

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):

- | | |
|--|--|
| <input checked="" type="radio"/> Land Use | <input type="radio"/> Discharge |
| <input type="radio"/> Fast Track Land Use* | <input checked="" type="radio"/> Change of Consent Notice (s.221(3)) |
| <input checked="" type="radio"/> Subdivision | <input type="radio"/> Extension of time (s.125) |
| <input type="radio"/> Consent under National Environmental Standard
(e.g. Assessing and Managing Contaminants in Soil) | |
| <input checked="" type="radio"/> Other (please specify) <u>Amalgamation Cancellation (new condition proposed). (s241(3) RMA)</u> | |

* 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:

Waitoto Developments Limited

Email:

Phone number:

Home

Postal address:

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

Postcode

0812

6. Address for Correspondence

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

Name/s:

Williams & King, Attention: Natalie Watson

Email:

Phone number:

Home

Postal address:

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

Postcode

0245

** 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:

**Property Address/
Location:**

As per applicant details.

Postcode

8. Application Site Details

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

Name/s:

**Site Address/
Location:**

Postcode

0272

Legal Description:

Val Number:

00413-13729 & 13728

Certificate of title:

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.

Proposed subdivision to revised and complete the now expired second stage of RC 2100559-RMAVAR/A, being a subdivision to create five lots from two titles, and including vegetation clearance, earthworks, impermeable surfaces, as well as cancellation of consent notice and amalgamation conditions (to be replaced with new consent notice and amalgamation conditions).

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**
- ☐ **Regional Council Consent (ref # if known)**
- ☐ **National Environmental Standard consent**
- ☐ **Other (please specify)**

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 ☒ Disturbing, removing or sampling soil
- ☐ Changing the use of a piece of land ☐ 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)	Waitoto Developments Limited	
Email:		
Phone number:		Home
Postal address: (or alternative method of service under section 352 of the act)		
	Postcode	0812

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)	Rodney Haines
Signature: (signature of bill payer)	

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)

Rodney Hawkes

Signature:

[Redacted Signature]

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.

Waitoto Developments Limited

- **Proposed Subdivision, Impermeable Surface Coverage, Vegetation Clearance & Earthworks**
- **Amalgamation Cancellation (New Amalgamation Conditions Proposed)**
- **Consent Notice Cancellation (New Consent Notice Conditions Proposed)**

Russell Whakapara Road, Russell

Williams & King, Kerikeri¹
23 September 2025



¹ Williams & King - a Division of Survey & Planning Solutions (2010) Ltd
Surveyors, Planners, Resource Managers - Kerikeri and Kaitiaki
PO Box 937 Kerikeri Phone (09) 407 6030 Email: nat@saps.co.nz

1. Overview

Waitoto Developments Limited intends to subdivide two Records of Title in the Coastal Living Zone of the Operative Far North District Plan to create five allotments, resulting in three additional titles being created. Vehicle access to the sites from Russell Whakapara Road is via an existing jointly owned Access and Conservation lot, which encompasses an existing formed driveway. The shares in the Access and Conservation lot held by the application sites will be distributed to the five proposed lots by way of a proposed amalgamation condition.

The overall purpose of the subdivision is to implement the Coastal Living Zone objectives of the Operative district Plan for a spacious settlement pattern of lifestyle development, while avoiding adverse effects and achieving a positive conservation outcome. The development represents a continuation of the existing clustered pattern of coastal lifestyle development in Orongo Bay.

A previous resource consent was granted as a second stage for a more intensive version of this current proposed subdivision, but this has since expired (RC2100559-RMAVAR/A, Stage 2B – note that Stage 2A has been completed). The consent notices applied at Stage 2A were intended to roll over onto the subsequent titles approved under Stage 2B – this is noted below the list of consent notice conditions in Instrument 8634311.1. This subdivision was approved under the management plan provisions of the 'Partly Operative District Plan'. The current proposal creates two less sites than was approved previously.

The corresponding rule in the Operative District Plan, Rule 13.9.2.2, under clause (b) notes that only one consent for a discretionary (subdivision) activity in terms of a management plan can be granted in respect of a site or any specified portion of a site provided the averaging provisions contained within this rule can only be used for each specified portion of the site once. Clause (e) of Rule 13.9.2.2 notes that any further subdivision of any lot contained within a subdivision management plan shall be a non-complying activity. As such, and although the proposed activity intends to take up the second stage of the management plan subdivision at a lesser density which is compliant with the discretionary activity subdivision standard in the Coastal Living zone, the application is for further subdivision of lots created by way of management plan, and the proposed activity has consequently been interpreted as being a non-complying activity.

The subdivision layout clusters the new building sites on land that is suitable for development, and as a result, large connected and contiguous areas of bush and regenerating shrubland will be protected. To support the practical use of the building sites, land use consent is sought for reduced setbacks between all buildings and areas of remaining shrubland, and for dispensation from the permitted activity stormwater management standards. Land use consent for vegetation clearance on Lots 24 - 27 is also sought. The development involves earthworks that are required to upgrade roading.

The proposal will enhance and formally protect indigenous vegetation areas around the perimeter of the building development platforms, together with areas of proposed revegetation and underplanting with fire resistance species, via covenant areas and consent notice conditions. Other ecological benefits are proposed, including pest and weed management plan, additional revegetation planting and a ban on the keeping of cats and dogs.

Lot 34 includes sections of a creek and wetland areas. Revegetation of the riparian margins is proposed within this area.

Under the Proposed Far North District Plan, the sites are zoned Rural Lifestyle. Relevant rules with legal effect under the Proposed District Plan relate to earthworks and vegetation clearance.

A ten year consent period is sought.

This assessment accompanies the Resource Consent application made by the Applicant and is provided in accordance with Schedule 4 of the Resource Management Act 1991. It is intended to provide the necessary information, in sufficient detail, to provide an understanding of the proposal and any actual or potential effects the proposed activity may have on the environment.

Although the earlier, more intensive subdivision granted under RC 2100559-RMAVAR/A was issued following detailed engineering, landscape and visual, and ecological assessments, updated assessments have been obtained to address more recent statutory planning documents and engineering standards and guidelines. However, the findings of the archaeological survey and assessment were considered to remain relevant and suitable for re-use. As a result; this assessment of environmental effects incorporates the findings of the following specialist reports:

- Hawthorn Landscape Architects Landscape and Visual Effects Assessment 'Proposed Subdivision of Lots 37 & 38 DP 426508, Stage 2B', dated 14th May 2025. Referred to as "Landscape and Visual Assessment".
- Geologix Consulting Engineers 'Subdivision Site Suitability Engineering Report', dated April 2023 Revision 1, reference C0255-S-02-R01. Referred to as "Site Suitability Report".
- Geologix Consulting Engineers 'Geotechnical Investigation Report', dated May 2023 Revision 1, reference C0255-G-01. Referred to as "Geotechnical Report".
- Bay Ecological Consultancy Ltd Ecological Impact Assessment, dated 10th November 2023, Reference 'Proposed Subdivision Lots 37 & 38 DP 426508, Orongo Bay'. Referred to as "Ecological Assessment".
- Northern Archaeological Research Archaeological Survey and Assessment of the Proposed Waitoto Developments Ltd Subdivision 2B, Russell Road, Orongo Bay, Bay of Islands dated October 2005. Referred to as "Archaeological Assessment".

Many of the consent notice conditions imposed at Stage 1 of RC 2100559-RMAVAR/A are superseded by the recommendations of the above reports. Therefore, it is proposed to cancel Consent Notice 8634311.1 as it relates to Lots 37 and 38 DP 426505 and impose an updated set of conditions.

2. Description of Proposal

2.1 Subdivision Layout and Lot Sizes

The purpose of the proposal is to subdivide the subject sites to create a low-density settlement pattern, which will enable completion of an expired coastal lifestyle subdivision.

The proposed subdivision creates five vacant lots from two existing titles as follows:

Lot 23: 7,026m²

Lot 24: 7,107m²

Lot 25: 1.4236ha

Lot 26: 5,075m²

Lot 27: 5,094m²

Lots 37 and 38 DP 426505 currently have a one quarter and one third share respectively in the jointly owned Access and Conservation Lot (Lot 34 DP 426505). The current amalgamation condition will be cancelled pursuant to Section 241(3) of the Resource Management Act, and these shares will be distributed to proposed Lots 23 – 27 via a proposed amalgamation condition as follows:

“That Lot 34 (Legal Access and Conservation Area) be held as an undivided one twelfth share by the owners of Lots 23, 24 & 25 hereon, and an undivided one sixth share by the owners of Lots 26 & 27 hereon as tenants in common in the said shares and that individual records of title be issued in accordance therewith”.

The subdivision creates five sites with an average density of one site per 7,698m², or taking into account the overall 7/12th share that the application sites have in Lot 34 DP 426505, the average density is one site per 1.0480ha.

No new easements are necessary for the proposed subdivision, with Lot 34 DP 426505 being subject to an existing easement for right of way and the right to drain water and convey electricity, telecommunications and computer media.

Refer to the Scheme Plan in **Appendix 1** and **Figure 1** below. All areas and dimensions are subject to final survey.

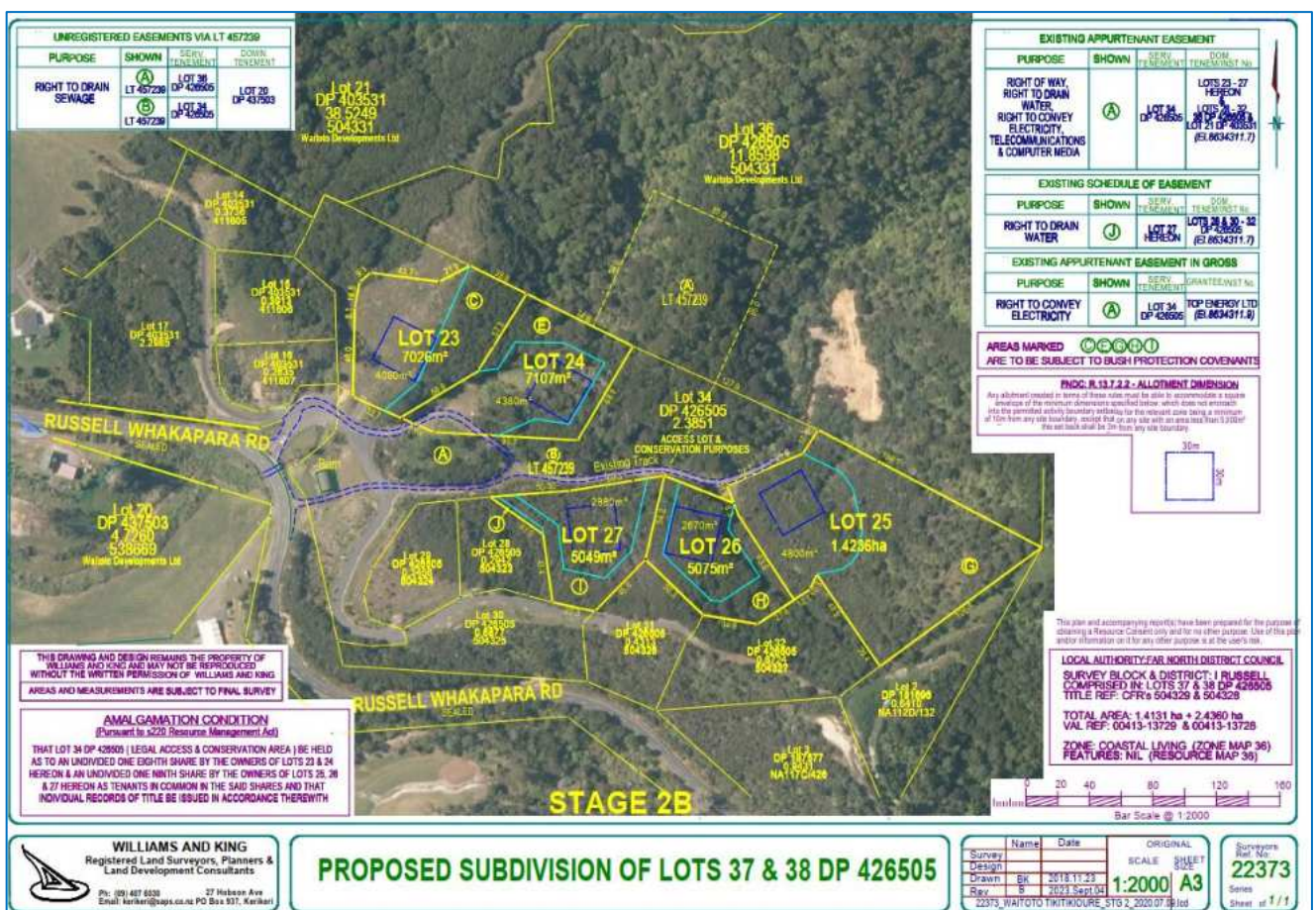


Figure 1: Proposed Scheme Plan

2.2 Property Access

Property access is discussed in the Subdivision Site Suitability Engineering Report prepared by Geologix Consulting Engineers ("Site Suitability Report") in **Appendix 2**.

Vehicle access off Russell Whakapara Road is intended to remain private, but will be upgraded where necessary to cater for the additional vehicle movements that will be generated by the proposed subdivision. To reiterate, the existing section of roading described in the Engineering Report as meeting the Rural Type A standard is **not** proposed to vest as road. The proposed standard of upgrade is described in Table 10 of the Site Suitability Report, as copied below in **Figure 1**.

Table 10: Summary of Proposed RoW Specification

Location	Standard	Min. Legal Width	Min. Carriageway Width	Requires Upgrading?
CH0 to 30	FNDC Rural Type B	20 m	6.5 m	No, existing road meets minimum requirements.
CH30 to 80	FNDC Rural Type A	16 m	6.0 m	No, existing road meets minimum requirements.
CH80 to 110	FNDC RoW 5 to 8 lots	7.5 m	5.0 m	No, existing road meets minimum requirements.
CH110 to CH240	FNDC RoW 3 to 4 lots	7.5 m	3.0 m with 1x passing bay at CH200	Yes, existing track requires upgrade.
CH240 to CH335	FNDC RoW 1 to 2 lots	5.0 m	3.0 m	Yes, existing track requires upgrade.

Figure 1: Table 10 from Geologix Site Suitability Report

Each lot will be accessed from Russell Whakapara Road via Lot 34 DP 426505. Vehicle crossings are to be formed as conditions of consent to the FNDC/S/6 and FNDC/S/6B standard with culvert where necessary, as outlined in Section 10.3 of the Site Suitability Report.

2.4 Bush Protection Areas, Building Sites and Vegetation Clearance

The building sites are those areas exclusive of the proposed bush protection covenant areas C, E, G, H and I on each lot. Note that the bush protection covenant areas have been reduced from those approved under RC 2100559RMAVAR/A to allow adequate areas of vegetation clearance to mitigate against fire hazard. It is intended that the disposal of treated wastewater may occur within the bush protection covenant areas if necessary.

A 1,500m² cleared area is proposed for each building site, and it is intended that this will incorporate a 10m wide clear fire buffer zone, with a further 10m width to be cleared of flammable weeds (hakea, gorse and pampas) and underplanted with fire resistant species. Therefore, outside of the covenant areas, vegetation clearance of up to 1,500m² per lot (inclusive of any existing cleared areas) is proposed on each lot. This will require clearance of indigenous vegetation to prepare a suitable building site with cleared buffer areas to mitigate fire hazard risk on Lots 24 - 27.

The current intention is that the future owners will undertake the vegetation clearance.

Refer to the Landscape and Visual Assessment in **Appendix 3** and Ecological Assessment in **Appendix 4**.

Building platforms generally reflect those approved under the previous resource consents, and these have been assessed as suitable in engineering assessments supplied for those consent applications and in the Subdivision Site Suitability Report (**Appendix 2**) and Geotechnical Report (**Appendix 5**), subject to the proposed conditions.

2.5 Earthworks

Earthworks will be required to upgrade access and form a new stormwater pond. Total volumes of required earthworks are estimated as involving 270m³ of cut and fill, with a maximum height of 1.0m. Refer to the Site Suitability Report.

Earthworks undertaken will need to be carried out in accordance with Auckland Council Guidance Document 2016/005: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (GC05). Other general earthworks recommendations are specified in the Site Suitability Report, including for filling and site cuts.

2.6 Impermeable Surface Coverage

Lots 23 – 27 will include a share in the access / conservation lot, Lot 34 DP 426505. The Operative District Plan definition of 'Impermeable Surface' requires a share in the impermeable surface coverage in a jointly owned access lot to be considered as parts of the various sites in terms of determining compliance with the relevant stormwater management rules. Only minor upgrading of the existing accessway within Lot 34 DP 426505 is required. It is proposed to allow impermeable surfaces up to 600m² on each lot, disregarding impermeable surface coverage on Lot 34 DP 426505, by way of land use consent.

2.7 Consent Period and Staging

It is proposed to complete the development in a single stage, although it is likely that the land use consent components will follow on from the subdivision. A consent period of ten years is requested.

2.8 Proposed Conditions / Cancellation of Consent Notice

Many of the consent notice conditions imposed at Stage 1 of RC 2100559-RMAVAR/A are superseded by the recommendations of reports provided with this application. Therefore, it is proposed to cancel Consent Notice 8634311.1 as it relates to Lots 37 and 38 DP 426505 and impose an updated set of consent notice conditions.

The conditions of consent can mimic those applied to RC 2100559-RMAVAR/A – Stage 2B, except to take into account where engineering design or civil works have been completed, the reduction in subdivision density, the revised scheme plan and amalgamation condition, as well as more recent investigations and recommendations related to engineering, geotechnical, ecological and landscape and visual matters. Refer to RC 2100559-RMAVAR/A in **Appendix 6**. Additionally, new consent notice conditions will be applied to replace those that will be cancelled.

A overview of proposed conditions is provided below. Final wording would need to be reviewed.

- The subdivision shall be carried out in general accordance with the approved plan of subdivision prepared by Williams & King drawing 22373 dated Rev 2023.Sept.04.

Prior to Section 223 RMA 1991:

- Show land covenant areas on the survey plan.
- Endorsement of the amalgamation condition.
- Submit a Weed and Pest Management Plan, prepared by a suitably qualified and experienced ecologist, specifying monitoring and reporting procedures and prepared in general accordance with the Ecological Impact Assessment submitted with the application.
- Submit plans for Engineering Plan Approval of:
 - Upgrade of existing internal roading (Chainage 110 – 335) to 3m carriageway width, with passing bays where required, as per Geologix Site Suitability Report.
 - Vehicle crossings to Lots 23 – 27.
 - Typical roading construction details.
 - Stormwater infrastructure, including stormwater pond and outlet as per Geologix Site Suitability Report or other approved solution.
 - Detailed erosion and sediment control measures.

Prior to Section 224c RMA 1991:

- Provide a construction management plan five working days before the commencement of any physical work for approval by the duly delegated Council officer. The plan is to contain information on, and site management procedures for, the following matters:
 - Timing of civil engineering, building construction and any demolition works, including hours of operation.
 - The name of the contractor/s engaged to carry out the work, and key project and site management personnel and their contact details.
 - A traffic management plan.
 - Excavation and filling works, including any retaining structures and any necessary de-watering requirements/methods to be parped by a Chartered Professional Engineer with suitable geotechnical qualifications and expertise.
 - Control of dust and noise on site and any appropriate avoidance or remedial measures.
 - Prevent of earth, mud, gravel or other material being deposited on adjoining roads by vehicles exiting the site, and proposing remedial measures should that occur.
 - The Project Manager shall be the contact person for any complaints and shall be responsible for addressing issues resulting in complaints to the satisfaction of the Resource Consents Manager.
- Submit a modified Management Plan to the satisfaction of Council's duly delegated officer that incorporates the proposed lots and covenant areas, and reflects the conditions of this consent, and in particular the following matters:
 - Preservation of indigenous trees, bush, and revegetation within the areas shown as 'C', 'E', 'G', 'H' and 'I' on the survey plan. The owner shall not, without resource consent from the Council and then only in strict compliance with any conditions imposed by the Council, cut down, damage, or destroy any of such trees or bush. The owner shall be deemed to be not in breach of this prohibition if any of such trees or bush shall die from natural causes not attributable to any act or default by or on behalf of the owner or for which the owner is responsible.
 - Maximum vegetation clearance up to a cumulative area of 1,500m² per lot, with 10m wide clear fire buffer zone required around all residential dwellings, and a further 10m underplanted using low flammability species.
 - Implementation of the pest and weed management plan.
- Complete works approved in engineering plan approval, provide written confirmation from a Chartered Professional Engineer that works have been constructed in accordance with the approved plan.
- Complete wetland and riparian revegetation planting in general accordance with the Ecological Impact Assessment Mitigation Plan.
- Complete revegetation and underplanting within Lot 23, Covenant Area C, in general accordance with the Ecological Impact Assessment Mitigation Plan.
- Carry out initial implementation of weed and pest management plan, provide certification from a suitably qualified person.
- Provide underground power and telephone services to the boundary of lots 23 – 27.

Consent notice conditions pursuant to Section 221 RMA 1991:

- The owner of each lot shall be required to comply at all times with all aspects of the updated Management Plan approved under condition X, which includes, without limitation, the following matters:
 - Design guidelines and building platforms, for the construction of dwellings and accessory buildings. Disposal of treated wastewater may occur outside of the building envelopes.
 - The colours of all buildings are to comply with British Standard specification BS5252 Colour Range and have a reflective value of 30 % or less for roofs, and 40% or less for exterior walls.
 - Implementation of the animal pest and weed eradication programme in accordance with the plan approved under condition X.
 - Any predator / pest control work carried out is to be done in a manner that will not endanger kiwi.
 - The owner shall preserve the indigenous trees and bush within those areas shown on the survey plan as areas to be subject to bush protection covenants and shall not without the prior written consent of the Council and then only in strict compliance with any conditions imposed by the

-
- Council, cut down, damage or destroy any of such trees or bush or suffer or permit the cutting down damaging or destruction of any such trees or bush. The owner shall be deemed to be not in breach of this prohibition if any of such trees or bush shall die from natural causes not attributable to any act or default by or on behalf of the owner or for which the owner is responsible.
- All power and telephone services shall be provided by underground means.
 - All earthworks to be undertaken are to be supervised by a Chartered Professional Engineer, to be engaged by the consent holder. Council is to be advised in writing of the appointment of the engineer, and notified when work is to commence, and when it has been completed.
 - The consent holder is to ensure that stormwater diversion and erosion and sediment control measures are in place prior to the commencement of bulk earthworks. These measures shall be maintained to ensure they continue to operate to the appropriate standard.
 - Other matters detailed in the Hawthorn Landscape Architects Landscape & Visual Effects Assessment Building and Landscape Design Guidelines which are incorporated into the final Management Plan.
- The owner of each allotment within the subdivision will be required to be a member of the Residents Association and both the owner of each allotment and the Residents Association shall adhere to the conditions of the approved management plan at all times. The requirements of the approved management plan shall be complied with at all times by site owners and / or the Residents Association as relevant. In the event of the default of any site owner on any obligations under these conditions, the Council shall call upon the Residents' Association to fulfil these obligations.
 - In the event that the Residents Association is in default of its obligations to ensure compliance with the conditions of consent, all individual members of the Residents Association shall be jointly and severally liable to ensure full compliance with the obligations that are the subject of the Associations default.
 - In conjunction with the construction of a future dwelling, the Lot owner shall obtain a Building Consent and install a wastewater treatment and effluent disposal system on the Lot. The system shall be designed by a Chartered Professional Engineer or suitably qualified person in accordance with ARC TP 58 requirements and with reference to the Geologix Site Suitability Report referenced C0255-S-02-R01, dated April 2023.
 - On all sites no occupier of, or visitor to the land shall keep or introduce on to the site carnivorous or omnivorous exotic animals (such as mustelids, cats, dogs) which have the potential to be weka or kiwi predators.
 - Exotic vegetation that could adversely affect natural regeneration or local forest health is not to be introduced onto any of the sites within the subdivision, including lot 34. This includes the introduction of invasive plant species, including those currently listed on the nationally-banned-for-sale list (see Northland Regional Pest Management Strategy). Planting of other exotic species should be confined to the immediate vicinity of dwellings. And species with berry-type fruits are to be grown within netting to prevent seed spread by birds.
 - No earthworks shall be carried out or building erected on the proposed residential lots without the prior approval of the Council to specific design for cut and fill batters, retaining walls, building foundations, and stability control (where required) to achieve an adequate Factor of Safety, prepared by a Chartered Professional Engineer with geotechnical expertise having regard to the Geologix Geotechnical Investigation Report referenced C0255-G-01 dated May 2023, Revision 1.
 - The dwelling shall have a roof water collection system with a minimum of 45,000 litres storage of water. The water tank(s) shall be positioned so they are accessible for fire fighting purposes, be coupled together, and have one tank fitted with an outlet compatible with rural fire service equipment or otherwise the dwelling shall be fitted with a sprinkler system approved by Council.
 - Without the prior approval of the Council or its duly delegated officer, no building shall be erected, nor any works which increase impermeable surfaces be undertaken, on any of the sites within the subdivision, including lot 34, nor any planting or structure placed which may create a flow obstruction, on any area of the site which has been proposed as a secondary/overland (0100) flow path.

- Stormwater management systems shall be constructed on each lot at the time of building in general accordance with the Geologix Site Suitability Report referenced C0255-S-02-R01, dated April 2023. The final design of on-site systems shall be undertaken by competent and experienced designers, with the design subject to review and approval by the duly delegated Council officer.

[All Lots]

3. Application Site Details and Description

3.1 Location

The properties are located on the northern side of Russell Whakapara Road, approximately 370m east of its intersection with Aucks Road, and to the east of Orongo Bay.

The property is accessed from Russell Whakapara Road via the shared access lot, Lot 34 DP 426505, opposite the Russell Sports Fields.

Refer to the Location and Cadastral Maps in **Figures 2** and **3** below.

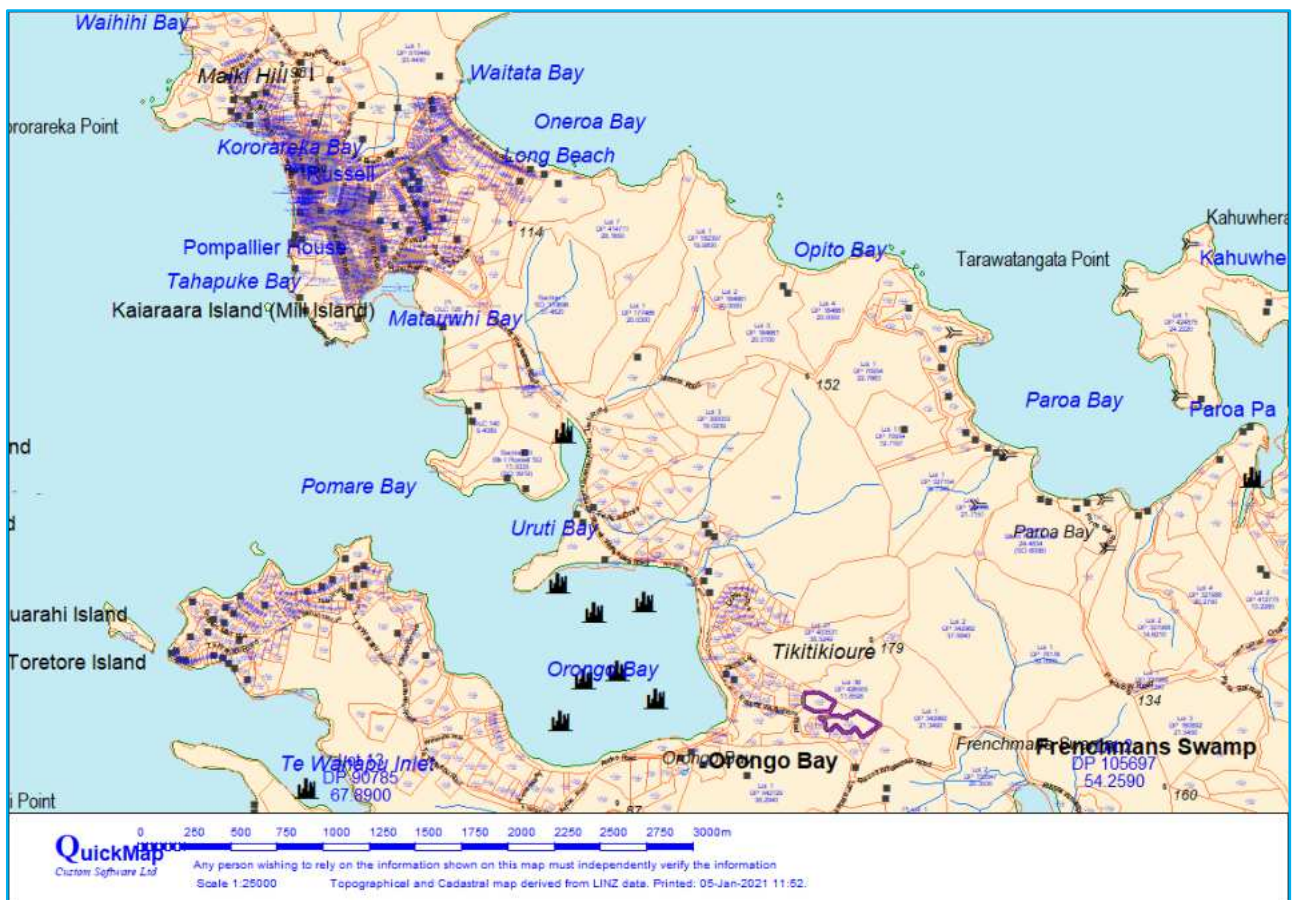


Figure 2: Location Map (Source: QuickMap)

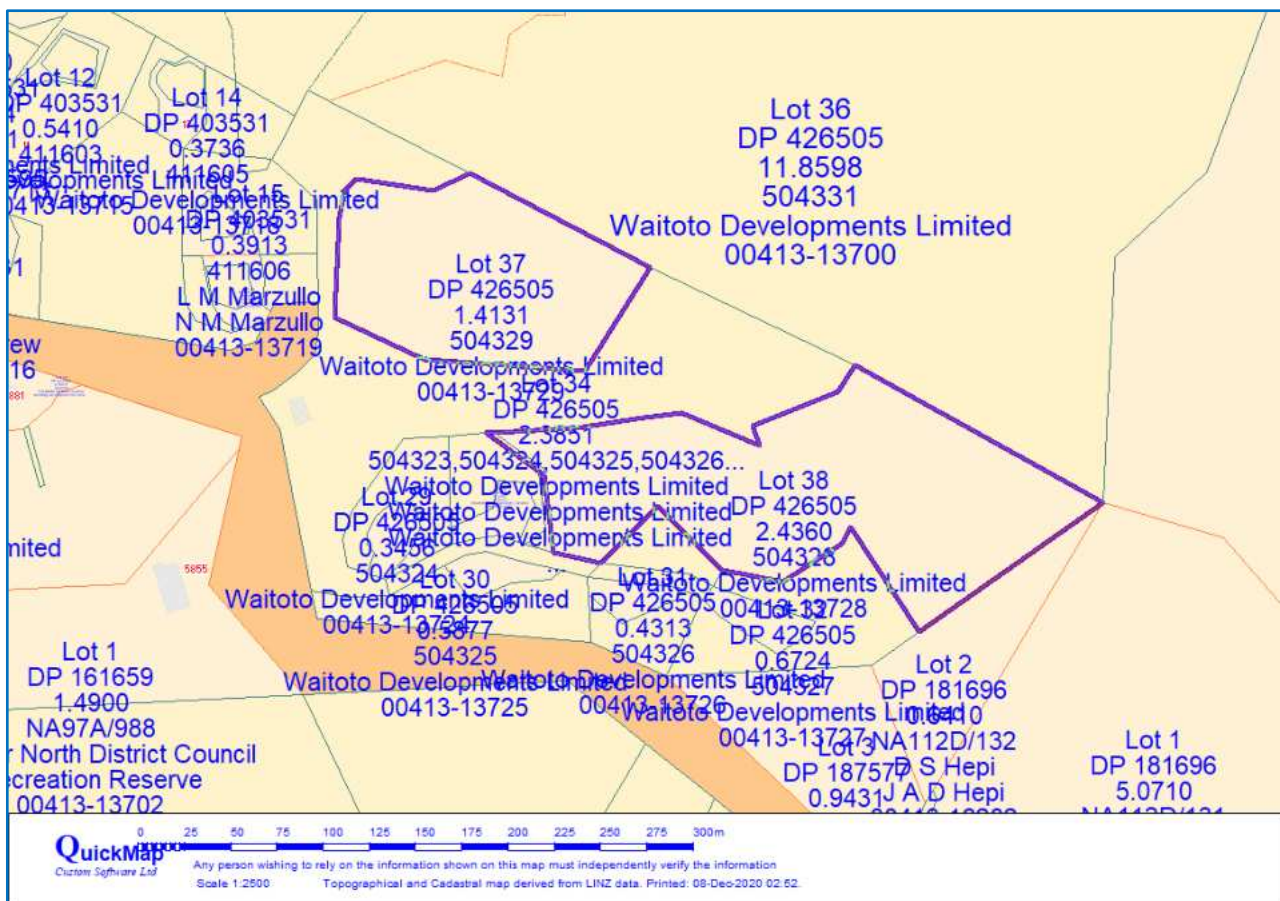


Figure 3: Cadastral Map (Source: QuickMap)

3.2 Legal Details

Legal details of the application sites are summarised below and in the Records of Title (**Appendix 7**). A copy of the Management Plan referred to by conditions of consent notice 8634311.1 is attached as **Appendix 7a**.

RECORD OF TITLE IDENTIFIER	LEGAL DESCRIPTION	TITLE AREA	INTERESTS / ENCUMBRANCES
504328	Lot 38 DP 426505 + ¼ share in Lot 34 DP 426505	2.4360ha more or less + ¼ share in 2.3851ha	Subject to Section 241(2) Resource Management Act 1991 (affects DP 426505) <u>8634311.1</u> Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.11.2010 at 2:29 pm
504329	Lot 37 DP 426505 + 1/3 share in Lot 34 DP 426505	1.4131ha more or less + 1/3 share in 2.3851ha	Subject to a right of way, right to drain water, right to convey telecommunications and computer media over Lot 34 DP 426505 marked A on DP 426505 created by Easement Instrument <u>8634311.7</u> - 17.11.2010 at 2:29 pm Appurtenant to Lot 37 DP 426505 is a right of way, right to drain water, right to convey telecommunications and computer media created by Easement Instrument <u>8634311.7</u> - 17.11.2010 at 2:29 pm The easements created by Easement Instrument <u>8634311.7</u> are subject to Section 243 (a) Resource Management Act 1991

			<p>Land Covenant in Easement Instrument <u>8634311.8</u> - 17.11.2010 at 2:29 pm (private land covenant).</p> <p>Subject to a right (in gross) to convey electricity over Lot 34 DP 426505 marked A on DP 426505 in favour of Top Energy Limited created by Easement Instrument <u>8634311.9</u> - 17.11.2010 at 2:29 pm</p> <p>The easements created by Easement Instrument <u>8634311.9</u> are subject to Section 243 (a) Resource Management Act 1991</p> <p><u>11982636.1</u> Variation of Land Covenant created by Easement Instrument 8634311.8 - 29.1.2021 at 4:54 pm (private land covenant).</p>
--	--	--	--

3.3 Natural & Recorded Features

The land is vacant, and is generally vegetated in regenerated shrubland, including instances of weed species (particularly on Lots 25 – 27), except where there are areas of grass on Lots 23 and 24. Refer to the aerial photograph in **Figure 4**.

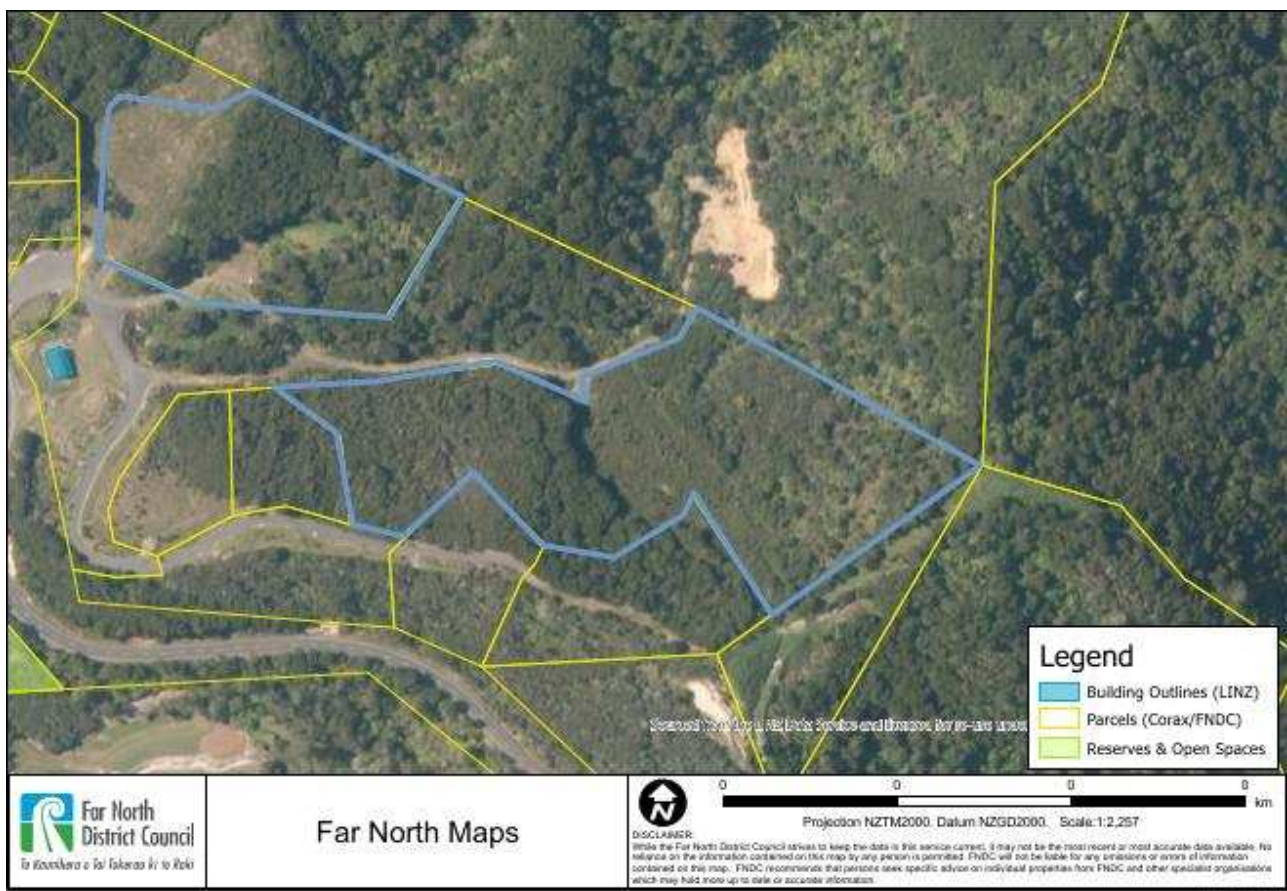


Figure 4: Aerial Photograph

Proposed building sites occupy land below any significant ridgelines.

The land drains towards a central watercourse within Lot 34 DP 426505, which discharges to a wetland on the same lot.

Detailed descriptions of the hydrological, topographical and geological characteristics of the site were given within the Site Suitability and Geotechnical Reports in **Appendices 2 and 5**.

The Ecological Assessment fully describes the ecological values of the sites, including existing flora and fauna present, or likely to be present, as well as natural inland wetland areas, their hydrological sources and their hydric indicators. Refer to **Appendix 4**.

The subject land is not part of the coastal environment and does not include any areas of high or outstanding natural character, or outstanding natural landscapes or features as recorded in the Regional Policy Statement.

The land has a predominant kanuka dominated scrub cover, with regenerating tanekaha, tree fern and shrub sapling understory, with scattered podocarps. Some areas are dominated by weeds. Lots 23 and 24 have cleared grassed areas. Parts of the sites are recorded within in the Department of Conservation Protected Natural Area mapping (Tikitikioure, Ecological Unit Q05/004).

The land is mapped as being within a high-density kiwi habitat in Far North Maps “Species Distribution (DoC)” Map.² The mapping related to kiwi habitat is a non-statutory document.

The subject site is zoned Coastal Living under the Operative District Plan and Rural Lifestyle under the Proposed District Plan. Neither of these zones is a general rural or rural production zone in terms of the National Policy Statement for Highly Productive Land 2022.

3.4 Archaeological Features

The property was the subject of earlier archaeological assessments, including an Archaeological Survey and Assessment for the earlier more intensive approved subdivision (see **Appendix 8**). This notes that there were no intact archaeological sites recorded on the property and that there were no further archaeological remains noted in five test pits dug. It describes that there is only a low probability for further archaeological remains existing on the property. An accidental discovery protocol advisory note is recommended.

3.5 Surrounding Land

The character of the surrounding environment is based on the existing characteristics of the natural and modified environment, which is described in the Landscape and Visual Assessment as follows.

“The landscape the site is part of is typical of this area, where the land adjacent to the foreshore rises gradually at first and then steeply to the steep bush clad ranges. The lower contours adjacent to the CMA are more modified and developed for coastal living purposes. Characteristically, these areas contain clusters of built development and the main roads that link the town centres, in this case Russell to the Opua car ferry.

The application site is located within a strip of Coastal Living zoned land that is situated along the eastern inland side of the backdrop to Orongo Bay.

The Coastal Living zoned land has over the years been developed, which has seen exotic gum trees removed, and areas cleared for houses, set within the dominant Manuka vegetation pattern. The more elevated bush clad hill slopes surrounding these areas of housing are zoned General Coastal and provide the backdrop to the built settlement pattern on the lower slopes. Refer to Figure 4 for the settlement pattern.

To the southwest of the application site is the Orongo Bay Special Purpose Zone. This contains a mix of uses and facilities including landscape yards, storage facilities and a Gas station. The Russell recreational sports grounds are located adjacent to this.

² A map showing the distribution of Northland Brown Kiwi and Northland Mudfish in the Far North District. Kiwi habitat distribution based on call count monitoring in 2019 by Department of Conservation: Craig, E. (2020): Call count monitoring of Northland brown kiwi 2019. Department of Conservation, Whangarei, New Zealand.

A little to the north of the application site there is a Coastal Residential area located around Lichen Grove, with a greater intensity of lot sizes and built development. The Orongo Bay Holiday Park is located just to the north of this.

Built form within these areas tends to be well integrated into the landscape due to the presence of the existing bush canopy that extends around the perimeter of the building sites. This vegetation provides a foreground and backdrop that partially screens built forms and integrates them into the landscape. The unifying element of this landscape is the blanket cover of the Manuka/Kanuka dominated bush that extends across the hillslopes and elevated ranges.

The residential built form is also an integral part of the landscape and contributes to the distinctive character of this area. The application site is located near the southern extremity of this area.”

3.6 Vehicle Access

The subject land has frontage Russell Whakapara Road, via Jointly Owned Access Lot (Lot 34 DP 426505). Access is formed as sealed carriageway and is described as being suitably formed to meet minimum requirements to beyond the Lots 23 and 24 entrances. Upgrade of the existing track to provide a three-metre-wide carriageway, with one passing bay, will be required to provide access to Lots 25 – 27.

4. District Plan Assessment

4.1 Far North Operative District Plan

The application site is zoned Coastal Living and is not subject to any Resource Features. An area of land zoned Minerals is located to the east. The proposal is assessed against the relevant rules of the Operative District Plan as follows.

4.1.1 Coastal Living Zone

Rule	Discussion	Compliance
10.7.5.1 PERMITTED ACTIVITIES		
10.7.5.1.1. Visual Amenity	Future buildings will need to be assessed under the visual amenity rules for the zone.	Not applicable at subdivision stage.
10.7.5.1.2 Residential Intensity	No issues.	Complies
10.7.5.1.5 Sunlight	No issues.	Complies
10.7.5.1.6 Stormwater management	Proposed to allow impermeable surfaces up to 600m ² on each lot, disregarding impermeable surface coverage on Lot 34 DP 426505.	Does not comply
10.7.5.1.7 Setback from Boundaries	No issues.	Complies
10.7.5.3 RESTRICTED DISCRETIONARY ACTIVITIES		
10.7.5.3.8 Stormwater Management	Proposed to allow impermeable surfaces up to 600m ² on each lot, disregarding impermeable surface coverage on Lot 34 DP 426505, will comply with this standard.	Complies

4.1.2 Natural & Physical Resources

Rule	Discussion	Compliance
PERMITTED ACTIVITIES		
12.2.6.14 Indigenous vegetation clearance in other zones	Land use consent is required for breach of Rule 12.2.6.1.4 Indigenous Vegetation Clearance in Other Zones, which permits clearance outside of an “urban environment” provided that the clearance does not increase the total area of cleared land on the site above 500m ² . This is required on the individual Lots 24 - 27 to prepare building envelopes with suitable cleared fire hazard buffer areas as described in Section 2.4 of this Report.	Does not comply.
12.3.6.1.2 Excavation and/or filling ... in the ... Coastal Living... zones	Earthworks to complete private access will exceed 300m ³ but cut faces will not exceed 1.5m – approval has been sought under Rule 13.6.8	Not applicable – approval sought via Rule 13.6.8.
12.4.6.1.2 Fire Risk to Residential Units	<p>Rule 12.4.6.1.2 requires residential units to be located at least 20m away from the drip line of any trees in a naturally occurring or deliberately planted area of scrub or shrubland, woodlot or forest.</p> <p>In the interests of preservation of ecological, landscape and visual values, it may be preferable to retain vegetation that is less than 20m from the future buildings on the site. As such, it is possible that some future buildings may not be able to comply with Rule 14.4.6.1.1(a). Land use consent is therefore being sought for dispensation of the above rule to allow future residential units on Lots 23 - 27 to be built within 10m of any areas of vegetation that are retained on the site.</p>	Does not comply.
12.7.6.1.2 Setback from Smaller Lakes, Rivers and Wetlands	Wetland areas within the sites are not more than 1ha in area, and there are no continually flowing rivers within proposed works area, and this rule does not apply.	Not applicable.
12.7.6.1.3 Preservation of Indigenous Wetlands	No works are proposed within an indigenous wetland.	Not applicable.
12.7.6.1.4 Land use activities involving discharge of human sewage effluent	There is sufficient area available for onsite wastewater disposal to accommodate a 30m separation distance from natural inland wetland areas, however we note that on Lot 27, the disposal area will likely need to occur partly within the bush protection covenant to attain a 30m setback from the wetland within Lot 34 DP 426505. Detailed design is required at lot development stage.	Complies. Requires detailed design at lot development stage.
RESTRICTED DISCRETIONARY ACTIVITIES		
12.2.6.2.2 Indigenous vegetation clearance in other zones	This aspect of the application will be a restricted discretionary activity.	Complies.
DISCRETIONARY ACTIVITIES		
12.4.6.3 Discretionary Activities	Dispensation from Rule 12.4.6.1.2 (Fire Risk...) will be a discretionary activity under Rule 12.4.6.3. The relevant Assessment Criteria are addressed within Section 5.0 of this report.	Complies

4.1.3 Subdivision

Rule	Discussion	Compliance
13.6 GENERAL RULES		
13.6.5 Legal Frontage	Each lot has legal frontage to Russell Whakapara Road, via Jointly Owned Access Lot and/or proposed Right of Way.	Complies
13.6.8 Subdivision Consent Before Work Commences	Earthworks to form private access to the boundary of each lot are described in the Engineering Report. Proposed vegetation clearance to provide a fire hazard buffer are described in this report and assessed in the Ecological Impact Assessment.	Complies
13.6.12 Suitability for Proposed Land Use	The land is considered suitable for the proposal, namely future residential development on Lots 23 – 27 as described in the Engineering and Geotechnical Reports. Consent notice conditions can be added.	Complies
13.7 CONTROLLED ACTIVITIES		
13.7.2.1 Minimum Area for Vacant New Lots	The areas of Lots 23 – 27 do not comply with the controlled activity minimum lot size.	Does not comply
13.7.2.2 Allotment Dimensions	Each lot includes a dimension of 30 x 30m, plus 10m boundary setbacks.	Complies
13.8 RESTRICTED DISCRETIONARY ACTIVITIES		
13.8.2 Subdivision within 100m of Minerals Zone	Rule 13.8.2 notes that subdivision is a restricted discretionary activity in the Coastal Living Zone where any part of any proposed lot is within 100m of the boundary of a Minerals Zone. This rule also lists matters of discretion, which are also addressed in Section 5.0 of this report.	Complies
13.8.5 Subdivision in the Coastal Living ... zones	Lot 25 complies with the restricted discretionary activity standard, Lots 23 – 27 do not.	Does not comply
13.9 DISCRETIONARY (SUBDIVISION) ACTIVITIES		
13.9.1 Minimum Area for Vacant New Lots	The proposed lot sizes comply with the discretionary activity standard. Although the proposed activity intends to take up the expired second stage of the management plan subdivision at a lesser density, the application is for further subdivision of lots created by way of management plan, therefore the proposed activity is a non-complying activity in terms of Rule 13.9.2.2(e).	Does not comply
13.11 NON-COMPLYING (SUBDIVISION) ACTIVITIES		
13.11(a) Non-Complying (Subdivision) Activities	The overall proposal has been assessed as a non-complying activity.	Non-complying activity status.

4.1.4 Transportation

The proposal has no implication in terms of District Plan rules relating to traffic or car parking.

Rule	Discussion	Compliance
15.1.6C.1 PERMITTED ACTIVITIES		
15.1.6C.1.1 Private Accessway in all Zones	Shared access will be upgraded over the existing track (CH 110 – 335) Lot 34 DP 426505 to comply with this rule. Private access will serve more than eight allotments.	Does not comply.
15.1.6C.1.3 Passing Bays on Private Accessways in all Zones	Passing bays will be formed as specified in the Site Suitability Report.	Complies.

15.1.6C.1.5 Vehicle crossing standards in Rural ... Zones	New or upgraded vehicle crossings will be formed to Lots 23 – 27. Refer to the Site Suitability Report.	Complies
15.1.6C.1.7 General Access Standards	An adequate area for future onsite manoeuvring is available on each lot.	Complies
15.1.6C.1.8 Frontage to Existing Roads	The adjoining public road is of sufficient legal width and carriageway width. There are no apparent encroachments into the application site.	Complies.
15.1.6C.2 DISCRETIONARY ACTIVITIES		
15.1.6C.2 Discretionary Activities	Private access will serve more than eight allotments.	Complies.

4.1.5 Summary of Activity Status under the Far North Operative District Plan

Overall, the proposal has been assessed as a non-complying activity.

4.2 Far North Proposed District Plan

The application site is zoned Rural Lifestyle in the Far North Proposed District Plan and is not subject to any Overlays. The proposal is assessed against the relevant rules of the Proposed District Plan as follows.

4.2.1 Area-Specific Matters – Rural Lifestyle Zone

Rule	Discussion	Compliance
RLZ-R2 Impermeable Surface Coverage	Existing and anticipated future coverage on Lots 23 – 27 will be less than 15%.	These rules do not have legal effect.
RLZ-R3 Residential Activity	A single residential unit per lot is intended	
RLZ-S2 Height in Relation to Boundary	No issues in terms of the proposed new boundaries to be created by the subdivision.	
RLZ-S3 Setback	No issues in terms of the proposed new boundaries to be created by the subdivision.	
RLZ-S5 Building or Structure Coverage	Existing and anticipated future coverage on each lot will be less than 12.5%.	

4.2.2 District-Wide Matters - Hazards and Risks

Rule	Discussion	Compliance
Permitted Activities		
NH-R5 Wild Fire - Buildings used for a vulnerable activity (excluding accessory buildings)	Onsite Water storage proposed for future buildings as per condition 2 of PER-1. Future buildings will be within 20m of the dripline of any contiguous vegetation and unable to comply with PER-2.	This rule does not have legal effect. Approval sought under corresponding ODP Rule 12.4.6.1.2.

4.2.3 District-Wide Matters – Ecosystems and indigenous biodiversity

Rule	Discussion	Compliance
1B-R1 Indigenous vegetation ... clearance and any associated land disturbance for specified activities within and outside a SNA	(7) allows for construction of a single residential unit on a title and essential on-site infrastructure and access, provided it does not exceed 1,000m ² . Assuming that vegetation clearance is undertaken by future owners on the individual titles, then this rule will be met as a permitted activity by Lot 24 as minimal additional clearance is required. On Lots 25 – 27, the proposed clearance of up to 1,500m ² will exceed the permitted activity standard.	Does not comply – discretionary activity.
IB-R4 Indigenous vegetation clearance and associated land disturbance outside a SNA	Clearance permitted where a report from a suitably qualified and experienced ecologist has been obtained to confirm that the vegetation does not meet the criteria for a SNA, the report is submitted to Council 14 days in advance of clearing being undertaken, and in the Rural Lifestyle Zone the clearance does not exceed 500m ² over a 5-year period. Without the report, clearance is limited to 100m ² in any calendar year.	Does not comply – discretionary activity.

4.2.4 District-Wide Matters – General District-Wide Matters – Energy, Infrastructure, & Transport – Transport

Rule	Discussion	Compliance
TRAN-R2 Vehicle crossings and access, including private accessways	The first section of shared private access will serve more than 8 household equivalents but is not off the road types listed in PER-3. Access widths will be sufficient width for fire fighting, manoeuvring will be available. There will be no unused vehicle crossings. The private accessway serves more than eight residential units as per TRAN-Table 9. Passing bays will be formed where necessary. New vehicle crossings will be formed off Lot 34 DP 426505 where required to meet the permitted standard.	This rule does not have legal effect.

4.2.5 District Wide Matters – Subdivision

Rule	Discussion	Compliance
SUB-R3 Subdivision of land to create a new allotment.	<p>CON-1</p> <ul style="list-style-type: none"> Each lot includes a 30 x 30m dimension, plus 10m boundary setbacks. Onsite water storage, including supply or fire-fighting is proposed. Stormwater management can be achieved on site. This is reported on within the Site Suitability Report. Onsite wastewater treatment and disposal is feasible. Power and telecommunications connections not required in the Rural Living Zone. Easements are shown on the scheme plan. <p>CON-2</p> <ul style="list-style-type: none"> Controlled and discretionary activity minimum allotment sizes are not achieved. Esplanade Reserve not proposed. 	This rule does not have legal effect.

4.2.6 Earthworks

Rule	Discussion	Compliance
EW-R6 Earthworks for ... formation ... of ... private accessways	Earthworks will be undertaken for this purpose. Standards reported on below.	This rule does not have legal effect.
EW-R12 Earthworks and the discovery of suspected sensitive material	An Accidental Discovery Protocol advisory note can be added to the resource consent.	Complies. Refer to EW-S3 below.
EW-R13 Earthworks and erosion and sediment control	Erosion and sediment control will be implemented in association with the proposed earthworks – detailed design will be provided at Engineering Plan Approval stage.	Complies. Refer to EW-S5 below.
EW-S1 Maximum earthworks thresholds.	Less than 5000m ³ / 2,500m ² proposed.	These rules do not have legal effect.
EW-S2 Maximum depth and slope	Cut height will not exceed 1.5m.	
EW-S3 Accidental Discovery Protocol	Will be complied with.	Complies
EW-S4 Site reinstatement	Will comply.	This rule does not have legal effect.
EW-S5 Erosion and sediment control	Will be complied with.	Complies

4.2.7 Summary of Activity Status under the Far North Proposed District Plan

Relevant rules with immediate effect are

- EW-R12 and EW-R13, both of which can be satisfied as a permitted activity via consent conditions and an advice note.
- IB-R1 & R4: Discretionary activity consent required.

5. Assessment of Environmental Effects

Section 104(1)(a) and (ab) require the consent authority, subject to Part 2 of the Act, to have regard to any actual and potential effects on the environment of allowing the activity and any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity. Section 104(2) indicates that a consent authority may disregard an adverse effect of the activity on the environment if a national environmental standard of the plan permits an activity with that effect and Section 104(3)(a)(ii) requires a consent authority to not, when considering an application, have regard to any effect on a person who has given written approval to the application (unless that person has withdrawn the written approval before the date of a hearing or before the application is determined, as set out in 104(4)).

Clauses 6 and 7 of Schedule 4 of the RMA indicate the information requirements and matters that must be addressed in or by an assessment of environmental effects, both of which are subject to the provisions of any policy statement or plan. This assessment of environmental effect therefore also addresses the relevant matters listed in Far North Operative District Plan Rules 10.7.5.3.8 (Stormwater Management), 12.2.6.2.2 (Indigenous Vegetation Clearance in Other Zones), 12.4.7 (Natural Hazards – Assessment Criteria) 13.10 (Subdivision - Assessment Criteria) – as specified in Rule 13.11 (Non-Complying (Subdivision) Activities, and 15.1.6C.4.1 (Property Access) that Council will consider in relation to making a decision and imposing conditions.

This assessment of environmental effects should be read in conjunction with the reports and assessments attached in the Appendix.

5.1 Allotment Sizes and Dimensions

The proposed lots are of a sufficient size to provide for the intended land use. Sufficient area for future buildings as well as onsite servicing is available, as detailed in the Site Suitability Report. The proposed dimension of each allotment complies with the controlled activity standard for the Coastal Living Zone.

The subdivision design is based on achieving an average lot size that is in accordance with the restricted discretionary activity for subdivision in the Coastal Living Zone, with the average area of future titles for Lots 23 – 27, taking into account the overall 7/12th share that the application sites have in Lot 34 DP 426505, being one site per 1.0480ha.

The size and dimensions of the proposed lots are consistent with the existing pattern of development within the immediate area, including the completed Stage 1 subdivision. The density is less than was approved as the now expired Stage 2 of RC 2100559-RMAVAR/A. The lot sizes provide an appropriate transition between the residential areas of Lichen Grove and Russell Township, the commercial area of Orongo Bay, and the General Coastal Zone, in accordance with the context of the zone. The lot sizes and layout are compatible with the existing pattern of subdivision and are related to each other through their shared access lot.

The shape of the lots means that they are able to be built on the east – west axis, to take advantage of passive solar gain.

5.2 Natural and Other Hazards

The Site Suitability and Geotechnical Reports assess stability and other natural hazards. The Site Suitability Report confirms that there are no applicable natural hazards (excluding landslip, which is addressed within the Geotechnical Report).

The Geotechnical Report includes recommendations for foundations, earthworks, retaining walls, driveways. It finds that:

- No obvious indications of major deep-seated instability were identified at the site at the time of writing, and the risk of such deep-seated instability developing as a result of the development proposal is low. However, there were signs of shallow instabilities including presence of colluvium upon the slope with contours suggesting shallow bowl-shaped features in the topography. Five critical sections have been analysed.
- An adequate Factor of Safety for residential development is achieved under the existing and proposed conditions, but that stability control is required where potential failure planes encroach into the development platform (Sections A, C and E on Lots 23, 25 and 27 respectively). Where potential failure planes encroach into the development platform, earthworks will be required to negate a Section 72 notice under the Building Act 2004 for potential natural hazards comprising slippage below and entering the development footprint. A modelled cut earthworks design is included, however, specific earthworks design will need to be refined at the building consent stage.
- Highly expansive soil type is conservatively expected to be present.
- There is no liquefaction potential / risk in a design level earthquake event.

Geotechnical stability analysis, design and monitoring are all required at building consent stage. A consent notice condition to this effect is proposed, and this will sufficiently avoid natural hazard risk such that section 106 of the Resource Management Act 1991 does not apply, and consent may be issued.

The proposed subdivision does not have any known adverse effects related to soil contamination - see Section 6.1.1 of this Report.

The requirement for a ten-metre cleared fire hazard buffer around the perimeter of dwellings has been incorporated into the proposal, together with the requirement to underplant the edge of surrounding vegetation with low flammability species.

The Site Suitability Report confirms that on-site roof water supply tanks will need to be used for fire fighting water supply, given the absence of public reticulated water supply and fire hydrants in the vicinity. Suitable water supply for this purpose can be designed and provided at the building consent stage for any residential dwelling the lots, with reapplication of existing consent notice condition (i).

5.3 Water Supply

Potable water will be supplied within each vacant lot via collection and storage of rainwater. The typical consent notice condition, which requires onsite water supply to be designed to be adequate for fire fighting purposes, can be re-applied to Lots 23 – 27. The proposal will not result in any adverse effects in terms of water supply.

5.4 Stormwater Disposal

Refer to the Site Suitability Report, which details the design proposals for stormwater management at both subdivision stage and for future built development on Lots 23 - 27. The stormwater design includes low impact design measures for avoidance of scour and erosion, stormwater treatment and avoidance of downstream flooding effects.

New impermeable surfaces associated with upgraded private access formed as part of the subdivision will be subject to stormwater management to achieve control of stormwater flows, reduction of scour and compliance with District and Regional Plan rules. The design proposal is set out in the Site Suitability Report, and it is expected that the final engineering plans will be prepared in accordance with the Report and submitted to Council for final approval prior to construction.

Specific engineering design of stormwater management on each of the lots will be required at the time of development (building consent) and be subject to Council's approval. The design shall ensure that peak stormwater runoff from the developed lot does not exceed pre-development runoff during a design 10% annual exceedance probability storm event with a recognised allowance for climate change. This is expected to involve the collection and attenuation of stormwater runoff from roof areas in water storage tanks with specifically sized low-flow orifices, and avoidance of concentrated discharge to prevent scour and erosion and excessive saturation of shallow soils.

With the proposed stormwater management conditions, it is considered that the proposal will avoid and mitigate potential adverse effects related to stormwater, such that effects will be less than minor.

Refer to Appendix C of the Site Suitability Report, which addresses the relevant assessment criteria for stormwater management as per Rule 13.10.4.

5.5 Sanitary Sewage Disposal

On-site treatment and disposal of wastewater is addressed in the Site Suitability Report in **Appendix 2**, which describes concept wastewater designs for each lot. Detailed design during the building consent stage may consider alternatives available for each proposed lot based on the soil type, environmental constraints, location and size of the proposed dwellings, and at that stage a development specific onsite wastewater report will be supplied to Council.

It is anticipated that surface or subsurface laid pressure compensating drip lines will be suitable for the proposed future activities. An assumed soil category of 6 (in accordance with TP58) from onsite soil testing with a soil loading rate of 3 litres per square meter per day and a 100% reserve area has been assumed. Each of the proposed lots have sufficient area available, including setbacks specified in the Proposed Regional Plan, for an on-site wastewater treatment system, with the final design to be submitted at building consent stage.

As the site conditions have been deemed to be suitable for onsite wastewater treatment and disposal in accordance with the relevant permitted activity Proposed Regional Plan rules, it is considered that the proposal avoids adverse effects in relation to sanitary sewage disposal.

5.6 Energy & Telecommunications Supply

Being within the Coastal Living Zone the sites are not urban allotments, and Rules 13.7.3.6 and 13.7.3.7 do not require the lots to be provided with the ability to connect to an electrical utility or telecommunications system. The applicant is likely to provide power connections to the boundary of each lot, but not necessarily telecommunication connections - this is to be confirmed. The correspondence from Top Energy in **Appendix 9** states that they require new connections to be reticulated to the boundary of each lot.

5.7 Easements for any Purpose

No new easements are necessary for the proposed subdivision, with Lot 34 DP 426505 being subject to an existing easement for right of way and the right to drain water and convey electricity, telecommunications and computer media.

5.8 Property Access

The additional traffic generated by the proposal is in the order of thirty daily one-way traffic movements based on the increase in the overall number of sites and future anticipated household equivalents.

Property access is addressed within the Site Suitability Report, which recommends that detailed design be provided at engineering plan approval stage. This will predominantly relate to the requirement to upgrade vehicle access to provide a three-metre-wide carriageway to service Lots 25 – 27. There is no intention to vest an additional portion of road as highlighted in red in Sheet 600 of the Site Suitability Report, resulting in a short portion of the private accessway serving more than eight allotments. The effects of this are negligible, given that the relevant section of private accessway is sufficiently formed to comply with the Rural Type B access standard, and that there is an existing management plan and land covenant covering the ongoing maintenance of the shared private accessway within Lot 34 DP 426505. Risks to traffic and road safety arising from the application are considered to be sufficiently avoided and mitigated.

The number of users is less than previously approved as Stage 2B in RC 2100559-RMAVAR (two less lots are proposed). Further, we note that subdivision of Lot 34 DP 426505 to vest an additional portion of road would require alterations to all of the titles that own a share of it, being Lots 28 – 32 held in Records of Title 504323 – 504327 – this outcome is considered impractical and unnecessary.

5.9 Earthworks and Utilities

Earthworks are required to complete the proposal, being those associated with the upgrade of private access to the boundary of each lot and installation of stormwater management devices. For the subdivision stage of development, detailed erosion and sediment control measures will be provided at engineering plan approval stage (together with a construction management plan), and this will take into account the recommendations of the Site Suitability Report to ensure that adverse environmental effects on water quality and stability are avoided. Earthworks will not affect the overall existing pattern of stormwater flow nor obstruct local drainage paths.

Proposed earthworks avoid adverse effects on the life supporting capacity of soils, as soil beyond the accessways and building sites will remain suitable for lawn, landscape planting and retention of bush. Topsoil can be retained, and large areas of existing indigenous bush will be left undisturbed.

Utility connections can be installed below ground.

5.10 Building Locations

Suitable building locations have been selected based on geotechnical investigation, as well as ecological and landscape qualities. Building sites are located on the sloping land either side of a natural water way and are not positioned in elevated locations or upon a ridgeline. The future buildings will sit within the landscape, while the existing and proposed vegetation will provide a structure on each lot, which reflects the landform features.

Aspects related to passive solar gain related to future buildings can be considered when the lots are developed.

5.11 Preservation and Enhancement of Heritage Resources

The proposed lots do not contain any recorded heritage resources or sites of cultural significance.

The property was the subject of earlier archaeological assessments, including an Archaeological Survey and Assessment for the earlier more intensive approved subdivision (see **Appendix 8**). This noted that there were no intact archaeological sites recorded on the property and there were no further archaeological remains noted in five test pits dug, and that there was only a low probability for further archaeological remains existing on the property.

Potential adverse effects of the development on any unrecorded or unidentified archaeological sites can be mitigated through compliance with Heritage New Zealand's Accidental Discovery Protocol, which can be attached to the consent as an Advice Note.

5.12 Preservation and Enhancement of Vegetation & Fauna

The Ecological Impact Assessment describes the generalised potential effects (including cumulative effects) as being:

- Discharge of stormwater; sediment and contaminants to wetland
- Loss of Threatened & At Risk species through physical threat by pests; weeds and habitat disturbance
- Biosecurity- introduction of pests & weeds
- Predation of site fauna by introduced pets and ongoing pest threats

It assesses the unmitigated level of effect arising from the proposal as being moderate. It then outlines the measures to avoid, remedy and mitigate those potential effects (refer to Table 11 and proceeding paragraphs) and concludes that:

“Although management actions are constrained to the property boundaries, positive gains will extend to neighbouring properties, increasing territorial economies of mobile species and consolidating pest control efforts across the wider high value landscape. These integrated mechanisms will serve to commend persistent indigenous habitat and character within the proposal, with a level of effects that can be addressed through the mitigation hierarchy to obtain a VERY LOW impact (EIANZ 2018) or less than minor level of effects”.

Positive ecological effects are also detailed in the Ecological Impact Assessment.

5.13 Preservation and Enhancement of Landscape, Visual and Natural Character Values

The proposed lots do not contain any landscape features. Despite being zoned Coastal Living under the Operative District Plan, the most recent mapping of the coastal environment under the Regional Policy Statement does not include the subject site within the coastal environment.

Landscape effects are evaluated in the Landscape and Visual Assessment, which summarises that:

-
- The proposed lot configuration and lot sizes are similar to adjoining lots and the existing settlement pattern found within this area of Orongo Bay. The proposed subdivision will not result in any adverse effects upon the existing character of the surrounding landscape.
 - The additional three building sites can be absorbed into the landscape setting without generating undue landscape and visual effects. This is due to the sites not being very visible to the public or from the CMA. The new lots and subsequent building sites will be very visually contained, and with the addition of sensitively designed and coloured dwellings will not be obtrusive or readily visible. The proposed building and landscape design guidelines will integrate built form into the landscape, so that the potential landscape and visual effects are less than minor.
 - Bush clearance will be minimised and limited to 1500m² on the lots; this area will include the bush removal for driveways and rights of ways. The proposed ecological enhancement and protection measures will ensure that the landscape will continue to absorb any development upon the lots, and that the degraded areas of the application site are restored and enhanced through the recommendation of the ecologist as detailed on the Ecological Report Mitigation Plan. The bush protection covenants will protect the bush and wetland areas and will ensure that the natural character and amenity values associated with the bush cover on the sites is maintained and enhanced.

It concludes that the overall potential landscape and visual effects of this proposed development have been assessed as being less than minor.

5.14 Soil

Soils on the subject site are not mapped as being Class I, II or III in the NZ Land Resource Inventory Worksheets, and they do not meet the definition of 'highly productive land' under the National Policy Statement for Highly Productive Land or of 'highly versatile soils' in the Regional Policy Statement.

The Coastal Living zoning of the sites supports the proposed use of the lots, which will be located on soils which are not considered to be a scarce resource. The proposal is considered to be an efficient use of soil resources.

The proposed subdivision layout creates lifestyle sites within an overall framework of existing and proposed revegetation. Soil erosion will be minimised through minimisation of the area of land to be exposed as a result of earthworks to form vehicle access, so that the existing vegetated cover can be retained over the majority of the sites until each lot is developed for its end use.

The Site Suitability Report also recommends erosion / scour protection works at the points of stormwater discharge.

5.15 Access to Reserves and Waterways

There are no identified public access or esplanade reserve requirements. Protection of the riparian margin will be achieved via existing and proposed mechanisms, including enhancement of the riparian margin to provide a more robust buffer for habitat quality and water protection.

5.16 Land Use Compatibility

The proposed development is considered to avoid adverse effects associated with land use compatibility and reverse sensitivity, as there are no nearby activities that would conflict with the introduction of a very low density of residential use on the proposed lots. In particular, although Lot 25 is within 100m of the Minerals Zone which applies to Lot 1 DP 342962, the building site will be situated closer to the shared access road, and is more than 120m away, and even further from the existing quarry face, with dense intervening vegetation. The subdivision has separate vehicle access to the quarry, with the quarry entrance being approximately 1.3km further along Russell Whakapara Road.

6. Statutory Assessment

Section 104(1)(b) of the Resource Management Act 1991 requires the consent authority, subject to Part 2 of the Act, to have regard to any relevant provisions of a national environmental standard, other regulations, a national policy statement, a New Zealand coastal policy statement, a regional policy statement, a plan or proposed plan, and any other matter the consent authority considers relevant and reasonably necessary to determine the application. Of relevance to the proposed activity are the following documents, which are commented on in the proceeding Sections 6.1 – 6.5 of this Report. This is followed by an assessment of Part 2 of the Act.

- Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
- Resource Management (National Environmental Standards for Freshwater) Regulations 2020
- New Zealand Coastal Policy Statement
- National Policy Statement for Indigenous Biodiversity
- Regional Policy Statement for Northland
- Operative Far North District Plan
- Proposed Far North District Plan
- Proposed Regional Plan for Northland

6.1 National Environmental Standards

6.1.1 Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (“NESCO”)

The subject land is not recorded on the Northland Regional Council Selected Land-use Register as a site that has been used for any activity included in the Ministry for the Environment’s Hazardous Activities and Industries List.³

The land is not known to be currently, or historically, used for any activity or industry on the Hazardous Activities and Industries List.

As such, the subject site is not considered to be a ‘piece of land’ in terms of the above regulations.

6.1.2 Resource Management (National Environmental Standard for Freshwater) Regulations 2020

The Ecological Impact Assessment in **Appendix 4** identifies the location of natural inland wetland and assesses subdivision and proposed or future land use activities in terms of their compliance with the above Regulations. The report notes that:

- Drainage of wetlands is a prohibited adverse effect, and it is presupposed this will not occur.
- All house sites are potentially within 100m of the wetland areas. In that instance no adverse effects on aquatic species or water quality are expected, subject to best practice engineering standards and controls.
- The removal of the bunded crossing will necessitate development of a Fish Recovery Protocol to ensure none of the species recorded or predicted onsite are put at physical risk.

The proposal, including earthworks and stormwater diversion and discharge, is unlikely to change the water level range or hydrological function of any wetland, and is not considered to have any consent requirements in terms of the above regulations.

³ Northland Regional Council (n.d.): *Selected Land-use Register Map*. Retrieved 6 December 2024 from <https://localmaps.nrc.govt.nz/localmapviewer/?map=65b660a9454142d88f0c77b258a05f21>

6.2 National Policy Statements

6.2.1 New Zealand Coastal Policy Statement 2010 (“NPSHPL”)

The most recent mapping of the ‘coastal environment’ is within the operative Regional Policy Statement, which postdates the Operative District Plan ‘Coastal Living’ zoning. The subject site is not included in the coastal environment; therefore, it is considered that the above policy statement is not pertinent to this application.

6.2.2 National Policy Statement for Indigenous Biodiversity (“NPSIB”)

The objective of the above policy statement is set out in 2.1, as copied below:

(1) *The objective of this National Policy Statement is:*

- (a) to maintain indigenous biodiversity across Aotearoa New Zealand so that there is at least no overall loss in indigenous biodiversity after the commencement date; and*
- (b) to achieve this:*
 - (i) through recognising the mana of tangata whenua as kaitiaki of indigenous biodiversity; and*
 - (ii) by recognising people and communities, including landowners, as stewards of indigenous biodiversity; and*
 - (iii) by protecting and restoring indigenous biodiversity as necessary to achieve the overall maintenance of indigenous biodiversity; and*
 - (iv) while providing for the social, economic, and cultural wellbeing of people and communities now and in the future.*

There is no SNA included in the district plan or identified in a policy statement or plan. The 17 listed policies set out to achieve this objective, and of most relevant to this proposal is Policy 8:

Policy 8: The importance of maintaining indigenous biodiversity outside SNAs is recognised and provided for.

Part 3 guides the implementation of the NPSIB. Of relevance is the following approach to implementing the NPSIB.

3.16 Indigenous biodiversity outside SNAs

(1) If a new subdivision, use, or development is outside an SNA and not on specified Māori land, any significant adverse effects of the new subdivision, use, or development on indigenous biodiversity outside the SNA must be managed by applying the effects management hierarchy.

Effects Management Hierarchy is defined as follows:

effects management hierarchy means an approach to managing the adverse effects of an activity on indigenous biodiversity that requires that:

- (a) adverse effects are avoided where practicable; then*
- (b) where adverse effects cannot be avoided, they are minimised where practicable; then*
- (c) where adverse effects cannot be minimised, they are remedied where practicable; then*
- (d) where more than minor residual adverse effects cannot be avoided, minimised, or remedied, biodiversity offsetting is provided where possible; then*
- (e) where biodiversity offsetting of more than minor residual adverse effects is not possible, biodiversity compensation is provided; then*
- (f) if biodiversity compensation is not appropriate, the activity itself is avoided.*

Potential adverse effects and proposed management is outlined in Table 11 of the Ecological Impact Assessment, which describes measures to avoid, remedy and mitigate actual and potential adverse effects.

Adverse effects have been avoided to the extent practicable by locating building sites on existing cleared areas and/or areas where the vegetation is of the least quality and by using existing access

formations. Potential indirect effects arising from earthworks and future building and residential development can be avoided and mitigated through standard erosion and sediment control measures, careful stormwater discharge and by observing suitable buffers from wetland areas.

The effect of vegetation clearance has been minimised by limiting the extent of clearance permitted. The Ecological Impact Assessment states that *“clearance of the currently open and weedy vegetation in the allocated proposal footprints Lots 25-27, is preferable over other site areas and will not result in any loss of vegetation; habitat or species with threat status. Removal of the common exotic component contained within would have positive effects on the natural values of the area and reduction of fire risk”*.

As such, the proposal achieves (a) and (b) of the above hierarchy. There are no residual adverse effects which are more than minor or require remediation or biodiversity offsetting.

It is therefore considered that the proposal is consistent with the above National Policy Statement.

6.3 Regional Policy Statement for Northland (“RPS”)

The RPS provides an overview of resource management issues and gives objectives, policies, and methods to achieve integrated management of natural and physical resources of the region. The subject site is not in the coastal environment, does not include any outstanding natural landscapes or features and does not include any areas of high or outstanding natural character. The relevant policies from the RPS are addressed below.

Policy 4.4.1 – Maintaining and protecting significant ecological areas and habitats - requires adverse effects outside the coastal environment to be avoided, remedied or mitigated by subdivision, use and development, so that they are no more than minor on threatened or at risk indigenous taxa, significant areas of indigenous vegetation and habitats of indigenous fauna, and areas set aside for full or partial protection of indigenous biodiversity under other legalisation (Policy 4.4.1(1)). For other ecological values, outside the coastal environment, subdivision must avoid, remedy or mitigate adverse effects of subdivision, use and development so that they are not significant on areas of predominantly indigenous vegetation as well as indigenous ecosystems and habitats that are particularly vulnerable to modification, including wetlands, headwater streams, floodplains and margins of freshwater bodies (Policy 4.4.1(3)(a) and (c)). The relevant parts of this policy are considered to be met by the proposal, in that it provides permanent protection and enhancement of the wetland and bush areas within the sites, whilst also ensuring that direct and indirect effects of the subdivision and anticipated future development are less than minor on these areas.

Policy 5.1.1 – Planned and coordinated development, requires co-ordinated location, design and building or subdivision, use and development. Relevant matters are listed under (a), (c), (e), (g) and (h). These matters have been considered in preceding sections of this report. In particular:

- Servicing with the necessary infrastructure is viable, with onsite storage of potable water and onsite wastewater disposal being feasible, as described in the Engineering Report. Power and telecommunication connections are not expected to be made a condition of consent as they will be supplied at the time that the lot is developed, if required by the property owner, or otherwise supplied by the consent holders at their own discretion.
- The proposed building sites are not within 100m of a significant mineral resource;
- The new building sites are not close to any incompatible land use activities and avoids reverse sensitivity;
- The proposal does not affect any landscape or natural character values, historic or cultural heritage values, or transport corridors;
- Kiwi may be present – typical consent notice conditions relating to the keeping of dogs and cats are proposed;

- Adverse effects associated with natural hazards and downstream flooding are avoided. Existing and future impermeable surface coverage is likely to be low.
- The sites do not contain highly versatile soils.
- The proposed subdivision achieves an appropriate lot size for the Coastal Living zone. Coastal lifestyle development is an anticipated land use in this zone, and the development of Lots 23 - 27 for this purpose will be compatible with other existing activities in the area so to maintain the character of the surrounding environment.
- Matters such as renewable energy, sustainable design technologies can be further addressed at the time that development on the vacant lots is proposed.

6.4 Objectives and Policies – Operative Far North District Plan

The objectives and policies of the Coastal Environment, Coastal Living Zone, Subdivision and Transportation Sections of the District Plan are relevant to this proposal. Proposed clearance of indigenous vegetation will be a restricted discretionary activity and is considered to be in accordance with the relevant objectives and policies for Indigenous Flora and Fauna (Chapter 12, Section 2).

As discussed below, it has been concluded that the proposal is not contrary to the overall objectives and policies of the Operative District Plan and consequently, meets the test of section 104D(1)(b) of the Resource Management Act 1991.

Coastal Environment

Objectives and policies relating to the Coastal Environment can be grouped into twelve main themes, which are commented on below. Further detailed assessment of the Coastal Living Zone objectives policies, together with the Context and Commentary for the zone, follows.

- ***Avoid, remedy or mitigate adverse effects, minimise effects that cross the coastal marine boundary***
As addressed in Section 5 of this report, the proposal offers designated building sites and overall pest and weed management and revegetation. Adverse effects are avoided where possible through the subdivision design, and are otherwise mitigated through the specified measures to integrate future built form and infrastructure, as well engineering conditions in accordance with policy 10.6.4.4. The works required to implement the subdivision, as well as the future land use works, are a long distance from the coastal marine area.
- ***Preservation, restoration, rehabilitation, protection / preservation or enhancement of character, visual and amenity values***
Refer to the Landscape and Visual Assessment, which assesses multiple off-site viewpoints in terms of the visual effects of the proposed development. In each case, those effects are assessed as being in the range of nil to less than minor, and in some cases, a positive effect upon visual amenity is anticipated. The proposal is considered to be consistent with objective 10.6.3.2 and policies 10.4.12, 10.6.4.1, 10.6.4.2 and 10.6.4.6.
- ***Preservation, restoration, rehabilitation, protection or enhancement of significant indigenous vegetation and habitats of indigenous fauna***
The proposed measures listed in the Ecological Impact Assessment will confer gross ecological benefit and amenity value, to restore and enhance biodiversity values, maintaining the continuity of natural processes and systems of the local ecosystems. Policy 10.4.3 is supported by the proposal.
- ***Ensuring suitable water supply and storage***
Suitable water supply for potable and fire-fighting use can be provided using onsite water tanks, in accordance with policy 10.4.10.

- **Ensure appropriate servicing with utility services**
The earlier consent RC 2100559-RMAVAR required provision of underground power and telecommunication connections - this can be carried over. Onsite stormwater and wastewater treatment and disposal is achievable as confirmed by the Site Suitability Report. Policy 10.4.1(c) is achieved.
- **Avoid effects on local roading**
The proposal uses existing and upgraded combined access formations for efficient access and to avoid affecting the safety or efficiency of Russell Whakapara Road, with additional traffic movements catered for by the proposed access.
- **Protect, restore, and enhance heritage and cultural resources**
No archaeological or heritage sites are recorded on the subject site. Potential adverse effects of the development on any unrecorded or unidentified archaeological sites can be mitigated through compliance with Heritage New Zealand's Accidental Discovery Protocol, which can be attached to the consent as an Advice Note. This is in accordance with policy 10.4.1(d). Any feedback from a cultural perspective will be taken into account.
- **Give effect to the NZ Coastal Policy Statement and Regional Policy Statement:**
See comments in Section 6.2.1 and 6.3, which assess the proposal in terms of the relevant national and regional policy statements as required by policy 10.4.1(h).
- **Avoidance of natural hazards:**
Refer to the Site Suitability and Geotechnical Reports, which confirm that the proposed subdivision and building sites mitigate sufficiently against natural hazards by adopting the recommendations of the report. Fire hazard is also able to be mitigated to a suitable level using fire breaks and fire resistant planting within buffer areas. Policy 10.4.9 is therefore met.
- **Avoid sprawling or sporadic subdivision and development to the extent that is consistent with the other objectives and policies of the Plan.**
The lot sizes proposed fit within the existing range of subdivision and land use intensity and density; therefore, the subdivision is not considered to be sprawling or sporadic in accordance with policy 10.4.2. It provides a sustainable coastal living settlement pattern which compliments the settlement pattern in surrounding areas.
- **Promote sustainable management.**
The proposal is considered to represent a sustainable use of the land.
- **Maintain and enhance public access to and along the coast, including in accordance with the Esplanade Priority Areas.**
The subject site does not adjoin the coastal marine area or any existing esplanade reserve areas. There are no identified opportunities to maintain or improve public access to and along the coast. Objective 10.3.4 and policies 10.4.1(g) and 10.4.4 are met.

Coastal Living Zone

CONTEXT

The Coastal Living Zone is similar in purpose to the Rural Living Zone. It is distinguished from the Rural Living Zone by its coastal location. The zone provides an area of transition between residential settlement on the coast and the General Coastal Zone. The difference is expressed mainly in residential intensity and lot sizes. The zone applies to those areas of the coastal environment which have already been developed but which still maintain a high level of amenity associated with the coast. These areas have been identified as having an ability to absorb further low density, mainly rural residential development, without detriment to their overall coastal character. The zone therefore allows rural residential development to occur and thereby reduces

pressure for development in the General Coastal Zone whilst retaining, as far as possible, the character, features and landscapes of this part of the coastal environment.

The proposed subdivision of Lots 37 and 38 DP 426505 will result in three additional residential lots and subsequent dwellings being placed within a Coastal Living Zone. Although the sites are zoned Coastal Living they are located outside of the Coastal Environment and have no sensitive landscape overlays.

The proposed lot configuration and lot size are similar to adjoining lots and the existing settlement pattern found within this area of Orongo Bay. The proposed subdivision will not result in any adverse effects upon the existing character of the surrounding landscape.

The additional three building sites can be absorbed into the landscape setting without generating undue landscape and visual effects. This is due to the sites not being very visible to the public or from the coastal marine area. The new lots and subsequent building sites will be very visually contained, and with the addition of sensitively designed and coloured dwellings will not be obtrusive or readily visible. The proposed building and landscape design guidelines will integrate built form into the landscape, so that the potential landscape and visual effects are less than minor.

The major component of the subject site that contributes to its natural character is the existing vegetation cover. Bush clearance will be minimised and limited to 1500m² on the lots; this area will include the bush removal for driveways and rights of ways. The proposed ecological enhancement and protection measures will ensure that the landscape will continue to absorb any development upon the lots, and that the degraded areas of the application site are restored and enhanced through the recommendation of the ecologist as detailed on the Ecological Report Mitigation Plan. The bush protection covenants will protect the bush and wetland areas and will ensure that the natural character and amenity values associated with the bush cover is maintained and enhanced.

OBJECTIVES

10.7.3.1 To provide for the well being of people by enabling low density residential development to locate in coastal areas where any adverse effects on the environment of such development are able to be avoided, remedied or mitigated.

The proposed subdivision completes a partly implemented earlier consent, to provide low density residential development in the Coastal Living Zone. The large lot size, together with minimised vegetation clearance and revegetation proposal ensure that any effects from the proposal are avoided and mitigated.

10.7.3.2 To preserve the overall natural character of the coastal environment by providing for an appropriate level of subdivision and development in this zone.

This objective repeats the theme of objective 10.4.1 and refers more specifically to the matter of national importance in section 6(a) of the RMA 1991. The objective of preservation of natural character in the coastal environment provisions of the RMA is repeated in the NZCPS, which specifies that natural character should be preserved by encouraging development in areas already compromised, and avoiding sprawling or sporadic subdivision, use and development in the coastal environment.

As outlined, the sites are not within the coastal environment as per the latest Regional Policy Statement mapping.

Taking into account that the existing character of the landscape is influenced by the low density built form already present, the small and localised changes will be consistent with the existing character. The Landscape and Visual Assessment confirms that the proposal will not adversely affect the natural character values of the nearby coastal environment.

POLICIES

10.7.4.1 That the adverse effects of subdivision, use, and development on the coastal environment are avoided, remedied or mitigated.

As outlined above, the proposed mitigation planting, protection of vegetation, large lot sizes and development controls will ensure that adverse effects are avoided, remedied or mitigated. A positive effect on the natural character of freshwater riparian areas will be attained through enhancement planting.

10.7.4.2 That standards be set to ensure that subdivision, use or development provides adequate infrastructure and services and maintains and enhances amenity values and the quality of the environment.

There are adequate areas available for onsite wastewater treatment and disposal, and stormwater management, roading, and utility services can all be provided to achieve the above policy.

10.7.4.3 Subdivision, use and development shall preserve and where possible enhance, restore and rehabilitate the character of the zone in regards to s6 matters, and shall avoid adverse effects as far as practicable by using techniques including:

- (a) clustering or grouping development within areas where there is the least impact on natural character and its elements such as indigenous vegetation, landforms, rivers, streams and wetlands, and coherent natural patterns;**
- (b) minimising the visual impact of buildings, development, and associated vegetation clearance and earthworks, particularly as seen from public land and the coastal marine area;**
- (c) providing for, through siting of buildings and development and design of subdivisions, legal public right of access to and use of the foreshore and any esplanade areas;**
- (d) through siting of buildings and development, design of subdivisions and provision of access, that recognise and provide for the relationship of Maori with their culture, traditions and taonga including concepts of mauri, tapu, mana, wehi and karakia and the important contribution Maori culture makes to the character of the District. (Refer Chapter 2 and in particular Section 2.5 and Council's "Tangata Whenua Values and Perspectives (2004)";**
- (e) providing planting of indigenous vegetation in a way that links existing habitats of indigenous fauna and provides the opportunity for the extension, enhancement or creation of habitats for indigenous fauna, including mechanisms to exclude pests;**
- (f) protecting historic heritage through the siting of buildings and development and design of subdivisions.**

Again, the RPS does not map the sites as being within the coastal environment, the sites are not within an Outstanding Landscape and do not have high or outstanding natural character.

This RPS mapping "assists in the implementation of s6. Resource Management act and the New Zealand Coastal Policy Statement 2010 (NZCPS) by:

- *Identifying the coastal environment;*
- *Identifying high and outstanding natural character areas (in the coastal environment); and*
- *Identifying outstanding natural features and landscapes."*

(Explanation of RPS Policy 4.5.1).

The natural character of wetlands, waterways and indigenous vegetation and habitats within the sites are protected from inappropriate subdivision and future use as described in terms of section 6(a) and (c) of the RMA.

Commenting specifically on the listed techniques:

- (a) As outlined in the Landscape and Visual Assessment, the proposed subdivision pattern is consistent with the existing pattern of development of adjoining lots and will be 'read' as forming a part of this existing low-density cluster of rural residential settlement. Further, the sites do not have high or outstanding natural character.
- (b) The visual impact of future buildings has been considered, using techniques of building location, form, height, colouring, which will be included within the suite of proposed consent

notice conditions. The location of the building platforms has been selected following consideration of the topographical characteristics of the land and the surrounding properties. Minor vegetation clearance is required to provide suitable setbacks for mitigation of fire risk; however, this is offset by proposed restoration and enhancement planting elsewhere. Minor earthworks will be required at subdivision stage to upgrade vehicle access and then at building consent stage to prepare building platforms. The Landscape and Visual Assessment includes a recommendation to grade building platform earthworks into adjacent contours, and to avoid sharp and large batters that are difficult to revegetate.

- (c) The proposal does not create any opportunities in terms of public access to the coastal marine area. Esplanade areas are not considered an appropriate outcome for this subdivision.
- (d) There are no known aspects of the proposal that detract from the relationship of Māori with culture, traditions and taonga.
- (e) This is specifically met, as the proposal is to be undertaken with regard to the long-term functionality and integrity of the wider environment, recognising the interdependency of the wetlands, shrubland and linkage across the landscape. The Ecological Impact Assessment has assessed a “gross ecological benefit” from the proposal.
- (f) There are no known intact archaeological sites recorded on the property and there were no further archaeological remains noted in five test pits dug, and that there was only a low probability for further archaeological remains existing on the property. An accidental discovery protocol advisory note is recommended.

Subdivision

13.3 Objectives

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

As detailed previously, the proposed activity is considered consistent with the objectives and policies of the Coastal Living Zone.

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

The sites do not include highly versatile soils. The life supporting capacity of the soil is maintained through minimisation of earthworks (using a combined and existing access formation), and maintenance of the vegetation cover over the majority of the land (including additional revegetation areas). Overall, the proposed subdivision is an appropriate use of the land, which represents sustainable management, having regard to the range and scale of adverse and positive effects identified. Ecosystems are protected and enhanced. Reverse sensitivity related to the quarry is considered too remote to create issues of reverse sensitivity.

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

On-site collection and storage of water, and onsite management of wastewater and stormwater can be achieved on the new sites in such a way that avoids adverse effects on the environment.

13.3.6 To encourage innovative development and integrated management of effects between subdivision and land use which results in superior outcomes to more traditional forms of subdivision, use and development, for

example the protection, enhancement and restoration of areas and features which have particular value or may have been compromised by past land management practices.

The proposal clusters house locations leaving large areas set aside for conservation. The proposal completes the previously approved Stage 2B Management Plan.

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

No issues identified.

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

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

Electricity supply is available, and there are suitable building sites on the vacant lots that are able to be developed in accordance with energy efficient principles.

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

Vehicle access will be provided via the existing jointly owned access lot and is an efficient property access design.

13.4 POLICIES

13.4.1 That the sizes, dimensions and distribution of allotments created through the subdivision process be determined with regard to the potential effects including cumulative effects, of the use of those allotments on:

- (a) natural character, particularly of the coastal environment;**
- (b) ecological values;**
- (c) landscape values;**
- (d) amenity values;**
- (e) cultural values;**
- (f) heritage values; and**
- (g) existing land uses.**

The proposed lots are of a size and dimension which is consistent with existing nearby development, including the Stage 2A subdivision, with the layout and design having regard to the listed values.

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

Internal accessways are or will be sufficiently formed.

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

The suitability of the proposed building sites has been assessed in terms of natural hazards. The sites are not subject to natural hazards other than potential land slippage, which can be mitigated as described in the Geotechnical Report.

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

All utility services are to be provided underground.

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

Existing access is largely in place, with upgrade only required for a section of track to Lots 25 – 27.

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

Existing areas of vegetation and habitats are protected permanently through the covenant arrangements.

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

Onsite water collection and supply is proposed and feasible.

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

There are no sites or cultural significance.

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

The earlier subdivision to which this proposal relates is a management plan subdivision. This current proposal continues to recognise the specific site characteristics to provide long-term protection and enhancement of the environment.

13.4.13 Subdivision, use and development shall preserve and where possible enhance, restore and rehabilitate the character of the applicable zone in regards to s6 matters. In addition subdivision, use and development shall avoid adverse effects as far as practicable by using techniques including:

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

The proposal preserves the character of the Coastal Living Zone and avoids adverse effects to the extent possible as detailed previously. In particular, the bush covenants, revegetation, and pest and weed management will achieve this.

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

This is as assessed previously.

13.4.15 That conditions be imposed upon the design of subdivision of land to require that the layout and orientation of all new lots and building platforms created include, as appropriate, provisions for achieving the following:

- (a) development of energy efficient buildings and structures;**
- (b) reduced travel distances and private car usage;**
- (c) encouragement of pedestrian and cycle use;**
- (d) access to alternative transport facilities;**
- (e) domestic or community renewable electricity generation and renewable energy use.**

There are suitable building sites on the vacant lots that are able to be developed in accordance with energy efficient principles.

Transportation

- **Minimize Adverse effects of traffic on the natural and physical environment.**
- **Ensure appropriate and efficient provision is made for loading and access for activities.**
- **Evaluate traffic effects in making decisions on resource consent applications.**
- **Regulate the number, size, gradient and placement of vehicle access points to assist traffic safety and control.**

Property access formation standards will comply with the minimum requirements for roading and private access, however a short portion of the private accessway will serve more than eight allotments. The relevant section of private accessway is sufficiently formed to comply with the Rural Type B access standard, and that there is an existing management plan and land covenant covering the ongoing maintenance of the shared private accessway within Lot 34 DP 426505. Therefore, it is considered that traffic and road safety risks are sufficiently mitigated and that an appropriate level of service and traffic safety will be provided.

6.5 Objectives and Policies - Proposed Far North District Plan

Relevant objectives and policies are set out under the chapters 'Rural Lifestyle Zone', 'Subdivision', and 'Ecosystems and indigenous biodiversity' and are commented on below. It is concluded that the proposal will generally be consistent with the relevant strategies.

Rural Lifestyle Zone

Objectives

RLZ-O1 The Rural Lifestyle zone is used predominantly for low density residential activities and small scale farming activities that are compatible with the rural character and amenity of the zone.

RLZ-O2 The predominant character and amenity of the Rural Lifestyle zone is characterised by:

- a. low density residential activities;
- b. small scale farming activities with limited buildings and structures;
- c. smaller lot sizes than anticipated in the Rural Production Zone;
- d. a general absence of urban infrastructure;
- e. rural roads with low traffic volumes;
- f. areas of vegetation, natural features and open space.

RLZ-O3 The role, function and predominant character and amenity of the Rural Lifestyle zone is not compromised by incompatible activities.

RLZ-O4 Land use and subdivision in the Rural Lifestyle zone does not compromise the effective and efficient operation of primary production activities in the adjacent Rural Production Zones.

Policies

RLZ-P1 Enable activities that will not compromise the role, function and predominant character and amenity of the Rural Lifestyle zone, while ensuring their design, scale and intensity is appropriate to manage adverse effects in the zone, including:

- a. low density residential activities;

RLZ-P2 Avoid activities that are incompatible with the role, function and predominant character and amenity of the Rural Lifestyle zone because they are:

- a. *contrary to the density anticipated for the Rural Lifestyle zone;*
 - b. *predominately of an urban form or character;*
- RLZ-P3 Avoid where possible, or otherwise mitigate, reverse sensitivity effects from sensitive and other non-productive activities on primary production activities in the adjacent Rural Production zone.*
- RLZ-P4 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. *consistency with the scale and character of the rural lifestyle environment;*
 - b. *location, scale and design of buildings or structures;*
 - c. *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;*
 - d. *the capacity of the site to cater for on-site infrastructure associated with the proposed activity;*
 - e. *the adequacy of roading infrastructure to service the proposed activity;*
 - f. *managing natural hazards;*
 - g. *any adverse effects on historic heritage and cultural values, natural features and landscapes or indigenous biodiversity; and*
 - h. *any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.*

The proposal creates low density residential activities in accordance with RLZ-O1, P1(a) and P2, and maintains the existing character and amenity values of the zone as per RLZ-O2 and O3. No potential effects on the operation of primary production activities have been identified, and RLA-O4 and P3 are met.

The effects of the proposed activity have been assessed in preceding sections of this report, where it is concluded that:

- the scale and character of the existing environment will be maintained,
- proposed buildings will be appropriately managed to reduce visual effects,
- the shared boundary with the Rural Production Zone has a continued shrubland cover, and no off-site effects are anticipated,
- on-site infrastructure can be appropriately provided,
- existing public road formations together with existing / upgraded private accessways will provide an appropriate level of service to the lots,
- natural hazards are managed as specified in the Site Suitability and Geotechnical Reports,
- effects on archaeological or heritage sites are not anticipated, but are provided for by way of an accidental discovery protocol,
- tangata whenua consultation can be undertaken by way of standard notification to interested parties.

Subdivision

Objectives

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 mitigated 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 be 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 given to connections with the wider infrastructure network.*

Policies

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.

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

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 in accordance the purpose, characteristics and qualities of the zone.

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

SUB-P11 Manage subdivision to address the effects of the activity requiring resource consent including (but not limited to) consideration of the following matters where relevant to the application:

- a. consistency with the scale, density, design and character of the environment and purpose of the zone;
- b. the location, scale and design of buildings and structures;
- c. the adequacy and capacity of available or programmed development infrastructure to accommodate the proposed activity; or the capacity of the site to cater for on-site infrastructure associated with the proposed activity;
- d. managing natural hazards;
- e. Any adverse effects on areas with historic heritage and cultural values, natural features and landscapes, natural character or indigenous biodiversity values; and
- f. any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.

The proposed subdivision is an efficient use of land and in accordance with the Rural Lifestyle Zone objectives. The proposed subdivision and future land use activity on Lots 23 - 27 can proceed, subject to the proposed mitigation measures, without generating any significant adverse impact on character, amenity values, heritage or cultural values, highly productive land, land use compatibility, and legal and physical property access. Electricity connections can be provided as part of the subdivision consent. Provided that the recommendations of the Site Suitability Reports are adhered to and further considered at building consent stage via consent notice conditions, the proposed subdivision will not increase natural hazard risk. Fire risk can be avoided and mitigated using appropriate cleared buffer zones, underplanting the edge with low flammability species, onsite water storage, and accessibility for fire fighting appliances.

Policy P9 specifically relates to rural residential subdivision in the Rural Lifestyle Zone. The nature of the proposed lots, having average areas of 1.0480ha (taking into account the overall 7/12th share in Lot 34 DP 426505 is considered to be more akin to a rural lifestyle lot rather than a rural residential lot.

Ecosystems and Indigenous Biodiversity

Objectives

IB-O1 Areas of significant indigenous vegetation and significant habitats of indigenous fauna (Significant Natural Areas) are identified and protected for current and future generations.

IB-O2 Indigenous biodiversity is managed to maintain its extent and diversity in a way that provides for the social, economic and cultural well-being of people and communities.

IB-O3 The relationship between tangata whenua and indigenous biodiversity, including taonga species and habitats, is recognised and provided for.

IB-O5 Restoration and enhancement of indigenous biodiversity is promoted and enabled.

Policies

IB-P1 Identify Significant Natural Areas by:

- a. using the ecological significance criteria in Appendix 5 of the RPS or in any more recent National Policy Statement on indigenous biodiversity;
- b. including areas that meet the ecological significance criteria as Significant Natural Areas in Schedule 4 of the District Plan and on the planning maps where this is agreed with the landowner and verified by physical inspection where practicable;
- c. encouraging landowners to include identified Significant Natural Areas in Schedule 4 of the District Plan at the time of subdivision and development;
- d. providing assistance to landowners to add Significant Natural Areas to Schedule 4 of the District Plan; and
- e. requiring an assessment of the ecological significance for indigenous vegetation clearance to establish permitted activity thresholds in Rule IB R2-R4.

IB-P3 Outside the coastal environment:

- a. avoid, remedy or mitigate adverse effects of land use and subdivision on Significant Natural Areas to ensure adverse effects are no more than minor; and*
- b. avoid, remedy or mitigate adverse effects of land use and subdivision on areas of important and vulnerable indigenous vegetation, habitats and ecosystems to ensure there are no significant adverse effects.*

IB-P4 If adverse effects on indigenous species, habitats and ecosystems located outside of the coastal environment cannot be avoided, remedied or mitigated in accordance with IB-P3, consider whether it is appropriate to apply the following steps as an effects management hierarchy:

- a. biodiversity offsetting to address more than minor residual adverse effects to achieve a no net loss and preferably net gain in indigenous biodiversity; and*
- b. environmental biodiversity compensation to address more than minor residual adverse effects where it is not practicable to achieve biodiversity offsetting.*

IB-P7 Encourage and support active management of pest plants and pest animals.

IB-P8 Promote the protection of species that are endemic to Northland by eco-sourcing plants from within the ecological district.

IB-P9 Require landowners to manage pets and pest species, including dogs, cats, possums, rats and mustelids, to avoid risks to threatened indigenous species, including avoiding the introduction of pets and pest species into kiwi present or high-density kiwi areas.

IB-P10 Manage land use and subdivision to address the effects of the activity requiring resource consent for indigenous vegetation clearance and associated land disturbance, including (but not limited to) consideration of the following matters where relevant to the application:

- a. the temporary or permanent nature of any adverse effects;*
- b. cumulative effects of activities that may result in loss or degradation of habitats, species populations and ecosystems;*
- c. the extent of any vegetation removal and associated land disturbance;*
- d. the effects of fragmentation;*
- e. linkages between indigenous ecosystems and habitats of indigenous species;*
- f. the potential for increased threats from pest plants and animals;*
- g. any downstream adverse effects on waterbodies and the coastal marine area;*
- h. where the area has been mapped or assessed as a Significant Natural Areas:*
 - i. the extent to which the proposal will adversely affect the ecological significance, values and function of that area;*
 - ii. whether it is appropriate or practicable to use biodiversity offsets or environmental biodiversity compensation to address more than minor residual adverse effects;*
- i. the location, scale and design of any proposed development;*
- j. the extent of indigenous vegetation cover on the site and whether it is practicable to avoid or reduce the extent of indigenous vegetation clearance;*
- k. the functional or operational needs of regionally significant infrastructure;*
- l. any positive contribution any proposed biodiversity offsets or environmental biodiversity compensation will have on indigenous biodiversity; and*
- m. any historical, spiritual or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.*

The Ecological Assessment identifies the vegetation and habitat value of the sites, and sets out measures to maintain and enhance biodiversity, including restoration and enhancement of those values, in accordance with the relevant objectives. It notes that there are currently no FNDC SNAs as per the National Policy Statement for Indigenous Biodiversity but nevertheless considers ecological significance using the criteria in Appendix 5 of the Regional Policy Statement.

Measures to avoid, remedy or mitigate adverse effects, using an effects management hierarchy, are outlined as per policies IB-P3, P4 and P10. The proposal includes pest management as per IB-P9. In terms of the extent of vegetation clearance, IB-P9(j) has been considered. The extent proposed for each lot is considered a minimum amount to provide a reasonable building site taking into account the requirement for cleared buffer areas to minimise the risk of fire hazard.

6.6 Proposed Regional Plan for Northland (February 2024)

Stormwater management proposals for the subdivision stage are based on Proposed Regional Plan for Northland Rule C.6.4.2 and can comply with the permitted standard, with details of avoidance of scour and erosion to be supplied at the detailed design / engineering plan approval stage.

The discharge of sewage effluent onto land is controlled by the permitted activity rules C.6.1.3 of the Regional Plan for Northland. A feasible design that complies with that standard has been devised, as outlined in the Engineering Report. An effluent field and reserve area can be located on Lots 2 - 4 in compliance with the current rules.

Earthworks are required to complete the subdivision, being those associated with upgrade of vehicle access and formation of a stormwater management pond. The exposed area for this purpose will not exceed 5,000m², and can achieve a 10m wetland setback. As such, the proposed earthworks will be within the permitted activity limits of the Proposed Regional Plan, provided that the general environmental standards listed under Rule C.8.3.1 are met as intended.

No consents are considered necessary for the proposed subdivision under the Proposed Regional Plan for this proposal, although careful design of subdivision earthworks, and the future onsite wastewater and stormwater management systems and earthworks proposals, will be required.

6.7 Part 2 of the Resource Management Act 1991

An assessment of the proposal in relation to the relevant purpose and principles of Part 2 of the Resource Management Act 1991 is given below.

PART 2 PURPOSE AND PRINCIPLES

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 wellbeing 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.*

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;*
- (h) *the management of significant risks from natural hazards.*

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-

- (b) *The efficient use and development of natural and physical resources;*
- (c) *The maintenance and enhancement of amenity values;*
- (f) *Maintenance and enhancement of the quality of the environment;*

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 proposed subdivision represents a scale of development anticipated by the District Plan as a discretionary activity (despite that must be applied for as further subdivision of a management plan subdivision) with the overall density exceeding the minimum standard for a restricted discretionary

activity subdivision. The proposal generates the social, cultural and economic benefit of providing additional coastal lifestyle sites that are suitable for being developed or residential use, and minimises adverse environmental effects.

The sites are subject to an existing consent notice prohibiting owners or occupiers of the lots from keeping or bringing onto the site any cats or dogs, to avoid predation of indigenous birds. This will be reapplied.

The density of the proposed subdivision is less than has previously been approved and will fit within the existing subdivision pattern in an appropriate way, which will not have a significant impact on amenity values, and areas of indigenous vegetation will be protected through consent notice.

The proposal is considered to be an efficient use of the land, with the subdivision being sited on soils which are not highly versatile, and with shared vehicle access being used to minimise the extent of land covered by formed access.

Future development of the lots will represent an appropriate change, which is provided for by the current zoning of the sites and is in context with the existing pattern of development in order to avoid significant impacts on amenity values. The specific characteristics of a future building will be considered in terms of their visual and amenity effects at the time that a building is established on the lots, in accordance with the Visual Amenity rule of the District Plan. Mitigation measures with respect to ecological effects are proposed.

The proposal has no implications in terms of the Treaty of Waitangi.

The proposal is considered to be consistent with the purpose and principles of the Resource Management Act 1991.

7. Other Matters

Section 104(1)(c) requires the consent authority, subject to Part 2 of the Act, to have regard to any other matter the consent authority considers relevant and reasonably necessary to determine the application.

7.1 Precedent Effect

The precedent resulting from granting a resource consent is an 'other matter' that Council can have regard to in considering an application for consent for a non-complying activity. The non-complying activity status does not of itself create a precedent effect; however, a relevant consideration is whether granting this consent, and the anticipation that like cases will be treated alike, will contribute to an adverse cumulative effect that follows from this activity.

The existing pattern of lifestyle development in the wider area will be continued by the proposal allowing the additional proposed lots to be accommodated without setting a wider precedent.

This application must be considered on its own merits and against the provisions of the District Plan.

The proposal is based on the unique circumstances of the sites, including its existing pattern of vegetation which provides opportunity for multiple private building sites which can be assimilated into the environment without generating any significant adverse landscape or visual effects. This is attested to within the Landscape & Visual Effects Assessment. Very little additional planting is required to ensure adequate mitigation of potential adverse visual effects, with the proposed planting intended to offer ecological enhancement.

The proposal includes permanent protection of existing indigenous vegetation and proposed revegetation areas, implementation of a formalised pest and weed control plan, and a ban on cats and dogs, all of which will result in a gross positive ecological outcome.

Further, it is noted that despite their Coastal Living zoning, the sites are not within the coastal environment in the latest Regional Policy Statement mapping, which has been prepared to give effect to the NZ Coastal Policy Statement. The proposal has been deemed to be acceptable, based in part on the specialist ecological, landscape and visual and engineering assessments, which address both its actual and potential effects and its relationship with the relevant provisions of the Operative and Proposed District Plans.

For these reasons, it is considered that a precedent will not be created through the granting of this application due to its distinguishing features and circumstances. If Council is to grant consent, it would be due to this particular proposal demonstrating that it is acceptable in this respect and would not set a precedent that would guarantee approval of other future applications of a similar nature.

8. Consultation & Notification Assessment

8.1 Public Notification

Step 1: Public notification is not requested. Sections 95A(3)(b) and (c) do not apply.

Step 2: Public notification is not precluded.

Step 3: There are no relevant rules that require public notification, and the adverse effects of the proposal have been assessed as being less than minor, as set out in Section 5 of this Report. As such, public notification is not considered necessary.

Step 4: No special circumstances are considered to exist to warrant public notification.

8.2 Limited Notification

Step 1: There are no affected protected customary rights groups or affected customary marine title groups, the land is not subject to a statutory acknowledgement.

Step 2: Limited notification is not precluded.

Step 3: In terms of 95B(8), an assessment has been undertaken in accordance with section 95E.

Section 95E(1) specifies that 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).

Section 95E(2) provides guidance as to how a consent authority should assess an activity's adverse effects on a person for the purposes of Section 95E, including clause (a), where they may disregard an adverse effect of the activity on a person if a rule or national environmental standard permits an activity with that effect.

As discussed, the subdivision design is based on achieving an average lot size that is in accordance with the restricted discretionary activity for subdivision in the Coastal Living Zone, with the average area of Lots 23 - 27 being more than 1ha, taking into account the lot share in the commonly owned land. The purpose of the subdivision design is to enable clustering of building sites on the most highly modified land and to minimise disturbance and fragmentation to the remaining areas of

indigenous shrubland, in particular the most high-quality areas of ecological value, which are consequently able to be permanently protected and enhanced.

In terms of the viewing audience, the Landscape and Visual Effects Assessment identifies that the visual effects on the identified audiences will be less than minor.

Stormwater management has been designed to ensure that increases in downstream flooding are avoided.

Vehicle access is designed to provide for the level of service required by the increase in traffic generated by the proposed subdivision.

As relevant effects on any person will be less than minor, it is considered that limited notification is not necessary.

As such, it is considered that limited notification is not required.

Step 4: There are no special circumstances to warrant notification to any person.

8.3 Summary of Notification Assessment

As outlined above we are of the opinion that the proposal satisfies the statutory requirements for non-notification, and we respectfully request that it be processed on that basis.

9. Conclusion

In terms of section 104, 104B and 104D of the Resource Management Act 1991, we consider that:

- the proposed activity achieves the “threshold test” set out in Section 104D(1) as:
 - the adverse effects of the activity on the environment resulting from the proposed activity are not more than minor and
 - the proposal is not contrary to the objectives and policies of the Operative District Plan or the Proposed District Plan.
- The proposal is not contrary to the Regional Policy Statement for Northland or the National Policy Statement for Indigenous Biodiversity.
- The proposal is in accordance with the Purpose and Principles of the Resource Management Act 1991.

We also note that:

- The proposal has been assessed as satisfying the statutory requirements to proceed without notification.

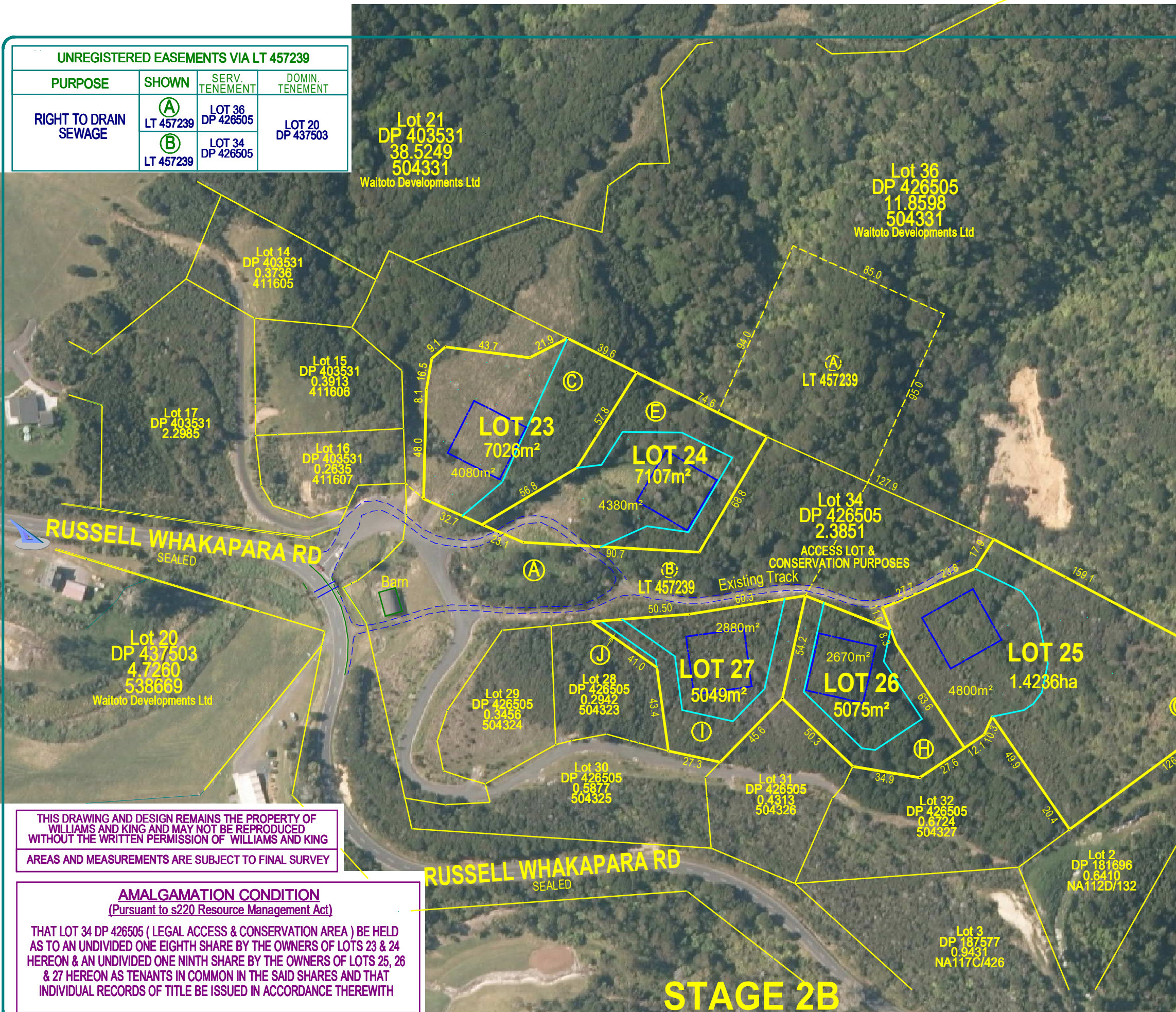
For these reasons it is requested this application be considered to be a non-notified application, and that the Council grant consent to the proposal, subject to conditions and under delegated authority, as detailed in the application and supporting information.

Signed 
Natalie Watson,
Resource Planner

Date: 23 September 2025
WILLIAMS & KING
Kerikeri

10. Appendices

Appendix 1	Scheme Plan
Appendix 2	Geologix Consulting Engineers Subdivision Site Suitability Engineering Report
Appendix 3	Hawthorn Landscape Architects Landscape & Visual Effects Assessment
Appendix 4	Bay Ecological Consultancy Ecological Impact Assessment
Appendix 5	Geologix Consulting Engineers Geotechnical Investigation Report
Appendix 6	RC 2100559-RMAVAR/A
Appendix 7	Records of Title
Appendix 7a	Final Management Plan – Stage 2A RC 2100559
Appendix 8	Northern Archaeological Research Archaeological Survey and Assessment
Appendix 9	Top Energy Correspondence



EXISTING APPURTENANT EASEMENT			
PURPOSE	SHOWN	SERV. TENEMENT	DOM. TENEM/INST No
RIGHT OF WAY, RIGHT TO DRAIN WATER, RIGHT TO CONVEY ELECTRICITY, TELECOMMUNICATIONS & COMPUTER MEDIA	(A)	LOT 34 DP 426505	LOTS 23 - 27 HEREON & LOTS 28 - 32, 36 DP 426505 & LOT 21 DP 403531 (Ei.8634311.7)

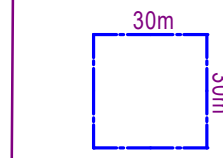
EXISTING SCHEDULE OF EASEMENT			
PURPOSE	SHOWN	SERV. TENEMENT	DOM. TENEM/INST No
RIGHT TO DRAIN WATER	(J)	LOT 27 HEREON	LOTS 28 & 30 - 32 DP 426505 (Ei.8634311.7)

EXISTING APPURTENANT EASEMENT IN GROSS			
PURPOSE	SHOWN	SERV. TENEMENT	GRANTEE/INST No.
RIGHT TO CONVEY ELECTRICITY	(A)	LOT 34 DP 426505	TOP ENERGY LTD (Ei.8634311.9)

AREAS MARKED (C)(E)(G)(H)(I) ARE TO BE SUBJECT TO BUSH PROTECTION COVENANTS

FNDC: R.13.7.2.2 - ALLOTMENT DIMENSION

Any allotment created in terms of these rules must be able to accommodate a square envelope of the minimum dimensions specified below; which does not encroach into the permitted activity boundary setbacks for the relevant zone being a minimum of 10m from any site boundary, except that on any site with an area less than 5,000m² this set back shall be 3m from any site boundary.



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.

LOCAL AUTHORITY: FAR NORTH DISTRICT COUNCIL

SURVEY BLOCK & DISTRICT: I RUSSELL
COMPRISED IN: LOTS 37 & 38 DP 426505
TITLE REF: CFR's 504329 & 504328

TOTAL AREA: 1.4131 ha + 2.4360 ha
VAL REF: 00413-13729 & 00413-13728

ZONE: COASTAL LIVING (ZONE MAP 36)
FEATURES: NIL (RESOURCE MAP 36)



UNREGISTERED EASEMENTS VIA LT 457239			
PURPOSE	SHOWN	SERV. TENEMENT	DOM. TENEMENT
RIGHT TO DRAIN SEWAGE	(A)	LOT 36 DP 426505	LOT 20 DP 437503
	(B)	LOT 34 DP 426505	

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF WILLIAMS AND KING AND MAY NOT BE REPRODUCED WITHOUT THE WRITTEN PERMISSION OF WILLIAMS AND KING

AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY

AMALGAMATION CONDITION
(Pursuant to s220 Resource Management Act)

THAT LOT 34 DP 426505 (LEGAL ACCESS & CONSERVATION AREA) BE HELD AS TO AN UNDIVIDED ONE EIGHTH SHARE BY THE OWNERS OF LOTS 23 & 24 HEREON & AN UNDIVIDED ONE NINTH SHARE BY THE OWNERS OF LOTS 25, 26 & 27 HEREON AS TENANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL RECORDS OF TITLE BE ISSUED IN ACCORDANCE THEREWITH



WILLIAMS AND KING
Registered Land Surveyors, Planners & Land Development Consultants

Ph: (09) 407 6030 27 Hobson Ave
Email: kerikeri@saps.co.nz PO Box 937, Kerikeri

PROPOSED SUBDIVISION OF LOTS 37 & 38 DP 426505

	Name	Date	ORIGINAL	
Survey			SCALE	SHEET SIZE
Design				
Drawn	BK	2018.11.23		
Rev	B	2023.Sept.04		
			1:2000	A3
22373 WAITOTO TIKITIKIOURE STG 2_2020.07.09.lcd				

Surveyors Ref. No:
22373

Series
Sheet of 1/1



geologix
consulting engineers

SUBDIVISION SITE SUITABILITY ENGINEERING REPORT

PROPOSED SUBDIVISION OF
LOTS 37 AND 38 DP 42605

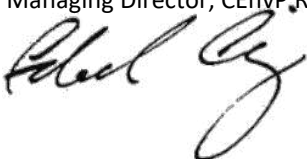
WAITOTO DEVELOPMENTS LTD

C0255-S-02-R01
APRIL 2023
REVISION 1





DOCUMENT MANAGEMENT

Document Title	Subdivision Site Suitability Engineering Report
Site Reference	Proposed Subdivision of Lots 37 and 38 DP 42605
Client	Waitoto Developments Ltd
Geologix Reference	C0255-S-02
Issue Date	April 2023
Revision	01
Prepared	Edward Collings Managing Director, CEnvP Reg. 0861, CPEng Reg. 1033153, CMEngNZ 
File Reference	Signer ID: BVJRNOBNO9... https://geologixconz.sharepoint.com/sites/GeologixFiles/Shared Documents/Projects/2023/Proposed Subdivision of Lots 37 and 38 DP 42605 - C0255/05 - Reports/C0255-S-02-R01.docx

REVISION HISTORY

Date	Issue	Prepared	Approved
April 2023	First Issue	EC	EC



TABLE OF CONTENTS

1	INTRODUCTION	5
1.1	PROPOSAL	5
2	DESKTOP APPRAISAL	5
2.1	EXISTING RETICULATED NETWORKS	6
2.2	GEOLOGICAL SETTING	6
2.3	EXISTING GEOTECHNICAL INFORMATION	6
3	SURFACE WATER FEATURES AND OVERLAND FLOWPATHS	7
3.1	SURFACE WATER FEATURES	7
3.2	SENSITIVE RECEPTORS	7
3.3	OVERLAND FLOW PATHS	7
4	GROUND INVESTIGATION	7
4.1	SITE WALKOVER SURVEY	8
4.2	GROUND CONDITIONS.....	8
5	WASTEWATER ASSESSMENT	10
5.1	EXISTING WASTEWATER SYSTEMS	11
5.2	WASTEWATER GENERATION VOLUME	11
5.3	TREATMENT SYSTEM.....	11
5.4	LAND DISPOSAL SYSTEM.....	11
5.5	SUMMARY OF CONCEPT WASTEWATER DESIGN	13
5.6	ASSESSMENT OF ENVIRONMENTAL EFFECTS.....	13
6	STORMWATER ASSESSMENT	14
6.1	REGULATORY REQUIREMENTS.....	14
6.2	STORMWATER MANAGEMENT CONCEPT.....	15
6.3	DESIGN STORM EVENT	16
6.4	PROBABLE FUTURE DEVELOPMENT MANAGEMENT	17
6.5	SUBDIVISION DEVELOPMENT MANAGEMENT	18
6.6	STORMWATER QUALITY.....	19
6.7	ASSESSMENT CRITERIA AND CONSENT STATUS	19
7	POTABLE WATER & FIRE FIGHTING.....	20
8	EARTHWORKS	20
8.1	GENERAL RECOMMENDATIONS	21
8.2	EROSION AND SEDIMENT CONTROL	21
9	NATURAL HAZARD ASSESSMENT	22



10	INTERNAL ROADING AND VEHICLE CROSSINGS	22
10.1	TRAFFIC INTENSITY FACTOR AND HOUSEHOLD EQUIVALENTS.....	22
10.2	RIGHT OF WAYS	23
10.3	VEHICLE CROSSINGS.....	23
11	ENGINEERING PLAN APPROVAL	24
12	LIMITATIONS	24
APPENDIX A		25
APPENDIX B.....		26
APPENDIX C.....		27
APPENDIX D		32

TABLES

TABLE 1: SUMMARY OF PROPOSED SCHEME	5
TABLE 2: SUMMARY OF GROUND INVESTIGATION	10
TABLE 3: DISPOSAL FIELD DESIGN CRITERIA	12
TABLE 4: CONCEPT WASTEWATER DESIGN SUMMARY	13
TABLE 5: SUMMARY OF PROBABLE FUTURE DEVELOPMENT CONCEPT	17
TABLE 6: PROBABLE FUTURE DEVELOPMENT ATTENUATION CONCEPT	17
TABLE 7: SUMMARY OF CONCEPT DISPERSION DEVICES	18
TABLE 8: SUMMARY OF PROPOSED EARTHWORK VOLUMES	20
TABLE 9: SUMMARY OF NATURAL HAZARDS	22
TABLE 10: SUMMARY OF PROPOSED ROW SPECIFICATION	23
TABLE 11: SUMMARY OF PROPOSED VEHICLE CROSSINGS	23
TABLE 12: WASTEWATER ASSESSMENT OF ENVIRONMENTAL EFFECTS	28
TABLE 13: PROPOSED NORTHLAND REGIONAL PLAN STORMWATER ASSESSMENT CRITERIA, TO RULE C.6.4.2.....	29
TABLE 14: FNDC DISTRICT PLAN STORMWATER ASSESSMENT CRITERIA, TO RULE 13.10.4.....	30

1 INTRODUCTION

This Site Suitability Engineering Report has been prepared by Geologix Consulting Engineers Ltd (Geologix) for Waitoto Developments Ltd 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 application in relation to the proposed subdivision of two rural properties Lots 37 and 38 DP 426505 off Russell Whakapara Road, Russell, the 'site'. Specifically, this assessment addresses engineering elements of 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. A separately headed Geotechnical Investigation Report has been prepared by Geologix and should be read in conjunction with this report.

1.1 Proposal

A proposed scheme plan was presented to Geologix at the time of writing, prepared Williams and King¹ and reproduced within Appendix A as Drawing Nos 500. It is understood the Client proposes to subdivide the site to create five new residential lots access provided through a combined access and conservation lot. The above is outlined in Table 1. 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 Range	Purpose
23 and 24	0.7026 to 0.7107 ha	New residential
25	1.4236 ha	New residential
26 and 27	0.5049 to 0.5075 ha	New residential
34	2.3851 ha	Access and conservation

Site access will be provided from Russell Whakapara Road by an existing, established vehicle crossing at the western boundary. Existing roads servicing a prior stage of subdivision are present within the access and conservation lot and will be upgraded, as required to achieve minimum standards under the FNDC District Plan. 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 site is located to the north and east of Russell Whakapara Road which defines the site boundary. Topographically the site and proposed lots are formed over three spur ridgelines, one to the south of proposed lots 25 to 27, and one each within proposed lots 23 and 24.

¹ Williams and King, Scheme Plan Ref. 22373, dated November 2018.



From the spur ridgelines the proposed lots dip steeply towards the access/ conservation lot. House sites within proposed lots 23 and 24 are formed over the crest of the spur ridgeline while house sites for proposed lots 25 to 27 are formed with a northerly aspect. At the time of writing, we were presented with survey data.

The majority of the site area is currently covered in dense natural bush with occasional clearings. No existing structures or infrastructure are present within the site boundaries. A detailed review of existing watercourses and overland flow paths is presented as Section 3.

Some existing tracks are present within the site boundaries, providing access to each lot with some upgrading works.

2.1 Existing Reticulated Networks

Far North District Council (FNDC) GIS mapping indicates that no existing 3 water infrastructure or reticulated networks are present within Russell Whakapara Road or the site boundaries. This report has been 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 mapping² indicates the site to be underlain by Waipapa Terrane comprising Greywackes described as massive to thin-bedded lithic volcanoclastic sandstone and argillite.

Typically, the local Greywacke geology is subject to weathering to residual soils and this can be up to 10 m thick to highly weathered rock. Residual Greywacke soils tend to form an upper firm to stiff clay layer overlying a lower very stiff to hard silt layer. Undisturbed residual soils are generally stable at shallower angles. However, on steep slopes (>20 °), the transition between these weathered layers can experience shallow surface failures commonly triggered by extreme rainfall events.

Some alluvial deposits are also expected through the base of on-site gullies and to the west of the access/ conservation lot around the existing wetland area.

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 Database³ did not indicate borehole records within 500 m of the site.

² *Geological & Nuclear Science, 1:250,000 scale Geological Map, Sheet 2, Whangarei, 2009.*

³ <https://www.nzgd.org.nz/>



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. 500 with associated off-set requirements.

3.1 Surface Water Features

The site is at the lower elevations of a larger catchment that extends through a series of erosion gullies and spur ridgelines to the north and east of the site and through adjacent properties. Streams and/ or rivers were not noted within the property during our walkover survey or from available GIS systems.

The CMA is identified approximately 350 m to the west/ southwest of the site access with Russell Whakapara Road.

3.2 Sensitive Receptors

Data supplied to us at the time of writing indicates an existing wetland within lot 34, the proposed access and conservation lot. The wetland appears to have been defined under a previously lapsed consent. With a watercourse to the west of the site, the Russell Whakapara Road appears to be damming the catchment to the east through the access lot creating a sensitive area. As such, the sensitive area may not meet the definition of a natural inland wetland according to the National Environmental Standard for Freshwater, 2020.

3.3 Overland Flow Paths

Clearly defined flow paths are evident within the site boundaries within the base of multiple erosion gullies. In particular, two overland flow paths are identified as follows:

- Major overland flow path entering along the northern boundary close to proposed lot 25, contributing to the conservation lot and associated wetland area.
- A minor overland flow path entering the northern boundary within a smaller erosion gully, close to the boundary between proposed lots 23 and 24. The overland flow path is entirely within proposed lot 24.

Our walkover survey was undertaken in late summer and noted no overland flows within the above features. The above is indicated across our drawing set within Appendix A.

4 GROUND INVESTIGATION

A site-specific walkover survey and intrusive ground investigation was undertaken by Geologix on 29 and 30 March 2023. The ground investigation was scoped to confirm the findings of the above information and to provide parameters for the wastewater assessment and separately headed GIR. The ground investigation comprised:



- Ten hand augered boreholes designated BH23 to BH27-1, where each borehole named after the Lot number it was located at, with a target depth of 3.0 m below ground level (bgl). However, refusals were encountered at all boreholes except BH23 and BH23-1 upon dense strata at depths ranging from 0.3 to 1.8 m bgl.
- Each borehole was extended with a scala penetrometer probing techniques to confirm the presence of dense material proving more than 25 blows/ 100 mm. Excluding BH23 and BH23-1, this strata was identified at depths ranging from 0.9 m to 3.4 m.
- Monitoring of groundwater levels with a groundwater dip meter on the day of drilling.

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. Suitable building envelopes⁴ are generally formed over moderately to steeply sloping bush land for proposed lots 25 to 27 and over the crest of spur ridgelines at proposed lots 23 and 24.
- The site is currently in dense natural bush with occasional clearings. The topography of the site facilitates with drainage towards overland flow paths and the existing wetland which assist with keeping the proposed building sites with a dry surface. No areas of saturation was observed within the proposed residential lots.
- The site is bound by large bush blocks to the north and east with some small quarry features. Land to the west includes similar sized rural residential lots to the proposed subdivision and land to the south includes open pasture.
- Russell Whakapara Road defines the southern and western boundaries and provides an existing vehicle crossing to the site to service existing residential lots created recently. The road includes grassed swale drains which drain towards the wetland area and through a large culvert.
- The site contributes to the CMA approximately 350 m to the west/ southwest of the property through a small stream from the wetland.
- No structures or suitably formed roads are present within the site boundary.

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 guidelines⁵. Engineering borehole logs are presented as Appendix B to this report

⁴ Measuring 30 m x 30 m according to FNDC District Plan Rule 13.7.2.2.

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



and approximate borehole positions recorded on Drawing No. 200 within Appendix A. Strata identified during the ground investigation can be summarised as follows:

- **Topsoil encountered to depths ranging from 0.1 to 0.3 m bgl.** Described as a grassed topsoil containing organic silt, dark brownish black and dry to moist with low plasticity or friable.
- **Colluvium locally encountered to depths of 0.6 m to 1.4 m bgl.** Colluvial soils were encountered locally within BH23, BH25, BH27 and BH27-1 which were located at the top of the steep slopes or over the crest of the spur ridgelines. The colluvial soils were cohesive, described as clayey silt or silty clay, light orange brown or light yellowish brown, low plasticity with occasional fine to medium gravel sized pockets and streaks of dark organics.

Eleven in-situ field vane tests within the colluvial soils recorded peak vane shear strengths consistently >189 kPa, indicative of a very stiff material.

- **Residual Greywacke Soil to depths ranging from 0.7 m to 4.6 m bgl.** Natural Greywacke residual soils were also cohesive and described as a silty clay or sandy silt strata, the latter indicative of a completely weathered, hard residual soil matrix. The strata was found to be generally light orange brown or light yellowish brown, dry to moist with low plasticity or friable.

Twenty nine in-situ field vane tests undertaken within the greywacke residual soils recorded vane shear strengths ranging from 142 kPa to Unable to Penetrate, indicative of a very stiff to hard residual soil. Characteristic unit vane shear strength has been determined to be 145 kPa at 95% confidence.

It has conservatively been taken that Dynamic Cone Penetrometer (DCP) blow of less than 10 blows per 100 mm penetration is indicative of greywacke residual soil parent rock. The observed blow counts generally increased with depth, and typically ranged between 2 to 9 blows per 100 mm penetration. These were indicative of stiff to very stiff soil strata, aligning with the observed shear strengths.

- **Completely Weathered Greywacke Parent Rock to depths ranging from 0.8 m to >4.9 m bgl.** In-situ DCP probing does not return physical arisings for engineering descriptions. As such, it has conservatively been taken that DCP blow counts of 10 to 25 per 100 mm penetration is indicative of the presence of completely weathered greywacke parent rock. Significant strength developed within the first 300 mm of the strata, returning multiple blow counts of 10 – 15 blows per 100 mm penetration.
- **Highly Weathered Greywacke Parent Rock to depths >1.0 m and >3.9 m bgl and not encountered within BH23 and BH23-1.** It has conservatively been taken that DCP blow counts of >25 per 100 mm is indicative of the presence of highly weathered Greywacke parent rock. DCP probing is not considered an appropriate tool to determine more competent, un-weathered parent rock parameters, and this depth has been taken to assume the development of significant strength in the parent rock due to the consistency

of depth across the investigation area.

DCP probing at all boreholes except BH23, and BH23-1 confirmed the presence of highly weathered Greywacke parent rock. Significant strength developed within the first 100mm of the strata, returning more than 25 blows per 100 mm penetration.

A summary of the above information is presented as Table 1 **Error! Reference source not found.** below.

Table 2: Summary of Ground Investigation

Hole ID	Hole Depth	Fill Depth	Groundwater ²	Depth of Colluvium	Depth of Greywacke Residual Soil	Wastewater Category
BH23	4.9 m	NE	NE	1.4 m	4.6 m	6 – poorly or non-draining
BH23-1	4.9 m	NE	NE	NE	4.6 m	6 – poorly or non-draining
BH24	1.0 m	NE	NE	NE	0.7 m	6 – poorly or non-draining
BH24-1	3.9 m	NE	NE	NE	2.6 m	6 – poorly or non-draining
BH25	2.6 m	NE	NE	0.6 m	1.6 m	6 – poorly or non-draining
BH25-1	3.5 m	NE	NE	NE	2.5 m	6 – poorly or non-draining
BH26	2.9 m	NE	NE	NE	2.2 m	6 – poorly or non-draining
BH26-1	2.3 m	NE	NE	NE	1.4 m	6 – poorly or non-draining
BH27	2.9 m	NE	NE	1.0 m	2.5 m	6 – poorly or non-draining
BH27-1	2.1 m	NE	NE	0.7 m	1.9 m	6 – poorly or non-draining

1. All depths recorded in m bgl unless stated.
2. Groundwater measurements taken on day of drilling.
3. NE – Not Encountered.

5 WASTEWATER ASSESSMENT

The scope of this wastewater assessment comprised a ground investigation to determine the suitability of the proposed residential lots for on-site wastewater disposal. The assessment has ascertained a lot-specific wastewater disposal classification for concept design of suitable systems for a maximum 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 lot may comprise up to a five-bedroom dwelling with a peak occupancy of eight people⁶. 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,

⁶ TP58 Table 6.1.



gyms or other similar spaces maybe considered a potential bedroom by the Consent Authority.

It is recommended that a Consent condition is applied to each proposed residential lot to ensure a site specific wastewater design is completed by a suitably qualified professional at the time of Building Consent, based on the recommendations of this report.

5.1 Existing Wastewater Systems

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

5.2 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/ day⁷. This assumes standard water saving fixtures⁸ 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.

5.3 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 features, 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, adequate offsets from the wetland will need to be maintained according to TP58 and NZS1547 requirements. In particular, wastewater disposal to ground is considered a Permitted Activity under the NES: FW and associated Regulation 54(d) is not fulfilled. The developer will be required to specify the treatment system proposed at Building Consent.

5.4 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

⁷ TP58 Table 6.2, AS/ NZS 1547:2012 Table H3.

⁸ Low water consumption dishwashers and no garbage grinders.

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 3: 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. Disposal fields indicated on Drawing No. 500 have been sited on sloping areas <25°.
On shallower slopes >10° compliance with Northland Regional Plan (NRP) rule C.6.1.3(6) is required.	Concept design complies, all disposal fields have been designed to comply with NRP Rule C.6.1.3(6)(a) to (f). Refer to Drawing No. 500 within Appendix A.
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.

5.4.1 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, slowly draining, described as sandy clay, non-swelling clay and silty clay. This transposes to NZS1547 Category 5, poorly drained described as light clays. For a PCDI system, a soil loading rate of 3 mm/ day is recommended within NZS1547 Table 5.2.

5.4.2 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. 500.

- **Primary Disposal Field.** A minimum PCDI primary disposal field of 427 m² 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. Due to the topography of the site with moderate to steep slopes, this has been conservatively increased to 100 % of the primary disposal area for proposed lots 25 to 27. This concept design therefore allows for a 427 m² reserve disposal area to be laid parallel to the natural contours.

Topography at the proposed wastewater disposal fields has been measured as ranging 10 to 25 °. Surface water cut-off drains are considered necessary to meet the provisions of NRP rule C.6.1.3. In addition, no Discharge Consent is required. These requirements should be reviewed at the Building Consent stage.

5.5 Summary of Concept Wastewater Design

Based on the above design assumptions a concept wastewater design is presented as Table 4 and presented schematically upon Drawing No. 500. It is recommended that each lot is subject to Building Consent specific review and design amendment according to final development plans.

Table 4: 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	3 mm/ day
Primary disposal field	Surface/ subsurface laid PCDI, min. 427 m ²
Reserve disposal field	Surface/ subsurface laid PCDI, min. 100 % or 427 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 not required. Stormwater management discharges downslope of all disposal fields.

1. Unless further water saving measures are included.

5.6 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 features are likely to be included within a designated 30 x 30 m square building site area as required by FNDC District Plan Rule 13.7.2.2.

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. 500, 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.

6 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.

6.1 Regulatory Requirements

Stormwater management for the proposed activity is controlled by the FNDC Operative District Plan⁹ and NRC Proposed Regional Plan¹⁰. The requirement for subdivision and probable future development under these legislations is summarised below.

6.1.1 Regional Provisions

The Proposed Regional Plan states the diversion and discharge of stormwater into water or onto or into land where it may enter water from an impervious area or by way of a stormwater collection system, is a permitted activity, provided the criteria of Rule C.6.4.2(1) to (8) are met. The proposed activity is considered to meet the requirements of a Permitted Activity. Assessment of the consent status is summarised in Section 6.7.2 and in full within Appendix C.

6.1.2 District Wide Provisions

Subdivision activity and provisions for probable future development within both urban and rural environments is controlled by District Plan Rule 13.7.3.4. In relation to rural subdivision the following apply which this concept design provisions for:

- (a) All allotments shall be provided, within their net area, with a means for the disposal of collected stormwater from the roof of all potential or existing buildings and from all impervious surfaces, in such a way so as to avoid or mitigate any adverse effects of stormwater runoff on receiving environments, including downstream properties. This shall be done for a rainfall event with a 10% Annual Exceedance Probability (AEP).*

⁹ <https://www.fndc.govt.nz/Your-Council/District-Plan/Operative-plan>

¹⁰ Proposed Regional Plan for Northland July 2021 – Appeals Version



(c) The provision of grass swales and other water retention devices such as ponds and depressions in the land surface may be required by the Council in order to achieve adequate mitigation of the effects of stormwater runoff.

(d) All subdivision applications creating sites 2ha or less shall include a detailed report from a Chartered Professional Engineer or other suitably qualified person addressing stormwater disposal.

(d) Where flow rate control is required to protect downstream properties and/or the receiving environment then the stormwater disposal system shall be designed in accordance with the onsite control practices as contained in "Technical Publication 10, Stormwater Management Devices – Design Guidelines Manual" Auckland Regional Council (2003).

6.1.3 Environmental Zone Provisions

Permitted activity status for proposed impervious surface areas within the coastal living zone is determined by Rule 10.7.5.1.6 which is presented below.

The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 10 % or 600 m² whichever the lesser.

Anticipated future residential activities are considered to meet this criterion which allows for 600 m² of impermeable surfaces within proposed lots 23, 24 and 25. Proposed lots 26 and 27 allow for 507 and 505 m² of on-lot impermeable surfaces, respectively. This considers conservative typical rural residential roof areas with associated driveways and car parking.

6.2 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.** Future residential developments provide an opportunity to reduce peak on-lot flows to pre-development levels with simple attenuation measures. This in turn benefits sensitive environmental receptors and the overland flow paths leading to them.

A conservative model of probable future on-lot attenuation discharging to suitably sized dispersion devices has been developed for this concept assessment considering the variation of scale in typical rural residential developments and complying with the Permitted Activity standards. The probable future development concept includes up to 300 m² potential roof area and up to 200 m² potential driveway or parking areas. The latter has been modelled as an offset within lot specific attenuation devices.



- **Subdivision Development.** Existing internal roading up to CH110, or the entrance to a 3.0 m wide spur to service proposed lots 25 to 27 does not require upgrading. It is proposed to upgrade the existing track to RoW standards which will require a minimum 3.0 m wide gravelled carriageway. The area of upgrade will require 661 m² of new gravelled surfaces above existing development.

It is therefore proposed to attenuate the new RoW area to pre-development levels according to the design storm event. Attenuation will be provided within a new stormwater pond, to the south of the passing bay at CH200 with a new culvert and energy dissipation device under the RoW discharging to the existing gully. The stormwater pond shall be subject to specific engineering design as part of an EPA, detailed design phase.

Due to the surrounding sensitive water features including the existing wetland, stormwater quality improvement devices have been accounted for in accordance with relevant guideline documents, refer details herein.

6.3 Design Storm Event

For the purpose of this assessment and considering the downstream properties and potential flood hazard, this assessment has been modelled to provide stormwater management as outlined in this section. Relevant design rainfall intensity and depths have been ascertained for the site location from the NIWA HIRDS meteorological model¹¹. NIWA provides guidelines for modelling the effects of potential climate change effects of rainfall intensity increase by applying a potential change factor to historical data. This report has adopted potential change factors to account for a 2.1 °c climate change increase scenario. NIWA HIRDS and climate change factor data is presented in full within Appendix D.

6.3.1 Primary Stormwater System

The primary stormwater system including proposed attenuation devices shall be sized according to the 10 % AEP design storm event to pre-development levels. Attenuation modelling under this scenario avoids exacerbating downstream flooding and correctly sized discharge devices reduce scour and erosion at discharge locations which may otherwise result in concentrated discharge.

6.3.2 Secondary Stormwater System

The proposed secondary stormwater system including overland flow paths shall be designed to accommodate flows for the 1 % AEP design storm event including provisions for climate change. For this assessment, the secondary stormwater system comprises the swale drains along the internal road network and any associated culverts.

¹¹ NIWA High Intensity Rainfall Data System, <https://hirds.niwa.co.nz>.

6.4 Probable Future Development Management

As detailed above, it is recommended that future residential developments provide on-lot stormwater attenuation for all impervious surface areas to the pre-development peak runoff condition. This is achievable by installing specifically sized low-flow orifices into the roof runoff attenuation tank which will attenuate the concept development additional runoff volume from the pre-development condition as detention, releasing the accumulated volume slowly.

This assessment should be subject to verification and an updated design at Building Consent stage on each lot once final development plans are available. This is typically applied as a notice to the applicable titles. The rational method has been adopted by Geologix with runoff coefficients as published by Auckland Council TP108¹² and FNDC Working Draft Engineering Standards¹³ to provide a suitable attenuation design to limit post development peak flows to pre-development conditions. A summary of the concept design assumptions is presented as Table 5 and a typical schematic retention/ detention tank arrangement is presented as Drawing No. 401.

Table 5: Summary of Probable Future Development Concept

Item	Pre-development Impervious Area	Post-development Impervious Area	Proposed Concept Attenuation Method
Future Concept Developments, all lots			
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 m²	500 m²	

Calculations to support the concept design are presented as Appendix D to this report. A summary of the proposed on-lot stormwater attenuation design is presented as Table 6. As above, it is recommended that this concept design is refined at the Building Consent stage once final development plans are available. A Consent notice may be required to be applied to each title to ensure this is undertaken.

Table 6: Probable Future Development Attenuation Concept

Condition	10 % AEP Peak Flow	Total Storage Volume Required	Concept
Pre-development	9.44 l/s		2x 25,000 litre retention/ detention tank with 33 mm orifice installed 0.84 m below outflow and water supply outlet installed 0.15 m above base of tank for sedimentation.
Post-development	17.61 l/s	16.211 m ³	

¹² Auckland Regional Council Technical Publication 108, Guidelines for stormwater runoff modelling in the Auckland Region, April 1999.

¹³ FNDC Working Draft Engineering Standards 2021, Issue 0.3 – May 2021.

6.4.1 On-Lot Discharge

The direct discharge of water tank overflow in a concentrated manner 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. A concept design accommodating this is presented within Appendix A on Drawing No. 500.

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.

Typical rural residential developments construct either above or below ground discharge dispersion pipes. 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 flows from the attenuation tank and including minimum 100 mm dia. PVC piping. A concept dispersion pipe or trench length is presented as Table 7. Calculations to derive this are presented within Appendix D, based on the NIWA HIRDS Depth-Duration data. Typical details of these options are presented within Appendix A as Drawing No. 402.

Table 7: Summary of Concept Dispersion Devices

Concept Impervious Area to Tank	Tank Outlet Velocity	Dispersion Pipe/ Trench Length	Concept
500 m ²	1.32 m/s	19.8 m	Above ground dispersion device or in-ground dispersion trench.

6.5 Subdivision Development Management

The above stormwater concept provides specific attenuation of new subdivision RoW impermeable surface areas to the predevelopment condition. Stormwater management of the subdivision development is proposed as follows:

- RoWs formed with a 3 % cross fall from the crown.
- Grassed swale drains formed along each RoW face with check dams on sloping terrain to improve stormwater quality.
- RCP culverts formed at each vehicle crossing including to proposed lots 25 to 27, requiring new crossings.
- Stormwater pond at CH200 to provide attenuation of new RoW surfaces with specific orifice outlet, culverts and energy dissipation device.

The above measures are indicated, where applicable on the drawing set included within Appendix A.

6.5.1 Stormwater Pond

Calculations presented within Appendix D of this report demonstrate that the proposed areas of internal roading requiring upgrading and creation of new impermeable surfaces,



between CH110 and 335 can be mitigated to pre-development conditions with a new stormwater pond subject to specific engineering design under an EPA stage.

Predevelopment conditions have been taken as natural bush and the stormwater pond has been modelled according to Auckland Council TP108. Calculations demonstrate that a 10 x 15 m pond with a depth of 0.85 m can provide attenuation to pre-development conditions. The orifice outlet, manholes, culvert pipe and energy dissipation device shall be subject to specific engineering design. The stormwater pond location is presented on Drawing No. 600 within Appendix A.

6.6 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. However, additional measures of stormwater filtration have been adopted due to the proximity to sensitive surface water receptors. 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 pond and roof runoff tanks as dead storage volume.
- Stormwater discharges directed towards roading swale drains where possible.
- Grassed swale drains from rainwater inception (road surfaces) to discharge points.

The above measures have been determined to avoid disturbance of ground within 10 m of identified wetlands on the proposed plans supplied to us.

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.

6.7 Assessment Criteria and Consent Status

6.7.1 District Plan

The proposed activity has been assessed as a **Discretionary Activity** according to Table 13.7.2.1. Assessment criteria according to FNDC Rule 13.10.4 is presented within Appendix C of this report.

6.7.2 Regional Plan

The proposed activity is determined to meet the requirements of a **Permitted Activity** according to the provisions of Proposed Regional Plan Rule C.6.4.2. Assessment criteria are presented in full within Appendix C.

7 POTABLE WATER & FIRE FIGHTING

In the absence of potable water infrastructure within Russell Whakapaka Road or within the site it is recommended that 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 6. On these properties additional tanks may be required for sufficient potable water volumes.

Furthermore, the absence of potable water infrastructure and fire hydrants within Sandys 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.

8 EARTHWORKS

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

- **Internal Roading.** Cut/ fill earthworks are required to upgrade an existing track to provide a 3.0 m wide RoW with passing bay from CH130 to CH335 (blue hatch on Drawing No. 600). Existing track is conservatively taken as requiring a 1.0 m wide widening by 0.3 m cut and 0.3 m hard fill replacement. However, expected earthworks are considered to be less.
- **New Stormwater Pond.** A new stormwater pond is required to control subdivision stormwater runoff. The volume of earthworks to form the pond has been taken as 10 x 15 m by 1.0 m deep. Refer stormwater calculations.

Proposed earthwork volumes are summarised below within Table 8.

Table 8: Summary of Proposed Earthwork Volumes

Activity	Proposed Volume	Max. Height
RoW Upgrades		
Cut	60 m ³	0.3 m
Fill	60 m ³	0.3 m
Sub-total	120 m ³	2.2 m
Stormwater Pond		
Cut	150 m ³	1.0 m
Fill	0 m ³	
Sub-total	150 m ³	
Total	270 m³	

Proposed earthwork volumes are within a 300 m³ Permitted Activity volume limit outlined by FNDP District Plan Rule 12.3.6.1.2(a) and the maximum cut and fill height is <3 m to comply with 12.3.6.1.2(b).

Rule C.8.3.1, Table 13 of the Proposed Regional Plan outlines a Permitted Activity as 5,000 m² 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. A full assessment according to the criteria is presented within Appendix D; of primary concern is effectively controlling the sediment runoff from earthworks to comply with Rule C.8.3.1(6). This has been addressed further within Section 8.2.

8.1 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 1.0 m. Excavations >1.0 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.

8.2 Erosion and Sediment Control

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 a site specific, detailed Erosion and Sediment Control Plan in general accordance with Auckland

Council GD05¹⁴ is provided at the 223 stage. Preliminary erosion and sediment control measures are summarised as follows:

- Silt fences installed along downslope perimeter faces of earthworks, i.e., road widening.

9 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 Plan¹⁵, Northland Regional Council (NRC) Proposed Regional Plan for Northland¹⁶ 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 9.

Table 9: Summary of Natural Hazards

Natural Hazard	Applicability	Mitigation & Effect on Environment
Erosion	NA	No mitigation required, less than minor.
Overland flow paths, flooding, inundation	NA	No mitigation required, less than minor.
Landslip	NA	Refer separately headed Geologix GIR.
Rockfall	NA	No mitigation required, less than minor.
Alluvion	NA	No mitigation required, less than minor.
Avulsion	NA	No mitigation required, less than minor.
Unconsolidated fill	NA	No mitigation required, less than minor.
Soil contamination	NA	No mitigation required, less than minor.
Subsidence	NA	No mitigation required, less than minor.
Fire hazard	NA	No mitigation required, less than minor.
Sea level rise	NA	No mitigation required, less than minor.

NA – Not Applicable.

10 INTERNAL ROADING AND VEHICLE CROSSINGS

It should be 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.

10.1 Traffic Intensity Factor and Household Equivalents

According to Appendix 3A of the Operative District Plan, providing for one standard residential unit per lot, each accounting for up to 10 traffic movements per unit per day the

¹⁴ Auckland Council Guideline Document 2016/005, *Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region*, June 2016, Incorporating Amendment 2.

¹⁵ Operative District Plan Rule 13.7.3.2.

¹⁶ Proposed Regional Plan for Northland, Appeals Version, July 2021, Chapter D.6.

following Traffic Intensity Factors (TIF) and Household Equivalents have been developed for the existing vehicle crossing with Russell Whakapara Road.

- **Existing:** TIF of 130 from thirteen HE.
- **Proposed:** TIF of 160 from sixteen HE.

10.2 Right of Ways

Reference should be made to Drawing No. 600 within Appendix A for chainage assumptions in this report. It is proposed that existing internal roading and tracks are subject to upgrading to the standards specified in Appendix 3B-1 of the Operative District Plan, as summarised in Table 10.

Table 10: Summary of Proposed RoW Specification

Location	Standard	Min. Legal Width	Min. Carriageway Width	Requires Upgrading?
CH0 to 30	FNDC Rural Type B	20 m	6.5 m	No, existing road meets minimum requirements.
CH30 to 80	FNDC Rural Type A	16 m	6.0 m	No, existing road meets minimum requirements.
CH80 to 110	FNDC RoW 5 to 8 lots	7.5 m	5.0 m	No, existing road meets minimum requirements.
CH110 to CH240	FNDC RoW 3 to 4 lots	7.5 m	3.0 m with 1x passing bay at CH200	Yes, existing track requires upgrade.
CH240 to CH335	FNDC RoW 1 to 2 lots	5.0 m	3.0 m	Yes, existing track requires upgrade.

It is proposed to construct two grassed swale drains along each face of the proposed RoWs which have been graded to direct stormwater runoff to stormwater infrastructure at specific low points of the RoW alignment. Due to the RoW proximity to sensitive environments, it is recommended that additional stormwater quality improvement devices such as grassed swales with check dams are constructed to reduce the downstream effect of stormwater run-off along the length of all swale drains. Specific engineering design and sizing of the check dams should be undertaken within a detailed design phase with accompanying construction drawings prior to breaking ground.

10.3 Vehicle Crossings

Access to the proposed subdivision and to each of the proposed lots is recommended by standard domestic crossings according to current FNDC Engineering Standards. A summary of proposed vehicle crossings is presented as Table 11.

Table 11: Summary of Proposed Vehicle Crossings

Location	Type	Detail	Formation
Site entrance	No upgrade expected, refer Traffic Engineer		
Lots 23 to 27	Domestic crossing, rural/ unkerbed.	FNDC/S/6 and FNDC/S/6B double width with minimum 375 mm dia. RCP culvert.	At subdivision formation



11 ENGINEERING PLAN APPROVAL

It is recommended that a detailed engineering design phase is undertaken at the 223 Stage of application by a professional Engineer such as Geologix. The Engineering Plan Approval shall be undertaken to provide the following detailed drawings:

- Upgrade on existing internal roading.
- Typical roading construction details.
- Stormwater infrastructure including stormwater pond and outlet.

12 LIMITATIONS

This report has been prepared for Waitoto Developments 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.

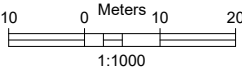
APPENDIX A

Drawings

GENERAL NOTES

- 1. CONTOURS AT 1.0 m INTERVALS.
 - 2. TOPOGRAPHIC SURVEY DATA PROVIDED BY WILLIAMS AND KING REF. NO. 22373.
 - 3. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
 - 4. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
 - 5. DO NOT SCALE FROM THIS DRAWING.
- BH01

GEOLOGIX HAND AUGER & DYNAMIC CONE PENETROMETER



A	CONSENT	01/05/2023
Revision	Issue	Date



AUCKLAND | NORTHLAND

Project Name and Address
**PROPOSED SUBDIVISION
RUSSELL
LOTS 37 & 38 DP 426505**

Project C0255	Drawn By GC
-------------------------	-----------------------

Client
WAITOTO DEVELOPMENTS LTD

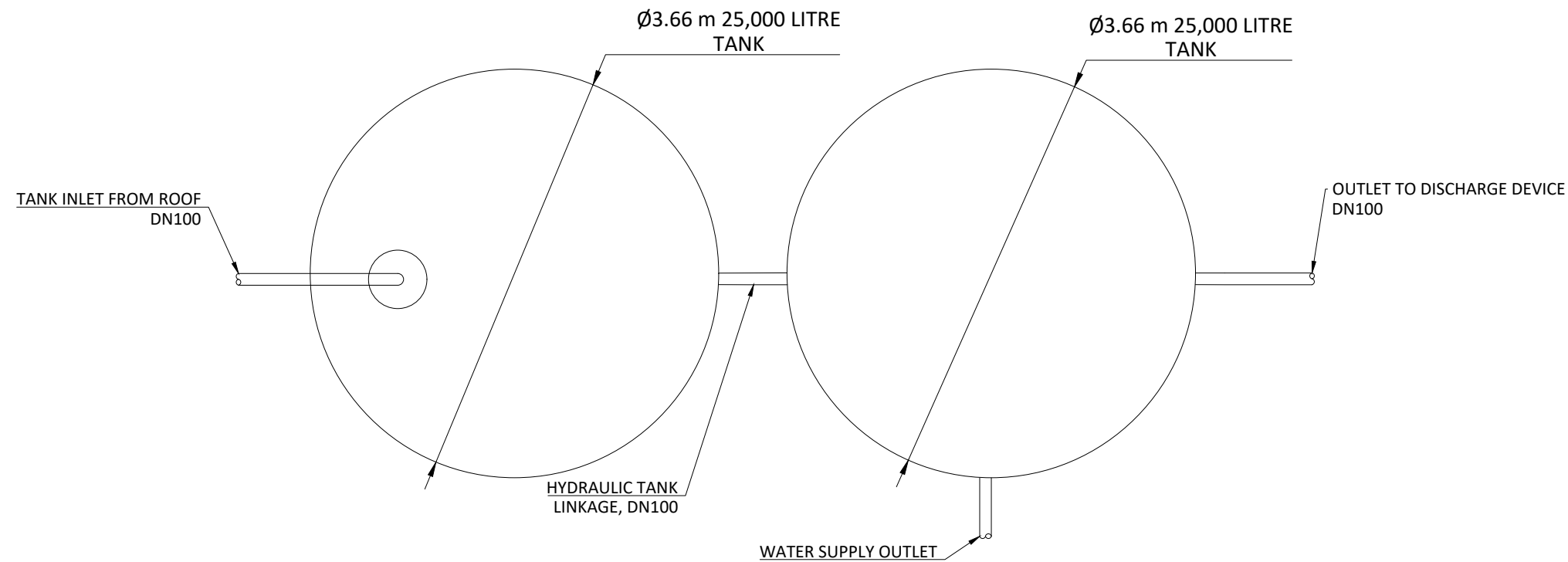
Sheet Title
GEOTECHNICAL SITE PLAN

Sheet
200

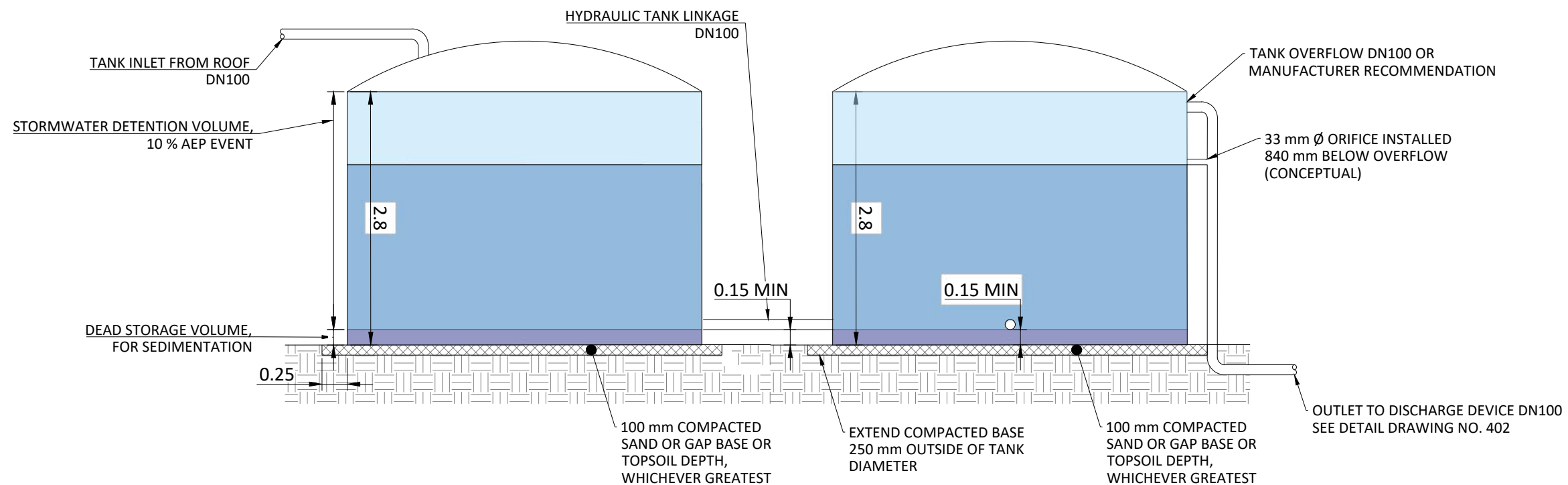
FILE PATH: C:\Users\Goraghen\OneDrive - Geologix Consulting Engineers Ltd\Documents - Geologix Files\Projects\2023\Proposed Subdivision of Lots 37 and 38 DP 426505 - C0255\06 - Technical & Drawings\Drawings\C0255-G-01.dwg 02/05/2023 G-01.dwg

PLOTTED: 03/04/2023

1:50, A3



1:50, A3



GENERAL NOTES

1. TANK, PIPING AND FITTINGS TO BE INSTALLED AS PER MANUFACTURERS RECOMMENDATIONS AND IN ACCORDANCE WITH NZBC E1, UNLESS SPECIFICALLY STATED OTHERWISE.
2. ALL WORK TO BE UNDERTAKEN IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 ACCEPTABLE SOLUTIONS, RELEVANT STANDARDS AND GUIDELINES.
3. DO NOT SCALE FROM THIS DRAWING.
4. CONTRACTOR IS TO ORGANISE ALL SET OUT, INSPECTIONS AND MONITORING AS REQUIRED TO MEET CONSENT CONDITIONS.

0	CONSENT	30/04/2023
Revision	Issue	Date



AUCKLAND | NORTHLAND

Project Name and Address

LOTS 37 & 38 DP 426505
RUSSELL WHAKAPARA ROAD
RUSSELL, FAR NORTH

Project C0255	Drawn By EC
------------------	----------------

Client	
--------	--

WAITOTO DEVELOPMENTS LTD

Sheet Title

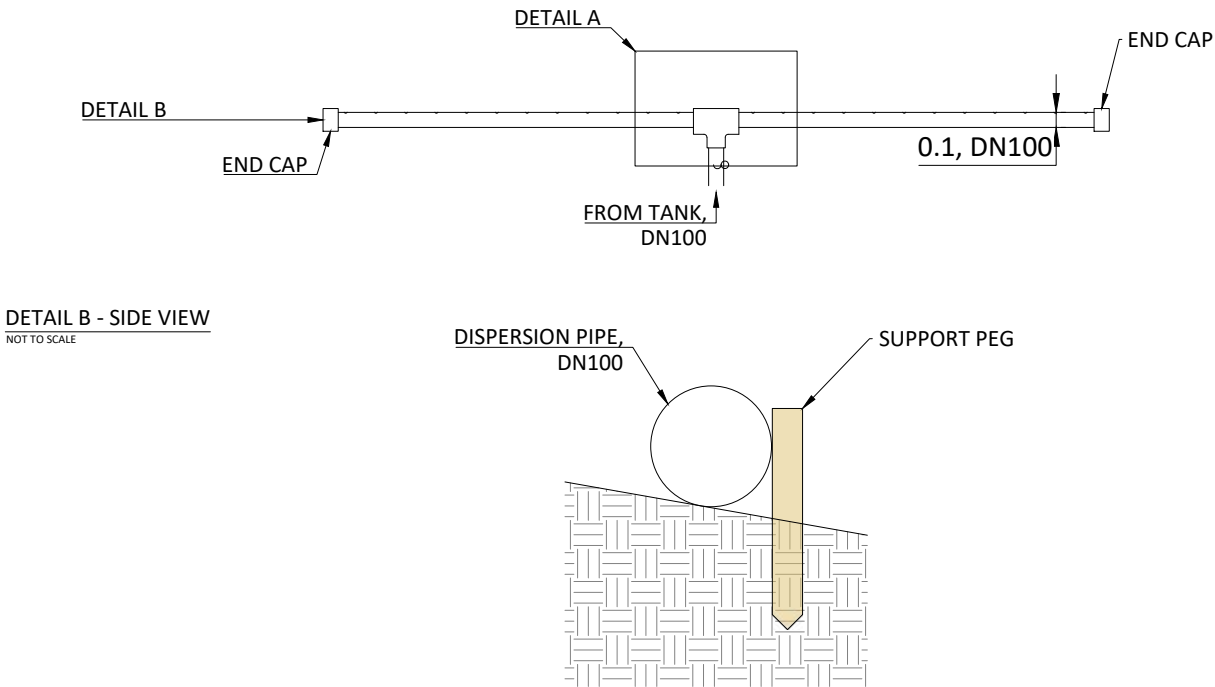
TYPICAL TANK DETAIL

Sheet

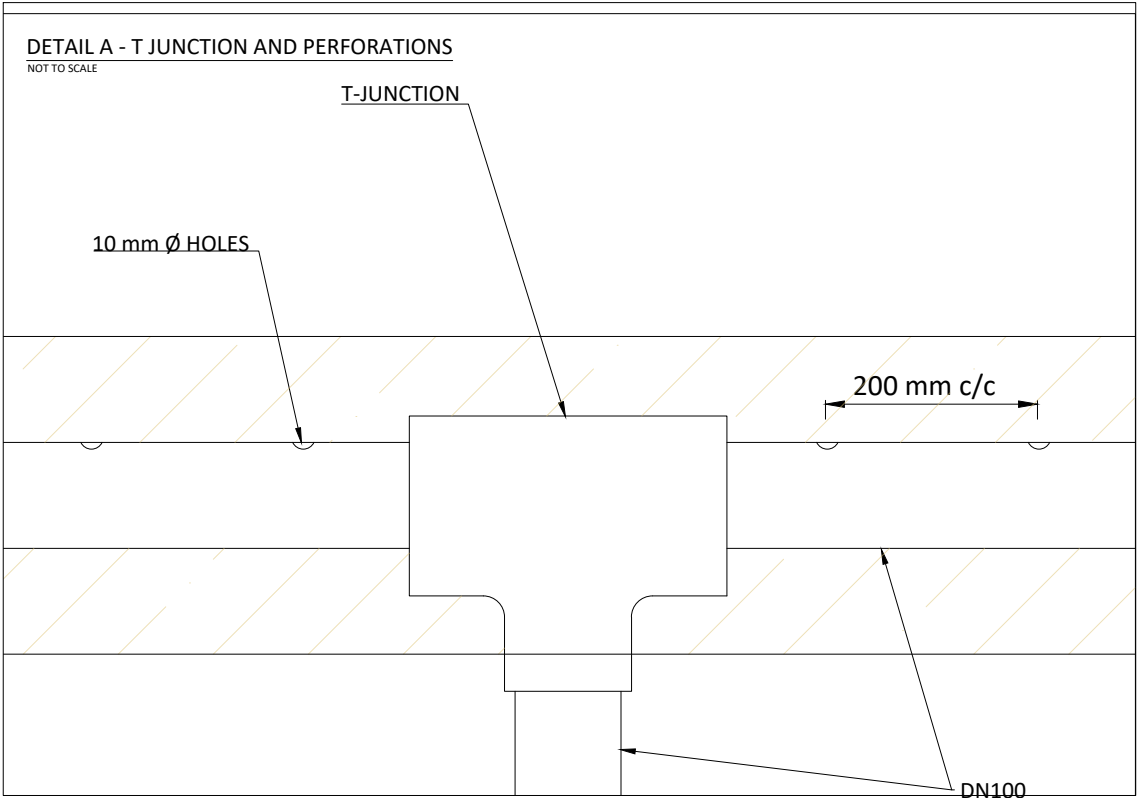
401

OPTION 1: DISPERSION VIA ABOVE GROUND PIPE

NOT TO SCALE



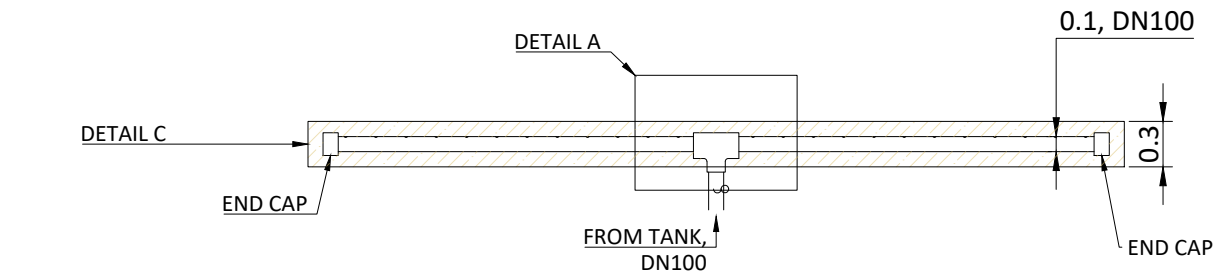
DETAIL B - SIDE VIEW
NOT TO SCALE



DETAIL A - T JUNCTION AND PERFORATIONS
NOT TO SCALE

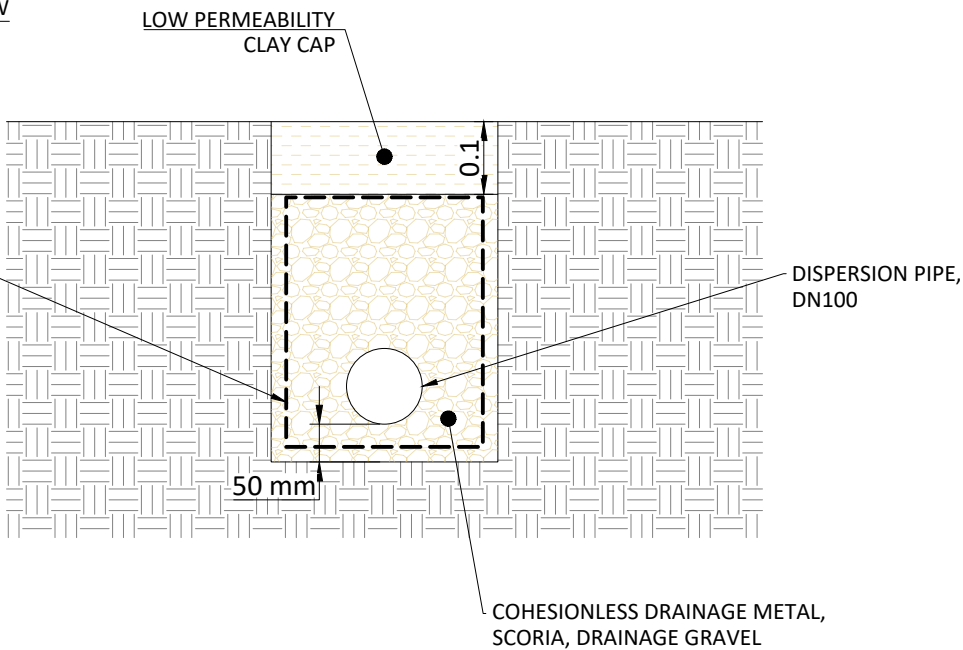
OPTION 2: DISPERSION VIA BELOW GROUND TRENCH

NOT TO SCALE



DETAIL C - SIDE VIEW
NOT TO SCALE

WOVEN GEOTEXTILE FABRIC
APPARENT OPENING OF 0.06 TO 0.2 mm, GD01



GENERAL NOTES

1. ALL WORK TO BE UNDERTAKEN IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 ACCEPTABLE SOLUTIONS, RELEVANT STANDARDS AND GUIDELINES INCLUDING AUCKLAND COUNCIL GD01, WHERE APPLICABLE.
2. DO NOT SCALE FROM THIS DRAWING.
3. CONTRACTOR IS TO ORGANISE ALL SET OUT, INSPECTIONS AND MONITORING AS REQUIRED TO MEET CONSENT CONDITIONS.

0	CONSENT	30/04/2023
Revision	Issue	Date



AUCKLAND | NORTHLAND

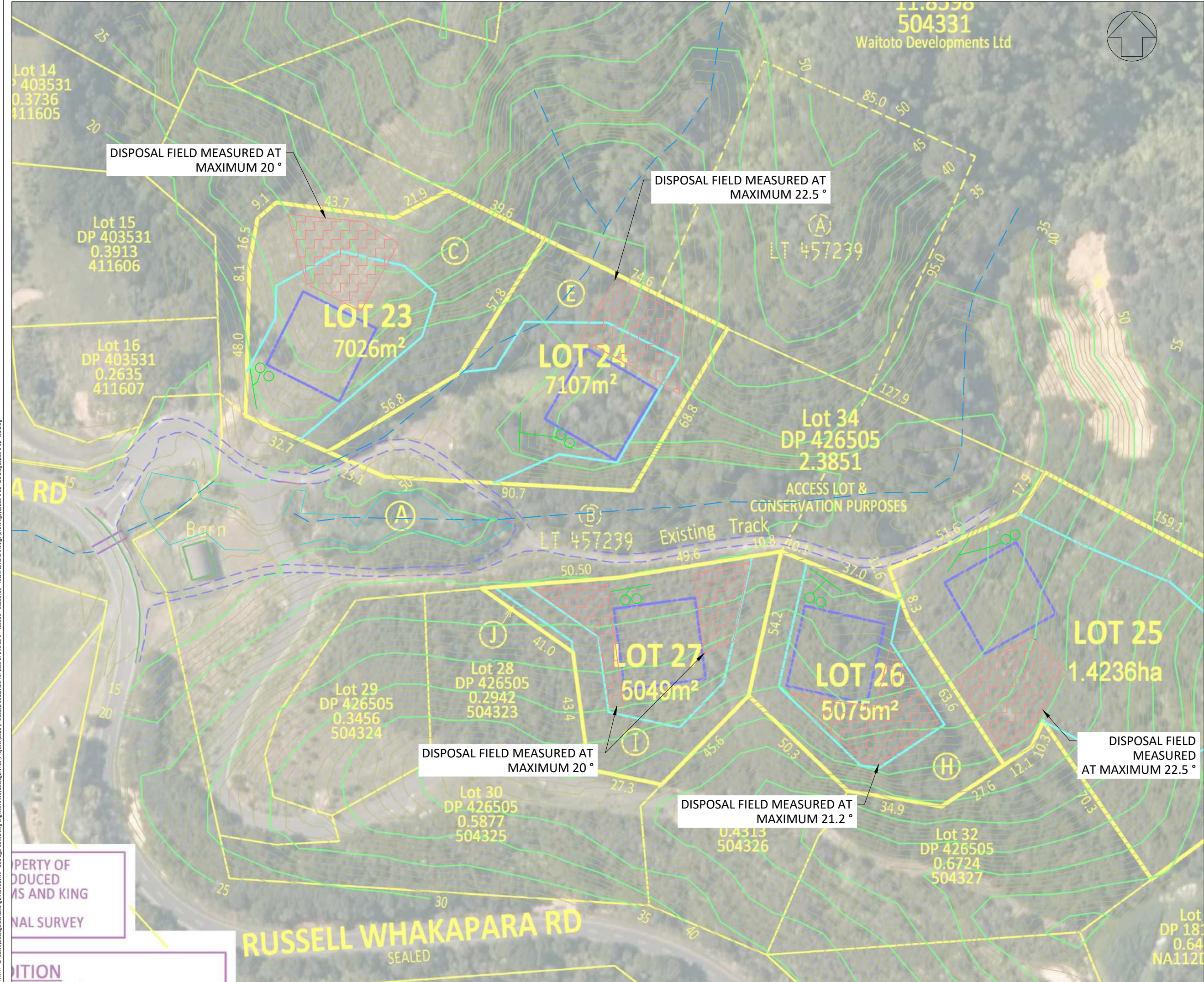
Project Name and Address
LOTS 37 & 38 DP 426505
RUSSELL WHAKAPARA ROAD
RUSSELL, FAR NORTH

Project C0255	Drawn By EC
-------------------------	-----------------------

Client
WAITOTO DEVELOPMENTS LTD

Sheet Title
TYPICAL DISPERSION PIPE DETAIL

Sheet
402



GENERAL NOTES

- DRAWING REPRODUCED FROM WILLIAMS AND KING PROPOSED SCHEME PLAN REF. 22373, DATED NOVEMBER 2018.
- CONTOURS AT 5 m MAJOR, 1 m MINOR INTERVALS.
- TOPOGRAPHIC SURVEY DATA PROVIDED BY WILLIAMS AND KING.
- FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
- FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
- DO NOT SCALE FROM THIS DRAWING.

CONCEPT WASTEWATER DESIGN

CONCEPT DEVELOPMENT	5 BEDROOM
CONCEPT NO. OF OCCUPANTS	8 PERSONS
DAILY WASTEWATER GEN.	160 LITRES/ PERSON/ DAY
TOTAL WASTEWATER GEN.	1,280 LITRES/ DAY
SOIL CATEGORY (TP58)	CATEGORY 6
SOIL CATEGORY (NZS1547)	CATEGORY 5
SOIL LOADING RATE	3 mm/ DAY

TREATMENT SYSTEM

TBC AT BUILDING CONSENT

PRIMARY DISPOSAL AREA

427 m²

RESERVE DISPOSAL AREA

427 m² (100 %)

FINAL DESIGN?

NO - SUBJECT TO BUILDING CONSENT DESIGN

CUT OFF DRAINS?

YES

DISCHARGE CONSENT?

NO

— WATERCOURSE

— OVERLAND FLOWPATH

— EDGE OF MAPPED WETLAND (BY OTHERS)

— SW — EXISTING ROADSIDE GRASSED SWALE DRAIN

CONCEPT WASTEWATER DISPOSAL FIELD WITH MIN. 854 m² TO CATER FOR COMBINED PRIMARY AND RESERVE FIELDS

CONCEPT 2x 25,000 LITRE WATER TANK ATTENUATING TO DISPERSION DEVICE TO CONTROL 500 m² AREA


GEOLIGIX HAND AUGER BOREHOLE JANUARY 2022

BH1

5 0 Meters 5 10

1:500

A	CONSENT	30/04/2023
Revision	Issue	Date



AUCKLAND | NORTHLAND

Project Name and Address

LOTS 37 AND 38 DP 426505

RUSSELL WHAKAPARA ROAD

RUSSELL, FAR NORTH

Project	Drawn By
C0255	EC

Client

WAITOTO DEVELOPMENTS LTD

Sheet Title

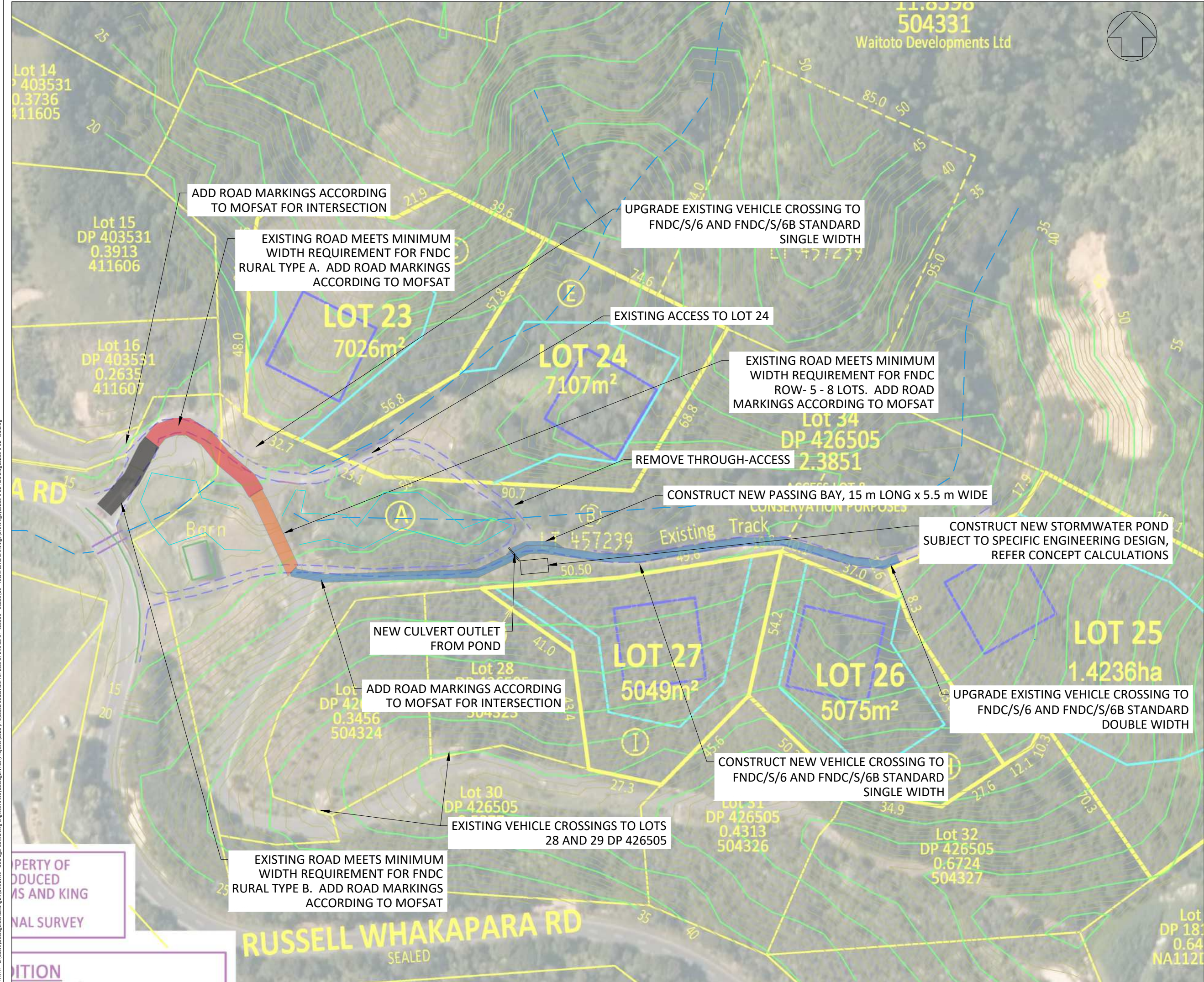
3 WATER PLAN

Sheet

500

FILE PATH: C:\Users\Geologix\OneDrive - Geologix Consulting Engineers Ltd\Projects\2023\Proposed Subdivision of Lots 37 and 38 DP 426505 - C0255\06 - Technical & Drawings\Drawings\C0255-5-02-R01.dwg C0255-5-02-R01.dwg

NOTED: 30/04/2023



GENERAL NOTES

- DRAWING REPRODUCED FROM WILLIAMS AND KING PROPOSED SCHEME PLAN REF. 22373, DATED NOVEMBER 2018.
- CONTOURS AT 5 m MAJOR, 1 m MINOR INTERVALS.
- TOPOGRAPHIC SURVEY DATA PROVIDED BY WILLIAMS AND KING.
- FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
- FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
- DO NOT SCALE FROM THIS DRAWING.

ROAD TO VEST, RURAL TYPE B, MIN. 6.5 m WIDE
EXISTING ROAD MEETS MINIMUM STANDARD

ROAD TO VEST, RURAL TYPE A, MIN. 6.0 m WIDE
EXISTING ROAD MEETS MINIMUM STANDARD

RIGHT OF WAY, MIN. 5.0 m WIDE
EXISTING ROAD MEETS MINIMUM STANDARD

RIGHT OF WAY, MIN. 3.0 m WIDE
EXISTING TRACK REQUIRES UPGRADE TO ROW STANDARD

WATERCOURSE


OVERLAND FLOWPATH

EDGE OF MAPPED WETLAND (BY OTHERS)

50 Meters 5 10

1:500

A	CONSENT	30/04/2023
Revision	Issue	Date



geologix
consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

LOTS 37 AND 38 DP 426505
RUSSELL WHAKAPARA ROAD
RUSSELL, FAR NORTH

Project

C0255

Drawn By

EC

Client

WAITOTO DEVELOPMENTS LTD

Sheet Title

ROADING PLAN

Sheet

600

FILE PATH: C:\Users\Geologix\OneDrive - Geologix Consulting Engineers Ltd\Projects\2023\Proposed Subdivision of Lots 37 and 38 DP 426505 - C0255\06 - Technical & Drawings\Drawings\C0255-5-02-R01.dwg

PLOTTED: 30/04/2023

APPENDIX B

Engineering Borehole Records

INVESTIGATION LOG

HOLE NO.:
BH23

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 28/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbolology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3282				WATER
					50	100	150	200	
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.2	TS						
Silty CLAY, very stiff, light yellowish brown, moist, low plasticity, with occasional fine to medium gravel sized pockets and streaks of dark organics, (Colluvium)		0.4	TS						189+
		0.6	TS						-
		0.8	TS						189+
		1.0	TS						-
		1.2	TS						189+
Silty CLAY, very stiff, light orange brown, moist, low plasticity. (Greywacke Residual Soil)		1.4	TS						-
		1.6	TS						162
Silty CLAY, very stiff, light orange brown mottled white, wet, low plasticity. (Greywacke Residual Soil) 2.8m: contains a small pocket of sand		1.8	TS						50
		2.0	TS						158
		2.2	TS						57
		2.4	TS						154
		2.6	TS						43
		2.8	TS						175
		3.0	TS						57
		3.2	TS						189+
		3.4	TS	3					-
		3.6	TS	4					
End Of Hole: 4.90m		3.8	TS	6					
		4.0	TS	6					
		4.2	TS	6					
		4.4	TS	5					
		4.6	TS	4					
		4.8	TS	4					
		5.0	TS	7					
			TS	9					
			TS	9					
			TS	9					

Groundwater Not Encountered

PHOTO(S)



REMARKS

- Hand auger completed at target depth.
- Continued with DCP until target depth.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH23-1

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 28/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbolology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467				WATER
					50	100	150	200	
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.2	TS						
Silty CLAY, very stiff, yellowish brown, moist, low plasticity. (Greywacke Residual Soil)		0.4							198+
		0.6							-
		0.8							198+
		1.0							-
		1.2							198+
		1.4							-
Silty CLAY, very stiff, yellowish brown mottled white and orange, moist, low plasticity. (Greywacke Residual Soil)		1.6							170
		1.8							79
		2.0							142
		2.2							57
Silty CLAY, very stiff, white mottled yellowish brown and orange, wet, low plasticity. (Greywacke Residual Soil)		2.4							198+
		2.6							-
		2.8							198+
		3.0							198+
End Of Hole: 4.90m		3.2		4					-
		3.4		3					
		3.6		4					
		3.8		4					
		4.0		3					
		4.2		7					
		4.4		7					
		4.6		6					
		4.8		6					
		5.0		8					
				8					
				9					
				8					
				8					
				9					
				10					
				11					
				13					

Groundwater Not Encountered

PHOTO(S)



REMARKS

- Hand auger completed at target depth.
- Continued with DCP until target depth.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit



INVESTIGATION LOG

HOLE NO.:
BH24

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 28/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION <div>(See Classification & Symbology sheet for details)</div>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER	VANE SHEAR STRENGTH				WATER
				(Blows / 100mm)	(kPa)				
					Vane: 3282				
				24681012141618	50100150200	Values			
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity. End Of Hole: 1.00m		0.2	TS	8			UTP	Groundwater Not Encountered	
		0.4		67			-		
		0.6		6					
		0.8		12					
		1.0		2025 >>					
		1.2							
		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							
		5.0							

PHOTO(S)



REMARKS

- Hand auger terminated at 0.3 m due to dense strata.
- Continued with DCP until refusal at 1.0 m.
- Groundwater not encountered at the time of drilling.

WATER

- ▼ Standing Water Level
▷ Out flow
◁ In flow

INVESTIGATION TYPE

- ☒ Hand Auger
☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH24-1

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 28/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbolology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3282				WATER
					50	100	150	200	
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.2	TS						189+
Silty CLAY, very stiff, light orange brown, moist, low plasticity. (Greywacke Residual Soil)		0.4							-
Sandy SILT with trace fine gravel, very stiff, light red mottled orange, moist, low plasticity. (Greywacke Residual Soil)		0.6							UTP
End Of Hole: 3.90m		0.8		6					-
		1.0		5					
		1.2		5					
		1.4		6					
		1.6		7					
		1.8		9					
		2.0		7					
		2.2		7					
		2.4		11					
		2.6		10					
		2.8		9					
		3.0		8					
		3.2		8					
		3.4		10					
		3.6		14					
		3.8		13					
		4.0		12					
		4.2		11					
		4.4		11					
		4.6		14					
		4.8		15					
		5.0		16					
				17					
				18					
				25 >>					

PHOTO(S)



REMARKS

- Hand auger terminated at 0.6 m due to dense strata.
- Continued with DCP until refusal at 3.9 m.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit



INVESTIGATION LOG

HOLE NO.:
BH25

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 28/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION <div>(See Classification & Symbology sheet for details)</div>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER	VANE SHEAR STRENGTH		WATER	
				(Blows / 100mm)	(kPa)			
					Vane: 3467			
				2 4 6 8 10 12 14 16 18	50 100 150 200	Values		
Grassed TOPSOIL comprising organic SILT, dark blackish brown, dry, low plasticity.		0.2	TS				198+	Groundwater Not Encountered
Clayey SILT, very stiff, light orange brown, moist, friable, with occasional fine to medium gravel sized pockets and streaks of dark organics, (Colluvium)		0.4	TS				-	
		0.6	TS				UTP	
SILT with trace fine sand. very stiff to hard, dry, friable. (Greywacke Residual Soil)		0.8	TS				-	
		1.0	TS				198+	
Sandy SILT, very stiff to hard, light orange brown mottled white, moist, low plasticity. (Greywacke Residual Soil)		1.2	TS				-	
		1.4		4			UTP	
		1.6		5			-	
		1.8		7				
		2.0		7				
		2.2		10				
		2.4		10				
		2.6		7				
		2.8		7				
		3.0		9				
		3.2		19				
		3.4		25 >>				
		3.6						
		3.8						
		4.0						
		4.2						
		4.4						
		4.6						
		4.8						
		5.0						

PHOTO(S)



REMARKS

- Hand auger terminated at 1.2 m due to dense strata.
- Continued with DCP until refusal at 2.6 m.
- Groundwater not encountered at the time of drilling.

WATER

- ▼ Standing Water Level
▷ Out flow
◁ In flow

INVESTIGATION TYPE

- ☒ Hand Auger
☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH25-1

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 29/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbolology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467				WATER
					50	100	150	200	
Grassed TOPSOIL comprising organic SILT, dark blackish brown, dry, friable.		0.2	TS						
Silty CLAY, very stiff, light yellowish brown, dry, friable. (Greywacke Residual Soil)		0.4	TS						
		0.6	TS						
		0.8	TS						
		1.0	TS						
		1.2	TS						
Sandy SILT, very stiff, light yellowish brown mottled orange, moist, low plasticity. (Greywacke Residual Soil) End Of Hole: 3.50m		1.2	TS	4					
		1.4		3					
		1.6		2					
		1.8		4					
		2.0		3					
		2.2		3					
		2.4		5					
		2.6		7					
		2.8		8					
		3.0		10					
		3.2		12					
		3.4		12					
		3.6		12					
		3.8		8					
		4.0		12					
		4.2		16					
		4.4		16					
		4.6		16					
		4.8		25 >>					
		5.0							

PHOTO(S)



REMARKS

- Hand auger terminated at 1.2 m due to dense strata.
- Continued with DCP until refusal at 3.5 m.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH26

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 29/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION <div>(See Classification & Symbology sheet for details)</div>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER <div>(Blows / 100mm)</div>												VANE SHEAR STRENGTH (kPa) <div>Vane: 3467</div>				WATER	
				2	4	6	8	10	12	14	16	18	50	100	150	200	Values				
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.2																	198+	-	Groundwater Not Encountered
Clayey SILT with trace fine gravel, very stiff to hard, light brown mottled white and pink, moist, friable. (Greywacke Residual Soil)		0.4																	-		
		0.6																	UTP	-	
		0.8																	-		
		1.0																	198+	-	
SILT with trace fine sand, hard, light reddish orange, moist, friable. (Greywacke Residual Soil)		1.2																	-		
		1.4																	-		
Sandy SILT, very stiff to hard, light reddish moist, friable. (Greywacke Residual Soil)		1.6																	UTP	-	
		1.8																	-		
End Of Hole: 2.90m		2.0																	UTP	-	
		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																			
		5.0																			

PHOTO(S)



REMARKS

- Hand auger terminated at 2.0 m due to dense strata.
- Continued with DCP until refusal at 2.9 m.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH26-1

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 29/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION <div>(See Classification & Symbology sheet for details)</div>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER	VANE SHEAR STRENGTH		WATER
				(Blows / 100mm)	(kPa)		
					24681012141618	50100150200	
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.2					
Silty CLAY, very stiff, light orange brown, dry to moist, friable. (Greywacke Residual Soil)		0.4					
Sandy SILT with trace fine gravel, very stiff to hard, light yellowish brown, moist, friable to low plasticity. (Greywacke Residual Soil) End Of Hole: 2.30m		0.6		6			198+
		0.8		5			-
		1.0		6			UTP
		1.2		5			-
		1.4		6			
		1.6		8			
		1.8		7			
		2.0		8			
		2.2		10			
		2.4		6			
		2.6		7			
		2.8		8			
		3.0		12			
		3.2		14			
		3.4		12			
		3.6		13			
		3.8		13			
		4.0		13			
		4.2		12			
		4.4		15			
		4.6		20			
		4.8		25 >>			
		5.0					
							Groundwater Not Encountered

PHOTO(S)



REMARKS

- Hand auger terminated at 0.5 m due to dense strata.
- Continued with DCP until refusal at 2.3 m.
- Groundwater not encountered at the time of drilling.

WATER

- ☒ Standing Water Level
☐ Out flow
☐ In flow

INVESTIGATION TYPE

- ☒ Hand Auger
☐ Test Pit



HOLE NO.:
BH27

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 29/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION <div>(See Classification & Symbology sheet for details)</div>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER <div>(Blows / 100mm)</div>	VANE SHEAR STRENGTH (kPa) <div>Vane: 3282</div>	WATER
Grassed TOPSOIL comprising organic SILT, dark blackish brown, dry, friable.				2 4 6 8 10 12 14 16 18	50 100 150 200	Values
Silty CLAY, very stiff, light yellowish brown, moist, low plasticity, with occasional fine to medium gravel sized pockets and streaks of dark organics, (Colluvium)		0.2	TS			189+
		0.4				-
		0.6				189+
		0.8				-
		1.0				189+
Silty CLAY, very stiff, light yellowish brown, moist, low plasticity. (Greywacke Residual Soil)		1.2				-
		1.4				189+
Sandy SILT, very stiff to hard, light orange brown mottled white, moist, low plasticity. (Greywacke Residual Soil)		1.6				UTP
		1.8				-
End Of Hole: 2.90m		2.0		6 10		
		2.2		5 7		
		2.4		4 4		
		2.6		6 16 19		
		2.8		16 25 >>		
		3.0				
		3.2				
		3.4				
		3.6				
		3.8				
		4.0				
		4.2				
		4.4				
		4.6				
		4.8				
		5.0				
						Groundwater Not Encountered




PHOTO(S)



REMARKS

1. Hand auger terminated at 1.8 m due to dense strata.
2. Continued with DCP until refusal at 2.9 m.
3. Groundwater not encountered at the time of drilling.

WATER

-  Standing Water Level
 Out flow
 In flow

INVESTIGATION TYPE

- ☒ Hand Auger
☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH27-1

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 29/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467	Values	WATER
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.0	15				
Clayey SILT, very stiff, dark yellowish brown, moist, low plasticity, with occasional fine gravel sized pink sand and fine to medium gravel sized pockets and streaks of dark organics, (Colluvium)		0.2				198+	
		0.4				-	
		0.6				198+	
Silty CLAY, very stiff, light yellowish brown mottles white, moist, low plasticity. (Greywacke Residual Soil)		0.8				-	
		1.0				198+	
		1.2				-	
Sandy SILT, very stiff to hard, light yellowish brown mottled white, moist, friable. (Greywacke Residual Soil) End Of Hole: 2.10m		1.4		8		UTP	
		1.6		10		-	
		1.8		8			
		2.0		16			
		2.1		25 >>			
		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						
	5.0						

PHOTO(S)



REMARKS

- Hand auger terminated at 1.3 m due to dense strata.
- Continued with DCP until refusal at 2.1 m.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit

APPENDIX C

Assessment of Environmental Effects and Assessment Criteria



Table 12: 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. 500.
Surface water feature ⁵	15 m	15 m (3x feature area in ha)	Complies.
Coastal Marine Area	15 m	30 m	Complies, CMA is >250 m to the west/ southwest.
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 20 to 22.5 °.
Cut off drain required?			No.
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. 130.			
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.			

Table 13: Proposed Northland Regional Plan Stormwater Assessment Criteria, to rule C.6.4.2

Assessment Criteria	Comments
1) the discharge or diversion is not from: a) a public stormwater network, or b) a high-risk industrial or trade premises	Complies
2) the diversion and discharge does not cause or increase flooding of land on another property in a storm event of up to and including a 10 percent annual exceedance probability, or flooding of buildings on another property in a storm event of up to and including a one percent annual exceedance probability	Complies, all discharges are controlled to the pre-development condition for the 10 % AEP storm event including provision for climate change.
3) where the diversion or discharge is from a hazardous substance storage or handling area: a) the stormwater collection system is designed and operated to prevent hazardous substances stored or used on the site from entering the stormwater system, or b) there is a secondary containment system in place to intercept any spillage of hazardous substances and either discharges that spillage to a trade waste system or stores it for removal and treatment, or c) if the stormwater contains oil contaminants, the stormwater is passed through a stormwater treatment system designed in accordance with the Environmental Guidelines for Water Discharges from Petroleum Industry Sites in New Zealand (Ministry for the Environment, 1998) prior to discharge	Complies. Site is residential.
4) where the diversion or discharge is from an industrial or trade premises: a) the stormwater collection system is designed and operated to prevent any contaminants stored or used on the site, other than those already controlled by condition 3) above, from entering stormwater unless the stormwater is discharged through a stormwater treatment system, and b) any process water or liquid waste stream on the site is bunded, or otherwise contained, within an area of sufficient capacity to provide secondary containment equivalent to 100 percent of the quantity of any process water or liquid waste that has the potential to spill into a stormwater collection system, in order to prevent trade waste entering the stormwater collection system	Complies. Site is residential.
5) the diversion or discharge is not into potentially contaminated land, or onto potentially contaminated land that is not covered by an impervious area	Complies.
6) the diversion and discharge does not cause permanent scouring or erosion of the bed of a water body at the point of discharge	Complies, specifically sized discharge devices are provided from all on-lot devices and RoWs for up to the 1 % AEP event including provision for climate change.
7) the discharge does not contain more than 15 milligrams per litre of total petroleum hydrocarbons	Complies. Site is residential.
8) the discharge does not cause any of the following effects in the receiving waters beyond the zone of reasonable mixing: a) the production of conspicuous oil or grease films, scums or foams, of floatable or suspended materials, or b) a conspicuous change in the colour or visual clarity, or c) an emission of objectionable odour, or d) the rendering of fresh water unsuitable for consumption by farm animals, or e) the rendering of fresh water taken from a mapped priority drinking water abstraction point (refer I Maps Ngā mahere matawhenua) unsuitable for human consumption after existing treatment.	Complies.

Table 14: FNDC District Plan Stormwater Assessment Criteria, to rule 13.10.4


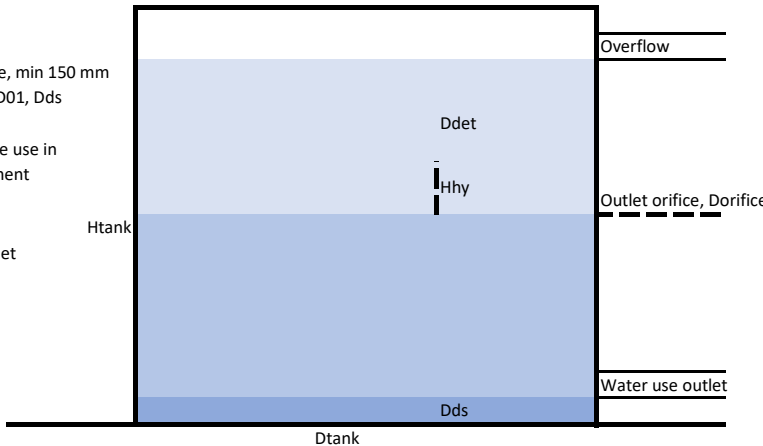
Assessment Criteria	Comments
(a) Whether the application complies with any regional rules relating to any water or discharge permits required under the Act, and with any resource consent issued to the District Council in relation to any urban drainage area stormwater management plan or similar plan.	Complies – Permitted Activity under regional rules.
(b) Whether the application complies with the provisions of the Council's "Engineering Standards and Guidelines" (2004) - Revised March 2009 (to be used in conjunction with NZS 4404:2004).	Concept design complies and has adopted proposed draft engineering standards for runoff curves
(c) Whether the application complies with the Far North District Council Strategic Plan - Drainage.	Not sited.
(d) The degree to which Low Impact Design principles have been used to reduce site impermeability and to retain natural permeable areas.	All proposed areas to form the subdivision will be attenuated to pre-development levels for the 10 % AEP event. All devices for the stormwater system, are to be sized to the 1 % AEP event.
(e) The adequacy of the proposed means of disposing of collected stormwater from the roof of all potential or existing buildings and from all impervious surfaces.	Low impact design adopted – attenuation within on-site tanks for majority of lots, except larger properties. All lots to discharge to dispersion devices. All new RoW areas will be attenuated within a pond to the pre-development level, disposing to a specifically sized culvert, energy dissipation device and gully as part of the EPA stage.
(f) The adequacy of any proposed means for screening out litter, the capture of chemical spillages, the containment of contamination from roads and paved areas, and of siltation.	Stormwater quality devices included in design to accommodate a rural residential subdivision.
(g) The practicality of retaining open natural waterway systems for stormwater disposal in preference to piped or canal systems and adverse effects on existing waterways.	All open natural waterways will be maintained. No adverse effects anticipated on downstream environment.
(h) Whether there is sufficient capacity available in the Council's outfall stormwater system to cater for increased run-off from the proposed allotments.	NA
(i) Where an existing outfall is not capable of accepting increased run-off, the adequacy of proposals and solutions for disposing of run-off.	NA
(j) The necessity to provide on-site retention basins to contain surface run-off where the capacity of the outfall is incapable of accepting flows, and where the outfall has limited capacity, any need to restrict the rate of discharge from the subdivision to the same rate of discharge that existed on the land before the subdivision takes place.	All proposed surfaces to be attenuated to pre-development levels from the subdivision formation in a specifically sized pond.
(k) Any adverse effects of the proposed subdivision on drainage to, or from, adjoining properties and mitigation measures proposed to control any adverse effects.	Controlled discharge will be routed to on-site gullies. Outflow of the site restricted to pre-development level.
(l) In accordance with sustainable management practices, the importance of disposing of stormwater by way of gravity pipelines. However, where topography dictates that this is not possible, the adequacy of proposed pumping stations put forward as a satisfactory alternative.	All devices adopt and designed for gravity flows.
(m) The extent to which it is proposed to fill contrary to the natural fall of the country to obtain gravity outfall; the practicality of obtaining easements through adjoining owners' land to other outfall systems; and whether filling or pumping may constitute a satisfactory alternative.	Minimal – pond will be inground and minimal above ground area to form a spillway and freeboard according to GD01 requirements. Pond placed in a





	location with minimal effect on existing surface sheet flows.
(n) For stormwater pipes and open waterway systems, the provision of appropriate easements in favour of either the registered user or in the case of the Council, easements in gross, to be shown on the survey plan for the subdivision, including private connections passing over other land protected by easements in favour of the user.	TBC by surveyor.
(o) Where an easement is defined as a line, being the centre line of a pipe already laid, the effect of any alteration of its size and the need to create a new easement.	NA – all pipes are new proposed.
(p) For any stormwater outfall pipeline through a reserve, the prior consent of the Council, and the need for an appropriate easement.	NA
(q) The need for and extent of any financial contributions to achieve the above matters.	TBC
(r) The need for a local purpose reserve to be set aside and vested in the Council as a site for any public utility required to be provided.	NA

APPENDIX D

Stormwater Calculations

Project Ref:	C0255	STORMWATER ATTENUATION TANK DESIGN					
Project Address:	Lot 37 & 38 Russell Whakapapa Road						
Prepared By:	EC	CONCEPT FUTURE DEVELOPMENT					
Date:	29 April 2023	REV 1					
ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF PREDICTED 2.1 DEGREE CLIMATE CHANGE. RESIDENTIAL DEVELOPMENT AREAS ARE BASED ON EXISTING SURVEY DATA.							
RUNOFF COEFFIENTS DETERMINED FROM WDC ENGINEERING STANDARDS 2022 TABLE 4-4 FOR TYPE C SOILS.							
PREDEVELOPMENT SCENARIO			POST DEVELOPMENT SCENARIO				
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
PR IMPERVIOUS	500	0.48	BUSH	IMPERVIOUS	300	0.96	CONCEPT ROOF
	0	0		IMPERVIOUS	0	0.8	CONCEPT DRIVEWAY
	0	0		IMPERVIOUS	0	0	
TOTAL	500	TYPE C	PR = PROPOSED	TOTAL	300	TYPE C	
PRE DEVELOPMENT RUNOFF							
50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr		73.1	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.			
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*		25.62	%				
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC		91.8	mm/hr				
50 % AEP PRE DEVELOPMENT PEAK FLOW		6.12	l/s				
INCREASED POST DEVELOPMENT RUNOFF, 50 % AEP WITH CLIMATE CHANGE PROJECTION OF 2.1 DEGREES							
TIME, min	INTENSITY, mm/hr	CC FACTOR	CC INTENSITY, mm/hr	RUNOFF, Q, l/s	Allowable flow, l/s	Difference, l/s	Required Storage, litres
10	73.10	1.2562	91.83	7.35	6.12	1.22	735
20	53.60	1.2562	67.33	5.39	6.12	No Att. Req.	0
30	44.30	1.2562	55.65	4.45	6.12	No Att. Req.	0
60	31.50	1.2562	39.57	3.17	6.12	No Att. Req.	0
120	21.80	1.2457	27.16	2.17	6.12	No Att. Req.	0
360	11.40	1.2058	13.75	1.10	6.12	No Att. Req.	0
720	7.24	1.1785	8.53	0.68	6.12	No Att. Req.	0
1440	4.42	1.1512	5.09	0.41	6.12	No Att. Req.	0
2880	2.58	1.1281	2.91	0.23	6.12	No Att. Req.	0
4320	1.84	1.1155	2.05	0.16	6.12	No Att. Req.	0
NOTE: ALLOWABLE FLOW PROVIDES FOR ANY OFFSET ARISING FROM FLOWS NOT DIRECTLY DISCHARGING TO TANK							
ATTENUATION TANK DESIGN OUTPUT							
Concept sizing to achieve 25,000 litre							
Dead storage volume, min 150 mm recommended by GD01, Dds				Overflow			
Retention for potable use in residential development				Outlet orifice, Dorifice			
Detention, 50 % AEP storm event, Ddet				Water use outlet			
Ddet							
Hhy							
Htank							
Dds							
Dtank							
SPECIFICATION							
TOTAL STORAGE REQUIRED		0.735 m3	NOTES:				
TANK HEIGHT, Htank		2.6 m	Concept sizing to achieve 25,000 litre				
TANK DIAMTER, Dtank		3.5 m	No. of Tanks		2		
TANK AREA, Atank		19.24 m2	Area of two tanks hydraulically linked				
TANK MAX STORAGE VOLUME, Vtank		50030 litres	Below overflow GD01 recommended minimum				
REQUIRED STORAGE HEIGHT, Ddet		0.04 m					
DEAD STORAGE VOLUME, Dds		0.15 m					
TOTAL WATER DEPTH REQUIRED		0.19 m					
AVERAGE DISCHARGE RATE, Qavg		0.00001 m3/s	Minimum 10 mm diameter				
AVERAGE HYDRAULIC HEAD, Hhy		0.02 m					
AREA OF ORIFICE, Aorifice		8.39E-06 m2					
ORIFICE DIAMETER, Dorifice		3 mm					
VELOCITY AT ORIFICE		0.87 m/s					

Project Ref:	C0255	STORMWATER ATTENUATION TANK DESIGN					
Project Address:	Lot 37 & 38 Russell Whakapapa Road						
Prepared By:	EC	CONCEPT FUTURE DEVELOPMENT					
Date:	29 April 2023	REV 1					
ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF PREDICTED 2.1 DEGREE CLIMATE CHANGE. RESIDENTIAL DEVELOPMENT AREAS ARE BASED ON EXISTING SURVEY DATA.							
RUNOFF COEFFICIENTS DETERMINED FROM WDC ENGINEERING STANDARDS 2022 TABLE 4-4 FOR TYPE C SOILS.							
PREDEVELOPMENT SCENARIO				POST DEVELOPMENT SCENARIO			
ITEM	AREA, A, m ²	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m ²	COEFFICIENT, C	DESCRIPTION
PR IMPERVIOUS	500	0.48	BUSH	IMPERVIOUS	300	0.96	CONCEPT ROOF
	0	0		IMPERVIOUS	200	0.8	CONCEPT DRIVEWAY
	0	0		IMPERVIOUS	0	0	0
TOTAL	500	TYPE C	PR = PROPOSED	TOTAL	500	TYPE C	
PRE DEVELOPMENT RUNOFF							
10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr			111.0	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA		
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*			27.51	%	HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES		
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC			141.5	mm/hr	IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA		
10 % AEP PRE DEVELOPMENT PEAK FLOW			9.44	l/s	RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.		
INCREASED POST DEVELOPMENT RUNOFF, 10 % AEP WITH CLIMATE CHANGE PROJECTION OF 2.1 DEGREES							
TIME, min	INTENSITY, mm/hr	CC FACTOR	CC INTENSITY, mm/hr	RUNOFF, Q, l/s	Allowable flow, l/s	Difference, l/s	Required Storage, litres
10	111.00	1.2751	141.54	17.61	3.15	14.47	8681
20	81.80	1.2751	104.30	12.98	3.15	9.83	11802
30	67.70	1.2751	86.32	10.74	3.15	7.60	13675
60	48.20	1.2751	61.46	7.65	3.15	4.50	16211
120	33.40	1.2646	42.24	5.26	3.15	2.11	15199
360	17.50	1.2268	21.47	2.67	3.15	No Att. Req.	0
720	11.20	1.1995	13.43	1.67	3.15	No Att. Req.	0
1440	6.83	1.1701	7.99	0.99	3.15	No Att. Req.	0
2880	4.00	1.147	4.59	0.57	3.15	No Att. Req.	0
4320	2.86	1.1365	3.25	0.40	3.15	No Att. Req.	0
NOTE: ALLOWABLE FLOW PROVIDES FOR ANY OFFSET ARISING FROM FLOWS NOT DIRECTLY DISCHARGING TO TANK							
ATTENUATION TANK DESIGN OUTPUT							
Concept sizing to achieve 25,000 litre							
Dead storage volume, min 150 mm recommended by GD01, Dds		Ddet		Hhy		Outlet orifice, Dorifice	
Retention for potable use in residential development		Htank		Dds		Water use outlet	
Detention, 10 % AEP storm event, Ddet		Dtank					
SPECIFICATION							
TOTAL STORAGE REQUIRED	16.211 m ³	Concept sizing to achieve 25,000 litre					
TANK HEIGHT, Htank	2.6 m	No. of Tanks					
TANK DIAMETER, Dtank	3.5 m	Area of two tanks hydraulically linked					
TANK AREA, Atank	19.24 m ²	Below overflow					
TANK MAX STORAGE VOLUME, Vtank	50030 litres	GD01 recommended minimum					
REQUIRED STORAGE HEIGHT, Ddet	0.84 m						
DEAD STORAGE VOLUME, Dds	0.15 m						
TOTAL WATER DEPTH REQUIRED	0.99 m						
AVERAGE DISCHARGE RATE, Qavg	0.00019 m ³ /s						
AVERAGE HYDRAULIC HEAD, Hhy	0.42 m						
AREA OF ORIFICE, Aorifice	8.70E-04 m ²						
ORIFICE DIAMETER, Dorifice	33 mm	Note minimum 10 mm diameter					
VELOCITY AT ORIFICE	4.07 m/s						

Project Ref:	C0255	STORMWATER DISPERSION PIPE/ TRENCH	
Project Address:	Lot 37 & 38 Russell Whakapapa Road		
Prepared By:	EC		
Date:	29 April 2023	REV 1	
CONCEPT FUTURE DEVELOPMENT			

TP108 Worksheet 1 - Runoff curve number & Initial Abstraction

Soil name & Cover description	Curve Number, CN	Area	Product of CN * Area	TOTAL SITE AREA, m2	5049
TYPE C CONCEPT ROOF	98	300	29400		
TYPE C CONCEPT DRIVEWAY	89	0	0		
TYPE C 0	0	0	0		
TYPE C BUSH	65	4749	308685		
Total	5049		338085		

TP108, FIGURE 5.1

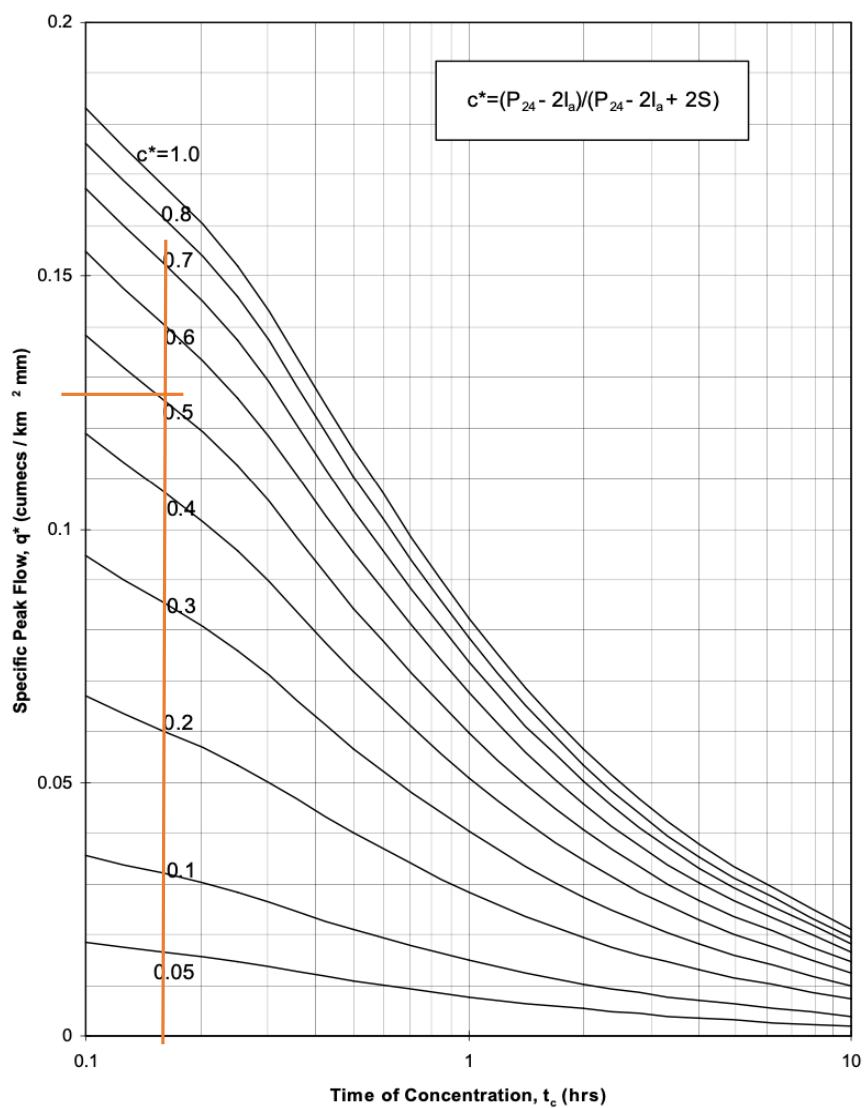



Figure 5.1 - Specific Peak Flow Rate

Project Ref:	C0255	STORMWATER DISPERSION PIPE/ TRENCH		
Project Address:	Lot 37 & 38 Russell Whakapapa Road			
Prepared By:	EC	CONCEPT FUTURE DEVELOPMENT		
Date:	29 April 2023	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 TP108 GRAPHICAL METHOD BASED ON NIWA HIRDS DEPTH-DURATION DATA AND ACCOUNTING FOR THE PROVISION OF CLIMATE CHANGE.

DESIGN STORM EVENT **1%** AEP EVENT

ESTIMATE DESIGN RAINFALL DEPTH, P24

RAINFALL DEPTH	24 HR DURATION	1%	250 mm
CLIMATE CHANGE FACTOR	2.1 DEGREE INCREASE, 24 HR	1%	8.6 %
RAINFALL DEPTH WITH CC, P24			271.5 mm

ESTIMATE DETENTION VOLUME, TP108 GRAPHICAL METHOD

PEAK FLOW RATE, $q_p = q^* \times A \times P_{24}$

WHERE,

q^* = SPECIFIC PEAK FLOW RATE (l/s)


P_{24} = 24 HR DESIGN RAINFALL DEPTH (mm)

A = CATCHMENT AREA TO BE MITIGATED (m²)

CURVE NUMBER, CN (WEIGHTED)	67	See summary table, based on smallest lot size
INITIAL ABSTRACTION, I_a	0.00 mm	As TP108, adopt 0 mm impervious, 5 mm pervious
MITIGATION AREA, A_m	300 m ²	Accounts for roof and driveway as an offset
SOIL STORAGE, S	125.3	
RUNOFF INDEX, C^*	0.52 mm	
TIME OF CONCENTRATION, t_c	0.167 hrs	
SPECIFIC PEAK FLOWRATE, q^*	0.126	TP108, Figure 5.1, see next page.
PEAK FLOWRATE, q_p	10.26 l/s	
RUNOFF DEPTH, Q_{24}	185.8 mm	
RUNOFF VOLUME, V_{24}	55726 litres	

CONSTRUCTION OF DISPERSION ABOVE GROUND PIPE OR PIPE WITHIN TRENCH

DIA. OF ORIFICE, D	10 mm
AREA OF ORIFICE, A	78.54 mm ²
DESIGN VELOCITY, D_v	1.32 m/s
NUMBER OF ORIFICES	100 No.
ORIFICE INTERVALS, C/C	200 mm
DISPERSION PIPE LENGTH	19.8 m

Project Ref:	C0255		STORMWATER ATTENUATION TANK DESIGN	
Project Address:	Lot 37 & 38 Russell Whakapapa Road			
Prepared By:	EC		CONCEPT FUTURE DEVELOPMENT	
Date:	29 April 2023	REV 1		

CLIMATE CHANGE PROJECTIONS

REPRODUCED FROM NIWA HIRDS, <https://niwa.co.nz/information-services/hirds/help>

Duration/ARI	2 yr	5 yr	10 yr	20 yr	30 yr	40 yr	50 yr	60 yr	80 yr	100 yr
1 hour	12.2	12.8	13.1	13.3	13.4	13.4	13.5	13.5	13.6	13.6
2 hours	11.7	12.3	12.6	12.8	12.9	12.9	13	13	13.1	13.1
6 hours	9.8	10.5	10.8	11.1	11.2	11.3	11.3	11.4	11.4	11.5
12 hours	8.5	9.2	9.5	9.7	9.8	9.9	9.9	10	10	10.1
24 hours	7.2	7.8	8.1	8.2	8.3	8.4	8.4	8.5	8.5	8.6
48 hours	6.1	6.7	7	7.2	7.3	7.3	7.4	7.4	7.5	7.5
72 hours	5.5	6.2	6.5	6.6	6.7	6.8	6.8	6.9	6.9	6.9
96 hours	5.1	5.7	6	6.2	6.3	6.3	6.4	6.4	6.4	6.5
120 hours	4.8	5.4	5.7	5.8	5.9	6	6	6	6.1	6.1

HIRDS V4 Intensity-Duration-Frequency Results
Sitename: 15 Auckis Road
Coordinate system: WGS84
Longitude: 174.1503
Latitude: -35.2882
DOF Model

russell

Parameters: c 0.00170139 d 0.48721399 e -0.02713579 f -0.00193832 g 0.25804109 h -0.01225083 i 3.35653471
Values: Duration (hrs) ARI (yrs) x Rainfall Rate (mm/hr)
Example: 24 100 3.17805383 4.600149227 10.41493259

Rainfall intensities (mm/hr) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	66.6	48.9	40.4	28.7	19.8	10.4	6.58	4.01	2.34	1.67	1.3	1.07
2	0.5	73.1	53.6	44.3	31.5	21.8	11.4	7.24	4.42	2.58	1.84	1.44	1.18
5	0.2	95	69.9	57.8	41.1	28.5	14.9	9.5	5.8	3.39	2.43	1.89	1.55
10	0.1	111	81.8	67.7	48.2	33.4	17.5	11.2	6.83	4	2.86	2.23	1.83
20	0.05	128	93.9	77.8	55.4	38.4	20.2	12.9	7.89	4.62	3.31	2.58	2.12
30	0.033	137	101	83.5	59.7	41.9	21.8	13.9	8.52	4.99	3.57	2.79	2.29
40	0.025	144	106	88.1	62.8	43.6	23	14.6	8.97	5.26	3.76	2.94	2.41
50	0.02	150	110	91.4	65.2	45.3	23.8	15.2	9.32	5.46	3.91	3.06	2.51
60	0.017	154	114	94.1	67.1	46.6	24.6	15.7	9.61	5.64	4.04	3.15	2.59
80	0.013	161	119	98.4	70.2	48.8	25.7	16.4	10.1	5.9	4.23	3.3	2.71
100	0.01	166	123	102	72.6	50.4	26.6	17	10.4	6.11	4.38	3.42	2.81
250	0.004	187	138	115	82.1	57.1	30.2	19.3	11.8	6.96	4.99	3.9	3.2

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	8.3	5.2	4.1	2.9	2	1.2	0.87	0.61	0.4	0.28	0.22	0.19
2	0.5	9.2	5.8	4.5	3.1	2.2	1.3	0.96	0.68	0.44	0.31	0.25	0.21
5	0.2	13	8.4	6.4	4.4	3	1.9	1.3	0.92	0.6	0.42	0.33	0.29
10	0.1	16	11	8.4	5.7	3.9	2.4	1.7	1.1	0.71	0.51	0.4	0.34
20	0.05	21	14	11	7.5	5.2	3.1	2.1	1.3	0.84	0.6	0.47	0.41
30	0.033	24	17	13	8.9	6.1	3.6	2.4	1.4	0.91	0.66	0.51	0.44
40	0.025	27	19	14	10	6.8	4.1	2.7	1.5	0.97	0.7	0.55	0.47
50	0.02	29	20	16	11	7.4	4.4	2.9	1.6	1	0.74	0.58	0.5
60	0.017	31	22	17	12	8	4.8	3.2	1.7	1.1	0.77	0.6	0.52
80	0.013	34	24	18	13	8.9	5.4	3.5	1.8	1.1	0.82	0.64	0.55
100	0.01	36	26	20	15	9.7	5.9	3.8	1.9	1.2	0.86	0.68	0.58
250	0.004	50	36	28	21	14	8.4	5.4	2.4	1.4	1.1	0.83	0.71

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	71.3	52.3	43.2	30.7	21.1	10.9	6.89	4.18	2.42	1.72	1.34	1.1
2	0.5	78.3	57.5	47.5	33.7	23.3	12.1	7.6	4.6	2.67	1.9	1.48	1.21
5	0.2	102	75.1	62.2	44.2	30.5	15.9	10	6.07	3.53	2.51	1.96	1.6
10	0.1	120	88.1	73	51.9	35.9	18.7	11.8	7.16	4.16	2.97	2.31	1.89
20	0.05	138	101	83.9	59.8	41.4	21.5	13.6	8.27	4.82	3.43	2.67	2.19
30	0.033	148	109	90.4	64.4	44.6	23.3	14.7	8.93	5.21	3.71	2.89	2.37
40	0.025	156	115	95	67.7	46.9	24.5	15.5	9.41	5.48	3.91	3.05	2.5
50	0.02	161	119	98.7	70.4	48.7	25.4	16.1	9.78	5.7	4.07	3.17	2.6
60	0.017	166	123	102	72.5	50.2	26.2	16.6	10.1	5.88	4.2	3.27	2.68
80	0.013	174	128	106	75.8	52.5	27.5	17.4	10.6	6.17	4.4	3.43	2.81
100	0.01	180	132	110	78.4	54.3	28.4	18	10.9	6.38	4.56	3.55	2.91
250	0.004	203	150	124	88.7	61.5	32.2	20.4	12.4	7.26	5.19	4.05	3.31

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	71.3	52.3	43.2	30.7	21.1	10.9	6.89	4.18	2.42	1.72	1.34	1.1
2	0.5	78.3	57.5	47.5	33.7	23.3	12.1	7.6	4.6	2.67	1.9	1.48	1.21
5	0.2	102	75.1	62.2	44.2	30.5	15.9	10	6.07	3.53	2.51	1.96	1.6
10	0.1	120	88.1	73	51.9	35.9	18.7	11.8	7.16	4.16	2.97	2.31	1.89
20	0.05	138	101	83.9	59.8	41.4	21.5	13.6	8.27	4.82	3.43	2.67	2.19
30	0.033	148	109	90.4	64.4	44.6	23.3	14.7	8.93	5.21	3.71	2.89	2.37
40	0.025	156	115	95	67.7	46.9	24.5	15.5	9.41	5.48	3.91	3.05	2.5
50	0.02	161	119	98.7	70.4	48.7	25.4	16.1	9.78	5.7	4.07	3.17	2.6
60	0.017	166	123	102	72.5	50.2	26.2	16.6	10.1	5.88	4.2	3.27	2.68
80	0.013	174	128	106	75.8	52.5	27.5	17.4	10.6	6.17	4.4	3.43	2.81
100	0.01	180	132	110	78.4	54.3	28.4	18	10.9	6.38	4.56	3.55	2.91
250	0.004	203	150	124	88.7	61.5	32.2	20.4	12.4	7.26	5.19	4.05	3.31

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	72.5	53.2	44	31.2	21.5	11.1	6.97	4.22	2.44	1.74	1.35	1.1
2	0.5	79.6	58.5	48.4	34.3	23.7	12.2	7.69	4.65	2.7	1.92	1.49	1.22
5	0.2	104	76.5	63.3	45	31.1	16.1	10.1	6.14	3.56	2.54	1.97	1.61
10	0.1	122	89.7	74.3	52.9	36.5	19	12.1	7.24	4.21	2.9	2.33	1.91
20	0.05	140	103	85.5	60.9	42.1	21.9	13.8	8.36	4.87	3.47	2.7	2.21
30	0.033	151	111	92.1	65.6	45.4	23.6	14.9	9.04	5.26	3.75	2.92	2.39
40	0.025	158	117	96.8	69	47.8	24.9	15.7	9.52	5.54	3.95	3.08	2.52
50	0.02	165	121	101	71.7	49.6	25.8	16.3	9.9	5.76	4.11	3.2	2.62
60	0.017	169	125	105	73.8	51.5	26.6	16.8	10.2	5.94	4.24	3.3	2.7
80	0.013	177	131	108	77.2	53.5	27.9	17.6	10.7	6.23	4.45	3.46	2.83
100	0.01	183	135	112	79.9	55.3	28.9	18.3	11.1	6.45	4.6	3.59	2.93
250	0.004	206	152	126	90.3	62.6	32.8	20.7	12.6	7.34	5.24	4.08	3.34

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	76.2	55.9	46.2	32.8	22.5	11.5	7.22	4.35	2.51	1.78	1.38	1.13
2	0.5	83.8	61.5	50.9	36.1	24.9	12.8	7.98	4.8	2.77	1.97	1.53	1.25
5	0.2	110	80.7	66.8	47.5	32.7	16.8	10.6	6.35	3.67	2.61	2.02	1.65
10	0.1	129	94.8	78.5	55.8	38.5	19.8	12.5	7.5	4.34	3.08	2.39	1.96
20	0.05	148	109	90.3	60.4	44.2	21.9	14.4	8.67	5.02	3.57	2.77	2.23
30	0.033	160	118	97.4	69.4	47.9	24.8	15.6	9.37	5.43	3.86	3	2.45
40	0.025	168	123	102	73	50.4	26.1	16.4	9.88	5.72	4.07	3.16	2.59
50	0.02	174	128	106	75.8	52.4	27.1	17	10.3	5.95	4.24	3.29	2.69
60	0.017	179	132	109	78.1	54	28	17.6	10.6	6.14	4.37	3.4	2.77
80	0.013	187	138	115	81.7	56.5	29.3	18.4	11.1	6.44	4.58	3.56	2.91
100	0.01	194	143	118	84.5	58.4	30.3	19.1	11.5	6.67	4.74	3.69	3.01
250	0.004	218	161	134	95.6	66.2	34.4	21.6	13.1	7.59	5.4	4.2	3.44

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	72	52.8	43.7	31	21.3	11	6.94	4.21	2.44	1.73	1.35	1.1
2	0.5	79.1	58.1	48	34.1	23.5	12.2	7.66	4.63	2.69	1.91	1.49	1.22
5	0.2	103	75.9	62.9	44.7	30.8	16	10.1	6.11	3.55	2.53	1.97	1.61
10	0.1	121	89.1	73.8	52.5	36.3	18.8	11.9	7.21	4.19	2.99	2.32	1.9
20	0.05	139	102	84.9	60.4	41.8	21.8	13.7	8.32	4.85	3.45	2.69	2.2
30	0.033	150	110	91.4	65.2	45.1	23.5	14.8	9	5.24	3.75	2.91	2.38
40	0.025	157	116	96.1	68.5	47.4	24.7	15.6	9.48	5.52	3.94	3.06	2.51
50	0.02	163	120	99.8	71.1	49.3	25.7	16.2	9.85	5.74	4.09	3.19	2.61
60	0.017	168	124	103	73.3	50.7	26.5	16.7	10.2	5.92	4.22	3.29	2.69
80	0.013	176	130	107	76.7	53.1	27.7	17.5	10.6	6.21	4.43	3.45	2.82
100	0.01	182	134	111	79.3	54.9	28.7	18.1	11	6.42	4.58	3.57	2.92
250	0.004	205	151	126	89.7	62.2	32.5	20.6	12.5	7.31	5.22	4.07	3.33

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	79.5	58.3	48.2	34.2	23.4	12	7.44	4.47	2.57	1.81	1.4
	2	0.5	87.6	64.3	53.2	37.7	25.9	12.4	4.94	2.84	2.01	1.56	
	5	0.2	115	84.3	69.9	49.7	34.2	10.9	6.54	3.76	2.67	2.07	1.4
	10	0.1	135	99.3	82.2	58.5	40.3	20.6	12.9	7.73	4.45	3.16	2.45
	20	0.05	155	114	94.7	67.4	46.5	23.9	14.9	8.94	5.16	3.66	2.84
	30	0.033	167	123	103	72.8	50.2	26.7	16.1	9.67	5.58	3.96	3.08
	40	0.025	176	129	107	76.5	52.8	27.2	17	10.2	5.88	4.18	3.24
	50	0.02	182	135	112	79.5	54.8	28.2	17.7	10.6	6.12	4.37	3.48
	60	0.017	188	138	115	81.9	56.5	29.1	18.2	10.9	6.32	4.49	3.68
	70	0.015	195	145	120	85.7	59.7	30.5	19.1	11.5	6.63	4.7	3.85
	100	0.01	203	150	124	88.6	61.2	31.6	19.8	11.9	6.86	4.87	3.78
	250	0.004	229	169	140	100	69.3	35.8	22.5	13.5	7.81	5.55	4.31

HIRDS V4 Depth-Duration-Frequency Results
Sitename: 15 Auckis Road
Coordinate system: WGS84
Longitude: 174.1503
Latitude: -35.2882
DOF Model

russell

Parameters: c d e f g h i
Values: 0.00170139 0.48721399 -0.02713579 -0.00193832 0.25804109 -0.01225083 3.35653471
Example: Duration (hrs) ARI (yrs) Y Rainfall Depth (mm)
24 100 3.17805383 4.600149227 249.9583822

Rainfall depths (mm) :: Historical Data

ARI

AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	11.1	16.3	20.2	28.7	39.6	62.2	79	96.4	113	121	125
2	0.5	12.2	17.9	22.2	31.5	43.6	68.4	86.9	106	124	133	138
5	0.2	15.8	23.3	28.9	41.1	56.9	89.6	114	139	163	175	182
10	0.1	18.5	27.3	33.9	48.2	66.8	105	134	164	192	206	214
20	0.05	21.3	31.3	38.9	55.4	76.9	121	155	189	222	238	248
30	0.033	22.9	33.7	41.9	59.7	82.9	131	167	204	240	257	266
40	0.025	24	35.4	44	62.8	87.2	138	176	215	252	271	282
50	0.02	24.9	36.8	45.7	65.2	90.5	143	183	224	262	282	293
60	0.017	25.7	37.8	47.1	67.1	93.2	147	188	231	270	291	303
80	0.013	26.8	39.5	49.2	70.2	97.5	154	197	241	283	304	317
100	0.01	27.7	40.9	50.8	72.6	101	160	204	250	293	315	328
250	0.004	31.2	46.1	57.5	82.1	114	181	231	284	334	359	374

Depth standard error (mm) :: Historical Data

ARI

AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	1.5	1.8	2	2.9	4	7.1	10	14	18	20	21
2	0.5	1.6	1.9	2.2	3.2	4.4	7.8	11	16	20	23	24
5	0.2	2.2	2.8	3.1	4.5	6.1	11	16	22	28	31	32
10	0.1	2.8	3.7	4.1	5.9	7.9	13	20	26	33	36	39
20	0.05	3.5	4.8	5.4	7.7	10	17	26	31	39	43	46
30	0.033	4	5.6	6.3	9	12	20	30	34	43	47	51
40	0.025	4.4	6.3	7.1	10	13	23	37	46	50	55	58
50	0.02	4.8	6.8	7.7	11	14	25	36	39	48	53	57
60	0.017	5.1	7.3	8.2	12	16	27	39	41	50	55	60
80	0.013	5.6	8.2	9.1	13	17	30	43	43	54	59	64
100	0.01	6.1	8.9	9.9	14	19	33	47	46	57	62	68
250	0.004	8.3	12	14	20	27	47	67	57	70	76	83

Rainfall depths (mm) :: 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	11.9	17.4	21.6	30.7	42.3	65.7	82.7	100	116	124	129
2	0.5	13.1	19.2	23.8	33.7	46.6	72.3	91.2	111	128	137	142
5	0.2	17	25	31.1	44.2	61.1	95.1	120	146	169	181	188
10	0.1	20	29.4	36.5	51.9	71.8	112	142	172	200	214	222
20	0.05	22.9	33.8	42	59.8	82.7	129	163	198	231	247	257
30	0.033	24.7	36.4	45.2	64.4	89.2	140	177	214	250	267	278
40	0.025	25.9	38.2	47.5	67.7	93.8	147	186	226	263	282	293
50	0.02	26.9	39.7	49.3	70.4	97.5	153	193	235	274	293	304
60	0.017	27.7	40.9	50.8	72.5	100	157	199	242	282	302	314
80	0.013	29	42.7	53.1	75.8	105	165	209	254	296	317	329
100	0.01	29.9	44.1	54.9	78.4	109	170	216	263	306	328	341
250	0.004	33.8	49.8	62.1	88.7	123	193	245	299	349	374	388

Rainfall depths (mm) :: 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	11.9	17.4	21.6	30.7	42.3	65.7	82.7	100	116	124	129
2	0.5	13.1	19.2	23.8	33.7	46.6	72.3	91.2	111	128	137	142
5	0.2	17	25	31.1	44.2	61.1	95.1	120	146	169	181	188
10	0.1	20	29.4	36.5	51.9	71.8	112	142	172	200	214	222
20	0.05	22.9	33.8	42	59.8	82.7	129	163	198	231	247	257
30	0.033	24.7	36.4	45.2	64.4	89.2	140	177	214	250	267	278
40	0.025	25.9	38.2	47.5	67.7	93.8	147	186	226	263	282	293
50	0.02	26.9	39.7	49.3	70.4	97.5	153	193	235	274	293	304
60	0.017	27.7	40.9	50.8	72.5	100	157	199	242	282	302	314
80	0.013	29	42.7	53.1	75.8	105	165	209	254	296	317	329
100	0.01	29.9	44.1	54.9	78.4	109	170	216	263	306	328	341
250	0.004	33.8	49.8	62.1	88.7	123	193	245	299	349	374	388

Rainfall depths (mm) :: 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	12.1	17.7	22	31.2	42.9	66.5	83.7	101	117	125	130
2	0.5	13.3	19.5	24.2	34.3	47.3	73.4	92.3	112	129	138	143
5	0.2	17.3	25.5	31.6	45	62.1	96.6	122	147	171	183	189
10	0.1	20.3	29.9	37.1	52.9	73	113	143	174	202	216	224
20	0.05	23.4	34.4	42.7	60.9	84.2	131	166	201	234	250	259
30	0.033	25.1	37.1	46.1	65.6	90.8	142	179	217	252	270	280
40	0.025	26.4	38.9	48.4	69	95.5	149	189	229	266	285	295
50	0.02	27.4	40.4	50.3	71.7	99.2	155	196	238	277	296	307
60	0.017	28.2	41.6	51.8	73.9	102	160	203	245	285	305	317
80	0.013	29.5	43.5	54.1	77.2	107	167	212	257	299	320	332
100	0.01	30.5	45	56	79.9	111	173	219	266	310	331	344
250	0.004	34.4	50.8	63.2	90.3	125	197	249	302	352	377	392

Rainfall depths (mm) :: 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	12.7	18.6	23.1	32.8	45	69.3	86.6	105	120	128	132
2	0.5	14	20.5	25.4	36.1	49.7	76.5	95.8	115	133	141	146
5	0.2	18.3	26.9	33.4	47.5	65.4	101	127	152	176	188	194
10	0.1	21.5	31.6	39.2	55.8	77	119	149	180	208	222	230
20	0.05	24.7	36.3	45.2	64.3	88.8	138	173	208	241	257	266
30	0.033	26.6	39.2	48.7	69.4	95.8	149	187	225	261	278	288
40	0.025	27.9	41.2	51.2	73	101	157	197	237	275	293	304
50	0.02	29	42.8	53.2	75.8	105	163	204	246	286	305	316
60	0.017	29.9	44	54.7	78.1	108	168	211	254	295	315	326
80	0.013	31.2	46.1	57.3	81.7	113	176	221	265	309	330	342
100	0.01	32.3	47.6	59.2	84.5	117	182	229	276	320	342	354
250	0.004	36.4	53.7	66.9	95.6	132	206	260	314	364	389	404

Rainfall depths (mm) :: 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	12	17.6	21.8	31	42.7	66.2	83.3	101	117	125	129
2	0.5	13.2	19.4	24	34.1	47	73	91.9	111	129	138	143
5	0.2	17.2	25.3	31.4	44.7	61.7	96	121	147	170	182	189
10	0.1	20.2	29.7	36.9	52.5	72.5	113	143	173	201	215	223
20	0.05	23.2	34.1	42.4	60.4	83.6	131	165	200	233	249	258
30	0.033	25	36.8	45.7	65.2	90.2	141	178	216	251	269	279
40	0.025	26.2	38.6	48.1	68.5	94.8	148	187	227	265	284	294
50	0.02	27.2	40.1	49.9	71.1	98.5	154	195	236	276	295	306
60	0.017	28	41.3	51.4	73.3	101	159	201	244	284	304	316
80	0.013	29.3	43.2	53.7	76.7	105	166	210	255	298	319	331
100	0.01	30.3	44.6	55.5	79.3	110	172	218	265	308	330	343
250	0.004	34.1	50.4	62.8	89.7	124	195	247	301	351	376	391

Rainfall depths (mm) :: 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	13.3	19.4	24.1	34.2	46.9	71.8	89.3	107	123	131	135
2	0.5	14.6	21.4	26.6	37.7	51.9	79.3	98.9	118	136	145	149
5	0.2	19.1	28.1	34.9	49.7	68.3	105	131	157	181	192	198
10	0.1	22.5	33.1	41.1	58.5	80.5	124	155	186	214	228	235
20	0.05	25.9	38.1	47.3	67.4	92.9	143	179	215	248	264	273
30	0.033	27.9	41.1	51.1	72.8	100	155	194	232	268	285	295
40	0.025	29.3	43.2	53.7	76.5	106	163	204	245	282	301	311
50	0.02	30.4	44.8	55.8	79.5	110	169	212	254	294	313	324
60	0.017	31.3	46.2	57.4	81.9	113	175	219	263	303	323	334
80	0.013	32.8	48.3	60.1	85.7	118	189	229	275	318	339	350
100	0.01	33.8	49.9	62.1	88.6	122	190	237	285	329	351	363
250	0.004	38.2	56.4	70.2	100	139	215	270	324	375	399	414

TP108 Hydrology Calcs	Reference	C0255	Revision	1
	Originator	EC	Date	30/04/2023
	Checker	EC	Date	30/04/2023

[illegible]

2yr ARI		106	mm	From HIRDS
10yr ARI		164	mm	From HIRDS
100 yr ARI		250	mm	From HIRDS
PWV storm depth		28.7	mm	90th Percentile storm

[illegible]

	2yr ARI		122.0	mm	From TP108 OR HIRDS	
	10yr ARI		192.0	mm	From TP108 OR HIRDS	
	100 yr ARI		295.0	mm	From TP108 OR HIRDS	
	PWV storm depth		28.7	mm	90th Percentile storm	

	Total site area	A_{total}	38491	m ²	See Drawing No. 500/600	
	Pre-development					
	Pervious area	A_{perv}	38491	m ²	Bush	
	Unconnected Impervious area	$A_{\text{imperv(u)}}$	0	m ²	NA	
	Connected Impervious area	$A_{\text{imperv(c)}}$	0	m ²		
	Post-development					
	Pervious area	A_{perv}	37830	m ²	Remaining Bush	
	Unconnected Impervious area	$A_{\text{imperv(u)}}$	256	m ²	RoW downslope of pond	
	Connected Impervious area	$A_{\text{imperv(c)}}$	405	m ²	RoW upslope of pond	

TP108 Hydrology Calcs	Reference	C0255	Revision	1
	Originator	EC	Date	30/04/2023
	Checker	EC	Date	30/04/2023

[illegible][illegible]

Soil name and Classification	Ground cover treatment and condition	SCS Curve No.	Area (m ²)	CN x Area
Group C, Greywacke	BUSH	65	38491	2501915
Unconnected impervious surfaces		0	0	0
		TOTALS	38491	2501915

Curve Number (Weighted)	CN	65.0		
Initial Abstraction (weighted)	Ia	5.0	mm	
Channelisation Factor	C	0.8		From TP 108 Table 4.2
Runoff Factor		0.48		

LOTS 37 AND 38, RUSSELL WHAKAPARA ROAD



TP108 Hydrology Calcs	Reference Originator Checker	C0255 EC EC	Revision Date Date	1 30/04/2023 30/04/2023
------------------------------	------------------------------------	-------------------	--------------------------	-------------------------------

Time of concentration	t_c	#NUM!	Hrs	
		0.17	Hrs	Adopt minimum of 0.17 hrs
SCS Lagtime for HEC HMS	t_p	6.8	Min	

3.2 Pre- Development - Impervious

Soil name and Classification	Ground cover treatment and condition	SCS Curve No.	Area (m ²)	CN x Area
Group C, Greywacke	RoW upslope of Pond, gravelled	89	0	0
	RoW downslope of Pond, gravelled	89	0	0
		89	0	0
		TOTALS	0	0

Curve Number (Weighted)	CN	#DIV/0!		
Initial Abstraction (weighted)	I_a	#DIV/0!	mm	
Channelisation Factor	C	0.8		From TP 108 Table 4.2
Runoff Factor		#DIV/0!		
Time of concentration	t_c	#DIV/0!	Hrs	
		0.17	Hrs	Adopt minimum of 0.17 hrs
SCS Lagtime for HEC HMS	t_p	6.8	Min	

3.3 Post -Development - Pervious and Unconnected Impervious

Soil name and Classification	Ground cover treatment and condition	SCS Curve No.	Area (m ²)	CN x Area
Group C, Greywacke	Bush	65	37830	2458950
				0
	Unconnected impervious surfaces	89	256	22784
	RoW Downslope of Pond	TOTALS	38086	2481734

Curve Number (Weighted)	CN	65.2		
Initial Abstraction (weighted)	I_a	5.0	mm	
Channelisation Factor	C	0.8		From TP 108 Table 4.2
Runoff Factor		0.48		
Catchment Length		135.00	m	

LOTS 37 AND 38, RUSSELL WHAKAPARA ROAD



TP108 Hydrology Calcs	Reference	C0255	Revision	1
	Originator	EC	Date	30/04/2023
	Checker	EC	Date	30/04/2023

Catchment Slope		-0.099	m/m	
Time of concentration	t_c	#NUM!	Hrs	
		0.17	Hrs	Adopt minimum of 0.17 hrs
SCS Lagtime for HEC HMS	t_p	6.8	Min	

3.4 Post-Development - Impervious Areas

Soil name and Classification	Ground cover treatment and condition	SCS Curve No.	Area (m ²)	CN x Area
Group C, Greywac RoW Upslope of Pond		89	405	36045
				0
				0
		TOTALS	405	36045

Curve Number (Weighted)	CN	89.0		
Initial Abstraction (weighted)	I_a	0.0	mm	
Channelisation Factor	C	0.8		From TP 108 Table 4.2
Runoff Factor		0.80		
Catchment Length		135.00	m	
Catchment Slope		-0.099	m/m	
Time of concentration	t_c	#NUM!	Hrs	
		0.17	Hrs	Adopt minimum of 0.17 hrs
SCS Lagtime for HEC HMS	t_p	6.8	Min	

4. Retention Volume Required

Rainfall depth to be retained	d	192.0	mm	10 % AEP w CC
Area to be mitigated	A_m	405	m ²	proposed impervious area
Retention Volume	$V_{\text{retention}}$	77760.0	L	
Retention Volume	$V_{\text{retention}}$	77.8	m ³	

LOTS 37 AND 38, RUSSELL WHAKAPARA ROAD



TP108 Hydrology Calcs

Reference
Originator
Checker

C0255
EC
EC

Revision
Date
Date

1
30/04/2023
30/04/2023

Elevation storage table

Elevation (m)	x section Area (1000 m ²)	Volume (m ³)	Volume (1000 m ³)
0	0.05000	0.00	0.0000
0.1	0.06264	5.46	0.0055
0.2	0.07656	11.90	0.0119
0.3	0.09176	19.37	0.0194
0.4	0.10824	27.97	0.0280
0.5	0.12600	37.75	0.0378
0.6	0.14504	48.79	0.0488
0.7	0.16536	61.17	0.0612
0.8	0.18696	74.94	0.0749
0.9	0.20984	90.20	0.0902
1	0.23400	107.00	0.1070
1.1	0.25944	125.42	0.1254
1.2	0.28616	145.54	0.1455
1.3	0.31416	167.41	0.1674
1.4	0.34344	191.13	0.1911
1.5	0.37400	216.75	0.2168
1.6	0.40584	244.35	0.2444
1.7	0.43896	274.01	0.2740
1.8	0.47336	305.78	0.3058
1.9	0.50904	339.76	0.3398
2	0.54600	376.00	0.3760
2.1	0.58424	414.58	0.4146
2.5	0.75000	593.75	0.5938
3	0.98600	879.00	0.8790
3.4	1.19784	1161.85	1.16
3.6	1.31144	1323.07	1.32
3.8	1.43016	1498.26	1.50
4	1.55400	1688.00	1.69

Pond dimensions (above PWV)

Bottom Width	5	m
Bottom Length	10	m
L:W ratio (pond)	2.00	L/W
FB Bottom W	1	m
FB Bottom L	1	m
L:W ratio (FB)	1.00	L/W
Side Slope (z:1)	1	PWV
Side Slope (z:1)	3	pond
Side Slope (z:1)	3	Forebay

Above the PWV, slope becomes 1:3.75/ 15 deg
Forebay slope is 1:3

***PWV (excluding forebay), see below El vs Vol

Elevation (m)	x section Area (m ²)	Volume (m ³)
0.0500	56	0.00
0.10	63	5.46

*round

****10 yr ARI Vol

Elevation (m)	x section Area (m ²)	Volume (m ³)
0.85	153	82.38

****100 yr ARI Vol spill level

Elevation (m)	x section Area (m ²)	Volume (m ³)
1.52	270	222.11

PWV needed	11.6	m ³
Forebay vol needed	1.74	m ³
PWV-FBV	9.86	m ³
10yr ARI vol	82.38	m ³
100yr ARI vol	222.11	m ³
10yr Vol+PWV	93.982	m ³
10yr +100yr	304.49	m ³

LOTS 37 AND 38, RUSSELL WHAKAPARA ROAD



TP108 Hydrology Calcs

Reference
Originator
Checker

C0255
EC
EC

Revision
Date
Date

1
30/04/2023
30/04/2023

Forebay pond

Elevation (m)	x section Area (m2)	Volume (m3)
0	1	0.00
0.1	3	0.17
0.2	7	0.54
0.3	12	1.16
0.4	18	2.13
0.5	25	3.50
0.6	34	5.35
0.8	55	10.78
1	81	19.00

**Forebay (15% of PWV)

Elevation (m)	x section Area (m2)	Volume (m3)
0.3500	86	1.60
*round up		
0.40	92	2.13

PWV table (top is measured from bottom of 10yr volume)

Elevation (m)	x section Area (m2)	Volume (m3)
0	0	0.00
0.1	63	5.46
0.2	77	11.90

Bottom Width	5	m
Bottom Length	10	m
L:W ratio (pond)	2.00	L/W
FB Bottom W	2	m
FB Bottom L	4	m
L:W ratio (FB)	2.00	L/W
Side Slope (z:1)	3	PWV
Side Slope (z:1)	3	pond
Side Slope (z:1)	3	Forebay

***PWV (remainder excluding forebay)

Elevation (m)	x section Area (m2)	Volume (m3)
0.2000	56	2.61
*round		
0.10	63	5.46

*

Landscape and Visual Effects Assessment

Proposed Subdivision of Lots 37 & 38 DP 426508, Stage 2B

Orongo Bay Road, Russell



Prepared For: Waitoto Developments

Prepared By: Christine Hawthorn BLA (Hons)

Date: 14th May 2025

TABLE OF CONTENTS

1.0	INTRODUCTION	3
2.0	METHODOLOGY	3
3.0	THE SITE AND ITS LANDSCAPE CONTEXT	
3.1	Location	4
3.2	Application Site	4
3.3	Neighbourhood Character and Context	6
4.0	THE PROPOSAL	
4.1	Proposed Subdivision	8
4.2	Ecological Values & Recommendations	8
4.3	Building Design Guidelines	10
4.4	Landscape Design Guidelines	10
5.0	STATUTORY CONTEXT	
5.1	Operative Far North District Plan	10
5.2	Proposed Far North District Plan	14
5.3	Northland Regional Policy Statement	15
6.0	ASSESSMENT OF LANDSCAPE AND VISUAL EFFECTS	
6.1	Introduction	17
6.2	Landscape Effects	18
6.3	Visual and Visual Amenity Effects Assessment	18
7.0	SUBDIVISION LANDSCAPE PLAN	
7.1	EclA Mitigation Plan	21
8.0	BUILDING AND LANDSCAPE DESIGN GUIDELINES	
8.1	Building Design Guidelines	24
8.2	Landscape Design Guidelines	24
9.0	CONCLUSION	25

APPENDICES:

Appendix 1 – Viewpoint Location Map
Appendix 2 – Survey Scheme Plan
Appendix 3 – On Site Photographs
Appendix 4 – Off Site Viewpoints
Appendix 5 – EclA Mitigation Plan



1. INTRODUCTION

Hawthorn Landscape Architects Ltd have been engaged by Waitoto Developments Ltd (applicant) to undertake a landscape and visual impact assessment of the proposed subdivision of Lots 37 and 38 DP 426508 Orongo Bay, Russell, being Stage 2B.

The applicant proposes to subdivide these two lots with a combined area of 3.8491ha site into 5 lots and one access lot all of which are located within the Coastal Living zone. This will result in 3 new titles and subsequent building sites.

An ecological assessment (EcIA) prepared by Bay Ecological Consultancy Ltd. has considered the site habitat and significance in regard to the Northland Regional Policy Statement, and National Policy Statement for Indigenous Biodiversity. A summary of the findings and recommendations of the EcIA is provided in Section 4 of this report. Covenants and consent notices will be applied to the lots to manage development and provide effect to the mitigation measures.

This report will determine the potential impact of the proposed subdivision development upon the landscape, visual amenity and natural character values of the site and surrounding environment.

This report provides a full assessment of the landscape, natural character and visual effects associated with the proposal, in the context of the existing environment and the relevant statutory planning framework.

In undertaking this assessment, the author has visited the property to understand the nature of the site, its physical and visual relationship to the coastal environment, adjacent properties as well as the context, character, visual catchment and viewing audiences from the wider area.

The report provides an analysis of the proposal against the relevant landscape provisions of the Far North District Plan, Proposed District Plan, Northland Regional Policy Statement and NZ Coastal Policy Statement.

A combined landscape and ecological mitigation plan has been prepared in conjunction with Bay Ecological Consultancy Ltd.

2. METHODOLOGY

The following methodology was used in the preparation of this landscape and visual effects assessment.

- Desktop review of the relevant statutory documents (Regional and District Plan text and mapping);
- Site visits, and field survey of the local area;
- Identification of the visual catchment and viewing audiences;
- Description of the site and existing landscape character, visual/aesthetic quality and amenity values of the surrounding environment;
- Identification and description of the nature of the proposed development;
- Assessment of anticipated character, landscape and visual effects;

- Ranking of landscape and visual effects;
- Review of the relevant planning documentation and reports;
- Identification of the proposed landscape and visual mitigation approach, options considered and recommendations.

This assessment has been prepared by a qualified Landscape Architect and in accordance with the NZILA (New Zealand Institute of Landscape Architects) Code of Conduct and with reference to the Quality Planning Guidelines Note¹.

To determine the overall nature and significance of the landscape and visual effects, an understanding of the sensitivity of the landscape and viewing audience has been combined with an assessment of the magnitude of the change resulting from the proposal in order to determine the overall significance of effects.

3.0 THE SITE AND ITS LANDSCAPE CONTEXT

3.1 Location

The application site is located along the northern side of Russell – Whakapara Road, approximately 350m from the intersection with Aucks Road.

Vehicle access to the sites is along an existing jointly owned Access and Conservation Lot (Lot 34 DP 426505), which encompasses an existing formed driveway. The shares in the Access and Conservation Lot held by the application sites will be distributed to the five proposed lots by way of proposed amalgamation conditions.

The site is located approximately 4.6km to the southeast of the Russell township within the Orongo Bay hinterland. It is located on the Russell peninsula and is just to the south of the existing residential development found in Tikitiki Lane.

Refer to the Location Map contained within Appendix 1 and the On Site Photographs contained in Appendix 3.

3.2 Application Site

The application site is made up of two lots, being Lots 37 and Lot 38 DP 426505. Lot 37 is located to the north of Lot 38. The lots are separated by an access lot (Lot 34 DP 426505). Refer to the Scheme Plan in Appendix 2, and to **Figures 1 – 3** for the shape and orientation of these lots.

Lot 37 is steeply sloping rising from approximately 18m to 30m and up to 40m along its very northern corner boundary. The lot is made up of open grassed areas surrounded by areas of native and exotic vegetation of various stages of maturity. Refer to the Site Photographs contained in Appendix 3.

Lot 37 is currently accessed by a sealed driveway, which will be utilised for the additional residential lot created by subdividing Lot 37 into two lots.

¹ <http://qualityplanning.org.nz/index.php/planning-tools/land/landscape>

Lot 38 is also accessed via the same sealed driveway, to a point where it turns into gravel, and then a dirt track. Access to the proposed three lots will be via an upgraded driveway over the access lot.

Lot 38 rises from approximately 30m to 80m at its southeastern boundary. The lot is completely covered by indigenous vegetation with some weed species present. Refer to the EclA prepared by bay Ecological Services for a full description of the vegetation patterns of the site.

Lot 34 is an irregular shaped lot and is partly located in the valley floor, which accommodates a small creek and wetland, as detailed in the EclA. The existing access track is located adjacent to this and provides access to Lots 38 and Lot 36 DP 426505 beyond the application site (also owned by the applicant).

There are no built structures present on Lots 37 or 38. There is an existing barn on the access lot (Lot 34).



Figure 1: Lot 37 DP 426505 (will accommodate proposed Lots 23 and 24)

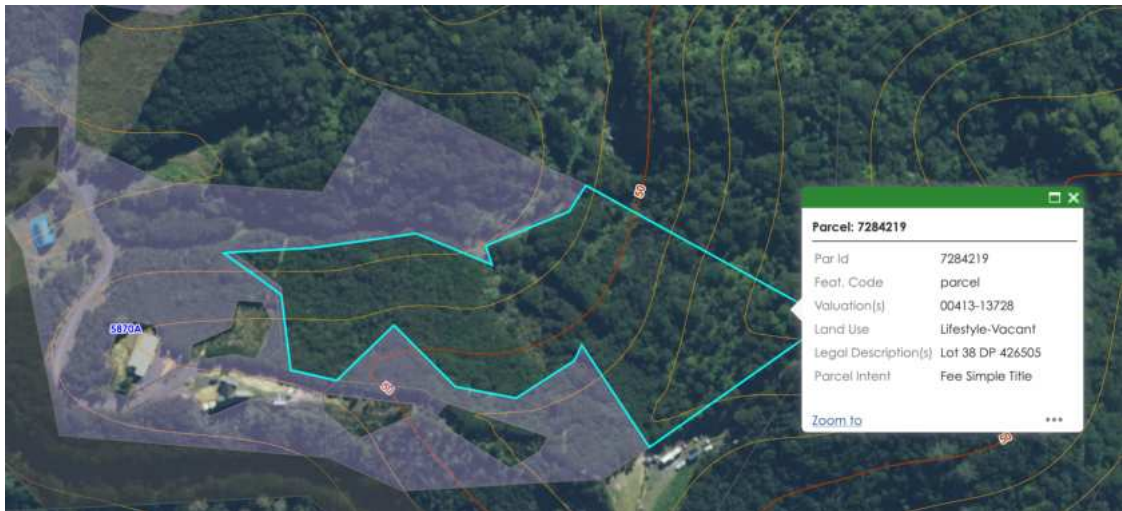


Figure 2: Lot 38 DP 426505 (will accommodate proposed Lots 25-27).



Figure 3: Lot 34 DP 426505 – Access Lot

3.3 Neighbourhood Character and Context

The landscape the site is part of is typical of this area, where the land adjacent to the foreshore rises gradually at first and then steeply to the steep bush clad ranges. The lower contours adjacent to the CMA are more modified and developed for coastal living purposes. Characteristically, these areas contain clusters of built development and the main roads that link the town centres, in this case Russell to the Opuia car ferry.

The application site is located within a strip of Coastal Living zoned land that is situated along the eastern inland side of the backdrop to Orongo Bay.

The Coastal Living zoned land has over the years been developed, which has seen exotic gum trees removed, and areas cleared for houses, set within the dominant Manuka vegetation pattern. The more elevated bush clad hill slopes surrounding these areas of housing are zoned General Coastal and provide the backdrop to the built settlement pattern on the lower slopes. Refer to **Figure 4** for the settlement pattern.

To the southwest of the application site is the Orongo Bay Special Purpose Zone. This contains a mix of uses and facilities including landscape yards, storage facilities and a Gas station. The Russell recreational sports grounds are located adjacent to this.

A little to the north of the application site there is a Coastal Residential area located around Lichen Grove, with a greater intensity of lot sizes and built development. The Orongo Bay Holiday Park is located just to the north of this.

Built form within these areas tends to be well integrated into the landscape due to the presence of the existing bush canopy that extends around the perimeter of the building sites. This vegetation provides a foreground and backdrop that partially screens built forms and integrates them into the landscape. The unifying element of this landscape is the blanket cover of the Manuka/Kanuka dominated bush that extends across the hillslopes and elevated ranges.

The residential built form is also an integral part of the landscape and contributes to the distinctive character of this area. The application site is located near the southern extremity of this area.



Figure 4: Neighbourhood Context

4.0 THE PROPOSAL

4.1 Proposed Subdivision

The proposal is to subdivide Lots 37 and 38 DP 426508 Orongo Bay (with a combined area of 3.8491ha) into 5 lots and one access lot all of which are located within the Coastal Living zone.

This will result in 3 new titles and subsequent three new building sites. This will give a total of five building sites on the application site (Lots 37 and 38 DP 426508), as shown on the Scheme Plan in **Figure 5**.



Figure 5: Survey Scheme Plan

4.2 Ecological Values & Recommendations

The ecological assessment (EcIA) prepared by Bay Ecological Consultancy Ltd has provided a thorough assessment of the sites ecological values. The following are snippets, and a summary of the proposed mitigation measures.

“Terrestrial vegetation is of a largely homogenous character comprised of kānuka dominant canopy with common and largely unpalatable pioneer species at all tiers. There is a frequent exotic component with areas of canopy and sub canopy dominance particularly hakea; wattle; gorse, tobacco weed. Areas within Lots designated for potential building platforms/ clearance have been previously cleared, most recently prior to 2004 and are of poor quality or open/grassed.



The contribution of these designated development areas is considered to have a lesser representation of the wider sites values and characteristics as a part of a wider ecological unit. The overall site including all Lots has an MODERATE level of significance, in terms of potential habitat for fish; kiwi; wetland birds; integral landscape connectivity with the broadly mapped Tikitikioure PNA (#Q05/004)3 intersects with all Lots; and physical and functional buffering to the aquatic environments as riparian vegetation e.g. erosion and hydrological control.

The designated areas in which clearance may occur are considered of a MODERATE value with a MODERATE magnitude of impact and potential level of effects. Additional potential, but avoidable effects of development are hydrological change; ongoing encroachment, weed and pest incursion.

In response, implementation of standard effects management is considered sufficient mitigation for progression of the proposal with a less than minor level of impact. These are considered protective of a wider zone of influence beyond the clearance areas, including site hydrological features, further terrestrial vegetation and of the identified Tikitikioure PNA. Formalised protection mechanisms by way of covenants and consent notices will ensure current and any future owners avoid further impact during development or residential occupation. They are aligned with intent of the lapsed subdivision covenant conditions (2010)".

Primary Mitigation recommended includes :-

- A formal Weed and Pest Management Plan Pest is developed to ensure resilience and functional habitat of remaining cover –
 - mitigate clearance area through increasing functional habitat by predator control
 - Removal of intergraded exotic infestations enabling increased and more diverse natural regeneration through browser control
 - effectively increasing values of wetland and protect extent from invasion of non wetland shrubs and herbaceous species e.g. wild ginger8 Hedychium gardnerianum; mistflower Ageratina riparia
- Beyond a 10m wide clear fire buffer zone the remaining vegetation shall be underplanted a further 10m from the final clearance edge to avoid edge effects and avoid ingress (additional spread of weediness; trampling or clearance) within a naturally higher interaction zone. Species are to be low flammability species and flammable weeds hakea, pampas and gorse removed.
- Additional planting
 - Revegetation of the open riparian area of Lot 34 adjacent Russell-Whakapara Rd and underplanting adjacent upper wetland riparian extent currently weedy and open
 - Revegetation of clear area upper proposed Lot 23
 - Enhancement planting within the eastern covenant vegetation Lot 23 which is open and weed infested
 - 2m riparian revegetation area to eastern boundary of A3 creek proposed Lot 24
 - Dense planting of final shared access edges with low stature sedges and grasses, best adapted to trap sediment, process nutrient and slow/ retain stormwater



- Common Lot 34 DP 426505 is subject to terrestrial and wetland weed control and pest management detailed within the WPMP with specific regard to the NES-F (2020), particularly REG 38 Restoration; wetland maintenance and biosecurity of natural inland wetland & subsequent conditions outlined in REG 55 General conditions on natural inland wetland activities.
- Delineation and topographical survey of natural inland wetland onsite is recommended to formalize extent, as per definition has changed since initial description in 20079. Removal of the wetland crossing is undertaken in respect to a Fish Recovery Protocol to avoid physical harm to recorded fish species and in accordance with NES-F (2020) as other infrastructure 10 and accordingly REG 46 Maintenance and operation of specified infrastructure and other infrastructure, in addition to provisions of the PRPN (2023). With these provisions for best practice fish passage, sediment and stormwater control, any hydrological modification will be positive.
- No dogs/ cats
- Best practice clearance methods –
 - Manual clearance should be undertaken from the outer edge to give opportunity for any wildlife to move back into remaining cover
 - Avoidance of peak breeding season and kiwi dog check prior to clearance
- No floodlighting of covenants or Lot 34; outdoor lighting to be hooded and no blue light spectrum

Management will confer gross ecological benefit and amenity value, to restore and enhance biodiversity values, maintaining the continuity of natural processes and systems of the local ecosystems.

4.3 Building Design Guidelines

A set of building design guidelines are proposed for each of the building sites to assist with enabling future built development to be set into the landscape with the least amount of visual intrusion.

The building design guidelines will control aspects such as building height, colours, reflectivity, design style and form and scale. Refer to Section 8.1 of this report.

4.4 Landscape Design Guidelines

Landscape design guidelines are proposed to direct future owners on how to landscape around the house site to assist with minimising potential adverse visual and landscape effects. Refer to Section 8.2 of this report.

5. STATUTORY CONTEXT

5.1 Operative Far North District Plan (OFNDP)

The property is located within the Coastal Living Zone and is not subject to any Resource Features.



The objectives and policies of the Coastal Environment, Coastal Living Zone and Subdivision Sections of the District Plan are relevant to this proposal.

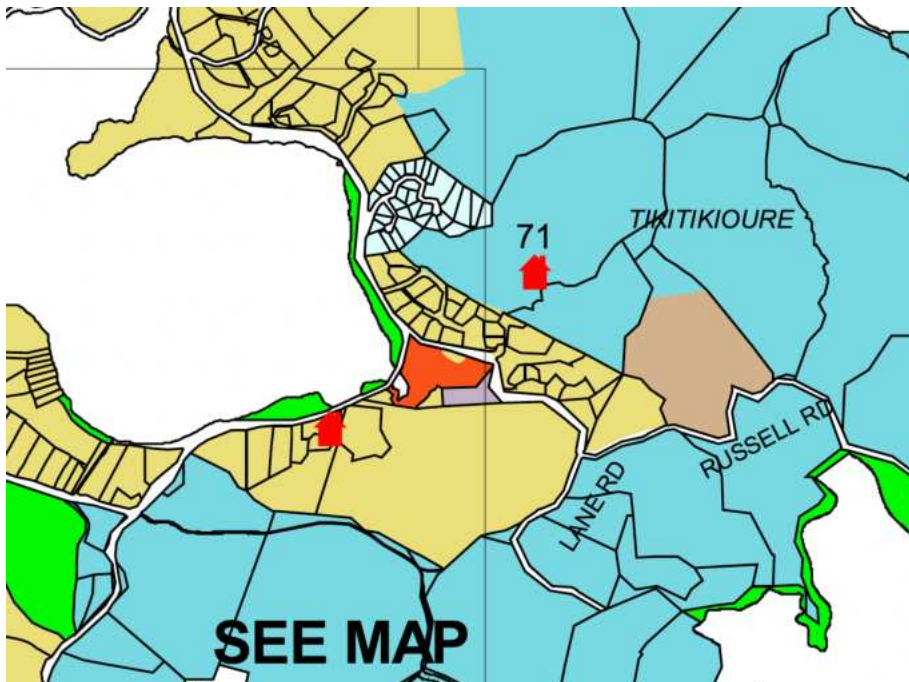


Figure 6: FNDC Zone map showing the extent of the Coastal Living zone

Visual Amenity in the General Coastal and Coastal Living Zones

When considering an application Council will have regard to the visual amenity rules found within the Assessment Criteria set out in Chapter 11 Section 11.5 Visual Amenity in the General Coastal and Coastal Living Zones. These are:

- (a) The size, bulk, height and sitting of the building or addition relative to skyline, ridges, areas of indigenous vegetation and habitat of indigenous fauna, or outstanding landscapes and natural features.*

Comment:

The application site is not located on a ridgeline, so any future development on the proposed lots will not be viewed on the skyline.

There are no outstanding landscapes or natural features identified on the property.

The building design guidelines will ensure that future building development on each lot is sympathetic to the site. Building height and building colour restrictions will ensure that buildings are not obtrusive but will be recessive and will sit into the landscape rather than protruding above the landform.

The Ecological enhancement, restoration and management measures will minimise any potential effects on indigenous vegetation and habitat of indigenous fauna.

(b) The extent to which landscaping of the site, and in particular the planting of indigenous trees, can mitigate adverse visual effects.

Comment:

The EclA Mitigation Plan contained in Appendix 5 illustrates and details the areas of proposed landscape plantings and bush covenant areas. The existing bush and these protection and management measures will provide a vegetated framework for built form to be set within. This will assist with visually absorbing the proposed development into the landscape and minimising potential adverse visual and landscape effects.

(c) The location and design of vehicle access, manoeuvring and parking areas.

Comment:

The main access road within the subdivision will follow the existing alignment of existing roads. Small driveways to each lot will extend off this. The quantity of earthworks required to form the access to the individual lots will be minimal. This will minimise any potential adverse landscape and visual effects of the formation of these roadways.

Parking areas will be located close the main dwellings or sheds and will be screened and softened by the existing surrounding vegetation.

(d) The means by which permanent screening of the building from public viewing points on a public road, public reserve, or the foreshore may be achieved.

Comment:

The site is located within the Coastal Living Zone, an area zoned to accommodate living activities and houses, as such it would be unrealistic to expect buildings to be permanently screened from view.

Each building site is surrounded by existing native vegetation. Much of this will be retained and protected by bush protection covenants. In addition, four of the lots are in the valley and not readily visible from the nearby public Road. All lots are not that visible from the water due to their southward orientation and presence of intervening topography.

The proposed building design guidelines, building height controls and use of recessive colours will also assist with blending built form into the landscape.

(e) Where a building is in the coastal environment and it is proposed to be located on a ridgeline, whether other more suitable sites should be used and if not, whether landscaping, planting or other forms of mitigation can be used to ensure no more than minor adverse effects on the coastal environment.

Comment:

The proposed development is not located within the coastal environment or on a ridgeline.

Chapter 13 Subdivision

Following are the relevant landscape policies found in Chapter 13 Subdivision.

Policy 13.4.1

That the sizes, dimensions and distribution of allotments created through the subdivision process be determined with regard to the potential effects including cumulative effects, of the use of those allotments on:

- (a) natural character, particularly of the coastal environment;*
- (c) landscape values;*
- (d) amenity values; and*
- (g) existing land uses.*

Policy 13.4.4

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

Comment:

The proposed development will not adversely affect the natural character values of the nearby coastal environment. This is principally due to the development being removed from the CMA and not being readily visible from the water, hence the site is not included in the Coastal Environment.

The property is located within a Coastal Living area that directly adjoins other Coastal Living residential lots within a modified landscape.

The ecological protection, restoration and management principles, in addition to the proposed building design guidelines will ensure that the development has a minimal impact upon landscape and amenity values.

12.4.6.1.2 Fire Risk To Residential Units

(a) Residential units shall be located at least 20m away from the drip line of any trees in a naturally occurring or deliberately planted area of scrub or shrubland, woodlot or forest;

(b) Any trees in a deliberately planted woodlot or forest shall be planted at least 20m away from any urban environment zone, Russell Township or Coastal Residential Zone boundary, excluding the replanting of plantation forests existing at July 2003.

The maximum area of bush clearance on each lot is proposed to be 1500m². There will be a 10m cleared area set back from all bush areas.

The remaining 10m width of vegetation beyond this that isn't cleared shall have the edges planted with fire retardant species, and any high flammability weed species removed.

5.2 Proposed Far North District Plan

The application site is located within the Rural Lifestyle zone. It does not have a Coastal Environment overlay, or any Landscape Overlays, as shown in **Figure 7**.



Figure 7: Proposed Plan zone map

Objectives	
RLZ-O1	The Rural Lifestyle zone is used predominantly for low density residential activities and small scale farming activities that are compatible with the rural character and amenity of the zone.
RLZ-O2	The predominant character and amenity of the Rural Lifestyle zone is characterised by: <ul style="list-style-type: none"> a. low density residential activities; b. small scale farming activities with limited buildings and structures; c. smaller lot sizes than anticipated in the Rural Production Zone; d. a general absence of urban infrastructure; e. rural roads with low traffic volumes; f. areas of vegetation, natural features and open space.
RLZ-O3	The role, function and predominant character and amenity of the Rural Lifestyle zone is not compromised by incompatible activities.
RLZ-O4	Land use and subdivision in the Rural Lifestyle zone does not compromise the effective and efficient operation of primary production activities in the adjacent Rural Production Zones.



Policies	
RLZ-P1	Enable activities that will not compromise the role, function and predominant character and amenity of the Rural Lifestyle zone, while ensuring their design, scale and intensity is appropriate to manage adverse effects in the zone, including: a. low density residential activities; b. small scale farming activities; c. home business activities; d. visitor accommodation; and e. small scale education facilities.
RLZ-P2	Avoid activities that are incompatible with the role, function and predominant character and amenity of the Rural Lifestyle zone because they are: a. contrary to the density anticipated for the Rural Lifestyle zone; b. predominately of an urban form or character; c. primary production activities, such as intensive indoor primary production, that generate adverse amenity effects that are incompatible with rural lifestyle living; or d. commercial, rural industry or industrial activities that are more appropriately located in a Settlement zone or an urban zone.
RLZ-P3	Avoid where possible, or otherwise mitigate, reverse sensitivity effects from sensitive and other non-productive activities on primary production activities in the adjacent Rural Production zone.
RLZ-P4	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. consistency with the scale and character of the rural lifestyle environment; b. location, scale and design of buildings or structures; c. 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; d. the capacity of the site to cater for on-site infrastructure associated with the proposed activity; e. the adequacy of roading infrastructure to service the proposed activity; f. managing natural hazards; g. any adverse effects on historic heritage and cultural values, natural features and landscapes or indigenous biodiversity; and h. any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.

Comment:

The Rural Lifestyle zone is to provide for rural lifestyle living. The proposed development falls within this. The application site is close to Russell, and close to other existing residential areas along this part of the coastal fringe of Orongo Bay.

The landscape that the site is located within is already fragmented with coastal residential land use and nearby commercial use surrounding it. The proposed subdivision will be in keeping with the character and amenity values of the surrounding landscape and uses.

The ecological restoration plantings and bush protection will assist with enhancing natural character and ecological values of the site.

The proposed development is consistent with the surrounding lot density and settlement pattern. It is consistent with the scale and character of other development within this zone.

5.3 Regional Policy Statement for Northland (RPS)

In 2012, the Northland Regional Mapping Project ("Mapping Project") was undertaken by the Northland Mapping Group (on behalf of the NRC). The purpose of the Mapping Project was to determine the delineation of the Coastal Environment, and the natural heritage areas within the region comprising Outstanding Natural Landscapes ("ONL").

Outstanding Natural Features ("ONF") and areas of High or Outstanding Natural Character. These are now included within the Regional Policy Statement (operative 2016) for Northland, thereby meeting the requirements under the New Zealand Coastal Policy Statement 2010 in ("NZCPS") in the Resource Management Act 1991.

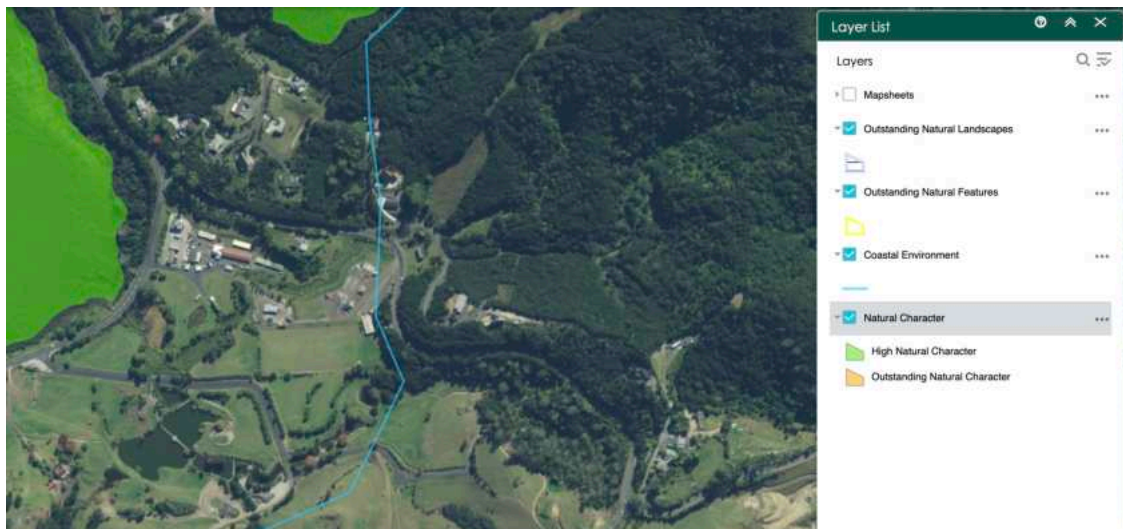


Figure 8: RPS Map

Within the RPS the application site is located outside of the Coastal Environment as shown in **Figure 8**.

The property has no recorded Outstanding Natural Landscape, Outstanding Natural Features, or areas of High or Outstanding Natural Character.

Policy 4.6.1 Managing effects on the characteristics and qualities natural character, natural features and landscape.

(1) In the coastal environment:

- a) Avoid adverse effects of subdivision use and development on the characteristics and qualities which make up the outstanding values of areas of outstanding natural character, outstanding natural features and outstanding natural landscapes.*
- b) Where (a) does not apply, avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of subdivision, use and development on natural character, natural features and natural landscapes.*

Methods which may achieve this include:

- (i) Ensuring the location, intensity, scale and form of subdivision and built development is appropriate having regard to natural elements, landforms and processes, including vegetation patterns, ridgelines,*



headlands, peninsulas, dune systems, reefs and freshwater bodies and their margins; and

(ii) In areas of high natural character, minimising to the extent practicable indigenous vegetation clearance and modification (including earthworks/disturbance, structures, discharges and extraction of water) to natural wetlands, the beds of lakes, rivers and the coastal marine area and their margins; and

(iii) Encouraging any new subdivision and built development to consolidate within and around existing settlements or where natural character and landscape has already been compromised.

Comment:

The site located outside of the coastal environment and has not been identified as having any high or outstanding natural character values, outstanding natural features, or outstanding natural landscapes, as such the development will not affect these values.

The proposed development is located within the Coastal Living zone, an area that accommodates the scale and intensity of development proposed. The site is located directly adjoining other lots of a similar size and layout, within an area that has already been modified.

The proposed building sites on the lots are located so that they do not adversely impact upon the site's natural elements, landforms and processes. The proposed ecological restoration and management of the site will protect and enhance the degraded wetland valley and bush areas.

The building design controls will ensure that any potential adverse effects upon surrounding natural character values are minimised.

Overall, the development is in accord with the relevant landscape objectives and policies of the NRPS.

6.0 ASSESMENT OF LANDSCAPE AND VISUAL EFFECTS

6.1 Introduction

The landscape and visual effects assessment process provides a framework for assessing and identifying the nature and significance of potential landscape and visual effects that may result from a proposed development.

Such effects can occur in relation to changes to physical elements and existing character of the landscape and impacts on viewing audiences and visual amenity values.

The existing landscape and it's a visual context will form the baseline for this landscape and visual effects assessments. The assessment of visual effects considers how changes to the physical landscape will impact the defined representative viewing audience.

In assessing effects on landscape there is a distinction made between landscape effects (effects on the character and amenity of a landscape, this may not be visible to the general public), and visual effects (the response of a viewing audience, principally from public viewing positions, but also surrounding privately owned properties).

These effects are assessed in terms of the degree of change brought about by the development. The degree of landscape and visual effects resulting from any development may be negative (adverse), or can be positive (beneficial), contributing to the visual character and quality of the environment.

Potential effects are also dependent upon the presence or absence of screening and/or backdrop vegetation, and the characteristics of the future activities associated with the development on the application site.

6.2 Landscape Effects

Landscape effects can either be a result of landform or land-cover modification or be more subtle such as influencing the overall pattern of landscape.

Landscape effects take into consideration both changes to the physical landscape (physical effects) and the impact upon amenity values. Assessments therefore investigate the likely nature and scale of changes to individual landscape elements and characteristics, the consequential effect on the landscape character, and the perceptual responses that the proposal evokes.

The physical elements associated with the proposed subdivision development include vegetation removal, earthworks, subdivision roading, residential dwellings (to be built on the proposed lots at some point), driveways and associated activities related to residential living.

The future built development upon the site and associated use is in context with the existing character of the surrounding landscape directly adjoining the site and the settlement pattern found locally.

The receiving environment within which the development is located exhibits very similar characteristics to the development that is proposed on this site. The nature and scale of the proposed development will not change the key features and attributes of the landscape that currently provides the existing character for this locality. This includes the bush clad hillslopes surrounding the building sites.

The biophysical, sensory or associative aspects and key characteristics of the landscape will remain intact as the proposed development is of a size and scale that can be absorbed on this site and into this landscape through the implementation of the bush protection covenants and building and landscape design controls.

6.3 Visual & Visual Amenity Effects Assessment

Visual effects are generated through visual changes to the landscape as a result of a development, with the significance of the effects measured by the response of a particular viewing audience and is influenced by the degree of visibility, whether the proposal is the focal point or part of a wider view, whether the view is transient or

permanent and the degree of contrast with the surrounding environment. The second component is perceptions and expectations that people hold about amenity.

Visual impacts are considered to constitute an intrusion into, or change to an existing view, with the significance of the effects measured as the bearing of that impact upon identified viewing audiences.

Following is an assessment of each of the off-site viewpoints that were chosen to represent a selection of viewing areas that gain views towards the proposed development. Refer to the Location Map contained in **Appendix 1** for the location of the viewpoints, while the viewpoints are illustrated in the attached Off Site Viewpoints contained in **Appendix 4**.

From each of the viewpoint's photographs were taken using a camera with a 50mm lens to illustrate the view of the property and the context of its setting.

The individual frames were taken as portrait images and joined to create panorama's that generally have a 124 degree horizontal and 55 degree vertical field of view. The optimal viewing distance of the images printed on an A3 page is 500mm from the eye to the page.

Viewpoint 1

This viewing position is located on the Russell-Whakapara Road, looking towards the access point into the entrance to the subdivision (along the Access Lot 34). This view is obtained as a momentary view as the motorist passes by. Proposed Lot 23 is viewed centrally, and encompasses a grassed slope, with native vegetation surrounding it.

Proposed Lot 23 is located directly in front, with the building development zone located halfway up the grassed hill slope. The other proposed building sites on Lots 24-27 are not visible from this location.

Other houses are visible within the surrounding landscape and Coastal Living zone. Mt Tikitikiore is visible in the background.

This land encompasses the existing parent lot, Lot 37 DP 426505. It is most likely that this open grassed area would have been utilised for a building site, as is now proposed. The proposed subdivision of this parent lot into two titles will result in one additional building site, located to the east of the building site on Lot 23, within an area of the site that is not visible from surrounding public areas. As such the proposed subdivision of Lot 37 DP 426505 into two lots, with building sites as detailed on the Scheme Plan will not result in any adverse landscape or visual effects.

The proposed building design guidelines will ensure that any future built form that is located on the lots will blend into the landscape. This is more critical for proposed Lot 23, as it is the only lot visible from the public road.

The proposed bush protection covenants and ecological enhancement measures proposed will have positive effects upon visual amenity and ecological values.

Viewpoint 2

This viewing position is located on the Russell-Whakapara Road, looking east towards the valley where the proposed Lots 24-27 are located. This view is momentary as motorists pass by, and their view takes in other coastal living dwellings set into the bush clad landscape.

The proposed building sites on Lots 24-27 are located up the valley on the lower contours. The upper contours of each lot, and buffer of existing vegetation separates each building site. This vegetation will be protected by a covenant.

Due to the presence of intervening vegetation and other foreground privately owned lots (Lots 28 & 29 DP 426505) none of the building sites will be visible from this location.

Viewpoint 3

This viewing position is located on the Russell-Whakapara Road just to the west of the site. Passing motorists will view the site briefly as they travel east along the road. Other residential houses, a landscape yard and the half round barn on the Access Lot are also visible in the foreground.

The valley within which proposed Lots 25-27 are located is visible beyond the half round barn and is currently vegetated with a Manuka/Kanuka dominant cover. The parent lot of this site (Lot 38 DP 426508) currently has the capacity to accommodate a dwelling and accessory building, with associated vegetation clearance.

The proposed subdivision will see two additional lots and subsequent dwellings located in this valley. The proposed building sites will be located on the lower contours of the site and separated by a buffer of existing vegetation between the building sites. A 1500m² area of vegetation per building site is proposed. The rest of the vegetation will be protected by a covenant.

Due to the presence of other foreground lots and vegetation only the roof structures of the future dwellings will be visible. The presence of two additional dwelling roof structures will not result in a significant enough of a change to lower landscape and visual amenity values.

The structures will be located lower in the valley, not viewed on a ridgeline. A foreground dwelling placed on Lot 27 will partially screen any dwellings beyond on Lots 25 and 26. The building design guidelines will ensure that the roof colours are dark and recessive so that they blend into the surrounding vegetation pattern.

The potential adverse landscape and visual effects of the proposed subdivision will be less than minor.

Viewpoint 4

This viewing position is located on the road reserve adjacent to the landscape yard just off Russell Whakapara Road opposite the site. The building site on Lot 23 is visible halfway up the hill slope and has a vegetated backdrop.

The other building sites that are located on Lots 24-27 will be obscured by foreground vegetation. The roof structures are likely to protrude just above the canopy line. They will however be below the skyline and be set into a highly vegetated setting.



The building design guidelines and vegetation protection covenants will ensure that the potential adverse landscape and visual effects of the subdivision will be less than minor.

Viewpoint 5

This viewing position is located on Aucks Road to the southwest of the site. A momentary view of the site is obtained as motorists pass by. Mt Tikitikioure is the dominant landscape feature in the background.

The building site on Lot 23 is visible, while the other building sites on Lots 24-27 are obscured from view. The building site on Lot 23 is located well below the skyline and has a vegetated setting. It is adjacent to other houses within the Coastal Living zone and is likely to be the original preferred building site on the parent lot. Building design guidelines will ensure a recessively coloured dwelling is constructed and bush protection covenants will ensure existing vegetation is retained. As such the proposed development will generate less than minor potential landscape and visual effects.

7.0 Subdivision Landscape Plan

7.1 EclA Mitigation Plan

The **EclA Mitigation Plan** contained in **Appendix 5** details the proposed treatment of the existing vegetation on site, and how future development will be integrated into this. The proposed measures will assist with integrating future development upon the proposed lots to minimise any potential adverse landscape and visual effects of the development and retain and protect ecological, rural and visual amenity values.

The key elements of the EclA Mitigation Plan are -

- A development zone that is excluded from the covenant areas, within this development area the following can occur -
 - A 1500m² cleared area is allowed for to accommodate future built development (this area includes driveways and parking areas),
 - A 10m wide clear fire buffer zone shall be implemented (vegetation must be located no closer than 10m to built structures),
 - The remaining vegetation shall be underplanted to 10m from the final clearance edge with fire retardant species and any flammable weeds, Hakea, Pampas and gorse removed.
- Areas marked C, E G, H, and I are subject to bush protection covenants,
- Lot 23 - the covenant areas on this lot shall be underplanted, weeds removed, and grassed areas replanted,
- The existing creek side will be enhanced with plantings, 2m wide either side,
- Wetland and Riparian revegetation plantings are proposed along the wetland valley floor.

8.0 BUILDING AND LANDSCAPE DESIGN GUIDELINES

The following building and landscape design guidelines have been compiled so that future built development on the property can achieve a high level of integration. This

will be achieved through sensitive building design and location and through the use of vegetation to provide a foreground and background context to built development.

The guidelines recognise that it is not necessary to fully screen buildings with vegetation. However, the use of strategically placed trees and areas of planting around the building sites will assist with providing a vegetated context and reducing a buildings visibility.

8.1 Building Design Guidelines

A set of building design guidelines are proposed for future built development upon the lots to assist with enabling future development to be set into the landscape with the least amount of visual intrusion therefore minimising potential landscape and visual amenity effects.

The building design guidelines will control aspects such as building height, colours, reflectivity, design style, form and scale.

Vegetation Clearance

A maximum total area of up to 1,500m² of vegetation can be removed from each residential lot, as detailed on the EclA Mitigation Plan and within the Ecological report. This total area is to include any vegetation clearance required for driveways and parking.

Any vegetation clearance shall be timed to avoid breeding times of native fauna.

Building Form

Building style, colour and form play a significant role in determining how well a building fits into the landscape. Buildings of a similar size, scale and mass to each other and painted recessively appear to belong and are less visually obtrusive. Similarly buildings that reflect regional architectural styles appear to belong more readily than 'imported styles'.

Various building styles are possible; however the following general guidelines will assist in diminishing the visual impact of structures in the landscape:

1. Building form shall flow with and follow the topography of the site,
2. The form of larger buildings shall be broken up or indented to provide visual interest and shadows.
3. Stepping a building down a slope rather than constructing one single tall downhill façade shall be required.
4. Buildings on slopes shall be 'grounded' in the site by being dug into the hill side, with any undersides of buildings or deck areas being enclosed to avoid sightlines to the underside of the buildings.



5. The maximum building height on Lot 23 shall be 6m above the existing ground level.
6. The maximum building height on Lots 24 - 27 shall be 8m above existing ground level.

Building Materials and Finishes

The visual effects of the building sites will be lessened if recessive colours from the A and B Group of the BS 5252 colour chart are used. The light reflectance values for the exterior roof colours shall not exceed 30% and the exterior walls shall not exceed 40%.

It is recommended to use natural and textural materials, and make use of architectural features such as verandahs, pergolas and large eaves to create shadow. These will all cast shadows on windows and ranch sliders thus limiting the reflectivity of the facades of the house.

Ancillary Structures

All ancillary structures which are separate from the primary residence (such as guest quarters, garages, storage sheds) shall be designed to complement and integrate with the primary residence, especially in colour. The use of landscape plantings to connect these structures with the main residence is required.

Earthworks

Earthworks shall be graded gradually into adjacent contours. Earthworks that create sharp and large batters that are difficult to revegetate should be avoided.

Water tanks

Water tanks, if not placed underground, shall be designed to integrate with the overall design of the main structures. Tanks that are placed above ground shall be screened by the landscape amenity plantings.

Driveways and Parking Areas

Parking areas shall be integrated with the overall design of the residence and landscaping.

If site contours would otherwise require extensive excavation to form parking spaces, vehicle and or boat storage should be separated from the house. Driveways should follow the natural contours of the land and avoid sharp angles or long straight sections.

Driveways shall be designed to suit rural character and formed with dark grey concrete oxide, or use chip seal or loose road metal. The use of swales to provide drainage should be encouraged.

8.2 Landscape Design Guidelines



To assist with the appropriate landscaping of the outdoor living areas directly around the building footprints the following Landscaping Design Guidelines are recommended.

Landscaping

Any future landscaping by future owners on and around the building shall be compatible with and complementary to the existing natural landscape patterns and elements, and its rural bush setting.

Ongoing weed and pest control should be done to improve the ecological value of the site and reduce the potential for weed spread.

With respect to edge effects, planting on the edge of any newly cleared areas should make use of a diversity of appropriate native species to create a dense, species rich edge which is resistant to weeds and reduces wind and light input into surrounding shrubland.

Outdoor Living Areas

These areas shall be designed to integrate with the overall design of the new residence and other structures around the main dwelling and provide a flow between indoor and outdoor living areas. The materials used for outdoor areas should be compatible with the materials used for the construction of the main buildings on the site. The use of natural materials such as wood or stone, which enhance the natural landscape are encouraged.

Swimming Pools

Swimming pools, and any associated fencing and infrastructure, are permitted provided they are integrated in an unobtrusive way with the main residence and the rest of the landscaping, and their construction does not involve excessive grading or material alterations to the existing topography.

In addition, all swimming pools must comply with all applicable governmental and local authority regulations concerning swimming pool enclosure, particularly the Fencing of Swimming Pools Act 1987.

Grading and Drainage

All grading and changes to the contours of the house site should blend with its natural form and disturb the existing topography as little as possible. Landscaping should avoid excessive cuts and fills and should not disturb existing natural drainage paths.

In relation to all areas which are graded or altered by landscaping work the new lot owner should control silt run off and the bare areas replanted following the grading or alteration.

Outdoor Lighting



All exterior lighting should be shielded from neighbouring properties. There should be no pole lights or floodlights used. Any lighting on accessways should be ground mounted and no more than 500mm high. Lighting should be subdued.

Where external lights are necessary, downward-facing, low-pressure sodium lamps with hoods should be used to limit light spillage and limit adverse effects on nocturnal wildlife outside the site.

9. CONCLUSION

The proposed subdivision of Lots 37 and 38 DP 426505 will result in three additional residential lots and subsequent dwellings being placed within a Coastal Living Zone. Although the site is zoned Coastal Living it is however located outside of the Coastal Environment and has no sensitive landscape overlays.

The proposed lot configuration and lot size are similar to adjoining lots and the existing settlement pattern found within this area of Orongo Bay. The proposed subdivision will not result in any adverse effects upon the existing character of the surrounding landscape.

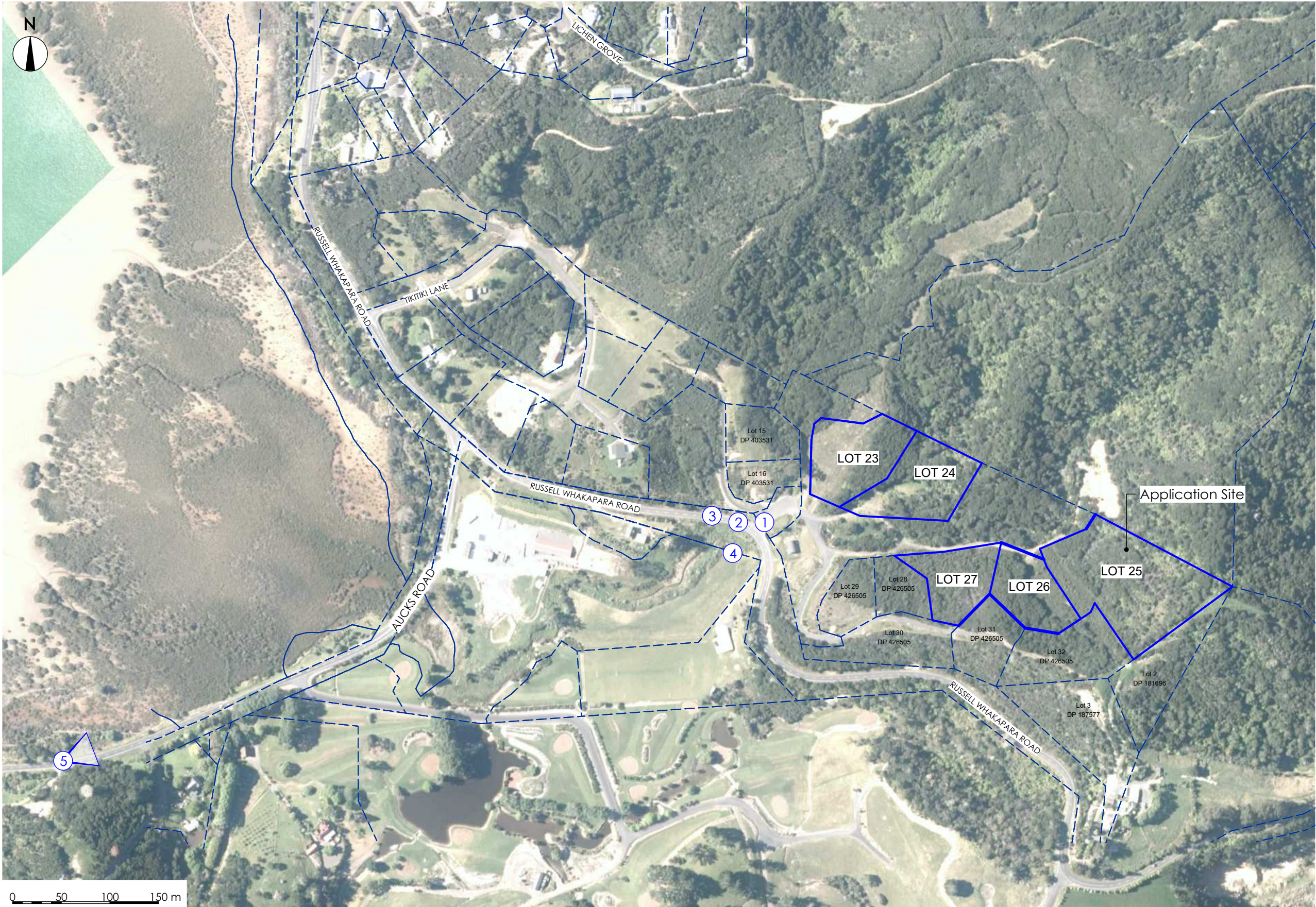
The additional three building sites can be absorbed into the landscape setting without generating undue landscape and visual effects. This is due to the site not being very visible to the public or from the CMA. The new lots and subsequent building sites will be very visually contained, and with the addition of sensitively designed and coloured dwellings will not be obtrusive or readily visible. The proposed building and landscape design guidelines will integrate built form into the landscape, so that the potential landscape and visual effects are less than minor.

Bush clearance will be minimised and limited to 1500m² on the lots, this area will include the bush removal for driveways and rights of ways. The proposed ecological enhancement and protection measures will ensure that the landscape will continue to absorb any development upon the lots, and that the degraded areas of the application site are restored and enhanced through the recommendation of the ecologist as detailed on the EclA Mitigation Plan. The bush protection covenants will protect the bush and wetland areas and will ensure that the natural character and amenity values associated with the bush cover on the site is maintained and enhanced.

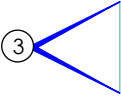
The subdivision proposal has been assessed to be in accord with the relevant landscape objectives and policies within the planning documents providing the building and landscape design guidelines are implemented.

The overall potential landscape and visual effects of this proposed development have been assessed as being less than minor.

Christine Hawthorn
BLA (Hons.)
Hawthorn Landscape Architects Ltd.



KEY



Viewpoints
1 - 5



HAWTHORN
Landscape Architects

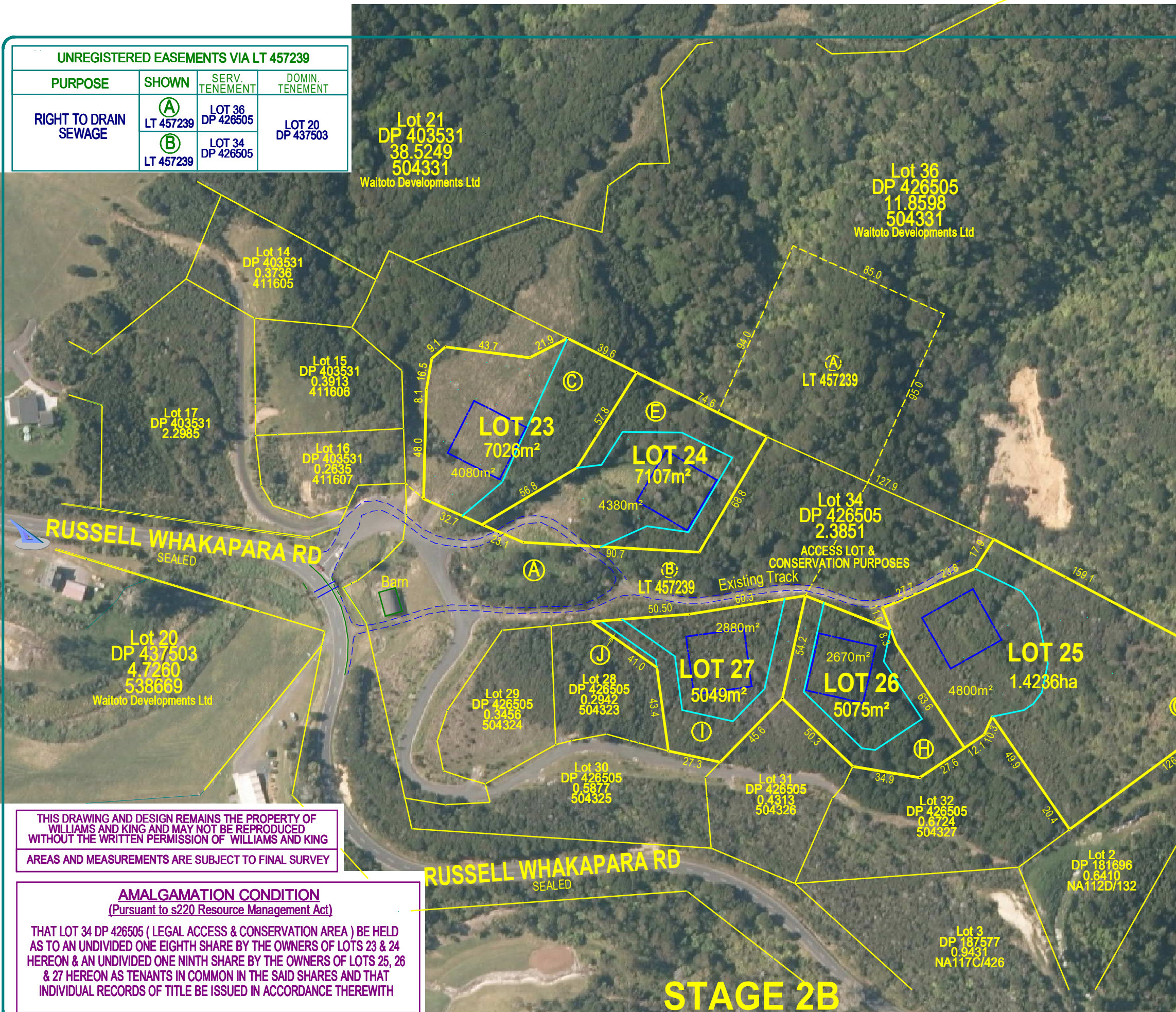
25.09.2023

Appendix 1
Photo Location Map

Waitoto Tiki - Stage 2
Proposed Subdivision of
Lot 37 & 38 DP 426505

Scale	Drawn By
1:4000 @ A3	Cad Design
Drawing #	Rev #
2.0	A

1. This drawing is the property of Hawthorn Landscape Architects Ltd and must not be used, copied or reproduced without prior written permission.
2. Contractors shall verify and be responsible for all dimensions on site.
3. Do not scale off this drawing.
4. Landscape Architect to be notified of any variations between on site dimensions and those shown on the plan. Hawthorn Landscape Architects accepts no liability for unauthorised changes to the details changes to the details shown in these drawings.
5. All construction work based on these plans is to comply with relevant local authority regulations and all NZ building codes and standards.



EXISTING APPURTENANT EASEMENT			
PURPOSE	SHOWN	SERV. TENEMENT	DOM. TENEM/INST No
RIGHT OF WAY, RIGHT TO DRAIN WATER, RIGHT TO CONVEY ELECTRICITY, TELECOMMUNICATIONS & COMPUTER MEDIA	(A)	LOT 34 DP 426505	LOTS 23 - 27 HEREON & LOTS 28 - 32, 36 DP 426505 & LOT 21 DP 403531 (Ei.8634311.7)

EXISTING SCHEDULE OF EASEMENT			
PURPOSE	SHOWN	SERV. TENEMENT	DOM. TENEM/INST No
RIGHT TO DRAIN WATER	(J)	LOT 27 HEREON	LOTS 28 & 30 - 32 DP 426505 (Ei.8634311.7)

EXISTING APPURTENANT EASEMENT IN GROSS			
PURPOSE	SHOWN	SERV. TENEMENT	GRANTEE/INST No.
RIGHT TO CONVEY ELECTRICITY	(A)	LOT 34 DP 426505	TOP ENERGY LTD (Ei.8634311.9)

AREAS MARKED (C)(E)(G)(H)(I) ARE TO BE SUBJECT TO BUSH PROTECTION COVENANTS

FNDG: R.13.7.2.2 - ALLOTMENT DIMENSION

Any allotment created in terms of these rules must be able to accommodate a square envelope of the minimum dimensions specified below; which does not encroach into the permitted activity boundary setbacks for the relevant zone being a minimum of 10m from any site boundary, except that on any site with an area less than 5,000m² this set back shall be 3m from any site boundary.

30m

30m

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.

LOCAL AUTHORITY: FAR NORTH DISTRICT COUNCIL

SURVEY BLOCK & DISTRICT: I RUSSELL
COMPRISED IN: LOTS 37 & 38 DP 426505
TITLE REF: CFR's 504329 & 504328

TOTAL AREA: 1.4131 ha + 2.4360 ha
VAL REF: 00413-13729 & 00413-13728

ZONE: COASTAL LIVING (ZONE MAP 36)
FEATURES: NIL (RESOURCE MAP 36)



UNREGISTERED EASEMENTS VIA LT 457239			
PURPOSE	SHOWN	SERV. TENEMENT	DOMIN. TENEMENT
RIGHT TO DRAIN SEWAGE	(A)	LOT 36 DP 426505	LOT 20 DP 437503
	(B)	LOT 34 DP 426505	

THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF WILLIAMS AND KING AND MAY NOT BE REPRODUCED WITHOUT THE WRITTEN PERMISSION OF WILLIAMS AND KING

AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY

AMALGAMATION CONDITION
(Pursuant to s220 Resource Management Act)

THAT LOT 34 DP 426505 (LEGAL ACCESS & CONSERVATION AREA) BE HELD AS TO AN UNDIVIDED ONE EIGHTH SHARE BY THE OWNERS OF LOTS 23 & 24 HEREON & AN UNDIVIDED ONE NINTH SHARE BY THE OWNERS OF LOTS 25, 26 & 27 HEREON AS TENANTS IN COMMON IN THE SAID SHARES AND THAT INDIVIDUAL RECORDS OF TITLE BE ISSUED IN ACCORDANCE THEREWITH



WILLIAMS AND KING
Registered Land Surveyors, Planners & Land Development Consultants

Ph: (09) 407 6030 27 Hobson Ave
Email: kerikeri@saps.co.nz PO Box 937, Kerikeri

PROPOSED SUBDIVISION OF LOTS 37 & 38 DP 426505

Survey Design	Name	Date	ORIGINAL SCALE	SHEET SIZE
Drawn	BK	2018.11.23	1:2000	A3
Rev	B	2023.Sept.04		
22373_WAITOTO TIKITIKIOURE_STG 2_2020.07.09.lcd				

Surveyors Ref. No: **22373**

Series

Sheet of **1/1**



HAWTHORN
Landscape Architects

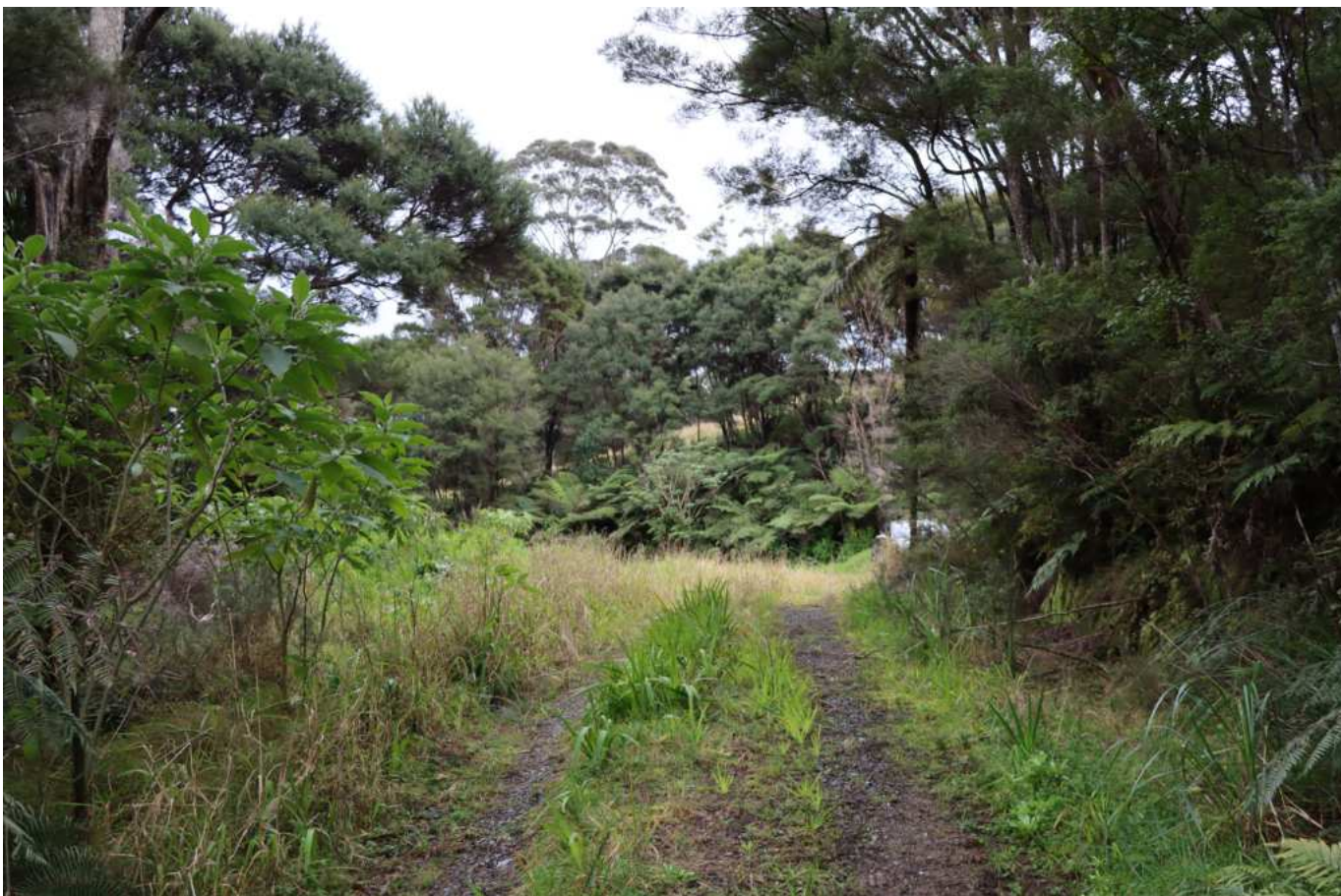


Photo 1 - Looking west, close to the access on Lot 24



Photo 2 - Looking east along the alignment of the access leading to Lots 25-27

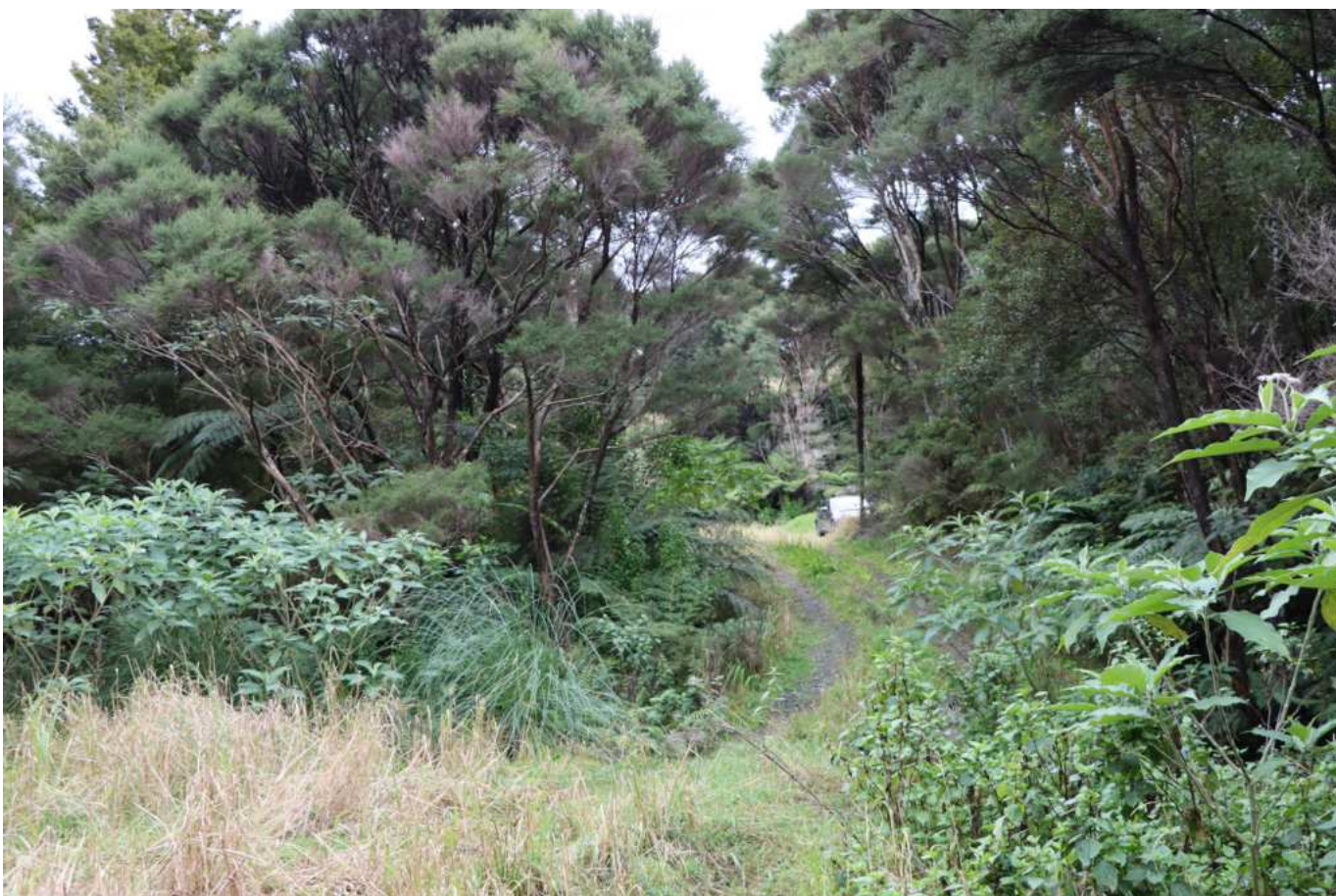


Photo 3 - Looking west at the existing culvert crossing to be removed.



Photo 4 - Looking at the vegetation pattern on Lot 26

Appendix 3
On Site Photographs

Proposed Subdivision of Lot s 37 & 38 DP 426508
Russell Whakapara Road, Russell



HAWTHORN
Landscape Architects



Photo 5 - Looking at the existing access road to Lots 25 -27



Photo 6 - Looking at the vegetation pattern on Lot 25



Photo 7 - Access track ner Lot 25



Photo 8 - Looking at the vegetation pattern along the stream

Appendix 3
On Site Photographs

Proposed Subdivision of Lot s 37 & 38 DP 426508
Russell Whakapara Road, Russell

Lot 23 BDZ



Viewpoint 1 - This viewing position is located on the Russell Whakapara Road, looking towards the entrance to the subdivision. Proposed Lot 23 is located directly in front, with the building development zone located half way up the grassed hill slope. The other BDZ are not visible from this location. Other houses are visible within the surrounding landscape and Coastal Living zone. Mt Tikitikoure is visible in the background.

Lot 24 BDZ obscured behind vegetation

Valley within which Lots 25-27 are located



Viewpoint 2 - This viewing position is located on the Russell Whakapara Road, looking east towards the valley where the proposed lots are located. Due to the presence of intervening vegetation none of the BDZ are visible.

Valley within which Lots 25-27 are located



Viewpoint 3 – This viewing position is located on the Russell Whakapara Road just to the west of the site. Passing motorists will view the site as the travel east along the road. The valley where proposed Lots 25-27 is visible. The BDZ’s will be set into the existing vegetation, with a 1500m2 area allowed to be cleared to accommodate future built development. Due to the presence of foreground vegetation only the roof structures of the future dwellings will be visible.

Lot 23 BDZ

Valley within which Lots 25-27 are located



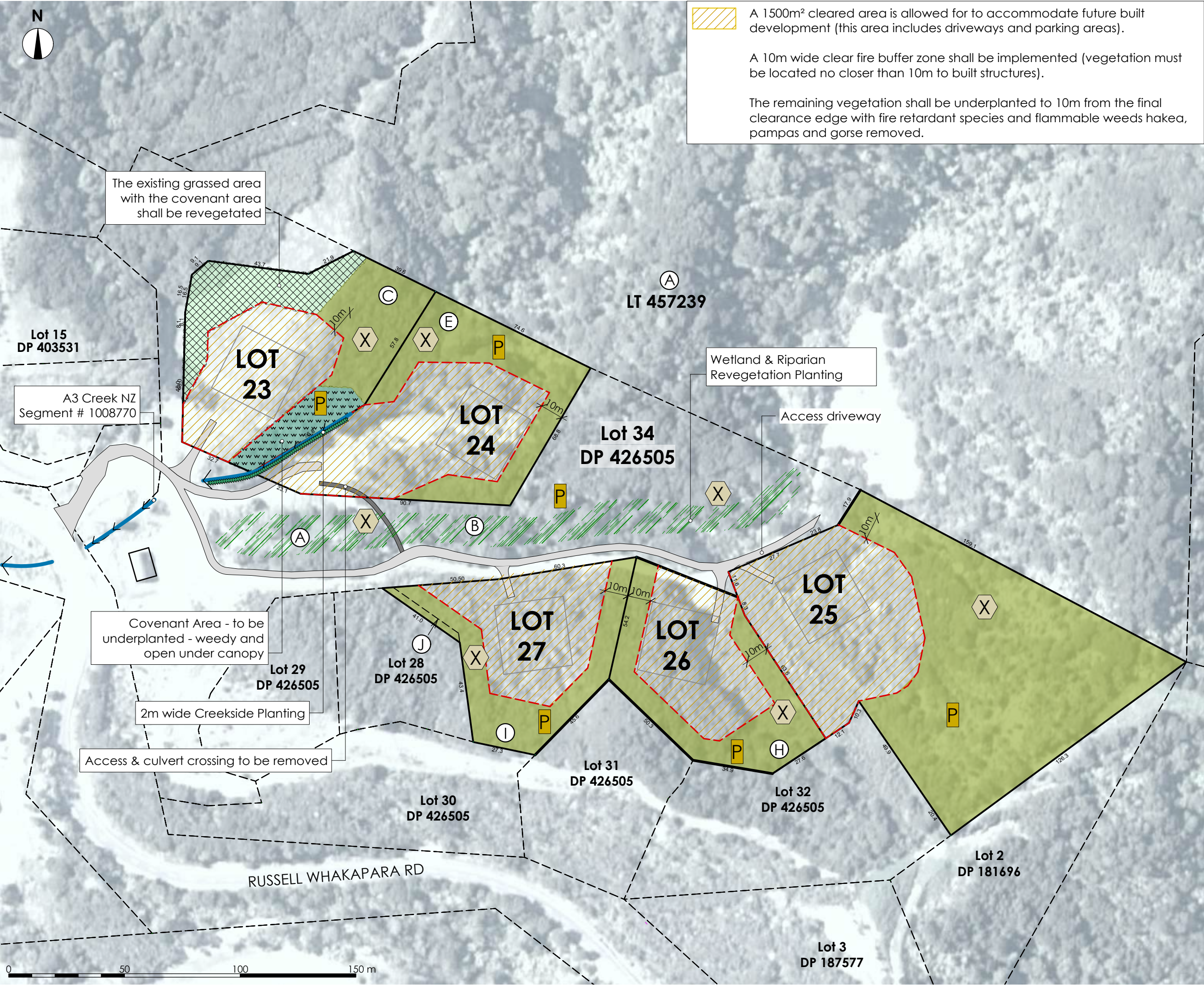
Viewpoint 4 – This viewing position is located on the road reserve adjacent to the landscape yard just off Russell Whakapara Road opposite the site. The BDZ on Lot 23 is visible half way up the hill slope and has a vegetated back-drop. The other BDZ that are located inland up the vegetated valley will be obscured by foreground vegetation. The roof structures are likely to protrude just above the canopy line. They will however be below the skyline and be set into a highly vegetated setting.

Lot 23 BDZ



Viewpoint 5 - This viewing position is located on Aucks Road to the southwest of the site. A momentary view of the site is obtained as motorists pass by. The BDZ on Lot 23 is visible, while the other BDZ's are not. The building site on Lot 23 is located well below the skyline with a vegetated setting, adjacent to other houses within the Coastal Living zone. Mt Tikitikioure is the dominant landscape feature in the background.





A 1500m² cleared area is allowed for to accommodate future built development (this area includes driveways and parking areas).

A 10m wide clear fire buffer zone shall be implemented (vegetation must be located no closer than 10m to built structures).

The remaining vegetation shall be underplanted to 10m from the final clearance edge with fire retardant species and flammable weeds hakea, pampas and gorse removed.

KEY

Covenant boundary

Existing vegetation in covenant area to be retained for visual amenity and ecological purposes

Areas marked C, E, G, H, I are subject to bush protection covenants

Lot 23 Covenant Area - grassed area to be revegetated

Lot 23 Covenant Area- To be underplanted - weedy and open under canopy

Access way and culvert crossing to be removed and vegetation reinstated

A3 Creek NZ Segment # 1008770

DOC 200 Trap Rat / Possum Position not fixed

Possum Trap Position not fixed

Creekside Planting 2m wide

Wetland & Riparian Revegetation Planting

30m

Any allotment created in terms of these rules must be able to accommodate a square envelope of the minimum dimensions specified below; which does not encroach into the permitted activity boundary setbacks for the relevant zone being a minimum of 10m from any site boundary, except that on any site with an area less than 5,000m² this set back shall be 3m from any site boundary.

11.12.2023

EcIA MITIGATION PLAN

Waitoto Tiki - Stage 2
Proposed Subdivision of
Lot 37 & 38 DP 426505

Scale	Drawn By
1:1500 @ A3	Cad Design
Drawing #	Rev #
1.0	A

1. This drawing is the property of Hawthorn Landscape Architects Ltd and must not be used, copied or reproduced without prior written permission.

2. Contractors shall verify and be responsible for all dimensions on site.

3. Do not scale off this drawing.

4. Landscape Architect to be notified of any variations between on site dimensions and those shown on the plan. Hawthorn Landscape Architects accepts no liability for unauthorised changes to the details changes to the details shown in these drawings.

5. All construction work based on these plans is to comply with relevant local authority regulations and all NZ building codes and standards.

ECOLOGICAL IMPACT ASSESSMENT (ECIA)



**PROPOSED SUBDIVISION
LOTS 37 & 38 DP 426508, ORONGO BAY
WAITOTO DEVELOPMENTS LTD**



PO Box 229, KERIKERI
PH 021 151 8315

CONTENTS

EXECUTIVE SUMMARY	3
SITE PROPOSAL.....	7
FIG 1: SITE LOCATION	7
FIG 2: SITE LOCATION	8
FIG 3: PROPOSED SCHEME (SEPT 23)	9
FIG 4: EclA & LANDSCAPE VIA MITIGATION PLAN	0
SITE CONTEXT.....	1
TABLE 1: SITE SUMMARY	1
HISTORIC AERIALS.....	3
FIG 6: RETROLENS 1951	4
FIG 7: RETROLENS 1978	5
FIG 8: RETROLENS 1981	5
SOILS.....	6
FIG 9: NRC SOIL MAPPING	6
POTENTIAL ECOSYSTEM TYPE	7
TABLE 2: MAPPED POTENTIAL ECOSYSTEM TYPE	7
TABLE 3: MAPPED RIVER ECOSYSTEM TYPE & REC2 CLASSIFICATION	9
MAPPED SIGNIFICANCE.....	11
FIG 10: PNA MAPPING (BOOTH 2005)	12
THREATENED ENVIRONMENT CLASSIFICATION (TEC).....	13
FIG 11: TEC CLASSIFICATION	13
SITE VISIT.....	14
TERRESTRIAL VEGETATION.....	14
FAUNA	23
AVIFAUNA.....	23
HERPTOFAUNA.....	25
FISH.....	25
TABLE 4: PREDICTED & RECORDED FISH SPECIES	25
SUMMARY OF ECOLOGICAL ISSUES IDENTIFIED	26
TABLE 5: CURRENT SITE ISSUES IDENTIFIED PRIOR TO PROPOSAL	26
SIGNIFICANCE.....	27
TABLE 6: ASSESSMENT OF SIGNIFICANT INDIGENOUS VEGETATION AND SIGNIFICANT HABITATS OF INDIGENOUS FAUNA IN TERRESTRIAL, FRESHWATER AND MARINE ENVIRONMENTS NORTHLAND REGIONAL POLICY STATEMENT (2018) APPENDIX 5	27

TABLE 7: SCORING FOR SITES COMBINING VALUES FOR SIGNIFICANCE CRITERIA (TABLE 6 EIANZ)	29
TABLE 8: FACTORS TO CONSIDER IN ASSESSING SPECIES VALUE (TABLE 5 EIANZ 2018) .	29
ASSESSMENT OF EFFECTS.....	30
EIANZ METHODOLOGY	30
MAGNITUDE OF EFFECTS	31
TABLE 9: CRITERIA FOR DESCRIBING MAGNITUDE OF EFFECT (EIANZ 2018 TABLE 8)	31
TABLE 10: CRITERIA FOR DESCRIBING LEVEL OF EFFECTS (EIANZ TABLE 10)	32
TABLE 11: POTENTIAL ADVERSE EFFECTS & PROPOSED MANAGEMENT	33
CONCLUSION	37
APPENDIX 1: OBSERVED PLANT SPECIES LIST	39
APPENDIX 2: 12.2.7. ASSESSMENT CRITERIA	42

©BAY ECOLOGICAL CONSULTANCY LTD 2023

This report may be cited as-

ECOLOGICAL IMPACT ASSESSMENT (EcIA) PROPOSED SUBDIVISION LOTS 37 & 38 DP 426508, ORONGO BAY 10th November 2023

WAITOTO DEVELOPMENTS LTD

This report has been produced by Bay Ecological Consultancy Ltd for the client Waitoto Developments Ltd for the use for which it was intended under the agreed scope of works. All copyright in this report is the property of Bay Ecological Consultancy Ltd. Unauthorised reproduction; adaptation is a breach of that copyright. No liability is accepted for use of or reliance on this report by a third party. Should further information become available after its release we reserve the right to review any content, conclusion or recommendation contained within this report. As regulatory standards are constantly changing, conclusions and recommendations considered to be acceptable at the time of writing, may in the future become insufficient or subject to different regulatory standards which cause them to become unacceptable. This report provides some regulatory commentary but is not intended as planning review of all statutory obligations of the proposal, for which specialist planning advice should be sought and relied upon in the first instance.

ECOLOGICAL IMPACT ASSESSMENT (EcIA)

PROPOSED SUBDIVISION LOTS 37 & 38 DP 426508, ORONGO BAY

WAITOTO DEVELOPMENTS LTD

10th NOVEMBER 2023



EXECUTIVE SUMMARY

Bay Ecological Consultancy Ltd has been requested by directors of Waitoto Developments Ltd to undertake an Ecological Impact Assessment (EcIA) of the proposed subdivision of Lots 37 & 38 DP 426508 in the *Coastal Living Zone* to create five allotments.

The activity will result in three additional Records of Title being created. Vehicle access to the sites is via an existing jointly owned Access and Conservation Lot (*Lot 34 DP 426505*), which encompasses an existing formed driveway. The shares in the Access and Conservation Lot held by the application sites will be distributed to the five proposed lots by way of proposed amalgamation conditions.

Site habitat has been considered on the basis of a desktop review of available ecological background, followed by a site visit on the 6th August 2023 to ground truth expectations. Site photos are provided for illustration.

Reporting provides consideration of significance in regard to Northland Regional Policy Statement *Appendix 5* (2018). The core foundation principles for ecological assessment therein are also directly aligned with the *Appendix 1* criteria of the recently gazetted *National Policy Statement for Indigenous Biodiversity* (2023)¹.

This review considered structure and content of the report in regard to the EIANZ EcIA Guideline (2018)² as the best practice standard for ecological impact assessment in NZ, specifically the core stages of

- Scoping - desktop & fieldwork evaluation of ecological context of the site and surrounds
- Description
- Evaluation of significance
- Assessment of impacts/ effects and impact management, including any monitoring ongoing requirements

And with regard to non statutory NZ guideline documents

- *Guidelines for the application of ecological significance criteria for indigenous vegetation and habitats of indigenous fauna in the Northland Region* (Wildlands 2019)
- *Department of Conservation guidelines for assessing significant ecological values* (Davis et al 2016)

¹ 4/8/2023 *Appendix 1 : Criteria for identifying areas that qualify as significant natural areas (SNAs)*

² Roper- Lindsay, J; Fuller, S.A; Hooson, S; Sanders, S.A; Usher, G. T. (2018) Ecological Impact Assessment. EIANZ Guidelines for use in New Zealand: terrestrial and freshwater ecosystems. 2nd Ed.

IN SUMMARY:

- Terrestrial vegetation is of a largely homogenous character comprised of kānuka dominant canopy with common and largely unpalatable pioneer species at all tiers. There is a frequent exotic component with areas of canopy and sub canopy dominance particularly hakea; wattle; gorse, tobacco weed. Areas within Lots designated for potential building platforms/ clearance have been previously cleared, most recently prior to 2004 and are of poor quality or open/grassed.
- The contribution of these designated development areas is considered to have a lesser representation of the wider sites values and characteristics as a part of a wider ecological unit. The overall site including all Lots has an **MODERATE** level of significance, in terms of potential habitat for fish; kiwi; wetland birds; integral landscape connectivity with the broadly mapped Tikitikioure PNA (#Q05/004)³ intersects with all Lots; and physical and functional buffering to the aquatic environments as riparian vegetation e.g. erosion and hydrological control.
- There are no kauri in the development area to invoke consideration of the *Biosecurity (National PA Pest Management Plan) Order 2022*
- Wetland extent within the shared Lot 34 DP 426505 was previously documented in Landscape reporting⁴ accompanying a prior subdivision as part of RC 2051061. It is of swamp character contained within obvious incised banks. It travels westward through Lot 34 under access towards a terminal area adjacent the barn, prior to exiting through a further culvert under Russell Whakapara Rd.
- The definition of *natural inland wetland* has since been mandated as per the National Policy Statement for Freshwater Management (NPS –FM 2020), updated recently, supported by supplementary protocols for wetland diagnosis. It is considered that the site extent goes beyond that identified in the prior reporting from 2007, qualifies as *natural inland wetland* and is subject to the protective regulations within the National Environmental Standards for Freshwater (NES-F 2020). It is recommended this is formally delineated and surveyed for inclusion on the scheme and to inform NRC consenting requirements. All building platforms and associated infrastructure are potentially within 100m of *natural inland wetland*.
- A short mapped⁵ A3⁶ coastal creek emerges onsite on the boundary between proposed Lots 23 and 24. It flows through a culvert under the access and joins the wetland in its terminal area as before. It is not ranked and has a predicted condition score of 0.227; lower than the type median (0.325).
- Freshwater fish species were recorded in a 1993 survey including *At Risk- Naturally Uncommon* giant bully and *Regionally Significant* banded kokopu.
- The wetland is traversed by a bunded crossing with an underlying culvert to Lot 24 from the central access. These are considered existing or *other infrastructure*⁷ as per

³ Booth(2005) Natural Areas of the Whangaruru Ecological District. Reconnaissance Report for the Protected Natural Areas Programme. DoC Whangarei

⁴ ⁴ DJ Scott & Associates (2007). LANDSCAPE REPORT FOR PROPOSED TIKITIKIOURE STAGE II SUBDIVISION OF LOT 2 DP 175811 and LOT 18 RC 2051061 RUSSELL

⁵ mapped rivers (LINZ 2022); REC2 (2019) nzsegment # 1008770

⁶ Leathwick, J. (2018) INDIGENOUS BIODIVERSITY RANKINGS FOR THE NORTHLAND REGION

⁷ Other infrastructure – *infrastructure that was lawfully established before, and in place, at the close of September 2 2020.*

NPS-FM (2020) definition, and subject to the NES-F (2020) in regard to its designated removal. Due to site specific FWFD records it is recommended a Fish Recovery Protocol is developed prior to such occurrence.

- Birds recorded during 5 minute bird counts were common native and exotic insectivores. A weka was heard at a distance from within Lot 21 DP 403531. The area is mapped *High Density Kiwi*. Recent kiwi prints were sighted in the muddy access of Lot 23.

A 1500m² final cleared area per Lot is proposed to accommodate future built development, including driveways and parking areas. This exceeds the permitted level of a total 500m² per Lot in the Coastal Living Zone. The designated areas in which clearance may occur are considered of a *MODERATE* value with a *MODERATE* magnitude of impact and **potential** level of effects. Additional potential, but avoidable effects of development are hydrological change; ongoing encroachment, weed and pest incursion.

In response, implementation of standard effects management is considered sufficient mitigation for progression of the proposal with a *less than minor* level of impact. These are considered protective of a wider zone of influence beyond the clearance areas, including site hydrological features, further terrestrial vegetation and of the identified Tikitikioure PNA. Formalised protection mechanisms by way of covenants and consent notices will ensure current and any future owner avoid further impact during development or residential occupation. They are aligned with intent of the lapsed subdivision covenant conditions (2010).

As primary mitigation we recommend-

- A formal *Weed and Pest Management Plan* Pest is developed to ensure resilience and functional habitat of remaining cover –
 - mitigate clearance area through increasing functional habitat by predator control
 - Removal of intergraded exotic infestations enabling increased and more diverse natural regeneration through browser control
 - effectively increasing *values* of wetland and protect extent from invasion of non wetland shrubs and herbaceous species e.g. wild ginger⁸ *Hedychium gardnerianum*; mistflower *Ageratina riparia*
- Beyond a 10m wide clear fire buffer zone the remaining vegetation shall be underplanted a further 10m from the final clearance edge to avoid edge effects and avoid ingress (additional spread of weediness; trampling or clearance) within a naturally higher interaction zone. Species are to be low flammability species and flammable weeds hakea, pampas and gorse removed.
- Additional planting
 - Revegetation of the open riparian area of Lot 34 adjacent Russell- Whakapara Rd and underplanting adjacent upper wetland riparian extent currently weedy and open
 - Revegetation of clear area upper proposed Lot 23
 - Enhancement planting within the eastern covenant vegetation Lot 23 which is open and weed infested
 - 2m riparian revegetation area to eastern boundary of A3 creek proposed Lot 24

⁸ *Hedychium gardnerianum* -currently no wetland ranking but highly tolerant of damp riparian conditions

- Dense planting of final shared access edges with low stature sedges and grasses, best adapted to trap sediment, process nutrient and slow/ retain stormwater
- Common Lot 34 DP 426505 is subject to terrestrial and wetland weed control and pest management detailed within the WPMP with specific regard to the NES-F (2020), particularly *REG 38 Restoration; wetland maintenance and biosecurity of natural inland wetland* & subsequent conditions outlined in *REG 55 General conditions on natural inland wetland activities*.
- Delineation and topographical survey of *natural inland wetland* onsite is recommended to formalize extent, as per definition has changed since initial description in 2007⁹. Removal of the wetland crossing is undertaken in respect to a Fish Recovery Protocol to avoid physical harm to recorded fish species and in accordance with *NES-F (2020)* as *other infrastructure*¹⁰ and accordingly *REG 46 Maintenance and operation of specified infrastructure and other infrastructure, in addition to provisions of the PRPN (2023)*. With these provisions for best practice fish passage, sediment and stormwater control, any hydrological modification will be positive.
- No dogs/ cats
- Best practice clearance methods –
 - Manual clearance should be undertaken from the outer edge to give opportunity for any wildlife to move back into remaining cover
 - Avoidance of peak breeding season and kiwi dog check prior to clearance
- No floodlighting of covenants or Lot 34; outdoor lighting to be hooded and no blue light spectrum

Management will confer gross ecological benefit and amenity value, to restore and enhance biodiversity values, maintaining the continuity of natural processes and systems of the local ecosystems.

⁹ DJ Scott & Associates (2007). LANDSCAPE REPORT FOR PROPOSED TIKITIKIORE STAGE II SUBDIVISION OF LOT 2 DP 175811 and LOT 18 RC 2051061 RUSSELL

¹⁰ Other infrastructure – *infrastructure that was lawfully established before, and in place, at the close of September 2 2020.*

SITE PROPOSAL

The Waitoto Developments Ltd proposal, a subdivision of Lots 37 & 38 DP 426505, lies adjacent Russell Whakapara Rd, 350m from its junction with Aucks Rd. The overall site rises from its access to the north east, from 16 -67masl. Tikitikioure forms the northern backdrop with Orongo Bay visible from high points within the Lots.

The Coastal Living Zone activity will create five allotments, resulting in three additional Records of Title being created. Vehicle access to the sites is via an existing jointly owned Access and Conservation Lot (Lot 34 DP 426505), which encompasses an existing formed driveway. The shares in the Access and Conservation Lot held by the application sites will be distributed to the five proposed lots by way of proposed amalgamation conditions.

The broad extent of the Lots is currently a matrix of clear exotic grass areas, regeneration of kānuka with scattered podocarps amongst largely unpalatable short stature pioneer species, induced by repeated historic clearance and pest abundance. The canopy and midstory exotic component is dominant in some areas, including previously cleared areas nominated for development in the current proposal. Gorse; hakea; tobacco weed and pampas are prevalent. Proposed Lots 23 & 24 have central grassed areas, while proposed Lots 25; 26; & 27 are in cover. Clearance to accommodate residential occupation is proposed on the Lots in exceedance of the Coastal Living Zone permitted activity level of a total 500m².

Site hydrology includes a short A3 type coastal headwater and a central wetland area on shared Access & Conservation Lot 34 DP 426505, both tributary to Orongo Bay approx. 500m downstream via wetland extent beyond Russell – Whakapara Rd (Lot 20 DP 437503). This Lot also contains a half round storage barn as the only current built character.

FIG 1: SITE LOCATION

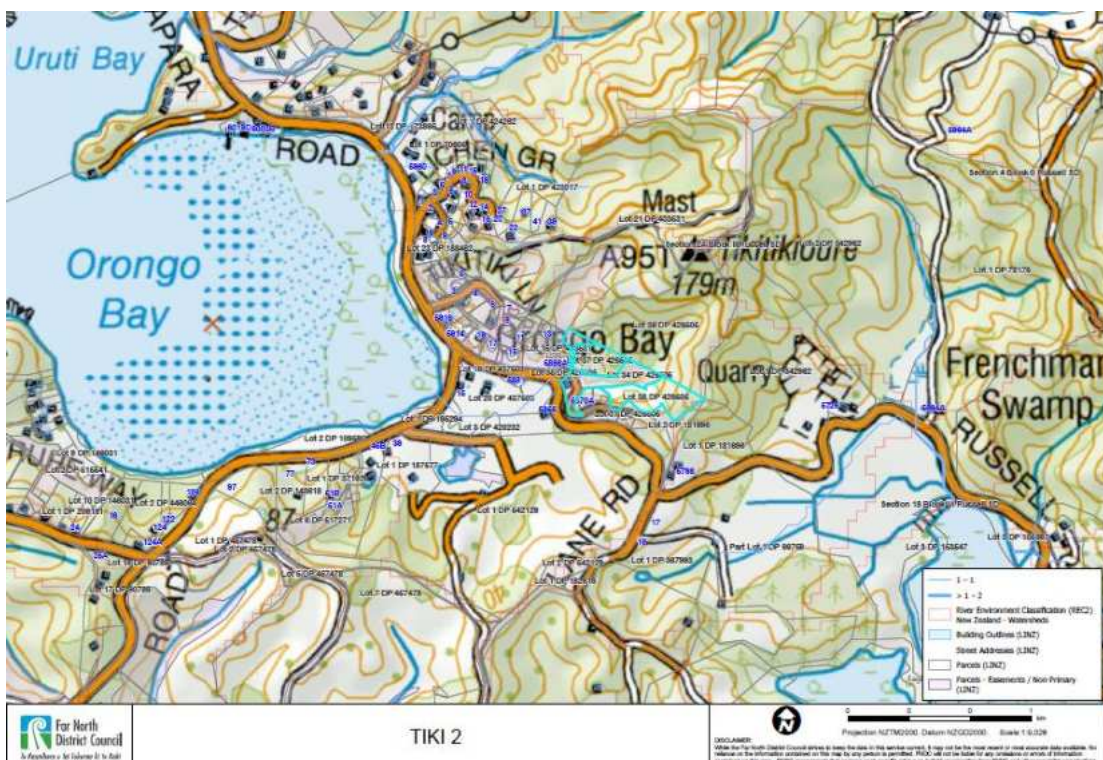
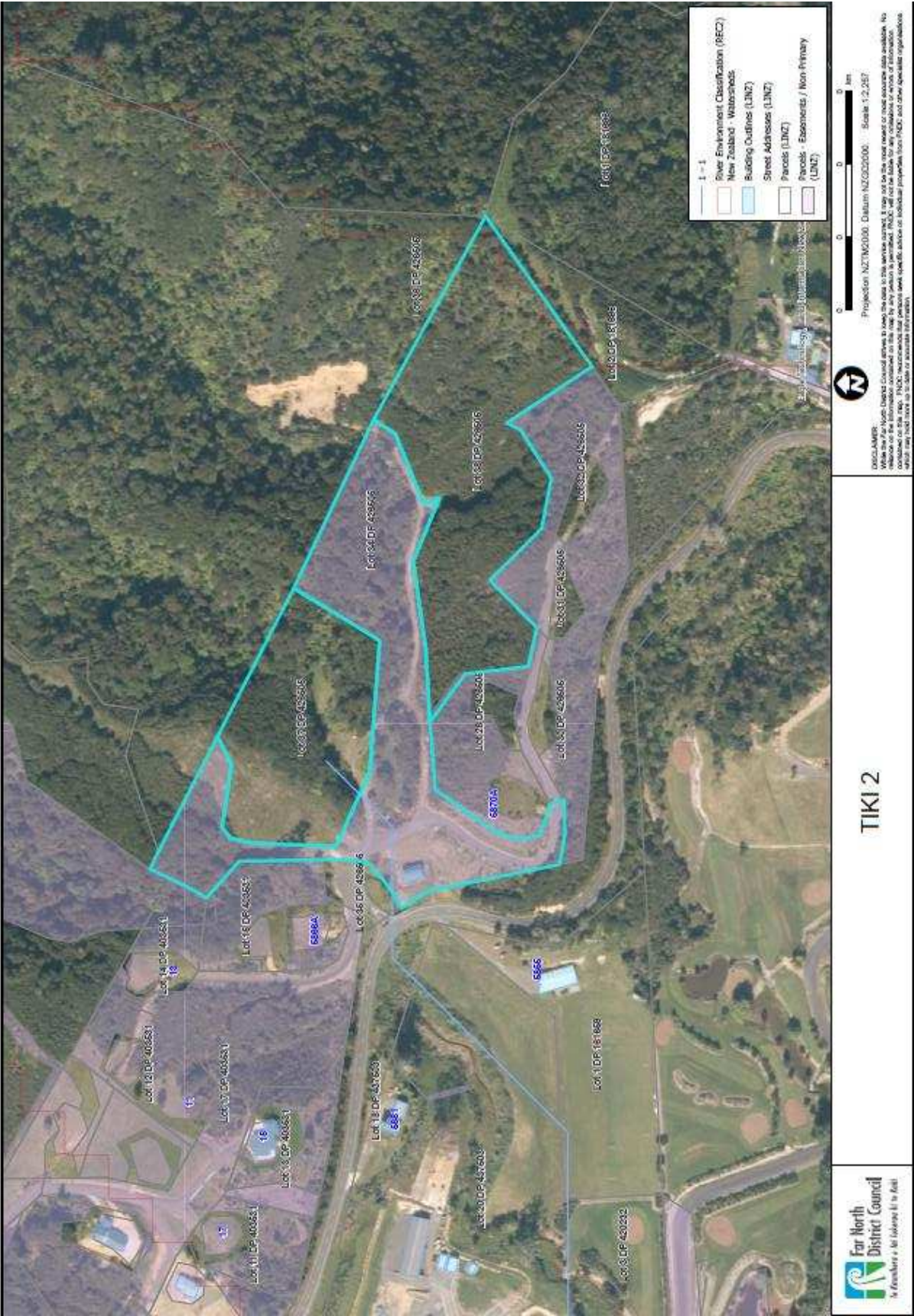


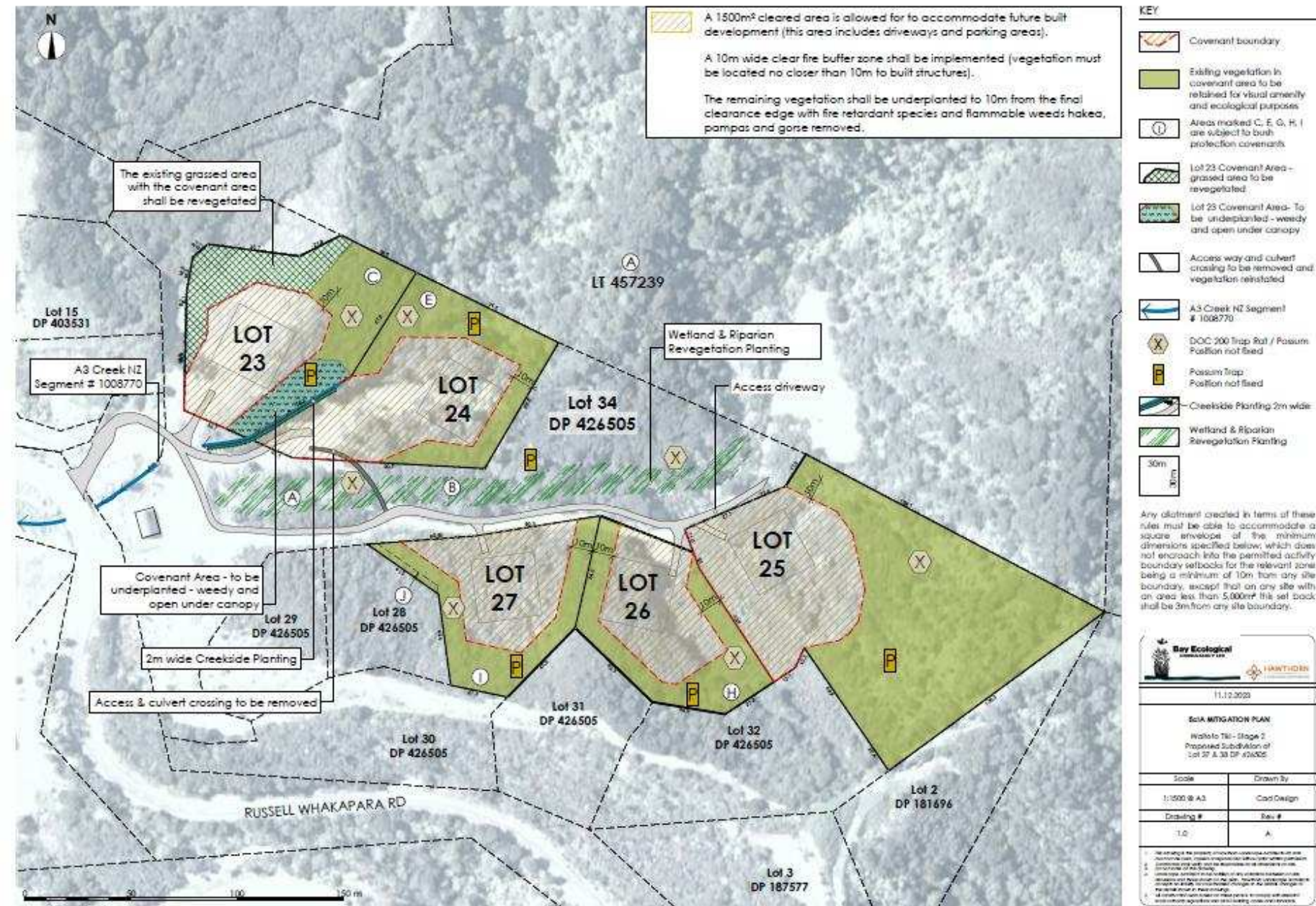
FIG 2: SITE LOCATION



9



FIG 4: EcIA & LANDSCAPE VIA MITIGATION PLAN



SITE CONTEXT

A desktop review of the available ecological site context and surrounding area in the potential zone of influence (ZOI) was undertaken. This standard EclA desktop scoping phase assists in determining priorities for field work, informed assessment of significance and targeted impact management.

TABLE 1: SITE SUMMARY

DESCRIPTION	LOTS 37 & 38 DP 426505 (RT 504329 & 504328)	
OWNER	WAITOTO DEVELOPMENTS LTD	
LOTS & COVENANTS	LOT 37 DP 426505 (14.131ha) Proposed Lot 23 (7026m ²) COVENANT C Proposed Lot 24 (7107 m ²) COVENANT E	LOT 38 DP 426505 (24.360ha) Proposed Lot 26(5075m ²) COVENANT H Proposed Lot 27 (5049m ²) COVENANT I Proposed Lot 23 (1.4236 ha) COVENANT G
SHARED ACCESS & CONSERVATION LOT	LOT 34 DP 426505 (23.851ha)	
FNDC OPERATIONAL ZONE	COASTAL LIVING	
FNDC PROPOSED ZONE	RURAL LIFESTYLE	
COASTAL ENVIRONMENT RPS	NO	
ECOLOGICAL DISTRICT	WHANGARURU	
COVER	<ul style="list-style-type: none"> Broad cover of kānuka dominated scrub with regenerating tanekaha, tree fern & shrub sapling understory. Limited to largely unpalatable early successional species. Scattered podocarps Dominant weed component in some areas previously cleared- gorse, tobacco weed, wild ginger, blackberry; hakea Existing half round storage barn Lot 34 ; Existing bunded crossing with culvert between central access & Lot 24 in place before 2/11/23 – other infrastructure (NES-F 2020) 	
RIVERS ¹¹	<ul style="list-style-type: none"> 1st order creek boundary proposed Lots 23 & 24 descend across site, under Russell Whakapara Rd through Lot 20 DP 437503 to Orongo Bay Headwater wetland Lot 34 joins creekly A3 flow adjacent half round barn 	
SOIL TYPE ¹²	<ul style="list-style-type: none"> RA/RAH RANGIORA CLAY & CLAY LOAM -MATURE GREYWACKE SOIL MARUA SUITE 	
POTENTIAL ECOSYSTEM ¹³	<ul style="list-style-type: none"> WF11: Kauri, podocarp, broadleaved forest WF7.3 : Kahikatea, pūriri forest (mapped lower eastern wetland surround not expressed onsite) 	
TEC CLASSIFICATION ¹⁴	<ul style="list-style-type: none"> Class III - AT RISK (20-30% indigenous cover). 	
SNA, NORTHLAND BIODIVERSITY RANKING - TERRESTRIAL TOP 30 SITES; RANKED RIVERS; 'KNOWN WETLANDS'; TOP 150 RANKED WETLANDS ¹⁵	<ul style="list-style-type: none"> Areas of site vegetation on all Lots part of larger Tikitikioure Coastal Habitat #FN082/ #Q05/004 No ranked rivers No NRC mapped 'Known Wetlands'¹⁶; no Top 150 wetlands Error! Bookmark not defined. 	
DIRECTLY ADJACENT RANKED AREAS	<ul style="list-style-type: none"> Site waterways are tributary to Orongo Bay - PNA Eastern Bay of Islands Estuary #FN081/ Q05/001 shortly downstream 	
NATURALLY RARE ECOSYSTEMS ¹⁷	<ul style="list-style-type: none"> Wetland (reduced to <20% original extent) WF7.4 Kahikatea – Pūriri forest (reduced to 10% original extent) mapped as potential but not present 	
KIWI PRESENCE ¹⁸	<ul style="list-style-type: none"> HIGH DENSITY 	

¹¹ LINZ 2022 NZ River Centrelines <https://data.linz.govt.nz/layer/50327-nz-river-centrelines-topo-150k/>

¹² <https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=fd6bac88893049e1beae97c3467408a9>

¹³ https://services2.arcgis.com/J8errK5dyxu7Xjf7/arcgis/rest/services/Northland_Biodiversity_Ranking/FeatureServer/0

¹⁴ https://ourenvironment.scinfo.org.nz/maps-and-tools/app/Habitats/lenz_tec

¹⁵ 'Top 150' most important wetlands in Northland (August 2018)

<https://localmaps.nrc.govt.nz/localmapsviewer/?map=55bdd943767a493587323fc025b1335c>

¹⁶ <https://localmaps.nrc.govt.nz/localmapsviewer/?map=55bdd943767a493587323fc025b1335c>

¹⁷ Williams et al (2007) New Zealand's historically rare terrestrial ecosystems set in a physical and physiognomic framework *New Zealand Journal of Ecology* 31(2): 119-128

¹⁸ DoC Mapping (2018) <https://fndc.maps.arcgis.com/apps/webappviewer/index.html?id=9691466b178d4406bcbdb4c68901ef0>

Although generally from broad scale mapping, requiring finer ground truthing, it may suggest potential species occurrence and associations; and underlying abiotic influences of soils and hydrology including potential wetland presence and *values*¹⁹.

Key sources of the desktop review included:

- Booth, A. (2005) *Natural Areas of Whangaruru Ecological District*.
- Forester & Townsend (2004) *Threatened plants of the Northland Conservancy*
- LRIS portal <https://iris.scinfo.org.nz/>
- NRC Local Mapping – Leathwick (2018); Singers (2018)
- REC Classification <https://data.mfe.govt.nz/layer/51845-river-environment-classification-new-zealand>
- TEC Classification <https://ourenvironment.scinfo.org.nz/>
- Wildlands Consultants (2011) *Ranking of top Wetlands in the Northland Region Stage 4 - Rankings for 304 Wetlands Wildlands Contract Report No. 2489 for the Northland Regional Council*
- Wildlands Consultants (2012) *Report on Wetland Guidelines for the Northland Region*

LOWER SITE WETLAND SHARED ACCESS & CONSERVATION LOT 34 ADJACENT RUSSELL WHAKAPARA RD



¹⁹ Values (NPS FM 2020 Amendment No.1 (2022) (i) ecosystem health; (ii) indigenous biodiversity; (iii) hydrological function; (iv) Maori freshwater values; (v) amenity values

HISTORIC AERIALS

A brief review of available historic photography was made to illustrate change in cover and periodicity of wetland. The landscape patterns observed today are resultant from layers of historic clearance for production and later residential development. Review of historic topographical maps revealed no further detail. Site vegetation has broadly conformed to that from the late 2004 (>10yrs), shown regenerating after the last modification below FIG 5 .

FIG 5: GOOGLE EARTH 2004



1 **NAME** _____

2 **DATE** _____

3 **GRADE** _____

4 **TEACHER** _____

5 **SCHOOL** _____

6 **CITY** _____

7 **STATE** _____

8 **ZIP** _____

9 **PHONE** _____

10 **FAX** _____

11 **E-MAIL** _____

12 **HOME** _____

13 **MOBILE** _____

14 **INTERNET** _____

15 **OTHER** _____

16 **TEACHER'S SIGNATURE** _____

17 **TEACHER'S NAME** _____

18 **TEACHER'S ADDRESS** _____

19 **TEACHER'S CITY** _____

20 **TEACHER'S STATE** _____

21 **TEACHER'S ZIP** _____

22 **TEACHER'S PHONE** _____

23 **TEACHER'S FAX** _____

24 **TEACHER'S E-MAIL** _____

25 **TEACHER'S HOME** _____

26 **TEACHER'S MOBILE** _____

27 **TEACHER'S INTERNET** _____

28 **TEACHER'S OTHER** _____

29 **TEACHER'S SIGNATURE** _____

30 **TEACHER'S NAME** _____

31 **TEACHER'S ADDRESS** _____

32 **TEACHER'S CITY** _____

33 **TEACHER'S STATE** _____

34 **TEACHER'S ZIP** _____

35 **TEACHER'S PHONE** _____

36 **TEACHER'S FAX** _____

37 **TEACHER'S E-MAIL** _____

38 **TEACHER'S HOME** _____

39 **TEACHER'S MOBILE** _____

40 **TEACHER'S INTERNET** _____

41 **TEACHER'S OTHER** _____

42 **TEACHER'S SIGNATURE** _____

43 **TEACHER'S NAME** _____

44 **TEACHER'S ADDRESS** _____

45 **TEACHER'S CITY** _____

46 **TEACHER'S STATE** _____

47 **TEACHER'S ZIP** _____

48 **TEACHER'S PHONE** _____

49 **TEACHER'S FAX** _____

50 **TEACHER'S E-MAIL** _____

51 **TEACHER'S HOME** _____

52 **TEACHER'S MOBILE** _____

53 **TEACHER'S INTERNET** _____

54 **TEACHER'S OTHER** _____

55 **TEACHER'S SIGNATURE** _____

56 **TEACHER'S NAME** _____

57 **TEACHER'S ADDRESS** _____

58 **TEACHER'S CITY** _____

59 **TEACHER'S STATE** _____

60 **TEACHER'S ZIP** _____

61 **TEACHER'S PHONE** _____

62 **TEACHER'S FAX** _____

63 **TEACHER'S E-MAIL** _____

64 **TEACHER'S HOME** _____

65 **TEACHER'S MOBILE** _____

66 **TEACHER'S INTERNET** _____

67 **TEACHER'S OTHER** _____

68 **TEACHER'S SIGNATURE** _____

69 **TEACHER'S NAME** _____

70 **TEACHER'S ADDRESS** _____

71 **TEACHER'S CITY** _____

72 **TEACHER'S STATE** _____

73 **TEACHER'S ZIP** _____

74 **TEACHER'S PHONE** _____

75 **TEACHER'S FAX** _____

76 **TEACHER'S E-MAIL** _____

77 **TEACHER'S HOME** _____

78 **TEACHER'S MOBILE** _____

79 **TEACHER'S INTERNET** _____

80 **TEACHER'S OTHER** _____

81 **TEACHER'S SIGNATURE** _____

82 **TEACHER'S NAME** _____

83 **TEACHER'S ADDRESS** _____

84 **TEACHER'S CITY** _____

85 **TEACHER'S STATE** _____

86 **TEACHER'S ZIP** _____

87 **TEACHER'S PHONE** _____

88 **TEACHER'S FAX** _____

89 **TEACHER'S E-MAIL** _____

90 **TEACHER'S HOME** _____

91 **TEACHER'S MOBILE** _____

92 **TEACHER'S INTERNET** _____

93 **TEACHER'S OTHER** _____

94 **TEACHER'S SIGNATURE** _____

95 **TEACHER'S NAME** _____

96 **TEACHER'S ADDRESS** _____

97 **TEACHER'S CITY** _____

98 **TEACHER'S STATE** _____

99 **TEACHER'S ZIP** _____

100 **TEACHER'S PHONE** _____

101 **TEACHER'S FAX** _____

102 **TEACHER'S E-MAIL** _____

103 **TEACHER'S HOME** _____

104 **TEACHER'S MOBILE** _____

105 **TEACHER'S INTERNET** _____

106 **TEACHER'S OTHER** _____

107 **TEACHER'S SIGNATURE** _____

108 **TEACHER'S NAME** _____

109 **TEACHER'S ADDRESS** _____

110 **TEACHER'S CITY** _____

111 **TEACHER'S STATE** _____

112 **TEACHER'S ZIP** _____

113 **TEACHER'S PHONE** _____

114 **TEACHER'S FAX** _____

115 **TEACHER'S E-MAIL** _____

116 **TEACHER'S HOME** _____

117 **TEACHER'S MOBILE** _____

118 **TEACHER'S INTERNET** _____

119 **TEACHER'S OTHER** _____

120 **TEACHER'S SIGNATURE** _____

121 **TEACHER'S NAME** _____

122 **TEACHER'S ADDRESS** _____

123 **TEACHER'S CITY** _____

124 **TEACHER'S STATE** _____

125 **TEACHER'S ZIP** _____

126 **TEACHER'S PHONE** _____

127 **TEACHER'S FAX** _____

128 **TEACHER'S E-MAIL** _____

129 **TEACHER'S HOME** _____

130 **TEACHER'S MOBILE** _____

131 **TEACHER'S INTERNET** _____

132 **TEACHER'S OTHER** _____

133 **TEACHER'S SIGNATURE** _____

134 **TEACHER'S NAME** _____

135 **TEACHER'S ADDRESS** _____

136 **TEACHER'S CITY** _____

137 **TEACHER'S STATE** _____

138 **TEACHER'S ZIP** _____

139 **TEACHER'S PHONE** _____

140 **TEACHER'S FAX** _____

141 **TEACHER'S E-MAIL** _____

142 **TEACHER'S HOME** _____

143 **TEACHER'S MOBILE** _____

144 **TEACHER'S INTERNET** _____

145 **TEACHER'S OTHER** _____

146 **TEACHER'S SIGNATURE** _____

147 **TEACHER'S NAME** _____

148 **TEACHER'S ADDRESS** _____

149 **TEACHER'S CITY** _____

150 **TEACHER'S STATE** _____

151 **TEACHER'S ZIP** _____

152 **TEACHER'S PHONE** _____

153 **TEACHER'S FAX** _____

154 **TEACHER'S E-MAIL** _____

155 **TEACHER'S HOME** _____

156 **TEACHER'S MOBILE** _____

157 **TEACHER'S INTERNET** _____

158 **TEACHER'S OTHER** _____

159 **TEACHER'S SIGNATURE** _____

160 **TEACHER'S NAME** _____

161 **TEACHER'S ADDRESS** _____

162 **TEACHER'S CITY** _____

163 **TEACHER'S STATE** _____

164 **TEACHER'S ZIP** _____

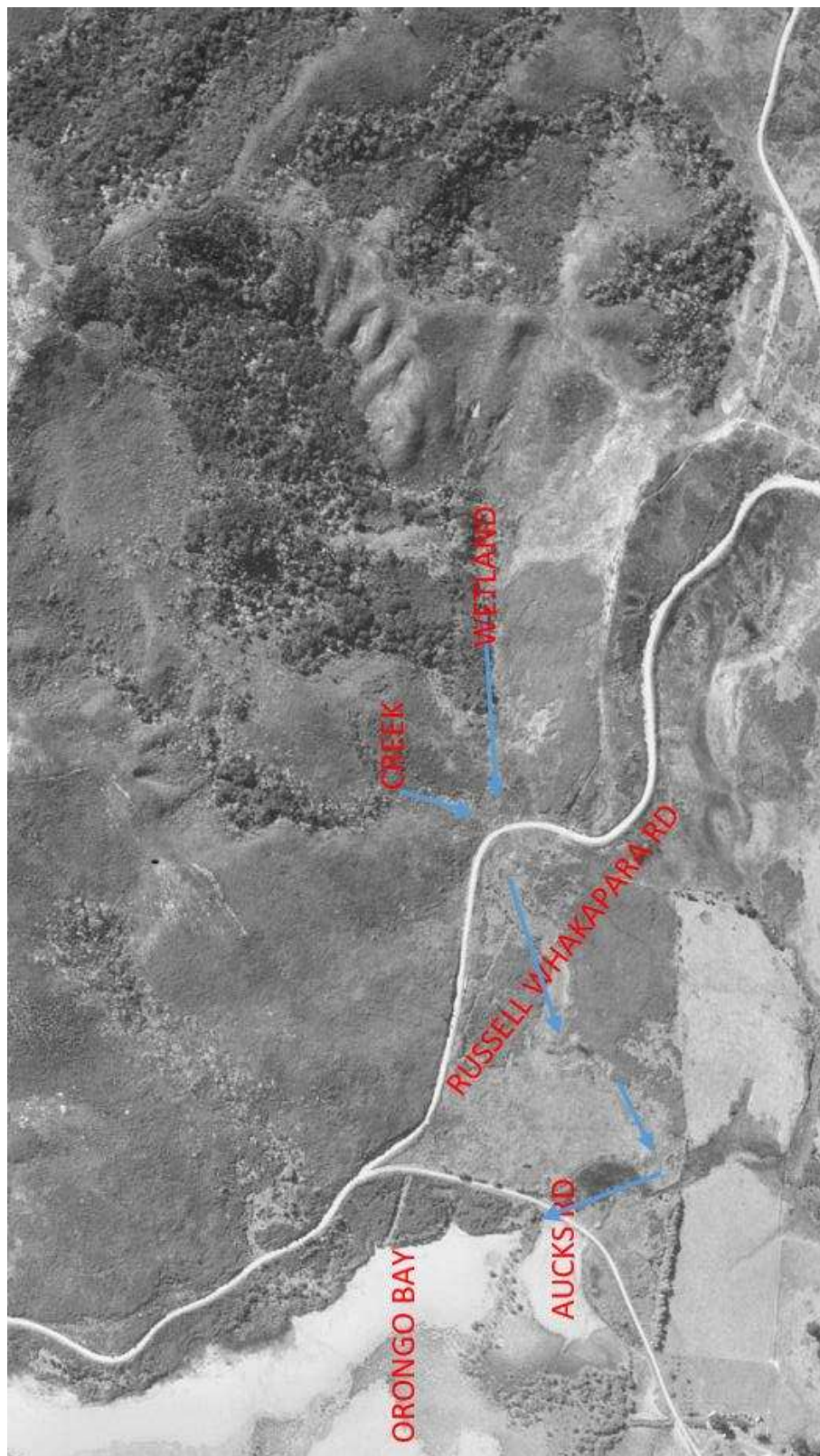
165 **TEACHER'S PHONE** _____

166 **TEACHER'S FAX** _____

167

Remnant areas in gullies and wetter areas are visible in comparison to the grazed slopes and lower plateaus.

FIG 6: RETROLENS²⁰ 1951

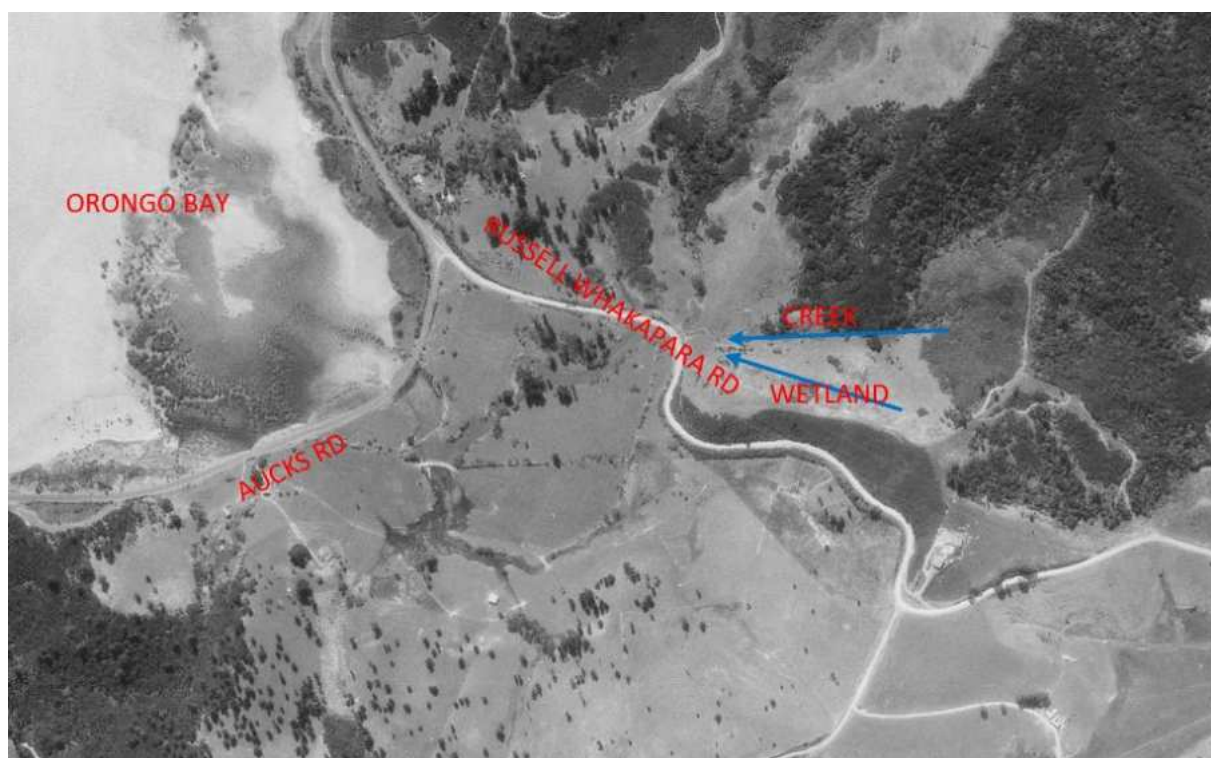


²⁰ All Retrolens aerial photography - Sourced from <http://retrolens.nz> and licensed by LINZ CC-BY 3.0

FIG 7: RETROLENS 1978



FIG 8: RETROLENS 1981



SOILS

In conjunction with species associations, soil characteristics provide an indication of potential wetland presence, and may guide any scheme for post development revegetation or amenity planting. Site soils are mapped as

RANGIORA CLAY (RA & RAH HILL COUNTRY VARIANT)

- *Mottled Albic Ultic Soil (UEM)* - E horizon immediately beneath the topsoil and a firm, clayey B horizon mottled redox layer below that.
- Mature greywacke soils of the Marua suite
- Strongly leached to weakly podzolised - generally acidic; low in natural fertility and trace elements e.g. Mg & K
- B horizon aluminium levels contribute to shallow rooting habits in sensitive plants.
- Imperfectly to (very) poorly drained - generally acidic; seasonally wet and susceptible to compaction

Site soils were inspected along tracks and cut faces during site visit and readily conformed to mapped description.

FIG 9: NRC SOIL MAPPING²¹



²¹ NRC MANAGING NORTHLAND SOILS FACTSHEET VIEWER

<https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=fd6bac88893049e1beae97c3467408a9>

POTENTIAL ECOSYSTEM TYPE

Broad ecosystem classification²² shows the potential vegetation type mapped as correlated with soil type and climate -**WF11 KAURI BROADLEAVED PODOCARP FOREST TYPE**.

WF11 is the dominant forest type in Northland, occurring from sea level to 300 m, typically on shallow to steep hillslopes and ridges. It is the most widespread ecosystem unit but also very relictual compared to former extent. Frequently the only representation remaining is poor kānuka and mānuka dominated vegetation on depleted soils, as apparent on site with podocarps e.g. totara and tanekaha, represented as scattered individuals and early successional cover dominated by less palatable species and weeds.

Additionally there is a very small area of **WF7.3 - Kahikatea pūriri forest** mapped adjacent the half round barn extending offsite, surrounding the wetland downstream on Lot 20 DP 437503. This type forest had a naturally less extensive occurrence on poorly drained but fertile alluvial lowland soils, historically heavily cleared and farmed, further reducing its distribution. On frequently saturated floodplains it has often been replaced by low stature swamp. **WF7.3 is not expressed onsite** but aspects would be appropriate to be incorporated into revegetation.

TABLE 2: MAPPED POTENTIAL ECOSYSTEM TYPE

ECOSYSTEM CLASSIFICATION	TYPE DISTRIBUTION	TYPE DESCRIPTION
WF11 KAURI PODOCARP BROADLEAVED FOREST	<i>Warm climatic zone from the Three Kings Islands and Te Pahi south to Mahia and New Plymouth.</i>	<ul style="list-style-type: none"> • Kauri, podocarp, broadleaved forest with occasional rimu, miro, kahikatea, kauri, taraire, tawa, tōwai, kohekohe, pūriri and rewarewa. • Drivers of composition are fertility, drainage and altitude • Altitude variants - taraire and kohekohe more abundant at lower altitudes, and tawa and tōwai more common at higher altitudes. • Broadleaved species in gullies • Commonly a secondary derivative of kauri forest • Rainfall 1000–2500mm.
WF7.3 KAHIKATEA PŪRIRI FOREST	<i>WF7 Variant 3 occurs on moderately well-drained soils in Northland, south Auckland, western Waikato and the East Coast All types of WF7 now extremely rare, fragmented and generally modified.</i>	<ul style="list-style-type: none"> • Broadleaved forest of abundant pūriri of three variants determined by landform and soil type. • SITE TYPE 3. occasional emergent kahikatea and kohekohe, and locally taraire, tītoki, pukatea and nīkau on moderately well-drained fluvial and allophanic soils derived from basaltic ash.
WLS SWAMP MOSAIC (WL19: Raupo reedland)	<i>Palustrine/riverine/lacustrine wetlands; commonly found throughout lowlands on old river oxbows, margins of lakes and flooded valleys from Northland to South Otago</i>	<ul style="list-style-type: none"> • Reedland of abundant raupō, locally with species of Bolboschoenus, Schoenoplectus and Machaerina; pūkio, harakeke, and swamp millet. A margin of scrub of Coprosma species and cabbage tree, and locally twiggly tree daisy and mānuka, with scattered kahikatea in unmodified areas. Often occurs on margins or shallow water/pools with floating/rafted aquatics such as water milfoils, buttercups, willowherbs, species of Potamogeton, Isolepis, Azolla and Lemna, and spiked sedges (e.g. kuta).

Swamp types such as the predicted **WL19** are typically-

- Slow to moderate flow
- Watertable usually well above the ground
- Permanent wetness
- Peat and/or mineral substrate
- Intermingled sedge/rush/reed and scrub types often with forest

²² Singers & Rogers (2014) A classification of NZs terrestrial ecosystems. DoC Wellington

Singers, N. (2018) A potential ecosystem map for the Northland Region: Explanatory information to accompany the map. Prepared for Northland Regional Council.

HYDROLOGY

A short mapped river²³ exhibits as a creekly flow on the western edge of proposed Lot 24. The unnamed narrow and shallow 1st order headwater, descends to join the lower wetland adjacent the half round barn on Lot 34. This waterway continues approx. 550m as tributary to the Orongo Bay receiving environment (Eastern Bay of Islands Estuary PNA #FN081/ Q05/001), under Russell Whakapara Rd and through Lot 20 DP 437503.

Its character conforms to its mapped description of an A3 type-

- very small, gentle gradient streams on sandy substrates occurring in coastal locations; it is widespread in coastal parts of the Eastern Northland unit²⁴

It is unranked, with a condition score of 0.284, lower in comparison to the A3 type median score of 0.325²⁵. The contribution of adjacent development roading and culverts will have contributed to this score in addition to its mapped *pastoral* landuse cover within the further extent of the subject reach to Orongo Bay.

VIEW NORTH ALONG NARROW CREEK; VIEW SOUTH



²³ **river** means a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal)

²⁴ Leathwick (2018) Indigenous Biodiversity Rankings for the Northland Region

²⁵ a value of one indicates a very high level of naturalness while values approaching zero indicate increasingly complete loss of ecological values or integrity. Estimates for rivers take account of the indigenous cover in the upstream catchment, modelled estimates of instream nitrogen concentrations, the alteration of river flows and impeding of fish passage by dams and other control structures, introduced fish, discharges from mines and industrial sites, and the creation of impervious surfaces

TABLE 3: MAPPED RIVER ECOSYSTEM TYPE²⁷ & REC2 CLASSIFICATION

CHARACTERISTIC	UNNAMED CREEK PROPOSED LOT 24
NZSEG#	1007698
ORDER	1 st
RIVER ECOSYSTEM TYPE	A3 consists of very small, gentle gradient streams on sandy substrates occurring in coastal locations; is widespread in coastal parts of the Eastern Northland
MEAN FLOW (m ³ s ⁻¹)	0.07
A3 TYPE MEAN CONDITION SCORE	0.325
SITE CONDITION SCORE	0.637
RANKING TOP 30% OF TYPE	NO
REC CATEGORY ²⁶	
CLIMATE	WW Warm Wet
SOURCE OF FLOW	L Low Elevation
GEOLOGY	HS Hard Sedimentary
LAND COVER	P Pastoral
NETWORK POSITION	LO Low Order
VALLEY -LANDFORM	MG Medium Gradient

The reach has *low elevation origin (L)*, typically with marked seasonal flow patterns: high in winter, low in summer. The *Hard sedimentary* class (HS) tends provide low natural nutrient and suspended sediment inputs with coarse substrates e.g. cobbles - sands depending on local morphology. This was confirmed, with incidental observations of visual % sediment cover generally <20% throughout, likely due to the majority of upland site cover in shrubland.

The dominant *pastoral land cover (P)* category is derived from the cover offsite in its lower extent. Erosion rates in these scenarios tend to be higher, with rapid and more extreme flood peaks from runoff compared to natural land cover. Further site clearance without mitigation would contribute cumulatively.

The *Medium gradient (MG)* landform classification describes the small-scale physical patterns of the valley their channels occupy and suggests a shallow and meandering path through the landscape. These may often contain shallow water wetland or exhibit on flatter terrain as swamp, however this is not the case on site.

Wetland extent within the shared Lot 34 DP 426505 was previously documented in Landscape reporting²⁸ accompanying a prior subdivision as part of RC 2051061. It is of swamp character contained within obvious incised banks. It travels westward through Lot 34 under access

²⁶ The REC classifications correspond with Class 2: Suspended Sediment & Deposited Sediment Tables 23 & 24 respectively (NPS FM 2020) to inform any quantitative monitoring.

²⁷ Leathwick, J. (2018) Indigenous Biodiversity Rankings for the Northland Region.

²⁸ DJ Scott & Associates (2007). LANDSCAPE REPORT FOR PROPOSED TIKITIKIORE STAGE II SUBDIVISION OF LOT 2 DP 175811 and LOT 18 RC 2051061 RUSSELL

towards a terminal area adjacent the barn where it joins the A3 creek, prior to exiting through a further culvert under Russell Whakapara Rd.

The definition of *natural inland wetland* has since been mandated as per the National Policy Statement for Freshwater Management (NPS –FM 2020), updated recently, supported by supplementary protocols for wetland diagnosis. It is considered that the site extent goes beyond that identified in the prior reporting from 2007, qualifies as *natural inland wetland* and is subject to the protective regulations within the National Environmental Standards for Freshwater (NES-F 2020). It is recommended this is formally delineated and surveyed for inclusion on the scheme and to inform NRC consenting requirements. All building platforms and associated infrastructure are potentially within 100m of *natural inland wetland*.

The wetland is traversed by a bunded crossing with an underlying culvert to proposed Lot 24 from the central access. These are considered existing or *other infrastructure*²⁹ as per NPS-FM (2020) definition. It is designated for removal, which will be subject to NES-F Regs for *Maintenance and operation of specified infrastructure and other infrastructure*.

²⁹ Other infrastructure – *infrastructure that was lawfully established before, and in place, at the close of September 2 2020.*

MAPPED SIGNIFICANCE

All Lots interact to a degree with the Tikitikioure PNA (#Q05/004)³⁰. The underlying assessment may be considered as a surrogate for significance and may serve to direct further site consideration. Proposed Lots 25-27 are completely encompassed, while the vegetated boundary and upper catchment of the A3 creek between proposed Lots 23 and 24 represent their interaction. Values are given in the PNA documentation as:

- Includes over 25 km of coastal riparian verge, much of which contains a pohutukawa element.
- Contains forest supporting tawaroa as a co-dominant, and occasionally restricted species such as whau and wharangi.
- *Todea barbara* (Threatened – Nationally Endangered), and *Pittosporum pimeleoides* (Threatened – Nationally Endangered). Presence of tawaroa (Regionally Significant) in significant amounts in the canopy.
- A mosaic of forest age classes ranging from seral shrubland to cut-over forest and wetlands, sometimes adjoining estuarine associations. Contains sequential gradients from hill forest to mangrove forest.
- AVIFAUNA - NI brown kiwi (Conservation Dependant) and several pairs of pateke (Threatened – Nationally Increasing). NI weka (At Risk – Relict); pārerā (grey duck *Anas superciliosa* Threatened -Nationally Vulnerable), reef heron (Threatened -Nationally Endangered), kukupa (Conservation Dependant), NI fernbird At Risk – Declining), banded rail (At Risk – Declining), spotless crane (At Risk – Declining), pukeko, white-faced heron, NZ kingfisher, and common forest birds.
- FRESHWATER FISH known include longfin eel (At Risk – Declining), giant bully (At Risk- Naturally Uncommon; Regionally Significant), banded kokopu (Regionally Significant), inanga (At Risk – Declining), common bully, and shortfin eel
- A representative site for
 - (a) puriri–tanekaha–taraire coastal forest,
 - (b) kohekohe–puriri–tawaroa coastal forest (only record of types (a) and (b) in the Ecological District).
 - (d) mānuka coastal shrubland,
 - (e) mamaku tree fern coastal fernland,
 - (f) raupo–harakeke association, and
 - (g) pohutukawa coastal forest.

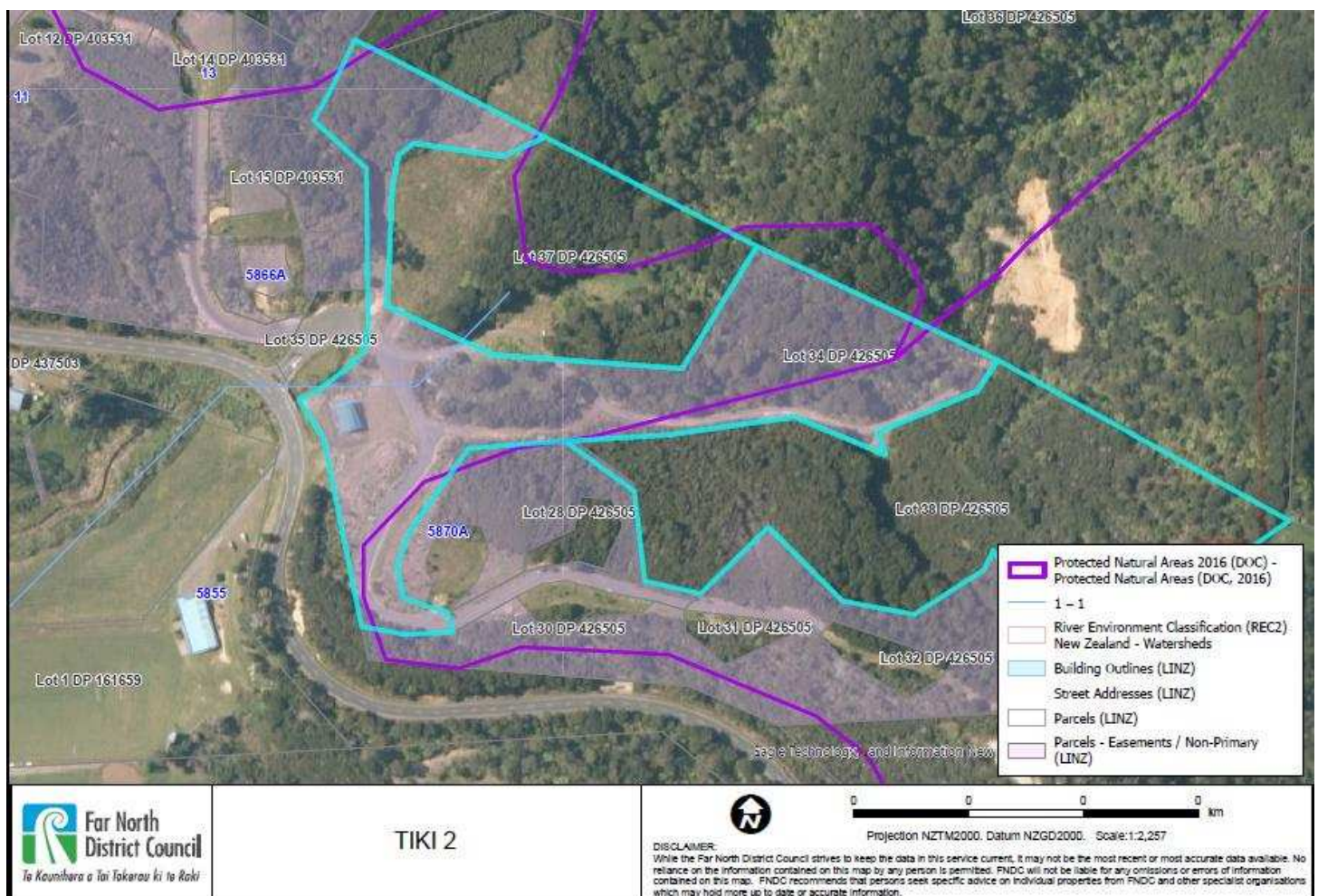
There are no NRC Biodiversity Terrestrial Ranking Top 30% or Top 30% +5 unit³¹ units in a ZOI of the proposal.

There are currently no FNDC Significant Natural Areas (SNAs) as per the *National Policy Statement for Indigenous Biodiversity (2023)*, subject to Subpart 2 Clause 3.10. However as per Clause 3.16, significant adverse effects on indigenous biodiversity outside of such areas in regard to new subdivision, development or use must be managed by applying the effects management hierarchy.

³⁰ Booth(2005) Natural Areas of the Whangaruru Ecological District. Reconnaissance Report for the Protected Natural Areas Programme. DoC Whangarei

³¹ This layer identifies the top 5 % of additional High priority terrestrial sites, that would potentially make the largest additional gains assuming management is applied to the top 30% of sites as identified in the ranking of terrestrial ecosystem areas derived from a ranking analysis of indigenous-dominated terrestrial ecosystems for the Northland Region.

FIG 10: PNA MAPPING (BOOTH 2005)



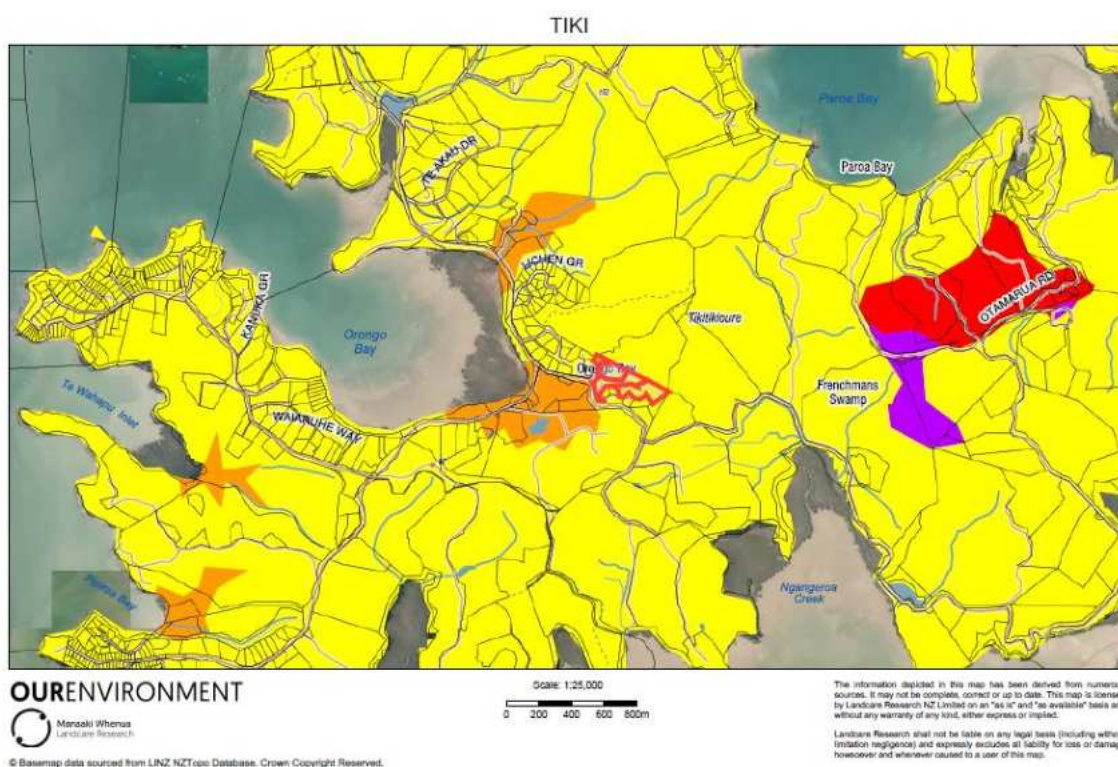
THREATENED ENVIRONMENT CLASSIFICATION (TEC)

The TEC mapping layer³² is most appropriately applied to help identify priorities for formal protection against clearance and/or incompatible land-uses, and to restore lost linkages and buffers. The first two classes have been incorporated into national and regional policy to address biodiversity protection on private land³³ and as a measure of significance of any site vegetation. These are not present onsite, rather the Lots are mapped as

- Level III *At Risk* (20-30% Indigenous Cover Remains).

Local indigenous vegetation and habitats of the type are considered less reduced and fragmented than the first two categories, but lacking legal protection, indicating covenanting of such areas would be beneficial in the wider landscape.

FIG 11: TEC CLASSIFICATION



³² Threatened Environment Classification (2012) Landcare Research Manaaki Whenua. Based on Land Environments New Zealand (LENZ), classes of the 4th Land Cover Database (LCDB4, based on 2012 satellite imagery) and the protected areas network (version 2012, reflecting areas legally protected for the purpose of natural heritage protection).

³³ Northland Regional Policy Statement 2018 Appendix 5; Land Environments New Zealand Level VI; Land Cover Database 4 (2012); Protected Areas Network (2012) **Acutely Threatened** (<10% Indigenous Cover remains); **Chronically Threatened** (10-20% Indigenous Cover remains); **At Risk** (20-30% Indigenous Cover Remains); **Critically Underprotected** (>30% cover, <10% protected); **Underprotected** (>30% Indigenous cover remains, 10-20% protected); **Better Protected** (>30 indigenous cover, >20% protected)

SITE VISIT

TERRESTRIAL VEGETATION

A comprehensive site visit was made on the 6th August 2023 with specific regard to the proposed scheme, aerial photography and desktop review. Walk through visual vegetation survey was undertaken to characterise the site associations and habitat for significance and to confirm wetland presence.

The landscape pattern observed today is a snapshot of remnant indigenous character, comprising a poor quality derivate of the predicted **WF11 type**, subdued by temporal layers of repeated clearance and pest influence. Even in expectation of local kānuka- mānuka shrubland character the designated clearance areas are also of low ecological integrity.

Proposed Lots 25-27 are open, weedy edge character adjacent a vehicle track designated for upgrade, more recently modified (*refer FIG 5*) and unable to recover a broader regenerative association beyond unpalatable dominance at all tiers due to pest influence. The upper northeastern slope of Proposed Lot 27 closest to more intact extent on Lot 36 DP 426505 offsite has the better quality within this trio - designated as covenant G. Proposed Lots 23 & 24 are in majority grass cover. Lot 23 does not require any clearance.

Although there is proximate seed source and local frugivore populations, regeneration and diversity is constrained to largely unpalatable species at the seedling and sapling layer suggesting pest control is required at a greater level e.g. *Pomaderris*; *Coprosma rhamnoides*; *C. areolata*; tātarāmoa (bush lawyer *Rubus cissoides*) silverfern (*Alsophila tricolor*); bracken; *Gleichenia microphylla*; *Carex*; totara; horopito (*Pseudowintera colorata*); mingimingi and *Gahnia*. More palatable species are limited to naturally abundant pioneers *Coprosma robusta*, mahoe; five finger.

Scattered tōtara and tānekaha fills the niche as the podocarp where others have been lost, often associated with historic burning and grazing regimes. Larger stature podocarps are within covenant boundaries (avoided).

Specific search for *Threatened* and *At Risk* species identified from desktop review (e.g. Russell Forest & Tikitikioure PNA referenced) and professional expectation was made, unsuccessfully.

There is no distinct coastal component and other forest types recorded in the Tikitikioure PNA documentation or Predicted Ecosystem Mapping are not represented e.g puriri–tanekaha–taraire coastal forest; WF7.3 forest type

Hakea; gorse, pampas and tobacco weed (*Solanum mauritianum*) are present widely as the most prevalent terrestrial weeds. They form the dominant cover in some areas. Gorse seed can continue to germinate from soil seed bank for up to 50 years and will likely be an ongoing weed in light gaps. Tobacco weed will also spread in shade. *Aristea* is a common ground cover. Notably we did not encounter obvious *Tradescandia* or *mothplant* infestation.

There is little expected variation or pattern according to aspect and moisture, other than the abrupt change to wetland of swamp and shallow water type character within permanent hydrology. The riparian area of the wetland and creek is weed infested and lacking expression of the ecotone due to weed influence. Wild ginger, pampas, gorse, tobacco weed and mistflower are priority weeds.

There are no kauri i.e. the Lots are not considered *kauri forest*³⁴ as per definition in the recent Biosecurity National PA³⁵ Pest Management Plan Order (2022).

ACCESS TO LOTS 25-27 LOOKING NORTH OPEN AND WEEDY



³⁴ kauri forest(a) means—(i) a forest or bushland ecosystem that contains more than 1 kauri;

³⁵ the primary causal agent of kauri disease, known as *Phytophthora agathidicida*

**PROPOSED LOT 24 CLOCKWISE : VIEW NORTH; VIEW SOUTH TOWARD SUBDIVISION ACCESS; PANORAMA
LOOKING SOUTH WEST; A3 CREEK INCISED AND NARROW**



***PREOPOSED LOT 23 CLOCKWISE: GRASSED SLOPE VISIBLE FROM UPPER ACCESSWAY VIEW NORTH; ONSITE
UPPERSLOPE VIEW SOUTH OVER ORONGO BAY COMMERCIAL AND SPORTS GROUND***



***CLOCKWISE: PROPOSED ACCESS TO LOTS 25-27 DESIGNATED FOR UPGRADE; THIN CANOPY AND WEED INFESTED
BETWEEN PROPOSED LOTS 23 & 24***



PROPOSED LOT 25 REPRESENTS THE BETTER QUALITY HOWEVER REMAINS OPEN AND SUBDUED WEEDY CHARACTER DUE TO PEST INFLUENCE AND REPEATED CLEARANCE (2003)



PROPOSED LOT 26 OF WEED INFESTED HAKEA & GORSE PARTICULARLY AMONGST SCATTERED MĀNUKA



PROPOSED LOT 27 OF WEED INFESTED AS BEFORE REMNANT INDIGENOUS CHARACTER EXPRESSED ALMOST WHOLLY AS MĀNUKA & FERN VERY OPEN AND WEEDY



CLOCKWISE : A3 CREEK BETWEEN PROPOSED LOTS 23 & 24



DOMINANT

FROM LEFT: UPPER WETLAND; UPPER WETLAND; LOWER WETLAND ADJACENT BARN RAUPO



SITE WETLAND

Visual vegetation survey was undertaken of the wetland extent indicated in the 2007 Scott Landscape Report. No detailed or botanical description was provided in that document sufficient to verify character or change in condition in the intervening years. Site investigation was been undertaken specifically with regard to the presence or otherwise of *natural inland wetland*, as defined in the National Policy Statement for Freshwater Management (NPS - FM2020) and subject to the protective regulations within the National Environmental Standards for Freshwater (NES-F 2020).

The definition of **wetland** is given in the Resource Management Act (1991):

Wetland includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals adapted to wet conditions.

Plants adapted to live in wetland conditions as above are defined in three categories –

- **OBL**: Obligate. Almost always is a hydrophyte, rarely in uplands (estimated probability >99% occurrence in wetlands)
- **FACW**: Facultative Wetland. Usually is a hydrophyte but occasionally found in uplands (estimated probability 67–99% occurrence in wetlands)
- **FAC**: Facultative. Commonly occurs as either a hydrophyte or non-hydrophyte (estimated probability 34–66% occurrence in wetlands)

(Clarkson, B. et al 2021)

Identification and dominance of these species in vegetation forms the basis for diagnosis as wetland and has been incorporated into the NPS –FM (2020). To this end, both exotic and native species have been categorised by NZ experts in supporting documentation.

The NPS – FM (2020) & accompanying regulations of the NPS- F (2020) have very recently been amended³⁶, incorporating a new definition of *natural inland wetland* as subject to the *NES F (2020)* as below, providing exclusions of some classes of wetland as per the broader RMA definition:

Natural inland wetland means a wetland (**as defined in the Act**) that is not:

- (a) in the coastal marine area³⁷; or
- (b) a deliberately constructed wetland, other than a wetland constructed to offset impacts on, or to restore, an existing or former natural inland wetland; or
- (c) a wetland that has developed in or around a deliberately constructed water body, since the construction of the water body; or
- (d) a geothermal wetland; or
- (e)³⁸ a wetland that:
 - (i) is within an area of pasture used for grazing; **and**

³⁶ 8th December 2022 NPS; 5th December NES effective 5 Jan 2023

³⁷ Clause (a) of the definition denotes coastal wetlands within the CMA are now not subject to NES- F (2020) regulations.. They remain subject to provisions of the NZ Coastal Policy Statement (2010)³⁷ and Regional Plan as part of wider mechanisms for protection of estuarine and coastal ecosystems.

³⁸ Regulation (e) (i) & (ii) only apply while a site is in active pastoral use, and not once its purpose changes. “This exclusion is not targeted at pasture being targeted for urban development or for other land uses. It does not apply to wetlands in other areas of grassland that are not grazed, such as in parklands, golfcourses, landscaped areas and areas of farmland not used for grazing purposes”. MfE (December 2022) Pasture Exclusion Assessment Methodology Pg 9

Exotic pasture species as per definition do not include common wetland/ wet pasture grasses *Glyceria*; *Paspalum distichum** (FACW), *Isachne globosa* (OBL); *Alopecurus geniculatus* (FACW) and *Agrostis stolonifera** (FACW) or unpalatable exotics such as *Ranunculus repens* (FAC).

- (ii) has vegetation cover comprising more than 50% exotic pasture species (as identified in the National List of Exotic Pasture Species using the Pasture Exclusion Assessment Methodology (see clause 1.8); **unless**
- (iii) the wetland is a location of a habitat of a threatened species identified under clause 3.8 of this National Policy Statement, in which case the exclusion in (e) does not apply

The persistent periodicity of the gully wetland is evident from the 1950s in aerial photography and has retained its occupancy, despite variation in surrounding cover.

Visual vegetation survey was undertaken in accordance with the MFE Wetland Protocols (Clarkson 2022). The Rapid Test, as the first strata of wetland delineation was sufficient to determine wetland presence with dominance typified by obligate (OBL) and facultative wetland (FACW) species forming a very obvious natural inland wetland community.

The wetland is a combination of swamp and shallow water types³⁹ with flowing open channels in the current high rainfall conditions, within depressed banks in the basal contour of the gully floor.

Species associations vary along the course, dependant on water depth. Tall stature components include raupo (OBL) dominant in the lower portion adjacent Whakapara Rd, and discreet patches of *Machaerina rubiginosa* (OBL); *M. juncea* (FACW); *Juncus effusus* (FACW) further upstream on Lot 34. The presence of these larger species implies consistent periodicity of flow.

Towards shallower areas an herbaceous component includes common FACW & OBL *Bolboschoenus*; *Cyperus*; *Persicaria* (OBL & FACW) *Isolepis prolifera* (OBL) with a strong growth of rafting innocuous wetland grasses native swamp millet *Isachne globosa* (OBL; remnant seed heads) intertwined with *Paspalum distichum* (FACW) as typical. This creates a deceptively terrestrial appearance, revealed to be rafting over standing water if ventured into. Grass species were recognised through professional experience from leaf form, ligule; growth habit and habitat, with few remnant seed heads at the time of year visited. Swamp kiokio (FACW) is present in isolated clumps, on hummocks or edges.

Overall the wetland is best described

WL19 RAUPO REEDLAND⁴⁰

- Reedland of abundant raupō, locally with species of *Bolboschoenus*, *Schoenoplectus* and *Machaerina*; pūkio, harakeke, and swamp millet.
- A margin of scrub of *Coprosma* species and cabbage tree, with scattered kahikatea in unmodified areas.
- floating/rafted aquatics such as water milfoils, buttercups, willowherbs, species of *Potamogeton*, *Isolepis*, *Azolla* and *Lemna*, and spiked sedges (e.g. kuta).

There are no further known wetland⁴¹ or ranked wetland⁴². There were no further tributary critical source areas (CSA) e.g. seepages or overland flow paths, however the A3 creek does join the lower raupo area adjacent the half round barn adjacent Russell Whakapara Rd.

³⁹ Johnson & Gerbeaux (2004) Wetland types of NZ

⁴⁰ Singers & Rogers (2014) A classification of NZs terrestrial ecosystems. DoC Wellington

⁴¹ NRC BIODIVERSITY WETLANDS <https://localmaps.nrc.govt.nz/localmapsviewer/?map=55bdd943767a493587323fc025b1335c>

⁴² Wildlands (2011) RANKING OF TOP WETLANDS IN THE NORTHLAND REGION STAGE 4 - RANKINGS FOR 304 WETLANDS Contract Report No. 2489

Weed control does not seem to have been undertaken to a degree sufficiently protective of expected indigenous species associations for the landform and type, however without a baseline description from the prior 2007 Landscape Report it is impossible to determine any loss of value or extent. Control of exotic wetland grasses and herbaceous species is not recommended in this instance as they are difficult to distinguish from the often similar native component, with parallel functional water quality protection. Rather the larger stature invasive species should be the focus.

As well as extent, consideration of the site wetland included information from the desktop review to inform likely wider context and potential shared *values*⁴³. Avoidance of *extent* and *values* loss is core policy⁴⁴ of the NPS – FM (2020).

Values as per NPS- FM definition–

- **ECOSYSTEM HEALTH**
 - Currently impacted condition – limited diversity, semi indigenous with functionality of sediment retention and processing
 - The Russell Whakapara Rd culvert and bunded crossing culvert are perched. Removal of bund and culvert would be beneficial upgrades - subject to the NES – F protective regulations.
 - Contribution of basic feeding habitat and species retention across guilds
- **INDIGENOUS BIODIVERSITY**
 - Entire site is High Density Kiwi Zone (DOC 2018)
 - Limited bird guild - insectivores appear dominant
 - wetland and connection to estuarine environment
 - Potential freshwater fish habitat in wetland and flow interface and deeper areas
 - Impacted by weeds within and riparian
- **HYDROLOGICAL FUNCTION**
 - sediment retention and processing, tributary to the Orongo Bay and offsite wetland downstream
- **MĀORI FRESHWATER VALUES**
 - Likely both intrinsic and functional – outside scope of this report
- **AMENITY VALUES**
 - impacted by wild ginger and other riparian weed species

⁴³ Values (NPS FM 2020 Amendment No.1 (2022) (i) ecosystem health; (ii) indigenous biodiversity; (iii) hydrological function; (iv) Māori freshwater values; (v) amenity values

⁴⁴ Policy 6: *There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.*

FAUNA

Primary observations were made in addition to consideration of wetland and vegetation significance, to complement characterisation of the site.

AVIFAUNA

Five *Five Minute Bird Counts* were undertaken across the site on the morning of the site visit under clear calm conditions

- wetland Lot 34
- Building envelope Lot 25
- Wetland adjacent Russell Whakapara Rd
- High slope Lot 23 with view across site
- Mid access track

Conspicuous birdlife consisted of frequent common exotic and native insectivorous generalists i.e. grey warbler; multiple fantail; kingfisher on margins of bush and wetland. Tūi and kākāpū were sighted crossing cover in the near distance. These not likely to favour the kānuka and weed dominated vegetation onsite, unable to satisfy their frugivorous and nectivorous dietary components. The insectivores are versatile in their habitat occupation and the proposal areas are unlikely to represent primary irreplaceable habitats.

The property is classed as *HIGH DENSITY KIWI (DoC 2018)*. Recent footprints were observed on the muddy access of Lot 24. More specifically, Tikitikioure adjacent has the highest hourly call count in the Russell area at 18.6 calls/hr (Monitoring Station 15), as per the most recent annual monitoring 2021/23. Kiwi are now considered *Not Threatened*, predicted to increase by > 10% over three generations due to the intensive in situ control of predators by many community groups and government agencies, ex situ management, and translocations to secure sites. However qualifiers to this status include *CD – Conservation Dependent, with RF- Recruitment Failure & PD – Partial Decline* from predation of chicks / decline of breeding individuals, both of which mean an uncontrolled environment will lead to further loss. Wetland areas with adjacent cover represents favourable territory when supported by the onsite pest control. No burrows were found directly within or nearby the proposal area. Regardless, a check or run through with a kiwidog should be made prior to siteworks for daytime sheltering birds, starting on the inner parameter to allow any present to move off into cover if disturbed. A certified kiwi handler must called to move them physically if necessary, to avoid contravening the Wildlife Act (1953).

Unsuccessful playbacks for fernbird (mātātā; *Poodytes punctatus* *At Risk -Declining*) were made mid wetland, as the most likely wetland bird species to respond if present. Fernbirds are widely distributed in Northland but restricted to typically wetland habitat, including gumland where they favour emergent mānuka above the sedges layer. Fernbirds are poor fliers; they typically scramble through dense vegetation, though occasionally fly short distances with their tail hanging down, just above the vegetation. This makes them vulnerable to predation. They are the least mobile of wetland birds, incapable of moving far to another habitat⁴⁵ and destruction of their habitat can result in their mortality through lack of ability to relocate. Due

⁴⁵ Ogle (1982) Wildlife and Wildlife Values of Northland. New Zealand Wildlife Service. Fauna Survey Unit report No. 30. Dept. of Internal Affairs, Wellington.

to their appearance similar to a scruffy long tailed sparrow they are often not noticed or recognised as having high species value.

No other specialist wetland birds were encountered. Ground or low dwelling birds are particularly vulnerable to mammalian predators. There is no apparent pest control undertaken. Pest control increases functional habitat, and allows recruitment, as opposed to the simple provision of cover.

White faced heron (*Egretta novaehollandiae* -*Not Threatened*) were noted in the swamp in Lot 20 DP 437503(offsite) adjacent Russell Whakapara Rd and would no doubt use the similar habitat on site. Further species e.g. pūweto (spotless crane *Zapornia tabuensis*) & kotoreke (marsh crane *Zapornia pusilla*) are notoriously reticent even if present but the site wetlands represent a contribution to good habitat, if supported with pest control.

[*KIWI PRINTS IN MUD ON ACCESS*](#)



HERPTOFAUNA

Onsite vegetation presents habitat for a range of lizards frequently described in local SNA surveys and reporting- most commonly Northland green gecko (*Naultinus grayii*; *At Risk-Declining*), and the Pacific gecko (*Dactylocnemis pacificus*; *At Risk-Relict*). No diurnal species were encountered onsite despite visual survey. This included disturbing longer groundcover, debris and scrutiny of taller vegetation; trunks and potential basking sites e.g. sunny trunks and open edges; banks & rocks. A nocturnal herptofauna survey was beyond the scope of this review. Pest control is key to presence and under those circumstances species may occupy favourable habitat even in close proximity to the proposed increase of residential occupation. Cats are large consumers of herptofauna.

FISH

A fish survey was outside the scope of reporting. There is a 1993 site specific FWFD record⁴⁶ in the lower wetland which recorded banded kōkopu (*Galaxias fasciatus* *Regionally Significant*), shortfin eel (*A. australis*); common bully & giant bully (*Gobiomorphus gobioides*; *At Risk Naturally Uncommon*). The wetland provides ideal habitat for species preferring slow moving coastal waters such as giant bully.

NIWA has combined REC V2 classification with monitoring data to extrapolate a wide range of instream water quality and fish habitat parameters for all mapped NZ rivers. This resource gives potential fish species in waterways and may guide survey expectations. These are shown below in comparison to recorded species.

TABLE 4: PREDICTED & RECORDED FISH SPECIES

SPECIES	COMMON NAME	THREAT STATUS ⁴⁷	FRESHWATER FISH DATABASE	PREDICTED NIWA
<i>Anguilla australis</i>	Shortfin eel	<i>Not Threatened</i>	✓	✓
<i>Galaxias fasciatus</i>	Banded kōkopu	<i>Not Threatened Regionally Significant</i>	✓	✓
<i>Gobiomorphus cotidianus</i>	common bully	<i>Not Threatened</i>	✓	
<i>Gobiomorphus huttoni</i>	Redfin bully	<i>Not Threatened</i>		✓
<i>Gobiomorphus gobioides</i>	Giant bully	<i>At Risk – Naturally Uncommon</i>	✓	
<i>Galaxias maculatus</i>	inanga	<i>At Risk – Declining</i>		✓
<i>Retropinna retropinna</i>	Common smelt	<i>Not Threatened</i>		✓

⁴⁶ Freshwater Fish Database records NIWA

⁴⁷ Conservation Status of New Zealand Freshwater Fish (2018) Dunn et al. New Zealand Threat Classification Series 24, DoC, Wellington

SUMMARY OF ECOLOGICAL ISSUES IDENTIFIED

In summary, key environmental issues existing prior to development are identified below.

These are a combination of implied, from desktop review, and observed:

TABLE 5: CURRENT SITE ISSUES IDENTIFIED PRIOR TO PROPOSAL

EXISTING ISSUE	STATUS	MANAGEMENT
Edge effects from historic clearance	Weed ingress into better quality vegetation Loss of biodiversity in open environment Risk of loss of extent wetland Creek not buffered; weedy	Weed control; buffer planting
State of existing native ecosystems	Weed encroachment; dominance in some areas Functionality as habitat and corridor reduced by insufficient of pest control. Not defined; further encroachment and loss of extent likely with development	Weed to allow natural regeneration Pest control to maintain/ bolster avifauna/ herptofauna, Protection and Buffer planting to prevent inadvertent clearance
Apparent lack of herptofauna	Likely pest populations a contributing factor	Pest control
Protection of significant values	Low – no formal pest control, weed ingress substantial ; creek not buffered ; wetland not defined as per the NPS -FM definition	Weed & pest control

Issues identified are common throughout Northland ecosystems and consistent with key pressures identified in **Regional Policy Statement Sec 2.2** - being habitat loss and fragmentation, and the impact of weeds/ pests. These represent a baseline for cumulative effects that may occur with the increase of residential occupation but alternatively also be mitigated or remedied through the proposal to provide a low or positive effect.

SIGNIFICANCE

Consideration of significance is given, in regard to *Northland Regional Policy Statement Appendix 5 (2018)*, with guidance contained within non statutory documents including *DOC Guidelines for Assessing Significant Ecological Values (2016)*; *Guidelines for the Application of Ecological Significance Criteria for Indigenous Vegetation and Habitats of Indigenous Fauna in the Northland Region (Wildlands 2019)*.

Appendix 5 is the standard Northland criteria for assessing significance of an ecological site, and directly reflects those contained in *Appendix 1* of the recently mandated *National Policy Statement for Indigenous Biodiversity (2023)* including consideration of *Representativeness; Diversity & Pattern; Rarity and Distinctiveness & Ecological Context*. The ecological site includes the entire vegetation of the Lot, with comment then given on the clearance areas.

TABLE 6: ASSESSMENT OF SIGNIFICANT INDIGENOUS VEGETATION AND SIGNIFICANT HABITATS OF INDIGENOUS FAUNA IN TERRESTRIAL, FRESHWATER AND MARINE ENVIRONMENTS NORTHLAND REGIONAL POLICY STATEMENT (2018) APPENDIX 5

(1) REPRESENTATIVENESS	EDWARDS TIKITIKIORE PNA #FN082	WETLAND	TERRESTRIAL
<p>(A) Regardless of its size, the ecological site is largely indigenous vegetation or habitat that is representative, typical and characteristic of the natural diversity at the relevant and recognised ecological classification and scale to which the ecological site belongs</p> <p>(i) if the ecological site comprises largely indigenous vegetation types: and</p> <p>(ii) Is typical of what would have existed circa 1840</p> <p>(iii) Is represented by the faunal assemblages in most of the guilds expected for the habitat type</p> <p>(B) The ecological site</p> <p>(i) Is a large example of indigenous vegetation or habitat of indigenous fauna</p> <p>(ii) Contains a combination of landform and indigenous vegetation and habitats of indigenous fauna that is considered to be a good example of its type at the relevant and recognised ecological classification and scale</p>	<p>A (i) Contains representative forest, scrub, fernland and wetland vegetation types.</p> <p>(ii) Contains vegetation representative of taraire-pūriri forests, kohekohe coastal forests and pōhutukawa coastal forests which existed circa 1840.</p> <p>(iii) Contains a representative assemblage of fauna guilds.</p> <p>B (i) A moderately-large sized area of coastal vegetation at the Ecological District scale.</p>	<p>A (i) Lower raupo dominated area – yes. Upstream a strong exotic component.</p> <p>(ii) structural modification (bundled crossing)</p> <p>(iii) freshwater fish 1993 FWFD survey – YES current presence unknown; no wetland birds sighted or responded to playbacks but recorded in the wider area. Likely presence influenced by low pest control</p> <p>B) swamp as most freshwater coastal wetlands have been reduced in the ecological district as nationally</p> <p>MODERATE</p>	<p>A (i) (ii) contains kānuka manuka shrubland, heavy weed component due to prior repeated clearance with low representativeness and integrity in comparison to other very local examples</p> <p>(iii) insectivorous birds and ground dwellers weka and kiwi (and herpetofauna if pest control sufficient) – may occupy the clearance areas as wider territory but are not likely dependant on it</p> <p>B) Yes – the ecological site is considered the wider contiguous PNA</p> <p>(ii) Clearance and edge effects has subdued the expected pattern and representativeness – remaining is versatile unpalatable pioneer species and weeds</p> <p>LOW-MODERATE</p>
<p>(2) RARITY/ DISTINCTIVENESS</p> <p>(A) The ecological site comprises indigenous ecosystems or indigenous vegetation types that:</p> <p>(i) Are acutely or chronically threatened land environments associated with LENZ Level 4</p> <p>(ii) Excluding wetlands, are now less than 20% original extent</p> <p>(iii) excluding man made wetlands are examples of wetland classes that either otherwise trigger Appendix 5 criteria or exceed any of the following area threshold</p> <p>(a) Saltmarsh 0.5ha</p> <p>(b) Shallow water lake margins and rivers 0.5ha</p> <p>(c) Swamp >0.4</p> <p>(d) Bog >0.2 ha</p> <p>(e) Wet heathlands >0.2 ha</p> <p>(f) Marsh; fen; ephemeral wetland or seepage/flush >0.05ha</p> <p>(B) Indigenous vegetation or habitat of indigenous fauna that supports one or more indigenous taxa that are threatened, at risk, data deficient, or uncommon either nationally or within the relevant ecological scale</p> <p>(C) The ecological site contains indigenous vegetation or an indigenous taxon that is</p> <p>(i) endemic to the Northland/ Auckland region</p> <p>(ii) At its distribution limit in the Northland region</p> <p>(D) The ecological site contains indigenous vegetation or an</p>	<p>A (i) The site occurs on 'Acutely Threatened' and 'Chronically Threatened' land environments.</p> <p>(ii) Coastal forests, particularly those with a significant pōhutukawa component, are much reduced in the Northland Region.</p> <p>B). Supports 'Threatened', 'At Risk' and regionally significant flora and fauna species.</p> <p>D (i) Contains the only record of pūriri-tānekaha-taraire coastal forest, and kohekohe-pūriri-tawaroa coastal forest in the Whangaruru Ecological District.</p>	<p>A (i) no</p> <p>(ii) -</p> <p>(iii) Yes- Requires formal delineation of extent however the swamp is part of a larger downstream offsite wetland complex</p> <p>B) POTENTIALLY Giant bully (At Risk- Naturally Uncommon) Banded kokopu (Regionally significant), inanga & Long fin eel (At Risk Declining); wetland birds (At Risk – Declining); Wetland birds particularly expected fernbird not apparent despite playbacks implies lack of pest control</p> <p>D (i) wetland vegetation – some weed ingress occurring</p> <p>MODERATE- HIGH</p>	<p>A (i) no</p> <p>(ii) Predicted WF7.3 not present</p> <p>B) weka (At Risk – Relict) may use as wider territory ; potentially geckos but poor habitat lack of berries; nectar and low pest control</p> <p>C) Potentially Northland green gecko <i>Naultinus grayii</i>; At Risk- Declining Northland; <i>Naultinus elegans</i> (NZE) reaches its distributional limit in Bay of Islands</p> <p>LOW-MODERATE</p>

<p>association of indigenous taxa that</p> <p>(i) Is distinctive of a restricted occurrence</p> <p>(ii) Is part of an ecological unit that occurs on a originally rare ecosystem</p> <p>(iii) Is an indigenous ecosystem and vegetation type that is naturally rare or has developed as a result of an unusual environmental factor(s) that occur or are likely to occur in Northland: or</p> <p>(iv) Is an example of a nationally or regionally rare habitat as recognised in the New Zealand Marine Protected Areas Policy</p>			
<p>(3) DIVERSITY AND PATTERN</p> <p>(A) Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of:</p> <p>(i) Indigenous ecosystem or habitat types; or</p> <p>(ii) Indigenous taxa</p> <p>(B) Changes in taxon composition reflecting the existence of diverse natural features or ecological gradients; or</p> <p>(C) Intact ecological sequences</p>	<p>A (i) Contains a diversity of vegetation types.</p> <p>(ii) Contains a moderate diversity of plant species.</p> <p>C) Contains sequential gradients from estuarine to terrestrial environments.</p>	<p>A) Swamp and shallow water habitat may support a diversity of fish but avifauna appears reduced due to pest influence. The wetlands do not have a high diversity of indigenous flora</p> <p>B/C) Intact ecological sequences when considered in association with the wider SNA Q05/004 and downstream wetland to Orongo Bay</p> <p>HIGH</p>	<p>A(i) & (ii) low diversity & integrity weed infested mānuka kānuka scrub</p> <p>B) & C) Changes in vegetation with topography; soil and moisture have been suppressed</p> <p>LOW</p>
<p>(4) ECOLOGICAL CONTEXT</p> <p>(A) Indigenous vegetation or habitat of indigenous fauna is present that provides or contributes to an important ecological linkage or network, or provides an important buffering function: or</p> <p>(B) The ecological site plays an important hydrological, biological or ecological role in the natural functioning of a riverine, lacustrine, palustrine, estuarine, plutonic (including karst), geothermal or marine system</p> <p>(C) The ecological site is an important habitat for critical life history stages of indigenous fauna including breeding/spawning, roosting, nesting, resting, feeding, moulting, refugia or migration staging point (as used seasonally, temporarily or permanently)</p>	<p>(A) <i>This site buffers over 25 kilometres of coastal margin and provides important riparian protection to many small streams, and in places this protection is from source to sea.</i></p> <p>C) <i>Provides important habitat for a diversity of fauna species, including birds and aquatic fauna.</i></p>	<p>A) The wetland/creek are part of an ecological linkage or corridor to other areas of significant habitats. They also form a buffer between coastal waters and terrestrial habitats at the site in terms of sediment; nutrient and stormwater retention.</p> <p>C) Potentially native diadromous freshwater fish habitat. Freshwater source in times of drought for local fauna</p> <p>MODERATE-HIGH</p>	<p>A) As part of the larger SNA it contributes to the vegetated linkage across the Russell Peninsula for fauna. Buffers short coastal stream, and wetlands on site that are hydrologically connected to naturally rare estuarine habitats in regard to the significant habitat of Orongo Bay</p> <p>B) YES as riparian vegetation close proximity and hydrological freshwater source to estuarine environments of Orongo and Uruti Bays</p> <p>C) Likely fish species and fauna as before (1)A including threatened native diadromous fish</p> <p>MODERATE -HIGH</p>

Significance of the terrestrial cover includes potential habitat for kiwi and herptofauna; wetlands; integral connectivity within the expansive broad Tikitikioure PNA; natural pattern; and physical and functional buffering to the aquatic environments as riparian vegetation - erosion control. The designated building envelopes occupy reduced representation of these values and characteristics, having been subject to edge effects from a pre existing track and more recent clearance, albeit greater than 10 years ago. This ecological condition/quality is important in assessment because it contributes to the way an activity may affect a feature (EIANZ 2018).

The significance ratings for each of the 4 criteria in Appendix 5 Significance Assessment are combined to give an overall single value according to Table 4 (*EIANZ Table 6*), below. This should not however suppress any impact consideration of a single value or component.

TABLE 7: SCORING FOR SITES COMBINING VALUES FOR SIGNIFICANCE CRITERIA (TABLE 6 EIANZ)

VALUE	EXPLANATION
VERY HIGH	Area Rates VERY HIGH for 4 or all of the matters in Appendix 5 RPS. Likely to be nationally important and recognised as such
HIGH	Area rates HIGH for 2 of the assessment matters. Moderate and LOW for the remainder
MODERATE	Area rates HIGH for one matter, MODERATE & LOW for the remainder Area rates MODERATE for 2 or more of the criteria. LOW or very LOW for the remainder. Likely to be significant in the ED
LOW	Area rates LOW or VERY LOW for all but one MODERATE. Limited ecological value other than as habitat for local tolerant species.
NEGLIGIBLE	Area rates VERY LOW for 3 matters and MODERATE LOW or VERY LOW for the remainder.

On this basis the wetland has a HIGH value and the terrestrial cover at best a MODERATE value.

Consideration of identified site species value is also given as below (EIANZ 2018)

TABLE 8: FACTORS TO CONSIDER IN ASSESSING SPECIES VALUE (TABLE 5 EIANZ 2018)

VALUE	EXPLANATION
VERY HIGH	Nationally Threatened species (Critical, Endangered or Vulnerable) found in the Zone of Influence or likely to occur there, either permanently or occasionally
HIGH	Nationally At Risk species (Declining) found in the Zone of Influence or likely to occur there, either permanently or occasionally
MODERATE-HIGH	Species listed in any other category of At Risk category (Recovering, Relict or Naturally Uncommon) found in the Zone of Influence or likely to occur there, either permanently or occasionally.
MODERATE	Locally uncommon/rare species but not Nationally Threatened or At Risk.
LOW	Species Not Threatened nationally and common locally.
NEGLIGIBLE	Exotic species, including pests

In regard to *Table 5 (EIANZ 2018)* above:

HIGH VALUE

At Risk – Declining

- Potential habitat for Northland Green Gecko & *Mokopirirakau granulatus* - higher value cover in more diverse creek gully cover adjacent e.g. berries; broader array of insects
- Inanaga (At Risk- Declining) recorded in the wetland (ZOI of riparian cover)

MODERATE – HIGH VALUE SPECIES

- NI Weka (*At Risk – Relict*)
- Giant Bully (At Risk- Naturally Uncommon) recorded in the wetland (ZOI of riparian cover)

MODERATE VALUE SPECIES

Regionally Important; Conservation Dependant

- NI Kiwi (CD)
- Banded kokopu (*Regionally Significant*)

The threat status of kānuka has been elevated to *Threatened - Nationally Vulnerable* and manuka *At Risk -Declining* as a precautionary measure based on the potential threat posed by myrtle rust. All *Myrtaceae* species are at risk of infection by myrtle rust (*Austropuccinia psidii*), however an area should not be classified as significant based purely on their presence without broader consideration. It is common and widespread in the Whangaruru Ecological District and therefore not considered significant under Appendix 5: *Criteria Rarity 2(B)* for species value

alone, in accordance with regional guidance⁴⁸. We assign it a LOW value as per *Table 5* above (*EIANZ Table 5*). The assigned value of flora species onsite is NEGLIGIBLE – LOW. Rather, their contribution to significance of the site is in their functional aspects as simple existence of vegetated cover – buffering; habitat and connectivity

LOW VALUE SPECIES

Common in the ED & onsite

- *Mānuka, kānuka, tanekaha mapou ground covers towai mingimingi Coprosma spp etc*

Other than confirmed kiwi tracks, there is only low **potential** for the weka and gecko to be present in the footprint of clearance areas, as part of the wider site. From professional experience it represents poor quality habitat for the potential gecko species. Fruit and nectar and likely more diverse invertebrate prey is available elsewhere within the Lot in denser cover with understorey. They would provide only part of wider territory at best for either weka or kiwi.

Clearance of the areas is unlikely to affect any of these species in a significant adverse way. All will live closely proximate with residential occupation if predator control in functional habitat allows. We recommend a pre works site check for daytime sheltering kiwi and clearance working from the open outer edge to allow retreat for all species. It is an offence under the Wildlife Act 1953 to **intentionally** harm, disturb or kill native wildlife.

The site wetlands as a distinctive consideration maintain an overall *HIGH* significance. They are subject to potential effects largely controlled by NES – F (2020) regulations and engineering best practice but discussed in the following impact assessment.

We therefore rate the potential clearance areas as **NEGLIGIBLE** in open grass (proposed Lots 23 & 24) to **MODERATE** on proposed Lots 25-27 is appropriate, unlikely to provide important habitat for local fauna including highly mobile species⁴⁹.

ASSESSMENT OF EFFECTS

EIANZ METHODOLOGY

Assessment of effects follows the systematic process of the EIANZ⁵⁰ Guidelines (2018) as best practice.

Standard criteria are utilised in a matrix framework to determine the impact of a proposal on a habitat, incorporating a three step process:

- Ecological values are ranked on a scale of *Negligible, Low, Moderate, High, or Very High*.
- The magnitude of effects on these values is ranked on a similar scale (EIANZ TABLE 8)
- The overall level of effect is determined by a combination of value and the magnitude of the effect. (EIANZ TABLE 10)

⁴⁸ Wildlands (2019) Guidelines for the application of ecological significance criteria for indigenous vegetation and habitats of indigenous fauna in the Northland Region. Contract Report 4899a; ECO- SCHED3 WDP;

⁴⁹ NPSIB (2023) *Appendix 2: Specified highly mobile fauna*

⁵⁰ Environmental Institute of Australia and New Zealand

Magnitude is determined by a combination of scale (temporal and spatial) of effect and degree of change that will be caused in or to the ecological component (EIANZ 2018). It should initially be considered in a raw or unmitigated form.

MAGNITUDE OF EFFECTS

Consideration of a raw proposal form without any mitigation is best practice methodology.

TABLE 9: CRITERIA FOR DESCRIBING MAGNITUDE OF EFFECT (EIANZ 2018 TABLE 8)

MAGNITUDE	DESCRIPTION
VERY HIGH	Total loss of, or very major alteration to, key elements/features/ of the existing baseline conditions, such that the post-development character, composition and/or attributes will be fundamentally changed and may be lost from the site altogether; AND/OR Loss of a very high proportion of the known population or range of the element/feature
HIGH	Major loss or major alteration to key elements/features of the existing baseline conditions such that the post-development character, composition and/or attributes will be fundamentally changed; AND/OR Loss of a high proportion of the known population or range of the element/feature
MODERATE	Loss or alteration to one or more key elements/features of the existing baseline conditions, such that the post-development character, composition and/or attributes will be partially changed; AND/OR Loss of a moderate proportion of the known population or range of the element/feature
LOW	Minor shift away from existing baseline conditions. Change arising from the loss/alteration will be discernible, but underlying character, composition and/or attributes of the existing baseline condition will be similar to pre-development circumstances or patterns; AND/OR Having a minor effect on the known population or range of the element/feature
NEGLIGIBLE	Very slight change from the existing baseline condition. Change barely distinguishable, approximating to the 'no change' situation; AND/OR Having negligible effect on the known population or range of the element/feature

We considered the magnitude of effects of the suggested permanent clearance and introduction of residential occupation in the proposal area, as the primary focus, as *MODERATE*, in terms of a change from the current ecological context as per EIANZ criteria above. This incorporates the quality of vegetation to be removed primarily in terms of absolute cover, low species value and its minimal role in ecosystem function. The final orientation of the clearance areas is not definitive, allowing for positioning and clearance to 900m² total in the illustrated envelopes. There will also be no important loss of habitat for identified **potential** species NI kiwi, birds; and geckos (i.e *elements & features*). The upgrade of the access will necessarily result in some further loss of common site species. No kauri (*Threatened – Nationally Vulnerable*) are designated for removal.

Best practice diffuse dispersal of stormwater or wastewater from a septic system laid through existing cover is not expected to have any adverse effect on the habitat or species present.

The interaction of magnitude of effect and ecological value (or significance) of species and habitat gives the **unmitigated level of effect** as per EIANZs *Table 10* (below). This resultant level of effects is then a guide to the extent and nature of the ecological management required to render them acceptable in the statutory framework.

In this regard we consider **unmitigated** impacts as *MODERATE as precautionary* as an interaction between a *MODERATE MAGNITUDE* on *MODERATE value elements* as below:

TABLE 10: CRITERIA FOR DESCRIBING LEVEL OF EFFECTS (EIANZ TABLE 10)

		ECOLOGICAL &/OR CONSERVATION VALUE				
		VERY HIGH	HIGH	MODERATE	LOW	NEGLIGIBLE
MAGNITUDE	VERY HIGH	Very High	Very High	High	Moderate	Low
	HIGH	Very High	Very High	Moderate	Low	Very Low
	MODERATE	Very High	High	Moderate	Very Low	Very Low
	LOW	Moderate	Low	Low	Very low	Very Low
	NEGLIGIBLE	Low	Very Low	Very Low	Very Low	Very Low
	POSITIVE	Net Gain	Net Gain	Net Gain	Net Gain	Net Gain

Introduction of further residential occupation has potential effects of increased disturbance – pets; pest and weed ingress, ongoing edge effects and clearance of a natural high use area around houses. *Impact management should enable maintenance or improvement of existing biodiversity* (EIANZ 2018).

Generalised potential effects are considered to be as below:

- Discharge of stormwater; sediment and contaminants to wetland
- Loss of *Threatened & At Risk* species through physical threat by pests; weeds and habitat disturbance
- Biosecurity- introduction of pests & weeds
- Predation of site fauna by introduced pets and ongoing pest threats

These are cumulative to those identified as currently existing (*as before Table 6*). Methods to avoid, minimise or remedy potential adverse effects as per the impact management hierarchy are given below:

TABLE 11: POTENTIAL ADVERSE EFFECTS & PROPOSED MANAGEMENT

IMPACT MANAGEMENT			
	AVOID	REMEDY	MITIGATE
HABITAT CLEARANCE	<p>Designated envelopes to be undertaken by the developer to avoid unforeseen clearance or disturbance to habitat</p> <p>Best practice method – no depositing adjacent waterways; Low impact clearance methods (manual)</p> <p>Kiwi dog check, for At Risk/ Threatened species prior to works</p> <p>Retention of A3 riparian vegetation in covenant</p> <p>Further edge effects from clearance avoided by 10m enhancement planting under kānuka canopy at edge of clearance</p>	<p>Revegetation of A3 creek 2m buffer</p> <p>Revegetation on Lot 34 clear areas</p> <p>Revegetation upper proposed Lot 23</p>	<p>Weed control to protection of existing and new vegetation to ensure extent is maintained.</p> <p>Increased pest control to increase effective current & remaining habitat</p> <p>Covenanting of remaining vegetation on Lots outside clearance envelope</p> <p>Lot 34 riparian planting to enhance habitat provision and riparian protection/ shade/ sediment and nutrient interception.</p> <p>Revegetation under weedy covenant C of proposed Lot 23</p> <p>10m Buffer planting low flammability appropriate spp around perimeter of each house area promote regeneration of wider species biodiversity and better fruit/ nectar supply</p>
WORKS WITH EXISTING INFRASTRUCTURE REMOVAL CROSSING TO PROPOSED LOTS 24	<p>SUBJECT TO NES F</p> <p>Infrastructure avoid wetlands</p> <p>FISH RECOVERY PROTOCOL prior to any instream works</p> <p>Best practice culvert design NES - F REG 70 & Monitoring and Maintenance Plan</p> <p>Best practice culvert design NES REG 70 & Fish Passage Guidelines</p> <p>Monitoring and Maintenance Plan (Lifetime of culvert)</p>		<p>Dense planting of access edges with low stature sedges and grasses, best adapted to trap sediment, process nutrient and slow/ retain stormwater</p>
IMPORT OR STOCKPILING OF MATERIALS	<p>Not to be located adjacent wetlands</p> <p>No fill to be stockpiled against trees</p> <p>Earthworks best practice GD05</p>		<p>Check for pest species</p>
STORMWATER & SEDIMENT	<p>Best practice industry standards e.g. TP 90; GD01, GD05</p> <p>Enhancement of riparian corridor to increase interception of diffuse sources-</p> <ul style="list-style-type: none"> Planting creek boundary 2m Weed / pest control to ensure resilience of ecosystem <p>Revegetation of Lot 34</p> <p>Revegetation clear upper slope proposed Lot 23 to decrease runoff</p> <p>Dense planting of access edges/ focused stormwater input with low stature sedges and grasses, best adapted to trap sediment, process nutrient and slow/ retain stormwater</p> <p>Any stormwater detention ponds/ wetlands to be vegetated to prevent sediment, high temp, low oxygenated inputs to natural waterways.</p>		
RISK TO THREATENED FAUNA	<p>Works adjacent to wetland be done in early autumn outside key reproductive phases for fish/ wetland birds</p> <p>Preworks check to be made by ecologist/ kiwi dog for species identified in this EIA</p> <p>Contractors awareness of key species likely to be present to avoid contravening Wildlife Act</p> <p>No cats/ dogs policy. To extend to contractors working or visiting onsite</p> <p>Planting and pest control to be prioritised in development time frame</p> <p>Pest control required on Title in perpetuity to avoid increase in vermin</p> <p>Revegetation Lot 34 riparian area to create denser refugia, avoid human & traffic disturbance, light throw to fauna</p>		<p>Pest control will prevent excursion offsite into Tikitikoure PNA high kiwi count area and further wetland extent</p>

BIOSECURITY	Plants to be checked prior to import to site for Argentinian Ants, myrtle rust and other obvious invertebrate of weed species in containers Plants to be appropriate to local potential species composition No kauri designated for planting . No kauri onsite Machinery should be cleaned prior to entering waterways and between waterways WPMP to include standard biosecurity measures		
CONSTRUCTION NOISE	Machinery to be serviced, appropriate and in good condition Clearance outside breeding season for key avian species Hours of work specified		
LIGHT THROW	Downward facing low pressure lamps (no blue light) with hoods to avoid light spillage and limit effects on nocturnal wildlife		Planting of edge of covenants and revegetation of proposed Lot 19 eastern riparian cleared area
IRRESPONSIBLE USE OR DECLINE OF COVENANTS	COVENANT CONDITIONS Activities subject to NES – F in regard to wetland Lot 34 No introduction of listed weeds; introduction of exotic aquatic plants or fish Maintain vegetation No vegetation clearance or earthworks within or within 10m of delineated wetland No deposition of vegetation or sediment where it may enter the wetland/ creek No drainage/ obstruction of flow in Proposed Lot 24 creek or wetland No open fires in or adjacent covenants No disposal of waste or garden waste Monitoring of plantings & pest control		

Providing typical management as tabled above is applied to the development no aspects are considered to be at risk from the development either on or offsite in terms of the ecological values ascertained e.g. weed/pest/ pet control; buffer planting of local appropriate low flammability species⁵¹; stock exclusion; best practice stormwater and earthworks control with adherence to NES- F (2020) protective regulations for hydrological maintenance and fish passage.

If kiwi are present, simple precautionary measures during clearance will be sufficient to avoid any direct physical harm e.g preworks check for daytime sheltering kiwi prior to earthworks. A certified handler must be utilized to move them. Pest control is required indefinitely to bolster biodiversity and functionality of habitat, as opposed to simple existence of vegetated cover. High value fauna present may exist in proximity to peri urban areas as long as there is sufficient functional habitat and pest control. Long term pest management coupled with habitat preservation will ensure the sites ability to concomitantly increase survival and support more individuals. Domestic cats and dogs are a primary threat and should be excluded.

Landscape permeability for low or ground dwelling fauna e.g. potential herptofauna and low mobility fernbird wetland species is best maintained through retention of site vegetation and pest control to create refugia, maintain connectivity within meta populations and natural dispersal across the broader extent of local cover. The existing access has also been retained to minimise further possible fragmentation and interaction with site values.

⁵¹ limited plate of revegetation species no varietals low flammability e.g Large leaved coprosma species; fivefinger; mahoe; hangehange; flax

A Weed and Pest management Plan should be developed as standard protection for the site values to remedy existing issues and mitigate loss of cover by increase functionality of that remaining as habitat and representation of expected biodiversity.

Primary weeds across the site are

- wild ginger, in the wetlands particularly
- hakea
- tobacco weed
- gorse
- pampas
- mistflower (wetlands)

The integration of best practice principles by the consulting engineers will be primary to avoidance of impacts from development and residential infrastructure in accordance with the NES- F. and parameters of GD01, GD05 & TP 90. Drainage of wetlands is a prohibited adverse effect and it is presupposed this will not occur. All house sites are potentially within 100m of the wetland areas. In that instance no adverse effects on aquatic species or water quality is expected, subject to best practice engineering standards and controls. The removal of the bunded crossing will necessitate development of a Fish Recovery Protocol to ensure none of the species recorded or predicted onsite are put at physical risk.

It is well documented that increased turbidity and sediment loads have negative impacts on aquatic communities. Sedimentation or stockpiling can cause smothering of wetlands vegetation, eutrophication, infilling and alteration of species composition. Together these effects adversely affect habitat of wetland species that may occupy the subject site. Designated development earthworks envelopes will assist contractors to avoid accidental incursion and unquantified effects, an unintentional communality in many such situations. e.g. pushing fill back into vegetation. Post widening on the access we recommend

- Dense planting of access edges with low stature sedges and grasses, best adapted to trap sediment, process nutrient and slow/ retain stormwater

Site procedures for residential and infrastructure development should include contingencies in the event of

- discharge of fuels;
- clearance of undesigned areas;
- actions to take if native fauna is discovered in works area, injured or killed (contact consulting ecologist & /or DoC hotline -800 DOC HOT 0800 362 468)

Best practice clearance methodology includes

- manual clearance outside of key breeding season of kiwi
- machinery hygiene to avoid weed spread,
- rapid replanting of clearance edge (within 3 months)
- weed and pest management during this time included in the WPMP

We recommend underplanting the final resultant clearance borders with appropriate secondary species, providing a dense buffer to avoid further encroachment of edge character and weed ingress. For tangible benefit we nominate a **10m thickness**. Species should be:

- appropriate to predicted forest type and location,
- mid successional shade tolerant,
- low flammability
- diverse mix with broad temporal fruit supply

Other positive effects of planting will be

- increase the ability of the site to accommodate the stormwater dispersal to ground
- visual definition of the protected areas to future owners to prevent future clearance.
- Increase site seed sources for natural regeneration in amenity value of the accessways and overall subdivision as the kānuka/ mānuka continues to senesce
- Increased diversity & territorial economics for fauna over the current early successional state e.g. berries; nectar.

We recommended varieties are not used are eco- sourced and no kauri should be introduced.

CONCLUSION

This review included available documentation of the proposal and ecological context, the latter primarily from aerial photography and online mapping, complimented by fieldwork.

The wider Lot has MODERATE significance in terms of in terms of the *NRPS (2018) Appendix 5* criteria including connectivity to a far larger area of high value habitat as expansive Tikitikioure PNA forest tract, buffering and potential habitat. A *natural inland wetlands (NPS FM 2020)* subject to the National Environmental Standards for Freshwater NES – F (2020) is located onsite with recorded freshwater fish species. Potential adverse development effects on wetlands and terrestrial habitat have been pre emptied by their recognition in a mitigation strategy specifically to protect the *MODERATE* (EIANZ 2018) significance of the wider overall development as an ecological unit.

Key threats identified include those common to the wider area– weed and pest influence.

Clearance of the currently open and weedy vegetation in the allocated proposal footprints Lots 25-27, is preferable over other site areas and will not result in any loss of vegetation; habitat or species with threat status. Removal of the common exotic component contained within would have positive effects on the natural values of the area and reduction of fire risk.

Attention to clearance methodology, pest and weed control and protection of the remaining vegetation through a thickened buffer is considered primary mitigation to embed the increase residential occupancy in use in a resilient and effective habitat increasing both amenity and ecological value.

The existing access and wetland bunded crossing with culvert is considered to be *other infrastructure*, in place prior to the commencement of the freshwater reforms (2/9/2020). Any future changes are subject to NES F (2020) *REG 46 Maintenance and operation of specified infrastructure and other infrastructure* and those related to culvert specifications. A Fish Recovery Protocol should be developed and implemented prior to removal or modification. Best practice engineering will ensure stormwater and final increase in impermeable area is unlikely to have any adverse effect.

Subject to adherence with the NES-F (2020) and mitigatory measures provided in this EclA, development will not involve any loss of ecological features or values including extent of wetland. The proposal is undertaken with regard to the long term functionality and integrity of the wider environment, recognising the interdependency of the wetlands, shrubland and linkage across the landscape.

Although management actions are constrained to the property boundaries, positive gains will extend to neighbouring properties, increasing territorial economies of mobile species and consolidating pest control efforts across the wider high value landscape. These integrated mechanisms will serve to commend persistent indigenous habitat and character within the proposal, with a level of effects that can be addressed through the mitigation hierarchy to obtain a *VERY LOW* impact (EIANZ 2018) or *less than minor* level of effects.



REBECCA LODGE, PRINCIPAL ECOLOGIST
BScEcology PGDipSci (Distinction) Botany

Bay Ecological Consultancy Ltd



APPENDIX 1: OBSERVED PLANT SPECIES LIST

Species are listed as per Clarkson, B. et al (2021):

- **OBL: OBLIGATE.** Almost always is a hydrophyte, rarely in uplands (estimated probability >99% occurrence in wetlands)
FACW: FACULTATIVE WETLAND. Usually is a hydrophyte but occasionally found in uplands (estimated probability 67–99% occurrence in wetlands)
- **FAC: FACULTATIVE.** Commonly occurs as either a hydrophyte or non-hydrophyte (estimated probability 34–66% occurrence in wetlands)
- **FACU: FACULTATIVE UPLAND.** Occasionally is a hydrophyte but usually occurs in uplands (estimated probability 1–33% occurrence in wetlands)
- **UPL: OBLIGATE UPLAND.** Rarely is a hydrophyte, almost always in uplands (estimated probability <1% occurrence in wetlands)

The majority of tree species are considered upland unless otherwise described.

Dominance of wetland species (i.e. hydrophytic community) is confirmed if more than 50% of each strata are OBL, FACW or FAC.

*Denotes exotic species

MONOCOT HERBS

<i>Astelia trinerva</i>	kauri grass
<i>Cortaderia selloana</i> *	<i>pampas</i>
<i>Dianella nigra</i> (FACU)	<i>turutu</i>
<i>Hedychium gardnerianum</i> assumed FAC	<i>wild ginger</i>
<i>Phormium tenax</i> (FACW)	<i>flax</i>
<i>Typha orientalis</i> (OBL)	<i>raupō</i>

MONOCOT TREES & SHRUBS

<i>Cordyline australis</i> (FAC)	<i>cabbage tree</i>
----------------------------------	---------------------

DICOT HERB

<i>Ageratina riparia</i> (Not rated assumed FAC)	mistflower
<i>Centella uniflora</i> (FACW)	centella
<i>Galium palustre</i> * (OBL)	marsh bedstraw
<i>Myosotis laxa</i> subsp <i>caespitose</i> * (OBL)	water forget me not
<i>Ranunculus amphitrichus</i> (OBL)	waoriki
<i>R. repens</i> (FAC)	
<i>Senecio minimus</i>	fireweed
<i>Solanum nodiflorum</i> *	black nightshade

GRASSES

<i>Axonopus fissifolius</i> * (FACU)	narrow leaved carpet grass
<i>Cenchrus clandestinus</i> * (FACU)	kikuyu
<i>Cortaderia selloana</i> * (FAC)	pampas
<i>Digitaria sanguinalis</i> * (FACU)	summer grass
<i>Isachne globosa</i> (OBL)	swamp millet
<i>Lolium arundinacaeae</i> * (FAC)	tall fescue
<i>Paspalum dilatatum</i> * (FACU)	paspalum
<i>P. distichum</i> * (FACW)	Mercer grass
<i>Zoysia pauciflora</i>	zoysia

Exotic grasses limited to obvious species nearby wet areas, wider pasture not examined

SEDGES & RUSHES

<i>Bolboschoenus</i> spp (OBL)	parua grass
<i>Carex dissata</i>	forest sedge
<i>C. germinata</i> (FACW)	
<i>C. leporina</i> *(FACW)	<i>Carex ovalis</i> ; oval sedge;
<i>C. uncinata</i>	<i>kamu</i> , bastard hook sedge
<i>Cyperus brevifolius</i> * (FACW)	globe sedge
<i>C. eragrostis</i> * (FACW)	umbrella sedge
<i>Eleocharis acuta</i> (OBL)	sharp spike sedge
<i>Gahnia xanthocarpa</i>	<i>māpere</i>
<i>Lepidosperma laterale</i> (FACU)	sword sedge
<i>Machaerina juncea</i> (FACW)	
<i>M. rubignosa</i> (OBL)	
<i>Schoenoplectus tabernaemontanii</i> OBL)	<i>lakeclub</i> rush
<i>Schoenus tendo</i> (FAC)	

TREES & SHRUBS

<i>Coprosma areolata</i>	thin leaved coprosma
<i>Coprosma autumnalis</i>	kanono
<i>C. rhamnoides</i>	twiggy coprosma
<i>C. robusta</i>	karamu
<i>Geniostoma rupestre</i> var. <i>ligustrifolium</i>	hangehange
<i>Hakea</i> spp.	hakea
<i>Kunzea ericoides</i>	kānuka
<i>Leptospermum scoparium</i> (FAC)	mānuka
<i>Leucopogon fasciculatus</i>	mingimingi
<i>Macropiper excelsum</i> subsp. <i>excelsum</i>	kawakawa
<i>Melicytus ramiflorus</i>	māhoe
<i>Myrsine australis</i>	mapou
<i>Phyllocladus trichomanoides</i>	tānekaha
<i>Pittosporum tenuifolium</i>	kōhūhū, black matipo
<i>Podocarpus totara</i>	tōtara
<i>Pomaderris kumeraho</i>	kumerahou
<i>Pseudopanax lessonii</i>	houpara
<i>Pterophylla sylvicola</i>	tōwai
<i>Solanum mauritianum</i> * (presumed UPL)	tobacco weed
<i>Ulex europaeus</i> * (FACU)	gorse

FERNS

<i>Adiantum hispidulum</i>	rough maidenhair fern
<i>Asplenium flaccidum</i>	drooping spleenwort
<i>Alsophi tricolor</i>	<i>Cyathea dealbata</i> silver fern, ponga
<i>Astroblechnum penna marina</i>	little hard fern
<i>Doodia australis</i> (UPL)	rasp fern
<i>Gleichenia microphylla</i> (FAC)	tangle fern
<i>Parapolytichum microsorum</i> subsp. <i>pentangulare</i> (assumed UPL)	
<i>Lindsaea linearis</i> (FACW)	common Lindsey
<i>Parablechnum minus</i> (FACW)	swamp kiokio

P. novae zealandiae
Pteridium esculentum
Pyrrosia elaeagnifolia
Sphaeropteris medullaris
Zelandia pustulata

kiokio
bracken
leather leaf fern
Cyathea medullaris mamaku
hounds tongue

VINES

Ripogonum scandens
Rubus cissoides

kareao; supplejack
tātārāmoa ;bush lawyer

LICHENS LYCOPODS BRYOPHYTES

Not comprehensively assessed
Cladonia confusa

raindeer lichen

FUNGI

Not comprehensively assessed
Auricularia cornea

hakeke; wood ear

Plants given as rare in Northland as per Wildlands (2012) No orchids were observed

APPENDIX 2: 12.2.7. ASSESSMENT CRITERIA

In regard to the proposed clearance, consideration is given to the FNDP Discretionary Activity

12.2.7. Assessment Criteria-

12.2.7 ASSESSMENT CRITERIA	
(a) the significance of the area assessed using the criteria listed in Method 12.2.5.6 ;	Site vegetation within the proposed clearance footprint 25-27 has been identified as having MODERATE significant as per Appendix 5 of the RPS in terms of absolute cover, connectivity and buffering rather than species value, rarity or representativeness. It is highly weedy and represents low diversity and integrity Areas are designated for covenanting and subject to protective provisions
(b) the location and scale of any activity and its potential to adversely affect the natural functioning of the ecosystem;	Access and building platforms may be accommodated >10m setback from wetland. Clearance areas are allocated to be within poorer representation of overall site values. Covenanting and associated management will protect remaining site ecosystems and introduce positive effects over the current situation which lacks pest control; is weed infested and lacks broad seed source or habitat provision other than for generalists.
(c) the potential effects on the biodiversity and life supporting capacity of the area;	The mitigation proposed specifies management that will ensure persistence and resilience of site ecosystems achieving best practice goal –“ <i>Impact management should enable maintenance or improvement of existing biodiversity</i> ” (EIANZ 2018).
(d) the extent to which the activity may adversely affect cultural and spiritual values;	Outside the scope of this reporting
(e) the extent to which the activity may impact adversely on visual and amenity values;	Outside the scope of this reporting however weed control and covenanting expected to increase amenity value
(f) the extent to which adverse effects on areas of significant indigenous vegetation and significant habitats of indigenous fauna are avoided, remedied or mitigated;	Refer Table 9 for consideration in regard to the effects management hierarchy,
(g) the extent to which any proposed measures will result in the permanent protection of the area, and the long term sustainability of revegetation and enhancement proposals;	TEC Level III mapping indicates areas like the site at risk from lack of formal protection. Covenanting of areas on each Lot and a Weed and Pest Management Plan WPMP to protect in perpetuity. Buffer planting to reduce edge effects which cause long term degradation; weed & pest control is designed to be undertaken by owners as primary activities to allow regeneration in this degraded environment.
(h) whether a voluntary agreement by a landowner to protect indigenous vegetation and/or habitats is registered with the Council;	Covenants
(i) Whether dogs, cats or mustelids will be excluded;	YES
(j) proposals for the re-establishment of populations of threatened species, either in areas where the species previously inhabited or other suitable habitat, and/or replanting or restoration of habitats and indigenous vegetation;	As per buffer planting all sites & WPMP. Also: <ul style="list-style-type: none"> • revegetation clear area Proposed Lot 23 Covenant C • Riparian planting 2m boundary A3 Creek Proposed Lot 24 • Revegetation Lot 34 riparian areas
(k) the environmental effect of the increase in residential intensity and/or extra lots in relation to the benefits of achieving permanent legal protection of areas of significant indigenous vegetation and/or significant habitats of indigenous fauna;	Gross ecological benefit in the covenanting and pest/ weed control measure as per proposal
(l) the value of vegetation in protecting the life supporting capacity of soil, maintaining or improving water quality and reducing the potential for downstream siltation and flooding;	Wetland and headwater creek to be subject to weed and pest control and revegetation planting
(m) the extent to which the activity may adversely affect areas of known high density kiwi habitat;	The property is zoned HIGH DENSITY and pest control and vegetation maintenance to create and maintain functional habitat as opposed to simply cover in the current scenario. Positive effect. Kiwi dog check prior to clearance; earthworks

<i>n) the environmental effects of a proposed development in relation to the benefits of achieving permanent protection and/or management of areas of significant indigenous vegetation or significant habitats of indigenous fauna;</i>	Protection and management achieved in perpetuity of significant indigenous habitats and vegetation onsite contiguous with Tikitikioure PNA – positive effect
<i>(o) the extent to which there are reasonable alternatives to provide for sustainable management;</i>	N/A
<i>(p) the extent to which the habitat policies of any national policy statement, the Regional Policy Statement for Northland and the District Plan are implemented;</i>	Refer planning application
<i>(q) the extent to which other animals or plants that will be introduced as a result of the application and may have a significant adverse effect on indigenous ecosystems are excluded or controlled;</i>	Pest control in perpetuity to address any increase in pests associated with domestic activity No cats/ dogs
<i>r) the effectiveness of any proposed pest control programme.</i>	Designed to be achievable by land owners and effective against both predators and grazers



geologix
consulting engineers

GEOTECHNICAL INVESTIGATION REPORT

PROPOSED SUBDIVISION OF
LOTS 37 AND 38 DP 426505

WAITOTO DEVELOPMENTS LTD

**C0255-G-01
MAY 2023
REVISION 1**





geologix
consulting engineers

DOCUMENT MANAGEMENT

Document Title	Geotechnical Investigation Report
Site Reference	Proposed Subdivision of Lots 37 and 38 DP 426505
Client	Waitoto Developments Ltd
Geologix Reference	C0255-G-01
Issue Date	5 May 2023
Revision	01
Prepared by	Sean Shin Graduate Geotechnical Engineer, BEng (Hons) 
Approved by	Edward Collings Managing Director, CPEng Reg. 1033153, CMEngNZ, CEnvP Reg. 0861 
File Reference	https://geologixconz.sharepoint.com/sites/GeologixFiles/Shared Documents/Projects/2023/Proposed Subdivision of Lots 37 and 38 DP 426505 - C0255-G-01-Reports/C0255-G-01-R01.docx Signer ID: BVJRNOBNO9...

REVISION HISTORY

Date	Issue	Prepared	Approved
5 May 2023	First Issue – For Consent	SBS	EC



TABLE OF CONTENTS

1	INTRODUCTION	5
1.1	PROPOSED DEVELOPMENT	5
1.2	SITE DESCRIPTION	5
2	DESKTOP APPRAISAL	6
2.1	INFRASTRUCTURE REVIEW	7
2.2	GEOLOGY	7
2.3	EXISTING GEOTECHNICAL INFORMATION	7
3	GROUND INVESTIGATION	8
3.1	SITE WALKOVER SURVEY	8
3.2	GEOMORPHOLOGICAL ASSESSMENT	9
3.3	GROUND CONDITIONS.....	11
4	GEOTECHNICAL ASSESSMENT.....	13
4.1	GEOTECHNICAL DESIGN PARAMETERS	13
4.2	SITE SUBSOIL CLASS	13
4.3	SEISMIC HAZARD.....	14
4.4	SITE STABILITY	14
4.5	SOIL EXPANSIVITY.....	18
4.6	LIQUEFACTION POTENTIAL	19
5	GEOTECHNICAL RECOMMENDATIONS.....	19
5.1	CONCEPT FOUNDATIONS	19
	CONCEPT.....	20
5.2	EARTHWORKS AND METHODOLOGY	20
	CONCEPT.....	21
5.3	RETAINING WALLS.....	21
5.4	DRIVEWAYS.....	22
5.5	CONSTRUCTION MONITORING	22
6	FURTHER GEOTECHNICAL WORKS	23
7	LIMITATIONS	23
	APPENDIX A	25
	APPENDIX B.....	26
	APPENDIX C.....	27

FIGURES

FIGURE 1: SITE SETTING	6
FIGURE 2: SURVEYED TOPOGRAPHIC DATA.	10
FIGURE 3: OBSERVED CUT SURFACE.	10

TABLES

TABLE 1: SUMMARY OF GROUND INVESTIGATION	12
TABLE 2: GEOTECHNICAL EFFECTIVE STRESS PARAMETERS	13
TABLE 3: SUMMARY OF SEISMIC HAZARD PARAMETERS	14
TABLE 4: SUMMARY OF STABILITY ANALYSIS RESULTS	16
TABLE 6: EARTH PRESSURE PARAMETERS	22



1 INTRODUCTION

This Geotechnical Investigation Report has been prepared by Geologix Consulting Engineers Ltd (Geologix) for Waitoto Developments Ltd as our Client in accordance with our standard short form agreement and general terms and conditions of engagement.

The purpose of this report is to assist with Resource Consent application in relation to the creation of five new residential building sites at the proposed subdivision of Lots 37 and 38 DP 426505, the 'site'. Specifically, this report provides interpretation of a site-specific ground investigation and geotechnical assessment to provide recommendations for the proposed development. This report may be used to assist with detailed design and for Building Consent application.

1.1 Proposed Development

It is understood that the Client proposes to subdivide the site to create five new residential lots. The site is presented across moderate and steep topography which imposes some development constraints.

Specific development plans were not provided to Geologix at the time of writing, and as such, we have considered a conservative assessment of potential future rural residential development earthworks.

This understanding has been established from an a proposed scheme plan¹ supplied to Geologix at the time of writing. It is recommended that this report is subject to review and site specific geotechnical investigation is undertaken as part of future residential development.

1.2 Site Description

The site is presented at a typical rural area as two separate blocks of land to the north and east of Russell Whakapara Road. The site is legally described as Lot 37 DP 426505 (Proposed Lots 23 and 24) and Lot 38 DP 426505 (Proposed Lots 25 to 27) and is irregular in shape with a combined gross site area of approximately 3.8ha. The site setting is presented schematically as Figure 1 below.

¹ Williams and King, Proposed Subdivision of Lots 37 and 38 DP 426505, Reference Number 22373, dated 23 November 2018.



Figure 1: Site Setting³



Topographically, the site is formed upon three distinct ridgelines sloping to the south and sloping to the west with an erosion gully between the two northern ridgelines.

Building sites at proposed lots 23 and 24 are formed over the crest of the spur ridgeline and dips steeply from north to south at approximately 20 to 30 degrees. Building sites at proposed lots 25 to 27 is located on a northern side slope of a larger ridgeline, and dips steeply at approximately 25 to 30 degrees.

The site is covered with dense natural bush and trees with grassed pasture within occasional clearings. There were no existing structures on-site. However, a retaining wall supporting an existing road was present at the southwestern boundary of proposed lot 27.

The topography is consistent with the surrounding land at the boundaries of the site. Available LiDAR contours and supplied surveying data indicate an average grade of the natural slope at proposed lots 23 and 24 is 20 °, and the natural slope at proposed lots 25 to 27 is 22 to 25 °, which closely lies to the typical natural equilibrium balance of the underlying residual soils.

2 DESKTOP APPRAISAL

To assist with our geotechnical appraisal, we have undertaken a detailed desktop review of available information with a specific focus upon geotechnical influences.

³ Source: <https://app.grip.co.nz/>



2.1 Infrastructure Review

Available infrastructure information is provided by the Far North District Council (FNDC) GIS system and the architectural concept drawing set. No existing pipelines are within influencing distance of the proposed development platform.

2.2 Geology

Available geological mapping⁴ indicates the site to be underlain by Waipapa Composite Terrane comprising Greywackes described as massive to thin-bedded lithic volcanoclastic sandstone and argillite, with tectonically enclosed basalt, chert and siliceous argillite.

Typically, the local Greywacke geology is subject to weathering to residual soils and this can be up to 10 m thick to highly weathered rock. Residual Greywacke soils tend to form an upper firm to stiff clay layer overlying a lower very stiff to hard silt layer. Undisturbed residual soils are generally stable at shallower angles. However, on steep slopes (>20 °), the transition between these weathered layers can experience shallow surface failures commonly triggered by extreme rainfall events.

Some alluvial deposits are also expected near the base of proposed 23 and 24 around the existing stream.

2.3 Existing Geotechnical Information

Existing subdivision ground investigations were made available to Geologix at the time of writing. The site suitability report by Haigh Workman Ltd⁵ concluded that while the soils are suitable for house foundations, there was evidence of soil creep failures in lot 26, 27 and 28 and a specific foundations design for future dwellings was recommended.

The second geotechnical assessment included two test pits conducted by Land Development & Exploration⁶. The test pit located at the south of proposed lot 23 near the existing stream showed that residual Greywacke soil strata was present from 0.1 m to 1.9 m below ground level (bgl). The unit was underlain by completely weathered Greywacke parent rock until 2.7 m bgl, then underlain by highly weathered Greywacke parent rock until the test pit was terminated at 3.3m due to major water inflow.

⁴ *Geological & Nuclear Science, 1:250,000 scale Geological Map, Sheet 2, Whangarei, 2009.*

⁵ *Haigh Workman Ltd, Site Suitability Appraisal for Proposed Subdivision, Waitoto Stage 2, Russell, Bay of Islands, Reference 06 406, dated 20 December 2007.*

⁶ *Land Development & Exploration Ltd, Geotechnical Investigation Report and Recommendations For Construction Of Wetland Crossing, Russell Whakapara Road, Orongo Bay, Bay Of Islands, dated 18 November 2008.*



Another test pit was located at the stream, and alluvial swamp deposits were found to be overlaying the highly weathered Greywacke parent rock. The highly weathered Greywacke parent rock was similarly encountered at 2.7 m until the test pit was terminated at 3.0 m due to test pit collapse.

Additionally, a review of available GIS databases, including the New Zealand Geotechnical Database⁷ did not indicate borehole records within 500 m of the site. To improve the NZGD, exploratory records from our ground investigation were uploaded to the system.

3 GROUND INVESTIGATION

A site-specific walkover survey and intrusive ground investigation was undertaken by Geologix on 29 - 30 March 2023. The ground investigation was scoped to confirm the findings of the above information and to provide site-specific parameters for this geotechnical assessment and ground model. The ground investigation comprised:

- Ten hand augered boreholes designated BH23 to BH27-1, where each borehole named after the Lot number it was located at, with a target depth of 3.0 m below ground level (bgl). However, refusals were encountered at all boreholes except BH23 and BH23-1 upon dense strata at depths ranging from 0.3 to 1.8 m bgl.
- Each borehole was extended with a scala penetrometer probing techniques to confirm the presence of dense material proving more than 25 blows/ 100 mm. Excluding BH23 and BH23-1, this strata was identified at depths ranging from 0.9 m to 3.4 m.
- Monitoring of groundwater levels with a groundwater dip meter on the day of drilling.

3.1 Site Walkover Survey

A visual walkover survey of the property confirmed:

- Topography is in general accordance with that outlined in Section 2 and the available survey data. The site at Lot 37 DP 426505 dips steeply from the north towards the south at approximately 20 degrees, and the site at Lot 38 DP 426505 dips steeply at approximately 25 degrees from the southern boundary towards the northern boundary.
- A single fill retaining wall with a height of approximately 2.0 m supporting an existing road was present at the southwestern boundary of proposed lot 27.

⁷ <https://www.nzgd.org.nz/>



Additionally, a cut retaining wall with a height of approximately 0.5 m was noted at the western boundary of the neighbouring land at Lot 29 DP 426505, and another cut retaining wall with a height of approximately 2.0 m was noted at the west of the existing property located at Lot 28 DP 426505.

- Russell Whakapara Road defines the southern and western boundaries and an existing track defines the southern boundary proposed lot 23 and 24, and the northern boundary of proposed lot 25 to 27. Land to the east of the site includes similar semi-rural residential properties of various sizes, and land to the west had a large cut face (approximately 20 m in height) with evidence of recent slips. Land in other directions did not have any structures present. No recent intensification development was observed across the nearby properties.
- The site is undeveloped at the time of writing presented with dense natural bush across the majority of the section.
- There was no evidence of deep seated instabilities, and it is considered the risk of developing deep seated instabilities is low.

3.2 Geomorphological Assessment

Local area LiDAR topographic data and the provided survey data confirms the site is located at multiple ridgelines with an erosion gully between the two northern ridgelines near proposed lot 23 and 24, and a steep and northern side slope is present over proposed lot 25 to 27 as seen in Figure 2 below. These land features are commonplace within Greywacke terrains across the Bay of Islands.

The residual soils for most of the year are high strength, partially saturated materials. However, during periods of extended rainfall the upper layers of residual soil can become saturated and “softened” as the water infiltration causes increased pore pressures and loss of suction. These conditions lead to an apparent reduction in effective strength parameters and that in turn results in the observed localised shallow landslide evacuations.

Figure 2: Surveyed Topographic Data⁸.



Deep-seated instabilities are uncommon within the Greywacke geology and were not observed during our walkover survey.

Additionally, at the time of our ground investigation, a quarry was present approximately 40 m beyond the northern boundary of proposed lot 25 and was undergoing conventional cut earthworks. These earthworks exposed a cut face up to approximately 15 m in height which indicated presence of Greywacke residual soil to at a depth of approximately ~ 2.0 m. This strata is overlain with a thin layer of topsoil and underlain by a layer of completely weathered Greywacke parent rock. A denser, highly weathered Greywacke parent rock layer also appeared to underlie the completely weathered Greywacke parent rock, refer to Figure 3.

Figure 3: Observed Cut Surface.



⁸ William and King, Proposed Subdivision of Proposed Subdivision of Lots 37 and 38 DP 426505, Surveyor Reference 22373, dated 23 November 2018.



3.3 Ground Conditions

Arisings recovered from the exploratory boreholes were logged by a qualified geotechnical engineering professional in accordance with New Zealand Geotechnical Society guidelines⁹. Engineering borehole logs are presented as Appendix B to this report and approximate borehole positions recorded on Drawing No. 200 within Appendix A.

A detailed ground model has been derived from the investigation and locally available GIS data, presented as Drawing No. 201, 202, 203, 204 and 205. Strata identified during the ground investigation can be summarised as follows:

- **Topsoil encountered to depths of 0.3 m bgl.** Described as a grassed topsoil containing organic silt, dark brownish black and dry to moist with low plasticity or friable.
- **Colluvium to depths of 0.6 m to 1.4 m bgl.** Colluvial soils were encountered locally within BH23, BH25, BH27 and BH27-1 which were located at the top of steep slopes over the crest of the spur ridgelines. The colluvial soils were cohesive, described as clayey silt or silty clay, light orange brown or light yellowish brown, low plasticity with occasional fine to medium gravel sized pockets and streaks of dark organics.

Eleven in-situ field vane tests within the colluvial soils recorded peak vane shear strengths between >189 kPa and >198 kPa, indicative of a very stiff colluvial strata.

- **Residual Greywacke Soil to depths ranging from 0.7 m to 4.6 m bgl.** Natural Greywacke residual soils were also cohesive and described as a silty clay or sandy silt strata. The strata was found to be generally light orange brown or light yellowish brown, dry to moist with low plasticity or friable.

Twenty nine in-situ field vane tests undertaken within the greywacke residual soils recorded vane shear strengths ranging from 142 kPa to Unable to Penetrate, indicative of a very stiff to hard residual soil. Characteristic unit vane shear strength has been determined to be 145 kPa at 95% confidence, indicative of a very stiff strata.

It has conservatively been taken that Dynamic Cone Penetrometer (DCP) blow of less than 10 blows per 100 mm penetration is indicative of greywacke residual soil. The observed blow counts generally increased with depth, and typically ranged between 2 to 9 blows per 100 mm penetration. These were indicative of stiff to very stiff soil strata, aligning with the observed shear

⁹New Zealand Geotechnical Society, *Field Description of Soil and Rock*, 2005.



strengths.

- **Completely Weathered Greywacke Parent Rock to depths ranging from 0.8 m to >4.9 m bgl.** In-situ DCP probing does not return physical arisings for engineering descriptions. As such, it has conservatively been taken that DCP blow counts of 10 to 25 per 100 mm penetration is indicative of the presence of completely weathered greywacke parent rock. Significant strength developed within the first 300 mm of the strata, returning multiple blow counts of 10 – 15 blows per 100 mm penetration. The observed blow counts are indicative of hard soil strata.
- **Highly Weathered Greywacke Parent Rock to depths >1.0 m and >3.9 m bgl and not encountered within BH23 and BH23-1.** It has conservatively been taken that DCP blow counts of >25 per 100 mm is indicative of the presence of highly weathered Greywacke parent rock. DCP probing is not considered an appropriate tool to determine more competent, un-weathered parent rock parameters, and this depth has been taken to assume the development of significant strength in the parent rock due to the consistency of depth across the investigation area.

DCP probing at all boreholes except at BH23 and BH23-1, confirmed the presence of highly weathered Greywacke parent rock. Significant strength developed within the first 100 mm of the strata, returning more than 25 blows per 100 mm penetration.

A summary of the above information is presented as Table 1 below.

Table 1: Summary of Ground Investigation

Hole ID	Hole Depth	Fill Depth	Groundwater ²	Depth of Colluvium	Depth of Greywacke Residual Soil	Depth to Highly Weathered Greywacke Parent Rock
BH23	4.9 m	NE	NE	1.4 m	4.6 m	NE
BH23-1	4.9 m	NE	NE	NE	4.6 m	NE
BH24	1.0 m	NE	NE	NE	0.7 m	0.9 m
BH24-1	3.9 m	NE	NE	NE	2.6 m	3.8 m
BH25	2.6 m	NE	NE	0.6 m	1.6 m	2.5 m
BH25-1	3.5 m	NE	NE	NE	2.5 m	3.4 m
BH26	2.9 m	NE	NE	NE	2.2 m	2.8 m
BH26-1	2.3 m	NE	NE	NE	1.4 m	2.2 m
BH27	2.9 m	NE	NE	1.0 m	2.5 m	2.8 m
BH27-1	2.1 m	NE	NE	0.7 m	1.9 m	2.0 m

1. All depths recorded in m bgl unless stated.

2. Groundwater measurements taken on day of drilling.

3. NE – Not Encountered.



3.3.1 Groundwater

Groundwater levels were monitored utilising a groundwater dip meter on the day of drilling. Groundwater was not encountered during this monitoring event including moisture upon scala penetrometer rods. However, groundwater may “perch” and seep downslope at the interface of residual soil and completely weathered rock during intense rainstorm events. This is commonly where destabilisation effects occur on slopes $>20^\circ$ in the local area.

Groundwater levels commonly fluctuate according to the season and rainfall events. As such, groundwater levels may vary and be identified at higher levels than monitored during this ground investigation. It is recommended that during any earthworks should any water ingress be noted that further advice is sought from Geologix which may require amendments to the recommendations of this report.

4 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 development concepts.

4.1 Geotechnical Design Parameters

Geotechnical design parameters are presented in Table 2 below. They have been developed based on our ground investigation, the results of in-situ testing and experience with similar materials.

Table 2: Geotechnical Effective Stress Parameters

Geological Unit	Unit Weight, kN/m^3	Effective Friction Angle, $^\circ$	Effective Cohesion, kPa	Undrained shear strength, kPa
Colluvium	17	24	3	35*
Residual Greywacke Soil	18	32	3	100
Hard Residual Greywacke Soil	18	32	5	150
CW Greywacke Parent Rock	18	32	7	200
HW Greywacke Parent Rock	18	35	15	>200

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

4.2 Site Subsoil Class

The site has been designated as Site Subsoil Class C according to the provisions of



NZS1170:2004¹⁰.

4.3 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 1¹¹. Table 2 presents the return periods for earthquakes with ULS and SLS ‘unweighted’ PGAs and horizontal coefficients 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.

Table 3: Summary of Seismic Hazard Parameters

Limit State	Effective Magnitude	Return Period (years)	Unweighted PGA	Horizontal Coefficient ¹ , K_h
ULS	6.5	500	0.19 g	0.1273 g
SLS	5.8	25	0.03 g	

*$K_h = PGA * 0.67$ for slope stability analysis to represent pseudo static conditions.*

4.4 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. However, there were signs of shallow instabilities including presence of colluvium upon the slope with contours suggesting shallow bowl-shaped features in the topography.

Within the scope of this ground investigation, Geologix have undertaken computer modelled slope stability analysis through five critical section axis of the

¹⁰ NZS1170.5:2004, Structural Design Actions Part 5: Earthquake Actions Clause 3.1.3.

¹¹ New Zealand Geotechnical Society, Earthquake Geotechnical Engineering Practice, Module 1, November 2021, Appendix A, Table A1.



site topography through the proposed house locations listed below.

- Section A aligned from the northern corner of the proposed lot 23's building platform to the southwest to the base of the existing stream and track.
- Section B aligned from top of the spur ridgeline at proposed lot 24 southwestern site boundary, through the proposed dwelling to the base of the side slope of the ridgeline.
- Section C aligned from top of the ridgeline to the south of proposed lot 27, following the steepest side slope of the ridgeline, through the proposed dwelling, and to the base of the side slope at the existing track.
- Section D aligned from the top of the ridgeline at the existing road, to the south of the proposed lot 26 following the steepest side slope of the ridgeline, through the proposed dwelling, and to the base of the side slope at the existing track.
- Section E aligned from the top of the ridgeline located southwest of the proposed lot 25 following the steepest slope of the ridgeline, through the proposed dwelling, and to the base of the slope at the existing track.

The slope was analysed within propriety software Slide 2 Version 9.019, developed by RocScience Inc. The purpose of the stability assessment was to:

- Ensure the proposed development concepts are feasible.
- Provide a working, accurate ground model in relation to site stability refined according to observed conditions and the results of this ground investigation.
- Develop a proposed retaining concept, if required, with any specific geotechnical stability requirements.
- Inform the requirements of Consent, developed architectural design and further engineering works.

The stability analysis process was undertaken by calibrating the model to observed conditions, refining the ground investigation data to develop the effective stress parameters presented in Table 2 and applying them to the proposed condition.

Limit equilibrium stability analysis was adopted in the analysis to express the results as a Factor of Safety (FS). When $FS = 1.0$, the represented mechanism is in equilibrium with the disturbing, active forces equal to the resisting, stabilising forces. A lower FS indicates that instability could occur under the modelled scenario whereas a higher FS demonstrates a margin of safety in respect of stability. Minimum FS criteria have been developed for use in residential



development by Auckland Council¹² which are widely adopted in the Far North region. Modelling three separate event scenarios the accepted minimum FS are summarised as follows:

- Minimum FS = 1.5 for static, normal groundwater conditions.
- Minimum FS = 1.3 for elevated groundwater conditions (storm events).
- Minimum FS = 1.2 for dynamic, seismic events.

4.4.1 Stability Analysis Results

Slope stability analysis results are presented in full as Appendix D and summarised below as Table 4.

Table 4: Summary of Stability Analysis Results

Profile	Scenario	Global Min FS	Development Footprint (min FS)	Result
Section A				
Existing	Static ¹	2.006	>1.5	Pass
	Elevated GW ²	1.526	>1.3	
	Seismic ³	1.445	>1.2	
Proposed (without earthworks)	Static ¹	1.204	<1.5	Fail, requires stability control
	Elevated GW ²	1.204	<1.3	
	Seismic ³	1.189	<1.2	
Proposed (with cut earthworks)	Static ¹	1.953	>1.5	Pass
	Elevated GW ²	1.499	>1.3	
	Seismic ³	1.450	>1.2	
Section B				
Existing	Static ¹	2.234	>1.5	Pass
	Elevated GW ²	1.971	>1.3	
	Seismic ³	1.651	>1.2	
Proposed	Static ¹	2.234	>1.5	Pass
	Elevated GW ²	1.971	>1.3	
	Seismic ³	1.651	>1.2	
Section C				
Existing	Static ¹	1.651	>1.5	Pass
	Elevated GW ²	1.167	>1.3	
	Seismic ³	1.222	>1.2	
Proposed (without earthworks)	Static ¹	1.247	<1.5	Fail, requires stability control
	Elevated GW ²	1.167	>1.3	
	Seismic ³	1.222	>1.2	
Proposed	Static ¹	1.649	>1.5	Pass

¹² Auckland Council, *Code of Practice for Land Development and Subdivision, Section 2 Earthworks and Geotechnical Requirements, Version 1.6, September 2013.*



(with cut earthworks)	Elevated GW ²	1.114	>1.3	Pass
	Seismic ³	1.223	>1.2	
Section D				
Existing	Static ¹	1.294	>1.5	
	Elevated GW ²	0.925	>1.3	
	Seismic ³	1.023	>1.2	
Proposed	Static ¹	1.294	>1.5	
	Elevated GW ²	0.925	>1.3	
	Seismic ³	1.023	>1.2	
Section E				
Existing	Static ¹	1.340	>1.5	Pass
	Elevated GW ²	1.234	>1.3	
	Seismic ³	1.072	>1.2	
Proposed (without earthworks)	Static ¹	1.220	<1.5	Fail
	Elevated GW ²	1.234	>1.3	
	Seismic ³	1.072	>1.2	
Proposed (with cut earthworks)	Static ¹	1.944	>1.5	Pass
	Elevated GW ²	1.352	>1.3	
	Seismic ³	1.446	>1.2	
1. Static, normal groundwater minimum FS = 1.5				
2. Static, elevated groundwater minimum FS = 1.3				
3. Dynamic, seismic conditions minimum FS = 1.2				

4.4.2 Stability Analysis Conclusions

The developed slope stability model is considered to be a reasonable representation of the observed conditions on site. Specifically, the developed model has been calibrated to observed conditions on site from Section D on site from BH26 and BH26-1 through the side slope of the ridgeline. Ground investigation data has been adopted to determine the strata parameters and the highly weathered unit Greywacke strata was conservatively modelled as an extremely weak rock with a UCS of 3 MPa, inferred at depth from the ground investigation.

Under all scenarios under the calibrated existing condition, generally a FS >1.0 was recorded over the steepest part of the slope with failure planes extending to the interface with highly weathered material.

The results from Section B and D, the slope analysis results indicate that under the calibrated existing and proposed conditions, all three static, elevated groundwater and seismic models have a FS of 2.234, 1.971 and 1.651 for Section B, 1.294, 0.925 and 1.023 for Section D and 1.944, 1.0 and 1.127 for Section E respectively. The failure planes were observed running through the upper greywacke residual soil, outside the proposed development footprint. This demonstrates that for Section B and D the modelled failure planes do not encroach the building footprint and an adequate FS for residential development is achieved under the existing and proposed conditions.



The results from Section A, C and E at calibrated proposed condition indicate that with under static, elevated groundwater and seismic conditions, the FS for Section A were 1.204, 1.204 and 0.705 respectively, and Section C showed FS of 1.247 under static condition, and Section E showed FS of 1.220 with failure planes running through the shallow colluvium inside the proposed building footprint.

These potential failure planes where encroaching within the development platform are below the minimum FS for residential development accepted by Far North District Council. As a result, the proposed development at Section A, Section C and Section E requires stability control, as outlined below.

4.4.3 *Stability Control*

The slope stability analysis indicates that the proposed development will require earthworks to negate a Section 72 notice under the Building Act 2004 for potential natural hazards comprising slippage below and entering the development footprint.

As part of this model and in lieu of any proposed retaining structures on the proposed development plans, we have modelled a cut earthworks which removed the shallow colluvial strata to achieve the required FS. However, specific earthworks plan shall be refined at the Building Consent stage through consent conditions.

4.5 **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 residual Greywacke soils, 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 AS2870:2011¹³ and New Zealand Building Code¹⁴, 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 (γ_s) of 78 mm.

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

4.6 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 and indicates the site to be predominantly underlain by fine-grained, non-dilative Greywacke residual soils. Based on the materials strength and consistency, and our experience with these materials, there is no liquefaction potential/ risk in a design level earthquake event.

5 GEOTECHNICAL RECOMMENDATIONS

The following geotechnical recommendations have been developed based on the plans and details supplied to us at the time of writing. Amendments or revisions to the plans detailed in this report may require a review of the following recommendations.

5.1 Concept Foundations

It is considered that a timber pole foundation is suitable for the proposed future dwellings adopting bored and cast-in-place piles provided the stability control measures are installed as recommended by this report. This recommendation is considered suitable provided the above geotechnical stability control measures are designed by a suitably qualified professional and monitored during construction.

All piles should be taken down through Greywacke residual soils to terminate at a minimum of 3x pile diameters, (3B) into the completely to highly weathered Greywacke parent rock. It is recommended that the foundation solution is subject to further geotechnical investigation at the Building Consent stage for each lot and specific engineering design by a professional structural engineer. Additionally,

¹³ AS2870, *Residential Slabs and Footings*, 2011.

¹⁴ New Zealand Building Code, *Structure B1/AS1 (Amendment 19, November 2019)*, Clause 7.5.13.1.2.



pile design should consider the natural slope under the proposed dwelling which averages at 20 ° to 25 °.

If groundwater is encountered within the pile holes, tremie concrete pour methodology will most likely be required to displace groundwater and an allowance should be made for this by the Contractor.

5.2 Concept Earthworks and Methodology

It is presumed that the future dwellings will be formed by cut earthworks with possible fill areas. As most of the development is proposed with steeply sloping ground above them, it is recommended that all proposed excavations and fills at the site are retained by specifically engineered retaining walls.

5.2.1 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 in flat areas of the development and no temporary excavation batters to be formed over any steep, 25 degrees and above. No temporary unsupported excavations exceeding 0.5 m are recommended at the site due to the risk of developing instabilities on the natural topography.

All earthworks shall be subject to specific geotechnical stability analysis at the Building Consent stage once final development plans are available. Based on our ground investigation and stability analysis data, excavations above 0.5 m in height shall be constructed by a top-down construction methodology as follows.

- Drill cantilever wall pile holes to required embedment depth from existing ground level.
- Install vertical members into pile holes, i.e., either timber, steel UC or reinforcement for concrete piles as per structural design. The latter may provide a more suitable methodology in this zone.
- Pour grout according to specific engineering design and allow to cure.
- Excavate to finished ground levels on the passive side.
- Immediately install retaining wall drainage and any horizontal backing boards as per approved retaining wall design.

Any temporary batters should be covered with polythene sheets secured to the surface with pins or batons to prevent saturation. All works within proximity to 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.

5.2.2 Fills

It is recommended that proposed fills are kept to a minimum at the site to maintain stability of the shallow residual soils. All proposed fills should be retained by specifically engineered retaining walls. It is recommended that proposed fills are subject to a specific engineering specification including compaction standards and construction monitoring at regular lift intervals (maximum 0.5 m).

In addition, all unsuitable materials such as colluvium, organics, topsoil, uncontrolled fill and locally weak materials ($S_u < 75 \text{ kPa}$) should be stripped from the footprint of proposed fills and replaced with compacted GAP hard fill subject to a specific engineering specification and construction monitoring.

It is understood that to form the subdivision, some areas of earth filling may be required to form new Right of Ways, subject to an EPA phase of design. Any earth filling adopted for road formation shall meet the requirements of certified earth fill. A minimum standard for engineered earth fill, derived from imported cohesive material has been determined as follows. Site-won material not from a quarry shall be determined as suitable by a geotechnical professional such as Geologix prior to placement of materials.

- Average undrained shear strength (by hand vane) of 120 kPa in any group of 10 tests with no single test less than 100 kPa.
- Average air voids of not more than 8 % in any group of 10 tests with no single test exceeding 12 %.
- Tests undertaken at regular lift intervals, i.e., <500 mm.
- Maximum fill batter angle of 1V:3H.

5.3 Concept Retaining Walls

No retaining walls are expected to be required to form the subdivision. However, retaining walls will most likely be required to support future building platforms.

It is recommended that all proposed retaining walls are designed by a professional engineer familiar with the findings and geotechnical parameters of this report. In addition, any retaining upon sloping ground at the site shall be subject to specific geotechnical stability analysis at the Building Consent stage taking into account any minimum stabilising shear force and/ or embedment requirements. Timber pole cantilever retaining walls are considered the most feasible solution for the site.



Based on the results of the ground investigation and for a backslope of 30 degrees above the retaining structure, earth pressure parameters for design are presented within Table 5 below.

Table 5: Earth Pressure Parameters

Strata	At Rest Pressure Coefficient, K_0	Active Pressure Coefficient, K_A	Passive Pressure Coefficient, K_P
Colluvium	0.674	0.455	2.715
Greywacke Residual Soil	0.470	0.275	7.371
Completely Weathered Greywacke Parent Rock	0.441	0.254	9.007

1. Adopts soil/ wall friction coefficient of 0.67 for timber according to NZBC B1/VM4 Table 2.

2. Considers a flat backslope. Parameters to be modified by design engineer for any sloping backfill/ ground.

5.4 Driveways

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 shallow greywacke soils will achieve a typical subgrade CBR value of 4% 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.

5.5 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 and consent conditions. It is anticipated that a professional Geotechnical Engineer will be required to provide inspection of:

Subdivision Formation

- Inspection of hard fill compaction along internal road alignments. Hard fill should be inspected at maximum 300 mm lift intervals.
- Subgrade at the base of excavations within the footprint of road carriageways.

Future Building Consent

- Foundations to confirm the embedment, construction and end bearing in accordance with specific engineering design 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 FURTHER GEOTECHNICAL WORKS

This report was written based on the supplied plans of the development locations and assumptions supplied to Geologix at the time of writing. 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.

7 LIMITATIONS

This report has been prepared for Waitoto Developments 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 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 to the

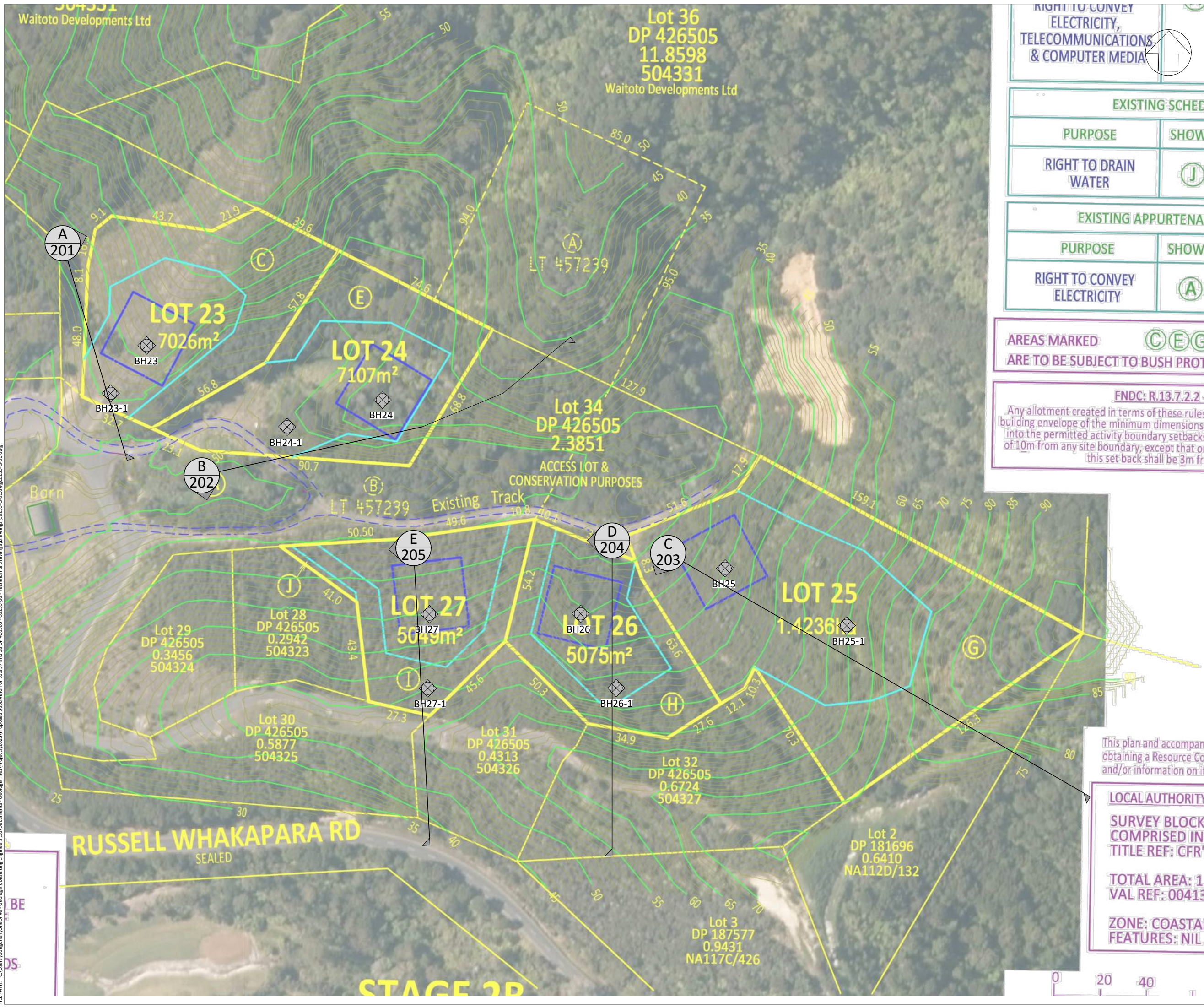


geologix
consulting engineers

assumed ground model. Differences from the anticipated ground conditions may require an amendment to the recommendations of this report.

APPENDIX A

Drawings



GENERAL NOTES

1. CONTOURS AT 1.0 m INTERVALS.
2. TOPOGRAPHIC SURVEY DATA PROVIDED BY WILLIAMS AND KING REF. NO. 22373.
3. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
4. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
5. DO NOT SCALE FROM THIS DRAWING.

BH01

RIGHT TO CONVEY ELECTRICITY, TELECOMMUNICATIONS & COMPUTER MEDIA

EXISTING SCHED

PURPOSE

SHOW

RIGHT TO DRAIN WATER

EXISTING APPURTENANCE

PURPOSE

SHOW

RIGHT TO CONVEY ELECTRICITY

AREAS MARKED

ARE TO BE SUBJECT TO BUSH PROTECTION

FNDC: R.13.7.2.2 -

Any allotment created in terms of these rules shall have a building envelope of the minimum dimensions of 10m from any site boundary, except that on this set-back shall be 3m from

10 0 Meters 10 20

1:1000

A	CONSENT	01/05/2023
Revision	Issue	Date

AUCKLAND | NORTHLAND

Project Name and Address

PROPOSED SUBDIVISION
RUSSELL
LOTS 37 & 38 DP 426505

Project

C0255

Drawn By

GC

Client

WAITOTO DEVELOPMENTS LTD

Sheet Title

GEOTECHNICAL SITE PLAN

Sheet

200

This plan and accompanying information is to be used for obtaining a Resource Consent and/or information on it.

LOCAL AUTHORITY

SURVEY BLOCK COMPRISED IN:

TITLE REF: CFR

TOTAL AREA: 1. VAL REF: 00413

ZONE: COASTAL

FEATURES: NIL

FILE PATH: C:\Users\Gongchen\OneDrive - Geologix Consulting Engineers Ltd\Documents - Geologix Files\Projects\2023\Proposed Subdivision of Lots 37 and 38 DP 426505 - C0255\06 - Technical & Drawings\Drawings\C0255-G-01.dwg (2025-01-01)

PLOTTED: 03/04/2023

GENERAL NOTES

- 1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
- 2. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
- 3. DO NOT SCALE FROM THIS DRAWING.

COLLUVIUM

GREYWACKE RESIDUAL SOIL

GREYWACKE HARD RESIDUAL SOIL

GREYWACKE COMPLETELY WEATHERED PARENT ROCK

GREYWACKE HIGHLY WEATHERED PARENT ROCK

— ?

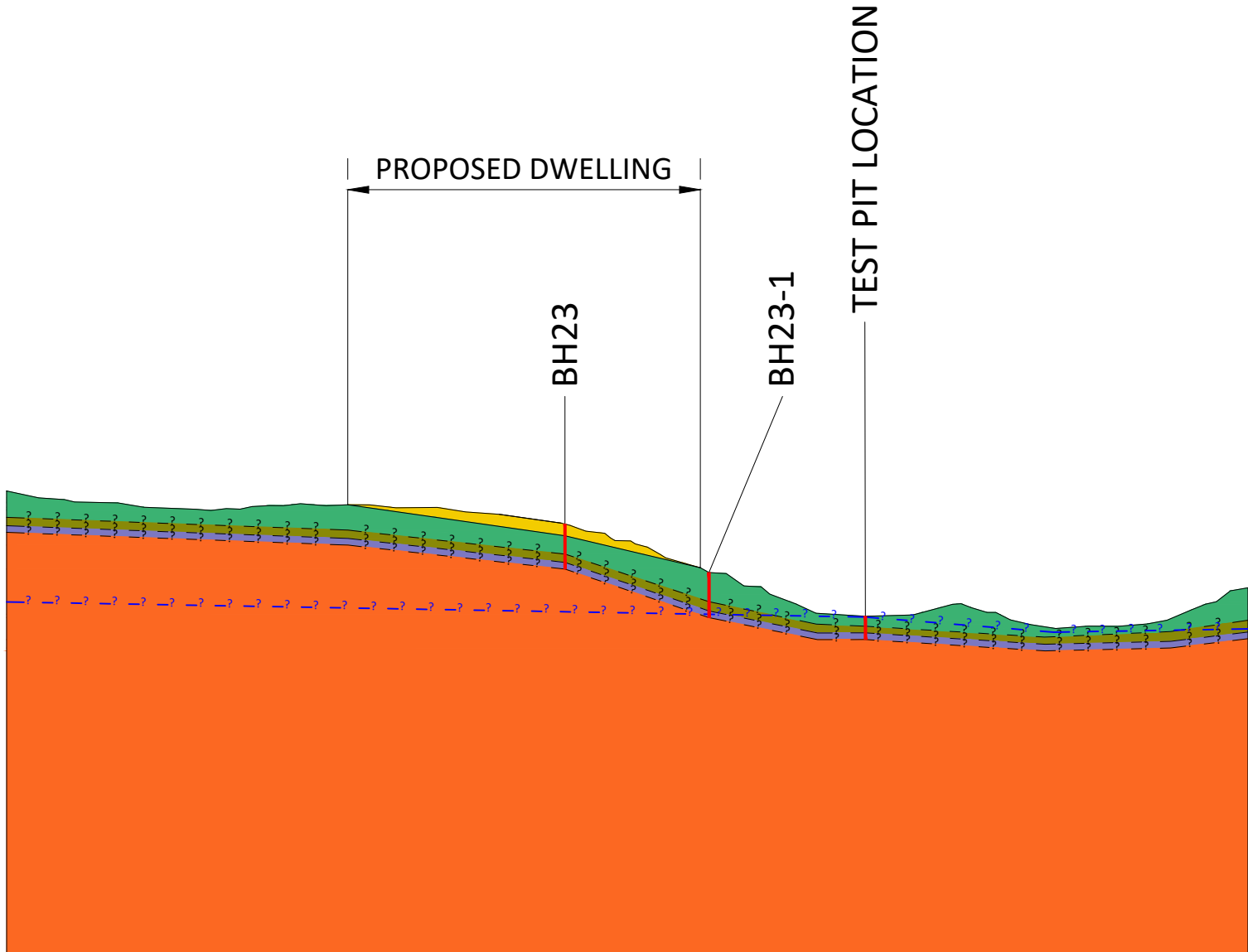
—

STRATA BOUNDARY

— ?

—

GROUNDWATER PROFILE (STATIC)



A	CONSENT	01/05/2023
Revision	Issue	Date

geologix

consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address
**PROPOSED SUBDIVISIONS OF
LOTS 37 & 38 DP 426505**

Project C0255	Drawn By GC
-------------------------	-----------------------

Client
WAITOTO DEVELOPMENTS LTD

Sheet Title
GEOTECHNICAL CROSS-SECTION A

Sheet
201

GENERAL NOTES

- 1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
- 2. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
- 3. DO NOT SCALE FROM THIS DRAWING.

COLLUVIUM

GREYWACKE RESIDUAL SOIL

GREYWACKE HARD RESIDUAL SOIL

GREYWACKE COMPLETELY WEATHERED PARENT ROCK

GREYWACKE HIGHLY WEATHERED PARENT ROCK

— ?

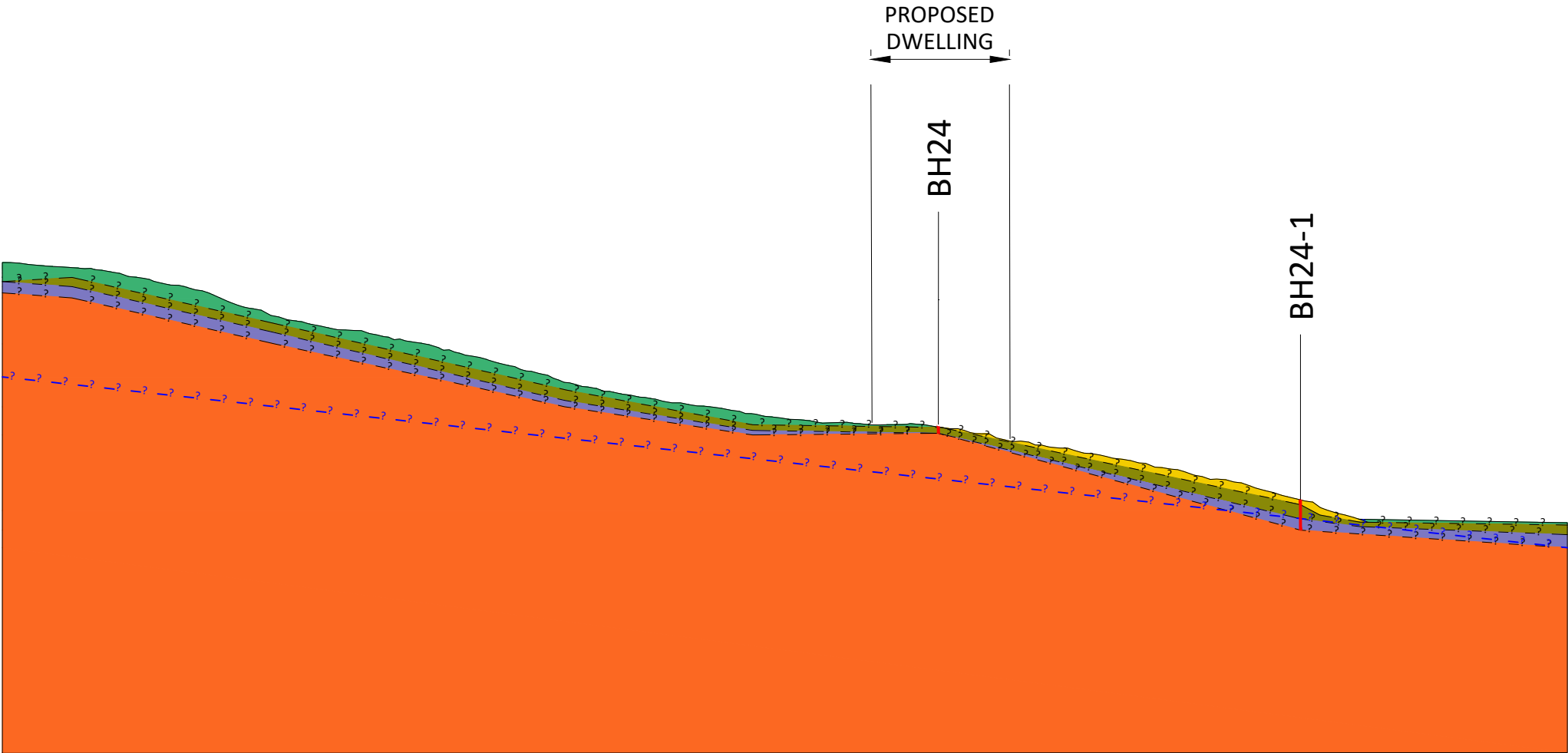
—

STRATA BOUNDARY

— ?

—

GROUNDWATER PROFILE (STATIC)



A	CONSENT	01/05/2023
Revision	Issue	Date



geologix

consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address
**PROPOSED SUBDIVISIONS OF
LOTS 37 & 38 DP 426505**

Project C0255	Drawn By GC
-------------------------	-----------------------

Client
WAITOTO DEVELOPMENTS LTD

Sheet Title
GEOTECHNICAL CROSS-SECTION B

Sheet
202

GENERAL NOTES

- 1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
- 2. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
- 3. DO NOT SCALE FROM THIS DRAWING.

COLLUVIUM

GREYWACKE RESIDUAL SOIL

GREYWACKE HARD RESIDUAL SOIL

GREYWACKE COMPLETELY WEATHERED PARENT ROCK

GREYWACKE HIGHLY WEATHERED PARENT ROCK

— ?

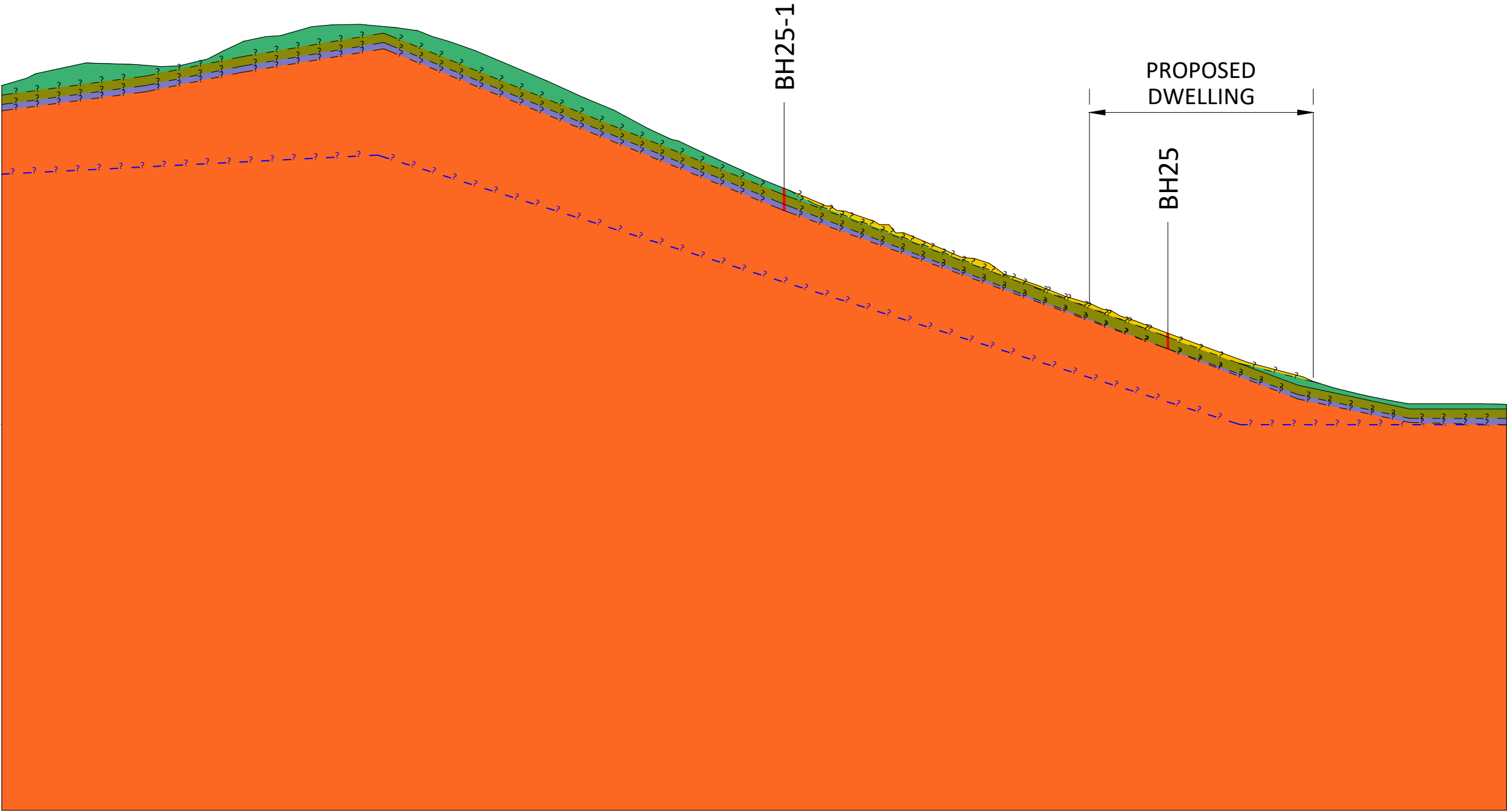
—

STRATA BOUNDARY

— ?

—

GROUNDWATER PROFILE (STATIC)



A	CONSENT	01/05/2023
Revision	Issue	Date



Project Name and Address
**PROPOSED SUBDIVISIONS OF
LOTS 37 & 38 DP 426505**

Project C0255	Drawn By GC
-------------------------	-----------------------

Client
WAITOTO DEVELOPMENTS LTD

Sheet Title
GEOTECHNICAL CROSS-SECTION C

Sheet
203

GENERAL NOTES

- 1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
- 2. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
- 3. DO NOT SCALE FROM THIS DRAWING.

COLLUVIUM

GREYWACKE RESIDUAL SOIL

GREYWACKE HARD RESIDUAL SOIL

GREYWACKE COMPLETELY WEATHERED PARENT ROCK

GREYWACKE HIGHLY WEATHERED PARENT ROCK

— ?

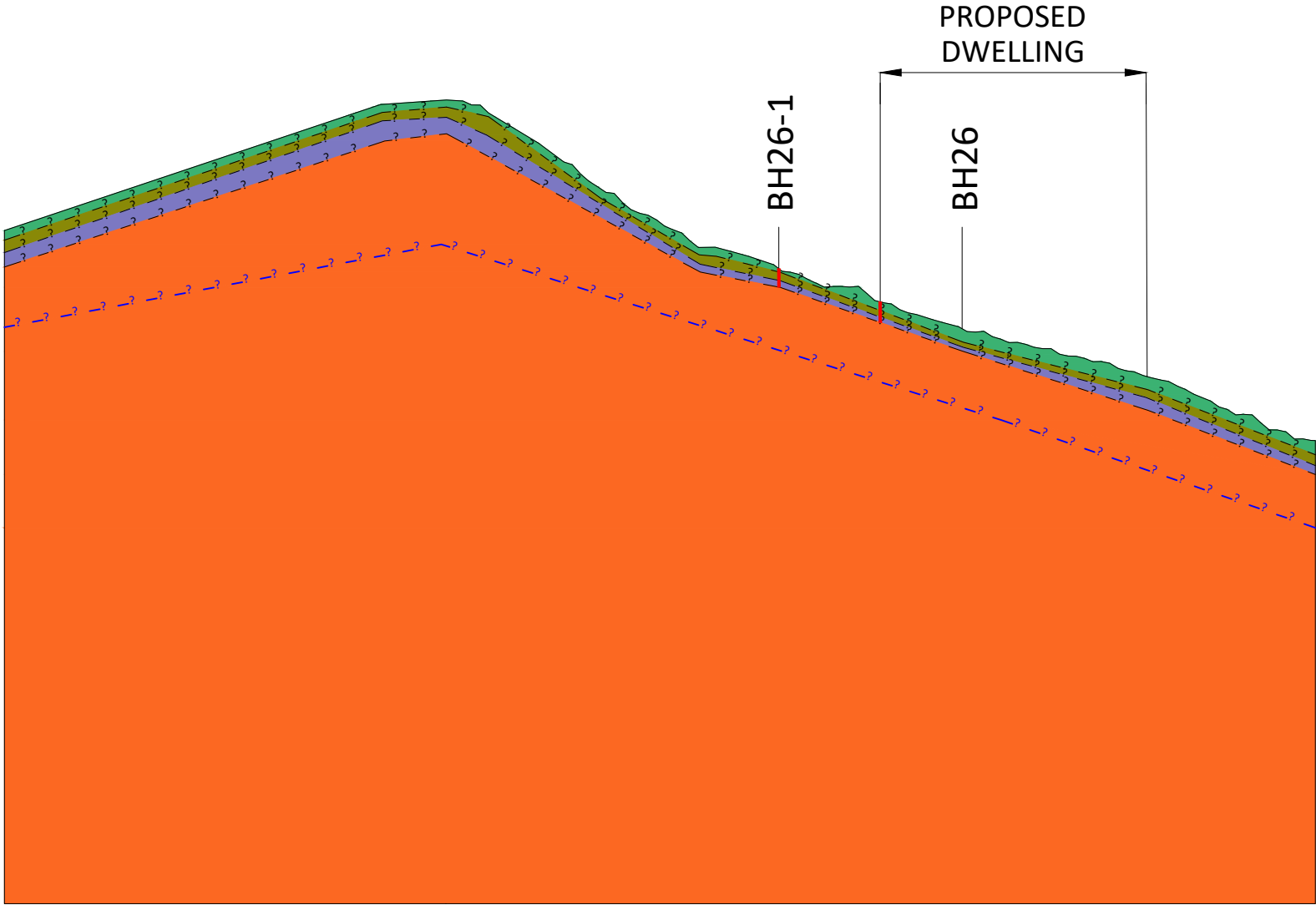
—

STRATA BOUNDARY

— ?

—

GROUNDWATER PROFILE (STATIC)



A	CONSENT	01/05/2023
Revision	Issue	Date

geologix

consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

**PROPOSED SUBDIVISIONS OF
LOTS 37 & 38 DP 426505**

Project	Drawn By
C0255	GC

Client

WAITOTO DEVELOPMENTS LTD

Sheet Title

GEOTECHNICAL CROSS-SECTION D

Sheet

204

GENERAL NOTES

- 1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
- 2. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
- 3. DO NOT SCALE FROM THIS DRAWING.

COLLUVIUM

GREYWACKE RESIDUAL SOIL

GREYWACKE HARD RESIDUAL SOIL

GREYWACKE COMPLETELY WEATHERED PARENT ROCK

GREYWACKE HIGHLY WEATHERED PARENT ROCK

— ?

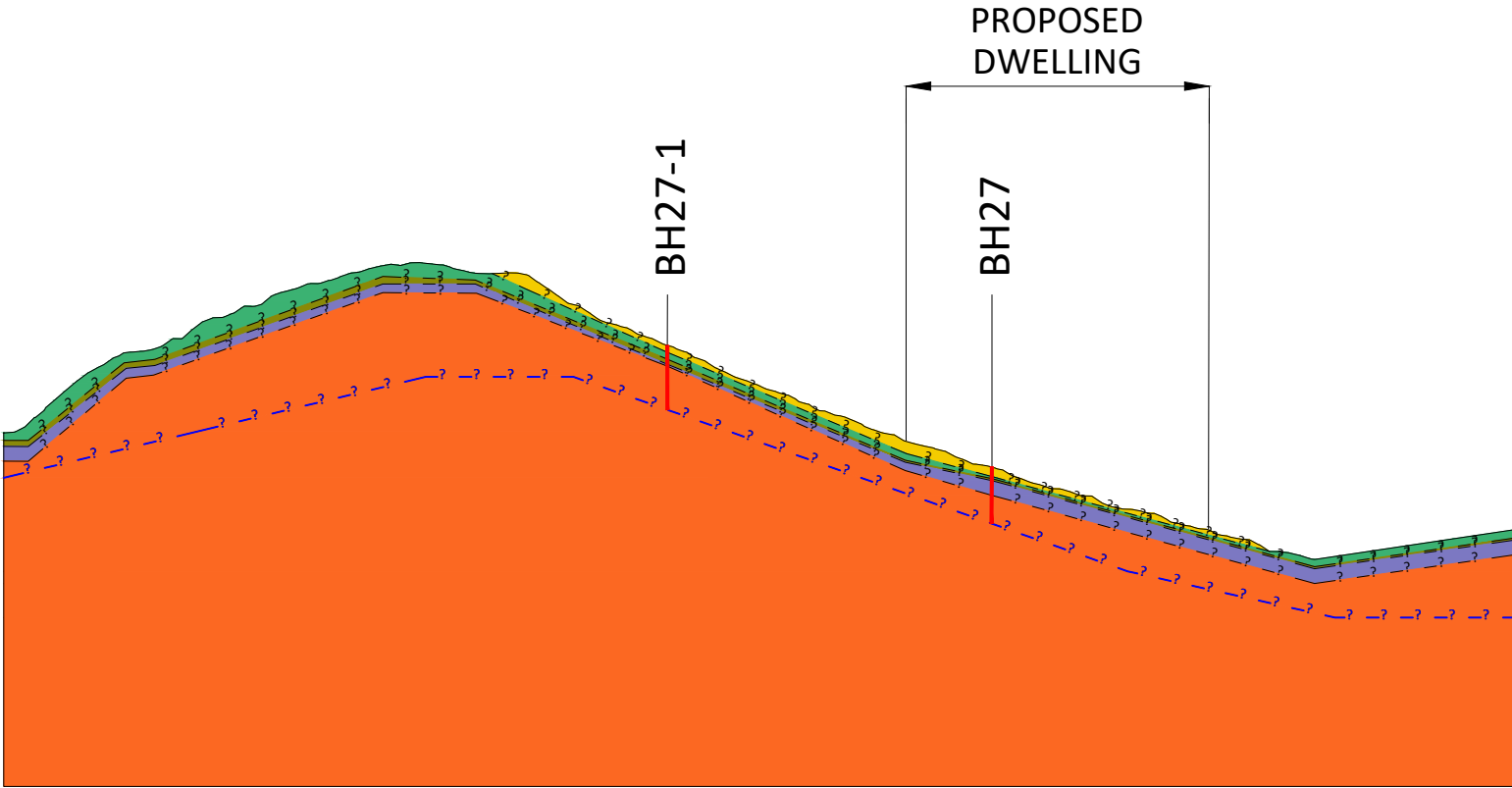
—

STRATA BOUNDARY

— ?

—

GROUNDWATER PROFILE (STATIC)



A	CONSENT	01/05/2023
Revision	Issue	Date

geologix

consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address
**PROPOSED SUBDIVISIONS OF
LOTS 37 & 38 DP 426505**

Project C0255	Drawn By GC
-------------------------	-----------------------

Client
WAITOTO DEVELOPMENTS LTD

Sheet Title
GEOTECHNICAL CROSS-SECTION E

Sheet
205

APPENDIX B

Exploratory Hole Records

INVESTIGATION LOG

HOLE NO.:
BH23

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 28/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbolology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3282				WATER
					50	100	150	200	
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.2	TS						
Silty CLAY, very stiff, light yellowish brown, moist, low plasticity, with occasional fine to medium gravel sized pockets and streaks of dark organics, (Colluvium)		0.4	TS						189+ -
		0.6	TS						189+ -
		0.8	TS						189+ -
		1.0	TS						189+ -
		1.2	TS						189+ -
Silty CLAY, very stiff, light orange brown, moist, low plasticity. (Greywacke Residual Soil)		1.4	TS						
		1.6	TS						162 50
Silty CLAY, very stiff, light orange brown mottled white, wet, low plasticity. (Greywacke Residual Soil) 2.8m: contains a small pocket of sand		1.8	TS						
		2.0	TS						158 57
		2.2	TS						
		2.4	TS						154 43
		2.6	TS						
		2.8	TS						175 57
		3.0	TS						
		3.2	TS						189+ -
		3.4	TS	3					
		3.6	TS	4					
End Of Hole: 4.90m		3.8	TS	6					
		4.0	TS	6					
		4.2	TS	5					
		4.4	TS	4					
		4.6	TS	4					
		4.8	TS	7					
		5.0	TS	9					
			TS	9					
			TS	9					
			TS	10					

Groundwater Not Encountered

PHOTO(S)



REMARKS

- Hand auger completed at target depth.
- Continued with DCP until target depth.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH23-1

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 28/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbolology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467				WATER
					50	100	150	200	
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.2	TS						
Silty CLAY, very stiff, yellowish brown, moist, low plasticity. (Greywacke Residual Soil)		0.4							198+
		0.6							-
		0.8							198+
		1.0							-
		1.2							198+
		1.4							-
Silty CLAY, very stiff, yellowish brown mottled white and orange, moist, low plasticity. (Greywacke Residual Soil)		1.6							170
		1.8							79
		2.0							142
		2.2							57
Silty CLAY, very stiff, white mottled yellowish brown and orange, wet, low plasticity. (Greywacke Residual Soil)		2.4							198+
		2.6							-
		2.8							198+
		3.0							198+
End Of Hole: 4.90m		3.2		4					-
		3.4		3					
		3.6		4					
		3.8		4					
		4.0		3					
		4.2		7					
		4.4		7					
		4.6		6					
		4.8		6					
		5.0		8					
				8					
				9					
				8					
				8					
				9					
				10					
				11					
				13					

Groundwater Not Encountered

PHOTO(S)



REMARKS

- Hand auger completed at target depth.
- Continued with DCP until target depth.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit



INVESTIGATION LOG

HOLE NO.:
BH24

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 28/03/2023

CO-ORDINATES:

ELEVATION: Ground


END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION <div>(See Classification & Symbology sheet for details)</div>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER	VANE SHEAR STRENGTH (kPa)				WATER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
				(Blows / 100mm)	Vane: 3282																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
					2	4	6	8		10	12	14	16	18	50	100	150	200	Values																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity. End Of Hole: 1.00m		0.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			

PHOTO(S)



REMARKS

- Hand auger terminated at 0.3 m due to dense strata.
- Continued with DCP until refusal at 1.0 m.
- Groundwater not encountered at the time of drilling.

WATER

- ▼ Standing Water Level
▷ Out flow
◁ In flow

INVESTIGATION TYPE

- ☒ Hand Auger
☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH24-1

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 28/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbolology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3282				WATER
					50	100	150	200	
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.2	TS						189+
Silty CLAY, very stiff, light orange brown, moist, low plasticity. (Greywacke Residual Soil)		0.4							-
Sandy SILT with trace fine gravel, very stiff, light red mottled orange, moist, low plasticity. (Greywacke Residual Soil)		0.6							UTP
End Of Hole: 3.90m		0.8		6					-
		1.0		5					
		1.2		5					
		1.4		6					
		1.6		7					
		1.8		9					
		2.0		7					
		2.2		7					
		2.4		11					
		2.6		10					
		2.8		9					
		3.0		8					
		3.2		8					
		3.4		10					
		3.6		14					
		3.8		13					
		4.0		12					
		4.2		11					
		4.4		11					
		4.6		14					
		4.8		15					
		5.0		16					
				17					
				18					
				25 >>					

PHOTO(S)



REMARKS

- Hand auger terminated at 0.6 m due to dense strata.
- Continued with DCP until refusal at 3.9 m.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit



INVESTIGATION LOG

HOLE NO.:
BH25

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 28/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION <div>(See Classification & Symbology sheet for details)</div>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER	VANE SHEAR STRENGTH		WATER	
				(Blows / 100mm)	(kPa)			
					Vane: 3467			
				2 4 6 8 10 12 14 16 18	50 100 150 200	Values		
Grassed TOPSOIL comprising organic SILT, dark blackish brown, dry, low plasticity.		0.2	TS				198+	Groundwater Not Encountered
Clayey SILT, very stiff, light orange brown, moist, friable, with occasional fine to medium gravel sized pockets and streaks of dark organics, (Colluvium)		0.4	TS				-	
		0.6	TS				UTP	
SILT with trace fine sand. very stiff to hard, dry, friable. (Greywacke Residual Soil)		0.8	TS				-	
		1.0	TS				198+	
Sandy SILT, very stiff to hard, light orange brown mottled white, moist, low plasticity. (Greywacke Residual Soil)		1.2	TS				-	
		1.4		4			UTP	
		1.6		5			-	
		1.8		7				
		2.0		7				
		2.2		10				
		2.4		10				
		2.6		7				
		2.8		7				
		3.0		9				
		3.2		19				
		3.4		25 >>				
		3.6						
		3.8						
		4.0						
		4.2						
		4.4						
		4.6						
		4.8						
		5.0						

PHOTO(S)



REMARKS

- Hand auger terminated at 1.2 m due to dense strata.
- Continued with DCP until refusal at 2.6 m.
- Groundwater not encountered at the time of drilling.

WATER

- ▼ Standing Water Level
▷ Out flow
◁ In flow

INVESTIGATION TYPE

- ☒ Hand Auger
☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH25-1

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 29/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbolology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467				WATER
					50	100	150	200	
Grassed TOPSOIL comprising organic SILT, dark blackish brown, dry, friable.		0.2	TS						
Silty CLAY, very stiff, light yellowish brown, dry, friable. (Greywacke Residual Soil)		0.4	TS						
		0.6	TS						
		0.8	TS						
		1.0	TS						
		1.2	TS						
Sandy SILT, very stiff, light yellowish brown mottled orange, moist, low plasticity. (Greywacke Residual Soil) End Of Hole: 3.50m		1.2	TS	4					
		1.4		3					
		1.6		2					
		1.8		4					
		2.0		3					
		2.2		3					
		2.4		5					
		2.6		7					
		2.8		8					
		3.0		10					
		3.2		12					
		3.4		12					
		3.6		12					
		3.8		8					
		4.0		12					
		4.2		16					
		4.4		16					
		4.6		16					
		4.8		25 >>					
		5.0							

PHOTO(S)



REMARKS

- Hand auger terminated at 1.2 m due to dense strata.
- Continued with DCP until refusal at 3.5 m.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH26

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 29/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)												VANE SHEAR STRENGTH (kPa) Vane: 3467				WATER	
				2	4	6	8	10	12	14	16	18	50	100	150	200	Values				
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.2	TS																198+	-	Groundwater Not Encountered
Clayey SILT with trace fine gravel, very stiff to hard, light brown mottled white and pink, moist, friable. (Greywacke Residual Soil)		0.4	TS																UTP	-	
		0.6	TS																UTP	-	
		0.8	TS																198+	-	
		1.0	TS																UTP	-	
SILT with trace fine sand, hard, light reddish orange, moist, friable. (Greywacke Residual Soil)		1.2	TS																UTP	-	
		1.4	TS																UTP	-	
Sandy SILT, very stiff to hard, light reddish moist, friable. (Greywacke Residual Soil)		1.6	TS																UTP	-	
		1.8	TS																UTP	-	
End Of Hole: 2.90m		2.0																	UTP	-	
		2.2							9											-	
		2.4							11											-	
		2.6							10											-	
		2.8							15											-	
		3.0							11											-	
		3.2							15											-	
		3.4							16											-	
		3.6							25 >>											-	
		3.8																		-	
		4.0																		-	
		4.2																		-	
		4.4																		-	
		4.6																		-	
		4.8																		-	
		5.0																		-	

PHOTO(S)



REMARKS

- Hand auger terminated at 2.0 m due to dense strata.
- Continued with DCP until refusal at 2.9 m.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH26-1

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 29/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION <div>(See Classification & Symbology sheet for details)</div>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER	VANE SHEAR STRENGTH (kPa)		WATER	
				(Blows / 100mm)	Vane: 3467			
					24681012141618	50100150200		Values
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.2						
Silty CLAY, very stiff, light orange brown, dry to moist, friable. (Greywacke Residual Soil)		0.4						
Sandy SILT with trace fine gravel, very stiff to hard, light yellowish brown, moist, friable to low plasticity. (Greywacke Residual Soil)		0.6		6				
End Of Hole: 2.30m		0.5		5				
		0.5		5				
		0.6		6				
		0.8		6				
		1.0		10				
		1.2		8				
		1.2		6				
		1.3		7				
		1.4		8				
		1.6		14				
		1.6		12				
		1.8		13				
		1.8		13				
		2.0		12				
		2.0		15				
		2.2		20				
		2.2		25 >>				
		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						
		5.0						
								Groundwater Not Encountered

PHOTO(S)



REMARKS

- Hand auger terminated at 0.5 m due to dense strata.
- Continued with DCP until refusal at 2.3 m.
- Groundwater not encountered at the time of drilling.

WATER

- ☒ Standing Water Level
☐ Out flow
☐ In flow

INVESTIGATION TYPE

- ☒ Hand Auger
☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH27

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 29/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3282				WATER
					50	100	150	200	
Grassed TOPSOIL comprising organic SILT, dark blackish brown, dry, friable.		0.2	TS						
Silty CLAY, very stiff, light yellowish brown, moist, low plasticity, with occasional fine to medium gravel sized pockets and streaks of dark organics, (Colluvium)		0.4							189+
		0.6							-
		0.8							189+
		1.0							-
Silty CLAY, very stiff, light yellowish brown, moist, low plasticity. (Greywacke Residual Soil)		1.2							189+
		1.4							-
Sandy SILT, very stiff to hard, light orange brown mottled white, moist, low plasticity. (Greywacke Residual Soil)		1.6							UTP
		1.8							-
End Of Hole: 2.90m		2.0		10					
		2.2		6					
		2.4		7					
		2.6		5					
		2.8		4					
		3.0		4					
		3.2		6					
		3.4		16					
		3.6		19					
		3.8		16					
		4.0		25 >>					
		4.2							
		4.4							
		4.6							
		4.8							
		5.0							

PHOTO(S)



REMARKS

- Hand auger terminated at 1.8 m due to dense strata.
- Continued with DCP until refusal at 2.9 m.
- Groundwater not encountered at the time of drilling.

WATER

- ☒ Standing Water Level
- ☐ Out flow
- ☐ In flow

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.:
BH27-1

CLIENT: Waitoto Developments Ltd
PROJECT: Proposed Subdivision of Lots 37 and 38 DP 426505

JOB NO.:
C0255

SITE LOCATION: East of Russell-Whakapara Road

START DATE: 29/03/2023

CO-ORDINATES:

ELEVATION: Ground

END DATE: 29/03/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS, SD

LOGGED BY: SBS

MATERIAL DESCRIPTION <div>(See Classification & Symbology sheet for details)</div>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER	VANE SHEAR STRENGTH		WATER	
				(Blows / 100mm)	(kPa)			
					Vane: 3467			
				24681012141618	50100150200	Values		
Grassed TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.1	15					
Clayey SILT, very stiff, dark yellowish brown, moist, low plasticity, with occasional fine gravel sized pink sand and fine to medium gravel sized pockets and streaks of dark organics, (Colluvium)		0.2					198+	
		0.3					-	
		0.4						
Silty CLAY, very stiff, light yellowish brown mottles white, moist, low plasticity. (Greywacke Residual Soil)		0.5					198+	
		0.6					-	
		0.7						
Sandy SILT, very stiff to hard, light yellowish brown mottled white, moist, friable. (Greywacke Residual Soil)		0.8					198+	
		0.9					-	
		1.0						
End Of Hole: 2.10m		1.1					UTP	
		1.2					-	
		1.3		8				
		1.4		10				
		1.5		10				
		1.6		8				
		1.7		3				
		1.8		10				
		1.9		16				
		2.0		25 >>				
	2.1							
	2.2							
	2.3							
	2.4							
	2.5							
	2.6							
	2.7							
	2.8							
	2.9							
	3.0							
	3.1							
	3.2							
	3.3							
	3.4							
	3.5							
	3.6							
	3.7							
	3.8							
	3.9							
	4.0							
	4.1							
	4.2							
	4.3							
	4.4							
	4.5							
	4.6							
	4.7							
	4.8							
	4.9							
	5.0							

PHOTO(S)



REMARKS

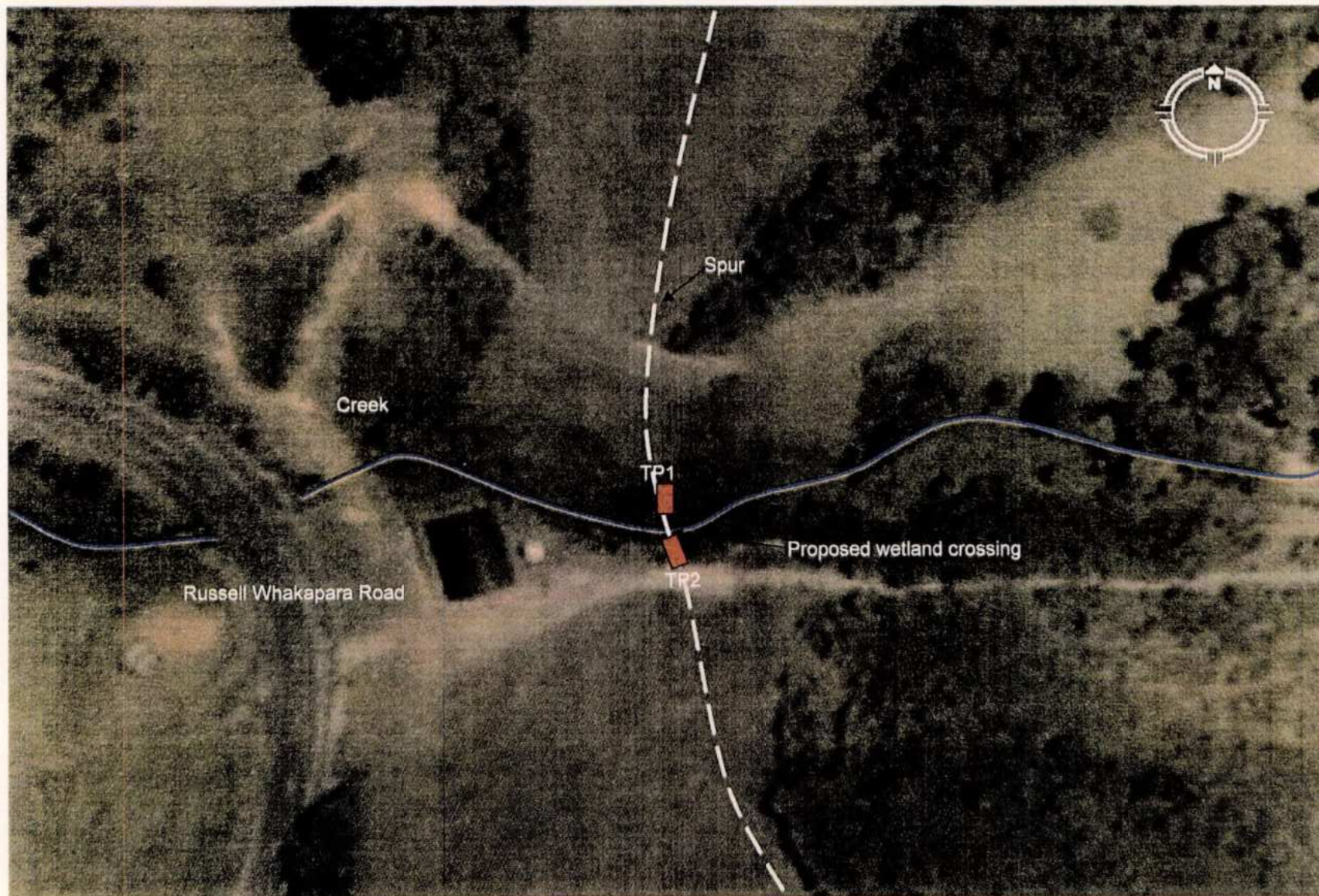
- Hand auger terminated at 1.3 m due to dense strata.
- Continued with DCP until refusal at 2.1 m.
- Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☒ Hand Auger
- ☐ Test Pit



Proposed Wetland Crossing, Orongo Bay, Bay of Islands
Geotechnical Investigation Plan

DRAWN	CRB
CHECKED	GEW
DATE	5-Feb-09
PROJECT	9267

TESTPIT LOG

BOREHOLE No: TP1

Client: Waitoto Developments Ltd

Project: Proposed Wetland Crossing

LDE Project No.: 9267

Project Location: Russell Whakapara Road,
Orongo Bay, Bay of Islands

Testpit Location: Refer to site plan

Hole started: 16/10/2008

Hole completed: 16/10/2008

Co-ordinates: mN R.L. m
mE

Excavation method: 12 Tonne Excavator

Excavated by: ?
Logged by: C.Bell

Tests	Depth (m)	Graphic	Symbol	Moisture	Strength	Soil Description	Geology	Undrained Shear Strength (kPa)
	0.0		OL	W	St	SILT, clayey, blackish brown, friable, stiff, wet	Organic Topsoil	
	0.1							
	0.2		CL	M-W	St	CLAY, some silt, yellowish brown, plastic to crumbly, stiff, moist to wet	Residual Soil	74
	0.3							
	0.4							85
	0.5							
	0.6							85
	0.7							
	0.8							75
	0.9							
	1.0							72
	1.1					light blue grey		
	1.2							165
	1.3							
	1.4					orange brown to black manganese, some highly weathered gravel		
	1.5							
	1.6							
	1.7							54
	1.8							
	1.9							
	2.0		ML	M	H	SILT, some clay, orange brown to black, crumbly, hard, moist	Completely Weathered Bedrock	51
	2.1							
	2.2							
	2.3							
	2.4							
	2.5							
	2.6							
	2.7							
	2.8		ML	D-M	VH	SILT, rare clay, orange brown, some black, crumbly, very hard, dry to moist	Highly Weathered Bedrock	
	2.9							
	3.0							
	3.1							
	3.2							
	3.3							
	3.4					Base of test pit @ 3.3m depth		
	3.5					major inflows from 3.3m depth		
	3.6					final water table at stream level		
	3.7							
	3.8							
	3.9							
	4.0							
	4.1							
	4.2							
	4.3							
	4.4							
	4.5							
	4.6							
	4.7							
	4.8							
	4.9							
	5.0							
	5.1							
	5.2							
	5.3							
	5.4							
	5.5							
	5.6							
	5.7							
	5.8							
	5.9							

Note: Undrained shear strength lines are indicative only.

TESTPIT LOG

BOREHOLE No: TP2

Client: Waitoto Developments Ltd

Project: Proposed Wetland Crossing

LDE Project No.: 9267

Project Location: Russell Whakapara Road,
Orongo Bay, Bay of Islands

Testpit Location: Refer to site plan

Hole started: 16/10/2008

Hole completed: 16/10/2008

Co-ordinates: mN R.L. m
mE

Excavation method: 12 Tonne Excavator

Excavated by: ?

Logged by: C.Bell

Tests	Depth (m)	Graphic	Symbol	Moisture	Strength	Soil Description	Geology	Undrained Shear Strength (kPa)
	0.0		CL	S	VS	CLAY, some silt, dark brownish gray, very soft, saturated	Swamp material	
	0.1							
	0.2					minor inflows throughout soil profile		
	0.3							
	0.4							
	0.5							
	0.6							
	0.7							
	0.8							
	0.9							
	1.0							
	1.1		OH	S	VS	CLAY, some silt, organic, brownish black, very soft, saturated	Organic layer	
	1.2							
	1.3							
	1.4		CL	S	VS	CLAY, some silt, light gray, very soft, saturated	Swamp Material	
	1.5							
	1.6							
	1.7					brown		
	1.8							
	1.9							
	2.0							
	2.1							
	2.2							
	2.3							
	2.4							
	2.5							
	2.6							
	2.7							
	2.8		ML	0-M	VH	SILT, rare clay, orange brown, some black, crumbly, very hard, dry to moist	Highly Weathered Bedrock	
	2.9							
	3.0					Base of test pit @ 3.0m depth		
	3.1					Inflows throughout test pit		
	3.2					Abandon hole due to collapse		
	3.3							
	3.4							
	3.5							
	3.6							
	3.7							
	3.8							
	3.9							
	4.0							
	4.1							
	4.2							
	4.3							
	4.4							
	4.5							
	4.6							
	4.7							
	4.8							
	4.9							
	5.0							
	5.1							
	5.2							
	5.3							
	5.4							
	5.5							
	5.6							
	5.7							
	5.8							
	5.9							

Note: Undrained shear strength lines are indicative only

PENETROMETER TEST LOG

Project No: 9267

Date: 16/10/2008

Test No. **P1**

Project: Waitoto Developments Ltd

Operated by: C.Bell

Location: Russell Whakapara Road,

Logged by: C.Bell

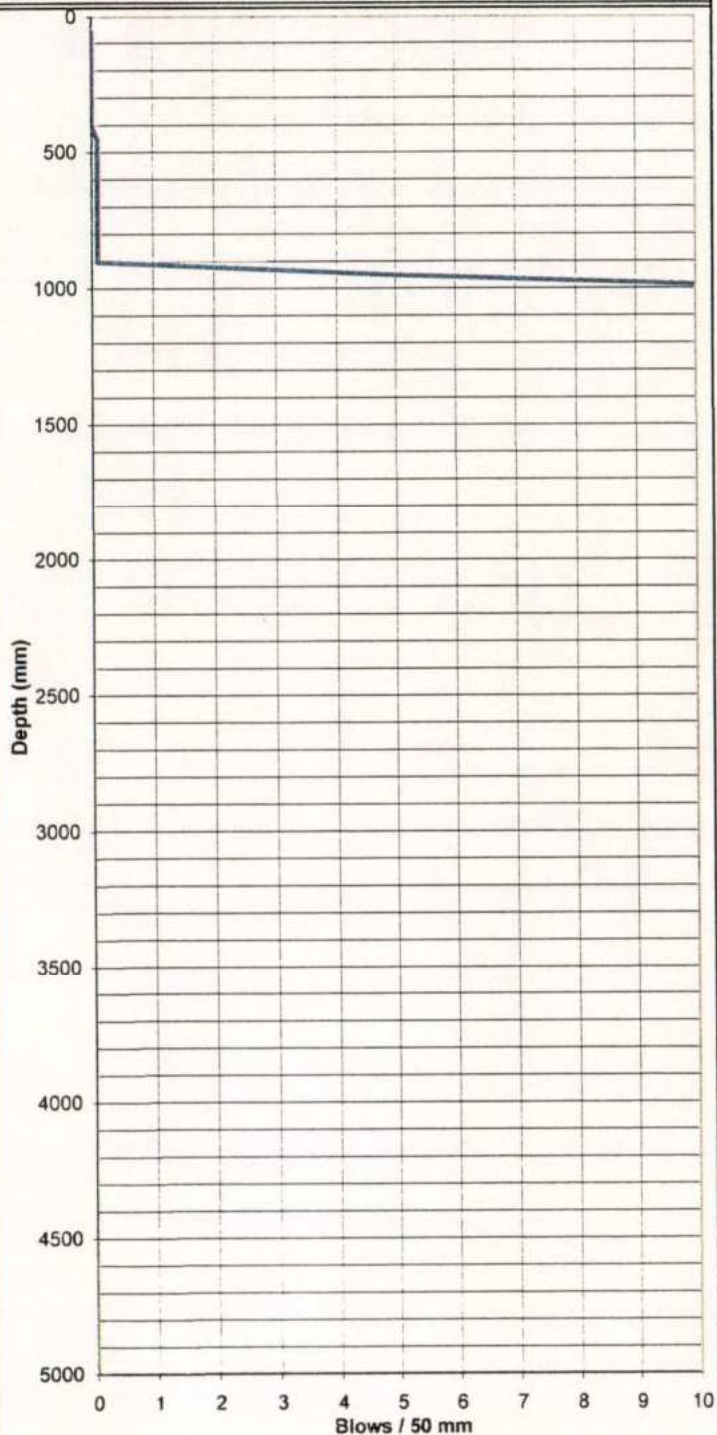
RL: Orongo Bay

Checked by: G.Winkler

Sheet **1**

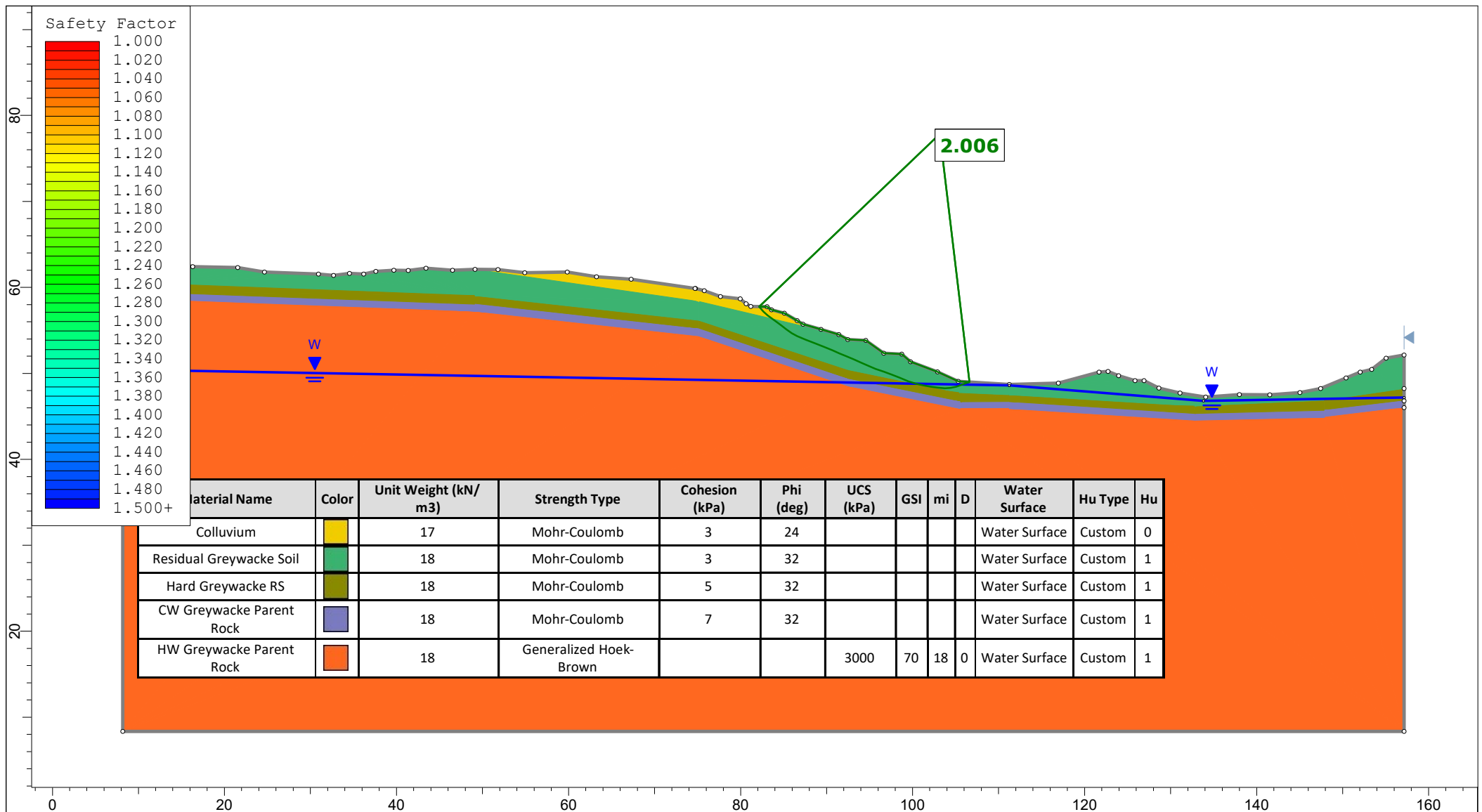
of **1**


mm Driven	No. of Blows	mm Driven	No. of Blows
50	0.0	2550	
100	0.0	2600	
150	0.0	2650	
200	0.0	2700	
250	0.0	2750	
300	0.0	2800	
350	0.0	2850	
400	0.0	2900	
450	0.1	2950	
500	0.1	3000	
550	0.1	3050	
600	0.1	3100	
650	0.1	3150	
700	0.1	3200	
750	0.1	3250	
800	0.1	3300	
850	0.1	3350	
900	0.1	3400	
950	5.0	3450	
1000	12.0	3500	
1050		3550	
1100		3600	
1150		3650	
1200		3700	
1250		3750	
1300		3800	
1350		3850	
1400		3900	
1450		3950	
1500		4000	
1550		4050	
1600		4100	
1650		4150	
1700		4200	
1750		4250	
1800		4300	
1850		4350	
1900		4400	
1950		4450	
2000		4500	
2050		4550	
2100		4600	
2150		4650	
2200		4700	
2250		4750	
2300		4800	
2350		4850	
2400		4900	
2450		4950	
2500		5000	

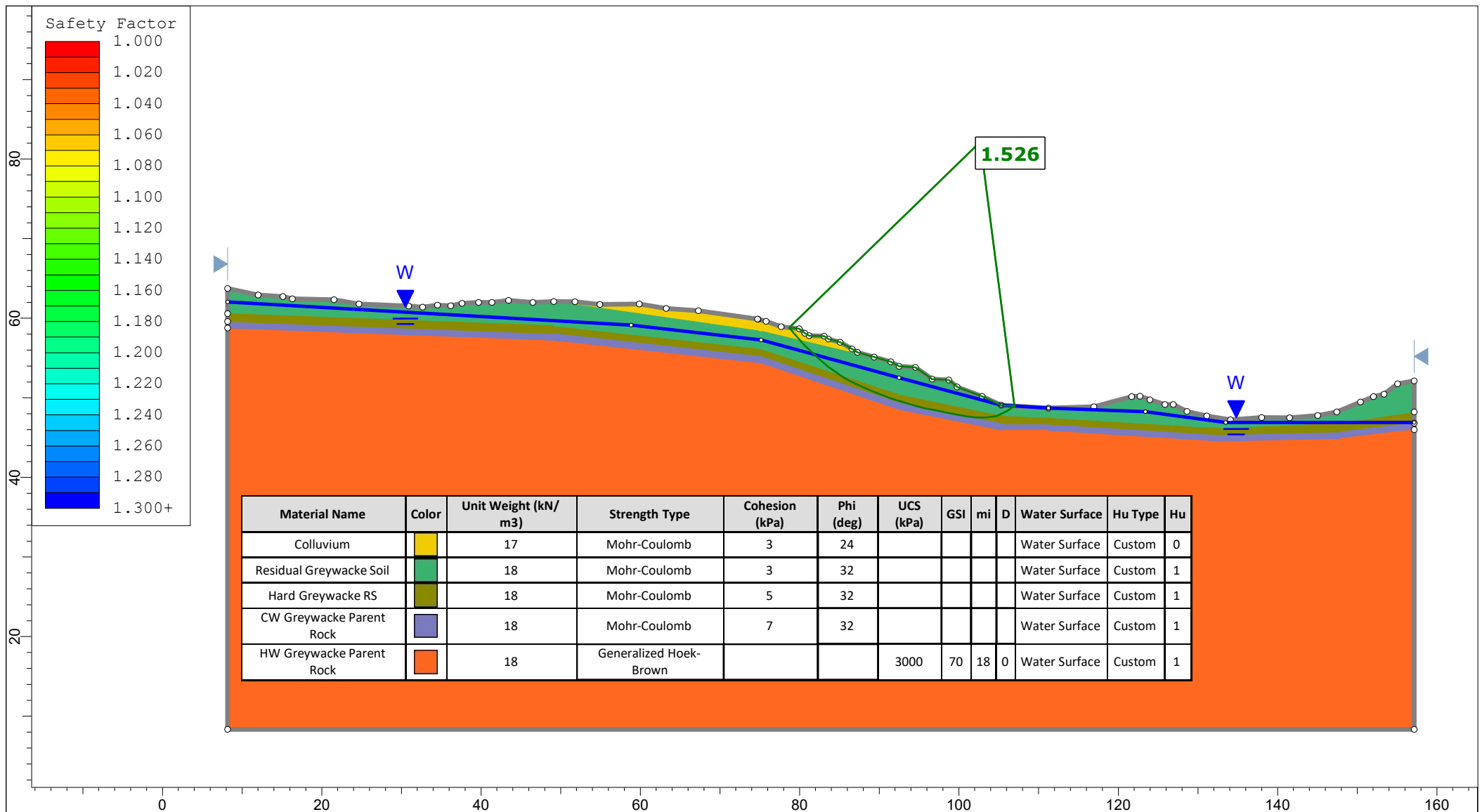



APPENDIX C

Slope Stability Model



 geologix consulting engineers	Project										
	Proposed Subdivision of Lots 37 and 38 DP 426505										
	Group					Scenario					
	Existing Condition					Static					
Drawn By	Sean Shin					Company					
	Geologix Consulting Engineers Ltd					File Name					
Date	02/05/2023					C0255 Section A.slm					

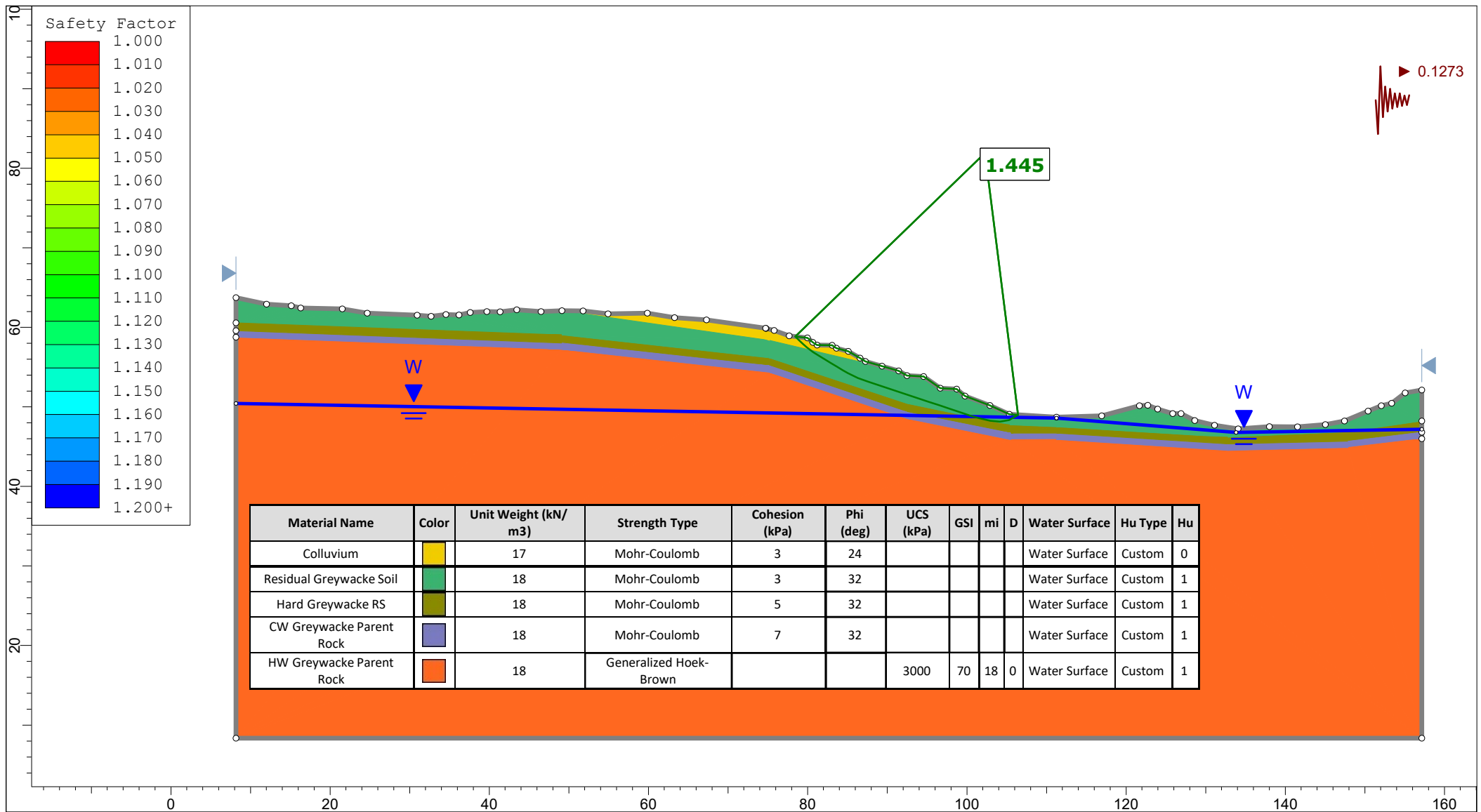





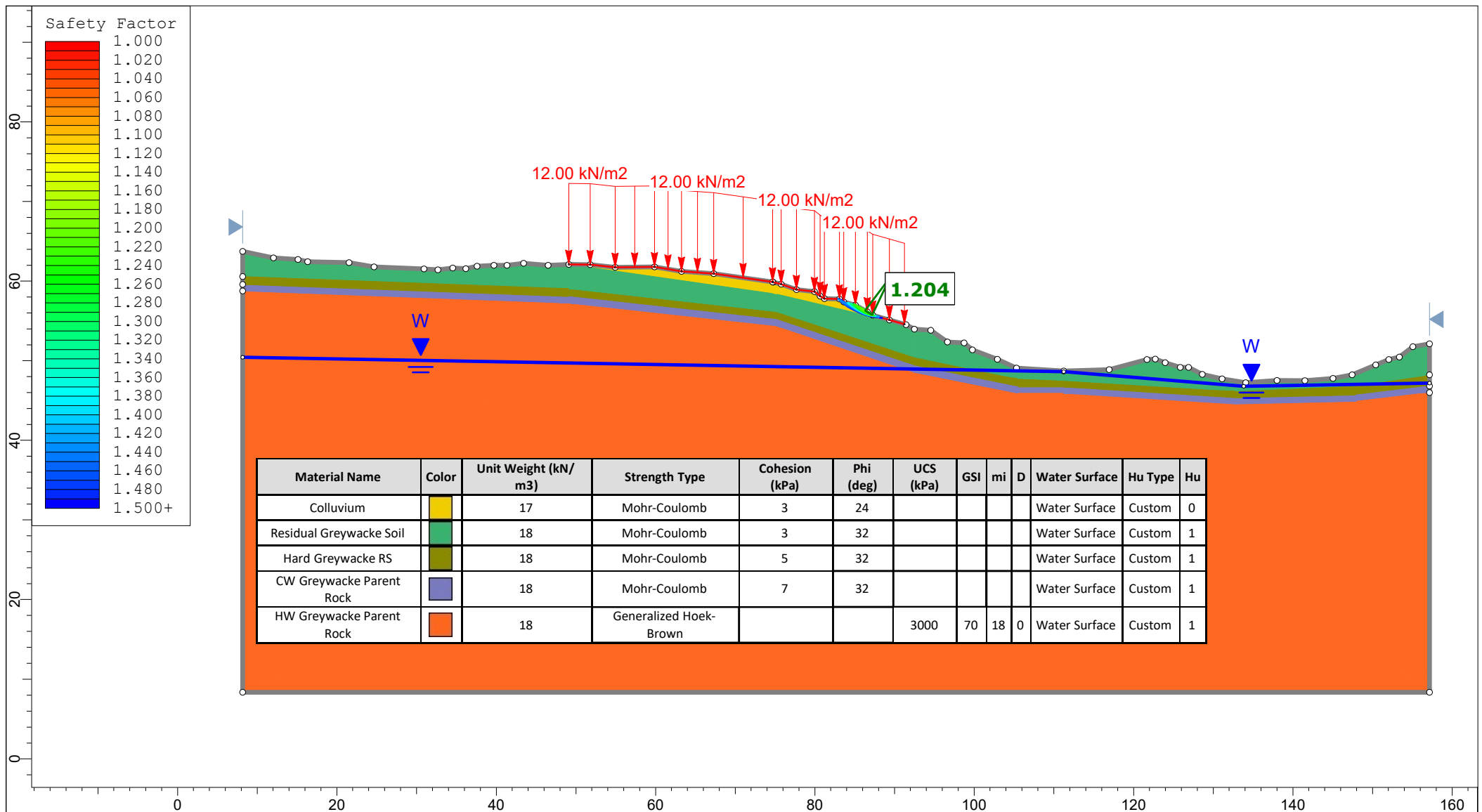
geologix


consulting engineers

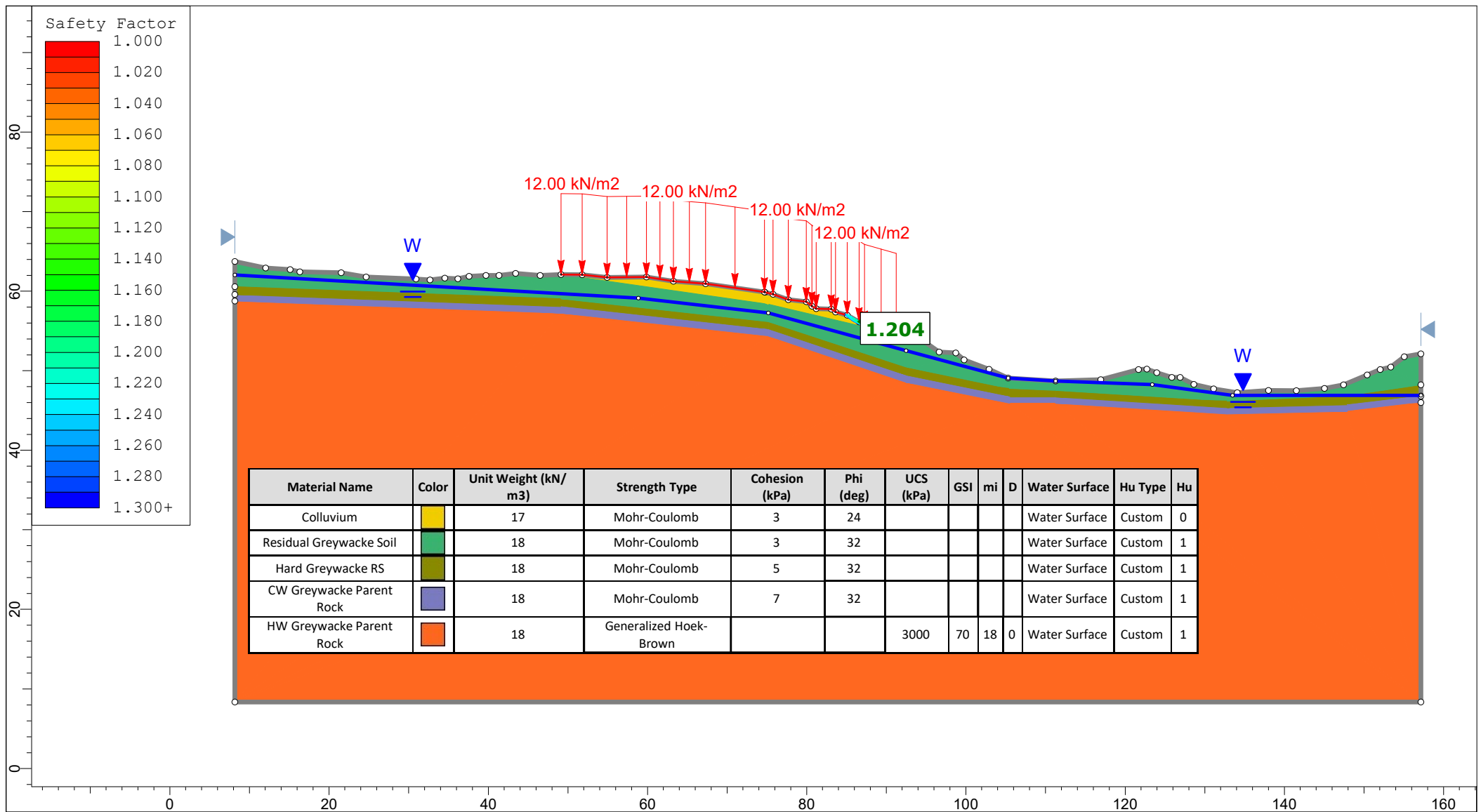
Project			
Proposed Subdivision of Lots 37 and 38 DP 426505			
Group	Existing Condition		Scenario
			Elevated GW
Drawn By	Sean Shin		Company
			Geologix Consulting Engineers Ltd
Date	02/05/2023		File Name
			C0255 Section A.slm




 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Existing Condition	Scenario Seismic
	Drawn By		Sean Shin	Company Geologix Consulting Engineers Ltd
	Date		02/05/2023	File Name C0255 Section A.slm



 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Proposed Condition	Scenario Static
	Drawn By		Sean Shin	Company Geologix Consulting Engineers Ltd
	Date		02/05/2023	File Name C0255 Section A.sldm



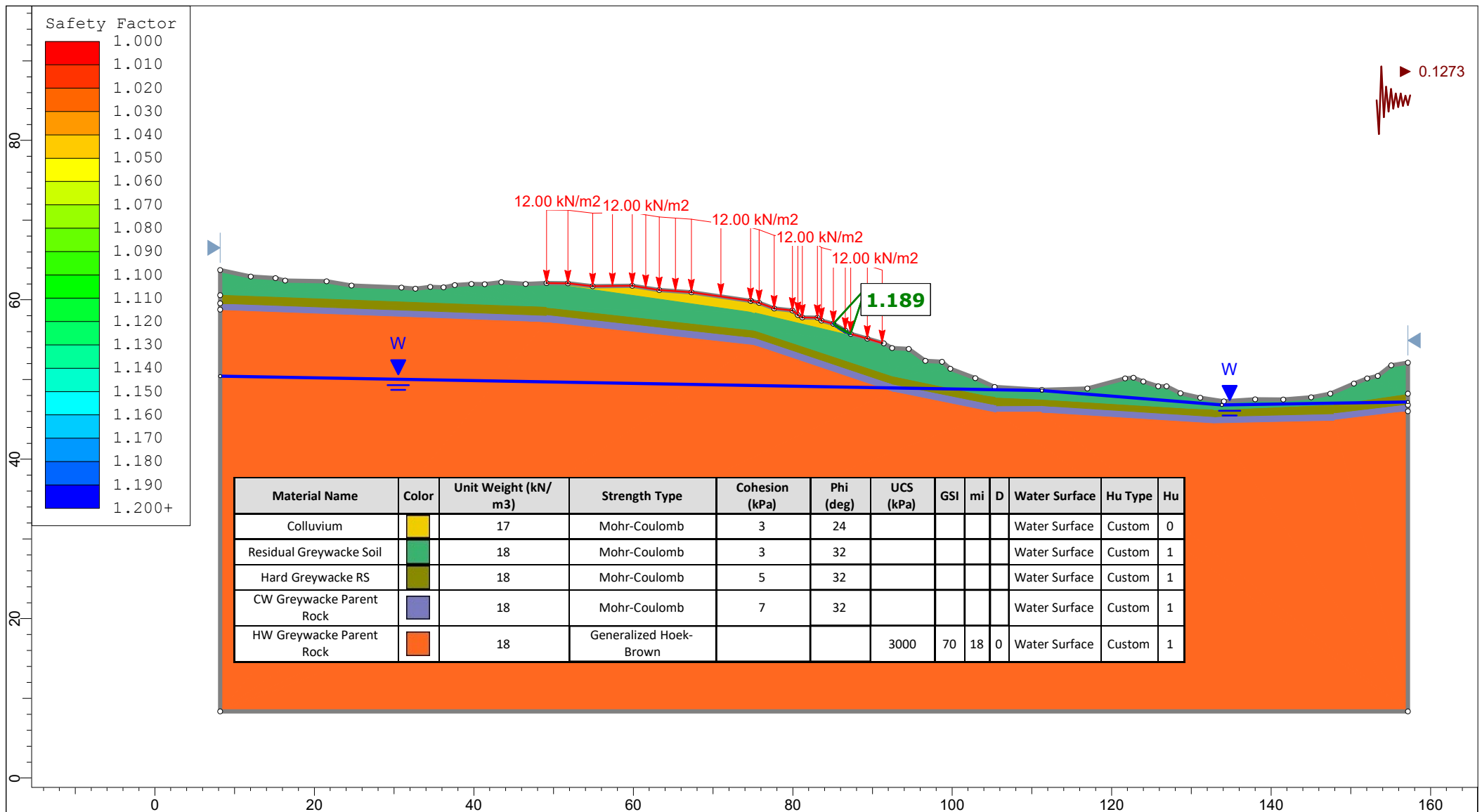



geologix

consulting engineers

SLIDEINTERPRET 3.034

Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Proposed Condition	Scenario	Elevated GW
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	02/05/2023	File Name	C0255 Section A.slm



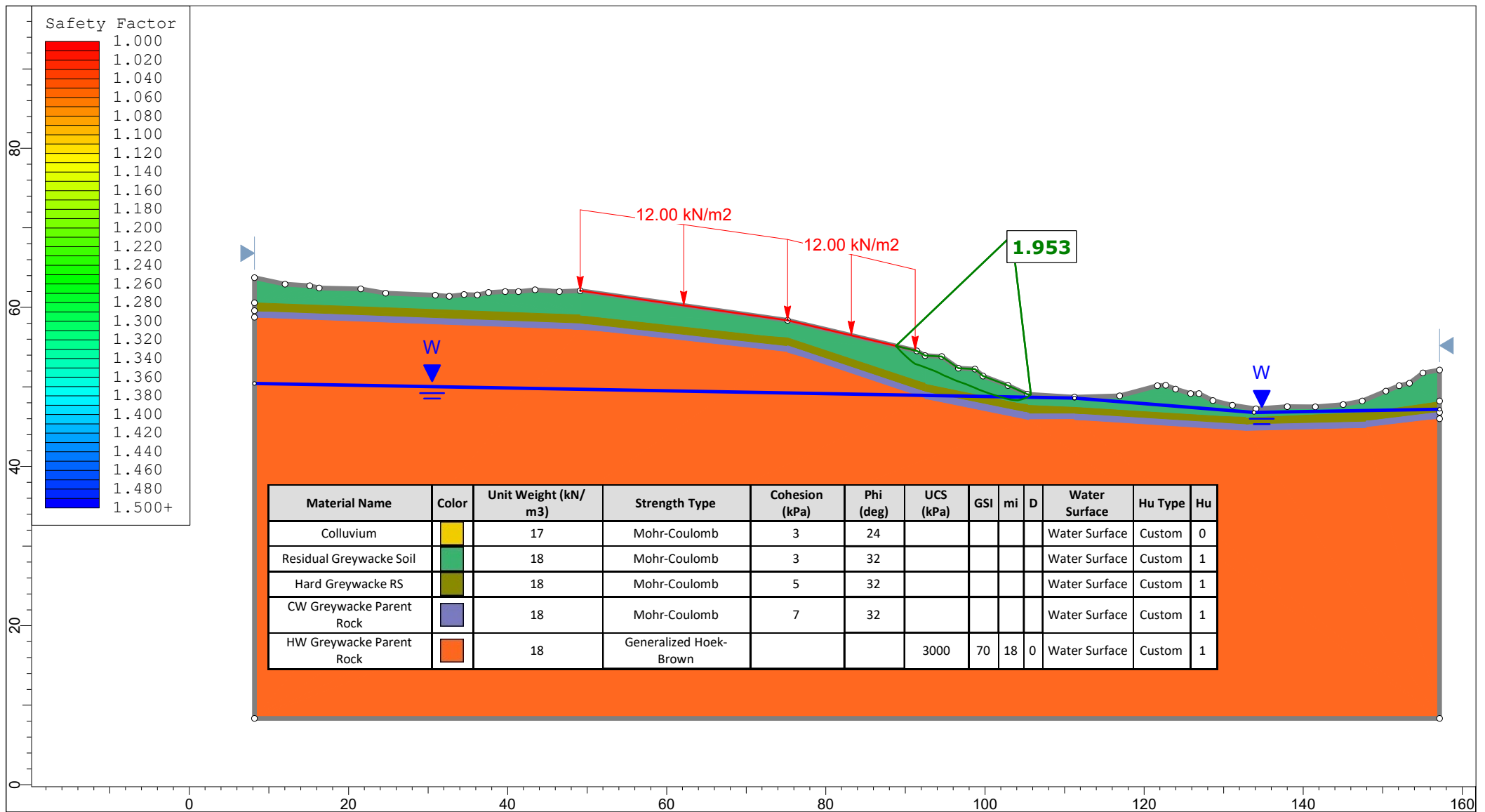



geologix

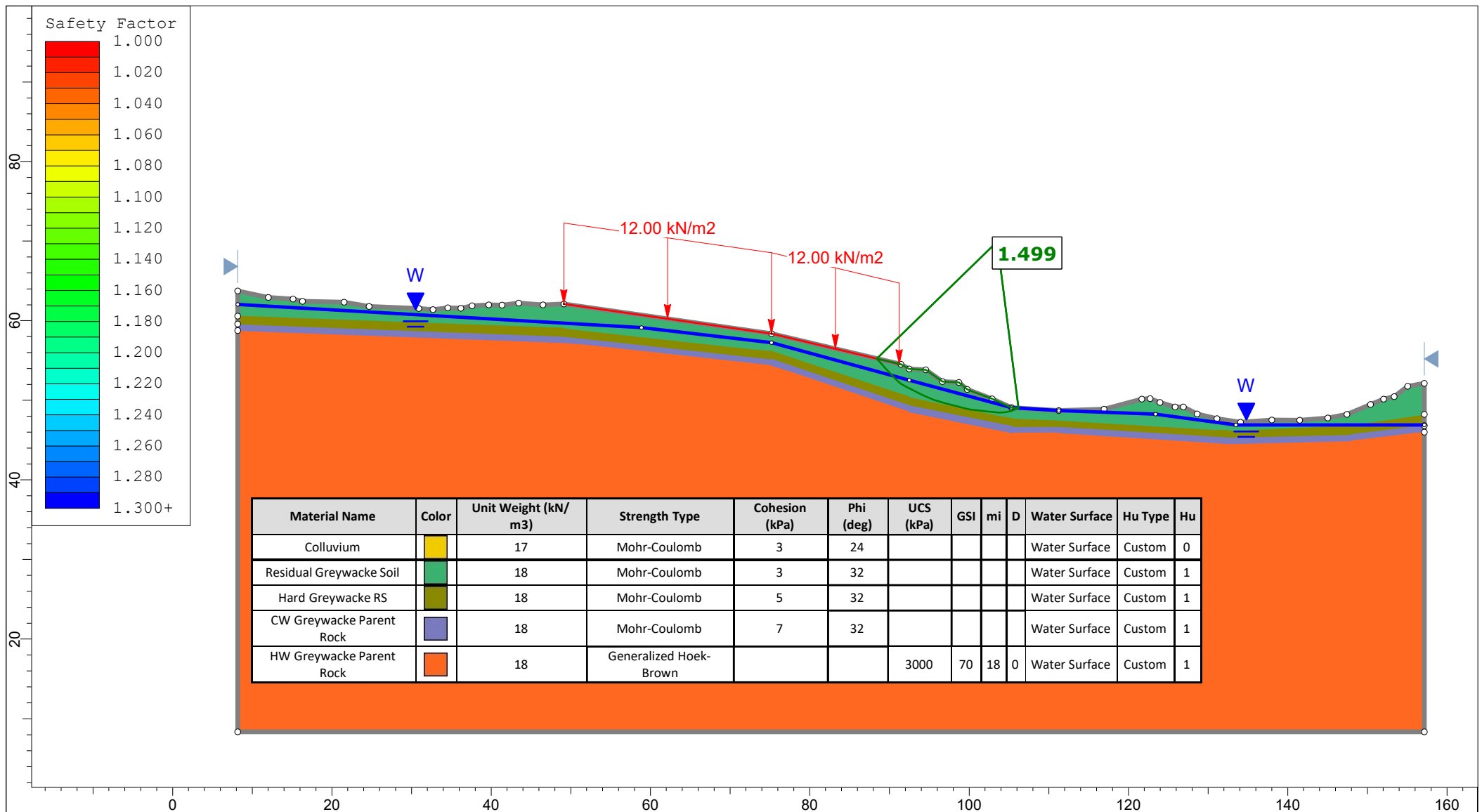
consulting engineers


SLIDEINTERPRET 9.034

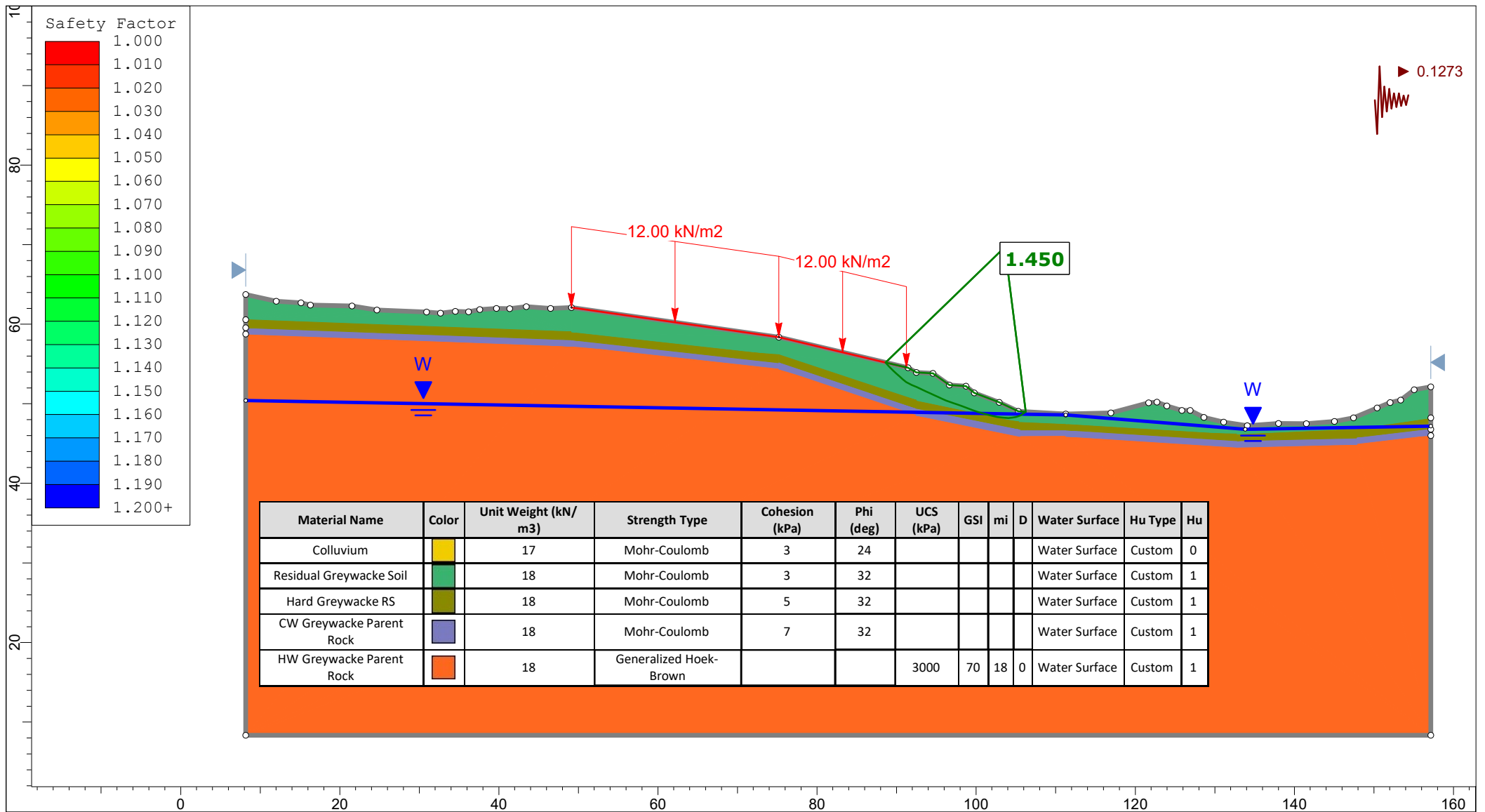
Project			
Proposed Subdivision of Lots 37 and 38 DP 426505			
Group	Proposed Condition		Scenario
Drawn By	Sean Shin		Company
Date	02/05/2023		File Name
			Seismic
			Geologix Consulting Engineers Ltd
			C0255 Section A.slm




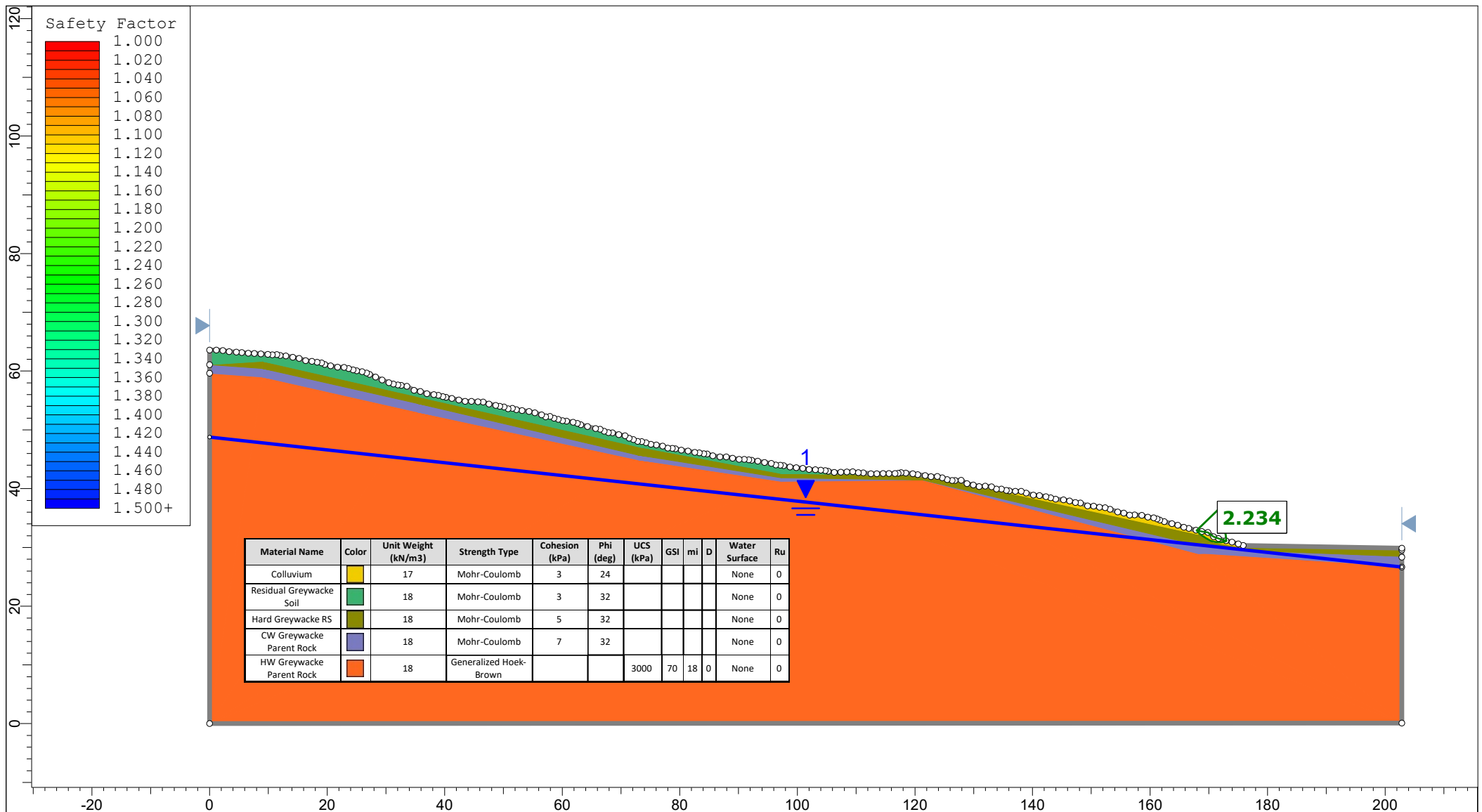
 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Proposed Cut Condition	Scenario Static
	Drawn By		Sean Shin	Company Geologix Consulting Engineers Ltd
	Date		02/05/2023	File Name C0255 Section A.slm




 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Proposed Cut Condition	Scenario
	Drawn By		Sean Shin	Company
	Date		02/05/2023	File Name
		Elevated GW		
		Geologix Consulting Engineers Ltd		
		C0255 Section A.slm		



 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Proposed Cut Condition	Scenario Seismic
	Drawn By		Sean Shin	Company Geologix Consulting Engineers Ltd
	Date		02/05/2023	File Name C0255 Section A.slm



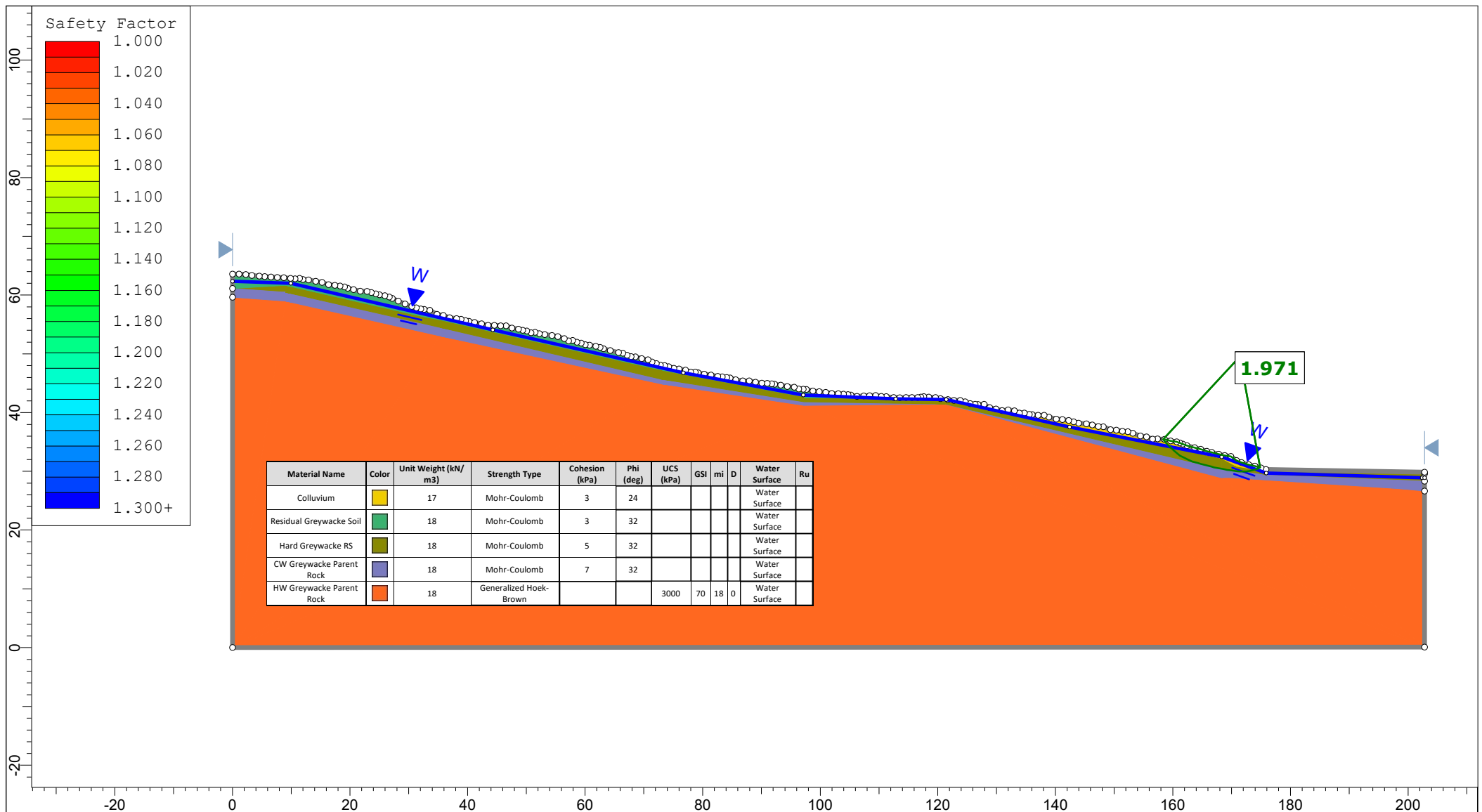



geologix

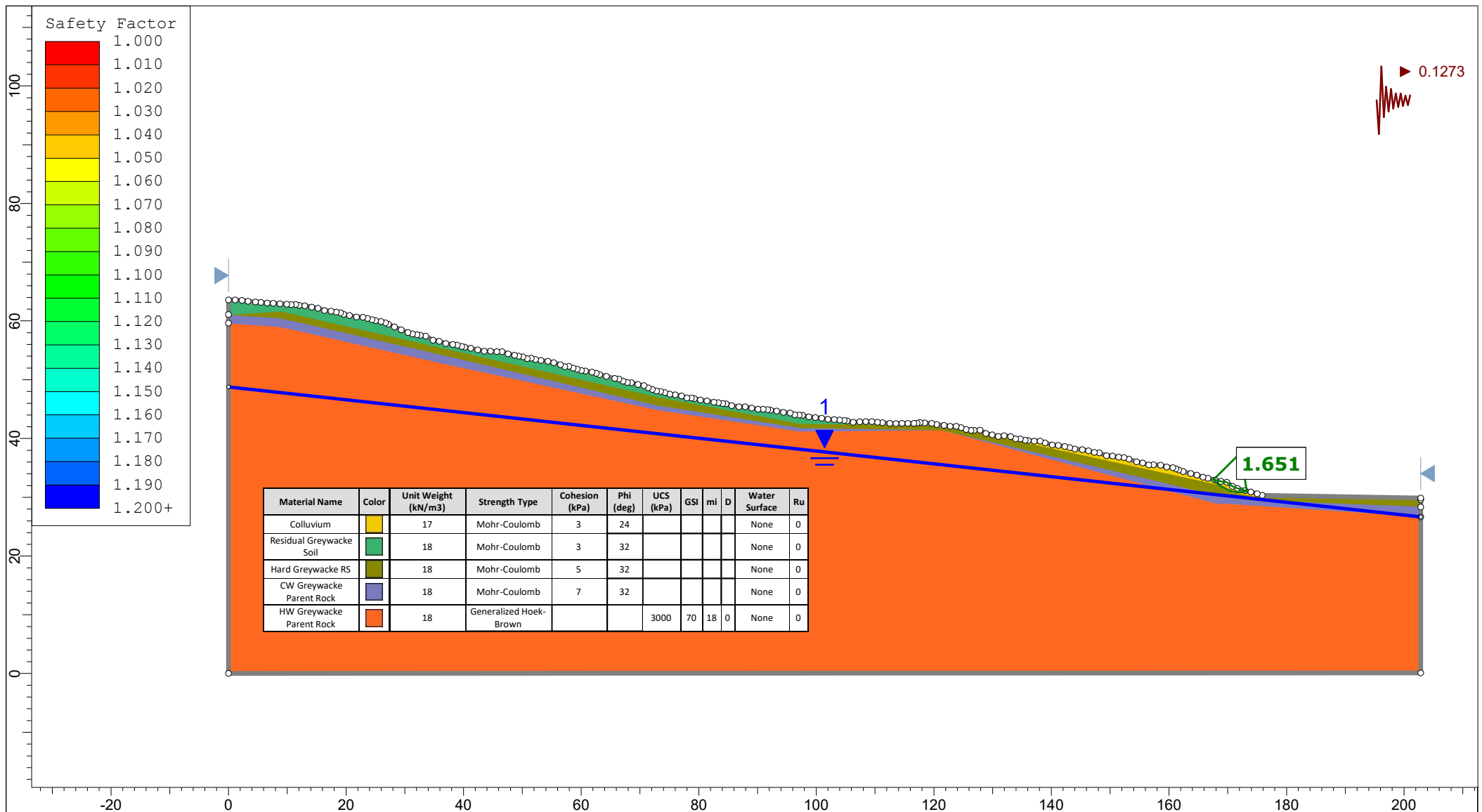
consulting engineers


SLIDEINTERPRET 9.034

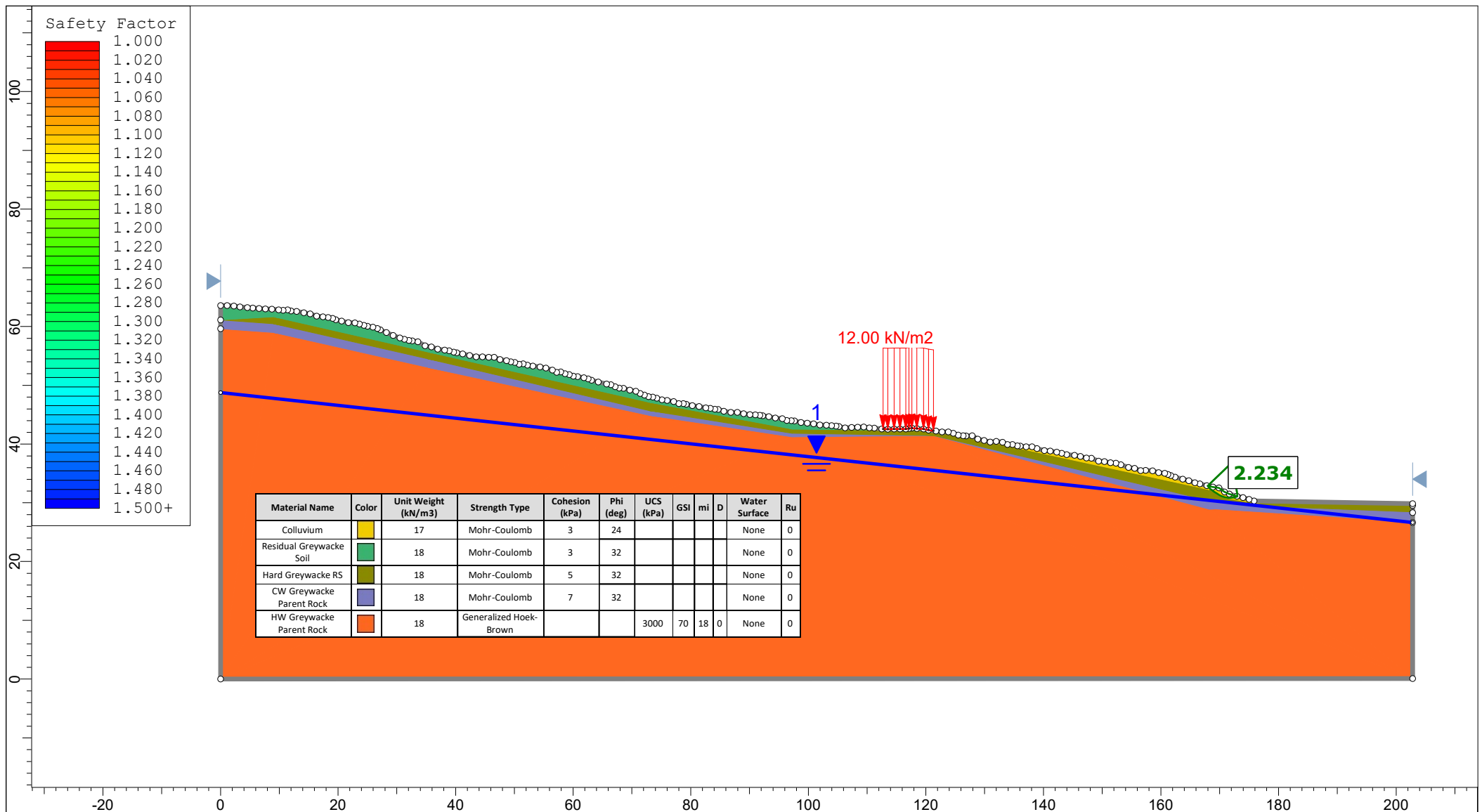
Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Existing Condition	Scenario	Static
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	3/05/2023, 10:26:38 am	File Name	C0255 Section B.slm




 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group	Existing Condition	Scenario	Elevated GW
	Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
	Date	3/05/2023, 10:26:38 am	File Name	C0255 Section B.slm



 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group	Existing Condition	Scenario	Seismic
	Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
	Date	3/05/2023, 10:26:38 am	File Name	C0255 Section B.slm



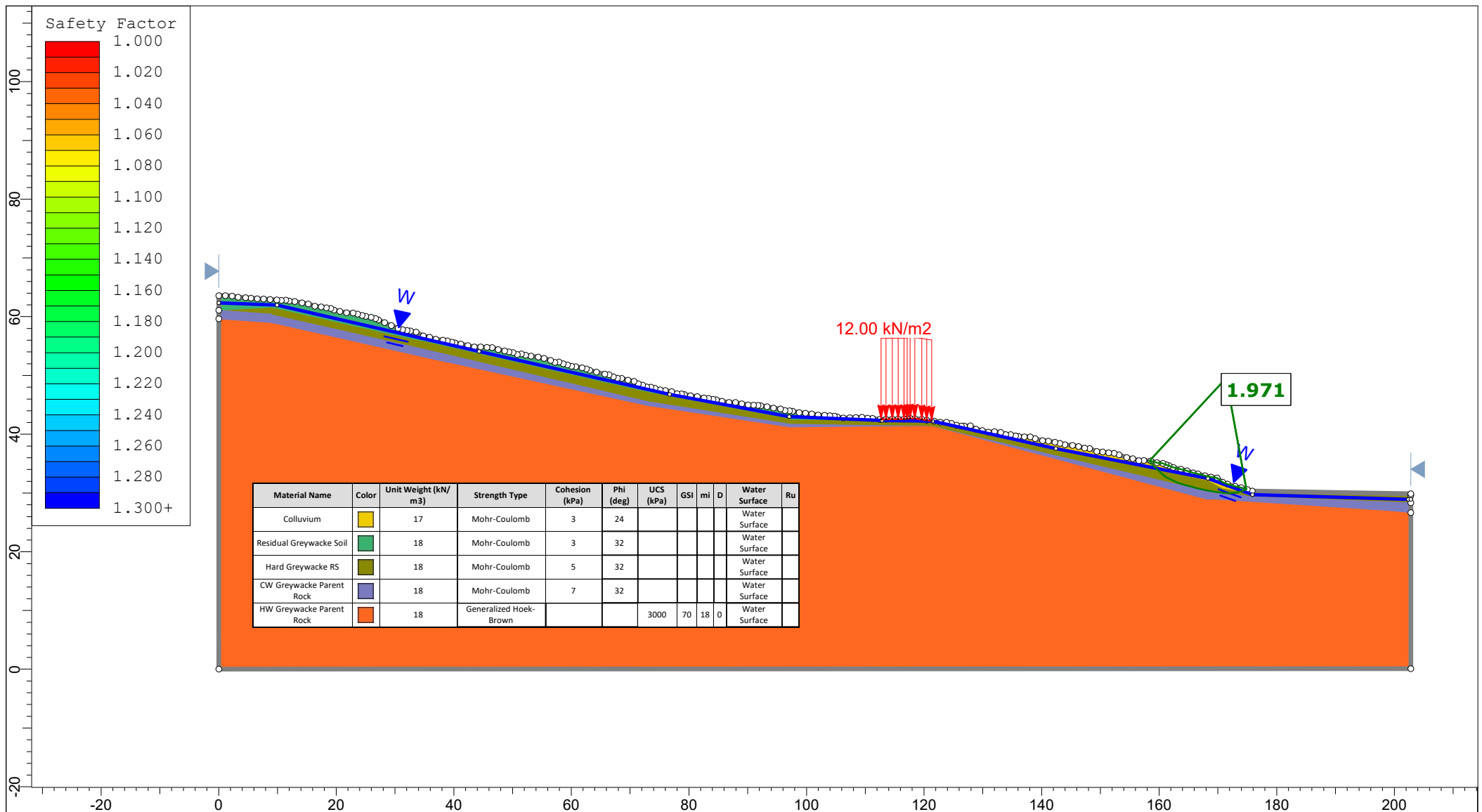



geologix

consulting engineers

SLIDEINTERPRET 9.034

Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Proposed Condition	Scenario	Static
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	3/05/2023, 10:26:38 am	File Name	C0255 Section B.slm



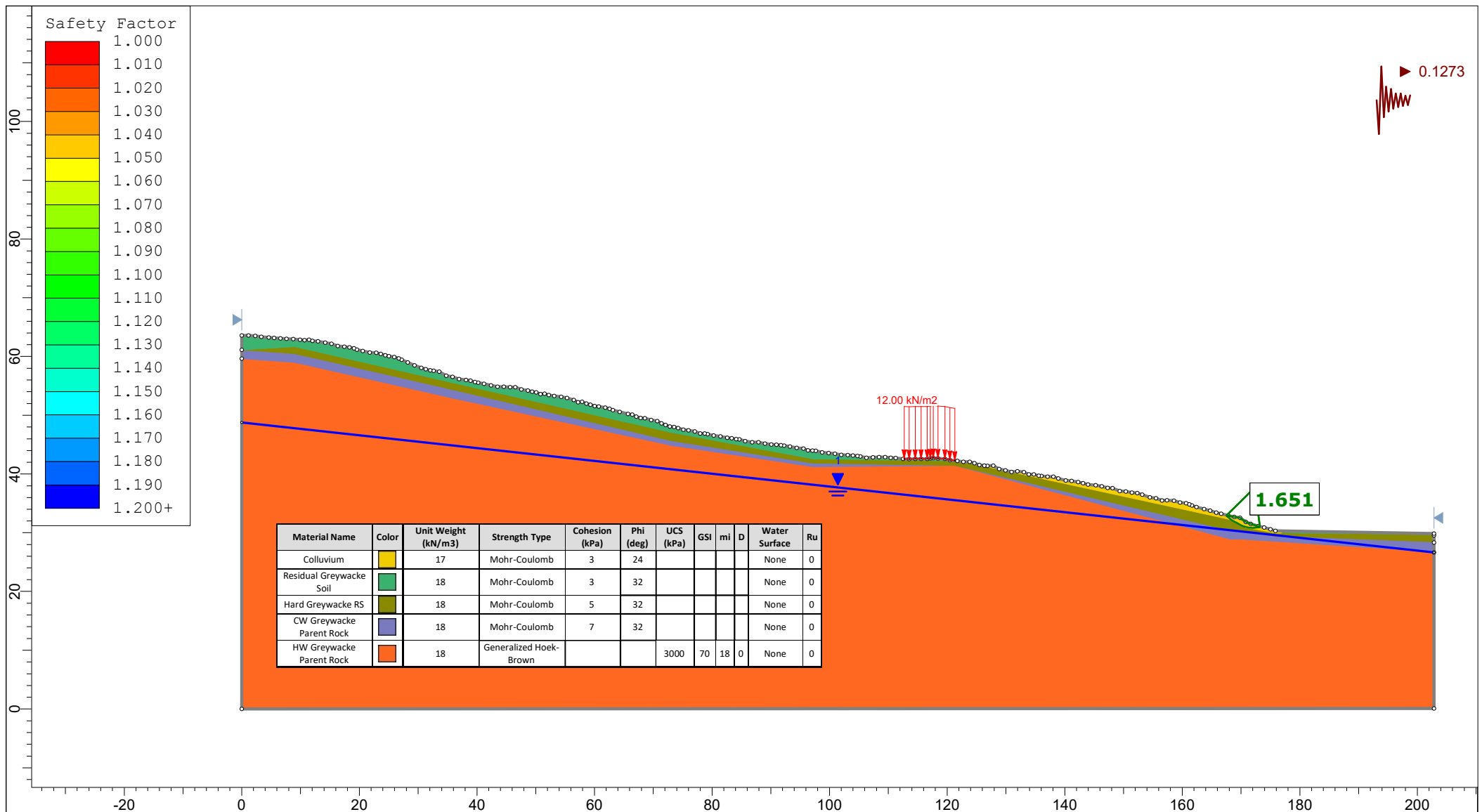



geologix

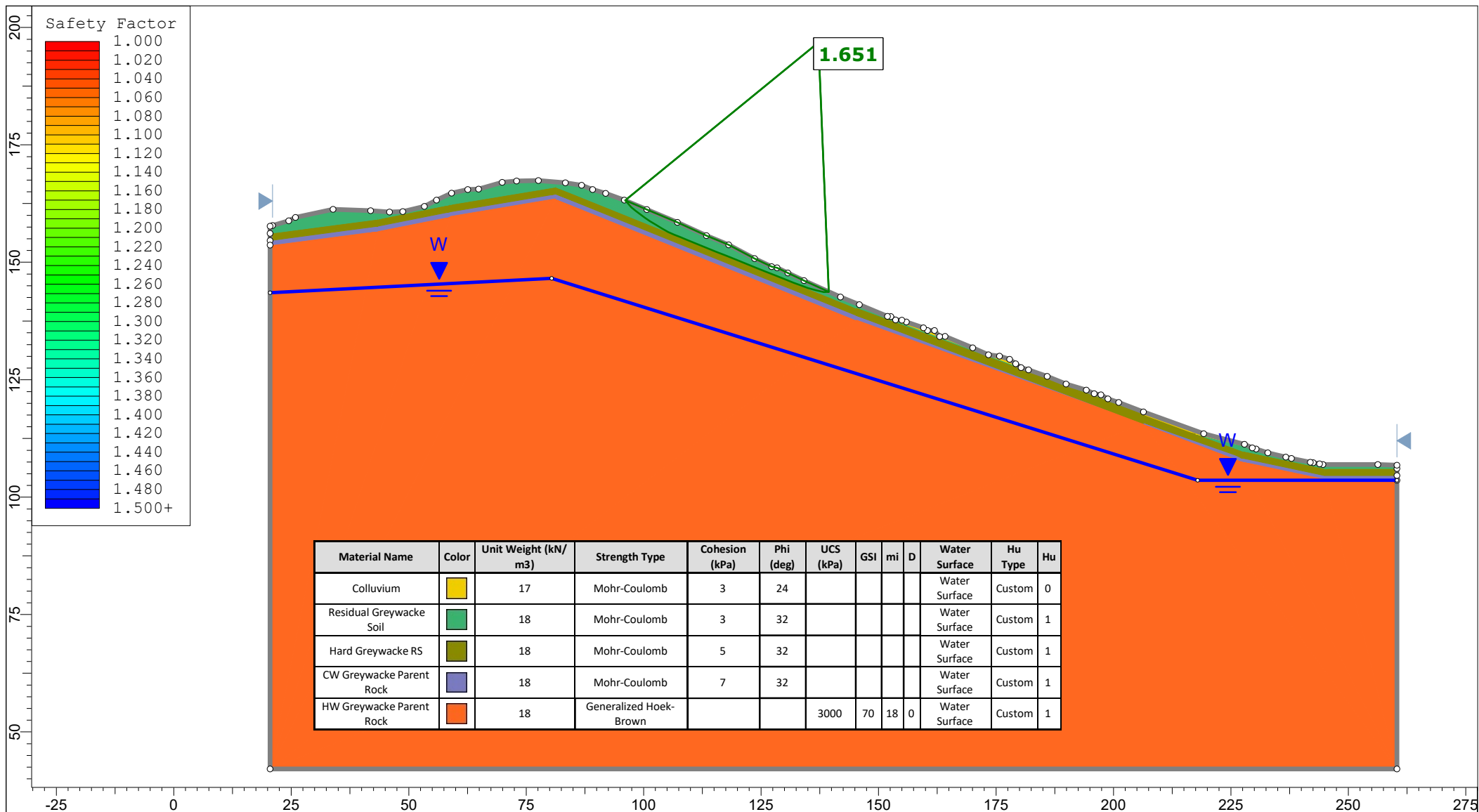
consulting engineers


SLIDEINTERPRET 3.034

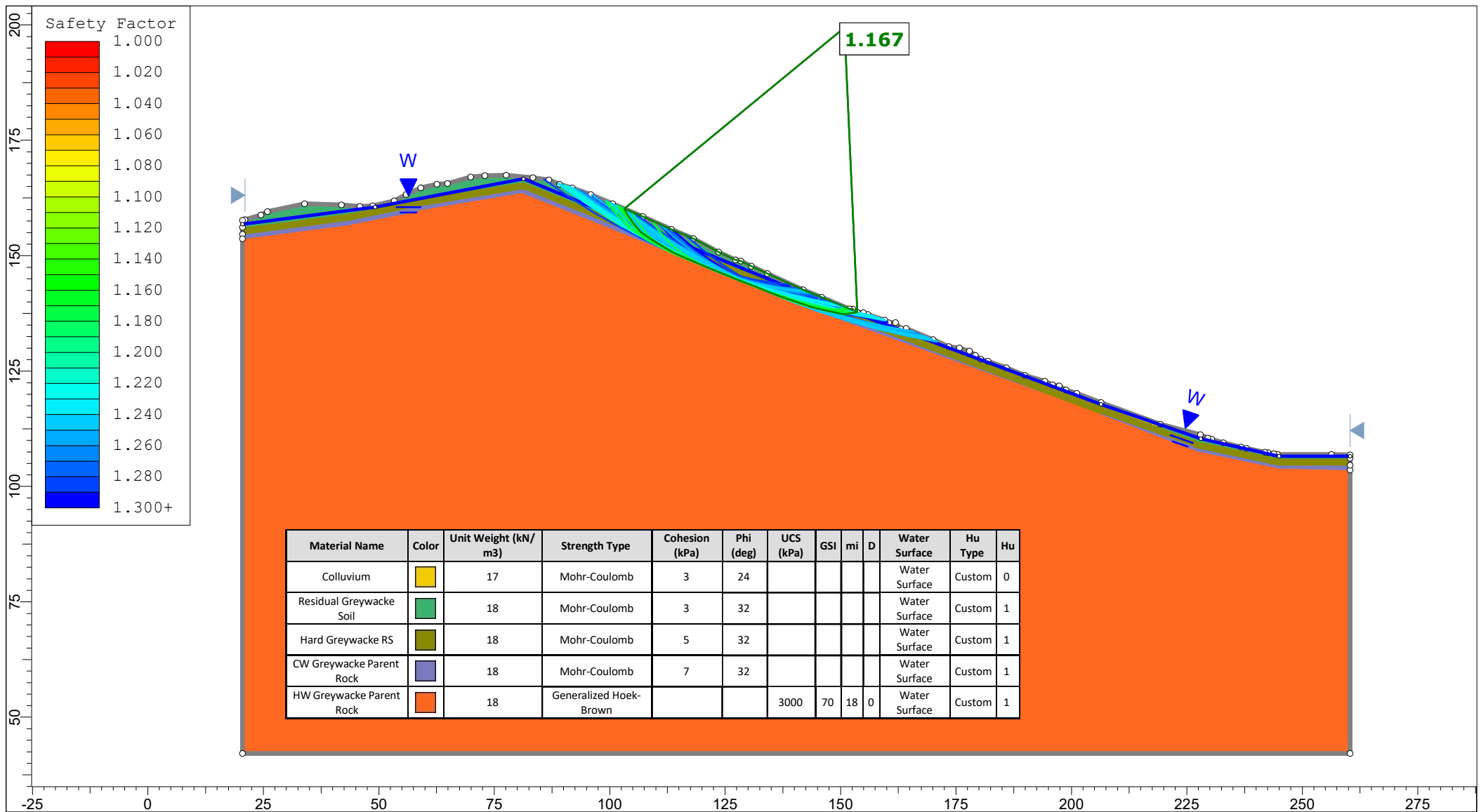
Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Proposed Condition	Scenario	Elevated GW
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	3/05/2023, 10:26:38 am	File Name	C0255 Section B.slm




 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group	Proposed Condition	Scenario	Seismic
	Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
	Date	3/05/2023, 10:26:38 am	File Name	C0255 Section B.slm



 <div>geologix consulting engineers</div> <div>SLIDEINTERPRET 9.024</div>	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group	Existing Condition	Scenario	Static
	Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
	Date	3/05/2023, 10:26:38 am	File Name	C0255 Section C.slm

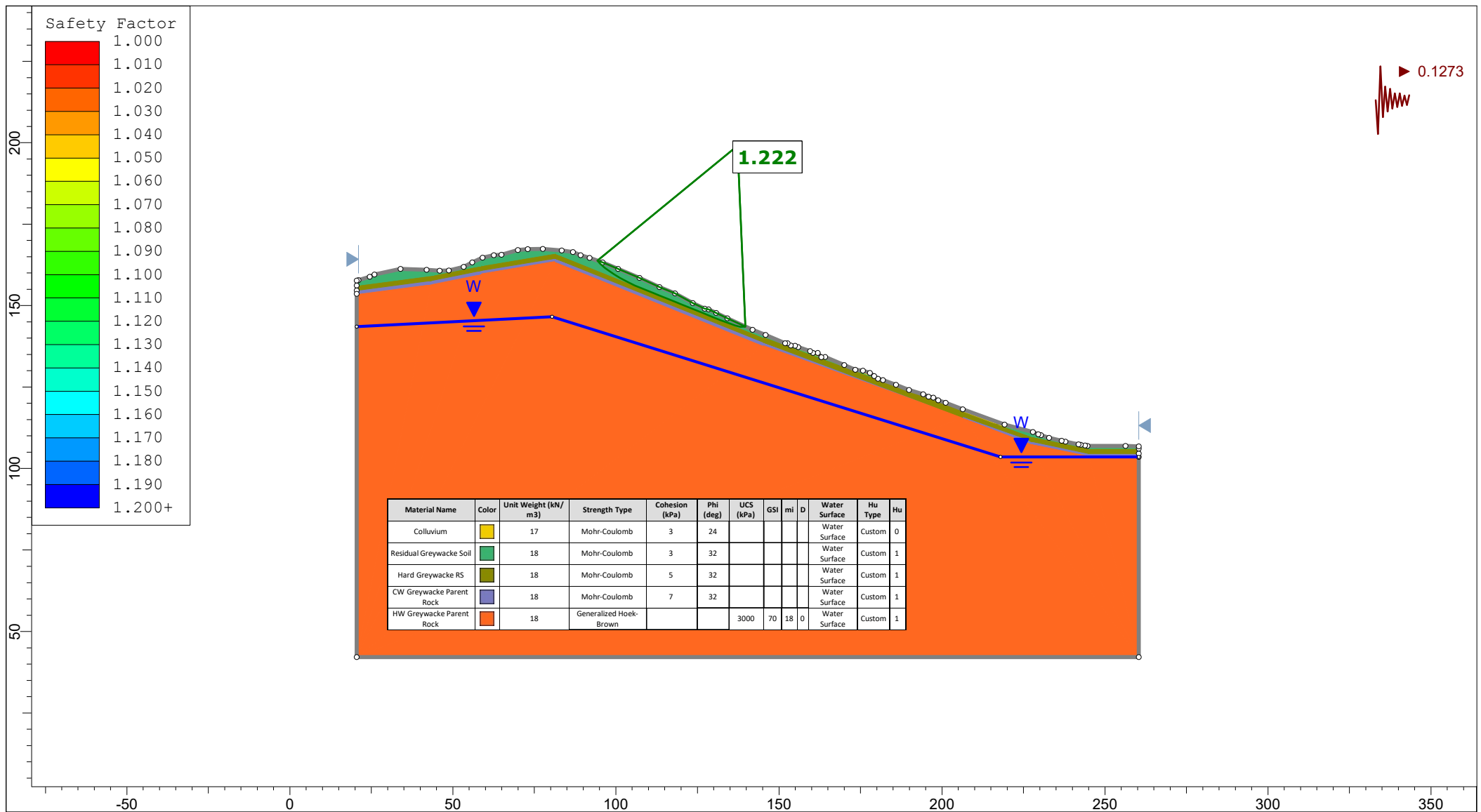





geologix

consulting engineers

Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Existing Condition	Scenario	Elevated GW
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	3/05/2023, 10:26:38 am	File Name	C0255 Section C.slm

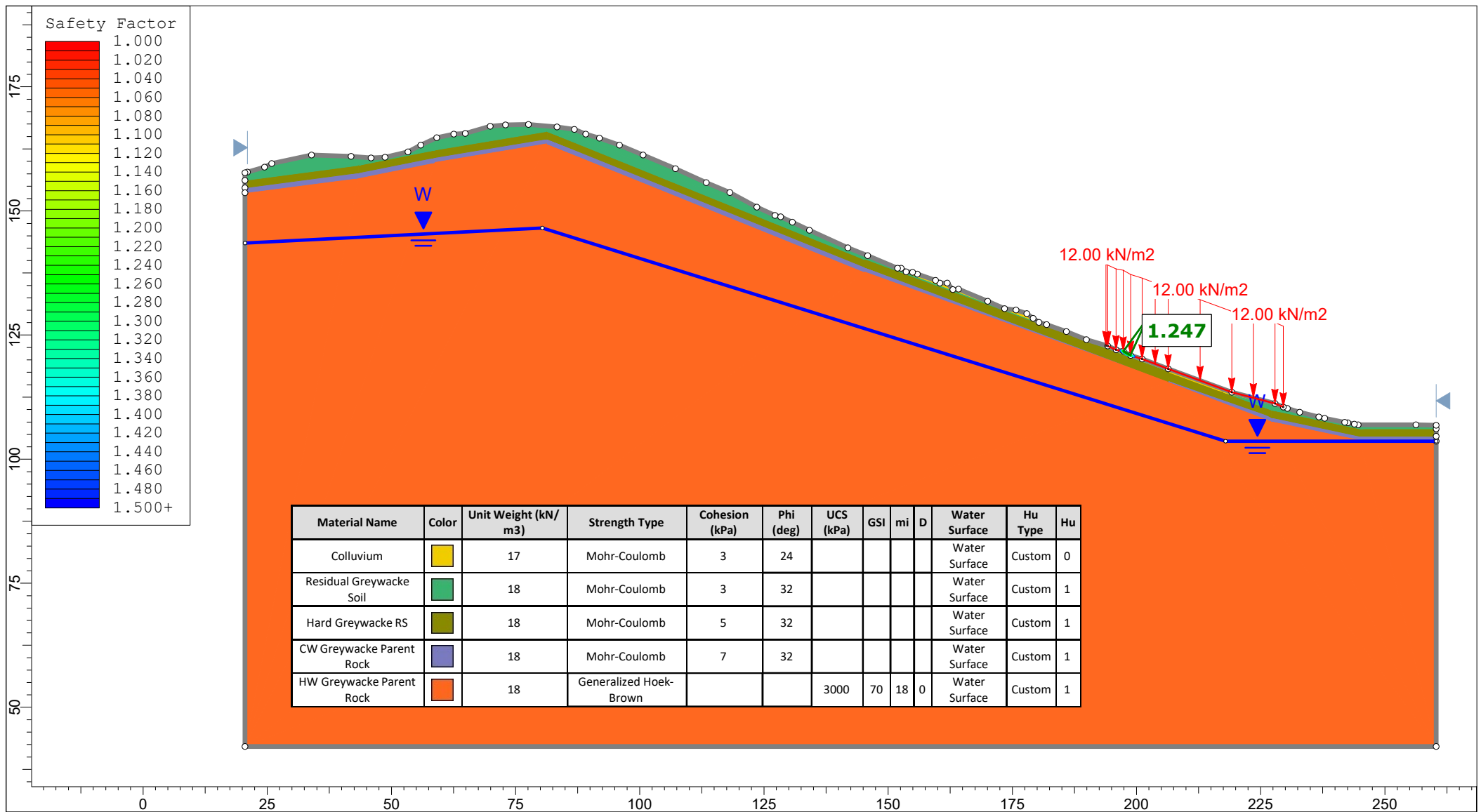





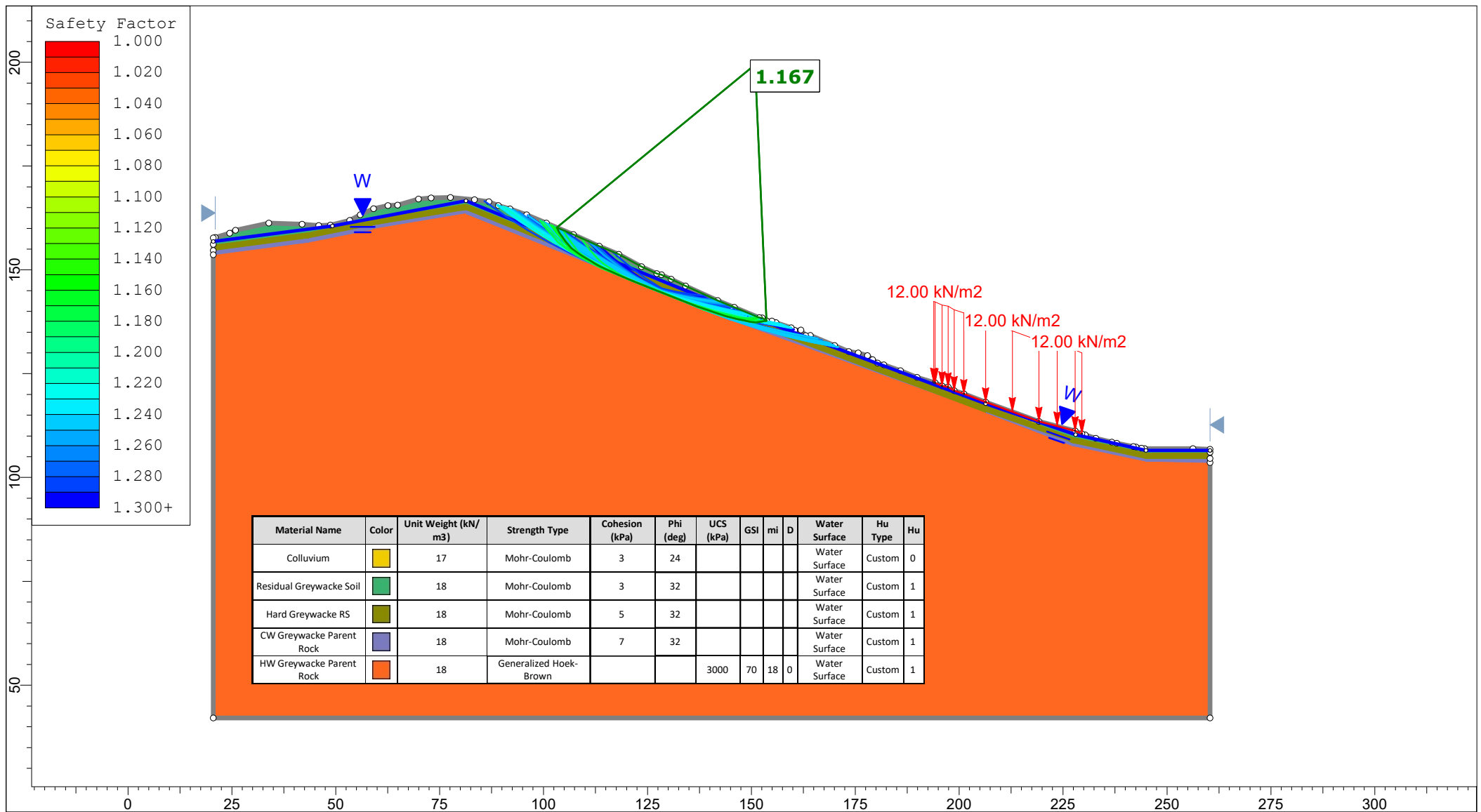
geologix


consulting engineers

Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Existing Condition	Scenario	Seismic
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	3/05/2023, 10:26:38 am	File Name	C0255 Section C.slm



 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Proposed Condition	Scenario
	Drawn By		Sean Shin	Company
	Date		3/05/2023, 10:26:38 am	File Name
		Static		
		Geologix Consulting Engineers Ltd		
		C0255 Section C.slm		

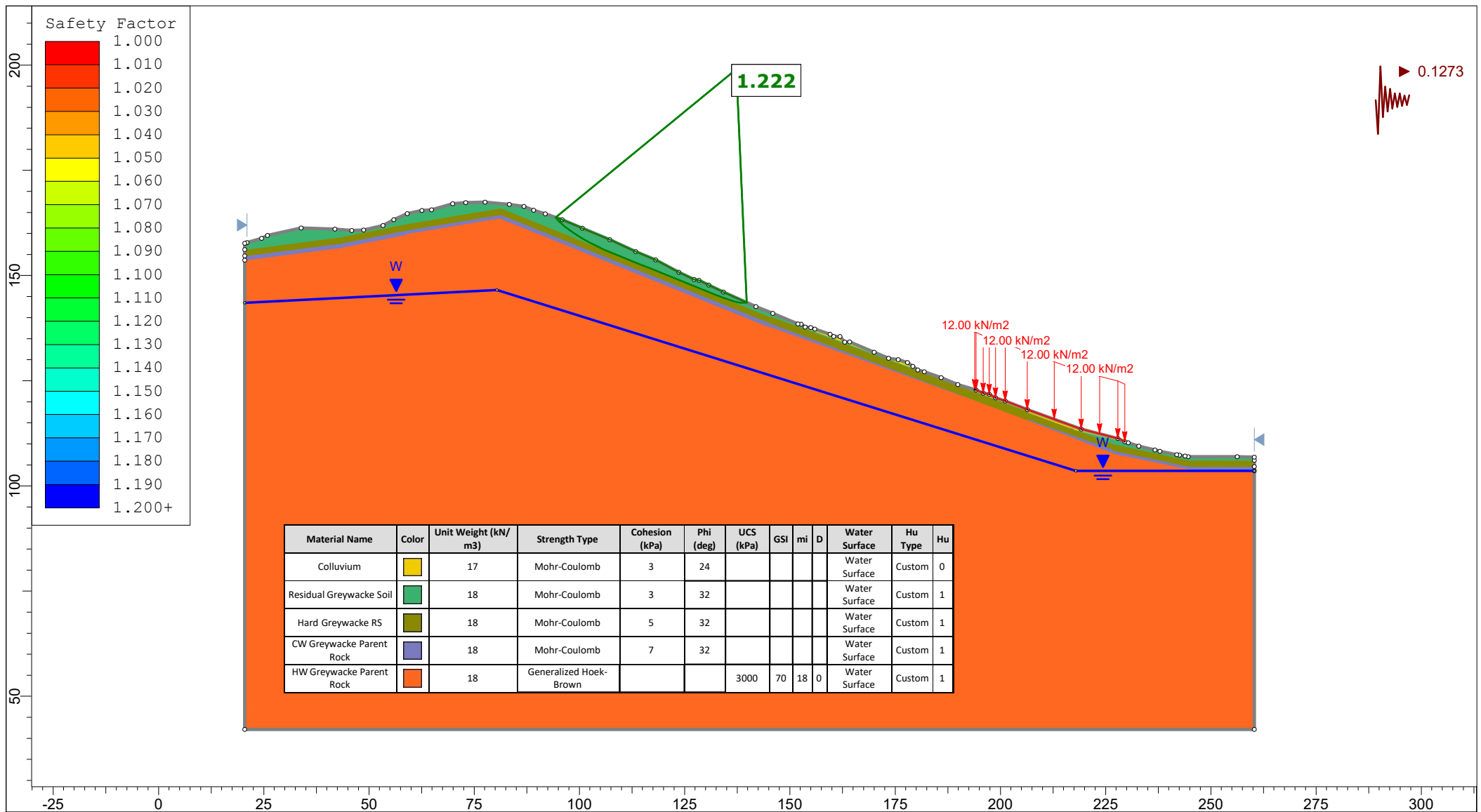





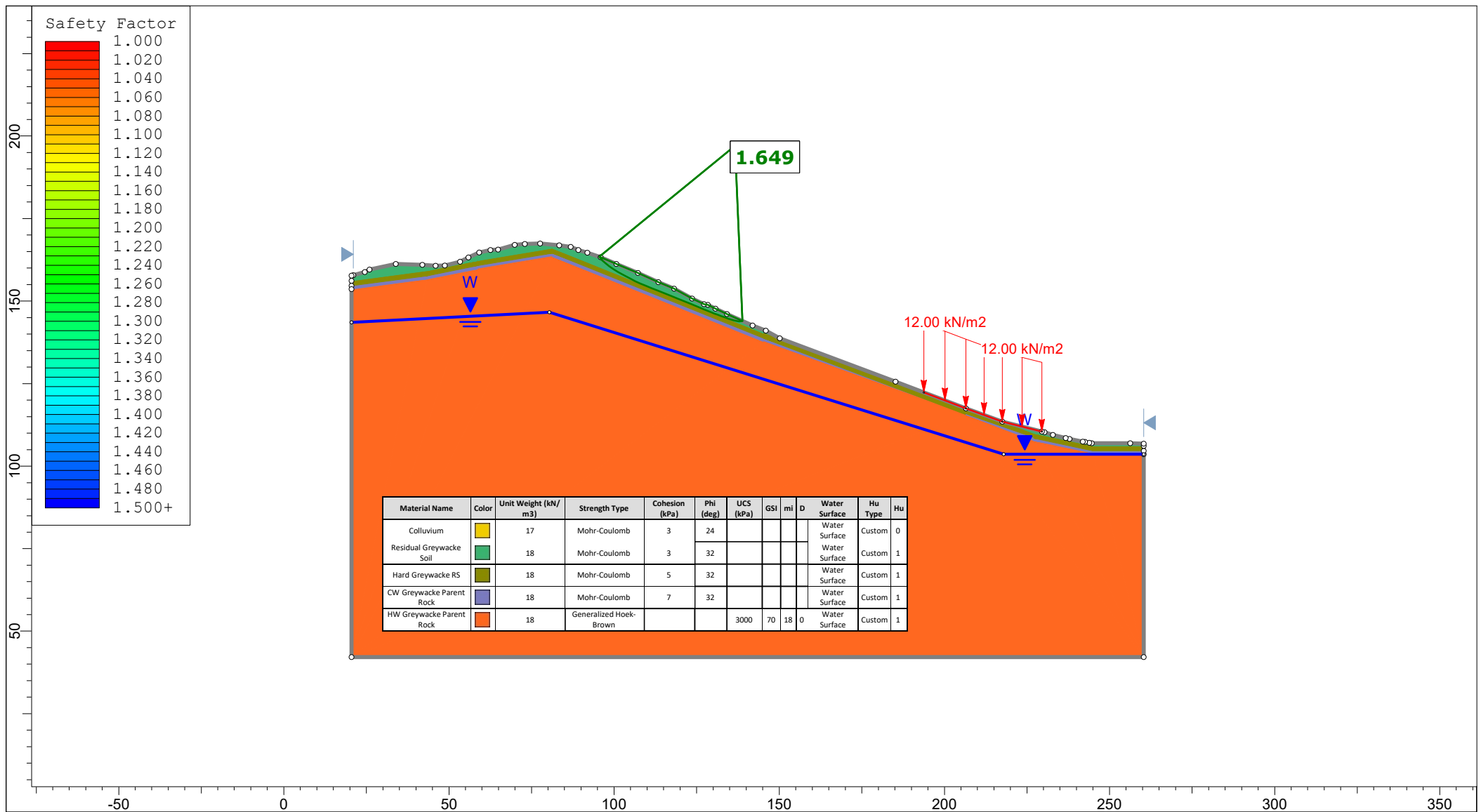
geologix


consulting engineers

Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Proposed Condition	Scenario	Elevated GW
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	3/05/2023, 10:26:38 am	File Name	C0255 Section C.sldm



 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Proposed Condition	Scenario Seismic
	Drawn By		Sean Shin	Company Geologix Consulting Engineers Ltd
	Date		3/05/2023, 10:26:38 am	File Name C0255 Section C.slm

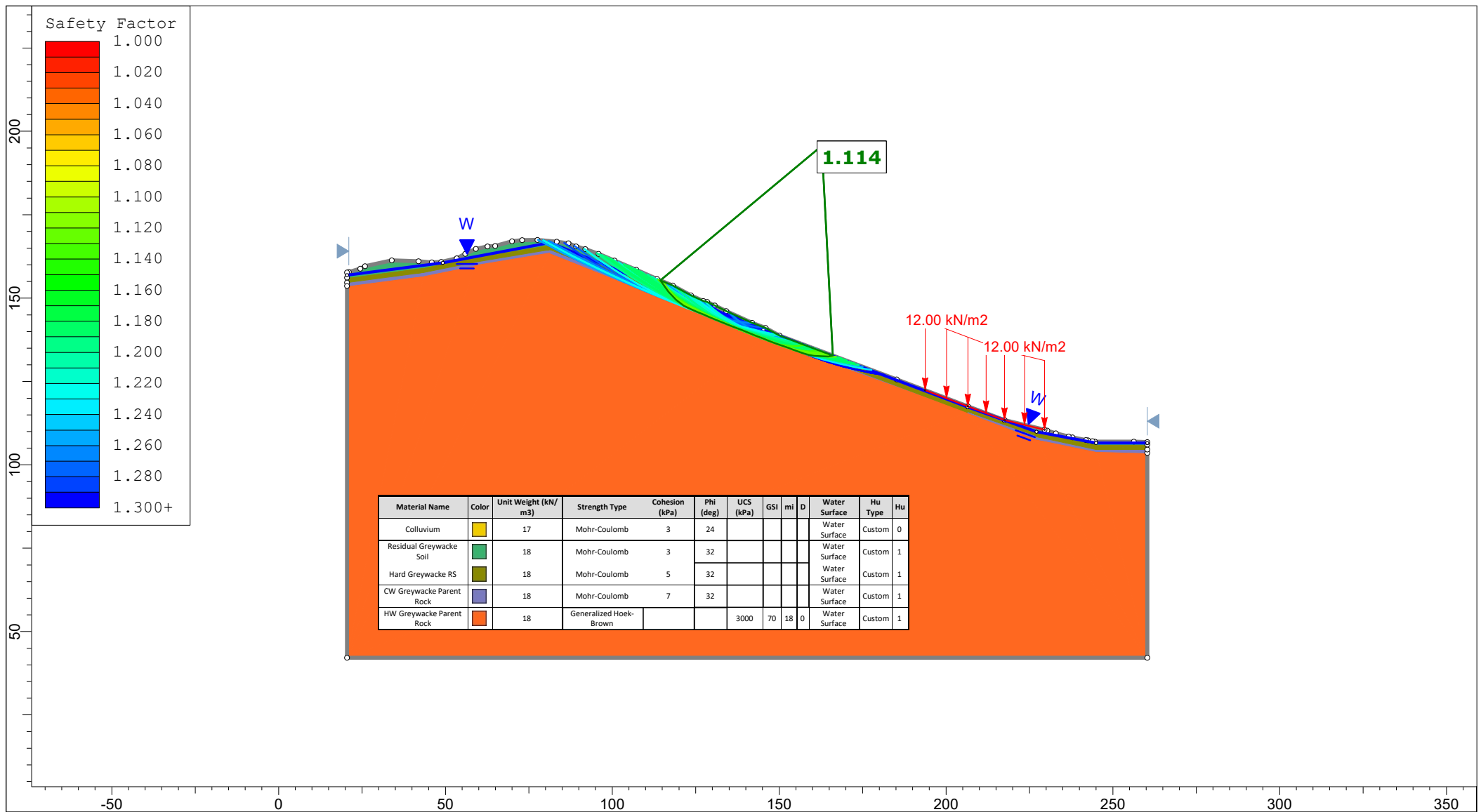





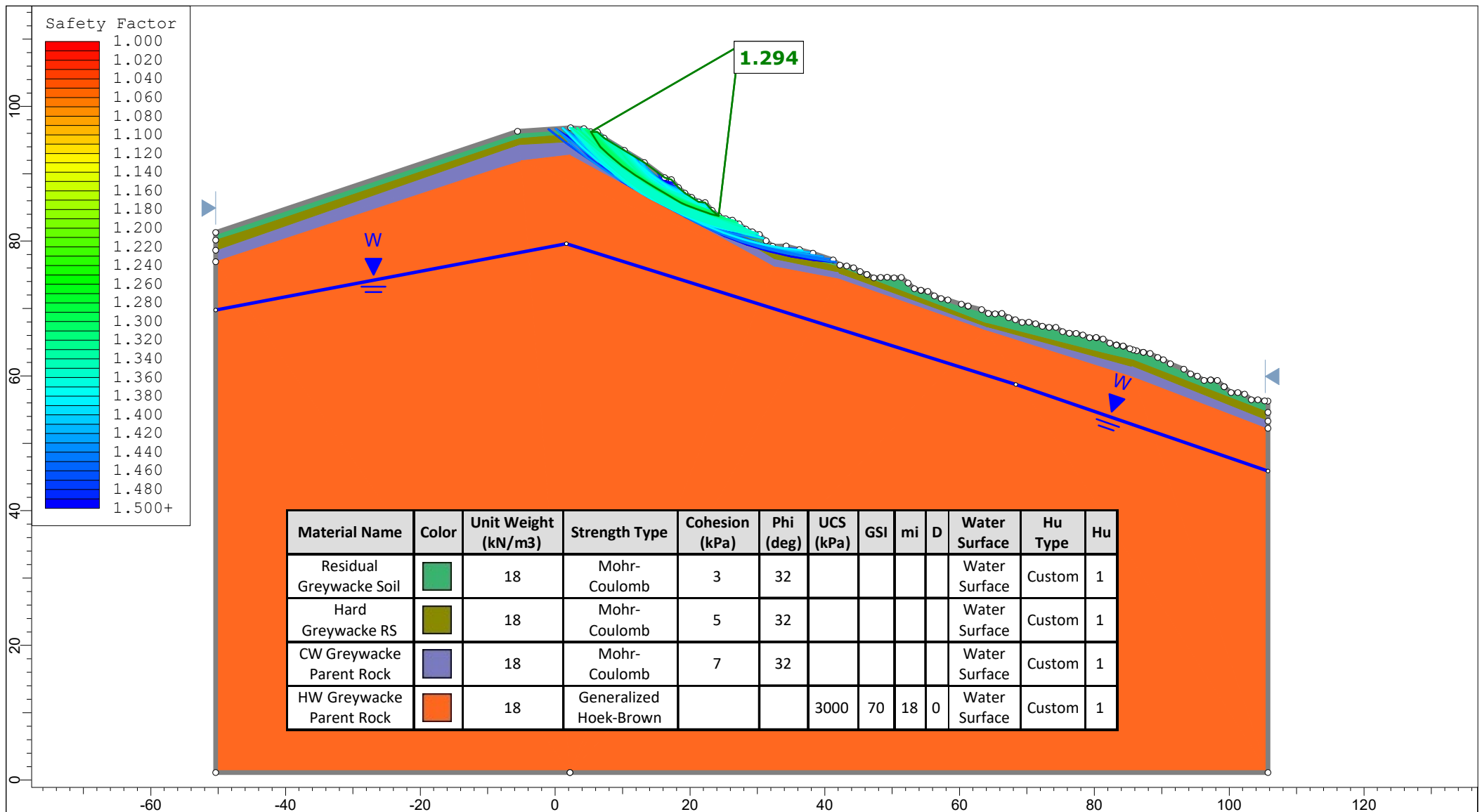
geologix


consulting engineers

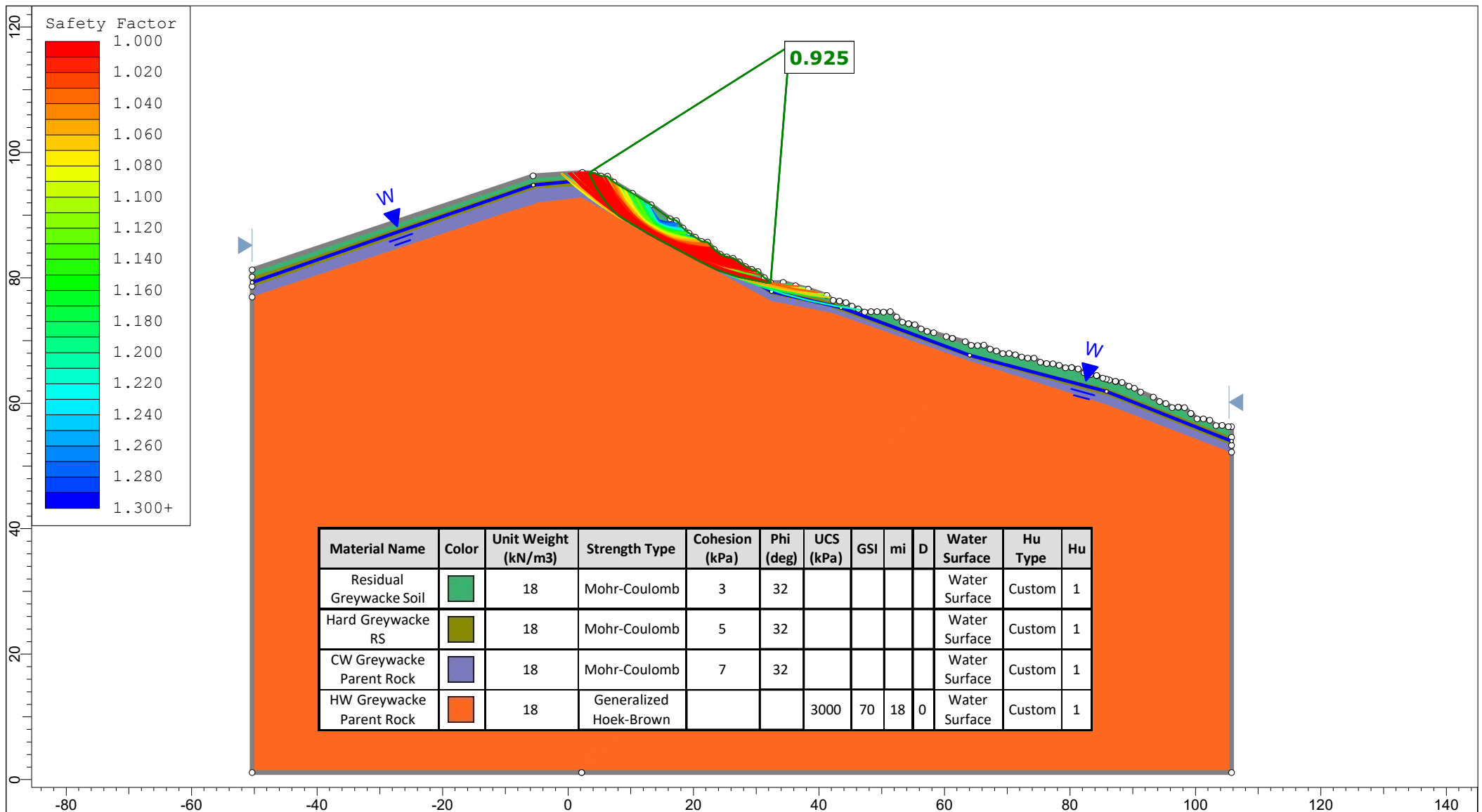
Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Proposed Cut Condition	Scenario	Static
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	3/05/2023, 10:26:38 am	File Name	C0255 Section C.slm




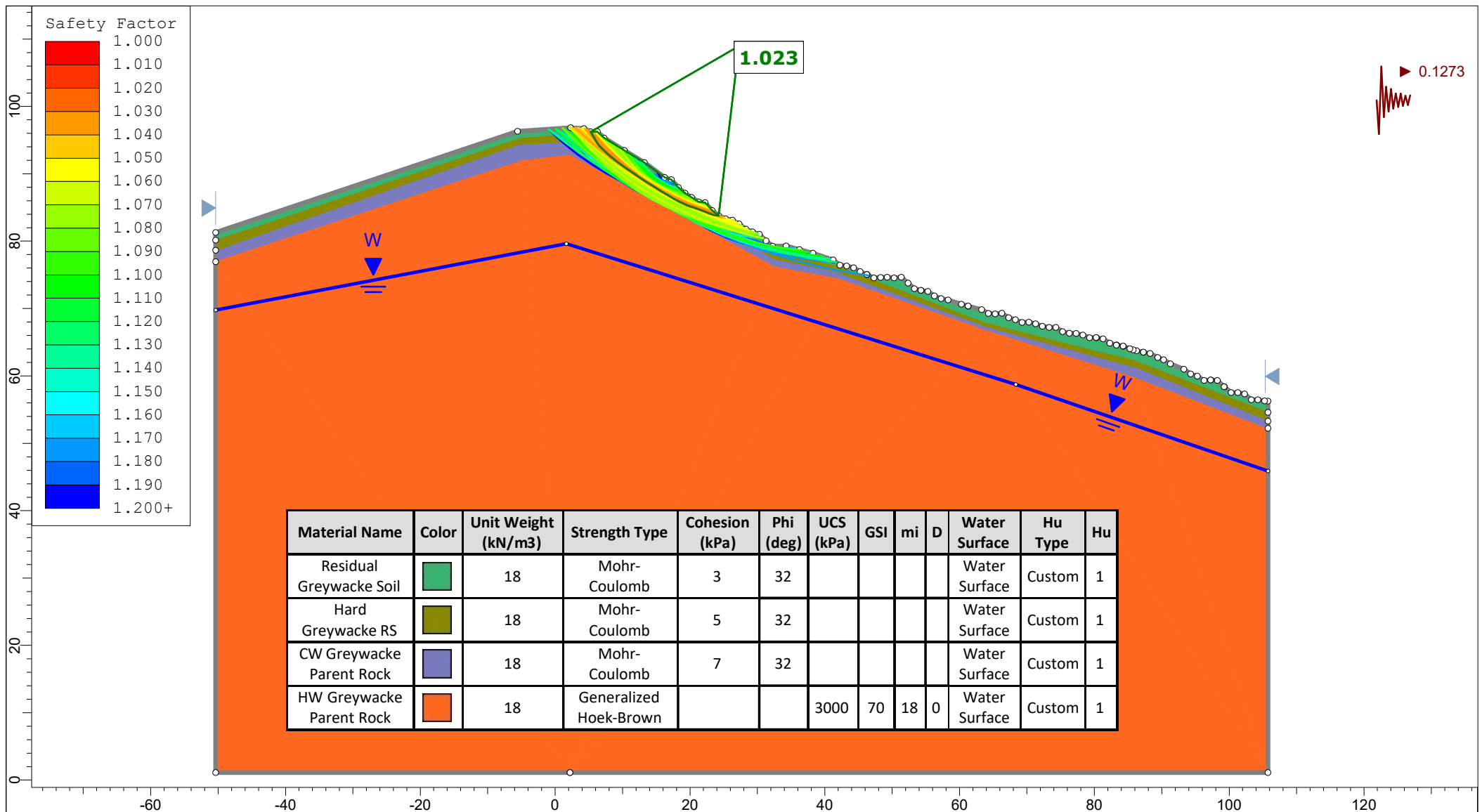
 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Proposed Cut Condition	Scenario Elevated GW
	Drawn By		Sean Shin	Company Geologix Consulting Engineers Ltd
	Date		3/05/2023, 10:26:38 am	File Name C0255 Section C.slm




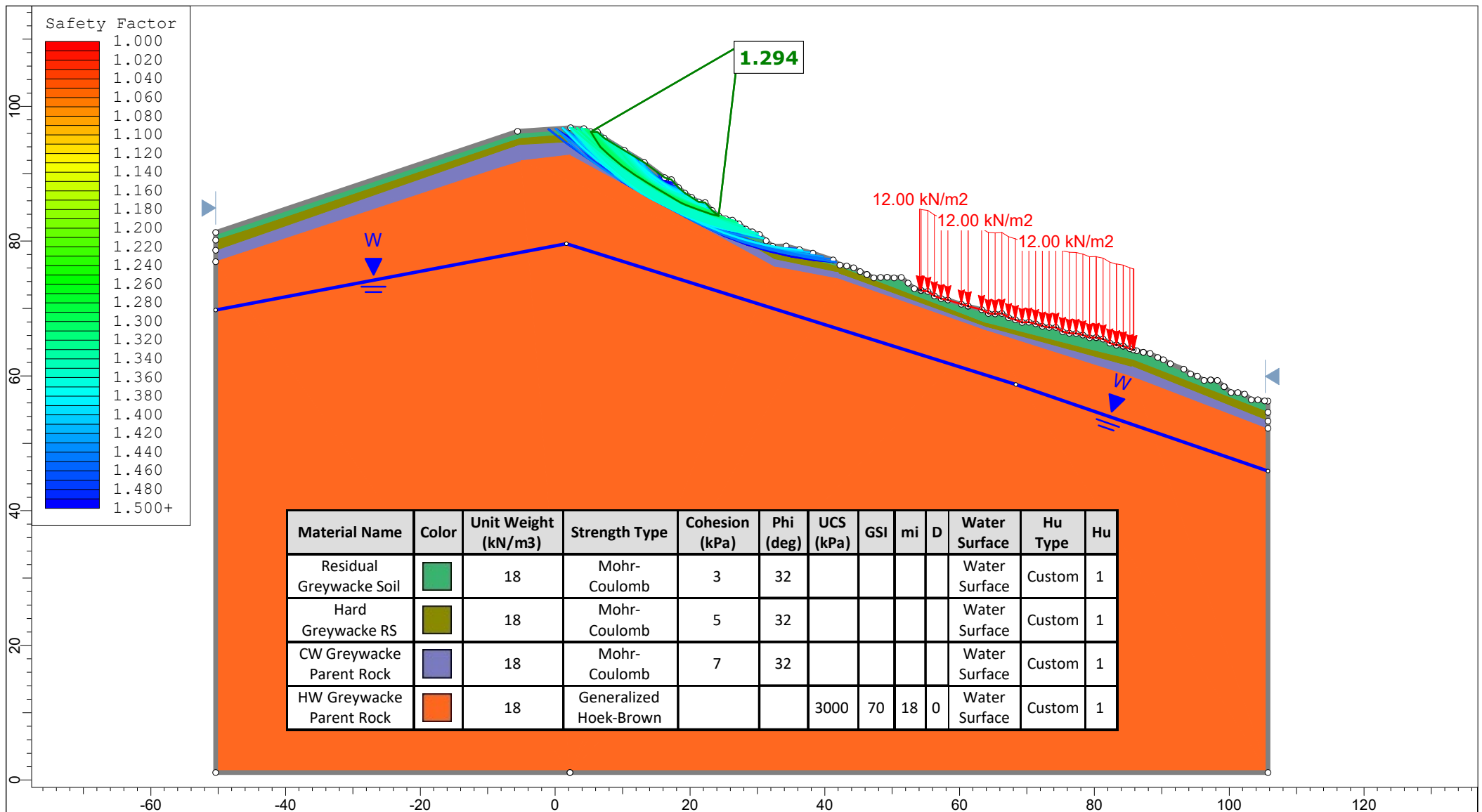
 geologix consulting engineers	Project									
	Proposed Subdivision of Lots 37 and 38 DP 426505									
	Group					Scenario				
	Existing Condition					Static				
Drawn By	Sean Shin					Company				
	Geologix Consulting Engineers Ltd					File Name				
Date	02/05/2023					C0255 Section D.slm				




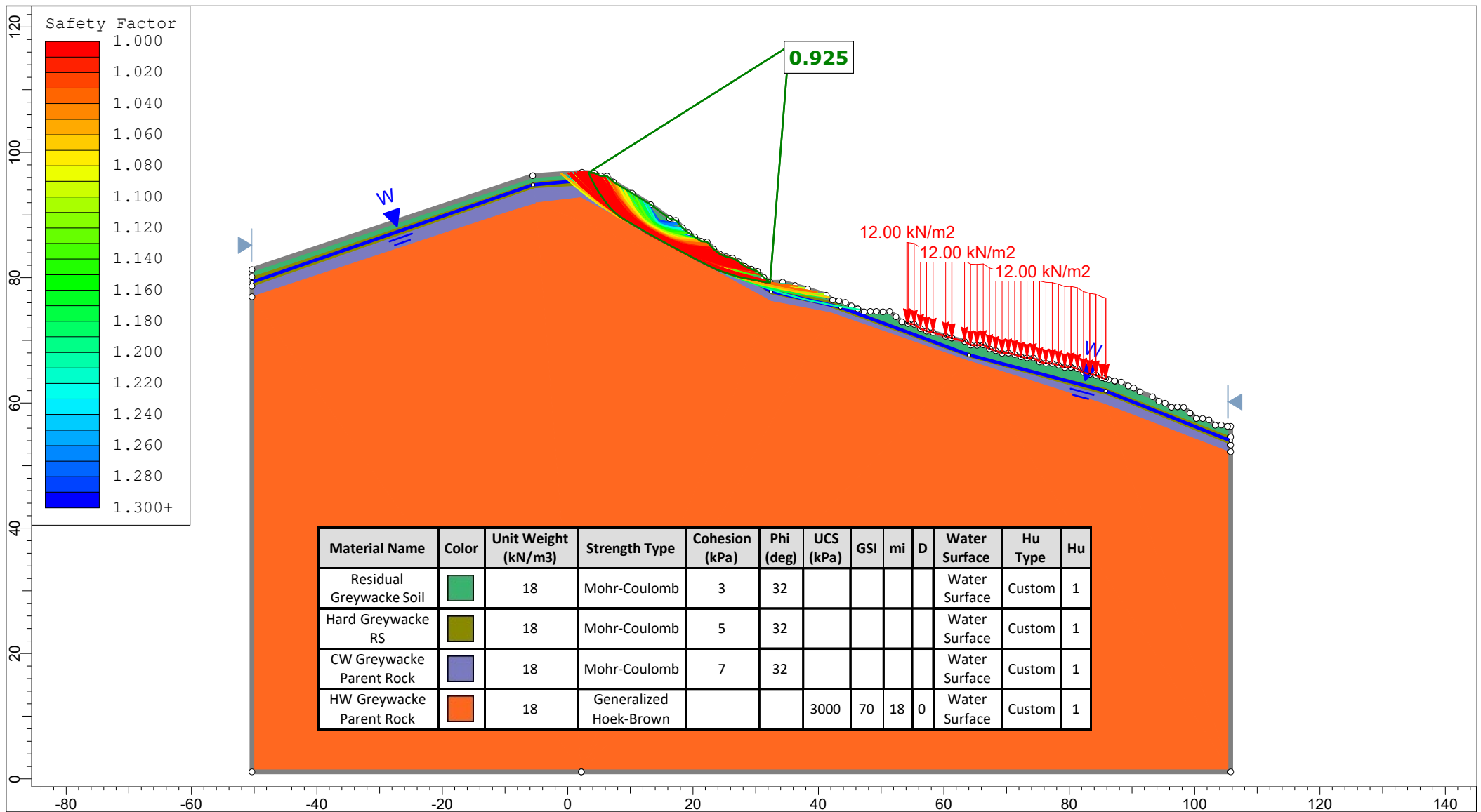
 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Existing Condition	Scenario Elevated GW
	Drawn By		Sean Shin	Company Geologix Consulting Engineers Ltd
	Date		02/05/2023	File Name C0255 Section D.slm




 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Existing Condition	Scenario
	Drawn By		Sean Shin	Company
	Date		02/05/2023	File Name
		Geologix Consulting Engineers Ltd		
		C0255 Section D.slm		



 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Proposed Condition	Scenario
	Drawn By		Sean Shin	Company
	Date		02/05/2023	File Name
		Static		
		Geologix Consulting Engineers Ltd		
		C0255 Section D.slm		

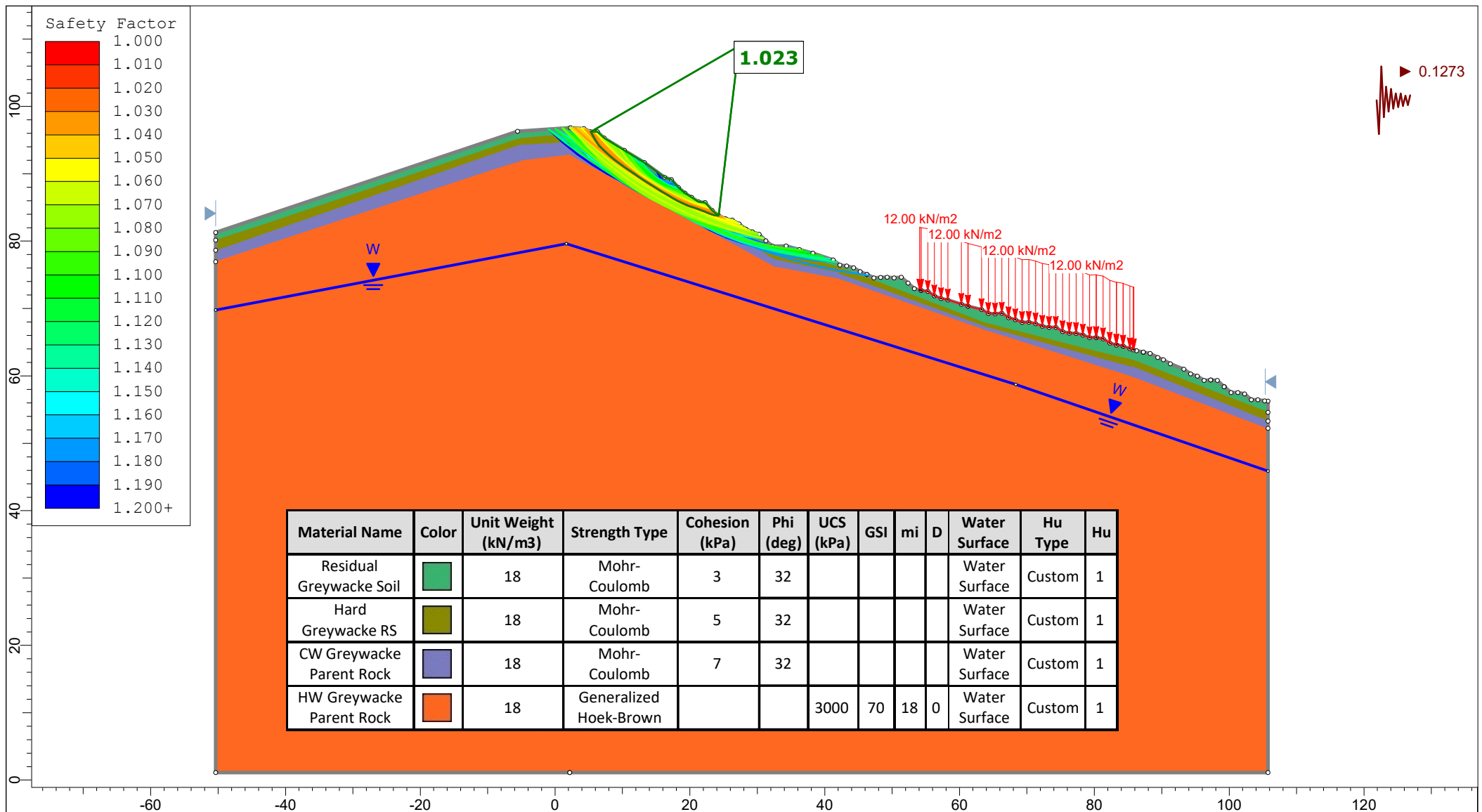





geologix

consulting engineers

Project			
Proposed Subdivision of Lots 37 and 38 DP 426505			
Group	Proposed Condition		Scenario
			Elevated GW
Drawn By	Sean Shin		Company
			Geologix Consulting Engineers Ltd
Date	02/05/2023		File Name
			C0255 Section D.slm



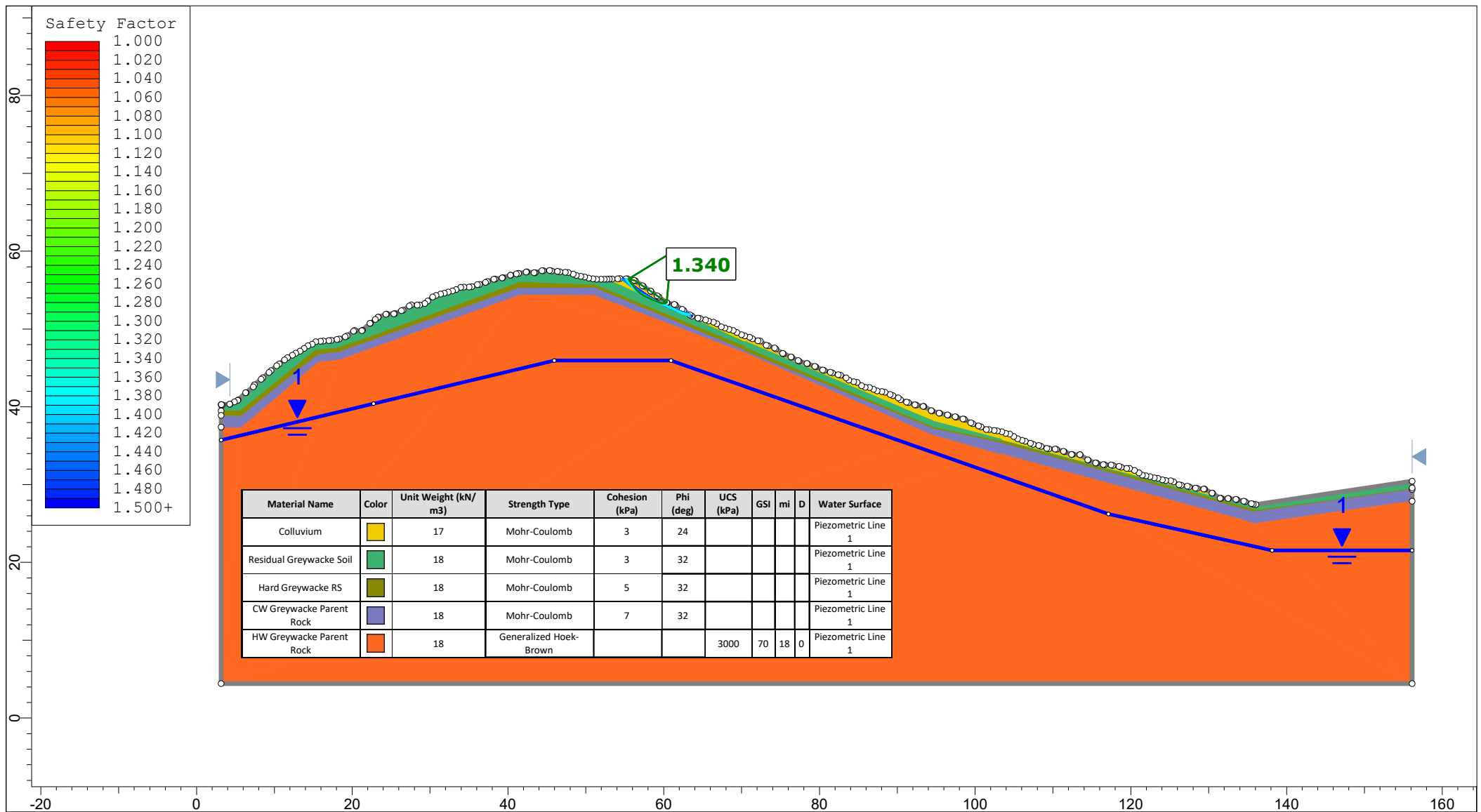



geologix

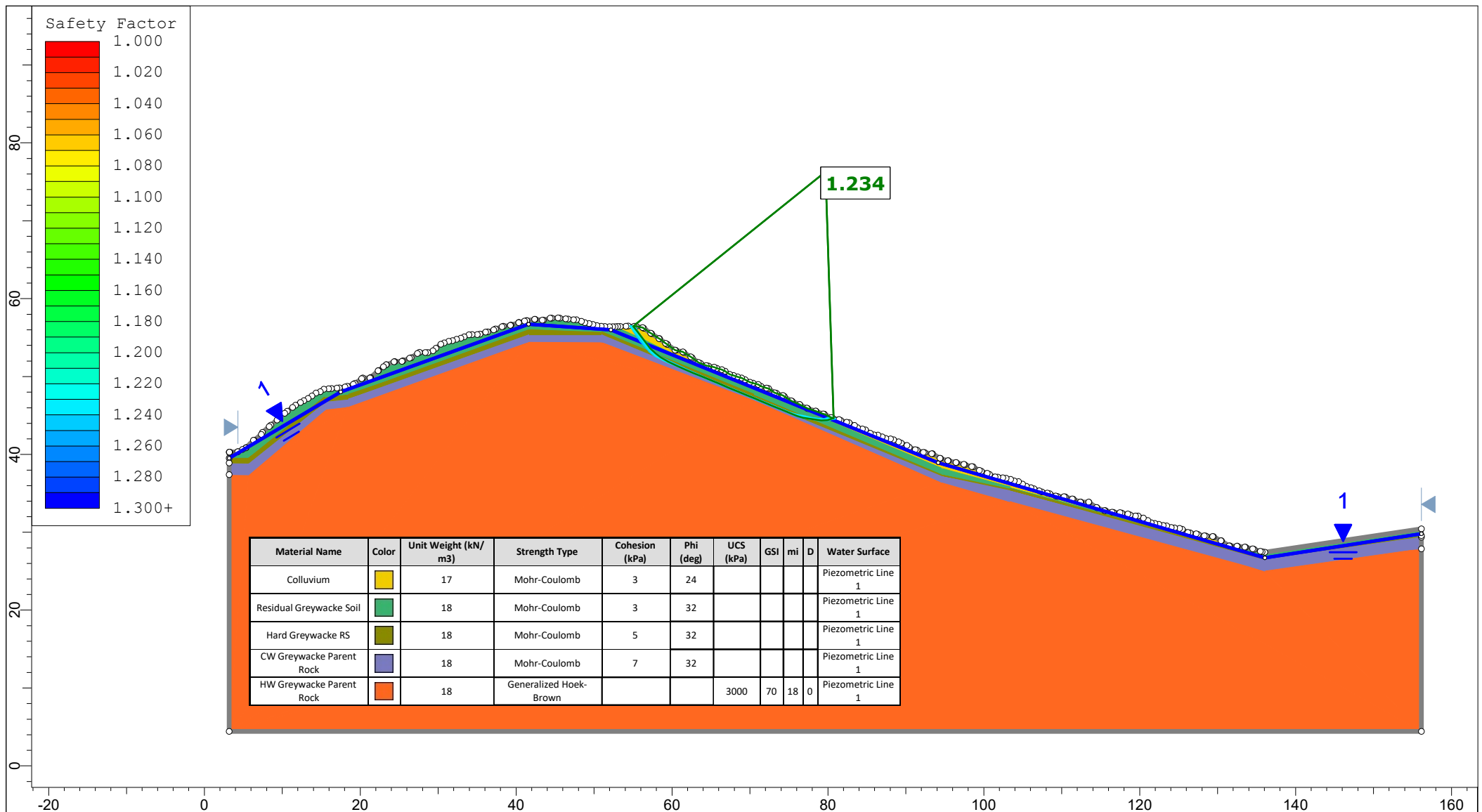
consulting engineers


SLIDEINTERPRET 9.034

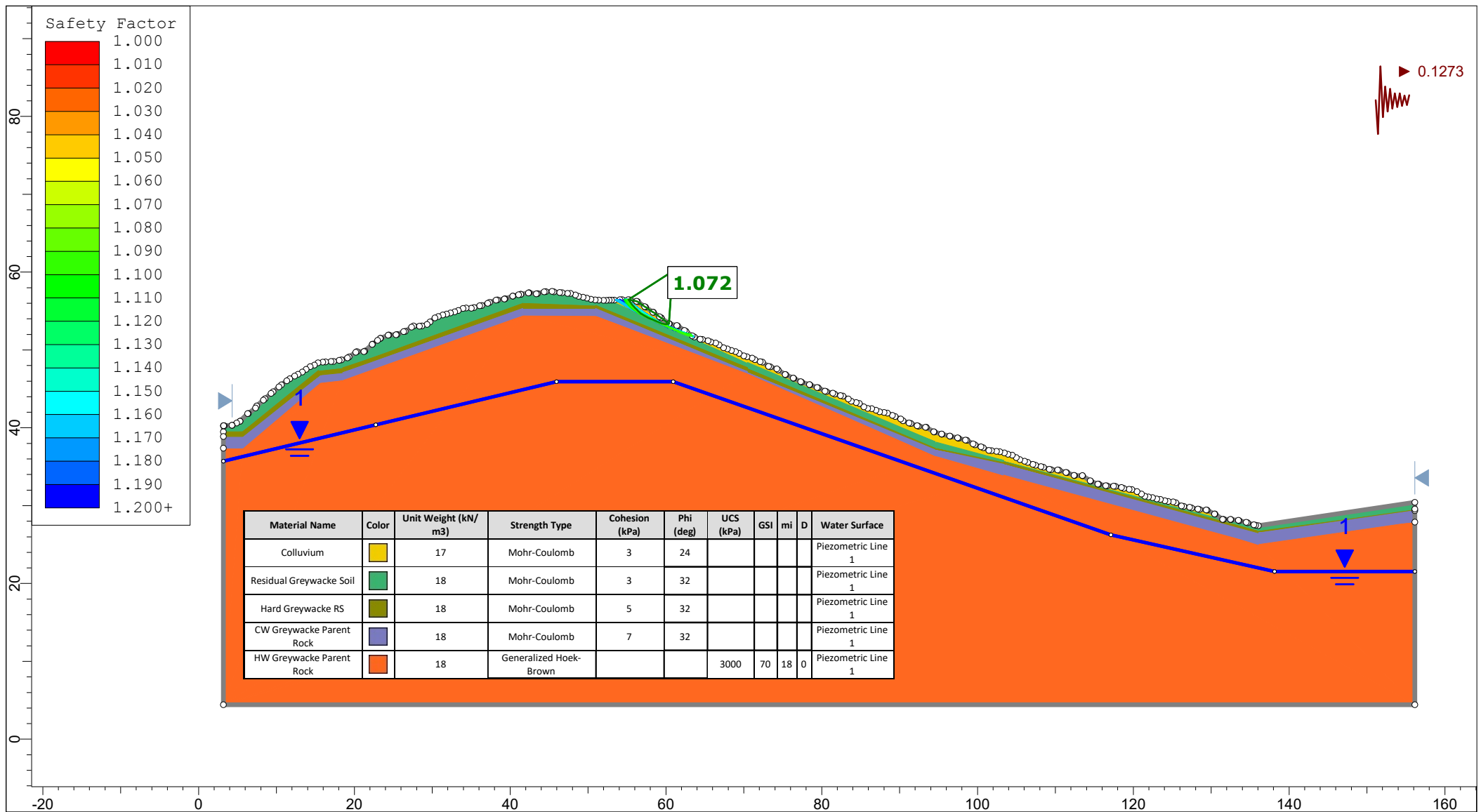
Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Proposed Condition	Scenario	Seismic
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	02/05/2023	File Name	C0255 Section D.slm




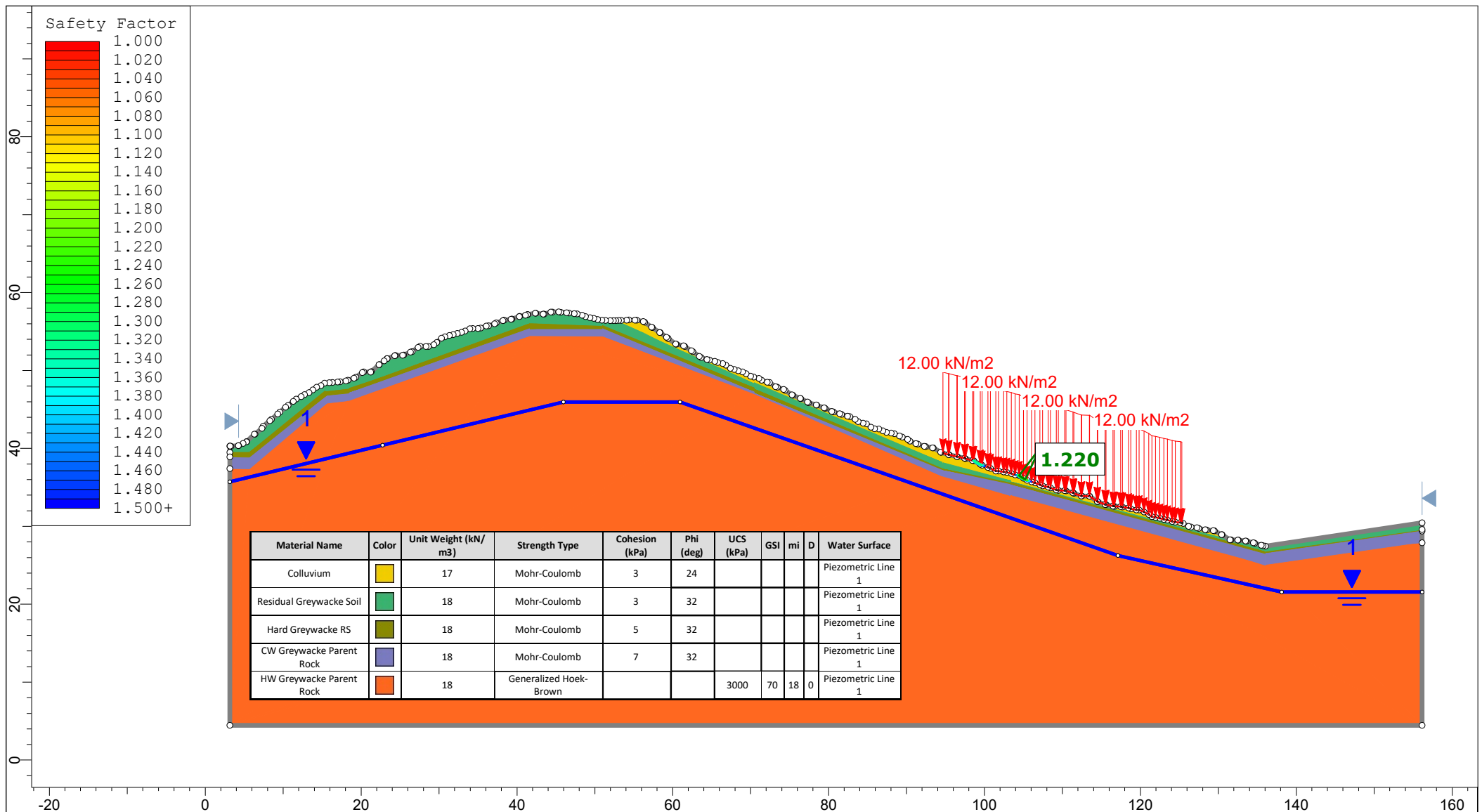
 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Existing Condition	Scenario Static
	Drawn By		Sean Shin	Company Geologix Consulting Engineers Ltd
	Date		02/05/2023	File Name C0255 Section E.slm




 geologix consulting engineers	Project			Proposed Subdivision of Lots 37 and 38 DP 426505		
	Group		Existing Condition		Scenario	Elevated GW
	Drawn By		Sean Shin		Company	Geologix Consulting Engineers Ltd
	Date		02/05/2023		File Name	C0255 Section E.slm



 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group	Existing Condition	Scenario	Seismic
	Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
	Date	02/05/2023	File Name	C0255 Section E.slm

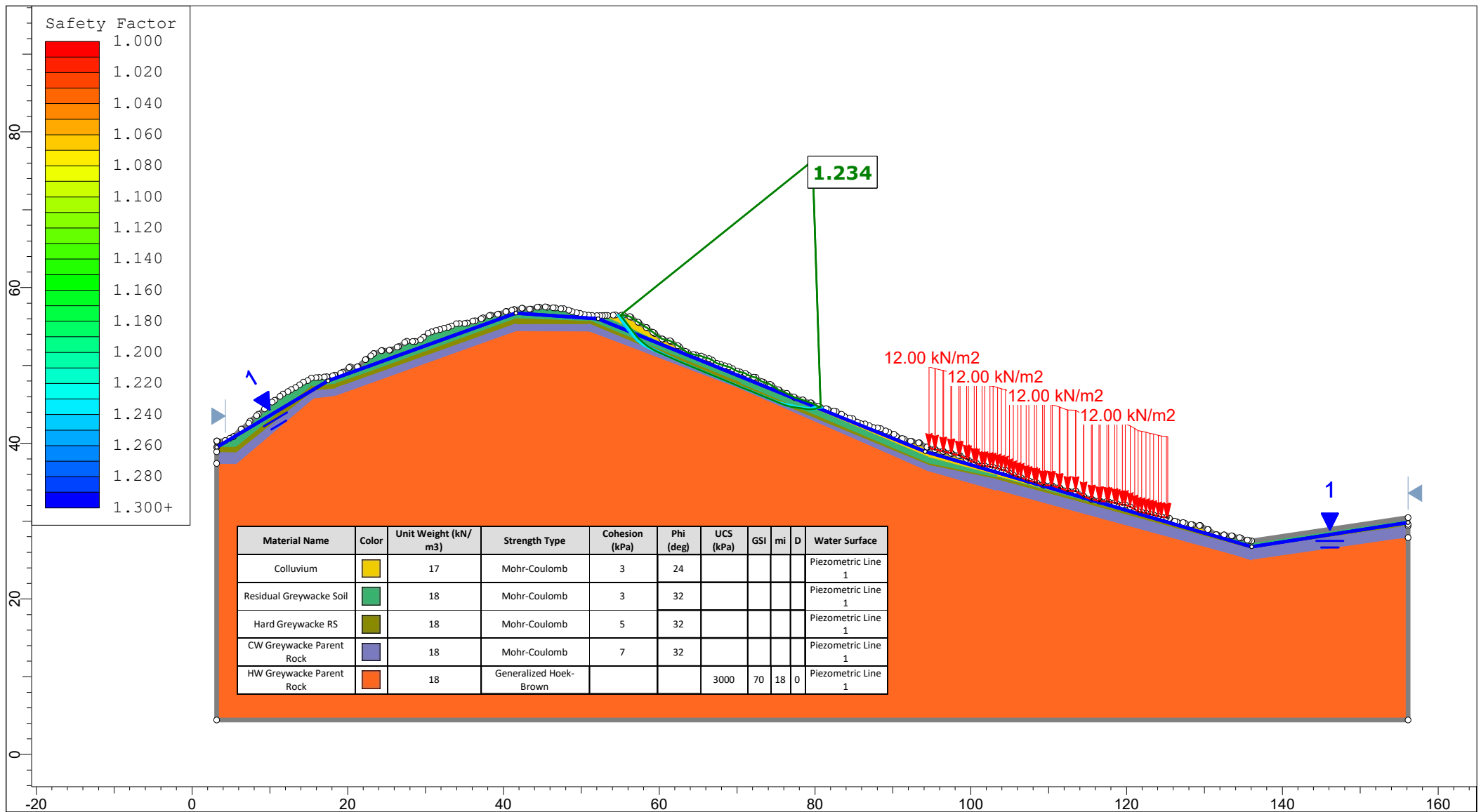





geologix

consulting engineers

Project			
Proposed Subdivision of Lots 37 and 38 DP 426505			
Group	Proposed Condition		Scenario
			Static
Drawn By	Sean Shin		Company
			Geologix Consulting Engineers Ltd
Date	02/05/2023		File Name
			C0255 Section E.slm

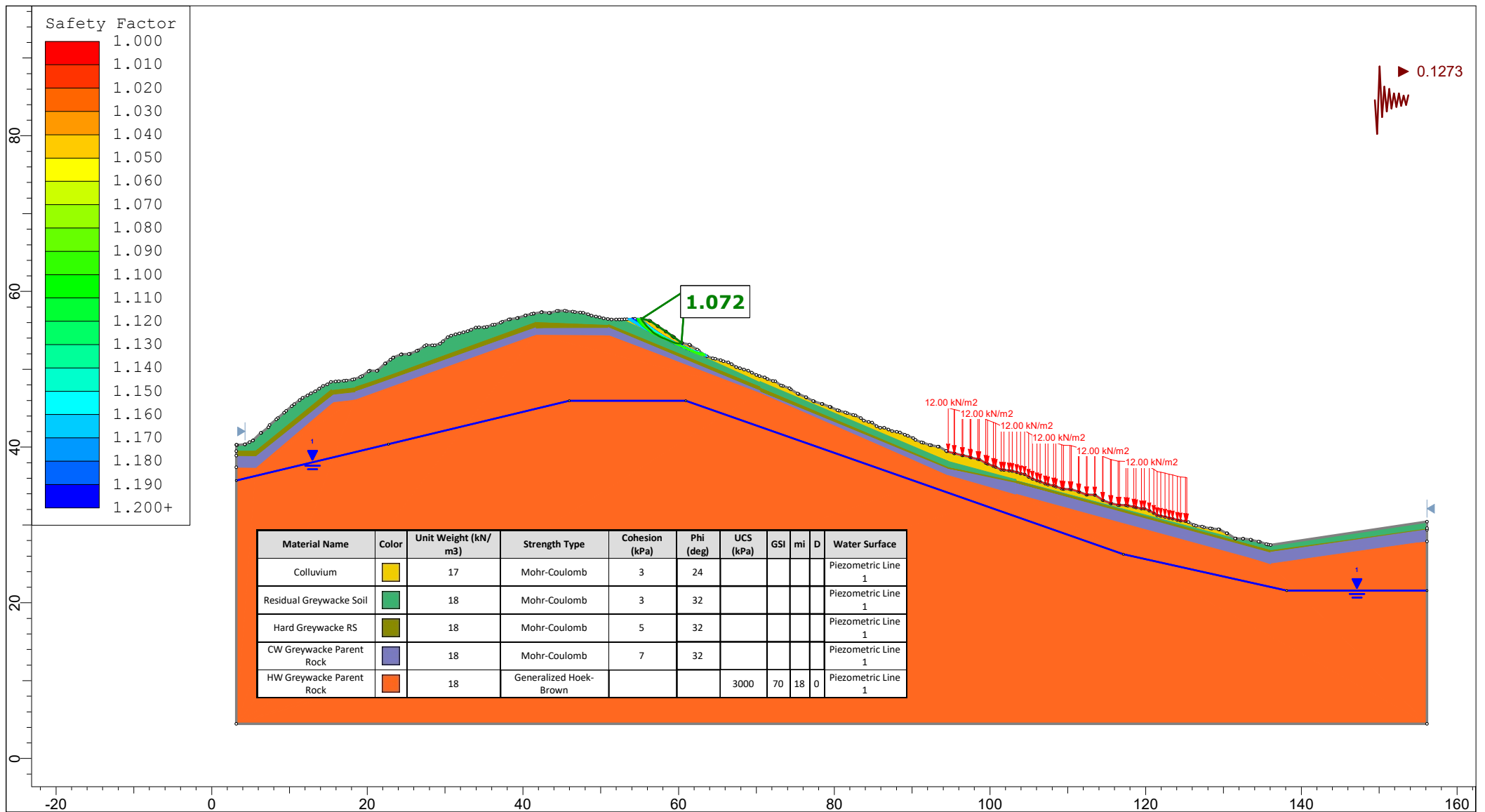





geologix

consulting engineers

Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Proposed Condition	Scenario	Elevated GW
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	02/05/2023	File Name	C0255 Section E.slm





geologix

consulting engineers

Project

Proposed Subdivision of Lots 37 and 38 DP 426505

Group

Proposed Condition

Scenario

Seismic

Drawn By

Sean Shin

Company

Geologix Consulting Engineers Ltd

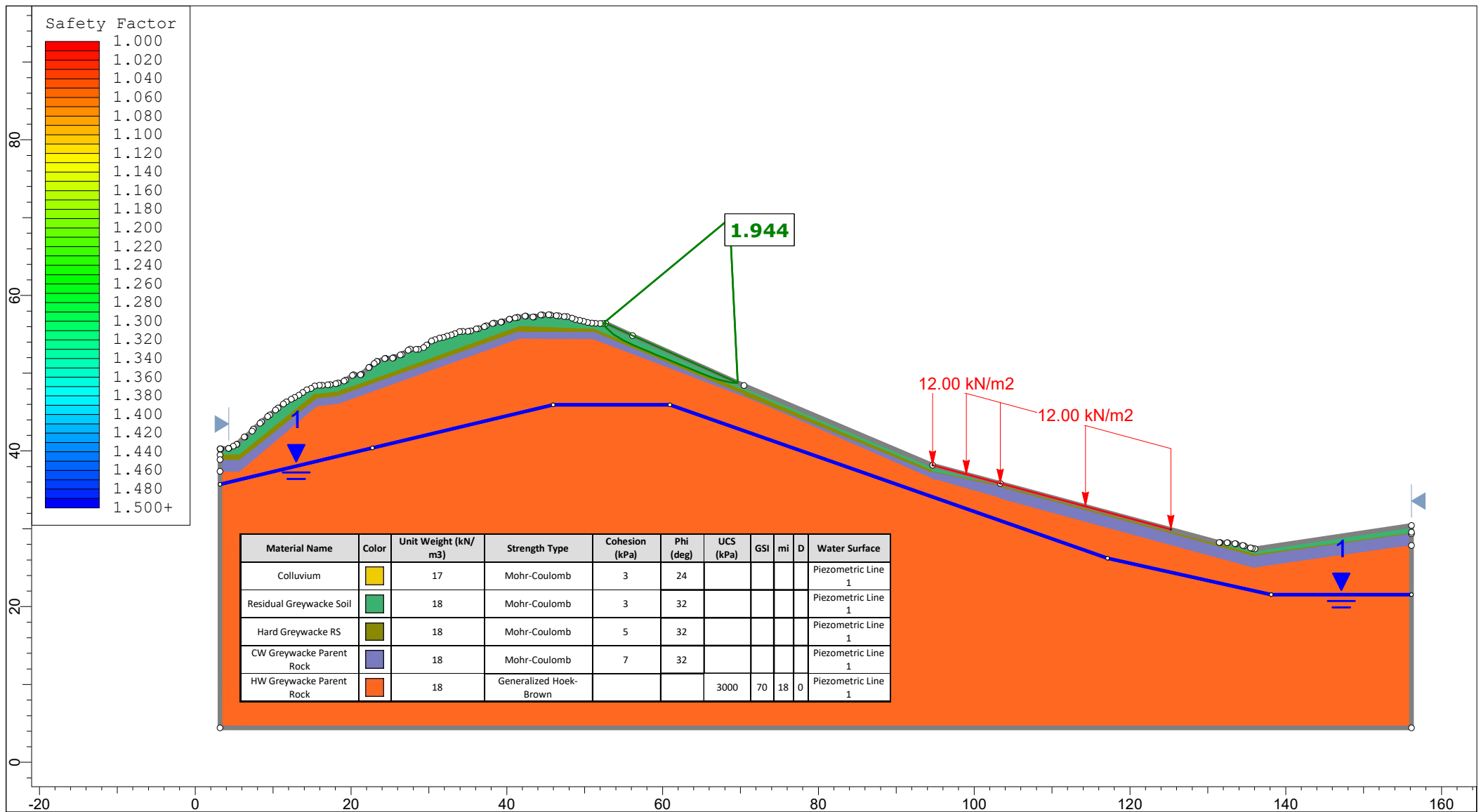
Date


02/05/2023

File Name

C0255 Section E.sldm

SLIDEINTERPRET 9.024

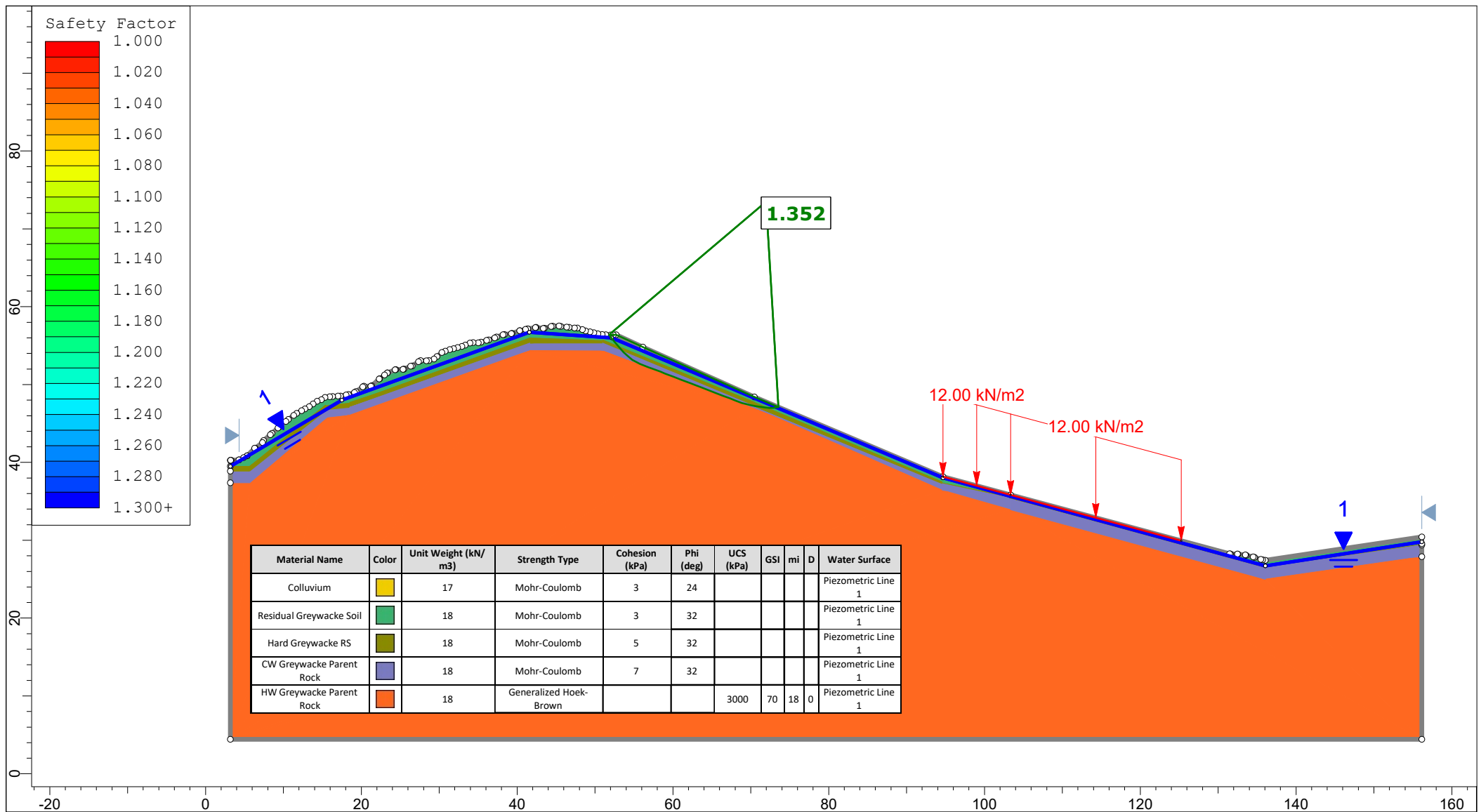





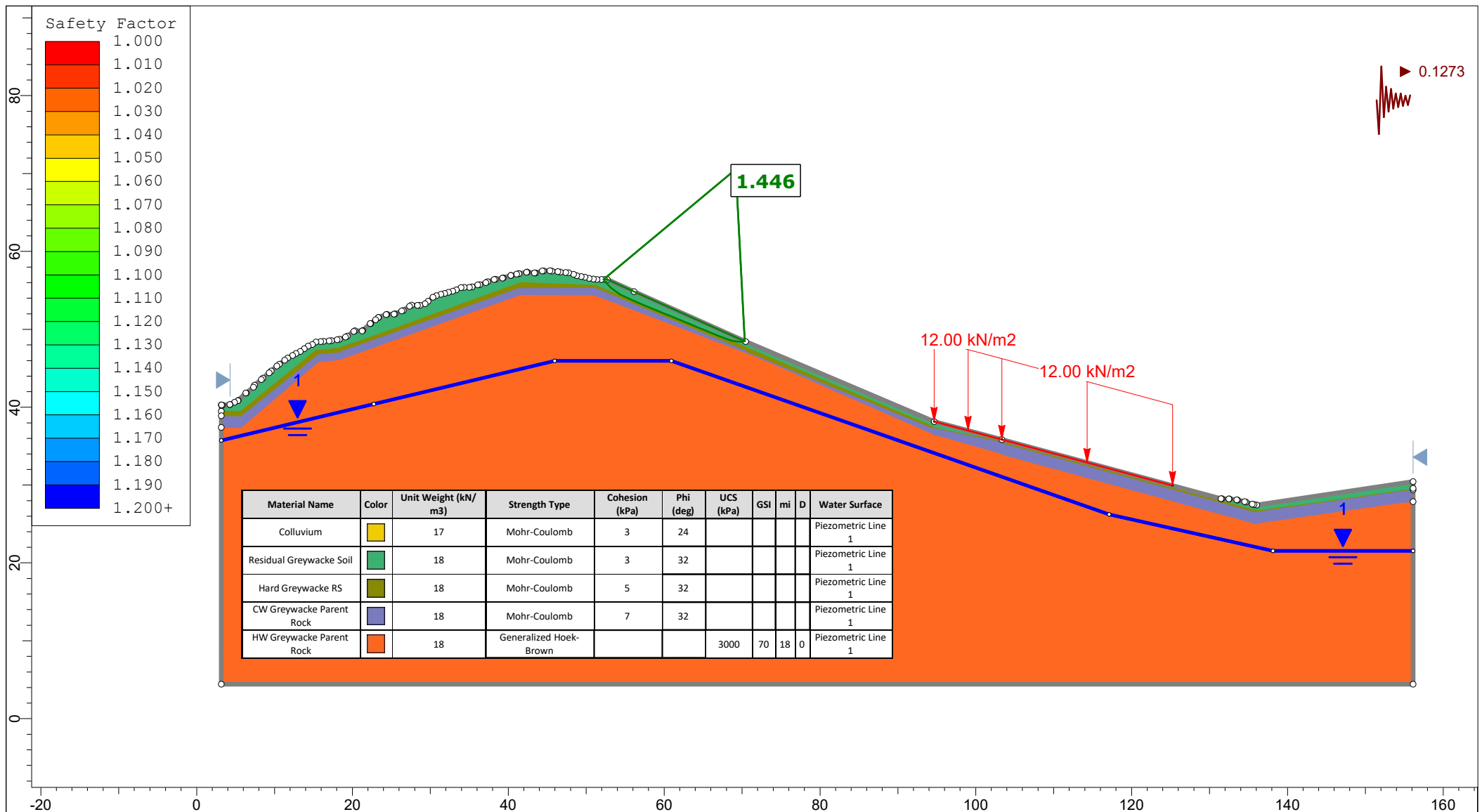
geologix


consulting engineers

Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Proposed Cut Scenario	Scenario	Static
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	02/05/2023	File Name	C0255 Section E.sldm



 geologix consulting engineers	Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
	Group		Proposed Cut Scenario	Scenario Elevated GW
	Drawn By		Sean Shin	Company Geologix Consulting Engineers Ltd
	Date		02/05/2023	File Name C0255 Section E.sldm





geologix

consulting engineers

SLIDEINTERPRET 9.034

Project		Proposed Subdivision of Lots 37 and 38 DP 426505	
Group	Proposed Cut Scenario	Scenario	Seismic
Drawn By	Sean Shin	Company	Geologix Consulting Engineers Ltd
Date	02/05/2023	File Name	C0255 Section E.slm



**Far North
District Council**

Private Bag 752, Memorial Ave

Kaikohe 0400, New Zealand

Freephone: 0800 920 029

Phone: (09) 405 2750

Fax: (09) 401 2137

Email: ask.us@fndc.govt.nz

Website: www.fndc.govt.nz

Application No: 2100559-RMAVAR/A

09-Aug-2010

Waitoto Developments Limited
C/- Williams & King
PO Box 937
Kerikeri 0245

Dear Sir / Madam

**Re: 2100559-RMAVAR/A – APPLICATION TO CHANGE CONDITIONS OF RESOURCE
CONSENT**

I am pleased to inform you that your application for a change or cancellation of conditions to an existing resource consent has been approved. The decision is enclosed for your information. The application was considered and determined under authority delegated to the Resource Consents Manager of the Far North District Council, pursuant to Section 34(4) of the Resource Management Act 1991.

You should note that the granting of this consent for a change or cancellation of conditions does not affect the lapsing date of the underlying consent for the proposed activity.

If you are dissatisfied with the decision or any part of it, you have the right (under Section 357A of the Act) to object to the decision. The objection must be in writing, stating reasons for the objection, and must be received by Council within 15 working days of your receipt of this decision.

Please note that you will be sent either an invoice or credit note depending on the actual cost of processing your application. Any additional costs shown on an invoice need to be paid within 20 working days of receipt of the invoice. If you receive a credit note, you have the option of requesting a refund by bank transfer, or transferring the amount to any other Council account. Please advise and supply a printed bank deposit slip and allow 10 working days for the refund to be processed.

If you have any further queries regarding this matter, please contact the reporting Planner.

Yours faithfully

Gayle Andersen
Team Leader RMA Support
Environmental Management



Far North
District Council

FAR NORTH DISTRICT COUNCIL

**FAR NORTH OPERATIVE DISTRICT PLAN
DECISION ON RESOURCE CONSENT APPLICATION (Section 127)**

Resource Consent Number: 2100559-RMAVAR/A

Pursuant to section 127 of the Resource Management Act 1991 (the Act), the Far North District Council hereby grants resource consent to:

Waitoto Development Limited

The activity to which this decision relates:

To change the conditions of RC-2100559-RMASUB, being a consent to subdivide a property at Russell-Whakapara Road, Orongo Bay, Russell to create 12 Coastal Living sites by way of a management plan and to undertake approximately 3500m³ of earthworks associated with creating access and building platforms over two stages.

Subject Site Details

Address: 15 Aucks Road, Russell
Legal Description: Lot 2 DP 175811, Lot 18 DP 403531
Certificate of Title reference: CT-411609

The following changes are made to the consent conditions:

Stage 2A

1. Condition 5(a) is amended as follows:

~~Provide evidence that a Residents' Association has been incorporated under the Incorporated Societies Act 1908 with a form of constitution and rules which are land covenants have been prepared and approved by Council's solicitor prior to lodging with the Registrar. The form of the rules covenants must provide that the Residents' Association land owners will be responsible for the ongoing maintenance of the common areas, including the roading, and where relevant stormwater, wastewater systems and enhancement planting and bush protection areas and weed and pest control. The consent holder must demonstrate how the owner of each allotment within the subdivision will be required to be a member of the residents' association. In the event that the Residents' Association is in default of its obligations to ensure compliance with the conditions of consent, all individual members of the Residents' Association shall be jointly and severally liable to ensure full compliance with the obligations that are the subject of the Association's default. The rules must specify that, with the prior written approval of the Resource Consents Manager of the Far North District Council, the constitution wording may be changed to meet any requisition of the Registrar of Incorporated Societies.~~

2. Condition 5(b)(vi) is amended as follows:

~~The rules of the Residents' Association land covenants which have been approved pursuant to condition 5(a) herein.~~

3. Condition 5(c) is amended as follows:

Pay, as may be required, the Council's actual and reasonable monitoring and administration fees for assessing compliance with these conditions, and for any additional site visits that may be necessary. Such charges shall be levied ~~in the first instance on the relevant site owners or in their default, on the Residents' Association.~~

4. Condition 6(a)(ix) is amended as follows:

~~The owner of each allotment within the subdivision will be required to be a member of the Residents Association and both the owner of each allotment and the Residents Association shall adhere to the conditions of the approved management plan at all times. The requirements of the approved management plan shall be complied with at all times by site owners and / or the Residents Association as relevant. In the event of the default of any site owner on any obligations under these conditions, the Council shall call upon the Residents' Association to fulfil these obligations.~~

~~In the event that the Residents Association is in default of its obligations to ensure compliance with the conditions of consent, all individual members of the Residents Association shall be jointly and severally liable to ensure full compliance with the obligations that are the subject of the Associations default.~~

The owner of each allotment shall adhere to and comply with the conditions of the approved Management Plan and Land Covenants referred to in clause 5(a) of RC-2100559-RMASUB at all times. The requirements of the approved Management Plan and Land Covenants shall be complied with at all times by the allotment owners. In the event of the default of any allotment owner in respect of any obligation under these conditions the Council shall call upon the relevant allotment owners to fulfill these obligations.

5. Condition 6(a)(xi) is inserted:

The owners of each allotment shall at all times observe and perform the land covenant referred to in condition 5(a) of Resource Consent 2100559 and more particularly set out in paragraphs 4 and 5 of the easement instrument creating land covenants annexed hereto.

Stage 2B

1. Condition 5(a)(vi) is amended as follows:

~~The rules of the Residents' Association Land Covenants~~ which have been approved pursuant to condition 5(a) of Stage 2A herein.

2. Condition 5(b) is amended as follows:

Pay, as may be required, the Council's actual and reasonable monitoring and administration fees for assessing compliance with these conditions, and for any additional site visits that may be necessary. Such charges shall be levied ~~in the first instance on the relevant site land owners or in their default, on the Residents' Association.~~

For the purpose of clarity the complete amended conditions of consent are as follows:

STAGE 2A

Land use:

1. Earthworks shall be carried out in accordance with the recommendations of the Haigh Workman Geotechnical Investigation Reports dated December 2007 and June 2008 or subsequent specific design recommendations. (Refer to original Fraser Thomas report June 2007).

Subdivision:

GENERAL CONDITIONS

1. The subdivision shall be carried out in general accordance with:
 - (a) the approved plan of subdivision prepared by Williams and King drawing 4751.02 version 7A dated 18/06/09 and attached to this consent except as modified below; and
 - (b) the draft Management Plan attached to this consent; and
 - (c) The draft Landscape Design Guidelines dated December 2007 prepared by DJ Scott Associates Limited attached to this consent.
2. In accordance with Section 128 of the Resource Management Act 1991, the Far North District Council may serve notice on the Consent Holder of its intentions to review those ongoing conditions of this consent that are subject to consent notices, annually during the month of February. The review may be initiated for any one or more of the following purposes:
 - (a) To deal with any adverse effects on the environment that may arise from the exercise of the consent and which it is appropriate to deal with at a later stage, or to deal with any such effects following assessment of the results of monitoring of the consent or as a result of the Far North District Council or duly delegated Council officer monitoring the state of the environment in the area.
 - (b) To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
 - (c) To provide for compliance with the rules in any district plan that has been made operative since the commencement of the consent.
 - (d) To deal with any inadequacies or inconsistencies the Far North District Council or duly delegated Council officer considers there to be, in the conditions of the consent, following the establishment of the activity the subject of this consent.
 - (e) To deal with any material inaccuracies that may in future be found in the information made available with the application (Notice may be served at any

time for this reason).

- (f) The consent holder shall meet all reasonable costs of any such review.

3. Five working days before the commencement of any physical work on the site, the Consent Holder shall provide a construction management plan from a suitably qualified project manager for approval by the duly delegated Council officer. The plan is to contain information on, and site management procedures for, the following matters:

- (a) The timing of civil engineering, building construction and any demolition works, including hours of operation;
- (b) The name of the contractor engaged to carry out the work and key project and site management personnel and their contact details;
- (c) A Traffic Management Plan in accordance with the Transit New Zealand Code of Practice for Temporary Traffic Management – Level 1. This plan shall include details of traffic management techniques to minimise disruption to users of Russell – Whakapara Road and Aucks Road;
- (d) An erosion and sediment control plan in accordance with the permitted activity rules of the Regional Water and Soil Plan for Northland or any resource consent issued by the Northland Regional Council for the works. The plan shall also specifically address measures to prevent sediment or other pollutants from entering Orongo Bay.
- (e) The transportation of demolition, construction and waste materials to and from the site, the loading and unloading of materials and the associated controls on vehicles through sign-posted site entrances and exits;
- (f) The excavation and filling works, including any retaining structures and any necessary de-watering requirements/ methods, to be prepared by a Chartered Professional Engineer with suitable geotechnical qualifications and expertise;
- (g) Control of dust and on-site noise (including compliance with construction noise standards) and any appropriate avoidance or remedial measures;
- (h) Prevention of earth, mud, gravel or other material being deposited on adjoining roads by vehicles exiting the site, and proposing remedial measures should that occur.

The Project Manager shall be the contact person for any complaints and shall be responsible for addressing issues resulting in complaints to the satisfaction of the Resource Consents Manager.

PRIOR TO SECTION 223 CERTIFICATE

4. Prior to approval under s223 of the Act, the consent holder shall:

- (a) Prepare the detailed designs, drawings, specifications and calculations for the required works, in accordance with the Council's Engineering Standards and Guidelines: April 2006 and NZS 4404:2004. No work is to commence until the plans signed by the duly delegated Council officer have been returned to the consent holder or their agent.
- (b) Prepare for the approval of the duly delegated Council officer drawings, specifications and calculations required for the roading which shall specifically address the following matters:

- Horizontal and vertical geometry, cross-falls, super elevation and carriage way widening.
- Cross sections including road carriage way, swale drains, cuts and fills.
- The extent of earthworks
- Pavement design to provide for a 25 year pavement life.
- Surfacing
- Drainage and scour protection.
- Any retaining walls or other stabilization measures necessary.
- Intersection with Russell-Whakapara Road.
- Road marking and signage.

The specifications shall include full details of all testing and quality standards to the satisfaction of duly delegated Council officer and shall provide for a 12 month defects liability period.

- (c) Submit for the approval of the duly delegated Council officer the drawings, specifications and calculations relating to storm water matters which shall specifically address the following matters:

- Cross sections including road carriageway, swale drains, cuts and fills.
- Flow velocities.
- Culverting.
- Scour protection.

The specifications shall include full details of all testing and quality standards to the satisfaction of the duly delegated Council officer and shall provide for a 12 month defects liability period.

- (d) Appoint an Owner's Representative (Independent Qualified Person) acceptable to the Council, in accordance with Appendix E of the Council's Engineering Standards and guidelines 2004, who shall be responsible for such design, plans, provision of information (including as-built drawings and a digital copy thereof), applications (including to the Regional Council as appropriate), producer statements and fees as may apply to the works being considered.

- (e) Show on the title plan:

- i. The endorsement of the following conditional amalgamations, pursuant to Section 220 (1) (b) of the Resource Management Act 1991:
 - That Lot 34 hereon (legal access and conservation area) be held as to twelve undivided one-twelfth shares with a three-twelfth share by Lot 37 hereon, four-twelfth share by Lot 38 hereon, and one-twelfth shares by Lots 28, 29, 30, 31 and 32 hereon as tenants in common in the said shares and that individual Certificates of Title be issued in accordance therewith (634864).
 - That Lot 36 hereon be transferred to the owner of Lot 21 DP 403531 (CT NA411612) and that one Certificate of Title be issued to include both titles.

- ii. All easements in a Memorandum of Easements subject to the satisfaction of the Far North District Council.
- iii. Lot 35 as road to vest.
- iv. The title plan be amended to show the looped road to vest, consistent with the plans approved under RC 2100559.
- v. Areas labeled 'D' to 'I' and the areas to be planted and protected on lot 34 in accordance with the subdivision plan prepared by Williams & King numbered 4751.02 version 6 and dated 24/11/08 as well as the DJ Scott Associates Limited drawing titled "Comprehensive Layout Plan – Revision 3", numbered 1428 and dated 24/11/08 as areas to be subject to bush protection covenants.
- vi. Amendments as required to provide stormwater easements for all drainage paths through private lots as shown on the approved stormwater design.
- vii. Amendments as required to provide access to all lots and accommodate the extent of earthworks required for the approved design.

PRIOR TO SECTION 224 CERTIFICATE

5. That before a certificate is issued pursuant to Section 224 of the Act, the consent holder shall:
 - (a) ~~Provide evidence that a Residents' Association has been incorporated under the Incorporated Societies Act 1908 with a form of constitution and rules which are land covenants have been prepared and approved by Council's solicitor prior to lodging with the Registrar. The form of the rules covenants must provide that the Residents' Association land owners will be responsible for the ongoing maintenance of the common areas, including the roading, and where relevant stormwater, wastewater systems and enhancement planting and bush protection areas and weed and pest control. The consent holder must demonstrate how the owner of each allotment within the subdivision will be required to be a member of the residents' association. In the event that the Residents' Association is in default of its obligations to ensure compliance with the conditions of consent, all individual members of the Residents' Association shall be jointly and severally liable to ensure full compliance with the obligations that are the subject of the Association's default. The rules must specify that, with the prior written approval of the Resource Consents Manager of the Far North District Council, the constitution wording may be changed to meet any requisition of the Registrar of Incorporated Societies.~~
 - (b) Submit a final Management Plan to the satisfaction of the Resource Consents Manager reflecting the draft Management Plan and the DJ Scott draft Landscape Design Guidelines dated December 2007 and amended as required to reflect all of the conditions of this consent and, in particular, the following matters:
 - (i) Final design guidelines, prepared to the satisfaction of Council, for the

construction of dwellings and associated accessory buildings on the proposed sites in general accordance with the draft Landscape Design Guidelines prepared by DJ Scott dated December 2007.

- (ii) The colours of all buildings are to comply with British Standard specification BS5252 Colour Range and have a reflective value of 30 % or less.
 - (iii) No dwellings or other buildings on lot 34 as shown on the scheme plan prepared by Williams and King 4751.01 Revision 6 dated 24/11/08.
 - (iv) All other landscaping details as contained in the Landscape Design guidelines prepared by DJ Scott dated December 2007.
 - (v) An integrated site development plan for each lot which identifies areas for onsite effluent disposal for each lot and onsite stormwater detention, attenuation and discharge clear of effluent disposal areas and areas identified as slip prone.
 - (vi) ~~The rules of the Residents' Association~~ land covenants which have been approved pursuant to condition 5(a) herein.
 - (vii) Ongoing maintenance and management of Lot 34.
- (c) Pay, as may be required, the Council's actual and reasonable monitoring and administration fees for assessing compliance with these conditions, and for any additional site visits that may be necessary. Such charges shall be levied ~~in the first instance on the relevant site owners or in their default, on the Residents' Association.~~

As Built:

- (d) Provide as built plans and details to Council in accordance with schedule ID of NZS4404:2004.

Roading:

- (e) Complete all works required to provide access to Lots created by Stage 2A
- (f) Provide written confirmation from a chartered professional engineer that all works have been constructed in accordance with the approved plan
- (g) Construct private accesses to all lots as shown on the approved survey plan. The accesses shall be formed and sealed to provide a 5m sealed carriageway with widening to 5.5m on bends up to the entrance to Lot 29 on ROW Easement A. The balance of Right of Ways up to Lot 32 shall be in accordance with Appendix 3B of the Proposed Far North District Plan and NZS 4404:2004 clause 3.3.17 and 3.3.18. Vertical curves shall have a minimum K value of 1.0m/%.
- (h) Provide formed and sealed entrances to Lots 28-32 which complies with the Council's Engineering Standard FNDC/S/6 and a formed entrance to the Council's Engineering Standard FNDC/S/6.

Stormwater:

- (i) Complete all of the physical works required to construct the appropriate stormwater management measures as recommended in the Fraser Thomas Stormwater Management Reports dated Dec 2007 and June 2008, to the Council's satisfaction, except as amended by the following conditions.
- (j) Swale drains where constructed shall be designed as a grassed surface and with a maximum side slope of 4H: 1V and a capacity able to accommodate the 100 year ARI (1% AEP) storm event. The maximum flow velocity shall not exceed 0.8m/s in the Auckland Regional Council TP10 design water quality storm (one third of the 2 year ARI, 24 hour rainfall) and 1.8m/s in a 100 year ARI storm event. The product of velocity times depth shall be less than $0.4\text{m}^2/\text{s}$ in a 100 year ARI storm event.
- (k) Install piped culverts to carry stormwater flows under the roads and as required to limit flow velocities in the swale drains.
- (l) Provide certification from a suitably qualified and experienced engineer, to the satisfaction of the duly delegated Council officer that all stormwater design meets the specified standards.

Bush Protection and Enhancement Planting:

- (m) Provide to the satisfaction of the duly delegated Council officer a detailed enhancement planting and ongoing monitoring and maintenance programme for all areas to be revegetated including areas of Lot 34 and for appropriate enhancement planting along exposed cut and fill roadway areas and earth worked areas for individual lot accessway and driveway areas. The planting programme shall provide for the planting of eco-sourced native species appropriate to the site and conditions at a density of 1.4 metre centres (5,100 stems per hectare) reducing to 1 metre centres (10,000 stems per hectare) for the wetland and riparian areas. This plan shall generally follow the draft Landscape Design Guidelines prepared by DJ Scott dated December 2007.
- (n) Provide an animal pest and weed eradication programme to the satisfaction of the duly delegated Council officer detailing the methodology for animal pest and weed eradication within the bush covenant areas. Animal pest and weed eradication shall have been commenced to the satisfaction of the duly delegated Council officer prior to the issue of the section 224 (c) Certificate in accordance with the Landscape Design Guidelines from DJ Scott dated December 2007.
- (o) The fence near the southern boundary of Lot 36 shall be extended along the boundary of Lot 36 until it meets the corner of Lot 1 DP 181696.
- (p) Undertake all enhancement planting in accordance with the plan approved under condition (5) (m).
- (q) To ensure the performance of Condition (5)(p) herein, the consent holder shall arrange for a bond of 1.5 times the value of the enhancement

planting in favour of the Council, to be undertaken according to the following conditions:

- (i) The bond shall be arranged prior to the commencement of work on the site and shall be either paid in cash or secured by a guarantee, in accordance with the Council's "Bonds and Undertakings" Policy (# 3102);
 - (ii) The bond is to be held for a minimum of 5 years from the date that the revegetation planting is initially completed, and shall be released when (in the opinion of the Council's Monitoring Officer) the planting can be determined to have been established without the need for further replacement planting or regular maintenance;
 - (iii) The bond shall be reduced and released proportionally on the satisfactory completion of the works and upon receipt of confirmation from a qualified landscape architect as to the extent of the completed works and their value relative to the bond.
 - (iv) Any costs incurred in the preparation, checking, monitoring and release of the bond are to be met by the consent holder.
- (r) Provide details demonstrating that the proposed enhancement planting programme and bush protection areas avoid any conflict with the utilisation of effluent disposal areas, including reserve dispersal areas on individual sites.

Utilities:

- (s) Provide underground power and telephone services to the boundary of Lots 28-32.

Payments:

- (t) Pay any outstanding balance due to the Council for scheme plan processing.

CONSENT NOTICES SECTION 221

6. The following conditions shall be secured by way of a Consent Notice issued under Section 221 of the Act, to be registered against the titles of Lots 28-32, 37, 38, and 34 within the subdivision. The costs of preparing, checking, executing and registering the Notice shall be met by the Consent Holder.
- (a) The owner of each lot, including lot 34, 37, and 38 shall be required to comply at all times with all aspects of the final Management Plan approved under condition 5(b) which includes, without limitation, the following matters:
 - (i) Design guidelines and building platforms, for the construction of dwellings and accessory buildings as required by condition 5(b) (i) (except on lot 34 where there is to be no building).
 - (ii) The colours of all buildings are to comply with British Standard specification BS5252 Colour Range and have a reflective value of 30 % or less.
 - (iii) Implementation of the animal pest and weed eradication programme in accordance with the plan approved under condition

(5) (m).

- (iv) Any predator / pest control work carried out is to be done in a manner that will not endanger kiwi.
- (v) The owner shall preserve the indigenous trees and bush within those areas shown on the survey plan as areas to be subject to bush protection covenants and shall not without the prior written consent of the Council and then only in strict compliance with any conditions imposed by the Council, cut down, damage or destroy any of such trees or bush or suffer or permit the cutting down damaging or destruction of any such trees or bush. The owner shall be deemed to be not in breach of this prohibition if any of such trees or bush shall die from natural causes not attributable to any act or default by or on behalf of the owner or for which the owner is responsible.
- (vi) All power and telephone services shall be provided by underground means.
- (vii) All earthworks to be undertaken on the site are to be supervised by a Chartered Professional Engineer, to be engaged by the consent holder. Council is to be advised in writing of the appointment of the engineer, and notified when work is to commence, and when it has been completed.
- (viii) The consent holder is to ensure that stormwater diversion and erosion and sediment control measures are in place prior to the commencement of bulk earthworks. These measures shall be maintained to ensure they continue to operate to the appropriate standard.
- (ix) Other matters detailed in the final DJ Scott Landscape Design Guidelines which is incorporated into the final Management Plan.

~~The owner of each allotment within the subdivision will be required to be a member of the Residents Association and both the owner of each allotment and the Residents Association shall adhere to the conditions of the approved management plan at all times. The requirements of the approved management plan shall be complied with at all times by site owners and / or the Residents Association as relevant. In the event of the default of any site owner on any obligations under these conditions, the Council shall call upon the Residents' Association to fulfil these obligations.~~

~~In the event that the Residents Association is in default of its obligations to ensure compliance with the conditions of consent, all individual members of the Residents Association shall be jointly and severally liable to ensure full compliance with the obligations that are the subject of the Associations default.~~

The owner of each allotment shall adhere to and comply with the conditions of the approved Management Plan and Land Covenants referred to in clause 5(a) of RC-2100559-RMASUB at all times. The requirements of the approved Management Plan and Land Covenants shall be complied with at all times by the allotment owners. In the event of the default of any allotment owner in respect of any obligation under these conditions the Council shall

call upon the relevant allotment owners to fulfill these obligations.

- (xi) The owners of each allotment shall at all times observe and perform the land covenant referred to in condition 5(a) of Resource Consent 2100559 and more particularly set out in paragraphs 4 and 5 of the easement instrument creating land covenants annexed hereto.

Wastewater:

- (d) On all sites on-site wastewater management shall be undertaken in accordance with the proposals submitted by Fraser Thomas Limited and the further measures recommended by Haigh Workman Civil and Structural Consultants Limited, as follows:
- The final design of on-site systems including the disposal fields shall be undertaken by competent and experienced designers, with the design subject to Council review and approval.
 - The management plan shall include a requirement for all householders to immediately report any malfunction of the treatment unit or spillage of effluent to the environment to the service contractor. It shall also include a requirement for the service contractor to immediately respond to alarms and reports of spillages and to immediately notify Council and Northland Health if on visiting the site it is found that there is an overflow from the sewage treatment or reticulation system, or an overland flow discharge from the irrigation system which has or is likely to discharge to a watercourse.
 - The plan shall also show how stormwater runoff is to be diverted away from the wastewater effluent dispersal field areas, and how related seepage intercept drain discharges are to be managed. Intercepted seepage which may contain effluent, must be put back into land disposal and must not be discharged directly.
 - Treatment plants shall be a proven re-circulating packed bed reactor type system approved by Council, and shall include a UV disinfection system providing an end of lamp life UV received dosage rate of 75mW-sec/cm².
 - The approved system shall provide for effluent dispersal at an application rate of no greater than 1.5mm/day.
 - The irrigation field design shall be specifically designed by a competent and experienced drip line designer and shall be subject to review and approval by the duly delegated Council officer. The drip line design shall address (amongst others) the following matters:
 - Pressures between the top and bottom drip lines are maintained within the operating pressure of the drip lines (usually 5-40m).
 - Pump selection according to flow and pressure requirements (including the consistent maintenance of the required UV dosage).
 - Backflow prevention measures, particularly with regard to preventing

higher lines back draining into lower lines.

- Drip line layout plan, with all valve locations shown, including flushing valves.
 - The location of seepage intercept drains, both above and below (where required) individual areas of the dispersal field, including where and how the drain discharges are to be managed.
 - Show how storm water runoff is to be diverted away from effluent dispersal areas.
 - The design will be undertaken to avoid root intrusion into the driplines.
 - Trifluran (or any other herbicide toxic to aquatic life) will not be introduced directly into the irrigation water in liquid form.
- Implementation of a managed operations and maintenance contract for the full development, undertaken according to the management plan to be approved by duly delegated Council officer in accordance with condition (5) (b) of this consent, and by a contractor with a proven track record approved by duly delegated Council officer. This plan shall provide for:
 - At least 3-monthly inspection of the system.
 - at least 3 monthly cleaning of the UV lamps (unless an automated cleaning system is included), drip lines and irrigation filters.
 - Continuous measurement of the UV intensity received after passing through the effluent, with an alarm system set to ensure that a UV dose of at least 75mW-sec/m² is received at all times.
 - The service provider to monitor UV concentration and transmissivity by portable equipment at each quarterly inspection, and that UV shall exceed 75mW-sec/cm² and transmissivity exceed 50% (unless the UV unit provided has an inbuilt capability of measuring the UV intensity received after passing through the effluent, in which case the alarm system should be set to ensure that a UV dose of at least 75mWsec/m² is received at all times).
 - A detailed management process for purging driplines which comprises:
 - Turning on irrigation pump manually and walking lines going from purge valve to purge valve operating them sequentially purging to either a small soak hole or grass.
 - Purging shall only occur in dry weather.
 - The drip line installation and commissioning shall be subject to inspection by the duly delegated Council officer to ensure full compliance with the design requirements.
 - Development of each lot shall ensure adequate areas for effluent dispersal, including a 30% reserve area, which shall

be provided to the satisfaction of the duly delegated Council officer.

Habitat Protection:

- (e) On all sites no occupier of, or visitor to the land shall keep or introduce on to the site carnivorous or omnivorous exotic animals (such as mustelids, cats, dogs) which have the potential to be weka or kiwi predators.
- (f) Exotic vegetation that could adversely affect natural regeneration or local forest health is not to be introduced onto any of the sites within the subdivision, including lot 34. This includes the introduction of invasive plant species, including those currently listed on the nationally-banned-for-sale list (see Northland Regional Pest Management Strategy). Planting of other exotic species should be confined to the immediate vicinity of dwellings. And species with berry-type fruits are to be grown within netting to prevent seed spread by birds.

Earthworks and Building Foundations:

- (g) No earthworks shall be carried out or building erected on the proposed residential lots (excluding lot 34) without the prior approval of the Council to specific design for cut and fill batters retaining walls and building foundations, prepared by a Chartered Professional Engineer with geotechnical expertise having regard to the Fraser Thomas Geotechnical report.

Water Supply:

- (h) All residential sites shall install a water tank in accordance with the requirements of any approved storm water management plan and as required by the provisions of the Approved Management Plan.
- (i) The dwelling shall have a roof water collection system with a minimum of 45,000 litres storage of water. The water tank(s) shall be positioned so they are accessible for fire fighting purposes, be coupled together, and have one tank fitted with an outlet compatible with rural fire service equipment or otherwise the dwelling shall be fitted with a sprinkler system approved by Council.

Stormwater:

- (j) Without the prior approval of the Council or its duly delegated officer, no building shall be erected, nor any works which increase impermeable surfaces be undertaken, on any of the sites within the subdivision, including lot 34, nor any planting or structure placed which may create a flow obstruction, on any area of the site which has been proposed as a secondary/overland (Q100) flow path [on the storm water management plan prepared previously], and as shown on the as-built drawing.
- (k) Stormwater management systems shall be constructed on each lot at the time of building. The systems shall consist of rainwater storage tanks, rain gardens

and swale drains in accordance with the approved Stormwater Management Report. Overflows from the stormwater management systems shall be dispersed to an even sheet flow away from buildings and effluent disposal areas.

The final design of on-site systems shall be undertaken by competent and experienced designers, with the design subject to review and approval by the duly delegated Council officer.

Note: Lots 37 and 38 are subject to the above consent notices and to further subdivision under Stage 2B of this decision. The Consent Notices required by these conditions 6 (a) to (k) above are to roll over to the subsequent titles under Stage 2B.

STAGE 2B

Land use:

1. Earthworks shall be carried out in accordance with the recommendations of the Haigh Workman Geotechnical Investigation Reports dated December 2007 and June 2008 or subsequent specific design recommendations. (Refer to original Fraser Thomas report June 2007).

Subdivision:

GENERAL CONDITIONS

1. The subdivision shall be carried out in general accordance with:
 - (a) the approved plan of subdivision prepared by Williams and King drawing 4751.02 version 7B both dated 18/06/09 and attached to this consent except as modified below; and
 - (b) the draft Management Plan attached to this consent; and
 - (c) The draft Landscape Design Guidelines dated December 2007 prepared by DJ Scott Associates Limited attached to this consent.
2. In accordance with Section 128 of the Resource Management Act 1991, the Far North District Council may serve notice on the Consent Holder of its intentions to review those ongoing conditions of this consent that are subject to consent notices, annually during the month of February. The review may be initiated for any one or more of the following purposes:
 - (a) To deal with any adverse effects on the environment that may arise from the exercise of the consent and which it is appropriate to deal with at a later stage, or to deal with any such effects following assessment of the results of monitoring of the consent or as a result of the Far North District Council or duly delegated Council officer monitoring the state of the environment in the area.
 - (b) To require the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
 - (c) To provide for compliance with the rules in any district plan that has been made operative since the commencement of the consent.
 - (d) To deal with any inadequacies or inconsistencies the Far North District Council or duly delegated Council officer considers there to be, in the conditions of the consent, following the establishment of the activity the subject of this consent.

- (e) To deal with any material inaccuracies that may in future be found in the information made available with the application (Notice may be served at any time for this reason).
 - (f) The consent holder shall meet all reasonable costs of any such review.
3. Five working days before the commencement of any physical work on the site, the Consent Holder shall provide a construction management plan from a suitably qualified project manager for approval by the duly delegated Council officer. The plan is to contain information on, and site management procedures for, the following matters:
- (a) The timing of civil engineering, building construction and any demolition works, including hours of operation;
 - (b) The name of the contractor engaged to carry out the work and key project and site management personnel and their contact details;
 - (c) A Traffic Management Plan in accordance with the Transit New Zealand Code of Practice for Temporary Traffic Management – Level 1. This plan shall include details of traffic management techniques to minimise disruption to users of Russell – Whakapara Road and Aucks Road;
 - (d) An erosion and sediment control plan in accordance with the permitted activity rules of the Regional Water and Soil Plan for Northland or any resource consent issued by the Northland Regional Council for the works. The plan shall also specifically address measures to prevent sediment or other pollutants from entering Orongo Bay.
 - (e) The transportation of demolition, construction and waste materials to and from the site, the loading and unloading of materials and the associated controls on vehicles through sign-posted site entrances and exits;
 - (f) The excavation and filling works, including any retaining structures and any necessary de-watering requirements/ methods, to be prepared by a Chartered Professional Engineer with suitable geotechnical qualifications and expertise;
 - (g) Control of dust and on-site noise (including compliance with construction noise standards) and any appropriate avoidance or remedial measures;
 - (h) Prevention of earth, mud, gravel or other material being deposited on adjoining roads by vehicles exiting the site, and proposing remedial measures should that occur.

The Project Manager shall be the contact person for any complaints and shall be responsible for addressing issues resulting in complaints to the satisfaction of the Resource Consents Manager.

PRIOR TO SECTION 223 CERTIFICATE

4. Prior to approval under s223 of the Act, the consent holder shall:

Show on the title plan:

- i. The endorsement of the following conditional amalgamation, pursuant to Section 220 (1) (b) of the Resource Management Act 1991:
 - That Lot 34 hereon and Stage 2A (legal access and conservation area) be held as to seven undivided one-twelfth shares by the owners of Lots 22, 23, 24 25, 26, 27 and 33

hereon as tenants in common in the said shares and that the individual Certificates of Title be issued in accordance therewith (634864).

- ii. All easements in a Memorandum of Easements subject to the satisfaction of the Far North District Council.
- iii. Amendments as required to provide stormwater easements for all drainage paths through private lots as shown on the approved stormwater design.
- iv. Amendments as required to provide access to all lots and accommodate the extent of earthworks required for the approved design.

PRIOR TO SECTION 224 CERTIFICATE

5. That before a certificate is issued pursuant to Section 224 of the Act, the consent holder shall:

- (a) Submit a modified Management Plan to the satisfaction of the Resource Consents Manager that incorporates lots under this stage and reflects the draft Management Plan and the DJ Scott draft Landscape Design Guidelines dated December 2007 and amended as required to reflect all of the conditions of this consent and, in particular, the following matters:
 - (i) Final design guidelines, prepared to the satisfaction of Council, for the construction of dwellings and associated accessory buildings on the proposed sites in general accordance with the draft Landscape Design Guidelines prepared by DJ Scott dated December 2007.
 - (ii) The colours of all buildings are to comply with British Standard specification BS5252 Colour Range and have a reflective value of 30 % or less.
 - (iii) No dwellings or other buildings on lot 34 as shown on the scheme plan prepared by Williams and King 4751.01 Revision 6 dated 24/11/08.
 - (iv) All other landscaping details as contained in the Landscape Design guidelines prepared by DJ Scott dated December 2007.
 - (v) An integrated site development plan for each lot which identifies areas for onsite effluent disposal for each lot and onsite stormwater detention, attenuation and discharge clear of effluent disposal areas and areas identified as slip prone.
 - (vi) ~~The rules of the Residents' Association~~ Land Covenants which have been approved pursuant to condition 5(a) of Stage 2A herein.
 - (vii) Ongoing maintenance and management of Lot 34.
- (b) Pay, as may be required, the Council's actual and reasonable monitoring and administration fees for assessing compliance with these conditions, and for any additional site visits that may be necessary. Such charges shall be levied ~~in the first instance~~ on the relevant site land

owners or in their default, on the Residents' Association.

As Built:

- (c) Provide as built plans and details to Council in accordance with schedule ID of NZS4404:2004.

Roading:

- (d) Complete all works required to provide access to Lots created by Stage 2B
- (e) Provide written confirmation from a chartered professional engineer that all works have been constructed in accordance with the approved plan
- (f) Construct private accesses to all lots as shown on the approved survey plan. The accesses shall be formed and sealed to provide a 5m sealed carriageway with widening to 5.5m on bends up to the entrance to Lot 25 on ROW Easement A. The balance of the ROW's shall be in accordance with Appendix 3B of the Proposed Far North District Plan and NZS 4404:2004 clause 3.3.17 and 3.3.18. Vertical curves shall have a minimum K value of 1.0m/%.
- (g) Provide a formed and sealed entrance to Lots 22-27 which complies with the Council's Engineering Standard FNDC/S/6

Stormwater:

- (h) Complete all of the physical works required to construct the appropriate stormwater management measures as recommended in the Fraser Thomas Stormwater Management Reports dated Dec 2007 and June 2008, to the Council's satisfaction, except as amended by the following conditions.
- (i) Swale drains where constructed shall be designed as a grassed surface and with a maximum side slope of 4H: 1V and a capacity able to accommodate the 100 year ARI (1% AEP) storm event. The maximum flow velocity shall not exceed 0.8m/s in the Auckland Regional Council TP10 design water quality storm (one third of the 2 year ARI, 24 hour rainfall) and 1.8m/s in a 100 year ARI storm event. The product of velocity times depth shall be less than 0.4m²/s in a 100 year ARI storm event.
- (j) Install piped culverts to carry stormwater flows under the roads and as required to limit flow velocities in the swale drains.
- (k) Provide certification from a suitably qualified and experienced engineer, to the satisfaction of the duly delegated Council officer that all stormwater design meets the specified standards.

Bush Protection and Enhancement Planting:

- (l) Provide to the satisfaction of the duly delegated Council officer a detailed enhancement planting and ongoing monitoring and maintenance programme for all areas to be revegetated including areas of Lot 34

and for appropriate enhancement planting along exposed cut and fill roadway areas and earth worked areas for individual lot accessway and driveway areas. The planting programme shall provide for the planting of eco-sourced native species appropriate to the site and conditions at a density of 1.4 metre centres (5,100 stems per hectare) reducing to 1 metre centres (10,000 stems per hectare) for the wetland and riparian areas. This plan shall generally follow the draft Landscape Design Guidelines prepared by DJ Scott dated December 2007.

- (m) Provide an animal pest and weed eradication programme to the satisfaction of the duly delegated Council officer detailing the methodology for animal pest and weed eradication within the bush covenant areas. Animal pest and weed eradication shall have been commenced to the satisfaction of the duly delegated Council officer prior to the issue of the section 224 (c) Certificate in accordance with the Landscape Design Guidelines from DJ Scott dated December 2007.
- (n) The fence near the southern boundary of Lot 36 is to be extended along the boundary of Lot 36 until it meets the corner of Lot 1 DP 181696.
- (o) Undertake all enhancement planting in accordance with the plan approved under condition (5) (l).
- (p) To ensure the performance of Condition (5)(o) herein, the consent holder shall arrange for a bond of 1.5 times the value of the enhancement planting in favour of the Council, to be undertaken according to the following conditions:
 - (i) The bond shall be arranged prior to the commencement of work on the site and shall be either paid in cash or secured by a guarantee, in accordance with the Council's "Bonds and Undertakings" Policy (# 3102);
 - (ii) The bond is to be held for a minimum of 5 years from the date that the revegetation planting is initially completed, and shall be released when (in the opinion of the Council's Monitoring Officer) the planting can be determined to have been established without the need for further replacement planting or regular maintenance;
 - (u) The bond shall be reduced and released proportionally on the satisfactory completion of the works and upon receipt of confirmation from a qualified landscape architect as to the extent of the completed works and their value relative to the bond.
 - (v) Any costs incurred in the preparation, checking, monitoring and release of the bond are to be met by the consent holder.
- (q) Provide details demonstrating that the proposed enhancement planting programme and bush protection areas avoid any conflict with the utilisation of effluent disposal areas, including reserve dispersal areas on individual sites.

Utilities:

- (r) Provide underground power and telephone services to the boundary of Lots 22-27.

Payments:

- (s) Pay any outstanding balance due to the Council for scheme plan processing.

Easement Cancellation Resolution

That Council further resolves pursuant to Section 243 of the Resource Management Act 1991, to cancel Easement D (created by Easement Instrument 8232465.6) over part Lot 18 DP 403531.

Advice Notes

1. Archaeological sites are protected pursuant to the Historic Places Act 1993. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority obtained from the trust. Should any site be inadvertently uncovered, the procedure is that work should cease, with the trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains).

Statutory Information

1. Pursuant to section 102 of the Local Government Act 2002, the Far North District Council has prepared and adopted a development contributions policy. Under this policy, the activity to which this consent relates is subject to development contributions.

You will be advised of the assessment of the development contributions payable under separate cover in the near future.

It is important to note that the development contributions must be paid prior to commencement of the work or activity to which this consent relates.

Further information regarding council's development contributions policy may be obtained from the long term council community plan (LTCCP) or council's web page at www.fndc.govt.nz

Reasons for the Decision

1. **Description of the Activity:**
To change the conditions of RC-2100559-RMASUB, being a consent to subdivide a property at Russell-Whakapara Road, Orongo Bay, Russell to create 12 Coastal Living sites by way of a management plan and to undertake approximately 3500m³ of earthworks associated with creating access and building platforms over two stages.
2. **Principal Issue[s] in Contention and Main Findings on those Issues:**
It is considered that there are no principal issues in contention in relation to the changes.
3. **Relevant Statutory Provisions:**
Part 2 Matters

The Council has taken into account the purpose & principles outlined in sections 5, 6, 7 & 8 of the Act. It is considered that granting this resource consent application achieves the purpose of the Act.

4. Notification and Affected Parties

The Council has determined (by way of an earlier report and resolution) that the adverse environmental effects associated with the proposed changes are no more than minor and that there are no affected persons or affected order holders.

5. Overall Evaluation

Overall, it is considered that the changes will not have an adverse effect on the receiving environment and that the changes are consistent with the sustainable management purpose of the RMA.

Approval

This resource consent has been prepared by Jessica Phillips, Resource Planner and is granted under delegated authority (pursuant to section 34A of the Resource Management Act 1991) from the Far North District Council by:


PP **Lynley Newport, Team Leader Resource Consents**
18th August 2010
Date

Right of Objection

If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Resource Management Act 1991) to object to the decision. The objection must be in writing, stating reasons for the objection and must be received by Council within 15 working days of the receipt of this decision.

Lapsing Of Consent

You should note that the granting of this consent for a change or cancellation of conditions does not affect the lapsing date of the underlying consent for the proposed activity.



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

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




R. W. Muir
Registrar-General
of Land

Identifier **504328**
Land Registration District **North Auckland**
Date Issued 17 November 2010

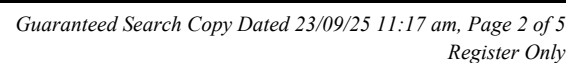
Prior References
411609

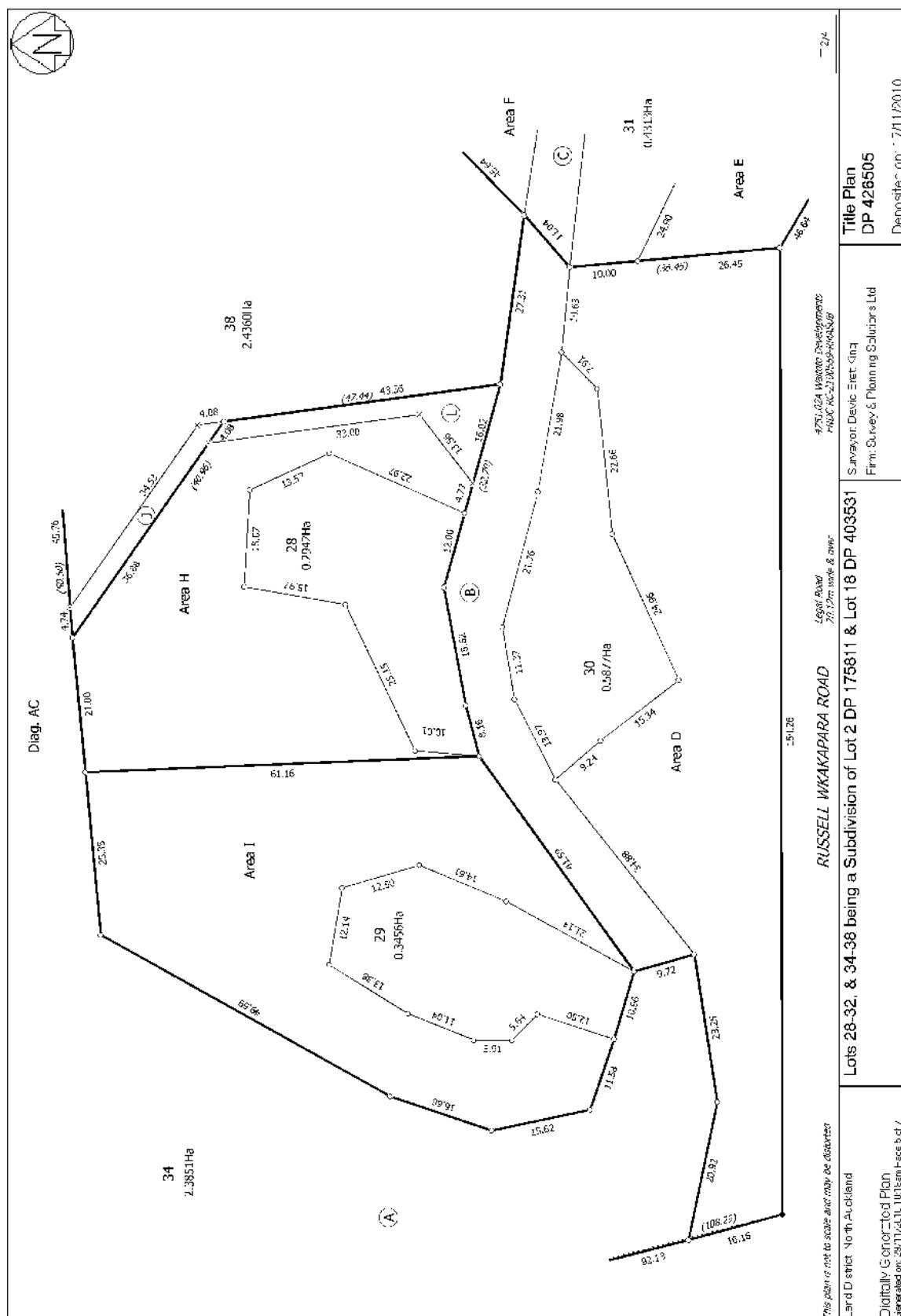
Estate Fee Simple
Area 2.4360 hectares more or less
Legal Description Lot 38 Deposited Plan 426505
Registered Owners
Waitoto Developments Limited

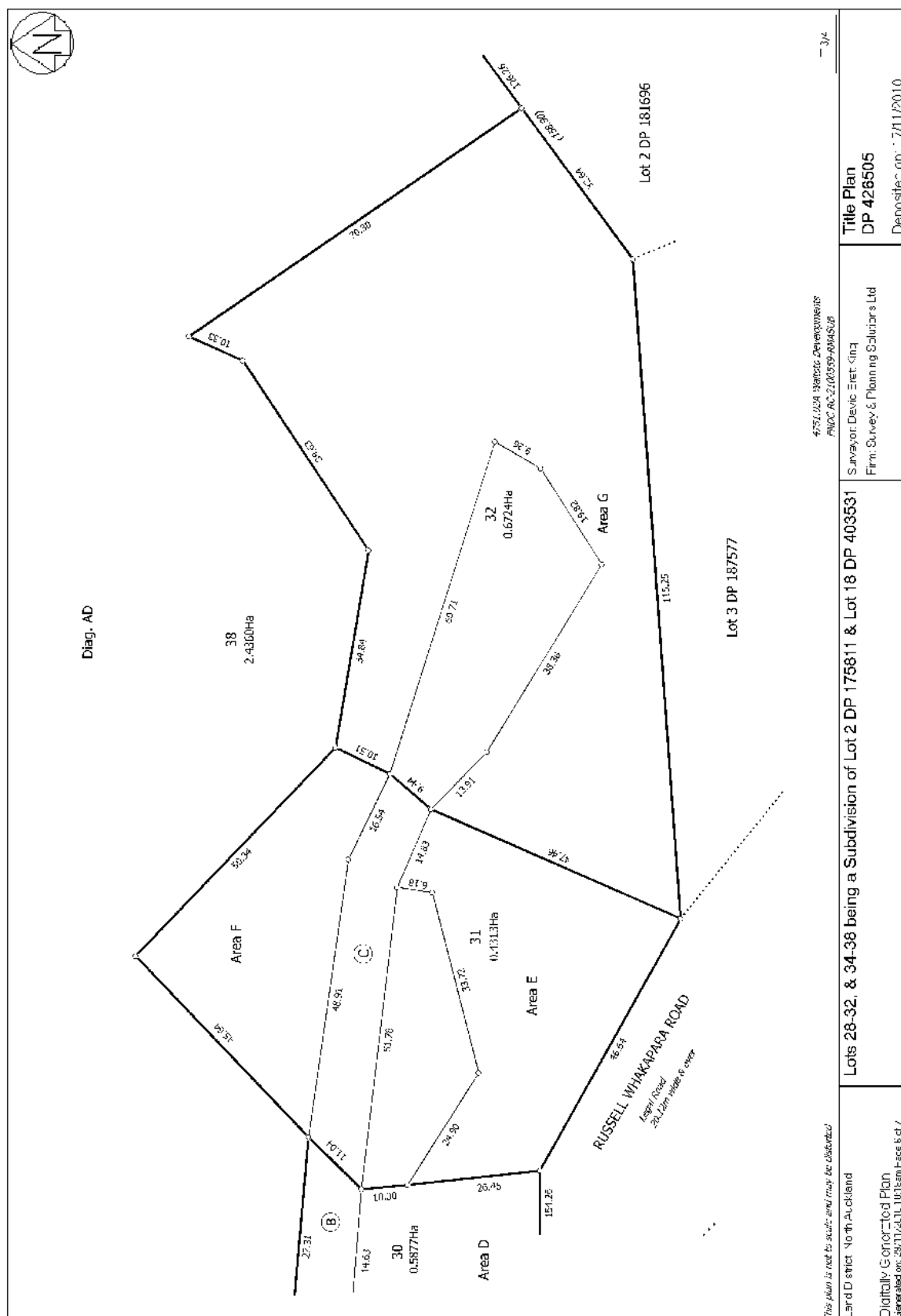
Estate Fee Simple - 1/3 share
Area 2.3851 hectares more or less
Legal Description Lot 34 Deposited Plan 426505
Registered Owners
Waitoto Developments Limited

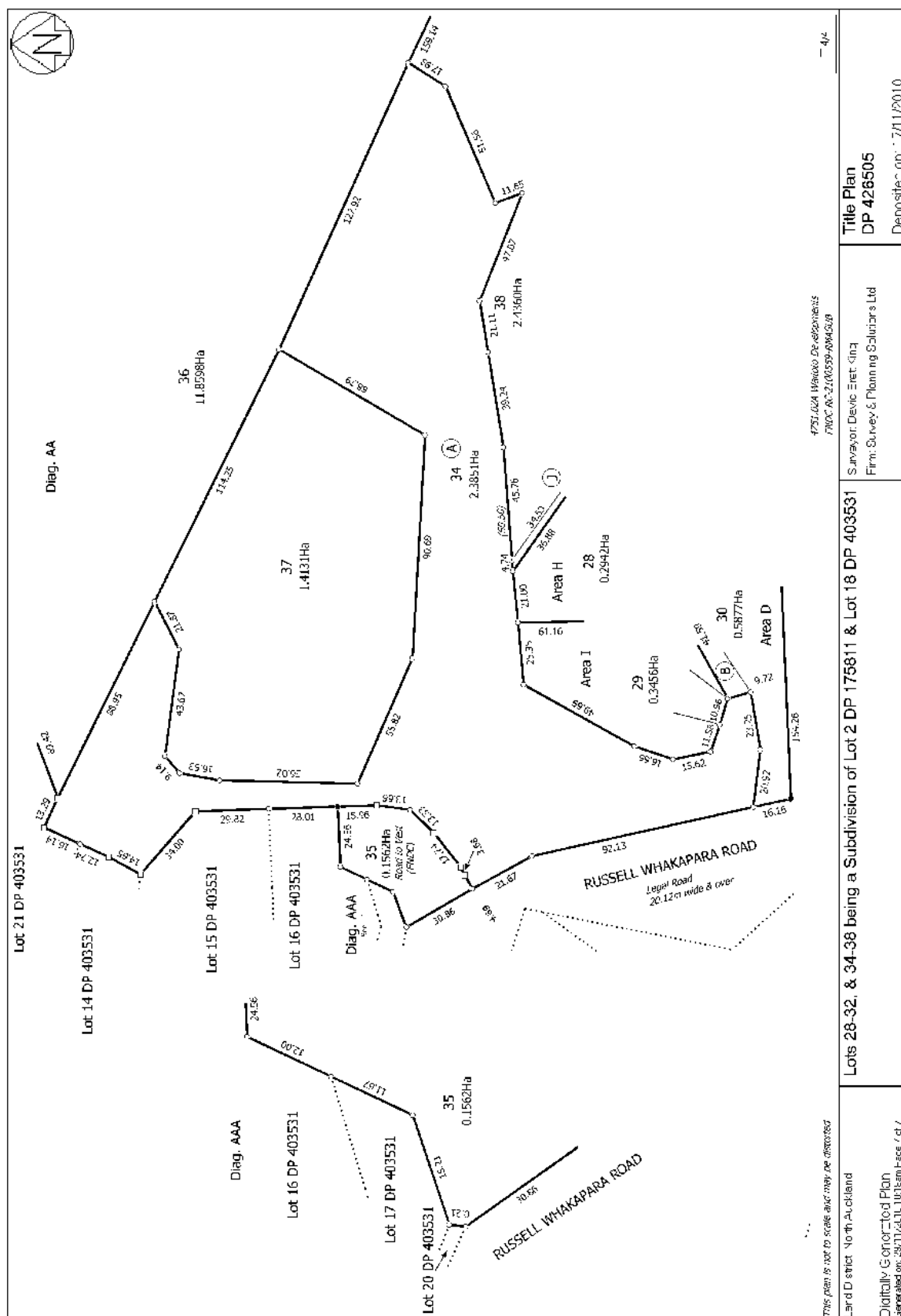
Interests

8634311.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.11.2010 at 2:29 pm
Subject to Section 241(2) Resource Management Act 1991 (affects DP 426505)
Subject to a right of way, right to drain water, right to convey telecommunications and computer media over Lot 34 DP 426505 marked A and a right to drain water over Lot 38 DP 426505 marked J both on DP 426505 created by Easement Instrument 8634311.7 - 17.11.2010 at 2:29 pm
Appurtenant to Lot 38 DP 426505 is a right of way, right to drain water, right to convey telecommunications and computer media created by Easement Instrument 8634311.7 - 17.11.2010 at 2:29 pm
The easements created by Easement Instrument 8634311.7 are subject to Section 243 (a) Resource Management Act 1991 Land Covenant in Easement Instrument 8634311.8 - 17.11.2010 at 2:29 pm
Subject to a right (in gross) to convey electricity over Lot 34 DP 426505 marked A on DP 426505 in favour of Top Energy Limited created by Easement Instrument 8634311.9 - 17.11.2010 at 2:29 pm
The easements created by Easement Instrument 8634311.9 are subject to Section 243 (a) Resource Management Act 1991
11982636.1 Variation of Land Covenant created by Easement Instrument 8634311.8 - 29.1.2021 at 4:54 pm











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

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




R. W. Muir
Registrar-General
of Land

Identifier **504329**
Land Registration District **North Auckland**
Date Issued 17 November 2010

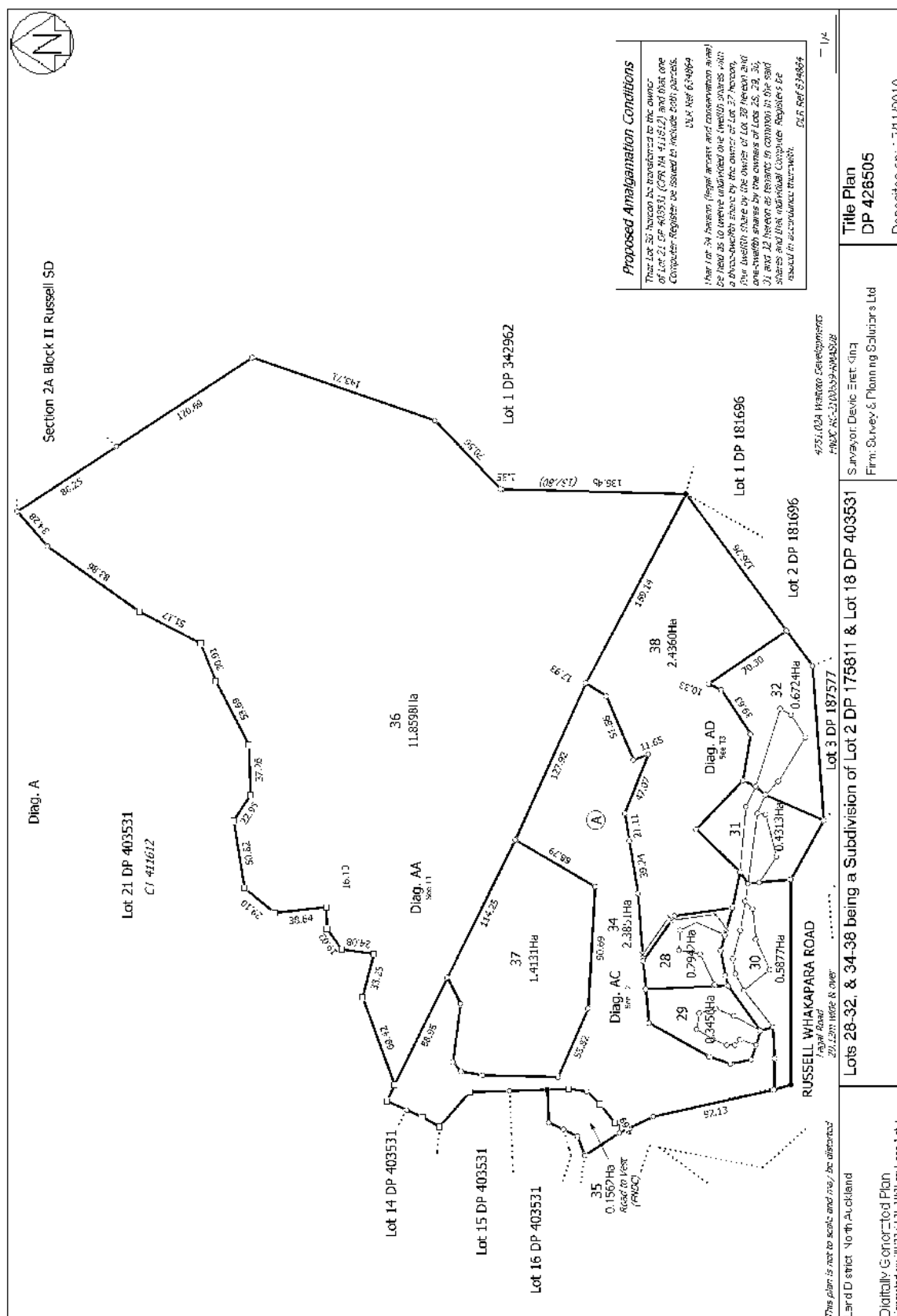
Prior References
411609

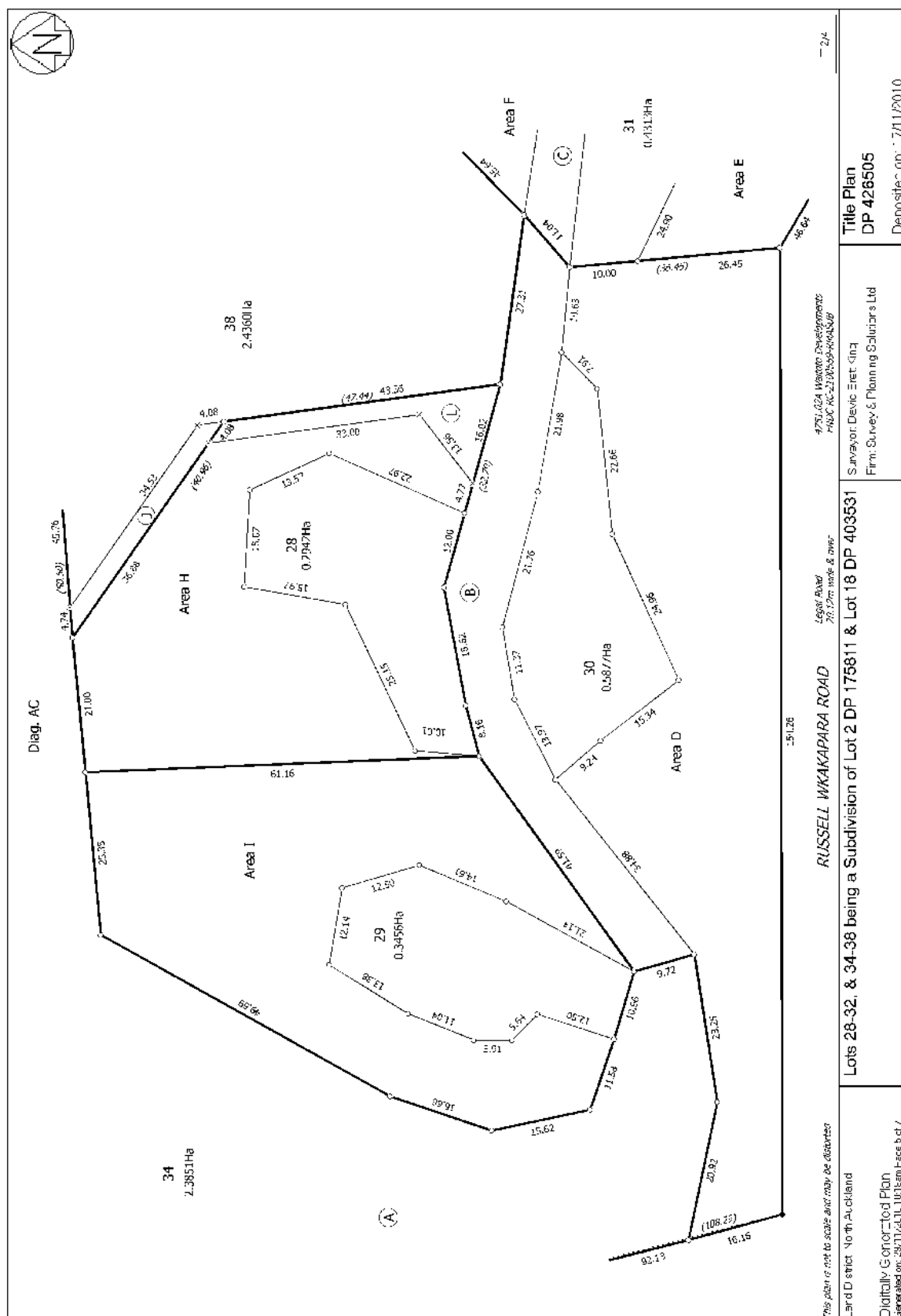
Estate Fee Simple
Area 1.4131 hectares more or less
Legal Description Lot 37 Deposited Plan 426505
Registered Owners
Waitoto Developments Limited

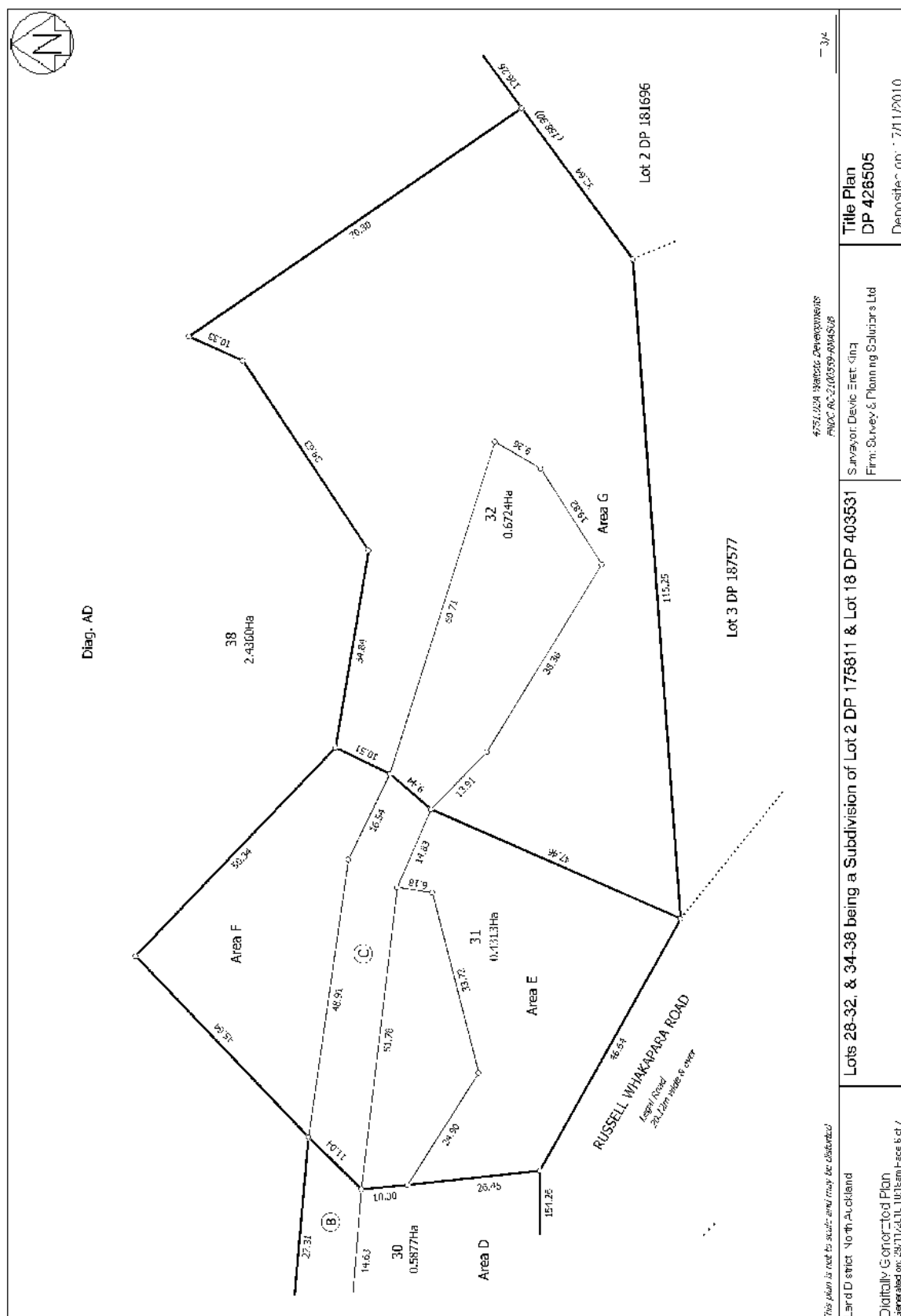
Estate Fee Simple - 1/4 share
Area 2.3851 hectares more or less
Legal Description Lot 34 Deposited Plan 426505
Registered Owners
Waitoto Developments Limited

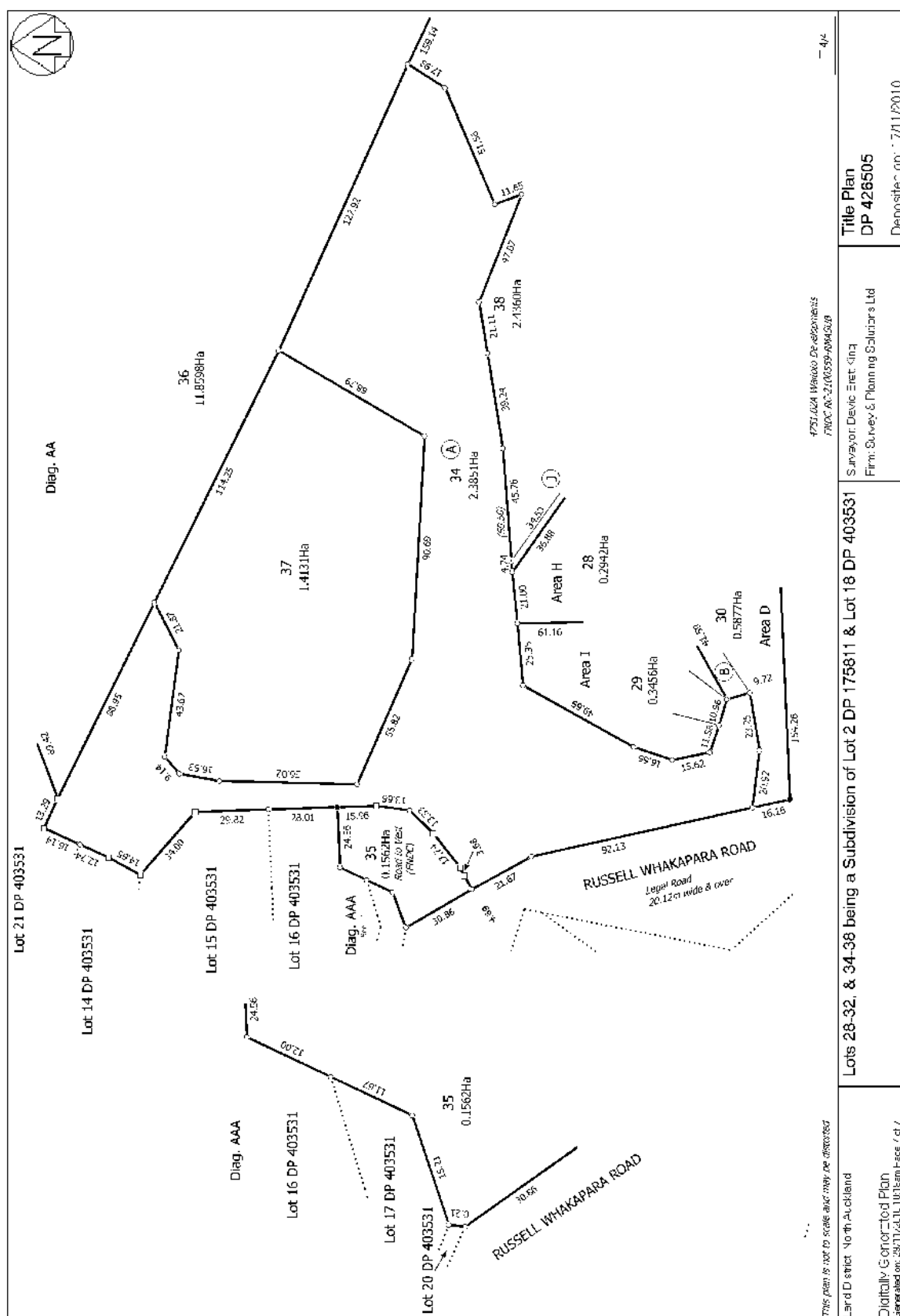
Interests

8634311.1 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 17.11.2010 at 2:29 pm
Subject to Section 241(2) Resource Management Act 1991 (affects DP 426505)
Subject to a right of way, right to drain water, right to convey telecommunications and computer media over Lot 34 DP 426505 marked A on DP 426505 created by Easement Instrument 8634311.7 - 17.11.2010 at 2:29 pm
Appurtenant to Lot 37 DP 426505 is a right of way, right to drain water, right to convey telecommunications and computer media created by Easement Instrument 8634311.7 - 17.11.2010 at 2:29 pm
The easements created by Easement Instrument 8634311.7 are subject to Section 243 (a) Resource Management Act 1991
Land Covenant in Easement Instrument 8634311.8 - 17.11.2010 at 2:29 pm
Subject to a right (in gross) to convey electricity over Lot 34 DP 426505 marked A on DP 426505 in favour of Top Energy Limited created by Easement Instrument 8634311.9 - 17.11.2010 at 2:29 pm
The easements created by Easement Instrument 8634311.9 are subject to Section 243 (a) Resource Management Act 1991
11982636.1 Variation of Land Covenant created by Easement Instrument 8634311.8 - 29.1.2021 at 4:54 pm









View Instrument Details



Instrument No	8634311.1
Status	Registered
Date & Time Lodged	17 November 2010 14:29
Lodged By	Yee, Kenneth Ming
Instrument Type	Consent Notice under s221(4)(a) Resource Management Act 1991



Affected Computer Registers	Land District
411609	North Auckland

Annexure Schedule: Contains 5 Pages.

Signature

Signed by Kenneth Ming Yee as Territorial Authority Representative on 17/11/2010 01:25 PM

*** End of Report ***



Private Bag 752, Memorial Ave

Kaitiaki 0400, New Zealand

Troopphone: 0800 920 029

Phone: (09) 405 2750

Fax: (09) 401 2137

Email: ask.us@fndc.govt.nz

Website: www.fndc.govt.nz

THE RESOURCE MANAGEMENT ACT 1991

SECTION 221 : CONSENT NOTICE

REGARDING 2100559-RMAVAR/A (Stage 2A)
Being Lot 2 DP 175811, Lot 18 DP 403531

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

SCHEDULE

Lots 28-32, 34, 37 & 38 DP 426505

- (a) The owner of each lot, including lot 34, 37, and 38 shall be required to comply at all times with all aspects of the final Management Plan approved under condition 5(b) which includes, without limitation, the following matters:
- (i) Design guidelines and building platforms, for the construction of dwellings and accessory buildings as required by condition 5(b) (i) (except on lot 34 where there is to be no building).
 - (ii) The colours of all buildings are to comply with British Standard specification BS5252 Colour Range and have a reflective value of 30 % or less.
 - (iii) Implementation of the animal pest and weed eradication programme in accordance with the plan approved under condition (5) (m).
 - (iv) Any predator / pest control work carried out is to be done in a manner that will not endanger kiwi.
 - (v) The owner shall preserve the indigenous trees and bush within those areas shown on the survey plan as areas to be subject to bush protection covenants and shall not without the prior written consent of the Council and then only in strict compliance with any conditions imposed by the Council,

cut down, damage or destroy any of such trees or bush or suffer or permit the cutting down damaging or destruction of any such trees or bush. The owner shall be deemed to be not in breach of this prohibition if any of such trees or bush shall die from natural causes not attributable to any act or default by or on behalf of the owner or for which the owner is responsible.

- (vi) All power and telephone services shall be provided by underground means.
- (vii) All earthworks to be undertaken on the site are to be supervised by a Chartered Professional Engineer, to be engaged by the consent holder. Council is to be advised in writing of the appointment of the engineer, and notified when work is to commence, and when it has been completed.
- (viii) The consent holder is to ensure that stormwater diversion and erosion and sediment control measures are in place prior to the commencement of bulk earthworks. These measures shall be maintained to ensure they continue to operate to the appropriate standard.
- (ix) Other matters detailed in the final DJ Scott Landscape Design Guidelines which is incorporated into the final Management Plan.

The owner of each allotment shall adhere to and comply with the conditions of the approved Management Plan and Land Covenants referred to in clause 5(a) of RC-2100559-RMASUB at all times. The requirements of the approved Management Plan and Land Covenants shall be complied with at all times by the allotment owners. In the event of the default of any allotment owner in respect of any obligation under these conditions the Council shall call upon the relevant allotment owners to fulfill these obligations.

- (xi) The owners of each allotment shall at all times observe and perform the land covenant referred to in condition 5(a) of Resource Consent 2100559 and more particularly set out in paragraphs 4 and 5 of the easement instrument creating land covenants annexed hereto.

Wastewater:

- (d) On all sites on-site wastewater management shall be undertaken in accordance with the proposals submitted by Fraser Thomas Limited and the further measures recommended by Haigh Workman Civil and Structural Consultants Limited, as follows:
 - The final design of on-site systems including the disposal fields shall be undertaken by competent and experienced designers, with the design subject to Council review and approval.
 - The management plan shall include a requirement for all householders to immediately report any malfunction of the treatment unit or spillage of effluent to the environment to the service contractor. It shall also include a requirement for the service contractor to immediately respond to alarms and reports of spillages and to immediately notify Council and Northland Health if on visiting the site it is found that there is an overflow from the sewage treatment or reticulation system, or an overland flow discharge from the irrigation system which has or is likely to discharge to a watercourse.

- The plan shall also show how stormwater runoff is to be diverted away from the wastewater effluent dispersal field areas, and how related seepage intercept drain discharges are to be managed. Intercepted seepage which may contain effluent, must be put back into land disposal and must not be discharged directly.
- Treatment plants shall be a proven re-circulating packed bed reactor type system approved by Council, and shall include a UV disinfection system providing an end of lamp life UV received dosage rate of 75mW-sec/cm².
- The approved system shall provide for effluent dispersal at an application rate of no greater than 1.5mm/day.
- The irrigation field design shall be specifically designed by a competent and experienced drip line designer and shall be subject to review and approval by the duly delegated Council officer. The drip line design shall address (amongst others) the following matters:
 - Pressures between the top and bottom drip lines are maintained within the operating pressure of the drip lines (usually 5-40m).
 - Pump selection according to flow and pressure requirements (including the consistent maintenance of the required UV dosage).
 - Backflow prevention measures, particularly with regard to preventing higher lines back draining into lower lines.
 - Drip line layout plan, with all valve locations shown, including flushing valves.
 - The location of seepage intercept drains, both above and below (where required) individual areas of the dispersal field, including where and how the drain discharges are to be managed.
 - Show how storm water runoff is to be diverted away from effluent dispersal areas.
 - The design will be undertaken to avoid root intrusion into the driplines.
 - Trifluran (or any other herbicide toxic to aquatic life) will not be introduced directly into the irrigation water in liquid form.
- Implementation of a managed operations and maintenance contract for the full development, undertaken according to the management plan to be approved by duly delegated Council officer in accordance with condition (5) (b) of this consent, and by a contractor with a proven track record approved by duly delegated Council officer. This plan shall provide for:
 - At least 3-monthly inspection of the system.
 - at least 3 monthly cleaning of the UV lamps (unless an automated cleaning system is included), drip lines and irrigation filters.
 - Continuous measurement of the UV intensity received after passing through the effluent, with an alarm system set to ensure that a UV dose of at least 75mW-sec/m² is received at all

times.

- The service provider to monitor UV concentration and transmissivity by portable equipment at each quarterly inspection, and that UV shall exceed 75mW-sec/cm² and transmissivity exceed 50% (unless the UV unit provided has an inbuilt capability of measuring the UV intensity received after passing through the effluent, in which case the alarm system should be set to ensure that a UV dose of at least 75mWsec/m2 is received at all times).
- A detailed management process for purging driplines which comprises:
 - Turning on irrigation pump manually and walking lines going from purge valve to purge valve operating them sequentially purging to either a small soak hole or grass.
 - Purging shall only occur in dry weather.
 - The drip line installation and commissioning shall be subject to inspection by the duly delegated Council officer to ensure full compliance with the design requirements.
 - Development of each lot shall ensure adequate areas for effluent dispersal, including a 30% reserve area, which shall be provided to the satisfaction of the duly delegated Council officer.

Habitat Protection:

- (e) On all sites no occupier of, or visitor to the land shall keep or introduce on to the site carnivorous or omnivorous exotic animals (such as mustelids, cats, dogs) which have the potential to be weka or kiwi predators.
- (f) Exotic vegetation that could adversely affect natural regeneration or local forest health is not to be introduced onto any of the sites within the subdivision, including lot 34. This includes the introduction of invasive plant species, including those currently listed on the nationally-banned-for-sale list (see Northland Regional Pest Management Strategy). Planting of other exotic species should be confined to the immediate vicinity of dwellings. And species with berry-type fruits are to be grown within netting to prevent seed spread by birds.

Earthworks and Building Foundations:

- (g) No earthworks shall be carried out or building erected on the proposed residential lots (excluding lot 34) without the prior approval of the Council to specific design for cut and fill batters retaining walls and building foundations, prepared by a Chartered Professional Engineer with geotechnical expertise having regard to the Fraser Thomas Geotechnical report.

Water Supply:

- (h) All residential sites shall install a water tank in accordance with the requirements of any approved storm water management plan and as required by the provisions of the Approved Management Plan.

- (i) The dwelling shall have a roof water collection system with a minimum of 45,000 litres storage of water. The water tank(s) shall be positioned so they are accessible for fire fighting purposes, be coupled together, and have one tank fitted with an outlet compatible with rural fire service equipment or otherwise the dwelling shall be fitted with a sprinkler system approved by Council.

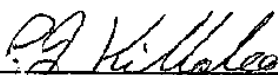
Stormwater:

- (j) Without the prior approval of the Council or its duly delegated officer, no building shall be erected, nor any works which increase impermeable surfaces be undertaken, on any of the sites within the subdivision, including lot 34, nor any planting or structure placed which may create a flow obstruction, on any area of the site which has been proposed as a secondary/overland (Q100) flow path [on the storm water management plan prepared previously], and as shown on the as-built drawing.
- (k) Stormwater management systems shall be constructed on each lot at the time of building. The systems shall consist of rainwater storage tanks, rain gardens and swale drains in accordance with the approved Stormwater Management Report. Overflows from the stormwater management systems shall be dispersed to an even sheet flow away from buildings and effluent disposal areas.

The final design of on-site systems shall be undertaken by competent and experienced designers, with the design subject to review and approval by the duly delegated Council officer.

Note: Lots 37 and 38 are subject to the above consent notices and to further subdivision under Stage 2B of this decision. The Consent Notices required by these conditions 6 (a) to (k) above are to roll over to the subsequent titles under Stage 2B.

SIGNED:


By the FAR NORTH DISTRICT COUNCIL
Under delegated authority:
PRINCIPAL PLANNER – RESOURCE MANAGEMENT

DATED at KERIKERI this 17th day of September 2010

Instrument No. 8634311.7
Status Registered
Date & Time Lodged 17 Nov 2010 14:29
Lodged By Yee, Kenneth Ming
Instrument Type Easement Instrument



Affected Computer Registers	Land District
504323	North Auckland
504324	North Auckland
504325	North Auckland
504326	North Auckland
504327	North Auckland
504328	North Auckland
504329	North Auckland
504331	North Auckland

Annexure Schedule: Contains 5 Pages.

Grantor Certifications

- I certify that I have the authority to act for the Grantor and that the party has the legal capacity to authorise me to lodge this instrument ☒
- I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☒
- I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☒
- I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☒
- I certify that the Mortgagee under Mortgage 6617509.1 has consented to this transaction and I hold that consent ☒
- I certify that the Mortgagee under Mortgage 8404280.1 has consented to this transaction and I hold that consent ☒

Signature

Signed by Kenneth Ming Yee as Grantor Representative on 17/11/2010 01:40 PM

Grantee Certifications

- I certify that I have the authority to act for the Grantee and that the party has the legal capacity to authorise me to lodge this instrument ☒
- I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☒
- I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☒
- I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☒

Signature

Signed by Kenneth Ming Yee as Grantee Representative on 17/11/2010 01:40 PM

*** End of Report ***

Approved by Registrar-General of Land under No. 2007/6225

Easement instrument to grant easement or profit à prendre, or create land covenant
Sections 90A and 90F, Land Transfer Act 1952

Land registration district

North Auckland



BARCODE

Grantor

Surname(s) must be underlined or in CAPITALS.

WAITOTO DEVELOPMENTS LIMITED

Grantee

Surname(s) must be underlined or in CAPITALS.

WAITOTO DEVELOPMENTS LIMITED

Grant* of easement or profit à prendre or creation or covenant

The Grantor, being the registered proprietor of the servient tenement(s) set out in Schedule A, grants to the Grantee (and, if so stated, in gross) the easement(s) or profit(s) à prendre set out in Schedule A, or creates the covenant(s) set out in Schedule A, with the rights and powers or provisions set out in the Annexure Schedule(s).

Dated this

1st

day of

July

20 10

Attestation

 WAITOTO DEVELOPMENTS
LIMITED by its Director
RODNEY DAVID HAINES

Signature [common seal] of Grantor

Signed in my presence by the Grantor

Signature of witness

Witness to complete in BLOCK letters (unless legibly printed)

Witness name

KENNETH MING YEE
SOLICITOR

Occupation AUCKLAND

Address

 WAITOTO DEVELOPMENTS
LIMITED by its Director
RODNEY DAVID HAINES

Signature [common seal] of Grantee

Signed in my presence by the Grantee

Signature of witness

Witness to complete in BLOCK letters (unless legibly printed)

Witness name

KENNETH MING YEE
SOLICITOR

Occupation AUCKLAND

Address

Certified correct for the purposes of the Land Transfer Act 1952.

[Solicitor for] the Grantee

*If the consent of any person is required for the grant, the specified consent form must be used.

Approved by Registrar-General of Land under No. 2007/6225
Annexure Schedule 1



Easement instrument

Dated

Page

2

of

5

pages

Schedule A

(Continue in additional Annexure Schedule if required.)

Purpose (nature and extent) of easement, profit or covenant	Shown (plan reference)	Servient tenement (Identifier/CT)	Dominant tenement (Identifier/CT or in gross)
Right of Way, Right to Drain Water, Right to Conveyance, Telecommunication, Computer Media Infrastructure	A on Plan 426505	Lot 34 DP 426505 (ID 504323 to 504329)	(ID 504323 to 504329 and 504331) Lots 28-32, 36-38 DP 426505 and Lot 2 DP 403531
	B on Plan 426505	Lot 30 DP 426505 (ID 504325)	Lots 28, 31 and 32 DP 426505 (ID 504323, 504326 and 504327)
	C on Plan 426505	Lot 31 DP 426505 (ID 504326)	Lot 32 DP 426505 (ID 504327)
Right to Drain Water	L on Plan 426505	Lot 28 DP 426505 (ID 504323)	(ID 504325 to 504327) Lots 30-32 DP 426505
	J on Plan 426505	Lot 38 DP 426505 (ID 504328)	Lot 28 and Lots 30-32 DP 426505 (ID 504323 and 504325 to 504327 incl.)

Easements or profits à prendre
rights and powers (including
terms, covenants, and conditions)

Delete phrases in [] and insert memorandum
number as required.
Continue in additional Annexure Schedule if
required.

Unless otherwise provided below, the rights and powers implied in specific classes of easement are those prescribed by the Land Transfer Regulations 2002 and/or the Fifth Schedule of the Property Law Act 2007.

The implied rights and powers are [varied] [negatived] [added to] or [substituted] by:

~~[Memorandum number _____, registered under section 155A of the Land Transfer Act 1952]~~

[the provisions set out in Annexure Schedule 2].

Covenant provisions

Delete phrases in [] and insert memorandum number as required.
Continue in additional Annexure Schedule if required.

~~The provisions applying to the specified covenants are those set out in:~~

~~[Memorandum number _____, registered under section 155A of the Land Transfer Act 1952]~~

~~[Annexure Schedule 2]~~

All signing parties and either their witnesses or solicitors must sign or initial in this box

RH

g

(Continue in additional Annexure Schedule, if required)

(1) MAINTENANCE of RIGHT of WAY "A" on DEPOSITED PLAN 426505

The registered proprietors for the time being of Lots 28 - 32, 34, 36 - 38, Deposited Plan 426505 and Lot 21 Deposited Plan 403531 shall share the costs of maintenance of the Right of Way "A" on Deposited Plan 426505 equally in all respects **PROVIDED HOWEVER** in the event of any of the above registered proprietors causing damage to the said Right of Way "A", then that registered proprietor shall bear the cost of repairing the damage to the said Right of Way "A" solely.

(2) MAINTENANCE OF RIGHT of WAY "C" on DEPOSITED PLAN 426505

The registered proprietors for the time being of Lots 31 and 32, Deposited Plan 426505 shall share the costs of maintenance of the Right of Way "C" on Deposited Plan 426505 equally in all respects **PROVIDED HOWEVER** in the event of any of the above registered proprietors causing damage to the said Right of Way "C", then that registered proprietor shall bear the cost of repairing the damage to the said Right of Way "C" solely.

(3) MAINTENANCE of RIGHT of WAY "B" on DEPOSITED PLAN 426505

The registered proprietors for the time being of Lots 28, 30, 31, and 32, Deposited Plan 426505 shall bear the costs of maintenance of the Right of Way "B" on Deposited Plan 426505 equally in all respects **PROVIDED HOWEVER** in the event of any of the above registered proprietors causing damage to the said Right of Way "B", then that registered proprietor shall bear the cost of repairing the damage to the said Right of Way "B" solely.

(4) RIGHT to DRAIN WATER - "A", "B", "C", "L", and "J" on DEPOSITED PLAN 426505

The same rights and powers as set out in Paragraph 4 of the Fourth Schedule to the Land Transfer Regulations 2002.

(5) RIGHT to CONVEY COMPUTER MEDIA and TELECOMMUNICATIONS - "A", "B" and "C" on DEPOSITED PLAN 426505

The same rights and powers as set out in Paragraph 8 of the Fourth Schedule to the Land Transfer Regulations 2002.

If this Annexure Schedule is used as an expansion of an instrument, all signing parties and either their witnesses or solicitors must sign or initial in this box.

RH

AA

Approved by Registrar-General of Land under No. 2003/5150

Annexure Schedule - Consent Form

Land Transfer Act 1952 section 238(2)

Insert type of instrument
"Caveat", "Mortgage" etc

Easement

Page of pages

Consentor

Surname must be underlined

Capacity and Interest of Consensor

(eg. Caveator under Caveat no./Mortgagee under Mortgage no.)

BANK OF NEW ZEALAND

Mortgagee under Mortgage B404280.1

Consent

Delete Land Transfer Act 1952, if inapplicable, and insert name and date of application Act.

Delete words in [] if inconsistent with the consent.

State full details of the matter for which consent is required.

Pursuant to [section 238(2) of the Land Transfer Act 1952]

[section _____ of the _____ Act _____]

[Without prejudice to the rights and powers existing under the interest of the Consensor]

The Consensor hereby consents to: the granting of the easements as herein annexed,
namely "A", "B", "C", "I" and "J" on Deposited Plan 426505Dated this 2 day of July 20 10**Attestation**

BANK OF NEW ZEALAND

SIGNED for and on behalf of
BANK OF NEW ZEALAND
by its Attorney: Desley Osborne

Signature of Consensor

Signed in my presence by the Consensor

Signature of Witness

Witness to complete in BLOCK letters (unless legibly printed)

Witness name

ROBYN WATKIN

Occupation

Address

BANK OFFICER
AUCKLAND

An Annexure Schedule in this form may be attached to the relevant instrument, where consent is required to enable registration under the Land Transfer Act 1952, or other enactments, under which no form is prescribed.



**CERTIFICATE OF NON-REVOCATION
OF POWER OF ATTORNEY**

I, **Desley Osborne**, Quality Assurance Officer of Auckland, New Zealand, certify:

1. That by deed dated 12 July 2005, Bank of New Zealand, of Level 4, 80 Queen Street, Auckland, New Zealand, appointed me its attorney.
2. A copy of the deed is deposited in the North Auckland registration district of Land Information New Zealand as dealing No. 6508607.1
3. That I have not received notice of any event revoking the power of attorney.

SIGNED at Auckland 02 July 2010

A handwritten signature in dark ink, appearing to read 'D. Osborne', is written over a horizontal line.

Desley Osborne

Instrument No. 8634311.8
Status Registered
Date & Time Lodged 17 Nov 2010 14:29
Lodged By Yee, Kenneth Ming
Instrument Type Easement Instrument



Affected Computer Registers	Land District
504323	North Auckland
504324	North Auckland
504325	North Auckland
504326	North Auckland
504327	North Auckland
504328	North Auckland
504329	North Auckland

Annexure Schedule: Contains 14 Pages.

Grantor Certifications

- I certify that I have the authority to act for the Grantor and that the party has the legal capacity to authorise me to lodge this instrument ☒
- I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☒
- I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☒
- I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☒
- I certify that the Mortgagee under Mortgage 6617509.1 has consented to this transaction and I hold that consent ☒
- I certify that the Mortgagee under Mortgage 8404280.1 has consented to this transaction and I hold that consent ☒

Signature

Signed by Kenneth Ming Yee as Grantor Representative on 17/11/2010 01:41 PM

Grantee Certifications

- I certify that I have the authority to act for the Grantee and that the party has the legal capacity to authorise me to lodge this instrument ☒
- I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☒
- I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☒
- I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☒

Signature

Signed by Kenneth Ming Yee as Grantee Representative on 17/11/2010 01:42 PM

*** End of Report ***

Approved by Registrar-General of Land under No. 2007/6225
Easement instrument to grant easement or *profit à prendre*, or create land covenant
 Sections 90A and 90F, Land Transfer Act 1952

Land registration district

North Auckland



BARCODE

Grantor

Surname(s) must be underlined or in CAPITALS

WAITOTO DEVELOPMENTS LIMITED

Grantee

Surname(s) must be underlined or in CAPITALS

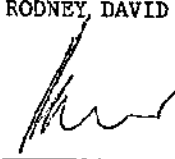
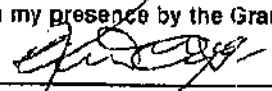

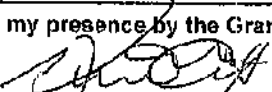
WAITOTO DEVELOPMENTS LIMITED

Grant of easement or *profit à prendre* or creation or covenant

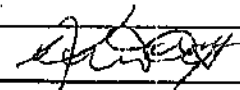
The Grantor, being the registered proprietor of the servient tenement(s) set out in Schedule A, grants to the Grantee (and, if so stated, in gross) the easement(s) or *profit(s) à prendre* set out in Schedule A, or creates the covenant(s) set out in Schedule A, with the rights and powers or provisions set out in the Annexure Schedule(s).

Dated this 1st day of July 2010

Attestation

WAITOTO DEVELOPMENTS LIMITED by its Director RODNEY DAVID HAINES 	Signed in my presence by the Grantor  Signature of witness Witness to complete in BLOCK letters (unless legibly printed) Witness name <u>KENNETH MING YEE</u> Occupation <u>SOLICITOR</u> Address <u>AUCKLAND</u>
Signature [common seal] of Grantor	Address
WAITOTO DEVELOPMENTS LIMITED by its Director RODNEY DAVID HAINES 	Signed in my presence by the Grantee  Signature of witness Witness to complete in BLOCK letters (unless legibly printed) Witness name <u>KENNETH MING YEE</u> Occupation <u>SOLICITOR</u> Address <u>AUCKLAND</u>
Signature [common seal] of Grantee	Address

Certified correct for the purposes of the Land Transfer Act 1952.



[Solicitor for] the Grantee

*If the consent of any person is required for the grant, the specified consent form must be used.

Approved by Registrar-General of Land under No. 2007/6225
Annexure Schedule 1



Easement instrument

Dated

Page

2

of

10

pages

Schedule A

(Continue in additional Annexure Schedule if required.)

Purpose (nature and extent) of easement, profit, or covenant	Shown (plan reference)	Servient tenement (Identifier/CT)	Dominant tenement (Identifier/CT or in gross)
Land covenants	Deposited Plan 426505	Lots 28 to 32 inclusive (ID 504323 to 504327 inclusive) Lot 34 (ID 504323 to 504329 incl.) Lot 37 (ID 504329) Lot 38 (ID 504328)	Lots 28 to 32 inclusive (ID 504323 to 504327 inclusive) Lot 34 (ID 504323 to 504329 incl.) Lot 37 (ID 504329) Lot 38 (ID 504328)

For fencing covenant see paragraph 2 of the General Covenants in the annexure pages

Delete phrases in [] and insert memorandum number as required.

Easements or profits à prendre rights and powers (including terms, covenants, and conditions)

Continue in additional Annexure Schedule if required.

~~Unless otherwise provided below, the rights and powers implied in specific classes of easement are those prescribed by the Land Transfer Regulations 2002 and/or the Fifth Schedule of the Property Law Act 2007.~~

The implied rights and powers are [varied] [negated] [added to] or [substituted] by:

[Memorandum number _____, registered under section 155A of the Land Transfer Act 1952].

~~[the provisions set out in Annexure Schedule 2].~~

Covenant provisions

Delete phrases in [] and insert memorandum number as required.
 Continue in additional Annexure Schedule if required.

The provisions applying to the specified covenants are those set out in:

~~[Memorandum number _____, registered under section 155A of the Land Transfer Act 1952].~~

[Annexure Schedule 2].

All signing parties and either their witnesses or solicitors must sign or initial in this box

RK *SP*

RK

DEFINITIONS AND INTERPRETATION

Definitions

In this easement instrument:

- **“access lots”** shall mean and include Lot 34 on Land Transfer Plan 426505 and Rights of Way easements marked “A”, “B” and “C” on Land Transfer Plan 426505.
- **“benefiting lots”** means each and all of:
 - (i) The covenanting lots being all the lots comprised in Land Transfer Plan 426505 but excluding any lot or lots which vest as a reserve in the relevant authority or as a road and also excluding Lot 36 on Land Transfer Plan 426505
 - (ii) The balance of the Waitoto Land described in Schedule I hereto.
- **“bush protection areas”** shall mean and include:
 - (1) That area marked “D” on Lot 30 on Land Transfer Plan 426505;
 - (2) Those areas marked “E” and “F” on Lot 31 on Land Transfer Plan 426505;
 - (3) That area marked “G” on Lot 32 on Land Transfer Plan 426505;
 - (4) Those areas marked “H” and “L” on Lot 28 on Land Transfer Plan 426505; and
 - (5) That area marked “I” on Lot 29 on Land Transfer Plan 426505
- **“covenanting lots”** means the lots described in Schedule II hereto and a “covenanting lot” means each of such lots.
- **“jointly owned facilities”** shall mean and include any buildings, plant, equipment, facilities and amenities owned, leased, licensed or otherwise held or operated by all the owners of the Lots in Tikitikioure Stage 2A Estate from time to time, for the benefit of all such Lot owners in Tikitikioure Stage 2A estate.
- **“lot or lots”** means each and all of the lots comprised or to comprise the lots created by subdivision of the Waitoto Land including the covenanting lots.
- **“the Waitoto Land”** means all that land originally described in Schedule I
- **“transfer”** means a memorandum of transfer.

[Handwritten signature] RH

- **"Grantee"** means Waitoto Developments Limited at Auckland;
- **"Grantor"** means Waitoto Developments Limited at Auckland;
- **"Relevant Authority"** means Far North District Council and any other authority having jurisdiction over the Waitoto Land..
- **"Resource Consent"** means the resource consent for the Subdivision under the Resource Management Act 1991, bearing reference "RC – 2100559 – RMA SUB" granted on the 31st May 2010 by the Far North District Council.
- **"Subdivision"** means the subdivision of Waitoto Land into residential sections, which are to be carried out in stages, the second of which being Land Transfer Plan 426505.
- **"Tikitikidourc Stage 2A Estate"** means and includes Lots 28 to 32 inclusive on Land Transfer Plan 426505

Interpretation

In this easement instrument words and expressions denoting the singular shall include the plural.

The Grantor and Grantee includes the successors and assigns of the Grantor and Grantee.

BACKGROUND

The Grantee is registered as proprietor of the Waitoto Land.

The Grantee is progressively subdividing the Waitoto Land and selling the lots.

It is the Grantee's intention that:

- (1) The lots shall be subject to a general scheme applicable to each of the lots to the intent that a modern high quality and well designed residential subdivision shall be enjoyed by the registered proprietors of the benefiting lots; and
- (2) The owner occupier for the time being of each of the lots shall be bound by the covenants set out in this easement instrument, and that the Grantee for the time being may be able to enforce the observance of such covenants by the owners or occupiers for the time being of any lots in equity or otherwise; and
- (3) The Grantee shall transfer each of the lots subject to like covenants.

[Handwritten signature] RH

GENERAL COVENANTS

The Grantee shall not be required or obliged to enforce all or any of the covenants, stipulations and restrictions contained in this easement instrument, nor be liable to the Grantor for any breach thereof by any of the registered proprietors from time to time of the covenanting lots.

The Grantor will not call upon the Grantee to pay for or contribute towards the costs of erection or maintenance of any boundary fence between a covenanting lot and contiguous land owned by the Grantee, provided that the benefit of this covenant shall not ensure for the benefit of subsequent purchasers of the Waitoto Land.

The Grantor covenants that the Grantee will at all times save harmless and keep indemnified the Grantee from all proceedings, costs, claims and demands in respect of breaches by the Grantor of any of the stipulations, restrictions and covenants that this memorandum assigns to the Grantor.

SPECIFIC COVENANT


The Grantor for itself, so as to bind a covenanting lot, covenants and agrees with the Grantee for the benefit of the other benefiting lots, and the registered proprietor of the other benefiting lots from time to time that the Grantor shall always observe and perform, and shall do, or as the case may require, omit to do, all things necessary to ensure that each registered proprietor from time to time of a covenanting lot shall always observe and perform, the Restrictive Covenants set out in clauses 1 and 2 and 3 and 4 and 5 herein to the end and intent that these covenants shall forever ensure for the benefit of the benefiting lots.

RESTRICTIVE COVENANTS

The Waitoto Scheme

(1) The Grantor covenants in respect of a covenanting lot:

- (a) Not to erect or place on the land any building or structure without first obtaining the written approval of the Grantee to the plans of such building or structure which approval shall not be unreasonably or arbitrarily withheld provided that the exterior design is aesthetically compatible with the other dwellings in the subdivision.
- (b) Not to erect or place on the land any relocated building whether new or otherwise or any building other than a new building constructed from new materials (excepting good quality second hand bricks).


RH

- (c) Not to erect or place on the land any building incorporating inferior sheathing materials including but not limited to flat fibrolite, hardiflex, corrugated iron or zincalume or similar materials nor use on any building any roofing material other than tiles or materials with a tile profile or wood, fibre cement, glass fibre, slate as roof shingles and on exterior walls use materials other than brick, timber weatherboard (or similar profile product) concrete block, any plaster texture system, masonry, glazing or combinations thereof. Any exterior construction cladding in the form of flat sheet cladding, concrete or polystyrene shall have their surfaces textured so as to cover the base material. Factory pre-finished metal roofing material such as Coloursteel or similar may be used but only with the prior approval of the Grantee.
- (d) Not to erect any dwelling which has a closed in gross floor area of less than 140 square metres exclusive of any garage, carports, decking, breezeways, roof overhangs and other accessory buildings nor erect a building of a shape which is a simple square or rectangle (excluding breaks for external door entrances) or which does not contain at least one roof break or valley in the roof. Flat roofs are acceptable provided that they have two or more levels of roofing.
- (e) Not to erect any building with a basement (not the area between floor level and finished ground level whether useable or not) that does not have the exterior walls of the basement area lined with cladding and in the case of a basement garage does not have a fully enclosing garage door.
- (f) Not to erect any building including (but not limited to) any carport, decking, breezeway or roof overhang, without the same being architecturally integrated into the forming part of the main dwelling. A freestanding garage can be erected provided that its design is in architectural harmony with the dwelling and that the exterior claddings finish and paint colors similar to those used on the dwelling. Any attachments to any buildings including (but not limited to) television acrials or satellite dishes and solar hot water panels shall be integrated into the design of such building so as to ensure that the attachments are not highly visible from the road, access Lot or an adjacent Lot.
- (g) No dwelling once under construction shall be left without construction proceeding on it continually with all reasonable speed and due diligence. No building shall remain uncompleted, including all exterior painting, after 9 months from construction commencement.

8 RH

- (h) Not to permit any building to be occupied unless the exterior of all buildings are completed including painting and all driveways and paths are completed in permanent materials and all fencing and landscaping has been substantially completed.
 - (i) Not to permit or allow any rubbish to accumulate or allow any abandoned or unused vehicles to be placed or remain on the land, or permit grass or weeds to grow a height where they are unsightly or constitute a health or fire hazard or to otherwise allow the land to be in a condition other than a neat and tidy condition or permit noxious weeds to grow on the land.
 - (j) Not to erect any fence made of corrugated iron or similar or which exceeds 1.83 metres in height above natural ground level on any boundary which adjoins any other Lot, except that any fence within 5 metres of either a Right of Way or road boundary shall not exceed 1.2 metres in height from natural ground level.
 - (k) Not to erect or install any tank unless any part of the tank which is above finished ground level is screened by fencing or vegetation so as to ensure that it is not highly visible from the road, access Lot or any adjacent Lot.
 - (l) Not to erect on the land more than one dwelling, the land shall not be amalgamated with any other Lot nor may any combination of Lots be able to be subdivided including subdivision by cross lease, Unit title or otherwise.
 - (m) Not to use or permit the land to be used for any trading or commercial purpose but excluding a home office type purpose.
 - (n) Not to object to or take steps to object to any of the Grantee's applications for consents and approvals required by the Grantee, or necessary to facilitate the Grantee's development plans, whether in relation to this subdivision or any future development of the Grantee's total property at Tikitikioure described in Schedule I.
- (2) In the event that the Grantor's proposed building plans do not comply with one or more of the foregoing covenants the Grantee may, in its sole and unfettered discretion, approve such plans in writing notwithstanding the non-compliance provided that the extent and nature of the non-compliance will not substantially detract from the quality or value of the overall subdivision of which the land forms part.

AK
KH

(3) If there is any breach for non-observance of any of the above covenants and without prejudice to any other liability which the Grantor may have to any person having the benefit of the covenants the Grantor will upon written demand made by the Grantee or by the registered proprietor for the time being any of the other Lots subject to the covenants immediately:

- (a) Pay to the person making such demand such liquidated damages the sum of Two Hundred dollars (\$200.00) per day for each day that such breach or non-observance continues after the date upon which written demand has been made.
- (b) Remove or cause to be removed from the land or modify as required any building, vegetation, rubbish or any other matter or thing which is in breach or non-observance of the covenants.
- (c) Replace any building materials used in breach or non-observance of the covenants.
- (d) Cause or correct the offending breach by discontinuing such activity.

TO the intent that each of the said stipulations and restrictions shall enure for the benefit of all of the remaining lots PROVIDED ALWAYS that the Grantee shall not be liable for any breach of the aforesaid covenants in respect of any of the said lots in respect of which the Grantee shall have executed a Transfer in favour of the purchaser thereof whether or not such Transfer shall have been registered

(4) Far North District Council Resource Consent "RC - 2100559 - RMA SUB" granted 31st May 2010 to Waitoto Developments Limited (Applicant / Grantor / Grantee) for Tikitikloure Stage 2 Estate comprising Lots 28 to 32 inclusive on LT Plan 426505.

The Grantee is registered as proprietor of the Waitoto Land.

The Grantee is progressively subdividing the Waitoto land and selling the Lots.


RH

The Grantee has subdivided part of the Waitoto Land as its Tikitikioure Stage 2A Estate comprising Lots 28 to 32 inclusive on LT Plan 426505, for which the Far North District Council has granted Resource Consent on the 31st May 2010 under Reference "RC – 2100559 – RMASUB".

The Resource Consent "RC – 2100559 – RMASUB" granted on the 31st May 2010 contains a requirement in Condition 5(a) thereof that there will be covenants by the Grantor and the Grantee in respect of all of the covenanting Lots in Tikitikioure Stage 2A Estate as comprised in LT Plan 426505 which will provide in particular that all the covenanting Lots will be responsible for the ongoing maintenance of the common areas, including the roading, and where relevant stormwater, wastewater systems and enhancement planting and bush protection areas and weed and pest control.

Pursuant to Condition 5(a) of the Resource Consent "RC – 2100559 – RMASUB" granted on the 31st May 2010, both the Grantor and the Grantee covenant in respect of all the covenanting Lots in Tikitikioure Stage 2A Estate as comprised in LT Plan 426505 that the owner/ occupier for the time being of each of the Lots herein shall be bound by Restrictive Covenants 4 herein and 5 hereunder, and the Grantor and the Grantee shall be able to enforce the observance of such Restrictive Covenants by the owners or occupiers for the time being of any of the Lots herein in equity or otherwise.

The Grantee shall transfer each of the Lots herein subject to like covenants.

(5) Restrictive Covenant for Tikitikioure Stage 2A Required By Condition 5(a) of Far North District Council Resource Consent "RC – 2100559 – RMASUB" for Tikitikioure Stage 2 Estate comprising Lots 28 to 32 inclusive on LT Plan 426505.

The restrictive covenants applicable to the subject property as in Restrictive Covenant 1 above shall be amended where necessary to include the following obligations and responsibilities on the owners of the individual lots in the subdivision by virtue of their ownership of any of the Lots in Tikitikioure Stage 2A Estate as comprised in LT Plan 426505:

The Grantor covenants in respect of a covenanting Lot that it shall be responsible for:

- (a) Maintenance of any road and access lots and right of way easement areas serving the Lots in the Development of Tikitikioure Stage 2A Estate - LT Plan 426505

SA
RH

- (b) Maintenance of any communal water supply, stormwater disposal systems and wastewater disposal systems serving the Lots in the Development of Tikitikioure Stage 2A Estate - LT Plan 426505.
- (c) Operation of a communal refuse collection and disposal system serving the Lots in the Development of Tikitikioure Stage 2A Estate - LT Plan 426505.
- (d) Management and maintenance of the common areas, bush protection areas and all jointly owned facilities within the Development of Tikitikioure Stage 2A Estate - LT Plan 426505.
- (e) Maintenance of any planting and landscaping obligations imposed by Council in relation to the common areas and the Council owned reserve areas within the Development of Tikitikioure Stage 2A Estate - LT Plan 426505.
- (f) Weed and pest control on the common areas, bush protection areas and on any access lots and right of way easement areas within the Development of Tikitikioure Stage 2A Estate - LT Plan 426505.
- (g) Compliance with the conditions and requirements of the Far North District Council Approved Management Plan for the Development of Tikitikioure Stage 2A Estate - LT Plan 426505, at all times.
- (h) Ensuring the proprietors of Lots comply with the covenants herein for the benefit of the Lots in the Development of Tikitikioure Stage 2A Estate - LT Plan 426505.
- (i) Ensuring the proprietors of Lots acknowledge and covenant to be jointly and severally liable in terms of compliance and observance of both the covenants contained in Restrictive Covenant 5 herein and the Far North District Council Approved Management Plan for the Development of Tikitikioure Stage 2A Estate - LT Plan 426505.
- (j) Ensuring the proprietors of Lots acknowledge and covenant that in default of any Lot owner of any of the obligations hereunder or under the conditions and requirements of the Far North District Council Approved Management Plan for Tikitikioure Stage 2A Estate, then the Far North District Council shall be entitled to call upon the Grantor and all the Lot owners herein to fulfill those obligations.

- (k) Ensuring the proprietors of the Lots in Tikitikioure Stage 2A Estate acknowledge and covenant that in the event of all or any of the Lot owners wishing to alter, add, rescind, cancel or surrender Restrictive Covenants 4 and/or 5 or any part or parts thereof, then the prior unfettered consent in writing of the Far North District Council to such alterations, additions, rescissions, cancellations or surrenders shall be first obtained, and should such prior unfettered consent in writing not be so first obtained, then any such alterations, additions, rescissions, cancellations or surrenders of Restrictive Covenants 4 and/or 5 or any part or parts thereof shall not proceed.

2
LH


SCHEDULE I

Lot Number	Deposited Plan Number	Certificate of Title
28 to 32	426505	504323 to 504327 (inclusive)
34	426505	504323 to 504329 (inclusive)
37	426505	504329
38	426505	504328

SCHEDULE II

Lots affected by the restrictive covenants contained in clauses 1 and 2 and 3 and 4 and 5

Lot Number	Deposited Plan Number	Certificate of Title
28 to 32	426505	504323 to 504327 (inclusive)
34	426505	504323 to 504329 (inclusive)
37	426505	504329
38	426505	504328


 K4

Approved by Registrar-General of Land under No. 2003/5150
Annexure Schedule - Consent Form
 Land Transfer Act 1952 section 238(2)

Insert type of instrument
 "Caveat", "Mortgage" etc

Mortgage

Page **9** of **10** pages

Consentor
 Surname must be underlined

Capacity and Interest of Consentor
 (eg. Caveator under Caveat no./Mortgagee under
 Mortgage no.)

BANK OF NEW ZEALAND

Mortgagee under Mortgage 8404280.1

Consent

Delete Land Transfer Act 1952, if inapplicable, and insert name and date of application Act.

Delete words in [] if inconsistent with the consent.

State full details of the matter for which consent is required.

Pursuant to [section 238(2) of the Land Transfer Act 1952]

[section of the Act]

[Without prejudice to the rights and powers existing under the interest of the Consentor]

the Consentor hereby consents to: the within easement creating land covenants
 affecting various Lots on Deposited Plan 426505

Dated this **2** day of **July** 20 **10**

Attestation

BANK OF NEW ZEALAND

SIGNED for and on behalf of
 BANK OF NEW ZEALAND
 by its Attorney:

Desley Osborne

Signature of Consentor

Signed in my presence by the Consentor

Signature of Witness

Witness to complete in BLOCK letters (unless legibly printed)

Witness name

ROBYN WATKIN

Occupation

Address

**BANK OFFICER
 AUCKLAND**

An Annexure Schedule in this form may be attached to the relevant instrument, where consent is required to enable registration under the Land Transfer Act 1952, or other enactments, under which no form is prescribed.




**CERTIFICATE OF NON-REVOCATION
OF POWER OF ATTORNEY**

I, **Desley Osborne**, Quality Assurance Officer of Auckland, New Zealand, certify:

1. That by deed dated 12 July 2005, Bank of New Zealand, of Level 4, 80 Queen Street, Auckland, New Zealand, appointed me its attorney.
2. A copy of the deed is deposited in the North Auckland registration district of Land Information New Zealand as dealing No. 6508607.1
3. That I have not received notice of any event revoking the power of attorney.

SIGNED at Auckland 02 July 2010



Desley Osborne

Instrument No.	11982636.1
Status	Registered
Date & Time Lodged	29 Jan 2021 16:54
Lodged By	Clark, Grania Anne
Instrument Type	Variation of Land Covenant under s116(3) Land Transfer Act 2017



Affected Records of Title	Land District
504323	North Auckland
504324	North Auckland
504325	North Auckland
504326	North Auckland
504327	North Auckland
504328	North Auckland
504329	North Auckland

Affected Instrument	Easement Instrument 8634311.8
----------------------------	-------------------------------

Annexure Schedule Contains 2 Pages.

Covenantor Certifications

I certify that I have the authority to act for the Covenantor and that the party has the legal capacity to authorise me to lodge this instrument ☒

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☒

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☒

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☒

Signature

Signed by Grania Anne Clark as Covenantor Representative on 29/01/2021 04:54 PM

Covenantee Certifications

I certify that I have the authority to act for the Covenantee and that the party has the legal capacity to authorise me to lodge this instrument ☒

I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☒

I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☒

I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☒

Signature

Signed by Grania Anne Clark as Covenantee Representative on 29/01/2021 04:54 PM

*** End of Report ***

Form 28

Covenant Variation Instrument to vary land covenant

(Section 116(3) Land Transfer Act 2017)

Covenantor

WAITOTO DEVELOPMENTS LIMITED

Covenantee

WAITOTO DEVELOPMENTS LIMITED

Variation of Covenant

The terms, covenants, or conditions contained in the covenant(s) set out in schedule A **are hereby affected or modified** as set out in Schedule B.

Schedule A

Continue in additional Annexure Schedule, if required

Purpose of Covenant	Creating Instrument number	Burdened Land (Record of title)	Benefited Land (Record of Title) or in gross
Land covenants	8634311.8	Lots 28 – 32 inclusive, Lots 37 and 38 on Deposited Plan 426505 (Records of Title 504323 to 504329 inclusive)	Lots 28 – 32 inclusive, Lots 37 and 38 on Deposited Plan 426505 (Records of Title 504323 to 504329 inclusive)

Schedule B

Continue in Annexure Schedule, if required

Variations as appear on the Annexure Schedule attached to this Covenant Variation instrument.

Insert instrument type

Covenant Variation

*Continue in additional Annexure Schedule, if required***Continuation of Schedule B**

Clause 1(d) of Annexure Schedule of Easement Instrument 8634311.8 under the heading "Restrictive Covenants" is deleted and replaced with the following:

- 1(d) Not to erect any dwelling which has a closed in gross floor area of less than 100 m² exclusives of any garage, carports, decking, breezeways, roof overhangs and other accessory buildings nor a wrecked a building of a shape which is a simple square or rectangle (excluding breaks for external door entrances) or which does not contain at least one roof break for Valley in the roof. Flat roofs are acceptable provided that they have two or more levels of roofing.

Clause 1(g) of Annexure Schedule of Easement Instrument 8634311.8 under the heading "Restrictive Covenants" is deleted and replaced with the following:

- 1(g) No dwelling once under construction shall be left without construction proceeding on it continually with all reasonable speed and due diligence. No building shall remain uncompleted, including all exterior painting, after 24 months from construction commencement.

Instrument No. 8634311.7
Status Registered
Date & Time Lodged 17 Nov 2010 14:29
Lodged By Yee, Kenneth Ming
Instrument Type Easement Instrument



Affected Computer Registers	Land District
504323	North Auckland
504324	North Auckland
504325	North Auckland
504326	North Auckland
504327	North Auckland
504328	North Auckland
504329	North Auckland
504331	North Auckland

Annexure Schedule: Contains 5 Pages.

Grantor Certifications

- I certify that I have the authority to act for the Grantor and that the party has the legal capacity to authorise me to lodge this instrument ☒
- I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☒
- I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☒
- I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☒
- I certify that the Mortgagee under Mortgage 6617509.1 has consented to this transaction and I hold that consent ☒
- I certify that the Mortgagee under Mortgage 8404280.1 has consented to this transaction and I hold that consent ☒

Signature

Signed by Kenneth Ming Yee as Grantor Representative on 17/11/2010 01:40 PM

Grantee Certifications

- I certify that I have the authority to act for the Grantee and that the party has the legal capacity to authorise me to lodge this instrument ☒
- I certify that I have taken reasonable steps to confirm the identity of the person who gave me authority to lodge this instrument ☒
- I certify that any statutory provisions specified by the Registrar for this class of instrument have been complied with or do not apply ☒
- I certify that I hold evidence showing the truth of the certifications I have given and will retain that evidence for the prescribed period ☒

Signature

Signed by Kenneth Ming Yee as Grantee Representative on 17/11/2010 01:40 PM

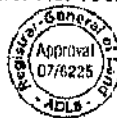
*** End of Report ***

Approved by Registrar-General of Land under No. 2007/6225

Easement instrument to grant easement or profit à prendre, or create land covenant
Sections 90A and 90F, Land Transfer Act 1952

Land registration district

North Auckland



BARCODE

Grantor

Surname(s) must be underlined or in CAPITALS.

WAITOTO DEVELOPMENTS LIMITED

Grantee

Surname(s) must be underlined or in CAPITALS.

WAITOTO DEVELOPMENTS LIMITED

Grant* of easement or profit à prendre or creation or covenant

The Grantor, being the registered proprietor of the servient tenement(s) set out in Schedule A, grants to the Grantee (and, if so stated, in gross) the easement(s) or profit(s) à prendre set out in Schedule A, or creates the covenant(s) set out in Schedule A, with the rights and powers or provisions set out in the Annexure Schedule(s).

Dated this

1st

day of

July

20 10

Attestation

 WAITOTO DEVELOPMENTS
LIMITED by its Director
RODNEY DAVID HAINES

Signature [common seal] of Grantor

Signed in my presence by the Grantor

Signature of witness

Witness to complete in BLOCK letters (unless legibly printed)

Witness name

KENNETH MING YEE
SOLICITOR

Occupation AUCKLAND

Address

 WAITOTO DEVELOPMENTS
LIMITED by its Director
RODNEY DAVID HAINES

Signature [common seal] of Grantee

Signed in my presence by the Grantee

Signature of witness

Witness to complete in BLOCK letters (unless legibly printed)

Witness name

KENNETH MING YEE
SOLICITOR

Occupation

AUCKLAND

Address

Certified correct for the purposes of the Land Transfer Act 1952.

[Solicitor for] the Grantee

*If the consent of any person is required for the grant, the specified consent form must be used.

Approved by Registrar-General of Land under No. 2007/6225
Annexure Schedule 1



Easement instrument Dated Page 2 of 5 pages

Schedule A

(Continue in additional Annexure Schedule if required.)

Purpose (nature and extent) of easement, profit or covenant	Shown (plan reference)	Servient tenement (Identifier/CT)	Dominant tenement (Identifier/CT or in gross)
Right of Way, Right to Drain Water, Right to Conveyance, Telecommunication, Computer Media Infrastructure	A on Plan 426505	Lot 34 DP 426505 (ID 504323 to 504329)	(ID 504323 to 504329 and 504331) Lots 28-32, 36-38 DP 426505 and Lot 2 DP 403531
	B on Plan 426505	Lot 30 DP 426505 (ID 504325)	Lots 28, 31 and 32 DP 426505 (ID 504323, 504326 and 504327)
	C on Plan 426505	Lot 31 DP 426505 (ID 504326)	Lot 32 DP 426505 (ID 504327)
Right to Drain Water	L on Plan 426505	Lot 28 DP 426505 (ID 504323)	(ID 504325 to 504327) Lots 30-32 DP 426505
	J on Plan 426505	Lot 38 DP 426505 (ID 504328)	Lot 28 and Lots 30-32 DP 426505 (ID 504323 and 504325 to 504327 incl.)

Easements or profits à prendre
rights and powers (including
terms, covenants, and conditions)

Delete phrases in [] and insert memorandum
number as required.
Continue in additional Annexure Schedule if
required.

Unless otherwise provided below, the rights and powers implied in specific classes of easement are those prescribed by the Land Transfer Regulations 2002 and/or the Fifth Schedule of the Property Law Act 2007.

The implied rights and powers are [varied] [negatived] [added to] or [substituted] by:

~~[Memorandum number _____, registered under section 155A of the Land Transfer Act 1952]~~
 [the provisions set out in Annexure Schedule 2].

Covenant provisions

Delete phrases in [] and insert memorandum number as required.
Continue in additional Annexure Schedule if required.

~~The provisions applying to the specified covenants are those set out in:~~
~~[Memorandum number _____, registered under section 155A of the Land Transfer Act 1952]~~
~~[Annexure Schedule 2].~~

All signing parties and either their witnesses or solicitors must sign or initial in this box

RH

Q

(Continue in additional Annexure Schedule, if required)

(1) MAINTENANCE of RIGHT of WAY "A" on DEPOSITED PLAN 426505

The registered proprietors for the time being of Lots 28 - 32, 34, 36 - 38, Deposited Plan 426505 and Lot 21 Deposited Plan 403531 shall share the costs of maintenance of the Right of Way "A" on Deposited Plan 426505 equally in all respects PROVIDED HOWEVER in the event of any of the above registered proprietors causing damage to the said Right of Way "A", then that registered proprietor shall bear the cost of repairing the damage to the said Right of Way "A" solely.

(2) MAINTENANCE OF RIGHT of WAY "C" on DEPOSITED PLAN 426505

The registered proprietors for the time being of Lots 31 and 32, Deposited Plan 426505 shall share the costs of maintenance of the Right of Way "C" on Deposited Plan 426505 equally in all respects PROVIDED HOWEVER in the event of any of the above registered proprietors causing damage to the said Right of Way "C", then that registered proprietor shall bear the cost of repairing the damage to the said Right of Way "C" solely.

(3) MAINTENANCE of RIGHT of WAY "B" on DEPOSITED PLAN 426505

The registered proprietors for the time being of Lots 28, 30, 31, and 32, Deposited Plan 426505 shall bear the costs of maintenance of the Right of Way "B" on Deposited Plan 426505 equally in all respects PROVIDED HOWEVER in the event of any of the above registered proprietors causing damage to the said Right of Way "B", then that registered proprietor shall bear the cost of repairing the damage to the said Right of Way "B" solely.

(4) RIGHT to DRAIN WATER - "A", "B", "C", "L", and "J" on DEPOSITED PLAN 426505

The same rights and powers as set out in Paragraph 4 of the Fourth Schedule to the Land Transfer Regulations 2002.

(5) RIGHT to CONVEY COMPUTER MEDIA and TELECOMMUNICATIONS - "A", "B" and "C" on DEPOSITED PLAN 426505

The same rights and powers as set out in Paragraph 8 of the Fourth Schedule to the Land Transfer Regulations 2002.

If this Annexure Schedule is used as an expansion of an instrument, all signing parties and either their witnesses or solicitors must sign or initial in this box.

RH

AA

Approved by Registrar-General of Land under No. 2003/5150

Annexure Schedule - Consent Form

Land Transfer Act 1952 section 238(2)

Insert type of instrument
"Caveat", "Mortgage" etc

Easement

Page of pages

Consentor

Surname must be underlined

Capacity and Interest of Consensor

(eg. Caveator under Caveat no./Mortgagee under Mortgage no.)

BANK OF NEW ZEALAND

Mortgagee under Mortgage B404280.1

Consent

Delete Land Transfer Act 1952, if inapplicable, and insert name and date of application Act.

Delete words in [] if inconsistent with the consent.

State full details of the matter for which consent is required.

Pursuant to [section 238(2) of the Land Transfer Act 1952]

[section _____ of the _____ Act _____]

[Without prejudice to the rights and powers existing under the interest of the Consensor]

The Consensor hereby consents to: the granting of the easements as herein annexed,
namely "A", "B", "C", "I" and "J" on Deposited Plan 426505Dated this 2 day of July 20 10**Attestation**

BANK OF NEW ZEALAND

SIGNED for and on behalf of
BANK OF NEW ZEALAND
by its Attorney: Desley Osborne

Signature of Consensor

Signed in my presence by the Consensor

Signature of Witness

Witness to complete in BLOCK letters (unless legibly printed)

Witness name

ROBYN WATKIN

Occupation

Address

BANK OFFICER
AUCKLAND

An Annexure Schedule in this form may be attached to the relevant instrument, where consent is required to enable registration under the Land Transfer Act 1952, or other enactments, under which no form is prescribed.



**CERTIFICATE OF NON-REVOCATION
OF POWER OF ATTORNEY**

I, **Desley Osborne**, Quality Assurance Officer of Auckland, New Zealand, certify:

1. That by deed dated 12 July 2005, Bank of New Zealand, of Level 4, 80 Queen Street, Auckland, New Zealand, appointed me its attorney.
2. A copy of the deed is deposited in the North Auckland registration district of Land Information New Zealand as dealing No. 6508607.1
3. That I have not received notice of any event revoking the power of attorney.

SIGNED at Auckland 02 July 2010

A handwritten signature in dark ink, appearing to read 'D. Osborne', is written over a horizontal line.

Desley Osborne

TIKITIKIOURE STAGE 2A ESTATE SUBDIVISION: FINAL MANAGEMENT PLAN

RELATING TO RC-2100559-RMAVAR/A BEING THE SUBDIVISION OF LOT 2 DP 175811 AND LOT 18 DP 403531, RUSSELL WHAKAPARA ROAD, RUSSELL

Introduction

This Management Plan relates to Condition 5(b) of Stage 2A of RC-2100559-RMAVAR/A. The contents of this final management plan explain and detail the various construction, landscape and land tenure matters of the Tikitikioure Stage 2A subdivision. It generally reflects the draft Management Plan that was provided with the application documentation, and the conditions of RC-2100559-RMAVAR/A.

A consent notice condition applied to the new Computer Freehold Registers created by the development requires the owner of each allotment created by Stage 2A of RC-2100559-RMAVAR/A to adhere to and comply with the conditions of this Management Plan and the Land Covenants required by condition 5(a) of RC-2100559-RMAVAR/A at all times.

The reports and plans submitted record the as-built construction and formalize the commitments to planting and other matters prior to commencement of works. At this stage these reports provide assurance to the Council that the required works and undertakings for Stage 2A are completed so that the s224c certification can be given and the titles can issue.

Final Management Plan Contents

- 1. Road / Infrastructure Construction (see Conditions 4(a) – (d), 5(e) – (h) and 5(s))** – The engineering report by Haigh Workman and as built plans prepared by Williams and King cover the matters for reporting in Conditions 4(a) – (d) as well as Conditions 5(e) – (h) being the construction of the access ways, and related geotechnical matters. New road works have been inspected and confirmed through the engineering certification process. As-built drawings are provided. The plans and reports are part of the documentation submitted for the 224c certification and are additional to the Final Management Plan. Underground electricity and telephone services have been supplied to the boundaries of Lots 28 – 32 as per condition 5(s).
- 2. Stormwater Management (see Conditions 4(b) and (c), Condition 5(b)(v), Conditions 5(i) – (l) and Conditions 6(j) – (k))** – The engineering report from Haigh Workman covers the description of the installed stormwater systems of the Stage 2A roads and amenity areas in accordance with the approved engineering design and drawings. The stormwater disposal system implements the low impact, treatment train stormwater management measures that were part of the application documents examining the hydrology and hydraulics of the Tikitikioure catchment. Integrated site development plans for Lots 28 – 32 identify suitable areas for stormwater detention, attenuation and discharge so that there is no conflict between those areas and areas used for on-site effluent disposal. These plans and accompanying descriptions are attached.
- 3. Effluent Disposal (see Condition 5(b)(v) and Condition 6(d))** – The infrastructure for effluent / wastewater management and treatment will be installed in accordance with the design specifications as outlined and agreed in the application documents, and this is required by a consent notice that shall be attached to each title. Integrated site development plans for Lots 28 – 32 identify suitable areas for on-site effluent disposal. These plans and accompanying descriptions are attached.

4. Planting Implementation (see Conditions 5(m), 5(p), 5(q) and 5(r)) -

The planting undertaken has implemented the Enhancement Planting Plan that has been approved under Condition 5(m). The enhancement planting has been completed in accordance with conditions 5(m) and (p). New plantings do not interfere with areas that will be used for effluent disposal on individual sites, as required by Condition 5(r). The bond required for future landscape maintenance has been set at 150% of the value of implemented planting. Such bond shall be released in accordance with Condition 5(q)(iii).

5. Architectural Design Guidelines (see Condition 5(b)(i)) – The following design guidelines provide guidance for any future dwellings on identified building areas on any lot where a dwelling is provided for.

General Architectural Guidelines

- Within a site, dwellings and outbuildings are to be constructed in a similar style, construction and material to avoid a fragmented appearance.
- Variation in form or materials is encouraged to reduce the perceived scale of the building when viewed from outside the site. If the building takes the form of multiple elements there should be a relationship between those separate elements so that they read as a cohesive whole and part of a household unit
- Dwellings should incorporate pergolas, decks or verandas to soften building form.
- Windows and joinery should have low reflectivity.
- Lighting should be designed with sensitivity to external visual effects.
- The building scale, mass and form should reflect the site type and location. Designs that reduce the apparent mass and extent of wall planes are preferred.
- All building structures shall relate to and be designed to be complementary to the land contour. Buildings shall be designed to fit into the landscape with inland portions being set into slopes

- Exterior colours of all buildings shall comply with the British Standard Specification BS5252 colour range within the Red Oxide, Blue, Grey, Green Oxide, Yellow Oxide and Brown Oxide, and have a reflective value of 30% or less.
- Exterior lighting brightness, orientation and duration must be controlled to avoid any nuisance to neighbours.
- The use of materials which age well naturally with weathering, and are complementary to the bush and coastal setting, are encouraged. Suggested materials include locally sourced rammed earth, in situ concrete, dark aluminium joinery and roofing, stained timber and non-reflective materials. Buildings shall not use mirrored glass.

6. General Landscape Guidelines (see Condition 5(b)(iv)) – The following landscape design guidelines provide guidance to achieve the design principles of the subdivision.

Outdoor Areas, Forecourts and Terraces

Materials used for outdoor areas should be compatible with materials used for the buildings, to promote integration into the landscape.

- Natural materials such as unpainted or unstained timber and locally sourced rock or stone are encouraged.
- Concrete should have an exposed aggregate finish and should have recessive colouring, from a dark grey or brown palette. Aggregate mixes should be locally sourced where possible and consist of darker brown to grey shades. Where aggregate is to be used shell is to make up no more than 20% of the aggregate mix.

Driveways and Parking Areas

Driveways should follow natural contours of the property and avoid sharp angles or excessive straight sections. Parking should be integrated with the overall design of the residence and landscaping, and should provide spaces for guest vehicles to be parked unobtrusively on the site. The maximum width of driveways is three metres.

Grading and Drainage

Areas affected by earthworks shall be immediately replanted following the work. All grading and changes to the contours of the Lot should:

- Blend with the natural form and topography.
- Avoid excessive cut, fill, and large cuts to create flat graded areas.
- Cause minimum disturbance to natural drainage paths.
- Be within site clearance allowed for each individual site.
- Incorporate measures to mitigate erosion.

Screening and fencing

Walls and screens may be used to shelter and screen buildings and outdoor living areas, and give privacy. They should appear as an extension of the buildings and use similar materials. Solid unbroken wall faces should be avoided.

Fencing

Fencing along boundaries shall not be allowed except for boundaries along the external perimeter of the subdivision, with the exception that planted hedging, shrubs and constructed trellis type screens may be used, and that fencing associated with swimming pools is permitted.

Retaining Walls

Retaining walls should ideally be integrated with buildings in terms of the materials used, and should be softened with vegetation.

Pools

Pool design should avoid large areas of fencing and sensitive placement of plant rooms. Pool fencing material should be selected to integrate into the overall building design and should utilise natural materials where possible.

Outdoor Lighting

Exterior lighting brightness, orientation and duration must be controlled to avoid any nuisance to neighbours. Light bulbs should not be directed towards roads, walkways, other residences, the beach or coastline.

Landscaping Plan

Prior to constructing a dwelling on any Lot the Lot Owner shall prepare and implement a detailed landscaping plan for the space on and around the building envelope area. The planting shall be implemented during the first planting period following building construction. All native plant species selected for these plans are to be eco-sourced. The landscape plan shall include the following content and detail:

- A schedule of plant species, grades and numbers.
- Location of plantings.
- Areas to be mulched and the type of mulch to be used.
- Proposed levels and retaining.
- The extent of planting on and around the defined building envelope.
- The extent and location of any lawn areas, paved outdoor areas and any associated screening.
- The extent and location of driveway and parking areas.
- Any structures that are not attached to the main dwelling.
- Pools.
- Lighting.

7. Control for the placement of buildings (see Condition 5b(iii)) – The building sites on Lots 28 – 32 inclusive are depicted on the final survey plan. The balance of each lot constitutes the “no build” areas. Accordingly each title will carry the appropriate notation for the approved building site. No buildings shall be allowed to be placed on Lot 34.

8. Land Covenant Arrangements and Restrictions (see Condition 5(a) and Condition (b)(vi)) - The applicant's solicitor has prepared a set of restrictions that will be applied by land covenant (this documentation has been provided to Council), and will be secured through consent notices on each Computer Freehold Register. All of the covenanting Lots created by the Tikitikioure Stage 2A Estate subdivision will be responsible for on-going maintenance of common areas, including roading, and where relevant stormwater, wastewater systems, enhancement planting, bush protection areas and weed and pest control, as obliged by the consent.

9. Animal Pest and Weed Eradication (see Condition 5 (n))

- (a) The owners of Lots 28 – 32 shall be responsible for the annual monitoring and maintenance of the required planting and landscaping obligations, bush protection areas, and areas where a bush cover is being re-established, either naturally or with assistance. The maintenance programme shall be undertaken in February or March each year until 2013 when the three year period terminates. Maintenance of planted or landscaped areas shall include releasing weeds from around the plants and spraying those weeds with herbicide as per the manufacturer's specifications, replanting for losses and generally controlling the invasive species. Maintenance of bush protection areas and areas that are regenerating shall include eradication of any invading weed species (including gorse) by hand and/or herbicide as necessary. The Lot owners shall keep a record of the work undertaken for review or inspection by the Council, and make this available upon Council's request.
- (b) An animal pest control programme has been implemented by the Developer. This programme is required to be maintained and continued by the Lot owners in accordance with the methods set out in the Animal Pest and Weed Eradication Programme, which requires the Lot owners to arrange for a pest control operator to undertake an annual bait and trap procedure across the entire subdivision. A record of the work undertaken by the pest control operator is to be kept for the review or inspection of the Council upon request.
- (c) The animal, pest and weed eradication programmes are part of the obligations set out in the land covenant document under clause 5 (e) and (f) of that document; which will be secured and enforced through obligations under the consent notice that is to be recorded on each Computer Freehold Register.

Summary

It is considered that the obligations identified above and the land covenant documentation already supplied fully address the specific requests of **Condition 5(a) and 5(b) of Stage 2A** of RC-2100559-RMAVAR/A. The mechanisms relied upon to implement the on going management plan elements are covered by the bond that has been paid for planting maintenance and the arrangements for ongoing management as implemented through the land covenants and consent notices.

At all times the Council has access to the subject site and can call upon the Developer or the Lot owners to answer queries on any matters relating to any unfulfilled obligations. The Lot owners may need to pay, as required, Council's actual and reasonable monitoring and administration fees for assessing compliance with the management plan or land covenants, and any site visits that may be necessary.

Finally the applicant accepts that all works committed for completion through the final management plan shall not be subject to change, amendment or modification without the consent of the council.

In accordance with Condition 6 of Stage 2A it is expected that the Council will have relevant consent notices prepared, checked, executed and registered at the consent holder's cost.

Prepared by Williams & King

1 September 2010

NORTHERN ARCHAEOLOGICAL RESEARCH

ARCHAEOLOGICAL SURVEY AND ASSESSMENT OF THE PROPOSED WAITOTO DEVELOPMENTS LTD SUBDIVISION 2B, RUSSELL ROAD, ORONGO BAY, BAY OF ISLANDS.



Prepared for
Waitoto Developments Ltd.
Kerikeri

Northern Archaeological Research
67 Church St, Devonport, Auckland.

October 2005

NORTHERN ARCHAEOLOGICAL RESEARCH

**ARCHAEOLOGICAL SURVEY AND ASSESSMENT OF
THE PROPOSED WAITOTO DEVELOPMENTS LTD
SUBDIVISION 2B, RUSSELL ROAD,
ORONGO BAY, BAY OF ISLANDS.**

*By
Leigh Johnson*

CONTENTS

Introduction	1
Location	1
Proposed Development	2
Survey method	2
Archaeological Background	3
Survey Results	5
Archaeological Significance	5
Assessment of Effects	6
Conclusion	6
References	7
Recommendations	8
Appendix	

FIGURES

Figure 1. Location of the Proposed Subdivision at Orongo Bay on the Russell Peninsula (Q05).	1
Figure 2. The proposed subdivision, location of site Q05/1353 and test pits 1-5.	2
Figure 3. The mid 1920s geological survey plan (Ferrar 1925) showing the area of the proposed subdivision.	3
Figure 4. The test pit profiles.	6

PLATES

Plate 1. The area of proposed subdivision looking south.	4
Plate 2. The modified shell midden Q05/1353.	4

Introduction

Waitoto Developments Ltd propose a residential subdivision of their property located on the Russell-Whakapara Road between Orongo Bay and Frenchmans Swamp in the south east Bay of Islands. The development is described as Stage 2B. Northern Archaeological Research were commissioned by Williams and King, Paihia, on behalf of the owners, to undertake an archaeological survey and assessment of the proposed subdivision. The survey and assessment was undertaken to record archaeological sites that may be affected by the subdivision and advise the owners as to their obligations under the Historic Places Act, 1993, in respect of any reported archaeological sites. The survey was undertaken by Leigh Johnson on the 12th October 2005. This report outlines the results.

The archaeological survey of the area proposed to be subdivided was conducted specifically to locate and record existing surface archaeological sites and to advise on the likelihood of subsurface archaeological remains. The survey and report do not necessarily include the location or assessment of wahi-tapu or sites of spiritual and cultural significance to the local Maori community, who may be approached independently for any information or concerns they may have.

Location

The proposed subdivision is located on the north side of the Russell Road opposite the junction with Lane Road and extending down hill to the flat at back of Orongo Bay to the west (Figure 2). The present entrance to the property is from the Russell Road at the base of the hill. The property extends up into a small gully at the base of Tikitikiore and up onto one of the leading ridges that descends from Tikitikiore to the south. The property covers approximately 4 ha and ranges from 5m to 70m above

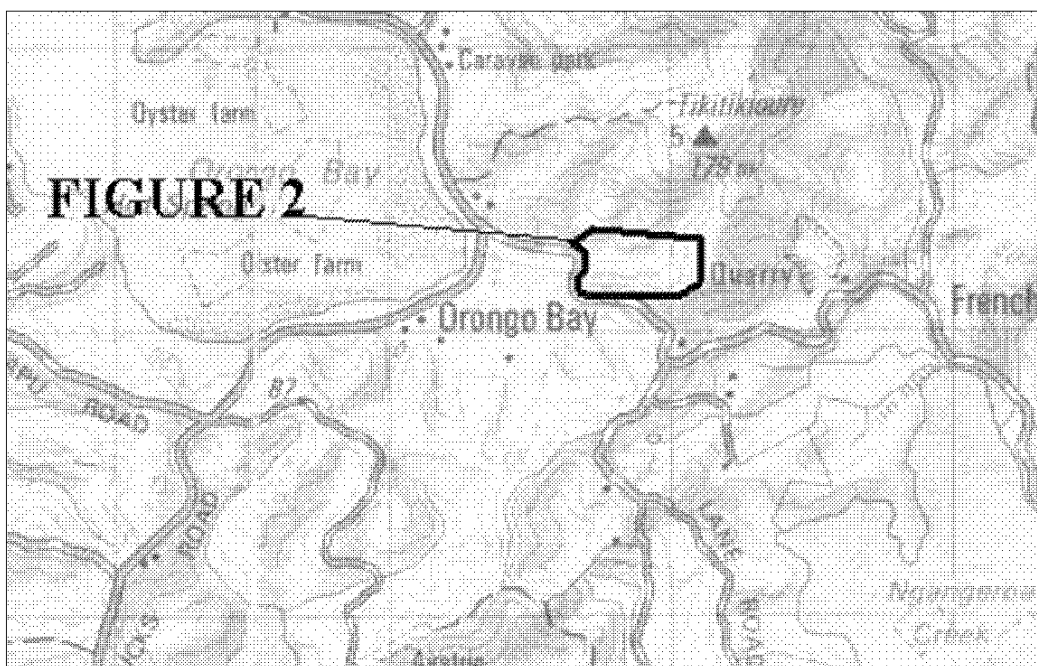


FIGURE 1. THE LOCATION OF THE PROPOSED SUBDIVISION AT ORONGO BAY, RUSSELL PENINSULA (Q05).

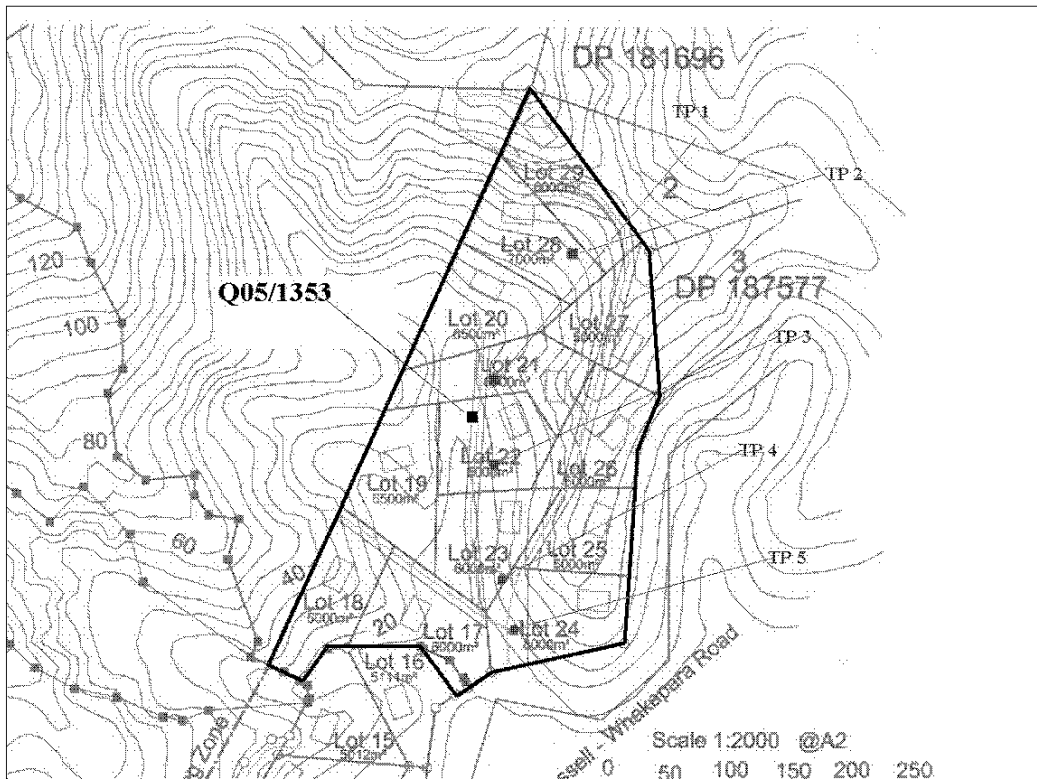


FIGURE 2. THE PROPOSED SUBDIVISION, LOCATION OF SITE Q05/1353 AND TEST PITS 1-5.

sea level. Primarily, the property consists of a comparatively narrow west flank of the ridge though includes the lower section of two small gullies at the foot of Tikitikioure. The property is primarily covered in a mix of old pasture, gorse with a small amount of regenerating manuka scrub (Plate 1). Soils on the property comprise a thin podzolised brown grey Hukerenui clay loams (Sutherland *et al* 1980), over yellow/white/grey clay subsoil.

Proposed development

Stage 2A comprises a 12 Lot subdivision (Lots 17-29) of the property (Figure 2). All of the lots are proposed for residential development. Each lot has a determined building site though the direct driveway access to each site is yet to be determined. Access is by road extending into the subdivision from Russell Road that then branches into three separate access ways. The access to Lots 17-19 extends north west across a small stream and across a small gully. The access to Lots 20-24 extends north up a small gully and the access to the remaining Lots (Lots 25-29) extends up the hillside to the north east adjacent to Russell Road. The provision of services is understood to be established within the corridor of the proposed access.

Survey method

Background research into the archaeology and subsequent history of the area of the proposed subdivision included the examination of late 19th and early 20th century land plans and survey reports held by Land Information NZ, Auckland, and geological survey maps of the area compiled by the Department of Mines in 1925. New Zealand Archaeological Association site record forms were checked for previously recorded

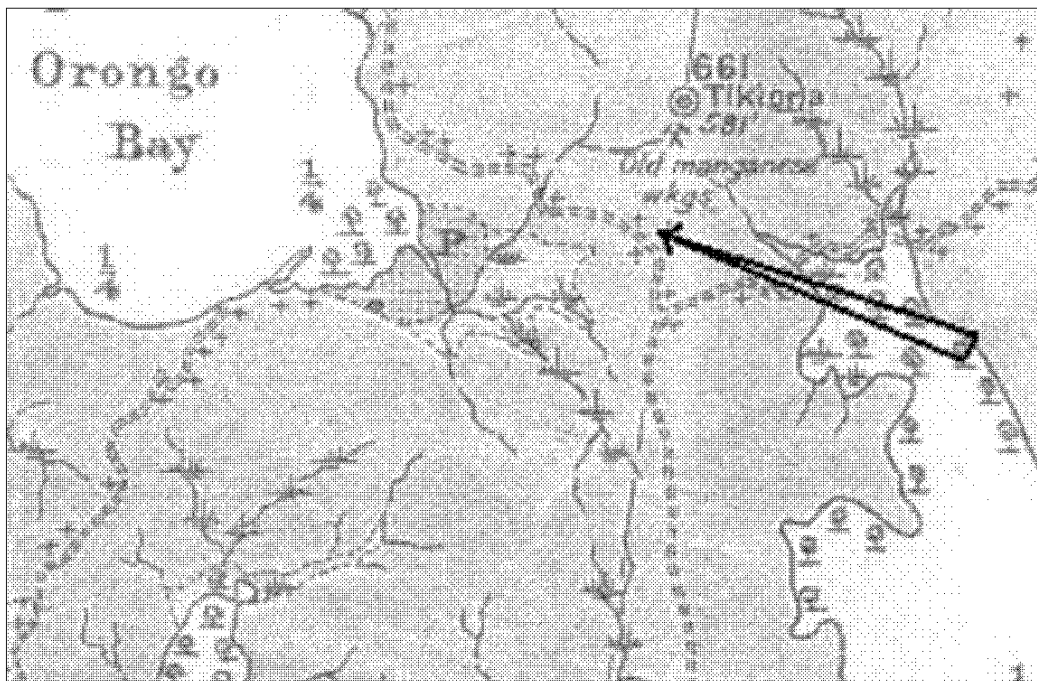


FIGURE 3. THE MID 1920S GEOLOGICAL SURVEY PLAN (FERRAR 1925) SHOWING THE AREA OF THE PROPOSED SUBDIVISION.

archaeological sites, and a review of regional archaeological publications relating to the area was undertaken.

All areas proposed for development within the subdivision were covered including the route of the proposed access ways and the locations of the proposed house sites within individual lots. The length of the main ridge above to the east was checked as was the descending slope to the west and descending ridge to the west parallel to Russell Road. The small ridge west of the stream was examined as was the small flat at the mouth of the further small gully top the west. Survey conditions were generally good with all areas able to be covered. The likelihood of undetected subsurface archaeological remains was assessed and considered. This included the digging of a series of five test pits in specific areas and the close examination for subsurface archaeological features of a track cutting along the full width of the block east of and adjacent to the stream.

Archaeological background

No archaeological surveys have previously been undertaken in the affected area of the Tikitikioua Block and no archaeological sites have been randomly recorded there. However, a number of archaeological surveys have been conducted by the writer or Northern Archaeological Research subcontractors in the surrounding area. This has included the remainder of the Waitoto Developments Ltd block to the west (Johnson 2005), the large ex farm block on the opposite side of the Russell Road to the south (Middleton 2000), a smaller block to the west again (Johnson 1997) and the summit and north west face of Tikitikioua a short distance above to the north east (Johnson 2000). In relation to pre or post contact Maori settlement, this has resulted only in the recording of a single small set of terraces on the west facing hill slope on the block to the south (Middleton 2000). In general terms, while the location is reasonable in terms



PLATE 1. THE AREA OF PROPOSED SUBDIVISION, LOOKING SOUTH.

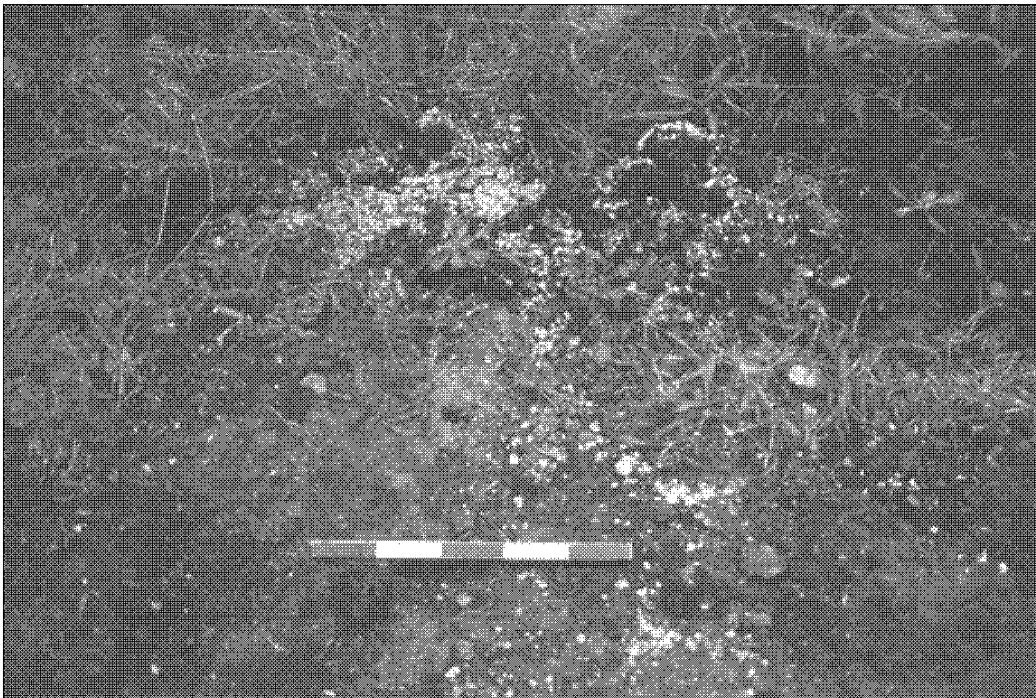


PLATE 2. THE MODIFIED SHELL MIDDEN Q05/1353

of access to marine resources, the comparatively poor soils have meant that the area sustained only limited Maori settlement in the past. The major, and probably more significant archaeological remains in the vicinity, are those relating to the manganese mining that occurred on the summit and North West flank of Tikitikioure. The full distribution of mining activities on the summit are not yet fully known though include a considerable number of stone lined shafts and davits and the remains of the Cornish mining village (see Johnson 2000)

No cultural or historical information is shown for the area on old land plans held for the area by Land Information New Zealand. The mid 1920s geological survey plan of the Russell area (Ferrar 1925) appears to show the Russell Road largely in the same position and configuration as the road today (Figure 3). The property has been cleared of original vegetation at some point in the past and has most recently been used for pastoral agriculture during the last half of the 20th century. The property is now largely regenerating back into gorse.

Survey results

A single archaeological site was recorded within the area of the proposed subdivision (see Figure 2 for location, Plate 2). A site record form has been completed for the site and filed with the New Zealand Archaeological Association site recording scheme. The site is described below and the site record form is appendicised in this report.

Q05/1353. Midden. E 2615876 N 6656261.

The site is located on the Waitoto Developments Ltd property on the Russell Road (Tikitikioure Block) some 300m south east of the junction with Aucks Road at the head of Orongo Bay. A track extends into a small gully and quarry to the north east from a barn on the edge of the Russell Road and the site occurs on the north west side of the track between the track and a small stream. Regenerating scrub occurs on the opposite side of the stream with gorse on the hill slope rising above to the east. The site is approximately 5m above sea level.

The site appears to have been destroyed, is under grass and occurs within the area of the proposed subdivision.

A small shell midden has been exposed by blade scraping on a small turning circle some three quarters of the way up the track. The midden now occurs as a small amount of displaced spoil at the base of a fence line extending down the gully. Contents are entirely whole and fragmentary cockle of small to medium size with a small quantity of charcoal and heat fractured rock. The site appears to have been a small temporary over night encampment at the edge of the stream. None of the site now appears in situ and the context for the shell has been destroyed.

Archaeological significance

The single site recorded within the area of the proposed subdivision was noted from the small quantity of midden shell scraped from the small flat at the side of the stream and re-deposited up against the base of a fence line. The shell was clearly derived from a small midden of late pre contact Maori origin. There were no further archaeological remains on the surface of the area scraped and there was no clear depositional context remaining for the shell and the small site appeared to have been destroyed through earlier track construction. As such the site appears of no further

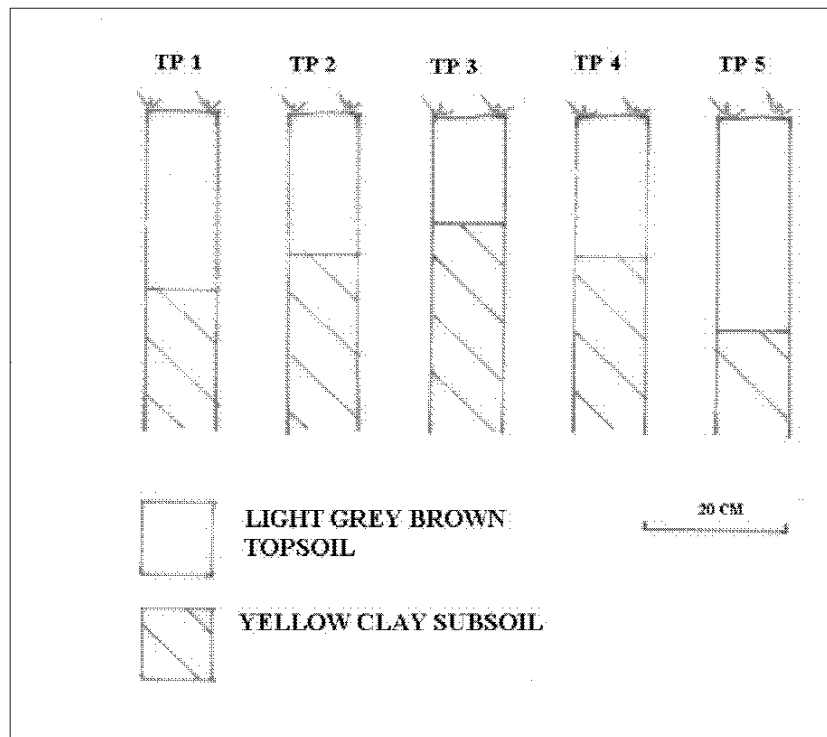


FIGURE 4. THE TEST PIT PROFILES 1-5.

archaeological significance. The property occurs at a sufficient distance from the area of manganese mining in the mid to late 19th century so as to render the presence of archaeological sites of this nature unlikely.

Assessment of effects

There were no intact archaeological sites recorded on the property and there were no further archaeological remains noted in five test pits dug at select points in the affected area or on the 10mm long exposure on the top east side of a track cut along the east side of the stream. There is, in our opinion, only a low probability for further archaeological remains existing on the property. A small quantity of oyster shell occurred on the ground surface on the main ridge above to the east but this had clearly been derived from marine farm oyster shell spread on a farm track immediately on the opposite side of the fence along the ridge on a neighbouring property. The single site found, Q05/1353, we consider to have been disturbed to the point that it no longer has any further archaeological significance and has been destroyed.

In the unlikely event that further unrecorded subsurface archaeological remains are uncovered during earthworks associated with development of the subdivision, all work affecting such remains should cease immediately and Northern Archaeological Research be notified so that appropriate action can be taken.

Conclusion

Northern Archaeological Research were commissioned by Williams and King, on behalf of Waitoto Developments Ltd. to undertake an archaeological survey and assessment of a proposed subdivision off the Russell Road in Orongo Bay, on the Russell Peninsula. A single archaeological site was recorded in the area assessed.

Recommendations have been made in relation to the site and in the event that archaeological remains are uncovered during development of the subdivision.

References

- Ferrar, H. T. 1925. Geological Map of the Kawakawa Survey District. *In* The Geology of the Whangarei-Bay of Islands Subdivision, Kaipara Division. *Bulletin* 27 (New Series). New Zealand Department of Mines, Geological Survey Branch. Government Printer, Wellington.
- Johnson, L. 1997a. Archaeological survey of the proposed Donaldson Subdivision, Orongo Bay, Bay of Islands. Unpublished client report, Northern Archaeological Research.
- Johnson, L. 2000. Archaeological survey and assessment of a proposed subdivision , Donaldson property, Tiktikioure, Russell. Unpublished client report, Northern Archaeological Research.
- Johnson, L. 2005. Archaeological survey and assessment of the proposed Waitoto Developments Ltd Subdivision of Lots 2 & 3 DP 314888, Russell-Whakapara Road, Orongo Bay, Bay of Islands. Unpublished client report, Northern Archaeological Research, Auckland.
- Middleton, A. 2000 Report on the Archaeological Survey and Assessment of the Proposed Subdivision, Hyland Property, Orongo Bay, Bay of Islands. *Unpublished Client Report*. Northern Archaeological Research, Auckland.
- Sutherland, C. F.; Cox, J. E. ; Taylor, N. H.; Wright, A. C. S. 1980. Soil Map of Whangaroa-Kaikohe area (Sheets P04/05). North Island. Scale 1:100 000 *NZ Soil Bureau Map 183*.

Recommendations

1. In the unlikely event that further unrecorded subsurface archaeological remains are uncovered during earthworks associated with development of the subdivision, all work affecting such remains should cease immediately and Northern Archaeological Research be notified so that appropriate action can be taken.

APPENDIX

New Zealand Archaeological Association Site Record Form

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION

NZAA METRIC SITE NUMBER: Q05/1353

SITE RECORD FORM (METRIC)

DATE VISITED: 12. 10. 05.

Metric map number: Q05

SITE TYPE: Midden.

Metric map name: BAY OF ISLANDS

SITE NAME: MAORI: -

Metric map edition: Edition 1 1983

OTHER:

Grid Reference GPS East

2 6 1 5 8 7 6

North

6 6 5 6 2 6 1

1. Aids to relocation of site (*attach a sketch map*): The site is located on the Waitoto Developments Ltd property on the Russell Road (Tikitikioure Block) some 300m south east of the junction with Aucks Road at the head of Orongo Bay. A track extends into a small gully and quarry to the north east from a barn on the edge of the Russell Road and the site occurs on the north west side of the track between the track and a small stream. Regenerating scrub occurs on the opposite side of the stream with gorse on the hill slope rising above to the east. The site is approximately 5m above sea level.

2. State of site and possible future damage: Destroyed. Under grass. In area of proposed subdivision.

3. Description of site (*Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here*):

A small shell midden has been exposed by blade scraping on a small turning circle some three quarters of the way up the track. The

midden now occurs as a small amount of displaced spoil at the base of a fence line extending down the gully. Contents are entirely whole and fragmentary cockle of small to medium size with a small quantity of charcoal and heat fractured rock. The site appears to have been a small temporary over night encampment at the edge of the stream. None of the site now appears in situ and the context for the shell has been destroyed.

4. Owner: Waitoto Developments Ltd

Tenant/Manager:

Address: C/- Rod Haines

Address:

Haines House Haulage

Auckland

5. Nature of information (*hearsay, brief or extended visit, etc.*): Brief visit.Photographs (*reference numbers*):Aerial photographs (*reference numbers and clarity of site*):

6. Reported by: Leigh Johnson

Filekeeper:

Address: Northern Archaeological Research

Date:

67 Church St,

Devonport

Auckland

7. New Zealand Historic Places Trust (for office use)

Type of site

Local environment today

Land classification

Present condition and future
danger of destruction

Local Body



27 July 2023

Top Energy Limited

Level 2, John Butler Centre
60 Kerikeri Road
P O Box 43
Kerikeri 0245
New Zealand
PH +64 (0)9 401 5440
FAX +64 (0)9 407 0611

Natalie Watson
Williams & King
PO Box 937
KERIKERI 0230

Email: nat@saps.co.nz

To Whom It May Concern:

RE: PROPOSED SUBDIVISION
Waitoto Developments Ltd – Russell Whakapara Road, Orongo Bay, Russell.
Lot 37 and Lot 38 DP 426505.

Thank you for your recent correspondence with attached proposed subdivision scheme plans.

Top Energy requires new connections to be reticulated to the boundary of each lot.
Costs to make a provision of power for proposed Lots 23-27 will be provided after application and an on-site survey have been completed.

In order to get a letter from Top Energy upon completion of your subdivision, a copy of the resource consent decision must be provided.

Yours sincerely

Aaron Birt
Planning and Design
T: 09 407 0685
E: aaron.birt@topenergy.co.nz