A3

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Rev	KY	10.04.25

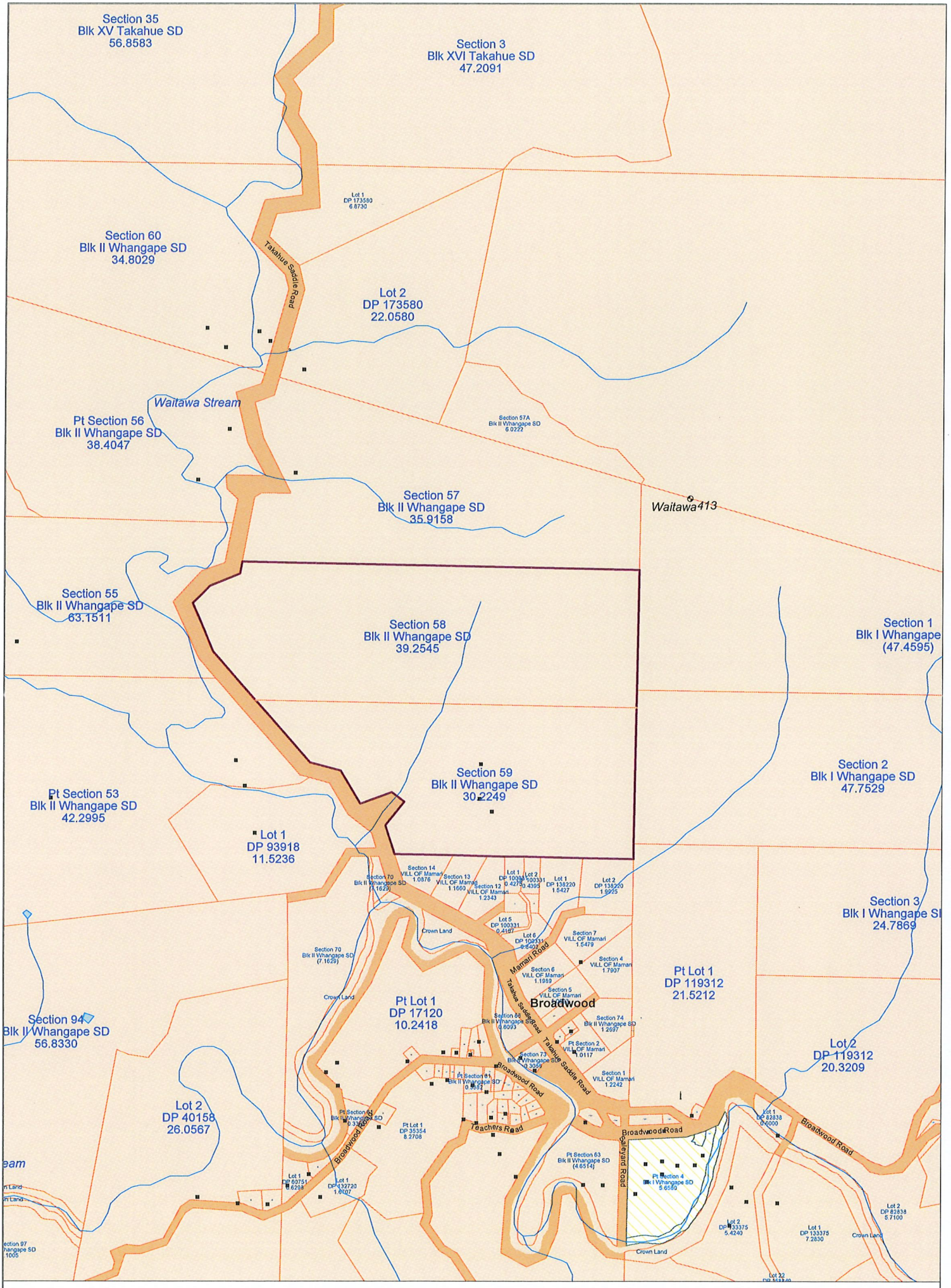
10675 Scheme 20250410

ORIGINAL
SCALE 1:4000
SHEET SIZE A3

Surveyors Ref. No: 10675
Series
Sheet of

Appendix 2

Locality Plan



QuickMap
Custom Software Ltd

0 200 400 600 800 1000 1200 1400 1600m

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

Scale 1:12500 Topographical and Cadastral map derived from LINZ data. Printed: 11-Apr-2025 01:16.

Appendix 3

Record of Title

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA947/241**
Land Registration District	**North Auckland**
Date Issued	01 December 1949

Prior References
NA437/285

Estate	Fee Simple
Area	69.4795 hectares more or less
Legal Description	Section 58-59 Block II Whangape Survey District

Registered Owners
Sigley Forests Limited

Interests

10007859.3 Mortgage to ASB Bank Limited - 28.4.2015 at 5:11 pm

12876005.1 Notice pursuant to Section 195(2) Climate Change Response Act 2002 - 10.11.2023 at 6:38 pm (Section 58 Block II Whangape SD)

6.9 4794 ha

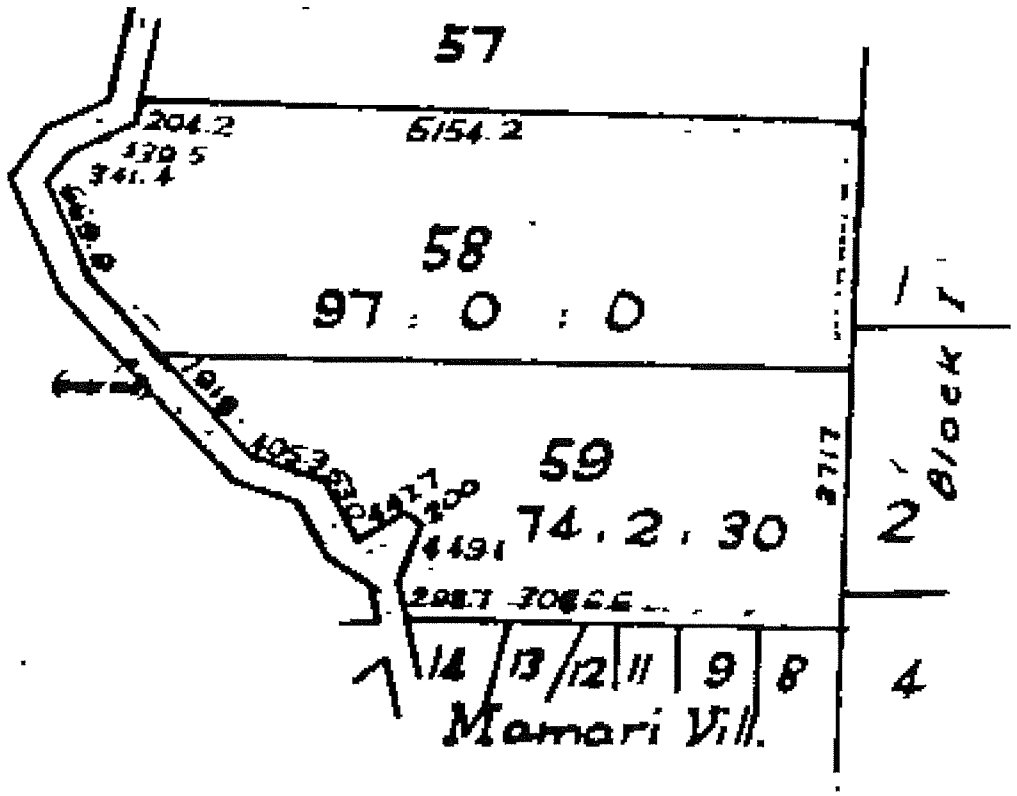
Conversion Factors:

1 Acre = 4046m²

1 Perch = 25.29m²

1 Link = .2012 metres

Blk. II Whangape S.D.



Appendix 4

Subdivision Site Suitability Report

geologix
consulting engineers

SUBDIVISION SITE SUITABILITY ENGINEERING REPORT

PROPOSED LOTS 1 & 2, SECTIONS 58 & 59 BLOCK II WHANGAPE SD

SIGLEY FORESTS LTD

C0582-S-01
APRIL 2025
REVISION 2

geologix
consulting engineers

DOCUMENT MANAGEMENT

Document Title	Subdivision Site Suitability Engineering Report
Site Reference	Proposed Lots 1 & 2, Sections 58 & 59 Block II Whangape SD
Client	Sigley Forests Ltd
Geologix Reference	C0582-S-01
Issue Date	7 April 2025
Revision	02
Prepared by (Civil)	Fred Sennoga Intermediate Civil Engineer BSc.Eng (Honours), MBA, CMEngNZ 
Prepared by (Geotechnical)	Luke Williams Intermediate Geotechnical Engineer, BEngTech (Civil), NZDipEng (Civil), MEngNZ 
Reviewed	Sebastian Hicks Principal Civil Engineer, CPEng Reg. 1168062, CMEngNZ, IntPE(NZ) /APEC Engineer 
Approved by	Edward Collings Managing Director, CEnvP, CPEng. CMEngNZ 
File Reference	*Z:\Projects\C0500-C0599\C0582 - Takahue Saddle Road, Broadwood\06 - Reports\C0582-S-01-R01.docx*

REVISION HISTORY

Date	Issue	Prepared	Reviewed	Approved
March 2025	First Issue – Draft	LW, FS	SH	EC
April 2025	Second Issue - For Consent	LW, FS	SH	EC

geologix
consulting engineers

TABLE OF CONTENTS

FIGURES

TABLES

1 INTRODUCTION

This Site Suitability Engineering Report has been prepared by Geologix Consulting Engineers Ltd (Geologix) for Sigley Forests Limited as our Client in accordance with our standard short form agreement and general terms and conditions of engagement.

Our scope of works has been undertaken to assist with Resource Consent/ Building Consent application in relation to the proposed subdivision of a rural property (Sections 58 & 59 Block II Whangape SD) comprising a total net area of 68.8613 Hectares (Ha) off Takahue Saddle Road, Broadwood, the 'site'.

Specifically, this assessment addresses engineering elements of natural hazards, wastewater, stormwater, internal roading and associated earthwork requirements to provide safe and stable building platforms with less than minor effects on the environment as a result of the proposed activities outlined in Section 1.1.

1.1 Proposed Development

This scope of works forms part of a larger, future subdivision division proposal. A proposed scheme plan was presented to Geologix at the time of writing, prepared by Thomson Survey[1] and reproduced within Appendix A. It is understood the Client proposes to subdivide the site to create two new residential lots (proposed lots 1 and 2) in the western part of the site, with existing buildings remaining on the remaining balance lot (proposed lot 3).

The above is outlined in Table 1 below. Amendments to the referenced scheme plan may require an update to the recommendations of this report which are based on conservative, typical rural residential development concepts.

Table 1: Summary of Proposed Scheme

Proposed Lots	Size	Purpose
1	0.6020 ha	New residential
2	0.7798 ha	New residential
3	67.4795 ha	Existing residential

Access to the new residential lots 1 and 2 is to be provided with separate, new vehicle crossings extending from Takahue Saddle Road. Lot 3 access will remain at the properties' southern aspect.

A specific Traffic Impact Assessment (TIA) is outside the scope of this report. Input by a suitably qualified traffic engineer may be required as part of Resource Consent application.

2 DESKTOP APPRAISAL

The two proposed development lots are located on the eastern aspect of Takahue Saddle Road which has a regular alignment that also defines the south-western boundaries of

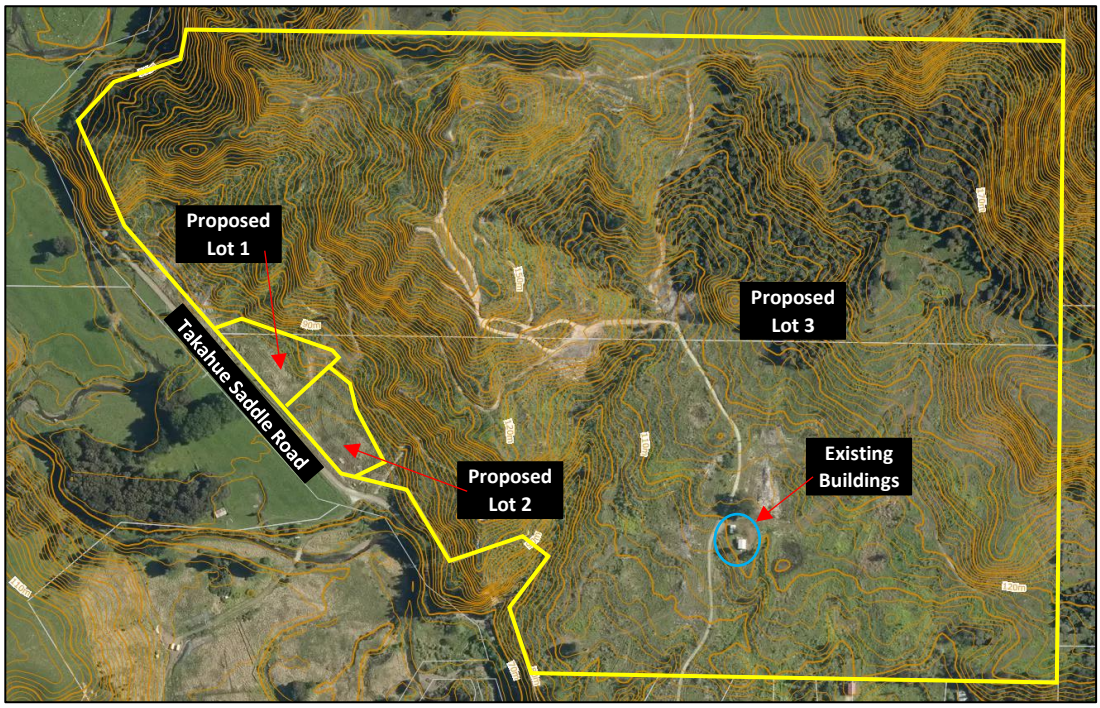
[1] *Williams and King, Scheme Plan Ref. 23457.01 and 23457.02, dated August 2021.*

proposed lots 1 and 2. Topographically, the site area is undulating with ridges and gullies trending in all directions through the site, however predominantly trend from west to east.

The site is considered moderately to steeply sloping, with very steep angles of up to 70° is present in proposed lot 3, with an average slope angle of 33° across the entire site. The location of the new proposed residential lots are generally the flattest areas on the entire site, refer to Figure 1 below, with average slope angles across the proposed lots to be at 8° and 14° degrees.

The site is generally bounded by Takahue Saddle Road along the south-western boundary of the site, and other rural lots in all other directions. The site setting is presented schematically as Figure 1 below.

Figure 1 – Site Setting[2]



The site area is currently in well-established pine trees/ bush across a predominant amount of the site, with some areas of pasture. There are existing buildings located on the southern portion of the overall site, within the proposed lot 3 (existing residential). A detailed review of existing watercourses and overland flow paths is presented as Section 3.

2.1 Existing Reticulated Networks

Far North District Council (FNDC) GIS mapping indicates that no existing 3 water infrastructure or reticulated networks are present the site boundaries. This report has been

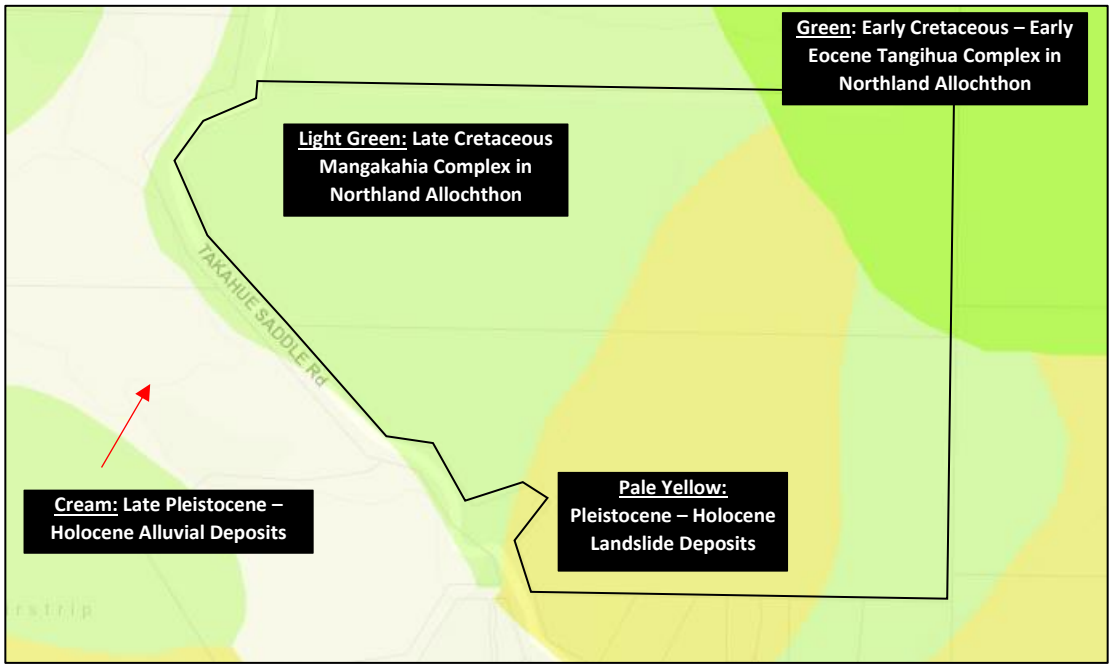
[2]*Natural Hazards (arcgis.com)*

prepared with the goal of the subdivision being self-sufficient for the purpose of wastewater, stormwater, and potable water management.

2.2 Geological Setting

Available geological mapping[3] indicates the site is predominantly underlain by Late Cretaceous aged Punakitere sandstone (Mangakahia complex) in Northland Allochthon described as "Weakly indurated metre-bedded quartzose, micaceous sandstone, with minor conglomerate, and interbeds of blue-grey mudstone". Refer to Figure 2 below:

Figure 2: Geological Map with highlighted site boundaries.



Late Pleistocene to Holocene aged alluvium consisting of estuary, river and swamp deposits is mapped along the south-western boundary of proposed lots 1 and 2. The alluvial soils are described as "Unconsolidated to poorly consolidated sand, peat, mud and shell deposits (estuarine, lacustrine, swamp, alluvial and colluvial)". Typically, these soils are known for generally poor drainage performance for wastewater disposal. This is considered to be the newest geotechnical deposit of the site. Alluvium whether of Holocene or Pleistocene Age is derived from the erosion and redeposition of subsoils, consequently, alluvium is variable in term of consistency and strength with the possibility of organic materials present and high likely hood of loose sandy soils.

Proposed building envelopes are located in the south-western part of the site and are expected to include alluvial deposits and Northland Allochthon soils only. The risk of

[3] *Source: Geology 2.0.0 (gns.cri.nz)*

encountering low-strength alluvial deposits at the proposed building platforms is considered high based on the mapped geology and low elevation of the proposed lots.

2.3 Existing Geotechnical Information

Existing subdivision and/ or Building Consent ground investigations were not made available to Geologix at the time of writing. Additionally, a review of available GIS databases, including the New Zealand Geotechnical Database[4] did not indicate borehole records within 500 m of the site.

3 SURFACE WATER FEATURES AND OVERLAND FLOWPATHS

During our site walkover and desktop appraisal of the supplied topographic data, Geologix have developed an understanding of the surface water features and overland flow paths influencing the site. The developed understanding summarised in the following sections is shown schematically on Drawing No. 100 with associated off-set requirements.

3.1 Surface Water Features

The general site, comprising of site 1, 2 and 3 is located within a forestry plantation. The proposed sites Lots 1 and 2 are located southwest of the edge of the plantation and north-east of the existing Takahue Saddle Road.

A prominent ridgeline extends along the western third of Lot 3 site from northwest to southeast. It rises steeply from Lot 1 and 2's northern boundaries from an elevation of about 75m, up to about 180m.

There are 3 main catchments within the total property (Lot 1, 2 and 3):

- The western catchment drains the ridge's south-western face, located in Lot 3, towards Lots 1 & Lot 2 and the existing Takahue Saddle road's eastern shoulder. It is anticipated that runoff from this catchment will flow over the Lot 1 and 2 sites as shallow sheet flows and/or pond in the flat areas of these sites which are currently densely vegetated. Future lot development will need to consider the management of this sheet flow runoff to ensure good drainage of any development.
- The central catchment immediately east of the ridgeline, drains east towards a centrally located unnamed watercourse. The north-eastern corner of Lot 3 also drains in a south-westerly direction towards the same unnamed watercourse.
- The south-eastern corner of Lot 3 forms part of a southern catchment that drains in south easterly direction towards another unnamed water course located southeast of Lot 3.

[4] https://www.nzgd.org.nz/

3.2 Overland Flow Paths

Clearly defined flow paths are not evident within the Lot 1 and 2 site boundaries although there are broad, shallow depressions across the otherwise flat or gently sloped site. Thick vegetation is prominent and will currently obstruct flows toward the road.

Generally, runoff appears to flow as sheet flow across the Lot 1 and 2 sites approximately north (ridge) to south (Takahue Saddle Road). The flow may be generally concentrated to the broad, shallow flow paths mentioned above but these are considered to be shallow and "wandering" through the site, not paths for significantly concentrated runoff flows.

3.3 Mapped Flood Hazard

The Northland Regional Council GIS indicates mapped Priority Rivers flood hazard zones near to the site's southeastern proximity, on the opposite side of Takahue Saddle Road from the site. The hazard is presented for the 10 year (10% AEP) , 50 year (2% AEP) and 100 year (1% AEP) return events.

3.3.1 Flood Hazard Extent

The extent of these river flood hazards is marginal relative to the site. The 1% AEP extent is described as follows:

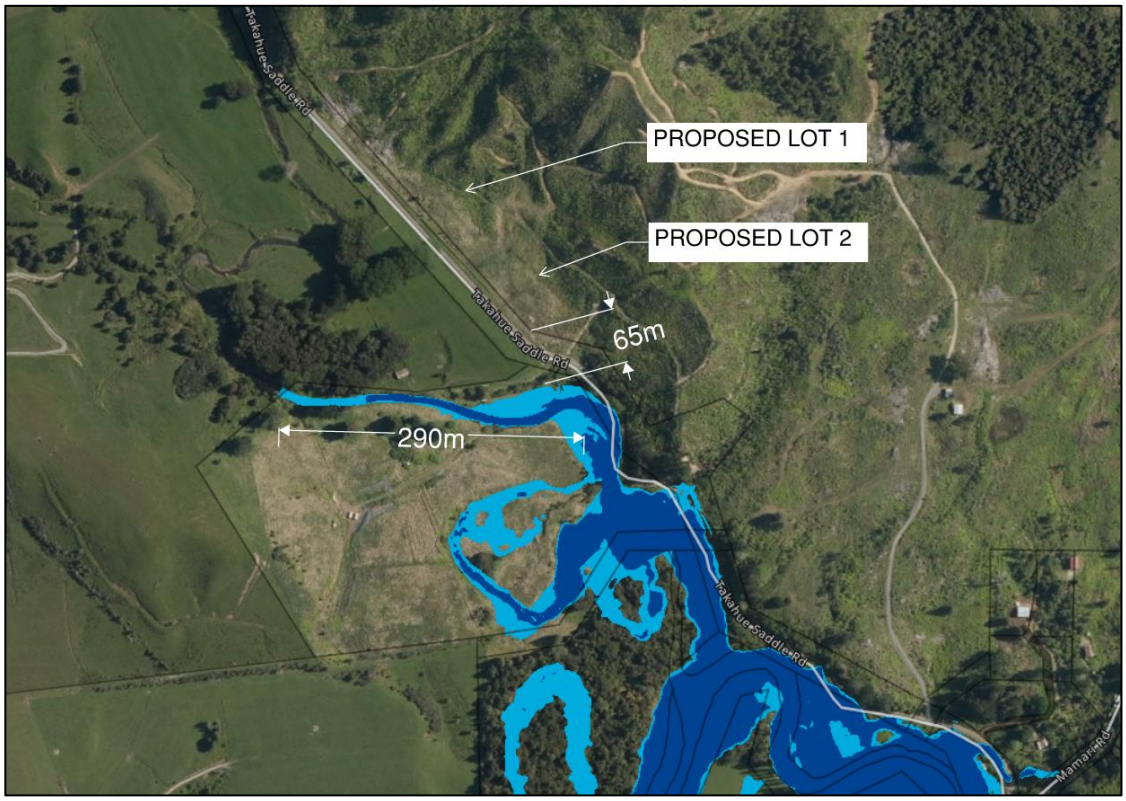
- It reaches about 65m from the site's southern boundary as presented in Figure 3 below.
- The flood extent affects Takahue Saddle Road's shoulder approximately 100m south of the site's boundary and over a length of about 100m of the road.
- The maximum flood level is around 72m above mean sea level which is within the section of Takahue Saddle Road mentioned above.
- The max. flood level (72m) is about 2m vertically below the existing contour level of the proposed Lot 2 building envelope (74m), and 190m horizontally away from it.
- The max. flood level (72m) is about 3m vertically below the existing contour level of the proposed Lot 1 building envelope (75m), and 280m horizontally away from it.

Furthermore, both Lot 1 and 2's proposed wastewater fields are at least 1m above the 1% AEP flood level and therefore significantly higher than the 5% AEP flood level (which is required by the NRC Regional Plan).

3.3.2 Effect on Downstream Property

It is considered that the site will contribute runoff to the stream across the road (Takahue Saddle Road). Due to the significant extents of mapped flood hazard downstream within residential areas near Broadwood and further to the west, it is determined that the site's new impervious area will pose an increase to flood hazard on downstream property. This is discussed further in Section 8.3.

Figure 3: NRC Priority River Hazard Extents Relative to Site



4 GROUND INVESTIGATION

A site-specific walkover survey and intrusive ground investigation was undertaken by Geologix on 14 January 2025. The ground investigation was scoped to confirm the findings of the above information and to provide parameters for the geotechnical and wastewater assessment for the site. The ground investigation comprised:

- Two deep hand augured boreholes designated HA01 and HA03, formed across the potential building sites on each proposed lot to final depths of 3.3 m – 5.0 m below ground level (bgl), respectively.
- In-situ field vane tests to determine the shear strength of the underlying cohesive soils at 300mm intervals to the termination of the hand augurs.
- Hand Auger HA03 was extended by Dynamic Cone Penetrometer (DCP) techniques to determine the presence of harder / denser materials at depth after termination due to saturated sandy strata below the water table.
- Two shallow hand augured boreholes designated HA02 and HA04, inclusive formed within suitable areas of wastewater disposal fields on each proposed residential lot with a target depth of 1.2 m below ground level (bgl).
- Measurement of groundwater levels utilising a groundwater dip meter at the end of the

site investigation.

4.1 Site Walkover Survey

A visual walkover survey of the property confirmed:

- Topography data supplied is in general accordance with that outlined in Section 2 and observed site conditions.
- Proposed lots 1 and 2 are predominantly in rough pasture with dense trees and bush located along the eastern portion of the lots.
- The site is bound by Takahue Saddle Road along the south-western boundary, and similar farming, forestry or rural lifestyle block properties to all other directions.
- Adjacent to Lot 1 and 2, Takahue Saddle Road has no formal swale drains along its edges. No pipe culverts or other stormwater structure were observed along the extent of the road adjacent Lot 1 and 2.
- No existing structures were noted on proposed lot 1 and 2 during our geotechnical investigation.

4.2 Ground Conditions

Arisings recovered from the exploratory boreholes were logged by a suitably qualified geotechnical engineering professional in general accordance with New Zealand Geotechnical Society guidelines[5]. Engineering borehole logs are presented as Appendix B to this report and approximate borehole positions recorded on Drawing No. 100 within Appendix A. Strata identified during the ground investigation can be summarised as follows:

- **Surficial layer of Topsoil encountered to 0.1 m bgl.** Topsoil was encountered at test locations HA01 and HA02, in proposed lot 1, described as greyish brown topsoil with varying amounts of rootlets contents, moist and friable.
- **Late Pleistocene – Holocene Alluvial soils to depths > 1.2 - > 5.0 m bgl.** Alluvial soils were encountered below the topsoil in proposed lot 1, and from the surface in proposed lot 2. The alluvial soils were typically cohesive, and presented as a mixed stratum of silt, clayey silt, sandy silt and silty sand. The alluvial soils were presented as an array of colours containing a blend of brown, grey, blue and orange.

  Twenty-Five in-situ field vane tests enabled statistical confirmation of soils strength. Vane shear strengths within the cohesive alluvial soils were stiff to very stiff (39kPa to 182kPa) consistency.

[5] *New Zealand Geotechnical Society, Field Description of Soil and Rock, 2005.*

Characteristic unit vane shear strength has been determined to be 72 kPa at 95% confidence is the indicative of a stiff material.

DCP probing was undertaken in the base of hand auger test HA03, after saturated sandy soils made further investigation with hand equipment impractical. DCP probing returned blow counts between 14 to 17 per 100 mm penetration to 3.6 m bgl, where penetration resistances reached 20 blows per 100mm, confirming a very dense material before termination of the DCP test.

A summary of the above strata horizons and wastewater properties is presented as Table 2.

Table 2: Summary of Ground Investigation

Hole ID	Proposed Lot	Hole Depth	Topsoil Depth	Groundwater	Refusal Depth	Wastewater Category
HA01	1	5.0 m	0.1 m	4.0 m	NE	6 – slow draining
HA02	1	1.2 m	0.1 m	NE	NE	6 – slow draining
HA03	2	3.7 m	NE	2.1 m	3.3 m	6 – slow draining
HA04	2	1.2 m	NE	NE	NE	6 – slow draining

1. *All depths recorded in m bgl unless stated.*
2. *Groundwater measurements taken on day of drilling.*
3. *NE – Not Encountered.*
4. *Wastewater category in accordance with Auckland Council TP58[6].*

4.2.1 *Groundwater*

The ground investigation was undertaken during summer and formed exploratory boreholes to depths greater than any expected potential excavation to form typical rural residential building platforms. Groundwater levels were monitored utilising a groundwater dip meter on the day of drilling, the results summarised in Table 2 above. Groundwater was encountered at 4.0m bgl and HA01 and 2.1m bgl at HA03 during our geotechnical investigation.

Groundwater levels commonly fluctuate according to the season and rainfall events. Therefore, groundwater levels may vary and be identified at higher levels than monitored during this ground investigation, particularly in wet, winter conditions. The groundwater shall also be monitored at the ground investigation conducted during the building consent stage.

5 PRELIMINARY GEOTECHNICAL ASSESSMENT

Based on the results of the desktop appraisal, a site walkover survey, and the ground investigation, Geologix have undertaken a site-specific geotechnical assessment relevant to the proposed buildings site area.

It is recommended that further site-specific investigation is undertaken at the Building Consent stage by a professional geotechnical engineer. The purpose of the further investigation is to confirm the baseline parameters below, confirm geotechnical properties

[6] *Auckland Council, Technical Publication 58, On-site Wastewater Systems: Design and Management Manual, 2004, Table 5.1.*

between the time of this investigation and the time of future development and to develop the preliminary geotechnical information to the level of rigour to satisfy Building Consent requirements.

5.1 Preliminary Geotechnical Design Parameters

Preliminary geotechnical design parameters are presented in Table 3 below. They have been developed based on our ground investigation, the results of in-situ testing and experience with similar materials found on the site from past projects.

Table 3: Geotechnical Effective Stress Parameters

Geological Unit	Unit Weight, kN/m^3	Effective Friction Angle, °	Effective Cohesion, kPa	Undrained shear strength, kPa
Tauranga Group Alluvial Soils	17	24	2	43*

**Adopting Bjerrum correction factor of 0.6 from the characteristic vane shear strength.*

5.2 Preliminary Site Subsoil Class

The site has been designated as Site Subsoil Class C - shallow soil sites according to the provisions of NZS1170.5:2004[7].

5.3 Preliminary Seismic Hazard

New Zealand Standard NZS1170.5:2004 Clause 2.1.4 specifies that to meet the requirements of the New Zealand Building Code, design of structures is to allow for two earthquake scenarios:

1. *Ultimate Limit State (ULS) shall provide for… "avoidance of collapse of the structural system…or loss of support to parts… damage to non-structural systems necessary for emergency building evacuation that renders them inoperable".*

2. *Serviceability Limit State (SLS) are to avoid damage to… "the structure and non-structural components that would prevent the structure from being used as originally intended without repair after the SLS earthquake…".*

The seismic hazard in terms of Peak Ground Acceleration (PGA) has been assessed based on the NZGS Module 1[8]. Table 4 presents the return periods for earthquakes with ULS and SLS 'unweighted' PGAs and design earthquake loads for the corresponding magnitude. The PGAs were determined using building Importance Level (IL) 2, defined by NZS1170.5:2004. Reference should be made to the structural designer's assessment for the final determination of building importance level.

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[7] NZS1170.5:2004, Structural Design Actions Part 5: Earthquake Actions Clause 3.1.3.4.

[8] New Zealand Geotechnical Society, Earthquake Geotechnical Engineering Practice, Module 1, November 2021, Appendix A, Table A1.

Table 4: Summary of Seismic Hazard Parameters

Limit State	Effective Magnitude	Return Period (years)	Unweighted PGA
ULS	6.5	500	0.19 g
SLS	5.8	25	0.03 g

5.4 Preliminary Site Stability

At the time of writing, no obvious indications of major deep-seated instability were identified at the site, and the risk of such deep-seated instability developing as a result of the development proposal is low.

Detailed slope stability should be undertaken at the time of building consent when further geotechnical investigations have been undertaken across the site, particularly upslope of the site where steep topography is located within the mapped Northland Allochthon soils for detailed slope stability analysis.

Detailed slope stability analysis is out of the scope of this report.

5.4.2.1 Proposed Lot 1 and 2

There are steep slopes (above 25 degrees) present to the west and upslope of both proposed lots 1. These slopes were covered in dense pine trees at the time of our investigation. The current proposed development platforms are considered potentially subject to natural hazards or instability without any stability structures.

Specifically engineered debris fences may need to be implemented to mitigate the effect of potential slip material entering building platforms from above the lot and damaging any future buildings.

Further geotechnical testing at the time of building consent is recommended for slope stability modelling purposes.

5.5 Soil Expansivity

Clay soil may undergo appreciable volume change in response to changes in moisture content and be classed as expansive. The reactivity and the typical range of movement that can be expected from potentially expansive soils underlying any given building site depends on the amount of clay present, the clay mineral type, and the proportion, depth, and distribution of clay throughout the soil profile.

Clay soils typically have a high porosity and low permeability causing moisture changes to occur slowly and produce swelling upon wetting and shrinkage upon drying. Apart from seasonal moisture changes (wet winters and dry summers) other factors that can influence soil moisture content include:

- Influence of garden watering and site drainage.

- The presence of mature vegetation.
- Initial soil moisture conditions at the time of construction.

Based on our experience with alluvial soil, laboratory analysis within the strata on other projects in the local area and site observations, the shallow soils are conservatively expected to meet the requirements of a highly expansive or Class H soil type. In accordance with AS2870:2011[10] and New Zealand Building Code[11], Class H or Highly Expansive soils typically have a soil stability index (I_{SS}) range of 3.8 to 6.5% and a 500-year design characteristic surface movement return (y_s) of 78 mm.

A quantification of the expansive soil class assumptions can be made by geotechnical laboratory analysis at the Building Consent stage.

5.6 Concept Settlement Calculations

Holocene-aged alluvial soils were encountered during our geotechnical investigation. These soils are prone to settlement due to their soft and loose nature and relatively early age (>11700 years old).

Concept settlement calculations have been undertaken to estimate the amount of settlement that would occur with loads from future buildings on the insitu alluvial soils. A linear consolidation with 2:1 stress distribution has been considered during this calculation.

Concept calculations indicate < 25mm of settlement would occur to future buildings.

5.7 Preliminary Liquefaction Potential

Liquefaction occurs when excess pore pressures are generated within loose, saturated, and generally cohesionless soils (typically sands and silty sands with <30 % fines content) during earthquake shaking. The resulting high pore pressures can cause the soils to undergo a partial to complete loss of strength. This can result in settlement and/ or horizontal movement (lateral spread) of the soil mass.

The Geologix ground investigation indicates the site to be predominantly underlain by fine-grained alluvial soils, overlying Northland Allochthon soils at depth. Based on the materials strength and consistency, and our experience with these materials, there is a low liquefaction potential/ risk in a design level earthquake event.

6 PRELIMINARY GEOTECHNICAL RECOMMENDATIONS

The following preliminary geotechnical recommendations have been developed based on a typical, conceptual rural residential development formed within the designated house sites outlined, selected in terms of preliminary recommendations have been developed to satisfy

[10] *AS2870, Residential Slabs and Footings, 2011.*
[11] *New Zealand Building Code, Structure B1/AS1 (Amendment 19, November 2019), Clause 7.5.13.1.2.*

the requirements of Resource Consent to confirm the new residential lots can be formed with a less than minor effect on the environment.

It is recommended these conceptual recommendations are reviewed at the Building Consent stage once final development plans are available and advanced by development specific geotechnical investigation.

6.1 Concept Foundations

6.1.1 General

The mapped flood hazard is approximately 65m from the site's southern boundary**.** We recommend the finished floor level of any future building is at least 500mm above the mapped flood level. This should be done by a registered surveyor.

6.1.2 Raft Foundations

Raft Foundations could be considered appropriate for future residential developments on proposed lot 1 and 2.

It is recommended that any non-engineered fill, underlying soft spots (S_u <60 kPa) and any other unsuitable or deleterious materials (such as relic foundations, driveway hardstanding etc.) discovered in areas of foundation excavations for the garage are sub-excavated and replaced with suitably selected and compacted materials such as GAP65 hard fill.

Based on the natural formation having an average undrained shear strength of 43kPa and a 100 - 300mm layer of compacted GAP65 on this formation then it is expected that shallow standard raft footing foundations can be adopted for future structures. Such foundations may be designed by a professional structural engineer adopting an Ultimate Bearing Capacity of 200 kPa for a highly expansive soil type and a geotechnical reduction factor of 0.5.

Construction monitoring requirements of the above recommendations are detailed in Section 6.6 of this report.

6.1.3 Piled Foundations

Pile foundations could be considered appropriate for the future residential developments on lots 1 and 2.

Geotechnical design parameters for end bearing piles are presented as Table 5. It is recommended that all floors are fully suspended on the end-bearing piled solution.

All foundations should be subject to specific engineering design by a professional engineer. Concept construction monitoring requirements of the above recommendations are detailed in Section 6.4 of this report. Monitoring by a qualified Geotechnical Engineer such as Geologix will be key in achieving suitable foundations in this area.

Table 5: Piled Foundation Geotechnical Parameters for Proposed Lot 1 and 2.

Strata	Geotechnical Design Parameters	
Tauranga Group Alluvial Soils	Ultimate end-bearing capacit[1]	387 kPa/m^2
	ULS design end-bearing capacity[2]	193 kPa/m^2
	SLS design end-bearing capacity	129 kPa/m^2
	Ultimate skin friction[4]	30 kPa
	ULS design skin friction[2]	15 kPa
	SLS design skin friction	10 kPa

1. *Based on S_u = 43 kPa from available data.*
2. *Adopting a geotechnical strength reduction factor of 0.5.*
3. *Adopting S_u * α. With α determined from Figure 5 of NZBC B1/ VM4.*
4. *α = 0.7 for undrained shear strength of 43 kPa.*

6.2 Earthworks

No future earthwork concepts were provided to us at the time of writing. The building platform areas are located over gently sloping ground and with piled foundations considered as most appropriate for future residential developments, no large earthworks area considered necessary to the proposed building platform areas.

6.2.1 Temporary Works

To reduce the risk of temporary excavation instability, it is recommended that unsupported excavations have a maximum vertical height of 0.5 m. Temporary unsupported excavations above this height shall be battered at 1V:1H or 45 °. Temporary unsupported excavations > 0.5 m are not anticipated within the proposed development concept.

All works within proximity to any excavations should be undertaken in accordance with Occupational Health and Safety regulations. In addition, it is recommended that all earthworks are carried out in periods of fine weather within the typical October to April earthwork season. Consent conditions commonly prescribe working restrictions.

6.3 Concept Driveways and Car Parking

For any proposed future driveway and car parking, it is recommended that all unsuitable materials such as topsoil, vegetation, shallow fill, and localised soft spots are removed from the driveway area prior to filling. By doing so, it is expected that the Alluvial Soils will achieve a typical subgrade CBR value of 3 % or greater according to Austroads Standards.

For the driveway and parking areas it is recommended that carriageways include a minimum total thickness of 250 mm, comprising a minimum 150 mm sub-basecourse, typically AP65 or approved similar and minimum 100 mm basecourse, typically finer AP40 and a thin, 50 mm running course of GAP20.

It is recommended that any driveway cuts/ fills are fully supported by retaining walls or subject to further specific geotechnical analysis at the Building Consent stage.

6.4 Concept Construction Monitoring

During construction it is recommended that specific construction monitoring is undertaken by a professional engineer in accordance with the recommendations of this report, consent conditions and subsequent development specific geotechnical assessment at the Building Consent stage. At this stage, is anticipated that a professional Geotechnical Engineer will be required to provide inspection of:

- Foundations to confirm the embedment, construction and end bearing in accordance with specific engineering design and geotechnical requirements.
- Subgrade at the base of excavations within the footprint of buildings, driveways and any other areas of structural or vehicle loading.
- Inspection of hard fill compaction where placed >300 mm in thickness and/ or within the footprint of imposed surcharges such as buildings and/ or driveways. Hard fill should be inspected at maximum 300 mm lift intervals.
- Inspection of retaining wall construction, primarily of formed pile holes and select material properties.
- Formation of the building platform to maintain geotechnical stability.

The above items are considered to be capable under CM2 level construction monitoring accompanied by appropriate Producer Statements. Monitoring should be undertaken or supervised by a chartered professional engineer.

6.5 Further Geotechnical Works

This report was written based on the scheme plan supplied to Geologix at the time of writing and a typical, concept rural residential development scenario. It is recommended that this report is reviewed and advanced as required at the Building Consent stage when site specific development plans of the future dwellings and earthworks are available. Further geotechnical testing will be required if unorthodox or irregular shaped structures are proposed and for slope stability modelling purposes.

7 WASTEWATER ASSESSMENT

The scope of this wastewater assessment comprised a ground investigation to ascertain a lot-specific wastewater disposal classification for concept design of suitable systems for a probable future rural residential development. Relevant design guideline documents adopted include:

- Auckland Council, Technical Publication 58, On-site Wastewater Systems: Design and Management Manual, 2004.
- NZS1547:2012, On-site Domestic Wastewater Management.

The concept rural residential developments within this report assume that the proposed new residential lots may comprise up to a five-bedroom dwelling with a peak occupancy of eight people[12]. This considers the uncertainty of potential future Building Consent designs. The number of usable bedrooms within a residential dwelling must consider that proposed offices, studies, gyms, or other similar spaces maybe considered a potential bedroom by the Consent Authority.

7.1 Existing Wastewater Systems

Proposed Lot 3 has an existing wastewater treatment and disposal system identified within the site boundaries which services the existing buildings. This confirms that the system and associated disposal fields will be within the boundary of proposed Lot 3 and assuming the system is new will be functioning satisfactory for a projected design life of 50 years.

No other existing wastewater treatment or disposal systems have been identified or surveyed within the site boundaries.

7.2 Wastewater Generation Volume

In lieu of potable water infrastructure servicing the site, roof rainwater collection within on-lot tanks has been assumed for this assessment. The design water volume for roof water tank supply is estimated at 160 litres/ person/ day[13]. This assumes standard water saving fixtures[14] being installed within the proposed future developments. This should be reviewed for each proposed lot at the Building Consent stage.

For the concept wastewater design this provides a total daily wastewater generation of 1,280litres/ day per proposed lot.

7.3 Treatment System

Selection of a wastewater treatment system will be provided by future developers at Building Consent stage. This will be a function of a refined design peak occupancy. It is recommended that to meet suitable minimum treated effluent output, secondary treatment systems are accounted for across the site. In Building Consent design, considering final disposal field topography and proximity to controlling site feature, a higher treated effluent output standard such as UV disinfection to tertiary quality maybe required.

No specific treatment system design restrictions and manufacturers are currently in place. However, the developer will be required to specify the treatment system proposed at Building Consent.

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[12] TP58 Table 6.1.

[13] TP58 Table 6.2, AS/ NZS 1547:2012 Table H3.

[14] Low water consumption dishwashers and no garbage grinders.

7.4 Land Disposal System

To provide even distribution, evapotranspiration assistance and to minimise effluent runoff it is recommended that treated effluent is conveyed to land disposal via Pressure Compensating Dripper Irrigation (PCDI) systems, a commonplace method of wastewater disposal.

The proposed PCDI systems may be surface laid and covered with minimum 150 mm mulch and planted with specific evapotranspiration species with a minimum of 80 % species canopy cover or subsurface laid to topsoil with minimum 200 mm thickness and planted with lawn grass. Site-won topsoil during development from building and/ or driveways footprints may be used in the area of land disposal systems to increase minimum thicknesses. Specific requirements of the land disposal system include the following which have been complied with for this report.

Table 6: Disposal Field Design Criteria

Design Criteria	Site Conditions
Topography at the disposal areas shall not exceed 25°. Exceedances will require a Discharge Consent.	Concept design complies
On shallower slopes >10 ° compliance with Northland Regional Plan (NRP) rule C.6.1.3(6) is required.	Concept design for Lot 1 & 2 complies.
On all terrain irrigation lines should be laid along contours.	Concept design complies
Disposal system situated no closer than 600 mm (vertically) from the winter groundwater table (secondary treated effluent).	Concept design complies
Separation from surface water features such as stormwater flow paths (including road and kerb channels), rivers, lakes, ponds, dams, and natural wetlands according to Table 9, Appendix B of the NRP.	Concept design complies. All overland flow paths separation distances to disposal areas are 15 m.
The effluent is treated and disposed of on-site such that each site has its own treatment and disposal system no part of which shall be located closer than 30m from the boundary of any river, lake, wetland, or the boundary of the coastal marine area. FNDC rule 12.7.6.1.4	Concept design complies. Separation distance complies to rule at 30m.

7.4.1 Soil Loading Rate

Based on the results of the ground investigation, conservatively the shallow soils are inferred to meet the drainage characteristics of TP58 Category 6, sandy clay, non-swelling clay, and silty clay – slowly draining. This correlates to NZS1547 Category 5, poorly drained described as light clays. For a typical PCDI system, a Soil Loading Rate (SLR) of 2 mm/ day is recommended within NZS1547 Table 5.2 and TP58 Table 9.2.

To achieve the above SLR, technical guidance documents require the following compliance within the final design.

- 100 to 150 mm minimum depth of good quality topsoil (NZS1547 Table M1, note 1) to slow the soakage and assist with nutrient reduction.
- Minimum 30 % reserve disposal field area to enact 2.0 mm/ day SLR.

7.4.2 Disposal Areas

The sizing of wastewater system disposal areas is a function of soil drainage, the loading rate and topographic relief. For each proposed lot a primary and reserve disposal field is required as follows. The recommendations below are presented on Drawing No. 100.

- **Primary Disposal Field.** A minimum PCDI primary disposal field of 640 m^2 laid parallel to the natural contours.
- **Reserve Disposal Field.** A minimum reserve disposal field equivalent to 30 % of the primary disposal field is required under NRP rule C.6.1.3(9)(b) for secondary or tertiary treatment systems. It is recommended each proposed lot provides a 192 m^2 reserve disposal area to be laid parallel to the natural contours.
- Concept disposal field locations require the provision of surface water cut-off drains to meet the provisions of NRP rule C.6.1.3.
- Disposal fields discharging secondary treated effluent are to be set at the 20-year ARI (5% AEP) flood inundation height to comply with the above NRP rule. Flood hazard potential has not been identified within the site boundaries and as such the site can provide freeboard above the 1 % AEP flood height to comply with this rule.

7.5 Summary of Concept Wastewater Design

Based on the above design assumptions a concept wastewater design is presented in Table 7 and presented schematically upon Drawing No. 100. It is recommended that each lot is subject to Building Consent specific review and design amendment according to final development plans.

Table 7: Concept Wastewater Design Summary

Design Element	Specification
Concept development	Five-bedroom, peak occupancy of 8 (per lot)
Design generation volume	160 litres/ person/ day
Water saving measures	Standard. Combined use of 11 litre flush cisterns, automatic washing machine & dishwasher, no garbage grinder[1]
Water meter required?	No
Min. Treatment Quality	Secondary
Soil Drainage Category	TP58 Category 6, NZS1547 Category 5
Soil Loading Rate	2.0 mm/ day
Primary disposal field	Surface/ subsurface laid PCDI, min. 640 m^2
Reserve disposal field	Surface/ subsurface laid PCDI, min. 30 % or 192 m^2
Dosing Method	Pump with high water level visual and audible alarm. Minimum 24-hour emergency storage volume.

Stormwater Control	Divert surface/ stormwater drains away from disposal fields. Cut off drains required as needed. Stormwater management discharges downslope.

1. Unless further water saving measures are included.

7.6 Assessment of Environmental Effects

An Assessment of Environmental Effects (AEE) is required to address two aspects of wastewater disposal. These include the effect of treated wastewater disposal for an individual lot and the cumulative or combined effect of multiple lots discharging treated wastewater to land as a result of subdivision.

The scale of final development is unknown at the time of writing and building areas, impervious areas including driveways, ancillary buildings, landscaped gardens, and swimming pools may reduce the overall area for on-site wastewater disposal. For the purpose of this report, the above impervious features are considered to be comprised within the conceptual 30 x 30 m square building envelope shown on Drawing 100, Appendix A. The conceptual wastewater disposal field areas are clear of this indicative building envelope area.

It is recommended that the AEE is reviewed at the time of Building Consent once specific development plans, final disposal field locations and treatment systems are established. The TP58 guideline document provides a detailed AEE for Building Consent application. Based on the proposed scheme, ground investigation, walkover inspection and Drawing No. 100, a site-specific AEE is presented as Appendix C to demonstrate the proposed wastewater disposal concept will have a less than minor effect on the environment.

8 STORMWATER ASSESSMENT

Considering the nature of rural subdivision and residential development, increased storm water runoff occurs as pervious surfaces such as pasture are converted to impervious features such as roads or future on-lot buildings and driveways.

8.1 Impervious Surfaces and Activity Status

A summary of the impervious areas of the proposed lots is provided as below which has been developed from our observations and the provided Scheme Plan. For the proposed lots, this has been taken as conceptual maximum probable development of typical rural residential scenarios. Refer Section 8.2.

The activity status reflected in Table 9 is with respect to Operative FNDC Plan Section 8.6.5.1.3 only. Furthermore, the subdivision stormwater proposal has been assessed in accordance with the Operative FNDC Plan Section 13.8 on the basis that the overall subdivision is determined to be a Restricted Discretionary Activity.

Table 8: Summary of Impervious Surfaces

Surface	Proposed Lot 3 (Existing development)		Proposed Lot 1		Proposed Lot 2	
Existing Condition	**(688,613 m²)**		**NA**		**NA**	
Roof	195 m²	0.028 %				
Driveway and other hardened area	966 m²	0.14 %				
Total impervious	1161 m²	0.169 %				
Proposed Condition	**(674,795 m²)**		**(6,020 m²)**		**(7,798 m²)**	
Roof	195 m²	0.029 %	300 m²	4.98 %	300 m²	3.85 %
Driveway and surround	966 m²	0.143 %	200 m²	3.32 %	200 m²	2.56 %
Total	1,161 m²	0.172 %	500 m²	0.5 %	500 m²	6.41 %
Activity Status	Permitted		Permitted		Permitted	

8.2 Stormwater Management Concept

The stormwater management concept considered in this report has been prepared to meet the requirements of the local and regional consent authorities considering the design storm event as follows:

- **Probable Future Development (Proposed Lots 1 & 2).** The proposed application includes subdivision formation only and not lot-specific residential development at this stage. However, a conservative proposal for probable future on-lot development has been developed for this assessment considering variation of scale in typical rural residential development.

  The probable future on-lot development concept includes up to 300 m² potential roof area and up to 200 m² potential driveway or parking areas. The runoff from the latter area has been modelled as an offset within the lot-specific roof rainwater attenuation devices to ensure site runoff neutrality targets are achieved.

- **Existing On-site Development (Proposed Lot 3).** An existing dwelling including accompanying farm sheds with a total roof area of 195 m² and impervious driveway area and hardened areas of approximately 966 m² is located within the boundaries of proposed lot 3. There are several water tanks servicing the property currently. Impervious areas are below the permitted activity threshold as indicated above in Table 8, therefore attenuation for compliance in this regard is not necessary.

- **Subdivision Development.** Access to each proposed lot will be established by individual vehicle crossings to the boundary. The new impervious area associated with the crossings, present no considerable increase in post-development runoff from the subdivision development and so specific attenuation is not proposed (other than that included for future lot development).

8.3 Design Storm Event

Relevant design rainfall intensity and depths have been ascertained for the site location from the NIWA HIRDS meteorological model[15]. The NIWA HIRDS rainfall data is presented in full within Appendix D. Provision for climate change has been adopted by means of applying a factor of 20 % to rainfall intensities, in accordance with FNDC Engineering Standards 2023.

As per the discussion outcomes in Section 3.3, an increase to flooding hazard on downstream property has been identified as a result of the future development of the site. Therefore, in order to provide flood control in compliance with FNDC Engineering Standard Table 4-1, the concept design attenuates the post-development stormwater runoff peak discharge to 80 % of the pre-development condition for the 1 % AEP storm event.

Furthermore, the Table 4-1 stipulates that flow attenuation controls reduce the post-development peak discharge to 80 % of the pre-development condition for the 50% and 20 % AEP storm event. This provision also complies with NRP Rule C6.4.2(2).

The attenuation modelling within this report has been undertaken for all of the above storm events. The results are summarised in Table 8 and provided in full in Appendix D.

Outlet dispersion devices have been designed to manage the 1 % AEP event to reduce scour and erosion at discharge locations which may otherwise result in concentrated discharge. These are detailed further in Section 8.4.1 of this report.

8.4 Concept Attenuation Model

Based on the design storm events indicated above and the corresponding modelling results (included in Appendix D) an attenuation concept to suit the maximum storage requirement has been provided. In this case the concept limits the post-development peak discharge to 80 % of the pre-development condition for the 1 % AEP storm event. This is achievable by installing specifically sized low-flow orifices into the attenuation devices. The rational method has been adopted by Geologix with run-off coefficients as published by FNDC Engineering Standards to provide a suitable attenuation design.

- Roof Runoff Tanks

Conceptual storage and outlet requirements within the tanks are included in Table 10 and a typical schematic retention/ detention tank arrangement detail is presented as Drawing No. 410 within Appendix A.

Calculations to support the concept design are presented as Appendix D to this report.

A summary of the probable future development concept design is presented as Table 9, with a specific summary of the roof tanks concept provided in Table 10.

[15] *NIWA High Intensity Rainfall Data System, https://hirds.niwa.co.nz.*

Table 9: Summary of Probable Future Development Concept

Item	Pre-development Impervious Area	Post-development Impervious Area	Proposed Concept Attenuation Method
Future Concept Development – Lot 1			
Potential buildings	0 m^2	300 m^2	Detention within roof water tanks
Potential driveways	0 m^2	200 m^2	Off-set detention in roof water tanks
Total	**0 m^2**	**500 m^2**	
Future Concept Development - Lot 2			
Potential buildings	0 m^2	300 m^2	Detention within roof water tanks
Potential driveways	0 m^2	200 m^2	Off-set detention in roof water tanks
Total	**0 m^2**	**500 m^2**	
Existing Development (Lot 3)			
Existing buildings	195 m^2	195 m^2	Not Required, impervious area < permitted activity
Existing driveway & surround	966 m^2	966 m^2	Not Required, impervious area < permitted activity
Total	**1,161 m^2**	**1,161 m^2**	

Table 10: Probable Future Development Attenuation Concept – Roof Tanks

Design Parameter	Flow Attenuation: 50 % AEP (80% of pre dev)	Flow Attenuation: 20 % AEP (80% of pre dev)	Flow Attenuation: 1 % AEP (80% of pre dev)
Proposed Development			
Regulatory Compliance	FNDC Engineering Standards Table 4-1	FNDC Engineering Standards Table 4-1	FNDC Engineering Standards Table 4-1
Pre-development peak flow	5.22 l/s	6.77 l/s	12.00 l/s
80 % pre-development peak flow	4.18 l/s	5.42 l/s	9.60 l/s
Post-development peak flow	8.49 l/s	11.02 l/s	19.52 l/s
Total Storage Volume Required	4,469 litres	5,843 litres	10,548 litres

Concept Summary:	- Attenuation storage calculation accounts for offset flow from driveway (not indicated explicitly in summary above. Refer Appendix D for calcs in full) - Attenuation to 80 % of pre-development condition for 1 % AEP storm represents maximum storage requirement and is adopted for the concept design tank storage. - 1 x 25,000 litre tank is sufficient for attenuation (10,548) + potable storage (14,452l) - 1 % AEP attenuation in isolation requires a 39 mm orifice 1.10 m below overflow. However regulatory requirements are to consider an additional orifice to control the 20 and 50 %. We note this may vary the concept orifice size and invert level indicated above. This should be provided with detailed design for building consent approval.

8.4.1 On-Lot Discharge – Roof tank outlets

The direct discharge of concentrated runoff can cause scour and erosion in addition to excessive saturation of shallow soils.

It is recommended that overflow from rainwater detention tanks is conveyed in sealed pipes to a designated discharge point downslope of proposed building footprints and wastewater disposal fields.

Typical rural residential developments may construct either above ground level spreader or an equivalent in-ground dispersion trench. Feeding pipes can be either buried or pinned to the surface as desired. It is recommended that all pipes are designed to accommodate the design storm event peak overflows from the attenuation tank. A concept above ground level spreader is presented as Table 11. Calculations to derive this are presented within Appendix D, derived from Auckland Council TR2013/018 document.

It is recommended that the conceptually sized dispersion devices are subject to specific assessment at the Building Consent stage to limit scour and erosion from tank overflows.

Table 11: Summary of Concept Dispersion Devices

Concept Impervious Area to Tank	Tank Outlet Velocity (m/s)	Tank outlet pipe diameter (mm)	Spreader Pipe length, diameter	Spreader orifice size, spacing	Spreader orifices outlet Velocity	Concept
Proposed Lot 1 and 2						
300 m^2	4.64 m/s	100 Ø	7.35m long, 150 mm Ø	50No. 20mm Ø at 150mm centres	0.92 m/s	Above-ground level spreader (or equivalent in-ground trench)

8.5 Subdivision Development Management

All stormwater conveyance devices must be suitably sized to accommodate peak run-off flows from the design storm event. Stormwater conveyance to be constructed at the time of subdivision formation is proposed to include:

- 300mm Ø RC pipe culverts (Class 4) or other approved material, formed at each intersection between the proposed lot vehicle crossings on Takahue Saddle Road to provide conveyance of drainage beneath the lot accessway.

The minimum pipe diameter of 300 Ø has been adopted for the crossings, in line with FNDC Engineering Standard 2023. There is no formal road-side channel drain specifically requiring conveyance under the crossing, but minor depressions are visible indicating some conveyance potential that should be provided for. It is therefore considered prudent to install these culverts to mitigate pooling potential at the crossing intersection. The crossings should be raised as required to provide suitable cover for the class of pipe selected. The culverts are proposed to be class 4 and placed at the depth required for conveyance of flows.

The above measures are indicated on Drawing No. 100 within Appendix A.

Other stormwater infrastructure mentioned in this report is conceptual only to justify the subdivision formation and should be designed specifically and constructed at lot-development stage and subjected to building consent where applicable.

8.6 Stormwater Quality

The proposed application is for a rural residential subdivision and future development. The key contaminant risks in this setting include:

- Sediments and minor contaminants washed from impervious surfaces.
- Leaf matter, grass, and other organic debris.

Stormwater treatment requirements are minor to maintain good quality stormwater discharge. Stormwater quality will be provided by:

- Leaf guards on roof guttering/ first flush devices on roof guttering and downpipes.
- Rainwater tank for potable use onsite only to be filled by roof runoff.
- Room for sedimentation (minimum 150 mm according to Auckland Council GD01) within the base of the stormwater attenuation roof runoff tanks as dead storage volume.
- Grassed swale drains from rainwater inception (road surfaces) to discharge points.

The risk of other contaminants being discharged out of the site boundaries (hydrocarbons, metals etc.) as a result of the proposed activities once stormwater has been processed through the above measures that will affect the downstream water quality is considered low.

9 POTABLE WATER & FIRE FIGHTING

In the absence of potable water infrastructure within Takahue Saddle Road or within the site it is recommended that the roof runoff water tanks are adopted for potable water supply with appropriate filtration and UV disinfection at point of use. The volume of potable water supply on each lot should consider the required stormwater detention volume identified within Table 10.

Furthermore, the absence of potable water infrastructure and fire hydrants within Takahue Saddle Road require provision of the on-lot roof water supply tanks to be used for firefighting purposes, if required. Specific analysis and calculation for firefighting is outside the scope of this report and may require specialist input. Supply for firefighting should be made in accordance with SNZ PAS4509:2008.

10 EARTHWORKS

As part of the subdivision application, earthworks are required as follows:

- **New vehicle crossings.** Cut/ fill earthworks for construction of the vehicle crossings and pipe culvert for each, to current Council Engineering Standards.

Proposed earthwork volumes for the above works are anticipated to be less than 80 m^3, well within a 5,000 m^3 Permitted Activity volume limit outlined by FNDC District Plan Rule 12.3.6.1.1(a) and the maximum cut and fill height is <3 m to comply with 12.3.6.1.1(b).

Rule C.8.3.1, Table 15 of the Proposed Regional Plan outlines a Permitted Activity as 5,000 m^2 of exposed earth at any time for 'other areas'. Proposed earthwork areas to form the subdivision, are anticipated to comply with the Permitted Activity standard for other areas.

10.1 General Recommendations

Bulk fill with site-won earth can be moderately sensitive to disturbance when exposed to rain or runoff which may cause saturation or vehicle movements and trafficking during earthworks. Accordingly, care should be taken during construction, including probable future developments, to minimise degradation of any earth fill due to construction traffic and to minimise machinery on site.

Any areas of proposed bulk fill which are required to meet specific subgrade requirements within should be subject to a specific earthwork specification prepared by a professional Engineer such as Geologix.

Due to the topography of the site, significant excavations are not anticipated. However, to reduce the risk of instability of excavations during construction, it is recommended that

temporary unsupported excavations have a maximum vertical height of 0.5 m. Excavations > 0.5 m should be battered at 1V:1H or 45 °. Permanent batter slopes may require a shallower angle to maintain long term stability and if proposed these should be assessed at the Building Consent stage within a specific geotechnical investigation report.

Temporary batters should be covered with polythene sheets secured to the surface with pins or batons to prevent saturation. All works within close proximity to excavations should be undertaken in accordance with Occupational Safety and Health regulations.

All earthworks should be carried out in periods of fine weather within the typical October to April earthwork season. Consent conditions commonly prescribe working restrictions.

10.2 Erosion and Sediment Control

Specific erosion and sediment control measures are required to control sediment runoff from areas of proposed earthworks within the scope of this application. It is recommended that specific on-lot development is assessed at the time of Building Consent by the future developer.

To form the subdivision the following erosion and sediment control measures are recommended:

- Silt fence around the downslope face of the proposed vehicle crossing at each lot
- Clean water diversion bund on the upslope side of the vehicle crossing work zone, if warranted by any considerable upstream flows that are intercepted by the works area, although this is not anticipated from our walkover.

11 NATURAL HAZARD ASSESSMENT

To satisfy the Resource Management Act, 1991 the proposed subdivision must plan for and manage the risk from natural hazards to reduce the potential adverse effects to less than minor. Regulatory assessment of natural hazards at the site location are managed under the jurisdiction of the FNDC District Plan[16], Northland Regional Council (NRC) Proposed Regional Plan for Northland[17] and Regional Water and Soil Plan for Northland. Following our ground investigation and considering the measures presented in this report, a summary of the proposed activities against defined natural hazards is presented as Table 12.

Table 12: Summary of Natural Hazards

Natural Hazard	Applicability	Mitigation & Effect on Environment
Erosion	Yes	Mitigation provided; resultant effects are less than minor.
Overland flow paths, flooding, inundation	Yes	Mitigation provided; resultant effects are less than minor.

[16] *Operative District Plan Rule 13.7.3.2.*
[17] *Proposed Regional Plan for Northland, Appeals Version, July 2021, Chapter D.6.*

Landslip	Yes	Mitigation required after further geotechnical investigation have been undertaken at BC stage.
Rockfall	NA	No anticipated effects, less than minor.
Alluvion	NA	No anticipated effects, less than minor.
Avulsion	NA	No anticipated effects, less than minor.
Unconsolidated fill	NA	No anticipated effects, less than minor.
Soil contamination	NA	No anticipated effects, less than minor.
Subsidence	NA	No anticipated effects, less than minor.
Fire hazard	NA	No anticipated effects, less than minor.
Sea level rise	NA	No anticipated effects, less than minor.

NA – Not Applicable.

12 INTERNAL ROADING AND VEHICLE CROSSINGS

It is noted that we are not traffic engineers, and no specific Traffic Impact Assessment is included within the scope of these works. If required, it is recommended that advice is sought from a chartered traffic engineer.

12.1 Vehicle Crossings

Vehicle crossings will be formed at subdivision stage. A summary of proposed vehicle crossings is presented as Table 13.

Visibility and sight distance from all proposed vehicle crossings is sufficient, given the reasonably straight approaches along Takahue Saddle Road to the crossings, and that there are no trees or other obstructions that obstruct the sight lines.

The standard profile or vertical alignment as per FNDC Engineering Standards 2023, can be be suitably applied for both of the proposed crossings with minor earthworks only required. This has been assessed based on the LINZ lidar contours available and is easily achieved.

Table 13: Summary of Proposed Vehicle Crossings

Location	Type	Detail	Formation
Takahue Saddle Road/ Existing Lot 3 Entrance	FNDC Type 1A, Light Vehicles	To remain as is.	Existing
Takahue Saddle Road / Lot 1 Entrance	FNDC Type 1A, Light Vehicles	To be constructed to FNDC Engineering Standards typical detail sheet 21. Width at boundary 3.0m with Ø 300mm pipe culvert.	At subdivision
Takahue Saddle Road / Lot 2 Entrance	FNDC Type 1A, Light Vehicles	To be constructed to FNDC Engineering Standards typical detail sheet 21. Width at boundary 3.0m with Ø 300mm pipe culvert.	At subdivision

RCP – Reinforced Concrete Pipe

13 LIMITATIONS

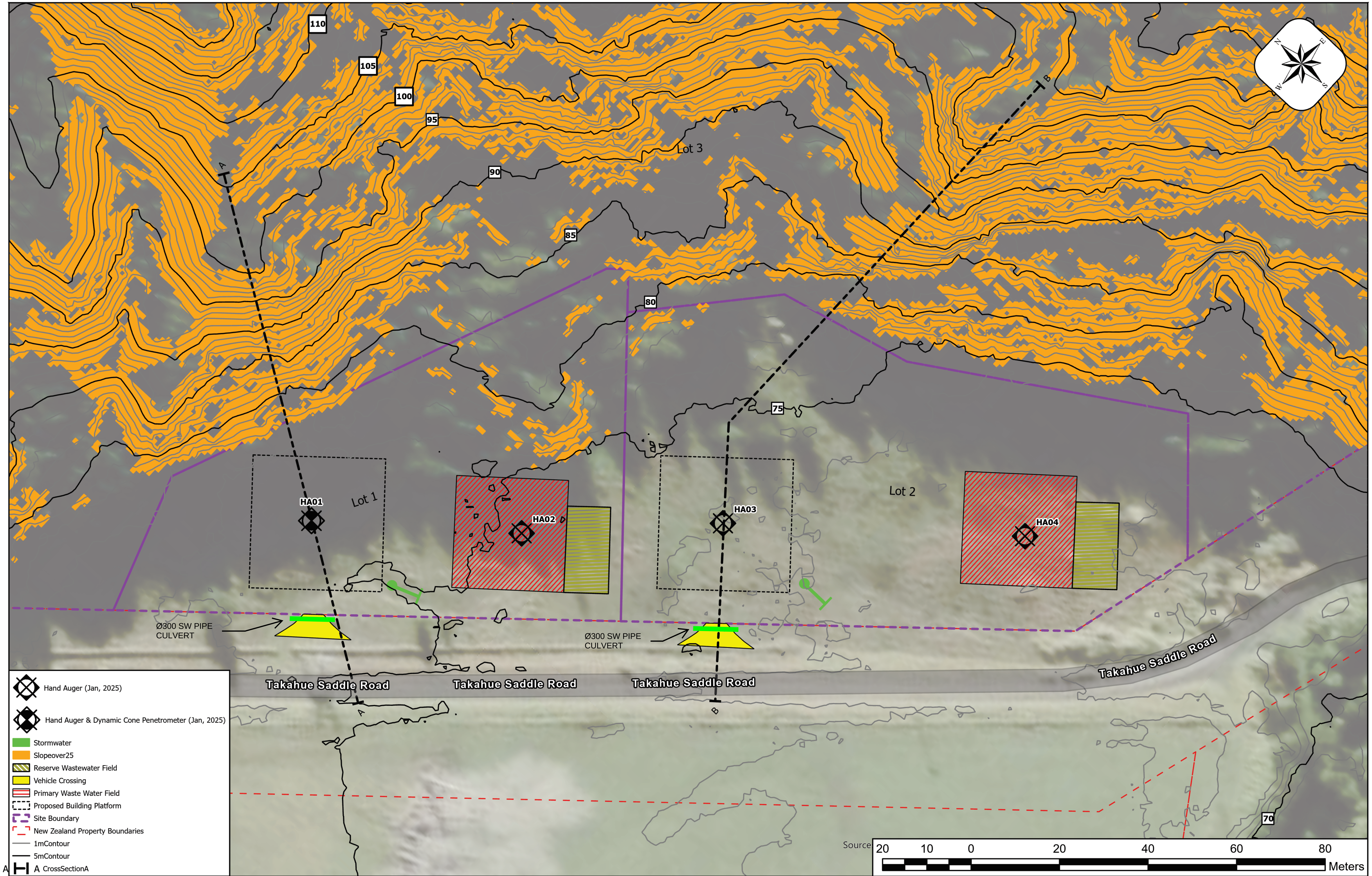
This report has been prepared for Sigley Forests Ltd as our Client. It may be relied upon by our Client and their appointed Consultants, Contractors and for the purpose of Consent as outlined by the specific objectives in this report. This report and associated recommendations, conclusions or intellectual property is not to be relied upon by any other party for any purpose unless agreed in writing by Geologix Consulting Engineers Ltd and our Client. In any case the reliance by any other party for any other purpose shall be at such parties' sole risk and no reliability is provided by Geologix Consulting Engineers Ltd.

The opinions and recommendations of this report are based on plans, specifications and reports provided to us at the time of writing, as referenced. Any changes, additions or amendments to the project scope and referenced documents may require an amendment to this report and Geologix Consulting Engineers should be consulted. Geologix Consulting Engineers Ltd reserve the right to review this report and accompanying plans.

The recommendations and opinions in this report are based on arisings extracted from exploratory boreholes at discrete locations and any available existing borehole records. The nature and continuity of subsurface conditions, interpretation of ground condition and models away from these specific ground investigation locations are inferred. It must be appreciated that the actual conditions may vary from the assumed ground model. Differences from the encountered ground conditions during subdivision construction may require an amendment to the recommendations of this report.

APPENDIX A

Drawings


110
105
100
95
90
85
80
75
70
Lot 3
Lot 1
Lot 2
A
B
HA01
HA02
HA03
HA04
Ø300 SW PIPE CULVERT
Ø300 SW PIPE CULVERT
Takahue Saddle Road
Takahue Saddle Road
Takahue Saddle Road
Takahue Saddle Road
Hand Auger (Jan, 2025)
Hand Auger & Dynamic Cone Penetrometer (Jan, 2025)
Stormwater
Slopeover25
Reserve Wastewater Field
Vehicle Crossing
Primary Waste Water Field
Proposed Building Platform
Site Boundary
New Zealand Property Boundaries
1mContour
5mContour
A CrossSectionA
Source
20 10 0 20 40 60 80
Meters
N E S W

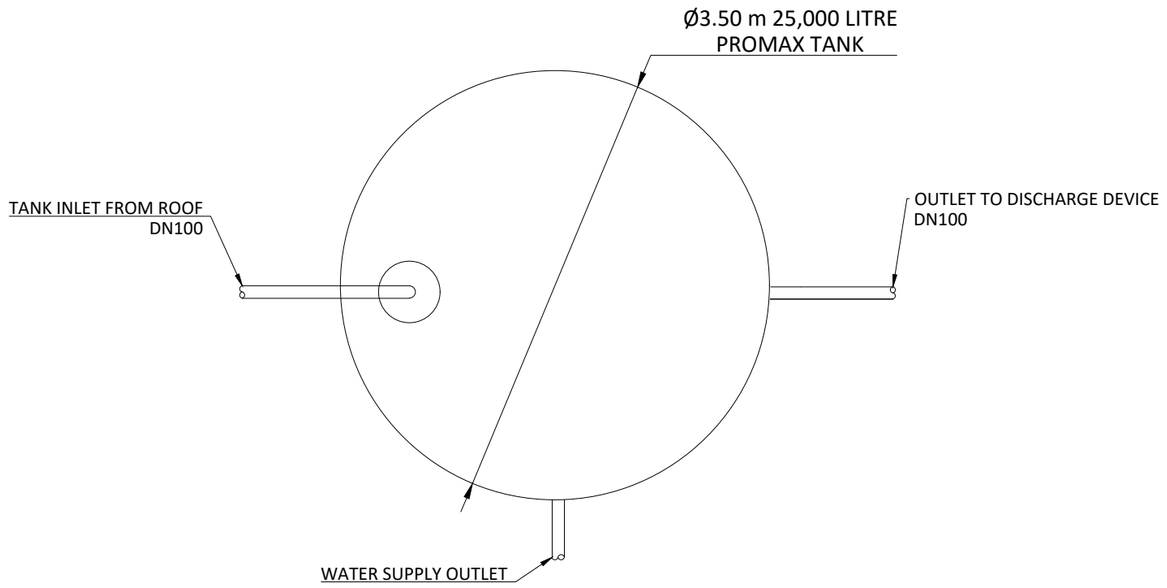
geologix consulting engineers

Drawn: VB	Signed: VB	Date: 13/01/2025	Client: Sigley Forests Ltd	Address: Takahue Saddle Road, Broadwood, Far North	Project Title: Proposed Subdivision Plan
Verified: SH	Signed: SH	Date: 13/01/2025			
Approved: XX	Signed: XX	Date: 13/01/2025			

Status: Draft				
Scale: 1:750		Sheet Size: A3		
Project Number: C0582	Type: RC	Class: E	Sheet #: 100	Rev: A

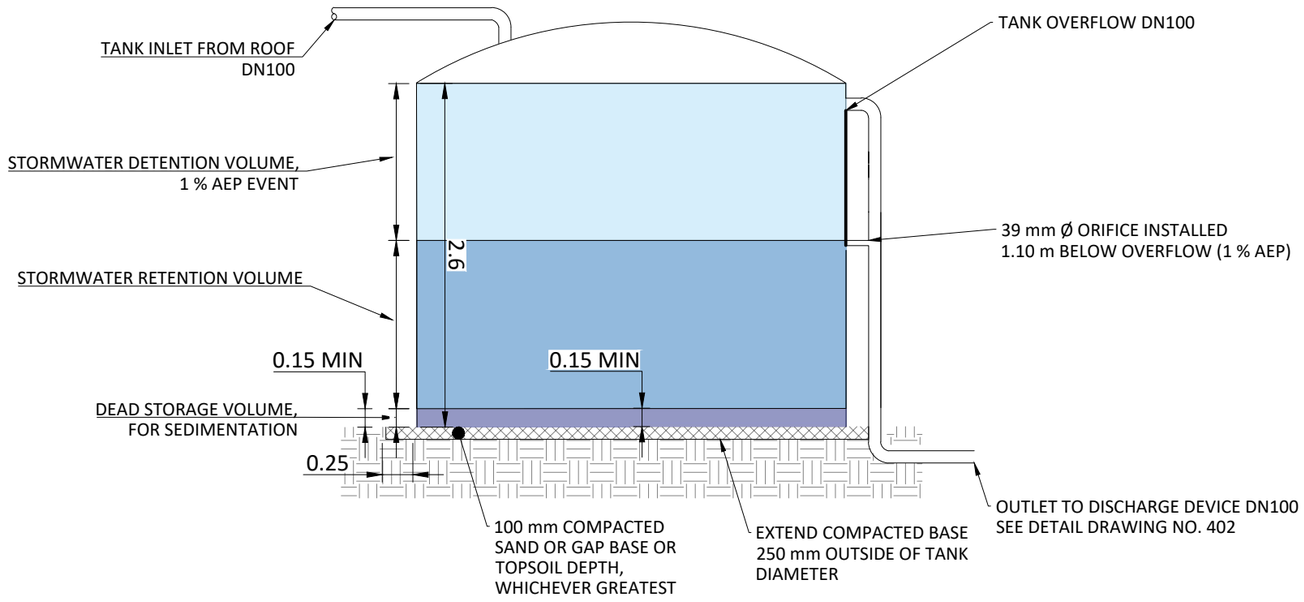
PROPOSED TANK PLAN VIEW

1:50, A3



PROPOSED TANK SIDE VIEW

1:50, A3



GENERAL NOTES

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A	CONSENT	20/03/2025
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

TAKAHUE SADDLE ROAD
BROADWOOD
FAR NORTH

Project	Drawn By
C0582	GM

Client

SIGLEY FORESTS LTD

Sheet Title

STORMWATER TANK DETAILS

Sheet

410

FILE PATH: Z:\Geologix Files\Projects\C0500-C0599\C0582 - Takahue Saddle Road, Broadwood\07 - Technical & Drawings\Drawings\C0582-SS.dwg[C0582-SS.dwg

PLOTTED: 09/04/2022

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APPENDIX B

Engineering Borehole Records

INVESTIGATION LOG

HOLE NO.: HA01

CLIENT: Sigley Forests Ltd

PROJECT: Takahue Saddle Road, Broadwood

JOB NO.: C0582

SITE LOCATION: North East of Takahue Saddle Road

START DATE: 14/01/2025

CO-ORDINATES: 1634870.010mE, 6099082.800mN

ELEVATION: Ground

END DATE: 14/01/2025

CONTRACTOR: Internal

RIG: 50 mm Auger

DRILLER: GB

LOGGED BY: GB

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	DEPTH (m)	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467	Values	WATER
TOPSOIL with trace rootlets, greyish brown. Moist; Friable.	0.0				
SILT, with minor clay, with trace rootlets; brown with grey mottles. Very stiff; moist; Friable; [Alluvium].	0.2			182	
	0.4			40	
	0.6			124	
Clayey SILT, with trace rootlets and sand; brown with grey mottles. Very stiff to stiff; moist to wet; low plasticity; sand, fine; [Alluvium].	0.8			46	
	1.0			118	
	1.2			55	
	1.4			139	
	1.6			55	
CLAY, with minor silt; bluish grey with brown mottles. Stiff; wet to saturated; high plasticity; [Alluvium].	1.8			61	
1.8m: Becoming Firm.	2.0			30	
	2.2			39	
2.4m: Becoming very stiff.	2.4			25	
	2.6			78	
	2.8			29	
	3.0			131	
	3.2			58	
	3.4			98	
3.6m - 3.9m: Becoming Firm.	3.6			29	
	3.8			61	
	4.0			29	
4.1m - 5.0m: Becoming greyish dark brown with trace rootlets and trace fine sand; saturated.	4.2			55	
	4.4			29	
4.5m - 5.0m: Becoming Firm.	4.6			39	
	4.8			20	
End Of Hole: 5.00m	5.0			49	
				35	
				58	
				29	
				46	
				32	
				43	
				26	

PHOTO(S)

REMARKS

1. Hand auger drilled to target depth of 5.0 m bgl.
2. Groundwater encountered at 4.0 m bgl during drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

INVESTIGATION LOG

HOLE NO.: HA02

CLIENT: Sigley Forests Ltd

PROJECT: Takahue Saddle Road, Broadwood

JOB NO.: C0582

SITE LOCATION: North East of Takahue Saddle Road

START DATE: 14/01/2025

CO-ORDINATES: 1634894.270mE, 6099045.780mN

ELEVATION: Ground

END DATE: 14/01/2025

CONTRACTOR: Internal

RIG: 50 mm Auger

DRILLER: GB

LOGGED BY: GB

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa)	WATER
TOPSOIL with trace rootlets, greyish brown. Moist; Friable.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	Groundwater Not Encountered
SILT, with minor clay, with trace rootlets; greyish brown. Dry to moist; Friable; [Alluvium].		0.2 0.4				
SILT, with some clay, with trace rootlets; brown with dark orange and grey mottles. Moist; low plasticity; [Alluvium].		0.6 0.8 1.0 1.2				
End Of Hole: 1.20m		1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8				

PHOTO(S)

REMARKS

1. Hand auger drilled to target depth of 1.2 m bgl.
2. Groundwater not encountered during drilling.

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.: HA03

CLIENT: Sigley Forests Ltd

PROJECT: Takahue Saddle Road, Broadwood

JOB NO.: C0582

SITE LOCATION: North East of Takahue Saddle Road

START DATE: 14/01/2025

CO-ORDINATES: 1634936.000mE, 6099000.000mN

ELEVATION: Ground

END DATE: 14/01/2025

CONTRACTOR: Internal

RIG: 50 mm Auger and DCP

DRILLER: TW

LOGGED BY: TW

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3282	Values	WATER
Silty CLAY, with trace rootlets; dark grey with reddish brown mottles. Very stiff; moist; low plasticity; [Alluvium].		0.0 – 0.2				160 44	
SILT, with some clay; dark brown with light dark grey mottles. Very stiff to stiff; moist; low plasticity; [Alluvium].		0.2 – 0.4				132 35	
0.7m: Becoming dark brown.		0.4 – 0.6				102 30	
		0.6 – 0.8				96 35	
CLAY, with some silt; dark brown. Stiff; moist; high plasticity; [Alluvium].		0.8 – 1.0				84 29	
		1.0 – 1.2				76 26	
Sandy SILT, with minor clay; dark brown with dark grey mottles. Stiff to firm; saturated; low plasticity; sand, fine; [Alluvium].		1.2 – 1.4				70 26	◁
		1.4 – 1.6				55 26	
		1.6 – 1.8				41 23	
Silty SAND, with some gravel; dark grey. Loose; saturated; gravel, fine to medium, subround; [Alluvium].		1.8 – 2.0					
		2.0 – 2.2					
		2.2 – 2.4					
		2.4 – 2.6					
		2.6 – 2.8					
		2.8 – 3.0					
		3.0 – 3.2					
End Of Hole: 3.30m		3.2 – 3.4		17			
		3.4 – 3.6		16			
		3.6 – 3.8		14			
		3.8 – 4.0		20			
		4.0 – 4.2					
		4.2 – 4.4					
		4.4 – 4.6					
		4.6 – 4.8					

PHOTO(S)

REMARKS

1. Hand auger terminated at 3.3 m bgl due to dense strata encountered.
2. DCP testing carried out from the base of hand auger to refusal at 3.7 m bgl.
3. Groundwater encountered at 2.1 m bgl during drilling.

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.: HA04

CLIENT: Sigley Forests Ltd

PROJECT: Takahue Saddle Road, Broadwood

JOB NO.: C0582

SITE LOCATION: North East of Takahue Saddle Road

START DATE: 14/01/2025

CO-ORDINATES: 1634985.340mE, 6098933.860mN

ELEVATION: Ground

END DATE: 14/01/2025

CONTRACTOR: Internal

RIG: 50 mm Auger

DRILLER: TW

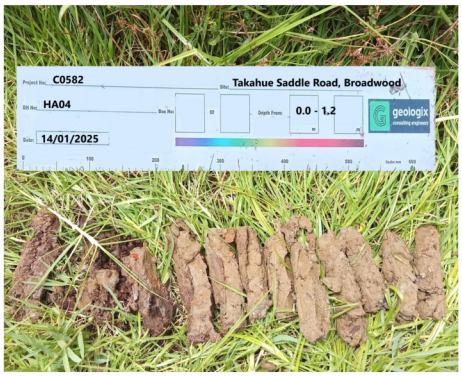
LOGGED BY: TW

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa)	WATER
SILT, with some carbonaceous; dark brown. Moist; low plasticity; [Alluvium].		0.0 – 0.2				Groundwater Not Encountered
SILT, with some clay; dark grey with reddish brown and dark brown mottles. Moist; low plasticity; [Alluvium].		0.2 – 1.2				
End Of Hole: 1.20m		1.2 – 4.8				

Scala penetrometer: 2, 4, 6, 8, 10, 12, 14, 16, 18 (Blows / 0mm)

Vane shear strength (kPa): Vane: 50, 100, 150, 200; Values

PHOTO(S)



REMARKS

1. Hand auger drilled to target depth of 1.2 m bgl.
2. Groundwater not encountered during drilling.

WATER

- ▼ Standing Water Level
- ▷ Out flow
- ◁ In flow

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

Generated with CORE-GS by Geroc - Hand Auger - scala & vane bars - 21/01/2025 12:32:01 pm

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APPENDIX C

Assessment of Environmental Effects and Assessment Criteria

Table 14: Wastewater Assessment of Environmental Effects

Item	NRC Separation Requirement[2]	FNDC Separation Requirement	Site Assessment[3]
Individual System Effects			
Flood Plains	Above 5 % AEP	NR	Complies according to available GIS data and visual assessment.
Stormwater Flowpath[4]	5 m	NR	Complies, see annotations on Drawing No. 100.
Surface water feature[5]	15 m	15 m (3x feature area in ha)	Complies.
Coastal Marine Area	15 m	30 m	Complies, see annotations on Drawing No. 100.
Existing water supply bore.	20 m	NR	Complies. None recorded within or within 20 m of the site boundaries.
Property boundary	1.5 m	1.5	Complies. Including proposed subdivision boundaries.
Winter groundwater table	0.6 m	0.6 m	Complies.
Topography			Ok – chosen disposal areas are gently sloping to < 15 °.
Cut off drain required?			No, in Lot 1. No, in Lot 2.
Discharge Consent Required?			No.
	TP58	**NZS1547**	
Cumulative Effects			
Biological Oxygen Demand	≤20 g/m^3		Complies – secondary treatment.
Total Suspended Solids	≤30 g/m^3		Complies – secondary treatment.
Total Nitrogen	10 – 30 g/m^3	15 – 75 g/m^3	Complies – secondary treatment.
Phosphorous	NR	4 – 10 g/m^3	Complies – secondary treatment.
Ammonia	NR	Negligible	Complies – secondary treatment.
Nitrites/ Nitrates	NR	15 – 45 g/m^3	Complies – secondary treatment.
Conclusion: Effects are less than minor on the environment.			

1. AEE based on proposed secondary treated effluent.
2. Northland Regional Plan Table 9.
3. Based on the recommendations of this report and Drawing No. 100.
4. Including any formed road with kerb and channel, and water-table drain that is down-slope of the disposal area.
5. River, lake, stream, pond, dam, or natural wetland.

AEP Annual Exceedance Probability.
NR No Requirement.

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APPENDIX D

Stormwater Calculations

Project Ref:	C0582	**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Takahue Saddle Road, Broadwood		
Design Case:	CONCEPT FUTURE DEVELOPMENT	**1 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT**	
Date:	21 February 2025 REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER 2023 FNDC ENGINEERING STANDARDS).
PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
RUNOFF COEFFICIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS				**POST DEVELOPMENT CATCHMENT PARAMETERS**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0		TO TANK	300	0.96	ROOF
IMPERVIOUS B	0	0		OFFSET	200	0.83	DRIVEWAY - METAL
IMPERVIOUS C	0	0		PERVIOUS	0	0	
EX. PERVIOUS	500	0.67	PASTURE	EX. CONSENTED	0	0	
0	0	0		0	0	0	
TOTAL	**500**	TYPE C		**TOTAL**	**500**	TYPE C	

RAINFALL INTENSITY, 1% AEP, 10MIN DURATION

1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	129.0	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	154.8	mm/hr

* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.

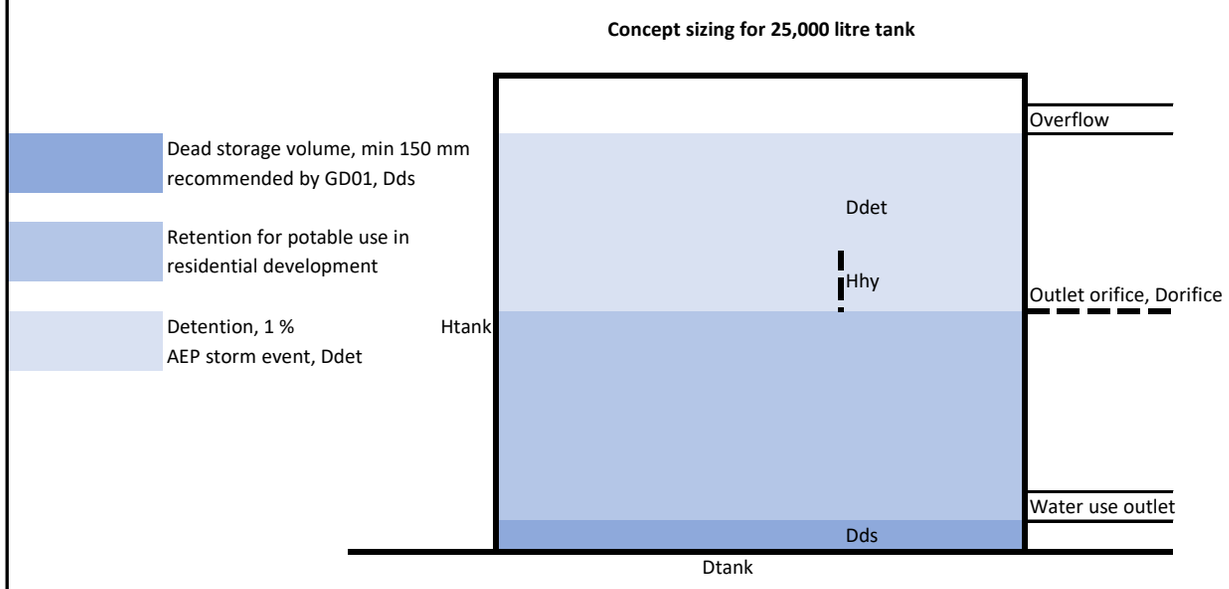
PRE AND POST-DEVELOPMENT RUNOFF, 1%AEP, VARIOUS DURATIONS

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	129.00	1.2	154.80	19.52	12.00	9.60	*Critical duration (time of concentration) for the catchments is 10min*
20	94.20	1.2	113.04	14.26	8.77	7.01	
30	78.10	1.2	93.72	11.82	7.27	5.81	
60	56.20	1.2	67.44	8.50	5.23	4.18	
120	39.70	1.2	47.64	6.01	3.69	2.96	*Pre-dev calculated on Intensity without CC factor*
360	22.00	1.2	26.40	3.33	2.05	1.64	
720	14.60	1.2	17.52	2.21	1.36	1.09	
1440	9.41	1.2	11.29	1.42	0.88	0.70	
2880	5.85	1.2	7.02	0.89	0.54	0.44	
4320	4.35	1.2	5.22	0.66	0.40	0.32	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	7.14	12.38	2.47	2.47	9.92	5951	*Selected Tank Outflow is selected for critical duration (time of concentration).*
20	5.21	9.04	1.80	2.47	6.58	7893	
30	4.32	7.50	1.49	2.47	5.03	9058	
60	3.11	5.40	1.07	2.47	2.93	10548	
120	2.20	3.81	0.76	2.47	1.35	9690	*select largest required storage , regardless of duration, to avoid overflow for event of any duration*
360	1.22	2.11	0.42	2.47	No Att. Req.	0	
720	0.81	1.40	0.28	2.47	No Att. Req.	0	
1440	0.52	0.90	0.18	2.47	No Att. Req.	0	
2880	0.32	0.56	0.11	2.47	No Att. Req.	0	
4320	0.24	0.42	0.08	2.47	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT



SPECIFICATION

TOTAL STORAGE REQUIRED	10.548	m3	Select largest storage as per analysis	
TANK HEIGHT, Htank	2.6	m	Concept sizing for 25,000 litre tank	
TANK DIAMETER, Dtank	3.5	m	No. of Tanks	1
TANK AREA, Atank	9.62	m2	Area of ONE tank	
TANK MAX STORAGE VOLUME, Vtank	25015	litres		
REQUIRED STORAGE HEIGHT, Ddet	1.10	m	Below overflow	
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum	
TOTAL WATER DEPTH REQUIRED	1.25	m		
SELECTED TANK OUTFLOW, Qout, l/s	0.00247	m3/s	Selected tank outflow	
AVERAGE HYDRAULIC HEAD, Hhy	0.55	m		
AREA OF ORIFICE, Aorifice	1.21E-03	m2		
ORIFICE DIAMETER, Dorifice	39	mm		
VELOCITY AT ORIFICE	4.64	m/s	At max. head level	

Project Ref:	C0582		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Takahue Saddle Road, Broadwood			
Design Case:	CONCEPT FUTURE DEVELOPMENT		**20 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT**	
Date:	21 February 2025	REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER 2023 FNDC ENGINEERING STANDARDS).
PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
RUNOFF COEFFICIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0	
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	500	0.67	PASTURE
TOTAL	**500**	TYPE C	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO TANK	300	0.96	ROOF
OFFSET	200	0.83	DRIVEWAY - METAL
PERVIOUS	0	0	
EX. CONSENTED	0	0	
0	0	0	
TOTAL	**500**	TYPE C	

RAINFALL INTENSITY, 20% AEP, 10MIN DURATION

20 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	72.8	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
20 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	87.4	mm/hr

* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.

PRE AND POST-DEVELOPMENT RUNOFF, 20%AEP, VARIOUS DURATIONS

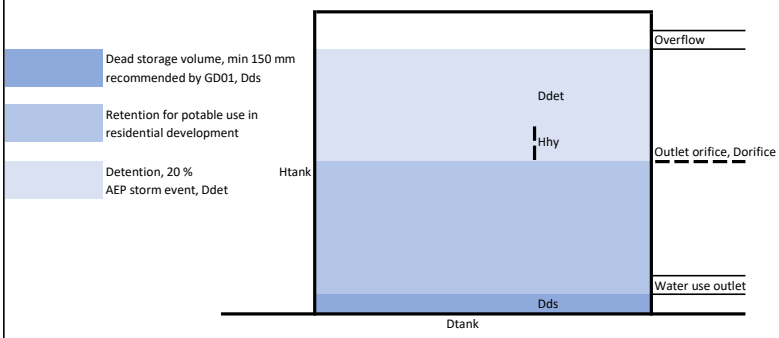
DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	72.80	1.2	87.36	11.02	6.77	5.42	*Critical duration (time of concentration) for the catchments is 10min*
20	53.10	1.2	63.72	8.04	4.94	3.95	
30	43.90	1.2	52.68	6.64	4.09	3.27	
60	31.40	1.2	37.68	4.75	2.92	2.34	
120	22.10	1.2	26.52	3.34	2.06	1.65	*Pre-dev calculated on Intensity without CC factor*
360	12.20	1.2	14.64	1.85	1.14	0.91	
720	8.05	1.2	9.66	1.22	0.75	0.60	
1440	5.17	1.2	6.20	0.78	0.48	0.38	
2880	3.20	1.2	3.84	0.48	0.30	0.24	
4320	2.37	1.2	2.84	0.36	0.22	0.18	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	4.03	6.99	1.39	1.39	5.60	3359	*Selected Tank Outflow is selected for critical duration (time of concentration).*
20	2.94	5.10	2.00	1.39	3.71	4448	
30	2.43	4.21	1.66	1.39	2.82	5082	
60	1.74	3.01	1.18	1.39	1.62	5843	
120	1.22	2.12	0.83	1.39	0.73	5258	*select largest required storage , regardless of duration, to avoid overflow for event of any duration*
360	0.68	1.17	0.46	1.39	No Att. Req.	0	
720	0.45	0.77	0.30	1.39	No Att. Req.	0	
1440	0.29	0.50	0.20	1.39	No Att. Req.	0	
2880	0.18	0.31	0.12	1.39	No Att. Req.	0	
4320	0.13	0.23	0.09	1.39	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT

Concept sizing for 25,000 litre tank



SPECIFICATION

TOTAL STORAGE REQUIRED	5.843	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	2.5	m	Concept sizing for 25,000 litre tank
TANK DIAMETER, Dtank	3.5	m	No. of Tanks 1
TANK AREA, Atank	9.62	m2	Area of ONE tank
TANK MAX STORAGE VOLUME, Vtank	24053	litres	
REQUIRED STORAGE HEIGHT, Ddet	0.61	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.76	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00139	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.30	m	
AREA OF ORIFICE, Aorifice	9.19E-04	m2	
ORIFICE DIAMETER, Dorifice	34	mm	
VELOCITY AT ORIFICE	3.45	m/s	At max. head level

Project Ref:	C0582	**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Takahue Saddle Road, Broadwood		
Design Case:	CONCEPT FUTURE DEVELOPMENT	**50 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT**	
Date:	21 February 2025 REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER 2023 FNDC ENGINEERING STANDARDS).
PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
RUNOFF COEFFICIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A			
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	500	0.67	PASTURE
TOTAL	**500**	TYPE C	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO TANK	300	0.96	ROOF
OFFSET	200	0.83	DRIVEWAY - METAL
PERVIOUS	0	0	
EX. CONSENTED	0	0	
TOTAL	**500**	TYPE C	

RAINFALL INTENSITY, 50% AEP, 10MIN DURATION

50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	56.1	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	67.32	mm/hr

* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.

PRE AND POST-DEVELOPMENT RUNOFF, 50%AEP, VARIOUS DURATIONS

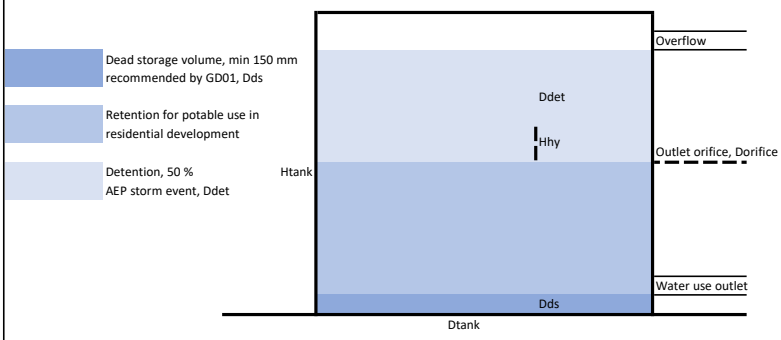
DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	56.10	1.2	67.32	8.49	5.22	4.18	*Critical duration (time of concentration) for the catchments is 10min*
20	40.80	1.2	48.96	6.17	3.80	3.04	
30	33.70	1.2	40.44	5.10	3.14	2.51	
60	24.10	1.2	28.92	3.65	2.24	1.79	
120	17.00	1.2	20.40	2.57	1.58	1.27	*Pre-dev calculated on Intensity without CC factor*
360	9.30	1.2	11.16	1.41	0.87	0.69	
720	6.15	1.2	7.38	0.93	0.57	0.46	
1440	3.94	1.2	4.73	0.60	0.37	0.29	
2880	2.43	1.2	2.92	0.37	0.23	0.18	
4320	1.80	1.2	2.16	0.27	0.17	0.13	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	3.10	5.39	1.07	1.07	4.31	2588	*Selected Tank Outflow is selected for critical duration (time of concentration).*
20	2.26	3.92	0.78	1.07	2.84	3414	
30	1.86	3.24	0.64	1.07	2.16	3894	
60	1.33	2.31	0.46	1.07	1.24	4469	
120	0.94	1.63	0.32	1.07	0.56	4031	*select largest required storage , regardless of duration, to avoid overflow for event of any duration*
360	0.51	0.89	0.18	1.07	No Att. Req.	0	
720	0.34	0.59	0.12	1.07	No Att. Req.	0	
1440	0.22	0.38	0.08	1.07	No Att. Req.	0	
2880	0.13	0.23	0.05	1.07	No Att. Req.	0	
4320	0.10	0.17	0.03	1.07	No Att. Req.	0	

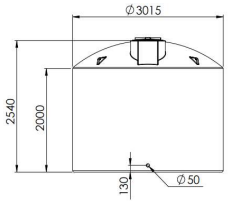
ATTENUATION TANK DESIGN OUTPUT

Concept sizing for 25,000 litre tank



SPECIFICATION

TOTAL STORAGE REQUIRED	4.469	m3	Select largest storage as per analysis	
TANK HEIGHT, Htank	2.5	m	Concept sizing for 25,000 litre tank	
TANK DIAMETER, Dtank	3.5	m	No. of Tanks	1
TANK AREA, Atank	9.62	m2	Area of ONE tank	
TANK MAX STORAGE VOLUME, Vtank	24053	litres		
REQUIRED STORAGE HEIGHT, Ddet	0.46	m	Below overflow	
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum	
TOTAL WATER DEPTH REQUIRED	0.61	m		
SELECTED TANK OUTFLOW, Qout, l/s	0.00107	m3/s	Selected tank outflow	
AVERAGE HYDRAULIC HEAD, Hhy	0.23	m		
AREA OF ORIFICE, Aorifice	8.10E-04	m2		
ORIFICE DIAMETER, Dorifice	32	mm		
VELOCITY AT ORIFICE	3.02	m/s	At max. head level	



Project Ref:	C0582	STORMWATER DISPERSION PIPE/ TRENCH	geologix consulting engineers
Project Address:	Takahue Saddle Road, Broadwood		
Design Case:	CONCEPT FUTURE DEVELOPMENT	DISCHARGE DEVICE - LEVEL SPREADER OR TRENCH	
Date:	21 February 2025 REV 1		

DESIGN BASED ON REFERENCED DEVELOPMENT PLANS TO PROVIDE A MINIMUM LENGTH OF ABOVE OR BELOW GROUND STORMWATER TANK OVERFLOW DISCHARGE DISPERSION DEVICE. IN GENERAL ACCORDANCE WITH MODIFIED RATIONAL METHOD AND AUCKLAND COUNCIL TR2013/018.

DESIGN STORM EVENT **1%** AEP EVENT

SLOPE BETWEEN SOURCE & DISPERSION DEVICE

ELEVATION	h	CHAINAGE, x	Δ x	h bar	Δ A
m	m	m	m	m	m2
74	0	0	0	0	0
73.7	0.3	6	6	0.15	0.9
	TOTALS	6	6		0.9
	SLOPE, Sc	0.050	m/m		

MANNINGS PIPE FLOW - INCOMING PIPE

Dia, m	d/D	α, rad	P, m	A, m^2	R	1:S	n	V, m/s	Q, m^3/s	Q, l/s	
0.1	0.000	6.283	0.0000	0.0000	0.000	20	0.009	0.000	0.0000	0.000	**0 % full**
0.100	0.050	5.381	0.0451	0.0001	0.003	20	0.009	0.546	0.0001	0.080	
0.100	0.100	4.996	0.0644	0.0004	0.006	20	0.009	0.852	0.0003	0.348	
0.100	0.150	4.692	0.0795	0.0007	0.009	20	0.009	1.098	0.0008	0.811	
0.100	0.200	4.429	0.0927	0.0011	0.012	20	0.009	1.307	0.0015	1.461	
0.100	0.250	4.189	0.1047	0.0015	0.015	20	0.009	1.488	0.0023	2.285	
0.100	0.300	3.965	0.1159	0.0020	0.017	20	0.009	1.649	0.0033	3.267	
0.100	0.350	3.751	0.1266	0.0024	0.019	20	0.009	1.791	0.0044	4.387	
0.100	0.400	3.544	0.1369	0.0029	0.021	20	0.009	1.916	0.0056	5.622	
0.100	0.450	3.342	0.1471	0.0034	0.023	20	0.009	2.027	0.0069	6.949	
0.100	0.500	3.142	0.1571	0.0039	0.025	20	0.009	2.124	0.0083	8.342	**50 % full**
0.100	0.550	2.941	0.1671	0.0044	0.026	20	0.009	2.208	0.0098	9.772	
0.100	0.600	2.739	0.1772	0.0049	0.028	20	0.009	2.278	0.0112	11.209	
0.100	0.650	2.532	0.1875	0.0054	0.029	20	0.009	2.335	0.0126	12.620	
0.100	0.700	2.319	0.1982	0.0059	0.030	20	0.009	2.379	0.0140	13.968	
0.100	0.750	2.094	0.2094	0.0063	0.030	20	0.009	2.408	0.0152	15.213	
0.100	0.800	1.855	0.2214	0.0067	0.030	20	0.009	2.421	0.0163	16.308	
0.100	0.850	1.591	0.2346	0.0071	0.030	20	0.009	2.416	0.0172	17.192	
0.100	0.900	1.287	0.2498	0.0074	0.030	20	0.009	2.388	0.0178	17.781	
0.100	0.950	0.902	0.2691	0.0077	0.029	20	0.009	2.326	0.0179	17.927	
0.100	1.000	0.000	0.3142	0.0079	0.025	20	0.009	2.124	0.0167	16.684	**Flowing full**

DISPERSION SPECIFICATION

INCOMING PIPE PROPERTIES:

TANK OUTFLOW, 1 % AEP	12.38	l/s		
MAXIMUM PIPE FLOW	17.93	l/s		
SUFFICIENT CAPACITY IN PIPE	YES			
LONGITUDINAL SLOPE	0.050	m/m		
DESIGN VELOCITY, Dv	2.421	m/s		

LEVEL SPREADER SPECIFICATIONS:

PIPE DIAMETER, m	0.15	m		
MANNINGS PIPE ROUGHNESS	0.009			
NUMBER OF ORIFICES	50	No.		
DIA. OF ORIFICE, D	20	mm		
ORIFICE INTERVALS, C/C	150	mm		
DISPERSION PIPE LENGTH, L	**7.35**	**m**		

ORIFICE DESIGN FLOW CHECK:

AREA OF SINGLE ORIFICE, A	0.00031	m2		
FLOW OUT OF 1 ORIFICE	0.000289379	m3/s	0.29 l/s	
FLOW OUT OF ALL ORIFICES	0.01446896	m3/s	14.47 l/s	**DESIGN OK**
VELOCITY FROM SINGLE ORIFICE	0.92	m/s		

BROAD CRESTED WEIR DESIGN FLOW CHECK:

ORIFICE INVERT LEVEL, y	0.04	m	i.e. orifice invert relative to bottom (invert) of spreader pipe
FLOW DEPTH, h	0.11	m	i.e. head above orifice invert (weir invert)
BASE WIDTH = L	7.35	m	
FLOW AREA	0.83	m2	
WEIR FLOW	0.01953	m3/s	19.53 l/s **DESIGN OK**
WEIR VELOCITY	0.024	m/s	

INCOMING PIPE & SPREADER SUMARY:

	LOT 1 & 2	
INCOMING PIPE DIAMETER, m	0.100	m
SPREADER PIPE DIAMETER, m	0.150	m
MANNINGS PIPE ROUGHNESS	0.009	
NUMBER OF ORIFICES	50	No.
DIA. OF ORIFICE, D	20	mm
ORIFICE INTERVALS, C/C	150	mm
DISPERSION PIPE LENGTH, L	**7.35**	**m**

HIRDS V4 Intensity-Duration-Frequency Results
Sitename: Takahue Saddle Road Broadwood
Coordinate system: WGS84
Longitude: 173.3892
Latitude: -35.2541

DDF Mode Parameters:	c	d	e	f	g	h	i
Values:	0.00189173	0.50459209	-0.01709758	-0.0021117	0.25401208	-0.01094565	3.0916476

Example:	Duration (hrs)	ARI (yrs)	x	y	Rainfall Rate (mm/hr)
	24	100	3.17805383	4.600149227	9.405278002

Rainfall intensities (mm/hr) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	51.2	37.2	30.8	22	15.5	8.47	5.6	3.58	2.21	1.64	1.31	1.1
2	0.5	56.1	40.8	33.7	24.1	17	9.3	6.15	3.94	2.43	1.8	1.45	1.21
5	0.2	72.8	53.1	43.9	31.4	22.1	12.2	8.05	5.17	3.2	2.37	1.9	1.59
10	0.1	85.2	62.2	51.5	36.9	26	14.3	9.48	6.09	3.77	2.8	2.25	1.88
20	0.05	97.9	71.5	59.2	42.5	30	16.5	11	7.05	4.37	3.24	2.6	2.18
30	0.033	106	77.1	63.9	45.9	32.4	17.9	11.9	7.62	4.73	3.51	2.82	2.37
40	0.025	111	81.2	67.3	48.3	34.1	18.8	12.5	8.04	4.99	3.71	2.98	2.5
50	0.02	115	84.3	69.9	50.2	35.5	19.6	13	8.37	5.2	3.86	3.1	2.6
60	0.017	119	86.9	72	51.8	36.6	20.2	13.4	8.64	5.37	3.99	3.2	2.69
80	0.013	124	91	75.5	54.2	38.4	21.2	14.1	9.07	5.64	4.19	3.36	2.82
100	0.01	129	94.2	78.1	56.2	39.7	22	14.6	9.41	5.85	4.35	3.49	2.93
250	0.004	146	107	89	64.1	45.4	25.1	16.7	10.8	6.71	4.99	4.01	3.37

Intensity standard error (mm/hr) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	6.8	4.4	3.2	2.4	1.7	1	0.71	0.46	0.1	0.08	0.05	0.027
2	0.5	7.4	4.7	3.6	2.6	1.8	1.1	0.78	0.51	0.11	0.09	0.06	0.028
5	0.2	10	6.7	5.3	3.7	2.6	1.5	1.1	0.69	0.16	0.13	0.09	0.056
10	0.1	13	8.8	7.2	4.7	3.4	1.9	1.3	0.84	0.23	0.18	0.13	0.092
20	0.05	17	12	9.6	6.2	4.4	2.4	1.6	1	0.32	0.24	0.19	0.14
30	0.033	19	14	11	7.2	5.2	2.8	1.9	1.1	0.39	0.29	0.23	0.17
40	0.025	21	15	13	8.1	5.8	3.2	2.1	1.2	0.44	0.33	0.26	0.2
50	0.02	23	17	14	8.9	6.3	3.4	2.2	1.3	0.49	0.36	0.29	0.22
60	0.017	24	18	15	9.5	6.8	3.7	2.4	1.4	0.53	0.39	0.31	0.24
80	0.013	27	20	17	11	7.6	4.1	2.6	1.5	0.6	0.44	0.35	0.28
100	0.01	29	22	18	12	8.3	4.5	2.8	1.6	0.66	0.49	0.39	0.31
250	0.004	40	31	26	17	12	6.3	3.9	2	0.94	0.69	0.56	0.45

Rainfall intensities (mm/hr) :: RCP2.6 for the period 2031-2050

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	54.8	39.9	32.9	23.5	16.5	8.94	5.86	3.73	2.29	1.69	1.35	1.13
2	0.5	60.1	43.7	36.2	25.9	18.1	9.84	6.46	4.1	2.52	1.86	1.49	1.25
5	0.2	78.3	57.1	47.2	33.8	23.8	12.9	8.49	5.4	3.32	2.46	1.97	1.64
10	0.1	91.8	67	55.4	39.7	27.9	15.2	10	6.38	3.93	2.91	2.33	1.95
20	0.05	106	77.1	63.9	45.8	32.3	17.6	11.6	7.39	4.56	3.37	2.7	2.26
30	0.033	114	83.2	69	49.5	34.9	19	12.5	8	4.93	3.65	2.93	2.45
40	0.025	120	87.6	72.6	52.1	36.7	20.1	13.2	8.44	5.21	3.86	3.09	2.59
50	0.02	125	91	75.5	54.2	38.2	20.9	13.8	8.79	5.42	4.02	3.22	2.69
60	0.017	128	93.8	77.8	55.9	39.4	21.6	14.2	9.07	5.6	4.15	3.32	2.78
80	0.013	134	98.3	81.5	58.6	41.3	22.6	14.9	9.52	5.88	4.36	3.49	2.92
100	0.01	139	102	84.4	60.7	42.8	23.5	15.5	9.88	6.1	4.52	3.62	3.03
250	0.004	158	116	96.2	69.2	48.9	26.8	17.7	11.3	7.01	5.2	4.17	3.49

Rainfall intensities (mm/hr) :: RCP2.6 for the period 2081-2100

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	54.8	39.9	32.9	23.5	16.5	8.94	5.86	3.73	2.29	1.69	1.35	1.13
2	0.5	60.1	43.7	36.2	25.9	18.1	9.84	6.46	4.1	2.52	1.86	1.49	1.25
5	0.2	78.3	57.1	47.2	33.8	23.8	12.9	8.49	5.4	3.32	2.46	1.97	1.64
10	0.1	91.8	67	55.4	39.7	27.9	15.2	10	6.38	3.93	2.91	2.33	1.95
20	0.05	106	77.1	63.9	45.8	32.3	17.6	11.6	7.39	4.56	3.37	2.7	2.26
30	0.033	114	83.2	69	49.5	34.9	19	12.5	8	4.93	3.65	2.93	2.45
40	0.025	120	87.6	72.6	52.1	36.7	20.1	13.2	8.44	5.21	3.86	3.09	2.59
50	0.02	125	91	75.5	54.2	38.2	20.9	13.8	8.79	5.42	4.02	3.22	2.69
60	0.017	128	93.8	77.8	55.9	39.4	21.6	14.2	9.07	5.6	4.15	3.32	2.78
80	0.013	134	98.3	81.5	58.6	41.3	22.6	14.9	9.52	5.88	4.36	3.49	2.92
100	0.01	139	102	84.4	60.7	42.8	23.5	15.5	9.88	6.1	4.52	3.62	3.03
250	0.004	158	116	96.2	69.2	48.9	26.8	17.7	11.3	7.01	5.2	4.17	3.49

Rainfall intensities (mm/hr) :: RCP4.5 for the period 2031-2050

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	55.7	40.5	33.5	23.9	16.8	9.06	5.93	3.77	2.31	1.7	1.36	1.14
2	0.5	61.2	44.5	36.8	26.3	18.4	9.97	6.53	4.15	2.54	1.88	1.5	1.25
5	0.2	79.7	58.1	48.1	34.4	24.2	13.1	8.6	5.46	3.36	2.48	1.98	1.66
10	0.1	93.5	68.2	56.4	40.5	28.4	15.5	10.1	6.45	3.97	2.93	2.35	1.96
20	0.05	108	78.5	65.1	46.7	32.8	17.9	11.7	7.47	4.6	3.4	2.72	2.28
30	0.033	116	84.8	70.2	50.4	35.5	19.3	12.7	8.09	4.99	3.69	2.95	2.47
40	0.025	122	89.2	73.9	53.1	37.4	20.4	13.4	8.54	5.26	3.9	3.12	2.61
50	0.02	127	92.7	76.9	55.2	38.9	21.2	14	8.89	5.48	4.06	3.25	2.72
60	0.017	131	95.6	79.2	56.9	40.1	21.9	14.4	9.18	5.66	4.19	3.35	2.81
80	0.013	137	100	83.1	59.7	42.1	23	15.1	9.64	5.95	4.4	3.52	2.95
100	0.01	142	104	86	61.8	43.6	23.8	15.7	10	6.17	4.57	3.66	3.06
250	0.004	161	118	98	70.5	49.8	27.3	18	11.5	7.09	5.25	4.21	3.52

Rainfall intensities (mm/hr) :: RCP4.5 for the period 2081-2100

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	58.6	42.6	35.2	25.2	17.6	9.43	6.14	3.89	2.37	1.74	1.39	1.16
2	0.5	64.4	46.8	38.7	27.7	19.4	10.4	6.78	4.28	2.61	1.92	1.53	1.28
5	0.2	84.1	61.3	50.7	36.3	25.4	13.7	8.95	5.65	3.46	2.55	2.03	1.7
10	0.1	98.7	72	59.6	42.7	30	16.2	10.6	6.69	4.09	3.02	2.41	2.01
20	0.05	114	83	68.8	49.3	34.6	18.7	12.2	7.75	4.75	3.5	2.8	2.34
30	0.033	123	89.6	74.3	53.3	37.5	20.3	13.3	8.39	5.15	3.8	3.04	2.53
40	0.025	129	94.3	78.2	56.1	39.5	21.4	14	8.86	5.43	4.01	3.2	2.68
50	0.02	134	98.1	81.3	58.4	41.1	22.3	14.6	9.22	5.66	4.18	3.34	2.79
60	0.017	138	101	83.8	60.2	42.3	23	15	9.53	5.85	4.32	3.45	2.88
80	0.013	145	106	87.9	63.2	44.4	24.1	15.8	10	6.15	4.54	3.62	3.03
100	0.01	150	110	91	65.4	46	25	16.4	10.4	6.38	4.71	3.76	3.15
250	0.004	171	125	104	74.6	52.6	28.6	18.8	11.9	7.32	5.41	4.33	3.62

Rainfall intensities (mm/hr) :: RCP6.0 for the period 2031-2050

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	55.4	40.3	33.3	23.8	16.6	9.01	5.9	3.75	2.3	1.7	1.36	1.13
2	0.5	60.7	44.2	36.5	26.1	18.3	9.92	6.5	4.13	2.53	1.87	1.5	1.25
5	0.2	79.1	57.7	47.7	34.2	24	13	8.56	5.44	3.34	2.47	1.98	1.65
10	0.1	92.8	67.7	56	40.2	28.2	15.4	10.1	6.42	3.95	2.92	2.34	1.96
20	0.05	107	78	64.6	46.3	32.6	17.8	11.7	7.44	4.58	3.39	2.71	2.27
30	0.033	115	84.1	69.7	50.1	35.2	19.2	12.6	8.05	4.97	3.67	2.94	2.46
40	0.025	121	88.5	73.4	52.7	37.1	20.3	13.3	8.5	5.24	3.88	3.1	2.6
50	0.02	126	92	76.3	54.8	38.6	21.1	13.9	8.85	5.46	4.04	3.24	2.71
60	0.017	130	94.9	78.7	56.5	39.8	21.8	14.3	9.14	5.64	4.18	3.34	2.8
80	0.013	136	99.4	82.4	59.3	41.8	22.8	15	9.59	5.92	4.39	3.51	2.94
100	0.01	141	103	85.4	61.4	43.3	23.7	15.6	9.96	6.14	4.55	3.64	3.05
250	0.004	160	117	97.3	70	49.4	27.1	17.9	11.4	7.06	5.23	4.19	3.51

Rainfall intensities (mm/hr) :: RCP6.0 for the period 2081-2100

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	61.1	44.5	36.8	26.3	18.3	9.77	6.33	3.99	2.42	1.78	1.41	1.18
2	0.5	67.2	48.9	40.4	28.9	20.2	10.8	7	4.4	2.68	1.97	1.57	1.31
5	0.2	88	64.1	53.1	38	26.6	14.2	9.26	5.82	3.55	2.61	2.08	1.73
10	0.1	103	75.4	62.4	44.8	31.4	16.8	11	6.89	4.2	3.1	2.47	2.06
20	0.05	119	87	72.1	51.7	36.3	19.5	12.7	7.99	4.88	3.59	2.87	2.39
30	0.033	129	94	77.9	55.9	39.2	21.1	13.7	8.66	5.29	3.9	3.11	2.59
40	0.025	135	98.9	82	58.9	41.3	22.3	14.5	9.14	5.59	4.12	3.28	2.74
50	0.02	141	103	85.3	61.3	43	23.2	15.1	9.52	5.82	4.29	3.42	2.86
60	0.017	145	106	87.9	63.2	44.3	24	15.6	9.84	6.01	4.44	3.54	2.95
80	0.013	152	111	92.2	66.3	46.5	25.1	16.4	10.3	6.32	4.66	3.71	3.1
100	0.01	157	115	95.4	68.6	48.2	26.1	17	10.7	6.56	4.83	3.86	3.22
250	0.004	179	131	109	78.3	55.1	29.8	19.5	12.3	7.53	5.56	4.44	3.7

Rainfall intensities (mm/hr) :: RCP8.5 for the period 2031-2050

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	56.4	41	33.9	24.2	16.9	9.15	5.98	3.8	2.32	1.71	1.37	1.14
2	0.5	61.9	45	37.2	26.6	18.7	10.1	6.59	4.18	2.56	1.89	1.51	1.26
5	0.2	80.7	58.8	48.7	34.9	24.5	13.2	8.68	5.51	3.38	2.5	1.99	1.67
10	0.1	94.7	69.1	57.2	41	28.8	15.6	10.2	6.51	4	2.95	2.36	1.97
20	0.05	109	79.6	65.9	47.3	33.3	18.1	11.9	7.54	4.64	3.43	2.74	2.29
30	0.033	118	85.9	71.2	51.1	35.9	19.6	12.8	8.16	5.02	3.71	2.97	2.48
40	0.025	124	90.4	74.9	53.8	37.9	20.6	13.6	8.62	5.3	3.92	3.14	2.63
50	0.02	129	94	77.9	56	39.4	21.5	14.1	8.97	5.52	4.08	3.27	2.73
60	0.017	132	96.9	80.3	57.7	40.6	22.2	14.6	9.26	5.7	4.22	3.38	2.82
80	0.013	139	102	84.2	60.5	42.6	23.2	15.3	9.73	5.99	4.43	3.55	2.97
100	0.01	144	105	87.2	62.7	44.2	24.1	15.9	10.1	6.22	4.6	3.68	3.08
250	0.004	163	120	99.3	71.5	50.4	27.6	18.2	11.6	7.14	5.29	4.24	3.54

Rainfall intensities (mm/hr) :: RCP8.5 for the period 2081-2100

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	66.9	48.7	40.2	28.8	19.9	10.5	6.75	4.23	2.54	1.86	1.47	1.23
2	0.5	73.7	53.7	44.4	31.7	22.1	11.6	7.5	4.67	2.82	2.06	1.64	1.36
5	0.2	96.9	70.6	58.4	41.8	29.2	15.5	9.96	6.21	3.75	2.75	2.18	1.82
10	0.1	114	83.2	68.8	49.4	34.5	18.3	11.8	7.36	4.45	3.27	2.59	2.16
20	0.05	132	96	79.6	57.1	39.9	21.3	13.7	8.54	5.18	3.8	3.02	2.51
30	0.033	142	104	86	61.7	43.2	23	14.9	9.26	5.62	4.12	3.28	2.73
40	0.025	149	109	90.5	65	45.5	24.3	15.7	9.79	5.93	4.36	3.46	2.88
50	0.02	156	114	94.2	67.7	47.4	25.3	16.3	10.2	6.19	4.54	3.61	3
60	0.017	160	117	97.1	69.8	48.9	26.1	16.9	10.5	6.39	4.7	3.73	3.1
80	0.013	168	123	102	73.3	51.3	27.4	17.7	11.1	6.73	4.93	3.92	3.27
100	0.01	174	127	106	75.9	53.2	28.5	18.4	11.5	6.98	5.12	4.08	3.39
250	0.004	198	145	120	86.6	60.7	32.6	21.1	13.2	8.01	5.88	4.69	3.9

Appendix 5

Copy of correspondence

sent to Council about zoning error

THOMSON SURVEY LIMITED

SURVEYORS AND RESOURCE PLANNERS

Our Reference: 10675.1 (FNDC)

22 January 2025

Tammy Wooster
Manager – Integrated Planning

Tammy.Wooster@fndc.govt.nz

Dear Tammy

RE: ERROR IN ZONING OF PRIVATE LAND AT TAKAHUE SADDLE ROAD, BROADWOOD

I am currently preparing a minor subdivision proposal for the owner of Sections 58 & 59 Blk II Whangape SD, private free hold fee simple Title – NA947/241, 69.4795ha in area. A copy of the Title is attached.

The property is zoned Rural Production in the Operative District Plan. However, when checking zoning in the Proposed District Plan, I discovered a proposed zoning of Rural Production for the lower Section 59, but a Natural Open Space zoning for the upper Section 58. Not only does this place a split zoning on a single title, but also zones private land Natural Open Space with no justification. A copy of the relevant PDP map is attached.

This is clearly an error in the mapping. Unfortunately this is the first the property owner has realised there has been an error. He advises that the Council has never approached him about zoning part of his Freehold Title Natural Open Space. The owner (our client) did not lodge a submission to the PDP as they were unaware of the error.

However, I believe there is scope under the RMA for the Council to rectify such obvious errors at the earliest opportunity. The land owner and I would like your commitment to undertake that correction and advise as to the process and likely timeframes.

As stated in the Overview to the Natural Open Space Zone, this zone generally applies to public land that is administered by government agencies and includes a variety of parks and historic reserves. In addition the overview says that some Natural Open Space Land may be subject to treaty settlement claims and may be returned to tangata whenua – a highly unlikely event for free hold general title land not in Crown ownership and/or administration. The erroneous zoning of part of a privately owned title is therefore highly misleading and disadvantageous to the property owner.

First and foremost, and as quickly as possible, we would like an acknowledgement in writing that the Natural Open Space zoning is indeed an error and should never have been applied to Section 58 Blk II Whangape SD, part of Freehold Title NA947/241. The correct zoning should be Rural Production. That acknowledgement will alleviate the need for any planning application for subdivision to have to unnecessarily address objectives and policies pertaining to the Natural Open Space Zone.

I look forward to receiving that acknowledgement in the near future, along with the process the Council will then follow to correct its planning maps to show the correct zoning.

Regards

Lynley Newport
Senior Planner
THOMSON SURVEY LTD

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA947/241**
Land Registration District	**North Auckland**
Date Issued	01 December 1949

Prior References
NA437/285

Estate	Fee Simple
Area	69.4795 hectares more or less
Legal Description	Section 58-59 Block II Whangape Survey District

Registered Owners
Sigley Forests Limited

Interests

10007859.3 Mortgage to ASB Bank Limited - 28.4.2015 at 5:11 pm

12876005.1 Notice pursuant to Section 195(2) Climate Change Response Act 2002 - 10.11.2023 at 6:38 pm (Section 58 Block II Whangape SD)

67 4794 ha

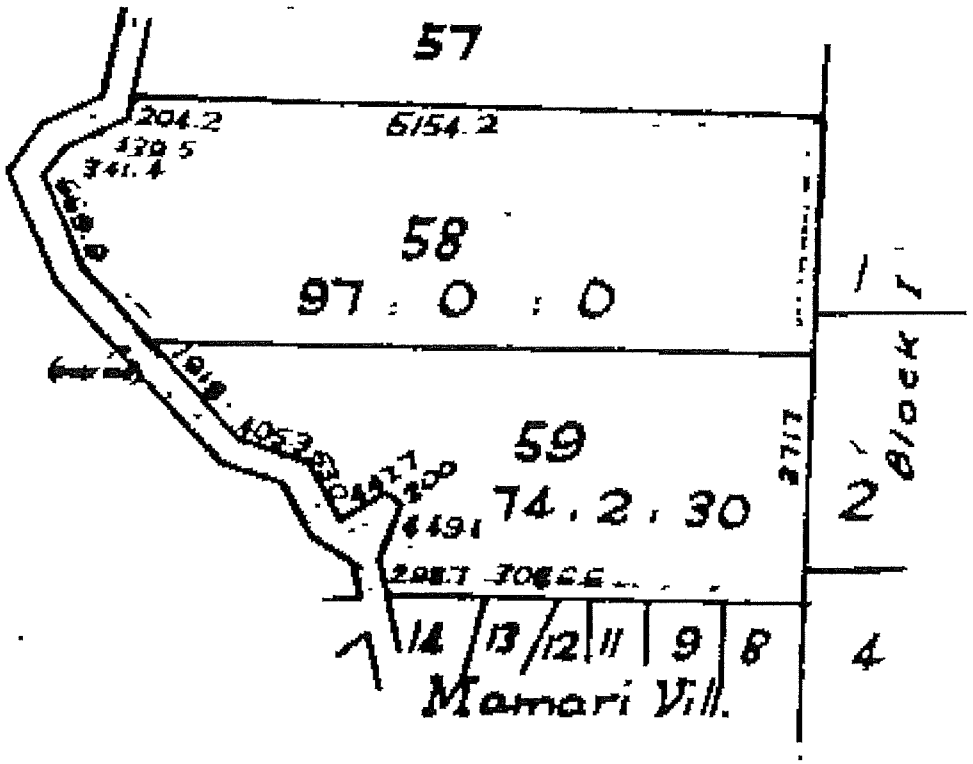
Conversion Factors:

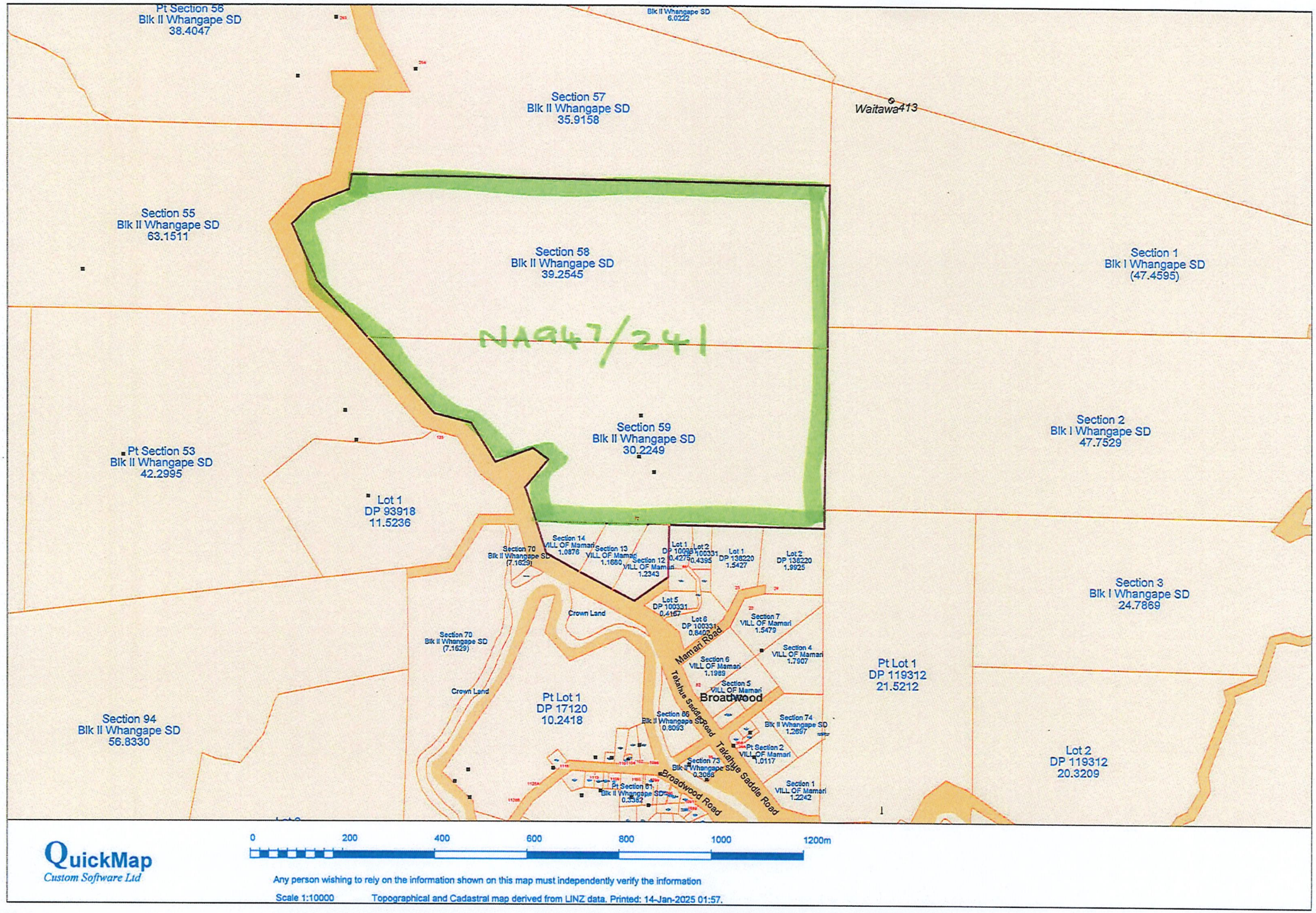
1 Acre = 4046m²

1 Perch = 25.29m²

1 Link = .2012 metres

Blk. II Whangape S.D.





QuickMap
Custom Software Ltd

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

Scale 1:10000 Topographical and Cadastral map derived from LINZ data. Printed: 14-Jan-2025 01:57.

Far North Proposed District Plan

- Property Specific Proposed District Plan Chapters
- View Full Proposed District Plan
- Zoom to selected property
- Clear selected property

Proposed: 26 Aug 2024
Revision: 26 Aug 2024

The following information applies to this property

Zone

Natural Open Space

View section

Rural Production

View section

Non-District Plan Layers

Treaty Settlement Area of Interest

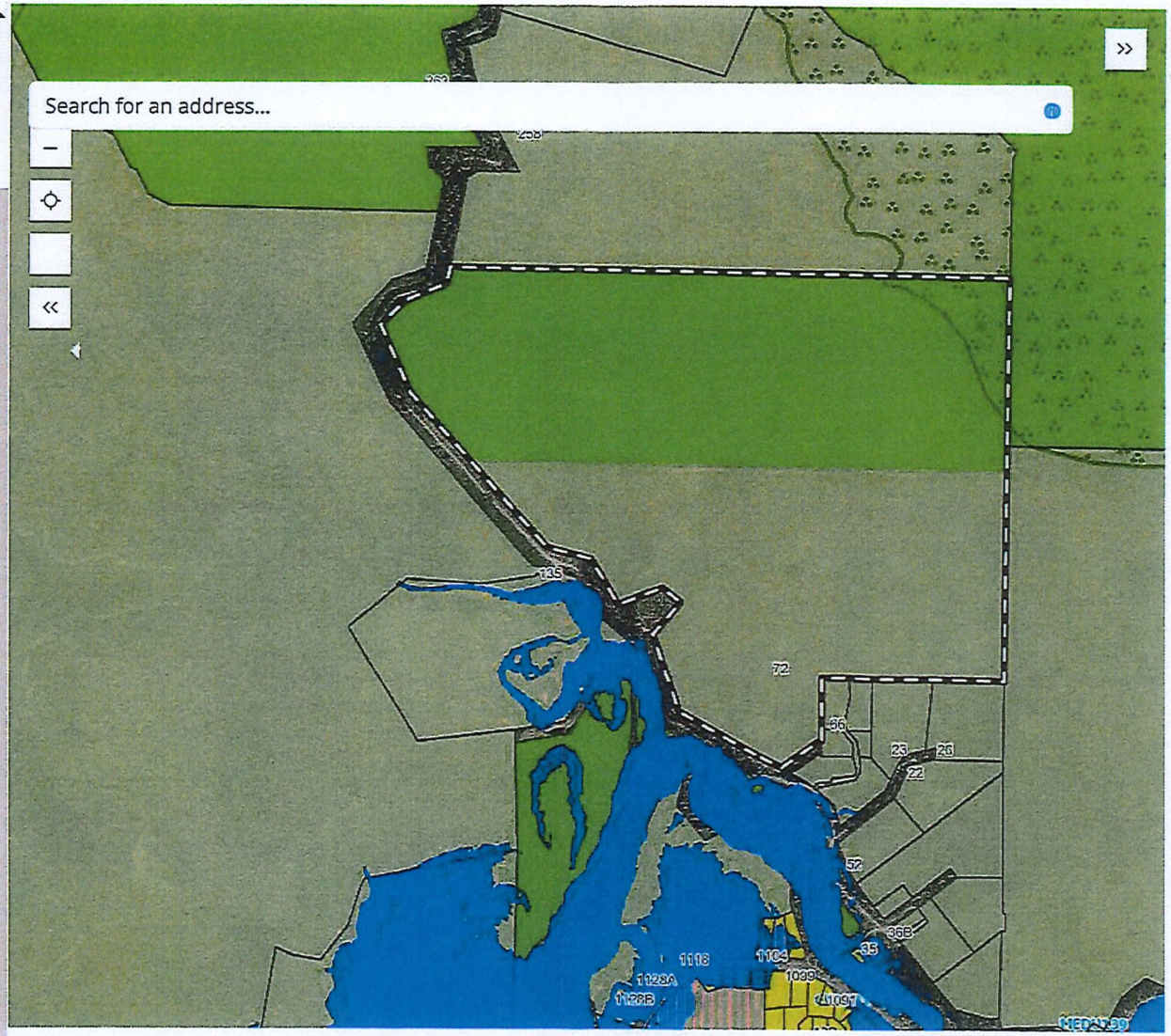
View section

Natural Environments Overlays

Outstanding Natural Landscape

View section

Reference: 32
Name: Maungataniwha Range



Map Tools

Map Layers

- Non-District Plan Layers
- Zone
- Plan Variation 1
- Historical and Cultural Values Overlays
- Specific Controls
- Overlays
- Energy Infrastructure and Transport Overlays
- Precincts
- Natural Environments Overlays
  - Outstanding Natural Landscape
  - Outstanding Natural Feature
  - High Natural Character
  - Outstanding Natural Character
- Designations
- Natural Hazards and Risks Overlays
  - Coastal Erosion (Zone 1: 50 Year Scenario)
  - Coastal Erosion (Zone 2: 100 Year Scenario)
  - Coastal Erosion (Zone 3: 100 Year + Rapid Sea Level Rise Scenario)
  - Coastal Flood (Zone 1: 50 Year

Legend

Help