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

Office Use Only
Application Number:

Application for resource consent or fast-track resource consent

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA)) (If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of Schedule 4). Prior to, and during, completion of this application form, please refer to Resource Consent Guidance Notes and Schedule of Fees and Charges — both available on the Council's web page.

1. Pre-Lodgement Meeting

Have you met with a council Resource Consent representative to discuss this application prior to lodgement? ◯ **Yes** ✔ **No**

2. Type of Consent being applied for

(more than one circle can be ticked):

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

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

3. Would you like to opt out of the Fast Track Process?

◯ **Yes** ◯ **No**

4. Consultation

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

If yes, which groups have you consulted with?	Te Rarawa
Who else have you consulted with?	Department of Conservation

*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: K & J Farms Limited

Email: kevjay@farmside.co.nz

Phone number: Work 027 2358096 Home

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

231 Happy Valley Road
RD2
Okaihau
Postcode 0476

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: nat@saps.co.nz

Phone number: Work 09 407 6030 Home

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

PO Box 937
Kerikeri
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: As per applicant.

Property Address/ Location:

Postcode

8. Application Site Details

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

Name/s:

Site Address/ Location:

231 Happy Valley Road
Umawera
Okaihau
Postcode 0476

Legal Description: Section 52-53 Block VII Mangamuka **Val Number:** 00657-08700

Certificate of title: NA1686/10

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.

Please phone Kevin on 027 2358096 to arrange a site 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 create two additional titles for parcels of land already severed by legal road from the balance of the land. Existing legal road adjacent to the subdivision is less than 20m legal width.

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

10. Would you like to request Public Notification?

◯ **Yes** ✔ **No**

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

(more than one circle can be ticked):

- ◯ **Building Consent** Enter BC ref # here (if known)
- ◯ **Regional Council Consent (ref # if known)** Ref # here (if known)
- ◯ **National Environmental Standard consent** Consent here (if known)
- ◯ **Other (please specify)** Specify 'other' here

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

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

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

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

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

13. Assessment of Environmental Effects:

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

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

13. Draft Conditions:

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

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

14. Billing Details:

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

Name/s: (please write in full) K & J Farms Limited

Email: kevjay@farmside.co.nz

Phone number: Work 027 2358096 Home

Postal address: (or alternative method of service under section 352 of the act)
231 Happy Valley Road
RD2
Okaihau
Postcode 0476

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) Kevin Herbert Salmons

Signature: (signature of bill payer) Date 22/9/25

MANDATORY

15. Important Information:

Note to applicant

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

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

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

Fast-track application

Under the fast-track resource consent process, notice of the decision must be given within 10 working days after the date the application was first lodged with the authority, unless the applicant opts out of that process at the time of lodgement. A fast-track application may cease to be a fast-track application under section 87AAC(2) of the RMA.

Privacy Information:

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

15. Important information continued...

Declaration

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

Name: **(please write in full)** Natalie Watson

Signature:

Date 24-Sep-2025

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

Checklist (please tick if information is provided)

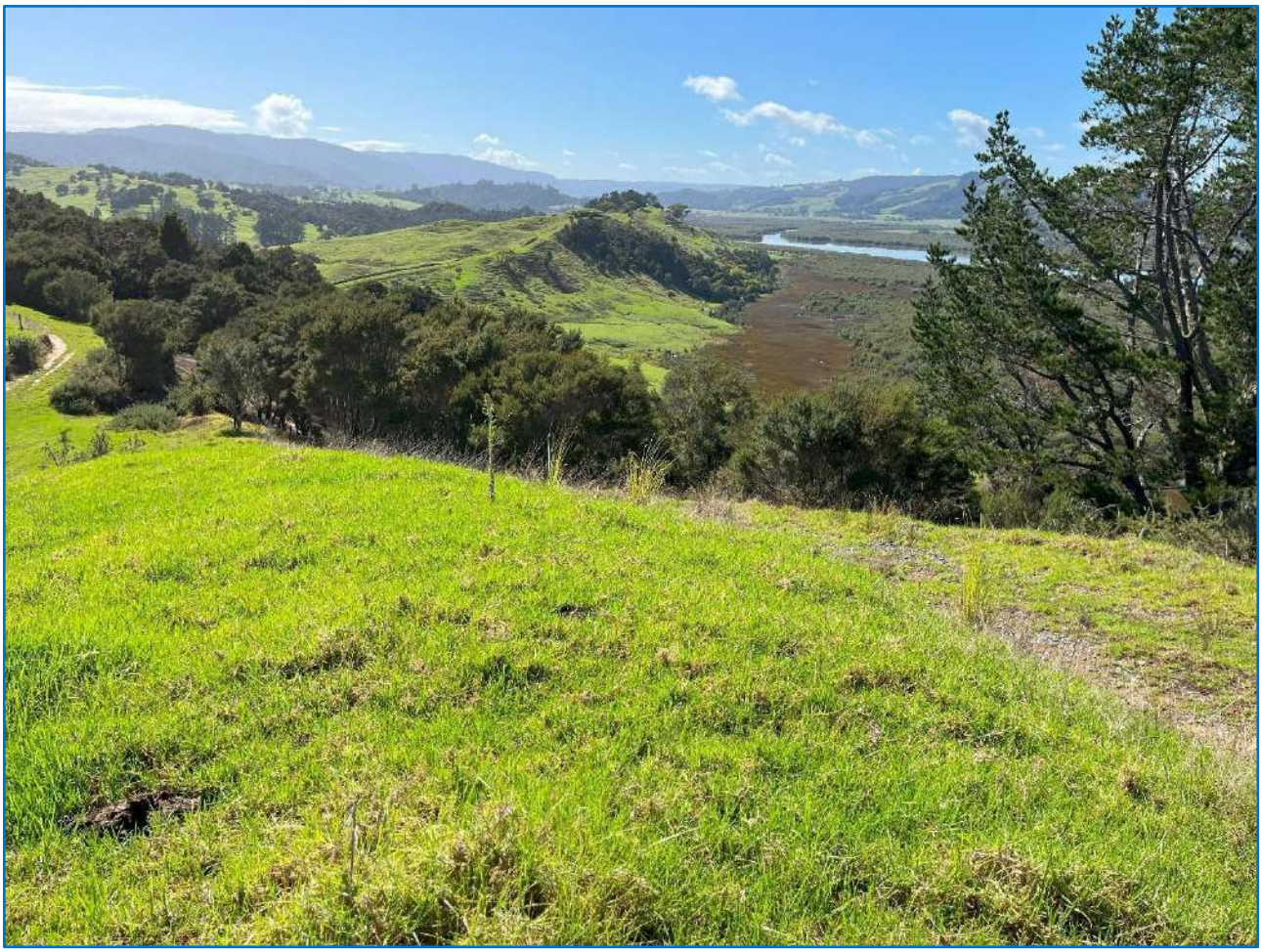
- [x] Payment (cheques payable to Far North District Council)
- [x] A current Certificate of Title (Search Copy not more than 6 months old)
- [x] Details of your consultation with Iwi and hapū
- [x] Copies of any listed encumbrances, easements and/or consent notices relevant to the application
- [x]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

K & J Farms Limited

Proposed Subdivision
Happy Valley Road, Rawhia, Umawera

Williams & King, Kerikeri[1]
19 September 2025



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

1. Overview

K & J Farms Limited propose to subdivide a property legally described as Section 52 – 53 Block VII Mangamuka Survey District and held in the Computer Freehold Register NA1686/10 to create two additional Records of Title for parcels of land already severed by legal road from the balance of the land. The subject property is located at 231A and B Happy Valley Road, Umawera.

Lots 2 and 3 are allotments with areas of 9.8065ha and 7.0560ha respectively, while Lot 1 is the balance lot with an area of 45.7031ha, containing the existing dwelling and farm buildings.

Protection of indigenous bush is proposed via land covenants and corresponding consent notice conditions.

Each lot will have legal access from Happy Valley Road. Lot 1 has existing access. Lots 2 and 3 will use an existing vehicle crossing, which was formed to access Rural Connectivity Group radio frequency transmitting infrastructure that is located on Lot 2. Easement 'E' is proposed over Lot 2 to secure access to a future building site on Lot 3 using this entrance.

The proposal is supported by a Site Suitability Report prepared by Geologix Consulting Engineers.

The subject site is zoned Rural Production in the Operative Far North District Plan, and the proposed subdivision is considered to comply with the restricted discretionary activity standard for subdivision in the zone, as set out in Rule 13.8.1(c), which allows "a maximum of 5 lots in a subdivision (including the parent lot) where the minimum size of lots is 2ha, and where the subdivision is created from a lot that existed at or prior to 28 April 2000". The existing legal road adjoining the subdivision is less than 20m in width, imparting an overall discretionary activity status under Rule 15.1.6C.1.8.

Under the Proposed Far North District Plan, the site is also zoned Rural Production, with coastal environment, high natural character and coastal and river flood hazard overlays. 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. There are no other relevant rules with legal effect under the Proposed District Plan at this time.

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.

2. Description of Proposal

The purpose of the proposal is to subdivide the application site to create two additional Records of Title. Lots 1, 2 and 3 will have areas of 45.7031ha, 9.8065ha and 7.0560ha respectively. The Scheme Plan is attached in **Appendix 1.** All areas and dimensions are subject to final survey. Table 1 contains a summary of the proposed subdivision.

Lots 2 and 3 are separated from Lot 1 by Happy Valley Road, while Lots 2 and 3 are separated by an unnamed road off Happy Valley Road, which is partly formed with a farm track used by the subject property.

Land covenants 'B', 'C' and 'D' are proposed over Lots 1 and 2 to protect areas of predominantly indigenous vegetation on those lots. These land covenant areas are intended to be referred to in a consent notice condition imposed on the applicable lots. The consent notice wording should enable removal of wilding pines and other exotic vegetation if required.

A Site Suitability Report prepared by Geologix Engineers is attached in **Appendix 2** ("Site Suitability Report"). This details the suitability of Lots 2 and 3 for their suitability in terms of natural hazards, earthworks, access, stormwater, wastewater, water supply and firefighting matters.

Lot 1 contains the existing dwelling and farm utility buildings, which are accessed from Happy Valley Road via existing entrances (residential and milk tanker entrances) and internal driveways and farm races. Area 'C', located in the south western corner of the site, is a proposed bush protection covenant area.

Lot 2 contains existing Rural Connectivity Group Radio frequency transmitting infrastructure, which is served by an existing metalled entrance off Happy Valley Road. This will also be used to provide access to future dwellings on Lots 2 and 3. The bush protection areas 'B' and 'D' are located along the northern and southern boundaries of the lot. An existing farm pond towards the east of the lot has a water pump shed located on its margin.

Lot 3 is a vacant site with an existing farm track through it. The alignment of the farm track is steep in areas, therefore access to a future building site will also be available via the existing Lot 2 entrance, and easement 'E', which will connect to the unnamed legal road, and then onto Lot 3. If easement 'E' is used to access Lot 3, it will need to be formed to provide a 3m wide metalled carriageway, with provision for stormwater control.

Minimal earthworks (associated with providing access to the boundary of each lot) are required. General earthworks recommendations, including the recommendation for an Erosion and Sediment Control Plan to be implemented prior to the commencement of earthworks, are specified in the Site Suitability Report in **Appendix 2**.

Table 1: Summary of Proposed Subdivision

Lot Number	Area (Subject to Survey)	Existing / Proposed Use	Indigenous Bush Protection Covenants
Lot 1	45.7031ha	Existing dwelling and farm utility buildings. Pasture and dairying primary production, farm quarry.	Area 'C'.
Lot 2	9.8065ha	Vacant large rural lifestyle site.	Areas 'B' & 'D'.
Lot 3	7.0560ha	Vacant large rural lifestyle site. Existing Rural Connectivity Group Radio frequency transmitting infrastructure.	-

3. Application Site Details and Description

3.1 Location

The site is located at 231 Happy Valley Road, in the rural area of Rawhia, between Rangiahua and Umawera. The site is located to the north of Waihou River, being separated by a Crown owned Marginal Strip, and approximately 2km south of State Highway 1. Happy Valley Road forms the north western boundary of Lot 1, and the south eastern boundary of Lots 2 and 3, thus dividing the property. Refer to the Location and Cadastral Maps in **Figures 1** and **2**.

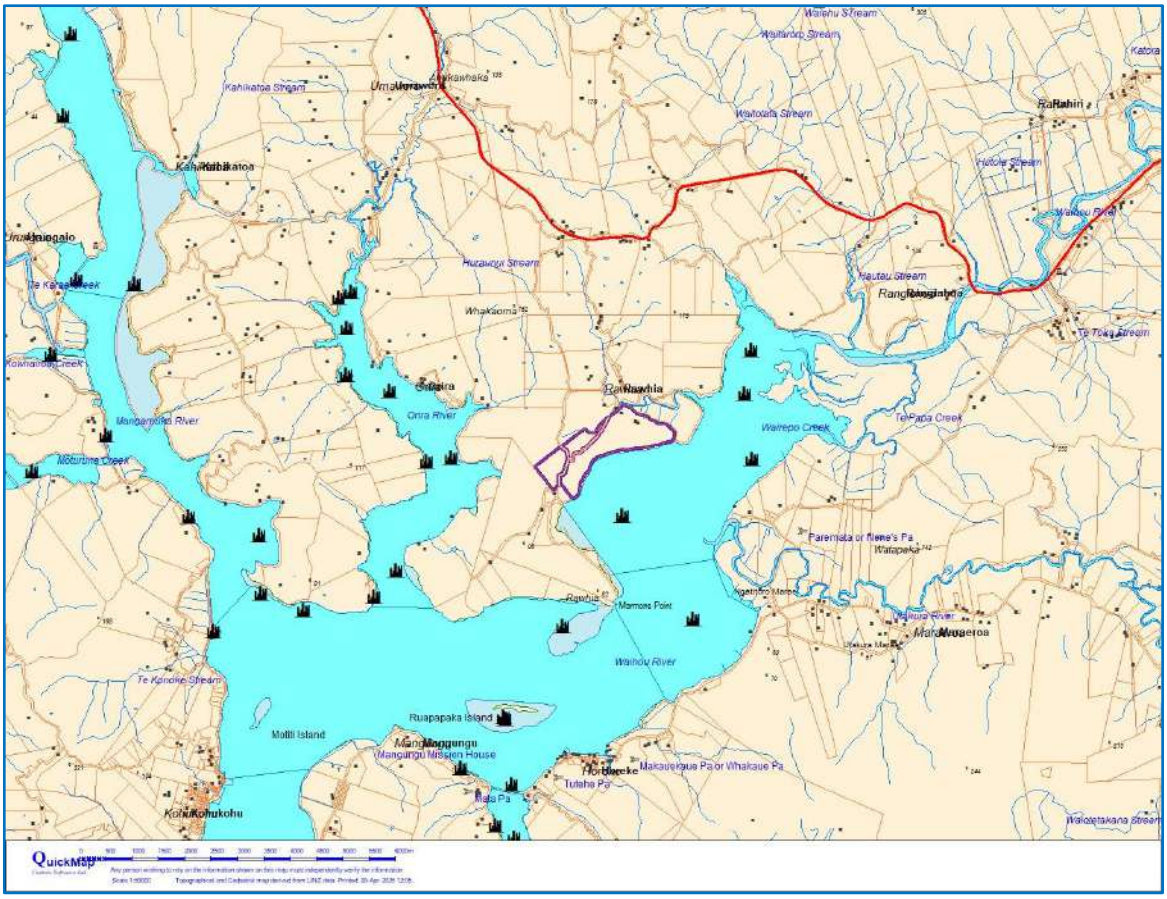


Figure 1: Location Map. Source: QuickMap.

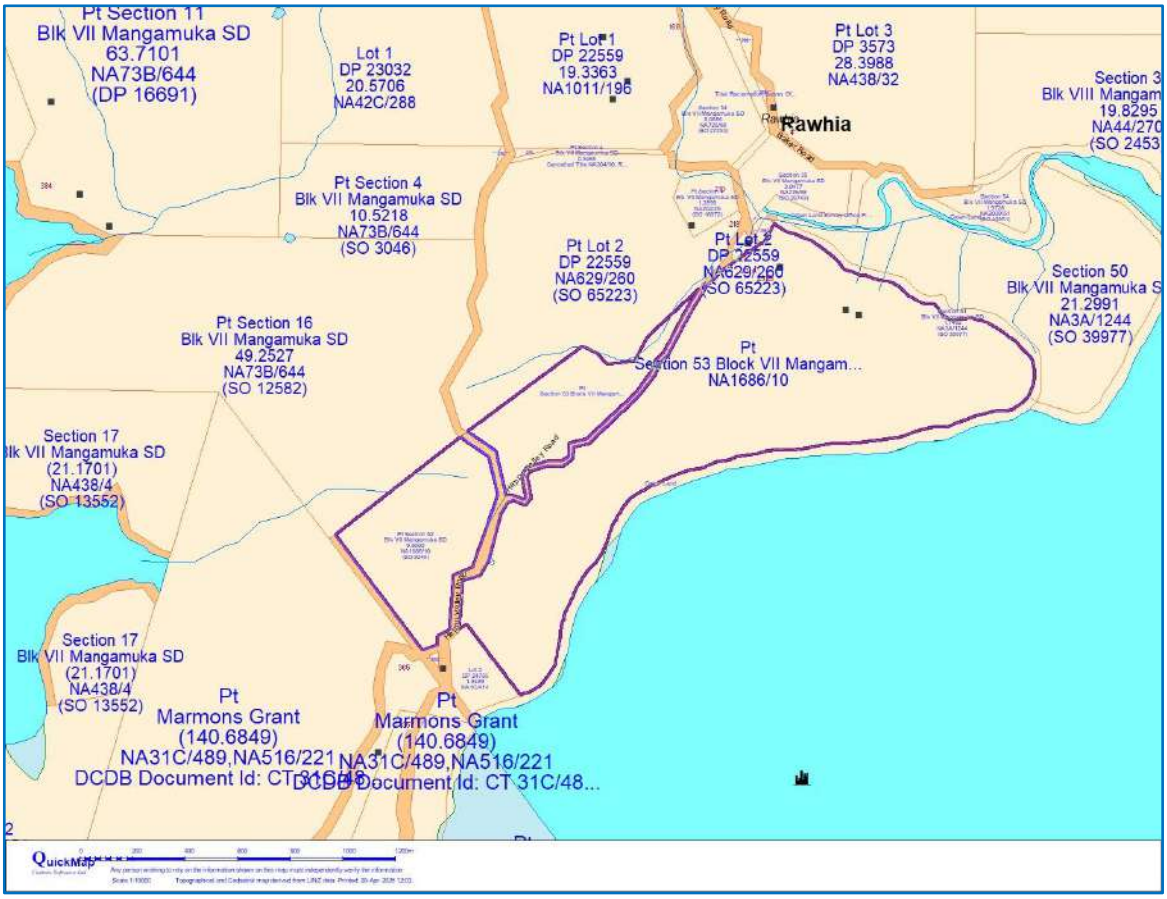


Figure 2: Cadastral Map. Source: QuickMap.

3.2 Legal Details

Legal details of the application site are summarised in **Table 2** and in the Record of Title (refer to **Appendix 3**).

Table 2: Summary of Application Site Legal Details

RECORD OF TITLE	APPELLATION	PROPERTY ADDRESS	TITLE AREA
NA1686/10	Section 52–53 Block VII Mangamuka Survey District	Happy Valley Road, Rawhia, Umawera	63.5609ha more or less

Relevant interests recorded on NA1686/10 are listed below.

- 6896364.1 Gazette Notice declaring part 9630m² being the area marked B on SO 65223 to be road vested in the Far North District Council.
- Easement Instrument 12339308.2: Subject to a right (in gross) to convey electricity over part Section 53 Block VII Mangamuka Survey District marked A on DP 567231 in favour of Top Energy Limited.

3.3 Site Conditions and Existing Land Use

The site is predominantly used for primary production, primarily grazing stock for dairying, as part of a wider operation encompassing other land owned by the Applicant. It comprises flat land along the south eastern boundary of Lot 1, adjacent to the Marginal Strip that separates the land from Waihou River, but is otherwise in rolling to moderately steep slopes, forming generally steep and hilly terrain.

The existing residential use and dairy operation are located on Lot 1, with the existing buildings for these purposes located along the northern boundary. A farm quarry is located on the northern side of a hill at the eastern end of Lot 1. Refer to **Photographs 1** and **2**.

Lot 2 contains Rural Connectivity Group Radio frequency transmitting infrastructure, comprising a radio antenna tower and ground equipment both located on a concrete pad within a fenced enclosure, located on the highest point on the lot, with bush protection covenant area ‘D’ to the south. An existing metalled entrance off Happy Valley Road and a partly metalled track provide access to the equipment. Refer to **Photographs 3** and **4.**

A pond and pump shed are located towards the north eastern corner of Lot 2, and the bush protection area ‘B’ is located along the northern boundary of Lot 2. Other farm tracks are formed in the vicinity of easement ‘E’. Refer to **Photographs 5** – **7**.

Lot 3 is a vacant site with an existing farm track through it. The entrance to the track off Happy Valley Road is located near a stock underpass below Happy Valley Road. Refer to **Photographs 8** – **10**.

Photograph 1: Some of the existing buildings on Lot 1.

Photograph 2: View over grazed flats on Lot 1 towards the salt marsh, mangrove complex and open water of Waihou River (photograph taken from elevated position on Lot 3).

Photograph 3: Existing entrance to Lot 2 / Radio tower site.

Photograph 4: View north east along radio tower access track. Easement 'E' follows the existing track in the vicinity of parked vehicle.

Photograph 5: View south west over Lot 2 from the unnamed legal road, over the pond and towards the radio tower. Bush covenant areas 'B' and 'D' are visible to the left of the radio tower and on the right hand side of the photograph.

Photograph 6: View north east over farm pond, towards unnamed road. The individual trees on the ridgeline are within Lot 3.

Photograph 7: View over the north western half of Lot 2. Bush covenant 'B' is located behind the beehives.

Photograph 8: View north east over Lot 3, with view of existing track and stock underpass (in shadow) on the left hand side of the photograph.

Photograph 9: View south over possible building site on Lot 3.

Photograph 10: View over northern half of Lot 3.

3.4 Natural & Recorded Features

The topographical characteristics, geological setting and ground conditions are described in detail in the Site Suitability Report. Refer to **Appendix 2**.

The Waihou River margins to the south and south east of Lot 1 are in salt marsh and mangroves.

Part of the site is within the coastal environment (generally the flat grazed areas adjacent to Waihou River and the adjoining south facing slopes) but 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 bush within proposed covenant area 'B' is part of the Department of Conservation Protected Natural Area mapping of 'Orira River Remnants' ecological unit (O05/148) in the Natural areas of Hokianga Ecological District. In relation to area 'B', this ecological unit is described as comprising manuka-totara shrubland on coastal hillslope.[2] Refer to **Figure 3**.

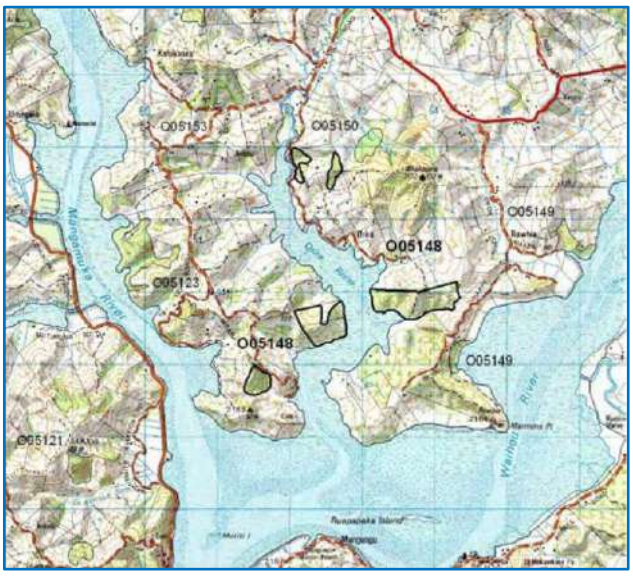


Figure 3: Orira River Remnants O05/148. Source: Natural areas of Hokianga *Ecological District Reconnaissance Survey Report for the Protected Natural Areas Programme.*

[2] Conning, L. Holland, W. & Miller, N. (2004): *Natural areas of Hokianga Ecological District Reconnaissance Survey Report for the Protected Natural Areas Programme.* Department of Conservation, Whangarei, New Zealand.

Other mapped ecological areas include an area of heathland, as a subset of the mapped 'Biodiversity Wetlands' mapping provided by Northland Regional Council.

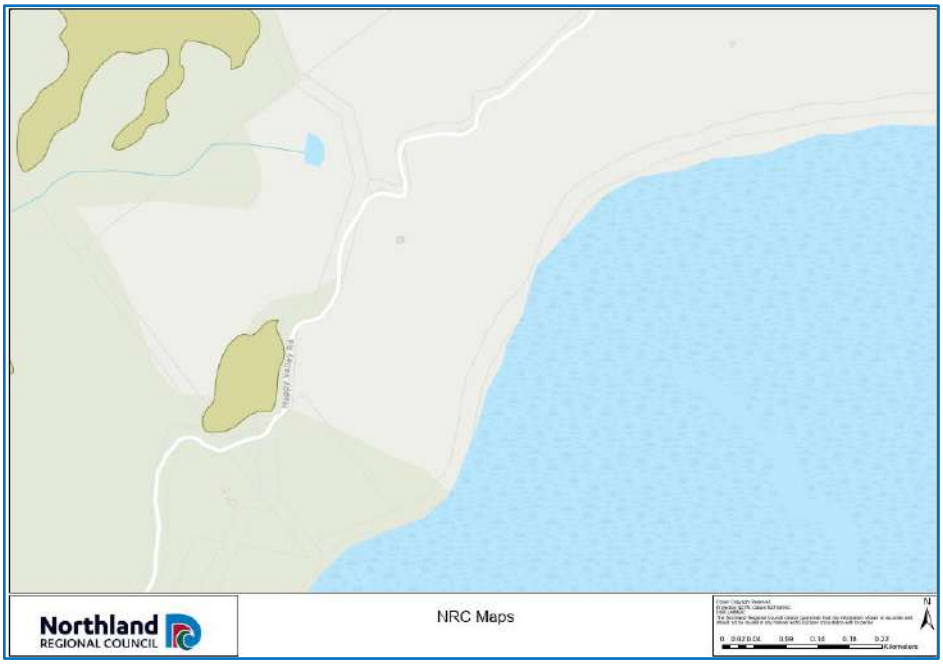


Figure 4: Biodiversity Wetland Map showing area of mapped heathland, within covenant D on proposed Lot 2. Source: Northland Regional Council Biodiversity Wetlands.

The site is not mapped as being located within a 'kiwi present' or 'high density' North Island brown kiwi habitat in Far North Maps "Species Distribution (DoC)" Map. [3]

The mapping related to Protected Natural Areas, biodiversity wetland and kiwi habitat are non-statutory documents.

There are no recorded historic sites, sites of cultural significance to Maori, District Plan or NZAA archaeological sites or heritage areas in the Far North Maps 'Historic Sites' mapping.[4]

The subject site is zoned Rural Production under the Operative and Proposed District Plans. The site is mapped as comprising Land Use Capability ("LUC") unit VIe9. Class VI land does not meet the definition of 'highly versatile soils' in the Regional Policy Statement for Northland or 'highly productive land' as per the National Policy Statement for Highly Productive Land 2022.

3.5 Surrounding Land

The character of the surrounding environment is based on the existing characteristics of the rural, built, modified and natural environment, which is predominantly made up of pastoral land, steeply sloping areas of bush and exotic pine forest, and the occasional existing dwellings, accessory or farm building.

[3] 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.
[4] https://fndc.maps.arcgis.com/apps/webappviewer/index.html?id=9b907e96ac9d4157815dae08f02fcebe

3.6 Vehicle Access

Happy Valley Road divides the subject site. In terms of the section of Happy Valley Road to the south of Lot 3, legal road alignment was established as a 12m wide road via Gazette Notice 6896364.1, and shown as area B on SO 65223. SO 65223 was dated 1989, however the gazettal was completed later, with the gazette notice declaring the area to be road vested in Far North District Council being dated 25 May 2006.

Happy Valley Road has a metalled carriageway, which is visible in **Photographs 3** and **8**. The Mobile Road website specifies that Happy Valley Road, from its intersection with Baker Road to its termination, has an ADT of 21 (estimated), of which 10% is heavy. This heavy vehicle use is likely associated with properties developed for pine plantation forestry, which are located beyond the site on Happy Valley Road, as well as dairy tankers. The One Network Road Classification (ONRC) is Low Volume, and the carriageway width is noted as 3.5m.[5] Refer to **Photograph 11**.

We have assessed the number of existing Records of Title and existing dwellings served by Happy Valley Road beyond and including the subject site, and have counted thirteen Records of Title, and six - seven dwellings, although the applicant advises that of these, perhaps three are permanently occupied.

Existing vehicle crossings to Lots 1, 2 and 3 are present, including the entrance to the dwellings and farm buildings on Lot 1, the existing entrance to the radio tower on Lot 2, and the entrance to the farm track adjacent to the stock underpass on Lot 3. Refer to **Photographs 3** and **8**.

Photograph 11: Happy Valley Road – typical carriageway surface adjacent to Lot 2 entrance

3.7 Statutory Acknowledgement Area

The adjacent Hokianga Harbour, extending slightly into Lot 1 is a statutory acknowledgement area, being described as 'Hokianga Harbour' as shown on OTS-074-03, with Te Rarawa Deed of Settlement recognising Te Rarawa's particular cultural, spiritual, historical and traditional association with Hokianga Harbour.

[5] Mobile Road (https://www.mobileroad.org/)

4. District Plan Assessment

4.1 Far North Operative District Plan

The application site is zoned Rural Production and is not subject to any Resource Features. The proposal is assessed against the relevant rules of the Operative District Plan as follows.

4.1.1 Rural Production Zone

Rule	Discussion	Compliance
8.6.5.1 PERMITTED ACTIVITIES		
8.6.5.1.1 Residential Intensity	A single residential unit for a single household is proposed / existing on each lot.	Complies
8.6.5.1.2 Sunlight	No issues.	Complies
8.6.5.1.3 Stormwater management	Existing / anticipated future coverage on each lot will be less than 15% (refer to Table 9 of Site Suitability Report).	Complies
8.6.5.1.4 Setback from Boundaries	No issues.	Complies

4.1.2 Natural & Physical Resources

Rule	Discussion	Compliance
PERMITTED ACTIVITIES		
12.3.6.1.1 Excavation and/or filling …	Only minor earthworks are required to form or upgrade vehicle crossings, or form access over easement 'E', if required, which will be within the permitted activity limits.	Complies
12.7.6.1.4 Land use activities involving discharge of human sewage effluent	Each vacant lot has area for the on-site treatment and disposal of wastewater, which can be located more than 30m any waterbody. Refer to Table 7 of the Site Suitability Report.	Complies

4.1.3 Subdivision

Rule	Discussion	Compliance
13.6 GENERAL RULES		
13.6.5 Legal Frontage	Each lot has direct frontage to Happy Valley Road, with Lot 3 also having frontage via easement 'E'.	Complies
13.6.8 Subdivision Consent Before Work Commences	Earthworks to upgrade access to the boundary of each lot are described in the application and Site Suitability Report.	Complies
13.6.12 Suitability for Proposed Land Use	The land is considered suitable for the proposal, as described in the Site Suitability Report. Detailed / specific geotechnical assessment will be undertaken at Building Consent stage.	Complies
13.7 CONTROLLED ACTIVITIES		
13.7.2.1 Minimum Area for Vacant New Lots …..	The areas of Lots 2 and 3 do not comply with the controlled activity minimum lot size. Lot 1 complies.	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		
13.9.1 Subdivision within the Rural Production zone	The proposed lots comply with restricted discretionary activity Rule 13.7.2.1 (Table 13.7.2.1) and 13.8.1(c): *"A maximum of 5 lots in a subdivision (including the parent lot) where the minimum size of lots is 2ha, and where the subdivision is created from a lot that existed at or prior to 28 April 2000"* The subject site's Record of Title was issued in 1959. Balance Lot 1 will retain the further subdivision rights (for a maximum of two additional lots with minimum lot size of 2ha) as per clause 5 of Table 13.7.2.1.	Complies

4.1.4 Financial Contributions

Rule	Discussion	Compliance
PERMITTED ACTIVITIES		
14.6.1 Esplanade Areas	Not applicable, as all lots exceed 4ha.	Not applicable / No esplanade area considered necessary.

4.1.5 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	Each lot has direct frontage to Happy Valley Road; however, easement 'E' is proposed to provide alternative access to Lot 3 given that the existing farm track access within Lot 3 is steep in areas. It is not intended to form this access at this stage, however, when it is formed, it should be constructed to provide a 3m wide carriageway width, with stormwater drainage.	Complies
15.1.6C.1.3 Passing Bays on Private Accessways in all Zones	Passing bays are not required.	Not applicable.
15.1.6C.1.5 Vehicle crossing standards in Rural … Zones	Lot 1 has an existing vehicle crossing which is suitable to remain as is. Lots 2 & 3 have existing vehicle crossings. The Site Suitability Report specifies that they do not need to be upgraded.	Complies
15.1.6C.1.7 General Access Standards	Adequate area for existing / future onsite manoeuvring is available on each lot.	Complies
15.1.6C.1.8 Frontage to Existing Roads	(a) the width of Happy Valley Road adjoining Lot 3 and part of Lot 1 is 12m, which is less than the Rural Type A road (16m) and no road widening to vest in Council is proposed. The width adjoining Lot 2 exceeds 20m. (b) Likewise, the carriageway width of Happy Valley Road is less than 6m in width. (c) Not applicable.	Does not comply with (a) and (b), (d) will be met via condition of consent.

	(d) Encroachments of the Happy Valley Road formation may be present – this will be confirmed at legal survey stage, and any encroachments vested as road.	
15.1.6C.2 DISCRETIONARY ACTIVITIES		
15.1.6C.2 Discretionary Activities	As the application does not comply with (a) and (b) of Rule 15.1.6C.1.8, the application is a discretionary activity overall.	Complies

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

Overall, the proposal has been assessed as a discretionary activity.

4.2 Far North Proposed District Plan

The application site is zoned Rural Production in the Far North Proposed District Plan. Parts of the site are within the coastal environment overlay, and small areas are subject to river flood and coastal flood hazard and high natural character overlays. The proposal is assessed against the relevant rules of the Proposed District Plan as follows.

4.2.1 Area-Specific Matters - Rural Production Zone

Rule	Discussion	Compliance
RPROZ-R2 Impermeable Surface Coverage	Existing and anticipated future coverage on Lots 1 - 3 will be less than 15%.	These rules do not have legal effect.
RPROZ-R3 Residential Activity	A single residential unit per lot is intended.	
RPROZ-S2 Height in Relation to Boundary	No issues in terms of the proposed new boundaries to be created by the subdivision.	
RPROZ-S3 Setback	No issues in terms of the proposed new boundaries to be created by the subdivision.	
RPROZ-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 – General District-Wide Matters – Energy, Infrastructure, & Transport - Transport

Rule	Discussion	Compliance
TRAN-R1 Parking	Parking spaces on the vacant lots will be designed at building consent stage, and there is ample area to meet the permitted standard.	These rules do not have legal effect.
TRAN-R2 Vehicle crossings and access, including private accessways	Shared private access over easement 'E' will serve less than 8 household equivalents and is not off the road types listed in PER-3. Access widths will be sufficient for fire fighting, manoeuvring will be available within the lots. There will be no unused vehicle crossings. Vehicle crossings will comply with TRAN-S2. Passing bays are not required.	

4.2.3 District Wide Matters – Subdivision

Rule	Discussion	Compliance
SUB-R3 Subdivision of land to create a new allotment.	CON-1 • 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 – refer to the Site Suitability Report. • On-site wastewater treatment and disposal is feasible. • Power and telecommunications connections can be supplied at land use stage if required. • Easements are shown on the scheme plan. CON-2 • Controlled and discretionary activity minimum allotment sizes are not achieved by Lots 2 and 3. • No esplanade reserve requirements.	These rules do not have legal effect.
SUB-R11 Subdivision of a site within flood hazard areas	Building platforms and access are outside the 1:100 year flood plain. No diversion of flood flow. Would meet Restricted discretionary activity standard.	
SUB-R12 Subdivision of a site within coastal hazard areas	Building platforms and access are outside the coastal hazard area. Would meet Restricted discretionary activity standard.	
SUB-R20 Subdivision of a site within the Coastal Environment (excluding Outstanding Natural Character Areas)	This rule applies a discretionary activity status.	

4.2.4 District Wide Matters – Earthworks

Rule	Discussion	Compliance
EW-R6 Earthworks for the formation of unformed roads and for the formation or upgrade of private roads and private accessways.	The permitted standards will be met.	This rule does not have legal effect.
EW-R12 Earthworks and the discovery of suspected sensitive material	An advice note is to be applied to consent with reference to the Accidental Discovery Protocol.	These rules have legal effect – permitted activity status achieved.
EW-R13 Earthworks and erosion and sediment control	Erosion and sediment control to be implemented prior to the commencement of earthworks.	

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

Rules with legal effect are EW-R12 and EW-R13, both of which can be satisfied as a permitted activity via consent conditions and an advice note.

5. Assessment of Environmental Effects

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 addresses the relevant matters listed in 13.7.3 and 15.1.6C.4.2 of the Operative District Plan.

5.1 Property Access

The additional traffic generated by the proposal is in the order of twenty daily one-way traffic movements.

Vehicle access to the boundary of Lots 1 and 2 has already been formed, and it is proposed that Lot 3 will gain access via the existing crossing to Lot 2, then via easement 'E' over Lot 2. Alternatively, Lot 3 will retain frontage to Happy Valley Road with the existing entrance and farm track in place. The existing farm track is steep over parts of the alignment.

The Site Suitability Report has addressed the visibility and sight distances at each vehicle crossing, and notes that they are sufficient, given the reasonably straight approaches along Happy Valley Road to the crossings, and the lack of trees or other obstructions to sight lines.

As vehicle access to the boundary of Lots 1 – 3 is suitable in accordance with the permitted standards of the District Plan and Council's Engineering Standards and Guidelines, with appropriate sight distances, it is considered that private access arrangements sufficiently mitigate against the potential adverse effects of increased traffic.

The legal width of parts of Happy Valley Road, as well as the formation and carriageway width of the road, is below the Rural Type A standard. We understand that Council purchased and formed the section of Happy Valley Road from near the northern end of Lot 1 to the south western end of Lot 3 in the 1990s. This is shown in SO 65223 – see **Figure 4**. Note that this plan also shows the unnamed partly formed road between Lots 2 and 3 as 'Road to be Stopped', however this has not been given effect to.

As a result of the subdivision, it is estimated that there will be fifteen Records of Title and approximately eight to nine household equivalents using Happy Valley Road where its legal width is less than 20m.

The relevant section of Happy Valley Road has an estimated average daily traffic (ADT) of 21, and following the subdivision, the additional traffic is unlikely to exceed an access (low volume) road threshold of less than 50 ADT in a rural area. Although the existing legal and carriageway width is less than the requirement for a Rural Type A Road, the additional traffic generated by the proposal is minimal, and no upgrades or widening (besides legalisation of encroachments) is proposed.

The presence (and extent of, where applicable) of any encroachments of the Happy Valley Road formation into Lots 1 – 3 will be confirmed at legal survey stage. If encroachments are identified, these will be resolved through vesting of legal road reserve.

Resolving any encroachments is considered to be an appropriate level of improvement based on the scale of the proposed subdivision, which creates two additional Records of Title and two potential additional household equivalents.

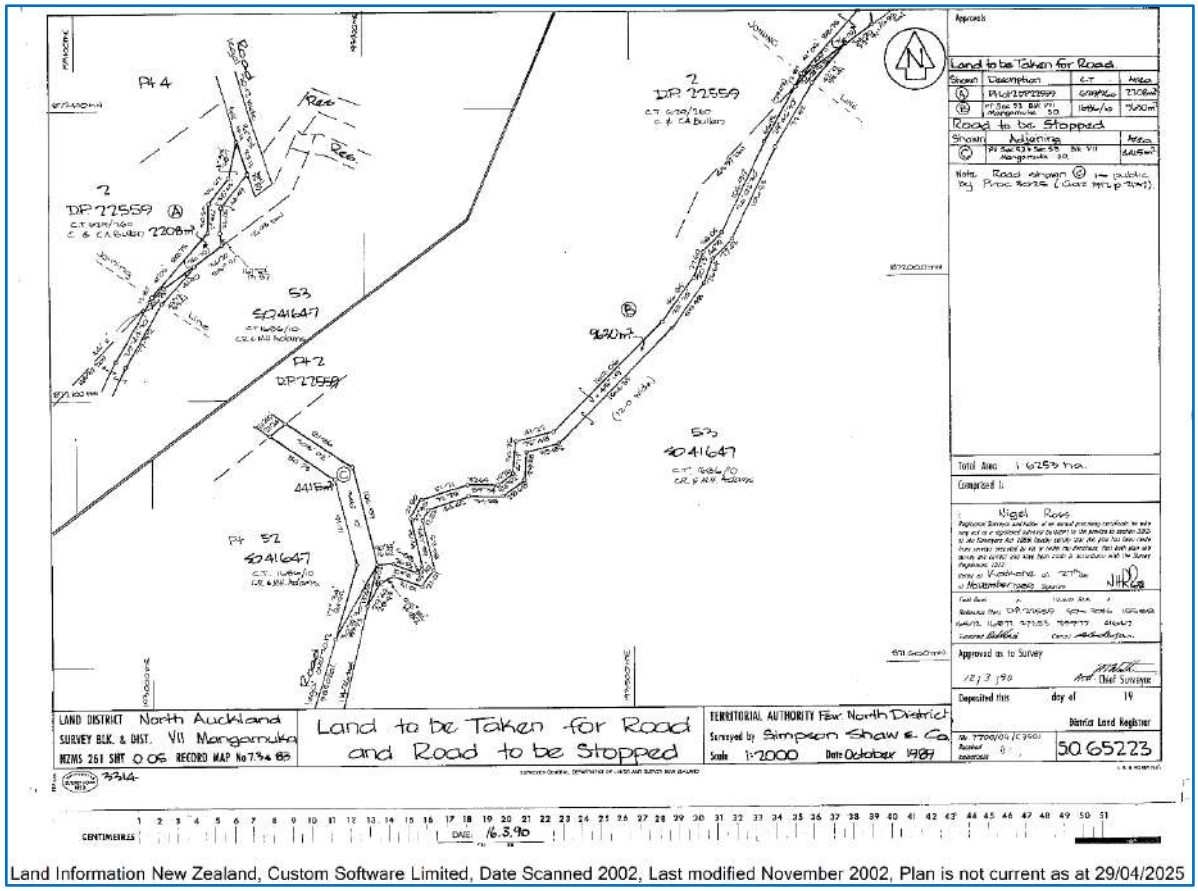


Figure 4: SO 65223

5.2 Natural and Other Hazards

The Site Suitability Report provides an assessment of natural hazards. It states that the proposed development platforms for Lots 2 and 3 are not considered subject to natural hazards or instability. Table 13 of the Site Suitability Report states that effects related to erosion, overland flow paths, flooding and inundation, and landslip can be mitigated so that resultant effects are less than minor, while the remainder of potential natural hazards (rockfall, alluvion, avulsion, unconsolidated fill, soil contamination, subsidence, fire hazard and sea level rise) are not applicable. Refer to **Appendix 2**.

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

A typical consent notice condition, requiring that the on-site water supply that is established at the time that a dwelling is built on Lots 2 and 3 be suitable for fire fighting use, is anticipated as part of the subdivision consent. Likewise, the suitability of vehicle access for use by fire fighting vehicles will depend on the final location and design of the dwelling and its individual access.

Those matters aside, each lot has suitable building areas that are located more than 20m from areas of vegetation, in order to avoid and minimise the risk of fire hazard to a less than minor level.

5.3 Water Supply

Potable water will be supplied within each 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 applied. The proposal will not result in any adverse effects in terms of water supply.

5.4 Stormwater Disposal

Future development of Lots 2 and 3 is likely to result in a small percentage of impermeable area within the sites, all of which will comply with the permitted activity standard of the Rural Production Zone of the Operative District Plan.

Stormwater management within the proposed subdivision is designed to control stormwater flows, reduce scour and ensure compliance with District and Regional Plan rules. It discusses conceptual stormwater management for the subdivision, including:

- No stormwater management required for Lot 1, which has existing onsite development in compliance with the permitted activity threshold for the Rural Production Zone.
- Lot specific roof rainwater attenuation devices for Lots 1 and 2, with one 25,000 litre tank being sufficient for attenuation and potable storage.
- Overflow from rainwater detention tanks to be piped to a designated discharge point downslope of proposed building footprints and wastewater disposal fields. Disposal via either above ground level spreader or an equivalent in-ground dispersion trench, to be sized at building consent stage to limit scour and erosion from tank overflows.
- Collect driveway water by channel or swale and discharge to pasture areas. Control concentrated discharging using energy dissipation devices, such as rip rap aprons. New impervious areas for site access will not present any considerable increase in post-development runoff, and no specific attenuation is proposed.

Following stormwater management as detailed above, and using normal best practice, the risk of stormwater contaminants being discharged out of the lot boundaries or affecting downstream water quality is considered to be low. In summary, with the proposed management of stormwater at subdivision and building consent stage, it is considered that the proposal will avoid adverse effects related to stormwater.

5.5 Sanitary Sewage Disposal

On-site treatment and disposal of wastewater is addressed in the Site Suitability Report in **Appendix 2**, which provides a concept design summary of a secondary wastewater treatment quality with Pressure Compensating Dripper Irrigation disposal, with a soil loading rate of 2mm per day. The disposal field may be surface laid with mulch and planting above, or otherwise subsurface laid to topsoil with topsoil and lawn grass planted above. Indicative areas on the lots available for effluent disposal are shown on the Site Suitability Report Plan Drawing 100, and these will be subject to final design depending on the house site location and occupancy. This will include consideration of Proposed Regional Plan Rules C.6.3.1.3(6)(a) – (f) where the disposal field slope exceeds 10°.

As the site conditions have been deemed suitable for onsite wastewater treatment and disposal, and this will be achievable in accordance with the relevant permitted activity District and Regional rules, it is considered that the proposal avoids adverse effects in relation to sanitary sewage disposal, and the Site Suitability Report notes that the proposed wastewater disposal concept will have a less than minor effect on the environment. Final design of the effluent treatment and disposal system will be submitted at building consent stage, and a consent notice condition for Lots 2 and 3 to this effect can be applied.

5.6 Energy & Telecommunications Supply

Refer to the correspondence from Top Energy in **Appendix 3**, which notes that they have nil requirements, that Lots 1 and 2 have an existing power supply, and that costs to supply power could be provided after application and an on-site survey have been completed. No new connections will be installed as part of this subdivision as these are not required by Rule 13.7.3.7 given that the subdivision does not create urban allotments. The standard consent notice condition advising that electricity and telecommunications have not been made a condition of the subdivision consent can be applied to Lots 2 and 3.

5.7 Easements for any Purpose

Easement 'E' over Lot 2 is shown on the Scheme Plan for right of way to benefit Lot 3. This easement will facilitate access to a future building site on Lot 3, using the existing entrance to Lot 2.

5.8 Earthworks and Utilities

Earthworks to complete the subdivision will involve formation of a 3m wide private vehicle access over easement 'E'. The formation already generally exists as a farm track, but will likely require minor widening, removal of any unsuitable material, and application of aggregate for basecourse and running course layers. Easement 'E' has an approximate length of 80m, so based on a 4m width, a maximum overall depth of 0.4m, plus stormwater drainage as required, the total volume of earthworks will be in the vicinity of 150m³. Beyond that point, earthworks to form access to the boundary of Lot 3 will be located within the unnamed partly formed legal road, in the location of the existing farm track.

General earthworks recommendations, and a recommendation for an Erosion and Sediment Control Plan to be submitted for Council's approval prior to the commencement of earthworks are specified in the Site Suitability Report in **Appendix 2**.

Adverse effects related to earthworks are avoided by standard erosion and sediment control measures.

No new above ground utilities are proposed.

5.9 Preservation of Heritage Resources

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

Besides any upgrade of existing farm access carriageways, no earthworks or other land disturbance is proposed as part of the subdivision. Nevertheless, the standard Accidental Discovery Protocol advice note can be applied to the consent, outlining the procedures to be followed should any archaeological sites be inadvertently uncovered, in order to avoid adverse effects on heritage resources.

5.10 Vegetation and Fauna

The property includes areas of indigenous vegetation, which are subject to proposed protection via land covenants and corresponding consent notice condition. Some of these areas form part of the 'Orira River Remnants' ecological unit (O05/148) within the Hokianga Ecological District, as mapped by the Department of Conservation, and area D includes NRC mapped heathland.

The proposal itself avoids direct adverse effects on indigenous vegetation, and in the long term, a positive effect may ensue as this vegetation will be protected from clearance by future landowners.

Part of the northern boundary of Lot 3 adjoins or includes a tributary of Waihou River, while Lot 2 incorporates a tributary to Orira River (this is generally located within bush covenant area 'B'). Refer to the description of surface water features in Section 3.1 of the Site Suitability Report, which also describes overland flow paths present within the sites. No earthworks or vegetation clearance is proposed within these areas.

Lots 2 and 3 have ample area, allowing them to be developed while maintaining suitable setbacks from these freshwater areas. Provided that best practice erosion and sediment control is undertaken during access upgrades and in long term stormwater disposal to avoid exacerbating erosion and prevent sediment from entering the freshwater features within the site, adverse effects on the freshwater quality can be avoided.

5.11 Landscape Preservation

The proposed lots do not contain any recorded landscape features or areas of high or outstanding natural character.

Parts of Lots 1 – 3 are located within the coastal environment.

On Lot 1, this includes the drained flats and the south facing slopes. Existing built development is not located within this area.

On Lot 2, the part of the site within the coastal environment is within proposed covenant area 'D', so will not be affected by future built development.

On Lot 3, the concept development areas are not located within the coastal environment, and future buildings are unlikely to be located on the steep south facing slope on the southern portion of this lot.

Taking into account the above factors, it is considered that the natural character of the coastal environment can be preserved following the subdivision and future development on Lots 2 and 3.

5.12 Access to Reserves and Waterways

The subject site is separated from Waihou River / Hokianga Harbour by an existing Marginal Strip.

Tributaries to Waihou River and Orira River will be retained within Lots 3 and 2 respectively, with areas exceeding 4ha, there are no esplanade area requirements arising from the proposed subdivision.

The proposal has no implications in terms of public access to reserves or waterways and does not necessitate the provision of an esplanade reserve or strip.

5.13 Land Use Compatibility

Lots 1 - 3 are located in a predominantly rural environment. They are of sufficient size that future dwellings on Lots 2 and 3 can achieve suitable setbacks from existing farming activities with space for further planting around their boundaries.

The lots have frontage to an unsealed road where dust may be a nuisance to residents, particularly in dry weather. These potential effects are mitigated through existing planting, and through the substantial setback distances between existing and proposed buildings and the road. A typical advice note that is applied to subdivision consents where the lots adjoin an unsealed road notes that unsealed roads can create a dust nuisance from vehicle usage and recommends that any dwellings be placed as far as possible from the road and/or boundary planting within the site can be used to reduce this.

Overall, the proposed subdivision is not considered to generate any adverse effects associated with land use compatibility or reverse sensitivity issues that will be more than minor.

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 – 6.6 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*
- *National Policy Statement for Highly Productive Land*
- *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 ("NESCS")

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.[6]

Review of historic aerial photography using Retrolens, and more recent aerial and satellite photography indicates that the property has been predominantly in pasture since 1942, with areas of natural vegetation in the steeper parts of the site.[7] The existing buildings on Lot 1, together with the formed accessway, were established by 1968 onwards. There is no apparent evidence that the site has been used for any of the activities listed 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) Amendment Regulations 2022

Proposed covenant area 'D' is recorded as a 'Heathland' type wetland within the Northland Regional Council Biodiversity Wetlands mapping. Permanent protection of this area is proposed.

The subject site contains other freshwater features, including ponds, overland flow paths, and tributaries to the main rivers in the Orira River and Waihou River catchments. No works are proposed downstream which would dam or drain these freshwater areas and no new culverts within waterways are necessary for the proposal.

Earthworks to complete vehicle access to the lots over easement 'E' will follow existing alignments, and will be located more than 100m from the mapped heathland area shown in **Figure 4**.

[6] Northland Regional Council (n.d.): *Selected Land-use Register Map.* Retrieved 30 April 2025 from https://localmaps.nrc.govt.nz/localmapsviewer/?map=65b660a9454142d88f0c77b258a05f21

[7] Sourced from http://retrolens.nz and licensed by LINZ CC-BY 3.0

Figure 5 shows the available setbacks between areas of mapped biodiversity wetland and the existing farm track, which in all cases exceeds 100m.

Figure 5: Biodiversity Wetland Mapping – setbacks to existing farm track over Lot 2 and unnamed legal road.

An area above the farm pond has swampy characteristics, however, the potential future upgrade of access over easement E, and the possible building sites on Lot 2, are all located upslope of this area, and can be completed so that earthworks can achieve a 10m setback. However, there will be earthworks and diversion and discharge of stormwater within a 100m setback from a natural inland wetland. Regulations 52 and 54 are relevant.

As future works will be located upslope from the wetland, so will not result in any drainage or damming of downslope wetland in terms of Regulation 52.

Stormwater diversion and discharge will occur in accordance with the Site Suitability Report recommendations, involving flow attenuation of roof water using a detention volume within the rainwater storage tanks, and overflow to be discharged via a dispersal trench / spreader pipe. On this basis, although there is a hydrological connection between discharge of stormwater and potential downslope wetland, it is unlikely that the discharge will change the water level range or hydrological function of the wetland.

Therefore, consent is not considered necessary pursuant to these regulations.

Irrespective, best practices management of stormwater and avoidance of scour and erosion, including during any earthworks, will be required to avoid adverse effects on water quality.

6.2 National Policy Statements

6.2.1 National Policy Statement for Highly Productive Land 2022 – Amended August 2024 ("NPS-HPL")

The sole objective of the NPS-HPL is that "highly productive land is protected for use in land-based primary production, both now and for future generations".

The subject site is zoned Rural Production under the Operative and Proposed District Plans. It includes Land Use Capability ("LUC") unit VIe9 land, which does not meet the definition of 'highly productive land' as per the NPS-HPL.

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.

Most relevant to this proposal is 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:

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 below:

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.

Direct ecological effects are avoided as the subdivision does not necessitate any clearance of indigenous vegetation, and as future building sites are available in areas which will not disturb any indigenous vegetation. Land covenants are proposed over the areas of indigenous vegetation within the site, to ensure that they are preserved.

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 partly 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. The site includes land both inside and outside the coastal environment. Significant adverse effects are avoided, while other effects can be avoided and mitigated so that they are no more than minor on threatened or at risk indigenous taxa, significant indigenous vegetation and habitats, and areas set aside for protection of indigenous biodiversity under other legislation (clause 1). Where clause (1) does not apply, clause (3) specifies that subdivision, use and development must avoid, remedy or mitigate adverse effects on areas of predominantly indigenous vegetation, habitats of indigenous species important for recreational, commercial, traditional or cultural purposes, and indigenous ecosystems and habitats that are particularly vulnerable to modification. Where adverse effects cannot be reasonably avoided, remedied or mitigated, clause (5) suggests consideration of the next steps in the mitigation hierarchy. This proposed subdivision and subsequent land use activities are considered to be consistent with policies (1) and (3), as they do not necessitate the clearance of indigenous vegetation and furthermore, provides for the permanent protection of areas of indigenous bush, including most of the vegetation within the Department of Conservation's protected natural area mapping and an area recorded as heathland. The proposal therefore avoids direct effects arising from clearance of indigenous vegetation. Potential indirect adverse effects arising from increased residential use on the land, including the keeping of pets that may threaten bird life, can be avoided and mitigated through ensuring that future owners keep their pets responsibly, using standard consent notice conditions.

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), (f), (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 Site Suitability 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.
- The site is not near any significant mineral resources;
- 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, or transport corridors;
- The proposal has no direct effect on historic or cultural heritage features.
- Existing areas of significant vegetation are to be protected by proposed land covenants and consent notice conditions;
- Adverse effects associated with natural hazards and downstream flooding are avoided. Existing and future impermeable surface coverage is likely to be low.
- The site does not contain highly versatile soils and the proposal complies with the restricted discretionary activity subdivision standards under the Operative Far North District Plan, and is therefore a change that is anticipated and provided for;
- 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 – Far North Operative District Plan

The objectives and policies of the Rural Environment, Rural Production Zone, Subdivision and Transportation Sections of the District Plan are relevant to this proposal. As the proposal meets the restricted discretionary activity criteria for subdivision in the Rural Production Zone, it is considered that the proposal will be consistent with the subdivision and zone strategies of the District Plan. The relevant Transportation objectives and policies

Transportation

15.1.3 OBJECTIVES

15.1.3.1 To minimise the adverse effects of traffic on the natural and physical environment.

15.1.4 POLICIES

15.1.4.1 That the traffic effects of activities be evaluated in making decisions on resource consent applications.

15.1.4.6 That the number, size, gradient and placement of vehicle access points be regulated to assist traffic safety and control, taking into consideration the requirements of both the New Zealand Transport Agency and the Far North District Council.

The proposal creates two additional titles, with an assumed future residential use on each. The subdivision uses existing vehicle crossing points, which are located with suitable visibility, and

6.5 Objectives and Policies - Far North Proposed District Plan

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

Rural Production Zone

Objectives

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

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

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

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

Policies

RPROZ-P3 Manage the establishment, design and location of new sensitive activities and other non-productive activities in the Rural Production Zone to avoid where possible, or otherwise mitigate, reverse sensitivity effects on primary production activities.

RPROZ-P4 Land use and subdivision activities are undertaken in a manner that maintains or enhances the rural character and amenity of the Rural Production zone, which includes:

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

RPROZ-P6 Avoid subdivision that:

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

RPROZ-P7 Manage land use and subdivision to address the effects of the activity requiring resource consent, including (but not limited to) consideration of the following matters where relevant to the application:

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

g. *potential reverse sensitivity effects on primary production activities and existing infrastructure;*
h. *the potential for loss of highly productive land, land sterilisation or fragmentation at zone interfaces:*
i. *any setbacks, fencing, screening or landscaping required to address potential conflicts;*
j. *the extent to which adverse effects on adjoining or surrounding sites are mitigated and internalised within the site as far as practicable;*
k. *the capacity of the site to cater for on-site infrastructure associated with the proposed activity, including whether the site has access to a water source such as an irrigation network supply, dam or aquifer;*
l. *the adequacy of roading infrastructure to service the proposed activity;*
m. *Any adverse effects on historic heritage and cultural values, natural features and landscapes or indigenous biodiversity;*
n. *Any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.*

The above strategies are similar in nature to those for the Rural Production Zone of the Operative District Plan; however, they give more emphasis to the protection of primary production activities and highly productive land. As noted, the site does not contain highly productive land. Although the lot sizes proposed are larger than a typical rural lifestyle site in terms of RPROZ-P6, a rural lifestyle use is preferable given the steep site conditions. An environmental benefit is proposed by way of permanent protection of bush areas, and RPROZ P6(e) is achieved. The proposed subdivision is not considered to generate any significant reverse sensitivity effects that would constrain any primary production activities.

The proposal has no implications in terms of natural hazards, provided that the Site Suitability Report recommendations are followed.

On site servicing on Lots 2 and 3 is feasible, as described in the Site Suitability Report. Rural character and amenity values can be preserved, with a low density of residential buildings within the pastoral, bush and forestry landscape being maintained.

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 mitigates and existing risks reduced; and*
f. *manages adverse effects on the environment.*

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

SUB-O3 Infrastructure is planned to service the proposed subdivision and development where:
a. *there is existing infrastructure connection, infrastructure should provided in an integrated, efficient, coordinated and future-proofed manner at the time of subdivision; and*
b. *where no existing connection is available infrastructure should be planned and consideration be 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 is in accordance the purpose, characteristics and qualities of the zone.*

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

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

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 Production Zone objectives. The proposed subdivision and future land use activity on Lots 2 and 3 can proceed, without generating any significant adverse impact on character, amenity values, heritage or cultural values, land use compatibility, supply of services and infrastructure, and does not increase natural hazard risk. The lots have existing legal and physical access.

Policy P8 relates to rural lifestyle subdivision in the Rural Production Zone. It directs the avoidance of rural lifestyle subdivision unless it (a) protects a qualifying SNA in perpetuity and the SNA is added to the District Plan SNA schedule, and (b) it will not result in the loss of versatile soils for primary production activities. The proposed lot sizes are larger than a typical rural lifestyle site, however retiring the steeper land on Lots 2 and 3 from pastoral farming is considered to be the most efficient use of the land, which does not include versatile soils. The proposal provides protection to areas of indigenous vegetation – there is no SNA mapping in the Proposed District Plan, but the mapped Protected Natural Area and heathland biodiversity wetland areas will be protected. Therefore, we consider that the intent of this policy is met.

Coastal Environment

Objectives

CE-O2 and use and subdivision in the coastal environment:

a. *preserves the characteristics and qualities of the natural character of the coastal environment;*
b. *is consistent with the surrounding land use;*
c. *does not result in urban sprawl occurring outside of urban zones;*
d. *promotes restoration and enhancement of the natural character of the coastal environment; and*

recognises tangata whenua needs for ancestral use of whenua Māori.

CE-P3 Avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of land use and subdivision on the characteristics and qualities of the coastal environment not identified as:

a. *outstanding natural character;*
b. *ONL;*
c. *ONF.*

CE-P4 Preserve the visual qualities, character and integrity of the coastal environment by:

a. *consolidating land use and subdivision around existing urban centres and rural settlements; and*
b. *avoiding sprawl or sporadic patterns of development.*

CE-P5 Enable land use and subdivision in urban zones within the coastal environment where:

a. *there is adequacy and capacity of available or programmed development infrastructure; and*
b. *the use is consistent with, and does not compromise the characteristics and qualities.*

CE-P10 Manage land use and subdivision to preserve and protect the natural character of the coastal environment, and 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. *the presence or absence of buildings, structures or infrastructure;*
b. *the temporary or permanent nature of any adverse effects;*
c. *the location, scale and design of any proposed development;*
d. *any means of integrating the building, structure or activity;*
e. *the ability of the environment to absorb change;*
f. *the need for and location of earthworks or vegetation clearance;*
g. *the operational or functional need of any regionally significant infrastructure to be sited in the particular location;*
h. *any viable alternative locations for the activity or development;*
i. *any historical, spiritual or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6;*
j. *the likelihood of the activity exacerbating natural hazards;*

k. the opportunity to enhance public access and recreation;
l. the ability to improve the overall quality of coastal waters; and
m. any positive contribution the development has on the characteristics and qualities.

The Coastal Environment applies to parts of the site where a change of land use, including new buildings, will not result from the subdivision. Areas of indigenous vegetation will be protected via the subdivision, and no indigenous vegetation clearance is required. As such, it is considered that the subdivision will preserve the natural character and visual qualities of the coastal environment. The subdivision is not urban in nature, and is consistent with the overall range of lot sizes in the surrounding environment so as to avoid sprawling or sporadic development patterns.

Adverse effects on coastal water quality can be avoided through careful management of stormwater, wastewater and earthworks.

The proposal does not have direct frontage to Waihou River, as there is an existing Marginal Strip in this location.

6.6 Regional Plans

6.6.1 Proposed Regional Plan for Northland (February 2024)

As noted in the Site Suitability Report, stormwater management within the proposed subdivision is designed to control stormwater flows, reduce scour and ensure compliance with the District and Regional Plan Rules. Stormwater management proposals for the site are based on Proposed Regional Plan for Northland Rule C.6.4.2. This will include:

- To receive the maximum treatment benefits from overland flow stormwater shall be dispersed via a spreader bar device.
- Rainwater collection tanks on each Lot, with overflows piped to dispersed outlets.
- Collect driveway water by channel or swale and discharge to pasture areas. Control concentrated discharging using energy dissipation devices, such as rip rap aprons. New impervious areas for site access will not present any considerable increase in post-development runoff, and no specific attenuation is proposed.

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 Site Suitability Report. An effluent field and reserve area can be located on Lots 2 and 3 in compliance with the current rules. Assessment of compliance will be required at building consent stage, with particular regard to the conditions that apply where the disposal area is steeper than 10 degrees.

Minimal earthworks are required to complete the subdivision, being those associated with upgrade of vehicle crossings and internal access. This will be well within the permitted activity limit allowed by the Proposed Regional Plan.

No consents are considered necessary for the proposed subdivision under the Proposed Regional Plan for this proposal, although careful design of the stormwater and onsite wastewater system and earthworks will be required at building consent stage.

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 in appropriate subdivision, use and development:

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

(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 proposal is considered to promote sustainable management as per the purpose of the Act (Section 5) by creating two additional allotments while avoiding adverse effects. The proposed lots have been assessed as suitable in terms of onsite servicing, and public and private access. The proposed subdivision represents a scale of subdivision anticipated by the Operative District Plan as a restricted discretionary activity. It provides for the economic and social well-being of the owner of the subject property by creating two additional Records of Title, which are deemed suitable for their intended purpose, are located to cause the least disruption to continued farming activities within Lot 1, and can be developed in such a way that avoids and mitigates adverse effects resulting from additional traffic, property access, wastewater treatment and disposal, and stormwater disposal.

Proposed Land Covenants and Consent Notice conditions are proposed to protect the areas of indigenous vegetation within the property, in accordance with matter 6(c). These bush areas also cover the riparian margins of the tributary of Orira River and the natural character of these areas will be retained as per matter 6(a). Likewise, the proposal avoids adverse effects on the natural character of the part of the site within the coastal environment. The Site Suitability Report provides an assessment of natural hazards included in Section 106 of the RMA, and outlines that the risk of the relevant hazards can be mitigated so as to be less than minor.

The proposed subdivision is considered to be an efficient use of this land. Future building sites on Lots 2 and 3 can be developed without affecting overall amenity values, and the predominant rural character will be retained. The proposal will maintain amenity values and the overall quality of the environment in terms of section 7.

Consultation with Te Rarawa has been initiated as described in Section 7 of this Report, in relation to the adjacent statutory acknowledgement area of Hokianga Harbour. The proposal has no other known implications in terms of the Treaty of Waitangi.

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

7. Consultation & Notification Assessment

7.1 Consultation

The subject site adjoins a Crown owned Marginal Strip. Comments have been sought from the Department of Conservation. Refer to **Appendix 5**.

Comments have been invited from Te Rarawa. Refer to Section 7.3 below, and **Appendix 6**.

7.2 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 in terms of Section 95A(5).

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 such, public notification is not considered necessary.

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

7.3 Limited Notification

Step 1: The adjacent Hokianga Harbour, and part of Lot 1 is a statutory acknowledgement area, being described as 'Hokianga Harbour' as shown on OTS-074-03, with the Te Rarawa Deed of Settlement recognising the association between Te Rarawa and the Hokianga Harbour. The application site is therefore on and adjacent to land that is the subject of a statutory acknowledgement as per Section 95B(3)(a) of the RMA 1991. Section 95B(3)(b) requires consideration of whether Te Rarawa is an affected person under Section 95E.

As Lot 1 already contains an existing dwelling and farming operations, future changes to the land arising from the subdivision are anticipated as being a future dwelling on Lots 2 and 3, and these would be located outside of, and more than 250m away from, the statutory acknowledgement area. The Site Suitability report has designed conceptual stormwater and wastewater management to avoid adverse water quality or erosion effects that would impact either Waihou or Orira Rivers and their catchments, and therefore the wider Hokianga Harbour awa, and there is ample area on these lots for that purpose. Therefore, the proposed subdivision and future use of Lots 2 and 3 are highly unlikely to have any direct or indirect environmental impact on the Hokianga Harbour statutory acknowledgement area that would cause Te Rarawa to be an affected person. Nevertheless, we have invited comments from Te Rarawa, which will be considered and responded to if received.

Step 2: Limited notification is not precluded.

Step 3: In terms of Section 95E, we note that the subdivision complies with the restricted discretionary activity standard, however the existing legal and carriageway width of Happy Valley Road imparts an overall discretionary activity status.

The range of actual and potential adverse effects is set out in Section 5 of this Report. It is considered that proposed subdivision's adverse effects on any person will not be minor or more than minor as:

- No effects on the ability of the Department of Conservation to administer or manage the Marginal Strip adjacent to Lot 1 are anticipated.
- Stormwater and wastewater will be managed within Lots 2 and 3 so as to avoid off-site effects.
- The proposed lots are located amongst a range of varying lot sizes and will remain in accordance with the existing nature of the area. The lot sizes proposed are in accordance with the Operative District Plan restricted discretionary activity criteria.

- Proposed land covenants and consent notice conditions will protect areas of indigenous bush on the property and ensure that potential adverse effects on these areas are avoided.
- Vehicle crossings off Happy Valley Road are established. Minimal earthworks are required to form access to the boundary of each lot.
- Erosion and sediment control will be in place for the duration of earthworks.
- Minimal additional traffic will potentially be generated by the proposed subdivision.
- There is a low level of existing use of Happy Valley Road through and beyond the subject site, with estimated average daily traffic being 21. Disruptions or reduced level of service on Happy Valley Road is unlikely to occur as a result of the subdivision.
- Fire risk can be mitigated using the standard consent notice condition requirement for on-site water storage / supply for fire fighting. Suitable setbacks from areas of vegetation are available on the lots to avoid and minimise fire risk.

No person is expected to suffer from adverse effects that exceed a 'less than minor' level. As such, the proposal has no adverse effects on any person, and limited notification is not required.

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

7.4 Summary of Notification Assessment

As outlined above, and pending any response from Te Rarawa, 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.

8. Conclusion

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

- The adverse effects on the environment resulting from the proposed activity will be less than minor.
- The proposal is considered to be consistent with the relevant objectives and policies of the Operative District Plan and the Proposed District Plan;
- The Operative District Plan is considered to be afforded greater weight at this time.
- The proposal is not contrary to the Regional Policy Statement for Northland, the National Policy Statement for Highly Productive Land 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:

- Consultation has been initiated with Department of Consultation and Te Rarawa.
- No other written approvals have been sought as it is considered that there are no other persons who will be adversely affected by the proposed activity.

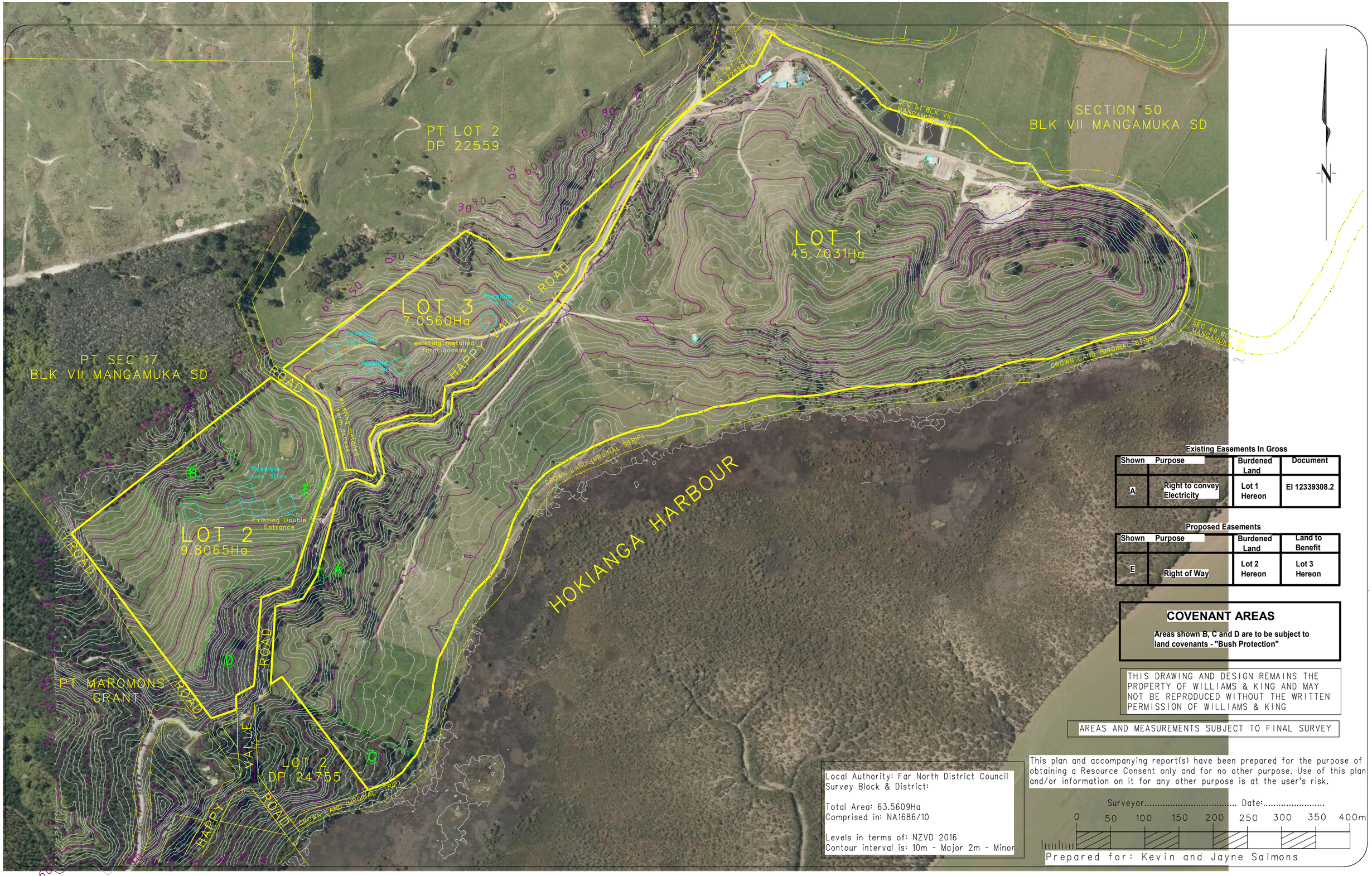
For these reasons it is requested this application be considered to be a non-notified application, and that the Council grant consent to the proposal, under delegated authority, as detailed in the application and supporting information.

Signed .....
Natalie Watson,
Resource Planner

Date: 22 September 2025
WILLIAMS & KING
Kerikeri

9.0 Appendices

Appendix 1 Scheme Plan
Appendix 2 Geologix Consulting Engineers Site Suitability Report
Appendix 3 Record of Title
Appendix 4 Top Energy Correspondence
Appendix 5 Department of Conservation - Consultation Record
Appendix 6 Te Rarawa – Consultation Record



Existing Easements In Gross

Shown	Purpose	Burdened Land	Document
A	Right to convey Electricity	Lot 1 Hereon	EI 12339308.2

Proposed Easements

Shown	Purpose	Burdened Land	Land to Benefit
E	Right of Way	Lot 2 Hereon	Lot 3 Hereon

COVENANT AREAS

Areas shown B, C and D are to be subject to land covenants - "Bush Protection"

AREAS AND MEASUREMENTS SUBJECT TO FINAL SURVEY

Local Authority: Far North District Council
Survey Block & District:

Total Area: 63.5609Ha
Comprised in: NA1686/10

Levels in terms of: NZVD 2016
Contour interval is: 10m - Major 2m - Minor

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.

Surveyor..... Date:.....

0 50 100 150 200 250 300 350 400m

Prepared for: Kevin and Jayne Salmons

WILLIAMS AND KING
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Email: kerikeri@surveyandplanning.co.nz
27 Hobson Ave
PO Box 937 Kerikeri

PROPOSED SUBDIVISION OF PT SECTIONS 52 & 53 BLOCK VII MANGAMUKA SURVEY DISTRICT

	Name	Date
Survey		
Design		
Drawn	GJ	25.07.24
Approved		
Rev		

ORIGINAL SCALE 1:5000 SHEET SIZE A3

Surveyors Ref. No:
1:5000
Series
Sheet of

geologix
consulting engineers

SUBDIVISION SITE SUITABILITY ENGINEERING REPORT

231 HAPPY VALLEY ROAD, UMAWERA

KEVIN AND JAYNE SALMONS

C0544-S-01
AUGUST 2025
REVISION 2

geologix
consulting engineers

DOCUMENT MANAGEMENT

Document Title	Subdivision Site Suitability Engineering Report
Site Reference	231 Happy Valley Road, Umawera
Client	Kevin and Jayne Salmons
Geologix Reference	C0544-S-01
Issue Date	August 2025
Revision	02
Prepared by (Civil)	Sander Derks Graduate Civil Engineer, Dip. Eng
Prepared by (Geotechnical)	Luke Williams Intermediate Geotechnical Engineer, BEngTech (Civil), NZDipEng (Civil), MEngNZ 
Reviewed	Sebastian Hicks Principal Civil Engineer, CPEng Reg. 1168062, CMEngNZ, IntPE(NZ) /APEC Engineer 
Approved by	Edward Collings Managing Director, CEnvP, CPEng. CMEngNZ 
File Reference	*Z:\Projects\C0500-C0599\C0544 - 231 Happy Valley Road, Umawera\06 - Reports\C0544-S-01-R01.docx*

REVISION HISTORY

Date	Issue	Prepared	Reviewed	Approved
November 2024	First Issue – For Consent	SD, LW	SH	EC
August 2025	Revision – For Consent	SH	SH	EC

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TABLE OF CONTENTS

FIGURES

TABLES

1 INTRODUCTION

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

Our scope of works has been undertaken to assist with Resource Consent/ Building Consent application in relation to the proposed subdivision of a rural property (Section 53 Block VII Mangamuka SD) comprising a total net area of 53.72 Hectares (HA) off Happy Valley Road, Umawera, the 'site'.

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

1.1 Proposed Development

A proposed scheme plan was presented to Geologix, prepared Williams and King[1] and reproduced within Appendix A. *A revised scheme plan was received 15 May 2025 and this Revision 2 report has been prepared to suit.* It is understood the Client proposes to subdivide the site to create two new residential lots (proposed lots 2 and 3) in the northwest part of the site, with an existing dwelling remaining on the balance lot (proposed lot 1). The above is outlined in Table 1 below. Amendments to the referenced scheme plan may require an update to the recommendations of this report which are based on conservative, typical rural residential development concepts.

Table 1: Summary of Proposed Scheme

Proposed Lots	Size	Purpose
1	45.7031 ha	Existing residential
2	9.8065 ha	New residential
3	7.0560 ha	New residential

Happy Valley Road divides the original parent property Part Section 53 Block VII roughly centrally. Access is to be provided to proposed lots 2 and 3 from an existing metalled farm accessway within a paper road reserve that intersects Happy Valley Road with an existing crossing place. Lot 3 access is proposed to be provided from the paper road at the Lot's western boundary.

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.

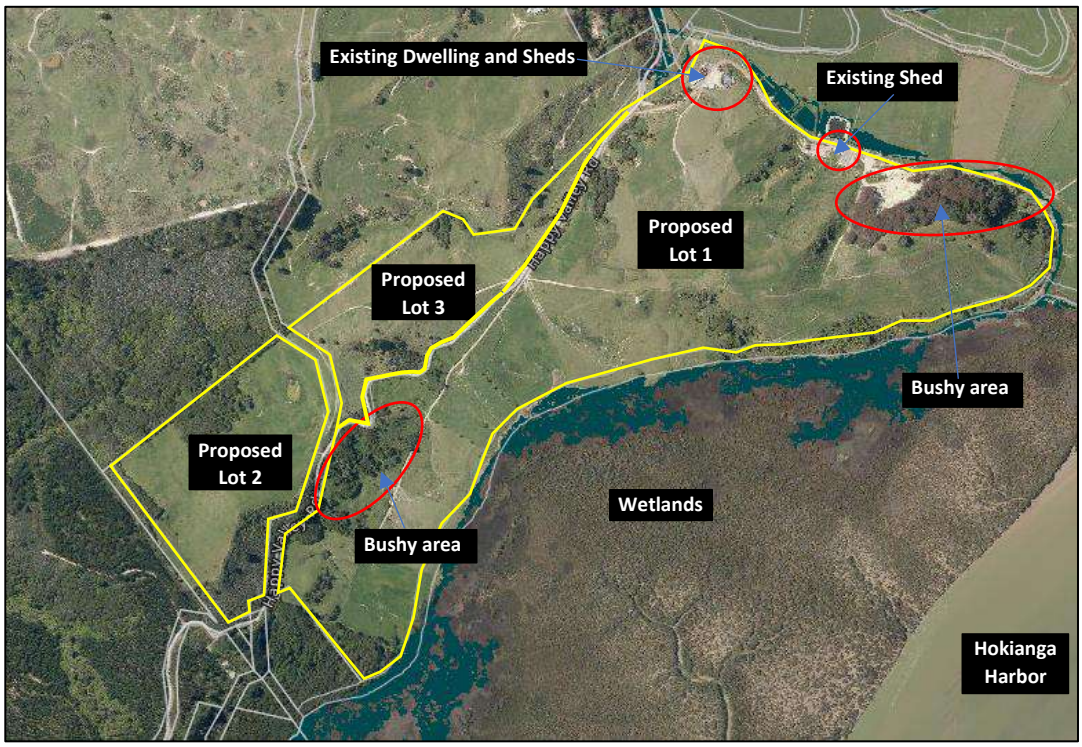
[1] *Williams and King, Scheme Plan Ref. 23457.01 and 23457.02, dated August 2021.*

2 DESKTOP APPRAISAL

The two proposed lots for future development (Lots 2 and 3) are located on the north-western aspect of Happy Valley Road which has an irregular alignment that also defines the north-western boundary of Lot 1. Topographically, the site area is undulating with ridges and gullies trending in all directions through the site. The overall slope of the terrain is gentle to moderately sloping.

The site is generally bounded by the Hokianga Harbour/ wetland area along the south-eastern boundary of the site, and other rural lots in all other directions. The site setting is presented schematically as Figure 1 below.

Figure 1 – Site Setting[2]



The predominant amount of the site area is currently in pasture with rough grass. There are multiple areas of dense trees/ bush located in the eastern part of the site and are subject to land covenants. An existing dwelling and sheds are located on the northern most aspect of the overall site, within the proposed lot 1 (existing residential). A detailed review of existing watercourses and overland flow paths is presented as Section 3. In brief, the site is intersected by multiple small ditches, draining to either side of a central ridgeline to ponds or watercourses, then discharging to the bordering Coastal Marine Area (CMA).

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

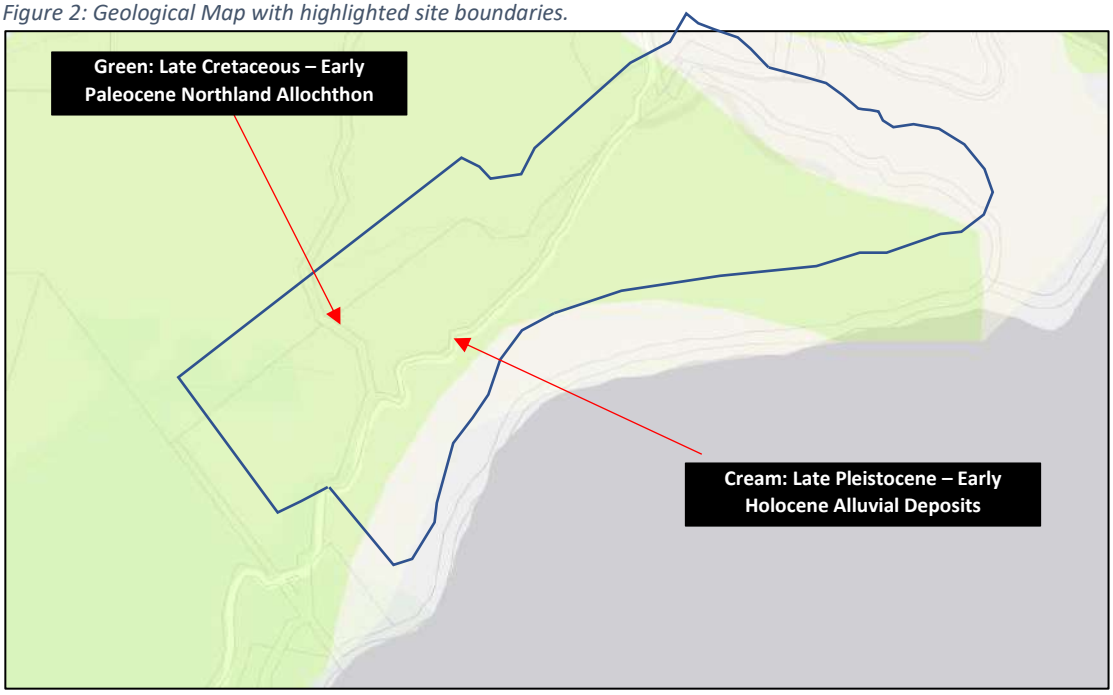
2.1 Existing Reticulated Networks

Far North District Council (FNDC) GIS mapping indicates that no existing 3 water infrastructure or reticulated networks are present the site boundaries. This report has been prepared with the goal of the subdivision being self-sufficient for the purpose of wastewater, stormwater, and potable water management.

2.2 Geological Setting

Available geological mapping[3] indicates the site is predominantly underlain by Late Cretaceous to Early Paleocene aged Whangai Formation (Mangakahia complex) soils in Northland Allochthon described as Fissile, dark grey to white-weathering siliceous mudstone, blue-grey calcareous mudstone, and minor micritic limestone and chert. Minor black carbonaceous shale (Waipawa Black Shale). Refer to Figure 2 below:

Figure 2: Geological Map with highlighted site boundaries.



Late Pleistocene to Early Holocene alluvium consisting of estuary, river and swamp deposits is mapped along the south-eastern boundary of proposed lot 1, described as Unconsolidated to poorly consolidated sand, peat, mud and shell deposits (estuarine, lacustrine, swamp, alluvial and colluvial). Typically, these soils are known for generally poor drainage performance for wastewater disposal.

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

This is considered to be the newest geotechnical deposit of the site. Alluvium whether of Holocene or Pleistocene Age is derived from the erosion and redeposition of subsoils, consequently, alluvium is variable in term of consistency and strength with the possibility of organic materials present and high likely hood of loose sandy soils.

The far eastern extent of the Hokianga Harbour and associated wetlands are located along the south-eastern boundary of the site, related to the deposition of the river and swamp deposits.

Proposed building envelopes are located in the north-western part of the site and are expected to exclude alluvial deposits and bear on completely on Northland Allochthon soils only. The risk of encountering low-strength alluvial deposits at the proposed building platforms is considered low based on the mapped geology, and placement away from overland flow paths, described further in Section 3 below.

2.3 Existing Geotechnical Information

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

3 SURFACE WATER FEATURES AND OVERLAND FLOWPATHS

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

3.1 Surface Water Features

The site is at the furthest extent of a peninsula that extends into the upper limits of the Hokianga Harbour. Within the site, there are some small to medium sized ponds spread over all lots with one expressed specifically in Lot 2 near the proposed building envelope.

A ridgeline extends along the centre of the site from northeast to southwest. There are three catchments within the site:

- The southern catchment drains the ridge's southern face, mostly comprising Lot 1, directly to the CMA within the Hokianga Harbour.
- The north-western catchment, comprising Lot 2, drains westerly into the Orira River (CMA).

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

- The northern catchment, comprising Lot 3, drains east along the site's northern boundary before dispersing into an unnamed watercourse within the flat agricultural properties north of the site. This ultimately discharges to the CMA through sensitive environmental receptors as detailed below.

3.2 Overland Flow Paths

Clearly defined flow paths are evident within the site boundaries upon gently sloping land to relatively steep sloping land, generally fed from minor overland flow paths sourcing at either the central ridgeline, or the ponds within the site, then flowing to the outer site boundary perimeter. The minor overland flow paths are approximately 50 to 100 m in length attributing to the catchments mentioned above.

Our walkover survey was undertaken in a non-extreme weather period in spring and noted no flow through the overland flow paths. The above is indicated across our drawing set, where in view and detailed with associated off-sets on Drawing No. 100.

3.3 Mapped Flood Hazard

The Northland Regional Council GIS indicates mapped river flood hazard zones with the site's northern proximity, adjacent to Happy Valley Road. The extent of the river flood hazard is marginal, confined within a narrow channel extending up the gulley alongside Happy Valley Road for 1% AEP event at elevations of around 3 – 15m above mean sea level. The 2% and 10% AEP flood plains are present too, but to a lesser extent, to a maximum elevation of 10m AMSL. At these lower elevations, a mapped coastal hazard zone is present.

Beyond the site boundary, the mapped hazard extends to the CMA boundary through neighbouring lots, at elevations of 2 - 5m AMSL, and still confined to narrow cross sections. In this area, the neighbouring lots are comprised of agricultural plains within the flat region that is immediately upstream of the Hokianga Harbour.

These findings suggest that the proposed development will have less than minor effect to flooding of downstream property.

4 GROUND INVESTIGATION

A site-specific walkover survey and intrusive ground investigation was undertaken by Geologix on 25 September 2024.The ground investigation was scoped to confirm the findings of the above information and to provide parameters for the geotechnical and wastewater assessment for the site. The ground investigation comprised:

- Six deep hand augured boreholes designated HA01 - HA03 (proposed lot 2) and HA05 – HA07 (proposed lot 3) formed across the potential building site to final depths of 3.6 m – 4.2 m and 1.0 m – 2.4 m below ground level (bgl), respectively.
- In-situ field vane tests to determine the shear strength of the underlying cohesive soils at 300mm intervals to the termination of the hand augers.

- Hand Augers HA01 – HA03 and HA05 – HA07 were extended by Dynamic Cone Penetrometer (DCP) techniques to determine the presence of harder / denser materials at depth after termination due to hard strata.
- Two shallow hand augured boreholes designated HA04 (Lot 2) and HA08 (Lot 3), inclusive formed within suitable areas of wastewater disposal fields on each proposed residential lot with a target depth of 1.2 m below ground level (bgl).
- Two cross sections (one on each building site) were generated from the Far North District Council (FNDC) GIS contours through the critical slopes on each lot to confirm the ground stability on site. The approximate area of proposed building sites, cross sections and boreholes are shown on the Geologix Drawing No's 100, 101 & 102, attached in Appendix A.
- Measurement of groundwater levels utilising a groundwater dip meter at the end of the site investigation.

4.1 Site Walkover Survey

A visual walkover survey of the property confirmed:

- Topography data supplied is in general accordance with that outlined in Section 2 and observed site conditions.
- The site is currently in rough pasture and dense bush with numerous dirt farm access tracks, see proceeding sections.
- The site is bound in all directions by similar farming or rural lifestyle block properties.
- Happy Valley Road defines the northern boundary Lot 1, then the road splits and becomes the boundary between Lot 1 and 2 to the east of the site. The road does include grassed swale drains which are largely overgrown and require maintenance to clean out.
- Some structures are present within the site boundary. The existing development in Lot 1 consists of a residential dwelling and operational farm buildings including a milking shed. A large culvert crossing beneath the road what looks to be used for stock movement between paddocks is located by the proposed entrance of Lot 3.
- It is noted in our desktop assessment (not visually on site) that there is a geomorphological feature that is immediately west of the existing metalled track in the paper road, above the existing pond in Lot 2, that is proposed to serve as access to Lot 3. Any instability associated with this feature has not been assessed within the scope of this report.

4.2 Ground Conditions

Arisings recovered from the exploratory boreholes were logged by a suitably qualified geotechnical engineering professional in general accordance with New Zealand Geotechnical Society guidelines[5]. Engineering borehole logs are presented as Appendix B to this report and approximate borehole positions recorded on Drawing No. 100, 101 and 102 within Appendix A. Strata identified during the ground investigation can be summarised as follows:

- **Topsoil encountered ranging between 0.1 and 0.3 m bgl.** Described as generally dark brown organic silt with varying amounts of rootlets contents, moist and with low plasticity.

- **Northland Allochthon Residual soils to depths 1.4 to 4.2 m bgl.** Northland Allochthon residual soils were encountered below the topsoil in all boreholes. The residual soils were typically cohesive, described as a mixed stratum of silt and clayey silt with varying amounts of sand and gravels. Vane shear strengths within the cohesive Northland Allochthon were stiff to hard (64kPa to UTP) consistency.

  Stiff soils were only encountered at HA02 and HA03 in proposed Lot 2, between 1.8 – 2.8 m and 2.6 – 3.7m bgl. Shear vane results at every hand auger location across both sites were in excess of 100kPa.

  Fifty-three in-situ field vane tests enabled statistical confirmation of soils strength. Characteristic unit vane shear strength has been determined to be 168 kPa at 95% confidence is the indicative of very stiff material.

- **Completely Weathered Northland Allochthon Parent Rock to depths 2.3 to > 4.9 m bgl.**

  Completely weathered parent rock soils were encountered in all 6 No. deep hand augers locations, found at 2.3 m – 3.9 m bgl across both proposed lots. This unit consisted of silt and sandy silt, with minor clay at localised areas. A blend of colours were present in this layer, consisting of brown, black and grey. Plasticity was noted as low.

  Shear vane testing undertaken in this layer confirmed predominantly UTP conditions, with one test at 199 kPa, generally conforming hard soils, and an undrained shear strength of at least 200kPa.

  DCP probing was undertaken in the base of each deep hand auger test, after hard soils made further investigation with hand equipment impractical. DCP probing returned blow counts between 2 to 17 per 100 mm penetration to 2.8 m bgl, with some isolated softer layers found within the Completely Weathered Northland Allochthon parent rock strata.

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

DCP probing below 2.9 m - 4.5 m confirmed DCP blow counts < 17 per 100mm penetration, confirming a very dense material before termination of the DCP tests.

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

Table 2: Summary of Ground Investigation

Hole ID	Proposed Lot	Hole Depth	Topsoil Depth	Groundwater	Depth to CW Northland Allochthon Parent Rock	Wastewater Category
HA01	2	4.8 m	0.3 m	3.4 m	3.9 m	6 – slow draining
HA02	2	4.2 m	0.1 m	3.5 m	3.75 m	6 – slow draining
HA03	2	4.9 m	0.2 m	3.5 m	3.0 m	6 – slow draining
HA04	2	1.2 m	0.2 m	NE	NE	6 – slow draining
HA05	3	3.3 m	0.1 m	NE	2.3 m	6 – slow draining
HA06	3	3.1 m	0.3 m	NE	3.0 m	6 – slow draining
HA07	3	3.9 m	0.2 m	NE	3.5 m	6 – slow draining
HA08	3	1.2 m	0.2 m	NE	NE	6 – slow draining

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

4.2.1 *Groundwater*

The ground investigation was undertaken during spring and formed exploratory boreholes to depths greater than any expected potential excavation to form typical rural residential building platforms. Groundwater levels were monitored utilising a groundwater dip meter on the day of drilling, the results summarised in Table 2 above. Groundwater was not encountered in HA04 – HA08 during our ground investigation.

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

5 PRELIMINARY GEOTECHNICAL ASSESSMENT

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

It is recommended that further site-specific investigation is undertaken at the Building Consent stage by a professional geotechnical engineer. The purpose of the further investigation is to confirm the baseline parameters below, confirm geotechnical properties between the time of this investigation and the time of future development and to develop the preliminary geotechnical information to the level of rigour to satisfy Building Consent

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

requirements.

5.1 Preliminary Geotechnical Design Parameters

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

Table 3: Geotechnical Effective Stress Parameters

Geological Unit	Unit Weight, kN/m³	Effective Friction Angle, °	Effective Cohesion, kPa	Undrained shear strength, kPa
Northland Allochthon Residual Soils	18	30	5	100*
Northland Allochthon CW Parent Rock	18	34	12	> 200

**Adopting Bjerrum correction factor of 0.6 from the characteristic vane shear strength.*
CW – Completely Weathered

5.2 Preliminary Site Subsoil Class

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

5.3 Preliminary Seismic Hazard

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

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

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

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

[7] *NZS1170.5:2004, Structural Design Actions Part 5: Earthquake Actions Clause 3.1.3.4.*
[8] *New Zealand Geotechnical Society, Earthquake Geotechnical Engineering Practice, Module 1, November 2021, Appendix A, Table A1.*

assessment for the final determination of building importance level.

Table 4: Summary of Seismic Hazard Parameters

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

5.4 Preliminary Site Stability

At the time of writing, no obvious indications of major deep-seated instability were identified at the site, and the risk of such deep-seated instability developing as a result of the development proposal is low. Within the scope of this ground investigation, Geologix have undertaken computer modelled slope stability analysis through critical sections of the proposed Lots 2 and 3 house sites. The cross-section alignments are presented on Drawing No. 101 within Appendix A and developed ground models also in Appendix A.

The slope was analysed using a software Slide 2, developed by RocScience Inc. The purpose of the stability assessment was to:

- Ensure the proposed building sites 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 development engineering solution with any specific geotechnical stability requirements.
- Inform the requirements of Consent, and any further engineering works.

The stability analysis process was undertaken by calibrating the model to observed conditions by refining the ground investigation data to develop the effective stress parameters presented in Table 3 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 Council[9] which are widely adopted in the region. Modelling three separate event scenarios the accepted minimum FS are summarised as follows:

[9] *Auckland Council, Code of Practice for Land Development and Subdivision, Section 2 Earthworks and Geotechnical Requirements, Version 1.6, September 2013.*

- Minimum FS = 1.5 for static, normal groundwater conditions
- Minimum FS = 1.3 for elevated Groundwater conditions
- Minimum FS = 1.0 for dynamic, Seismic events.

5.4.1 Stability Analysis Results

Slope stability analysis results are presented in full as Appendix E and summarised below as Table 5.

Table 5: Summary of Stability Analysis Results

Profile	Scenario	Global Min.	Result
Section A-A (Lot 3)			
Existing	Static	1.203	General pass, minor encroachment of failure planes to upper edge of building platform.
	Elevated GW	1.083	
	Seismic	0.934	
Proposed	Static	1.203	Pass – with provision of a BRL as described below and debris protection required upslope of platform.
	Elevated GW	1.084	
	Seismic	0.934	
Section B-B (Lot 2)			
Existing	Static	1.89	Pass
	Elevated GW	1.372	
	Seismic	1.217	
Proposed	Static	1.89	Pass. No specific measures required.
	Elevated GW	1.372	
	Seismic	1.217	

5.4.2 Stability Analysis Conclusions

The developed slope stability model is considered to be a reasonable representation of the observed conditions on site. The following sections provide a summary of the models and recommendations for the proposed house sites.

5.4.2.1 Proposed Lot 3

The model indicates potential failure planes below minimum factors of safety for residential development **outside** of the proposed building site over the steeper slope to the south. This slope indicates a degree of stability under all modelled scenarios, however the potential for instability increases under the elevated groundwater scenario which could result in translational failures at the boundary between residual soils and completely weathered parent rock at depth and/ or circular failures through both units.

Adequate factors of safety for residential development is satisfied approximately 3.5 m into the proposed building site from the southern face under elevated groundwater and static conditions. As such, it is recommended a Building Restriction Line (BRL) is adopted as indicated on Drawing No. 010. Should a proposed future structure encroach within the BRL zone then specific geotechnical stability control mechanisms such as in-ground piles or conventional retaining walls will need to consider geotechnical stabilising shear forces and embedment within their design. The remainder of the house site may be developed with no specific geotechnical stability control measures.

Due to the potential of failure above the building site with debris potentially inundating the building platform, it is recommended that specifically engineered debris fences are installed to mitigate the effect of potential slip material entering the building platform. This can be provisioned as a condition of consent for future development.

5.4.2.2 Proposed Lot 2

The existing and proposed ground profiles all reach Far North District Councils required Factors of Safety at the proposed building platform, with the lowest in the seismic scenario. The proposed ground profile's adverse effects on existing stability are less than minor. The proposed development platform for lot 2 is not considered subject to natural hazards or instability.

5.5 Soil Expansivity

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

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

- Influence of garden watering and site drainage.
- The presence of mature vegetation.
- Initial soil moisture conditions at the time of construction.

Based on our experience with Northland Allochthon residual soil, laboratory analysis within the strata on other projects in the local area and site observations, the shallow soils are conservatively expected to meet the requirements of a highly expansive or Class H soil type.

In accordance with AS2870:2011[10] and New Zealand Building Code[11], Class H or Highly Expansive soils typically have a soil stability index (I_{SS}) range of 3.8 to 6.5% and a 500-year design characteristic surface movement return (y_s) of 78 mm.

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

5.6 Preliminary Liquefaction Potential

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

The Geologix ground investigation indicates the site to be predominantly underlain by fine-grained Northland Allochthon 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.

6 PRELIMINARY GEOTECHNICAL RECOMMENDATIONS

The following preliminary geotechnical recommendations have been developed based on a typical, conceptual rural residential development formed within the designated house sites outlined, selected in terms of preliminary recommendations have been developed to satisfy the requirements of Resource Consent to confirm the new residential lots can be formed with a less than minor effect on the environment.

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

6.1 Concept Foundations

6.1.1 Proposed Lots 2 and 3

Due to the topography of both lots and to limit construction costs of earthworks and slab on-grade foundations, pile foundations would be considered appropriate for the future residential developments on lots 2 and 3.

Geotechnical design parameters for end bearing piles are presented as Table 6. It is recommended that all floors are fully suspended on the end-bearing piled solution.

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[10] *AS2870, Residential Slabs and Footings, 2011.*

[11] *New Zealand Building Code, Structure B1/AS1 (Amendment 19, November 2019), Clause 7.5.13.1.2.*

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

Table 6: Piled Foundation Geotechnical Parameters for Proposed Lot 2 and 3.

Strata	Geotechnical Design Parameters	
Northland Allochthon Residual Soils	Ultimate end-bearing capacit[1]	900 kPa/m^2
	ULS design end-bearing capacity[2]	450 kPa/m^2
	SLS design end-bearing capacity	300 kPa/m^2
	Ultimate skin friction[4]	50 kPa
	ULS design skin friction[2]	25 kPa
	SLS design skin friction	16 kPa

1. *Based on S_u = 100 kPa from available data.*
2. *Adopting a geotechnical strength reduction factor of 0.5.*
3. *Adopting S_u * α. With α determined from Figure 5 of NZBC B1/ VM4.*
4. *α = 0.5 for undrained shear strength of 100 kPa.*

6.2 Earthworks

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

6.2.1 Temporary Works

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

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

6.3 Concept Driveways and Car Parking

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

For the driveway and parking areas it is recommended that carriageways include a minimum total thickness of 250 mm, comprising a minimum 150 mm sub-basecourse, typically AP65 or

approved similar and minimum 100 mm basecourse, typically finer AP40 and a thin, 50 mm running course of GAP20.

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

6.4 Concept Construction Monitoring

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

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

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

6.5 Further Geotechnical Works

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

7 WASTEWATER ASSESSMENT

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

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

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

7.1 Existing Wastewater Systems

Proposed Lot 1 has an existing wastewater treatment and disposal system identified within the site boundaries. This confirms that the system and associated disposal fields will be within the boundary of proposed Lot 1 and assuming the system is new will be functioning satisfactory for a projected design life of 50 years.

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

7.2 Wastewater Generation Volume

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

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

7.3 Treatment System

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

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[12] TP58 Table 6.1.

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

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

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

7.4 Land Disposal System

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

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

Table 7: Disposal Field Design Criteria

Design Criteria	Site Conditions
Topography at the disposal areas shall not exceed 25°. Exceedances will require a Discharge Consent.	Concept design complies
On shallower slopes >10 ° compliance with Northland Regional Plan (NRP) rule C.6.1.3(6) is required.	Lot 3 complies. Concept design for Lot 2 disposal field sited on slopes >10 ° so final design will need to meet C.6.1.3(6)(a)-(f) inclusive in order to be permitted activity.
On all terrain irrigation lines should be laid along contours.	Concept design complies
Disposal system situated no closer than 600 mm (vertically) from the winter groundwater table (secondary treated effluent).	Concept design complies
Separation from surface water features such as stormwater flow paths (including road and kerb channels), rivers, lakes, ponds, dams, and natural wetlands according to Table 9, Appendix B of the NRP.	Concept design complies. All overland flow paths separation distances to disposal areas are 15 m.
The effluent is treated and disposed of on-site such that each site has its own treatment and disposal system no part of which shall be located closer than 30m from the boundary of any river, lake, wetland, or the boundary of the coastal marine area. FNDC rule 12.7.6.1.4	Concept design complies. Separation distance complies to rule at 30m.

7.4.1 Soil Loading Rate

Based on the results of the ground investigation, conservatively the shallow soils are inferred to meet the drainage characteristics of TP58 Category 6, sandy clay, non-swelling clay, and silty clay – slowly draining. This correlates to NZS1547 Category 5, poorly drained described

as light clays. For a typical PCDI system, a Soil Loading Rate (SLR) of 2 mm/ day is recommended within NZS1547 Table 5.2 and TP58 Table 9.2.

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

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

7.4.2 Disposal Areas

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

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

7.5 Summary of Concept Wastewater Design

Based on the above design assumptions a concept wastewater design is presented in Table 8 and presented schematically upon Drawing No. 100. It is recommended that each lot is subject to Building Consent specific review and design amendment according to final development plans.

Table 8: Concept Wastewater Design Summary

Design Element	Specification
Concept development	Five-bedroom, peak occupancy of 8 (per lot)
Design generation volume	160 litres/ person/ day
Water saving measures	Standard. Combined use of 11 litre flush cisterns, automatic washing machine & dishwasher, no garbage grinder[1]
Water meter required?	No
Min. Treatment Quality	Secondary
Soil Drainage Category	TP58 Category 6, NZS1547 Category 5

Soil Loading Rate	2.0 mm/ day
Primary disposal field	Surface/ subsurface laid PCDI, min. 640 m^2
Reserve disposal field	Surface/ subsurface laid PCDI, min. 30 % or 192 m^2
Dosing Method	Pump with high water level visual and audible alarm. Minimum 24-hour emergency storage volume.
Stormwater Control	Divert surface/ stormwater drains away from disposal fields. Cut off drains required. Stormwater management discharges downslope.

1. Unless further water saving measures are included.

7.6 Assessment of Environmental Effects

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

The scale of final development is unknown at the time of writing and building areas, impervious areas including driveways, ancillary buildings, landscaped gardens, and swimming pools may reduce the overall area for on-site wastewater disposal. For the purpose of this report, the above impervious features are considered to be comprised within the conceptual 30 x 30 m square building envelope shown on Drawing 100-102, Appendix A. The conceptual wastewater disposal field areas are clear of this indicative building envelope area.

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

8 STORMWATER ASSESSMENT

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

8.1 Impervious Surfaces and Activity Status

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

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

Table 9: Summary of Impervious Surfaces

Surface	Proposed Lot 1 (Existing development)		Proposed Lot 2		Proposed Lot 3	
Existing Condition	**(635,609 m²)**		**NA**		**NA**	
Roof	686 m²	0.1 %				
Driveway and other hardened area	3,800 m²	0.6 %				
Total impervious	4,486 m²	0.7 %				
Proposed Condition	**(457,031 m²)**		**(98,065 m²)**		**(70,560 m²)**	
Roof	686 m²	0.15 %	300 m²	0.3 %	300 m²	0.4 %
Driveway and surround	3,800 m²	0.83 %	200 m²	0.2 %	850 m²	1.2 %
Total	4,486 m²	0.98 %	500 m²	0.5 %	1150 m²	1.6 %
Activity Status	Permitted		Permitted		Permitted	

8.2 Stormwater Management Concept

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

- **Probable Future Development (Proposed Lots 2 & 3).** The proposed application includes subdivision formation only and not lot-specific residential development at this stage. However, a conservative proposal for probable future on-lot development has been developed for this assessment considering variation of scale in typical rural residential development.

  The probable future on-lot development concept includes up to 300 m^2 potential roof area and up to 200 m^2 potential driveway or parking areas. The runoff from the latter area has been modelled as an offset within the lot-specific roof rainwater attenuation devices.

- For Lot 3, beyond the above-mentioned 200 m^2 driveway and parking provision, a further 220 m^2 area of driveway is anticipated to be required in order to access the proposed building platform within the lot. There is an existing gravel track that provides access to the building envelope but it will require upgrade to meet FNDC Engineering Standards. It will need to be widened to a consistent 3m width, and have its pavement structure formalised to that required of a compliant unsealed (or sealed) rural private accessway.

  It is proposed that the conceptual driveway's runoff would be collected by means of a channel/swale on its upslope edge and discharged to the pasture area within proposed Lot 3. The concentrated discharge from the proposed channel would be controlled by means of energy dissipation devices. Refer Appendix A, Drawing No. 101 for locations of the conceptual swales and outlets.

- **Existing On-site Development (Proposed Lot 1).** An existing dwelling including accompanying farm sheds with a total roof area of 686 m² and impervious driveway area and hardened areas of approximately 3,800 m² is located within the boundaries of proposed lot 1. There are several water tanks servicing the property currently. Impervious areas are below the permitted activity threshold as indicated above in Table 9, therefore attenuation for compliance in this regard is not necessary.
- **Subdivision Development.** Access to each proposed Lot 2 and 3 will be provided by the existing crossing onto Happy Valley Road and the existing metalled farm track that is situated within the Paper Road reserve adjacent Lot 2's eastern boundary. Assessment of the suitability of this existing metalled farm track is outside the scope of this report. No additional vehicle crossings were determined to be required to access the Lots 2 and 3. Access is discussed further in Section 12.

8.3 Design Storm Event

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

As per the discussion outcomes in Section 3.3, there is no considerable increase to flooding hazard on downstream property has been identified as a result of the future development of the site and therefore there is no requirement to provide flood control in compliance with FNDC Engineering Standard Table 4-1.

The concept design proposes to attenuate the post-development stormwater runoff peak discharge to 80 % of the pre-development condition for the 20 % and 50 % AEP storm event as a provision for flow control. This provision also complies with NRP Rule C6.4.2(2).

The attenuation modelling within this report has been undertaken for all of the above storm events. The results are summarised in Table 9 and provided in full in Appendix D.

Outlet dispersion devices have been designed to manage the 20 % AEP event to reduce scour and erosion at discharge locations which may otherwise result in concentrated discharge. These are detailed further in Section 8.4.1 of this report.

8.4 Concept Attenuation Model

Based on the design storm events indicated above and the corresponding modelling results (included in Appendix D) an attenuation concept to suit the maximum storage requirement has been provided. In this case the concept limits the post-development peak discharge to 80 % of the pre-development condition for the 20 % AEP storm event. This is achievable by installing specifically sized low-flow orifices into the attenuation devices. The rational

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

method has been adopted by Geologix with run-off coefficients as published by FNDC Engineering Standards to provide a suitable attenuation design.

- Roof Runoff Tanks

Conceptual storage and outlet requirements within the tanks are included in Table 11 and a typical schematic retention/ detention tank arrangement detail is presented as Drawing No. 401 within Appendix A.

- Lot 3 Accessway considerations

It is determined for the Lot 3 future development concept, that the private accessway will require 420 m² of proposed metal surfacing, that effectively replace or upgrades the existing surface. This represents a further 220 m² of impervious area than the 200 m² driveway area in our conceptual future lot development. Despite this, no further attenuation measures (beyond the roof tanks) are deemed to be required for the proposed conceptual upgrade of the accessway, for the following reasons.

  - The existing track surface is generally comprised of well compacted in-situ Northland Allochthon Residual Soils which is classed as Type D in terms of its permeability characteristics. Some sections of the existing track may have had imported metal added to the surface to improve rideability. Therefore, the low permeability of this existing surface is the same as the proposed upgraded unsealed (metal) accessway, with an effective runoff coefficient of 0.83.
  - The proposed conceptual upgrade of the access would involve adding to its width by about 0.5m, which results in an increase of impervious area of approximately 70m² (140m x 0.5m) to the existing track. This area will be incorporated into the 200m² conceptual driveway area to be offset by the roof tanks of Lot 3.
  - Again, given the low permeability characteristics of the Type D soils underlying the pasture (with a runoff coefficient of 0.67), the replacement with metal in this case presents little increase to the overall runoff.
  - Overall, the conceptual upgrade of the accessway presents less than minor increase in post-development runoff and hence no requirement for specific attenuation of the driveway's runoff (over and above the offset provided by the roof runoff tanks).

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

A summary of the probable future development concept design is presented as Table 10, with a specific summary of the roof tanks concept provided in Table 11.

Table 10: Summary of Probable Future Development Concept

Item	Pre-development Impervious Area	Post-development Impervious Area	Proposed Concept Attenuation Method
Future Concept Development – Lot 2			
Potential buildings	0 m^2	300 m^2	Detention within roof water tanks
Potential driveways	0 m^2	200 m^2	Off-set detention in roof water tanks
Total	**0 m^2**	**500 m^2**	
Future Concept Development - Lot 3			
Potential buildings	0 m^2	300 m^2	Detention within roof water tanks
Potential driveways	350 m^2 (140m x 2.5m avg width)	350 + 200 m^2	Off-set detention in roof water tanks (Refer considerations in preceding paragraph)
Total	**350 m^2**	**850 m^2**	
Existing Development (Lot 1)			
Existing buildings	686 m^2	686 m^2	Not Required, impervious area < permitted activity
Existing driveway & surround	3,800 m^2	3,800 m^2	Not Required, impervious area < permitted activity
Total	**4,486 m^2**	**4,486 m^2**	

Table 11: Probable Future Development Attenuation Concept – Roof Tanks

Design Parameter	Flow Attenuation: 50 % AEP (80% of pre dev)	Flow Attenuation: 20 % AEP (80% of pre dev)
Proposed Development		
Regulatory Compliance	FNDC Engineering Standards Table 4-1	FNDC Engineering Standards Table 4-1
Pre-development peak flow	5.26 l/s	6.80 l/s
80 % pre-development peak flow	4.21 l/s	5.44 l/s
Post-development peak flow	8.55 l/s	11.06 l/s
Total Storage Volume Required	4,165 litres	5,442 litres

Concept Summary:	- Attenuation storage calculation accounts for offset flow from 200 m² driveway (not indicated explicitly in summary above. Refer Appendix D for calcs in full) - Attenuation to 80 % of pre-development condition for 20 % AEP storm represents maximum storage requirement and is adopted for the concept design tank storage. - 1 x 25,000 litre tank is sufficient for attenuation (5,442l) + potable storage (19,558l) - 20 % AEP attenuation in isolation requires a 36 mm orifice 0.52 m below overflow. However regulatory requirements are to consider an additional orifice to control the 50 %. We note this may vary the concept orifice indicated above. This should be provided with detailed design for building consent approval.

8.4.1 On-Lot Discharge – Roof tank outlets

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

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

Typical rural residential developments may construct either above ground level spreader or an equivalent in-ground dispersion trench. Feeding pipes can be either buried or pinned to the surface as desired. It is recommended that all pipes are designed to accommodate the design storm event peak overflows from the attenuation tank. A concept above ground level spreader is presented as Table 12. Calculations to derive this are presented within Appendix D, derived from Auckland Council TR2013/018 document.

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

Table 12: Summary of Concept Dispersion Devices

Concept Impervious Area to Tank	Tank Outlet Velocity (m/s)	Spreader orifices outlet Velocity	Tank outlet pipe diameter (mm)	Dispersion Pipe	Spreader orifices	Concept
Proposed Lot 2 & 3						
300 m^2	4.62 m/s	0.87 m/s	100 Ø	6.0m long, 150 mmØ	41No. 20mm Ø at 150mm centres	Above-ground level spreader (or equivalent in-ground trench)

8.4.2 On-Lot Discharge – Accessway Channel Outlets (Lot 3)

It is recommended that concentrated discharge from the conceptual accessway's road-side channels or pipe culverts are controlled via energy dissipation devices such as rip rap aprons. The conceptual positions of rip rap aprons for the Lot 3 driveway are presented within Appendix A on Drawing Sheet 101.

The rip rap aprons should be designed in accordance with Auckland Council Technical Report TR2013/018 or similarly adopted code of practice. It is recommended that the rip rap apron dispersion devices are subject to specific assessment at the Building Consent stage.

8.5 Subdivision Development Management

All stormwater conveyance devices must be suitably sized to accommodate peak run-off flows from the design storm event.

No specific stormwater conveyance measures have been determined for subdivision formation within the scope of this report.

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

8.6 Stormwater Quality

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

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

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

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

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

9 POTABLE WATER & FIRE FIGHTING

In the absence of potable water infrastructure within Happy Valley Road or within the site it is recommended that the roof runoff water tanks are adopted for potable water supply with appropriate filtration and UV disinfection at point of use. The volume of potable water supply on each lot should consider the required stormwater detention volume identified within Table 11.

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

10 EARTHWORKS

No specific earthworks construction has been determined for subdivision formation within the scope of this report.

It is noted that there is a 5,000 m^3 Permitted Activity volume limit outlined by FNDC District Plan Rule 12.3.6.1.1(a) and the maximum cut and fill height is <3 m to comply with 12.3.6.1.1(b).

Rule C.8.3.1, Table 15 of the Proposed Regional Plan outlines a Permitted Activity as 5,000 m^2 of exposed earth at any time for 'other areas'.

10.1 General Recommendations

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

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

Due to the topography of the site, significant excavations are not anticipated. However, to reduce the risk of instability of excavations during construction, it is recommended that **temporary** unsupported excavations have a maximum vertical height of 0.5 m. Excavations >0.5 m should be battered at 1V:1H or 45 °. Permanent batter slopes may require a

shallower angle to maintain long term stability and if proposed these should be assessed at the Building Consent stage within a specific geotechnical investigation report.

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

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

10.2 Erosion and Sediment Control

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

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

- Silt fence around the downslope face of the proposed vehicle crossing at each lot
- Clean water diversion bund on the upslope side of the vehicle crossing work zone, if warranted by any considerable upstream flows that are intercepted by the works area.

11 NATURAL HAZARD ASSESSMENT

To satisfy the Resource Management Act, 1991 the proposed subdivision must plan for and manage the risk from natural hazards to reduce the potential adverse effects to less than minor. Regulatory assessment of natural hazards at the site location are managed under the jurisdiction of the FNDC District Plan[16], Northland Regional Council (NRC) Proposed Regional Plan for Northland[17] and Regional Water and Soil Plan for Northland. Following our ground investigation and considering the measures presented in this report, a summary of the proposed activities against defined natural hazards is presented as Table 13.

Table 13: Summary of Natural Hazards

Natural Hazard	Applicability	Mitigation & Effect on Environment
Erosion	Yes	Mitigation provided; resultant effects are less than minor.
Overland flow paths, flooding, inundation	Yes	Mitigation provided; resultant effects are less than minor.
Landslip	Yes	Slight Mitigation provided; resultant effects are less than minor (no retaining walls required).
Rockfall	NA	No anticipated effects, less than minor.

[16] *Operative District Plan Rule 13.7.3.2.*

[17] *Proposed Regional Plan for Northland, Appeals Version, July 2021, Chapter D.6.*

Alluvion	NA	No anticipated effects, less than minor.
Avulsion	NA	No anticipated effects, less than minor.
Unconsolidated fill	NA	No anticipated effects, less than minor.
Soil contamination	NA	No anticipated effects, less than minor.
Subsidence	NA	No anticipated effects, less than minor.
Fire hazard	NA	No anticipated effects, less than minor.
Sea level rise	NA	No anticipated effects, less than minor.

NA – Not Applicable.

12 INTERNAL ROADING AND VEHICLE CROSSINGS

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

12.1 Vehicle Crossings

It has been determined that the existing vehicle crossing that provides access from the Happy Valley Road into the existing metalled farm track (paper road) provides is reasonable suitable for the purposes of access to the two proposed lots.

Existing crossing places access the proposed Lot 2 and 3 from the paper road and are not determined to be necessary to be upgraded.

Visibility and sight distance from the existing vehicle crossing locations is sufficient, given the reasonably low speed environment, clear approaches along Happy Valley Road to the crossings, and that there are no trees or other obstructions that obstruct the sight lines.

12.2 Right of Way / Paper Road

The existing metalled access track that is proposed to provide access to Lot 2 and 3 from Happy Valley Road has not been assessed for suitability within the scope of this report.

It was noted that in our desktop appraisal (refer Section 4.1) that there is a geomorphological feature that is immediately west of the existing metalled access track, above the existing pond in Lot 2. This feature has not been assessed within the scope of this report.

13 LIMITATIONS

This report has been prepared for Kevin and Jayne Salmon 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

NOTES:

- CONTOUR INTERVAL IS 10 m MAJOR, 2.0 m MINOR AERIAL PHOTOGRAPH, EXTRACTED FROM GRIP
- HORIZONTAL DATUM IN MT EDEN CIRCUIT 2000
- VERTICAL DATUM IN TERMS OF NEW ZEALAND VERTICAL DATUM 2016
- EXISTING SITE BOUNDARIES EXTRACTED FROM GRIP.CO.NZ
- PROPOSED BOUNDARIES PROVIDED BY WILLIAMS AND KING SURVEY PLAN DATED JULY 2024

LEGEND:

- 75.0 — MAJOR CONTOUR
- MINOR CONTOUR
- SUBJECT LOT
- PROPOSED LOTS
- EXISTING ROAD RESERVE BOUNDARY
- EXISTING ABUTTAL LOT BOUNDARY
- PROPOSED PRIMARY WASTE DISPOSAL FIELD
- PROPOSED SECONDARY WASTE DISPOSAL FIELD
- CONCEPT BUILDING ENVELOPE (30m x 30m)
- CONCEPT 25,000 LITRE WATER TANK DISCHARGING TO DISPERSION DEVICE TO CONTROL 500m² AREA
- HAXX GEOLOGIX HAND AUGER

2
DP 22559

Part Section 51
Block VII MANGAMUKA
SURVEY DISTRICT

Part Section 53
Block VII MANGAMUKA
SURVEY DISTRICT

LOT 1

LOT 3

LOT 2

HAPPY VALLEY ROAD

Part Section 52
Block VII MANGAMUKA
SURVEY DISTRICT

5015010
CROWN LAND

HOKIANGA
HARBOUR

REFER DRAWING C0544-S- 101

2
DP 24755

GENERAL NOTES

1. DRAWING REPRODUCED FROM WILLIAMS AND KINGS SURVEY PROPOSED SCHEME PLAN DATED JULY 2024.
3. HORIZONTAL CO ORDINATE SYSTEM = NZTM.
4. VERTICAL DATUM = NZVD.
5. MAJOR INTERVALS 10.0 m.
6. MINOR INTERVALS 2.0 m.
7. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.

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	2.0 mm/ DAY
TREATMENT SYSTEM	NO - SUBJECT TO BUILDING CONSENT DESIGN
PRIMARY DISPOSAL AREA	640 m²
RESERVE DISPOSAL AREA	192 m² (30 %)
FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	YES
DISCHARGE CONSENT	NO

SCALE 1:5000 (A3)

Revision	Issue	Date
B	FOR CONSENT	13/08/25

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AUCKLAND | NORTHLAND

Project Name and Address

231
HAPPY VALLEY ROAD
UMAWERA
Prt Sect 53 & 52

Project	Drawn By
C0544	B.NEL

Client

KEVIN SALMONS

Sheet Title

SITE SUITABILITY OVERALL LAYOUT

Sheet

100

NOTES:
- CONTOUR INTERVAL IS 10 m MAJOR, 2.0 m MINOR AERIAL PHOTOGRAPH, EXTRACTED FROM GRIP
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- VERTICAL DATUM IN TERMS OF NEW ZEALAND VERTICAL DATUM 2016
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- PROPOSED SECONDARY WASTE DISPOSAL FIELD
- CONCEPT BUILDING ENVELOPE (30m x 30m)
- CONCEPT 25,000 LITRE WATER TANK DISCHARGING TO DISPERSION DEVICE TO CONTROL 500m² AREA
- HAXX GEOLOGIX HAND AUGER

CONCEPTUAL PRIVATE ACCESSWAY WITH SWALE ON UPSLOPE EDGE AND PIPED DISCHARGE TO ENERGY DISSIPATION OUTLET

PROPOSED GEOTECHNICAL BUILDING RESTRICTION LINE

EXISTING METAL FARM ACCESS TRACK WITHIN PAPER ROAD

APPROXIMATE POSITION OF GEOMORPHOLOGICAL FEATURE ADJACENT THE ACCESS TRACK

EXISTING CROSSING LOCATION TO BE RETAINED

HA01 HA02 HA03 HA04 HA05 HA06 HA07 HA08

LOT 1
Part Section 53
Block VII MANGAMUKA
SURVEY DISTRICT

LOT 2
Part Section 52
Block VII MANGAMUKA
SURVEY DISTRICT

HAPPY VALLEY ROAD

30 40 50 60 70 80 90

GENERAL NOTES

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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
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SOIL CATEGORY (NZS1547)	CATEGORY 5
SOIL LOADING RATE	2.0 mm/ DAY
TREATMENT SYSTEM	NO - SUBJECT TO BUILDING CONSENT DESIGN
PRIMARY DISPOSAL AREA	640 m²
RESERVE DISPOSAL AREA	192 m² (30 %)
FINAL DESIGN	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS	YES
DISCHARGE CONSENT	NO

SCALE 1:1750 (A3)

Revision	Issue	Date
B	FOR CONSENT	13/08/25

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Project Name and Address
231
HAPPY VALLEY ROAD
UMAWERA
Prt Sect 53 & 52

Project	Drawn By
C0544	B.NEL

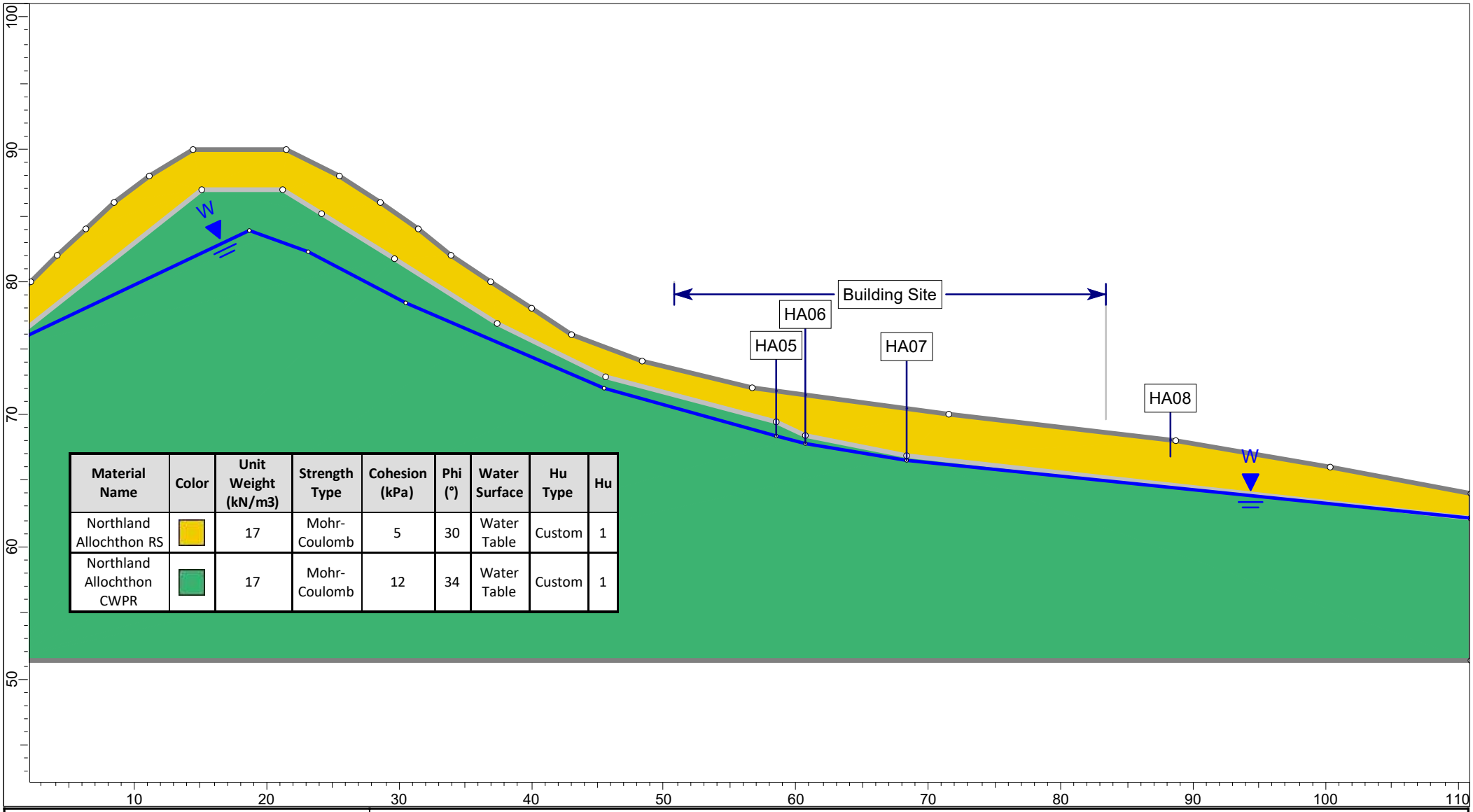
Client
KEVIN SALMONS

Sheet Title
SITE SUITABILITY ENLARGED LAYOUT

Sheet
101

FILE PATH: C:\Users\SebastianHicks\Synology\Drive\Projects\C0500-C0599\C0544 - 231 Happy Valley Road, Umawera\07 - Technical & Drawings\Drawings\C0544-S-100_SH 2025.07.23.dwgC0544-S-100_SH 2025.07.23.dwg

PLOTTED: 09/04/2022



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		17	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		17	Mohr-Coulomb	12	34	Water Table	Custom	1

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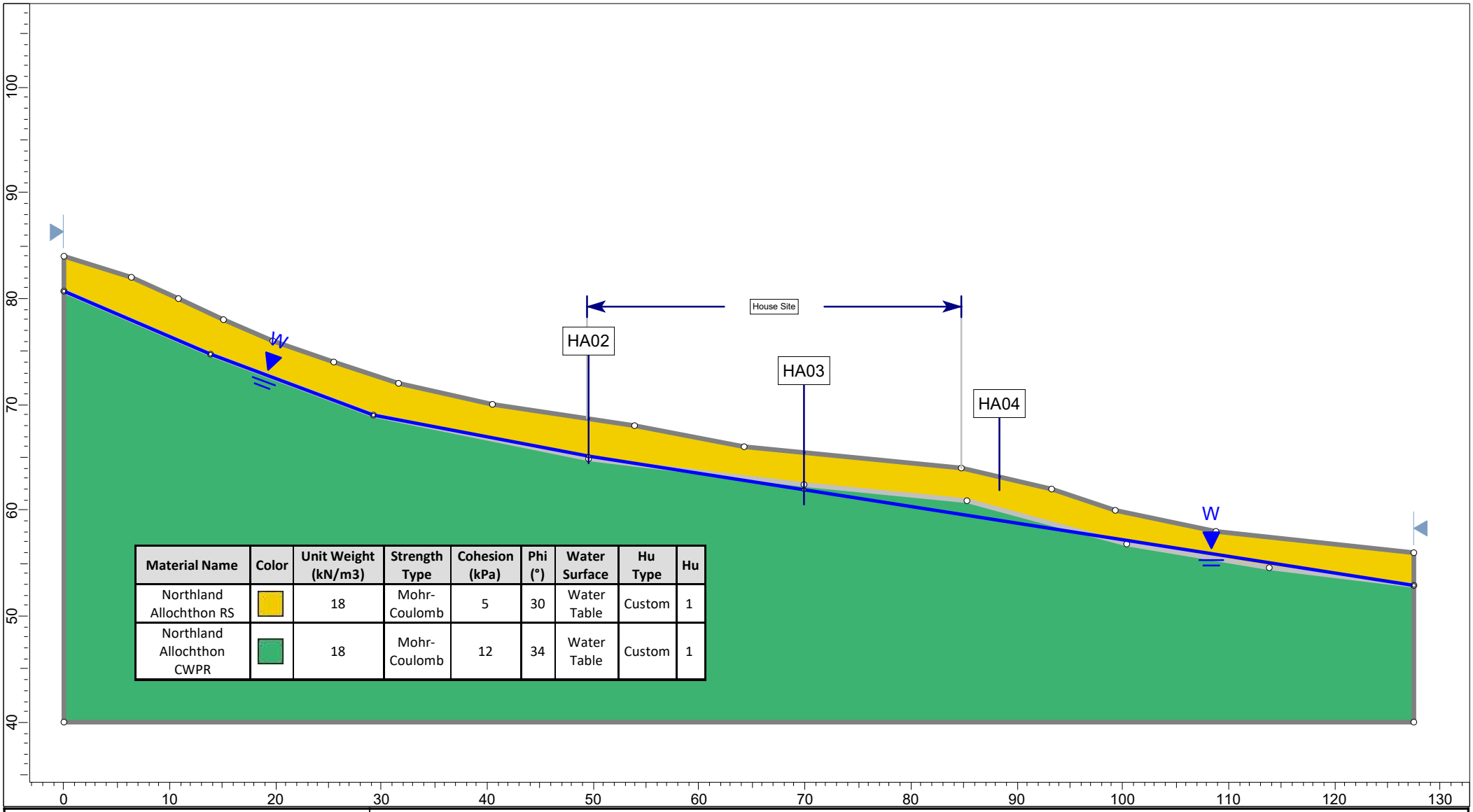
SLIDE 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Section A-A Analysis (Lot 3)		
Drawn By	EC	Scale 1:400	Company Geologix Consulting Engineers Limited
Date	12/08/2025		File Name - 231 Happy Valley Road, Umawera\05 -



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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Project	C0544 - 231 Happy Valley Road		
Analysis Description	Section B-B Analysis (Lot 2)		
Drawn By	EC	Scale 1:500	Company Geologix Consulting Engineers Ltd
Date	13/08/2025		File Name - 231 Happy Valley Road, Umawera\05 -

SLIDE 9.039

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APPENDIX B

Engineering Borehole Records

INVESTIGATION LOG

HOLE NO.: HA01

CLIENT: Kevin and Jayne Salmon

PROJECT: 231 Happy Valley Road, Umawera

JOB NO.: C0544

SITE LOCATION: Eastern side of Happy Valley Road

CO-ORDINATES: 1653579.780mE, 6090714.990mN

ELEVATION: Ground

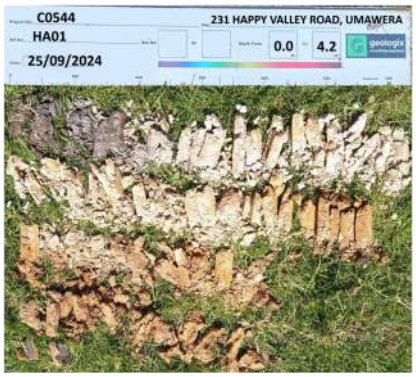
START DATE: 25/09/2024

END DATE: 25/09/2024

CONTRACTOR: Internal **RIG:** 50mm Hand Auger + DCP **DRILLER:** TW GB **LOGGED BY:** TW

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3282	Values	WATER
TOPSOIL comprising organic SILT; dark brown; moist; low plasticity.		0.2	TS		UTP	-	
Clayey SILT, with trace gravel; greyish brown. Hard; moist; low plasticity; gravel, fine to medium; [Northland Allochthon Residual Soils].		0.4			UTP	-	
		0.6					
SILT, with minor clay; light grey mottled brown. Hard; moist; low plasticity; [Northland Allochthon Residual Soils].		0.8			UTP	-	
		1.0					
		1.2			UTP	-	
Clayey SILT, with trace gravel; orange brown. Stiff to hard; moist; low plasticity; gravel, fine to medium; [Northland Allochthon Residual Soils].		1.4			203+	-	
1.7m: Becoming orange brown.		1.6					
		1.8			160	41	
		2.0			203+	-	
		2.2					
		2.4			116	55	
2.7m - 3.1m: Becoming stiff.		2.6			99	44	
		2.8					
		3.0			64	35	
Clayey SILT, with minor gravel; greyish brown mottled orange brown. Moist; low plasticity; gravel, fine to medium; [Northland Allochthon Residual Soils].		3.2			99	46	
3.4m: Becomig saturated.		3.4					◁
		3.6			96	58	
3.9m: Becoming very stiff.		3.8			102	58	
SILT, with trace sand; dark blackish brown; very stiff to hard. Wet; low plasticity; sand fine.[Northland Allochthon Completely Weathered Parent Rock		4.0					
		4.2			UTP	-	
End Of Hole: 4.30m		4.4		14			
		4.6		13 17 17			
		4.8		21 >>			
		5.0					

PHOTO(S)



REMARKS

1. Hand auger terminated at 4.2m bgl due to hard strata.
2. Continued with DCP from 4.3m bgl until refusal at 4.8m bgl.
3. Groundwater encountered at 3.4m bgl at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.: HA02

CLIENT: Kevin and Jayne Salmon

PROJECT: 231 Happy Valley Road, Umawera

JOB NO.: C0544

SITE LOCATION: Eastern side of Happy Valley Road

CO-ORDINATES: 1653556.580mE, 6090709.670mN

ELEVATION: Ground

START DATE: 25/09/2024

END DATE: 25/09/2024

CONTRACTOR: Internal **RIG:** 50mm Hand Auger + DCP **DRILLER:** TW GB **LOGGED BY:** GB

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467	Values	WATER
TOPSOIL comprising organic SILT with trace rootlets; dark brown; moist; low plasticity.		0.0					
SILT, with some clay; light grey and orange mixed. Hard; moist; low plasticity; [Northland Allochthon Residual Soils] .		0.2				202+ -	
		0.4				202+ -	
		0.6				202+ -	
		0.8				202+ -	
		1.0				202+ -	
		1.2				176 78	
Clayey SILT; orange with light grey mottles. Very stiff; moist; low plasticity; [Northland Allochthon Residual Soils].		1.4					
		1.6				170 49	
SILT, with some clay, with trace sand; orange with light grey mottles. Very stiff; moist; low plasticity; sand, fine; [Northland Allochthon Residual Soils].		1.8				191 58	
		2.0				202+ -	
		2.2				150 29	
SILT, with some gravel, with minor clay; light grey with orange mottles. Very stiff to hard; moist; low plasticity; gravel, fine to medium; [Northland Allochthon Residual Soils].		2.4				202+ -	
2.4m: Becoming hard.		2.6				202+ -	
		2.8				196 32	
		3.0				UTP -	
		3.2					
		3.4					
		3.6					
SILT, with some clay; dark brownish black. Hard; moist; low plasticity [Northland Allochthon Completely Weathered Parent Rock]		3.8					
End Of Hole: 3.90m		4.0		14 19			
		4.2		12 16			
		4.4		25 >>			
		4.6					
		4.8					
		5.0					

PHOTO(S)

REMARKS

1. Hand auger terminated at 3.9m bgl due to dense strata.
2. Continued with DCP from 4.0m bgl until refusal at 4.4m bgl.
3. Groundwater encountered at 3.5m bgl at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

INVESTIGATION LOG

HOLE NO.: HA03

CLIENT: Kevin and Jayne Salmon

PROJECT: 231 Happy Valley Road, Umawera

JOB NO.: C0544

SITE LOCATION: Eastern side of Happy Valley Road

CO-ORDINATES: 1653562.350mE, 6090726.340mN

ELEVATION: Ground

START DATE: 25/09/2024

END DATE: 25/09/2024

CONTRACTOR: Internal **RIG:** 50mm Hand Auger + DCP **DRILLER:** TW GB **LOGGED BY:** GB

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)
TOPSOIL comprising organic SILT; dark brown; moist; low plasticity.		0.0
Clayey SILT; orange brown mottled greyish brown. Hard; moist; low plasticity; [Northland Allochthon Residual Soils].		0.2
		0.4
		0.6
		0.8
		1.0
		1.2
		1.4
		1.6
		1.8
SILT, with minor clay and sand; greyish brown mottled orange brown. Very stiff to stiff; moist; low plasticity; [Northland Allochthon Residual Soils].		2.0
1.8m: Becoming stiff.		2.2
		2.4
		2.6
2.7m: Becoming stiff		2.8
		3.0
3.0m: Becoming hard,		
SILT, with trace clay; dark grey. Hard; moist; low plasticity; [Northland Allochthon Completely Weathered Parent Rockj].		3.2
3.3m: Becoming very stiff		3.4
End Of Hole: 3.60m		3.6
		3.8
		4.0
		4.2
		4.4
		4.6
		4.8
		5.0

SCALA PENETROMETER (Blows / 100mm)

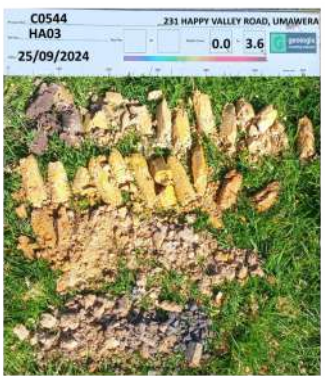
Depth (m)	Blows / 100mm
3.6	12
3.8	10, 12
4.0	11, 7
4.2	4, 4
4.4	7, 8
4.6	10, 9
4.8	14, 15

VANE SHEAR STRENGTH (kPa) Vane: 3467

Depth (m)	Values
0.0	202+ -
0.6	202+ -
1.0	202+ -
1.2	202+ -
1.4	202+ -
1.8	95 32
2.0	142 64
2.4	121 46
2.6	64 40
3.0	202+ -
3.2	199 45
3.6	UTP -

WATER

PHOTO(S)



REMARKS

1. Hand auger terminated at 3.6m bgl due to hard strata.
2. Continued with DCP from 3.6 to target depth of 4.9m bgl.
3. Groundwater encountered at 3.6m bgl at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

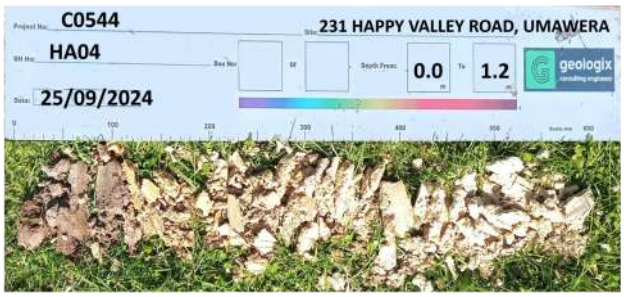
HOLE NO.: HA04

CLIENT: Kevin and Jayne Salmon
PROJECT: 231 Happy Valley Road, Umawera
JOB NO.: C0544

SITE LOCATION: Eastern side of Happy Valley Road
CO-ORDINATES: 1653548.270mE, 6090745.740mN
ELEVATION: Ground
START DATE: 25/09/2024
END DATE: 25/09/2024
CONTRACTOR: Internal
RIG: Hand Auger
DRILLER: TW GB
LOGGED BY: TW

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa)	WATER
TOPSOIL comprising organic SILT; dark brown; moist; low plasticity.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	Groundwater Not Encountered
SILT, with some clay; orange brown. Moist; low plasticity; [Northland Allochthon Residual Soils].		0.2				
Clayey SILT; greyish brown. Moist; low plasticity; [Northland Allochthon Residual Soils].		0.4				
End Of Hole: 1.20m		0.6				
		0.8				
		1.0				
		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				

PHOTO(S)



REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. 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.: HA05

CLIENT: Kevin and Jayne Salmon

PROJECT: 231 Happy Valley Road, Umawera

JOB NO.: C0544

SITE LOCATION: Eastern side of Happy Valley Road

CO-ORDINATES: 1653707.000mE, 6090950.000mN

ELEVATION: Ground

START DATE: 25/09/2024

END DATE: 25/09/2024

CONTRACTOR: Internal

RIG: 50mm Hand Auger + DCP

DRILLER: TW GB

LOGGED BY: GB

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467	WATER
TOPSOIL comprising organic SILT; dark brown; moist; low plasticity.		0.0				Groundwater Not Encountered
SILT, with minor clay, with trace sand; greyish brownish orange. Hard; dry to moist; low plasticity; sand, fine; [Northland Allochthon Residual Soils].		0.2		5	202+ -	
		0.4		4		
		0.6		5	202+ -	
		0.8		7		
0.8m - 1.1m: Grades to have minor fine grade sand, orange with light grey mottles.		1.0		7	UTP -	
		1.2		8		
End Of Hole: 1.10m		1.4		7	UTP -	
		1.6		6		
		1.8		8		
		2.0		11		
		2.2		11		
		2.4		8		
		2.6		6		
		2.8		8		
		3.0		9		
		3.2		10		
		3.4		15		
		3.6		9		
		3.8		16		
		4.0		20		
		4.2		20		
		4.4		21 >>		
		4.6				
		4.8				
		5.0				

PHOTO(S)

REMARKS

1. Hand auger terminated at 1.1m bgl due to hard strata.
2. Continued with DCP from 1.1m bgl until refusal at 3.3m bgl.
3. Groundwater not encountered at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

INVESTIGATION LOG

HOLE NO.: HA06

CLIENT: Kevin and Jayne Salmon

PROJECT: 231 Happy Valley Road, Umawera

JOB NO.: C0544

SITE LOCATION: Eastern side of Happy Valley Road

CO-ORDINATES: 1653728.870mE, 6090943.140mN

ELEVATION: Ground

START DATE: 25/09/2024

END DATE: 25/09/2024

CONTRACTOR: Internal **RIG:** 50mm Hand Auger + DCP **DRILLER:** TW GB **LOGGED BY:** TW

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3282	WATER
TOPSOIL comprising organic SILT; dark brown; moist; low plasticity.		0.2	TS		148	Groundwater Not Encountered
Clayey SILT; orange brown mottled brown. Very stiff to hard; moist; low plasticity; [Northland Allochthon Residual Soils].		0.4			35	
		0.6			203+ -	
		0.8			UTP -	
SILT, with some clay; greyish brown mottled light orange brown. Hard; moist; low plasticity; [Northland Allochthon Residual Soils].		1.0			203+ -	
		1.2			UTP -	
		1.4			UTP -	
		1.6			203+ -	
		1.8			UTP -	
Sandy SILT; whitish grey mottled orange brown. Hard; moist; low plasticity; [Northland Allochthon Completely Weathered Parent Rock].		2.0		10		
End Of Hole: 2.40m		2.2		10		
		2.4		10		
		2.6		14		
		2.8		11		
		3.0		19		
		3.2		20		
		3.4				
		3.6				
		3.8				
		4.0				
		4.2				
		4.4				
		4.6				
		4.8				
		5.0				

PHOTO(S)

REMARKS

1. Hand auger terminated at 2.4m bgl due to hard strata.
2. Continued with DCP from 2.4m bgl until refusal at 3.1m bgl.
3. Groundwater not encountered at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

INVESTIGATION LOG

HOLE NO.: HA07

CLIENT: Kevin and Jayne Salmon

PROJECT: 231 Happy Valley Road, Umawera

JOB NO.: C0544

SITE LOCATION: Eastern side of Happy Valley Road

CO-ORDINATES: 1653723.720mE, 6090958.710mN

ELEVATION: Ground

START DATE: 25/09/2024

END DATE: 25/09/2024

CONTRACTOR: Internal

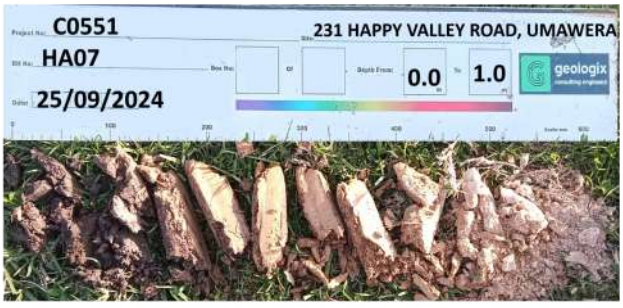
RIG: 50mm Hand Auger + DCP

DRILLER: TW GB

LOGGED BY: TW

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467	WATER
TOPSOIL comprising organic SILT; dark brown; moist; low plasticity.		0.0	TS			Groundwater Not Encountered
Clayey SILT; orange brown. Hard; moist; low plasticity; [Northland Allochthon Residual Soils].		0.5			202+ -	
Sandy SILT, with minor clay; light brown. Hard; moist; low plasticity; sand, fine; [Northland Allochthon Completely Weathered Parent Rock].		1.0		6	202+ -	
End Of Hole: 1.00m		1.2		7	UTP -	
		1.4		8		
		1.6		8		
		1.8		8		
		2.0		5		
		2.2		3		
		2.4		3		
		2.6		2		
		2.8		6		
		3.0		6		
		3.2		6		
		3.4		13		
		3.6		18		
		3.8		14		
		4.0		11		
		4.2		6		
		4.4		4		
		4.6		7		
		4.8		8		
		5.0		10		
				10		
				14		
				14		
				14		
				17		
				18		
				15		
				18		

PHOTO(S)



REMARKS

1. Hand auger terminated at 1.0m bgl due to hard strata.
2. Continued with DCP from 1.0m bgl to 3.9m bgl.
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.: HA08

CLIENT: Kevin and Jayne Salmon

PROJECT: 231 Happy Valley Road, Umawera

JOB NO.: C0544

SITE LOCATION: Eastern side of Happy Valley Road

CO-ORDINATES: 1653730.020mE, 6090971.900mN

ELEVATION: Ground

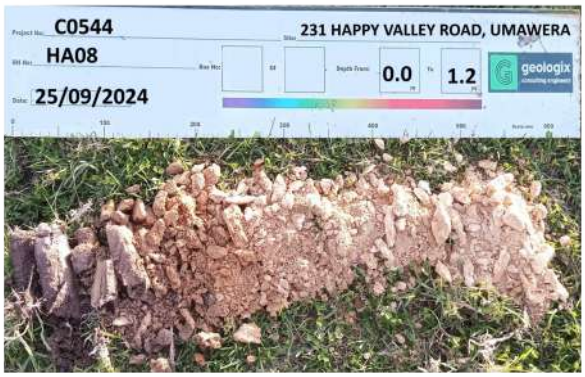
START DATE: 25/09/2024

END DATE: 25/09/2024

CONTRACTOR: Internal **RIG:** Hand Auger **DRILLER:** TW GB **LOGGED BY:** TW

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa)	WATER
TOPSOIL comprising organic SILT; dark brown; moist; low plasticity.		0.0	TS	2 4 6 8 10 12 14 16 18	Vane: 50 100 150 200 Values	Groundwater Not Encountered
Clayey SILT, with trace sand; orange brown mottled light brown. Moist; low plasticity; sand, fine; [Northland Allochthon Residual Soils].		0.2				
Sandy SILT, with trace clay; light brown. Moist; low plasticity; [Northland Allochthon Completely Weathered Parent Rock].		0.4				
		0.6				
		0.8				
		1.0				
End Of Hole: 1.20m		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				

PHOTO(S)



REMARKS

1. Hand auger completed at target depth 1.2m bgl.
2. Groundwater not encountered at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

APPENDIX C

Assessment of Environmental Effects and Assessment Criteria

Table 14: Wastewater Assessment of Environmental Effects

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

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

AEP Annual Exceedance Probability.
NR No Requirement.

APPENDIX D

Stormwater Calculations

Project Ref:	C0544	**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	HAPPY VALLEY ROAD, UMAWERA		
Design Case:	CONCEPT FUTURE DEVELOPMENT	**50 % AEP STORM EVENT, TO 80 % OF PRE DEVELOPMENT**	
Date:	5 September 2024 REV 1		

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

PRE DEVELOPMENT CATCHMENT PARAMETERS

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

POST DEVELOPMENT CATCHMENT PARAMETERS

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

RAINFALL INTENSITY, 50% AEP, 10MIN DURATION

50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	56.5	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	67.80	mm/hr

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

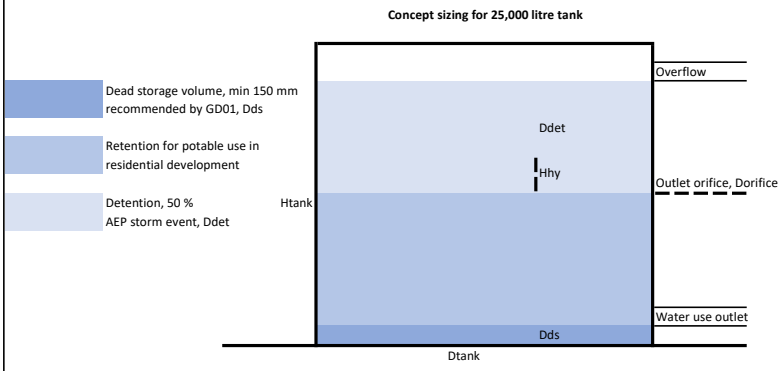
PRE AND POST-DEVELOPMENT RUNOFF, 50%AEP WITH CC, VARIOUS DURATIONS

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	56.50	1.2	67.80	8.55	5.26	4.21	*Critical duration (time of concentration) for the catchments is 10min*
20	40.50	1.2	48.60	6.13	4.52	3.62	
30	33.10	1.2	39.72	5.01	3.70	2.96	
60	23.30	1.2	27.96	3.53	2.60	2.08	
120	16.10	1.2	19.32	2.44	1.80	1.44	*Pre-dev calculated on Intensity without CC factor*
360	8.61	1.2	10.33	1.30	0.96	0.77	
720	5.60	1.2	6.72	0.85	0.63	0.50	
1440	3.53	1.2	4.24	0.53	0.39	0.32	
2880	2.14	1.2	2.57	0.32	0.24	0.19	
4320	1.57	1.2	1.88	0.24	0.18	0.14	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	3.13	5.42	1.08	1.08	4.34	2607	*select largest required storage , regardless of duration, to avoid overflow*
20	2.24	3.89	1.38	1.08	2.81	3370	
30	1.83	3.18	1.13	1.08	2.10	3776	
60	1.29	2.24	0.79	1.08	1.16	4165	
120	0.89	1.55	0.55	1.08	0.47	3354	
360	0.48	0.83	0.29	1.08	No Att. Req.	0	
720	0.31	0.54	0.19	1.08	No Att. Req.	0	
1440	0.20	0.34	0.12	1.08	No Att. Req.	0	
2880	0.12	0.21	0.07	1.08	No Att. Req.	0	
4320	0.09	0.15	0.05	1.08	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT



SPECIFICATION

TOTAL STORAGE REQUIRED	4.165	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	2.5	m	Concept sizing for 25,000 litre tank
TANK DIAMETER, Dtank	3.66	m	No. of Tanks 1
TANK AREA, Atank	10.52	m2	Area of ONE tank
TANK MAX STORAGE VOLUME, Vtank	26302	litres	
REQUIRED STORAGE HEIGHT, Ddet	0.40	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.55	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00108	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.20	m	
AREA OF ORIFICE, Aorifice	8.84E-04	m2	
ORIFICE DIAMETER, Dorifice	34	mm	
VELOCITY AT ORIFICE	2.79	m/s	At max. head level

Project Ref:	C0544		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	HAPPY VALLEY ROAD, UMAWERA			
Design Case:	CONCEPT FUTURE DEVELOPMENT		**20 % AEP STORM EVENT, TO 80 % OF PRE DEVELOPMENT**	
Date:	5 September 2024	REV 1		

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

PRE DEVELOPMENT CATCHMENT PARAMETERS

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

POST DEVELOPMENT CATCHMENT PARAMETERS

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

RAINFALL INTENSITY, 20% AEP, 10MIN DURATION

20 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	73.1	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
20 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	87.7	mm/hr

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

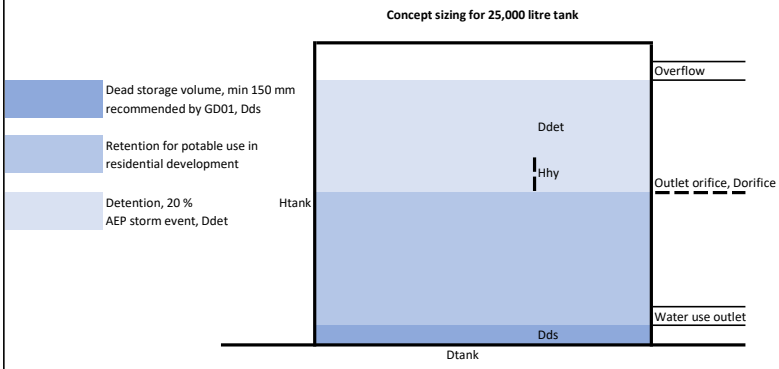
PRE AND POST-DEVELOPMENT RUNOFF, 20%AEP WITH CC, VARIOUS DURATIONS

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	73.10	1.2	87.72	11.06	6.80	5.44	*Critical duration (time of concentration) for the catchments is 10min*
20	52.40	1.2	62.88	7.93	4.88	3.90	
30	43.00	1.2	51.60	6.51	4.00	3.20	
60	30.30	1.2	36.36	4.59	2.82	2.26	
120	21.00	1.2	25.20	3.18	1.95	1.56	*Pre-dev calculated on Intensity without CC factor*
360	11.30	1.2	13.56	1.71	1.05	0.84	
720	7.33	1.2	8.80	1.11	0.68	0.55	
1440	4.63	1.2	5.56	0.70	0.43	0.34	
2880	2.81	1.2	3.37	0.43	0.26	0.21	
4320	2.07	1.2	2.48	0.31	0.19	0.15	

ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	4.04	7.02	1.40	1.40	5.62	3372	*select largest required storage , regardless of duration, to avoid overflow*
20	2.90	5.03	1.98	1.40	3.63	4360	
30	2.38	4.13	1.62	1.40	2.73	4916	
60	1.68	2.91	1.14	1.40	1.51	5442	
120	1.16	2.02	0.79	1.40	0.62	4457	
360	0.63	1.08	0.43	1.40	No Att. Req.	0	
720	0.41	0.70	0.28	1.40	No Att. Req.	0	
1440	0.26	0.44	0.17	1.40	No Att. Req.	0	
2880	0.16	0.27	0.11	1.40	No Att. Req.	0	
4320	0.11	0.20	0.08	1.40	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT



SPECIFICATION

TOTAL STORAGE REQUIRED	5.442	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	2.5	m	Concept sizing for 25,000 litre tank
TANK DIAMETER, Dtank	3.66	m	No. of Tanks 1
TANK AREA, Atank	10.52	m2	Area of ONE tank
TANK MAX STORAGE VOLUME, Vtank	26302	litres	
REQUIRED STORAGE HEIGHT, Ddet	0.52	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.67	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00140	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.26	m	
AREA OF ORIFICE, Aorifice	1.00E-03	m2	
ORIFICE DIAMETER, Dorifice	36	mm	
VELOCITY AT ORIFICE	3.19	m/s	At max. head level

Project Ref:	C0544		**STORMWATER DISPERSION PIPE/ TRENCH**
Project Address:	HAPPY VALLEY ROAD, UMAWERA		
Design Case:	CONCEPT FUTURE DEVELOPMENT		**LOT 2 & 3 - DISCHARGE DEVICE - LEVEL SPREADER OR TRENCH**
Date:	5 September 2024	REV 1	

geologix consulting engineers

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

DESIGN STORM EVENT **20%** AEP EVENT

SLOPE BETWEEN SOURCE & DISPERSION DEVICE

ELEVATION	h	CHAINAGE, x	Δ x	h bar	Δ A
m	m	m	m	m	m2
64	0	0	0	0	0
60	4	22	22	2	44
	TOTALS	22	22		44
	SLOPE, Sc	0.182	m/m		

MANNINGS PIPE FLOW - INCOMING PIPE

Dia, m	d/D	α, rad	P, m	A, m^2	R	1:S	n	V, m/s	Q, m^3/s	Q, l/s	
0.1	0.000	6.283	0.0000	0.0000	0.000	5.5	0.009	0.000	0.0000	0.000	**0 % full**
0.100	0.050	5.381	0.0451	0.0001	0.003	5.5	0.0090	1.041	0.0002	0.153	
0.100	0.100	4.996	0.0644	0.0004	0.006	5.5	0.0090	1.625	0.0007	0.664	
0.100	0.150	4.692	0.0795	0.0007	0.009	5.5	0.0090	2.093	0.0015	1.546	
0.100	0.200	4.429	0.0927	0.0011	0.012	5.5	0.0090	2.491	0.0028	2.786	
0.100	0.250	4.189	0.1047	0.0015	0.015	5.5	0.0090	2.838	0.0044	4.358	
0.100	0.300	3.965	0.1159	0.0020	0.017	5.5	0.0090	3.144	0.0062	6.230	
0.100	0.350	3.751	0.1266	0.0024	0.019	5.5	0.0090	3.415	0.0084	8.365	
0.100	0.400	3.544	0.1369	0.0029	0.021	5.5	0.0090	3.654	0.0107	10.721	
0.100	0.450	3.342	0.1471	0.0034	0.023	5.5	0.0090	3.866	0.0133	13.252	
0.100	0.500	3.142	0.1571	0.0039	0.025	5.5	0.0090	4.051	0.0159	15.907	**50 % full**
0.100	0.550	2.941	0.1671	0.0044	0.026	5.5	0.0090	4.210	0.0186	18.634	
0.100	0.600	2.739	0.1772	0.0049	0.028	5.5	0.0090	4.344	0.0214	21.374	
0.100	0.650	2.532	0.1875	0.0054	0.029	5.5	0.0090	4.453	0.0241	24.065	
0.100	0.700	2.319	0.1982	0.0059	0.030	5.5	0.0090	4.536	0.0266	26.636	
0.100	0.750	2.094	0.2094	0.0063	0.030	5.5	0.0090	4.591	0.0290	29.011	
0.100	0.800	1.855	0.2214	0.0067	0.030	5.5	0.0090	4.617	0.0311	31.098	
0.100	0.850	1.591	0.2346	0.0071	0.030	5.5	0.0090	4.607	0.0328	32.783	
0.100	0.900	1.287	0.2498	0.0074	0.030	5.5	0.0090	4.554	0.0339	33.908	
0.100	0.950	0.902	0.2691	0.0077	0.029	5.5	0.0090	4.436	0.0342	34.185	
0.100	1.000	0.000	0.3142	0.0079	0.025	5.5	0.0090	4.051	0.0318	31.815	**Flowing full**

DISPERSION SPECIFICATION

INCOMING PIPE PROPERTIES:

TANK OUTFLOW, 20 % AEP	7.02	l/s
MAXIMUM PIPE FLOW	34.19	l/s
SUFFICIENT CAPACITY IN PIPE	YES	
LONGITUDINAL SLOPE	0.182	m/m
DESIGN VELOCITY, Dv	4.617	m/s

LEVEL SPREADER SPECIFICATIONS:

PIPE DIAMETER, m	0.15	m
MANNINGS PIPE ROUGHNESS	0.009	
NUMBER OF ORIFICES	41	No.
DIA. OF ORIFICE, D	20	mm
ORIFICE INTERVALS, C/C	150	mm
DISPERSION PIPE LENGTH, L	**6**	**m**

ORIFICE DESIGN FLOW CHECK:

AREA OF SINGLE ORIFICE, A	0.00031	m2		
FLOW OUT OF 1 ORIFICE	0.000272829	m3/s	0.27 l/s	
FLOW OUT OF ALL ORIFICES	0.01118600	m3/s	11.19 l/s	**DESIGN OK**
VELOCITY FROM SINGLE ORIFICE	0.87	m/s		

BROAD CRESTED WEIR DESIGN FLOW CHECK:

FLOW DEPTH, h	0.1	m		
BASE WIDTH = L	6	m		
FLOW AREA	0.60	m2		
WEIR FLOW	0.01120	m3/s	11.20 l/s	**DESIGN OK**
WEIR VELOCITY	0.019	m/s		

INCOMING PIPE & SPREADER SUMARY:

	LOT 2		LOT 3		
INCOMING PIPE DIAMETER, m	0.100	m	0.100	m	
SPREADER PIPE DIAMETER, m	0.150	m	0.150	m	
MANNINGS PIPE ROUGHNESS	0.009		0.009		
NUMBER OF ORIFICES	41	No.	41	No.	
FLOW DEPTH, h	0.05		0.05	m	above spreader pipe invert
DIA. OF ORIFICE, D	20	mm	20	mm	
ORIFICE INTERVALS, C/C	150	mm	150	mm	
DISPERSION PIPE LENGTH, L	**6**	**m**	**6**	**m**	

HIRDS V4 Depth-Duration-Frequency Results
Sitename: Custo Umawera
Coordinate system: WGS84
Longitude: 173.5962
Latitude: -35.3199

DDF Model	Parameters:	c	d	e	f	g	h	i
	Values:	0.00255626	0.48110049	-0.01712186	-0.0021719	0.25196832	-0.01099912	3.05803
	Example:	Duration (hrs)	ARI (yrs)	x	y	Rainfall Depth (mm)		
		24	100	3.17805383	4.600149227	201.9569346		

Rainfall depths (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	8.61	12.3	15.1	21.3	29.4	47.1	61.2	77	93.4	103	109	113
2	0.5	9.42	13.5	16.6	23.3	32.3	51.7	67.2	84.6	103	113	120	125
5	0.2	12.2	17.5	21.5	30.3	42	67.5	88	111	135	149	158	164
10	0.1	14.2	20.4	25.1	35.5	49.3	79.4	104	131	159	176	186	194
20	0.05	16.3	23.4	28.9	40.8	56.8	91.6	120	151	185	204	216	225
30	0.033	17.5	25.3	31.1	44	61.3	99	129	164	200	221	234	244
40	0.025	18.4	26.5	32.7	46.3	64.5	104	136	173	211	233	247	258
50	0.02	19.1	27.6	34	48.1	67	108	142	180	220	242	258	269
60	0.017	19.7	28.4	35	49.6	69.1	112	146	186	227	250	266	278
80	0.013	20.6	29.7	36.6	51.9	72.4	117	154	195	238	263	280	292
100	0.01	21.3	30.7	37.9	53.8	75	122	159	202	247	273	290	303
250	0.004	24.1	34.9	43.1	61.2	85.5	139	182	232	284	314	334	349

Depth standard error (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	1.1	1.5	1.5	2.3	3.1	5.9	8.4	14	17	20	19	21
2	0.5	1.2	1.6	1.7	2.5	3.4	6.5	9.2	16	19	22	22	23
5	0.2	1.6	2.2	2.5	3.6	4.7	8.7	12	21	26	29	29	31
10	0.1	2	2.8	3.3	4.6	6	11	15	25	31	35	34	37
20	0.05	2.6	3.7	4.3	5.9	7.7	14	19	30	36	41	40	44
30	0.033	3	4.3	5.1	6.9	8.9	16	21	33	40	44	44	48
40	0.025	3.3	4.8	5.7	7.7	9.9	17	23	35	43	47	47	52
50	0.02	3.6	5.2	6.3	8.3	11	19	25	37	45	50	50	54
60	0.017	3.8	5.6	6.7	8.9	11	20	27	39	47	52	52	57
80	0.013	4.2	6.3	7.5	9.9	13	22	30	41	50	55	55	61
100	0.01	4.6	6.8	8.2	11	14	24	32	43	52	58	58	64
250	0.004	6.3	9.7	12	15	19	34	44	54	65	71	72	79

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	9.22	13.2	16.2	22.8	31.4	49.7	64.1	80.2	96.6	106	112	116
2	0.5	10.1	14.5	17.8	25	34.5	54.7	70.6	88.2	106	117	123	128
5	0.2	13.1	18.8	23.1	32.6	45.1	71.7	92.8	116	140	154	163	170
10	0.1	15.3	22	27.1	38.2	53	84.4	109	137	166	182	193	201
20	0.05	17.6	25.3	31.1	44	61.1	97.6	127	159	193	212	224	233
30	0.033	18.9	27.2	33.6	47.5	65.9	106	137	172	209	229	243	253
40	0.025	19.9	28.6	35.3	50	69.4	111	144	181	220	242	257	267
50	0.02	20.7	29.8	36.7	52	72.2	116	150	189	229	252	267	278
60	0.017	21.3	30.7	37.8	53.5	74.4	119	155	195	237	261	276	288
80	0.013	22.3	32.1	39.6	56.1	78	125	163	205	249	274	290	302
100	0.01	23	33.2	41	58.1	80.8	130	169	212	258	284	301	314
250	0.004	26.1	37.7	46.5	66.1	92.1	148	193	243	296	326	347	361

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	9.22	13.2	16.2	22.8	31.4	49.7	64.1	80.2	96.6	106	112	116
2	0.5	10.1	14.5	17.8	25	34.5	54.7	70.6	88.2	106	117	123	128
5	0.2	13.1	18.8	23.1	32.6	45.1	71.7	92.8	116	140	154	163	170
10	0.1	15.3	22	27.1	38.2	53	84.4	109	137	166	182	193	201
20	0.05	17.6	25.3	31.1	44	61.1	97.6	127	159	193	212	224	233
30	0.033	18.9	27.2	33.6	47.5	65.9	106	137	172	209	229	243	253
40	0.025	19.9	28.6	35.3	50	69.4	111	144	181	220	242	257	267
50	0.02	20.7	29.8	36.7	52	72.2	116	150	189	229	252	267	278
60	0.017	21.3	30.7	37.8	53.5	74.4	119	155	195	237	261	276	288
80	0.013	22.3	32.1	39.6	56.1	78	125	163	205	249	274	290	302
100	0.01	23	33.2	41	58.1	80.8	130	169	212	258	284	301	314
250	0.004	26.1	37.7	46.5	66.1	92.1	148	193	243	296	326	347	361

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	9.37	13.4	16.5	23.1	31.9	50.4	64.8	81	97.4	107	113	117
2	0.5	10.3	14.7	18.1	25.4	35.1	55.4	71.4	89.1	107	118	124	129
5	0.2	13.3	19.1	23.5	33.2	45.9	72.8	94	117	142	156	164	171
10	0.1	15.6	22.4	27.6	38.9	53.9	85.7	111	139	168	184	195	202
20	0.05	17.9	25.8	31.7	44.8	62.2	99.1	128	161	195	214	226	235
30	0.033	19.3	27.8	34.2	48.4	67.1	107	139	174	211	232	245	255
40	0.025	20.3	29.2	36	50.9	70.7	113	146	183	222	245	259	270

HIRDS V4 Intensity-Duration-Frequency Results
Sitename: Umawera
Coordinate system: WGS84
Longitude: 173.5962
Latitude: -35.3199

DDF Mode Parameters:	c	d	e	f	g	h	i
Values:	0.00255626	0.48110049	-0.01712186	-0.0021719	0.25196832	-0.01099912	3.05803034

Example:	Duration (hrs)	ARI (yrs)	x	y	Rainfall Rate (mm/hr)
	24	100	3.17805383	4.600149227	8.414872275

Rainfall intensities (mm/hr) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	51.7	37	30.3	21.3	14.7	7.85	5.1	3.21	1.95	1.43	1.13	0.944
2	0.5	56.5	40.5	33.1	23.3	16.1	8.61	5.6	3.53	2.14	1.57	1.25	1.04
5	0.2	73.1	52.4	43	30.3	21	11.3	7.33	4.63	2.81	2.07	1.64	1.37
10	0.1	85.3	61.3	50.3	35.5	24.6	13.2	8.63	5.45	3.32	2.44	1.94	1.62
20	0.05	97.8	70.3	57.8	40.8	28.4	15.3	9.97	6.31	3.85	2.83	2.25	1.88
30	0.033	105	75.8	62.2	44	30.6	16.5	10.8	6.82	4.17	3.06	2.44	2.04
40	0.025	111	79.6	65.5	46.3	32.3	17.4	11.4	7.2	4.4	3.23	2.58	2.15
50	0.02	115	82.7	68	48.1	33.5	18.1	11.8	7.49	4.58	3.37	2.68	2.24
60	0.017	118	85.2	70	49.6	34.6	18.6	12.2	7.73	4.73	3.48	2.77	2.31
80	0.013	124	89.1	73.3	51.9	36.2	19.5	12.8	8.12	4.96	3.65	2.91	2.43
100	0.01	128	92.2	75.8	53.8	37.5	20.3	13.3	8.41	5.15	3.79	3.02	2.52
250	0.004	145	105	86.1	61.2	42.7	23.1	15.2	9.65	5.91	4.36	3.48	2.9

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

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	6.5	4.3	3.1	2.3	1.6	0.97	0.67	0.58	0.36	0.26	0.21	0.18
2	0.5	7.1	4.7	3.3	2.5	1.7	1.1	0.74	0.64	0.4	0.29	0.24	0.2
5	0.2	10	6.5	4.8	3.5	2.4	1.5	1	0.87	0.54	0.39	0.32	0.27
10	0.1	13	8.4	6.4	4.4	3	1.8	1.3	1	0.64	0.46	0.38	0.32
20	0.05	16	11	8.5	5.7	3.9	2.3	1.6	1.2	0.76	0.55	0.45	0.38
30	0.033	19	13	10	6.7	4.6	2.7	1.8	1.3	0.83	0.6	0.49	0.41
40	0.025	21	14	11	7.5	5.2	2.9	2	1.4	0.89	0.65	0.53	0.44
50	0.02	23	15	12	8.1	5.6	3.2	2.1	1.5	0.94	0.68	0.55	0.47
60	0.017	24	16	13	8.7	6	3.4	2.3	1.6	0.98	0.71	0.58	0.49
80	0.013	27	18	15	9.8	6.7	3.8	2.5	1.7	1	0.76	0.61	0.52
100	0.01	29	20	16	11	7.3	4.1	2.7	1.8	1.1	0.8	0.65	0.54
250	0.004	39	27	22	15	10	5.6	3.8	2.2	1.4	0.99	0.79	0.67

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	55.3	39.6	32.4	22.8	15.7	8.28	5.34	3.34	2.01	1.47	1.17	0.969
2	0.5	60.6	43.4	35.5	25	17.2	9.11	5.88	3.68	2.22	1.62	1.29	1.07
5	0.2	78.6	56.4	46.2	32.6	22.5	12	7.73	4.84	2.93	2.14	1.7	1.41
10	0.1	91.9	66	54.2	38.2	26.5	14.1	9.11	5.71	3.46	2.53	2.01	1.67
20	0.05	105	75.9	62.3	44	30.5	16.3	10.5	6.61	4.01	2.94	2.34	1.94
30	0.033	114	81.7	67.2	47.5	33	17.6	11.4	7.16	4.35	3.18	2.53	2.11
40	0.025	119	85.9	70.6	50	34.7	18.5	12	7.55	4.59	3.36	2.67	2.23
50	0.02	124	89.3	73.4	52	36.1	19.3	12.5	7.86	4.78	3.5	2.79	2.32
60	0.017	128	92	75.6	53.5	37.2	19.9	12.9	8.12	4.93	3.62	2.88	2.4
80	0.013	134	96.3	79.2	56.1	39	20.9	13.6	8.52	5.18	3.8	3.02	2.52
100	0.01	138	99.6	81.9	58.1	40.4	21.6	14.1	8.84	5.38	3.94	3.14	2.61
250	0.004	156	113	93.1	66.1	46	24.7	16.1	10.1	6.17	4.53	3.61	3.01

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

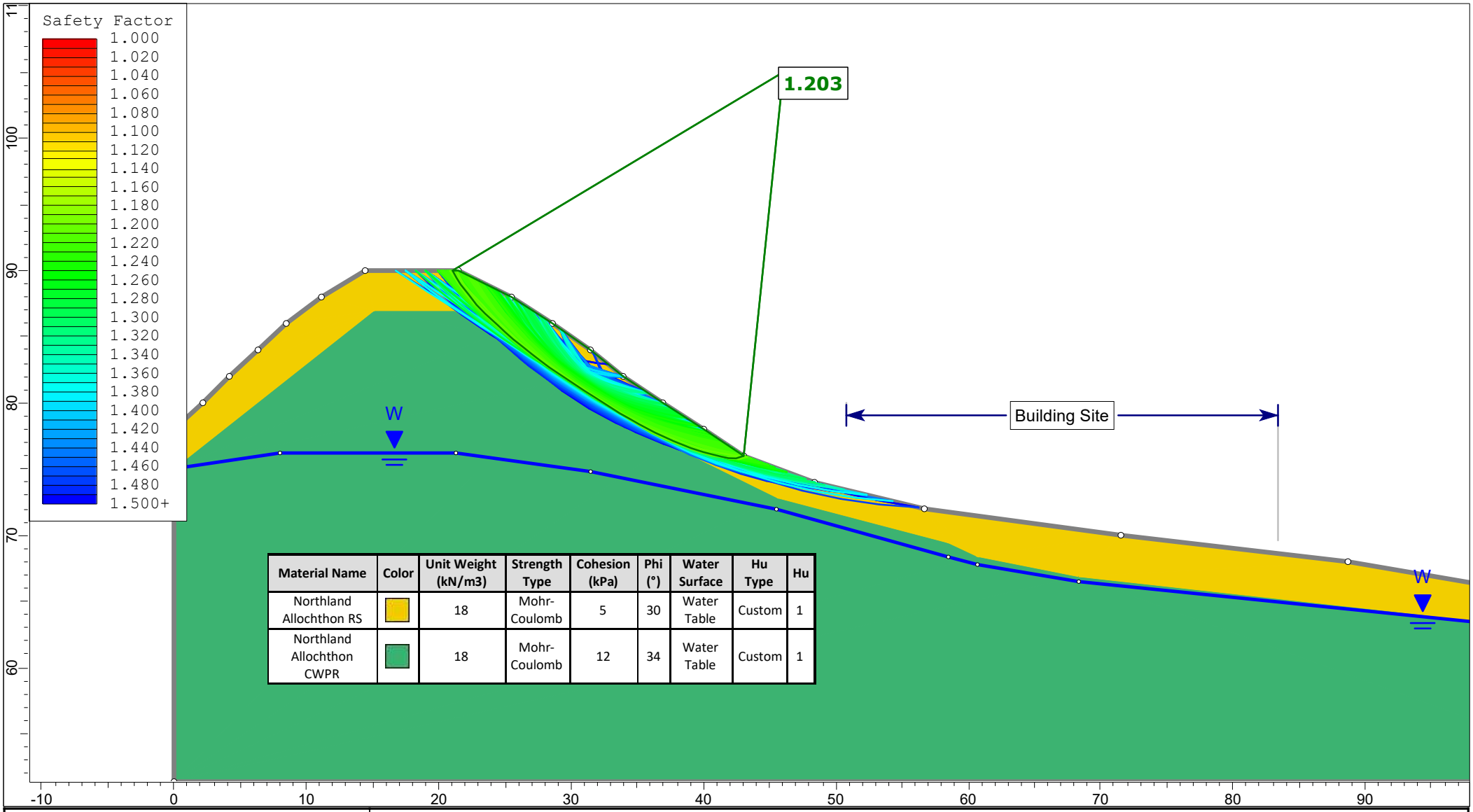
ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	55.3	39.6	32.4	22.8	15.7	8.28	5.34	3.34	2.01	1.47	1.17	0.969
2	0.5	60.6	43.4	35.5	25	17.2	9.11	5.88	3.68	2.22	1.62	1.29	1.07
5	0.2	78.6	56.4	46.2	32.6	22.5	12	7.73	4.84	2.93	2.14	1.7	1.41
10	0.1	91.9	66	54.2	38.2	26.5	14.1	9.11	5.71	3.46	2.53	2.01	1.67
20	0.05	105	75.9	62.3	44	30.5	16.3	10.5	6.61	4.01	2.94	2.34	1.94
30	0.033	114	81.7	67.2	47.5	33	17.6	11.4	7.16	4.35	3.18	2.53	2.11
40	0.025	119	85.9	70.6	50	34.7	18.5	12	7.55	4.59	3.36	2.67	2.23
50	0.02	124	89.3	73.4	52	36.1	19.3	12.5	7.86	4.78	3.5	2.79	2.32
60	0.017	128	92	75.6	53.5	37.2	19.9	12.9	8.12	4.93	3.62	2.88	2.4
80	0.013	134	96.3	79.2	56.1	39	20.9	13.6	8.52	5.18	3.8	3.02	2.52
100	0.01	138	99.6	81.9	58.1	40.4	21.6	14.1	8.84	5.38	3.94	3.14	2.61
250	0.004	156	113	93.1	66.1	46	24.7	16.1	10.1	6.17	4.53	3.61	3.01

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	56.2	40.2	32.9	23.1	15.9	8.39	5.4	3.37	2.03	1.48	1.17	0.976
2	0.5	61.6	44.1	36.1	25.4	17.5	9.24	5.95	3.71	2.24	1.63	1.3	1.08

APPENDIX E

Slope Stability Analsyis

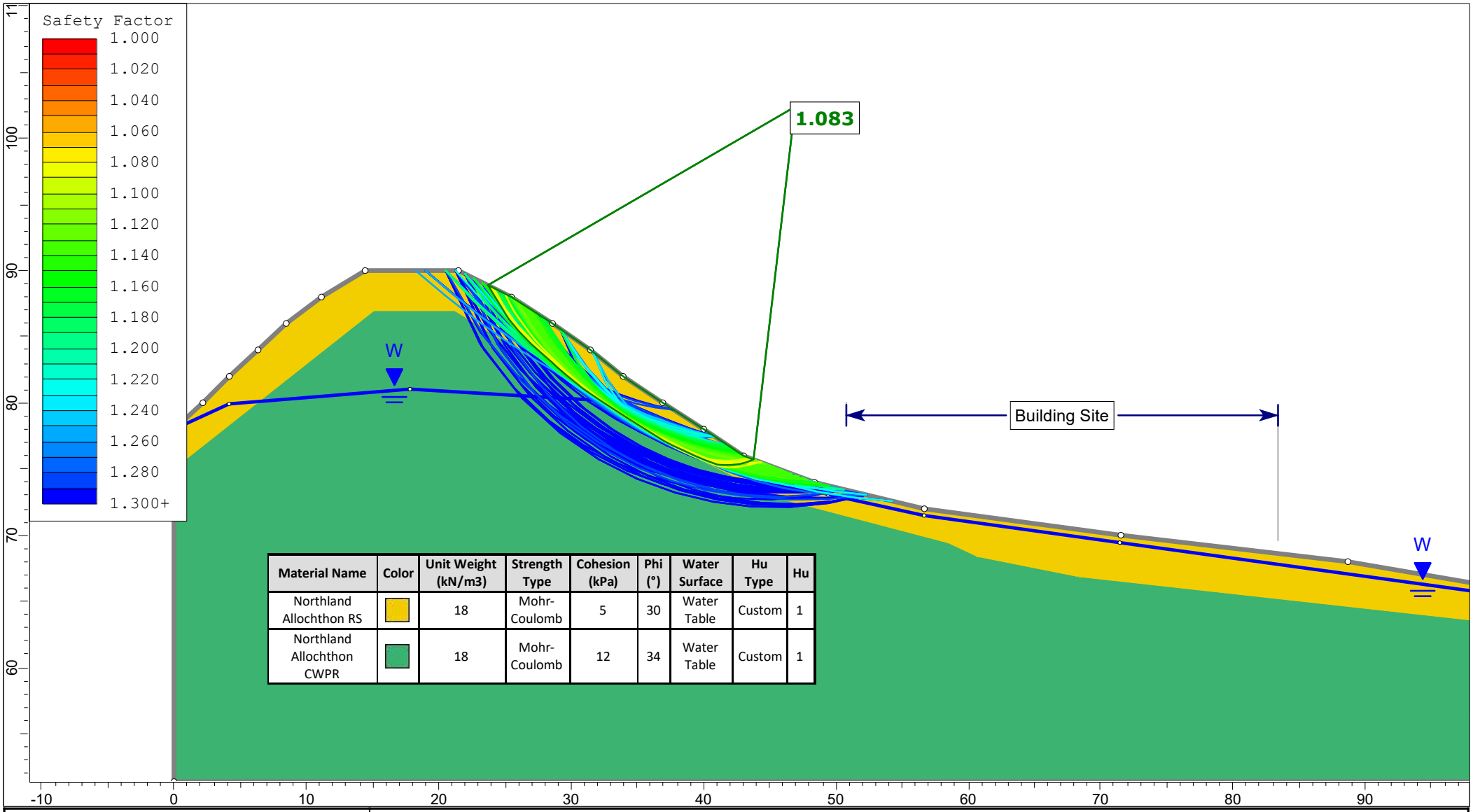


Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

geologix
consulting engineers

SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Existing Static		
Drawn By	EC	*Scale* 1:400	*Company* Geologix Consulting Engineers Limited
Date	12/08/2025		*File Name* Section A.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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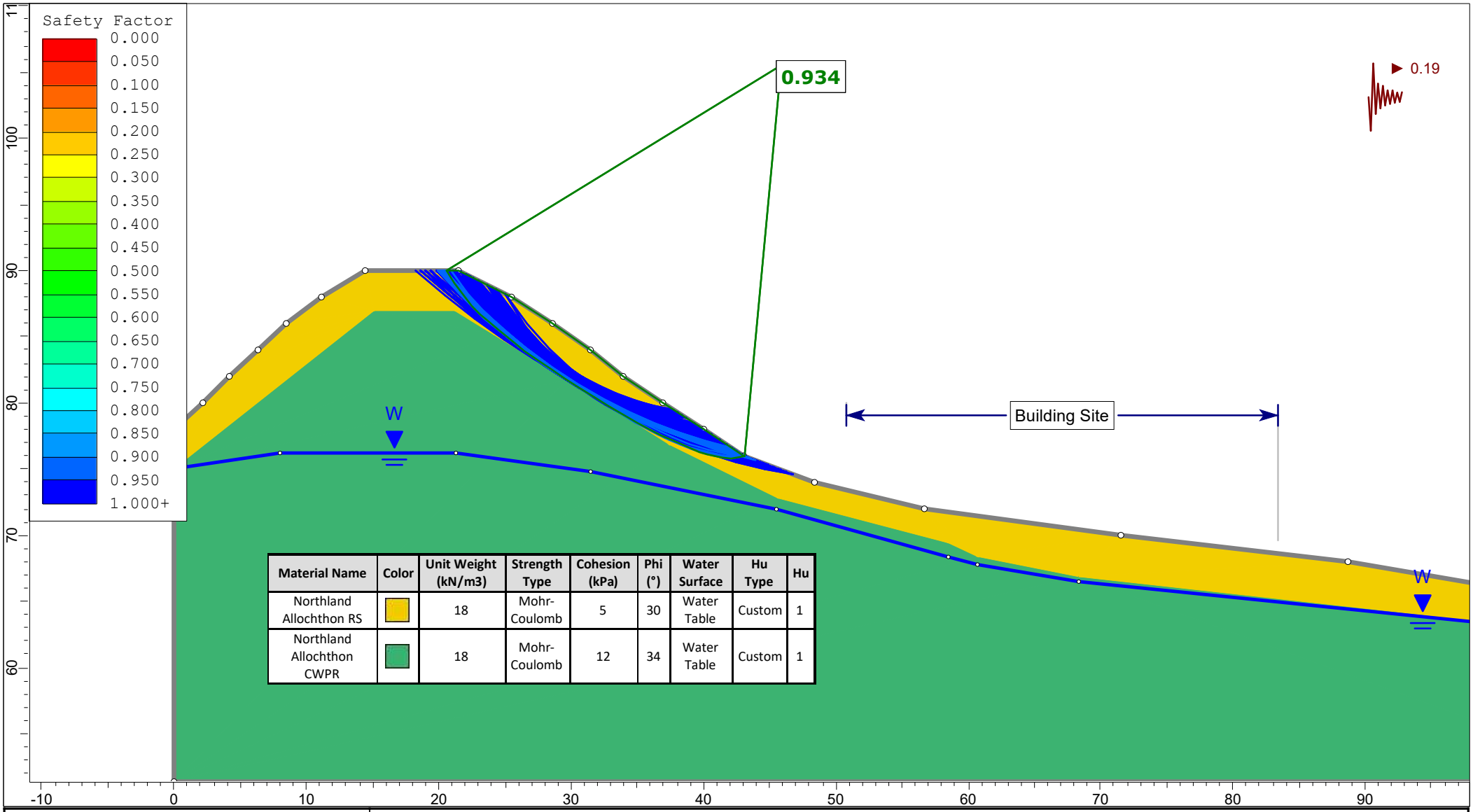
SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Existing Elevated GW		
Drawn By	EC	*Scale* 1:400	*Company* Geologix Consulting Engineers Limited
Date	12/08/2025		*File Name* Section A.slmd



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Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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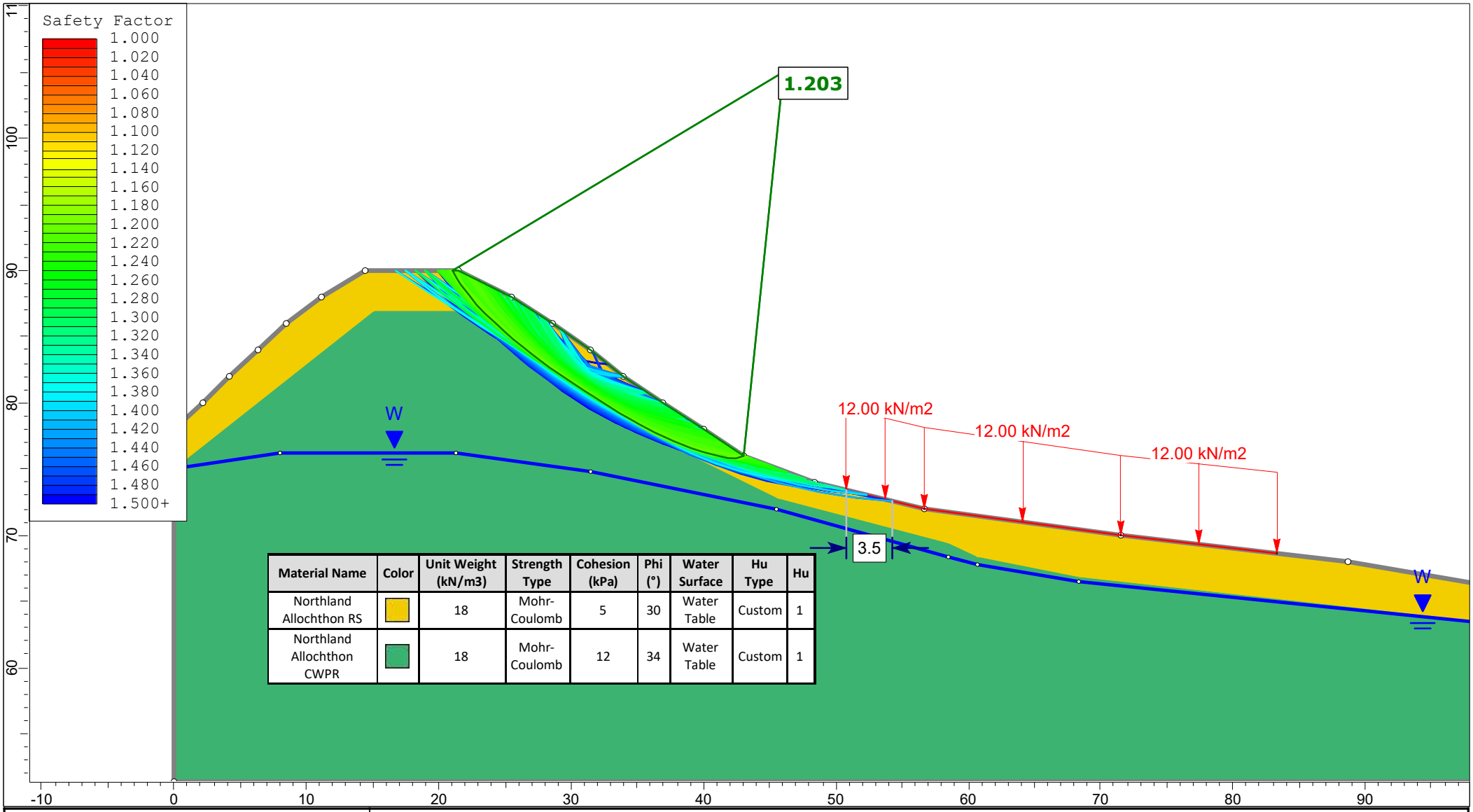
SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Existing Seismic		
Drawn By	EC	*Scale* 1:400	*Company* Geologix Consulting Engineers Limited
Date	12/08/2025		*File Name* Section A.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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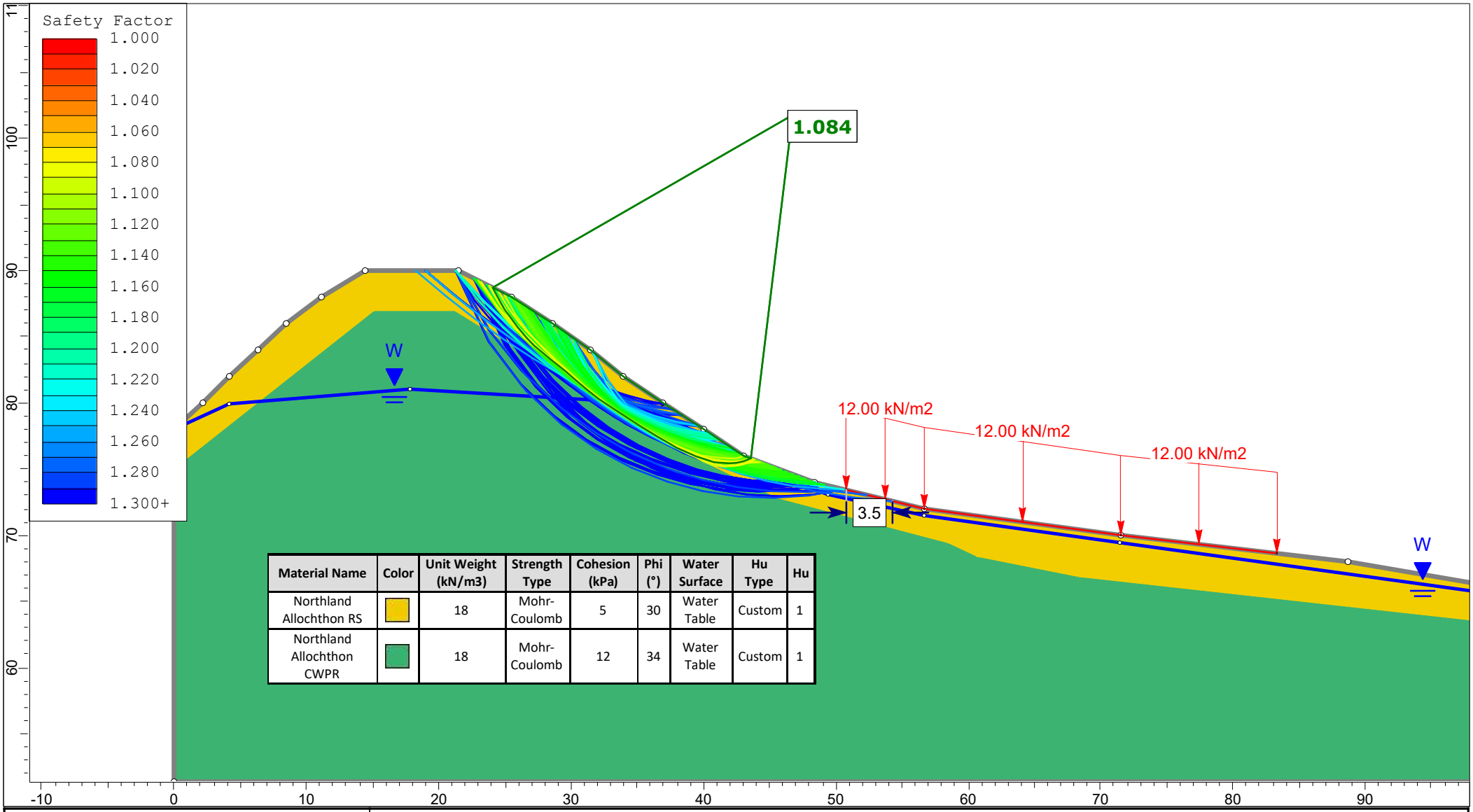
SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Proposed Static		
Drawn By	EC	*Scale* 1:400	*Company* Geologix Consulting Engineers Limited
Date	12/08/2025		*File Name* Section A.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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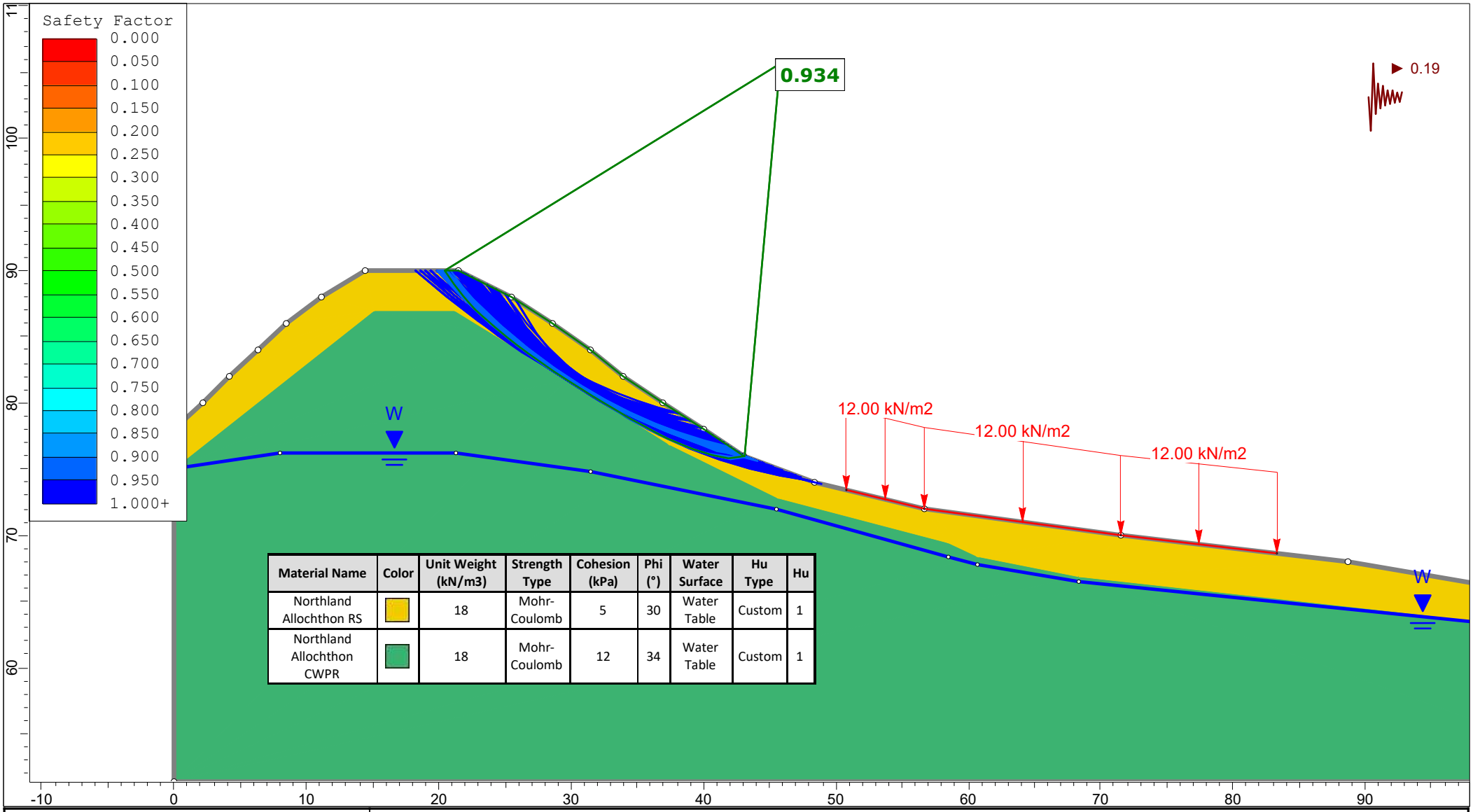
SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Proposed Elevated GW		
Drawn By	EC	*Scale* 1:400	*Company* Geologix Consulting Engineers Limited
Date	12/08/2025		*File Name* Section A.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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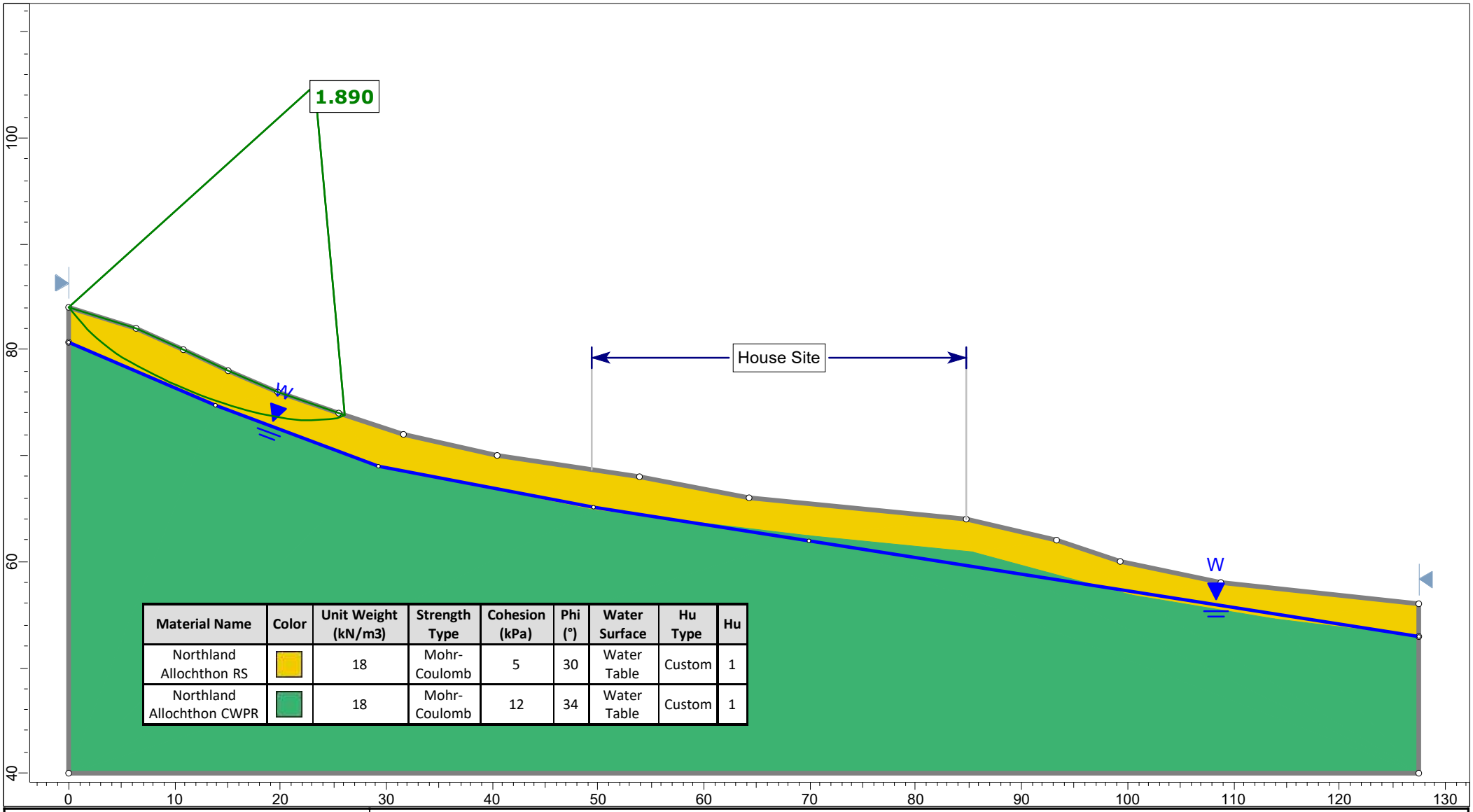
SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Proposed Seismic		
Drawn By	EC	*Scale* 1:400	*Company* Geologix Consulting Engineers Limited
Date	12/08/2025		*File Name* Section A.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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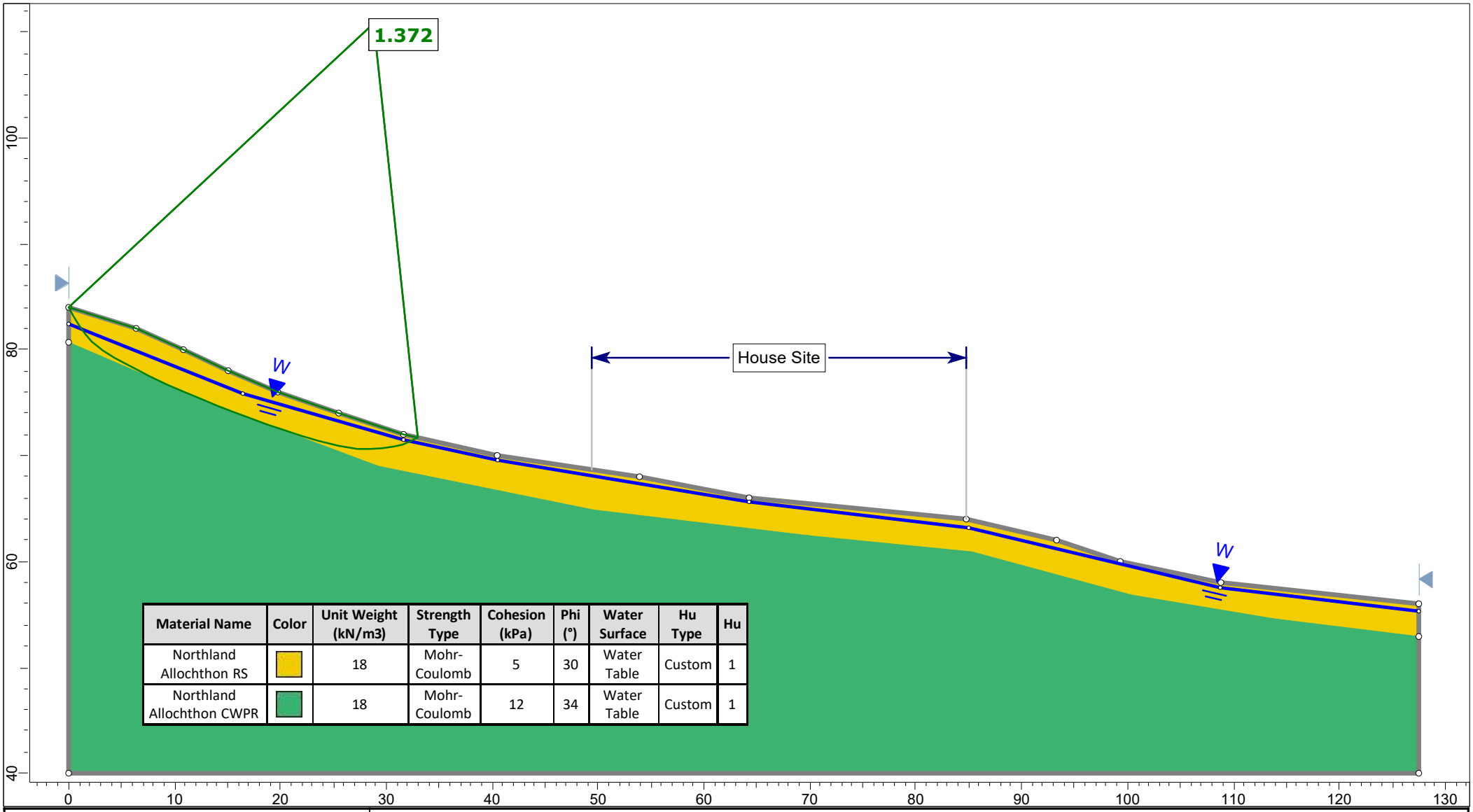
SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Existing Condition Static		
Drawn By	EC	*Scale* 1:500	*Company* Geologix Consulting Engineers Ltd
Date	13/08/2025		*File Name* Section B.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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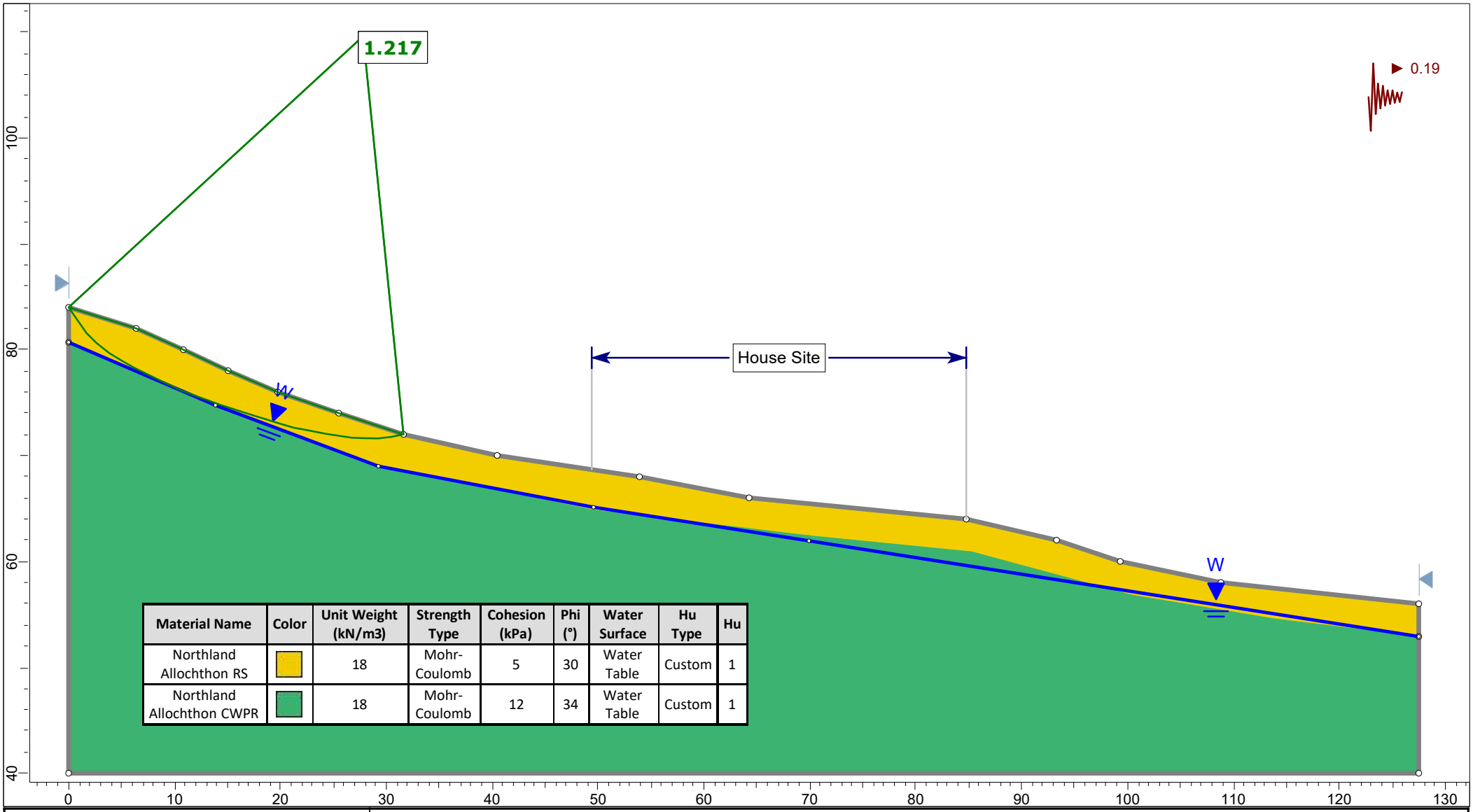
SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Existing Condition Elevated GW		
Drawn By	EC	*Scale* 1:500	*Company* Geologix Consulting Engineers Ltd
Date	13/08/2025		*File Name* Section B.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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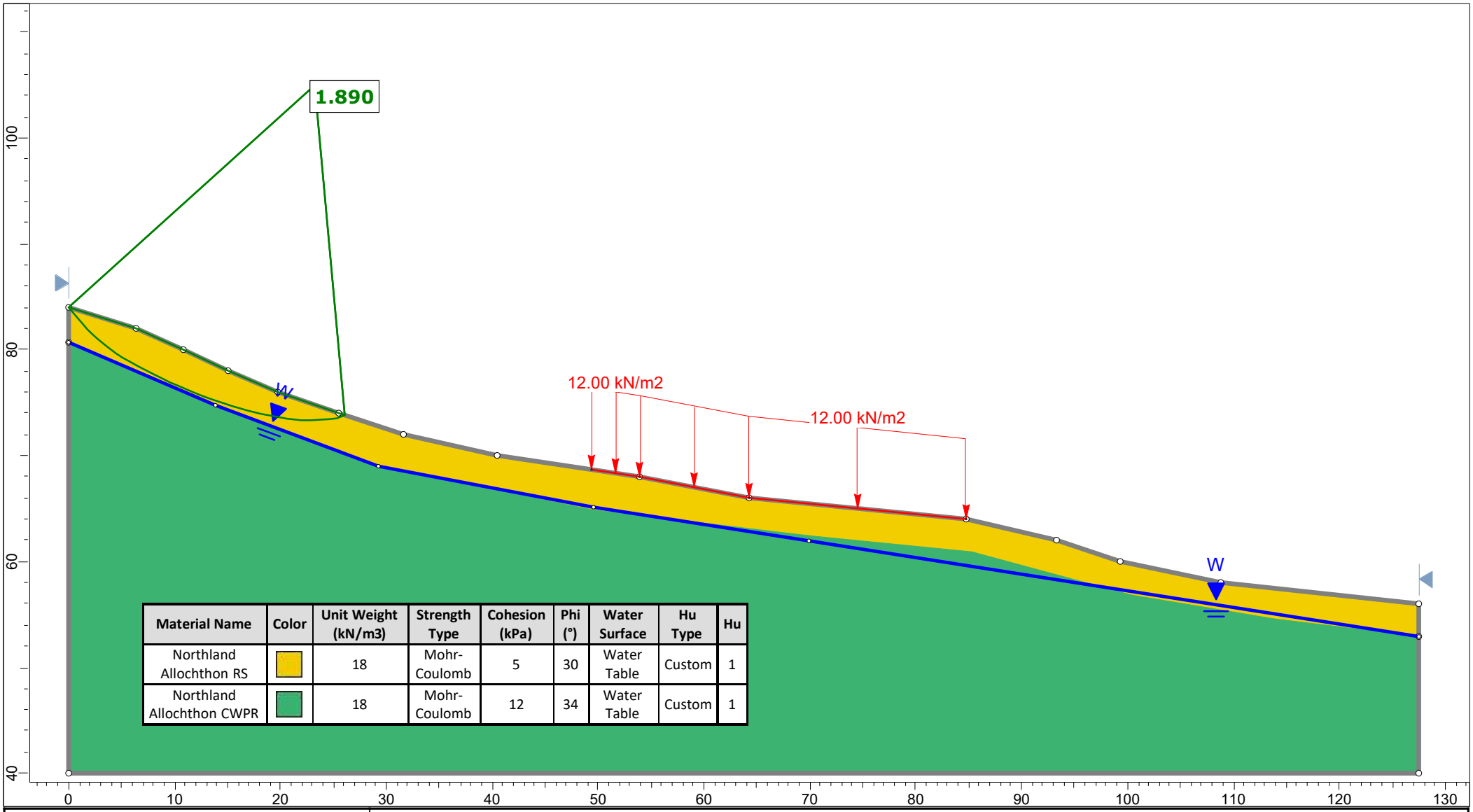
SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Existing Condition Seismic		
Drawn By	EC	*Scale* 1:500	*Company* Geologix Consulting Engineers Ltd
Date	13/08/2025		*File Name* Section B.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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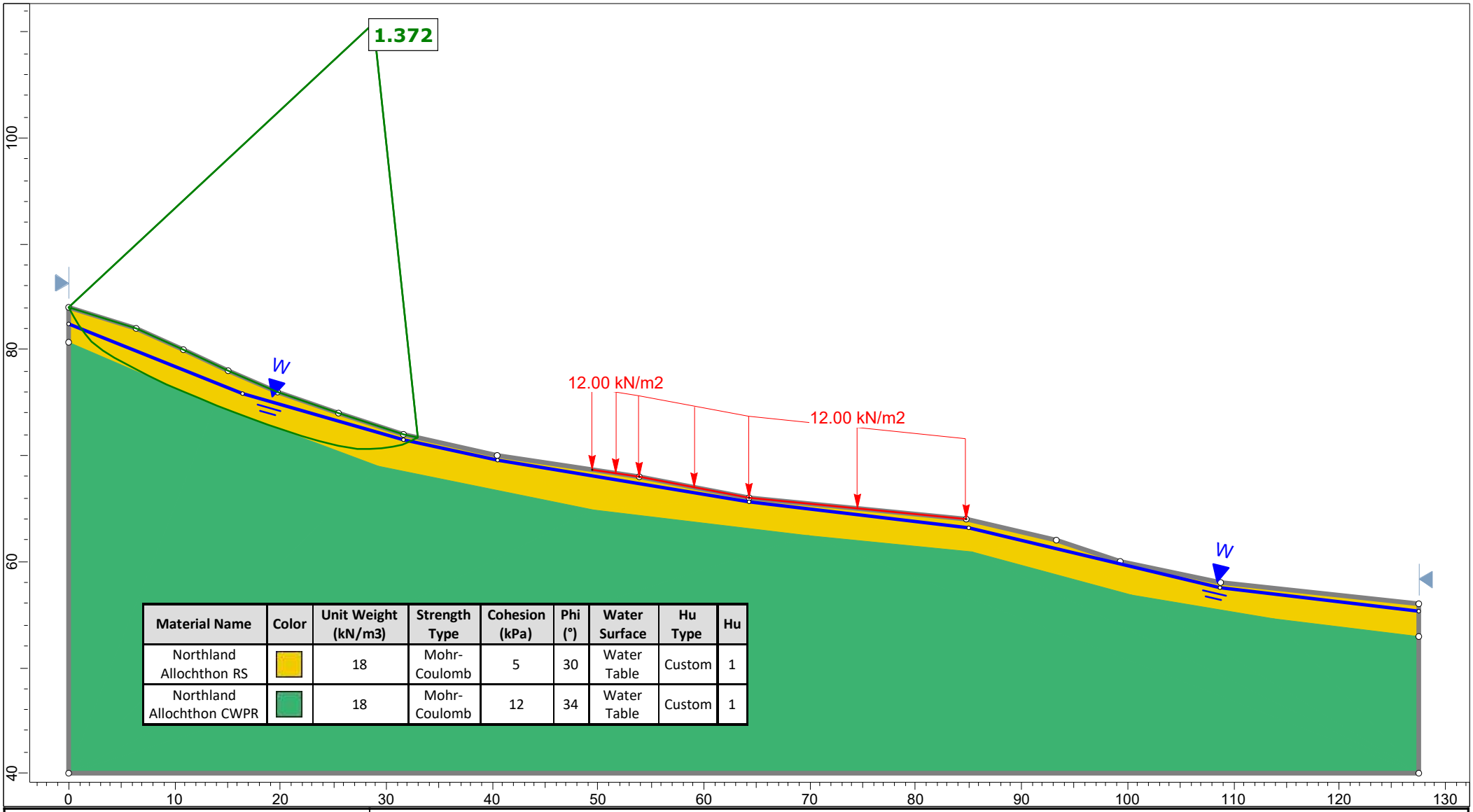
SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Proposed Condition Static		
Drawn By	EC	*Scale* 1:500	*Company* Geologix Consulting Engineers Ltd
Date	13/08/2025		*File Name* Section B.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
Northland Allochthon RS		18	Mohr-Coulomb	5	30	Water Table	Custom	1
Northland Allochthon CWPR		18	Mohr-Coulomb	12	34	Water Table	Custom	1

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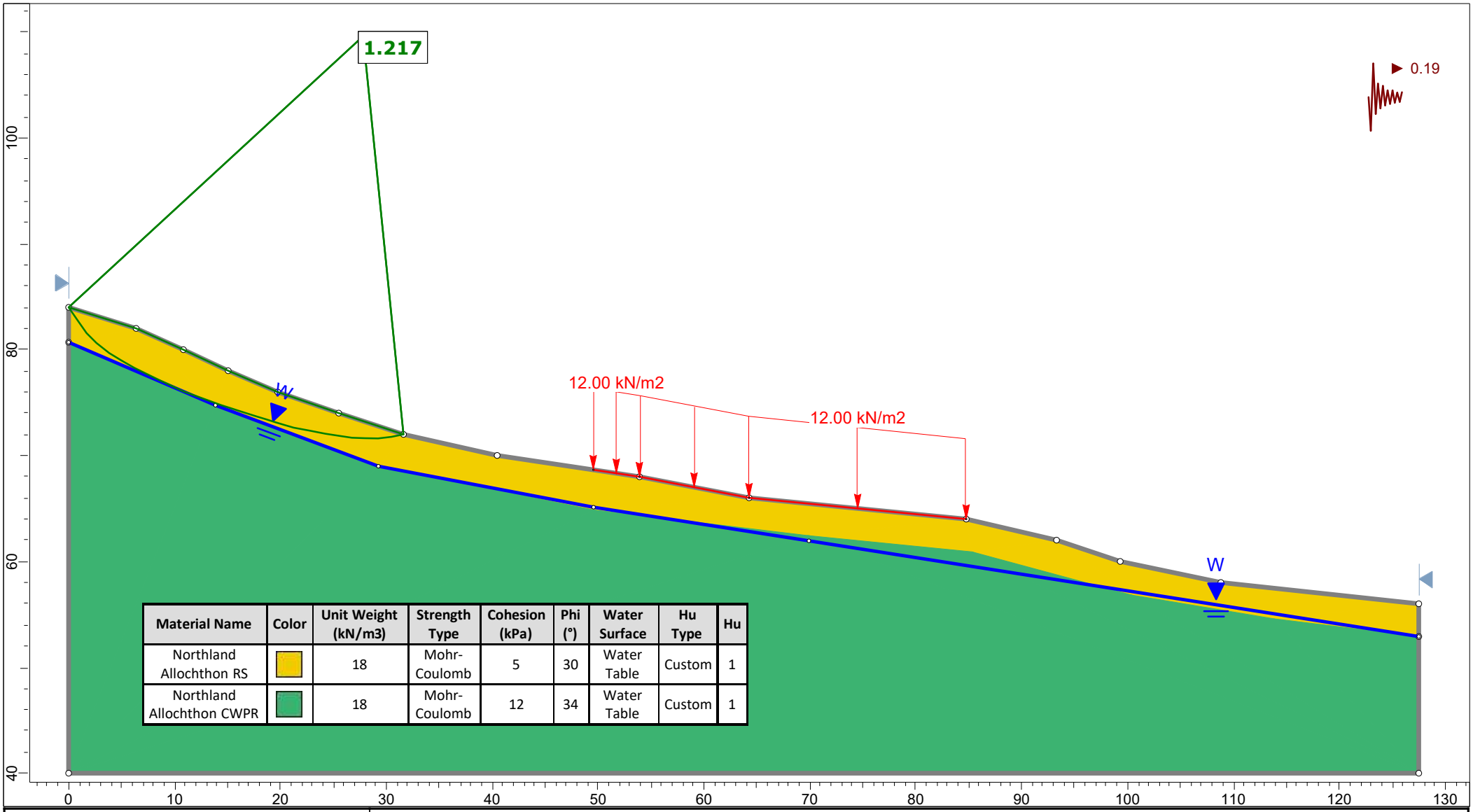
SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Proposed Condition Elevated GW		
Drawn By	EC	*Scale* 1:500	*Company* Geologix Consulting Engineers Ltd
Date	13/08/2025		*File Name* Section B.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (°)	Water Surface	Hu Type	Hu
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SLIDEINTERPRET 9.039

Project	C0544 - 231 Happy Valley Road		
Analysis Description	Proposed Condition Seismic		
Drawn By	EC	*Scale* 1:500	*Company* Geologix Consulting Engineers Ltd
Date	13/08/2025		*File Name* Section B.slmd

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 **NA1686/10**

Part-Cancelled

Land Registration District **North Auckland**

Date Issued 11 November 1959

Prior References
NAPR224/16

Estate	Fee Simple
Area	63.5609 hectares more or less
Legal Description	Section 52-53 Block VII Mangamuka Survey District

Registered Owners
K & J Farms Limited

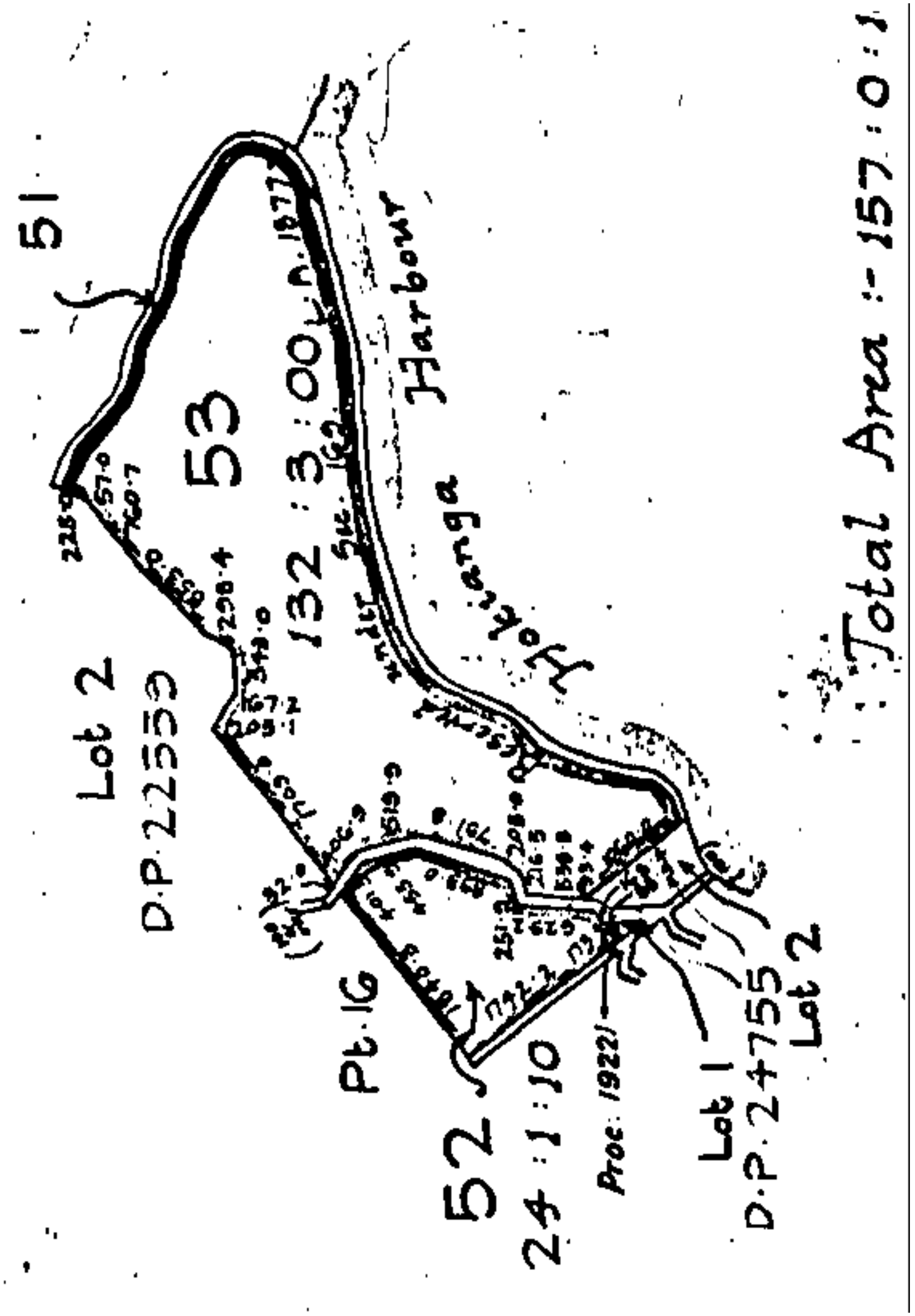
Interests

19221 Proclamation proclaiming part as road - 16.8.1962 at 2.46 pm

6896364.1 Gazette Notice declaring part 9630m2 being the area marked B on SO 65223 to be road vested in the Far North District Council- 7.6.2006 at 9:00 am

9688598.3 Mortgage to Bank of New Zealand - 3.6.2014 at 11:20 am

Subject to a right (in gross) to convey electricity over part Section 53 Block VII Mangamuka Survey District marked A on DP 567231 in favour of Top Energy Limited created by Easement Instrument 12339308.2 - 14.6.2022 at 7:50 am


Lot 2
D.P. 22559
51
53
132 : 3 : 00
Hokianga Harbour
Pt. 1G
52
24 : 1 : 10
Proc: 19221
Lot 1
D.P. 24755
Lot 2
Total Area :- 157 : 0 : 1

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

29 April 2025

Natalie Watson
Williams & King
PO Box 937
KERIKERI 0230

Email: nat@saps.co.nz

To Whom It May Concern:

RE: PROPOSED SUBDIVISION
K & J Farms Limited – 231A & 231B Happy Valley Road, Umawera.
Section 52-53 BLK VII Mangamuka SD.

Thank you for your recent correspondence with attached proposed subdivision scheme plans.

Top Energy's requirement for this subdivision is nil.

Top Energy advises that there is an existing power supply at proposed Lot 1 and Lot 3.
Costs to supply power could be provided after application and an on-site survey have been completed. Link to application: Top Energy | Top Energy

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

Natalie Watson

From: Liz Williams <lwilliams@doc.govt.nz>
Sent: Friday, 23 May 2025 5:29 pm
To: Natalie Watson
Subject: RE: Proposed Subdivision for K & J Farms Limited (K & J Salmons) at 231 Happy Valley Road, Rawhia, Umawera

Follow Up Flag: Follow up
Flag Status: Flagged

Kia ora Natalie

I have met with the team and reviewed the proposed subdivision. Based on the information provided in the email below (dated 1 May 2025), DOC have no major concerns in relation to the proposal. As part of the assessment of effects it is recommended that an erosion and sediment plan is developed to manage effects from any proposed earthworks. DOC supports the proposal to protect indigenous vegetation via a covenant and associated consent notice conditions.

Ngā Mihi,

Liz Williams BRP(Hons), MNZPI
Senior Resource Management Planner | Kaiwhakamahere penapenarawa
Dunedin Office | Ōtepoti
Department of Conservation| Te Papa Atawhai
Phone: +64 27 253 8586
www.doc.govt.nz

Kia piki te oranga o te ao tūroa, i roto i te ngātahitanga, ki Aotearoa.
To work with others to increase the value of conservation for New Zealanders.

www.doc.govt.nz

From: Natalie Watson <nat@saps.co.nz>
Sent: Thursday, 1 May 2025 9:21 am
To: RMA <RMA@doc.govt.nz>
Subject: Proposed Subdivision for K & J Farms Limited (K & J Salmons) at 231 Happy Valley Road, Rawhia, Umawera

Good morning,

I am writing with respect to a proposed subdivision at Happy Valley Road, in Rawhia, Umawera, for K & J Farms Limited. The proposal is to create a separate title for each of Lots 2 and 3, which are severed from the main farm area (Lot 1) by legal road reserves. Please refer to the attached scheme plan.

We anticipate future dwellings on Lots 2 and 3, while Lot 1 has existing residential and farm development.

Area C on Lot 1, and B & D on Lot 2 are areas of indigenous vegetation which will be permanently protected by covenant and consent notice conditions.

The bush within proposed covenant area 'B' is part of the Department of Conservation Protected Natural Area mapping of 'Orira River Remnants' ecological unit (O05/148) in the Natural areas of Hokianga Ecological District. In relation to area 'B', this ecological unit is described as comprising manuka-totara shrubland on coastal hillslope. Refer to the map below.

The subject site is located adjacent to a Marginal Strip administered by the Department of Conservation, which separates the site from Waihou River / Hokianga Harbour. No effects on the ability of the Department of Conservation to manage this reserve are anticipated.

There is no mapped kiwi habitat in this area.

Please let me know if the Department of Conservation has any comment to make with respect to this proposed subdivision, or otherwise feel free to contact me if you require any further information.

Kind regards
Natalie Watson

WILLIAMS & KING
P +64 9 407 6030
27 Hobson Ave
P.O. Box 937, Kerikeri 0230, NZ

http://www.saps.co.nz

Natalie Watson

From: Natalie Watson
Sent: Thursday, 1 May 2025 9:50 am
To: admin@terarawa.co.nz
Subject: RMA Consultation - Proposed Subdivision at 231 Happy Valley Road - Partly within Hokianga Harbour Statutory Acknowledgement Area
Attachments: DRAFT SCHEME V3_Optimized.pdf

Tēnā koe,

I write with respect to a proposed subdivision at Happy Valley Road, which is illustrated in the attached scheme plan. The proposal is to create a separate title for each of Lots 2 and 3, which are severed from the main farm area (Lot 1) by legal road reserves.

We anticipate future dwellings on Lots 2 and 3, while Lot 1 has existing residential and farm development. Access to each lot is generally already formed, in some parts as farm tracks.

Area C on Lot 1, and B & D on Lot 2 are areas of indigenous vegetation which will be permanently protected by covenant and consent notice conditions.

Lot 1 adjoins a Marginal Strip, which separates the site from Waihou River.

There are no mapped historic or cultural sites on the property.

The Hokianga Harbour statutory acknowledgement area is adjacent to and partly within Lot 1.

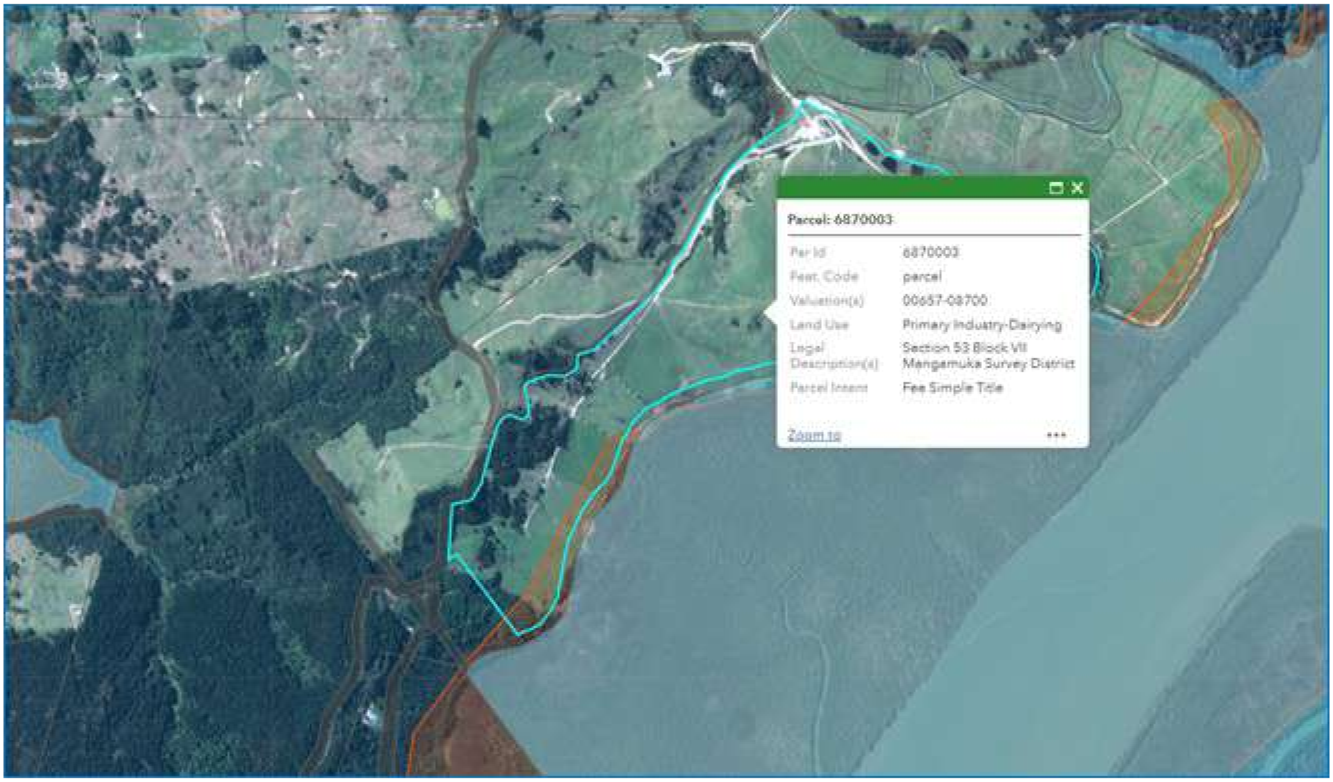
As Lot 1 already contains an existing dwelling and farming operations, future changes to the land arising from the subdivision are anticipated as being a future dwelling on Lots 2 and 3, and these would be located outside the statutory acknowledgement area. The engineer's report has designed conceptual stormwater and wastewater management to avoid adverse water quality or erosion effects that would impact either Waihou or Orira Rivers and their catchments and there is ample area on these lots for that purpose. Therefore, we do not anticipate any potential water quality, or erosion effects that would impact the Hokianga Harbour statutory acknowledgement area.

Given the statutory acknowledgement, I write to find out whether Te Rarawa has any issues with the proposed subdivision, or would like to make any further comment.

I have provided a map of the mapped statutory acknowledgement area (with proposed Lot 1 highlighted) and a location map below.

Please let me know if you would like to discuss further, or if you have any further comment.

Nāku noa,
Natalie Watson


Parcel: 6870003
Par Id 6870003
Feat. Code parcel
Valuation(s) 00657-08700
Land Use Primary Industry-Dairying
Legal Description(s) Section 53 Block VII Mangamuka Survey District
Parcel Intent Fee Simple Title
Zoom to


Orira River
Mangamuka River
Wairepo Creek
Te Papa Creek
Waihou River
Ruapapaka Island
Motiti Island
Mangungu Mission House
Mamons Point
QuickMap

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