



Our Reference: 10608.1 (FNDC)

13 September 2024

Resource Consents Department  
Far North District Council  
JB Centre  
KERIKERI

Dear Sir/Madam

**RE: Proposed Subdivision at Taipa View Road, Taipa – W Mackay**

I am pleased to submit application on behalf of Warren Mackay, for a proposed subdivision of land at Taipa View Road, zoned Rural Living. The application is a controlled activity subdivision.

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

Regards

Lynley Newport  
**Senior Planner**  
**THOMSON SURVEY LTD**

Private Bag 752, Memorial Ave  
Kaikohe 0440, New Zealand  
Freephone: 0800 920 029  
Phone: (09) 401 5200  
Fax: (09) 401 2137  
Email: esk.us@fnrc.govt.nz  
Website: www.fnrc.govt.nz

## APPLICATION FOR RESOURCE CONSENT OR FAST-TRACK RESOURCE CONSENT

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA))

(If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of Form 9)

Prior to, and during, completion of this application form, please refer to Resource Consent Guidance Notes and Schedule of Fees and Charges – both available on the Council's web page.

### 1. Pre-Lodgement Meeting

Have you met with a Council Resource Consent representative to discuss this application prior to lodgement? ~~Yes~~ / No

### 2. Type of Consent being applied for (more than one circle can be ticked):

<input type="radio"/> Land Use	<input type="radio"/> Fast Track Land Use*	<input checked="" type="radio"/> Subdivision	<input type="radio"/> Discharge
<input type="radio"/> Extension of time (s.125)	<input type="radio"/> Change of conditions (s.127)	<input type="radio"/> Change of Consent Notice (s.221(3))	
<input type="radio"/> Consent under National Environmental Standard (e.g. Assessing and Managing Contaminants in Soil)			
<input type="radio"/> Other (please specify)			
<small>*The fast track for simple land use consents is restricted to consents with a controlled activity status and requires you provide an electronic address for service.</small>			

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

Yes / ~~No~~

### 4. Applicant Details:

Name/s: WARREN GEORGE MACKAY

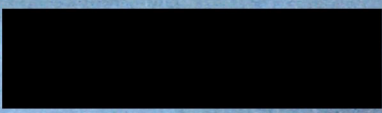


### 5. Address for Correspondence: Name and address for service and correspondence (If using an Agent write their details here).

Name/s: Lynley Newport; Thomson Survey Ltd

Electronic Address for

Service (E-mail):



Phone Numbers:



Postal Address:

Alternative method

service under

Section 352 of the Act

Part

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

**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: **W G Mackay**

Property Address/: **as per item 4** Location

**7. Application Site Details:**

Location and/or Property Street Address of the proposed activity:

Site Address/ **31 Taipa View Road**

Location: **TAIPA**

Legal Description: **Lot 6 DP 323635**

Record of Title: **95159**

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~~ **Small dog at Lot 2 with house**

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.

**1. Description of the Proposal:**

Please enter a brief description of the proposal here. Attach a detailed description of the proposed activity and drawings (to a recognized scale, e.g. 1:100) to illustrate your proposal. Please refer to Chapter 4 of the District Plan, and Guidance Notes, for further details of information requirements.

Subdivision of land zoned Rural Living to create four lots (3 additional).

If this is an application for an Extension of Time (s.125); Change of Consent Conditions (s.127) or 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) or extension being sought, with reasons for requesting them.

2. Would you like to request Public Notification? Yes/No

3. Other Consent required/being applied for under different legislation (more than one circle can be ticked):

Building Consent (BC ref # if known)  Regional Council Consent (ref # known)

National Environmental Standard consent  Other (please specify)

**1. 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 (further information in regard to this NES is available on the Council's planning web pages):

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? (If the activity is now any of the activities listed below, then you need to tick the 'yes' circle).  yes  no  don't

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

**2. 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.

Please see attached AEE.

**3. 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

all names in full)

WARREN MACKAY

Email:

Postal Address:

Phone Numbers:

Work:

Home: 021 0364 333 Fax: 333

**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 print)

WARREN MACKAY

[Redacted]

Signature:

(signature of bill payer - mandatory)

Date: 11-9-2024

**14. 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](http://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.

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

Name:

(please print)

WARREN MACKAY

Signature:

(signature)

Date:

11-9-2024

[Redacted]

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

**Checklist** (please tick if information is provided)

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

**Warren Mackay**  
**PROPOSED SUBDIVISION**  
**31 Taipa View Road, Taipa**  
**PLANNER'S REPORT &**  
**ASSESSMENT OF ENVIRONMENTAL EFFECTS**



**Thomson Survey Ltd**  
**Kerikeri**

## **1.0 INTRODUCTION**

### **1.1 Summary of Proposal**

The applicant proposes a four lot subdivision of their land at Taipa View Road, Taipa. One of the lots will contain an existing residential dwelling (proposed Lot 2). The other lots are vacant land. The property is zoned Rural Living under the Operative District Plan and the proposed lot sizes are as follows:

Lot 1	1.055ha (vacant);
Lot 2	6400m <sup>2</sup> (containing existing residential dwelling);
Lot 3	5900m <sup>2</sup> (vacant); and
Lot 4	2.01ha (vacant, containing existing stock water dam).

---

### Amalgamation Condition:

The current title includes a 3/62 share of Lots 31 & 32 DP ..... This is to be shared equally amongst all four proposed lots. The existing amalgamation condition will be cancelled and replaced with the following amalgamation condition wording:

*“That Lots 1-4 hereon each have a 3/248 share of Lots 31 & 32 DP.....”*

Copies of proposed scheme plans are attached in Appendix 1. A Location Map is attached in Appendix 2.

### Access and Rules in 15.1.6C.1.1-11

The site has a short (partial) frontage to Council maintained public road at its northern end (part of proposed Lot 1 frontage only). Thereafter, whilst legal road alignment (Taipa View Road) continues along the remainder of the site's frontage and is physically formed within that legal road alignment, the remaining portion of road is not maintained by the Council (*source: FNDC RAMM database*). It is therefore not part of the Council's network and not a Council road.

Potential access rule breaches and Property Access generally are discussed later in this report.

## **1.2 Scope of this Report**

This assessment and report accompanies the Resource Consent Application made by the applicant, and is provided in accordance with Section 88 and Schedule 4 of the Resource Management Act 1991. The application seeks consent to subdivide land in one title to create four lots, as a controlled subdivision activity under the ODP. Due to a potential breach or breaches of rules in Chapter 15.1.6C (dependent on interpretation), the application's planning report has been written to be fit for purpose for either controlled or discretionary activity status overall.

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

## **2.0 PROPERTY DETAILS**

Location:	Taipa View Road, Taipa
Legal description:	Lot 6 DP 323635
Record of Title:	95159 with an area of 4.2958ha. A copy is attached in Appendix 3, along with relevant interests.

---

### 3.0 SITE DESCRIPTION

#### 3.1 Physical & Mapped characteristics

The property is located near the end of Taipa View Road, Taipa, beyond the seal end, approximately 3.0kms west (by road) from Taipa village. The site is gently to moderately sloping, typically falling away from the road in a generally westerly direction. The low point is located within proposed Lot 4 where there is an existing dam. Tributary overland flows from land to the north and east, feed into the dam.

The property is in pasture with the only vegetation being an existing short row of shelter trees on the northern corner of proposed Lot 1.



*Looking southwest from road towards the stock dam to be within Lot 4*

There is one existing residential unit, to be within Lot 2, and stock fencing. There is a crossing to the new dwelling within Lot 2, and another crossing / gate at the southern point of the property, providing access into proposed Lot 4.



*Existing dwelling to be within Lot 2, looking south across the site, from the road*

The site contains LUC class 6 soils, and the majority of the site consists of *Hukerenui fine sandy loam* soil type (75%). The balance, at the eastern road edge and where the existing dwelling is located, consists of *Okaka clay and silty clay*.



The site is not mapped as being subject to any river or coastal flood hazard (NRC on-line hazard maps & PDP maps). The site is not mapped as containing any high or outstanding natural or landscape values (PDP maps).

The site is mapped (Source NZAA database and Far North) as potentially containing parts of two archaeological sites (O04-394 and 395). This is discussed in more detail in section 6.11 of the Assessment of Environmental Effects within this report, but in summary these sites do not appear to within the site. The site does not contain any heritage sites scheduled or mapped in the ODP, nor any registered and scheduled archaeological sites as listed in the ODP, nor any Sites of Significance to Maori scheduled or mapped in the ODP.

The site does not contain any areas of indigenous bush or scrubland. The site's southern most quarter is mapped as kiwi present with no apparent logic as to why this portion of the site is mapped as such when it contains the same topography; coverage and features as the land to the north, which is not mapped as kiwi present. The majority of the property is outside the mapped kiwi present extent.

The site is zoned Rural Living in the Operative District Plan with no resource overlay. The site is zoned Rural Residential in the Proposed District Plan. It is not within the coastal environment (or any other) overlay in the PDP.

### 3.2 Legal Interests on Titles

The property technically has a total area more than 4.2958ha because it owns a 3/62 share of Lots 31-32 DP 195263 – the latter being an open grazed area featuring a man made / enhanced wetland (fenced off). This area is able to be accessed by all the lots created in the original subdivision creating Taipa View and provides open space and walking area. The total area of Lots 31-32 DP 195263 is 19.11 ha. The 'portion' of Lots 31-32 that can be added to the title area comes to 9,240m<sup>2</sup>, taking total title area to over 5ha. It is proposed to share the current title's allocation equally across all four lots being created – refer to amalgamation condition wording on the Scheme Plan.



***Man made wetland habitat within Lots 31-32 DP 195263 of which the application site has a 3/62 share.***

The title has appurtenant water pipeline rights through two historic Transfers. Land in Lot 31 DP 195263 is subject to stormwater drainage right (in gross) in favour of the FNDC. This does not impact on the portion of the 'title' being subdivided. The title is subject to two Consent Notices, D409886.2, first registered in 1999; and 5937866.3, registered in 2004. The two consent notices are attached as part of Appendix 3 as is the stormwater drainage easement over Lot 31 in favour of FNDC. The title is also subject to two privately imposed land covenants and a fencing covenant.

### 3.3 Consent History

The property file shows the following resource consents:

1980191-RMASUB, a subdivision issued in 1997 for the creation of 36 "small farm lots" (hearings committee decision);

1981205-RMASUB, a subdivision issued in 1998 for the creation of 32 rural lifestyle lots and 1ha of shared private parkland, in two stages (superseding 1980191);

2030181-RMASUB – no decision in property file, so may not have proceeded;

2030355-RMASUB, consent to create five new rural residential allotments which are in part a minor variation to the original Stage 2 of 1981205 (above) – issued in 2003. It is this consent that created the application site.

Building Consent history includes EBC-2023-562, issued in December 2022 for a dwelling with garage and the installation of on-site wastewater disposal system. This is the dwelling now complete, to be within Lot 2.

## 4.0 SCHEDULE 4 – INFORMATION REQUIRED IN AN APPLICATION

### Clauses 2 & 3: Information required in all applications

<i>(1) An application for a resource consent for an activity must include the following:</i>	
<i>(a) a description of the activity:</i>	Refer Sections 1 of this Planning Report.
<i>(b) an assessment of the actual or potential effect on the environment of the activity:</i>	Refer to Section 6 of this Planning Report.
<i>(b) a description of the site at which the activity is to occur:</i>	Refer to Section 3 of this Planning Report.
<i>(c) the full name and address of each owner or occupier of the site:</i>	This information is contained in the Form 9 attached to the application.
<i>(d) a description of any other activities that are part of the proposal to which the application relates:</i>	Refer to Sections 3 and 5 of this Planning Report for existing activities within the site. The application is for subdivision under the ODP.

<p><i>(e) a description of any other resource consents required for the proposal to which the application relates:</i></p>	<p>No other consents are required other than that being applied for pursuant to the Far North Operative District Plan.</p>
<p><i>(f) an assessment of the activity against the matters set out in Part 2:</i></p>	<p>Refer to Section 7 of this Planning Report.</p>
<p><i>(g) an assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b), including matters in Clause (2):</i></p> <p><i>(a) any relevant objectives, policies, or rules in a document; and</i>  <i>(b) any relevant requirements, conditions, or permissions in any rules in a document; and</i>  <i>(c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).</i></p>	<p>Refer to Sections 5 &amp; 7 of this Planning Report.</p>
<p><i>(3) An application must also include any of the following that apply:</i></p>	
<p><i>(a) if any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1)):</i></p> <p><i>(b) if the application is affected by section 124 or 165ZH(1)(c) (which relate to existing resource consents), an assessment of the value of the investment of the existing consent holder (for the purposes of section 104(2A)):</i></p> <p><i>(c) if the activity is to occur in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai Moana) Act 2011, an assessment of the activity against any resource management matters set out in that planning document (for the purposes of section 104(2B)).</i></p>	<p>Refer sections 3 and 5. The site supports a residential dwelling and ancillary building, legally established and permitted activities.</p> <p>There is no existing resource consent. Not applicable.</p> <p>The site is not within an area subject to a customary marine title group. Not applicable.</p>

**Clause 4: Additional information required in application for subdivision consent**

<i>(4) An application for a subdivision consent must also include information that adequately defines the following:</i>	
<i>(a) the position of all new boundaries: (b) the areas of all new allotments, unless the subdivision involves a cross lease, company lease, or unit plan: (c) the locations and areas of new reserves to be created, including any esplanade reserves and esplanade strips: (d) the locations and areas of any existing esplanade reserves, esplanade strips, and access strips: (e) the locations and areas of any part of the bed of a river or lake to be vested in a territorial authority under section 237A: (f) the locations and areas of any land within the coastal marine area (which is to become part of the common marine and coastal area under section 237A): (g) the locations and areas of land to be set aside as new roads.</i>	Refer to Scheme Plans in Appendix 1.

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

**Clause 6: Information required in assessment of environmental effects**

<i>(1) An assessment of the activity's effects on the environment must include the following information:</i>	
<i>(a) if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:</i>	Refer to Section 6 of this planning report. The activity will not result in any significant adverse effect on the environment.
<i>(b) an assessment of the actual or potential effect on the environment of the activity:</i>	Refer to Section 6 of this planning report.
<i>(c) if the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use:</i>	Not applicable as the application does not involve hazardous installations.
<i>(d) if the activity includes the discharge of any contaminant, a description of— (i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and (ii) any possible alternative methods of discharge, including discharge into any other receiving</i>	The subdivision does not involve any discharge of contaminant.

<i>environment:</i>	
<i>(e) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:</i>	Refer to Section 6 of this planning report.
<i>(f) identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted:</i>	Refer to Sections 6 & 8 of this planning report. No affected persons are identified.
<i>g) if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved:</i>	No monitoring is required as the scale and significance of effects does not warrant any.
<i>(h) if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).</i>	No protected customary right is affected.

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

<i>(1) An assessment of the activity's effects on the environment must address the following matters:</i>	
<i>(a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:</i>	Refer to Sections 6 and 8 of this planning report and also to the assessment of objectives and policies in Section 7.
<i>(b) any physical effect on the locality, including any landscape and visual effects:</i>	Refer to Section 6. The proposed activity will have no more than minor effects on the physical environment and landscape and visual amenity values.
<i>(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:</i>	Refer to Section 6. The proposal will have no more than minor effects on habitat and ecosystems.
<i>(d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations:</i>	Refer to Section 6, and above comments
<i>(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and</i>	The subdivision will not result in the discharge of contaminants, nor any unreasonable emission of noise.

Subdivision

<i>options for the treatment and disposal of contaminants:</i>	
<i>(f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.</i>	The subdivision site is not subject to natural hazards and does not involve hazardous installations.

## 5.0 ACTIVITY STATUS

### 5.1 Operative District Plan

The site is zoned Rural Living, with no resource features.

Subdivision:

**Table 13.7.2.1: Minimum Lot Sizes**

(i) RURAL LIVING ZONE

<b>Controlled Activity Status (Refer also to 13.7.3)</b>	<b>Restricted Discretionary Activity Status (Refer also to 13.8)</b>	<b>Discretionary Activity Status (Refer also to 13.9)</b>
The minimum lot size is 4,000m <sup>2</sup>		The minimum lot size is 3,000m <sup>2</sup>

All lots are greater than 4000m<sup>2</sup>. The subdivision is a **controlled** subdivision activity.

Zone Rules

Existing built development to be within Lot 2 is consented under the Building Act. The proposed new lot boundaries around it do not result in any breaches of setback or sunlight arising. The building is shown on plans as being 172m<sup>2</sup> in area. The driveway and turning area associated with the building is estimated (working off approved plans) at 500m<sup>2</sup>, resulting in total coverage of 672m<sup>2</sup> (or 10.5% of new proposed total site area). This meets the permitted activity standard. The building coverage meets the permitted activity standard.

District Wide Rules:

12.3.6.1.2 Excavation and/or Filling – Zone provides for up to 300m<sup>3</sup> in any 12 month period. The only earthworks required at time of subdivision will be formation of entranceways into the lots. Earthworks volume will not exceed 300m<sup>3</sup> and there will be no cut/fill face higher than 1.5m.

The site contains nothing to which Chapters 12.1, 12.2, 12.4, 12.5, or 12.7 relate to. The activity does not involve Hazardous Facilities or Storage.

Rules in Chapter 15.1 Traffic, Parking and Access:

Taipa View Road, public sealed road, extends for a distance of 1187m from its intersection with State Highway 10. It is described on the Council's RAMM database (of maintained

---

roads, and therefore Council's roading network) as an "access" road, with a surface of "thin surfaced flexible". This takes the maintained portion of Taipa View Road (Council road) to just beyond the application site's property boundary, and part of proposed Lot 1's frontage. Metal carriageway beyond that is not maintained by the Council and is privately maintained access road formed within legal road alignment.

Rule 15.1.6C.1.1(c) states that a "private accessway may serve a maximum of 8 household equivalents". The question arises as to whether a road not maintained by Council but within legal road alignment is private or already 'public' road, just not maintained by the Council. If the latter holds true then there is no breach of 15.1.6C.1.1(c). If a road not maintained by Council is not considered public road, then Rule 15.1.6C.1.1(c) applies. The access road serves five existing households and part (c) is complied with.

Rule 15.1.6C.1.1(d) states that where a "subdivision serves 9 or more sites, access shall be by public road". The subdivision will serve 4 sites, so there is no breach of 15.1.6C.1.1(d).

Rule 15.1.6C.1.8(b) states "Where any proposed subdivision has frontage to a road or roads that are not constructed to the standards specified by the Council in its "Engineering Standards and Guidelines" (June 2004 – Revised 2009), then the applicant shall complete the required improvements." Given that a road not maintained by the Council is not considered to be part of the Council's roading network, I am of the opinion that 15.1.6C.1.8(b) does not apply, i.e. the access is private access.

I hold the view that there is no breach of rules in Chapter 15.1.6C. However, in the event that the Council holds a different interpretation, and that there are rule breaches (in regard the above three rules), then the activity will become a discretionary activity overall. This planning report and AEE is written in such a way as to be suitable for assessing that category of activity.

## **5.2 Proposed District Plan**

The Proposed District Plan (PDP) was publicly notified on 27<sup>th</sup> July 2022. Legal effect must be given to any rules that the Council has identified in the PDP as having immediate legal effect. Such rules may affect activity status of an application.

In this instance I have examined the PDP, where the application site is zoned Rural Residential. There are no zone rules that have legal effect and therefore rules applying to the Rural Residential Zone do not have to be considered in regard this application, or its activity status.

In regard to district wide considerations in the PDP, the only rules in the Subdivision chapter that are marked as having immediate legal effect are those pertaining to Environmental Benefit Subdivisions (not applicable in this instance); Subdivision of a site within a heritage area overlay (again not applicable); Subdivision of a site that contains a scheduled heritage resource (again not applicable); Subdivision of a site containing a scheduled site and area of significance to Maori (not applicable); and Subdivision of a site containing a scheduled SNA (not applicable).

---

There are two earthworks rules and associated standards in the PDP that have legal effect. The requirements of those rules – related to observance of the ADP, and G05 Erosion and Sediment Control standards, can be achieved via conditions of consent.

In summary, I have not identified any rules in the PDP that have immediate legal effect and must therefore be considered in determining activity status for this proposal.

The Objectives and Policies of the PDP are addressed in Section 7.2 of this report.

### **5.3 Consent Notices D409886.2 and 5937866.3**

Both consent notices have only one clause apiece that applies to the application site. It is the same clause carried over. It relates to the need for future on site effluent treatment and disposal to be in compliance with the Regional Plan's permitted activity standards. This will carry down onto new titles.

## **6.0 ASSESSMENT OF ENVIRONMENTAL EFFECTS**

### **6.1 Allotment Sizes and Dimensions**

The proposed vacant lots can all accommodate a 30m x 30m square building envelope complying with setback provisions. Proposed Lot 2 already supports built development. I consider the lots to be a size and dimension suitable for their intended future use. All lots are of a size easily meeting the zone's controlled activity minimum lot size.

The application is supported by a Subdivision Site Suitability Report by Geologix, attached in Appendix 5. This assesses potential house sites on each of the vacant lots for suitability along with on-site servicing and concludes that each lot can accommodate future residential use.

### **6.2 Natural and Other Hazards**

Refer to Subdivision Site Suitability Engineering Report in Appendix 4. Section 11 of that report assess Natural Hazard. There is no risk detected on the site in terms of:

- Rockfall;
- Alluvion;
- Avulsion;
- Unconsolidated fill;
- Soil contamination;
- Subsidence;
- Fire hazard; or
- Sea level rise.

With mitigation able to be provided, the effects of any risk or erosion or from overland flow paths, flooding or inundation, are considered less than minor.



### **6.3 Water Supply**

Reticulated water connections are not available and lots will need to be served via rainwater storage tank(s) for potable water supply. The volume of potable water supply on each lot should consider the required stormwater detention volume identified in the Site Suitability Report supporting the application. Fire fighting water supply will need to be provided for via on-lot roof water supply tanks. If not already on the title Council can impose its standard consent notice in regard to the provision of potable and fire fighting water supply. This consent notice need not apply to Lot 2 which has existing development.

### **6.4 Energy Supply & Telecommunications**

The property is zoned Rural Living, a non-urban zone where power and telecommunications is not a requirement at time of subdivision. The intention is to leave future lot owners to provide for their own power and telecommunications connectivity and a consent notice can be applied to the vacant lots in that regard.

Contact has been made with Top Energy who has confirmed that power can be made available for the remaining lots at the point of development on the lots.

### **6.5 Stormwater Disposal**

Refer to the Subdivision Site Suitability Engineering Report in Appendix 4. It assesses stormwater management in its section 8.

All lots can be developed in compliance with the ODP's permitted activity impermeable surface coverage of 12.5% of total lot area (refer to Table 9 of the engineering report).

The report takes a conservative approach in assessing probable future on-lot development. This includes 300m<sup>2</sup> potential roof area and up to 200m<sup>2</sup> potential driveway and parking areas. The concept discussed in the report uses the runoff from the driveway and turning area as an offset within the lot-specific roof rainwater attenuation devices discussed in section 8.4 of the engineering report.

The existing development on Lot 2 has two 25,000l tanks servicing the property. Impervious surfaces are below the permitted activity threshold and no further attenuation is therefore required.

The report identifies no increase to flooding hazard on downstream properties. It includes design of outlet dispersion devices to manage the 20% AEP event. Recommendations for on-lot discharge are contained within the report's section 8.4.1, with reference to Appendix A on Drawing No.s 41 and 402.

In summary each lot's future development, and Lot 2's existing development, can satisfactorily manage stormwater.

---

## 6.6 Sanitary Sewage Disposal

Refer to the Subdivision Site Suitability Engineering Report in Appendix 4. It assesses stormwater management in its section 7. The existing wastewater treatment and disposal system to be within Lot 2 is commented on in section 7.1. The report confirms that the system and associated disposal fields will be within the boundaries of Lot 2.

The report recommends a minimum of secondary treatment for Lots 1, 3 & 4. A minimum primary disposal field of 427m<sup>2</sup> laid parallel to the natural contours is recommended, along with 50% a reserve disposal field area (214m<sup>2</sup>). Surface cut-off drains will be required.

All lots can provide for on-site wastewater treatment and disposal in compliance with the Regional Plan's permitted activity standards.

## 6.7 Easements for any purpose

There are no existing easements and none are proposed or necessary.

## 6.8 Property Access

As mentioned in Sections 1 and 5 of this report, the property has frontage to an unmaintained portion of Taipa View Road, albeit a part of proposed Lot 1's frontage is to the maintained portion – see clipped hedgerow in picture below.



***Taipa View Road, looking south east, with application site at right of picture, beyond sheds in foreground. Council maintenance stops just beyond where the seal ends (according to RAMs database)***

There are three occupied properties on the left hand side of the access (driveways visible in above picture), and one occupied property at the end of the access, beyond the application site that also use the Taipa View access road beyond where it is maintained by Council. This application does not include any vested road proposal. The existing unmaintained accessway is believed to be totally within legal road alignment.

The application does not propose bringing the access up to public road standard in order that it be added to the Council's maintenance schedule.

There has historically been some partial upgrading works carried out by another party, namely sealing a section of the access along the crest of the ridge to the south of the application site.



***Taipa View beyond the entrance to Lot 3 – proposed Lot 4 in foreground***



***Proposed Lot 1's frontage looking generally westwards, showing existing metal surface and width of Taipa View Rd in this location***

An applicant is entitled, and is now encouraged, to refer to the FNDC Engineering Standards 2023 when looking at what would be considered an appropriate road standard. These standards sets out the requirements for the design and construction of future roads and infrastructure (including accessways) associated with land development, subdivision and road improvements & upgrades. They appear to apply equally to infrastructure to be vested in Council or retained in private ownership.

Table 3-3 of those standards, Rural Road Design Criteria, specifies that where roads have an Average Daily Traffic (ADT) between 50 and 200, they can be classified as "access" roads.

Table 3-4 for unsealed roads prescribes that for "Band 2 Private Use" the required road width need only be 4-5m.

The unmaintained section of Taipa View Road is generally within this carriageway width range. Should there be any portion less than 4m metal carriageway width along the frontage to the site then sections of widening could be carried out to achieve the 4m width. The applicant is willing to discuss this further with the Council's roading department.

The Subdivision Site Suitability Engineering Report in Appendix 4 was not tasked with addressing the standard of Taipa View Road or any improvements that might be made to it. The report does, however, address vehicle crossings to each vacant lot (a crossing already being in existence for Lot 2). The report suggests the crossings be formed at subdivision stage and it outlines the appropriate standard for each.

### 6.9 Effects of Earthworks

Earthworks will be required to for three new crossings off the access into Lots 1, 3 & 4 respectively. Proposed earthworks volume is anticipated to be less than 60m<sup>3</sup>, well within the zone's permitted activity volume threshold. The maximum cut and fill height will also comply with the zone's permitted threshold.



*Frontage to Lots 4 & 3*

### 6.10 Building Locations (ground stability aspects)

The Subdivision Site Suitability Engineering Report addresses land stability and provides some preliminary geotechnical recommendations (refer to sections 5.4.2 and 6 of that report). The developed slope stability models are considered to be a reasonable representation of the site. As a general overview, the proposed building sites meet the minimal factor of safety requirements for residential development, and no ground stabilisation to control global instability such as retaining walls are expected to be needed.

Preliminary geotechnical recommendations have been developed to confirm the new residential lots can be formed with a less than minor effect on the environment. Shallow

foundations of standard raft, strip footing, or piled foundations can be adopted for the lots, with specific design a matter best left to building consent.

The Report goes on to cover preliminary recommendations for future earthworks, any future retaining walls, and driveways and car park areas.

While the report is based on the indicative "concept building envelopes" as shown on Drawing Sheet 100, it is not intended to restrict future buildings to only these envelopes. Particularly in regard to Lots 3 & 4 there are viable options. This is why specific foundation design should be left to building consent stage. That design might reference or follow the recommendations in the Geologix report, or might vary depending on building location. The purpose of the Geologix report is to show feasible building sites within the lots.

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

The site is zoned Rural Living with no resource feature overlays. It contains no features mapped in the Regional Policy Statement as having any high or outstanding landscape or natural values and contains no mapped biodiversity wetlands. There is no land set aside for conservation purposes within the application site.

#### Vegetation/habitat

Within the principal application site there are no areas of significant indigenous vegetation or habitat. There are existing shelter plantings along some boundaries including road boundary. It is proposed to remove some of the latter to assist with sight distances for vehicles leaving the property. None of the vegetation clearance involves indigenous vegetation.



***Fenced of wetland habitat within Lot 31 DP 195263.  
Photo taken from just beyond Lot 4's southern boundary,  
looking west***

Within the lot that the application has a shared ownership of, a reasonably sized wetland habitat has been established (refer to photo on previous page). This is fenced off to exclude stock. Development on proposed lots will not impact on this wetland habitat at all. Future owners of lots within the proposed subdivision will inherit a shared ownership and be able to access the area of the wetland for passive recreational use (i.e. walking).

### Fauna

The site is not identified as being within a high density kiwi area. The southern quarter is, however, mapped as a kiwi present area. It is difficult to understand why the distribution map should be drawn as such when one considers the topography and vegetative cover. In any event, given that there are no restrictions on the keeping of cats or dogs applying to the lots in the Taipa View subdivision, it is not considered necessary or justified to apply a restriction to the proposed lots in this subdivision.

### Heritage/Cultural

The site is mapped (Source NZAA database and Far North) as potentially containing portions of two archaeological sites (O04-394 and 395). However, in reading the site records these appear to be located outside the property boundaries, on adjacent land on the other side of Taipa View Road. The area along the ridge and down slope to the east of (away from) the application site was surveyed in 1987 and then again in 1990. NZAA site O04/395 is described as a series of pits, being located on the summit of the first hill to the south of state highway 10, where the road passes through a saddle between Taipa and Otengi. This places the archaeological site in the vicinity of the application property. However, the application property is down slope to the north west of the ridgeline (not the summit) and the archaeological site is described as being 20m *below* the summit on the *southern* side, approximately 20m out from the Adamson boundary fence (property on other side of access road to the application site), *overlooking* the Taipa flats (which cannot be seen from the application site). NZAA site O04/394 consists of a single pit 80m below the alignment of O04/395, 70m east of the Adamson boundary fence and knoll. This places it even further from the application site than O04/395.

I have attached the two relevant site records to this application – refer Appendix 5.

The site does not contain any heritage sites scheduled or mapped in the ODP, nor any registered and scheduled archaeological sites as listed in the ODP, nor any Sites of Significance to Maori scheduled or mapped in the ODP. As far as I can ascertain, there was no requirement for any archaeological assessment when the dwelling to be within Lot 2 was constructed.

## **6.12 Soil**

The site is zoned for large lot living as opposed to productive use. The soils across the application site are not high quality, currently supporting very low density grazing. This use

---

could continue in very limited form if a lot owner so desires, particularly the larger Lot 4. I do not believe the life supporting capacity of soils will not be unduly compromised.

### **6.13 Access to, and protection of, waterbodies**

There is no qualifying waterbody that would require the provision of access. There are no natural waterbodies within or adjoining the site that would be adversely affected by the proposed subdivision and subsequent development.

### **6.14 Land use compatibility (reverse sensitivity)**

The area is zoned for Rural Living / large lot residential use. Taipa View Road is semi urban in nature. The subdivision of this site, adjacent to large lot development, does not increase the risk of reverse sensitivity issues arising, in fact it reduces the risk of that occurring.

### **6.15 Effects on Character and Amenity**

The character and amenity of Taipa View Road is one of large lot semi urban low density housing. The proposed subdivision is entirely consistent with that in terms of lot sizes and layout. Being of a similar density to the existing surrounding lots, the proposal will not have any adverse effects on character and amenity, noting also that in terms of lot sizes the subdivision is a controlled activity. Being part of the historic comprehensive subdivision that created Taipa View Road, the area is guaranteed the retention of a large open space area, owned in shares and for the benefit of lot owners, behind and beside the developed lots. This ensures the character and amenity of the area is protected.

### **6.16 Proximity to Airports**

The site is outside of any identified buffer areas associated with any airports.

### **6.17 Natural Character of the Coastal Environment**

The site is not within the Coastal Environment.

### **6.18 Energy Efficiency and renewable Energy Development/Use**

Individual future lot owners may take the opportunity to install energy efficiency devices when they build.

### **6.19 National Grid Corridor**

The National Grid does not run through the application site.

### **6.20 Positive Effects**

When carrying out an assessment of effects, an applicant and consent authority are able to, and should, take into account positive effects both on their own merit and as offsetting any potential negative effect.

The proposal allows for people to provide for their economic and social wellbeing. The creation and availability of additional rural living / large lot residential properties, close to town, road, cycling and pedestrian networks; provides an attractive option for all family types, from retired couples through to young families. I believe it is essential to provide existing and future residents in the community a choice of lifestyle / residential living options throughout the District.

## 6.21 Other Matters

### Cumulative Effect:

The subdivision density being proposed complies with controlled activity subdivision lot sizes and the permitted level of residential intensity. As such the creation of three additional allotments in this location does not create any adverse cumulative visual or amenity effects. The subdivision will create the eventual increase in traffic movements, however I believe the access is to a standard able to accommodate the additional traffic without adverse cumulative effect.

### Precedent Effect:

Precedent effects are not amongst those effects to be considered when determining the level of effects on the wider environment for the purposes of assessing whether notification is required. They are instead a matter for consideration when a consent authority is considering whether or not to grant a consent. Consideration of precedent effects is generally restricted to non complying activities, which this application is not. There are numerous lots in the vicinity of same or similar size.

## 7.0 STATUTORY ASSESSMENT

### 7.1 Operative District Plan Objectives and Policies

Objectives and policies relevant to this proposal are considered to be primarily those listed in Chapters 8.7 (Rural Living Zone); and 13 (Subdivision), of the District Plan. These are listed and discussed below where relevant to this proposal.

#### Subdivision Objectives & Policies

##### *Objectives*

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

This is an enabling objective. The Rural Living Zone is a transition zone designed to provide a transition from rural land use to urban, predominantly located adjacent to existing urban areas. In this case, however, the semi urban enclave of Taipa View is not immediately adjacent the existing settlement of Taipa, albeit not that far from it west along SH 10.



---

The "transition" from rural to urban took place when the original subdivision was given effect to. The subdivision has proven popular with nearly every section not built on. The application site is at the eastern extremity of the subdivision and will be the last larger property that was part of the original subdivision and that has potential for further subdivision. The creation of additional lots in this location provides for the social and economic well being of people and communities.

Significant adverse effects on the natural and physical environment can be avoided, remedied or mitigated. The proposed subdivision promotes sustainable management and is an efficient use and development of the land. In providing for residential use in the circumstances outlined above, I do not believe the proposal to be contrary to Objective 13.3.1.

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

The Assessment of Environmental Effects, and supporting engineering report, conclude that the proposed subdivision is appropriate for the site and that any actual or potential adverse effects can be avoided, remedied or mitigated.

Objectives 13.3.3 and 13.3.4 refer to outstanding landscapes or natural features; and scheduled heritage resources; and to land in the coastal environment. By proposing development on land that is none of these things, the proposal is consistent with these objectives as the proposal will not create any adverse effects on the values and character outlined in the two objectives.

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

The proposal includes provision for a future lot to provide for its own on-site water storage for potable use. Fire fighting supply can also be accommodated on the lot. Stormwater Management has been addressed in supporting reports and can be designed to ensure no off site adverse effects.

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

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

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

And related Policy

Subdivision

---

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

The site is not known to contain any sites of cultural significance to Maori, or wahi tapu. The site does not include or adjoin any waterbody. The site is not coastal. Having read the site records for archaeological sites in the immediate area, these site appear to be located on the other side of the ridge, looking down into the Taipa township value. The Subdivision Site Suitability Engineering Report supporting the application confirms the additional lots can accommodate an onsite wastewater treatment and disposal system in compliance with Regional Plan requirements and with no off site adverse effects. Stormwater management can also be provided for. I do not believe that the proposal adversely impacts on the ability of Maori to maintain their relationship with ancestral lands, water, sites, wahi tapu and other taonga.

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

Top Energy has confirmed that electricity can be provided to future lots at time of their development.

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

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

A future lot owner will have sufficient scope within the site to include energy efficiencies within their individual home designs, via active means such as solar panels, or passive design strategies such as sky lights and orientation.

The subdivision is accessed off the end of Taipa View Road. State highway network is nearby and the site is close to the Taipa township, shops and school.

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

Policies

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

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

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

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

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

Access to the site is off an existing public road (sealed) and then via unmaintained metal road within legal road alignment. It is proposed to create the required crossings, forming them to standard, and to potentially carry out sections of access widening where the existing carriageway is sub-width, commensurate with the level of effects of creating three additional allotments. Appropriate sediment and erosion control measures will be put in place for any earthworks during site works.

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

The site is not subject to any hazard.

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

It is envisaged that internal to the site, utility services will be underground.

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

The site is not known to contain any of the natural and physical resources listed in 13.4.6.

Policy 13.4.7 is not discussed as this relates to carparking associated with non residential activities (not relevant) or esplanade areas, none of which are required or considered necessary.

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

This is discussed earlier. Each lot can provide for on-site water storage.

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

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

---

The application is not lodged as a Management Plan application.

13.4.13 Subdivision, use and development shall preserve and where possible enhance, restore and rehabilitate the character of the applicable zone in regards to **S6 matters**. In addition subdivision, use and development shall avoid adverse effects as far as practicable by using techniques including:

(a) clustering or grouping development within areas where there is the least impact on natural character and its elements such as indigenous vegetation, landforms, rivers, streams and wetlands, and coherent natural patterns;

(b) minimising the visual impact of buildings, development, and associated vegetation clearance and earthworks, particularly as seen from public land and the coastal marine area;

(c) providing for, through siting of buildings and development and design of subdivisions, legal public right of access to and use of the foreshore and any esplanade areas;

(d) through siting of buildings and development, design of subdivisions, and provision of access that recognise and provide for the relationship of Maori with their culture, traditions and taonga including concepts of mauri, tapu, mana, wehi and karakia and the important contribution Maori culture makes to the character of the District (refer Chapter 2 and in particular Section 2.5 and Council's "Tangata Whenua Values and Perspectives" (2004);

(e) providing planting of indigenous vegetation in a way that links existing habitats of indigenous fauna and provides the opportunity for the extension, enhancement or creation of habitats for indigenous fauna, including mechanisms to exclude pests;

(f) protecting historic heritage through the siting of buildings and development and design of subdivisions.

(g) achieving hydraulic neutrality and ensuring that natural hazards will not be exacerbated or induced through the siting and design of buildings and development.

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

In addition:

(a) The proposal will provide for additional dwellings within an area that exhibits a large lot rural/residential character, in a manner that has little or no impact on natural character, indigenous vegetation, landforms, rivers, streams or wetlands;

(b) The site is not in the coastal environment;

(c) The site does not adjoin any stream or river and no public access is therefore required;

(d) The proposal is not believed to negatively impact on the relationship of Maori with their culture;

(e) There are no existing significant habitat or areas of significant indigenous vegetation;

(f) There are believed to be no identified heritage values within the site;

(g) An acceptable stormwater management design forms part of the application; and

(h) The site is not subject to hazard.

I consider the proposal to be consistent with Policy 13.4.13.

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

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

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

The additional lots can readily provide for a house site with good access to sunlight and the ability to utilise energy efficiency measures. The site is close to transport networks.

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

In summary, I believe the proposal to be consistent with the above Objectives and Policies.

#### Rural Living Zone Objectives and Policies

##### Objectives:

8.7.3.1 To achieve a style of development on the urban periphery where the effects of the different types of development are compatible.

8.7.3.2 To provide for low density residential development on the urban periphery, where more intense development would result in adverse effects on the rural and natural environment.

I believe the proposed subdivision to be capable of providing for development that will be in keeping with, and compatible with, the character and amenity of the area.

##### And policies

8.7.4.1 That a transition between residential and rural zones is achieved where the effects of activities in the different areas are managed to ensure compatibility.

8.7.4.2 That the Rural Living Zone be applied to areas where existing subdivision patterns have led to a semi-urban character but where more intensive subdivision would result in adverse effects on the rural and natural environment.

See above comments under Objectives.

8.7.4.3 That residential activities have sufficient land associated with each household unit to provide for outdoor space, and where a reticulated sewerage system is not provided, sufficient land for onsite effluent disposal.

The proposed vacant lots retain sufficient land associated with a future household to provide outdoor space and sufficient land for onsite effluent disposal.

8.7.4.7 That provision be made for ensuring that sites, and the buildings and activities which may locate on those sites, have adequate access to sunlight and daylight.

A dwelling can be constructed on the vacant lots with adequate access to sunlight and daylight.

Subdivision

8.7.4.8 That the scale and intensity of activities other than a single residential unit be commensurate with that which could be expected of a single residential unit.

8.7.4.9 That activities with effects on amenity values greater than a single residential unit could be expected to have, be controlled so as to avoid, remedy or mitigate those adverse effects on adjacent activities.

The future land use on the lots is likely to be residential in nature.

8.7.4.10 That provision be made to ensure a reasonable level of privacy for inhabitants of buildings on adjoining sites.

The lots are of a size that meets the controlled activity minimum lot size and permitted level of residential intensity. This in itself suggests that the Council believe a density level and lot size such as that proposed will ensure privacy of inhabitants of buildings on adjoining sites is not adversely affected. Future lot owners will be able to determine the layout of buildings, driveways and manoeuvring areas, onsite services and landscaping, to best suit their needs and ensure privacy.

In summary, I believe the proposal to be consistent with the Rural Living Zone objectives and policies.

## 7.2 Proposed District Plan Objectives and Policies

The following is an assessment of the proposal against relevant objectives and policies in the PDP.

**SUB-O1** Subdivision results in the efficient use of land, which:

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

**SUB-O2** Subdivision provides for the:

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

**SUB-O3** Infrastructure is planned to service the proposed subdivision and development where:

- a. there is existing infrastructure connection, infrastructure should 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.

**SUB-O4**

Subdivision is accessible, connected, and integrated with the surrounding environment and provides for:

- a. public open spaces;

Subdivision

---

- b. esplanade where land adjoins the coastal marine area; and
- c. esplanade where land adjoins other qualifying waterbodies

The subdivision results in the efficient use of land. It contributes to the local character and sense of place and reverse sensitivity issues are not unduly increased. It also avoids land use patterns which would prevent land from achieving the objectives and policies of the zone. The subdivision does not increase the risk from natural hazards, because there are none, and manages adverse effects (SUB-O1). The site does not contain any highly productive land nor any of the features or items listed in SUB-O2(b).

The site is not connected to Council 3 water services (SUB-O3). The site is connected to shared open space. There is no part of the site, however, that adjoins the coastal marine area of any qualifying waterbody (SUB-O4).

**SUB-P1** Enable boundary adjustments that: ....

N/A.

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

N/A.

**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.

I proposed allotments are consistent with the purpose, characteristics and qualities of the zone, and comply with the minimum allotment sizes for the zone (Rural Residential). The lots have adequate size and shape to contain buildings and the site has 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

The subdivision can be managed in the manner required in the district wide sections of the plan referenced in the above policy.

**SUB-P5**

Manage subdivision design and layout in the General Residential, Mixed Use and Settlement zone to provide for safe, connected and accessible environments by:.....

N/A.

**SUB-P6** Require infrastructure to be provided in an integrated and comprehensive manner by:

- a. demonstrating that the subdivision will be appropriately serviced and integrated with existing and planned infrastructure if available; and
- b. ensuring that the infrastructure is provided in accordance the purpose, characteristics and qualities of the zone.

Subdivision

---

The sites can be serviced with on-site wastewater and stormwater management, and on-site water storage. Power and telecommunications are not a requirement in the ODP's non urban zones, but power can be made available at the time future lots are developed.

**SUB- P7**

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

The site does not adjoin any waterbody.

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

N/A.

**SUB-P9**

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

N/A.

**SUB-P10**

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

N/A.

**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.*

No consent is required pursuant to the PDP so the policy is of limited relevance. Notwithstanding this, I believe the proposal has adequately taken into account all of the matters listed above.

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

The site is zoned Rural Residential in the PDP:

*Rural Residential Zone Objectives:*



---

**RRZ-O1** The Rural Residential zone is used predominantly for rural residential activities and small scale farming activities that are compatible with the rural character and amenity of the zone.

**RRZ-O2** The predominant character and amenity of the Rural Residential Zone is maintained and enhanced, which includes:

- a. peri-urban scale residential activities;
- b. small-scale farming activities with limited buildings and structures;
- c. smaller lot sizes than anticipated in the Rural Production or Rural Lifestyle Zones; and
- d. a diverse range of rural residential environments reflecting the character and amenity of the adjacent urban area.

**RRZ-O3** The Rural Residential zone helps meet the demand for growth around urban centres while ensuring the ability of the land to be rezoned for urban development in the future is not compromised.

**RRZ-O4** Land use and subdivision in the Rural Residential zone:

- a. maintains rural residential character and amenity values;
- b. supports a range of rural residential and small-scale farming activities; and
- c. is managed to control any reverse sensitivity issues that may occur within the zone or at the zone interface.

The subdivision will provide for use of lots as proposed in Objective RRZ-O1. The subdivision will create lots that are consistent with the predominant character and amenity of the zone (RRZ-O2). The subdivision will help meet the demand for growth near Taipa (RRZ-O3). There is high demand for residential living in locations such as this, with ready access to road and footpaths and not far from the town centre. I do not believe the proposal significantly adds to reverse sensitivity effects (RRZ-O4).

**RRZ-P1** Enable activities that will not compromise the role, function and predominant character and amenity of the Rural Residential Zone, while ensuring their design, scale and intensity is appropriate, including:

- a. rural residential activities;
- b. small-scale farming activities;
- c. home business activities;
- d. visitor accommodation; and
- e. small-scale education facilities.

**RRZ-P2** Avoid activities that are incompatible with the role, function and predominant character and amenity of the Rural Residential Zone including:

- a. activities that are contrary to the density anticipated for the Rural Residential Zone;
- b. primary production activities, such as intensive indoor primary production or rural industry, that generate adverse amenity effects that are incompatible with rural residential activities; and
- c. commercial or industrial activities that are more appropriately located in an urban zone or a Settlement Zone.

**RRZ-P3** Avoid where possible, or otherwise mitigate, reverse sensitivity effects from sensitive and other non-productive activities on primary production activities in adjacent Rural Production Zones and Horticulture Zones.

**RRZ-P4** Require all subdivision in the Rural Residential zone to provide the following reticulated services to the boundary:

- a. telecommunications:
  - i. fibre where it is available;
  - ii. copper where fibre is not available;
  - iii. copper where the area is identified for future fibre deployment.
- b. local electricity distribution network.

---

**RRZ-P5** Manage land use and subdivision to address the effects of the activity requiring resource consent, including (but not limited to) consideration of the following matters where relevant to the application:

- a. consistency with the scale and character of the rural residential environment;
- b. location, scale and design of buildings or structures;
- c. at zone interfaces:
  - i. any setbacks, fencing, screening or landscaping required to address potential conflicts;
  - ii. the extent to which adverse effects on adjoining or surrounding sites are mitigated and internalised within the site as far as practicable;
- d. the capacity of the site to cater for on-site infrastructure associated with the proposed activity;
- e. the adequacy of roading infrastructure to service the proposed activity;
- f. managing natural hazards;
- g. any adverse effects on historic heritage and cultural values, natural features and landscapes or indigenous biodiversity; and
- h. any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.

The first two policies are more about land use on lots than about subdivision. However, I believe that the creation of the proposed additional lots will enable land use consistent with RRZ-P1 and P2. Reverse sensitivity effects are not significantly added to given the existing land uses around the site (RRZ-P3). RRZ-P4 is written as a rule which is inappropriate. The related subdivision standard is the rule, not RRZ-P4, and given that the subdivision standard has no legal effect, I do not believe the Council is entitled to expect RRZ-P4 to be given effect to. Be that as it may, wireless telecommunications are available, as is power, should future lot owners wish to connect.

Because the proposal is not a land use and does not require any consent pursuant to the PDP, RRZ-P5 is not relevant.

### **7.3 Part 2 Matters**

#### *5 Purpose*

- (1) *The purpose of this Act is to promote the sustainable management of natural and physical resources.*
- (2) *In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—*
  - (a) *sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
  - (b) *safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
  - (c) *avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

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

Subdivision

---

6 Matters of national importance

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

- (a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:
- (b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:
- (c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:
- (d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:
- (e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:
- (f) the protection of historic heritage from inappropriate subdivision, use, and development:
- (g) the protection of protected customary rights:
- (h) the management of significant risks from natural hazards.

The application site does not contain or display any of the features, resources or values outlined in Section 6.

7 Other matters

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to—

- (a) kaitiakitanga:
- (aa) the ethic of stewardship:
- (b) the efficient use and development of natural and physical resources:
- (ba) the efficiency of the end use of energy:
- (c) the maintenance and enhancement of amenity values:
- (d) intrinsic values of ecosystems:
- (e) [Repealed]
- (f) maintenance and enhancement of the quality of the environment:
- (g) any finite characteristics of natural and physical resources:
- (h) the protection of the habitat of trout and salmon:
- (i) the effects of climate change:
- (j) the benefits to be derived from the use and development of renewable energy.

Regard has been had to any relevant parts of Section 7 of the RMA, "Other Matters". These include 7(b), (c), (d) and (f). Clause 7(i) has also been considered in regard to stormwater design. It is considered that the proposal represents efficient use and development of a site. Proposed layout and waste water and stormwater management proposals, will ensure the maintenance of amenity values and the quality of the environment. The proposal has had regard to the values of ecosystems.

## 8 Treaty of Waitangi

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

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

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

## 7.4 National Environmental Standards

The only National Environmental Standard (NES) that may be relevant is that for Freshwater, specifically in regard to natural inland wetlands. There is a man made stock / stormwater dam within the site, fed by several seepages and overland flow paths. The lower end of the dam then overflows/seeps to a wet swampy area and onwards downslope. Upslope of the dam the seepages are grazed pasture and would not fall within the definition of natural inland wetland because of this. The seepage and overland flow path in Lot 1 is similarly grazed pasture.

The Subdivision Site Suitability Engineering Report in Appendix 4 description of surface water features and overland flow paths states:

*"Clearly defined flow paths are evident within the site boundaries upon moderate to gentle sloping land.... the minor overland flow paths stop and start ... before connecting to major overland flow paths which are more robustly defined."*

No site works required for the subdivision will be within 100m of the wet area below the dam. As such the subdivision does not generate any requirement for consent pursuant to the NES Freshwater even if that area were regarded as a natural inland wetland. Future development within Lots 3 & 4 can similarly avoid being within 100m of this area. Whether future development on Lot 1 will be within 100m will depend entirely on the final location of that development. Given that the FNDC does not administer the NES F it should be sufficient for the consent to simply advise a future lot owner of their obligations pursuant to the NES F when considering any development within the site.

## 7.5 National and Regional Policy Statements

I have not identified any national policy statements relevant to this proposal. The site is not in the coastal environment, is not zoned for rural production purposes, and contains no indigenous vegetation.

The Regional Policy Statement for Northland contains objectives and policies related to infrastructure and regional form and economic development. These are enabling in

---

promoting sustainable management in a way that is attractive for business and investment. The proposal is consistent with these objectives and policies.

The RPS also has policies ensuring that productive land is not subject to fragmentation and/or sterilisation to the point where productive capacity is materially reduced, and that reverse sensitivity effects be avoided, remedied or mitigated, however noting the site is not zoned for rural production and contains no highly versatile soils in any event, these policies have no relevance.

**Objective 3.6 Economic activities – reverse sensitivity and sterilisation**

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

*(a) Reverse sensitivity for existing:*

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

In regard to this subdivision, it is considered that no significant additional reverse sensitivity issues arise as a result. The area around the site already supports residential use.

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

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

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

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

Cumulative effects have been addressed earlier in this report, as has the potential for reverse sensitivity.

## **8.0 s95A-E ASSESSMENT & CONSULTATION**

### **8.1 S95A Public Notification Assessment**

A consent authority must follow the steps set out in s95A to determine whether to publicly notify an application for a resource consent. Step 1 specifies when public notification is mandatory in certain circumstances. None of these circumstances exist and public notification is not mandatory. Step 2 of s95A specifies the circumstances that preclude public notification. None of these exist, and public notification is therefore not precluded. Step 3 of s95A must then be considered. This specifies that public notification is required in certain circumstances. These include:

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

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

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

Step 4 of s95A states that the consent authority is to determine if there are any special circumstances under which public notification may be warranted. Such circumstances are not defined. I do not consider any such circumstances exist.

## **8.2 S95B Limited Notification Assessment**

A consent authority must follow the steps set out in s95B to determine whether to give limited notification of an application for a resource consent, if the application is not publicly notified pursuant to s95A. Step 1 identifies certain affected groups and affected persons that must be notified. No such groups or persons exist in this instance. Step 2 of s95B specifies the circumstances that preclude limited notification. No such circumstances exist and therefore limited notification is not precluded.

Step 3 of s95B must be considered. This specifies that certain other affected persons must be notified, specifically:

- (7) *In the case of a boundary activity, determine in accordance with section 95E whether an owner of an allotment with an infringed boundary is an affected person.*
- (8) *In the case of any other activity, determine whether a person is an affected person in accordance with section 95E.*

The application is not for a boundary activity. The s95E assessment below concludes that there are no affected persons to be notified.

Step 4 of s95B states that the consent authority is to determine if there are any special circumstances under which limited notification may be warranted. Such circumstances are not defined. I do not consider any such circumstances exist.

## **8.3 S95D Level of Adverse Effects**

The AEE in this report assesses effects on the environment and concludes that these will be less than minor. As such public notification is not required.

---

## 8.4 S95E Affected Persons & Consultation

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

The activity is a controlled activity subdivision and potentially a discretionary activity land use because of the access road – which is an access within legal road alignment, not maintained by the Council. It is considered that the access is suitable, or can be made suitable, for providing access to the proposed lots, without adversely affecting adjacent sites.

The subdivision density and lot size, and its resulting development (in terms of residential intensity) is compliant with the District Plan and as such will generate effects considered acceptable by the Council in terms of amenity, open space and character. No affected persons have been identified in terms of adjacent sites.

My reading of the NZAA site records is that the site does not actually contain any recorded archaeological site. Neither does it contain any mapped or scheduled heritage or cultural sites or values. The site is not close to, and does not contain, any water body, and only minimal earthworks are being proposed. The site does not contain any areas of indigenous vegetation or habitat. The site is not accessed off state highway. The site is part of a comprehensive historic subdivision that created the rural living/residential subdivision known as Taipa View. Its subdivision into additional lots will be entirely consistent with the character of the area, with the site having a northerly outlook towards other sections within the original subdivision. No pre lodgement consultation has been considered necessary with tangata whenua, Heritage NZ, Department of Conservation or Waka Kotahi.

## 9.0 CONCLUSION

The site is considered suitable for the proposed subdivision. Effects on the wider environment are, I believe, capable of remedy and mitigation through conditions of consent, such that they will be no more than minor.

The proposal is considered consistent with the relevant objectives and policies of the Operative and Proposed District Plans, and relevant objectives and policies of the National and Regional Policy Statements, and consistent with Part 2 of the Resource Management.

There is no District Plan rule or national environmental standard that requires the proposal to be publicly notified. No affected persons have been identified.

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



Signed  
**Lynley Newport**  
**Senior Planner**  
**Thomson Survey Ltd**

Dated 13<sup>th</sup> September 2024

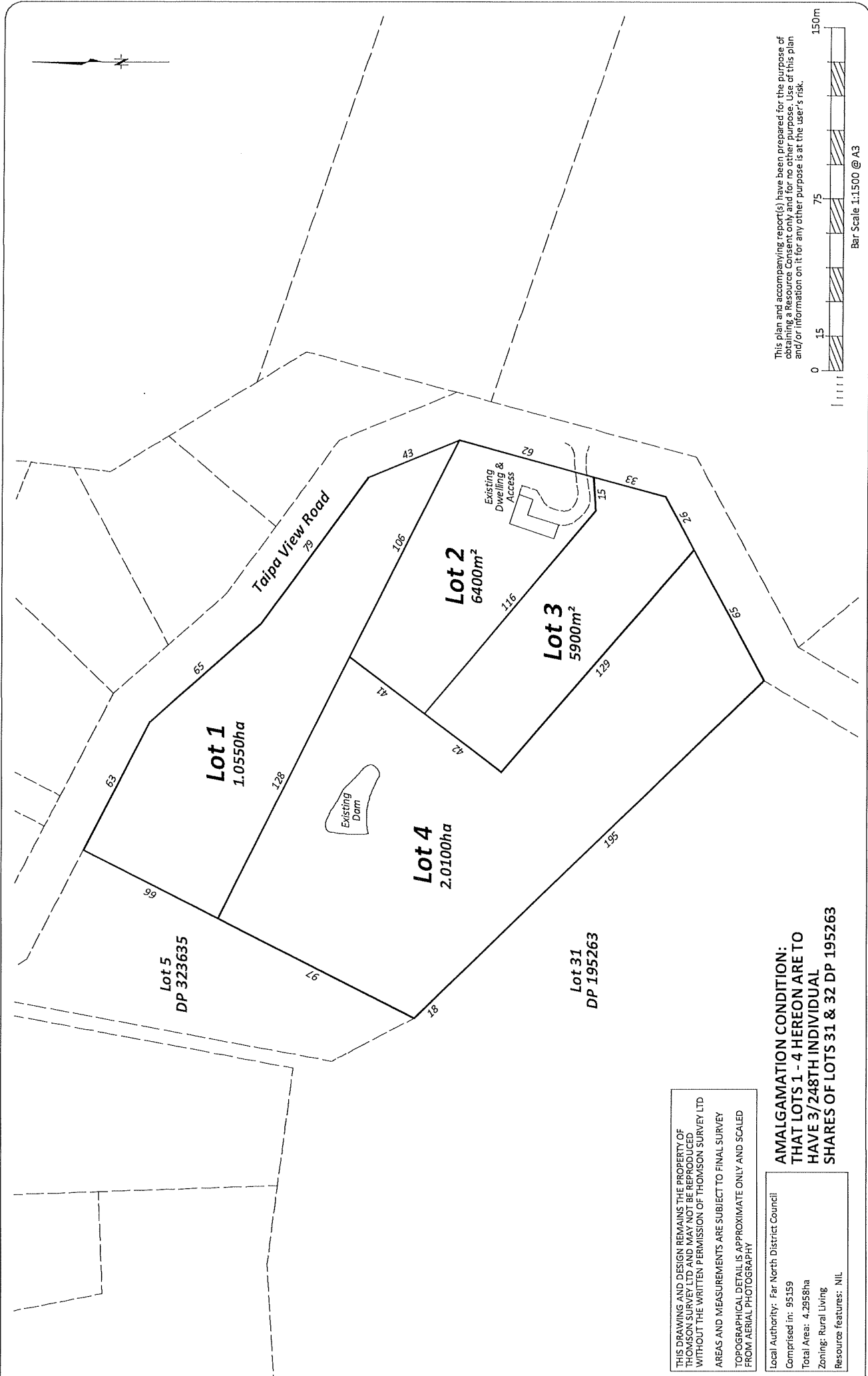
## 10.0 LIST OF APPENDICES

- Appendix 1** Scheme Plan(s)
- Appendix 2** Location Plan
- Appendix 3** Record of Title & Easement Instruments
- Appendix 4** Subdivision Site Suitability Engineering Report
- Appendix 5** NZAA Site Records



# Appendix 1

## Scheme Plan(s)



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.

Survey	Name	Date	ORIGINAL SCALE	SHEET SIZE
Design	KY	01.03.24	1:1500	A3
Drawn	KY	11.09.24		
Approved				
Rev				

Supervisors Ref. No: 10608  
Sheet 1 of 1

**PROPOSED SUBDIVISION OF  
LOT 6 DP 323635  
31 TAIPA VIEW ROAD, TAIPA**

PREPARED FOR: W. MACKAY

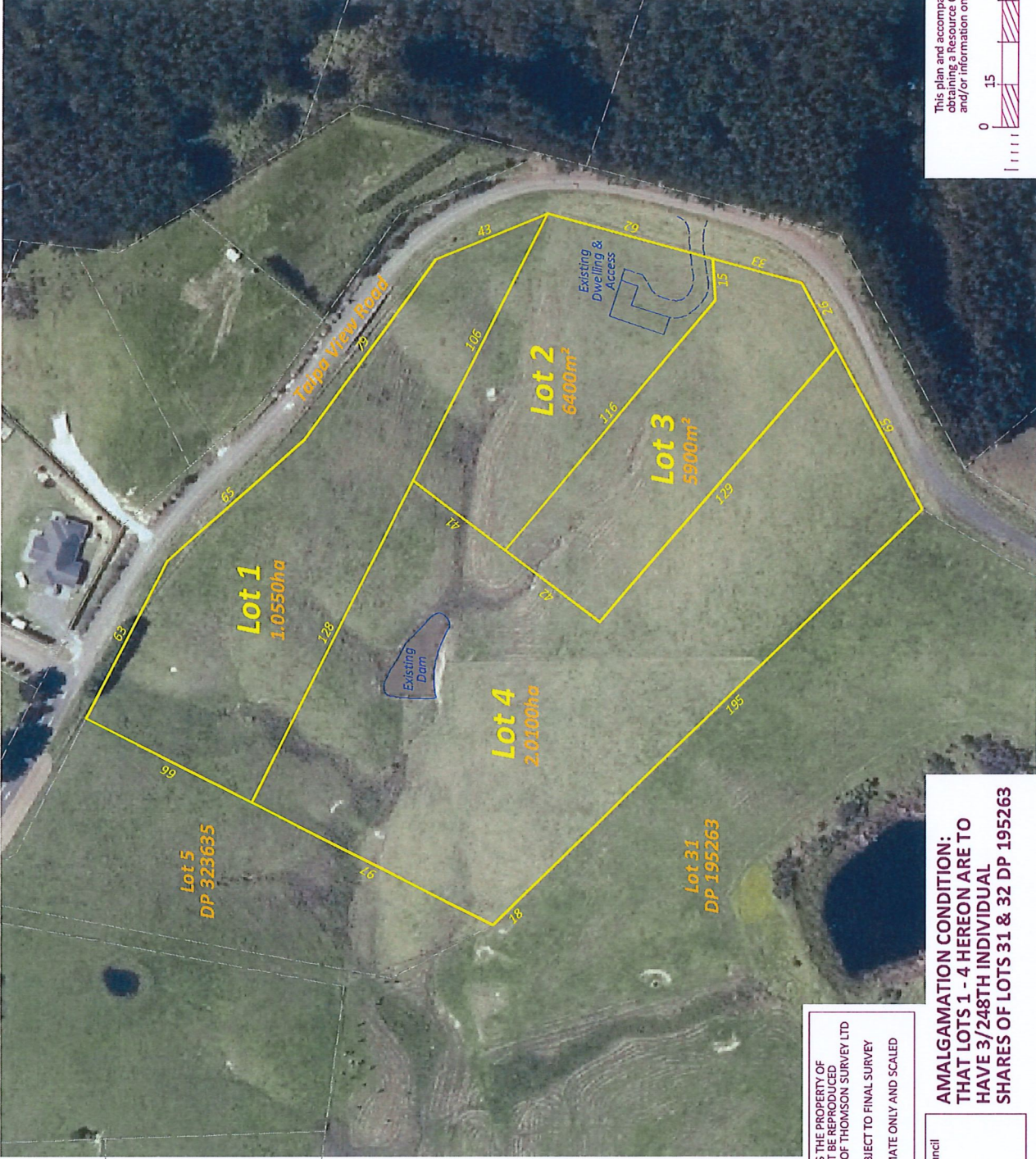
THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF THOMSON SURVEY LTD AND MAY NOT BE REPRODUCED WITHOUT THE WRITTEN PERMISSION OF THOMSON SURVEY LTD  
AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY  
TOPOGRAPHICAL DETAILS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY

**AMALGAMATION CONDITION:  
THAT LOTS 1 - 4 HEREON ARE TO  
HAVE 3/248TH INDIVIDUAL  
SHARES OF LOTS 31 & 32 DP 195263**

**THOMSON SURVEY**  
LIMITED  
Registered Land Surveyors, Planners & Land Development Consultants

315 Kerikeri Rd  
PO Box 312, Kerikeri  
Email: info@thomsonsurvey.co.nz  
Ph: (09) 4077360  
www.thomsonsurvey.co.nz

Local Authority: Far North District Council  
Comprised in: 95159  
Total Area: 4.2958ha  
Zoning: Rural Living  
Resource features: NIL

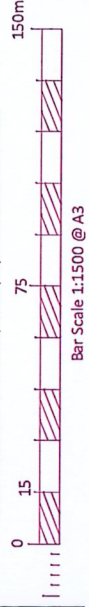


THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF THOMSON SURVEY LTD AND MAY NOT BE REPRODUCED WITHOUT THE WRITTEN PERMISSION OF THOMSON SURVEY LTD  
 AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY  
 TOPOGRAPHICAL DETAIL IS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY

Local Authority: Far North District Council  
 Comprised in: 95159  
 Total Area: 4.2958ha  
 Zoning: Rural Living  
 Resource Features: NIL

**AMALGAMATION CONDITION:  
 THAT LOTS 1 - 4 HEREOF ARE TO  
 HAVE 3/248TH INDIVIDUAL  
 SHARES OF LOTS 31 & 32 DP 195263**

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.



**THOMSON SURVEY**  
 LIMITED  
 Registered Land Surveyors, Planners & Land Development Consultants

315 Kerikeri Rd  
 P.O. Box 372 Kerikeri  
 Email: kerikeri@tsurvey.co.nz  
 Ph: (09) 4072366  
 www.tsurvey.co.nz

**PROPOSED SUBDIVISION OF  
 LOT 6 DP 323635  
 31 TAIPA VIEW ROAD, TAIPA**

PREPARED FOR: W. MACKAY

Survey	Name	Date	ORIGINAL SCALE	SHEET SIZE
Design	KY	01.03.24	1:1500	A3
Approved	KY	11.09.24		

10608 Scheme 20240911

Surveyors Ref. No: 10608  
 Sheet 1 of 1

# **Appendix 2**

## Location Plan



Any person wishing to rely on the information shown on this map must independently verify the information.  
 Scale 1:7500 Topographical and Cadastral map derived from LINZ data. Printed: 21-May-2024 02:38.

# **Appendix 3**

## Record of Title & Easement Instruments



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



  
R. W. Muir  
Registrar-General  
of Land

**Identifier** 95159  
**Land Registration District** North Auckland  
**Date Issued** 18 March 2004

**Prior References**

NA123B/616	NA123B/617	NA123B/618
NA123B/633	NA123B/637	NA123B/638

---

**Estate** Fee Simple  
**Area** 4.2958 hectares more or less  
**Legal Description** Lot 6 Deposited Plan 323635

**Registered Owners**

Robyn Merrill Mackay as to a 1/2 share  
Warren George Mackay as to a 1/2 share

---

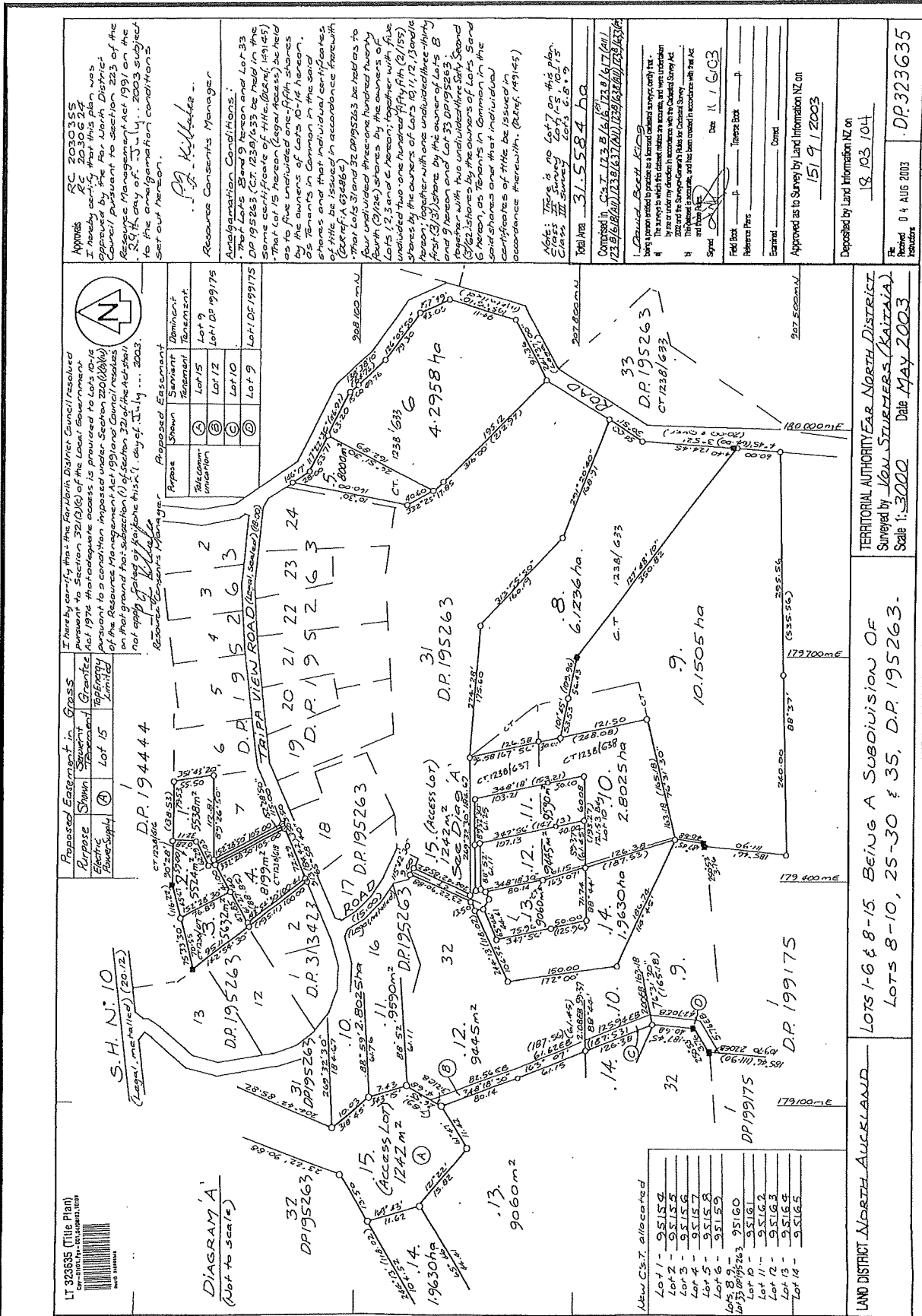
**Estate** Fee Simple - 3/62 share  
**Area** 19.1140 hectares more or less  
**Legal Description** Lot 31-32 Deposited Plan 195263

**Registered Owners**

Robyn Merrill Mackay as to a 1/2 share  
Warren George Mackay as to a 1/2 share

**Interests**

Appurtenant hereto is a water pipeline right created by Transfer A388217  
Appurtenant hereto is a water pipeline right created by Transfer A397039  
D409886.2 Consent Notice pursuant to Section 221(1) Resource Management Act 1991 - 15.7.1999 at 9.00 am  
Subject to a stormwater drainage right (in gross) over part marked G on DP 195263 in favour of Far North District Council created by Transfer D409886.4 - 15.7.1999 at 9.00 am (affects Lot 31 DP 195263)  
The easements created by Transfer D409886.4 are subject to Section 243 (a) Resource Management Act 1991  
Land Covenant in Transfer D425236.1 - 31.8.1999 at 9.00 am  
5937866.3 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 18.3.2004 at 9:00 am  
Subject to Section 241(2) Resource Management Act 1991 (affects DP 323635)  
Land Covenant in Transfer 6008179.1 - 18.5.2004 at 9:00 am  
Fencing Covenant in Transfer 6008179.1 - 18.5.2004 at 9:00 am



**LT 323635 (Title Plan)**  
 Surveyed by **David Beeth King**  
 Date **11/1/2003**

I hereby certify that this is the correct and true copy of the original plan as submitted to me by the applicant, and that the same has been examined and found to be correct and true.

**Proposed Easement in Gross**  
 Purpose: **Shower**  
 Location: **Lot 15**  
 Proposed Easement: **Lot 15**

**Proposed Easement in Gross**  
 Purpose: **Shower**  
 Location: **Lot 15**  
 Proposed Easement: **Lot 15**

**Proposed Easement in Gross**  
 Purpose: **Shower**  
 Location: **Lot 15**  
 Proposed Easement: **Lot 15**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**

**Resource Consent**  
 Resource Consent Manager: **R. K. Killeffer**  
 Date: **11/1/2003**



D409886.2



CONO

THE RESOURCE MANAGEMENT ACT 1991

SECTION 221 : CONSENT NOTICE

REGARDING:

The Subdivision of  
Pt Allot 57 Taipa Parish  
Blk IV Mangonui SD  
North Auckland Registry

PURSUANT to Section 221 and for the purposes of Section 224 of the Resource Management Act 1991, this Consent Notice is issued by the FAR NORTH DISTRICT COUNCIL to the effect that conditions described in Schedule 1 below are to be complied with on a continuing basis by the subdividing owner and the subsequent owners after the deposit of the survey plan, and this Notice is to be registered on the new titles, as set out in Schedule 2 herein.

SCHEDULE 1

- (1) Any buildings situated on Lots 14 or 15 are to have foundations and floor levels designed in accordance with the floodability report from Brown and Thomson Consulting Engineers submitted on 12 February 1999.
- (2) No building which requires effluent disposal shall be erected on any of the subdivision allotments without the prior approval of the council to specific design for such effluent disposal, including an indication of compliance with Regional Council rules.

*Such design may be in accordance with the Brown and Thomson report dated 19 September 1997, or to such similar professional design standard and detail as the circumstances dictate. Similar maintenance matters as set out in the September 1997 report should be included as required.*

- (3) Prior to the expiry of one year after the issue of the new titles, satisfy the Council that no less than \$ 7000 value of landscaping work (planting, earthworks, access, riparian enhancement or park furniture) has been completed, in accordance with Stage B of the landscaping plan submitted by Trees Company Nursery, dated 8 February 1999. Note that the cost of the deferred pedestrian walkway [varied Condition (3)(a)(v) of the 29 January 1999 consent], which is to be completed in conjunction with this condition, is *not* to be deducted from the landscaping value of \$ 7000 specified herein.

*This condition applies only to Lots 31 and 32, and is to be registered on the titles of Lots 2 - 24, 29 and 30.*

- (4) Prior to the expiry of two years after the issue of the new titles, satisfy the Council that no less than \$ 14,000 (inclusive of the previous \$ 7000 contribution) value landscaping work (planting, earthworks, access, riparian enhancement or park furniture) has been completed, in accordance with Stage B of the landscaping plan submitted by Trees Company Nursery, dated 8 February 1999.

*This condition applies only to Lots 31 and 32, and is to be registered on the titles of Lots 2 - 24, 29 and 30.*

- (5) Within six months of the issue of a Code Compliance Certificate for any building on a subject allotment, or within six months of its occupation or utilisation (whichever comes first) provide, to Council's satisfaction, landscaping on the subject allotment in accordance with Stage C of the landscaping plan submitted by Trees Company Nursery, dated 15 April 1999.


*This condition applies to Lots 13, 14, 19 - 24 (inclusive) being the allotments affected by Stage C of the landscape plan.*

## **SCHEDULE 2**

- (1) Condition (1) in Schedule 1 refers to Lots 14 and 15 DP 195263 being contained in CsT 123B/622 and /623.
- (2) Condition (2) in Schedule 1 refers to Lots 2 to 24 (inclusive), 29 - 32 (inclusive), and the amalgamated title for Lots 25 - 28, 33 and 35 DP 195263, being contained in CsT 123B/610 to /632, 123B/637 to /640 and 123B/633 and also refers to the balance area allotment of Pt Allot 57 Taipa Parish, being contained in residue CT 112A/389.

- (3) Condition (3) in Schedule 1 refers to Lots 31 and 32 DP 195263 being contained in CsT 123B/639 and /640
- (4) Condition (4) in Schedule 1 refers to Lots 31 and 32 DP 195263 being contained in CsT 123B/639 and /640
- (5) Condition (5) in Schedule 1 refers to Lots 13 and 14, and Lots 19 to 24 (inclusive) on DP 195263 being contained in CsT 123B/621, /622 and /627 to /632.

SIGNED:

  
ENVIRONMENTAL SERVICES MANAGER for the Far North District Council

DATE:

28th MAY 1999

SIGNED by

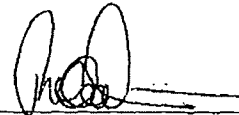
TARA VIEW LIMITED



as registered proprietor(s)

by its Director  
Per Andrew Luggnet :-

in the presence of:




Name

RICHARD N. MARTIN  
Solicitor  
Wellington

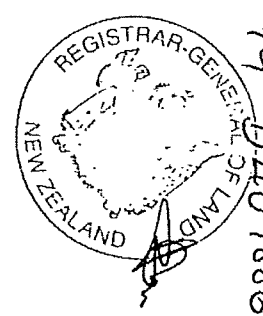
Occupation

9.00 15.JUL 99 D 409886

PARTICULARS ENTERED IN REGISTER  
LAND REGISTRY NORTH AUCKLAND  
FOR REGISTRAR - GENERAL OF LAND

LINZ COPY 

9.00 15 JUL 99 D409886.2



no application for machine title

on part cancelled CT in block 8 221  
note in printout also refers machine CT.

↓  
bring down on next row CT 4

D409886 . 4 TE

# **TRANSFER**

**Land Transfer Act 1952**

**This page does not form part of the Transfer.**

**TRANSFER**  
**Land Transfer Act 1952**

*If there is not enough space in any of the panels below, cross reference to and use the approved annexure schedule: no other format will be received*

Land Registration District

North Auckland

Certificate of Title No.      All or Part?      Area and legal description - *Insert only when part or Stratum, CT*

See	Annexure	Schedule	

Transferor Surnames must be underlined

Taipa View Limited

Transferee Surnames must be underlined

The Far North District Council

Estate or Interest or Easement to be created: *Insert e.g. Fee simple; Leasehold in Lease No ...; Right of way etc*

Stormwater drainage easement in gross (Continued on Page 2 Annexure Schedule)

Consideration

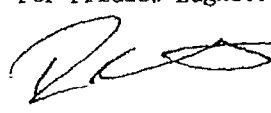
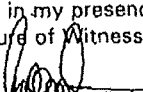
\$1.00

Operative Clause

For the above consideration (receipt of which is acknowledged) the TRANSFEROR TRANSFERS to the TRANSFÈREE all the transferor's estate and interest described above in the land in the above Certificate(s) of Title and if an easement is described above such is granted or created

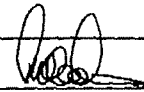
Dated this 28<sup>th</sup> day of July 1999

Attestation

<p>Taipa View Limited by its Director Per Fridlew Lugnet:</p> <p></p> <p>Signature or common seal of Transferor</p>	<p>Signed in my presence by the Transferor</p> <p>Signature of Witness </p> <p>Witness to complete in <b>BLOCK</b> letters <i>(unless typewritten or legibly stamped)</i></p> <p><b>RICHARD N. MARTIN</b></p> <p>Witness name                      Solicitor Occupation                        Wellington Address</p>
--	--

**Certified correct for the purposes of the Land Transfer Act 1952**

Certified that no conveyance duty is payable by virtue of Section 24(1) of the Stamp and Cheque Duties Act 1971.



Solicitor for the Transferee

Annexure Schedule

TRANSFER Dated 28/7/99. Page 2 of 3 Pages

<u>Section A Titles:-</u>			<u>Section B Titles:-</u>	
<u>Certificate of Title No.</u>		<u>All or Part?</u>	<u>Certificate of Title No.</u>	<u>All or Part</u>
123B	611	All	123B/610 to	Part, being
123B	612	All	123B/638 inclusive	share of Lot 31
123B	619	All	123B/641	on DP 195263
123B	620	All	123B/642	
123B	621	All		
123B	610	All		
<del>123B</del>	<del>612</del>	<del>All</del>		
123B	622	All		

Continuation of "Estate or Interest or Easement to be created"

Grant of easement to drain water

Easement rights

- The Transferee will have the right to drain water:-
  - over that part of the land in CT 123B/611 marked A on DP 195263
  - over that part of the land in CT 123B/612 marked B on DP 195263
  - over that part of the land in CT 123B/619 marked C on DP 195263
  - over that part of the land in CT 123B/620 marked D on DP 195263
  - over that part of the land in CT 123B/621 marked E on DP 195263
  - over that part of the land in CT 123B/610 marked F on DP 195263
  - over that part of the land in ~~CT 123B/610~~ marked G on DP 195263 in the Section B Titles above
  - over that part of the land in CT 123B/622 marked H on DP 195263
- Under clause 1 "water" means stormwater, spring, or seepage water.
- This right is together with the rights to:-
  - Enter the land by the most practicable route to do the following work:
    - dig and construct open drainage channels on the servient land;
    - inspect and maintain (including re-sigging) the said drainage channels;
    - dig, construct and lay a pipe or pipes under the surface of the servient land;
    - inspect, maintain, dig up, alter or replace the said pipe or pipes.
  - Do anything for the full exercise of the rights granted by this instrument. The Transferee may do this with or without agents, contractors and employees and with or without tools, plant, equipment and vehicles.

Covenants

- The Transferee, when exercising its rights, will do all the following:
  - Give reasonable notice to the transferor before exercising its rights, unless in an emergency. Whether or not the emergency exists will be decided by the Transferee.
  - Cause as little damage and inconvenience as possible to the servient land.
  - Restore the servient land as near as reasonably possible to its previous condition.

If this Annexure Schedule is used as an expansion of an instrument, all signing parties and either their witnesses or their solicitors must put their signatures or initials here.

*[Handwritten signatures and initials]*



### Annexure Schedule

Insert below:-

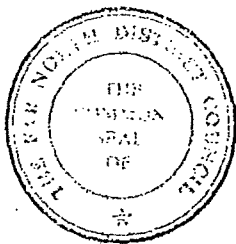
"Mortgage", "Transfer", "Lease" etc

Transfer dated 28 | 7 | 99 page 3 of 3 pages

5. The Transferor will not do anything to:
  - (a) Prevent or interfere with the free passage of water through the open drainage channels or any pipes that may be laid under the surface of the servient land.
  - (b) Interfere with the full use and enjoyment by the Transferee of the rights created by this instrument.
6. The above rights constitute an easement in gross.
7. If any dispute arises between the Transferor and the Transferee concerning the rights created by this transfer, the parties will:
  - Enter into negotiations in good faith to resolve the dispute.
  - If the dispute is not resolved within 1 month of the date on which the parties begin their negotiations, submit the dispute to the arbitration of an independent arbitrator appointed jointly by the parties.
  - If the parties cannot agree on that appointment within 14 days then the arbitration shall be carried out by an independent arbitrator appointed by the President of the Auckland District Law Society.
  - Such arbitration will be determined in accordance with the Arbitration Act 1996.

The execution of this transfer is a submission to arbitration.

THE COMMON SEAL of )  
 THE FAR NORTH DISTRICT )  
 COUNCIL was hereunto )  
 affixed in the presence of: |



*[Handwritten signatures]*

If this Annexure Schedule is used as an expansion of an instrument, all signing parties and either their witnesses or their solicitors must put their signatures or initials here.

*[Handwritten signatures and initials]*

# TRANSFER

## Land Transfer Act 1952

The ~~charge~~ within easements <sup>is</sup> ~~when created~~ will  
~~be~~ subject to Section 243(a) Resource  
Management Act 1991

~~for DLR~~  
RGL

LINZ COPY

9.00 15 JUL 99 D409886.4 F



This page is for Land Registry Office Use Only.



# FAR NORTH DISTRICT COUNCIL



## THE RESOURCE MANAGEMENT ACT 1991

### SECTION 221 - CONSENT NOTICE

CONO 5937866.3 Consen

Cpy - 01/01, Pgs - 002, 18/03/04, 08:38



DocID: 311329131

REGARDING RC2030355

The subdivision Lot 8-10 29 30 26-27 DP 1958263  
North Auckland Registry.

PURSUANT to Section 221 for the purposes of Section 224 of the Resource Management Act 1991, this Consent Notice is issued by the FAR NORTH DISTRICT COUNCIL to the effect that conditions described in the schedule below are to be complied with on a continuing basis by the subdividing owner and the subsequent owners after the deposit of the survey plan, and is to be registered on the title of Lots 1-6 8-15 DP 323635

### SCHEDULE

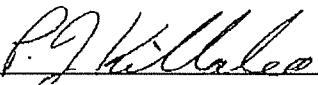
- i. No building that requires effluent disposal shall be erected on any of the subdivision allotments without the prior approval of the Council to specific design for such effluent disposal, including an indication of compliance with regional Council rules.

*Such design may be in accordance with the Brown and Thomson report dated 19 September 1997 (but specific to the particular site under consideration), or to such similar professional design, standard and detail as the circumstances and the site dictate. Similar maintenance matters as set out in the 1997 report should be included as required and/or appropriate.*

- ii. At the time of development of either Lot 1 or Lot 2 on the plan, provide and complete to the satisfaction of the Council, a retention trench along the northern boundaries of the two lots and falling to the existing discharge across Lot 1 DP 194444 to the highway drain. Provide and register easement over this drain in favour of both titles. The costs of the drainage work and the easement creation are to be equally shared between the registered proprietors of the two lots and these matters are to be completed prior to the commencement of any built development on either lot.

- iii. At the time of development of Lot 11 on the plan the registered proprietor of Lot 11 is provide and complete to the satisfaction of the Council a 300mm diameter culvert under the Lot 10 entrance strip. This work is to be completed prior to the commencement of any built development on Lot 11.
- iv. Surface flow (stormwater) from Lots 12 & 13 (including water tank overflow) is to be directed to the swale drain around the cul-de-sac head.

SIGNED:

  
by the FAR NORTH DISTRICT COUNCIL  
under delegated authority:  
RESOURCE CONSENTS MANAGER

DATED at **KAIKOHE** this *24<sup>th</sup>* day of *February* 2004

RC2030355  
SRMICERT\3221

**Appendix 4**  
Subdivision Site Suitability  
Engineering Report



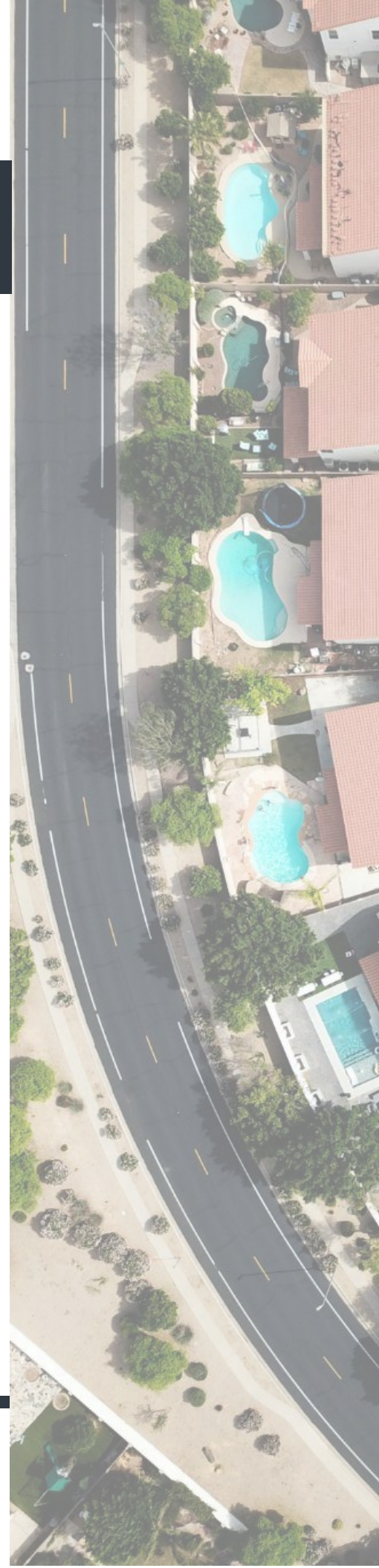
**geologix**  
consulting engineers

# SUBDIVISION SITE SUITABILITY ENGINEERING REPORT

31 TAIPA VIEW ROAD, LOT 6 DP 323635,  
TAIPA


WARREN MACKAY

**C0491-S-01-R01  
AUGUST 2024  
REVISION 1**





## DOCUMENT MANAGEMENT

<b>Document Title</b>	Subdivision Site Suitability Engineering Report
<b>Site Reference</b>	31 Taipa View Road, Taipa
<b>Client</b>	Warren Mackay
<b>Geologix Reference</b>	C0491-S-01-R01
<b>Issue Date</b>	August 2024
<b>Revision</b>	01
<b>Prepared</b>	Sander Derks Graduate Civil Engineer, Dip. Eng 
<b>Reviewed</b>	Sebastian Hicks Principal Civil Engineer, CPEng, CMEngNZ, IntPE(NZ) /APEC Engineer
<b>Approved</b>	Edward Collings Managing Director, CEnvP Reg. 0861, CPEng Reg. 1033153, CMEngNZ
<b>File Reference</b>	<small>Z:\Projects\C0400-C0499\31 Taipa View Road, Taipa - C0491\06 - Reports\C0491-S-01-R01.docx</small>

## REVISION HISTORY

Date	Issue	Prepared	Reviewed	Approved
August 2024	First Issue	SD	SH	EC



## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION</b> .....	<b>6</b>
1.1	PROPOSAL.....	6
<b>2</b>	<b>DESKTOP APPRAISAL</b> .....	<b>6</b>
2.1	EXISTING RETICULATED NETWORKS.....	7
2.2	GEOLOGICAL SETTING.....	7
2.3	EXISTING GEOTECHNICAL INFORMATION .....	7
<b>3</b>	<b>SURFACE WATER FEATURES AND OVERLAND FLOWPATHS</b> .....	<b>8</b>
3.1	SURFACE WATER FEATURES.....	8
3.2	OVERLAND FLOW PATHS.....	8
<b>4</b>	<b>GROUND INVESTIGATION</b> .....	<b>8</b>
4.1	SITE WALKOVER SURVEY.....	9
4.2	GROUND CONDITIONS.....	9
<b>5</b>	<b>PRELIMINARY GEOTECHNICAL ASSESSMENT</b> .....	<b>11</b>
5.1	PRELIMINARY GEOTECHNICAL DESIGN PARAMETERS.....	11
5.2	PRELIMINARY SITE SUBSOIL CLASS .....	12
5.3	PRELIMINARY SEISMIC HAZARD .....	12
5.4	PRELIMINARY SITE STABILITY.....	12
5.5	SOIL EXPANSIVITY .....	14
5.6	PRELIMINARY LIQUEFACTION POTENTIAL.....	15
<b>6</b>	<b>PRELIMINARY GEOTECHNICAL RECOMMENDATIONS</b> .....	<b>15</b>
6.1	CONCEPT FOUNDATIONS.....	16
6.2	CONCEPT EARTHWORKS AND METHODOLOGY.....	16
6.3	CONCEPT RETAINING WALLS .....	18
6.4	CONCEPT DRIVEWAYS AND CAR PARKING.....	18
6.5	CONCEPT CONSTRUCTION MONITORING .....	19
6.6	FURTHER GEOTECHNICAL WORKS.....	19
<b>7</b>	<b>WASTEWATER ASSESSMENT</b> .....	<b>19</b>
7.1	EXISTING WASTEWATER SYSTEMS.....	20
7.2	WASTEWATER GENERATION VOLUME .....	20
7.3	TREATMENT SYSTEM .....	20
7.4	LAND DISPOSAL SYSTEM .....	21
7.5	SUMMARY OF CONCEPT WASTEWATER DESIGN.....	22
7.6	ASSESSMENT OF ENVIRONMENTAL EFFECTS .....	23
<b>8</b>	<b>STORMWATER ASSESSMENT</b> .....	<b>23</b>





8.2	STORMWATER MANAGEMENT CONCEPT .....	24
8.3	DESIGN STORM EVENT .....	25
8.4	CONCEPT ATTENUATION MODEL .....	25
8.5	SUBDIVISION DEVELOPMENT MANAGEMENT .....	27
8.6	STORMWATER QUALITY .....	28
<b>9</b>	<b>POTABLE WATER &amp; FIRE FIGHTING .....</b>	<b>28</b>
<b>10</b>	<b>EARTHWORKS .....</b>	<b>28</b>
10.1	GENERAL RECOMMENDATIONS .....	29
10.2	EROSION AND SEDIMENT CONTROL .....	29
<b>11</b>	<b>NATURAL HAZARD ASSESSMENT .....</b>	<b>30</b>
<b>12</b>	<b>INTERNAL ROADING AND VEHICLE CROSSINGS .....</b>	<b>30</b>
12.1	VEHICLE CROSSINGS .....	30
<b>13</b>	<b>LIMITATIONS .....</b>	<b>31</b>
	<b>APPENDIX A .....</b>	<b>32</b>
	<b>APPENDIX B .....</b>	<b>33</b>
	<b>APPENDIX C .....</b>	<b>34</b>
	<b>APPENDIX D .....</b>	<b>38</b>
	<b>APPENDIX E .....</b>	<b>39</b>

## TABLES

TABLE 1: SUMMARY OF PROPOSED SCHEME .....	6
TABLE 2: SUMMARY OF GROUND INVESTIGATION .....	10
TABLE 3: GEOTECHNICAL EFFECTIVE STRESS PARAMETERS .....	11
TABLE 4: SUMMARY OF SEISMIC HAZARD PARAMETERS .....	12
TABLE 5: SUMMARY OF STABILITY ANALYSIS RESULTS .....	14
TABLE 6: EARTH PRESSURE PARAMETERS .....	18
TABLE 7: DISPOSAL FIELD DESIGN CRITERIA .....	21
TABLE 8: CONCEPT WASTEWATER DESIGN SUMMARY .....	22
TABLE 9: SUMMARY OF IMPERVIOUS SURFACES .....	24
TABLE 10: SUMMARY OF PROBABLE FUTURE DEVELOPMENT CONCEPT .....	25
TABLE 11: PROBABLE FUTURE DEVELOPMENT ATTENUATION CONCEPT .....	26
TABLE 12: SUMMARY OF CONCEPT DISPERSION DEVICES .....	27
TABLE 13: SUMMARY OF NATURAL HAZARDS .....	30
TABLE 14: SUMMARY OF PROPOSED VEHICLE CROSSINGS .....	30



**geologix**  
consulting engineers

TABLE 15: WASTEWATER ASSESSMENT OF ENVIRONMENTAL EFFECTS ..... 35  
TABLE 16: OPERATIVE FNDC SUBDIVISION STORMWATER ASSESSMENT CRITERIA, TO RULE 13.10.4..... 36

## 1 INTRODUCTION

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

Our scope of works has been undertaken to assist with a Resource Consent application in relation to the proposed subdivision of a semi urban/ rural property Lot 6 DP 323635 off Taipa View Road, Taipa, 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 Proposal

A proposed scheme plan was presented to Geologix at the time of writing, prepared by Thomson Survey<sup>1</sup> and reproduced within Appendix A as Drawing No 100. It is understood the Client proposes to subdivide the site to create three new residential lots with one lot containing an existing development remaining. The above is summarised in Table 1. Amendments to the referenced scheme plan may require an update to the recommendations of this report which are based on conservative, typical rural residential development concepts.

The site is located in the Rural Living zone as per the FNDC Operative District Plan.

*Table 1: Summary of Proposed Scheme*

Proposed Lot No.	Size	Purpose
1	1.0550 ha	New residential lot
2	0.6400 ha	New residential lot (Existing residential)
3	0.5900 ha	New residential lot
4	2.0100 ha	New residential lot

Site access for each lot will be provided from Taipa View Road at various identified locations to each property from separate new vehicle crossings. Each vehicle crossing has been considered with a safety aspect in relation to visibility of incoming and outgoing vehicle movements. A specific Traffic Impact Assessment (TIA) is not within the scope of this report.

## 2 DESKTOP APPRAISAL

The site is located along the southern and western edge of Taipa View Road which has an irregular alignment to define the north-eastern boundary. Topographically the site area is undulating with gullies trending centre of the site as a 'bowl' like feature with minor flat ridgelines extending from Taipa View Road. The overall slope of the terrain is moderate to gently sloping.

<sup>1</sup> Thomson, Scheme Plan Ref. 10608, dated 01 March 2024.



The site setting is presented schematically as Figure 1 below.

Figure 1<sup>2</sup>



The entire site area is currently in pasture with rough grass and no vegetation. A fairly new existing dwelling is present on proposed Lot 2; however, no public infrastructure is present within the site boundaries. 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 downslope to a pond central within the whole site, then overflowing further onto another stormwater pond beyond the site boundary.

## 2.1 Existing Reticulated Networks

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

## 2.2 Geological Setting

Available geological mapping<sup>3</sup> indicates the site to be directly underlain by Whangai Formation (Mangakahia Complex) of the Northland Allochthon described as fissile, dark grey to white-weathering siliceous mudstone, blue-grey calcareous mudstone, and minor micritic limestone and chert.

## 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

---

<sup>2</sup> GRIP Mapping Platform Service

<sup>3</sup> Geological & Nuclear Science, 1:250,000 scale Geological Map, Sheet 2, Whangarei, 2009.



the New Zealand Geotechnical Database<sup>4</sup> 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 upper elevations of a larger catchment that extends to the west through other adjacent properties beyond the boundary then ultimately winds towards a constructed stormwater pond on the adjacent site to the south. This includes a network of overland flow paths that originate on the elevated north-eastern boundary along Taipa View Road. These are drawn down through the numerous lots and into the pond feature approximately central within the site boundary.

#### 3.2 Overland Flow Paths

Clearly defined flow paths are evident within the site boundaries upon moderate to gentle sloping land. Many of the minor overland flow paths source from the upper elevations of the site bordering Taipa View Road as it wraps around the site, of which later develop into a more major overland flow path via small pond, linking at lower elevation further down beyond the boundary to large artificial stormwater retention pond. The minor overland flow paths stop and start and are approximately 50 to 100 m in length before connecting to the major overland flow paths which are more robustly defined.

Our walkover survey was undertaken during a typical autumn in May and noted no flow through the overland flow paths, though the pond central in the site was at capacity. The above is indicated across our drawing set, where in view and detailed with associated off-sets on Drawing No. 100.

### 4 GROUND INVESTIGATION

A site-specific walkover survey and intrusive ground investigation was undertaken by Geologix on 23 May 2024. The ground investigation was scoped to confirm the findings of the desktop appraisal and to provide parameters for geotechnical and wastewater assessment. The ground investigation comprised:

- Four hand augered boreholes designated BH01 to BH04, inclusive formed at the proposed building site with a target depth of 5.0 m below ground level (bgl).

---

<sup>4</sup> <https://www.nzgd.org.nz/>



- Three hand augered boreholes designated BH05 to BH07 inclusive, formed within suitable areas for wastewater disposal fields on each proposed residential lot with a target depth of 1.2 m below ground level (bgl).
- In-situ field vane testing was conducted on cohesive soils at 0.3 m c/c intervals as the boreholes progressed for boreholes BH01 to BH04.
- Dynamic Cone Penetration (DCP) testing was carried out from the base of BH01 and BH02 until final refusal i.e 20 blows per 100 mm penetration. Refusals were encountered upon hard strata within both boreholes at depths ranging from 3.4 m bgl for BH01 and 3.7 m bgl for BH02.
- Three cross sections were generated from the Far North District Council GIS contours through the critical slope for Lot 1, Lot 3 and Lot 4 to confirm the ground stability on site.

The proposed dwellings, wastewater disposal fields, cross sections and boreholes are shown on the appended site plan (Geologix drawing no.200).

#### 4.1 Site Walkover Survey

A visual walkover survey of the property confirmed:

- Topography data supplied is in general accordance with that outlined in Section 2 and observed site conditions. Suitable building envelopes<sup>5</sup> can be formed on gently sloping land <15 ° on all proposed lots.
- Taipa View Road defines the northern and eastern site boundaries. Land in all directions includes similar rural properties with open pasture.
- Overland flow paths are directed from the outer extremities to an artificial pond, approximately 400 m<sup>2</sup> in area, central in the site which is allotted in proposed lot 4.
- Taipa View Road has no roadside swale directly adjacent to lot boundaries. Swale is displayed up slope side of Taipa View Road.
- A moderately sized concrete retaining wall structure supports a section of Taipa View Road above along lot 1 boundary.
- An existing recently developed residential structure with associate private 3 water infrastructure occupies lot 2 and excluded in our investigations.

#### 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

---

<sup>5</sup> Measuring 30 m x 30 m according to FNDC District Plan Rule 13.7.2.2.

Society guidelines<sup>6</sup>. Engineering borehole logs are presented as Appendix B to this report and approximate borehole positions recorded on Drawing No. 200 within Appendix A.

Strata identified during the ground investigation can be summarised as follows:

- **Topsoil encountered to depths ranging between 0.15 to 0.3 m bgl.** Described as moist, friable, dark brown, organic silt with varying rootlets contents.
- **Northland Allochthon residual soil to depths ranging between 2.1 to 4.8 m bgl.** Topsoil was found to be underlain by residual Northland Allochthon soils. The soils encountered were cohesive in nature, ranging from silt to clayey silt with occasional sandy silt layers. The recovered materials were generally brownish orange and light grey in colour with dark orange mottling, moist and low plasticity.

Fifty in-situ field vane tests within the Northland Allochthon residual soils, recorded vane shear strengths ranging from 81 kPa to UTP (Unable to penetrate) indicative of stiff to very stiff soils. A characteristics unit vane shear strength of 171 kPa was calculated at 95% confidence, indicative of a generally very stiff strata.

- **Northland Allochthon completely weathered parent rock to depths ranging between >2.1 m and >4.8 m bgl.** Residual Northland Allochthon soils was found to be underlain by Northland Allochthon completely weathered parent rock which was confirmed by DCP testing on BH01 and BH02. DCP probing within both boreholes returned blows counts of 20 or greater blows per 100mm penetration has been taken as indicative of the presence of completely weathered Northland Allochthon parent rock. Also, Completely Weathered parent rock was cohesive in BH03 and BH04, retrieved as a dark grey silt with some clay.

A summary of ground investigation data is presented below as Table 2.

Table 2: Summary of Ground Investigation

Hole ID	Lot	Hole Depth	Fill /Topsoil Depth	Groundwater <sup>2</sup>	Depth of CW Parent Rock	Wastewater Category <sup>4</sup>
BH01	1	3.4 m	0.15 m	NE	>2.6 m	6 – slow draining
BH02	1	3.7 m	0.2 m	NE	>2.1 m	6 – slow draining
BH03	3	5.0 m	0.3 m	NE	>4.8 m	6 – slow draining
BH04	4	5.0 m	0.3 m	NE	>4.5 m	6 – slow draining
BH05	1	1.2 m	0.2 m	NE	NE	6 – slow draining
BH06	3	1.2 m	0.2 m	NE	NE	6 – slow draining
BH07	4	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. CW – Completely Weathered

5. Wastewater category in accordance with Auckland Council TP58<sup>7</sup>.

<sup>6</sup> New Zealand Geotechnical Society, *Field Description of Soil and Rock*, 2005.

<sup>7</sup> Auckland Council, *Technical Publication 58, On-site Wastewater Systems: Design and Management Manual*, 2004, Table 5.1.

#### 4.2.1 Groundwater

The ground investigation was undertaken during winter and formed exploratory boreholes to depths greater than any expected potential excavation to form typical rural residential building platform. 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 all seven boreholes during our ground investigation. In general materials recovered as moist at the base of all boreholes except for BH01 and BH02 with dry to moist materials.

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. 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 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/m <sup>3</sup>	Effective Friction Angle, °	Effective Cohesion, kPa	Undrained shear strength, kPa
Northland Allochthon Residual Soil	18	20	6	100*
Northland Allochthon CW Parent Rock	18	28	5	>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<sup>8</sup>.

## 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<sup>9</sup>. Table 4 presents the return periods for earthquakes with ULS and SLS ‘unweighted’ PGAs and design earthquake loads for the corresponding magnitude. The PGAs were determined using building Importance Level (IL) 2, defined by NZS1170.5:2004. Reference should be made to the structural designer’s assessment for the final determination of building importance level.

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 a critical section of the proposed Lots 1, 3 and 4. The cross-sections alignment are presented on Drawing No. 200 within Appendix A and developed ground model as Drawing No. 201.

<sup>8</sup> NZS1170.5:2004, Structural Design Actions Part 5: Earthquake Actions Clause 3.1.3.4.

<sup>9</sup> New Zealand Geotechnical Society, Earthquake Geotechnical Engineering Practice, Module 1, November 2021, Appendix A, Table A1.



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. In summary, the key aspect of potential ground instability identified in the walkover survey include:

- Topographic profile from the ridgeline dips at angles close to the natural equilibrium balance, steepening into the gully features.

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<sup>10</sup> which are widely adopted in the region. Modelling three separate event scenarios the accepted minimum FS are summarised as follows:

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

#### 5.4.1 *Stability Analysis Results*

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

---

<sup>10</sup> Auckland Council, *Code of Practice for Land Development and Subdivision, Section 2 Earthworks and Geotechnical Requirements, Version 1.6, September 2013.*

Table 5: Summary of Stability Analysis Results

Profile	Scenario	Global Min.	Building Site Footprint (min FS)	Result
<b>Section A (LOT 1)</b>				
Existing	Static	1.73	>1.5	Pass
	Elevated GW	1.43	>1.3	Pass
	Seismic	1.01	>1.0	Pass
Proposed	Static	1.56	>1.5	Pass
	Elevated GW	1.31	>1.3	Pass
	Seismic	1.03	>1.0	Pass
<b>Section B (LOT 3)</b>				
Existing	Static	2.28	>1.5	Pass
	Elevated GW	1.72	>1.3	Pass
	Seismic	1.21	>1.0	Pass
Proposed	Static	2.16	>1.5	Pass
	Elevated GW	1.71	>1.3	Pass
	Seismic	1.24	>1.0	Pass
<b>Section C (LOT 4)</b>				
Existing	Static	2.56	>1.5	Pass
	Elevated GW	1.87	>1.3	Pass
	Seismic	1.20	>1.0	Pass
Proposed	Static	2.39	>1.5	Pass
	Elevated GW	1.75	>1.5	Pass
	Seismic	1.20	>1.0	Pass

#### 5.4.2 Stability Analysis Conclusions

The developed slope stability models are considered to be a reasonable representation of the site as the model has been calibrated to the ground conditions. Ground investigation data has been adopted to determine the strata parameters and a completely weathered parent rock of Northland Allochthon unit has been inferred at depth from site observations at the base of hand auger.

As a general overview, the proposed building sites (Lot 1, Lot 3 and Lot 4) meets the minimal factor of safety requirement for residential development, and no ground stabilisation to control global instability such as retaining walls are expected to be needed through the section alignments.

The assumed ground model considers the uncertainty and variability in residential development and applies a consistent 12 kPa surcharges across the slope surface over the proposed building platforms.

#### 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:

1. Influence of garden watering and site drainage.
2. The presence of mature vegetation.
3. 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<sup>11</sup> and New Zealand Building Code<sup>12</sup>, 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 residual soil. 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 by the scheme plan. The 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.

---

<sup>11</sup> AS2870, *Residential Slabs and Footings*, 2011.

<sup>12</sup> New Zealand Building Code, *Structure B1/AS1 (Amendment 19, November 2019)*, Clause 7.5.13.1.2.

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

Based on the natural Northland Allochthon Residual Soils has an average undrained shear strength of 100 kPa, it is expected that shallow foundations of standard raft, strip footing, or piled foundations can be adopted for the proposed lots. Foundations shall be specifically designed during Building Consent stage.

### 6.1.1 *Shallow Piled Foundations*

Shallow piled foundations are preferred for the proposed lots as they reduce the amount of earthworks for sub-excavation of non-engineered fill materials and backfilling to finished ground levels. Shallow pile foundations can be designed according to specific engineering design for a 300kPa ultimate bearing capacity, a highly expansive soil type and a geotechnical reduction factor of 0.5. Foundation piles shall extend through non-engineered fill and found minimum of 1.0 m into stiff natural soils.

### 6.1.2 *Shallow raft Foundations*

Alternatively, shallow concrete slab foundations (of either shallow standard raft or standard footing) can be designed by a professional structural engineer adopting an Ultimate Bearing Capacity of 300 kPa, a geotechnical reduction factor of 0.5, for a highly expansive soil type.

To form this option, all unsuitable materials, including non-engineered fill, relic foundations, driveway hardstanding etc., shall be sub-excavated and replace with clean, well graded GAP40/GAP65 hardfill over the building footprint. The replacement material shall be placed and compacted upon flat benches in the natural terrain.

## 6.2 Concept Earthworks and Methodology

No earthwork concepts were provided to us at the time of writing. Earthworks plans shall be reviewed during Building Consent Stage. We provide the following preliminary earthwork recommendations.

It is recommended that all proposed excavations and fills up to 1.0 m in height should be formed at suitable batter slopes of 1V:3H. Batter slopes proposed above this height or at steeper face angles will require site specific slope stability analysis by a professional geotechnical engineer. This scenario will most likely require specifically engineered retaining walls subject to analysis and specific engineering design at the Building Consent stage.

### 6.2.1 *Temporary Works*

To reduce the risk of temporary excavation instability, it is recommended that sub-vertical temporary unsupported excavations are limited to a maximum of 1.0 m in height. Temporary unsupported excavations above this height shall be battered at 1V:1H or 45 ° and stabilised by specifically engineered retaining walls. It is expected that the above temporary works



from the designated building site can be undertaken within the property boundaries.

Any temporary batters should be covered with polythene sheets secured to the surface with pins or batons to prevent saturation. All works within proximity to excavations should be undertaken in accordance with Occupational Health and Safety regulations. In addition, it is recommended that all earthworks are carried out in periods of fine weather within the typical October to April earthwork season. Consent conditions commonly prescribe working restrictions.

Erosion and sediment control should be undertaken in accordance with council requirements. Care should be taken to minimise subsurface water flow over exposed cut and fill slopes and to avoid water ponding on the exposed subgrade.

#### 6.2.2 Fills

It is recommended that any proposed fills are kept to a minimum at the site to maintain stability of the shallow Northland Allochthon Residual Soil. Any fill with 1.0m height should be retained by specifically engineered retaining wall. It is also recommended that proposed fills are subject to a specific engineering specification including compaction standards and construction monitoring at regular lift intervals (maximum 0.5 m).

Certified engineered fill at the site may be graded at 1V:3H. Steeper batter slopes may be possible with specific engineering assessment at the Building Consent stage. A preliminary minimum standard for engineered earth fill has been determined as follows in accordance with NZS4431:2022<sup>13</sup> Table A1:

4. Lowest shear strength value of 150 kPa, calculated in accordance with NZGS Guideline for hand held shear vane test.
5. Average air voids of <10 % and  $\geq 95$  % maximum dry density. Two tests required per 1000 m<sup>3</sup> with no less than 2 tests per lift.
6. Minimum 300 kPa ultimate bearing capacity and <25 mm settlement at 300 kPa.
7. Tests undertaken at regular lift intervals, i.e., <500 mm.
8. Maximum fill batter angle of 1V:3H.
9. All fills placed on flat benches cut into slope.

The above should be achievable with standard compaction equipment including a sheep foot roller with vibration. It is recommended that fills within the proposed dwelling footprint are benched into the natural slope with benches not exceeding 1.0m in height.

Site-won soils may also be either cut to waste or placed within landscaped areas outside of the proposed dwelling footprint with a minimum offset of 1.0 m. Outside of the building

---

<sup>13</sup> NZS4431, *Engineered fill construction for lightweight structures*, 2022.



footprints, fills shall be track rolled as a minimum to achieve a minimum average undrained shear strength of 100 kPa.

In addition, all unsuitable materials such as organics, buried topsoil, non-engineered fill and locally weak materials ( $S_u < 60$  kPa) should be stripped from the footprint of proposed fills and replaced with compacted GAP hard fill subject to a specific engineering specification and construction monitoring.

### 6.3 Concept Retaining Walls

No specific development plans were provided to Geologix at the time of writing. As per the site topography with gentle to moderate slopes within the proposed building sites and surrounding area retaining walls will most likely be required to support the future building structures.

It is recommended that all proposed retaining walls are designed by a professional engineer familiar with the findings and geotechnical parameters of this report. In addition, any retaining upon sloping ground at the site shall be subject to specific geotechnical stability analysis at the Building Consent stage. Timber pole cantilever retaining walls or soldier pile retaining walls are considered the most feasible solution for the site.

Based on the results of the ground investigation and for a backslope of  $10^\circ$  above the retaining structure, Preliminary earth pressure parameters for design are presented within Table 6 below.

Table 6: Earth Pressure Parameters.

Strata	At Rest Pressure Coefficient, $K_0$	Active Pressure Coefficient, $K_A$	Passive Pressure Coefficient, $K_P$
Northland Allochthon Residual Soil	0.66	0.52	1.94
Northland Allochthon CW Parent Rock	0.53	0.37	3.18

1. Adopts soil/ wall friction coefficient of 0.67 for timber according to NZBC B1/VM4 Table 2.
2. Considers a backslope of 10 degrees. Parameters to be modified by a design engineer for any sloping backfill/ ground with different angles.

It is recommended that a 100 mm diameter perforated drain coil and cohesionless backfill (minimum 300 mm wide) is installed behind all retaining walls to control any temporary hydrostatic pressure.

### 6.4 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 shallow Northland



Allochthon Residual Soil will achieve a typical subgrade CBR value of 4 % or greater according to Austroads Standards.

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

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.

## 6.5 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, it 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.

## 6.6 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.

# 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<sup>14</sup>. 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 2 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 2 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<sup>15</sup>. This assumes standard water saving fixtures<sup>16</sup> 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.

---

<sup>14</sup> TP58 Table 6.1.

<sup>15</sup> TP58 Table 6.2, AS/ NZS 1547:2012 Table H3.

<sup>16</sup> 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.	Lots 3 and 4 complies. Concept design for Lot 1 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 3 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 50 % reserve disposal field area (TP58 Table 9.2, note 3) to enact 3 mm/ day rather than 2 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 427 m<sup>2</sup> laid parallel to the natural contours.
- **Reserve Disposal Field.** NRP rule C.6.1.3(9)(b) requires a minimum reserve disposal field equivalent to 30 % of the primary disposal field for secondary or tertiary treatment systems. As discussed above in Section 7.4.1, the proposed concept design presents a 50% reserve disposal field area. Therefore, each proposed lot provides a 214 m<sup>2</sup> 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 <sup>1</sup>
Water meter required?	No
Min. Treatment Quality	Secondary



Soil Drainage Category	TP58 Category 6, NZS1547 Category 5
Soil Loading Rate	3 mm/ day
Primary disposal field	Surface/ subsurface laid PCDI, min. 427 m <sup>2</sup>
Reserve disposal field	Surface/ subsurface laid PCDI, min. 50 % or 214 m <sup>2</sup>
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.
<i>1. Unless further water saving measures are included.</i>	

## 7.6 Assessment of Environmental Effects

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

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

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

## 8 STORMWATER ASSESSMENT

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

### 8.1 Impervious Surfaces and Activity Status

A summary of the impervious areas of the proposed lots is provided as Table 9 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 5 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 13.10.4 (Refer Table 16 ).



Table 9: Summary of Impervious Surfaces

Surface	Proposed Lot 1		Proposed Lot 2 (Existing development)		Proposed Lot 3		Proposed Lot 4	
Existing Condition	NA		(42,958 m <sup>2</sup> )		NA		NA	
Roof			0 m <sup>2</sup>	0.0 %				
Driveway			0 m <sup>2</sup>	0.0 %				
Total impervious			0 m <sup>2</sup>	0.0 %				
Proposed Condition	(10,550 m <sup>2</sup> )		(6,400 m <sup>2</sup> )		(5,900 m <sup>2</sup> )		(20,100 m <sup>2</sup> )	
Roof	300 m <sup>2</sup>	2.8 %	180 m <sup>2</sup>	2.8 %	300 m <sup>2</sup>	5.1 %	300 m <sup>2</sup>	1.5 %
Driveway	200 m <sup>2</sup>	1.9 %	265 m <sup>2</sup>	4.2 %	200 m <sup>2</sup>	3.4 %	200 m <sup>2</sup>	1.0 %
Total	500 m <sup>2</sup>	4.7 %	445 m <sup>2</sup>	7.0 %	500 m <sup>2</sup>	8.5 %	500 m <sup>2</sup>	2.5 %
Activity Status	Permitted		Permitted		Permitted		Permitted	

## 8.2 Stormwater Management Concept

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

- Probable Future Development (Proposed Lots 1, 3 & 4).** 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<sup>2</sup> potential roof area and up to 200 m<sup>2</sup> 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.

- Existing On-site Development (Proposed Lot 2).** An existing dwelling with a total roof area of 180 m<sup>2</sup> and impervious driveway area of 265 m<sup>2</sup> is located within the boundaries of proposed lot 2. There are two 25,000l 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 will be established by individual vehicle crossings to the boundary. These present minor additional impervious surfaces that are not deemed to considerably increase runoff from the subdivision development and so specific attenuation is not proposed (other than that included for future lot development).

### 8.3 Design Storm Event

Relevant design rainfall intensity and depths have been ascertained for the site location from the NIWA HIRDS meteorological model<sup>17</sup>. 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.

No increase to flooding hazard on downstream property has been identified with 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 attenuates the post-development stormwater runoff peak discharge to 80 % of the pre-development condition for the 20 % and 50 % AEP storm event. This provision also complies with NRP Rule C6.4.2(2).

The attenuation modelling within this report has been undertaken for all of the above storm events. The results are summarised in Table 11 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 (in Appendix ) 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 roof runoff attenuation tanks which provide sufficient detention volume. Calculations to support the concept design are presented as Appendix to this report. A typical schematic retention/ detention tank arrangement detail is presented as Drawing No. 401 within Appendix A.

The concept design presented in this report should be subject to verification and an updated design at Building Consent stage once final development plans are available. This is typically applied as a consent notice to the applicable titles. We note that the detailed design will be required to provide appropriate orifices to ensure the 50 % and 20 % AEP events.

The rational method has been adopted by Geologix with run-off coefficients as published by FNDC Engineering Standards<sup>18</sup> to provide a suitable attenuation design to limit post-development peak flows to 80 % of pre-development conditions.

*Table 10: Summary of Probable Future Development Concept*

Item	Pre-development Impervious Area	Post-development Impervious Area	Proposed Concept Attenuation Method
------	---------------------------------	----------------------------------	-------------------------------------

<sup>17</sup> NIWA High Intensity Rainfall Data System, <https://hirds.niwa.co.nz>.

<sup>18</sup> FNDC Engineering Standards 2021, Version 0.6, Issued May 2023.



<b>Future Concept Developments</b>			
Potential buildings	0 m <sup>2</sup>	300 m <sup>2</sup>	Detention within roof water tanks
Potential driveways	0 m <sup>2</sup>	200 m <sup>2</sup>	Off-set detention in roof water tanks
<b>Total</b>	<b>0 m<sup>2</sup></b>	<b>500 m<sup>2</sup></b>	
<b>Existing Development Concept (Lot 2)</b>			
Existing buildings	265 m <sup>2</sup>	265 m <sup>2</sup>	Not Required, impervious area < permitted activity
Existing driveway	180 m <sup>2</sup>	180 m <sup>2</sup>	Not Required, impervious area < permitted activity
<b>Total</b>	<b>445 m<sup>2</sup></b>	<b>445 m<sup>2</sup></b>	

Calculations to support the concept design are presented as Appendix D to this report. A summary of the proposed on-lot stormwater attenuation design is presented as Table 11. As above, it is recommended that this concept design is refined at the Building Consent stage once final development plans are available. A Consent notice may be required to be applied to each title to ensure this is undertaken.

Table 11: Probable Future Development Attenuation Concept

Design Parameter	Flow Attenuation: 50 % AEP (80% of pre dev)	Flow Attenuation: 20 % AEP (80% of pre dev)
<b>Proposed Development</b>		
Regulatory Compliance	FNDC Engineering Standards Table 4-1	FNDC Engineering Standards Table 4-1
Pre-development peak flow	5.26 l/s	6.82 l/s
80 % pre-development peak flow	4.21 l/s	5.46 l/s
Post-development peak flow	8.55 l/s	11.09 l/s
Total Storage Volume Required	5,375 litres	6,984 litres
Concept Summary:	<ul style="list-style-type: none"> <li>- Attenuation storage calculation accounts for offset flow from driveway (not indicated explicitly in summary above. Refer Appendix D for calcs in full)</li> <li>- Attenuation to 80 % of pre-development condition for 20 % AEP storm represents maximum storage requirement and is adopted for the concept design tank storage.</li> <li>- 1 x 25,000 litre tank is sufficient for attenuation (6,984l) + potable storage (18,016l)</li> <li>- 20 % AEP attenuation in isolation requires a 34 mm orifice 0.66 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.</li> </ul>	

### 8.4.1 On-Lot Discharge

The direct discharge of water tank overflow in a concentrated manner can cause scour and erosion in addition to excessive saturation of shallow soils. It is recommended that overflow from rainwater detention tanks is conveyed in sealed pipes to a designated discharge point downslope of proposed building footprints and wastewater disposal fields. A concept design accommodating this is presented within Appendix A on Drawing Nos. 401 and 402.

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

Typical rural residential developments may construct either above or below ground discharge dispersion pipes. Feeding pipes can be either buried or pinned to the surface as desired. It is recommended that all pipes are designed to accommodate the design storm event peak flows from the attenuation tank. A concept dispersion pipe or trench length is presented as Table 12. Calculations to derive this are presented within Appendix . Typical details of these options are presented within Appendix A as Drawing No. 402 and TR2013/018 document.

*Table 12: Summary of Concept Dispersion Devices*

Concept Impervious Area to Tank	Tank Outlet Velocity (at spreader orifices)	Tank outlet pipe diameter	Spreader pipe diameter	Dispersion Pipe/ Trench Length	Spreader orifice size	Concept
<b>Proposed Lot 1</b>						
500 m <sup>2</sup>	0.019 m/s	0.1 m	0.2 m	9.0 m	20 mm	Above ground dispersion device or in-ground dispersion trench.
<b>Proposed Lot 3</b>						
500 m <sup>2</sup>	0.019 m/s	0.1 m	0.2 m	9.0 m	20 mm	Above ground dispersion device or in-ground dispersion trench.
<b>Proposed Lot 4</b>						
500 m <sup>2</sup>	0.019 m/s	0.1 m	0.2 m	9.0 m	20 mm	Above ground dispersion device or in-ground dispersion trench.

## 8.5 Subdivision Development Management

There are no stormwater conveyance devices required for the formation of the subdivision. must be suitably sized to accommodate peak run-off flows from the design storm event.





Given the existing formation and drainage of Taipa View Road, with no drainage channel on the western edge of the road, there is no requirement for culverts under the proposed vehicle crossings to lots.

## 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 Taipa View 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 Taipa View Road require provision of the on-lot roof water supply tanks to be used for firefighting purposes, if required. Specific analysis and calculation for firefighting is outside the scope of this report and may require specialist input. Supply for firefighting should be made in accordance with SNZ PAS4509:2008.

## 10 EARTHWORKS

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



- **New vehicle crossings.** Cut/ fill earthworks for construction of the vehicle crossings to current Council Engineering Standards.

Proposed earthwork volumes for the above works are anticipated to be less than 60m<sup>3</sup>, within a 300m<sup>3</sup> Permitted Activity volume limit outlined by FNDC District Plan Rule 12.3.6.1.2(a) and the maximum cut and filled face height is 1.5 m i.e. the maximum permitted cut and fill height may be 3m to comply with 12.3.6.1.2(b).

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

## 10.1 General Recommendations

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

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

Due to the topography of the site, significant excavations are not anticipated. However, to reduce the risk of instability of excavations during construction, it is recommended that **temporary** unsupported excavations have a maximum vertical height of 0.5 m. Excavations >0.5 m should be battered at 1V:1H or 45°. Permanent batter slopes may require a shallower angle to maintain long term stability and if proposed these should be assessed at the Building Consent stage within a specific geotechnical investigation report.

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

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

## 10.2 Erosion and Sediment Control

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

- Silt fence around the downslope face of the proposed vehicle crossing at each lot.

## 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<sup>19</sup>, Northland Regional Council (NRC) Proposed Regional Plan for Northland<sup>20</sup> 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	NA	Subject to geotechnical assessment at building consent stage.
Rockfall	NA	No anticipated effects, less than minor.
Alluvion	NA	No anticipated effects, less than minor.
Avulsion	NA	No anticipated effects, less than minor.
Unconsolidated fill	NA	No anticipated effects, less than minor.
Soil contamination	NA	No anticipated effects, less than minor.
Subsidence	NA	No anticipated effects, less than minor.
Fire hazard	NA	No anticipated effects, less than minor.
Sea level rise	NA	No anticipated effects, less than minor.

*NA – Not Applicable.*

## 12 INTERNAL ROADING AND VEHICLE CROSSINGS

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

### 12.1 Vehicle Crossings

Vehicle crossings will be formed at subdivision stage. A summary of proposed vehicle crossings is presented as Table 14.

Visibility and sight distance from all proposed vehicle crossings is good, given that there is no trees or other obstructions within Taipa View Road reserve that obstruct the sight lines. Furthermore, the circular alignment of Taipa View Road, positioned high up in the valley that comprises the proposed lots, serves to promote good visibility.

*Table 14: Summary of Proposed Vehicle Crossings*

Location	Type	Detail	Formation

<sup>19</sup> Operative District Plan Rule 13.7.3.2.

<sup>20</sup> Proposed Regional Plan for Northland, Appeals Version, July 2021, Chapter D.6.



Taipa View Road/ Lot 1 Entrance	FNDC Type 1A, Light Vehicles	Construct to typical detail, 3.0 m width at boundary.	At subdivision
Taipa View Road/ Existing Lot 2 Entrance	FNDC Type 1A, Light Vehicles	Constructed to typical detail, 3.0 m width at boundary.	Existing
Taipa View Road/ Lot 3 Entrance	FNDC Type 1A, Light Vehicles	Construct to typical detail, 3.0 m width at boundary.	At subdivision
Taipa View Road/ Lot 4 Entrance	FNDC Type 1A, Light Vehicles	Construct to typical detail, 3.0 m width at boundary.	At subdivision

*RCP – Reinforced Concrete Pipe*

## 13 LIMITATIONS

This report has been prepared for Warren Mackay 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.

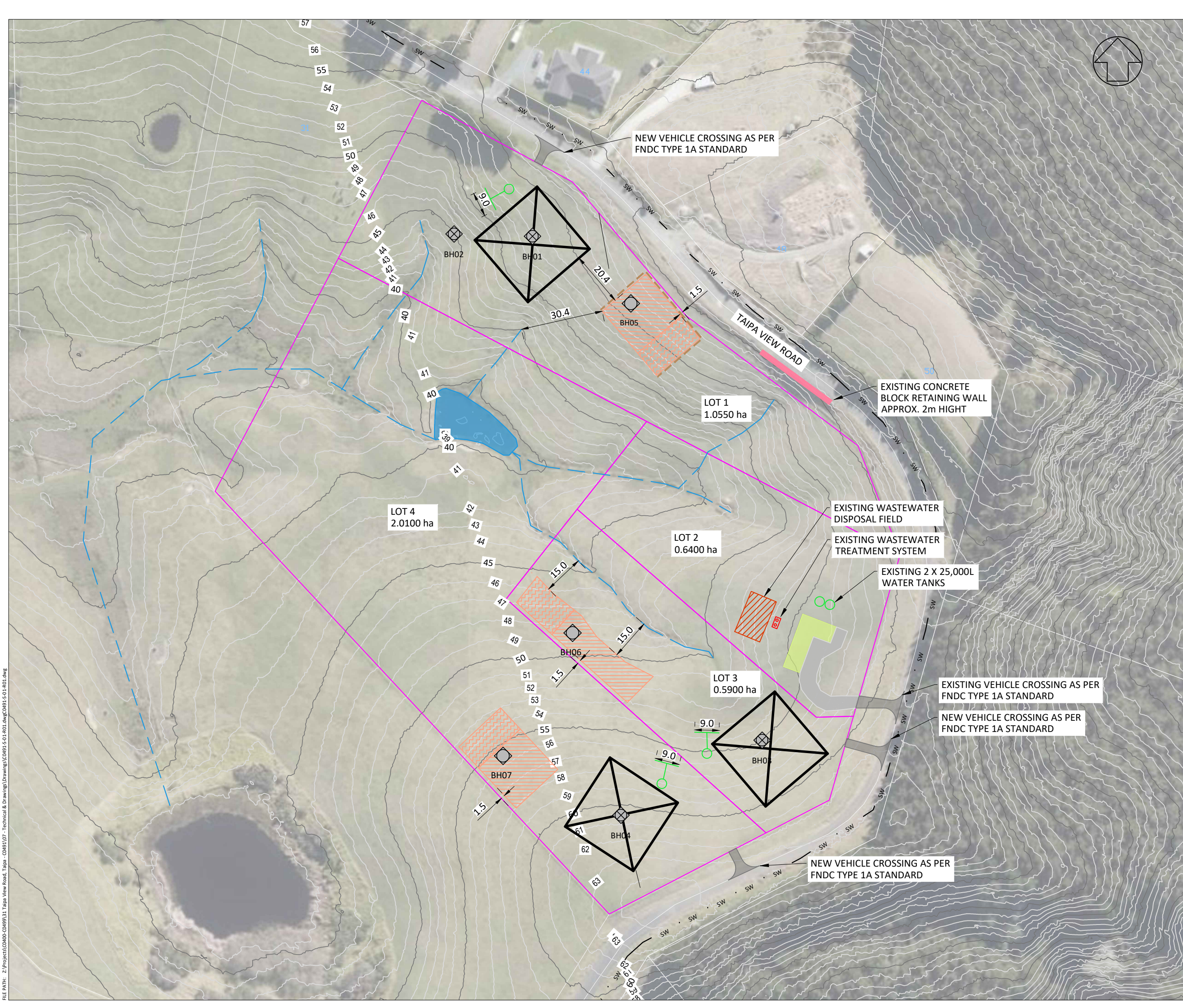
The recommendations and opinions in this report are based on arisings extracted from exploratory boreholes at discrete locations and any available existing borehole records. The nature and continuity of subsurface conditions, interpretation of ground condition and models away from these specific ground 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.



**geologix**  
consulting engineers

## APPENDIX A

### Drawings



# GENERAL NOTES

- DRAWING REPRODUCED FROM THOMSON SURVEY PROPOSED SCHEME PLAN REF. 10608, DATED MARCH 2024.
- HORIZONTAL CO ORDINATE SYSTEM = NZTM.
- VERTICAL DATUM = NZVD.
- MAJOR INTERVALS 5.0 m.
- MINOR INTERVALS 1.0 m.
- FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
- DO NOT SCALE FROM THIS DRAWING.

**CONCEPT WASTEWATER DESIGN**

CONCEPT DEVELOPMENT	5 BEDROOM
CONCEPT NO. OF OCCUPANTS	8 PERSONS
DAILY WASTEWATER GEN.	160 LITRES/PERSON/ DAY
TOTAL WASTEWATER GEN.	1,280 LITRES/ DAY
SOIL CATEGORY (TP58)	CATEGORY 6
SOIL CATEGORY (NZS1547)	CATEGORY 5
SOIL LOADING RATE	3.0 mm/ DAY
TREATMENT SYSTEM	NO - SUBJECT TO BUILDING CONSENT DESIGN
PRIMARY DISPOSAL AREA	427 m <sup>2</sup>
RESERVE DISPOSAL AREA	214 m <sup>2</sup> (50 %)
FINAL DESIGN?	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS?	NO
DISCHARGE CONSENT?	NO

- CONCEPT BUILDING ENVELOPE (30m x 30m)
- EXISTING DWELLING
- GEOLOGIX HAND AUGER LOCATION - MAY 2024
- POND
- OVERLAND FLOWPATH
- EXISTING GRASSED SWALE DRAIN
- PRIMARY DISPOSAL FIELD
- RESERVE DISPOSAL FIELD
- WASTEWATER FEILD CUTOFF DRAIN
- CONCEPT 25,000 LITRE WATER TANK ATTENUATING TO DISPERSION DEVICE TO CONTROL 500 m<sup>2</sup> AREA

A	CONSENT	29/08/2024
Revision	Issue	Date



Project Name and Address  
**31 TAIPA VIEW ROAD**  
**TAIPA**  
**LOT 6 DP 323635**

Project	Drawn By
C0491	SD

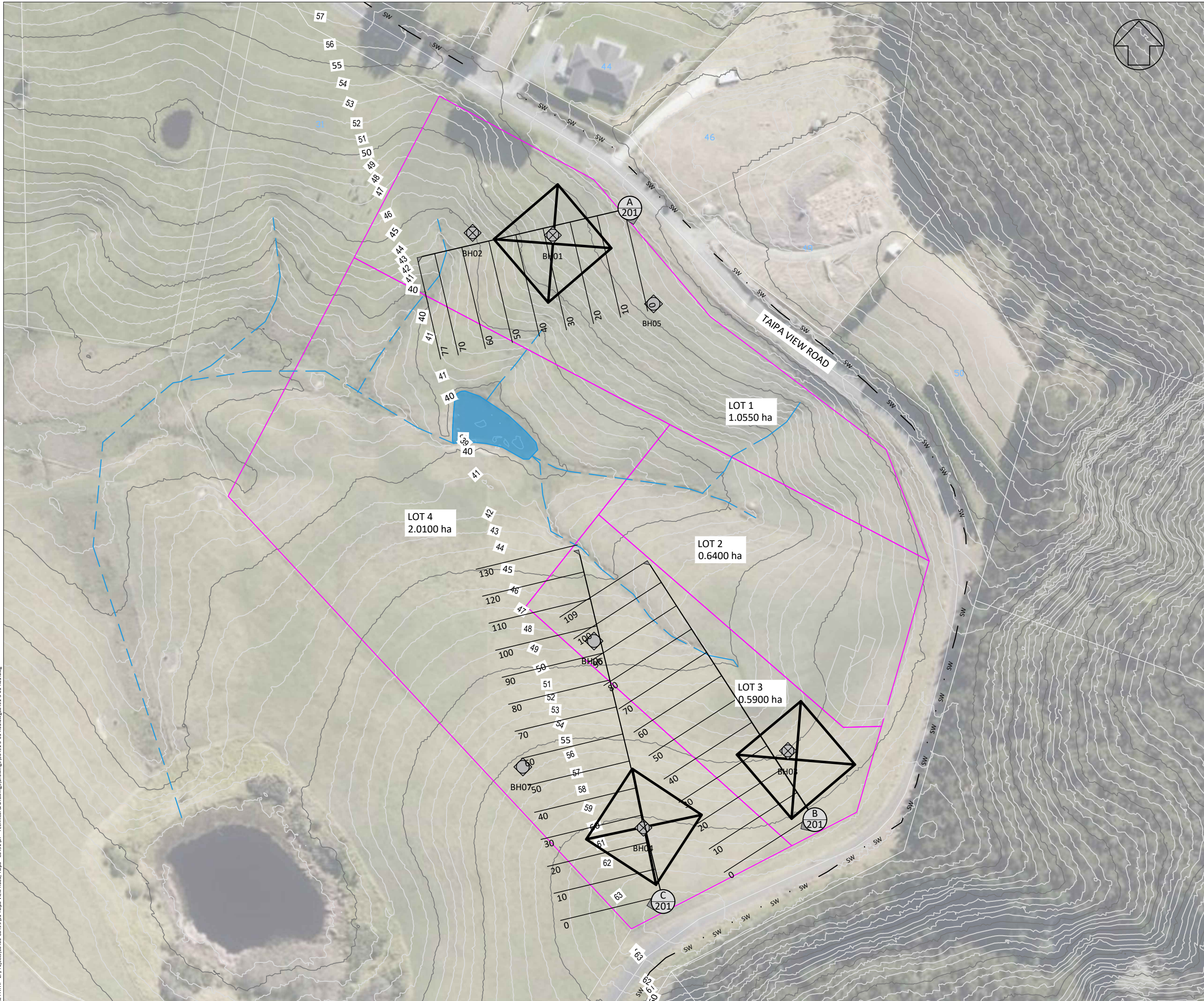
Client  
**WARREN MACKAY**

Sheet Title  
**ENGINEERING PLAN**

Sheet  
100

FILE PATH: Z:\Projects\C0491-01-101-101.dwg

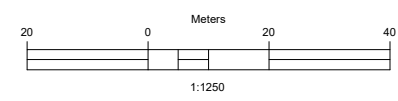
PLOTED: 08/08/2024



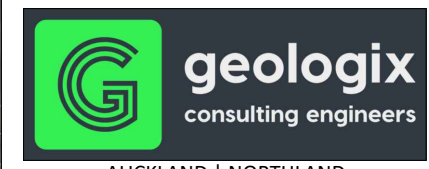
# GENERAL NOTES

1. DRAWING REPRODUCED FROM THOMSON SURVEY PROPOSED SCHEME PLAN REF. 10608, DATED MARCH 2024.
3. HORIZONTAL CO ORDINATE SYSTEM = NZTM.
4. VERTICAL DATUM = NZVD.
5. MAJOR INTERVALS 5.0 m.
6. MINOR INTERVALS 1.0 m.
7. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
8. DO NOT SCALE FROM THIS DRAWING.

- GEOLOGIX HAND AUGER - MAY 2024
- GEOLOGIX HAND AUGER & DYNAMIC CONE PENETROMETER - MAY 2024
- CONCEPT BUILDING ENVELOPE (30m x 30m)
- PROPOSED LOT BOUNDARY
- EXISTING ROADSIDE SWALE
- OVERLAND FLOWPATH
- POND



A	CONSENT	29/08/2024
Revision	Issue	Date



Project Name and Address  
**31 TAIPA VIEW ROAD**  
**TAIPA**  
**LOT 6 DP 323635**

Project **C0491**      Drawn By **TI**

Client  
**WARREN MACKAY**

Sheet Title  
**GEOTECHNICAL SITE PLAN**

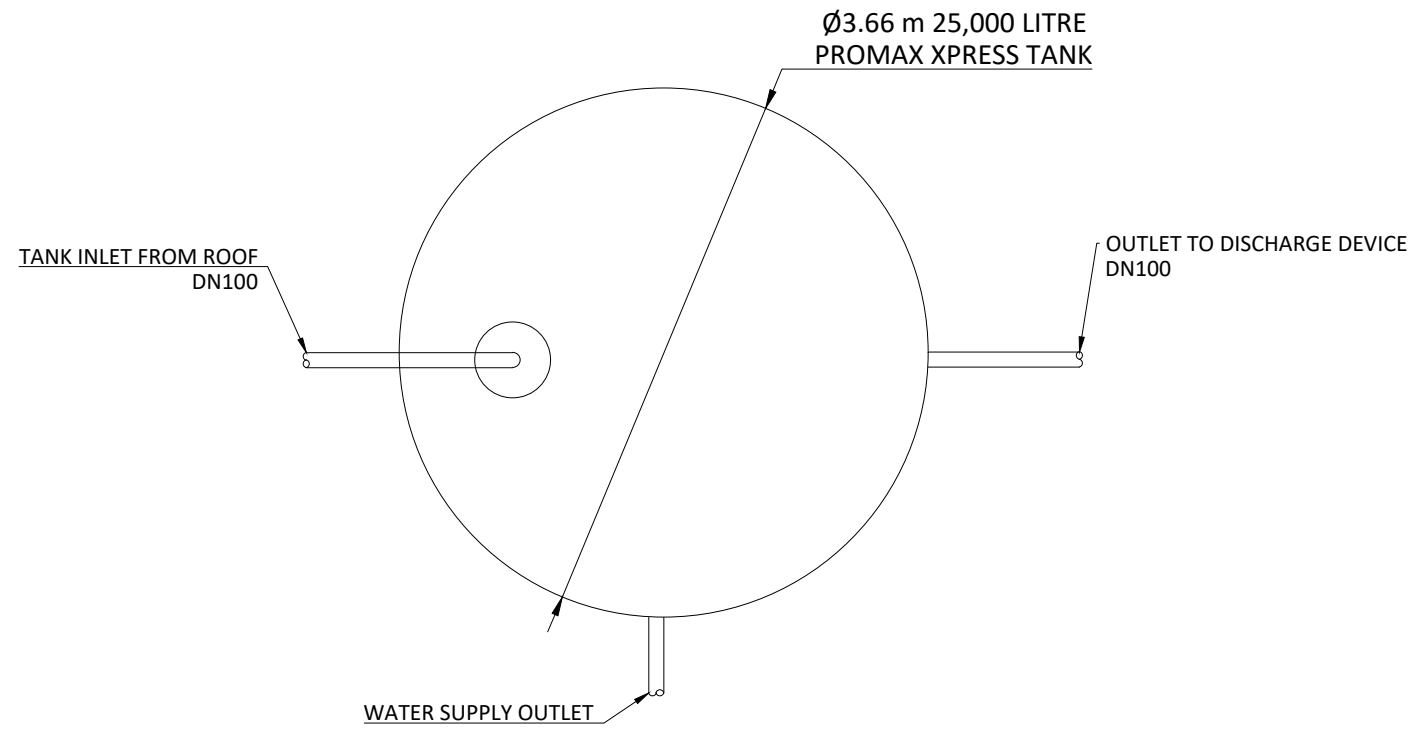
Sheet  
200

FILE PATH: Z:\Projects\C0400-C0495\31 Taipa View Road, Taipa - C0491\07 - Technical & Drawings\Drawings\C0491-5-01-ROL.dwg\C0491-5-01-ROL.dwg

PLOTED: 03/05/2024

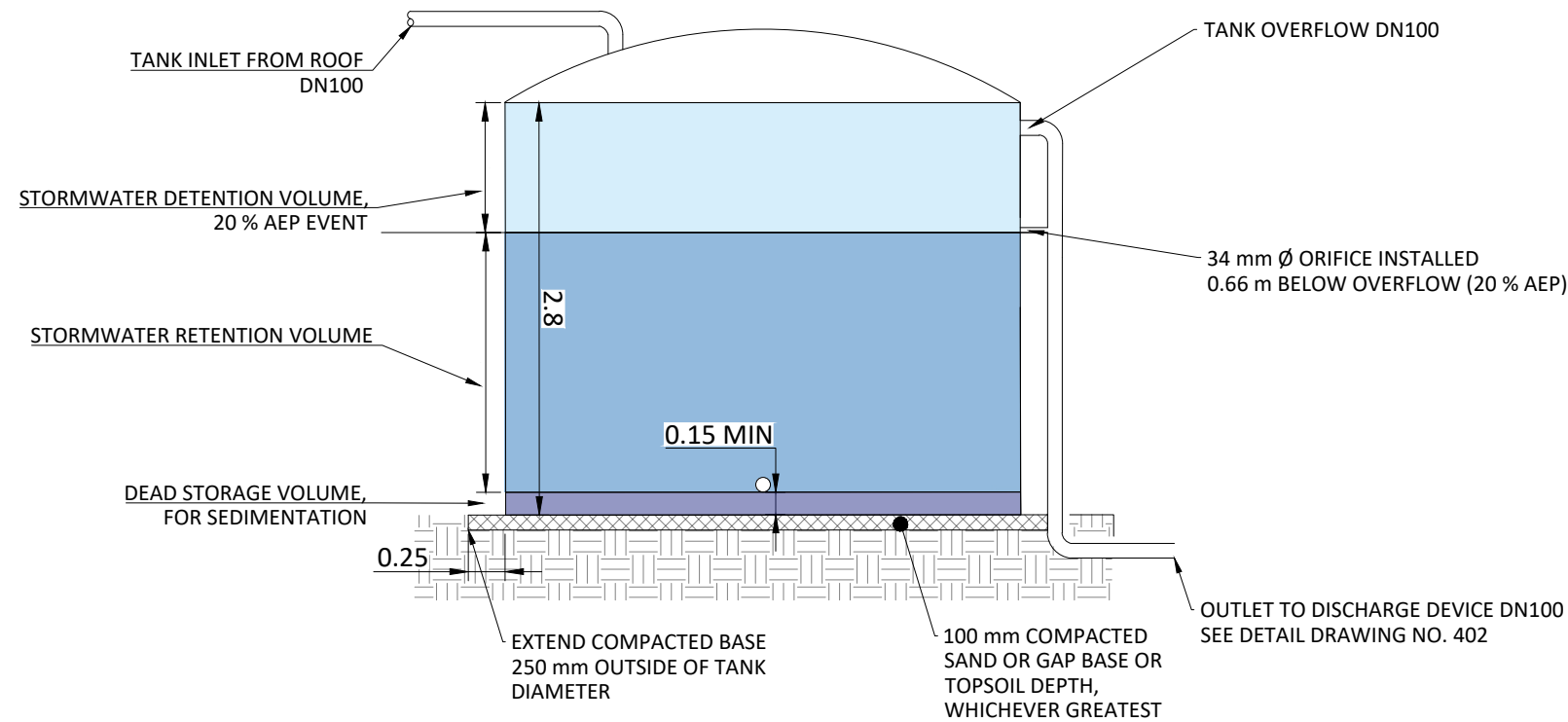
**PROPOSED TANK PLAN VIEW**

1:50, A3



**PROPOSED TANK SIDE VIEW**

1:50, A3



**GENERAL NOTES**

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

Revision	Issue	Date
1	CONSENT	02/07/2024



AUCKLAND | NORTHLAND

Project Name and Address  
**31 TAIPA VIEW ROAD**  
**TAIPA**  
**LOT 6 DP 323635**

Project  
**C0491**

Drawn By  
**SD**

Client  
**WARREN MACKAY**

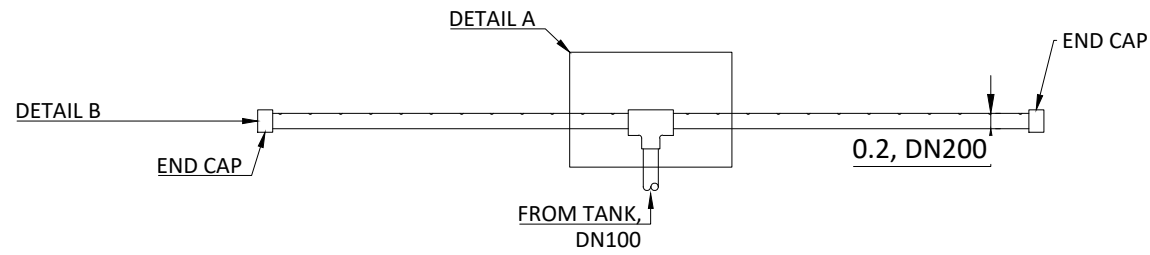
Sheet Title  
**TYPICAL TANK DETAIL**

Sheet  
**401**

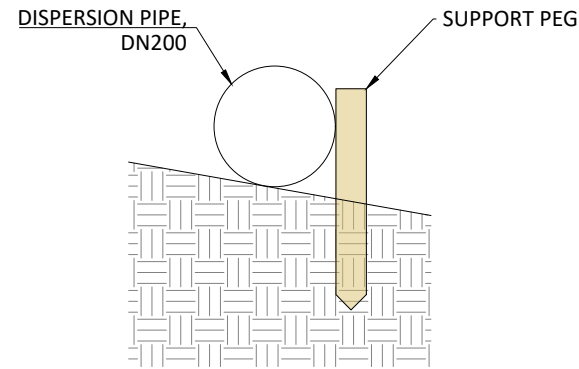


### OPTION 1: DISPERSION VIA ABOVE GROUND PIPE

NOT TO SCALE

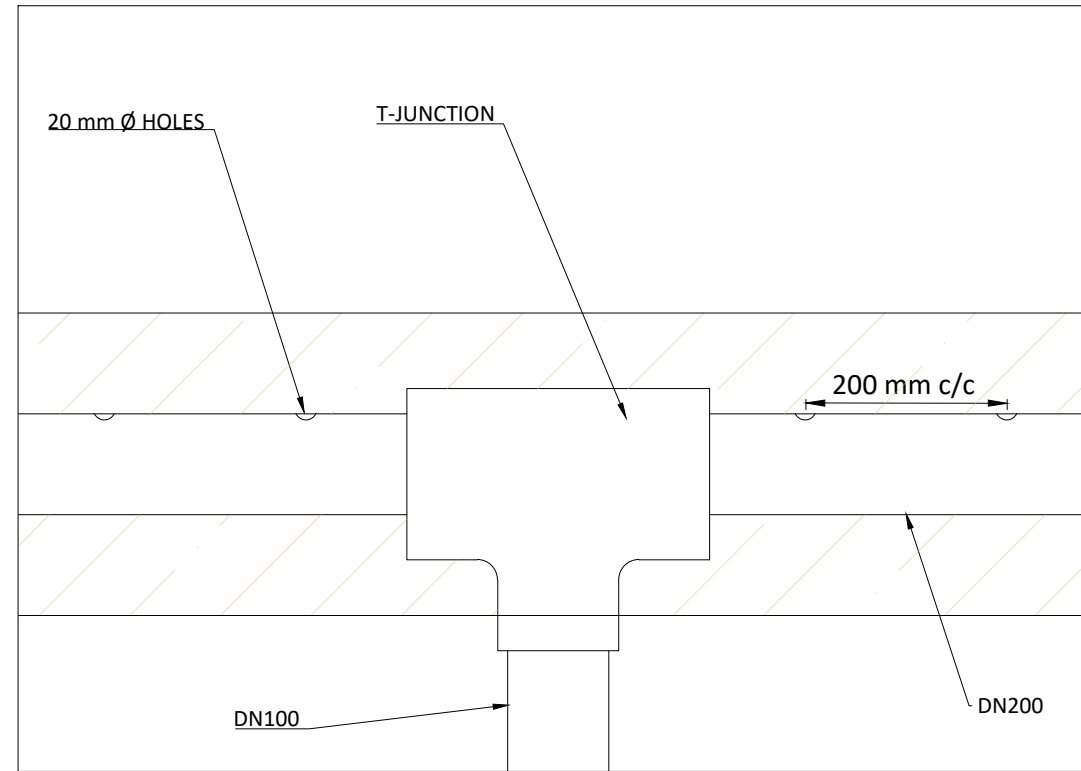


DETAIL B - SIDE VIEW  
NOT TO SCALE



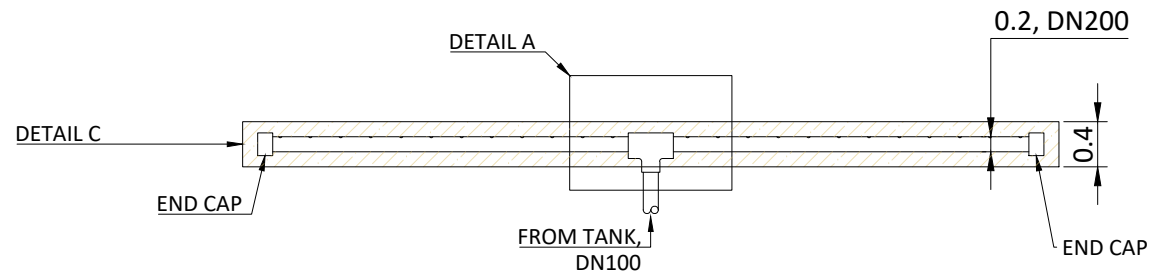
### DETAIL A - T JUNCTION AND PERFORATIONS

NOT TO SCALE



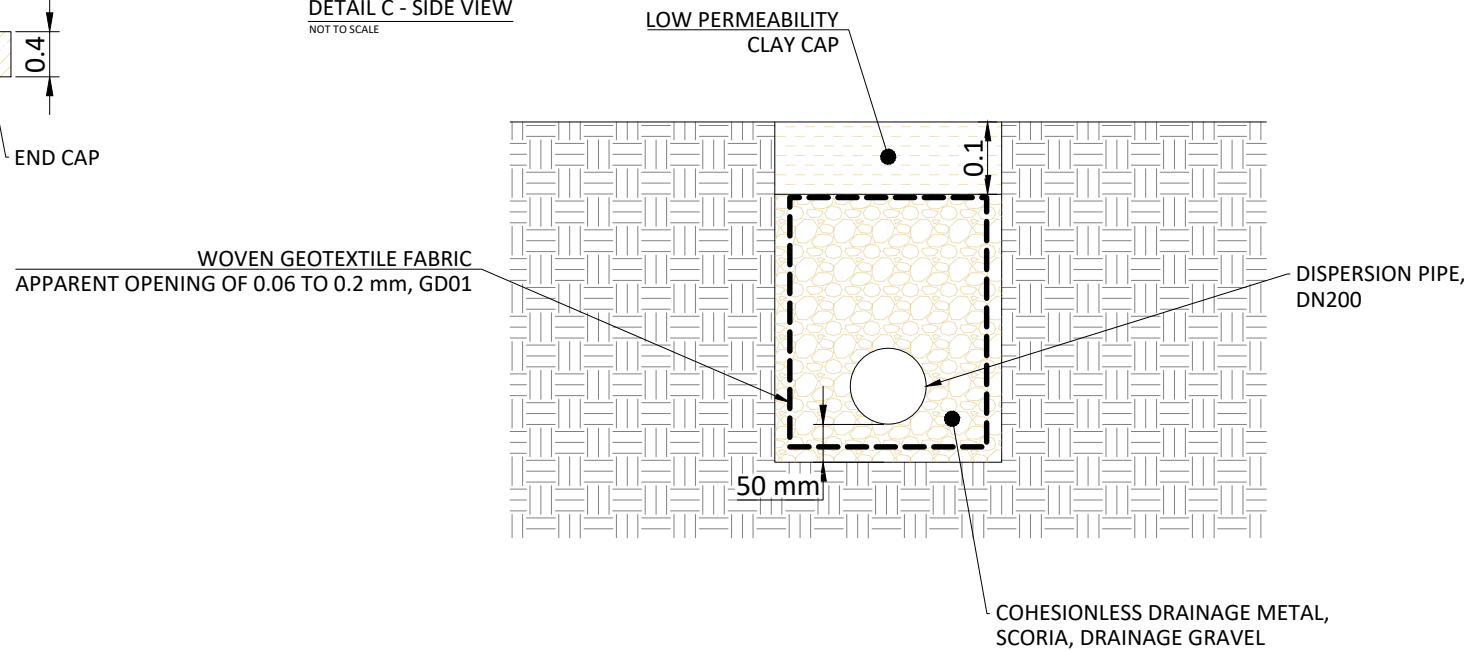
### OPTION 2: DISPERSION VIA BELOW GROUND TRENCH

NOT TO SCALE



### DETAIL C - SIDE VIEW

NOT TO SCALE



### GENERAL NOTES

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

1	CONSENT	02/07/2024
Revision	Issue	Date



Project Name and Address  
**31 TAIPA VIEW ROAD**  
**TAIPA**  
**LOT 6 DP 323635**

Project  
**C0491**

Drawn By  
**SD**

Client  
**WARREN MACKAY**

Sheet Title  
**TYPICAL DISPERSION PIPE DETAIL**

Sheet  
**402**



**geologix**  
consulting engineers

## APPENDIX B

### Engineering Borehole Records



# INVESTIGATION LOG

HOLE NO.:  
**BH01**

CLIENT: Warren Mackay  
PROJECT: 31 Taipa View Road, Taipa

JOB NO.:  
**C0491**

SITE LOCATION: 31 Taipa View Road, Taipa  
CO-ORDINATES: 1641101mE, 6127385mN

START DATE: 23/05/2024  
END DATE: 23/05/2024

CONTRACTOR: Internal RIG: 50mm Auger & DCP

ELEVATION: Ground  
DRILLER: 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: 3282				WATER			
				2	4	6	8	10	12	14	16	18	50		100	150	200
TOPSOIL comprising organic silt with trace rootlets; dark brown; moist; friable		0.0 - 0.2	TS														
Clayey SILT; brownish orange with dark brown mottles. Very stiff; moist; low plasticity; [Residual Northland Allochthon].		0.2 - 0.6	TS														
SILT, with minor clay; light grey with orange mottles. Very stiff; dry to moist; non-plastic; [Residual Northland Allochthon].		0.6 - 2.4	TS														
2.4m - 2.6m: Grades to have minor fine to medium sand; orange with light grey mottles; moist.		2.4 - 2.6	TS														
End Of Hole: 2.60m		2.6															
		2.6 - 2.8															
		2.8 - 3.0															
		3.0 - 3.2															
		3.2 - 3.4															
		3.4 - 3.6															
		3.6 - 3.8															

### PHOTO(S)



### REMARKS

- Borehole refused at 2.6 m bgl due to hard strata encountered.
- DCP testing was carried out from 2.6 m bgl to 3.4 m bgl.
- Groundwater was not encountered during drilling.

### WATER

- ▼ Standing Water Level
- ▽ Out flow
- ↖ In flow

### INVESTIGATION TYPE

- Hand Auger
- Test Pit



# INVESTIGATION LOG

HOLE NO.:  
**BH02**

CLIENT: Warren Mackay  
PROJECT: 31 Taipa View Road, Taipa

JOB NO.:  
**C0491**

SITE LOCATION: 31 Taipa View Road, Taipa  
CO-ORDINATES: 1641080mE, 6127386mN

START DATE: 23/05/2024  
END DATE: 23/05/2024

CONTRACTOR: Internal RIG: 50mm Auger & DCP

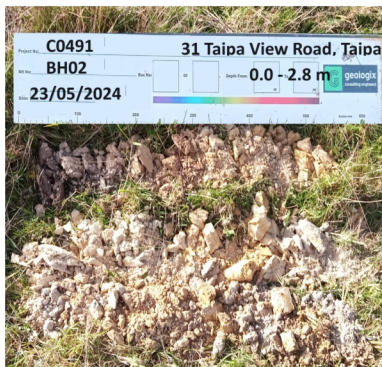
ELEVATION: Ground  
DRILLER: TW

LOGGED BY: TW

MATERIAL DESCRIPTION <small>(See Classification &amp; Symbology sheet for details)</small>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER <small>(Blows / 100mm)</small>						VANE SHEAR STRENGTH <small>(kPa)</small> Vane: 3467				WATER				
				2	4	6	8	10	12	14	16	18	50		100	150	200	Values
TOPSOIL comprising organic silt with trace rootlets; dark brown; moist; friable		0.0 - 0.2	TS															
Sandy SILT, with trace clay; greyish brown. Hard; moist; low plasticity; sand, fine to medium; [Residual Northland Allochthon].		0.2 - 0.4	TS															202+
SILT, with some clay, with trace sand; light brown. Hard; moist; low plasticity; sand, fine to medium; [Residual Northland Allochthon].		0.4 - 0.6	TS															202+
		0.6 - 0.8	TS															-
		0.8 - 1.0	TS															202+
Clayey SILT, with trace sand; orange brown with greyish brown mottles. Hard; moist; low plasticity; sand, fine to medium; [Residual Northland Allochthon].		1.0 - 1.2	TS															UTP
		1.2 - 1.4	TS															-
SILT, with minor clay and sand; light brown. Hard; moist; low plasticity; sand, fine to medium; [Residual Northland Allochthon].		1.4 - 1.6	TS															UTP
		1.6 - 1.8	TS															-
SILT, with some sand, with minor gravel; greyish brown with brown mottles. Hard; dry to moist; non-plastic; sand, fine to medium; gravel, fine to medium; friable [Residual Northland Allochthon].		1.8 - 2.0	TS															202+
		2.0 - 2.2	TS															-
End Of Hole: 2.80m		2.2 - 2.4	TS															UTP
		2.4 - 2.6	TS															-
	2.6 - 2.8	TS																UTP
	2.8 - 3.0																	-
	3.0 - 3.2																	13
	3.2 - 3.4																	10
	3.4 - 3.6																	13
	3.6 - 3.8																	11
																		12
																		12
																		12
																		20
																		20

Groundwater Not Encountered

### PHOTO(S)



### REMARKS

- Borehole refused at 2.8 m bgl due to hard strata encountered.
- DCP testing was carried out from 2.8 m bgl to 3.7 m bgl.
- Groundwater was not encountered during drilling.

### WATER

- ▼ Standing Water Level
- ▽ Out flow
- ↖ In flow

### INVESTIGATION TYPE

- Hand Auger
- Test Pit

# INVESTIGATION LOG

HOLE NO.:  
**BH03**

CLIENT: Warren Mackay  
PROJECT: 31 Taipa View Road, Taipa

JOB NO.:  
**C0491**

SITE LOCATION: 31 Taipa View Road, Taipa  
CO-ORDINATES: 1641178mE, 6127176mN

START DATE: 23/05/2024  
END DATE: 23/05/2024

CONTRACTOR: Internal RIG: 50mm Auger

ELEVATION: Ground  
DRILLER: GB

LOGGED BY: GB

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)						VANE SHEAR STRENGTH (kPa) Vane: 3282				WATER				
				2	4	6	8	10	12	14	16	18	50		100	150	200	Values
TOPSOIL comprising organic silt with trace rootlets; greyish dak brown; moist; friable		0.2	TS														195+	-
SILT, with minor clay; orange brown with dark brown and light grey mottles. Very stiff; non-plastic; [Residual Northland Allochthon].		0.4	TS														195+	-
Clayey SILT; whitish light grey with light orange mottles. Very stiff; moist; low plasticity; [Residual Northland Allochthon].		0.6	TS														154	53
		0.8	TS														170	49
		1.0	TS														170	73
		1.2	TS														140	61
		1.4	TS														126	53
		1.6	TS														128	43
		1.8	TS														106	56
		2.0	TS														81	34
		2.2	TS														137	53
		2.4	TS														91	47
2.7m - 3.0m: Becomes stiff 2.8m - 3.4m: Becomes orange with grey mottles; trace fine limonite gravels		2.6	TS														92	40
	2.8	TS															UTP	-
3.0m - 3.9m: Becomes stiff		3.0	TS														176	99
	3.2	TS															195+	-
3.4m - 4.2m: Becomes grey with orange mottles		3.4	TS															
	3.6	TS																
	3.8	TS																
	4.0	TS																
Sandy SILT, with trace clay; orange. Very stiff; moist to wet; non-plastic; sand, fine; [Residual Northland Allochthon].		4.2	TS															
Clayey SILT, with trace sand; orange. Very stiff; moist to wet; low plasticity; sand, fine; [Residual Northland Allochthon].		4.4	TS															
4.8m - 5.0m: Becomes dark grey		4.6	TS															
End Of Hole: 5.00m		4.8	TS															
		5.0	TS															

Groundwater Not Encountered

**PHOTO(S)**



**REMARKS**

- Borehole drilled to target depth of 5.0 m bgl.
- Groundwater was not encountered during drilling.

**WATER**

- ▼ Standing Water Level
- ▽ Out flow
- ↖ In flow

**INVESTIGATION TYPE**

- Hand Auger
- Test Pit



# INVESTIGATION LOG

HOLE NO.:  
**BH04**

CLIENT: Warren Mackay  
PROJECT: 31 Taipa View Road, Taipa

JOB NO.:  
**C0491**

SITE LOCATION: 31 Taipa View Road, Taipa  
CO-ORDINATES: 1641125mE, 6127148mN

START DATE: 23/05/2024  
END DATE: 23/05/2024

CONTRACTOR: Internal RIG: 50mm Auger

ELEVATION: Ground  
DRILLER: TW

LOGGED BY: TW

MATERIAL DESCRIPTION <small>(See Classification &amp; Symbology sheet for details)</small>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER <small>(Blows / 0mm)</small>						VANE SHEAR STRENGTH <small>(kPa)</small> <small>Vane: 3467</small>				WATER		
				2	4	6	8	10	12	14	16	18	50		100	150
TOPSOIL comprising organic silt with trace rootlets; dark brown; moist; friable		0.2	TS												202+	
Clayey SILT; orange brown. Hard; moist; low plasticity; [Residual Northland Allochthon].  0.9m: Becomes very stiff		0.4	TS												-	
		0.6	TS												202+	
SILT, with some clay; greyish brown. Very stiff; moist; low plasticity; [Residual Northland Allochthon].		0.8	TS												188	
		1.0	TS												92	
Clayey SILT; orange brown with grey mottles. Very stiff; moist; low plasticity; [Residual Northland Allochthon].  2.7m: Becomes hard		1.2	TS												202+	
		1.4	TS												-	
SILT, with some clay; grey. Very stiff; moist; low plasticity; [Residual Northland Allochthon].  3.0m - 3.3m: Becomes hard		1.6	TS												202+	
		1.8	TS												196	
Clayey SILT; orange brown with grey mottles. Very stiff; moist; low plasticity; [Residual Northland Allochthon].  3.6m - 4.2m: Becomes dark orange brown		2.0	TS												84	
		2.2	TS												153	
SILT, with some clay; grey. Very stiff; moist; low plasticity; [Residual Northland Allochthon].  4.5m - 5.0m: Becomes hard 4.6m - 5.0m: Becomes dark grey		2.4	TS												84	
		2.6	TS												159	
End Of Hole: 5.00m		2.8	TS												66	
		3.0	TS												202+	
	3.2	TS													-	
	3.4	TS													202+	
	3.6	TS													-	
	3.8	TS													185	
	4.0	TS													69	
	4.2	TS													180	
	4.4	TS													64	
	4.6	TS													188	
	4.8	TS													84	
	5.0	TS													202+	
															-	

Groundwater Not Encountered

### PHOTO(S)



### REMARKS

- Borehole drilled to target depth of 5.0 m bgl.
- Groundwater was not encountered during drilling.

### WATER

- ▼ Standing Water Level
- ▽ Out flow
- ↖ In flow

### INVESTIGATION TYPE

- Hand Auger
- Test Pit



# INVESTIGATION LOG

HOLE NO.:  
**BH05**

CLIENT: Warren Mackay  
PROJECT: 31 Taipa View Road, Taipa

JOB NO.:  
**C0491**

SITE LOCATION: 31 Taipa View Road, Taipa  
CO-ORDINATES: 1641130mE, 6127372mN

START DATE: 23/05/2024  
END DATE: 23/05/2024

CONTRACTOR: Internal RIG: 50mm Auger

ELEVATION: Ground  
DRILLER: TW

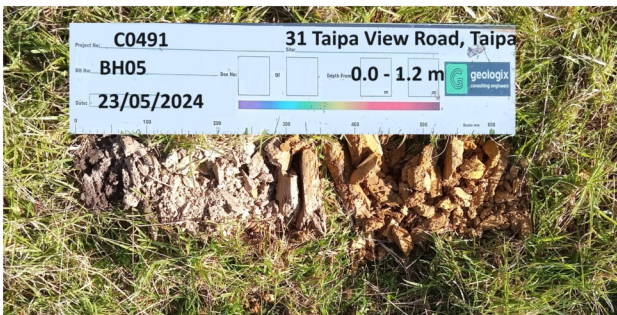
LOGGED BY: TW

MATERIAL DESCRIPTION <small>(See Classification &amp; Symbology sheet for details)</small>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER <small>(Blows / 0mm)</small>							VANE SHEAR STRENGTH <small>(kPa)</small> Vane:				WATER				
				2	4	6	8	10	12	14	16	18	50	100		150	200	Values	
TOPSOIL comprising organic silt with trace rootlets; dark brown; moist; friable		0.0 - 0.2	TS																
SILT, with some sand, with trace clay; grey. Moist; non-plastic; sand, fine; [Residual Northland Allochthon].		0.2 - 0.4	TS																
Clayey SILT; orange brown. Moist; low plasticity; [Residual Northland Allochthon].		0.4 - 1.2	TS																
End Of Hole: 1.20m		1.2 - 2.8																	

Groundwater Not Encountered

### PHOTO(S)

### REMARKS



- Borehole drilled to target depth of 1.2 m bgl.
- Groundwater was not encountered during drilling.

### WATER

- ▼ Standing Water Level
- ▽ Out flow
- ↖ In flow

### INVESTIGATION TYPE

- Hand Auger
- Test Pit



# INVESTIGATION LOG

HOLE NO.:  
**BH06**

CLIENT: Warren Mackay  
PROJECT: 31 Taipa View Road, Taipa

JOB NO.:  
**C0491**

SITE LOCATION: 31 Taipa View Road, Taipa

START DATE: 23/05/2024

CO-ORDINATES:

ELEVATION: Ground

END DATE: 23/05/2024

CONTRACTOR: Internal

RIG: 50mm Auger

DRILLER: GB

LOGGED BY: GB

MATERIAL DESCRIPTION <small>(See Classification &amp; Symbology sheet for details)</small>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER <small>(Blows / 0mm)</small>								VANE SHEAR STRENGTH <small>(kPa)</small>				WATER		
				2	4	6	8	10	12	14	16	18	50	100	150		200	Values
TOPSOIL comprising organic silt with trace rootlets; greyish dak brown; moist; friable		0.0 - 0.2																
SILT, with minor clay; brown with orange and dark brown mottles. Moist; non-plastic; [Residual Northland Allochthon].		0.2 - 0.4																
SILT, with some clay; light grey and orange mixed. Moist; low plasticity; [Residual Northland Allochthon].		0.4 - 1.2																
End Of Hole: 1.20m		1.2 - 2.8																

Groundwater Not Encountered

### PHOTO(S)



### REMARKS

- Borehole drilled to target depth of 1.2 m bgl.
- Groundwater was not encountered during drilling.

### WATER

- Standing Water Level
- Out flow
- In flow

### INVESTIGATION TYPE

- Hand Auger
- Test Pit





# INVESTIGATION LOG

HOLE NO.:  
**BH07**

CLIENT: Warren Mackay  
PROJECT: 31 Taipa View Road, Taipa

JOB NO.:  
**C0491**

SITE LOCATION: 31 Taipa View Road, Taipa

START DATE: 23/05/2024

CO-ORDINATES:

ELEVATION: Ground

END DATE: 23/05/2024

CONTRACTOR: Internal

RIG: 50mm Auger

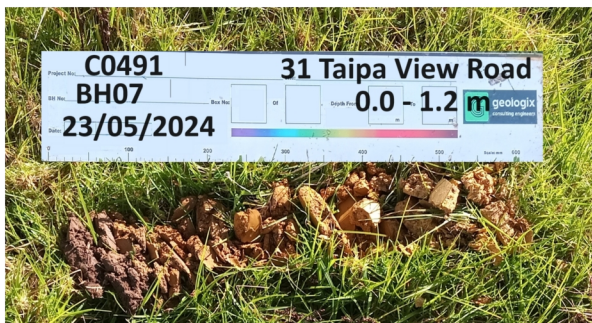
DRILLER: TW

LOGGED BY: TW

MATERIAL DESCRIPTION <small>(See Classification &amp; Symbology sheet for details)</small>	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER <small>(Blows / 0mm)</small>								VANE SHEAR STRENGTH (kPa) <small>Vane:</small>				WATER		
				2	4	6	8	10	12	14	16	18	50	100	150		200	Values
TOPSOIL comprising organic silt with trace rootlets; dark brown; moist; friable		0.0 - 0.2	TS															
Clayey SILT; orange brown. Moist; low plasticity; [Residual Northland Allochthon].		0.2 - 1.2	TS															Groundwater Not Encountered
End Of Hole: 1.20m		1.2 - 2.8																

### PHOTO(S)

### REMARKS



- Borehole drilled to target depth of 1.2 m bgl.
- Groundwater was not encountered during drilling.

### WATER

- ▼ Standing Water Level
- ▽ Out flow
- ↖ In flow

### INVESTIGATION TYPE

- Hand Auger
- Test Pit



**geologix**  
consulting engineers

## APPENDIX C

### Assessment of Environmental Effects and Assessment Criteria



Table 15: Wastewater Assessment of Environmental Effects

Item	NRC Separation Requirement <sup>2</sup>	FNDC Separation Requirement	Site Assessment <sup>3</sup>
<b>Individual System Effects</b>			
Flood Plains	Above 5 % AEP	NR	Complies according to available GIS data and visual assessment.
Stormwater Flowpath <sup>4</sup>	5 m	NR	Complies, see annotations on Drawing No. 100.
Surface water feature <sup>5</sup>	15 m	15 m	Complies.
Coastal Marine Area	15 m	30 m	Complies, site is inland.
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 moderately sloping to <15 °.
Cut off drain required?			Yes.
Discharge Consent Required?			No.
	<b>TP58</b>	<b>NZS1547</b>	
<b>Cumulative Effects</b>			
Biological Oxygen Demand		≤20 g/m <sup>3</sup>	Complies – secondary treatment.
Total Suspended Solids		≤30 g/m <sup>3</sup>	Complies – secondary treatment.
Total Nitrogen	10 – 30 g/m <sup>3</sup>	15 – 75 g/m <sup>3</sup>	Complies – secondary treatment.
Phosphorous	NR	4 – 10 g/m <sup>3</sup>	Complies – secondary treatment.
Ammonia	NR	Negligible	Complies – secondary treatment.
Nitrites/ Nitrates	NR	15 – 45 g/m <sup>3</sup>	Complies – secondary treatment.
<b>Conclusion: Effects are less than minor on the environment.</b>			
<ol style="list-style-type: none"> <li>1. AEE based on proposed secondary treated effluent.</li> <li>2. Northland Regional Plan Table 9.</li> <li>3. Based on the recommendations of this report and Drawing No. 100.</li> <li>4. Including any formed road with kerb and channel, and water-table drain that is down-slope of the disposal area.</li> <li>5. River, lake, stream, pond, dam, or natural wetland.</li> </ol> <p>AEP Annual Exceedance Probability. NR No Requirement.</p>			



Table 16: Operative FNDC Subdivision Stormwater Assessment Criteria, to rule 13.10.4

Assessment Criteria	Comments
(a) Whether the application complies with any regional rules relating to any water or discharge permits required under the Act, and with any resource consent issued to the District Council in relation to any urban drainage area stormwater management plan or similar plan.	Complies.
(b) Whether the application complies with the provisions of the Council's "Engineering Standards and Guidelines" (2004) - Revised March 2009 (to be used in conjunction with NZS 4404:2004).	Concept design complies and has adopted latest FNDC engineering standards (2023) for runoff curves and proposed area within all undeveloped lots will be attenuated to 80 % of pre-development levels for specified design storms by FNDC standards and NRP. Existing development Lot 2 below permitted activity threshold.
(c) Whether the application complies with the Far North District Council Strategic Plan - Drainage.	Complies.
(d) The degree to which Low Impact Design principles have been used to reduce site impermeability and to retain natural permeable areas.	Proposed impervious areas within subdivision proposal are limited to necessity only.
(e) The adequacy of the proposed means of disposing of collected stormwater from the roof of all potential or existing buildings and from all impervious surfaces.	Low impact design adopted – attenuation within on-site tanks for undeveloped proposed lot 1, 3 and 4. Efficient and controlled discharge outlets. Current stormwater management devices on lot 2 are in good condition with no additional impervious surfaces proposed.
(f) The adequacy of any proposed means for screening out litter, the capture of chemical spillages, the containment of contamination from roads and paved areas, and of siltation.	Stormwater quality devices included in design to accommodate a rural residential subdivision.
(g) The practicality of retaining open natural waterway systems for stormwater disposal in preference to piped or canal systems and adverse effects on existing waterways.	Surface drainage preferred and adopted where practical and safe. Subject site is within a rural environment with OLFPs converging centrally into a small pond in lot 4. No adverse effects anticipated on downstream environment.
(h) Whether there is sufficient capacity available in the Council's outfall stormwater system to cater for increased run-off from the proposed allotments.	No connection to public stormwater proposed.
(i) Where an existing outfall is not capable of accepting increased run-off, the adequacy of proposals and solutions for disposing of run-off.	NA.
(j) The necessity to provide on-site retention basins to contain surface run-off where the capacity of the outfall is incapable of accepting flows, and where the outfall has limited capacity, any need to restrict the rate of discharge from the subdivision to the same rate of discharge that existed on the land before the subdivision takes place.	Attenuation provided through storage tanks. Furthermore, an existing pond will provide detention to limit flow to the downstream outfall.
(k) Any adverse effects of the proposed subdivision on drainage to, or from, adjoining properties and mitigation measures proposed to control any adverse effects.	No adverse effects anticipated on neighbouring properties or downstream environment.
(l) In accordance with sustainable management practices, the importance of disposing of stormwater by way of gravity pipelines. However, where topography dictates that this is not possible, the	All devices adopt and are designed for gravity flows.



---

adequacy of proposed pumping stations put forward as a satisfactory alternative.	
(m) The extent to which it is proposed to fill contrary to the natural fall of the country to obtain gravity outfall; the practicality of obtaining easements through adjoining owners' land to other outfall systems; and whether filling or pumping may constitute a satisfactory alternative.	No fill is required for the stormwater management purpose.
(n) For stormwater pipes and open waterway systems, the provision of appropriate easements in favour of either the registered user or in the case of the Council, easements in gross, to be shown on the survey plan for the subdivision, including private connections passing over other land protected by easements in favour of the user.	NA.
(o) Where an easement is defined as a line, being the centre line of a pipe already laid, the effect of any alteration of its size and the need to create a new easement.	NA.
(p) For any stormwater outfall pipeline through a reserve, the prior consent of the Council, and the need for an appropriate easement.	NA.
(q) The need for and extent of any financial contributions to achieve the above matters.	TBC.
(r) The need for a local purpose reserve to be set aside and vested in the Council as a site for any public utility required to be provided.	NA.

---



**geologix**  
consulting engineers

## APPENDIX D

### Stormwater Calculations

Project Ref:	CO491	<b>STORMWATER ATTENUATION TANK DESIGN</b>	
Project Address:	31 TAIPA VIEW ROAD, TAIPA		
Design Case:	CONCEPT FUTURE DEVELOPMENT		
Date:	20 August 2024 REV 1	<b>50 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT</b>	

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 COEFFICIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

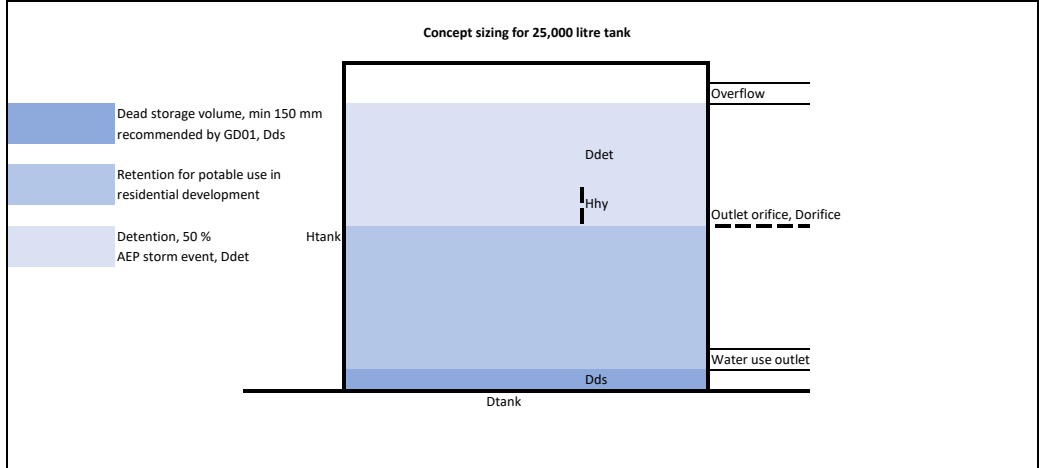
PRE DEVELOPMENT CATCHMENT PARAMETERS				POST DEVELOPMENT CATCHMENT PARAMETERS			
ITEM	AREA, A, m <sup>2</sup>	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m <sup>2</sup>	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A				TO TANK	300	0.96	ROOF
IMPERVIOUS B	0	0		OFFSET	200	0.83	DRIVEWAY - METAL
IMPERVIOUS C	0	0		PERVIOUS	0	0	
EX. PERVIOUS	500	0.67	PASTURE	EX. CONSENTED	0	0	
<b>TOTAL</b>	<b>500</b>	<b>TYPE D</b>		<b>TOTAL</b>	<b>500</b>	<b>TYPE D</b>	

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

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, Q <sub>post</sub> , l/s	PRE DEV RUNOFF, Q <sub>pre</sub> , l/s	80% of PRE DEV RUNOFF, Q <sub>pre(80%)</sub> , 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  Pre-dev calculated on Intensity without CC factor
20	43.70	1.2	52.44	6.61	4.88	3.90	
30	36.90	1.2	44.28	5.58	4.12	3.30	
60	26.80	1.2	32.16	4.06	2.99	2.39	
120	18.70	1.2	22.44	2.83	2.09	1.67	
360	9.76	1.2	11.71	1.48	1.09	0.87	
720	6.16	1.2	7.39	0.93	0.69	0.55	
1440	3.74	1.2	4.49	0.57	0.42	0.33	
2880	2.18	1.2	2.62	0.33	0.24	0.19	
4320	1.56	1.2	1.87	0.24	0.17	0.14	


ATTENUATION ANALYSIS, VARIOUS DURATIONS							
DURATION, min	OFFSET FLOW, Q <sub>off</sub> , l/s	TANK INFLOW, Q <sub>in</sub> , l/s	ALLOWABLE TANK OUTFLOW, Q <sub>pre(80%)</sub> - Q <sub>off</sub> , l/s	SELECTED TANK OUTFLOW, Q <sub>out</sub> , l/s	DIFFERENCE (Q <sub>in</sub> - Q <sub>out</sub> ), l/s	Required Storage, litres	COMMENTS
10	3.13	5.42	1.08	1.08	4.34	2607	select largest required storage, regardless of duration, to avoid overflow
20	2.42	4.20	1.49	1.08	3.12	3739	
30	2.04	3.54	1.25	1.08	2.46	4433	
60	1.48	2.57	0.91	1.08	1.49	5375	
120	1.03	1.80	0.64	1.08	0.72	5151	
360	0.54	0.94	0.33	1.08	No Att. Req.	0	
720	0.34	0.59	0.21	1.08	No Att. Req.	0	
1440	0.21	0.36	0.13	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	5.375 m <sup>3</sup>	Select largest storage as per analysis
TANK HEIGHT, H <sub>tank</sub>	2.5 m	Concept sizing for 25,000 litre tank
TANK DIAMETER, D <sub>tank</sub>	3.66 m	No. of Tanks 1
TANK AREA, A <sub>tank</sub>	10.52 m <sup>2</sup>	Area of ONE tank
TANK MAX STORAGE VOLUME, V <sub>tank</sub>	26302 litres	
REQUIRED STORAGE HEIGHT, D <sub>det</sub>	0.51 m	Below overflow
DEAD STORAGE VOLUME, D <sub>ds</sub>	0.15 m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.66 m	
SELECTED TANK OUTFLOW, Q <sub>out</sub> , l/s	0.00108 m <sup>3</sup> /s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, H <sub>hy</sub>	0.26 m	
AREA OF ORIFICE, A <sub>orifice</sub>	7.78E-04 m <sup>2</sup>	
ORIFICE DIAMETER, D <sub>orifice</sub>	31 mm	
VELOCITY AT ORIFICE	3.17 m/s	At max. head level

Project Ref:	C0491	<b>STORMWATER ATTENUATION TANK DESIGN</b>	
Project Address:	31 TAIPA VIEW ROAD, TAIPA		
Design Case:	CONCEPT FUTURE DEVELOPMENT		
Date:	20 August 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 COEFFICIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

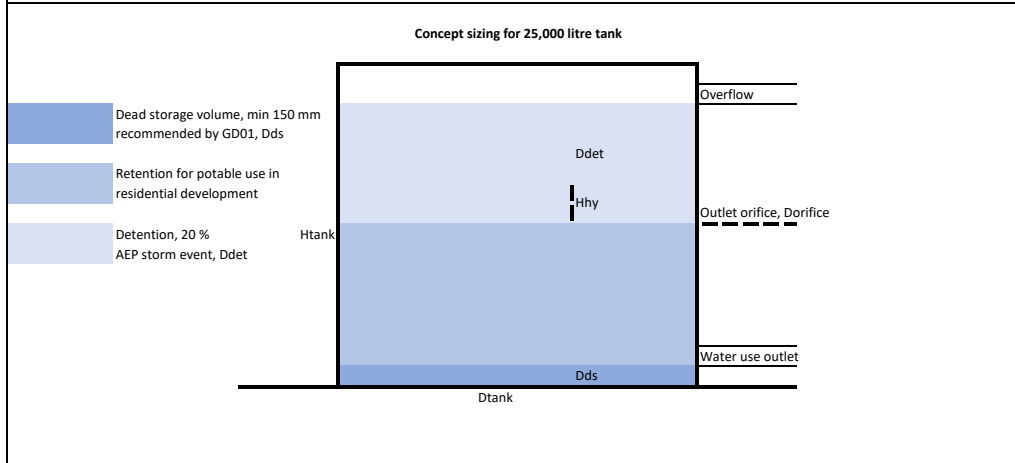
PRE DEVELOPMENT CATCHMENT PARAMETERS				POST DEVELOPMENT CATCHMENT PARAMETERS			
ITEM	AREA, A, m <sup>2</sup>	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m <sup>2</sup>	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0		TO TANK	300	0.96	ROOF
IMPERVIOUS B	0	0		OFFSET	200	0.83	DRIVEWAY - METAL
IMPERVIOUS C	0	0	PASTURE	PERVIOUS	0	0	
EX. PERVIOUS	500	0.67		EX. CONSENTED	0	0	
					0	0	
<b>TOTAL</b>	<b>500</b>		<b>TYPE D</b>	<b>TOTAL</b>	<b>500</b>		<b>TYPE D</b>

RAINFALL INTENSITY, 20% AEP, 10MIN DURATION			
20 % AEP RAINFALL INTENSITY, 10 MIN, I <sub>r</sub> , mm/hr	73.3	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.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%	
20 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	88.0	mm/hr	

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, Q <sub>post</sub> , l/s	PRE DEV RUNOFF, Q <sub>pre</sub> , l/s	80% OF PRE DEV RUNOFF, Q <sub>pre(80%)</sub> , l/s	COMMENTS
10	73.30	1.2	87.96	11.09	6.82	5.46	Critical duration (time of concentration) for the catchments is 10min
20	56.70	1.2	68.04	8.58	6.33	5.07	
30	47.90	1.2	57.48	7.25	5.35	4.28	
60	34.80	1.2	41.76	5.27	3.89	3.11	
120	24.30	1.2	29.16	3.68	2.71	2.17	
360	12.70	1.2	15.24	1.92	1.42	1.13	
720	8.05	1.2	9.66	1.22	0.90	0.72	
1440	4.89	1.2	5.87	0.74	0.55	0.44	
2880	2.86	1.2	3.43	0.43	0.32	0.26	
4320	2.05	1.2	2.46	0.31	0.23	0.18	

ATTENUATION ANALYSIS, VARIOUS DURATIONS							
DURATION, min	OFFSET FLOW, Q <sub>off</sub> , l/s	TANK INFLOW, Q <sub>in</sub> , l/s	ALLOWABLE TANK OUTFLOW, Q <sub>pre(80%) - Q<sub>off</sub>, l/s</sub>	SELECTED TANK OUTFLOW, Q <sub>out</sub> , l/s	DIFFERENCE (Q <sub>in</sub> - Q <sub>out</sub> ), l/s	Required Storage, litres	COMMENTS
10	4.06	7.04	1.40	1.40	5.64	3382	select largest required storage, regardless of duration, to avoid overflow
20	3.14	5.44	3.19	1.40	4.04	4851	
30	2.65	4.60	2.70	1.40	3.20	5756	
60	1.93	3.34	1.96	1.40	1.94	6984	
120	1.34	2.33	1.37	1.40	0.93	6710	
360	0.70	1.22	0.72	1.40	No Att. Req.	0	
720	0.45	0.77	0.45	1.40	No Att. Req.	0	
1440	0.27	0.47	0.28	1.40	No Att. Req.	0	
2880	0.16	0.27	0.16	1.40	No Att. Req.	0	
4320	0.11	0.20	0.12	1.40	No Att. Req.	0	


**ATTENUATION TANK DESIGN OUTPUT**



**SPECIFICATION**

TOTAL STORAGE REQUIRED	6.984 m <sup>3</sup>	Select largest storage as per analysis
TANK HEIGHT, H <sub>tank</sub>	2.5 m	Concept sizing for 25,000 litre tank
TANK DIAMETER, D <sub>tank</sub>	3.66 m	No. of Tanks 1
TANK AREA, A <sub>tank</sub>	10.52 m <sup>2</sup>	Area of ONE tank
TANK MAX STORAGE VOLUME, V <sub>tank</sub>	26302 litres	
REQUIRED STORAGE HEIGHT, D <sub>det</sub>	0.66 m	Below overflow
DEAD STORAGE VOLUME, D <sub>ds</sub>	0.15 m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.81 m	
SELECTED TANK OUTFLOW, Q <sub>out</sub> , l/s	0.00140 m <sup>3</sup> /s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, H <sub>hy</sub>	0.33 m	
AREA OF ORIFICE, A <sub>orifice</sub>	8.85E-04 m <sup>2</sup>	
ORIFICE DIAMETER, D <sub>orifice</sub>	34 mm	
VELOCITY AT ORIFICE	3.61 m/s	At max. head level



Project Ref:	CD491	<b>STORMWATER DISPERSION PIPE/ TRENCH</b>	
Project Address:	31 TAIPA VIEW ROAD, TAIPA		
Design Case:	CONCEPT FUTURE DEVELOPMENT		
Date:	20 August 2024		
	REV 1	<b>DISCHARGE DEVICE - LEVEL SPREADER OR TRENCH</b>	

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	m <sup>2</sup>
58	0	0	0	0	0
56.5	1.5	6	6	0.75	4.5
TOTALS		6	6		4.5
SLOPE, Sc		0.250	m/m		

**MANNINGS PIPE FLOW - INCOMING PIPE**

Dia. m	d/D	q. rad	P. m	A. m <sup>2</sup>	R	1:S	n	V. m/s	Q. m <sup>3</sup> /s	Q. l/s	
0.1	0.000	6.283	0.0000	0.0000	0.000	4	0.009	0.000	0.0000	0.000	0 % full
0.100	0.050	5.381	0.0451	0.0001	0.003	4	0.0090	1.220	0.0002	0.179	
0.100	0.100	4.996	0.0644	0.0004	0.006	4	0.0090	1.905	0.0008	0.779	
0.100	0.150	4.692	0.0795	0.0007	0.009	4	0.0090	2.455	0.0018	1.813	
0.100	0.200	4.429	0.0927	0.0011	0.012	4	0.0090	2.921	0.0033	3.267	
0.100	0.250	4.189	0.1047	0.0015	0.015	4	0.0090	3.328	0.0051	5.110	
0.100	0.300	3.965	0.1159	0.0020	0.017	4	0.0090	3.687	0.0073	7.306	
0.100	0.350	3.751	0.1266	0.0024	0.019	4	0.0090	4.004	0.0098	9.809	
0.100	0.400	3.544	0.1369	0.0029	0.021	4	0.0090	4.285	0.0126	12.572	
0.100	0.450	3.342	0.1471	0.0034	0.023	4	0.0090	4.533	0.0155	15.539	
0.100	0.500	3.142	0.1571	0.0039	0.025	4	0.0090	4.750	0.0187	18.653	50 % full
0.100	0.550	2.941	0.1671	0.0044	0.026	4	0.0090	4.937	0.0219	21.850	
0.100	0.600	2.739	0.1772	0.0049	0.028	4	0.0090	5.094	0.0251	25.064	
0.100	0.650	2.532	0.1875	0.0054	0.029	4	0.0090	5.222	0.0282	28.218	
0.100	0.700	2.319	0.1982	0.0059	0.030	4	0.0090	5.319	0.0312	31.234	
0.100	0.750	2.094	0.2094	0.0063	0.030	4	0.0090	5.384	0.0340	34.018	
0.100	0.800	1.855	0.2214	0.0067	0.030	4	0.0090	5.414	0.0365	36.465	
0.100	0.850	1.591	0.2346	0.0071	0.030	4	0.0090	5.403	0.0384	38.441	
0.100	0.900	1.287	0.2498	0.0074	0.030	4	0.0090	5.340	0.0398	39.761	
0.100	0.950	0.902	0.2691	0.0077	0.029	4	0.0090	5.201	0.0401	40.086	
0.100	1.000	0.000	0.3142	0.0079	0.025	4	0.0090	4.750	0.0373	37.306	Flowing full

**DISPERSION SPECIFICATION**

**INCOMING PIPE PROPERTIES:**

TANK OUTFLOW, 20 % AEP	7.04 l/s
MAXIMUM PIPE FLOW	40.09 l/s
SUFFICIENT CAPACITY IN PIPE	YES
LONGITUDINAL SLOPE	0.250 m/m
DESIGN VELOCITY, Dv	5.414 m/s

**LEVEL SPREADER SPECIFICATIONS:**

PIPE DIAMETER, m	0.20 m
MANNINGS PIPE ROUGHNESS	0.009
NUMBER OF ORIFICES	46 No.
DIA. OF ORIFICE, D	20 mm
ORIFICE INTERVALS, C/C	200 mm
DISPERSION PIPE LENGTH, L	9 m

**ORIFICE DESIGN FLOW CHECK:**

AREA OF SINGLE ORIFICE, A	0.00031 m <sup>2</sup>		
FLOW OUT OF 1 ORIFICE	0.000272829 m <sup>3</sup> /s	0.27 l/s	
FLOW OUT OF ALL ORIFICES	0.01255015 m <sup>3</sup> /s	12.55 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	9 m		
FLOW AREA	0.90 m <sup>2</sup>		
WEIR FLOW	0.01679 m <sup>3</sup> /s	16.79 l/s	DESIGN OK
WEIR VELOCITY	0.019 m/s		

**INCOMING PIPE & SPREADER SUMMARY:**

	LOT 1	LOT 3	LOT 4
INCOMING PIPE DIAMETER, m	0.100 m	0.100 m	0.100 m
SPREADER PIPE DIAMETER, m	0.200 m	0.200 m	0.200 m
MANNINGS PIPE ROUGHNESS	0.009	0.009	0.009
NUMBER OF ORIFICES	46 No.	46 No.	46 No.
DIA. OF ORIFICE, D	20 mm	20 mm	20 mm
ORIFICE INTERVALS, C/C	200 mm	200 mm	200 mm
DISPERSION PIPE LENGTH, L	9 m	9 m	9 m



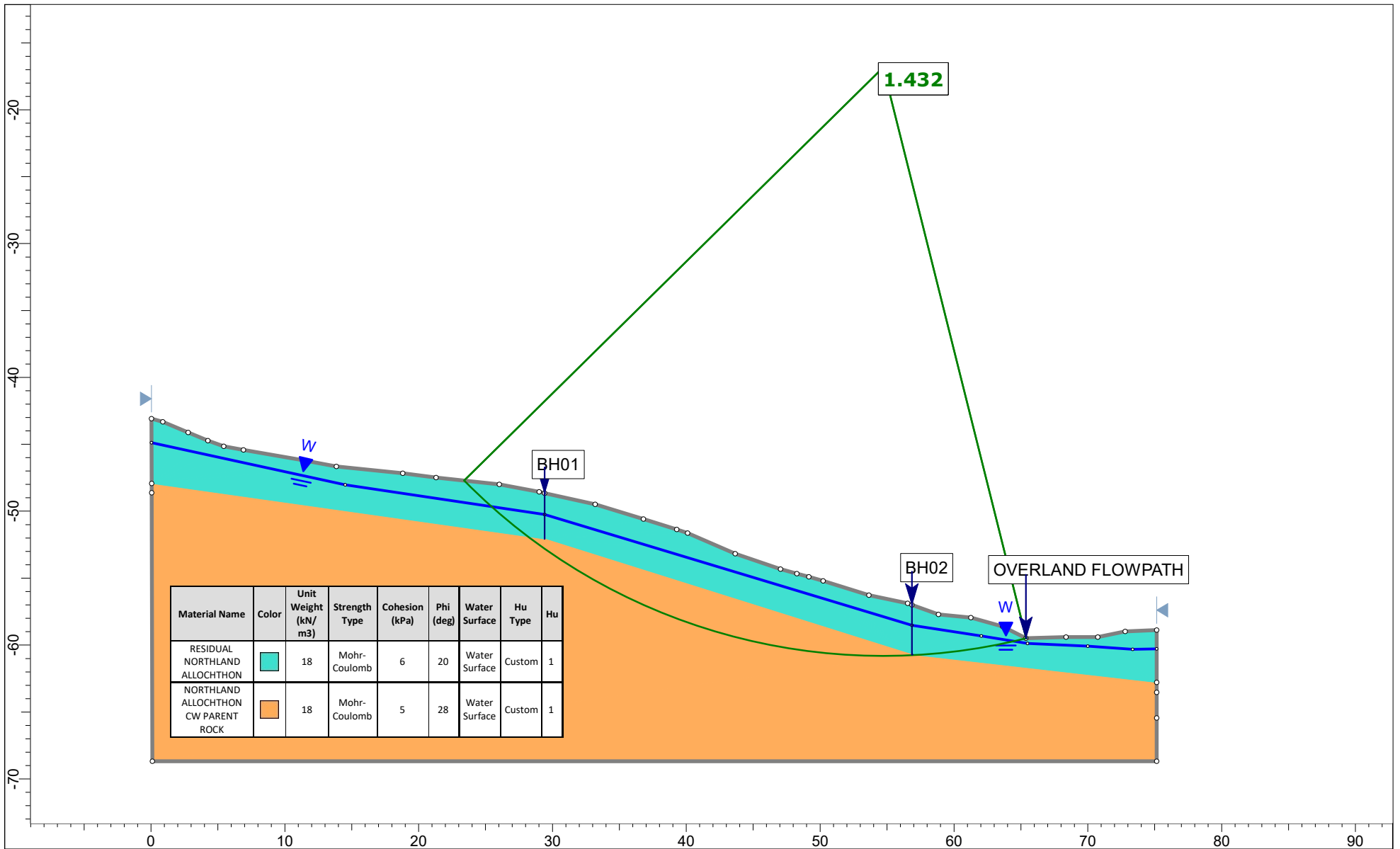





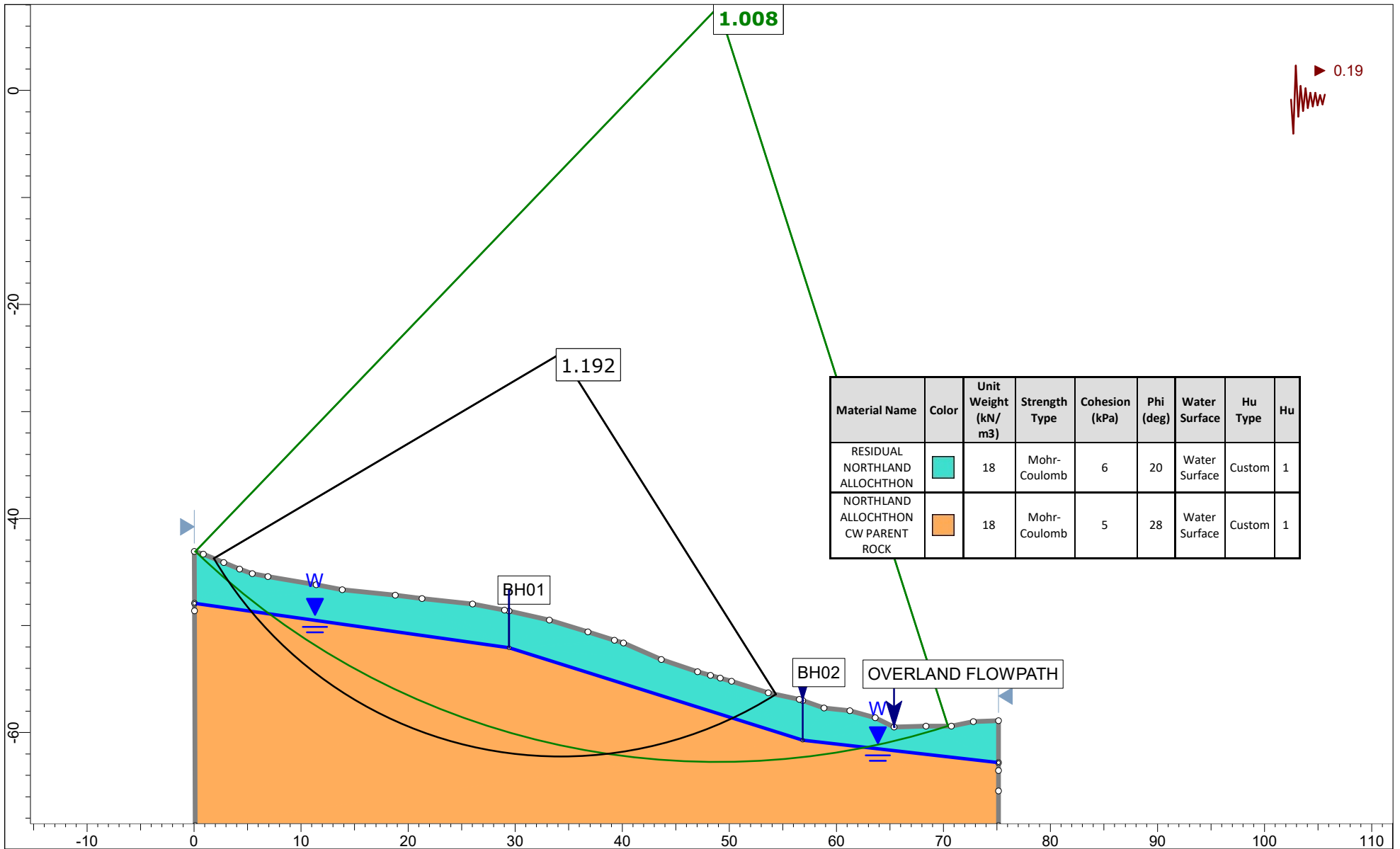
**geologix**  
consulting engineers



## APPENDIX E


### Slope Stability

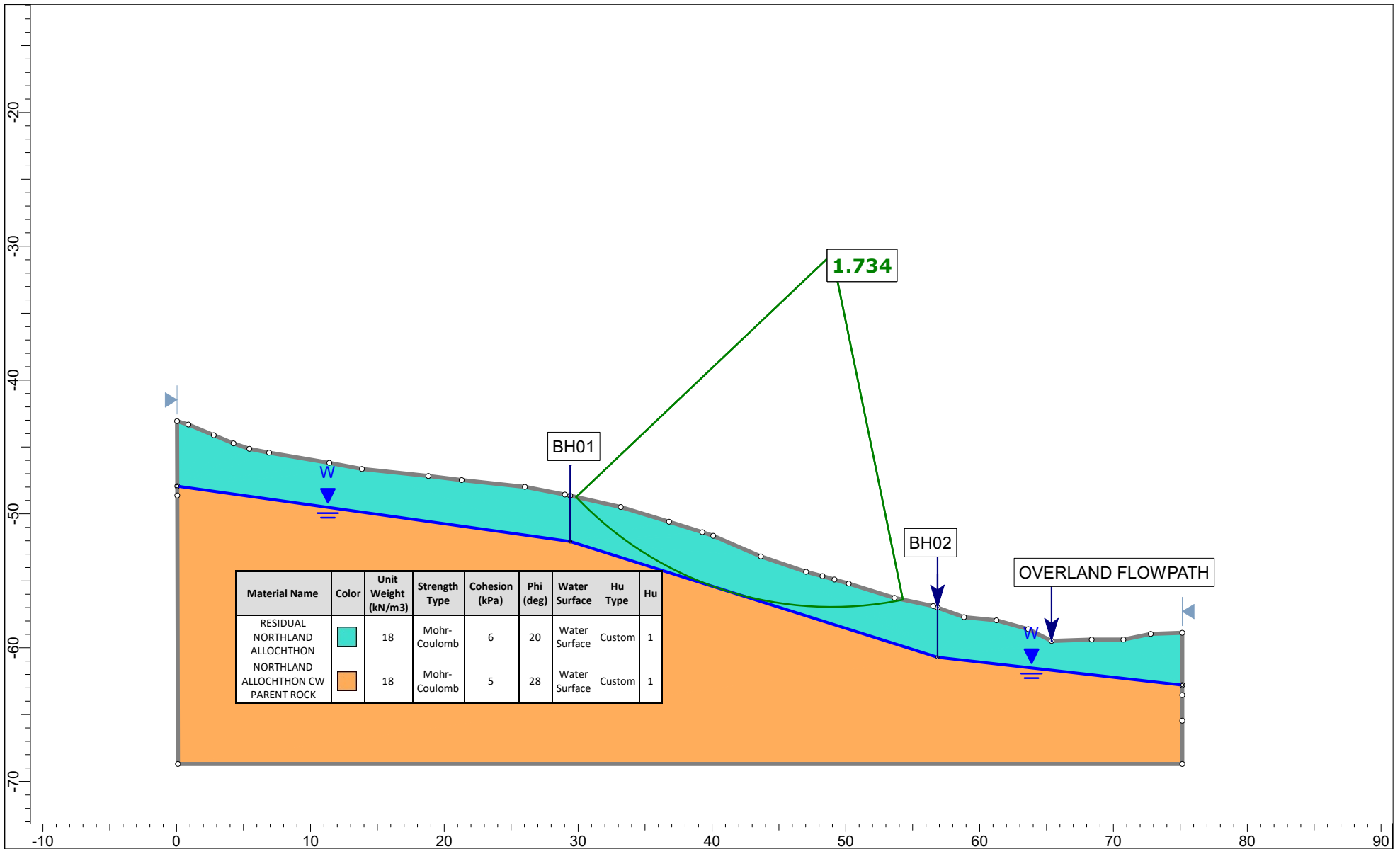



 <b>geologix</b> consulting engineers	Project		31 Taipa View Road, Taipa (LOT 1)		
	Group		Cross section A	Scenario	Existing Condition (Elevated GWT)
	Drawn By		GB	Company	Geologix Consulting Engineers
	Date		8/07/2024, 2:49:06 pm	File Name	slide.slm

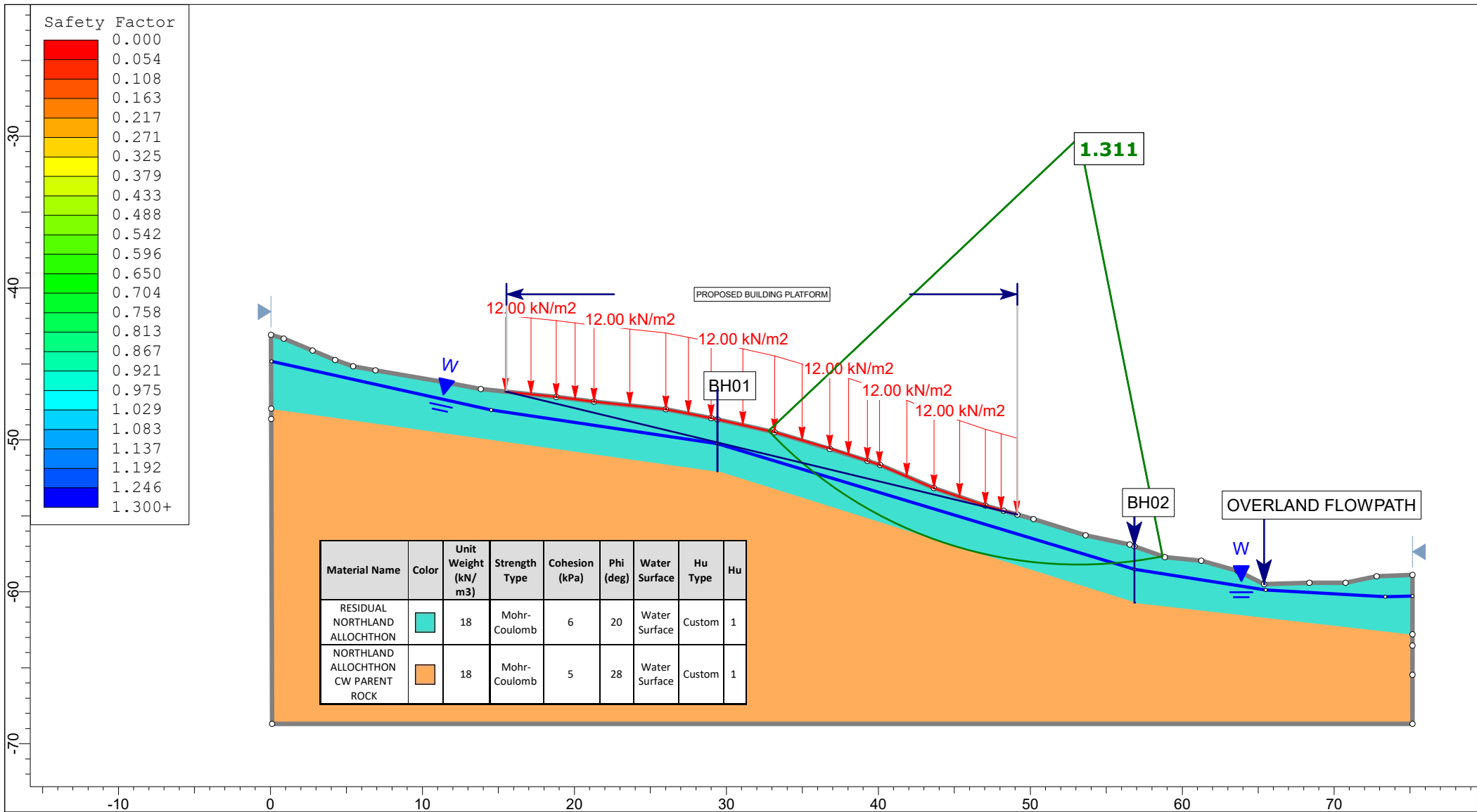


Material Name	Color	Unit Weight (kN/m <sup>3</sup> )	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu
RESIDUAL NORTHLAND ALLOCHTHON		18	Mohr-Coulomb	6	20	Water Surface	Custom	1
NORTHLAND ALLOCHTHON CW PARENT ROCK		18	Mohr-Coulomb	5	28	Water Surface	Custom	1

 <p><b>geologix</b> consulting engineers</p>	Project		31 Taipa View Road, Taipa (LOT 1)			
	Group		Cross section A	Scenario	Existing Condition (Seismic)	
	Drawn By		GB	Company		Geologix Consulting Engineers
	Date		8/07/2024, 2:49:06 pm	File Name		slide.slm

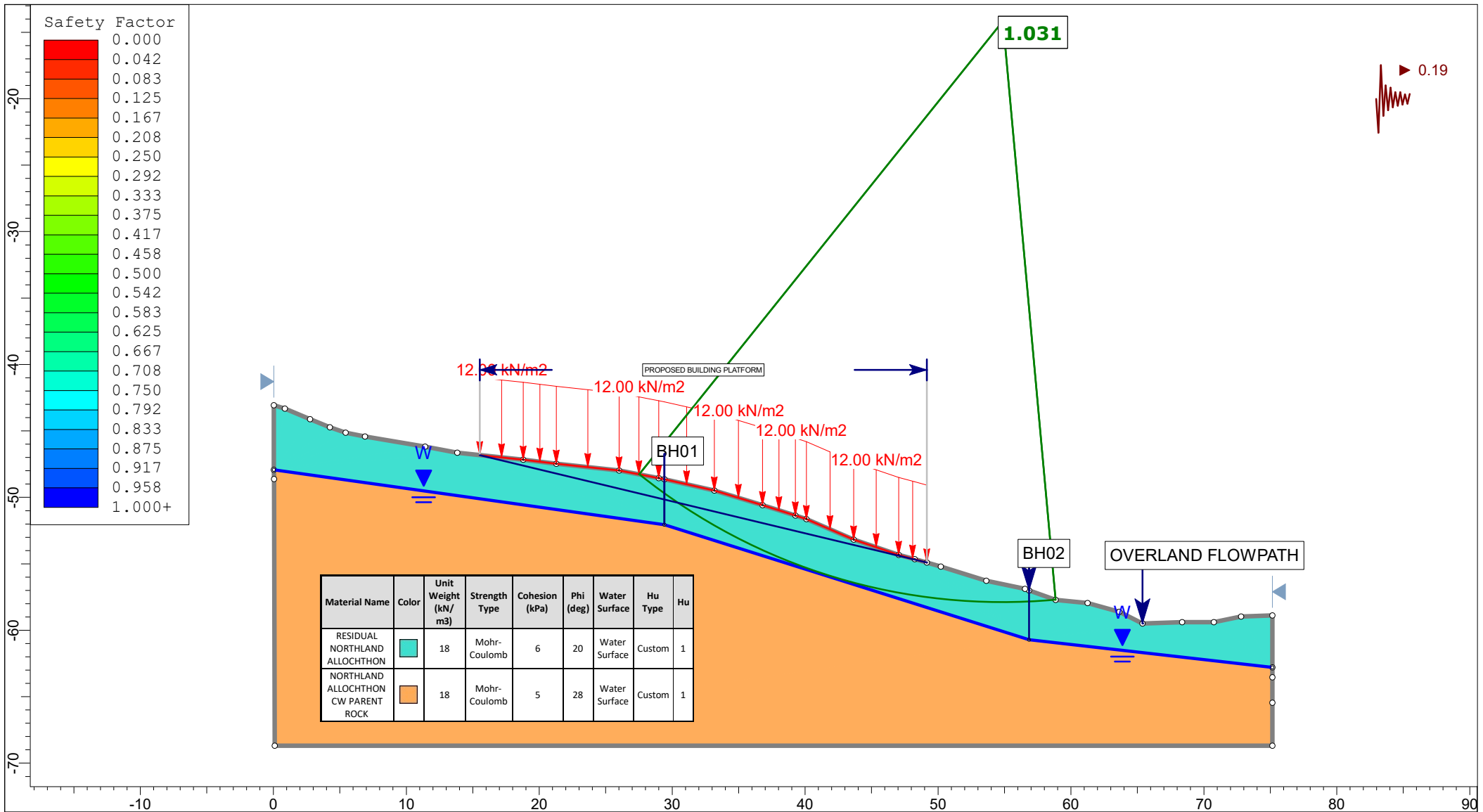


 <b>geologix</b> consulting engineers	Project		31 Taipa View Road, Taipa (LOT 1)		
	Group		Cross section A	Scenario	Existing Conditon (Static)
	Drawn By		GB	Company	Geologix Consulting Engineers
	Date		8/07/2024, 2:49:06 pm	File Name	slide.slmd

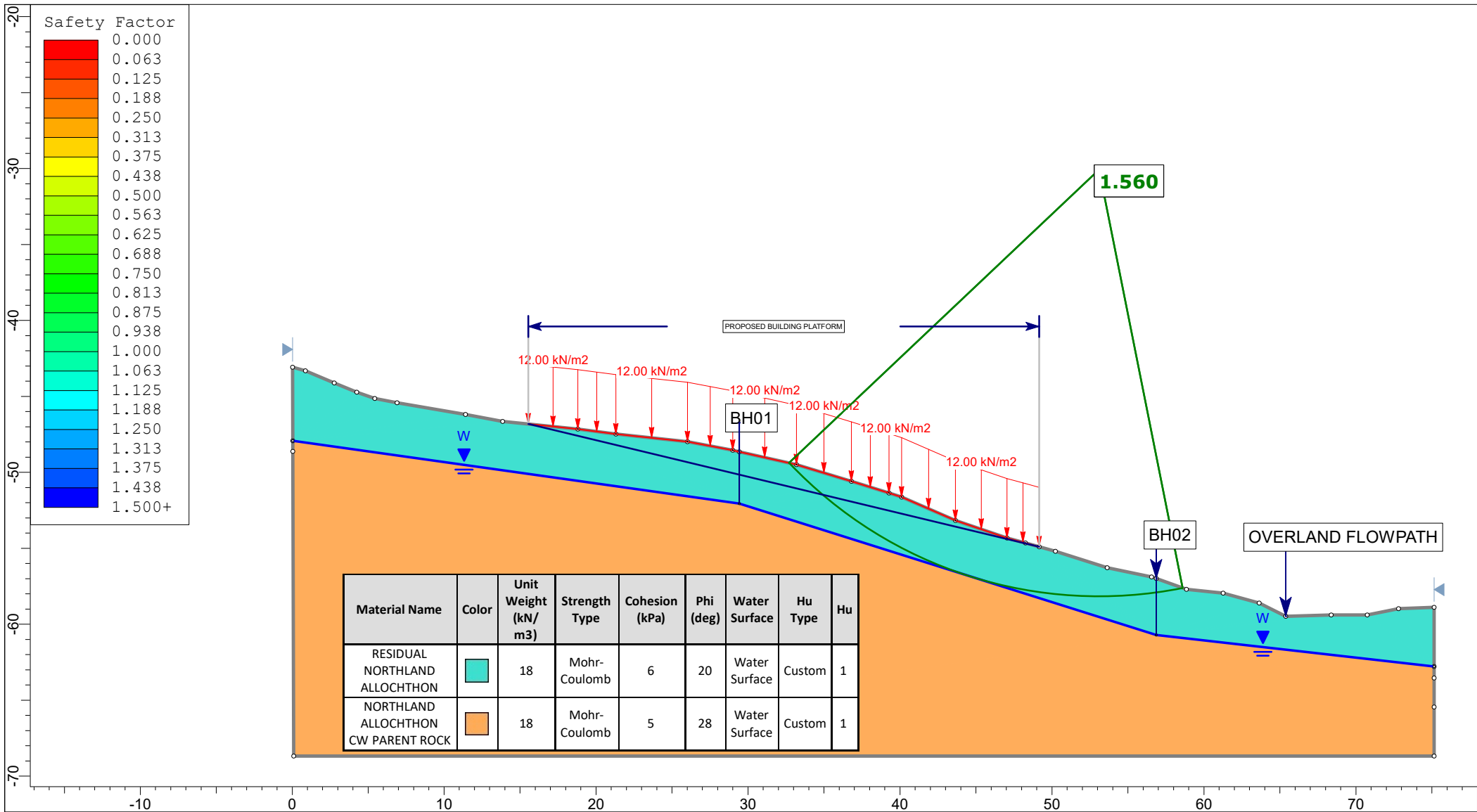


<p><b>geologix</b> consulting engineers</p>	Project		31 Taipa View Road, Taipa (LOT 1)		
	Group		Cross section A	Scenario	Proposed Condition (Elevated GWT)
	Drawn By		GB	Company	Geologix Consulting Engineers
	Date		8/07/2024, 2:49:06 pm	File Name	slide.slmd

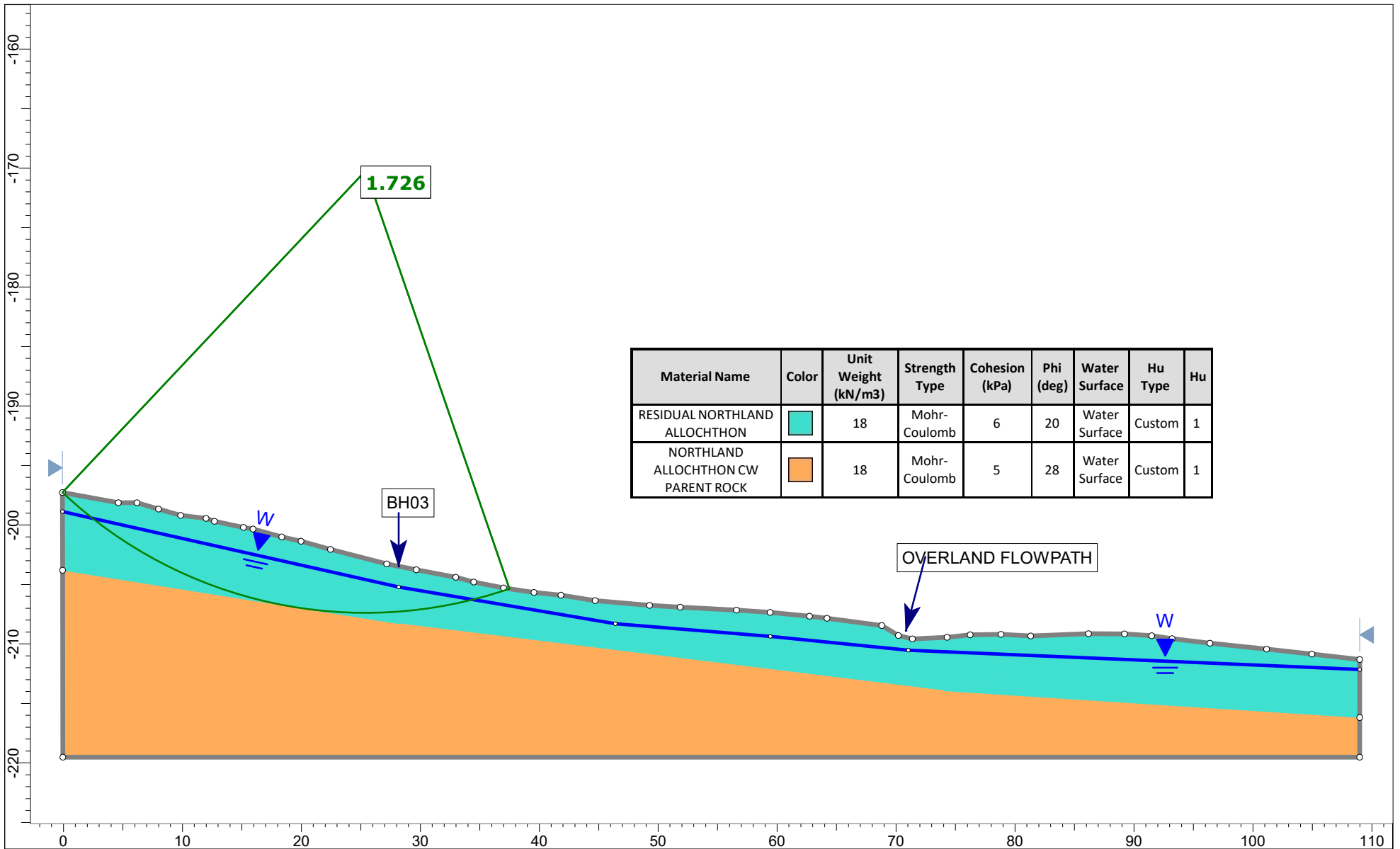





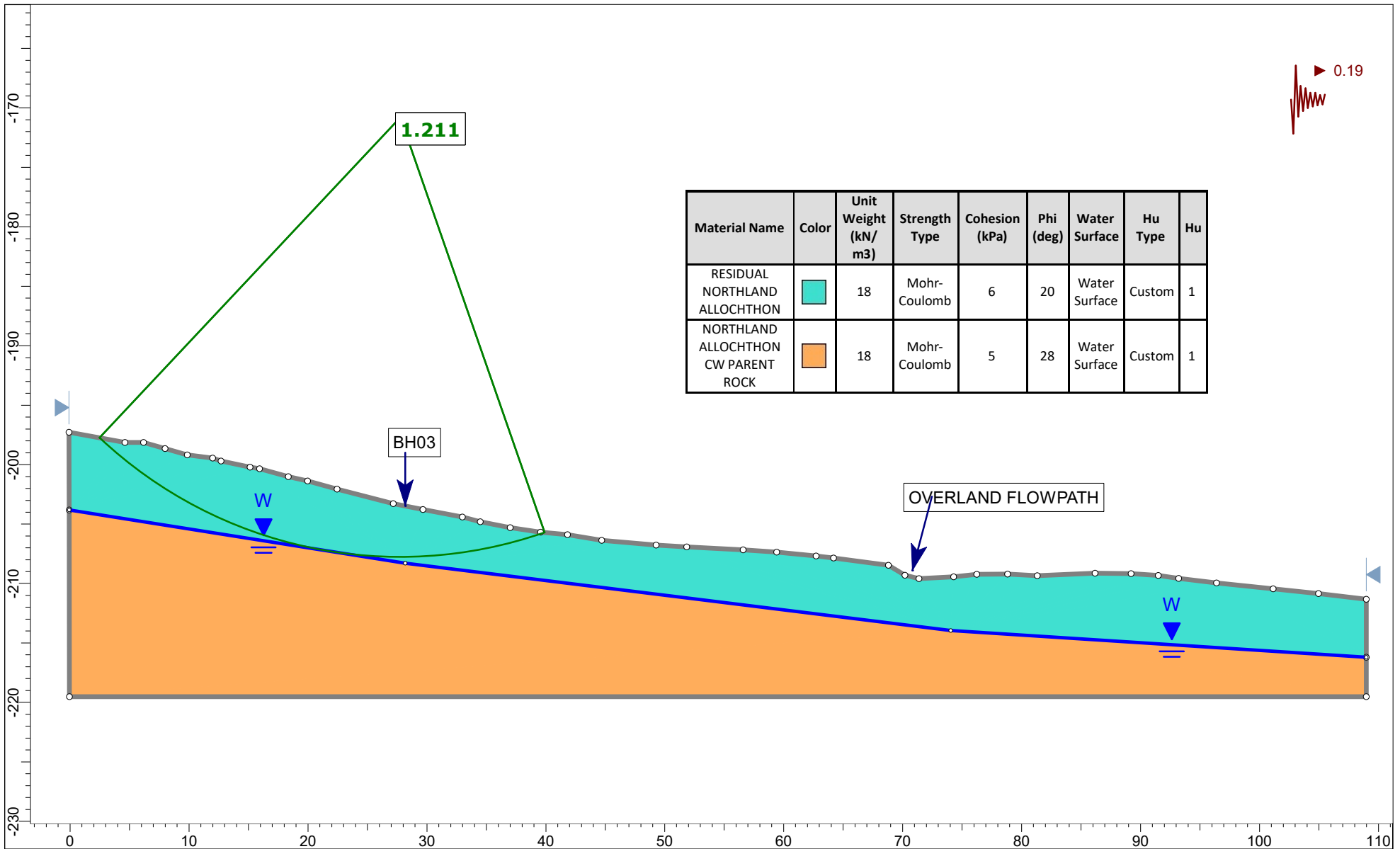
<p><b>geologix</b> consulting engineers</p>	Project	31 Taipa View Road, Taipa (LOT 1)	
	Group	Cross section A	Scenario Proposed Condition (Seismic)
	Drawn By	GB	Company Geologix Consulting Engineers
	Date	8/07/2024, 2:49:06 pm	File Name slide.slmd






<p><b>geologix</b> consulting engineers</p>	Project			31 Taipa View Road, Taipa (LOT 1)		
	Group			Scenario		
	Cross section A			Proposed Condition (Static)		
	Drawn By			Company		
GB			Geologix Consulting Engineers			
Date			File Name			
8/07/2024, 2:49:06 pm			slide.slmd			

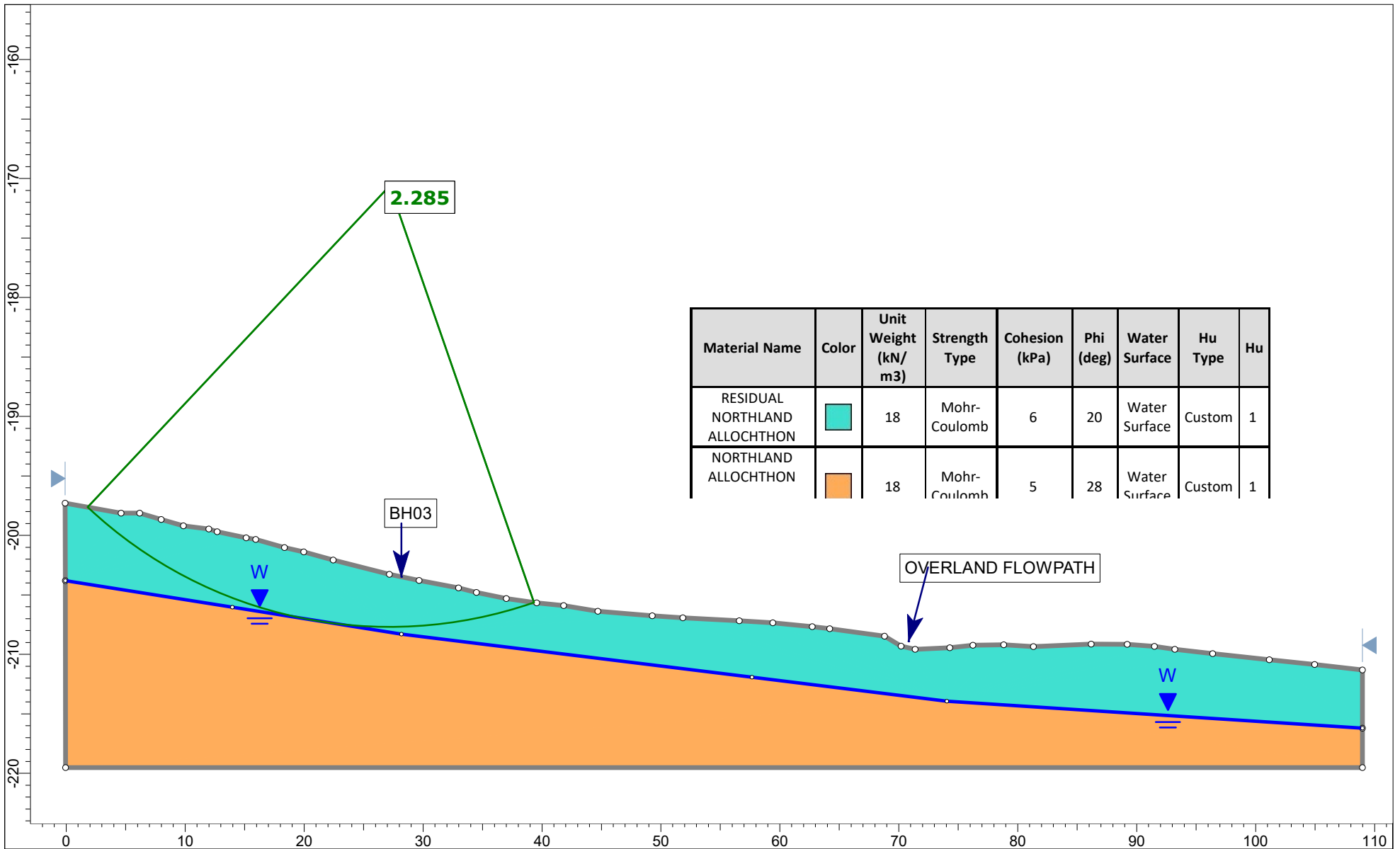


 <b>geologix</b> consulting engineers	Project		31 Taipa View Road, Taipa (LOT 3)		
	Group		Cross section B		
	Drawn By		GB		
	Date		8/07/2024, 2:49:06 pm		
		Scenario		Existing Condition (Elevated GWT)	
		Company		Geologix Consulting Engineers	
		File Name		slide.slm	




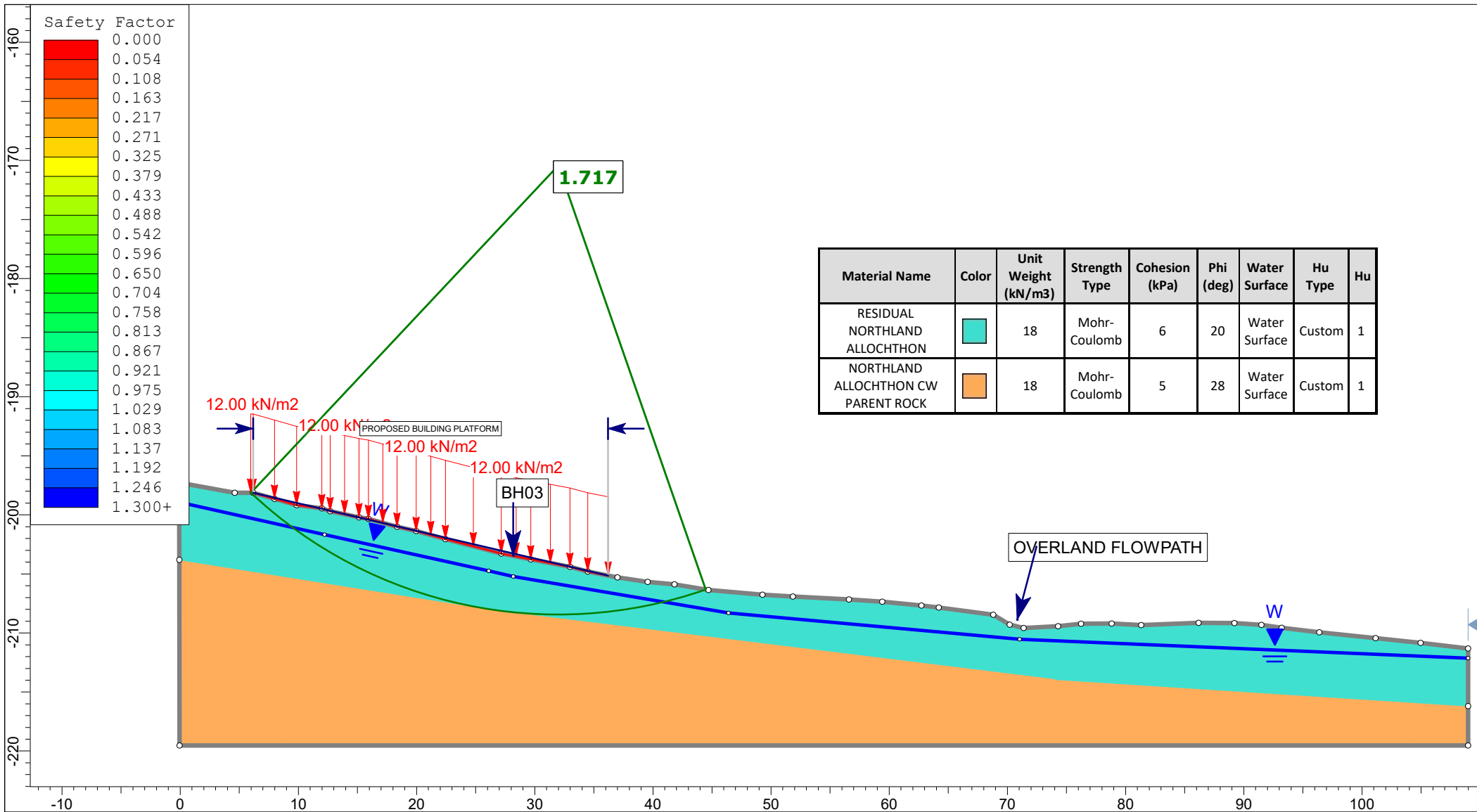
Material Name	Color	Unit Weight (kN/m <sup>3</sup> )	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu
RESIDUAL NORTHLAND ALLOCHTHON		18	Mohr-Coulomb	6	20	Water Surface	Custom	1
NORTHLAND ALLOCHTHON CW PARENT ROCK		18	Mohr-Coulomb	5	28	Water Surface	Custom	1

 <b>geologix</b> consulting engineers	Project		31 Taipa View Road, Taipa (LOT 3)	
	Group	Cross section B	Scenario	Existing Condition (Seismic)
	Drawn By	GB	Company	Geologix Consulting Engineers
	Date	8/07/2024, 2:49:06 pm	File Name	slide.slm



Material Name	Color	Unit Weight (kN/m <sup>3</sup> )	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu
RESIDUAL NORTHLAND ALLOCHTHON	<span style="color: cyan;">■</span>	18	Mohr-Coulomb	6	20	Water Surface	Custom	1
NORTHLAND ALLOCHTHON	<span style="color: orange;">■</span>	18	Mohr-Coulomb	5	28	Water Surface	Custom	1

 <b>geologix</b> consulting engineers	Project		31 Taipa View Road, Taipa (LOT 3)			
	Group		Cross section B	Scenario	Existing Condition (Static)	
	Drawn By		GB	Company		Geologix Consulting Engineers
	Date		8/07/2024, 2:49:06 pm	File Name		slide.slm

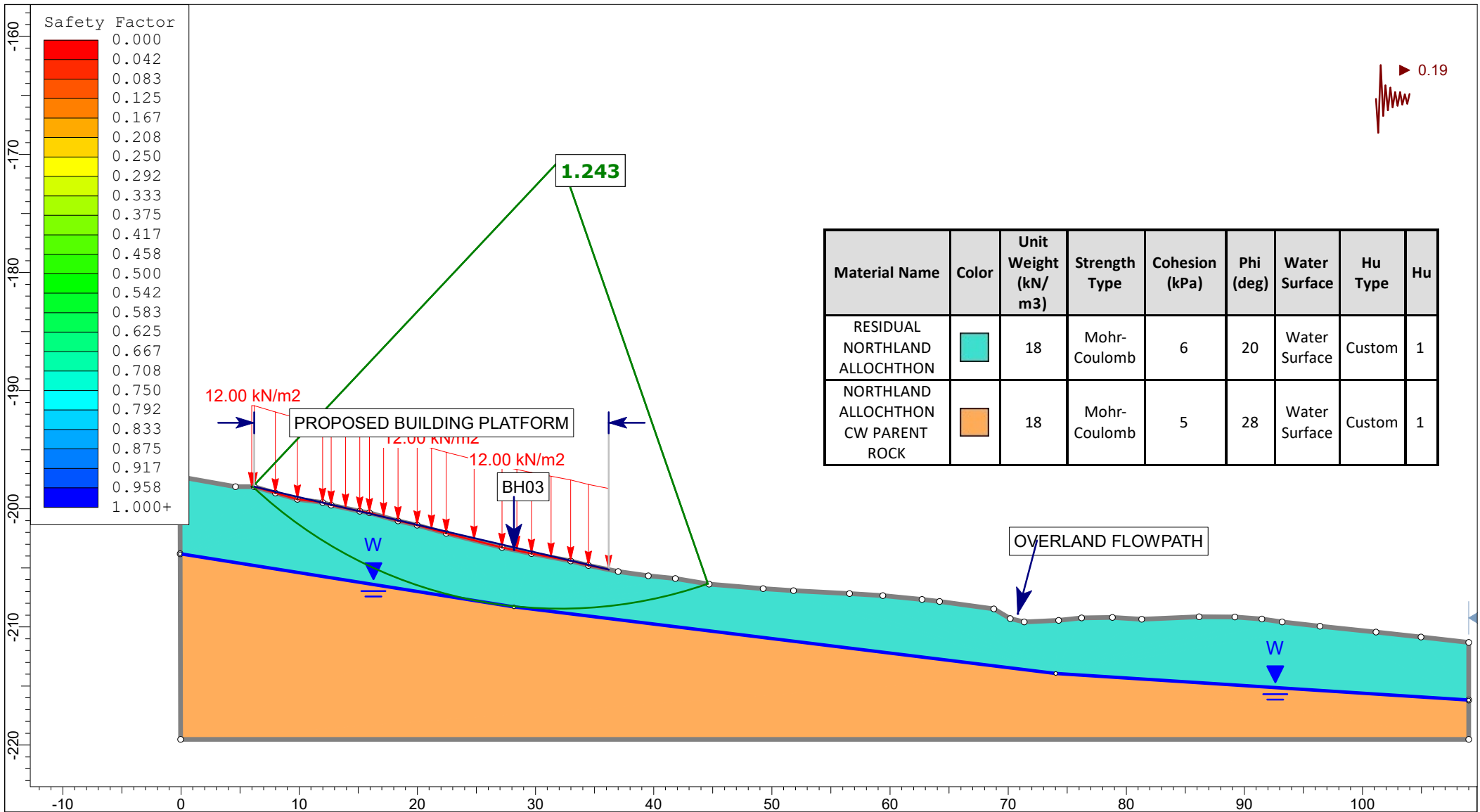


Material Name	Color	Unit Weight (kN/m <sup>3</sup> )	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu
RESIDUAL NORTHLAND ALLOCHTHON		18	Mohr-Coulomb	6	20	Water Surface	Custom	1
NORTHLAND ALLOCHTHON CW PARENT ROCK		18	Mohr-Coulomb	5	28	Water Surface	Custom	1

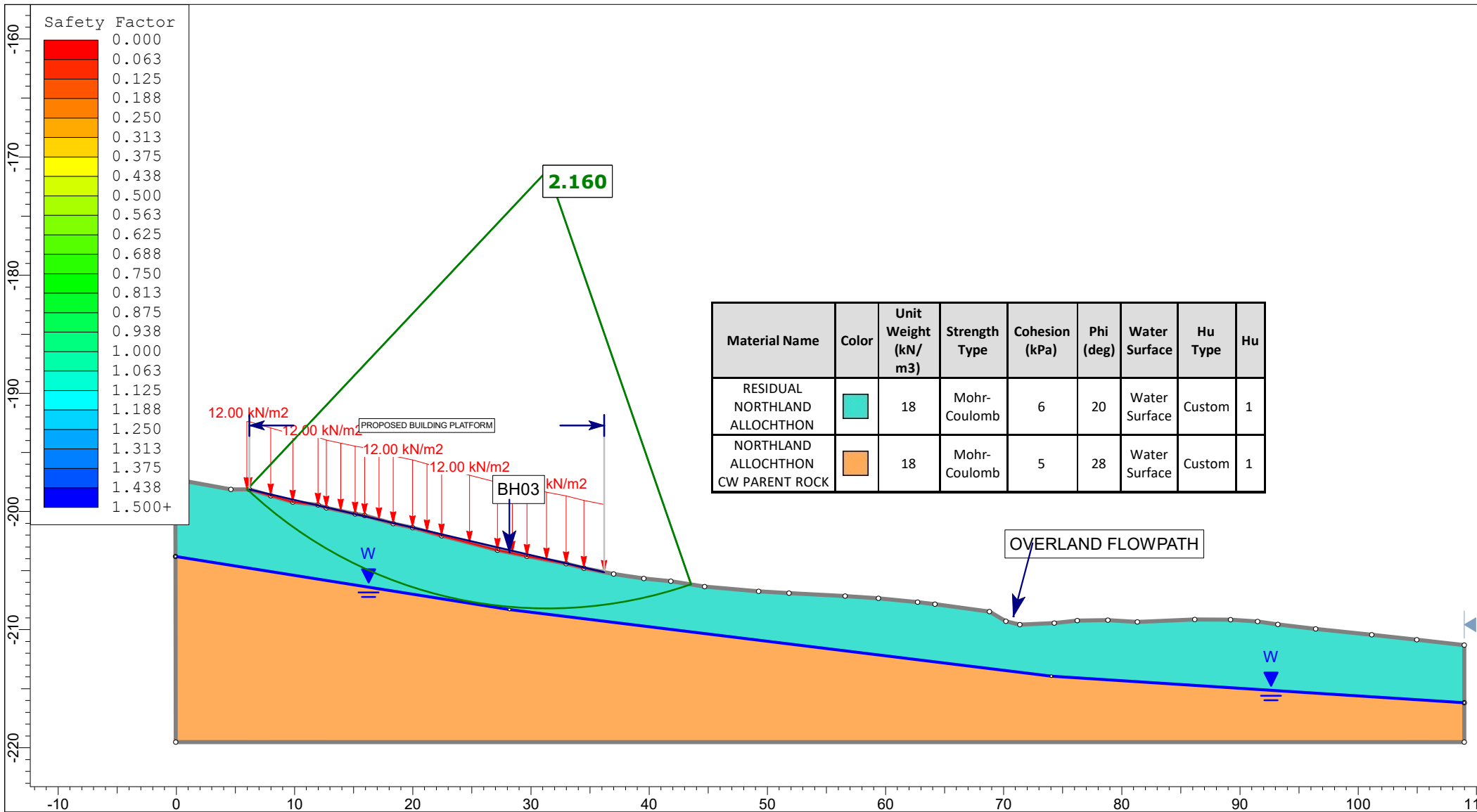
**geologix**  
consulting engineers


Project: 31 Taipa View Road, Taipa (LOT 3)

<i>Group</i>	Cross section B	<i>Scenario</i>	Proposed Condition (Elevated GWT)
<i>Drawn By</i>	GB	<i>Company</i>	Geologix Consulting Engineers
<i>Date</i>	8/07/2024, 2:49:06 pm	<i>File Name</i>	slide.slmd

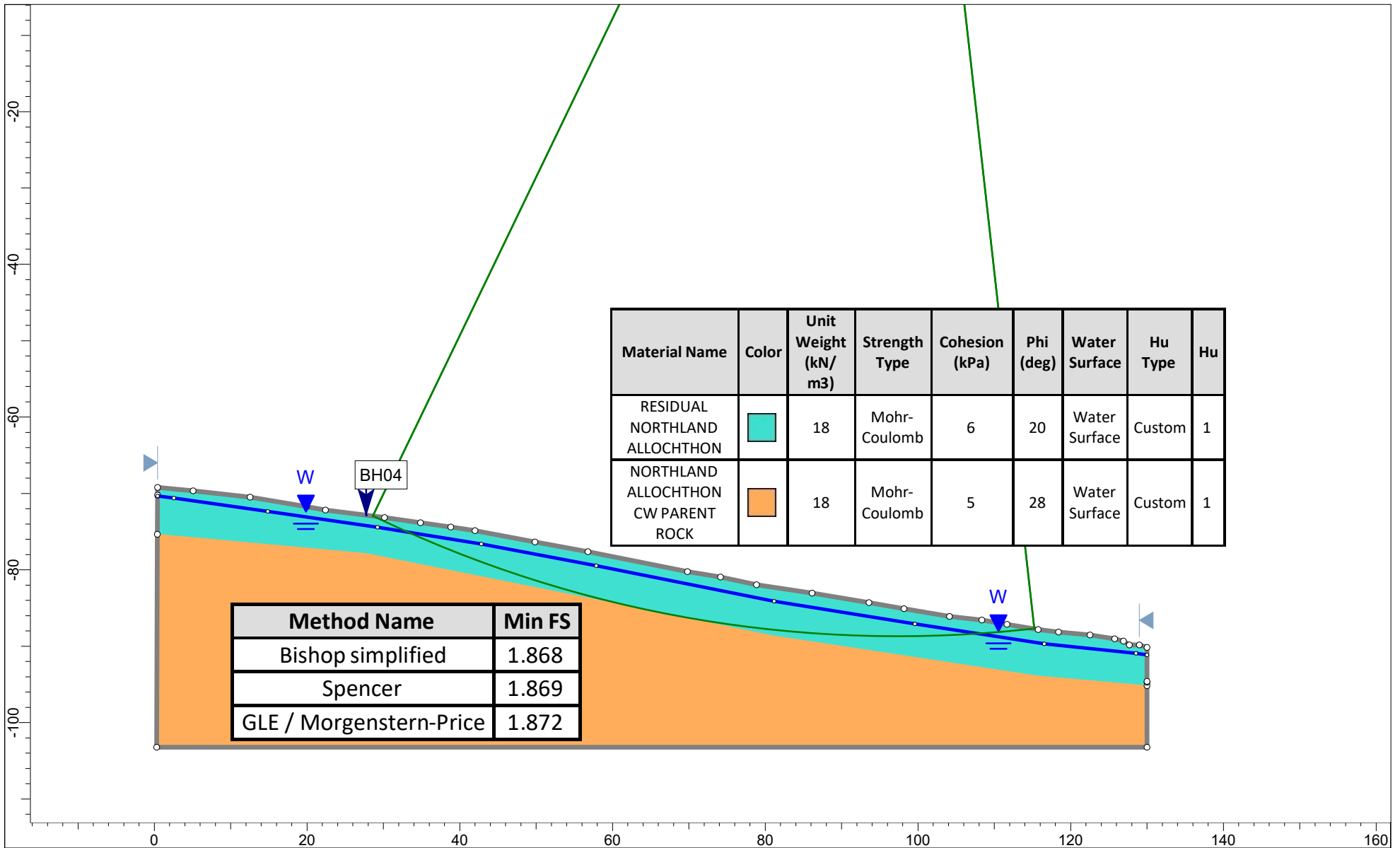



<p><b>geologix</b> consulting engineers</p>	Project	31 Taipa View Road, Taipa (LOT 3)		
	Group	Cross section B	Scenario	Proposed Condition (Seismic)
	Drawn By	GB	Company	Geologix Consulting Engineers
	Date	8/07/2024, 2:49:06 pm	File Name	slide.slmd

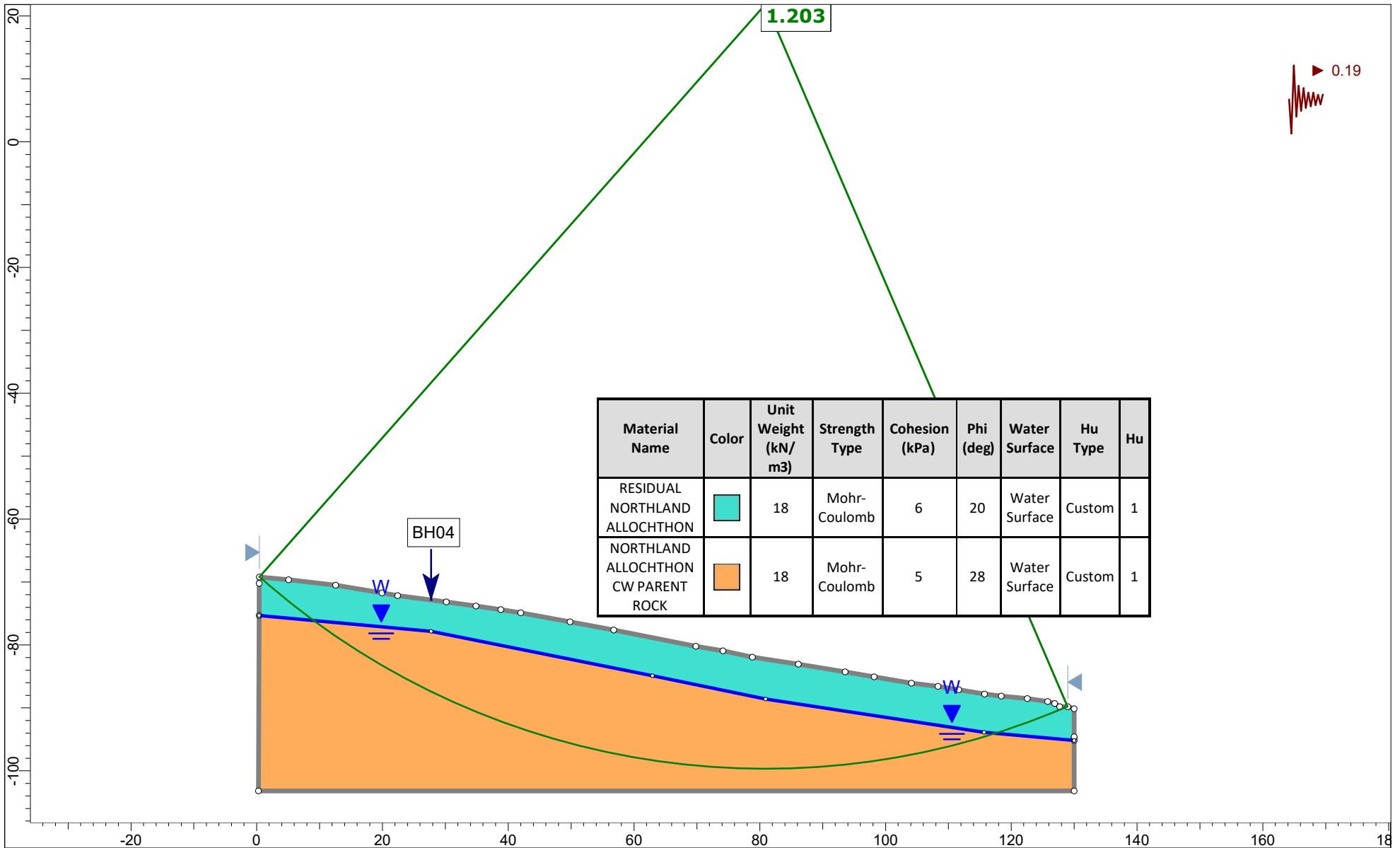


 <b>geologix</b> consulting engineers	Project	31 Taipa View Road, Taipa (LOT 3)		
	Group	Cross section B	Scenario	Proposed Condition (Static)
	Drawn By	GB	Company	Geologix Consulting Engineers
	Date	8/07/2024, 2:49:06 pm	File Name	slide.slmd

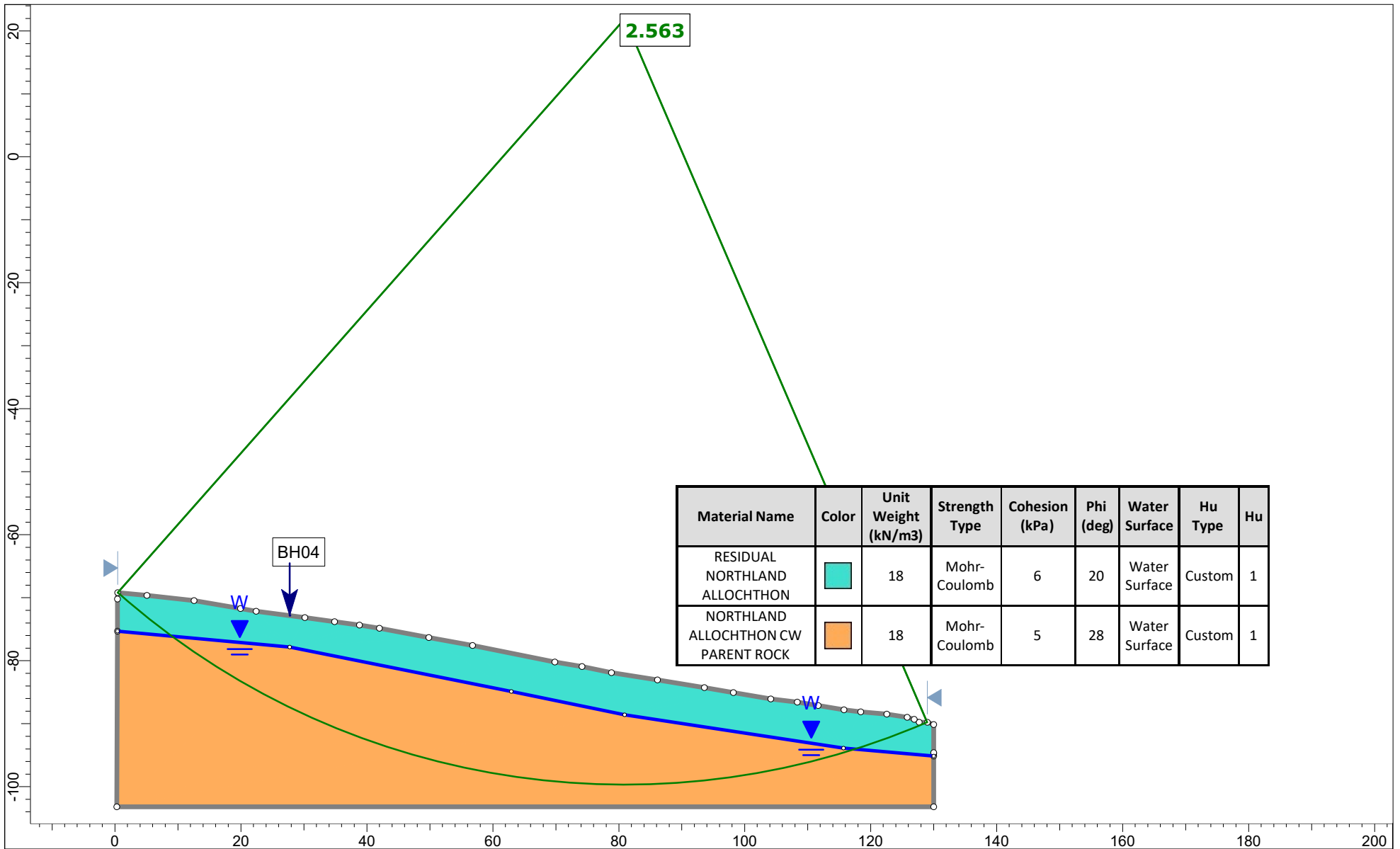





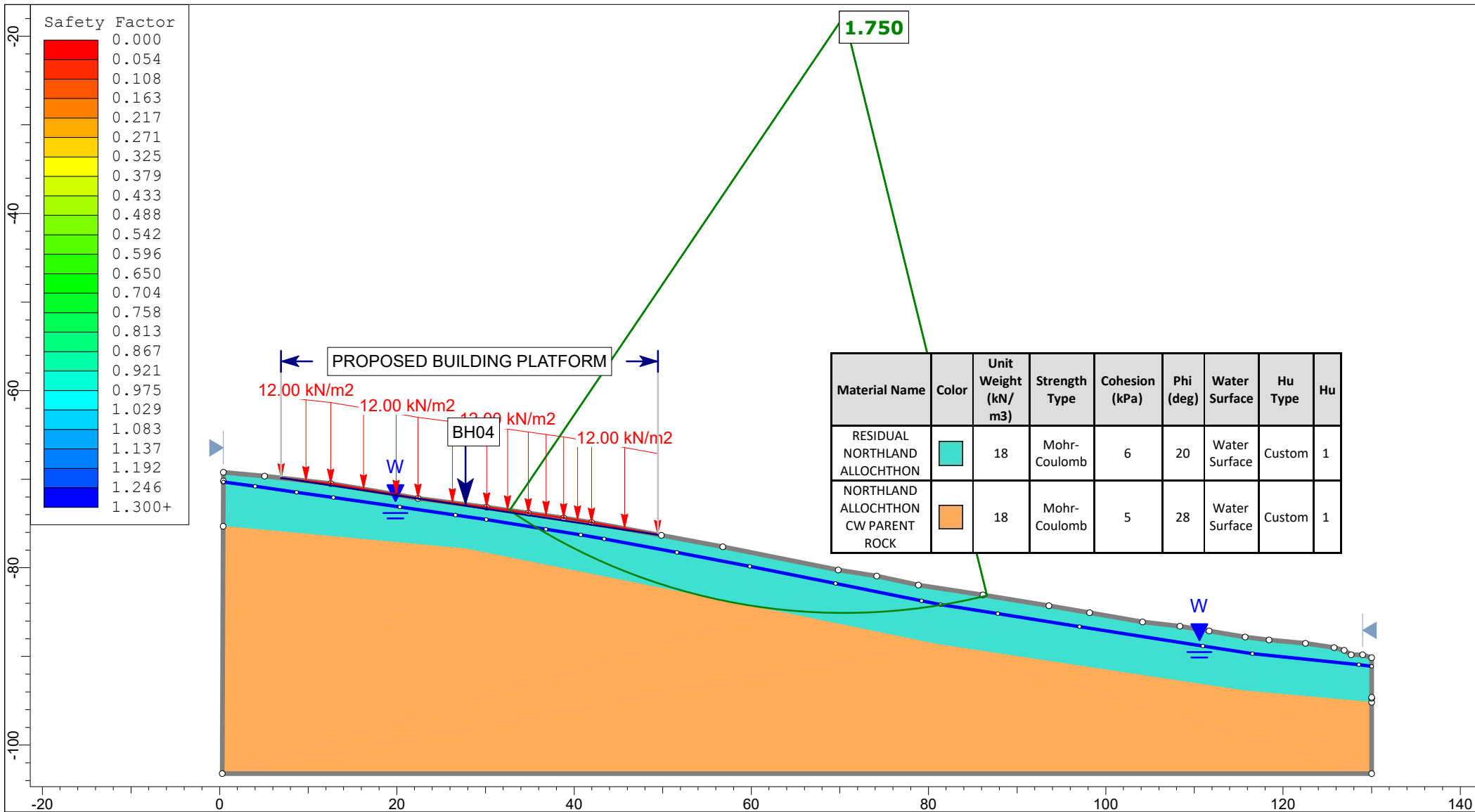
 <b>geologix</b> consulting engineers	Project		31 Taipa View Road, Taipa (LOT 4)	
	Group		Cross section C	
	Scenario		Existing Condition (Elevated GWT)	
	Drawn By		GB	
Date		8/07/2024, 2:49:06 pm		
Company		Geologix Consulting Engineers		
File Name		slide.slmd		



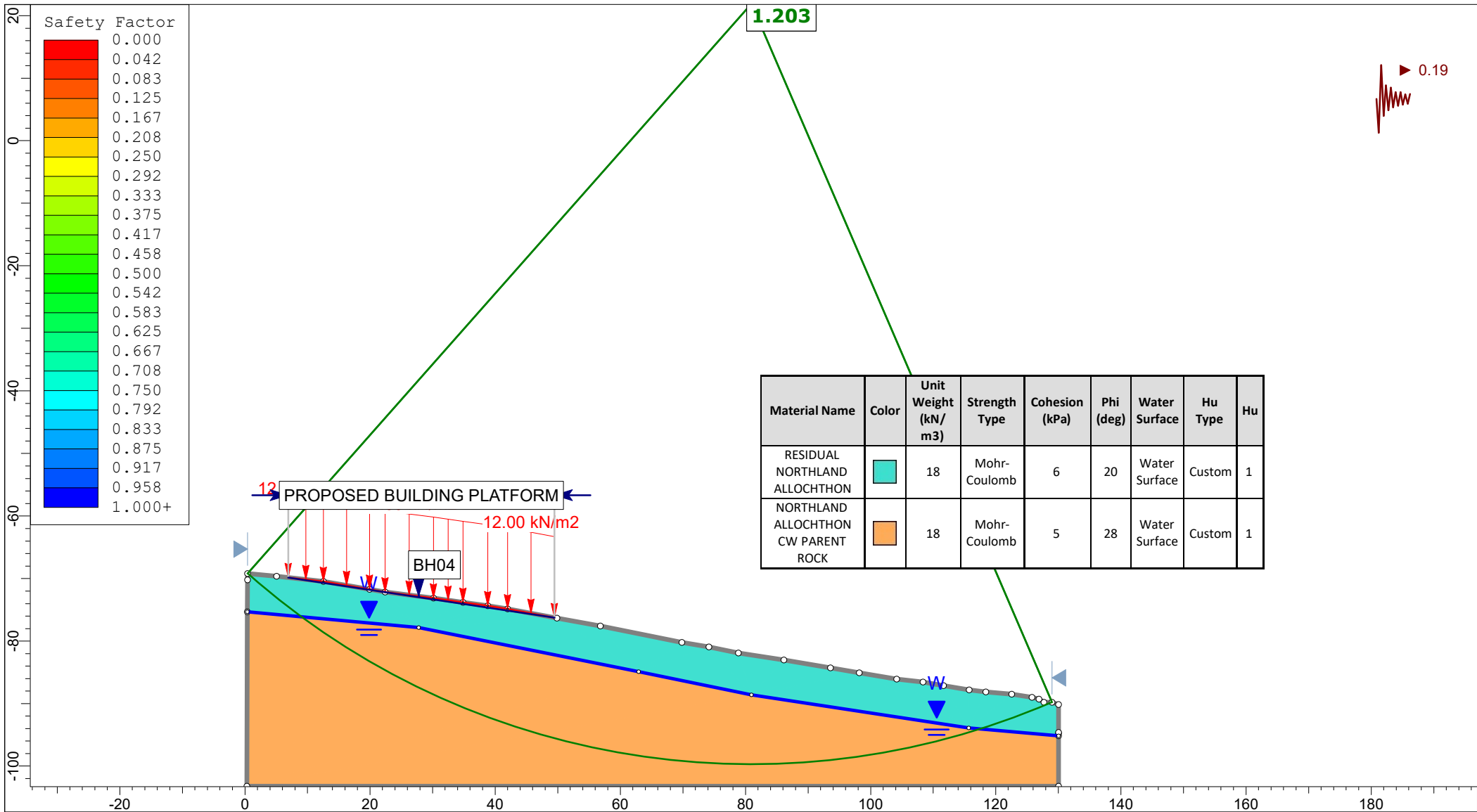
	Project		31 Taipa View Road, Taipa (LOT 4)	
	Group	Cross section C	Scenario	Existing Condition (Seismic)
	Drawn By	GB	Company	Geologix Consulting Engineers
	Date	8/07/2024, 2:49:06 pm	File Name	slide.slm




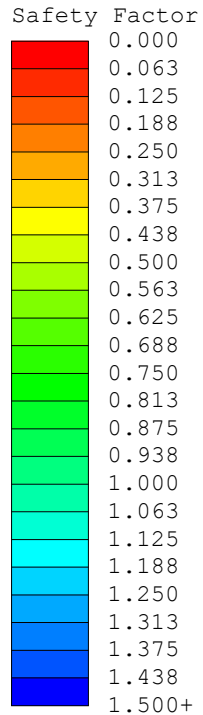
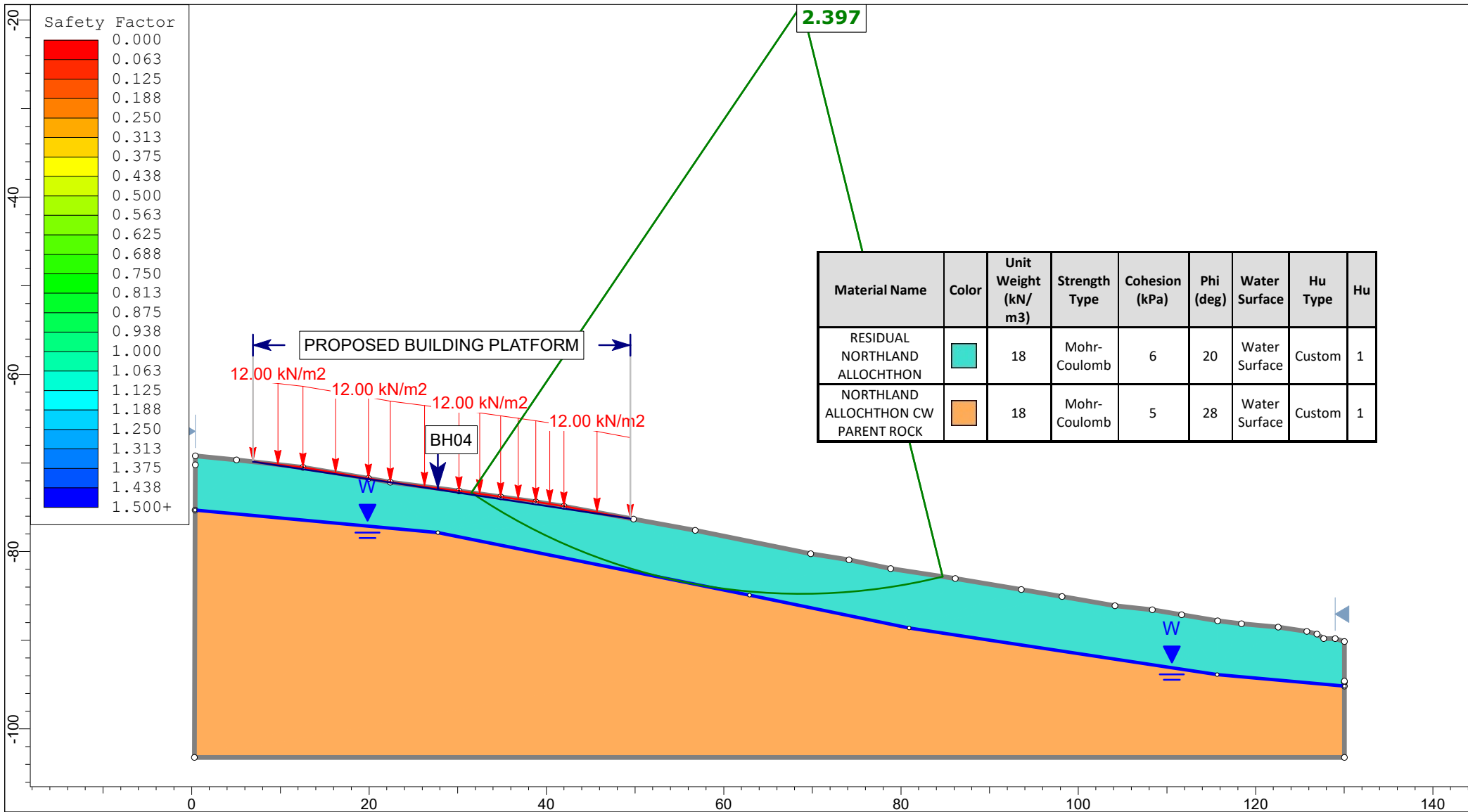
	Project			31 Taipa View Road, Taipa (LOT 4)				
	Group		Cross section C		Scenario		Existing Condition (Static)	
	Drawn By		GB		Company		Geologix Consulting Engineers	
	Date		8/07/2024, 2:49:06 pm		File Name		slide.sldm	



<p><b>geologix</b> consulting engineers</p> <p>SLIDEINTERPRET 9.024</p>	Project	31 Taipa View Road, Taipa (LOT 4)		
	Group	Cross section C	Scenario	Proposed Condition (Elevated GWT)
	Drawn By	GB	Company	Geologix Consulting Engineers
	Date	8/07/2024, 2:49:06 pm	File Name	slide.slmd



 <b>geologix</b> consulting engineers	Project		31 Taipa View Road, Taipa (LOT 4)		
	Group		Cross section C	Scenario	Proposed Condition (Seismic)
	Drawn By		GB	Company	Geologix Consulting Engineers
	Date		8/07/2024, 2:49:06 pm	File Name	slide.slmd



Material Name	Color	Unit Weight (kN/m <sup>3</sup> )	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type	Hu
RESIDUAL NORTHLAND ALLOCTHON		18	Mohr-Coulomb	6	20	Water Surface	Custom	1
NORTHLAND ALLOCTHON CW PARENT ROCK		18	Mohr-Coulomb	5	28	Water Surface	Custom	1

**geologix**  
consulting engineers

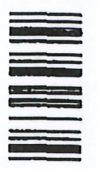
Project: 31 Taipa View Road, Taipa (LOT 4)

<i>Group</i>	Cross section C	<i>Scenario</i>	Proposed Condition (Static)
<i>Drawn By</i>	GB	<i>Company</i>	Geologix Consulting Engineers
<i>Date</i>	8/07/2024, 2:49:06 pm	<i>File Name</i>	slide.slmd

# Appendix 5

## NZAA Site Records

004/395



NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION  
**SITE RECORD FORM (NZMS1)**

NZMS 1 map number N7  
NZMS 1 map name Doubtless Bay  
NZMS 1 map edition 3rd 1977

NZAA NZMS 1 SITE NUMBER N7/389  
DATE VISITED 1.4.84  
SITE TYPE Pits  
SITE NAME: MAORI  
OTHER

Grid Reference Easting 1 9 5 5 0 0 Northing 8 8 3 6 0 0

1. Aids to relocation of site (*attach a sketch map*) Site located on the summit of the first hill to the south of H.10 where the road passes through a saddle between Taipa and Otengi. Features occur 20m below summit on southern side approximately 20m out from the Adamson boundary fence. Overlooks Taipa flats.

2. State of site and possible future damage Site under grass - grazed - relatively good condition.

3. Description of site (*Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here*) Site consists of an alignment of 14 pits. Appear to be arranged in two rows. The western row are smaller and may have been partially filled. The pits are of medium size. The largest 6 x 4m, the smallest 1 x 1m. None are any deeper than 50cm. No associated terracing is visible. Cf 387-8.

4. Owner G P Adamson  
Address Taipa  
R D 3  
Kaitaia  
Tenant/Manager  
Address

5. Nature of information (*hearsay, brief or extended visit, etc.*) Brief visit  
Photographs (*reference numbers, and where they are held*)  
Aerial photographs (*reference numbers, and clarity of site*)

6. Reported by L Johnson  
Address 23 Valley Rd  
Mt Eden  
Auckland  
Filekeeper *[Signature]*  
Date 10/2/87

7. Key words

8. New Zealand Register of Archaeological Sites (*for office use*)  
NZHPT Site Field Code

a	m	Type of site	a	b	Present condition and future danger of destruction
-	-	Local environment today	-	-	Security code
a	e	Land classification	d	r	Local body



004/394

NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION  
**SITE RECORD FORM (NZMS1)**

NZAA NZMS 1 SITE NUMBER N7/388  
DATE VISITED 1.4.84  
SITE TYPE Pit - Terraces ?  
SITE NAME: MAORI  
OTHER

NZMS 1 map number N7  
NZMS 1 map name Doubtless Bay  
NZMS 1 map edition 3rd 1977

Grid Reference Easting 

1	9	5	5	5	0
---	---	---	---	---	---

 Northing 

8	8	3	5	0	0
---	---	---	---	---	---

1. Aids to relocation of site (*attach a sketch map*) Site located on the top of the main ridge to the west of the Taipa flats. Approximately 80m below the alignment of the 14 pits. 70m east of the Adamson boundary fence and knoll with a broken truck axle on top.

2. State of site and possible future damage Site under grass - grazed - relatively good condition.

3. Description of site (*Supply full details, history, local environment, references, sketches, etc. If extra sheets are attached, include a summary here*) Site consists of a single pit 6 x 4m with a 70cm scarp at the back, approximately 40cm in depth. 40m above this on the knoll are four very vague level areas that may be terraces. Below the pit by 15m is another vague level area that may also be a terrace. Cf 387-9.

4. Owner Address G P Adamson Tenant/Manager Address

5. Nature of information (*hearsay, brief or extended visit, etc.*) Brief visit  
Photographs (*reference numbers, and where they are held*)  
Aerial photographs (*reference numbers, and clarity of site*)

6. Reported by L. Johnson Filekeeper *Adamson*  
Address 23 Valley Rd Date *10/4/87*  
Mt Eden  
Auckland

7. Key words

8. New Zealand Register of Archaeological Sites (*for office use*)  
NZHPT Site Field Code

ao
- -
ae

Type of site  
Local environment today  
Land classification

ab
- -
ar

Present condition and future danger of destruction  
Security code  
Local body