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

Office Use Only
Application Number:

Application for resource consent or fast-track resource consent

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

1. Pre-Lodgement Meeting

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

2. Type of Consent being applied for

(more than one circle can be ticked):

- ◯ **Land Use**
- ◯ **Fast Track Land Use***
- ◯ **Subdivision**
- ◯ **Consent under National Environmental Standard** (e.g. Assessing and Managing Contaminants in Soil)
- ◯ **Discharge**
- ◯ **Change of Consent Notice (s.221(3))**
- ◯ **Extension of time (s.125)**
- ● **Other (please specify)** s127 Variation

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

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

◯ **Yes** ✔ **No**

4. Consultation

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

If yes, which groups have you consulted with?	
Who else have you consulted with?	

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

5. Applicant Details

Name/s: Wendy Henwood

Email: [redacted]

Phone number: [redacted]

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

6. Address for Correspondence

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

Name/s: steven sanson bay of islands planning ltd

Email: [redacted]

Phone number: [redacted]

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

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

7. Details of Property Owner/s and Occupier/s

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

Name/s: Wendy Henwood

Property Address/ Location: 26 Honey Street, Rawene

Postcode

8. Application Site Details

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

Name/s: As above

Site Address/ Location: As above

Postcode

Legal Description: Lot 43 DP 81053 **Val Number:**

Certificate of title: NA37D/69

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

Site visit requirements:

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

Is there a dog on the property? ◯ **Yes** ✔ **No**

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

9. Description of the Proposal:

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

Variation of RC 2240186

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

10. Would you like to request Public Notification?

◯ **Yes** ✔ **No**

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

(more than one circle can be ticked):

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

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

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

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

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

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

13. Assessment of Environmental Effects:

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

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

13. Draft Conditions:

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

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

14. Billing Details:

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

Name/s: **(please write in full)** refer attached

Email:

Phone number: Work Home

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

Postcode

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

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

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

Signature:
(signature of bill payer

Date

MANDATORY

15. Important Information:

Note to applicant
You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.
You may apply for 2 or more resource consents that are needed for the same activity on the same form.
You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991.

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

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

15. Important information continued...

Declaration

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

Name: (please write in full) steven sanson

Signature: [redacted] Date 11-Oct-2024

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)
- ✔ Details of your consultation with Iwi and hapū
- ✔ Copies of any listed encumbrances, easements and/or consent notices relevant to the application
- ✔ Applicant / Agent / Property Owner / Bill Payer details provided
- ✔ Location of property and description of proposal
- ✔ Assessment of Environmental Effects
- ✔ Written Approvals / correspondence from consulted parties
- ✔ Reports from technical experts (if required)
- ✔ Copies of other relevant consents associated with this application
- ✔ Location and Site plans (land use) AND/OR
- ✔ Location and Scheme Plan (subdivision)
- ✔ Elevations / Floor plans
- ✔ Topographical / contour plans

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

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

O Building Consent (BC ref # if known)

O Regional Council Consent (ref # if known)

O National Environmental Standard consent

O Other (please specify)

11. 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)

O yes ✓ no O don't know

Is the proposed activity an activity covered by the NES? (If the activity is any of the activities listed below, then you need to tick the 'yes' circle).

✓ yes O no O don't know

✓ Subdividing land

O Changing the use of a piece of land

O Disturbing, removing or sampling soil

O Removing or replacing a fuel storage system

12. 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 attach your AEE to this application.

13. 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) Wendy Henwood

Email: [redacted]

Postal Address: [redacted]

Phone Numbers: [redacted]

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: Wendy Henwood (please print)

Signature: [redacted] er – **mandatory**) Date: 23.10.2023

Bay of Islands Planning Ltd

Kerikeri House
Suite 3, 88 Kerikeri Road
Kerikeri

Email – office@bayplan.co.nz Website - www.bayplan.co.nz

14 October 2024

Far North District Council
John Butler Centre
Kerikeri

Application for consent condition variation s127 – Proposal to amend conditions of existing consent – 26 Honey Street, Rawene

Please find attached a s127 application in relation to a proposed variation of consent conditions associated with 2240186-RMASUB. RC 2240186 approved a 2 x lot subdivision in the coastal residential zone as well as a land use breach associated with Chapter 15 of the Operative District Plan.

Through the detailed design process, the applicant has discovered potential cost difficulties and challenges with promoting potable water from FNDC reticulation in the area. It is proposed to instead provide this water via potable water tanks at time of building development on the site.

The conditions to be varied are sought under s127 of the Resource Management Act 1991 (**RMA**), which is a ***Discretionary Activity***.

Yours sincerely,

Steven Sanson
Consultant Planner

APPLICANT & PROPERTY DETAILS

Applicant	Wendy Henwood
Address for Service	Bay of Islands Planning [2022] Limited Kerikeri House Suite 3 88 Kerikeri Road Kerikeri C/O – Steven Sanson steve@bayplan.co.nz 0211606035
Legal Description	Lot 43 DP 81053
Certificate Of Title	NA37D/69
Physical Address	26 Honey Street, Rawene
Site Area	5,209m^2
Owner of the Site	Wendy Henwood
Operative District Plan Zone / Features	Coastal Residential Zone [ODP]
Proposed District Plan	General Residential Zone [PDP], Coastal Environment Overlay
Archaeology	Nil
NRC Overlays	Nil
Soils	Residential
Protected Natural Area	Nil
HAIL	Nil

Schedule 1

SUMMARY OF PROPOSAL

Proposal	A variation to consent conditions of RC 2200299 RMALUC which is land use consent approval for a new dwelling at 26 Honey Street, Rawene.
Reason for Application	The proposed variation is required as Condition 2[f] requires a metered connection for water to be provided for the new allotment. Due to cost pressures and difficulties, this is not proposed, and instead potable water tanks at time of development is now being sought. An application under s127 of the RMA is needed.
Appendices	Appendix A – Record of Title & instruments Appendix B – RC 2240186 Decision Appendix C – Original Application
Consultation	Not applicable
Pre Application Consultation	Not applicable

INTRODUCTION & PROPOSAL

Report Requirements

This report has been prepared for Wendy Henwood in support of a s127 application in relation to the proposed variation of a consent condition 2[f] associated with RC 2240186, which relates to subdivision application at 26 Honey Street, Rawene.

The Record of Title for the site is located in **Appendix A**.

The decision for RC 2240186 is provided in **Appendix B**. The original application is located in **Appendix C**.

Section 127 allows the holder of a resource consent to apply to the consent authority for a change or cancellation of a condition of the consent.

Sections 88 to 121 apply, with all necessary modifications, as if—

a) the application was an application for a resource consent for a discretionary activity; and
b) the references to a resource consent and to the activity were references only to the change or cancellation of a condition and the effects of the change or cancellation respectively.

Section 127(4) also applies including:

(4) For the purposes of determining who is adversely affected by the change or cancellation, the consent authority must consider, in particular, every person who—
  (a) made a submission on the original application; and
  (b) may be affected by the change or cancellation.

The conditions sought to be changed with the proposed wording is outlined below.

- Condition 1 – in relation to referring to new approved plans.
- Condition 4 – in relation to an updated approval letter received from FENZ.

The proposed variation to read as follows (refer underlined for additions and ~~strikethrough for deletions~~):

2. Prior to the issuing of a certificate of title pursuant to section 224[c] of the Act, the consent holder shall:
~~[f] Provide evidence that a metered connection is available to Councils reticulated water supply system on Lot 2 in accordance with the requirements of Councils Engineering Standards and Guidelines.~~

3. Secure the conditions below by way of a Consent Notice issues under section 221 of the Act, to be registered on the Computer Freehold Register of Lots 1-2. The costs of preparing, checking and executing the Notice shall be met by the consent holder:

c. in association with the construction of any dwelling, and in addition to a potable water supply, a water collection system with sufficient supply for firefighting purposes is to be provided by way of tank or other approved means and to be positioned so that it is safely accessible for this purpose. These provisions will be in accordance with the New Zealand Fire Fighting Water Supply Code of Practice SNZ PAS 4509.

The rationale behind the changes are self-explanatory to a certain extent but revolve around the following:

- Condition 2[f]: deleting this requirement as it is proposed to provide potable water at time of development as opposed to through the subdivision process.

- Condition 3[c]: To ensure that there is an appropriate condition associated with the provision of potable water at time of development on the new allotment.

Should there be any other changes (consequential or otherwise) that arise during process, we retain the right to make further alternations and also provide FNDC staff with discretion to make changes that assist in workability and better implementation of consent conditions.

Section 127

The RMA establishes that a request under s127 is deemed to be discretionary activity and Section 88 to 121 apply with the necessary modifications. Additionally, in considering the request to change the condition Council is limited to only considering what is being sought within the condition change and the effects there from.

The original resource consent application was not the subject of a publicly notified process with the approval being issued under delegated authority. The decision was not the subject of an appeal. In terms of the effects created by this variation these factors are addressed as follows.

Background: Details of the site and surrounds can be found in the original application RC 2200299 [See **Appendix C**].

Application Site: A range of details regarding the site are outlined in Schedule 1 of this report. These details are supplemented by the Record of Title and relevant instruments located in **Appendix A.** The previous application also provides detail on the site and surrounds which have not changed since the previous application was lodged and decided on.

Subdivision Consent: Approval was gained for a subdivision RC 2240186 which has not been given effect to. This variation seeks changes as per those stated above.

Application Comparison

There are not additional rule breaches as a result of the change of method promoted to advance the provision of potable water.

Application Process

The Council retains the discretion to determining whether a discretionary activity should be notified. In determining this factor, it is the change in the effects of the consent conditions which are assessed against any possible adverse effects upon any person.

The RMA also requires Council to consider the effect of the change on those persons who lodged a submission to the original application. In this case the original consent was processed non-notified.

This aspect requires the Council to assess if the effects of the condition change would have an adverse effect upon any of the submitters. This would not apply as no persons submitted. As such it is considered fanciful that a person would specifically be adversely affected by what is contained in this application.

The change of conditions would not in our opinion create any adverse effects that are more than minor. It is also considered the change to consent conditions does not create effects of a nature that would necessitate involving any third party.

Overall, it is considered that the application to change the condition can be processed without notification.

Effects

For this application, the potential adverse effects to be assessed are those arising from aspects of the proposal that have been identified as differing from the consented proposal.

This is whether there are effects in terms of promoting water from a reticulated system or from a potable water supply [i.e rain water tanks] at time of development. In our view, there are no environmental adverse effects resulting. The method and timing of provision is simply changing.

Conclusion

Based on the above assessment, it considered that the actual and potential adverse effects of the proposal that would be less than minor.

STATUTORY CONTEXT

Objectives, Policies and Rules

The variation is to be assessed as a Discretionary Activity as if it was a resource consent. Section 104B requires the consideration of any relevant objectives and policies in addition to the effects of the activity. It is considered these factors have been addressed within the original application with no changes having been undertaken on the site.

Given the very minor change to the proposal, another assessment of objectives and policies are not considered relevant and those in the original application can be relied upon.

PART 2 ASSESSMENT

Section 5 – Purpose of The RMA

Section 5 in Part 2 of the RMA identifies the purpose as being the sustainable management of natural and physical resources. This means managing the use of natural and physical resources in a way that enables people and communities to provide for their social, cultural and economic well-being which sustain those resources for future generations, protecting the life supporting capacity of ecosystems, and avoiding remedying or mitigating adverse effects on the environment.

It is considered that proposal represents a sustainable use of existing resources that allow people and the community to provide for its social and economic wellbeing in a manner that mitigates adverse effects on the environment.

Section 6 – Matters of National Importance

In achieving the purpose of the RMA, a range of matters are required to be recognised and provided for. This includes:

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 Māori 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.

In context, the relevant items to the proposal have been recognised and provided for in the design of the development.

Section 7 – Other Matters

In achieving the purpose of the RMA, a range of matters are to be given particular regard. This includes:

(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.

These matters have been given particular regard through the design of the proposal.

Section 8 – Treaty of Waitangi

The Far North District Council is required to take into account the principles of the Treaty of Waitangi when processing this consent. This consent application may be sent to local iwi and hapū who may have an interest in this application.

Part 2 Conclusion

Given the above, it is considered that the proposal meets the purpose of the RMA.

CONCLUSION

This application seeks a consent notice variation under s127 to amend existing consent conditions in relation to the subdivision consent approved at 26 Honey Street, Rawene.

The original proposal was considered to be consistent with all relevant statutory documents.

There are not considered to be any directly affected parties to this proposal as all effects are adequately mitigated. An assessment of Part II of the RMA has been completed with the proposal generally able to satisfy this higher order document also.

Yours sincerely,

Steve Sanson
Consultant Planner

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Guaranteed Search Copy issued under Section 60 of the Land Transfer Act 2017

R.W. Muir
Registrar-General
of Land

Identifier	**NA37D/69**
Land Registration District	**North Auckland**
Date Issued	22 June 1977

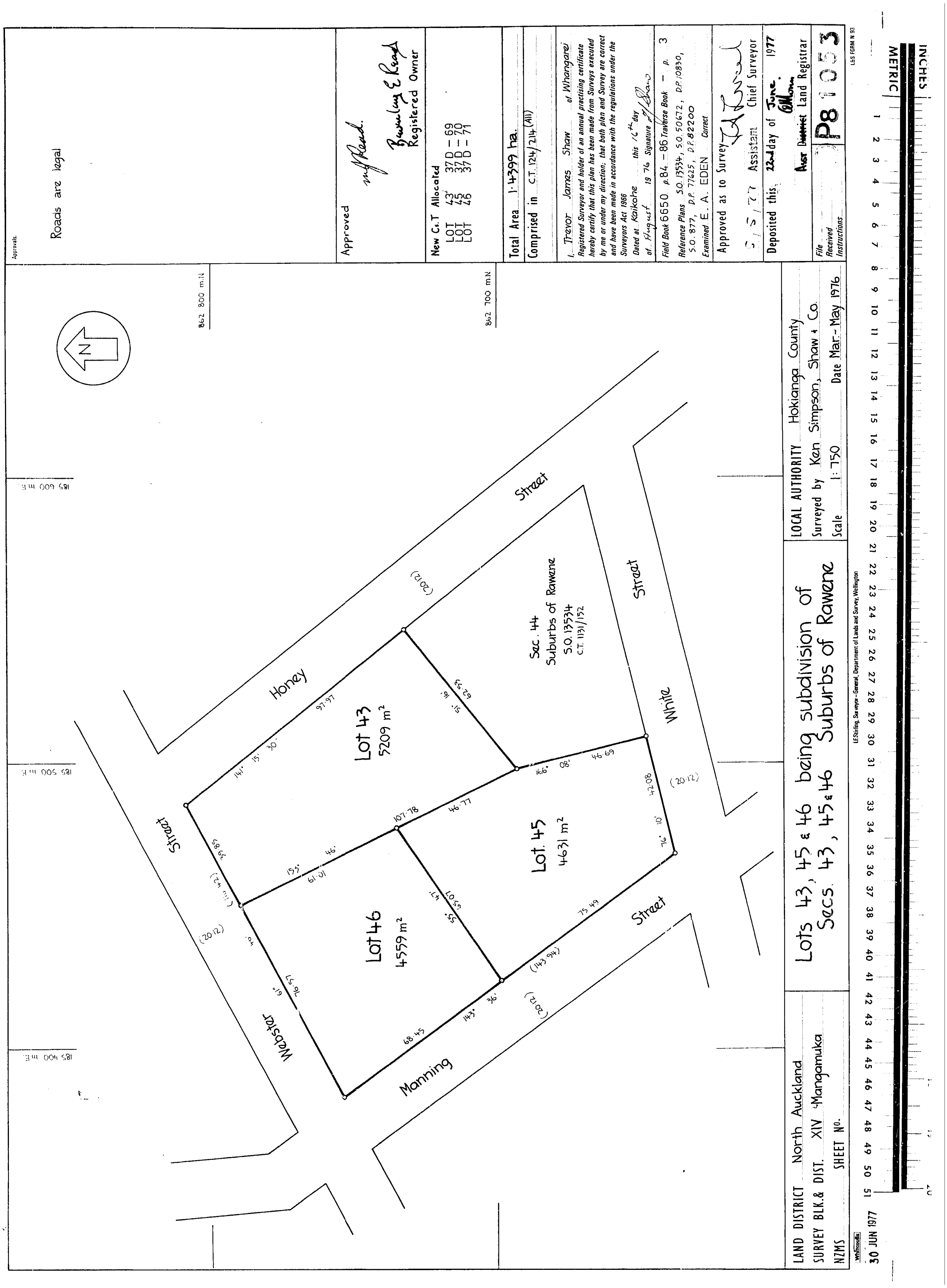
Prior References
NA124/214

Estate	Fee Simple
Area	5209 square metres more or less
Legal Description	Lot 43 Deposited Plan 81053
Registered Owners	

Wendy Anne Henwood

Interests

D225934.1 Mortgage to ANZ Banking Group (New Zealand) Limited - 11.12.1997 at 1.04 pm


Roads are legal
Approved
Registered Owner
New C.T Allocated
LOT 43 37D - 69
LOT 45 37D - 70
LOT 46 37D - 71
Total Area 1·4399 ha.
Comprised in C.T. 124/214 (All)
I, Trevor James Shaw of Whangarei
Registered Surveyor and holder of an annual practising certificate hereby certify that this plan has been made from Surveys executed by me or under my direction; that both plan and Survey are correct and have been made in accordance with the regulations under the Surveyors Act 1966
Dated at Kaikohe this 12th day of August 1976 Signature
Field Book 6650 p.84 - 86 Traverse Book - p. 3
Reference Plans S.O. 13534, S.O. 50672, D.P. 10830, S.O. 877, D.P. 77625, D.P. 82200
Examined E. A. EDEN Correct
Approved as to Survey
Assistant Chief Surveyor
Deposited this 22nd day of June 1977
Asst Land Registrar
DP 81053
File
Received
Instructions
LOCAL AUTHORITY Hokianga County
Surveyed by Ken Simpson, Shaw & Co.
Scale 1:750
Date Mar - May 1976
Lots 43, 45 & 46 being subdivision of Secs. 43, 45 & 46 Suburbs of Rawene
LAND DISTRICT North Auckland
SURVEY BLK.& DIST. XIV Mangamuka
NZMS SHEET No.
862 800 m.N
862 700 m.N
185 600 m.E
185 500 m.E
185 400 m.E
Honey Street
White Street
Webster Street
Manning Street
Sec. 44 Suburbs of Rawene S.O. 13534 C.T. 1131/152
Lot 43 5209 m²
Lot 45 4631 m²
Lot 46 4559 m²
(20.12)
METRIC
INCHES
30 JUN 1977

Far North District Council

DECISION ON SUBDIVISION CONSENT APPLICATION

UNDER THE RESOURCE MANAGEMENT ACT 1991

Decision

Pursuant to section 34(1) and sections 104, 104, 106 and Part 2 of the Resource Management Act 1991 (the Act), the Far North District Council **grants** subdivision resource consent for a Controlled, subject to the conditions listed below to:

Applicant:	Wendy Anne Henwood
Council Reference:	2240186-RMASUB
Property Address:	26 Honey Street, Rawene
Legal Description:	LOT 43 DP 81053

The activity to which this consent relates is:

Activity A: Two-lot subdivision in the Coastal Residential Zone.

Activity B: The subdivision has road frontage to a road which breaches the Frontage to Existing Road Rule in the Rural Production and construction of vehicle accesses not to standard.

Conditions

Pursuant to sections 108 and 220 of the Act, this consent is granted subject to the following conditions:

1. The subdivision shall be carried out in accordance with the approved plan of subdivision prepared by Bay of Islands Planning, referenced *"Application for Resource Consent: Proposed 2 x Lot Subdivision in the Coastal Residential Zone"*, dated October 2023 and attached to this consent with the Council's "Approved Stamp" affixed to it.

Section 224(c) compliance conditions

2. Prior to the issuing of a certificate pursuant to section 224(c) of the Act, the consent holder shall:
   a. Upgrade the existing vehicle crossing on Lot 1 from Honey Street to Type 1A – Light Vehicle crossing as mentioned in Sheet 21 of FNDC ES 2023. Culverts should be a minimum of 375mm RCP, if required.
   b. Provide sealed road extension from the end of the existing Honey Street to the new vehicle crossing of Lot 2 to comply with the FNDC Appendix 3B-1 with a carriageway width of 3m. FNDC will not maintain this extension.
   c. Provide a new vehicle crossing to the extended sealed access from Honey Street on Lot 2 complying to Type 1A – Light Vehicle crossing as mentioned in Sheet 21 of FNDC ES 2023. Culverts should be a minimum of 375mm RCP, if required. Provide

concrete or seal for the crossing plus splays for a minimum distance of 5m from the existing edge.

d. Upon completion of the works specified in condition 3(a) to (c) above, provide certification of the work from a certified contractor that all work has been completed in accordance with the FNDC Engineering Standards (PS3).
e. Provide evidence that a separate 100mm sewerage connection has been provided to the boundary of Lot 2, in compliance with Council's Engineering Standards and Guidelines. Easements in gross favour of Council shall be duly granted or reserved over all Council wastewater assets within private land.
f. Provide evidence that a metered connection is available to Councils reticulated water supply system on Lot 2 in accordance with the requirements of Councils Engineering Standards and Guidelines.
g. Provide documentation that the service providers of electric power and telecommunications to Lot 2 are satisfied with the arrangements made for the provision of these services to the boundary of the new allotment.

3. Secure the conditions below by way of a Consent Notice issued under section 221 of the Act, to be registered on the Computer Freehold Register of Lots 1-2. The costs of preparing, checking and executing the Notice shall be met by the consent holder:
    a. At the time of lodging an application for building consent on any of the lots, the building applicant is to provide a report from a Chartered Professional Engineer with recognized competence in relevant geotechnical and structural matters, which addresses the sites investigation undertaken, sets out the specific design of the buildings foundation and indicates the program of supervision of the foundation construction. This shall be in accordance with the recommendation of the Subdivision Site Suitability Engineering Report by Geologix Consulting Engineers (Geologix Ref.: C0300-S-01, dated September 2023).
    b. In conjunction with the construction of any buildings and other impermeable surfaces, the lot owner shall install a stormwater retention tank/s with a flow-attenuated outlet/s. The system shall be designed such that the total stormwater discharged from the site, after development, is no greater than the predevelopment flow from the site for rainfall events up to 10% AEP plus allowance for climate change, with overland/secondary flow paths able to accommodate a 1% AEP event. This shall be in accordance with the designs 7 specifications mentioned in the Subdivision Site Suitability Engineering Report by Geologix Consulting Engineers (Geologix Ref.: C0300-S-01, dated September 2023).

Advice Notes

Lapsing of Consent

1. *Pursuant to section 125 of the Act, this resource consent will lapse 5 years after the date of commencement of consent unless, before the consent lapses;*
    a) A survey plan is submitted to Council for approval under section 223 of the RMA before the lapse date, and that plan is deposited within three years of the date of approval of the survey plan in accordance with section 224(h) of the RMA; or

b) An application is made to the Council to extend the period of consent, and the council decides to grant an extension after taking into account the statutory considerations, set out in section 125(1)(b) of the Act.

Right of Objection

2. *If you are dissatisfied with the decision or any part of it, you have the right (pursuant to section 357A of the Act) to object to the decision. The objection must be in writing, stating reasons for the objection and must be received by Council within 15 working days of the receipt of this decision.*

Archaeological Sites

3. *Archaeological sites are protected pursuant to the Heritage New Zealand Pouhere Taonga Act 2014. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority issued pursuant to that Act. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes koiwi (human remains). A copy of Heritage New Zealand's Archaeological Discovery Protocol (ADP) is attached for your information. This should be made available to all person(s) working on site.*

General Advice Notes

4. *This consent has been granted on the basis of all the documents and information provided by the consent holder, demonstrating that the new lot(s) can be appropriately serviced (infrastructure and access).*

5. *During the assessment of your application it was noted that a private Land Covenant exists on your property. Council does not enforce private land covenants, and this does not affect Council approving your plans. However, you may wish to get independent legal advice, as despite having a resource consent from Council, the private land covenant can be enforced by those parties specified in the covenant.*

6. *The site is adjacent/ accessed off/ in close proximity (wording dependant on the layout of the lot) to an unsealed road. Unsealed roads have been shown to create a dust nuisance from vehicle usage. It is advised that the dwelling is either located as far as possible or at least 80m from the road, and/or boundary planting within the site is utilised to assist with this nuisance. Alternatively the applicant may consider sealing their road frontage to remove the issue.*

7. *The consent holder is responsible for arranging for buried services to be located and marked prior to commencing earthworks and is also responsible for the repair and reinstatement of any underground services damaged as a result of the earthworks/*

8. *Any debris deposited on the public road as a result of the earthworks shall be removed by or at the expense of the applicant. All debris is to be cleaned off the road at the end of each working day/*

9. *All earthworks are required to be completed in accordance with the Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region, Guideline Document 2016/005.*

10. *Archaeological sites are protected pursuant to the Historic Places Act 1993. It is an offence, pursuant to the Act, to modify, damage or destroy an archaeological site without an archaeological authority obtained from the Historic Places Trust. Should any site be inadvertently uncovered, the procedure is that work should cease, with the Trust and local iwi consulted immediately. The New Zealand Police should also be consulted if the discovery includes Koiwa (human remains). A copy of the Historic Places Trust's Accidental Discovery Protocol (ADP) is attached for your information/ This should be made available to all person(s) working on the site.*

Reasons for the Decision

1. By way of an earlier report that is contained within the electronic file of this consent, it was determined that pursuant to sections 95A and 95B of the Act the proposed activity will not have, and is not likely to have, adverse effects on the environment that are more than minor, there are also no affected persons, and no special circumstances exist. Therefore, under delegated authority, it was determined that the application be processed without notification.

2. The application is for a Controlled resource consent as such under section 104A the Council must grant this application and may only impose conditions in relation to those matters over which control is reserved, these matters are found in section 12 and 13 of the Operative District Plan.

3. In regard to section 104(1)(a) of the Act the actual and potential effects of the proposal will be acceptable as:

    a. The activity enables subdivision of an additional allotment in the Coastal Living Zone anticipated to be developed in the future for coastal residential activities representing an acceptable form of development as anticipated by the zone.
    b. The activity provides access to Lot 2 by way of a private accessway where compliance with the relevant standards is addressed through conditions of this consent.
    c. Lot 1 will have access to water supply via the extension of the existing water connection located within proximity to the site. Similarly, a fire hydrant is located approximately 100m from the site for fire fighting purposes.
    d. Any future residential activities are considered to meet the permitted standards relative to impermeable surfaces, notwithstanding this, future development provides an opportunity to reduce peak on-lot flows to pre-development levels with simple attenuation measures.
    e. Energy supply and telecommunications will be supplied to the lots.
    f. The subject site does not contain any areas of cultural significance to Māori or other heritage resources, outstanding landscape, not outstanding natural / landscape features. The site is also not identified to have a Kiwi Present overlay,

nor is there any land set aside for conservation purposes that effect the site and therefore will not have any effects as such.

g. The creation of the additional lot is not anticipated to cause any reverse sensitivity issues.

4. In regard to section 104(1)(ab) of the Act there are no offsetting or environmental compensation measures proposed or agreed to by the applicant for the activity.

5. In regard to section 104(1)(b) of the Act the following statutory documents are considered to be relevant to the application:
   a. Operative Far North District Plan 2009,
   b. Proposed Far North District Plan 2022

Operative Far North District Plan

Chapter 10.8 Coastal Residential Zone

Objectives: 10.8.3.1, 10.8.3.2, 10.8.3.3

Policies: 10.8.4.1, 10.8.4.2, 10.8.4.3, 10.8.4.4, 10.8.4.5, 10.8.4.7

The activity provides for an additional lot for future residential development through a controlled activity density. The activity provides for the lot sizes with density that is compatible with that anticipated for by the zone and similarly is residential in nature. As the lot sizes are anticipated for by the zone, urban amenity and coastal environment values are achieved and even further so by the provision of access and infrastructure that can integrate with the existing environment. It can be demonstrated that the additional lot can connect to Councils reticulated network. Other policies of the zone do not relate directly to the application as it is only a subdivision, however the applicant has taken note of the policies that will apply to any future land use development.

Chapter 13 Subdivision

Objectives: 13.3.1,13.3.2, 13.3.3, 13.3.4, 13.4.5, 13.4.6, 13.3.7, 13.3.8, 13.3.9, 13.3.10, 13.3.11

Policies: 13.4.1, 13.4.2, 13.4.3, 13.4.4, 13.4.5, 13.4.8, 13.4.14, 13.4.15

The subdivision enables an additional lot in the Coastal Living zone and is anticipated for the purpose of a residential type activity that will integrate with existing activities while adhering to sustainable land use practices. The subdivision can demonstrate a commitment to responsible development that complements the existing landscape and ensures there are no adverse effects on the environment including any reverse sensitivity effects on the site. The site is not identified as having any outstanding landscapes or natural features in the coastal environment and thus the development will not pose any effects on such.

The subdivision can provide for a reticulated water supply and has identified a fire hydrant approximately 100m from the site for firefighting purposes. Future development on Lot 2 can demonstrate compliance with permitted activity standards relating to impervious surfaces. The development is able to accommodate power and

telecommunication supply for Lot 2 and where Lot 1 has existing connections. There are no changes to Lot 1 where an existing dwelling is located. Lot 2 provides for development to occur on site where an energy efficient design can be provided for.

The subject site does not contain any sites of cultural significance to Māori, notwithstanding this, the activity does not adversely impact the ability of Māori to maintain their relationship with ancestral lands, water, sites wāhi tapu and other taonga.

The applicant has proposed to extend Honey Street to provide for access for Lot 2. Subject to conditions of the consent, the extension will be constructed to private accessway standards with the opportunity to extend further for different third parties in the future.

Proposed Far North District Plan

General Residential

Objectives: GRZ-01, GRZ-02, GRZ-03, GRZ-04, GRZ-05, GRZ-06

Policies: GRZ-P1, GRZ-P1, GRZ-P8

The subdivision is consistent with the scale, character and amenity of the residential environment by enabling a subdivision lot size that is compatible with existing lot sizes in the area and also provide for the opportunity to develop a residential type activity on site in the future. The subdivision demonstrates the ability for the additional lot to connect to required infrastructure (telecommunications, wastewater, potable water, electricity) and where required (stormwater) can be managed on site.

The subdivision will not have any effect on natural hazards and any historical, spiritual, or cultural association held by tangata whenua.

Subdivision

Objectives: SUB-01, SUB-03

Policies: SUB-P3, SUB-P5, SUB-P6, SUB-P11

The subdivision results in an additional lot in the Coastal Residential zone within density of a controlled activity and is anticipated for by the zone, thus is a result of efficient use of land. It is proposed for residential type activity to occur on Lot 1, where Lot 2 has an existing dwelling and therefore avoiding any reverse sensitivity issues as the wider environment consists of residential dwellings and vacant land.

The additional lot can integrate with existing infrastructure where a reticulated network can be provided or managed on site.

Coastal Environment

Objectives: CE-01, CE-02, CE-03

Policies: CE-P1, CE-P3, CE-P4, CE-P5, CE-P8, CE-P8, CE-P10

The subdivision has demonstrated that adequate lot sizes can be achieved to accommodate a residential activity on site that continues to preserve the

characteristics and qualities of the natural character of the coastal environment. It is consistent with the surrounding land uses and existing built development. Infrastructure can support the proposal.

For this resource consent application, the relevant provisions of both an operative and any proposed plan must be considered. Weighting is relevant if different outcomes arise from assessments of objectives and policies under both the operative and proposed plans.

As the outcomes sought are the same under the operative and the proposed plan frameworks, no weighting is necessary.

The PDP has only been recently notified and as such there is potential for change as the plan goes through the statutory process. As such despite the different outcomes anticipated by the PDP little weight is given to these provisions.

6. In regard to section 104(1)(c) of the Act there are no other matters relevant and reasonably necessary to determine the application.

7. In terms of s106 of the RMA the proposal is not considered to give rise to a significant risk from natural hazards, and sufficient provision has been made for legal and physical access to the proposed allotments. Accordingly, council is able to grant this subdivision consent subject to the conditions above.

8. Based on the assessment above the activity will be consistent with Part 2 of the Act.

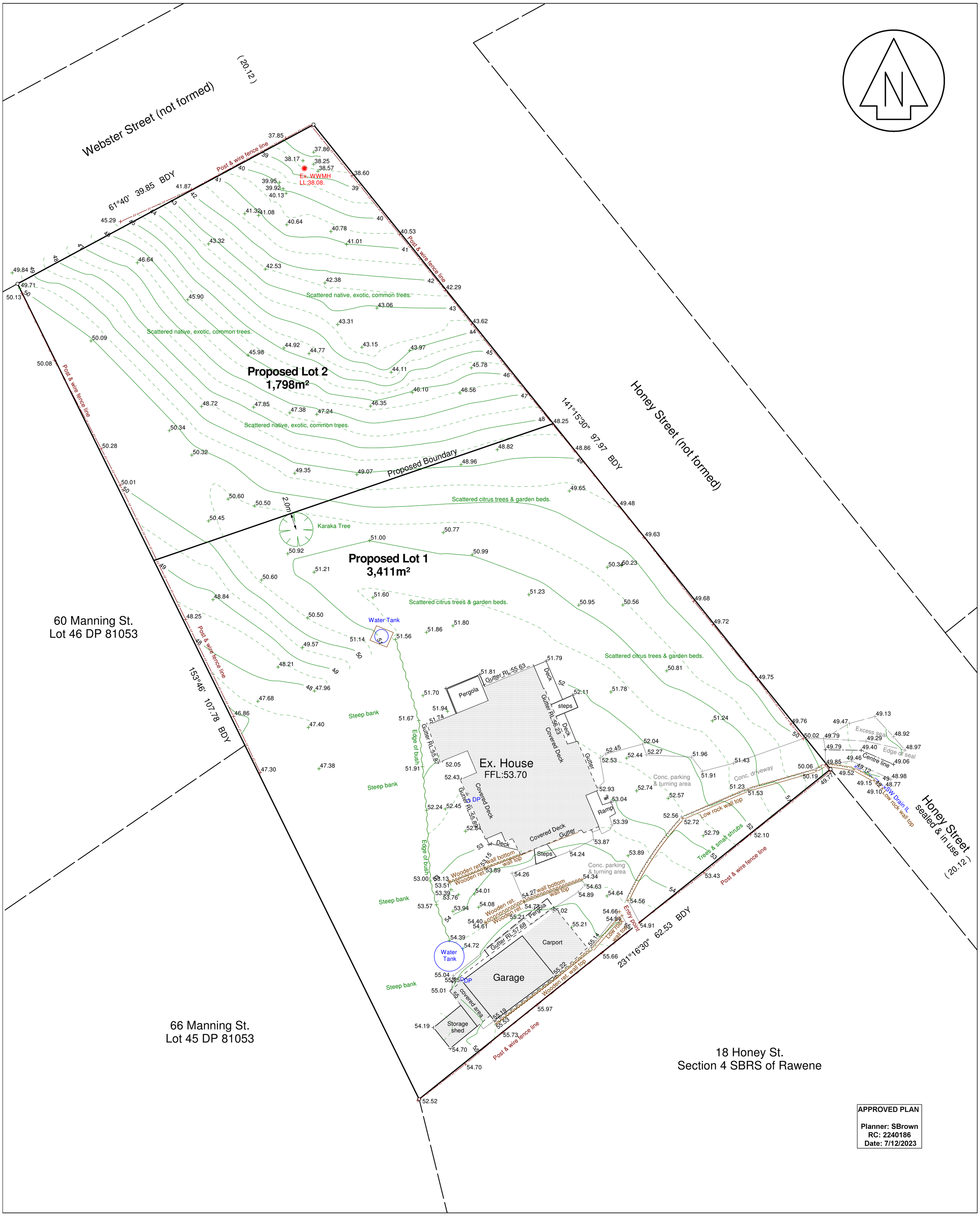
   The activity will avoid, remedy or mitigate any potential adverse effects on the environment while providing for the sustainable management of natural and physical resources and is therefore in keeping with the Purpose and Principles of the Act. The proposal is an efficient use and development of the site that will maintain existing amenity values without compromising the quality of the environment. The activity is not considered to raise any issues in regard to Te Tiriti o Waitangi.

9. Overall, for the reasons above it is appropriate for consent to be granted subject to the imposed conditions.

Approval

This resource consent has been prepared by Salamasina Brown, Intermediate Resource Planner. I have reviewed this and the associated information (including the application and electronic file material) and for the reasons and subject to the conditions above, and under delegated authority, grant this resource consent.

Simeon Mclean **Date: 07 December 2023**
Team Leader Resource Consents



APPROVED PLAN

Planner: SBrown
RC: 2240186
Date: 7/12/2023

NOTES:

Major Contours are at 1.0m intervals. Minor Contours are at 0.5m intervals. Contours are interpolated only.

This survey has been completed to standard topographical survey accuracies of approximately between +/- 0.03m to 0.05m. If a higher accuracy is required then further survey measurements will be necessary.

Drawing Title

Draft Scheme Plan

Client

Wendy Henwood

Address

26 Honey Street, Rawene

Legal Description

Lot 43 DP 81053

Levels are in terms of Lands & Survey Datum Auckland 1946.
Origin of Levels: SM 1004 SO 62316. RL:22.799.

Local Authority: Far Noth District Coucil
Total Area: 5209 m²
Comprised in RT: NA37D/69

Original Scale	Date	Revision No
1:200 A1	16/12/2022	1
CAD File & Directory		
Henwood_Scheme Plan - SP1		

Far North District Council

Office Use Only
Application Number:

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

O Land Use O Fast Track Land Use* ☑ Subdivision O Discharge
O Extension of time (s.125) O Change of conditions (s.127) O Change of Consent Notice (s.221(3))
O Consent under National Environmental Standard (e.g. Assessing and Managing Contaminants in Soil)
O Other (please specify) _____

***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.**

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

~~Yes~~ / No

4. Applicant Details:

Name/s: Wendy Henwood

Electronic Address for Service (E-mail): tirairaka@outlook.com

Phone Numbers: Work: _____ Home: _____

Postal Address: (*or* alternative method of service under section 352 of the Act): 26 Honey Street, Rawene

Post Code: 0473

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

Name/s: Bay of Islands Planning (2022) Limited - Steve Sanson

Electronic Address for Service (E-mail): steve@bayplan.co.nz

Phone Numbers: Work: 0211606035 Home: _____

Postal Address: (*or* alternative method of service under section 352 of the Act): Po Box 318, Paihia, 0247

Post Code: _____

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

6. 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: Refer Record of Titles appended to the AEE

Property Address/: Location: 26 Honey Street, Rawene

7. Application Site Details:

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

Site Address/ Location: 26 Honey Street, Rawene

Legal Description: Lot 43 DP 81053 Val Number: 00611-32700

Certificate of Title: NA37D/69

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

Site Visit Requirements:

Is there a locked gate or security system restricting access by Council staff? ~~Yes~~ / No

Is there a dog on the property? ~~Yes~~ / No

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

8. 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.

2 x lot subdivision in the Coastal Residential Zone - Rawene

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.

9. Would you like to request Public Notification ~~Yes~~/No

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

O Building Consent (BC ref # if known)

O Regional Council Consent (ref # if known)

O National Environmental Standard consent

O Other (please specify)

11. 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)

O yes ☑ no O don't know

Is the proposed activity an activity covered by the NES? (If the activity is any of the activities listed below, then you need to tick the 'yes' circle).

☑ yes O no O don't know

☑ Subdividing land

O Changing the use of a piece of land

O Disturbing, removing or sampling soil

O Removing or replacing a fuel storage system

12. 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 attach your AEE to this application.

13. 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) Wendy Henwood

Email: tirairaka@outlook.com

Postal Address: 26 Honey Street, Rawene

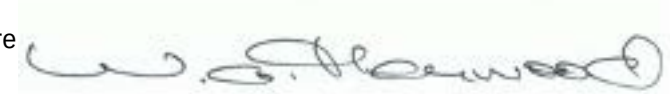
Post Code: 0473

Phone Numbers: Work: _____ Home: _____ Fax: _____

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: Wendy Henwood (please print)

Signature  er – **mandatory**) Date: 23.10.2023

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. 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)

Signature:_____(signature) Date: _____

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

Checklist (please tick if information is provided)

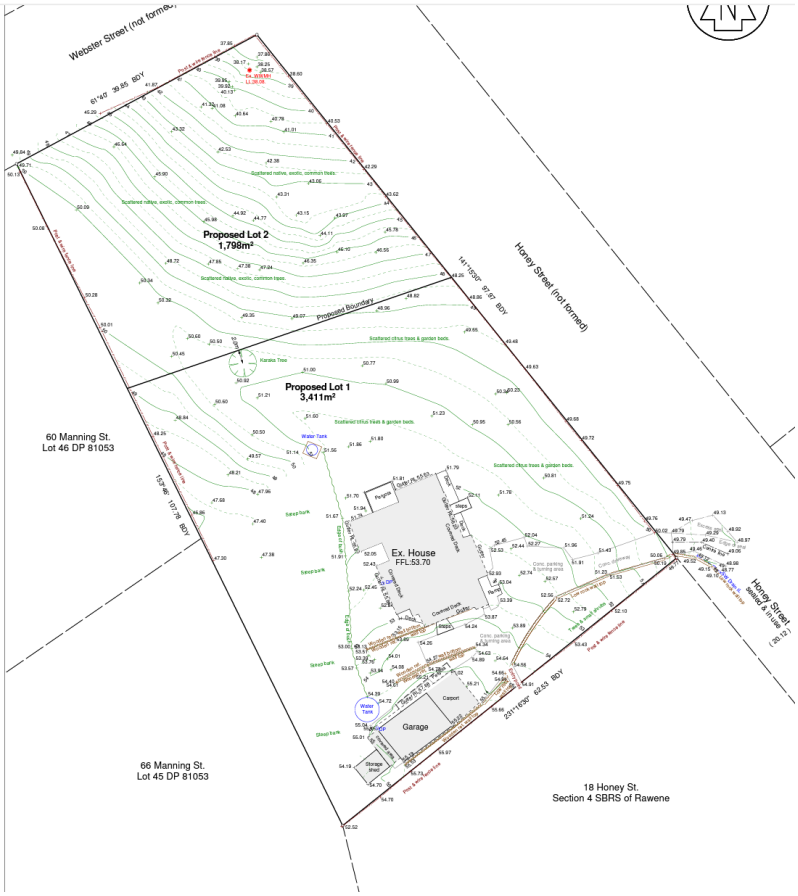
- ○ Payment (cheques payable to Far North District Council)
- ○ A current Certificate of Title (Search Copy not more than 6 months old)
- ○ Copies of any listed encumbrances, easements and/or consent notices relevant to the application
- ○ Applicant / Agent / Property Owner / Bill Payer details provided
- ○ 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
- ○ Location and Site plans (land use) AND/OR
- ○ Location and Scheme Plan (subdivision)
- ○ Elevations / Floor plans
- ○ Topographical / contour plans

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

Only one copy of an application is required, but please note for copying and scanning purposes, documentation should be:

UNBOUND **SINGLE SIDED** **NO LARGER THAN A3 in SIZE**

Bay of Islands Planning [2022] Limited



Assessment of Environmental Effects (AEE)

Application for Resource Consent: Proposed 2 x Lot Subdivision in the Coastal Residential Zone

Prepared for: Wendy Henwood

Prepared by: Kenton Baxter | Consultant Planner

Reviewed by: Steve Sanson | Consultant Planner

1. APPLICANT & PROPERTY DETAILS

Applicant	Wendy Henwood
Address for Service	Bay of Islands Planning [2022] Limited PO Box 318 PAIHIA 0247 C/O – Kenton Baxter kenton@bayplan.co.nz 09 407 5253
Legal Description	Lot 43 DP 81053
Certificate Of Title	NA37D/69
Physical Address	26 Honey Street, Rawene
Site Area	5209m^2
Owner of the Site	Wendy Henwood
District Plan Zone / Features	Coastal Residential Zone [ODP] General Residential Zone and Coastal Environment Overlay[PDP]
Archaeology	Nil
NRC Overlays	Nil
Soils	NA
Protected Natural Area	Nil
HAIL	Nil

Schedule 1

2. SUMMARY OF PROPOSAL

Proposal	To undertake a 2 Lot subdivision as a Controlled Activity in the Coastal Residential Zone. No land use breaches have been identified.
Reason for Application	The proposal is a Controlled Activity Subdivision as per the Plan. Overall, the application is a Controlled Activity.
Appendices	Appendix 1 – Record of Title & instruments Appendix 2 – Scheme Plan Appendix 3 – Site Suitability Report [Geologix] Appendix 4 – Chorus & Top Energy Consultation
Consultation	Refer Top Energy & Chorus above
Pre Application Consultation	Nil

3. INTRODUCTION & PROPOSAL

3.1 Report Requirements

This report has been prepared for Wendy Henwood in support of a subdivision consent application at 26 Honey Street, Rawene.

The application has been prepared in accordance with the provisions of Section 88 and the Fourth Schedule of the Resource Management Act 1991. This report serves as the Assessment of Environmental Effects required under both provisions.

The report also includes an analysis of the relevant provisions of the Far North District Plan, relevant Regional Planning documents, National Policy Statements and Environmental Standards, as well as Part 2 of the Resource Management Act 1991.

3.2 Proposal

Application Site:

The subject site is located at the northwestern end of Honey Street. The site is irregular rectangle in shape and measures a total of 5,209m^2, it falls within the Coastal Residential Zone as identified by the Operative Far North District Plan.

Existing access to the property is located at the southeastern corner of the site off Honey Street. The driveway leads to the existing dwelling and detached garage at the southern part of the site.

The remainder of the site is predominantly landscaping and vegetation. A range of further details regarding the site are outlined in Schedule 1 of this report.

These details are supplemented by the Record of Title and relevant instruments located in Appendix 1.

Subdivision & Land Use Consent: The proposal seeks approval to undertake a two-lot subdivision with applicable easements for access and servicing as a Controlled Activity in the Coastal Residential Zone. There is an existing dwelling and detached garage with no further development proposed as part of this application.

There are no consents required under the Proposed District Plan rules that have legal effect. There are also no land use consents required in relation to the FNDC ODP.

Figure 1 – Location of site: Source PROVER

4. SITE & SURROUNDING ENVIRONMENT

4.1 Zoning, Overlays, & Instruments

The property is located entirely within the Coastal Residential Zone and is not only subject to any overlays under the ODP. Under the PDP, the site is zoned General Residential with a Coastal Environment overlay.

Figure 2: ODP Zoning – Coastal Residential (Source Far North Maps)

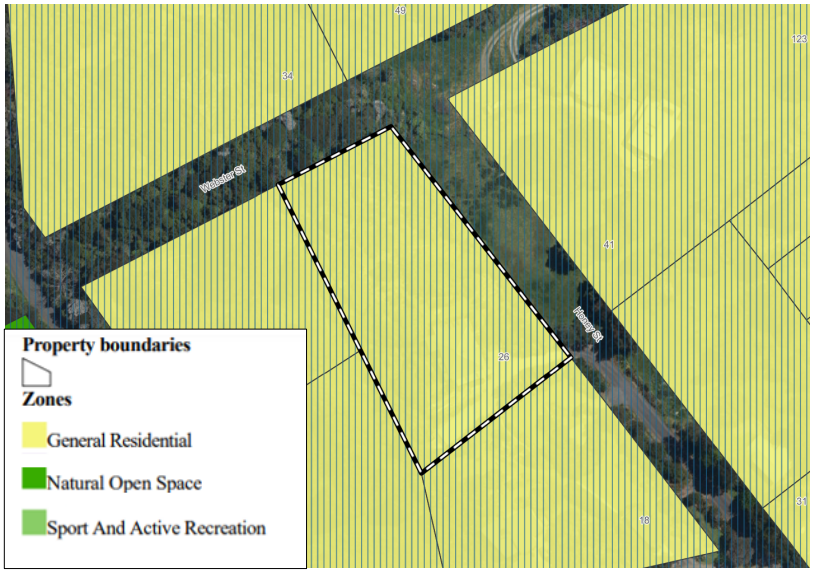


Figure 3 – PDP Zoning (Source: Far North Maps)

4.2 Location

As noted above, the application site is located at 26 Honey Street, Rawene which is approx. 2km south of the main Rawene township being a 4 minute drive / 30 minute walk.

Figure 4 – Site and surrounding environment (Source: FNDC GIS)

4.3 Topography & Natural Features

The site slopes from south to north and contains no natural features or sites of significance.

4.4 Built Form & Access

The subject site currently comprises of one existing dwelling and a detached garage, all held under a single title. The proposed subdivision will result in two separate lots, with one lot containing the existing development and the other being vacant.

The site's existing vehicle access will be retained in relation to proposed lot 1. The proposed vacant lot 2 will have its own access. The Geologix Report

recommends an extension to Honey Street to be constructed to private access standards with a 3m carriageway width as it will only serve a single additional lot.

All lots and their respective dwellings are, or will be, equipped with sufficient onsite parking to accommodate the expected parking demand.

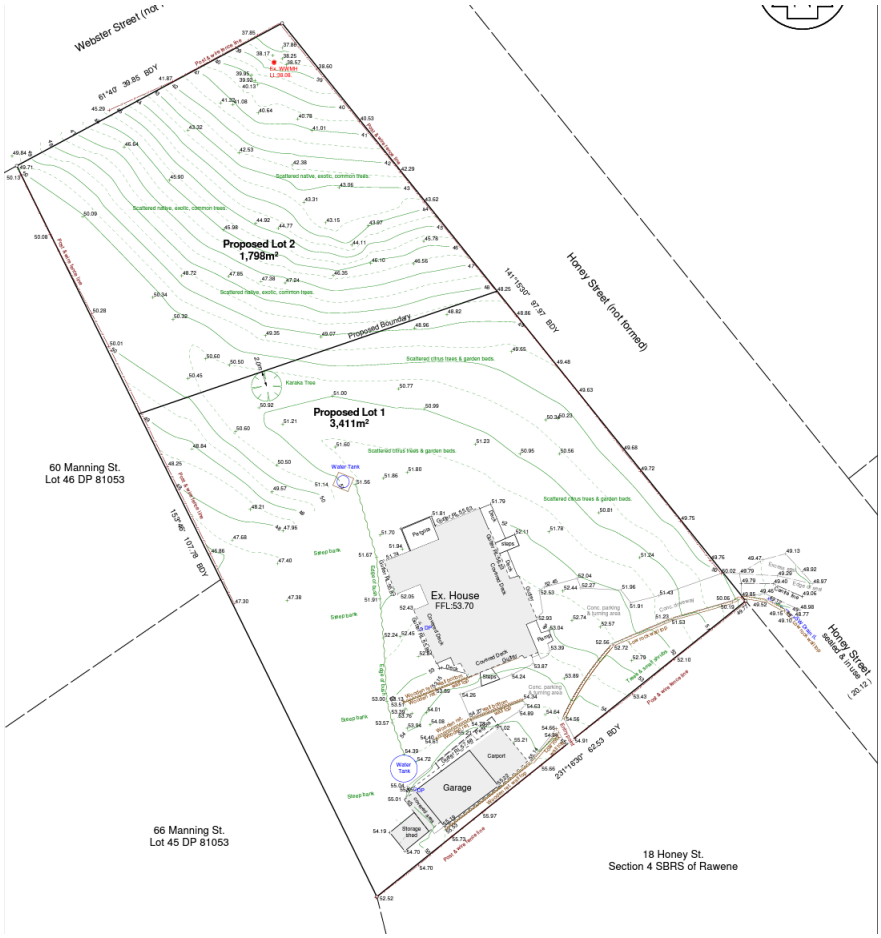


Figure 5 – Proposed subdivision and site development

4.5 Surrounding Environment

The subject site is located within a larger area of coastal residentially zoned land. Immediately surrounding sites are similar in size and smaller, ranging from 3,811m^2 to 6,283m^2. Other sites in the area are as small as 822m^2.

There are a number of paper roads in the area that have not been formed yet. To the west of the site is an area of conservation zoned land. Further south and east outside the Rawene township is larger parcels that contain rural production activities. This land is zoned Rural Production.

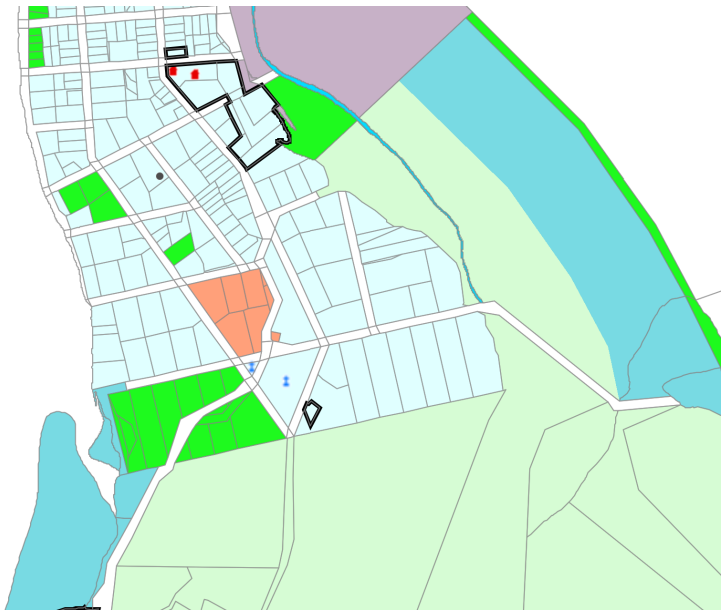


Figure 6 – Site and surrounding zoning (Source: FNDC GIS)

5. ASSESSMENT OF RELEVANT RULES

5.1 Far North District Plan

An assessment of the relevant rules of the Far North District Plan has been undertaken below:

Table 1: Subdivision Performance Standards

Performance Standard	Comment
TABLE 13.7.2.1: Minimum lot sizes Min lot site: - Unsewered: 3000m^2 - Sewered: 800m^2	Minimum lot size will be 1,798m^2. All sites are sewered therefore compliance is met. Refer to Appendix 2. for the Scheme Plan. **Controlled Activity**
Rule 13.7.2.2 – Allotment dimensions Must be able to accommodate a square building envelope of 14m x 14m	All proposed lots can accommodate a 14 x 14m square.
Rule 13.7.2.3 - Rule 13.7.2.9	Not applicable

Table 2: Coastal Residential Zone Land Use Rules

Performance Standard	Comment
10.8.5.11 Relocated Buildings	N/A
10.8.5.1.2 Residential Intensity	N/A

(a) Each residential unit for a single household shall have available to it a minimum net site area of: Sewered sites: 800m² Unsewered sites: 3,000m² This minimum net site area may be for the exclusive use of the residential unit, or as part of land held elsewhere on the property, provided that a ratio of one residential unit per minimum net site area (as stated above) is not exceeded. Except that this rule shall not limit the use of an existing site for a single residential unit for a single household, provided that all other standards for permitted activities are complied with.	
10.8.5.1.3 Scale of Activities	Complies
10.8.5.1.4 Building Height	Each building is compliant / existing.
10.8.5.1.5 Sunlight	Each building is compliant / existing.
10.8.5.1.6 Stormwater Management	Each building is compliant / existing.
10.8.5.1.7 Setback from boundaries	Each building is compliant / existing.
10.8.5.1.8 Screening for Neighbours – Non Residential Activities	Each building is compliant / existing.
10.8.5.1.9 Outdoor Activities	Not applicable
10.8.5.1.10 Transportation	Refer Table

10.8.5.1.11 Site Intensity Non Residential	N/A
10.8.5.1.12 Hours of Operation Non Residential	N/A
10.8.5.1.13 Keeping of Animals	N/A
10.8.5.1.14 Noise	N/A
10.8.5.1.15 Helicopter Landing Area	N/A
10.8.5.1.16 Building Coverage	Each building is compliant / existing.

Table 3: Transportation Performance Standards

Performance Standard	Comment
15.1.6A.2 Traffic Intensity	Each site would be able to generate 20 traffic movements. Lots 1 has an existing dwelling (10 movements per dwelling). This is permitted on a per site basis.
15.1.6B.1 Parking	On-site parking can be / is provided on site. No accessible car parks are required.
15.1.6C Access	The proposal provides sufficient width for the accessway which will be formed to private accessway standards in relation to proposed Lot

	2. This is confirmed by the Geologix Report found in Appendix 3. **Permitted Activity**

Overall, this subdivision application falls to be considered as a 'Controlled Activity' under the Operative Far North District Plan.

Clause 2(1)(d) of Schedule 4 of the RMA requires applicants to identify other activities of the proposal with the intention of capturing activities which need permission or licensing under other enactments. These are considered below.

5.3 Northland Regional Council Requirements

The relevant matter to consider in terms of the proposal is with respect to the matters under management of the Northland Regional Council.

The proposal has been assessed against the Proposed Regional Plan for Northland (Appeals Version – July 2021) and no consents are required.

5.4 Proposed Far North District Plan 2022

The PDP has rules which have immediate legal effect for the following chapters:

Table 4 – Assessment of the PDP Rules

Matter	Rule/Std Ref	Evidence
Hazardous Substances	Rule HS-R2 has immediate legal effect but only for a new	Not relevant as no such substances proposed.

	significant hazardous facility located within a scheduled site and area of significance to Māori, significant natural area or a scheduled heritage resource. HS-R5, HS-R6, HS-R9	
Heritage Area Overlays	All rules have immediate legal effect (HA-R1 to HA-R14) All standards have immediate legal effect (HA-S1 to HA-S3)	Not relevant.
Historic Heritage	All rules have immediate legal effect (HH-R1 to HH-R10) Schedule 2 has immediate legal effect	Not relevant.

Notable Trees	All rules have immediate legal effect (NT-R1 to NT-R9) All standards have legal effect (NT-S1 to NT-S2) Schedule 1 has immediate legal effect	Not relevant.
Sites and Areas of Significance to Māori	All rules have immediate legal effect (SASM-R1 to SASM-R7) Schedule 3 has immediate legal effect	Not relevant.
Ecosystems and Indigenous Biodiversity	All rules have immediate legal effect (IB-R1 to IB-R5)	Not relevant.
Activities on the Surface of Water	All rules have immediate legal effect (ASW-R1 to ASW-R4)	Not relevant.

Earthworks	The following rules have immediate legal effect: EW-R12, EW-R13 The following standards have immediate legal effect: EW-S3, EW-S5	These standards can be imposed and required at time of EPA.
Signs	The following rules have immediate legal effect: SIGN-R9, SIGN-R10 All standards have immediate legal effect but only for signs on or attached to a scheduled heritage resource or heritage area	Not relevant.
Orongo Bay Zone	Rule OBZ-R14 has partial immediate legal	Not relevant.

	effect because RD-1(5) relates to water	

No consents are required under the PDP.

6. NOTIFICATION ASSESSMENT

6.1 Public Notification

The table below outlines the steps associated with public notification insofar as it relates to s95 of the Act.

Table 5 – s95 Assessment

Step 1	Mandatory public notification in certain circumstances	
S95A(3)(a)	Has the applicant requested that the application be publicly notified?	No
S95A(3)(b)	Is public notification required under section 95C? (after a request for further information)	TBC
S95A(3)(c)	Has the application been made jointly with an application to exchange recreation reserve land under section 15AA of the Reserves Act 1977.	No
Step 2	if not required by step 1, public notification precluded in certain circumstances	
S95A(5)(a)	Is the application for a resource consent for 1 or more activities and each activity is subject to a rule or national environmental standard that precludes public notification?	No
S95A(5)(b)	Is the application for a resource consent for 1 or more of the following, but no other, activities. (i) a controlled activity. (ii) a restricted discretionary, discretionary, or non-complying activity, but only if the activity is a boundary activity.	No

The proposed development does not meet the tests for mandatory public notification, nor does it meet the tests for precluding public notification. Therefore, an assessment of environmental effects is required to consider whether these matters should be further explored.

7. EFFECTS ON THE ENVIRONMENT

7.1 Effects That Must Be Disregarded

Effects on persons who are owners and occupiers of the land in, on, or over which the application relates, or of adjacent land must be disregarded when considering effects on the environment (s 95D(a)).

Those properties / persons are shown in Table 6 below.

Table 6: Adjacent Persons

Legal parcel	Address
Lot 46 DP 81053	60 Manning Street
Lot 45 DP 81053	60 Manning Street
Section 44 Suburbs of Auckland	18 Honey Street
Section 14-15 Suburbs of Rawene	54 Manning Street
Section 35-36 Suburbs of Rawene	123 Parnell Street

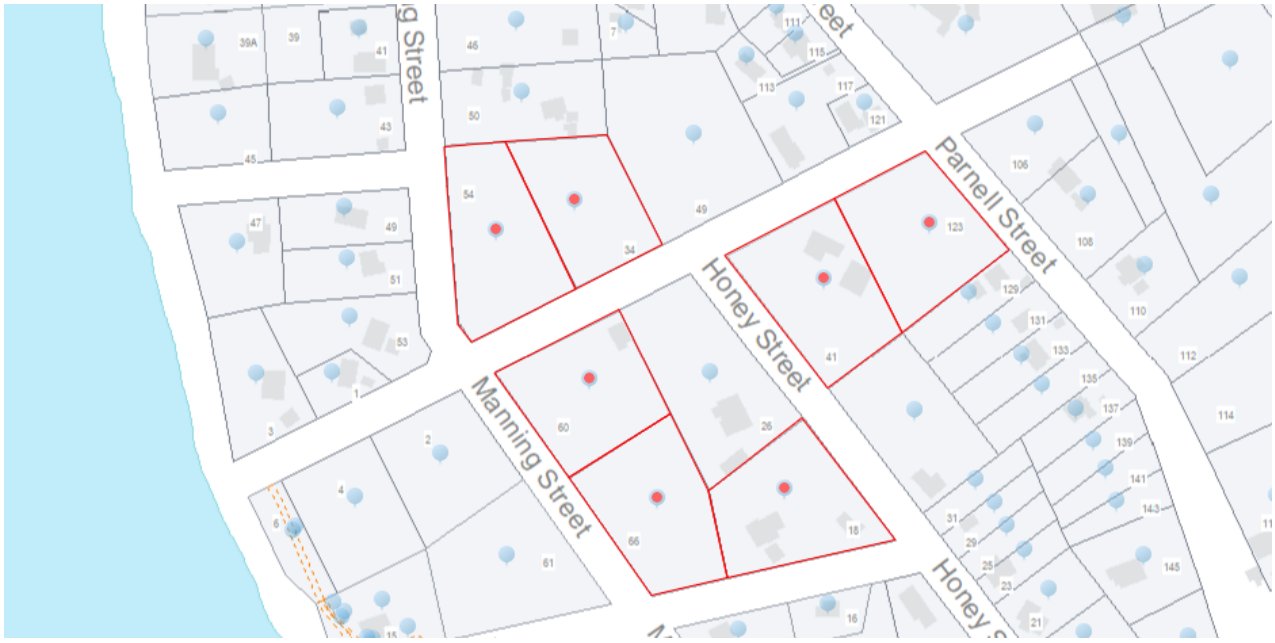


Figure 7 – Adjacent Persons (Source: Prover)

7.2 Written Approvals

No written approvals have been sought.

7.3 Effects That May Be Disregarded

Sections 95D(b) and 95E(2)(a) provide that when determining the extent of the adverse effects of an activity or the effects on a person respectively, a council 'may disregard an adverse effect if a rule or national environmental standard permits an activity with that effect'. This is known as the permitted activity baseline test.

The purpose of the permitted baseline test is to isolate and make effects of activities on the environment that are permitted by a plan or NES, irrelevant.

When applying the permitted baseline such effects cannot then be taken into account when assessing the effects of a particular resource consent application.

The baseline has been defined by case law as comprising non-fanciful (credible) activities that would be permitted as of right by the plan in question.

In terms of the development site and proposal at hand, the following is considered relevant:

- The site can accommodate up to 200m^3 of earthworks. Only 168.2m^3 of earthworks are required, making this aspect permitted in all respects.
- Residential intensity is capped at 1 house per 800m^2 of land. This is adhered to via the subdivision, therefore, the density sought is no different than what could be achieved as a land use proposal.

It is contended that the above effects should be isolated from consideration of the overall effects of the development in terms of s95D, s95E and 104(1)(a) of the RMA.

7.4 Existing Environment

The receiving environment is the environment upon which a proposed activity might have effects. It is permissible (and often desirable or necessary) to consider the future state of the environment upon which effects will occur, including:

- the future state of the environment as it might be modified by the utilization of rights to carry out permitted activities (refer above).

- the environment as it might be modified by implementing resource consents that have been granted at the time a particular application is considered, where it appears likely that those resource consents will be implemented.

The existing environment in this instance is characterized by the existing and legalized built development already located on site.

There are no known unimplemented consents in the environment.

7.5 Effects Assessment

The following assessment (refer Table 7) has been prepared in accordance with Section 88 and Schedule 4 of the Act which specifies that the assessment of effects provided should correspond with the scale and significance of the proposal.

The effects assessment is largely linked to the rules breached as well as any other matter that is considered relevant to the scope and context of the overall development.

Table 7 – Effect Assessment (Environment)

Item	Assessment Criteria	Comments
Positive Effects	Nil	The proposal provides for economic and social wellbeing for the current site owner and also creates two fee simple lots around one existing dwelling hereby providing legal titles for the dwelling and an additional vacant lot. This allows the site owner to easily sell off one of the sections should they seek. The proposal will create a lot around the existing dwelling and an additional vacant lot which is anticipated to be developed in the future for coastal residential activities representing an acceptable form of development on the environment.
Property Access	13.7.3.1	The proposal can comply with the transportation, parking and access aspects of the ODP. The proposal is supported by a Site Suitability Report (see Appendix 3), which has assessed the access requirements of the proposal. Geologix consider that an accessway for Lot 2 off Honey Street can be serviced by a 3m wide carriageway in accordance with private access standards, given this is the only lot the access will serve. Overall, effects are considered less than minor.

Natural & Other Hazards	13.7.3.2	The Geologix report only needs to consider Lot 2 as the other lot has been developed. They conclude that Lot 2 is not under any significant risk from natural hazards that would cause s106 of the RMA to apply. Foundations for Lot 2 fall outside of the definition of good ground, therefore site specific geotechnical recommendations are required at time of building consent. Overall, effects are considered less than minor.
Water Supply	13.7.3.3	The Geologix report notes that there is an existing council 100 uPVC line present to the south of the site along Honey Street. The existing water connection conveys to the entrance of 26 Honey Street contains a water meter. It is proposed this pipeline will be extended further down Honey Street to the entrance of lot 2. A fire hydrant is located within the required standards located north of the site outside 49 Webster Street (unformed) which is approximately 100 m from proposed building site which meets the standard of one fire hydrant within 135m. Overall, effects are considered less than minor.
Stormwater Disposal	13.7.3.4	Following subdivision, the Geologix report notes that each site remains permitted in terms of stormwater coverage. Geologix recommend a stormwater consent notice to manage future development on each lot (if undertaken).

		Onsite stormwater disposal is required in this location as there are no reticulated stormwater connections available in this location. Overall, effects are considered less than minor.
Sanitary Sewage Disposal	13.7.3.5	The Geologix report shows that Lot 1 has an existing wastewater connection and lot 2 can be connected to the FNDC reticulation in accordance with their recommendations. Overall, effects are considered less than minor.
Energy Supply	13.7.3.6	Top Energy has been consulted to provide approved and this is attached at Appendix 4.
Telecommunications	13.7.3.7	Chorus requirements are attached at Appendix 4.
Easements for Any Purpose	13.7.3.8	Please refer to the scheme plan in Appendix 2.
Preservation of Heritage Resources, Vegetation, Fauna and Landscape, and Land Set Aside for Conservation Purposes	13.7.3.9	None of these items implicate the site.

Access to Reserves and Waterways	13.7.3.10	The site does not adjoin a waterway.
Land Use Compatibility	13.7.3.11	1 of the 2 sites are already developed. Lot 1 is located adjacent to other properties developed for residential uses or vacant sites which are anticipated to be residentially developed in the future. The proposal seeks a residential end use in a residential zone.
Proximity to Airports	13.7.3.12	Not relevant.
Concluding Statement: Having considered the relevant actual and potential effects associated with the development, it is considered that the proposed activity promotes effects that are no more than minor on the environment.		

8. EFFECTS TO PEOPLE

8.1 Limited Notification

The table below outlines the steps associated with limited notification insofar as it relates to s95 of the Act.

Table 8 – s95 Assessment

Step 1	certain affected groups and affected persons must be notified	
S95B(2)(a)	Are there any affected protected customary rights groups?	No
S95B(2)(b)	Are there any affected customary marine title groups (in the case of an application for a resource consent for an accommodated activity)?	No
S95B(3)(a)	Is the proposed activity on or adjacent to, or may affect, land that is the subject of a statutory acknowledgement made in accordance with an Act specified in Schedule 11?	No
S95B(3)(b)	Is the person to whom the statutory acknowledgement is made is an affected person under section 95E?	No
Step 2	if not required by step 1, limited notification precluded in certain circumstances	
S95B(6)(a)	the application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes limited notification:	No
S95B(6)(b)	the application is for a controlled activity (but no other activities) that requires a resource consent under a district plan (other than a subdivision of land)	No

8.2 Affected Person Determination

As the proposed activity does not trigger mandatory limited notification, nor is it precluded, an assessment of potential affected persons must be undertaken.

The consent authority has discretion to determine whether a person is an affected person. A person is affected if an activity's adverse effects are minor or more than minor to them.

The potential effects of the proposal on adjacent landowners have been undertaken below in context of those parties outlined earlier in Section 7.

8.3 Effects on Persons Assessment

The proposal is not considered to result in any potential affected persons for the following reasons:

- The proposal requires minimal earthworks (<200m^3) which can be undertaken with standard consent conditions imposed.
- There is no vegetation clearance required / proposed.
- Most services are provided to each lot except stormwater, disposal of stormwater can be accommodated on each lot. There is no wastewater disposal to land in this instance. Waterways are not implicated.
- There are no special features / resources that apply to the site.
- The proposal will result in residential end use, in the coastal residential zone and the density proposal aligns with the Controlled Activity requirements.

9. STATUTORY CONTEXT

9.1 National Policy Statements & Plans

In terms of NPS' and NES' the following is provided:

- With respect to the National Environmental Standard – Soil Contamination, the site is not HAIL.
- The site is within the Coastal Environment as per the Regional Policy Statement and therefore the New Zealand Coastal Policy Statement is relevant. Given the proposal is a controlled subdivision within a coastal residential zoned area it is considered appropriate.
- The site is within an urban area and is considered to be contributing to the outcomes outlined in the NPS – Urban Development.
- The site has no wetlands attributed to it as defined in various planning documents. The NPS for Freshwater Management is not considered relevant.
- The site is zoned Coastal Residential and therefore the NPS Highly Productive Land does not apply.

9.2 Regional Policy Statement for Northland

The Regional Policy Statement (RPS) for Northland sets the broad direction and framework for managing the region's natural and physical resources. It identifies significant resource management issues for the region and sets out how resources such as land, water, soil, minerals, plants, animals, and structures will be managed.

The RPS recognises that there are activities and land that should be protected from the negative impacts brought about through subdivision, as further development can result in incompatible land use, effects on receiving environments, reverse sensitivity issues and sterilisation of productive land.

In this context, the proposed subdivision aligns with the objectives of the RPS. It entails the division of existing residential activities within an established residential area. Importantly, the proposed lots are intended for residential purposes, which is consistent with the current and foreseeable use of the land.

Existing measures are in place for access and servicing through appropriate on-site infrastructure and connections to reticulated services. Therefore, the proposal is in accordance with the principles outlined in the RPS.

9.3 Far North District Plan Assessment

An assessment of the relevant objectives and policies associated with the Far North District Plan has been undertaken:

Chapter 13 - Subdivision

Objectives: 13.3.1, 13.3.2, 13.3.5, 13.3.7, 13.3.8, 13.3.9 and 13.3.10

Policies: 13.4.1, 13.4.2, 13.4.3, 13.4.8, 13.4.11 and 13.4.14

The subdivision is consistent with the objectives and policies which underscore the importance of ensuring development does not compromise the environment, infrastructure, or the character of the area. The proposed subdivision aims to integrate with existing activities while adhering to sustainable land use practices.

The relevant policies (identified above) guide development towards maintaining environmental and cultural values, promoting efficient land use, and minimising adverse effects on infrastructure. The proposal's design and adherence to these policies demonstrate a commitment to responsible development that complements the existing landscape, supports community needs, and respects the district's unique characteristics.

The site itself lacks identified landscape values and poses no hindrance to the continued operation of adjacent land uses. The existing occupied lot have satisfactory access to essential services, ensuring their functionality. Adequate and secure access can be established for proposed lot 2.

This proposed subdivision, creating two new lots in the vicinity of pre-approved development, will inherently exhibit negligible visual and physical effects on the broader environment.

The spacious layout of the development and the scale of the existing dwelling aligns with the Plan's expectations. Moreover, the subdivision pattern mirrors the prevailing development trend in the locality and conforms to common subdivision practices.

The new lots are appropriately equipped with essential easements to facilitate legal servicing rights. Additionally, the site demonstrates stability, with no concerns regarding flooding, waterways, or overall site integrity. Consequently, the proposal aligns with the objectives and policies of the subdivision chapter.

Table 9 – ODP Coastal Residential Zone Assessment

Objectives	Assessment
10.8.3.1 To enable the development of residential activity in and around existing coastal settlements.	The proposal seeks a Controlled Activity density.
10.8.3.2 To protect the coastline from inappropriate subdivision, use and development.	As the density is compatible, so too are the activities which are residential in nature.
10.3.3.3 To enable the development of coastal settlements where urban amenity and coastal environmental values are compatible.	The proposed density is anticipated within this zone.
Policies	Assessment
10.8.4.1 That standards in the zone enable a range of housing types and forms of accommodation to be provided, recognising the diverse needs of the community and the coastal location of the zone.	Noted.
10.8.4.2 Non-residential activities within the Coastal Residential Zone shall be designed, built, and located so that any effects that are more	Coastal residential type activities are anticipated.

than minor on the existing character of the residential environment or the scale and intensity of residential activities, are avoided, remedied or mitigated.	
10.8.4.3 That residential activities have sufficient land associated with each household unit to provide for outdoor space and sewage disposal.	Connection to Councils reticulated system can be accommodated.
10.8.4.4 That the portion of a site covered in buildings and other impermeable surfaces be limited to enable open space and landscaping around buildings and avoid or mitigate the effects of stormwater runoff on receiving environments.	Noted.
10.8.4.5 That provision be made for ensuring sites have adequate access to sunlight and daylight.	Noted.
10.8.4.6 That activities with net effects greater than a single residential unit could be expected to have, be required to minimise adverse effects on the amenity values and general peaceful	Not relevant.

enjoyment of any adjacent residential activities.	
10.8.4.7 That provision be made to ensure a reasonable level of privacy and amenity for inhabitants of buildings.	Noted.

9.4 Proposed Far North District Plan

Section 88A(2) provides that "any plan or proposed plan which exists when the application is considered must be had regard to in accordance with section 104(1)(b)." This requires applications to be assessed under both the operative and proposed objective and policy frameworks from the date of notification of the proposed district plan.

In the event of differing directives between objective and policy frameworks, it is well established by case law that the weight to be given to a proposed district plan depends on what stage the relevant provisions have reached, the weight generally being greater as a proposed plan moves through the notification and hearing process. In Keystone Ridge Ltd v Auckland City Council, the High Court held that the extent to which the provisions of a proposed plan are relevant should be considered on a case by case basis and might include:

- The extent (if any) to which the proposed measure might have been exposed to testing and independent decision making;
- Circumstances of injustice; and

- The extent to which a new measure, or the absence of one, might implement a coherent pattern of objectives and policies in a plan.

In my view the PDP has not gone through a sufficient process to allow a considered view of the relevant objectives and policies. However, for fullness the Subdivision, General Residential and Coastal Environment objectives and policies have been assessed below.

Table 10 – PDP General Residential Zone Assessment

Objective	Assessment
GRZ- O1 The General Residential zone provides a variety of densities, housing types and lot sizes that respond to: housing needs and demand; the adequacy and capacity of available or programmed development infrastructure; the amenity and character of the receiving residential environment; and historic heritage.	Noted.
GRZ- O2 The General Residential zone consolidates urban residential development around available or programmed development infrastructure to improve the function and resilience of the receiving residential environment while reducing urban sprawl.	Noted.
GRZ-O3 Non-residential activities contribute to the well-being of the community while	Noted.

complementing the scale, character and amenity of the General Residential zone	
GRZ-O4 Land use and subdivision in the General Residential zone is supported where there is adequacy and capacity of available or programmed development infrastructure.	There are adequate services to the site.
GRZ – O5 Land use and subdivision in the General Residential zone provides communities with functional and high amenity living environments	The proposal meets the density of a Controlled Activity, thus must meet the objective.
GRZ -O6 Residential communities are resilient to changes in climate and are responsive to changes in sustainable development techniques.	Noted.
Policy	**Assessment**
GRZ-P1 Enable land use and subdivision in the General Residential zone where: there is adequacy and capacity of available or programmed development infrastructure to support it; and it is consistent with the scale, character and amenity anticipated in the residential environment	Services are available to the site. If not they can be accommodated onsite (i.e. stormwater).
GRZ-P2 Require all subdivision in the General Residential zone to provide the following reticulated services to the boundary of each lot: telecommunications:	These are provided.

fibre where it is available; or copper where fibre is not available; local electricity distribution network; wastewater; and potable water and stormwater where it is available.	
GRZ – P3 Enable multi-unit developments within the General Residential zone, including terraced housing and apartments, where there is adequacy and capacity of available or programmed development infrastructure.	Not relevant.
GRZP4 Enable non-residential activities that: do not detract from the vitality and viability of the Mixed Use zone; support the social and economic well-being of the community; are of a residential scale; and are consistent with the scale, character and amenity of the General Residential zone.	Not relevant.
GRZ P5 Provide for retirement villages where they: compliment the character and amenity values of the surrounding area; contribute to the diverse needs of the community;	Not relevant.

do not adversely affect road safety or the efficiency of the transport network; and can be serviced by adequate development infrastructure.	
GRZ P6 Encourage and support the use of on-site water storage to enable sustainable and efficient use of water resources	Noted.
GRZ P7 Encourage energy efficient design and the use of small-scale renewable electricity generation in the construction of residential development.	Noted.
GRZ P8 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: consistency with the scale, design, amenity and character of the residential environment; the location, scale and design of buildings or structures, potential for shadowing and visual dominance; for residential activities: provision for outdoor living space; privacy for adjoining sites; access to sunlight; for non-residential activities: scale and compatibility with residential activities	1 out of the 2 lots are developed and consistent with the surrounds. Should development on Lot 2 require consent, than these matters can be assessed. If no consent is required, than arguably it meets the intent of the policy.

hours of operation at zone interfaces, any setbacks, fencing, screening or landscaping required to address potential conflicts; the adequacy and capacity of available or programmed development infrastructure to accommodate the proposed activity, including: opportunities for low impact design principles ability of the site to address stormwater and soakage; managing natural hazards; and any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6	

Table 11: Objectives and Policies Assessment of the Subdivision Chapter

Objective	Assessment
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	The land is zoned coastal residential and an additional lot is considered to be an efficient use of land. Natural hazards are not increased.

on land from continuing to operate; d. avoids land use patterns which would prevent land from achieving the objectives and policies of the zone in which it is located; e. does not increase risk from natural hazards or risks are mitigates and existing risks reduced; and f. manages adverse effects on the environment.	
SUB-O2 Subdivision provides for the: a. Protection of highly productive land; and b. Protection, restoration or enhancement of Outstanding Natural Features, Outstanding Natural Landscapes, Natural Character of the Coastal Environment, Areas of High Natural Character, Outstanding Natural Character, wetland, lake and river margins, Significant Natural Areas, Sites and Areas of Significance to Māori, and Historic Heritage.	None of these matters are implicated.
SUB-O3 Infrastructure is planned to service the proposed subdivision and development where: a. there is existing infrastructure connecti on, infrastructure should	Infrastructure can be provided.

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; b. esplanade where land adjoins the coastal marine area; and c. esplanade where land adjoins other qualifying waterbodies.	Does not adjoin any of the specified features.
Policy	**Assessment**
SUB-P1 Enable boundary adjustments that: a. do not alter: i. the degree of non compliance with District Plan rules and standards; ii. the number and location of any access; and iii. the number of certificates of title; and b. are in accordance with the minimum lot sizes of the zone	No boundary adjustment is proposed.

and comply with access, infrastructure and esplanade provisions.	
SUB-P2 Enable subdivision for the purpose of public works, infrastructure, reserves or access.	Noted.
SUB-P3 Provide for subdivision where it results in allotments that: a. are consistent with the purpose, characteristics and qualities of the zone; b. comply with the minimum allotment sizes for each zone; c. have an adequate size and appropriate shape to contain a building platform; and d. have legal and physical access.	The proposal complies with the Controlled Activity criteria.
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.	Noted.
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:	The subdivision layout is provided around 1 existing dwellings to match existing infrastructure and existing development.

a. minimising vehicle crossings that could affect the safety and efficiency of the current and future transport network; b. avoid cul-de-sac development unless the site or the topography prevents future public access and connections; c. providing for development that encourages social interaction, neighbourhood cohesion, a sense of place and is well connected to public spaces; d. contributing to a well connected transport network that safeguards future roading connections; and e. maximising accessibility, connectivity by creating walkways, cycleways and an interconnected transport network.	
SUB-P6 Require infrastructure to be provided in an integrated and comprehensive manner by: a. demonstrating that the subdivision will be appropriately serviced and integrated with existing and planned infrastructure if available; and b. ensuring that the infrastructure is provided is in accordance the purpose,	The subdivision can be serviced.

characteristics and qualities of the zone.	
SUB-P7 Require the vesting of esplanade reserves when subdividing land adjoining the coast or other qualifying waterbodies.	Noted. There are no features of this nature that adjoin the property.
SUB-P8 Avoid rural lifestyle subdivision in the Rural Production zone unless the subdivision: a. will protect a qualifying SNA in perpetuity and result in the SNA being added to the District Plan SNA schedule; and b. will not result in the loss of versatile soils for primary production activities.	Not relevant.
SUB-P9 Avoid subdivision rural lifestyle subdivision in the Rural Production zone and Rural residential subdivision in the Rural Lifestyle zone unless the development achieves the environmental outcomes required in the management plan subdivision rule.	Not relevant.
SUB-P10 To protect amenity and character by avoiding the subdivision of minor residential units from principal residential units where resultant allotments do not comply with minimum allotment size and residential density.	Not relevant.

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	These are addressed throughout this report.

Table 12: Objectives and Policies Assessment of the Coastal Environment Chapter

Objectives	Assessment
CE-O1 - The natural character of the coastal environment is identified and managed to ensure its long-term	Noted.

preservation and protection for current and future generations.	
CE-O2 - Land use and subdivision in the coastal environment: a. preserves the characteristics and qualities of the natural character of the coastal environment; b. is consistent with the surrounding land use; c. does not result in urban sprawl occurring outside of urban zones; d. promotes restoration and enhancement of the natural character of the coastal environment; and e. recognises tangata whenua needs for ancestral use of whenua Māori.	The proposed controlled subdivision can meet these standards.
CE-O3 - Land use and subdivision in the coastal environment within urban zones is of a scale that is consistent with existing built development.	The proposal can meet this objective as it is consistent with existing land use pattern.

Policy	Assessment
CE-P1 - Identify the extent of the coastal environment as well as areas of high and outstanding natural character using the assessment criteria in APP1- Mapping methods and criteria.	This policy is met by the Council's PDP mapping tools.
CE-P2 - Avoid adverse effects of land use and subdivision on the characteristics and qualities of the coastal environment identified as:	The site does not include any of these features on it.

a. outstanding natural character; b. ONL; c. ONF.	
CE-P3 - Avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of land use and subdivision on the characteristics and qualities of the coastal environment not identified as: a. outstanding natural character; b. ONL; c. ONF.	The proposal is not anticipated to create significant adverse effects on the characteristics and qualities of the coastal environment.
CE-P4 - Preserve the visual qualities, character and integrity of the coastal environment by: a. consolidating land use and subdivision around existing urban centres and rural settlements; and b. avoiding sprawl or sporadic patterns of development.	The proposal is within a coastal residential area, therefore it is not anticipated to adversely affect these qualities.
CE-P5 - Enable land use and subdivision in urban zones within the coastal environment where: a. there is adequacy and capacity of available or programmed development infrastructure; and b. the use is consistent with, and does not compromise the characteristics and qualities.	The proposal is consistent with land use patterns and development within this area. Infrastructure can support the proposal.

CE-P6 - Enable farming activities within the coastal environment where: a. the use forms part of the values that established natural character of the coastal environment; or b. the use is consistent with, and does not compromise the characteristics and qualities.	Not applicable.
CE-P7 - Provide for the use of Māori Purpose zoned land and Treaty Settlement land in the coastal environment where: a. the use is consistent with the ancestral use of that land; and b. the use does not compromise any identified characteristics and qualities.	Not applicable.
CE-P8 - Encourage the restoration and enhancement of the natural character of the coastal environment.	The existing character of the area will not be adversely effected by the proposal.
CE-P9 - Prohibit land use and subdivision that would result in any loss and/or destruction of the characteristics and qualities in outstanding natural character areas.	The property is not considered an outstanding natural character area.
CE-P10 - Manage land use and subdivision to preserve and protect the natural character of the coastal environment, and to address the effects of the activity requiring resource consent, including (but not limited to) consideration of the following matters where relevant to the application: a. the presence or absence	The specified matters are considered to be adequately addressed within the application.

of buildings, structures or infrastructure; b. the temporary or permanent nature of any adverse effects; c. the location, scale and design of any proposed development; d. any means of integrating the building, structure or activity; e. the ability of the environment to absorb change; f. the need for and location of earthworks or vegetation clearance; g. the operational or functional need of any regionally significant infrastructure to be sited in the particular location; h. any viable alternative locations for the activity or development; i. any historical, spiritual or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6; j. the likelihood of the activity exacerbating natural hazards; k. the opportunity to enhance public access and recreation; l. the ability to improve the overall quality of coastal waters; and m. any positive contribution the development has on the characteristics and qualities.	

Overall, and considering the above, the proposal is considered to be consistent with the objectives and policies of all relevant statutory documents. In the context of the PDP, the appropriate weighting to give those objectives and policies are nil as they have yet to go through sufficient public scrutiny to determine the application at hand.

10 PART 2 ASSESSMENT

10.1 Section 5 – Purpose of The Act

Section 5 in Part 2 of the Act identifies the purpose as being the sustainable management of natural and physical resources. This means managing the use of natural and physical resources in a way that enables people and communities to provide for their social, cultural and economic well-being which sustain those resources for future generations, protecting the life supporting capacity of ecosystems, and avoiding remedying or mitigating adverse effects on the environment.

It is considered that proposal represents a sustainable use of existing resources that allow people and the community to provide for its social and economic wellbeing in a manner that mitigates adverse effects on the environment.

10.2 Section 6 – Matters of National Importance

In achieving the purpose of the Act, a range of matters are required to be recognised and provided for. This includes:

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.

In context, the relevant items to the proposal and have been recognised and provided for in the design of the development.

10.3 Section 7 – Other Matters

In achieving the purpose of the Act, a range of matters are to be given particular regard. This includes:

(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.

These matters have been given particular regard through the design of the proposal.

10.4 Section 8 – Treaty of Waitangi

The Far North District Council is required to take into account the principles of the Treaty of Waitangi when processing this consent. This consent application may be sent to local iwi and hapu who may have an interest in this application.

10.5 Section 8 – Part 2 Conclusion

Given the above, it is considered that the proposal meets the purpose of the Act.

11. CONCLUSION

Controlled Activity resource consent is sought from the Far North District Council to carry out the proposed development.

The proposal is not precluded from public notification and is considered to have less than minor effects on the wider environment. Through assessment, there are considered to be no affected persons.

The proposal is consistent with the objectives and policies of the Far North District Plan, the Regional Policy Statement for Northland, and achieves the purpose of the Act.

Given the assessment carried out in this report, it is considered that this proposal can be determined non-notified under the RMA 1991. We would appreciate the review of draft conditions when available.

Regards,

Steven Sanson

Consultant Planner

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Guaranteed Search Copy issued under Section 60 of the Land Transfer Act 2017

R.W. Muir
Registrar-General of Land

Identifier	**NA37D/69**
Land Registration District	**North Auckland**
Date Issued	22 June 1977

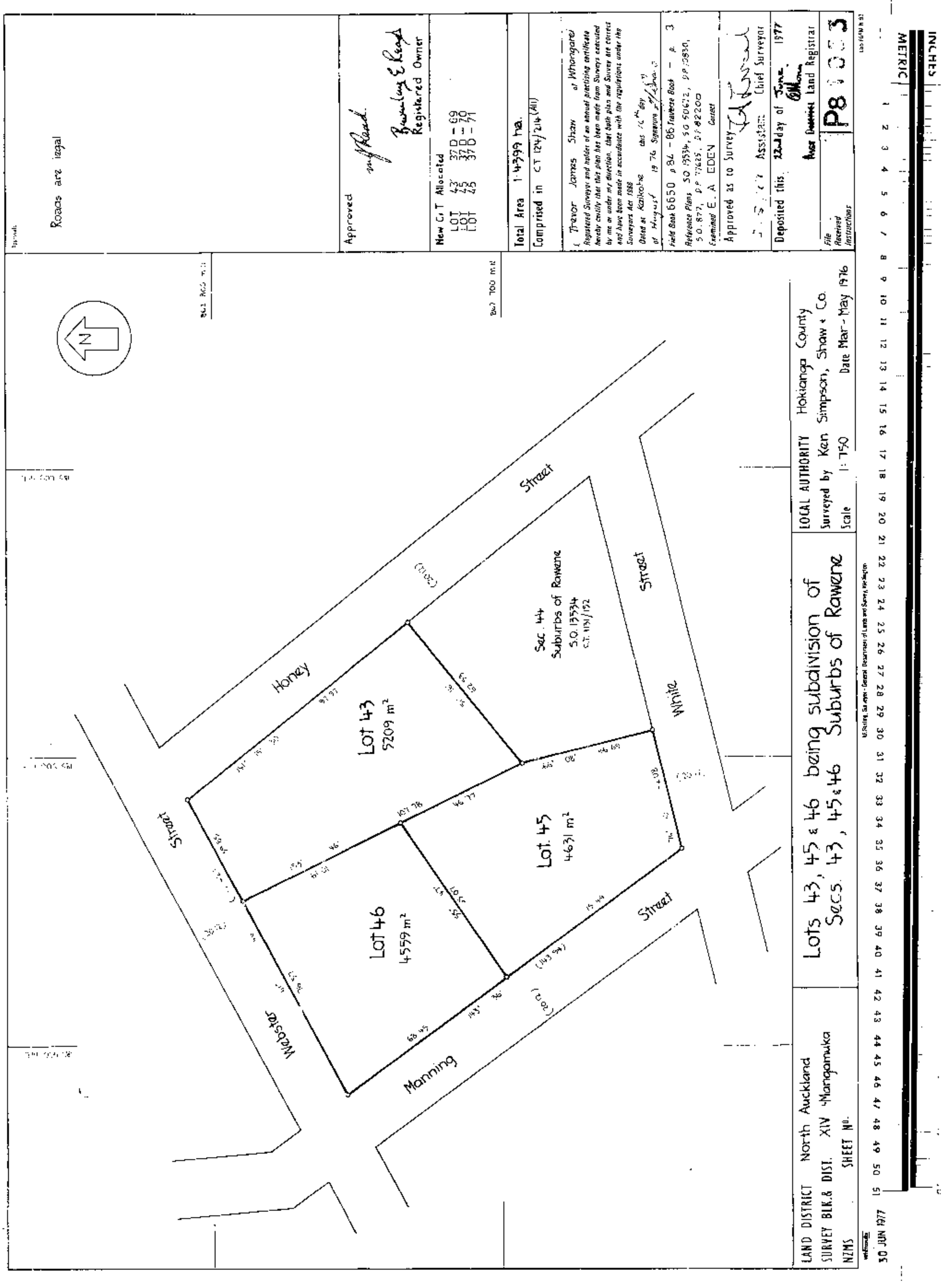
Prior References
NA124/214

Estate	Fee Simple
Area	5209 square metres more or less
Legal Description	Lot 43 Deposited Plan 81053
Registered Owners	

Wendy Anne Henwood

Interests

D225934.1 Mortgage to ANZ Banking Group (New Zealand) Limited - 11.12.1997 at 1.04 pm


Roads are legal
Approved
Registered Owner
New C.T. Allocated
LOT 43 37D-69
LOT 45 37D-70
LOT 46 37D-71
Total Area 1.4399 ha.
Comprised in CT 124/214 (All)
Deposited this 22nd day of June 1977
Land Registrar
Chief Surveyor
Honey Street
White Street
Manning Street
Webster Street
Sec. 44 Suburbs of Rawene S.O. 13534 C.T. 1131/192
Lot 43 5209 m²
Lot 45 4631 m²
Lot 46 4559 m²
LOCAL AUTHORITY Hokianga County
Surveyed by Ken Simpson, Shaw & Co.
Scale 1:750
Date Mar-May 1976
Lots 43, 45 & 46 being subdivision of Secs. 43, 45 & 46 Suburbs of Rawene
LAND DISTRICT North Auckland
SURVEY BLK.& DIST. XIV Mangamuka
SHEET No.
NZMS
30 JUN 1977
METRIC
INCHES

Webster Street (not formed)

(20.12)

61°40' 39.85 BDY

Post & wire fence line

Ex. WWMH
LL:38.08.

Scattered native, exotic, common trees.

Proposed Lot 2
1,798m²

Scattered native, exotic, common trees.

Scattered native, exotic, common trees.

Proposed Boundary

2.0m

Karaka Tree

Scattered citrus trees & garden beds.

Proposed Lot 1
3,411m²

Water Tank

Scattered citrus trees & garden beds.

Scattered citrus trees & garden beds.

141°15'30" 97.97 BDY

Honey Street (not formed)

60 Manning St.
Lot 46 DP 81053

153°46' 107.78 BDY

Steep bank

Edge of bush

Steep bank

Steep bank

Steep bank

Edge of bush

Ex. House
FFL:53.70

Pergola

Deck

steps

Covered Deck

Gutter

Ramp

Covered Deck

Deck

Steps

Covered Deck

Gutter

Wooden ret.

wall bottom

wall top

Wooden ret.

Pergola

Gutter RL:57.68

Carport

Water Tank

Garage

covered area

Storage shed

DP

DP

Conc. parking & turning area

Conc. driveway

Conc. parking & turning area

Low rock wall top

Trees & small shrubs

Entry porch

Low rock wall top

Wooden ret. wall top

Post & wire fence line

231°16'30" 62.53 BDY

Excess seal

Edge of seal

Centre line

SW Drain IL

Low rock wall top

Honey Street
sealed & in use
(20.12)

66 Manning St.
Lot 45 DP 81053

18 Honey St.
Section 4 SBRS of Rawene

NOTES:

Major Contours are at 1.0m intervals. Minor Contours are at 0.5m intervals. Contours are interpolated only.

This survey has been completed to standard topographical survey accuracies of approximately between +/- 0.03m to 0.05m. If a higher accuracy is required then further survey measurements will be necessary.

Drawing Title

Draft Scheme Plan

Client

Wendy Henwood

Address

26 Honey Street, Rawene

Legal Description

Lot 43 DP 81053

Levels are in terms of Lands & Survey Datum Auckland 1946.
Origin of Levels: SM 1004 SO 62316. RL:22.799.

Local Authority: Far Noth District Coucil
Total Area: 5209 m²
Comprised in RT: NA37D/69

Original Scale	Date	Revision No
1:200 A1	16/12/2022	1
CAD File & Directory		
Henwood_Scheme Plan - SP1		

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consulting engineers

SUBDIVISION SITE SUITABILITY ENGINEERING REPORT

26 HONEY STREET, RAWENE

WENDY HENWOOD

C0300-S-01
SEPTEMBER 2023
REVISION 1

www.geologix.co.nz 09 392 0007 Auckland | Northland

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DOCUMENT MANAGEMENT

Document Title	Subdivision Site Suitability Engineering Report
Site Reference	26 Honey Street, Rawene
Client	Wendy Henwood
Geologix Reference	C0300-S-01
Issue Date	September 2023
Revision	01
Prepared by	Sander Derks Graduate Civil Engineer, DipEng
Prepared by	Sean Shin Geotechnical Engineer, BEng (Hons)
Approved by	Edward Collings Managing Director, CEnvP Reg. 0861, CPEng Reg. 1033153, CMEngNZ
File Reference	*Z:\Projects\C0300-C0399\26 Honey Street, Rawene - C0300\05 - Reports\C0300-S-01-R01.docx*

REVISION HISTORY

Date	Issue	Prepared	Approved
September 2023	First Issue	SD, SBS	EC

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TABLE OF CONTENTS

TABLES

1 INTRODUCTION

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

The purpose of this report is to assist with Resource Consent application in relation to the proposed subdivision of a rural residential lot at 26 Honey Street, Rawene, the 'site' to create a new residential lot. 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

It is understood the Client proposes to subdivide the site into two creating one new residential lot on the lower half of the property as outlined in Table 1 below.

This understanding has been established from a proposed scheme plan presented by the client[1] supplied to Geologix at the time of writing and discussions with the client. Amendments to the referenced scheme plan may require an update to the recommendations of this report which are based on conservative, typical rural residential development concepts.

Table 1: Summary of Proposed Scheme

Proposed Lot	Size	Purpose
1	3,411 m^2	Existing residential
2	1,798 m^2	New residential

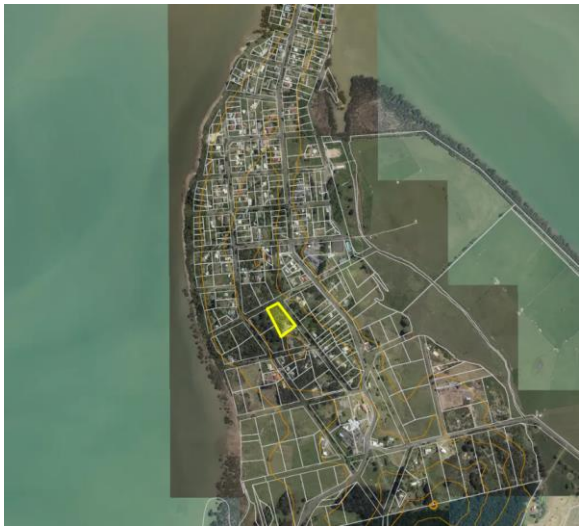
2 DESKTOP APPRAISAL

The site is presented at a typical semi coastal-urban area within Rawene to the north-western end of Honey Street. The site is legally described as Lot 43 DP 81053 and is roughly trapezoidal in shape with a gross site area of approximately 5,336 m^2. The site setting is presented schematically as below.

Topographically, the proposed lot is formed in close proximity to the existing house, positioned on top of a ridgeline, then gently slopes down towards the northern corner and moderately towards the southwestern boundary, both at approximately 15 degrees. The proposed building area on lot 2 is elevated, located to the side of the ridgeline.

[1] *Unreferenced Draft Scheme Plan for 26 Honey Street, Rawene, Rev01, dated 16 December 2022.*

Figure 1: Site Setting4



At the time of writing, we were presented with a topographical survey data of the site which has been used to create a 3D model of the site. The site outside the existing structures is currently covered with dense natural bush and trees with occasional rough grass and open areas.

There are existing structures on proposed lot 1 consisting of a single storey residential dwelling with associated decking, a concrete driveway, a water tank and a detached garage unit which will be unaffected by the proposed development. Potable and wastewater infrastructure is present within the site boundaries. A detailed review of existing watercourses and overland flow paths is presented as Section 3.

2.1 Existing Reticulated Networks

Far North District Council (FNDC) GIS mapping indicates that an existing wastewater reticulated network with connection to proposed lot 2 is present extending from Webster Street. Potable water supply is also shown to service the property from Honey Street.

This report has been prepared with the goal of the subdivision being self-sufficient for the purpose of stormwater management.

2.2 Geological Setting

Available geological mapping[5] indicates the site to be underlain by Taipa Mudstone (Motatau Complex) of the Northland Allochthon, described as Weakly to moderately indurated grey to blue-grey calcareous mudstone commonly with redeposited beds of glauconitic sandstone.

The underlying Northland Allochthon formation is known for its instability over shallow depths from relatively shallow slope angles. Typical failures are known to occur on natural

[4] *Source: https://app.grip.co.nz/*

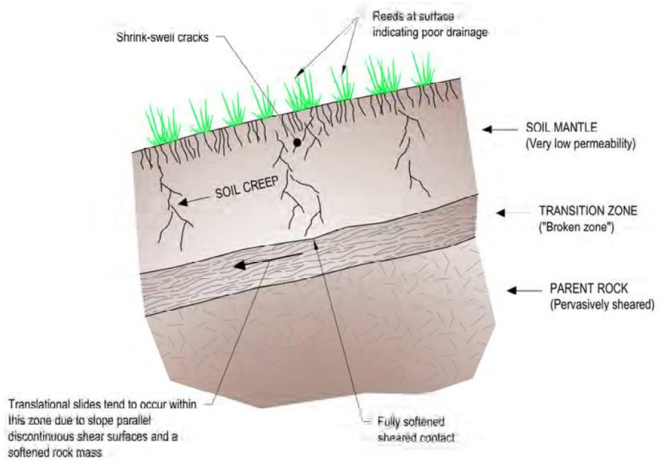
[5] *Geological & Nuclear Science, 1:250,000 scale Geological Map, Sheet 1, Kaitaia, 1996.*

topography of 15 ° and above with evidence of soil creep forming on slopes as shallow as 10°.

The geological unit can be defined by three typical layers: an upper clayey/ silty soil mantle with low permeability which is typically indicated by water tolerant species such as reeds. Below the soil mantle, there is a transitional zone where groundwater perches above a relatively impermeable, completely weathered parent rock.

Shallow slips and long-term soil creep typically occur within the transition zone above the parent rock as shown Figure 2 below. The Geotechnical effective stress parameters for the soil strata are conservatively modelled to reflect the properties of the Northland Allochthon formation.

Figure 2: Northern Allochthon Soil Profile



2.3 Existing Geotechnical Information

Existing subdivision and/ or Building Consent ground investigations were not made available to Geologix at the time of writing. Additionally, a review of available GIS databases, including the New Zealand Geotechnical Database[6] did not indicate borehole records within 500 m of the site.

3 SURFACE WATER FEATURES AND OVERLAND FLOWPATHS

It is expected that surface water will flow from the top of the ridgeline as sheet flow following the site topography towards the north and southwest.

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. 400.

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

3.1 Surface Water Features

The site is located on the higher elevations of a small sized catchment that extends away from the site to the west, north and east. This expected to be travelling as sheet flow and these are drawn down to the CMA which is located 640 m to the northeast of the site.

3.2 Overland Flow Paths

No clearly defined flow paths are evident within the site boundaries. Stormwater around the existing dwelling and associated concrete driveways on proposed lot 1 is expected to drain downslope to the northeastern side of proposed lot 2.

4 GROUND INVESTIGATION

A site-specific walkover survey and intrusive ground investigation was undertaken by Geologix on 31 May 2023. The ground investigation was scoped to confirm the findings of the above information and to provide parameters for geotechnical assessment. The ground investigation comprised:

- Two hand augered boreholes designated BH01 and BH02, with BH01 formed at the centre of the proposed building site with a target depth of 3.0 m below ground level (bgl). Refusals were encountered upon dense strata at 1.2 m for BH01 and 1.0 m for BH02.
- BH01 was extended with a scala penetrometer probing technique to a target depth of 5.0 m bgl. Refusal with more than 25 blows per 100 mm penetration was encountered at 2.7 m bgl.
- Monitoring of groundwater levels with a groundwater dip meter on the day of drilling.

4.1 Site Walkover Survey

A visual walkover survey of the property confirmed:

- Topography is in general accordance with that outlined in Section 2 and the supplied topographic survey data. Topographically, the site is formed upon a ridgeline with a gentle gradient from south to north, then moderately dipping towards the northern boundary corner and the southwestern boundary face, both at approximately 15 degrees.
- A suitable building envelope[7] can be formed on gently sloping land (<10 °) at the crest of the spur ridgeline. It was conservatively estimated that the proposed building site is located around BH01.
- There were no obvious signs of either shallow or deep slope instability such as tension cracks, hummocky ground, or terraced land visible around the site.

[7] *Measuring minimum 14 m x 14 m according to FNDC District Plan Rule 13.7.2.2.*

- Outside the existing structures, the site is mostly covered with grassed pastures and mature trees and shrub, notably to the north.
- The site is bound in all directions by similar rural residential block properties.
- Honey Street ends at the south-eastern boundary with the driveway entering the site at lot 1. The unformed portion of Honey Street is in rough pasture. Land generally slopes down to the northern corner of the site. Grassed swale drains are present along Honey Street.
- An existing dwelling with garage and concrete driveway is present within proposed lot 1 site boundary. A small culvert crossing is currently in place under the driveway entrance.

4.2 Ground Conditions

Arisings recovered from the exploratory boreholes were logged by a suitably qualified geotechnical engineering professional in general accordance with New Zealand Geotechnical Society guidelines[8]. 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 ranging between 0.0 and 0.1 m bgl.** Described as grassed topsoil containing dark brownish black organic silt, moist and low plasticity.
- **Northland Allochthon Residual Soil to depths ranging from 0.8 m to 1.0 m bgl.** The residual soil was generally cohesive, described as clayey silt, very stiff to hard, light brown mottled white, recovered dry to moist with low plasticity within BH01 and moist and friable within BH02.

  Four in-site field vane tests within Northland Allochthon Residual Soil returned three >198 kPa and one Unable to Penetrate (UTP), indicative of a consistent very stiff to hard soil.

- **Northland Allochthon Completely Weathered Parent Rock to depths >1.0 m and >2.7m bgl.** The completely weathered parent rock was encountered within both boreholes and was also cohesive, described as hard sandy silt, dry within BH01 and moist within BH02 and both encountered friable.

  All three in-situ field vane tests undertaken within the Northland Allochthon completely weathered parent rock returned UTPs, indicative of a consistent very stiff to hard soil.

  The DCP profile within the completely weathered parent rock strata at BH01 showed a consistent strength of 8 blows per 100 mm penetration for the first metre, then

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

significantly increased to 10 to >25 blows per 100 mm penetration, indicative of a very stiff to hard soil which aligned with the observed shear strengths.

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

Table 2: Summary of Ground Investigation

Hole ID	Proposed Lot	Hole Depth	Fill Depth	Depth to Northland Allochthon Completely Weathered Parent Rock	Groundwater[2]
BH01	2	2.7 m	NE	1.0 m	NE
BH02	2	1.0 m	NE	0.8 m	NE

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

5 GEOTECHNICAL ASSESSMENT

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^3	Effective Friction Angle, °	Effective Cohesion, kPa	Undrained Shear Strength, kPa
Northland Allochthon Residual Soil	18	14	6	110*
Northland Allochthon Completely Weathered Parent Rock	18	28	5	>200

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

5.1 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 19. 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	Horizontal Coefficient[1], K_h
ULS	6.5	500	0.19 g	0.1273 g
SLS	5.8	25	0.03 g	

K_h = PGA × 0.67 for slope stability analysis to represent pseudo static conditions.

5.2 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 site topography starting from the middle of the southwestern boundary, through the crest of the ridgeline, passing through the proposed building site and ending at the northern site corner. Existing elevated groundwater condition was used for model calibration as there was no evidence of instabilities observed on site following a significant rainfall event in the Northland region.

The slope was analysed within propriety software Slide 2 Version 9.02, developed by RocScience Inc. The purpose of the stability assessment was to:

- Ensure the proposed development concepts are feasible.
- Provide a working, accurate ground model in relation to site stability refined according to observed conditions and the results of this ground investigation.
- Develop a concept development engineering solution with any specific geotechnical stability requirements.

The stability analysis process was undertaken by calibrating the model to observed conditions, refining the ground investigation data to develop the effective stress parameters presented in Table 3 and applying them to the proposed condition.

Limit equilibrium stability analysis was adopted in the analysis to express the results as a Factor of Safety (FS). When FS = 1.0, the represented mechanism is in equilibrium with the disturbing, active forces equal to the resisting, stabilising forces. A lower FS indicates that

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

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[10] which are widely adopted in the Far North region. Modelling three separate event scenarios the accepted minimum FS are summarised as follows:

- Minimum FS = 1.5 for static, normal groundwater conditions.
- Minimum FS = 1.3 for elevated groundwater conditions (storm events).
- Minimum FS = 1.2 for dynamic, seismic events.

5.2.1 *Stability Analysis Results*

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

Table 5: Summary of Stability Analysis Results

Profile	Scenario	Global Min FS	Development Footprint (min FS)	Result within Development Footprint
Existing	Static[1]	1.889	>1.5	Pass
	Elevated GW[2]	1.523	>1.3	
	Seismic[3]	1.315	>1.2	
Proposed (with shallow foundation)	Static[1]	1.411	<1.5	Fail, requires deep foundation
	Elevated GW[2]	1.221	<1.3	
	Seismic[3]	1.153	<1.2	
Proposed (with deep foundation)	Static[1]	2.073	>1.5	Pass
	Elevated GW[2]	1.514	>1.3	
	Seismic[3]	1.467	>1.2	

1. *Static, normal groundwater minimum FS = 1.5*
2. *Static, elevated groundwater minimum FS = 1.3*
3. *Dynamic, seismic conditions minimum FS = 1.2*

5.2.2 *Stability Analysis Conclusions*

The developed slope stability model is considered to be a reasonable representation of the observed conditions on site. Specifically, the developed model has been calibrated to observed conditions on site from BH01 and BH02 through the crest of the ridgeline to the bottom of the ridgeline at the northern boundary.

Ground investigation data has been adopted to determine the strata parameters, and the existing condition under elevated groundwater scenario was adopted for model calibration to reflect that the site withstood the recent significant rainfall event. This achieved a Factor

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

of Safety (FS) above 1.0 through the existing slope with failure planes running through the upper Northland Allochthon Residual Soil to the bottom of the ridgeline.

It was conservatively modelled that under static and seismic conditions, the overlying Northland Allochthon Residual Soil was slightly saturated with an R_u value of 0.1 and the underlying completely weathered parent rock was dry with an R_u value of 0. Under elevated groundwater scenario, the overlying Northland Allochthon Residual Soil was completely saturated with an R_u value of 0.5 and the underlying completely weathered parent rock with an R_u value of 0.1.

The slope analysis results indicate that under the calibrated proposed condition with shallow foundation (where structural load is applied on the surface), FS of 1.411, 1.221, and 1.153 were observed in static, elevated groundwater and seismic scenario, respectively. The failure planes were observed to be running through the upper Northland Allochthon Residual Soil inside the southern half of the proposed building site.

These potential failure planes reaching inside the development platform are below the minimum FS for residential development accepted by Far North District Council. As a result, the proposed building site will require a deep piled foundation.

The results from the calibrated proposed condition adopting a deep piled foundation embedded into the Northland Allochthon Completely Weathered Parent Rock indicate that under static, elevated groundwater and seismic conditions, the FS were 2.073, 1.514 and 1.467, respectively with no failure planes observed inside the proposed building footprint.

In summary, provided a deep foundation subject to specific engineering design by a professional engineer at the Building Consent stage is provided, the proposed building site will not require stability control.

It is recommended that at building consent stage, the final development plans are submitted to us for review to ensure the recommendations are correctly adopted in practice.

5.3 Soil Expansivity

Clay soil may undergo appreciable volume change in response to changes in moisture content and be classed as expansive. The reactivity and the typical range of movement that can be expected from potentially expansive soils underlying any given building site depends on the amount of clay present, the clay mineral type, and the proportion, depth, and distribution of clay throughout the soil profile. Clay soils typically have a high porosity and low permeability causing moisture changes to occur slowly and produce swelling upon wetting and shrinkage upon drying. Apart from seasonal moisture changes (wet winters and dry summers) other factors that can influence soil moisture content include:

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

Based on our experience with Northland Allochthon residual soil, laboratory analysis within the strata on other projects in the local area and site observations, the shallow soils are conservatively expected to meet the requirements of a highly expansive or Class H soil type. In accordance with AS2870:2011[11] and New Zealand Building Code[12], 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.

5.4 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 and non-dilative 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.

5.5 Foundations

It is considered that a deep piled foundation compromising of timber poles designed by a suitably qualified professional and monitored during construction is suitable for the proposed future dwelling adopting bored and cast-in-place piles.

All piles should be taken down through Northland Allochthon Residual Soil residual soils to terminate at a minimum of 3x pile diameters, (3B) into the Northland Allochthon Completely Weathered Parent Rock. It is recommended that the foundation solution is subject to further geotechnical investigation at the Building Consent stage and specific engineering design by a professional structural engineer. Additionally, pile design should consider the natural slope under the proposed building site which averages at 16 °.

If groundwater is encountered within the pile holes, tremie concrete pour methodology will most likely be required to displace groundwater, and an allowance should be made for this by the Contractor.

6 WASTEWATER ASSESSMENT

The scope of this wastewater assessment comprised an assessment of anticipated wastewater flows from each lot and the suitability of an existing reticulated network at the site. Relevant design guideline documents adopted include:

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

[12] *New Zealand Building Code, Structure B1/AS1 (Amendment 20, November 2021), Clause 7.5.13.1.2.*

- Watercare, Water and Wastewater Code of Practice for Land Development and Subdivision, Version 1.5, dated May 2015.
- FNDC Engineering Standards – Version 0.6 May 2023.

6.1 Existing On-site Wastewater Systems

According to the current site feature, there is no record of any existing on-site wastewater systems.

6.2 Existing Wastewater Reticulated Network

According to available information provided on the survey scheme plan and Far North District Council 3 water infrastructure GIS[13] the proposed lot is currently serviced by a reticulated wastewater networks as follows:

- An existing 100 mm diameter uPVC gravity pipeline within Webster Street trending generally west to east, flowing towards a pump station to the east of the intersection of Rawene Road and De Thierry Street.
- An existing 100 mm diameter MDPE service connection is provided to 60 Manning Street parallel through the northern boundary of the site.

6.3 Proposed Wastewater Connections

The proposed subdivision will be serviced by the following wastewater connections.

- **Proposed Lot 1**. Will continue to be serviced by an existing private connection to manhole Ref. SP3707. It is recommended that the private connection line is surveyed as a condition of consent. Should the existing private connection intercept the proposed building site, it will require re-routing. In any case an easement will be required over the pipe alignment.
- **Proposed Lot 2**. A new private connection will be constructed from manhole Ref. SP3707. Refer to Drawing No. 400 within Appendix A.
- **Manhole Ref. SP3707**. As part of the above works it is recommended the manhole pipeline invert levels are surveyed and recorded.

The purpose of the following assessment is to quantify the anticipated flow volumes to be injected into the network through this connection. Existing Council infrastructure influenced by this application are summarised within Table 6.

[13] https://fndc.maps.arcgis.com/apps/webappviewer/index.html?id=9b351ce681e34ec29443ae1a6468cc2c

Table 6: Existing Wastewater Infrastructure Summary

Feature	Construction	Specification	Depth to Invert	Location
Private connection to adjacent property	MDPE	100 mm dia.	Not Recorded	NW to NE corner of site Ref. 20170112115419
Manhole (downstream)	Not Recorded	Not Recorded	Not Recorded	NE corner of site Ref. SP3707
WW Gravity Main	uPVC	100 mm dia.	Not Recorded	Webster Street (proposed) Ref. SL4202_4121

1. DTI measurements taken from FNDC Maps

These assumptions and recommendations are indicated schematically as Drawing No. 400 within Appendix A.

6.4 Wastewater Generation Volume

The existing downstream reticulated network from the site has been analysed in accordance with Watercare and FNDC Engineering Standards. The point of the analysis has been undertaken for the existing 100 mm diameter PVC-U pipeline immediately downstream of the site; GIS pipeline reference SL4202_4121 where flows are expected to increase as a result of the application.

According to the FNDC Engineering Standards, Section 5.3.5.1, residential design flows have been taken as follows.

Table 7: Residential Wastewater Design Flows

Design Item	Criteria
Average dry weather flow	200 litres/ day/ person
Dry weather diurnal Peaking Factor	2.5
Wet weather diurnal Peaking Factor	5
Peak wet weather flow (PWWF)	1,000 litres/ day/ person
No. of people per dwelling	4

The design criteria and potential wastewater flow is outlined by Table 7 below. This considers an existing wastewater network catchment above the point of analysis of two households, increasing to three as a result of the application. Calculations are presented in full as Appendix B to this report and the results summarised below as Table 8.

Table 8: Summary of Wastewater Flow Calculations

Item	Calculated Wastewater Flow, l/s
Existing catchment, PWWF	0.02
Proposed catchment, PWWF	0.03
Increase PWWF from application	+0.01

6.5 Wastewater Network Capacity Assessment

Our analysis has established that the proposed application within the scope of this report provides only a minor, 0.05 litre/ second increase in discharge to the reticulated wastewater network at the point of injection.

Adopting the Colebrook-White equation and design factors from FNDC Engineering Standards, a summary of design assumptions and the calculated pipeline capacity of the downstream network at the point of analysis is summarised below within Table 9. In lieu of invert levels data from Far North District Council 3 water infrastructure GIS[14], the most conservative slope of pipeline has been used for the analysis.

Table 9: Summary of Wastewater Catchment Analysis

Item	Value
Design Criteria	
Roughness coefficient (Colebrook-White)	1.5 mm from FNDC Engineering Standards 5.3.5.2
Slope of Pipeline	0.67% (minimum assumed) (GIS Manhole ID: SP3707 to WW Gravity Main: SL4202_4121)
Size of Pipeline	100 mm diameter
Calculation	
Existing Pipe Flow Capacity, 100 %	4.26 l/s
Existing Pipe Capacity, 67 %	3.40 l/s
Existing Pipe Velocity Capacity	0.62 m/s
Proposed Catchment PWWF	0.03 l/s
Additional Pipe Capacity, at 67 %	+3.37 l/s

The capacity assessment demonstrates the existing reticulated wastewater network has sufficient capacity to cater for the additional discharge volumes from the application.

7 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.

7.1 Regulatory Requirements

Stormwater management for the proposed activity is controlled by the FNDC Operative District Plan[15] and NRC Proposed Regional Plan[16]. The requirement for subdivision and probable future development under these legislations is summarised below.

7.1.1 Regional Provisions

The Proposed Regional Plan states the diversion and discharge of stormwater into water or onto or into land where it may enter water from an impervious area or by way of a stormwater collection system, is a permitted activity, provided the criteria of Rule C.6.4.2(1) to (8) are met. The proposed activity is considered to meet the requirements of a Permitted Activity. Assessment of the consent status is summarised in Section 0 and in full within Appendix D.

[14] https://fndc.maps.arcgis.com/apps/webappviewer/index.html?id=9b351ce681e34ec29443ae1a6468cc2c
[15] https://www.fndc.govt.nz/Your-Council/District-Plan/Operative-plan
[16] Proposed Regional Plan for Northland July 2021 – Appeals Version

7.1.2 District Wide Provisions

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

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

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

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

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

7.1.3 Environmental Zone Provisions

Permitted activity status for proposed impervious surface areas within the coastal residential zone is determined by Rule 10.8.5.1.6 which is presented below.

The maximum proportion of the gross site area covered by buildings and other impermeable surfaces shall be 50% or 1,000m², whichever is the lesser.

Anticipated future residential activities are considered to meet this criterion which allows for 899 m^2 of impermeable surfaces according to the proposed lot size of 1,798 m^2. This considers conservative typical urban residential roof areas with associated driveways and car parking.

7.2 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.** The site currently presents as undeveloped land with no intersecting overland flow paths within the site. Therefore, the future residential developments provide an opportunity to reduce peak on-lot flows to pre-development levels with simple attenuation measures. This in turn benefits the surrounding sensitive environmental receptors and the overland flow paths leading to them.

  A conservative model of probable future on-lot attenuation, up to the Permitted Activity threshold, discharging to suitably sized dispersion devices has been developed for this concept assessment considering the variation of scale in typical residential developments. The probable future development concept within this scenario includes up to 200 m^2 potential roof area and up to 100 m^2 potential driveway and parking areas. The latter has been modelled as an offset within lot specific attenuation devices.

- **Existing Residential Development, Proposed Lot 1.** Existing residential development, outbuildings and associated driveway, parking, has been estimated at 659 m^2 which complies with the Permitted Activity standard (1,705.5 m^2 based on 50 % of a 3,411 m^2 lot. As such, no improvements or specific attenuation is proposed as part of this application.

7.3 Design Storm Event

For the purpose of this assessment and considering the absence of downstream properties and potential flood hazard within the site boundaries, this assessment has been modelled to provide stormwater attenuation and management as follows:

- **Primary Systems**, such as roof water tanks from impervious surfaces attenuated to pre-development levels, up to and including the 10 % AEP storm event including provisions for climate change.

- **Secondary Systems,** such as culverts and pipelines designed to accommodate the 1 % AEP storm event peak flows with provision for climate change.

Attenuation modelling under the above scenarios avoids exacerbating downstream flooding and correctly sized discharge and management devices reduce scour and erosion at discharge locations which may otherwise result in concentrated discharge.

Relevant design rainfall intensity and depths have been ascertained for the site location from the NIWA HIRDS meteorological model[17]. NIWA provides guidelines for modelling the effects of potential climate change effects of rainfall intensity increase by applying a potential change factor to historical data. This report has adopted potential change factors to account for a 2.1 °c climate change increase scenario. NIWA HIRDS and climate change factor data is presented in full within Appendix D.

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

7.4 Probable Future Development Management

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

This assessment should be subject to verification and an updated design at Building Consent stage on each lot once final development plans are available. This is typically applied as a notice to the applicable titles. The rational method has been adopted by Geologix with run-off coefficients as published by Auckland Council TP108[18] and FNDC Engineering Standards[19] to provide a suitable attenuation design to limit post development peak flows to pre-development conditions. A summary of the concept design assumptions is presented as Table 10 and a typical schematic retention/ detention tank arrangement is presented as Drawing No. 401

Table 10: Summary of Probable Future Development Concept

Item	Pre-development Impervious Area	Post-development Impervious Area	Proposed Concept Attenuation Method
Proposed Lot 1 Future Concept Developments			
Existing Buildings	659 m^2	659 m^2	Existing consented activity
Total	**659 m^2**	**659 m^2**	
Proposed Lot 2 Future Concept Developments			
Potential buildings	0 m^2	200 m^2	Detention within roof water tanks
Potential driveways	0 m^2	100 m^2	Off-set detention in roof water tanks
Total	**0 m^2**	**300 m^2**	

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

Condition	10 % AEP Peak Flow	Total Storage Volume Required	Concept
Pre-development	5.16 l/s	4.721	5,000 litre retention/ detention tank with 22mm orifice installed 1.89 m below outflow and water supply outlet installed 0.15 m above base of tank for sedimentation.

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

[19] FNDC Engineering Standards 2023, Issue 0.6 – May 2023.

Post-development	8.69 l/s	4.721 m^3

1. Lower post-development peak flows demonstrate the concept driveway as an offset.

7.4.1 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. A concept design accommodating this is presented within Appendix A on Drawing Nos. 400.

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

Typical rural residential developments construct either above or below ground discharge dispersion pipes. Feeding pipes can be either buried or pinned to the surface as desired. It is recommended that all pipes are designed to accommodate the design storm event peak flows from the attenuation tank and including minimum 100 mm dia. PVC piping. A concept dispersion pipe or trench length is presented as Table 12. Calculations to derive this are presented within Appendix D, based on the NIWA HIRDS Depth-Duration data. Typical details of these options are presented within Appendix A as Drawing No. 402.

Table 12: Summary of Concept Dispersion Devices

Concept Impervious Area to Tank	Tank Outlet Velocity	Dispersion Pipe/ Trench Length	Concept
300 m^2	7.52 m/s	2.6 m	Above ground dispersion device or in-ground dispersion trench.

7.5 Subdivision Development Management

Stormwater management of the subdivision development is proposed as follows:

- Grassed swale drains formed along the western face of Honey Street.
- Honey Street extension formed with a single 3 % cross fall towards the swale drain. This will allow ease of extension of Honey Street in the future, if required, to form a crowned road.
- Reinforced Concrete Pipe (RCP) culverts formed at each vehicle crossing on Honey Street with a minimum diameter of 375 mm.
- Rip-rap outlet below the RCP culvert for proposed lot 2 to control erosion along the Honey Street paper road.

7.6 Stormwater Quality

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

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

Stormwater treatment requirements are minor to maintain good quality stormwater discharge. However, additional measures of stormwater filtration have been adopted due to the proximity to sensitive surface water receptors. Stormwater quality will be provided by:

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

The 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.

7.7 Assessment Criteria and Consent Status

7.7.1 District Plan

The proposed activity has been assessed as a **Controlled Activity** according to Table 13.7.2.1(x) and considering a sewered site. No assessment criteria are presented within the District Plan for this activity classification.

7.7.2 Regional Plan

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

8 POTABLE WATER & FIRE FIGHTING

The site is located within an established public water supply area. A public 100 uPVC line is present to the south of the site along Honey Street, presumably within roadside berm area, the existing water connection conveys to the entrance of 26 Honey Street containing a water meter. It is proposed this pipeline will be extended further down Honey Street to the entrance of lot 2. This proposal is schematically presented within Appendix A Drawing No. 400.

The fire-fighting requirements for the proposed development are determined to be FW1 in accordance with the SNZ PAS 4509:2008, New Zealand Fire Service Firefighting Water Supplies Code of Practice. The standard requires a minimum of one fire hydrant within 135m.

A fire hydrant is located within the required standards located north of the site outside 49 Webster Street (unformed) which is approximately 100 m from proposed building site. This is shown as Figure 3.

Figure 3: Fire Hydrant Mapping

9 EARTHWORKS

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

- **Honey Street Extension and vehicle crossing to proposed lot 2.** Minor cut/ fill earthworks are required for Honey Street extension including roadside swale and construction of a vehicle crossing formed to current Council Engineering Standards.

Table 13: Summary of Proposed Earthwork Volumes

Activity	Length	Area	Depth	Proposed Volume
Honey Street Extension				
Cut	58 m	232 m^2	0.3 m	69.6 m^3
Fill	58 m	232 m^2	0.3 m	69.6 m^3
Sub-total				139.2 m^3
Roadside Swale Drain				
Cut	58 m	58 m^2	0.5 m	29 m^3
Fill	-	-	-	-
Sub-total				29 m^3
Total				**168.2 m^3**

Proposed earthwork volumes are well within the 200 m^3 Permitted Activity volume limit outlined by FNDC District Plan Rule 12.3.6.1.3(a) and the maximum cut and fill height is <3 m to comply with 12.3.6.1.3(b).

Rule C.8.3.1, Table 13 of the Proposed Regional Plan outlines a Permitted Activity as 5,000 m^2 of exposed earth at any time for 'other areas'. Proposed earthwork areas to form the subdivision, comply with the Permitted Activity standard for other areas. A full assessment according to the criteria is presented within Appendix D.

9.1 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.

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.

9.2 Erosion and Sediment Control

Erosion and sediment control measures are required to control sediment runoff from areas of proposed earthworks within the scope of this application. Erosion and sediment control measures to form the subdivision are summarised as follows:

- Silt fences around the downslope face of proposed Honey Street extension.
- Stabilised entrance at Honey Street extension.

10 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[20], Northland Regional Council (NRC) Proposed Regional Plan for Northland[21] 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 14: Summary of Natural Hazards

Table 14: Summary of Natural Hazards

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

Natural Hazard	Applicability	Mitigation & Effect on Environment
Erosion	NA	No mitigation required, less than minor.
Overland flow paths, flooding, inundation	NA	No mitigation required, less than minor.
Landslip	NA	No mitigation required, less than minor.
Rockfall	NA	No mitigation required, less than minor.
Alluvion	NA	No mitigation required, less than minor.
Avulsion	NA	No mitigation required, less than minor.
Unconsolidated fill	NA	No mitigation required, less than minor.
Soil contamination	NA	No mitigation required, less than minor.
Subsidence	NA	No mitigation required, less than minor.
Fire hazard	NA	No mitigation required, less than minor.
Sea level rise	NA	No mitigation required, less than minor.
NA – Not Applicable.		

11 INTERNAL ROADING AND VEHICLE CROSSINGS

It should be noted that we are not traffic engineers, and no specific Traffic Impact Assessment is included within the scope of these works.

11.1 Traffic Intensity Factor and Household Equivalents

According to Appendix 3A of the Operative District Plan, providing for one standard residential unit per lot, each accounting for up to 10 traffic movements per unit per day the following Traffic Intensity Factors (TIF) and Household Equivalents. The following TIF will be applicable at the site entrance/ point of extension of Honey Street.

- **Existing Condition:** TIF of 10 from one HE.
- **Proposed Condition:** TIF of 20 from two HE.

11.2 Honey Street Extension

It is recommended to provide access to proposed lot 2 by an extension of Honey Street, in lieu of any Right of Way easements indicated on the draft scheme plan presented to us. It is proposed to construct the extension to the standards specified in Appendix 3B-1 of the Operative District Plan. It is proposed to construct Honey Street to private access standards, with approval of FNDC because:

- The existing Honey Street formation does not currently meet the requirements of a vested road in terms of width and formation.
- The proposed application only requires one additional lot which can be adequately serviced by a 3 m carriageway constructed in accordance with private access standards.
- Constructing with a single, 3 % cross fall grade and 3.0 m width allows for ease of future extension, if required by Council or other third parties in the future by adding a similar, 3.0 m wide carriageway to the east of the proposed extension to create a vested road standard.

The Honey Street extension is proposed as follows:

Table 15: Summary of Proposed Honey Street Extension Specification

Location	Proposed Standard	Min. Legal Width	Min. Carriageway Width	Swale Drains?
Honey Street (Unformed)	Coastal Residential for Private Access	5.0 m	3.0 m, 3 % single cross fall	Yes, along western face with rip-rap outlet

11.3 Vehicle Crossings

Table 16: Summary of Proposed Vehicle Crossings

Location	Type	Detail	Formation
Lot 1	Type 1A – Light Vehicle Standard	Upgrade, as required to FNDC Engineering Standards single width with minimum 375 mm dia. RCP culvert	Subdivision stage, prior to 224c
Lot 2	Type 1A – Light Vehicles	New as required to FNDC Engineering Standards single width with minimum 375 mm dia. RCP culvert.	Subdivision stage, prior to 224c

RCP – Reinforced Concrete Pipe

12 LIMITATIONS

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

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

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

APPENDIX A

Drawings

GENERAL NOTES

1. CONTOURS AT 0.50 m INTERVALS.
2. TOPOGRAPHIC SURVEY DATA PROVIDED BY BRYAN TOKI.
3. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
4. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
5. DO NOT SCALE FROM THIS DRAWING.

BH02 GEOLOGIX HAND AUGER - MAY 2023

BH01 GEOLOGIX HAND AUGER & DYNAMIC CONE PENETROMETER - MAY 2023

Meters 5 0 2.5 5

1:500

Revision	Issue	Date
A	CONSENT	04/09/2023

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

26 HONEY STREET
RAWENE
LOT 43 DP 81053

Project	Drawn By
C0300	TI, SBS

Client

WENDY HENWOOD

Sheet Title

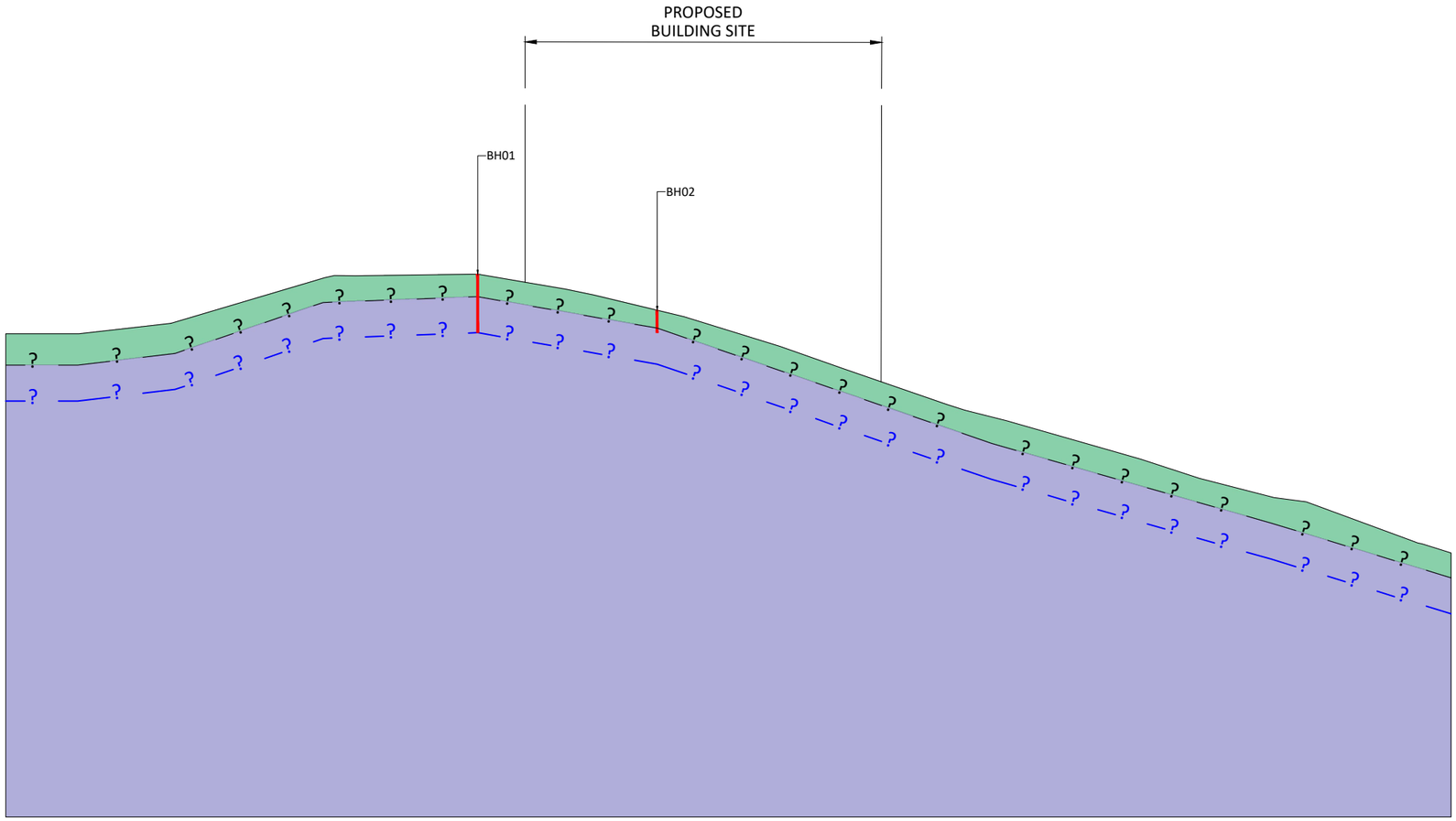
GEOTECHNICAL SITE PLAN

Sheet

200

FILE PATH: Z:\Projects\C0300-C0399\26 Honey Street, Rawene - C0300\06 - Technical & Drawings\Drawings\C0300-S-01.dwg\C0300-S-01.dwg

PLOTTED: 03/04/2022



GENERAL NOTES

1. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
2. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
3. DO NOT SCALE FROM THIS DRAWING.

NORTHLAND ALLOCHTHON RESIDUAL SOIL

NORTHLAND ALLOCHTHON COMPLETELY WEATHERED PARENT ROCK

—? — STRATA BOUNDARY

—? — GROUNDWATER TABLE (STATIC)

2.5 0 Meters 2.5 5

1:250

A	CONSENT	04/09/2023
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

26 HONEY STREET
RAWENE
LOT 43 DP 81053

Project	Drawn By
C0300	TI, SBS

Client

WENDY HENWOOD

Sheet Title

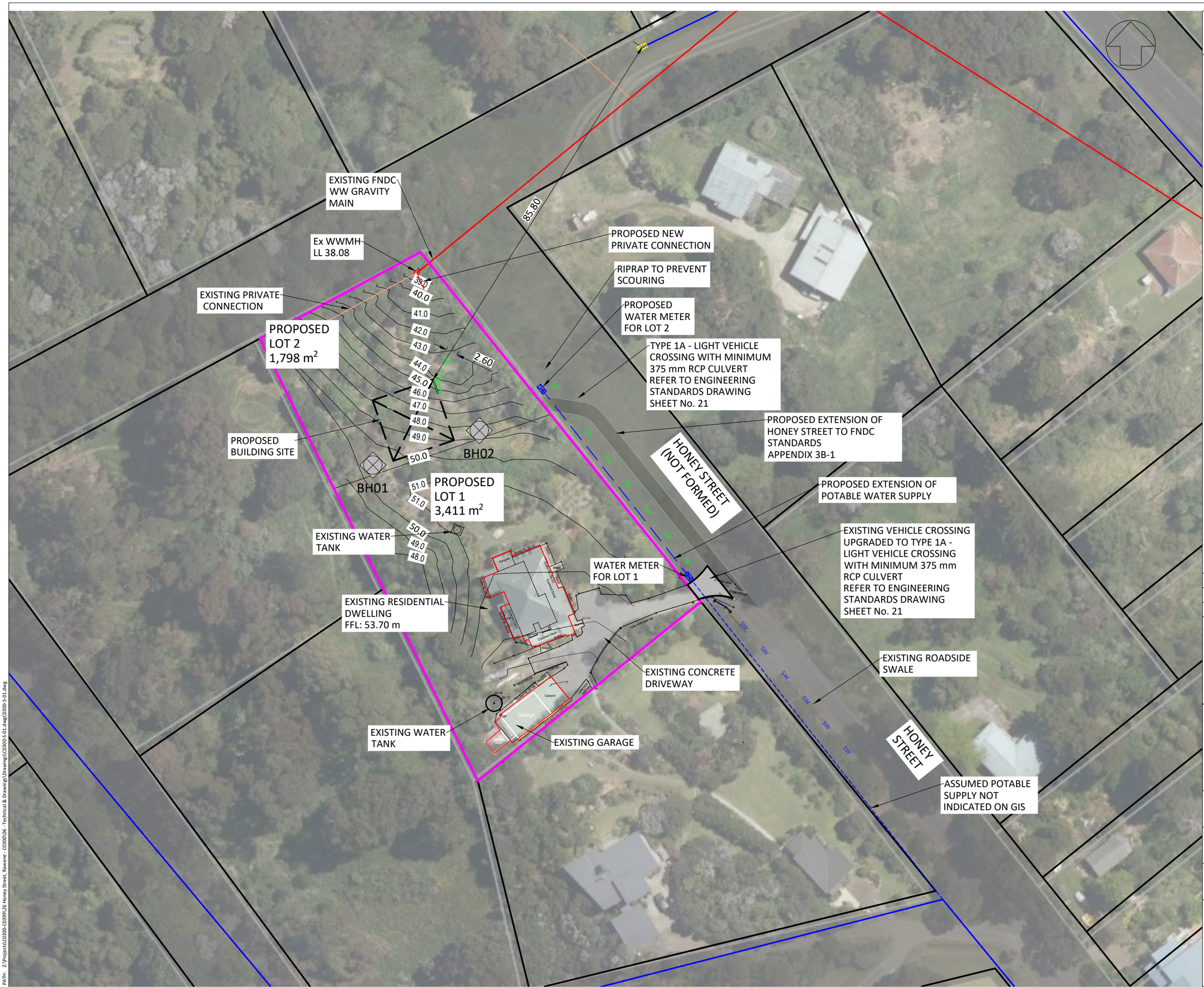
GEOTECHNICAL CROSS-SECTION

Sheet

201

FILE PATH: Z:\Projects\C0300-C0399\26 Honey Street, Rawene - C0300\06 - Technical & Drawings\Drawings\C0300-S-01.dwgC0300-S-01.dwg

PLOTTED: 03/04/2022



GENERAL NOTES

1. CONTOURS AT 0.50 m INTERVALS.
2. TOPOGRAPHIC SURVEY DATA PROVIDED BY BRYAN TOKI.
3. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.
4. FEATURES PRESENTED ARE INDICATIVE AND HAVE NOT BEEN VERIFIED.
5. DO NOT SCALE FROM THIS DRAWING.

◈ BHXX	GEOLOGIX HAND AUGER - MAY 2023
— SW —	EXISTING ROADSIDE SWALE
— SW —	PROPOSED SWALE DRAIN
— DISP —	PROPOSED STORMWATER DISPERSION PIPE
🟩	PROPOSED WATER TANK
—	SITE BOUNDARY
🟥	EXISTING BUILDING FOOTPRINT
▨	PROPOSED DRIVEWAY
⧖	PROPOSED BUILDING SITE
☒	COUNCIL WATER METER
—	WASTEWATER PIPE
—	WASTEWATER PRIVATE CONNECTION
—	POTABLE WATER SUPPLY
— —	POTABLE WATER SUPPLY PROPOSED
○	MANHOLE
FH	FIRE HYDRANT

Meters
5 0 2.5 5
1:750

Revision	Issue	Date
A	CONSENT	04/09/2023

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
26 HONEY STREET
RAWENE
LOT 43 DP 81053

Project	Drawn By
C0300	SD

Client
WENDY HENWOOD

Sheet Title
3 WATER PLAN

Sheet
400

FILE PATH: Z:\Projects\C0300-C0399\26 Honey Street, Rawene - C0300\06 - Technical & Drawings\Drawings\C0300-S-01.dwgC0300-S-01.dwg

PLOTTED: 03/04/2022

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APPENDIX B

Engineering Borehole Records

INVESTIGATION LOG

HOLE NO.: BH01

CLIENT: Wendy Henwood

PROJECT: 26 Honey Street, Rawene

JOB NO.: C0300

SITE LOCATION: West of Honey Street

START DATE: 31/05/2023

CO-ORDINATES: 1645722.00mE, 6081976.00mN

ELEVATION: Ground

END DATE: 31/05/2023

CONTRACTOR: Internal

RIG: Hand Auger & DCP

DRILLER: SBS

LOGGED BY: TW, SBS

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467 Values	WATER
TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.0	TS			
Clayey SILT, very stiff to hard, light brown mottled white, dry to moist, low plasticity. (Northland Allochthon Residual Soil)		0.2			198+	
		0.4			-	
		0.6			198+	
		0.8			-	
		1.0			UTP	
Sandy SILT, hard, light brown mottled white, dry, friable. (Northland Allochthon Completely Weathered Parent Rock)		1.2		8	-	
		1.4		8	UTP	
		1.6		8	-	
		1.8		8		
		2.0		8		
		2.2		8		
		2.4		10		
		2.6		18		
End Of Hole: 2.70m		2.8		20		
				25 >>		

Groundwater Not Encountered

PHOTO(S)

REMARKS

1. Hand auger terminated at 1.2 m due to dense strata.
2. Continued with DCP until refusal at 2.7 m.
3. Groundwater not encountered at the time of drilling.

WATER

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

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

INVESTIGATION LOG

HOLE NO.: BH02

CLIENT: Wendy Henwood

PROJECT: 26 Honey Street, Rawene

JOB NO.: C0300

SITE LOCATION: West of Honey Street

START DATE: 31/05/2023

CO-ORDINATES: 1645743.00mE, 6081989.00mN

ELEVATION: Ground

END DATE: 31/05/2023

CONTRACTOR: Internal

RIG: Hand Auger

DRILLER: SBS

LOGGED BY: TW, SBS

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: 3467	WATER
TOPSOIL comprising organic SILT, dark blackish brown, moist, low plasticity.		0.0	TS		198+	Groundwater Not Encountered
Clayey SILT, very stiff to hard, light brown mottled white, moist, low plasticity, silt, friable to low plasticity. (Northland Allochthon Residual Soil)		0.2			-	
		0.4			UTP	
		0.6			-	
Sandy SILT, hard, light brown mottled white, moist, friable. (Northland Allochthon Completely Weathered Parent Rock)		0.8			UTP	
		1.0			UTP	
End Of Hole: 1.00m		1.2			-	
		1.4				
		1.6				
		1.8				
		2.0				
		2.2				
		2.4				
		2.6				
		2.8				

Scala penetrometer scale: 2 4 6 8 10 12 14 16 18

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

PHOTO(S)

REMARKS

1. Hand auger terminated at 1.0 m due to dense strata.
2. Groundwater not encountered at the time of drilling.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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APPENDIX C

Assessment of Environmental Effects and Assessment Criteria

Table 17: Proposed Northland Regional Plan Stormwater Assessment Criteria, to rule C.6.4.2

Assessment Criteria	Comments
1) the discharge or diversion is not from: a) a public stormwater network, or b) a high-risk industrial or trade premises	Complies
2) the diversion and discharge does not cause or increase flooding of land on another property in a storm event of up to and including a 10 percent annual exceedance probability, or flooding of buildings on another property in a storm event of up to and including a one percent annual exceedance probability	Complies, primary systems to provide attenuation to pre-development levels for 10 % AEP event, secondary systems to provide management of 1 % AEP flows.
3) where the diversion or discharge is from a hazardous substance storage or handling area: a) the stormwater collection system is designed and operated to prevent hazardous substances stored or used on the site from entering the stormwater system, or b) there is a secondary containment system in place to intercept any spillage of hazardous substances and either discharges that spillage to a trade waste system or stores it for removal and treatment, or c) if the stormwater contains oil contaminants, the stormwater is passed through a stormwater treatment system designed in accordance with the Environmental Guidelines for Water Discharges from Petroleum Industry Sites in New Zealand (Ministry for the Environment, 1998) prior to discharge	Complies. Site is residential.
4) where the diversion or discharge is from an industrial or trade premises: a) the stormwater collection system is designed and operated to prevent any contaminants stored or used on the site, other than those already controlled by condition 3) above, from entering stormwater unless the stormwater is discharged through a stormwater treatment system, and b) any process water or liquid waste stream on the site is bunded, or otherwise contained, within an area of sufficient capacity to provide secondary containment equivalent to 100 percent of the quantity of any process water or liquid waste that has the potential to spill into a stormwater collection system, in order to prevent trade waste entering the stormwater collection system	Complies. Site is residential.
5) the diversion or discharge is not into potentially contaminated land, or onto potentially contaminated land that is not covered by an impervious area	Complies.
6) the diversion and discharge does not cause permanent scouring or erosion of the bed of a water body at the point of discharge	Complies, specifically sized discharge devices are provided from all on-lot devices within proposed lot 2.
7) the discharge does not contain more than 15 milligrams per litre of total petroleum hydrocarbons	Complies. Site is residential.
8) the discharge does not cause any of the following effects in the receiving waters beyond the zone of reasonable mixing: a) the production of conspicuous oil or grease films, scums or foams, of floatable or suspended materials, or b) a conspicuous change in the colour or visual clarity, or c) an emission of objectionable odour, or d) the rendering of fresh water unsuitable for consumption by farm animals, or 163 e) the rendering of fresh water taken from a mapped priority drinking water abstraction point (refer I Maps | Ngā mahere matawhenua) unsuitable for human consumption after existing treatment.	Complies.

Table 18: Proposed Northland Regional Plan Stormwater Assessment Criteria, to rule C.8.3.1

Assessment Criteria		Comments
1)	the area and volume of earthworks at a particular location or associated with a project complies with the thresholds in Table 13.	Complies – classed as 'other areas'.
2)	the discharge is not within 20 metres of a geothermal surface feature.	Complies.
3)	except for coastal dune restoration activities, good management practice erosion and sediment control measures equivalent to those set out in the Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016 (Auckland Council Guideline Document GD2016/005), are implemented for the duration of the activity	Complies. See specific erosion and sediment control details, concept plan and typical details.
4)	batters and side castings are stabilised to prevent slumping	Complies.
5)	exposed earth is stabilised upon completion of the earthworks to minimise erosion and avoid slope failure	Complies. Earthworks form vehicle crossing construction to be stabilised with sealed surface.
6)	earth and debris are not deposited into, or in a position where they can enter, a natural wetland, a continually or intermittently flowing river, a lake, an artificial watercourse, or the coastal marine	Complies. Erosion and sediment control measures have been implemented to control this.
7)	the earthworks activity does not: a) reduce the height of a dune crest in a coastal riparian and foredune management area, except where dunes are recontoured to remove introduced materials or to remediate dune blow-outs as part of coastal dune restoration work, or b) exacerbate flood or coastal hazard risk on any other property, or c) create or contribute to the instability or subsidence of land on other property, or d) divert flood flow onto other property, and 216	Complies provided recommendations in this report and any accompanying detailed design is adhered to.
8)	any associated damming, diversion and discharge of stormwater does not give rise to any of the following effects in the receiving waters beyond the zone of reasonable mixing: a) any conspicuous change in colour or visual clarity, or b) the rendering of fresh water unsuitable for consumption by farm animals, or c) contamination which may render freshwater taken from a mapped priority drinking water abstraction point (refer I Maps | Ngā mahere matawhenua) unsuitable for human consumption after existing treatment	Complies provided recommendations in this report and any accompanying detailed design is adhered to.
9)	information on the source and composition of any clean fill material and its location within the disposal site are recorded and provided to the Regional Council on request	Can comply. Materials are anticipated to be either site won or imported from a registered quarry facility. Details TBC according to an earthworks specification completed during a detailed design phase.
10)	the Regional Council's Compliance Manager is given at least five working days' notice (in writing or by email) of any earthworks activity being undertaken within a high-risk flood hazard area, flood hazard area, where contaminated land will be exposed, or in sand dunes within a coastal riparian and foredune management area.	Can comply, if required.

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APPENDIX D

Stormwater Calculations

Project Ref:	CO300		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	26 Honey Street, Rawene			
Prepared By:	SD		**CONCEPT FUTURE DEVELOPMENT - LOT 2**	
Date:	4 September 2023	REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF PREDICTED 2.1 DEGREE CLIMATE CHANGE. RESIDENTIAL DEVELOPMENT AREAS ARE BASED ON EXISTING SURVEY DATA.

RUNOFF COEFFIENTS DETERMINED FROM WDC ENGINEERING STANDARDS 2022 TABLE 4-4 FOR TYPE D SOILS.

PREDEVELOPMENT SCENARIO				**POST DEVELOPMENT SCENARIO**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
PR IMPERVIOUS	300	0.57	GRASS & BUSH	IMPERVIOUS	200	0.96	PROPOSED ROOF
	0	0		IMPERVIOUS	100	0.96	PROPOSED DRIVEWAY
	0	0		IMPERVIOUS	0	0	
TOTAL	**300**	TYPE D	PR = PROPOSED	**TOTAL**	**300**	TYPE D	

PRE DEVELOPMENT RUNOFF

50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	56.4	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	25.62	%	
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	70.8	mm/hr	
50 % AEP PRE DEVELOPMENT PEAK FLOW	3.37	l/s	

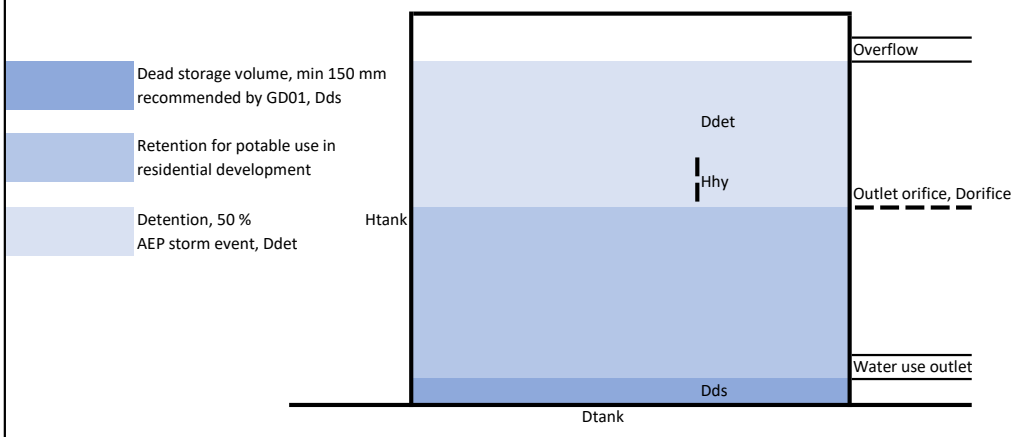
INCREASED POST DEVELOPMENT RUNOFF, 50 % AEP WITH CLIMATE CHANGE PROJECTION OF 2.1 DEGREES

TIME, min	INTENSITY, mm/hr	CC FACTOR	CC INTENSITY, mm/hr	RUNOFF, Q, l/s	Allowable flow, l/s	Difference, l/s	Required Storage, litres
10	56.40	1.2562	70.85	5.67	1.48	4.19	2515
20	39.10	1.2562	49.12	3.93	1.48	2.45	2944
30	31.60	1.2562	39.70	3.18	1.48	1.70	3059
60	21.80	1.2562	27.39	2.19	1.48	0.71	2573
120	14.90	1.2457	18.56	1.48	1.48	0.01	64
360	7.91	1.2058	9.54	0.76	1.48	No Att. Req.	0
720	5.14	1.1785	6.06	0.48	1.48	No Att. Req.	0
1440	3.24	1.1512	3.73	0.30	1.48	No Att. Req.	0
2880	1.97	1.1281	2.22	0.18	1.48	No Att. Req.	0
4320	1.45	1.1155	1.62	0.13	1.48	No Att. Req.	0

NOTE: ALLOWABLE FLOW PROVIDES FOR ANY OFFSET ARISING FROM FLOWS NOT DIRECTLY DISCHARGING TO TANK

ATTENUATION TANK DESIGN OUTPUT

Concept sizing to achieve 5,000 litre



SPECIFICATION

			NOTES:
TOTAL STORAGE REQUIRED	3.059	m3	
TANK HEIGHT, Htank	2	m	Concept sizing to achieve 5,000 litre
TANK DIAMTER, Dtank	1.7841	m	No. of Tanks 1
TANK AREA, Atank	2.50	m2	Single tank area
TANK MAX STORAGE VOLUME, Vtank	5000	litres	
REQUIRED STORAGE HEIGHT, Ddet	1.22	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	1.37	m	
AVERAGE DISCHARGE RATE, Qavg	0.00004	m3/s	
AVERAGE HYDRAULIC HEAD, Hhy	0.61	m	
AREA OF ORIFICE, Aorifice	1.98E-04	m2	
ORIFICE DIAMETER, Dorifice	16	mm	Minimum 10 mm diameter
VELOCITY AT ORIFICE	4.90	m/s	

Project Ref:	CO300	**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	26 Honey Street, Rawene		
Prepared By:	SD	**CONCEPT COASTAL RESIDENTIAL (LOT 2) - 10 % AEP EVENT**	
Date:	4 September 2023 REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF PREDICTED 2.1 DEGREE CLIMATE CHANGE. RESIDENTIAL DEVELOPMENT AREAS ARE BASED ON EXISTING SURVEY DATA.

RUNOFF COEFFIENTS DETERMINED FROM WDC ENGINEERING STANDARDS 2022 TABLE 4-4 FOR TYPE D SOILS.

PREDEVELOPMENT SCENARIO				**POST DEVELOPMENT SCENARIO**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
PR IMPERVIOUS	300	0.57	GRASS & BUSH	IMPERVIOUS	200	0.96	PROPOSED ROOF
0	0	0	0	IMPERVIOUS	100	0.96	PROPOSED DRIVEWAY
0	0	0	0	IMPERVIOUS	0	0	0
TOTAL	**300**	TYPE D	PR = PROPOSED	**TOTAL**	**300**	TYPE D	

PRE DEVELOPMENT RUNOFF			
10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	85.2	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	27.51	%	
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	108.6	mm/hr	
10 % AEP PRE DEVELOPMENT PEAK FLOW	5.16	l/s	

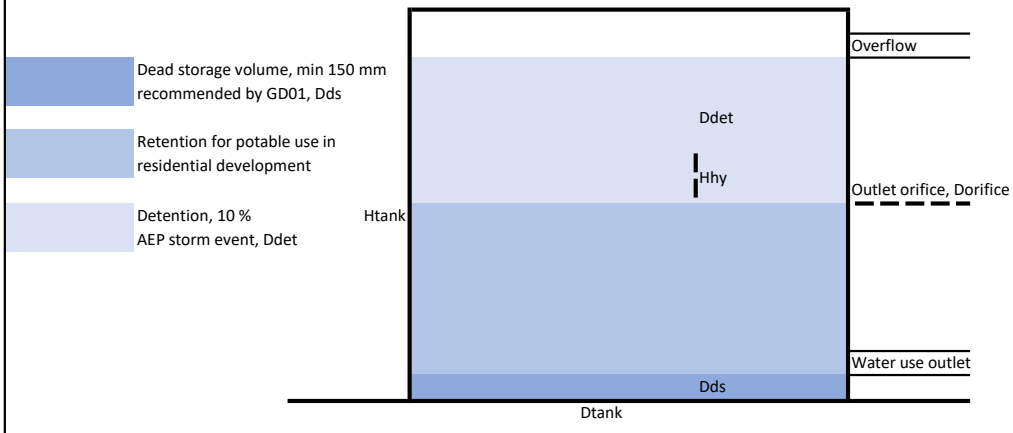
INCREASED POST DEVELOPMENT RUNOFF, 10 % AEP WITH CLIMATE CHANGE PROJECTION OF 2.1 DEGREES

TIME, min	INTENSITY, mm/hr	CC FACTOR	CC INTENSITY, mm/hr	RUNOFF, Q, l/s	Allowable flow, l/s	Difference, l/s	Required Storage, litres
10	85.20	1.2751	108.64	8.69	2.26	6.43	3857
20	59.30	1.2751	75.61	6.05	2.26	3.79	4543
30	47.90	1.2751	61.08	4.89	2.26	2.62	4721
60	33.20	1.2751	42.33	3.39	2.26	1.12	4044
120	22.80	1.2646	28.83	2.31	2.26	0.04	312
360	12.10	1.2268	14.84	1.19	2.26	No Att. Req.	0
720	7.92	1.1995	9.50	0.76	2.26	No Att. Req.	0
1440	5.01	1.1701	5.86	0.47	2.26	No Att. Req.	0
2880	3.06	1.147	3.51	0.28	2.26	No Att. Req.	0
4320	2.25	1.1365	2.56	0.20	2.26	No Att. Req.	0

NOTE: ALLOWABLE FLOW PROVIDES FOR ANY OFFSET ARISING FROM FLOWS NOT DIRECTLY DISCHARGING TO TANK

ATTENUATION TANK DESIGN OUTPUT

Concept sizing to achieve 5,000 litre



SPECIFICATION

TOTAL STORAGE REQUIRED	4.721	m3		
TANK HEIGHT, Htank	2	m	Concept sizing to achieve 5,000 litre	
TANK DIAMETER, Dtank	1.7841	m	No. of Tanks	1
TANK AREA, Atank	2.50	m2	Single tank area	
TANK MAX STORAGE VOLUME, Vtank	5000	litres		
REQUIRED STORAGE HEIGHT, Ddet	1.89	m	Below overflow	
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum	
TOTAL WATER DEPTH REQUIRED	2.04	m		
AVERAGE DISCHARGE RATE, Qavg	0.00005	m3/s		
AVERAGE HYDRAULIC HEAD, Hhy	0.94	m		
AREA OF ORIFICE, Aorifice	3.79E-04	m2		
ORIFICE DIAMETER, Dorifice	22	mm	Note minimum 10 mm diameter	
VELOCITY AT ORIFICE	6.09	m/s		

Project Ref:	CO300	**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	26 Honey Street, Rawene		
Prepared By:	SD	**CONCEPT COASTAL RESIDENTIAL (LOT 2) - 1 % AEP EVENT**	
Date:	4 September 2023 REV 1		

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF PREDICTED 2.1 DEGREE CLIMATE CHANGE. RESIDENTIAL DEVELOPMENT AREAS ARE BASED ON EXISTING SURVEY DATA.

RUNOFF COEFFIENTS DETERMINED FROM WDC ENGINEERING STANDARDS 2022 TABLE 4-4 FOR TYPE D SOILS.

PREDEVELOPMENT SCENARIO				**POST DEVELOPMENT SCENARIO**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
PR IMPERVIOUS	300	0.57	GRASS & BUSH	IMPERVIOUS	200	0.96	PROPOSED ROOF
0	0	0	0	IMPERVIOUS	100	0.96	PROPOSED DRIVEWAY
0	0	0	0	IMPERVIOUS	0	0	0
TOTAL	**300**	TYPE D	PR = PROPOSED	**TOTAL**	**300**	TYPE D	

PRE DEVELOPMENT RUNOFF			
1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	128.0	mm/hr	* CLIMATE CHANGE FACTOR CALCULATED IN ACCORDANCE WITH NIWA HIRDS RECOMMENDATIONS. HISTORIC RAINFALL INTENSITY, 10 MINUTES IS MULTIPLIED BY POTENTIAL CLIMATE CHANGE FACTORS. NIWA RECOMMENDS THAT FOR 10 MINUTE TO 1 HOUR ADOPT THE 1 HR FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	28.56	%	
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	164.6	mm/hr	
1 % AEP PRE DEVELOPMENT PEAK FLOW	7.82	l/s	

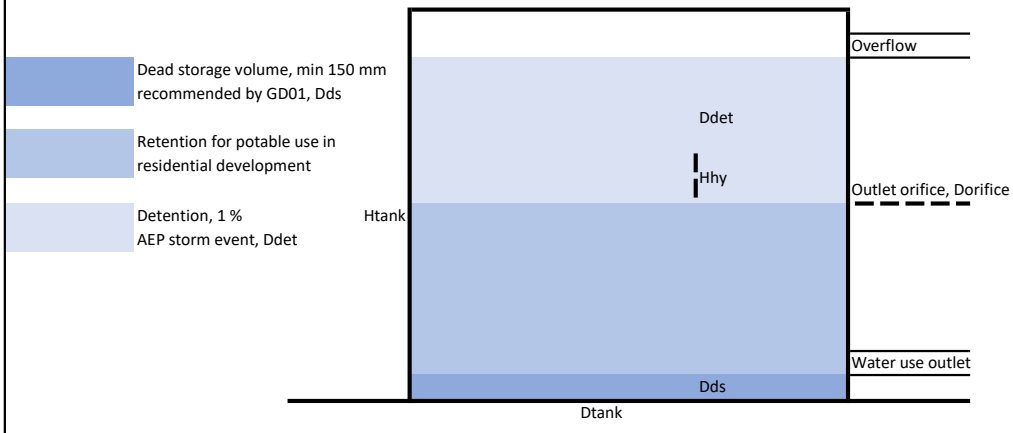
INCREASED POST DEVELOPMENT RUNOFF, 1 % AEP WITH CLIMATE CHANGE PROJECTION OF 2.1 DEGREES

TIME, min	INTENSITY, mm/hr	CC FACTOR	CC INTENSITY, mm/hr	RUNOFF, Q, l/s	ALLOW. RUNOFF, l/s	Difference, l/s	Required Storage, litres
10	128.00	1.2856	164.56	13.16	3.43	9.74	5842
20	89.10	1.2856	114.55	9.16	3.43	5.74	6883
30	72.30	1.2856	92.95	7.44	3.43	4.01	7214
60	50.30	1.2856	64.67	5.17	3.43	1.74	6282
120	34.70	1.2751	44.25	3.54	3.43	0.11	802
360	18.60	1.2415	23.09	1.85	3.43	No Att. Req.	0
720	12.20	1.2121	14.79	1.18	3.43	No Att. Req.	0
1440	7.74	1.1806	9.14	0.73	3.43	No Att. Req.	0
2880	4.75	1.1575	5.50	0.44	3.43	No Att. Req.	0
4320	3.50	1.1449	4.01	0.32	3.43	No Att. Req.	0

NOTE: ALLOWABLE FLOW PROVIDES FOR ANY OFFSET ARISING FROM FLOWS NOT DIRECTLY DISCHARGING TO TANK

ATTENUATION TANK DESIGN OUTPUT

Concept sizing to achieve 5,000 litre



SPECIFICATION

			NOTES:
TOTAL STORAGE REQUIRED	7.214	m3	
TANK HEIGHT, Htank	2	m	Concept sizing to achieve 5,000 litre
TANK DIAMETER, Dtank	1.7841	m	No. of Tanks 1
TANK AREA, Atank	2.50	m2	Single tank area
TANK MAX STORAGE VOLUME, Vtank	5000	litres	
REQUIRED STORAGE HEIGHT, Ddet	2.89	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	3.04	m	
AVERAGE DISCHARGE RATE, Qavg	0.00008	m3/s	
AVERAGE HYDRAULIC HEAD, Hhy	1.44	m	
AREA OF ORIFICE, Aorifice	7.16E-04	m2	
ORIFICE DIAMETER, Dorifice	30	mm	Note minimum 10 mm diameter
VELOCITY AT ORIFICE	7.52	m/s	

Project Ref:	CO300		STORMWATER DISPERSION PIPE/ TRENCH	geologix consulting engineers
Project Address:	26 Honey Street, Rawene			
Prepared By:	SD		LOT 2	
Date:	4 September 2023	REV 1		

TP108 Worksheet 1 - Runoff curve number & Initial Abstraction

Soil name	Cover description		Curve Number, CN	Area	Product of CN * Area
TYPE D	PROPOSED ROOF		98	200	19600
TYPE D	PROPOSED DRIVEWAY		98	100	9800
TYPE D		0	0	0	0
TYPE D	GRASS & BUSH		73	1498	109354
			Total	**1798**	**138754**

TOTAL SITE AREA, m2: 1798

TP108, FIGURE 5.1

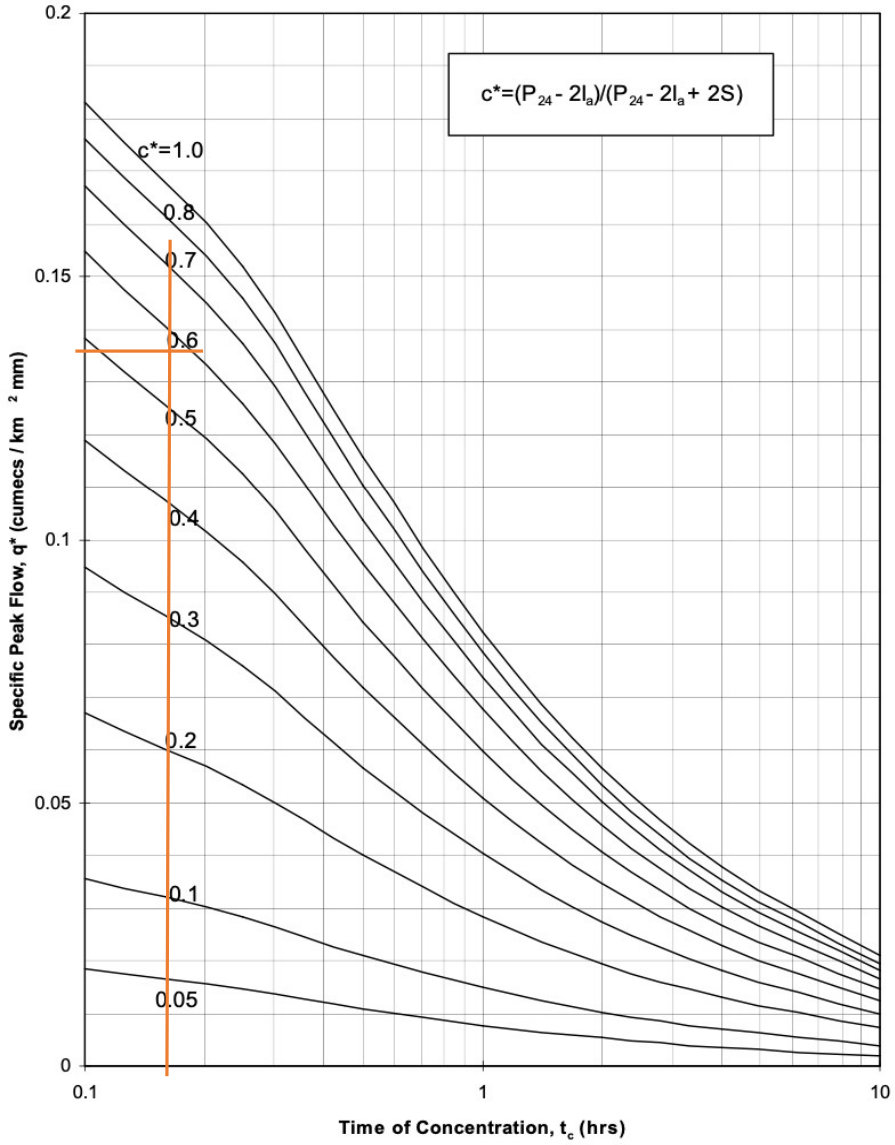


Figure 5.1 - Specific Peak Flow Rate

Project Ref:	CO300	**STORMWATER DISPERSION PIPE/ TRENCH**	geologix consulting engineers
Project Address:	26 Honey Street, Rawene		
Prepared By:	SD	**LOT 2**	
Date:	4 September 2023	REV 1	

DESIGN BASED ON REFERENCED DEVELOPMENT PLANS TO PROVIDE A MINIMUM LENGTH OF ABOVE OR BELOW GROUND STORMWATER TANK OVERFLOW DISCHARGE DISPERSION DEVICE. IN GENERAL ACCORDANCE WITH TP108 GRAPHICAL METHOD BASED ON NIWA HIRDS DEPTH-DURATION DATA AND ACCOUNTING FOR THE PROVISION OF CLIMATE CHANGE.

DESIGN STORM EVENT **1%** AEP EVENT

ESTIMATE DESIGN RAINFALL DEPTH, P24

RAINFALL DEPTH	24 HR DURATION	1%	186	mm
CLIMATE CHANGE FACTOR	2.1 DEGREE INCREASE,24 HR	1%	8.6	%
RAINFALL DEPTH WITH CC, P24			202.0	mm

ESTIMATE DETENTION VOLUME, TP108 GRAPHICAL METHOD

PEAK FLOW RATE, qp = q* x A x P24

WHERE,
- q*= SPECIFIC PEAK FLOW RATE (l/s)
- P24= 24 HR DESIGN RAINFALL DEPTH (mm)
- A= CATCHMENT AREA TO BE MITIGATED (m2)

CURVE NUMBER, CN (WEIGHTED)	77		See summary table, based on smalled lot size
INITIAL ABSTRACTION, Ia	0.00	mm	As TP108, adopt 0 mm impervious, 5 mm pervious
MITIGATION AREA, Am	300	m2	Accounts for roof and driveway as an offset
SOIL STORAGE, S	75.1		
RUNOFF INDEX, C*	0.57	mm	
TIME OF CONCENTRATION, tc	0.167	hrs	
SPECIFIC PEAK FLOWRATE, q*	0.136		TP108, Figure 5.1, see next page.
PEAK FLOWRATE, qp	8.24	l/s	
RUNOFF DEPTH, Q24	147.2	mm	
RUNOFF VOLUME, V24	44169	litres	

CONSTRUCTION OF DISPERSION ABOVE GROUND PIPE OR PIPE WITHIN TRENCH

DIA. OF ORIFICE, D	10	mm
AREA OF ORIFICE, A	78.54	mm2
DESIGN VELOCITY, Dv	7.52	m/s
NUMBER OF ORIFICES	14	No.
ORIFICE INTERVALS, C/C	200	mm
DISPERSION PIPE LENGTH	2.6	m

Project Ref:	CO300		STORMWATER ATTENUATION TANK DESIGN	geologix consulting engineers
Project Address:	26 Honey Street, Rawene			
Prepared By:	SD		LOT 2	
Date:	4 September 2023	REV 1		

CLIMATE CHANGE PROJECTIONS

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

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

HIRDS V4 Intensity-Duration-Frequency Results
Sitename: 26 HONEY STREET, RAWENE
Coordinate system: WGS84
Longitude: 173.5039
Latitude: -35.4048

DDF Mode Parameter	c	d	e	f	g	h	i
Values:	0.002653	0.459634	-0.01022	-0.00281	0.251981	-0.01101	2.992377

Example:	Duration (h	ARI (yrs)	x	y	Rainfall Rate (mm/hr)
	24	100	3.178054	4.600149	7.742187

Rainfall intensities (mm/hr) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	51.6	35.8	28.9	19.9	13.6	7.2	4.68	2.95	1.79	1.32	1.05	0.872
2	0.5	56.4	39.1	31.6	21.8	14.9	7.91	5.14	3.24	1.97	1.45	1.15	0.96
5	0.2	73	50.7	41	28.4	19.5	10.3	6.73	4.25	2.59	1.91	1.52	1.27
10	0.1	85.2	59.3	47.9	33.2	22.8	12.1	7.92	5.01	3.06	2.25	1.79	1.5
20	0.05	97.6	68	55.1	38.2	26.3	14	9.16	5.8	3.55	2.61	2.08	1.74
30	0.033	105	73.3	59.3	41.2	28.4	15.1	9.9	6.28	3.84	2.83	2.26	1.88
40	0.025	110	77	62.4	43.4	29.9	16	10.4	6.62	4.05	2.99	2.38	1.99
50	0.02	115	80	64.8	45.1	31	16.6	10.9	6.89	4.22	3.11	2.48	2.07
60	0.017	118	82.4	66.8	46.4	32	17.1	11.2	7.11	4.36	3.21	2.56	2.14
80	0.013	123	86.2	69.9	48.6	33.5	18	11.8	7.47	4.58	3.38	2.69	2.25
100	0.01	128	89.1	72.3	50.3	34.7	18.6	12.2	7.74	4.75	3.5	2.8	2.33
250	0.004	144	101	82.1	57.3	39.5	21.3	13.9	8.88	5.46	4.03	3.22	2.69

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

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	6.4	4	3.2	2.3	1.5	0.92	0.65	0.28	0.2	0.14	0.043	0.077
2	0.5	7	4.4	3.4	2.5	1.7	1	0.72	0.31	0.22	0.16	0.046	0.086
5	0.2	9.8	6.2	4.9	3.4	2.4	1.4	0.98	0.42	0.3	0.21	0.073	0.12
10	0.1	12	8.1	6.4	4.4	3	1.7	1.2	0.53	0.38	0.26	0.1	0.15
20	0.05	16	11	8.3	5.8	3.8	2.1	1.5	0.66	0.46	0.32	0.14	0.19
30	0.033	18	12	9.8	6.7	4.4	2.4	1.7	0.75	0.52	0.37	0.17	0.22
40	0.025	20	14	11	7.5	4.9	2.6	1.9	0.83	0.56	0.4	0.2	0.24
50	0.02	21	15	12	8.2	5.3	2.8	2.1	0.89	0.6	0.43	0.22	0.26
60	0.017	23	16	13	8.8	5.7	3	2.2	0.94	0.64	0.45	0.23	0.28
80	0.013	25	18	14	9.9	6.3	3.3	2.4	1	0.69	0.5	0.26	0.3
100	0.01	27	19	15	11	6.9	3.6	2.6	1.1	0.74	0.53	0.29	0.32
250	0.004	37	26	22	15	9.5	4.9	3.6	1.5	0.97	0.7	0.41	0.43

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

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	55.2	38.3	30.9	21.3	14.5	7.6	4.9	3.07	1.85	1.36	1.08	0.895
2	0.5	60.5	42	33.9	23.4	16	8.36	5.4	3.38	2.04	1.49	1.19	0.987
5	0.2	78.5	54.5	44.1	30.5	20.9	11	7.09	4.45	2.7	1.98	1.57	1.31
10	0.1	91.7	63.9	51.7	35.8	24.5	12.9	8.37	5.25	3.19	2.34	1.86	1.55
20	0.05	105	73.4	59.4	41.2	28.3	14.9	9.68	6.08	3.7	2.71	2.16	1.8
30	0.033	113	79.1	64	44.5	30.5	16.2	10.5	6.58	4.01	2.94	2.34	1.95
40	0.025	119	83.1	67.3	46.8	32.1	17	11	6.95	4.23	3.11	2.47	2.06
50	0.02	124	86.3	70	48.6	33.4	17.7	11.5	7.23	4.41	3.24	2.58	2.15
60	0.017	127	88.9	72.1	50.1	34.4	18.3	11.9	7.47	4.55	3.34	2.66	2.22
80	0.013	133	93.1	75.5	52.5	36.1	19.2	12.4	7.84	4.78	3.51	2.8	2.33
100	0.01	138	96.3	78.1	54.4	37.4	19.9	12.9	8.14	4.96	3.64	2.9	2.42
250	0.004	156	109	88.7	61.9	42.6	22.7	14.8	9.33	5.7	4.19	3.34	2.78

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

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	55.2	38.3	30.9	21.3	14.5	7.6	4.9	3.07	1.85	1.36	1.08	0.895
2	0.5	60.5	42	33.9	23.4	16	8.36	5.4	3.38	2.04	1.49	1.19	0.987
5	0.2	78.5	54.5	44.1	30.5	20.9	11	7.09	4.45	2.7	1.98	1.57	1.31
10	0.1	91.7	63.9	51.7	35.8	24.5	12.9	8.37	5.25	3.19	2.34	1.86	1.55
20	0.05	105	73.4	59.4	41.2	28.3	14.9	9.68	6.08	3.7	2.71	2.16	1.8
30	0.033	113	79.1	64	44.5	30.5	16.2	10.5	6.58	4.01	2.94	2.34	1.95
40	0.025	119	83.1	67.3	46.8	32.1	17	11	6.95	4.23	3.11	2.47	2.06
50	0.02	124	86.3	70	48.6	33.4	17.7	11.5	7.23	4.41	3.24	2.58	2.15
60	0.017	127	88.9	72.1	50.1	34.4	18.3	11.9	7.47	4.55	3.34	2.66	2.22
80	0.013	133	93.1	75.5	52.5	36.1	19.2	12.4	7.84	4.78	3.51	2.8	2.33
100	0.01	138	96.3	78.1	54.4	37.4	19.9	12.9	8.14	4.96	3.64	2.9	2.42
250	0.004	156	109	88.7	61.9	42.6	22.7	14.8	9.33	5.7	4.19	3.34	2.78

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

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	56.1	38.9	31.4	21.7	14.7	7.71	4.96	3.1	1.87	1.37	1.08	0.901
2	0.5	61.5	42.7	34.5	23.8	16.2	8.48	5.46	3.41	2.06	1.51	1.2	0.994
5	0.2	79.9	55.5	44.9	31.1	21.2	11.1	7.19	4.5	2.72	1.99	1.58	1.32
10	0.1	93.4	65	52.6	36.5	24.9	13.1	8.48	5.31	3.22	2.36	1.87	1.56
20	0.05	107	74.7	60.5	42	28.8	15.2	9.81	6.15	3.74	2.74	2.18	1.81
30	0.033	115	80.5	65.2	45.3	31.1	16.4	10.6	6.66	4.05	2.97	2.36	1.97
40	0.025	121	84.7	68.6	47.7	32.7	17.3	11.2	7.03	4.27	3.14	2.49	2.08
50	0.02	126	88	71.3	49.6	34	18	11.7	7.32	4.45	3.27	2.6	2.16
60	0.017	130	90.6	73.4	51.1	35.1	18.6	12	7.56	4.6	3.38	2.69	2.24
80	0.013	136	94.8	76.9	53.5	36.8	19.5	12.6	7.94	4.83	3.55	2.82	2.35
100	0.01	140	98.1	79.6	55.4	38.1	20.2	13.1	8.23	5.01	3.68	2.93	2.44
250	0.004	159	111	90.4	63	43.4	23.1	15	9.44	5.76	4.23	3.37	2.81

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

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	59	40.9	33	22.8	15.5	8.02	5.13	3.2	1.92	1.4	1.11	0.919
2	0.5	64.8	44.9	36.3	25.1	17	8.85	5.67	3.52	2.12	1.54	1.22	1.02
5	0.2	84.3	58.6	47.3	32.8	22.3	11.6	7.48	4.65	2.8	2.05	1.62	1.35
10	0.1	98.7	68.7	55.5	38.5	26.3	13.7	8.83	5.5	3.32	2.43	1.92	1.6
20	0.05	113	79	63.9	44.4	30.3	15.9	10.2	6.38	3.86	2.82	2.24	1.86
30	0.033	122	85.2	69	47.9	32.8	17.2	11.1	6.91	4.18	3.06	2.43	2.02
40	0.025	128	89.5	72.5	50.4	34.5	18.1	11.7	7.29	4.41	3.23	2.56	2.13
50	0.02	133	93	75.4	52.4	35.9	18.9	12.2	7.59	4.6	3.37	2.67	2.22
60	0.017	137	95.8	77.7	54	37	19.5	12.6	7.84	4.75	3.48	2.76	2.3
80	0.013	144	100	81.4	56.6	38.8	20.4	13.2	8.23	4.99	3.66	2.9	2.42
100	0.01	148	104	84.2	58.6	40.2	21.2	13.7	8.55	5.18	3.79	3.02	2.51
250	0.004	168	118	95.6	66.7	45.8	24.2	15.6	9.8	5.95	4.36	3.47	2.89

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

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	55.8	38.7	31.2	21.5	14.7	7.66	4.93	3.09	1.86	1.36	1.08	0.898
2	0.5	61.1	42.4	34.2	23.6	16.1	8.43	5.44	3.4	2.05	1.5	1.19	0.991
5	0.2	79.3	55.1	44.6	30.8	21.1	11.1	7.15	4.48	2.71	1.99	1.58	1.31
10	0.1	92.7	64.6	52.2	36.2	24.8	13	8.43	5.29	3.21	2.35	1.87	1.55
20	0.05	106	74.2	60.1	41.7	28.6	15.1	9.76	6.12	3.72	2.73	2.17	1.81
30	0.033	115	79.9	64.8	45	30.8	16.3	10.6	6.63	4.03	2.96	2.35	1.96
40	0.025	120	84.1	68.1	47.3	32.5	17.2	11.1	7	4.26	3.13	2.48	2.07
50	0.02	125	87.3	70.8	49.2	33.8	17.9	11.6	7.28	4.43	3.25	2.59	2.16
60	0.017	129	89.9	72.9	50.7	34.8	18.4	12	7.52	4.58	3.36	2.68	2.23
80	0.013	135	94.1	76.3	53.1	36.5	19.3	12.6	7.9	4.81	3.53	2.81	2.34
100	0.01	139	97.4	79	55	37.8	20.1	13	8.19	4.99	3.67	2.92	2.43
250	0.004	158	111	89.7	62.6	43.1	22.9	14.9	9.4	5.73	4.22	3.36	2.8

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

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	61.6	42.7	34.5	23.8	16.1	8.31	5.29	3.28	1.96	1.43	1.13	0.936
2	0.5	67.7	46.9	37.9	26.2	17.8	9.17	5.85	3.62	2.17	1.58	1.25	1.03
5	0.2	88.2	61.3	49.5	34.3	23.4	12.1	7.74	4.79	2.88	2.1	1.66	1.38
10	0.1	103	71.9	58.2	40.3	27.5	14.3	9.15	5.67	3.41	2.49	1.97	1.64
20	0.05	119	82.8	67	46.5	31.8	16.6	10.6	6.58	3.96	2.89	2.29	1.9
30	0.033	128	89.3	72.3	50.2	34.3	17.9	11.5	7.13	4.3	3.14	2.49	2.06
40	0.025	134	93.9	76	52.8	36.1	18.9	12.1	7.53	4.54	3.32	2.63	2.18
50	0.02	140	97.6	79.1	55	37.6	19.7	12.6	7.83	4.73	3.46	2.74	2.27
60	0.017	144	100	81.5	56.7	38.8	20.3	13	8.1	4.88	3.57	2.83	2.35
80	0.013	151	105	85.4	59.4	40.7	21.3	13.7	8.5	5.14	3.75	2.97	2.47
100	0.01	156	109	88.3	61.5	42.1	22.1	14.2	8.83	5.33	3.9	3.09	2.57
250	0.004	176	124	100	70	48	25.2	16.2	10.1	6.12	4.48	3.56	2.95

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

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	56.8	39.4	31.8	21.9	14.9	7.78	5	3.12	1.88	1.37	1.09	0.905
2	0.5	62.3	43.2	34.9	24.1	16.4	8.57	5.51	3.44	2.07	1.52	1.2	0.999
5	0.2	80.9	56.2	45.5	31.5	21.5	11.3	7.26	4.53	2.74	2.01	1.59	1.32
10	0.1	94.6	65.9	53.3	36.9	25.3	13.3	8.56	5.36	3.24	2.38	1.89	1.57
20	0.05	109	75.7	61.3	42.6	29.1	15.3	9.91	6.21	3.77	2.76	2.19	1.82
30	0.033	117	81.6	66.1	45.9	31.5	16.6	10.7	6.72	4.08	2.99	2.38	1.98
40	0.025	123	85.8	69.5	48.3	33.1	17.5	11.3	7.09	4.31	3.16	2.51	2.09
50	0.02	128	89.1	72.2	50.2	34.5	18.2	11.8	7.38	4.49	3.29	2.62	2.18
60	0.017	131	91.8	74.4	51.8	35.5	18.8	12.2	7.63	4.63	3.4	2.7	2.25
80	0.013	138	96.1	77.9	54.2	37.2	19.7	12.8	8.01	4.87	3.57	2.84	2.37
100	0.01	142	99.4	80.6	56.1	38.6	20.4	13.2	8.31	5.05	3.71	2.95	2.46
250	0.004	161	113	91.6	63.9	43.9	23.3	15.1	9.53	5.8	4.26	3.39	2.83

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

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	67.4	46.7	37.7	26	17.6	8.95	5.64	3.48	2.06	1.49	1.17	0.973
2	0.5	74.2	51.5	41.5	28.7	19.4	9.91	6.27	3.84	2.28	1.65	1.3	1.08
5	0.2	97.1	67.5	54.5	37.7	25.6	13.1	8.33	5.11	3.04	2.21	1.74	1.44
10	0.1	114	79.3	64.2	44.5	30.2	15.5	9.86	6.06	3.61	2.63	2.07	1.72
20	0.05	131	91.4	74	51.4	35	18	11.4	7.03	4.21	3.06	2.42	2
30	0.033	141	98.6	79.9	55.5	37.8	19.5	12.4	7.62	4.57	3.32	2.62	2.17
40	0.025	149	104	84	58.4	39.8	20.6	13.1	8.06	4.82	3.51	2.77	2.3
50	0.02	154	108	87.4	60.8	41.4	21.4	13.6	8.38	5.03	3.66	2.89	2.39
60	0.017	159	111	90	62.6	42.7	22.2	14.1	8.67	5.19	3.78	2.99	2.47
80	0.013	167	116	94.4	65.7	44.8	23.2	14.8	9.1	5.46	3.98	3.14	2.6
100	0.01	172	120	97.6	68	46.4	24.1	15.4	9.46	5.67	4.13	3.26	2.7
250	0.004	195	137	111	77.4	52.9	27.6	17.6	10.8	6.51	4.74	3.76	3.11

HIRDS V4 Depth-Duration-Frequency Results
Sitename: 26 HONEY STREET 26 HONEY STREET, RAWENE
Coordinate system: WGS84
Longitude: 173.5039
Latitude: -35.4048
DDF Model

Parameters:	c	d	e	f	g	h	i
Values:	0.00265339	0.45963432	-0.01022224	-0.00280512	0.25198141	-0.01101254	2.99237731

Example:	Duration (hrs)	ARI (yrs)	x	y	Rainfall Depth (mm)
	24	100	3.17805383	4.600149227	185.8124826

Rainfall depths (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	8.6	11.9	14.4	19.9	27.2	43.2	56.1	70.8	86.1	94.7	100	105
2	0.5	9.41	13	15.8	21.8	29.9	47.4	61.7	77.8	94.7	104	111	115
5	0.2	12.2	16.9	20.5	28.4	38.9	62	80.8	102	125	137	146	152
10	0.1	14.2	19.8	24	33.2	45.6	72.9	95.1	120	147	162	172	180
20	0.05	16.3	22.7	27.5	38.2	52.6	84.1	110	139	170	188	200	208
30	0.033	17.5	24.4	29.7	41.2	56.7	90.9	119	151	184	204	217	226
40	0.025	18.4	25.7	31.2	43.4	59.7	95.8	125	159	195	215	229	239
50	0.02	19.1	26.7	32.4	45.1	62	99.6	130	165	203	224	238	249
60	0.017	19.7	27.5	33.4	46.4	64	103	134	171	209	231	246	257
80	0.013	20.6	28.7	34.9	48.6	67	108	141	179	220	243	259	270
100	0.01	21.3	29.7	36.1	50.3	69.4	112	146	186	228	252	268	280
250	0.004	24.1	33.7	41.1	57.3	79.1	128	167	213	262	290	309	323

Depth standard error (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	1.1	1.4	1.5	2.1	3	5.8	7.9	6.6	9.7	10	4.2	9.4
2	0.5	1.2	1.5	1.7	2.3	3.3	6.3	8.7	7.2	11	11	4.5	10
5	0.2	1.7	2.2	2.4	3.2	4.6	8.7	12	10	15	15	7	14
10	0.1	2.1	2.8	3.2	4.1	5.8	11	14	13	18	19	10	18
20	0.05	2.7	3.7	4.2	5.3	7.5	14	18	16	22	23	14	22
30	0.033	3.1	4.3	4.9	6.2	8.7	16	20	18	24	26	17	26
40	0.025	3.4	4.8	5.5	6.9	9.7	17	22	20	27	29	20	28
50	0.02	3.6	5.2	6	7.6	11	19	24	22	28	31	22	30
60	0.017	3.9	5.6	6.4	8.1	11	20	25	23	30	32	24	32
80	0.013	4.3	6.2	7.2	9	13	22	28	25	32	35	27	35
100	0.01	4.6	6.7	7.8	9.8	14	24	30	27	35	37	29	37
250	0.004	6.3	9.4	11	14	19	33	41	37	45	49	42	50

Rainfall depths (mm) :: RCP2.6 for the period 2031-2050

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	9.2	12.8	15.4	21.3	29	45.6	58.8	73.7	89	97.6	103	107
2	0.5	10.1	14	16.9	23.4	31.9	50.2	64.8	81.1	98.1	108	114	118
5	0.2	13.1	18.2	22	30.5	41.7	65.9	85.1	107	129	142	151	157
10	0.1	15.3	21.3	25.8	35.8	49	77.5	100	126	153	168	178	186
20	0.05	17.5	24.5	29.7	41.2	56.5	89.6	116	146	178	195	207	216
30	0.033	18.9	26.4	32	44.5	61	96.9	126	158	192	212	225	234
40	0.025	19.9	27.7	33.7	46.8	64.2	102	133	167	203	224	237	247
50	0.02	20.6	28.8	35	48.6	66.8	106	138	174	211	233	247	257
60	0.017	21.2	29.6	36	50.1	68.9	110	142	179	218	241	255	266
80	0.013	22.2	31	37.7	52.5	72.2	115	149	188	229	253	268	280
100	0.01	23	32.1	39	54.4	74.7	119	155	195	238	262	279	290
250	0.004	26	36.4	44.4	61.9	85.2	136	177	224	273	302	321	334

Rainfall depths (mm) :: RCP2.6 for the period 2081-2100

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	9.2	12.8	15.4	21.3	29	45.6	58.8	73.7	89	97.6	103	107
2	0.5	10.1	14	16.9	23.4	31.9	50.2	64.8	81.1	98.1	108	114	118
5	0.2	13.1	18.2	22	30.5	41.7	65.9	85.1	107	129	142	151	157
10	0.1	15.3	21.3	25.8	35.8	49	77.5	100	126	153	168	178	186
20	0.05	17.5	24.5	29.7	41.2	56.5	89.6	116	146	178	195	207	216
30	0.033	18.9	26.4	32	44.5	61	96.9	126	158	192	212	225	234
40	0.025	19.9	27.7	33.7	46.8	64.2	102	133	167	203	224	237	247
50	0.02	20.6	28.8	35	48.6	66.8	106	138	174	211	233	247	257
60	0.017	21.2	29.6	36	50.1	68.9	110	142	179	218	241	255	266
80	0.013	22.2	31	37.7	52.5	72.2	115	149	188	229	253	268	280
100	0.01	23	32.1	39	54.4	74.7	119	155	195	238	262	279	290
250	0.004	26	36.4	44.4	61.9	85.2	136	177	224	273	302	321	334

Rainfall depths (mm) :: RCP4.5 for the period 2031-2050

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	9.36	13	15.7	21.7	29.5	46.2	59.5	74.4	89.8	98.3	104	108
2	0.5	10.3	14.2	17.2	23.8	32.5	50.9	65.5	81.9	98.9	108	115	119
5	0.2	13.3	18.5	22.4	31.1	42.4	66.8	86.3	108	131	144	152	158
10	0.1	15.6	21.7	26.3	36.5	49.9	78.7	102	128	155	170	180	187
20	0.05	17.9	24.9	30.3	42	57.5	91	118	148	179	197	209	217
30	0.033	19.2	26.8	32.6	45.3	62.1	98.4	127	160	194	214	227	236
40	0.025	20.2	28.2	34.3	47.7	65.4	104	134	169	205	226	239	249
50	0.02	21	29.3	35.6	49.6	68	108	140	176	214	235	250	260
60	0.017	21.6	30.2	36.7	51.1	70.1	111	144	181	221	243	258	268
80	0.013	22.6	31.6	38.5	53.5	73.5	117	151	190	232	255	271	282
100	0.01	23.4	32.7	39.8	55.4	76.1	121	157	198	241	265	281	293
250	0.004	26.5	37.1	45.2	63	86.8	138	180	227	276	305	324	337

Rainfall depths (mm) :: RCP4.5 for the period 2081-2100

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	9.84	13.6	16.5	22.8	30.9	48.1	61.6	76.8	92.1	101	106	110
2	0.5	10.8	15	18.1	25.1	34.1	53.1	68	84.5	102	111	117	122
5	0.2	14	19.5	23.7	32.8	44.7	69.9	89.7	112	135	148	156	162
10	0.1	16.4	22.9	27.8	38.5	52.6	82.4	106	132	159	175	185	192
20	0.05	18.9	26.3	32	44.4	60.7	95.4	123	153	185	203	215	223
30	0.033	20.3	28.4	34.5	47.9	65.6	103	133	166	201	220	233	242
40	0.025	21.4	29.8	36.3	50.4	69	109	140	175	212	233	246	256
50	0.02	22.2	31	37.7	52.4	71.8	113	146	182	221	242	257	267
60	0.017	22.9	31.9	38.8	54	74	117	151	188	228	251	265	275
80	0.013	23.9	33.5	40.7	56.6	77.6	123	158	198	240	263	279	290
100	0.01	24.7	34.6	42.1	58.6	80.4	127	164	205	249	273	289	301
250	0.004	28	39.3	47.8	66.7	91.6	145	188	235	286	314	333	346

Rainfall depths (mm) :: RCP6.0 for the period 2031-2050

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	9.29	12.9	15.6	21.5	29.3	46	59.2	74.1	89.5	98	104	108
2	0.5	10.2	14.1	17.1	23.6	32.2	50.6	65.2	81.6	98.6	108	114	119
5	0.2	13.2	18.4	22.3	30.8	42.2	66.4	85.8	107	130	143	151	157
10	0.1	15.5	21.5	26.1	36.2	49.5	78.2	101	127	154	169	179	187
20	0.05	17.7	24.7	30	41.7	57.1	90.5	117	147	179	196	208	217
30	0.033	19.1	26.6	32.4	45	61.7	97.8	127	159	194	213	226	235
40	0.025	20.1	28	34	47.3	64.9	103	134	168	204	225	239	248
50	0.02	20.8	29.1	35.4	49.2	67.5	107	139	175	213	234	249	259
60	0.017	21.5	30	36.4	50.7	69.6	111	144	181	220	242	257	267
80	0.013	22.5	31.4	38.2	53.1	73	116	151	190	231	254	270	281
100	0.01	23.2	32.5	39.5	55	75.6	120	156	197	240	264	280	292
250	0.004	26.3	36.8	44.9	62.6	86.1	138	179	226	275	304	322	336

Rainfall depths (mm) :: RCP6.0 for the period 2081-2100

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	10.3	14.2	17.2	23.8	32.2	49.8	63.5	78.8	94.2	103	108	112
2	0.5	11.3	15.6	18.9	26.2	35.6	55	70.2	86.9	104	114	120	124
5	0.2	14.7	20.4	24.8	34.3	46.7	72.6	92.9	115	138	151	159	165
10	0.1	17.2	24	29.1	40.3	55	85.7	110	136	164	179	189	196
20	0.05	19.8	27.6	33.5	46.5	63.5	99.4	127	158	190	208	220	228
30	0.033	21.3	29.8	36.2	50.2	68.6	107	138	171	206	226	239	248
40	0.025	22.4	31.3	38	52.8	72.3	113	145	181	218	239	252	262
50	0.02	23.3	32.5	39.5	55	75.2	118	151	188	227	249	263	273
60	0.017	24	33.5	40.7	56.7	77.5	122	156	194	234	257	272	282
80	0.013	25.1	35.1	42.7	59.4	81.3	128	164	204	247	270	286	297
100	0.01	26	36.3	44.2	61.5	84.2	133	170	212	256	281	297	308
250	0.004	29.4	41.2	50.2	70	96	151	195	243	294	323	342	355

Rainfall depths (mm) :: RCP8.5 for the period 2031-2050

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	9.47	13.1	15.9	21.9	29.8	46.7	60	75	90.3	98.8	105	109
2	0.5	10.4	14.4	17.4	24.1	32.8	51.4	66.1	82.5	99.6	109	115	120
5	0.2	13.5	18.7	22.7	31.5	43	67.5	87.1	109	132	144	153	159
10	0.1	15.8	22	26.6	36.9	50.5	79.6	103	129	156	171	181	188
20	0.05	18.1	25.2	30.7	42.6	58.3	92.1	119	149	181	199	210	219
30	0.033	19.5	27.2	33.1	45.9	62.9	99.5	129	161	196	215	228	237
40	0.025	20.5	28.6	34.8	48.3	66.3	105	136	170	207	227	241	251
50	0.02	21.3	29.7	36.1	50.2	68.9	109	141	177	215	237	251	261
60	0.017	21.9	30.6	37.2	51.8	71	113	146	183	222	245	260	270
80	0.013	22.9	32	39	54.2	74.5	118	153	192	234	257	273	284
100	0.01	23.7	33.1	40.3	56.1	77.1	123	159	199	242	267	283	295
250	0.004	26.9	37.6	45.8	63.9	87.9	140	182	229	279	307	326	339

Rainfall depths (mm) :: RCP8.5 for the period 2081-2100

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	11.2	15.6	18.9	26	35.1	53.7	67.7	83.5	99	107	113	117
2	0.5	12.4	17.2	20.8	28.7	38.9	59.4	75.2	92.2	110	119	125	129
5	0.2	16.2	22.5	27.3	37.7	51.2	78.8	99.9	123	146	159	167	173
10	0.1	19	26.4	32.1	44.5	60.5	93.2	118	145	174	189	199	206
20	0.05	21.9	30.5	37	51.4	69.9	108	137	169	202	220	232	240
30	0.033	23.6	32.9	39.9	55.5	75.6	117	149	183	219	239	252	260
40	0.025	24.8	34.6	42	58.4	79.6	124	157	193	231	253	266	276
50	0.02	25.7	35.9	43.7	60.8	82.9	129	164	201	241	263	278	287
60	0.017	26.5	37	45	62.6	85.4	133	169	208	249	272	287	297
80	0.013	27.8	38.8	47.2	65.7	89.7	139	177	218	262	286	301	312
100	0.01	28.7	40.1	48.8	68	92.8	145	184	227	272	297	313	324
250	0.004	32.5	45.5	55.5	77.4	106	165	211	260	313	342	361	373

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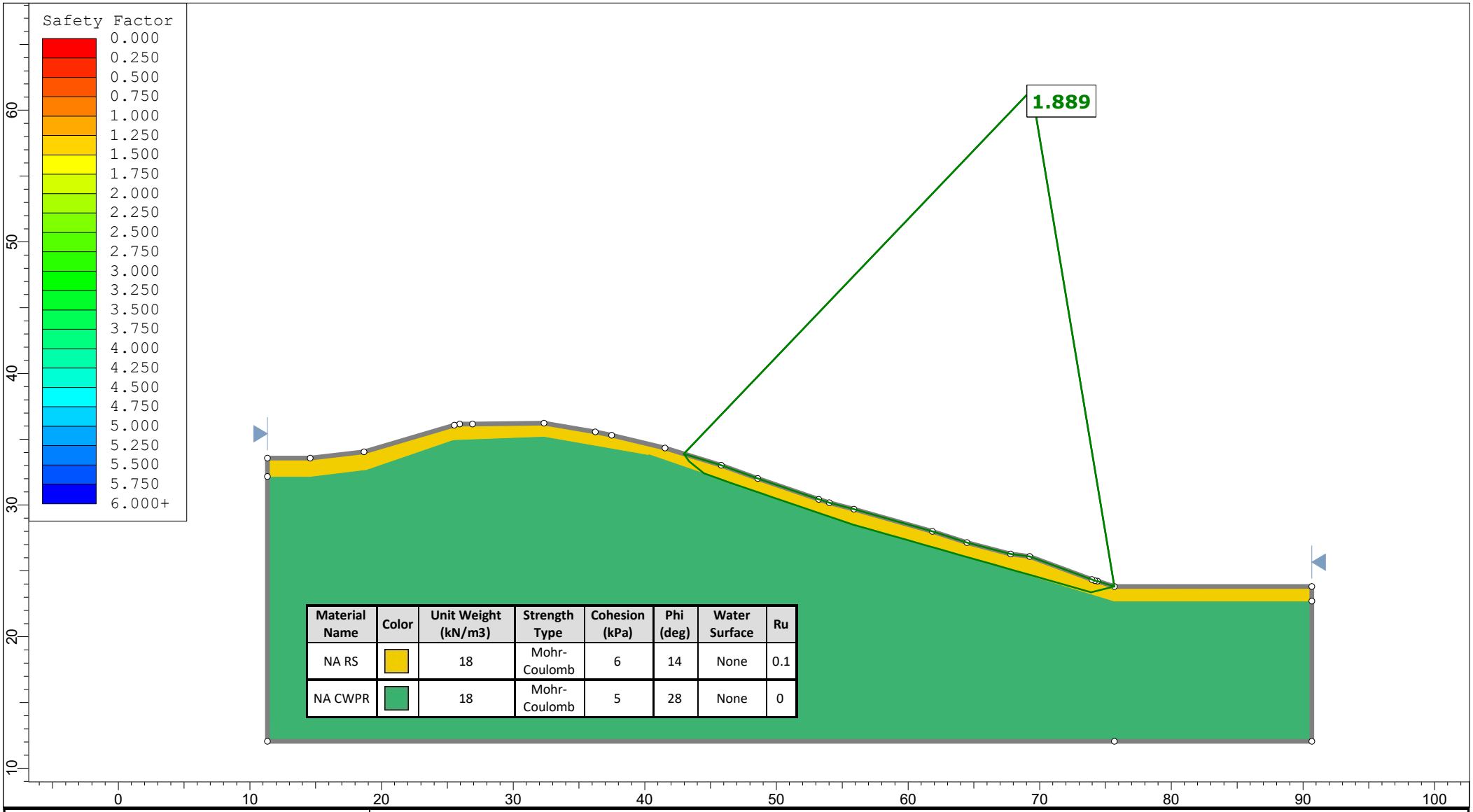
APPENDIX E

Slope Stability Analysis



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Ru
NA RS		18	Mohr-Coulomb	6	14	None	0.1
NA CWPR		18	Mohr-Coulomb	5	28	None	0

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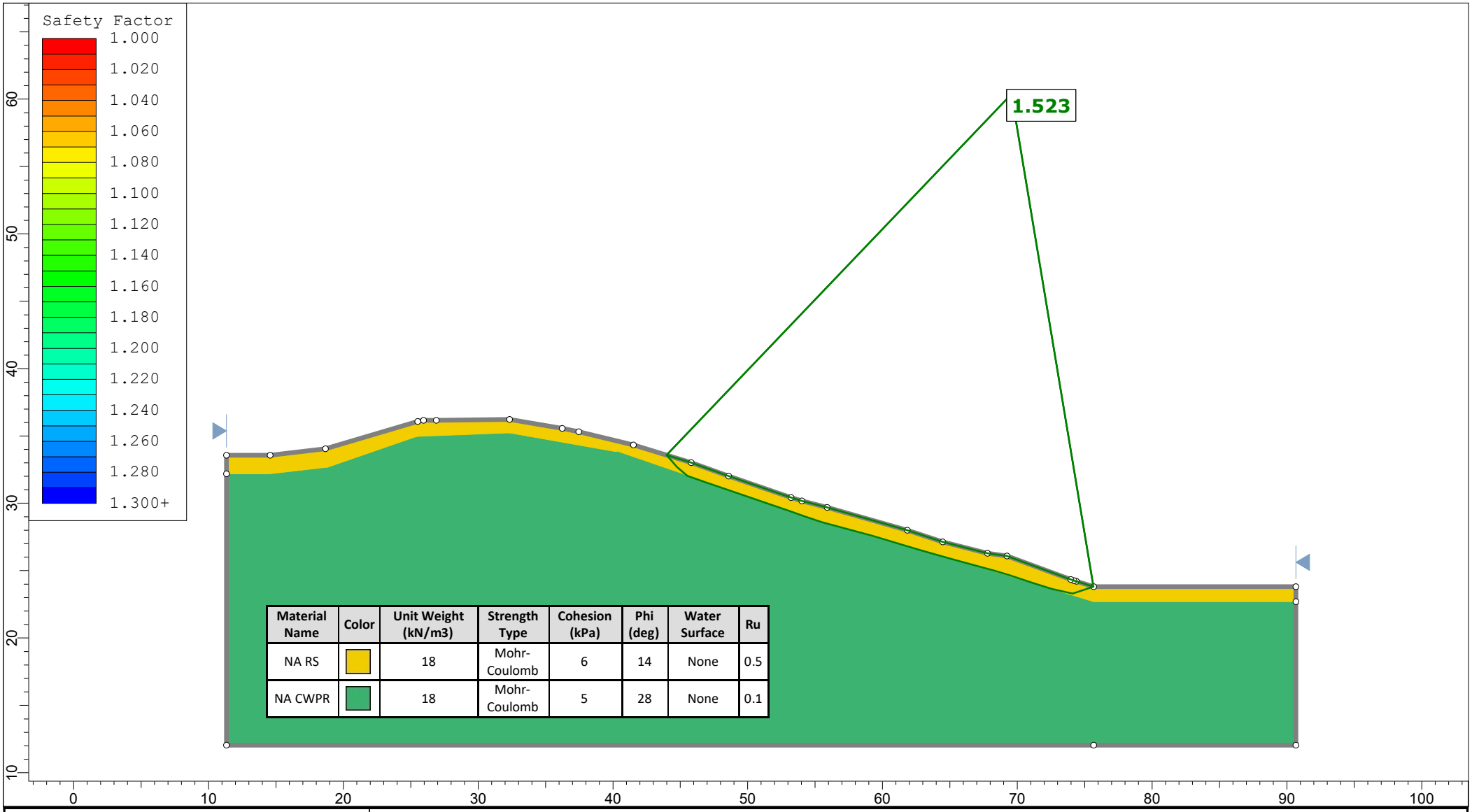
SLIDEINTERPRET 9.024

Project	C0300 - 26 Honey Street, Rawene		
Group	Existing Condition	*Scenario*	Static
Drawn By	SBS	*Company*	Geologix Consulting Engineers Ltd
Date	20/07/2023	*File Name*	C300 Slope Stability Analysis.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Ru
NA RS		18	Mohr-Coulomb	6	14	None	0.5
NA CWPR		18	Mohr-Coulomb	5	28	None	0.1

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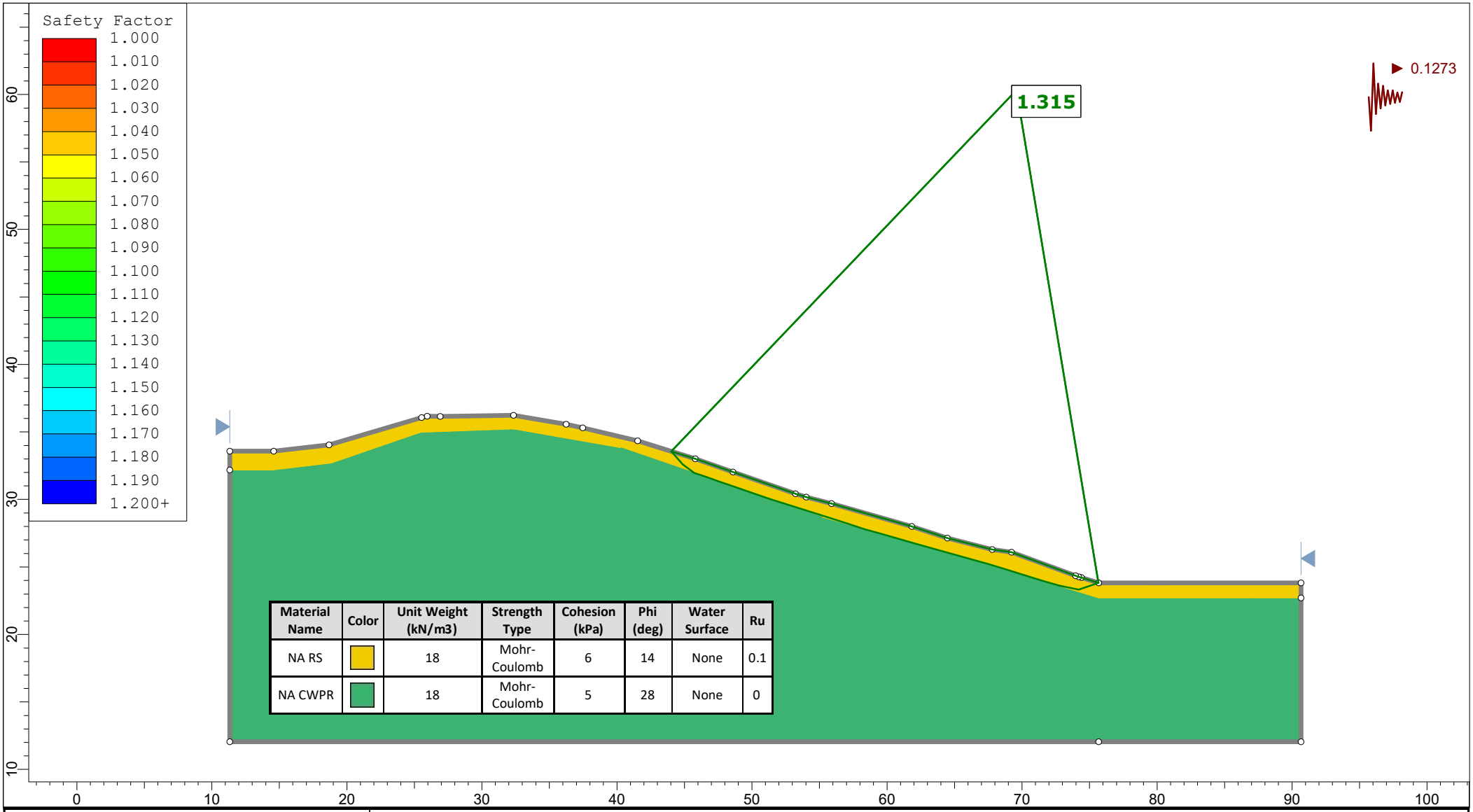
SLIDEINTERPRET 9.024

Project	C0300 - 26 Honey Street, Rawene		
Group	Existing Condition	*Scenario*	Elevated GW
Drawn By	SBS	*Company*	Geologix Consulting Engineers Ltd
Date	20/07/2023	*File Name*	C300 Slope Stability Analysis.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Ru
NA RS		18	Mohr-Coulomb	6	14	None	0.1
NA CWPR		18	Mohr-Coulomb	5	28	None	0

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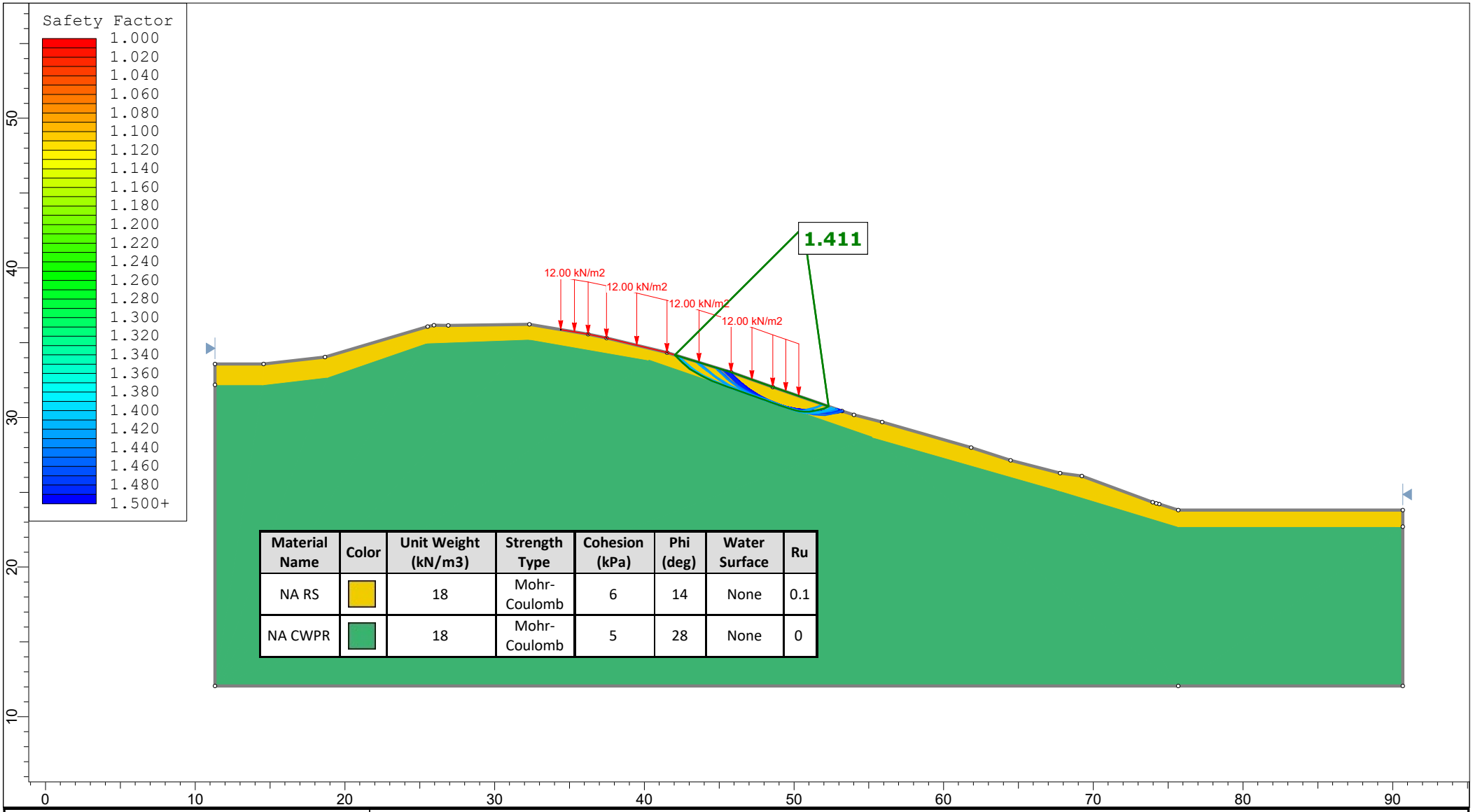
SLIDEINTERPRET 9.024

Project	C0300 - 26 Honey Street, Rawene		
Group	Existing Condition	*Scenario*	Seismic
Drawn By	SBS	*Company*	Geologix Consulting Engineers Ltd
Date	20/07/2023	*File Name*	C300 Slope Stability Analysis.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Ru
NA RS		18	Mohr-Coulomb	6	14	None	0.1
NA CWPR		18	Mohr-Coulomb	5	28	None	0

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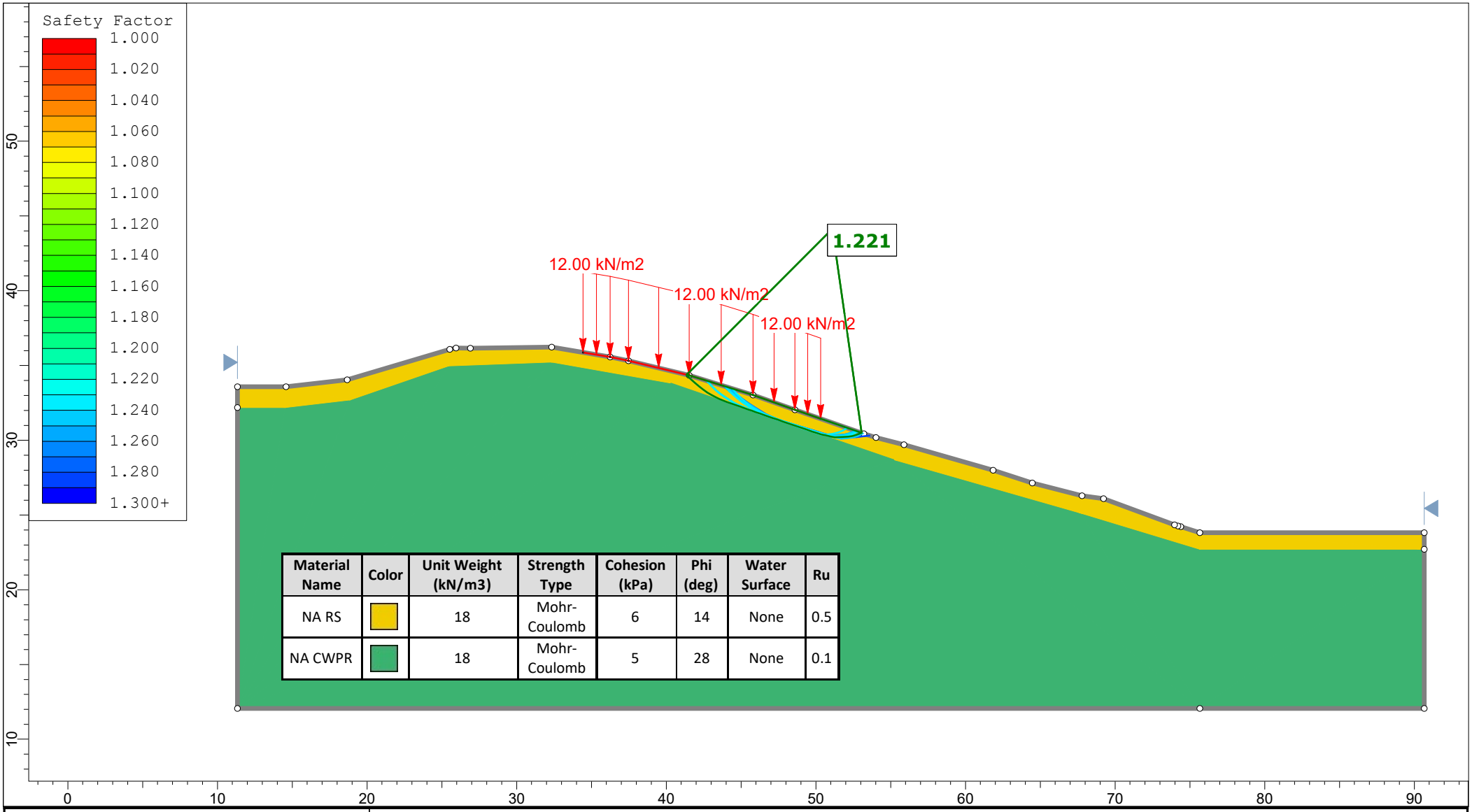
SLIDEINTERPRET 9.024

Project	C0300 - 26 Honey Street, Rawene		
Group	Proposed SF Condition	*Scenario*	Static
Drawn By	SBS	*Company*	Geologix Consulting Engineers Ltd
Date	20/07/2023	*File Name*	C300 Slope Stability Analysis.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Ru
NA RS		18	Mohr-Coulomb	6	14	None	0.5
NA CWPR		18	Mohr-Coulomb	5	28	None	0.1

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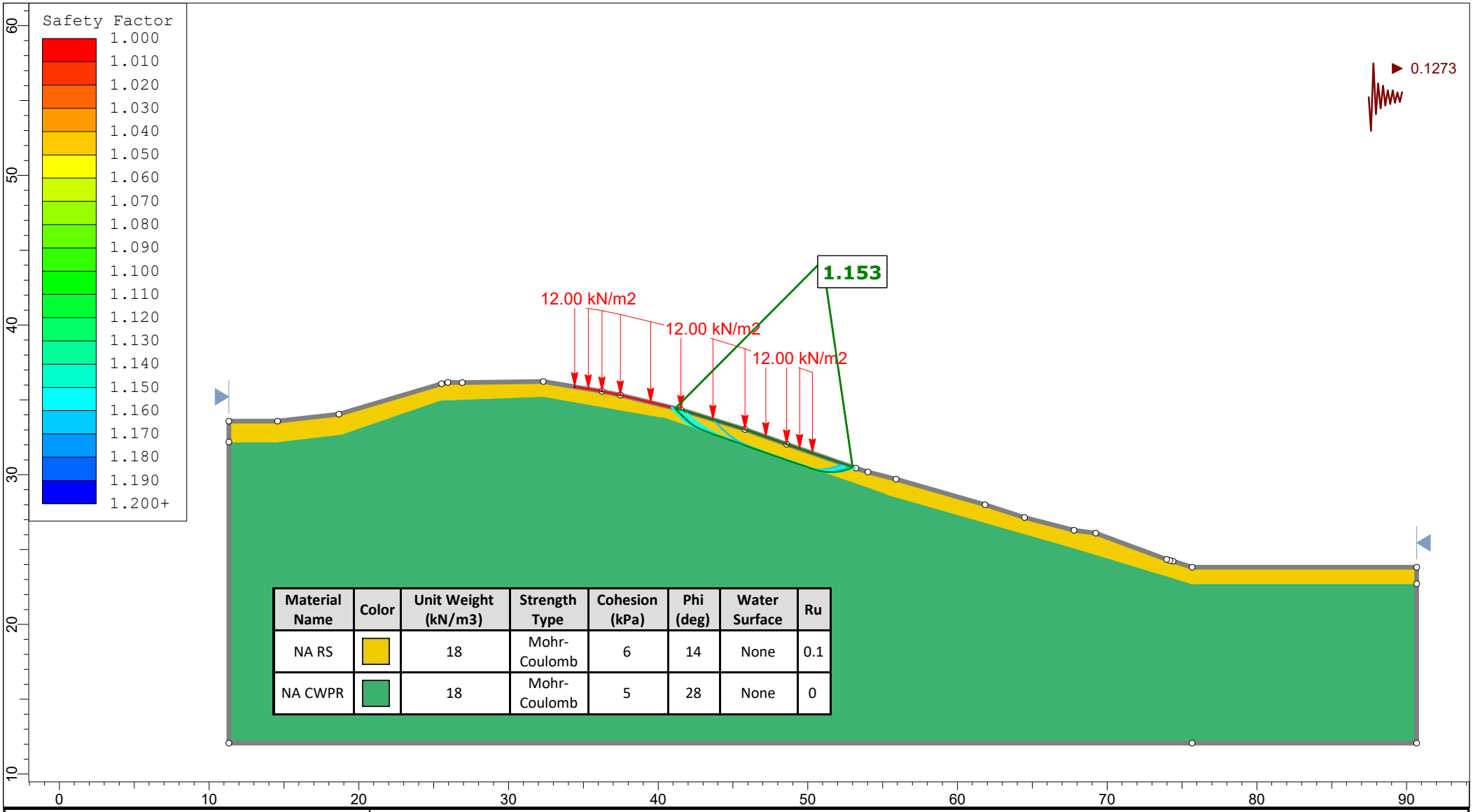
SLIDEINTERPRET 9.024

Project	C0300 - 26 Honey Street, Rawene		
Group	Proposed SF Condition	*Scenario*	Elevated GW
Drawn By	SBS	*Company*	Geologix Consulting Engineers Ltd
Date	20/07/2023	*File Name*	C300 Slope Stability Analysis.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Ru
NA RS		18	Mohr-Coulomb	6	14	None	0.1
NA CWPR		18	Mohr-Coulomb	5	28	None	0

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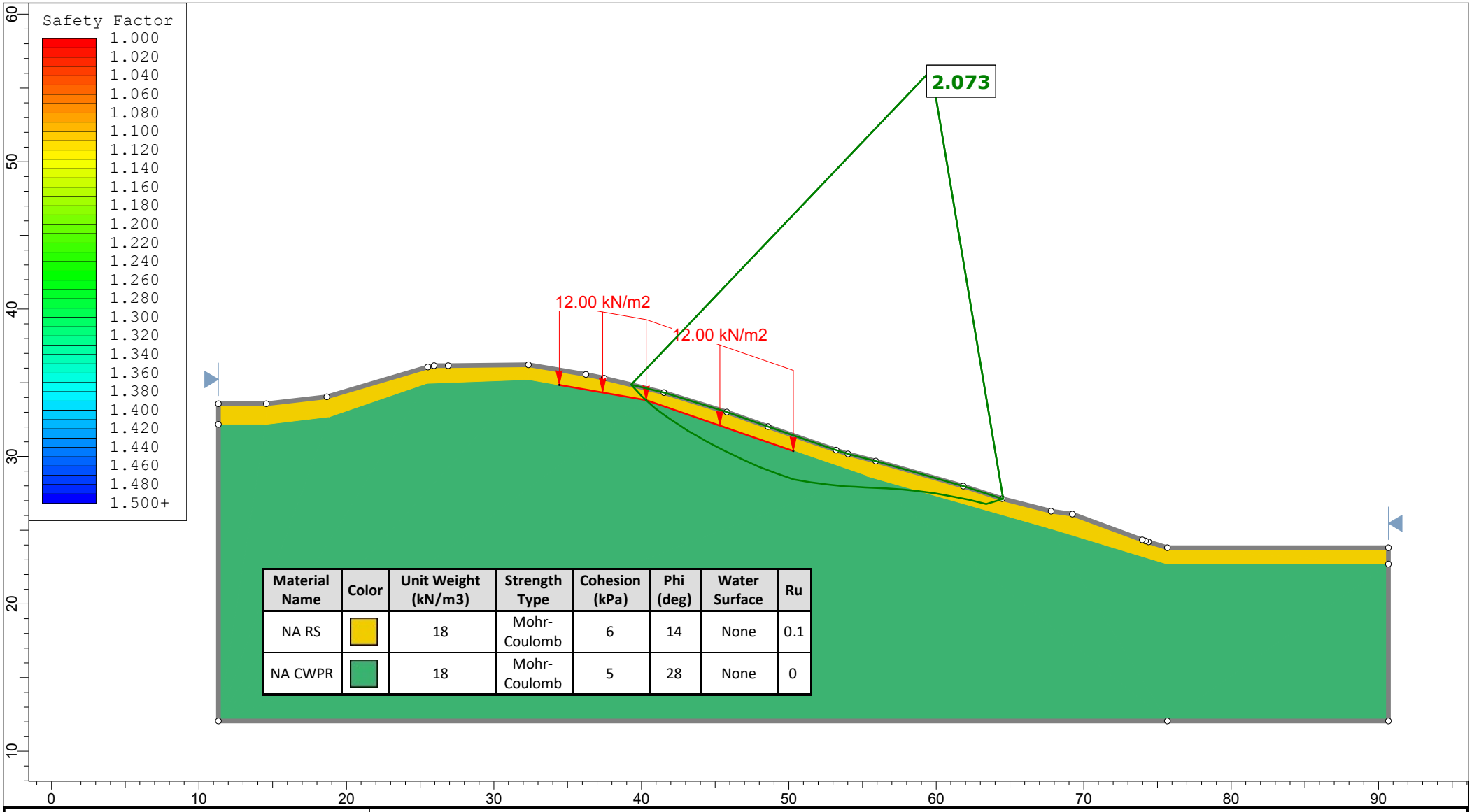
SLIDEINTERPRET 9.024

Project	C0300 - 26 Honey Street, Rawene		
Group	Proposed SF Condition	*Scenario*	Seismic
Drawn By	SBS	*Company*	Geologix Consulting Engineers Ltd
Date	20/07/2023	*File Name*	C300 Slope Stability Analysis.slmd



Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Ru
NA RS		18	Mohr-Coulomb	6	14	None	0.1
NA CWPR		18	Mohr-Coulomb	5	28	None	0

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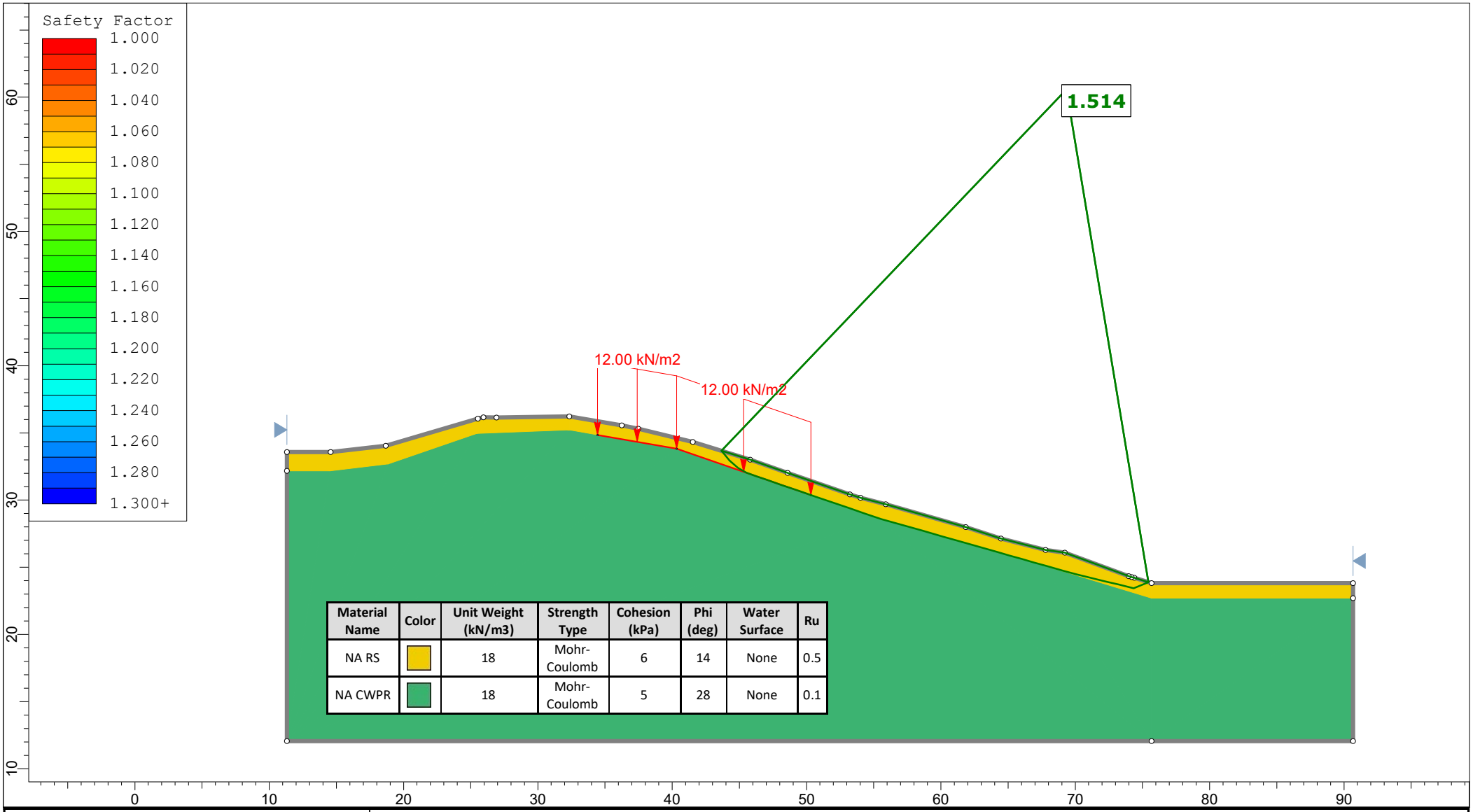
SLIDEINTERPRET 9.024

Project	C0300 - 26 Honey Street, Rawene		
Group	Proposed DF Condition	Scenario	Static
Drawn By	SBS	Company	Geologix Consulting Engineers Ltd
Date	20/07/2023	File Name	C300 Slope Stability Analysis.slmd



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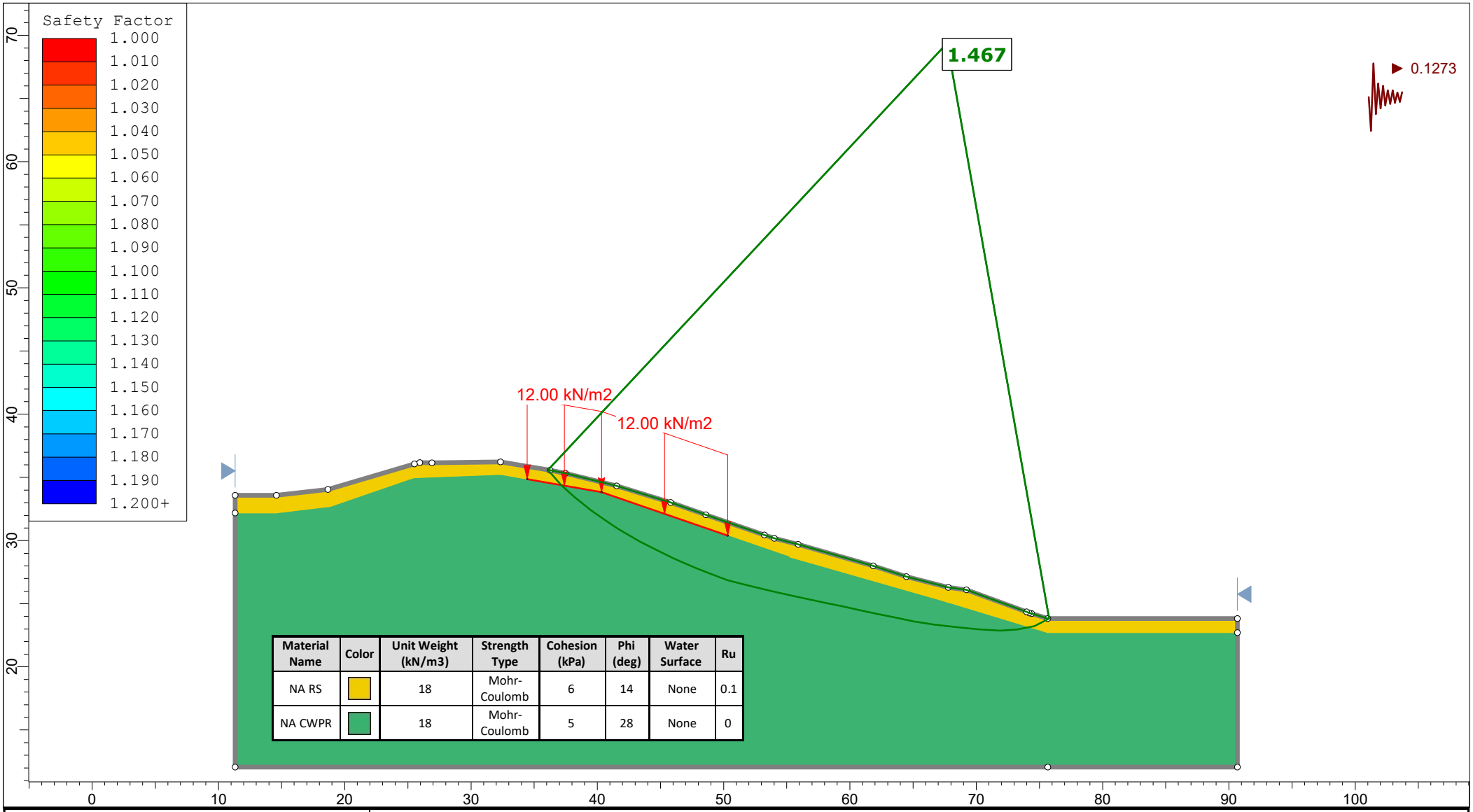
SLIDEINTERPRET 9.024

Project	C0300 - 26 Honey Street, Rawene		
Group	Proposed DF Condition	*Scenario*	Elevated GW
Drawn By	SBS	*Company*	Geologix Consulting Engineers Ltd
Date	20/07/2023	*File Name*	C300 Slope Stability Analysis.slmd



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consulting engineers

SLIDEINTERPRET 9.024

Project	C0300 - 26 Honey Street, Rawene		
Group	Proposed DF Condition	*Scenario*	Seismic
Drawn By	SBS	*Company*	Geologix Consulting Engineers Ltd
Date	20/07/2023	*File Name*	C300 Slope Stability Analysis.slmd

Chorus New Zealand Limited

18 October 2023

Chorus reference: 10630876

Attention: Kenton Baxter

Quote: New Property Development

1 connections at 26 Honey Street , Rawene, Far North District, 0473

Your project reference: N/A

Thank you for your enquiry about having Chorus network provided for the above development.

Chorus is pleased to advise that, as at the date of this letter, we are able to provide reticulation for this property development based upon the information that has been provided:

Fibre network	$0.00

The total contribution we would require from you is **$0.00 (including GST)**. This fee is a contribution towards the overall cost that Chorus incurs to link your development to our network. This quote is valid for 90 days from 18 October 2023. This quote is conditional on you accepting a New Property Development Contract with us for the above development.

If you choose to have Chorus provide reticulation for your property development, please log back into your account and finalise your details. If there are any changes to the information you have supplied, please amend them online and a new quote will be generated. This quote is based on information given by you and any errors or omissions are your responsibility. We reserve the right to withdraw this quote and requote should we become aware of additional information that would impact the scope of this letter.

Once you would like to proceed with this quote and have confirmed all your details, we will provide you with the full New Property Development Contract, and upon confirmation you have accepted the terms and paid the required contribution, we will start on the design and then build.

For more information on what's involved in getting your development connected, visit our website www.chorus.co.nz/develop-with-chorus

Kind Regards

Chorus New Property Development Team

Top Energy Limited
Level 2, John Butler Centre
60 Kerikeri Road
P O Box 43
Kerikeri 0245
New Zealand
PH +64 (0)9 401 5440
FAX +64 (0)9 407 0611

20 October 2023

Kenton Baxter
Bay of Island Planning

Email: kenton@bayplan.co.nz

To Whom It May Concern:

RE: PROPOSED SUBDIVISION
Wendy Henwood – 26 Honey Street, Rawene. Lot 43 DP 81053.

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

Top Energy's requirements for this subdivision is that power be provided for proposed Lot 2. Costs to supply power would be provided after application and an on-site survey have been completed.

In order to get a letter from Top Energy upon completion of your subdivision, a copy of the resource consent decision must be provided.

Yours sincerely

Aaron Birt
Planning and Design
T: 09 407 0685
E: aaron.birt@topenergy.co.nz