Cable Bay Consulting Ltd
11 Bush Point Road
Cable Bay 0420
Phone 021 2929226

7 April 2025

Resource Consents Department
Far North District Council
Memorial Avenue
Private Bag 752
Kaikohe 0440

By Email Only

Dear Sir / Madam,

Re: RESOURCE CONSENT APPLICATION : TOKERAU BEACH ROAD, NORTHLAND

1.0 RIF Urlich Family Trust & K Urlich Family Trust "(the Applicant") has instructed us to lodge a resource consent application for their captioned property.

1.1 A full AEE in accordance with the requirements of the RMA 1991 is attached. The requisite FNDC Application form is included in the appendices.

1.2 If you could kindly advice a reference number and banking details, we will arrange for the Client to make the necessary deposit payment to the FNDC by bank transfer.

Yours sincerely,

Neil Mumby
Director
Cable Bay Consulting

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

Office Use Only
Application Number:

Application for resource consent or fast-track resource consent

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

1. Pre-Lodgement Meeting

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

2. Type of Consent being applied for

(more than one circle can be ticked):

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

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

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

◯ **Yes** ◯ **No**

4. Consultation

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

If yes, which groups have you consulted with?	
Who else have you consulted with?	Top Energy, Chorus.

*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: RIF Urlich Family Trust & K Urlich Family Trust

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: Neil Mumby

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: RIF Urlich Family Trust & K Urlich Family Trust

Property Address/ Location: 245 Tokerau Beach Road

Postcode 0483

8. Application Site Details

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

Name/s: RIF Urlich Family Trust & K Urlich Family Trust

Site Address/ Location: No address specified in Council GIS - see legal description below and location plan in AEE.

Postcode 0483

Legal Description: Section 16 Block III Rangau **Val Number:** 00081-05592

Certificate of title: NA42C/431

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.

Restricted Discretionary Activity Subdivision - please refer to AEE and Appendices.

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) RIF Urlich Family Trust & K Urlich Family Trust

Email: [redacted]

Phone number:

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

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

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

Name: (please write in full) Karen Urlich

Signature: [redacted] Date 3/4/2025
(signature of bill payer)

MANDATORY

15. Important Information:

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

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

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

15. Important information continued...

Declaration

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

Name: **(please write in full)** Neil Mumby of Cable Bay Consulting Ltd

Signature: Date 03/04/25

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.

APPLICATION FOR RESOURCE CONSENT TO THE FAR NORTH DISTRICT COUNCIL PURSUANT TO SECTION 88 OF THE RESOURCE MANAGEMENT ACT 1991

Restricted Discretionary Activity resource consent for a Two Lot Subdivision in the Rural Production Zone.

Tokerau Beach Road, Northland

Assessment of Environmental Effects

April 2025

Cable Bay Consulting Ltd, 11 Bush Point Road, Cable Bay 0420

INTRODUCTION AND PROPOSAL

1.1 RIF Urlich Family Trust & K Urlich Family Trust "(the Applicant") seek resource consent under the Resource Management Act 1991 and the Far North District Council District ("FNDC") Operative District Plan ("ODP") for a two lot subdivision in the Rural Production Zone.

1.2 Whilst the proposal is for a two lot subdivision, only one newly configured lot for the purposes of dwelling construction will be created. Specifically, Lot 1 (4.45 ha) will become a vacant freehold lot with building platform and access formed as standard.

1.3 Lot 2 (7.84 ha) however, will be amalgamated with the Title to the immediate south at 1 Simon Urlich Road. The subdivision is structured in this way because;

- There is a limited area available on the site for building platforms and access clear of the modelled flood plain. The only area available that meets these criteria is that area of land contained within the elevated portion of proposed Lot 1.

- The amalgamation of Lot 2 with the adjacent land at 1 Simon Urlich Road means that there is no requirement for a building platform or physical access to be constructed within the modelled flood plain, and will also allow the site at 1 Simon Urlich Road to be used for a greater range of productive land uses via the increased land area.

1.4 The Register of Title information is summarised in Table 1 below;

Existing Titles	Existing Area
Subject Site : Section 16 Block III Rangaunu Survey District Title issued on 22 September 1978.	12.2973 ha

Table 1 : Register of Title Information

1.5 In summary form, and after the amalgamation is undertaken, this proposed subdivision will result in one additional allotment suitable for dwelling construction.

DOCUMENTATION

1.6 This application is accompanied by the following documents;

i. Register of Title (**Attachment 1**)
ii. Adjacent Land Analysis (**Attachment 2**)
iii. Scheme Plan (**Attachment 3**)
iv. Engineering Report (**Attachment 4**)
v. Ecological Report (**Attachment 5**)
vi. Archaeological Report (**Attachment 6**)
vii. Section 86B of the RMA 1991 Check (**Attachment 7**)
viii. Operative District Plan Development Control Check (**Attachment 8**)
ix. Relevant ODP Assessment Criteria (**Attachment 9**)
x. Fourth Schedule Compliance Assessment (**Attachment 10**)
xi. NRPS : Relevant Objectives & Policies (**Attachment 11**)
xii. ODP : Relevant Objectives & Policies (**Attachment 12**)
xiii. PDP : Relevant Objectives & Policies (**Attachment 13**)
xiv. Service Provider Correspondence (**Attachment 14**)
xv. Application Form & Checklist (**Attachment 15**).

DESCRIPTION OF SITE AND SURROUNDS

1.7 The land is as legally described in Table 1 with a total land area of approximately 12.3 ha, and has been owned by the Applicants since 1978. The Register of Title is appended in **Attachment 1** for ease of reference.

1.8 The topography of the site is relatively flat and bisected by a drain and wetland running north south through the site. An unformed legal road forms the southern boundary. There are no land uses present, and the site is in pasture. There are no other notable features present. This detail can be seen in the image in Figure 1 below

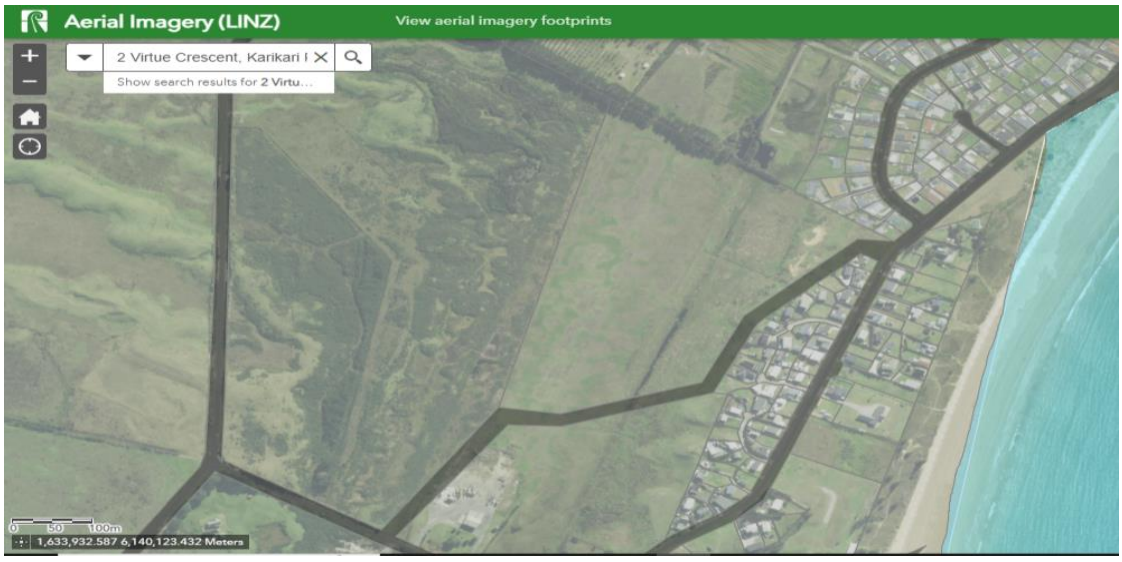

Figure 1 : Aerial Imagery *Source FNDC GIS as at 26/01/25.*

1.9 In general terms, the site is located immediately adjacent, and to the west of the Tokerau Beach settlement. As a consequence, adjacent land uses are primarily rural and residential in nature. Adjacent land analysis describing this adjacent land is contained in **Attachment 2.**

1.10 The subject site is zoned Rural Production under the ODP, with no limitations listed in the Resource Maps, other than flooding as illustrated in Figures 2-4 below.

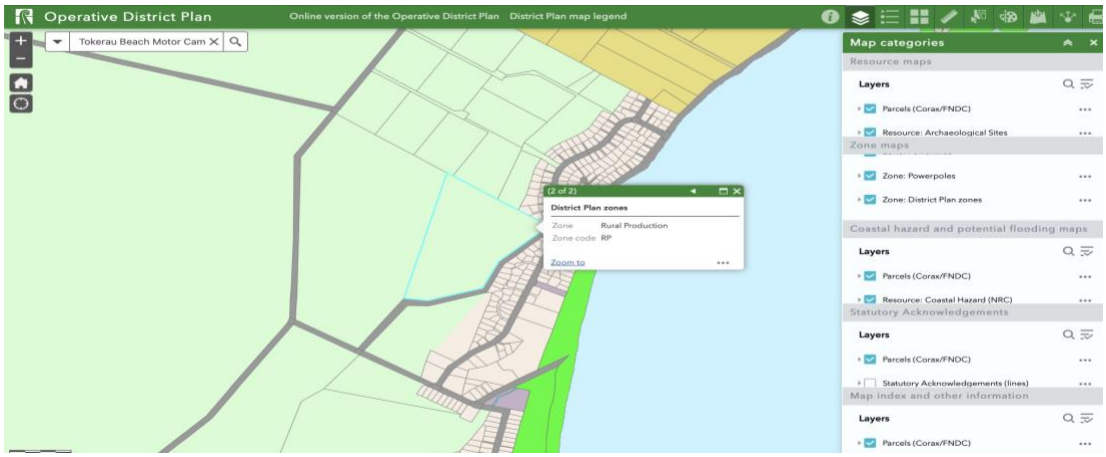

Figure 2 : FNDC ODP Zoning Map *Source FNDC GIS 21/11/24*

Figure 3 : FNDC Resource Maps *Source FNDC ODP Map 11*

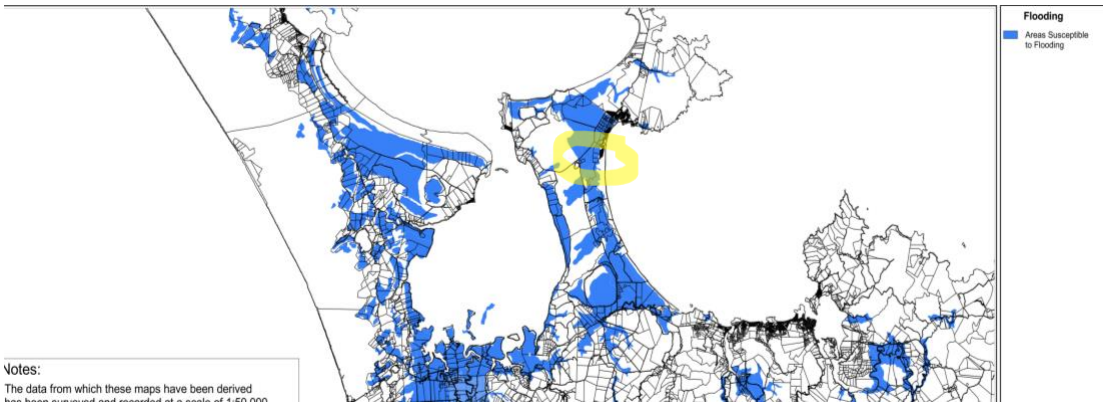

Figure 4 : FNDC Flood Hazard Maps *Source FNDC ODP Map FL2*

1.11 The site is located within 500 metres of land administered by the Department of Conservation as shown in figure 5 below.

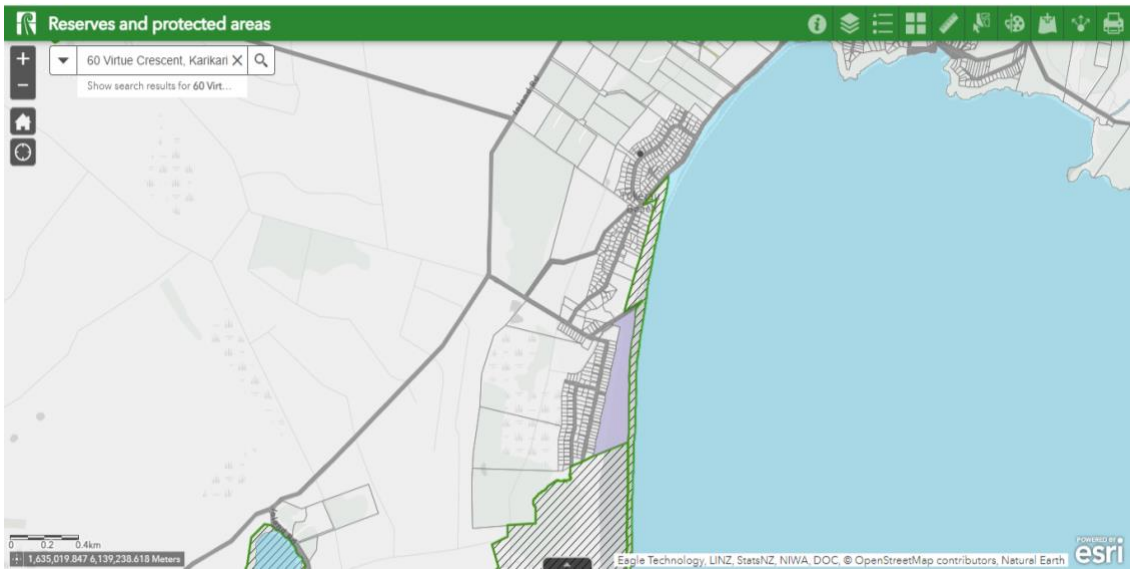

Figure 5 : Department of Conservation Land *Source FNDC GIS as at 26/01/25.*

1.12 No HAIL sites are present as shown in Figure 6 below;

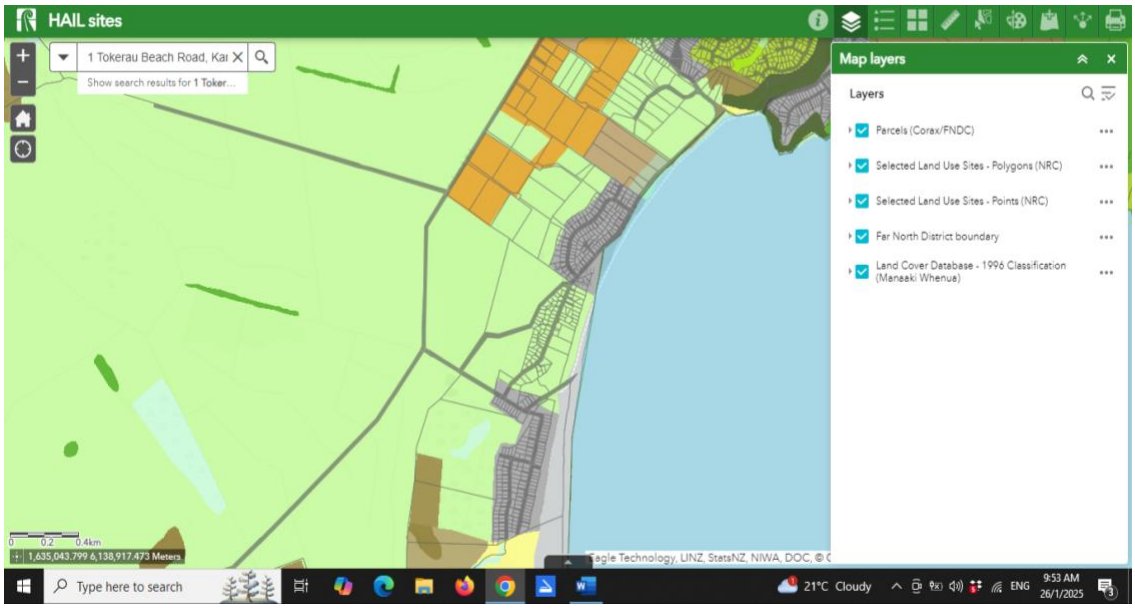

Figure 6 : HAIL Map *Source FNDC GIS 16/12/24*

1.13 No recorded Archaeological sites are shown on the site in Councils GIS but there are archaeological sites shown on other sites in the vicinity. The site does not contain any District Plan Historic Sites, District Plan Archaeological Sites, or District Plan sites of Significance to Māori.

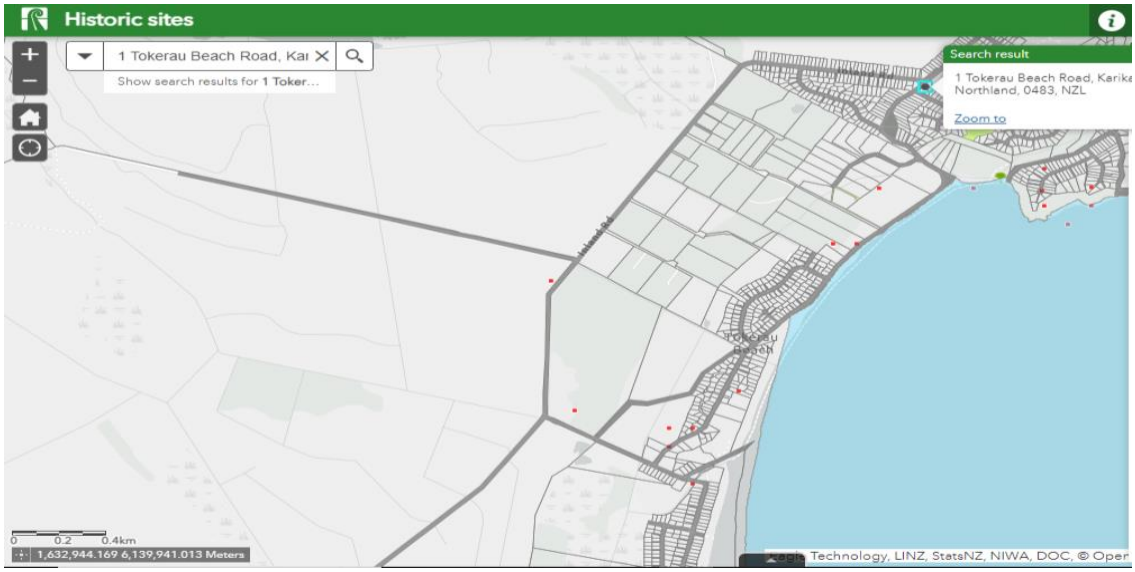

Figure 7: NZAA Archaeological Sites *Source FNDC GIS 16/12/24*

1.14 The site is not located within a Kiwi Present area as shown in Figure 8 below.

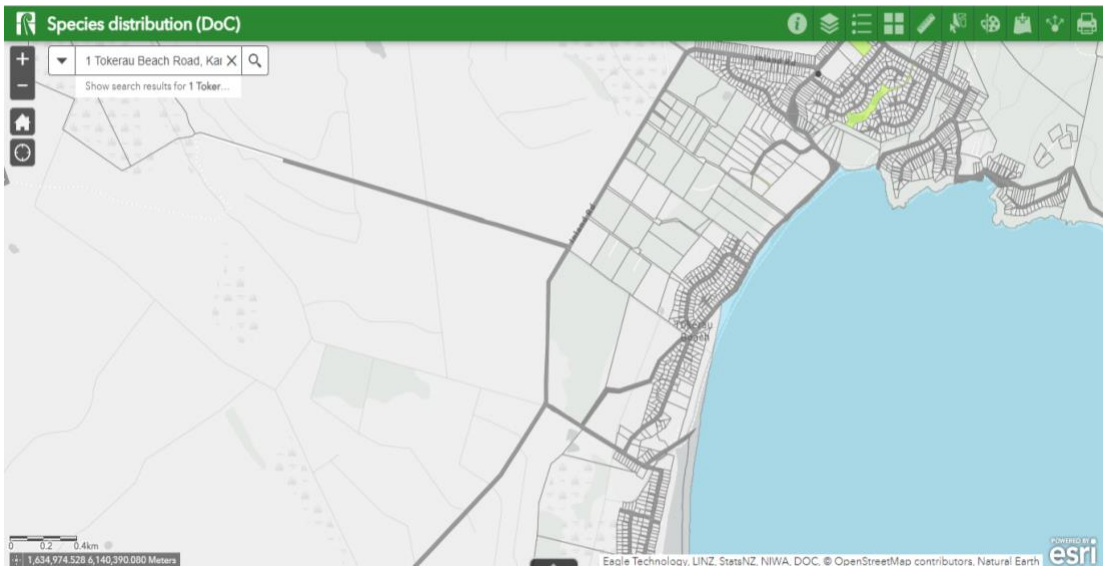

Figure 8: Kiwi Present Area – Not Present *Source FNDC GIS 16/12/24*

1.15 The site as a whole is also zoned "Rural Production" under the Proposed District Plan ("PDP"). The site is however notated as falling partially within the "Coastal Environment" and also as being substantively affected by flooding. The proposed building platform will be located clear of the flood plain but within the Coastal Environment overlay. This can be seen in Figure 9 below.

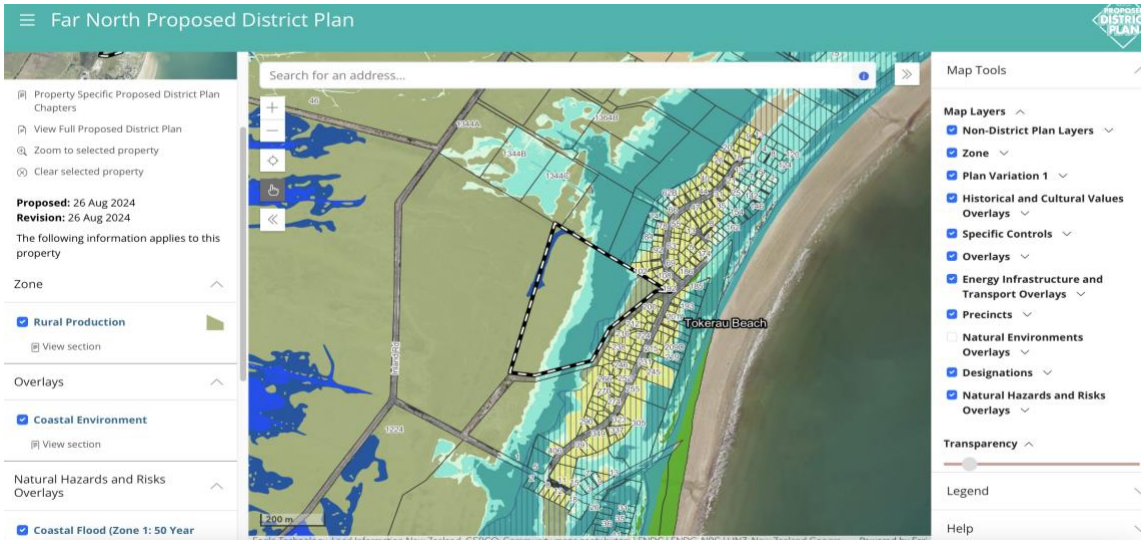

Figure 9 : FNDC PDP Zoning Maps *Source FNDC GIS 21/11/24*

1.16 No heritage matters, notable trees, Sites and Areas of Significance to Māori, Outstanding Natural Landscapes, Outstanding Natural Features, or Statutory Acknowledgment Areas are notated on the relevant PDP maps.

Site History

1.17 A review of the FNDC property files shows that Council has no record of any previous records that are applicable to the subject site itself. However, it is noted that the site to the south (1 Simon Urlich Road) was subject to a recent subdivision and land use consent in 2024 (FNDC Ref 2240306-RMASUB). The amalgamation of proposed Lot 2 with this land to the south will have no bearing on that earlier resource consent, other than to increase lot size.

Subdivision Concept Design

2.1 The proposed subdivision layout is shown below, with a further full detailed plan set in **Attachment 3** for ease of reference.

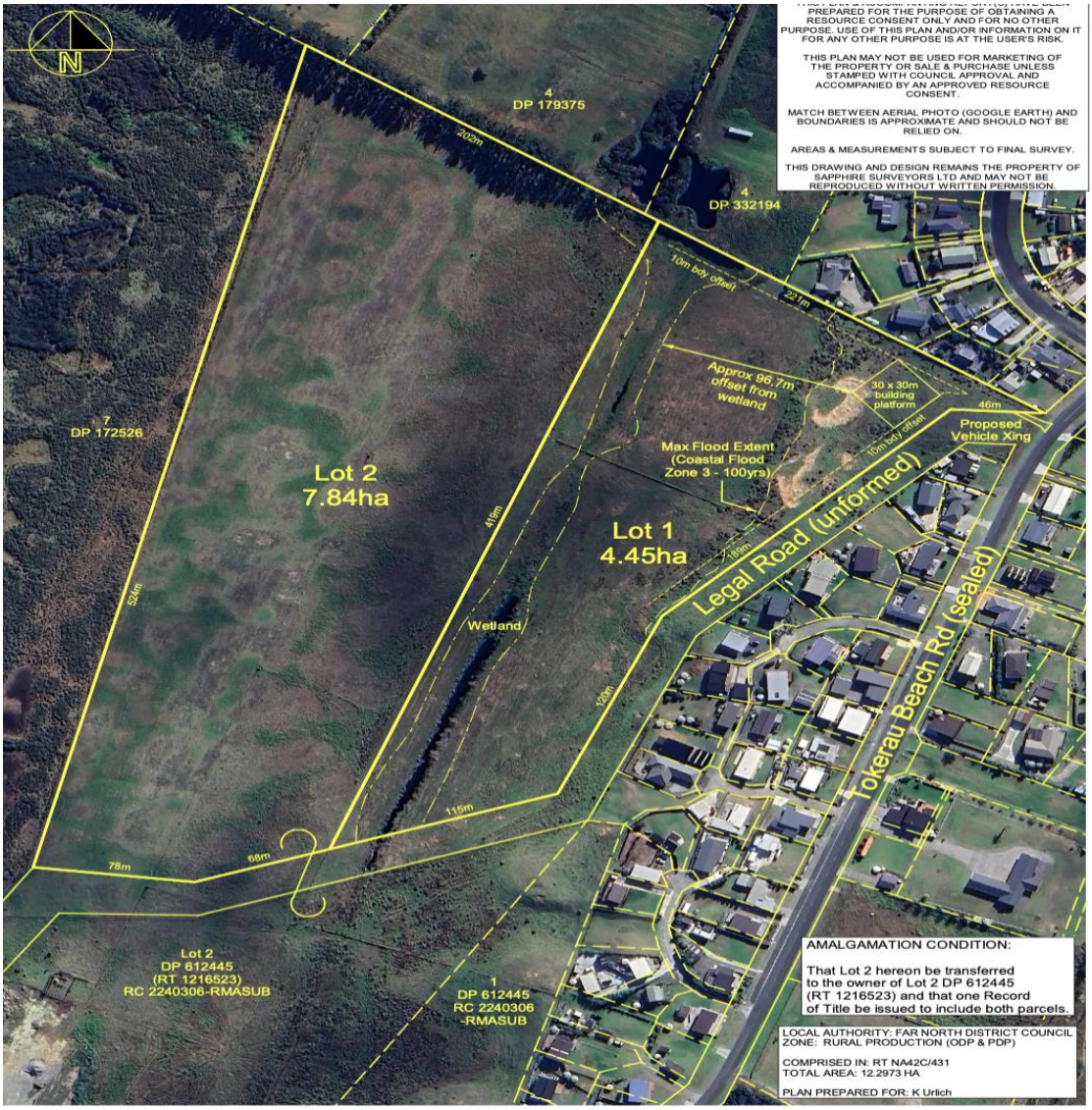

Figure 3 : Overall Scheme Plan *Source Sapphire Surveyors*

2.2 Careful consideration has been given to the overall design of the subdivision. This design has been informed by engineering, archaeological and ecological assessments undertaken on the site.

Engineering Design Considerations

2.3 The building platform has been subject to an engineering assessment. This has confirmed the building platform is located on stable ground and elevated above the flood plain appropriately. The access is sited to ensure adequate sight distances and to minimise land form modification. A copy of the engineering report is contained in **Attachment 4**.

Ecological Design Considerations

2.4 The site has been subject to an ecological assessment. The building platform has been setback from the wetland margins on the site and will not result in any changes to water levels within the wetland or discharges. As a consequence no consents are triggered under the National Environmental Standards : Freshwater ("NES:FW"). Please refer to the ecological report in **Attachment 5.**

Archaeological Design Considerations

2.5 There are no listed archaeological features present as recorded in the District Plan or Proposed District Plan or the NZAA database present on the site. However given the relatively limited area available for dwelling construction on the site clear of the flood plain (which precludes alternative building areas), the Applicant has elected to get a archaeological assessment undertaken to ensure that there are no archaeological features present that could otherwise interfere with the construction of a dwelling on the site in the future. A copy of the archaeological report confirming that there are no archaeological features present on the site is contained in **Attachment 6.**

DISTRICT PLANNING FRAMEWORK

3.1 At the present time, the principal district planning instruments relevant to this subdivision are the ODP, PDP and Variation 1 to the PDP. There are no other plan changes relevant to this proposal.

Proposed District Plan

3.2 The FNDC publicly notified its PDP on 27th July 2022. Whilst hearings on the PDP have commenced, no decisions have yet been issued by the Hearings Commissioners. It is understood that decisions will be issued by Council in May 2026.

3.3 Under s86B of the Resource Management Act 1991 a rule in a Proposed District Plan has legal effect only once a decision on submissions have been made, unless the criteria under s.86B(3)(a) to (e) apply.

3.4 In terms of s.86B(3) of the Act, a review of the PDP shows that there are no provisions that relate to water, air or soil, significant indigenous vegetation, significant indigenous habitats of fauna, historic heritage or aquaculture activities that require resource consent in this intervening period.

3.5 Tabulated analysis of the PDP provisions are contained in **Attachment 7**. As there are no relevant rules within the PDP with immediate legal effect that affect the proposed subdivisions activity status, the activity status of this application is prescribed by the current ODP.

3.6 The objectives and policies of the PDP are however relevant for the s.104 assessment undertaken later in this report. This matter is discussed further in paragraphs 5.16 to 5.21 of this report.

Operative District Plan

3.7 As already stated, the ODP is the dominant planning document in considering this subdivision proposal. Tabulated analysis of the ODP standards are contained in **Attachment 8**. The analysis confirms that consent is required under the following rules of the ODP;

- Restricted Discretionary Activity subdivision under Rule 13.7.2.1 (3) for "…*A maximum of 5 lots in a subdivision (including the parent lot) where the minimum size of the lots is 2ha, and where the subdivision is created from a site that existed at or prior to 28 April 2000…"*

3.8 Overall the proposal is to be considered as a restricted discretionary activity.

Section 104 & 106 of The RMA 1991 - Matters Of Discretion

3.9 As a restricted discretionary activity subdivision, and in addition to s.106 matters, Council is only able to consider specific matters in deciding whether to approve or decline a consent application. Then in the instance of the ODP, additional specific matters for the purposes of imposing conditions. These are set out in **Attachment 9**.

3.10 Rule 13.8.1 of the ODP identifies the matters of discretion that are able to be considered in deciding whether or not to grant consent. The only listed matters of relevance to this application are;

- *effects on the natural character of the coastal environment for proposed lots which are in the coastal environment;*
- *effects of the subdivision… within 500m of land administered by the Department of Conservation upon the ability of the Department to manage and administer its land;*
- *effects on areas of significant indigenous flora and significant habitats of indigenous fauna;*
- *the mitigation of fire hazards for health and safety of residents.*

3.11 We briefly comment that the effects on the natural character of the coastal environment are unlikely to be an issue in this circumstance of this proposal, given the building platform has been deliberately sited adjacent and contiguous with, the existing residential settlement of Tokerau Beach.

3.12 Moreover, the mitigation of fire hazards is typically addressed by conditions requiring onsite storage (via water tanks) for firefighting purposes.

3.13 This leaves "*the effects on areas of significant indigenous flora and significant habitats of indigenous fauna*" together with the effects on Department of Conservation land within 500 metres of the site, as the two remaining issues. It is under these provision that Council may consider ecological matters further.

3.14 The Department of Conservation land is coastal in nature and separated from the site by an existing residentially zoned area. Whilst there are no effects on this land, Council may consult with the Department of Conservation on this proposal during the processing of this consent, and if they consider it appropriate. In turn, the supplied ecological report addresses potential effects on the wetland present on the site.

3.15 Conditions are able to then be granted on the matters as already identified above, and on those additional matters specifically listed under Rule 13.7.3 of the ODP. These are;

- *Access and Transportation*
- *Natural and Other Hazards*
- *Water Supply*
- *Stormwater Disposal*

- *Wastewater Disposal*
- *Energy Supply*
- *Telecommunications*
- *Easements*
- *Preservation of Heritage Resources, Vegetation, Fauna and Landscape*
- *Access to Reserves and Waterways (Esplanade Reserves)*
- *Land Use Compatibility*
- *Proximity to Airports*

3.16 The supporting engineering, archaeological and ecological reports have considered these matters and made recommendations where appropriate. Advice notes in the instance of the archaeological matters are considered sufficient. The wording of the proposed amalgamation condition for consulting with the Registrar-General of Land on practicality, is noted on the plan of subdivision.

3.17 We note that whilst the building platform is located clear of the minimum setbacks required by the ODP and there are no intensive land uses on neighbouring properties immediately adjacent the proposed building platform, a consent notice on the matter of land use compatibility (reverse sensitivity) matters can be imposed by Council if considered appropriate.

STATUTORY REQUIREMENTS

4.0 Section 5 – Purpose of the RMA

Purpose

(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.

(2) In this Act, "sustainable management" means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while –

(a) Sustaining the potential of natural and physical resources (excluding the minerals) to meet the reasonably foreseeable needs of future generations; and

(b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and

(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Section 104 – Consideration of Applications

4.1 Section 104 of the Resource Management Act 1991 sets out those matters that must be considered when assessing an application for resource consent. Subject to Part II of the Act, Section 104C requires a consent authority to have regard to the following matters of relevance in this instance:

104C When considering an application for a resource consent for a restricted discretionary activity, a consent authority must consider only those matters over which—

(a)a discretion is restricted in national environmental standards or other regulations:
(b)it has restricted the exercise of its discretion in its plan or proposed plan.
(2)The consent authority may grant or refuse the application.
(3)However, if it grants the application, the consent authority may impose conditions under section 108 only for those matters over which—
(a)a discretion is restricted in national environmental standards or other regulations:
(b)it has restricted the exercise of its discretion in its plan or proposed plan.

4.2 The Fourth Schedule of the Act outlines the matters that must be included in an assessment of effects. A compliance schedule demonstrating how this AEE meets the requirements of the Fourth Schedule is contained in **Attachment 10.** The subsequent sections of this AEE address the requirements of s.5, s.104 and the Fourth Schedule of the Act as appropriate to the scale of the activity, and as necessary to provide an informed assessment of this proposal.

ASSESSMENT OF EFFECTS

4.3 As already stated, the extent of environmental effects able to be considered by Council are effectively limited to the matters of discretion set out in Rule 13.8.1 of the ODP and s.106 of the Act. The following assessment of effects is informed by these matters of discretion. The Council must decide whether the activity will have, or is likely to have, adverse effects on the environment that are more than minor.

Permitted Baseline

4.4 The permitted baseline may be taken into account and the Council has the discretion to disregard those effects. In terms of the subject site, whilst there is no permitted baseline for subdivision per se, we observe that residential units can be constructed on the site at a density of one dwelling per 12 hectares of land under Rule 8.6.5.1.1 of the ODP, and this would allow a single dwelling to be constructed on the site as close as 10 metres from external boundaries adjacent rural zoned land, as a permitted activity.

Receiving Environment

4.5 The receiving environment beyond the subject site includes permitted activities under the relevant plans, lawfully established activities (via existing use rights or resource consent), and any unimplemented resource consents that are likely to be implemented. The effects of any unimplemented consents on the subject site that are likely to be implemented (and which are not being replaced by the current proposal) also form part of this reasonably foreseeable receiving environment. This is the environment within which the adverse effects of this application must be assessed. There are no known consents in the area or that have been recently applied for on adjacent sites that may impact this proposal. However if the FNDC is aware of any relevant applications, this AEE can be updated as required to reflect any change in circumstances.

Section 106 Matters

4.6 The proposed subdivision appropriately provides for legal access to each of the proposed lots. There are no adverse effects of the nature identified in s.106 of the Act raised in the engineering report that preclude this subdivision from proceeding. Please refer to the attached engineering report in **Attachment 4.**

Effects on Significant Flora & Fauna

4.7 The ecological report in **Attachment 5** addresses effects on indigenous flora and fauna and finds the effects arising from the subdivision less than minor.

Water Supply for Fire Fighting

4.8 For the purposes of firefighting, the Applicant is agreeable to standard conditions requiring the provision of water supply for firefighting at the time of building consent application. Effects in this respect are less than minor. Please refer to the engineering report in **Attachment 4**.

Effects on the Coastal Environment

4.9 As already stated, the effects on the natural character of the coastal environment arising from this subdivision will be less than minor. This is because the building platform has been deliberately sited adjacent and contiguous with, the existing residential settlement of Tokerau Beach. The proposal will appear as part of the overall Tokerau Beach settlement with less than minor effects on the natural character of the coastal environment.

4.10 Moreover conditions of consent may be imposed to address any environmental effects that may otherwise impact the natural character of the coastal environment (on sediment discharges for example).

4.11 No further assessment of effects (for example, effects on productive soils, landscape values, etc) for the purposes of approving the consent are necessary, as these matters are outside of the matters of discretion.

PROVISIONS OF ANY RELEVANT PLAN, POLICY STATEMENT, OR OTHER REGULATION

National Environmental Standards for Assessing and Managing Contaminated in Soils to Protect Human Health (2011) (NES :CS)

5.0 With respect to the NES:CS specifically, the site has been used for standard grazing activities for a long period of time and the Applicants have advised that they are not aware of any HAIL activities present. In addition, the HAIL GIS Maps on Councils website have been reviewed and this also does not indicate any HAIL sites on the property.

National Environmental Standards for Freshwater (2022) ("NES:FW")

5.1 These standards have been assessed in the attached ecological assessment and the proposed subdivision is consistent with the NES FW. In summary form any subdivision site works and any future development involving earthworks or vegetation clearance on either lot can be carried out more than 10 metres from any wet area, therefore not requiring consent pursuant to Clauses 54 (a) and (b) of the NES Freshwater.

5.2 Clause 54(c) applies to the taking, use, damming, or diversion of water within a 100m setback from a natural inland wetland and such activities only require consent if there is a hydrological connection between the activity and wetland and where such activity will change water level range or the hydrological functioning of the wetland.

5.3 As set out in the attached ecological report these characteristics do not apply to this proposal, and as such there are no additional requirements for consent under this environmental standard.

National Policy Statement for Freshwater Management(2022) ("NPS:FW)

5.4 The NPS : FW sets out objectives and policies that direct local government to manage water in an integrated and sustainable way, while providing for economic growth within set water quantity and quality limits. It is considered that the proposal is not inconsistent with the objectives of the NPS FW in that the extent of any requisite earthworks for the subdivision are modest and conditions can be imposed to ensure that adverse effects in terms of sedimentation and water quality are appropriately avoided, remedied or mitigated.

NPS Indigenous Biodiversity

5.5 The site contains no significant natural area or other significant indigenous vegetation of note.

New Zealand Coastal Policy Statement

5.6 The site is visible from the coast, but as already stated, the proposed building platform will appear as part of the existing Tokerau Beach settlement when viewed from the coastline.

5.7 Moreover, the proposal will comply with the ODP standards for impermeable surfaces, stormwater control and earthworks for the building platform and access, and will be undertaken in accordance with accepted engineering standards. As a consequence no

adverse effects on the coasts natural character, intrinsic values or water quality will arise.

The Northland Regional Policy Statement

5.8 The Northland Regional Policy Statement ("NRPS") was made operative in May 2016. The site is located outside of any outstanding natural landscape, outstanding natural features, natural character areas, but is within the coastal environment. This can be seen in Figure 8 below.

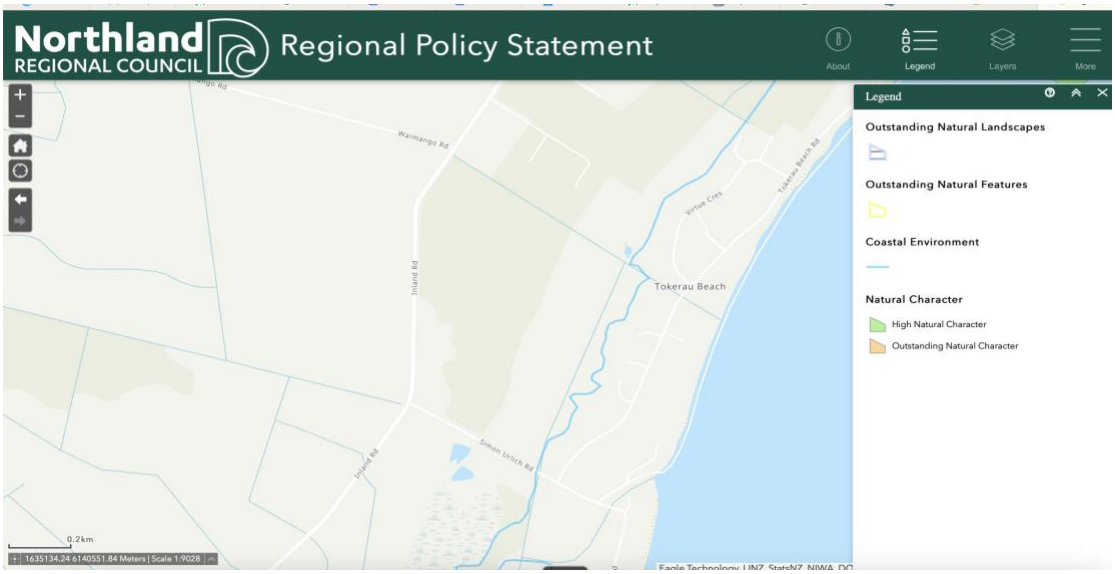

Figure 8: Regional Policy Statement Map *Source NRC GIS 26/01/25*

5.9 The NRPS contains objectives and policies related to infrastructure and regional form and economic development. The objectives and policies considered relevant to this proposed subdivision are contained in **Attachment 11**.

5.10 As outlined earlier in this report, the building platform has been sited clear of the modelled flood plain. Due to the topography only minimal earthworks will be necessary. The hazard risk has been assessed and the building platform is elevated above the flood level consistent with NRPS policies regarding flood hazard.

5.11 Reverse sensitivity effects are less than minor. The Applicant is also offering a consent notice condition, if required by Council, to address reverse sensitivity matters. The proposal is consistent with the relevant objectives and policies in the Regional Policy Statement for Northland.

FNDC ODP Objectives and Policies

5.12 As already stated, the proposal constitutes a restricted discretionary activity under the ODP. The following assessment of the objectives and policies are informed by the matters of discretion specified in Rule 13.8.1 and Rule 13.7.3 of the ODP. The pertinent objectives and policies are contained in **Attachment 12.**

Commentary – Subdivision Objectives and Policies

5.13 The proposed subdivision is of a nature specifically envisaged by the zone provisions (13.3.1). The lot sizes, dimensions and location of the allotments have been designed so as to take into account archaeological and ecological matters, as well as existing land uses (13.4.1). This has resulted in the building platform being located in the less environmentally sensitive portions of the site, clear of flood hazard (13.4.3), and the building platform has been designed and located so at to be north facing and take into account solar gain to facilitate energy efficient design (13.3.9, 13.4.15 (a)) . There are no scheduled heritage resources present on the site (13.3.4), and stormwater management will be in place for the proposed development (13.3.5) The proposal contains a suggested resource consent condition to address reverse sensitivity and environmental effects arising from the proposal (13.3.2). Particular consideration has been given to ensuring adverse effects are appropriately avoided, remedied or mitigated. The proposal is in accordance with these objectives and policies.

Commentary – Rural Production Zone Objectives and Policies

5.14 The proposed subdivision is of a nature specifically envisaged by the zone provisions (8.4.2). The subdivision has been designed so as to take into account the archaeological and ecological issues (8.3.4) , and there are no outstanding natural features or landscapes present on the site (8.3.5). The proposal contains suggested resource consent conditions to address reverse sensitivity and environmental effects arising from the proposal (8.4.5). Particular consideration has been given to ensuring adverse effects are appropriately avoided, remedied or mitigated (8.4.2). The proposal is in accordance with these objectives and policies.

Summary

5.15 In summary, for the reasons detailed above can be considered consistent with the relevant objectives and policies contained within the FNDC DP.

PDP Objectives and Policies

5.16 Many of the matters flagged in the objectives and policies of the PDP fall outside the matters of discretion able to be considered by Council as a restricted discretionary activity subdivision. They are however addressed below in the interests of completeness. The pertinent objectives and policies are contained in **Attachment 13.**

5.17 As the objectives and policies of the Rural Production zone and associated subdivision standards depart significantly from the approach set out in the ODP, this proposal does not sit comfortably with the objectives that appear to envisage only “primary production activities” and “other compatible activities that have a functional need to be in a rural environment” with the additional objective of avoiding subdivision on “Highly Productive Land” in its entirety (RPROZ-01 & RPROZ-02, RPOZ-03 (c)) and (RPROZ-P5) . Subdivision is anticipated in exchange for environmental benefit - but only if subdivision

on productive soils is avoided (SUB-P8).

5.18 However as covered in Section 2 of this report, and as far as the relevant objectives and policies require, the subdivision nonetheless has been carefully designed to protect any future neighbouring productive land uses, including by transferring the balance lot to an adjacent rural lot. The subdivision also avoids the more environmentally sensitive areas of the site (SUB-P11). Appropriate infrastructure is also provided (RPROZ-03 (b) RPROZ-P3 & (d)).

5.19 As with the Rural Production zone objectives and policies, the associated subdivision objectives and policies do not sit comfortably alongside this proposal. (for example SUB-02 & 08), but as already stated these types matters are outside of the bounds of discretion at the current time.

5.20 With respect to natural hazards, the building platform has been sited clear of the modelled flood plain. The hazard risk has been assessed in the supplied engineering report and the proposal is consistent with policies regarding flood hazard (NH-01 & NH-02, NH-P2, NH-P5, NH-P6, NH-P8).

Variation 1 to the PDP

5.21 The Far North District Council has notified Proposed Plan Variation 1 (Minor Corrections and Other Matters) to the Proposed District Plan. Proposed Plan Variation 1 makes minor amendments to correct minor errors, amend provisions that are having unintended consequences, remove ambiguity and improve clarity and workability of provisions. There are multiple zones and provisions of the PDP that are affected by this variation. Examples of this include changes to the wording of both rural, urban and special purpose zones. Changes are sought to the Rural Production Zone specifically, but the variation does not seek changes to the subdivision provisions in this Zone. Submissions for this variation closed in December 2024 so the provision have no effect on activity classification, and little if any weight in the decision making process for this application at the current time.

ANY OTHER RELEVANT AND REASONABLY NECESSARY MATTER

Weighting of District Planning Documents

5.22 In general terms the weight afforded to the objectives and policies of a PDP are determined by the extent to which the PDP provisions have been tested in the statutory process. Typically, a PDP notified by a consent authority will garner greater weighting in the process a few years after notification as decisions are issued and appeals are resolved in accordance with the time frames prescribed in the RMA 1991.

5.23 However this is not the case with FNDC PDP. Whilst the statutory process for the PDP effectively commenced on 27 July 2022 with the public notification of the PDP, according to the FNDC website, the PDP received "…*a high number of submissions with 580 original submissions (with over 8,500 original submission points), and 549 further submissions (with 26,174 further submission points) covering a broad range of issues…*"

5.24 As a consequence of that significant number of submissions, as well as staffing issues, Council wrote to the Minister for Environment on 15 July 2024 seeking an extension of time until 27 May 2026 for the issue of Council decisions on the PDP. This extension of time was granted by the Minister for the Environment on 17 September 2024.

5.25 All of this means that despite being in the public realm for a number of years, the PDP has not yet had any decisions issued on submissions by either the Hearings Panel or Council.

5.26 As a consequence, the PDP carries less weighting in the decision making process at the present time, than would otherwise be expected. This is setting aside the fact that the Council will still need to make a decision as to whether or not they will accept the recommendations of the Hearings Panel. The Council decisions will then be subject to potential challenge via appeal.

5.27 In order to understand the potential for the subdivision provisions of the Rural Production zone to be appealed, we have reviewed the submissions. We note that there are multiple submissions opposing / seeking changes to the provisions of the Rural Production zone and minimum lot sizes. Some relevant examples of these submissions are in S421.207, S373.001, S488.001, S17.001, S40.001, S41.001 and S43.001.

5.28 We also note that in parallel with this, Council has recently notified a plan variation to correct errors, including corrections to zoning and other amendments to the PDP. Submissions for this variation closed in December 2024.

5.29 In our opinion all of this means that the Operative District Plan is the dominant document in the weighing up of the objectives and policies of the district planning documents.

PART 2 OF THE RMA

6.0 The purpose of the RMA under s5 is to promote the sustainable management of natural and physical resources. This means managing the use of natural and physical resources in a way or at a rate that enables people and communities to provide for their social, cultural and economic well-being while sustaining those resources for future generations, protecting the life supporting capacity of ecosystems, and avoiding, remedying or mitigating adverse effects on the environment.

6.1 This application is considered to be consistent with this purpose. In particular, the proposal seeks to enable the wellbeing (social and economic) of the applicants by allowing efficient utilisation of their site and will ensure that adverse effects of the proposal on the environment will be avoided, remedied and/or mitigated.

6.2 Section 6 of the Act sets out a number of matters of national importance which need to be recognised and provided for and includes among other things and in no order of priority, the protection of outstanding natural features and landscapes, the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna, and the protection of historic heritage. The site does not contain any identified "outstanding landscape" or features. or any archaeologically significant or heritage items. The effects of the proposal on the wetland present on the site have been appropriately addressed.

6.3 Section 7 identifies a number of "other matters" to be given particular regard by a council in the consideration of any assessment for resource consent, and includes the efficient use of natural and physical resources, and the maintenance and enhancement of amenity values. The proposal is considered to be consistent with the maintenance and enhancement of amenity values.

- The development has been designed to take into account the surrounding land uses, and will not result in any adverse impacts on adjacent sites.
- The proposal will enable an efficient use of natural and physical resources as it will utilise land for residential purposes contiguous with the existing settlement of Tokerau Beach.

6.4 Section 8 requires all persons exercising functions and powers under the RMA to 'take into account' the Principles of the Treaty of Waitangi. No section 8 issues are considered to result.

6.5 Overall, the application is consistent with Part 2 of the RMA for the following reasons:

- The proposal provides for the wellbeing of people within the FNDC District by providing for the efficient utilisation of land suitable for development.
- The proposal avoids, remedies or mitigates adverse effects on the environment.

WRITTEN APPROVALS / CONSULTATION

7.0 The Applicant has consulted with Chorus and Top Energy on service provider matters, and the results of that consultation is contained in **Attachment 14.**

7.1 No other written approvals have been sought or other consultation undertaken with this application as the nature of the subdivision is specifically provided for in the zone, and no other parties are adversely affected.

7.2 Moreover, careful consideration has been given to the subdivision layout and location of the building platform. The building platform location has been informed by the engineering, ecological and archaeological assessment that have been undertaken on the site. This layout will ensure that the proposed subdivision will not result in adverse effects on adjacent / other parties, and operations on adjacent sites can operate without reverse sensitivity effects arising.

7.3 With respect to adjacent land uses, the building platform is sited outside of the required setbacks from adjacent sites. Regardless, the Applicant is agreeable to a consent notice precluding future occupants complaining about lawfully established or permitted rural activities on adjacent properties if required by Council.

SECTION 95 NOTIFICATION

8.0 Section 95A specifies the steps the council is to follow to determine whether an application is to be publicly notified. These steps are addressed in the statutory order below.

Step 1: mandatory public notification in certain circumstances

8.1 No mandatory notification is required as:

- the applicant has not requested that the application is publicly notified (s95A(3)(a))
- there are no outstanding or refused requests for further information (s95C and s95A(3)(b)), and
- the application does not involve any exchange of recreation reserve land under s15AA of the Reserves Act 1977 (s95A(3)(c)).

Step 2: if not required by step 1, public notification precluded in certain circumstances

8.2 The application is not precluded from public notification as:

- the activities are not subject to a rule or national environmental standard (NES) which precludes public notification (s95A(5)(a)); and
- the application does not involve one or more of the activities specified in s95A(5)(b).

Step 3: if not precluded by step 2, public notification required in certain circumstances

8.3 The application is not required to be publicly notified as the activities are not subject to any rule or a NES that requires public notification (s95A(8)(a)). For the reasons outlined earlier in this report public notification is not required as the activities will have or are likely to have adverse effects on the environment that are less than minor (s95A(8)(b)). An adjacent land assessment for the purposes of s95D (a) (ii) has been provided in **Attachment 2.**

Step 4: public notification in special circumstances

8.4 If an application has not been publicly notified as a result of any of the previous steps, then the council is required to determine whether special circumstances exist that warrant it being publicly notified (s95A(9)).

Special circumstances are those that are:

- Exceptional, abnormal or unusual, but something less than extraordinary or unique;
- outside of the common run of applications of this nature; or
- circumstances which make notification desirable, notwithstanding the conclusion that the activities will not have adverse effects on the environment that are more than minor.

8.5 Special circumstances" have been defined by the Court of Appeal as those that are unusual or exceptional, but they may be less than extraordinary or unique (Peninsula Watchdog Group (Inc) v Minister of Energy [1996] 2 NZLR 529). With regards to what may constitute an unusual or exceptional circumstance, Salmon J commented in Bayley v Manukau CC [1998] NZRMA 396 that if the district plan specifically envisages what is proposed, it cannot be described as being out of the ordinary and giving rise to special circumstances.

8.6 In Murray v Whakatane DC [1997] NZRMA 433, Elias J stated that circumstances which are "special" will be those which make notification desirable, notwithstanding the general provisions excluding the need for notification. In determining what may amount to "special circumstances" it is necessary to consider the matters relevant to the merits of the application as a whole, not merely those considerations stipulated in the tests for notification and service.

8.7 In this instance there are no special circumstances as the nature of the consent application is consistent with the rules, and objectives and policies for subdivision in the Rural Production zone.

Public notification conclusion

8.8 Having undertaken the s95A public notification tests, the following conclusions are reached:

- Under step 1, public notification is not mandatory.
- Under step 2, there is no rule or NES that specifically precludes public notification of the activities, and the application is for activities other than those specified in s95A(5)(b).
- Under step 3, public notification is not required as the application is for activities that is are not subject to a rule that specifically requires it, and it is considered that the activities will not have adverse effects on the environment that are more than minor.
- Under step 4, there are no special circumstances that warrant the application being publicly notified.

8.9 It is therefore recommended that this application be processed without public notification.

Limited notification assessment (sections 95B, 95E-95G)

8.10 If the application is not publicly notified under s95A, the council must follow the steps set out in s95B to determine whether to limited notify the application. These steps are addressed in the statutory order below.

Step 1: certain affected protected customary rights groups must be notified.

8.11 There are no protected customary rights groups or customary marine title groups affected by the proposed activities (s95B(2)).

8.12 In addition, the council must determine whether the proposed activities are on or adjacent to, or may affect, land that is subject of a statutory acknowledgement under schedule 11, and whether the person to whom the statutory acknowledgement is made is an affected person (s95B(3)). In this instance, the proposal is not on and will not affect land that is subject to a statutory acknowledgement, and will not result in adversely affected persons in this regard.

Step 2: if not required by step 1, limited notification precluded in certain circumstances

8.13 The application is not precluded from limited notification as:

- the application is not for one or more activities that are exclusively subject to a rule or NES which preclude limited notification (s95B(6)(a)); and
- the application is not exclusively for a controlled activity, other than a subdivision, that requires consent under a district plan (s95B(6)(b)).

Step 3: if not precluded by step 2, certain other affected persons must be notified.

8.14 As this application is not for a boundary activity, there are no affected persons related to that type of activity (s95B(7)).

The following assessment addresses whether there are any affected persons that the application is required to be limited notified to (s95B(8)).

In determining whether a person is an affected person:

- a person is affected if adverse effects on that person are minor or more than minor (but not less than minor);
- adverse effects permitted by a rule in a plan or NES (the permitted baseline) may be disregarded; and
- the adverse effects on those persons who have provided their written approval must be disregarded.

Adversely affected persons assessment (sections 95B(8) and 95E)

8.15 As already stated, and as Illustrated earlier in this AEE, there are less than minor effects on persons arising from this application.

Step 4: further notification in special circumstances

8.16 In addition to the findings of the previous steps, the council is also required to determine whether special circumstances exist in relation to the application that warrants it being notified to any other persons not already determined as eligible for limited notification (excluding persons assessed under section 95E as not being affected persons).

Special circumstances are those that are:

- Exceptional, abnormal or unusual, but something less than extraordinary or unique;
- outside of the common run of applications of this nature; or
- circumstances which make limited notification to any other person desirable, notwithstanding the conclusion that no other person has been considered eligible.

8.17 In this instance there is nothing exceptional or unusual about the application, and that the proposal has nothing out of the ordinary run of things to suggest that notification to any other persons should occur.

Limited notification conclusion

8.18 Having undertaken the s95B limited notification tests, the following conclusions are reached:

- Under step 1, limited notification is not mandatory.
- Under step 2, there is no rule or NES that specifically precludes limited notification of the activities, and the application is for activities other than that specified in s95B(6)(b).
- Under step 3, limited notification is not required as it is considered that the activities will not result in any adversely affected persons.
- Under step 4, there are no special circumstances that warrant the application being limited notified to any other persons.

8.19 It is therefore recommended that this application be processed without limited notification.

CONCLUSION

9.0 Under the FNDC ODP the application site is zoned Rural Production. The proposal seeks restricted discretionary subdivision consent which is consistent with the matters for discretion and objectives and policies of the zone.

9.1 The application has been assessed in terms of the matters detailed in the relevant sections of the RMA (1991), and the FNDC ODP.

9.2 In my opinion the proposal accords with Section 104 of the RMA and can be granted resource consent on a non-notified basis.

Neil Mumby
Planning Consultant
B. Soc.Sci (REP) (Hons)
MNZPI(Full),
Member
ISOCARP
April 2025

***LIMITATION**: This report has been prepared on behalf of, and for, the exclusive use of a Client of Cable Bay Consulting Ltd. This report is subject to, and is issued in connection with, the provisions of a written agreement between Cable Bay Consulting Ltd and its Client. Cable Bay Consulting Ltd accepts no liability or responsibility whatsoever for, or in respect of, any use of or reliance upon this report by any third party.*

Attachment 1

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA42C/431**
Land Registration District	**North Auckland**
Date Issued	22 September 1978

Prior References
NAPR16A/1293

Estate	Fee Simple
Area	12.2973 hectares more or less
Legal Description	Section 16 Block III Rangaunu Survey District

Registered Owners

Karen Urlich and BOI Taxation Trustee Company Limited as to a 1/2 share

Karen Urlich and BOI Taxation Trustee Company Limited as to a 1/2 share

Interests

Subject to Section 59 Land Act 1948

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by Section 59
148.

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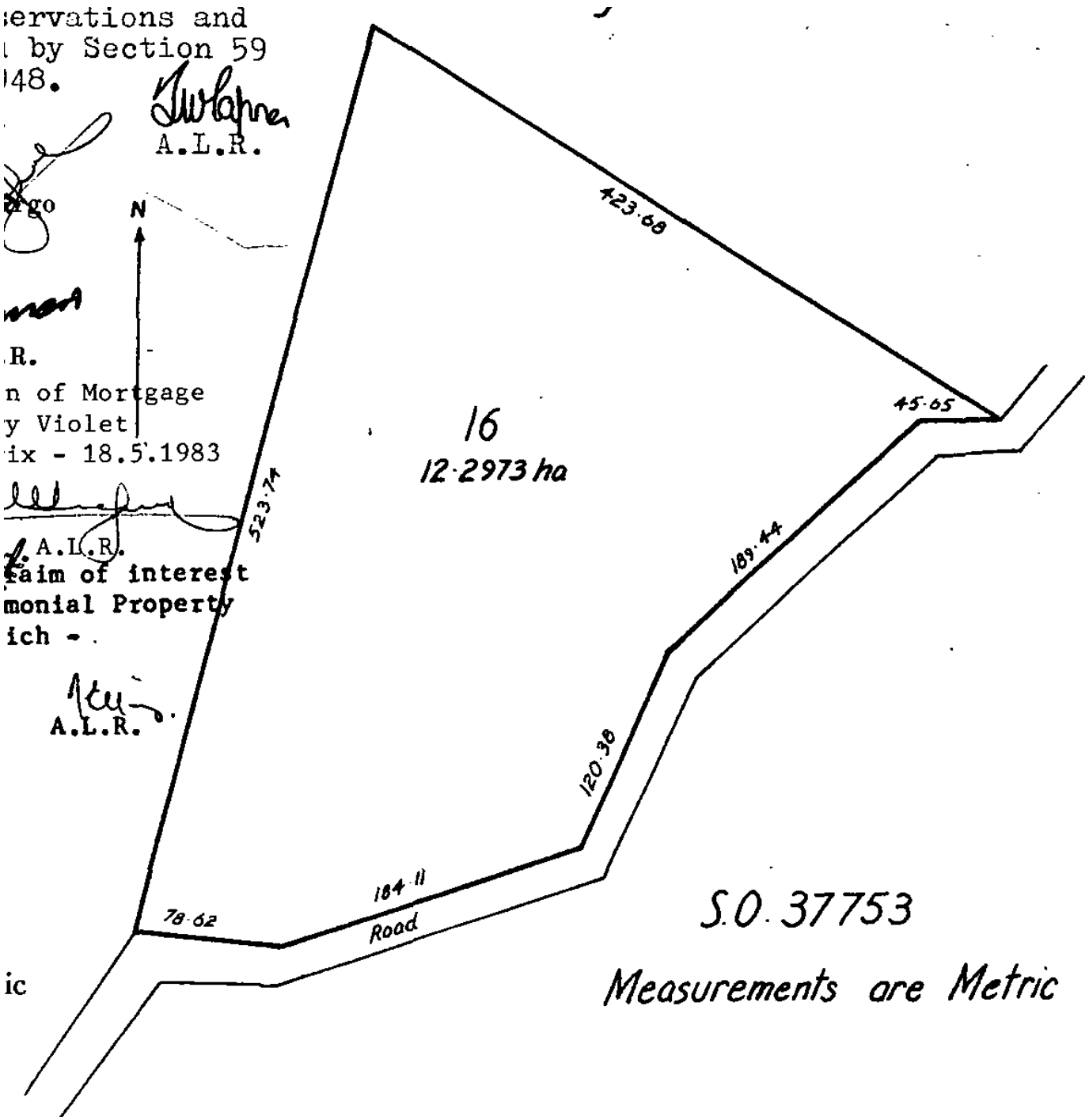


Attachment 2

Adjacent Land Assessment

RIF Urlich Family Trust & K Urlich Family Trust, Tokerau Beach Road

1.1 Adjacent land uses are both rural and residential in nature and also include a unformed legal road. A table identifying the legal descriptions of adjacent land (where available) and associated land uses is contained in Table 1 below;

Street Address	Legal Description	Property Description
1 Simon Urlich Road	Lot 2 DP 436010	Farm land with existing concrete manufacture facility and dwelling. Will have balance lot amalgamated into this area of land.
-	Lot 7 DP172526	Farmland.
1344C Inland Road	Lot 3 DP 179375	Rural Lifestyle block
Unknown	Lot 4 DP 179375	Rural Lifestyle block
Unknown	Lot 4 DP 332194	Vacant lifestyle block.
102 Virtue Crescent	Lot 98 DP 76024	Residential site
104 Virtue Crescent	Lot 97 DP 76024	Residential site.
110 Virtue Crescent	Lot 94 DP 76024	Residential site.
192 Tokerau Beach Road	Lot 50 DP74739	Residential site.
191 Tokerau Beach Road	Lot 1 DP 508984	Residential site
196 Tokerau Beach Road	Lot 1 DP 345836	Residential Site
200 Tokerau Beach Road	Lot 3 DP 345836	Residential site.
202 Tokerau Beach Road	Lot 4 DP 345836	Residential site.
206 Tokersau Beach Road	Lot 6 DP 345836	Residential site.
212 Tokerau Beach Road	Lot 9 DP 345836	Residential site.
214 Tokersau Beach Road	Lot 10 DP 345836	Residential site.
216 Tokerau Beach Road	Lot 11 DP345836	Residential site.
218 Tokerau Beach Road	Lot 12 DP 345836	Residential site.
238 Tokerau Beach Road	Lot 22 DP345836	Residential site.
240 Tokerau Beach Road	Lot 23 DP 345836	Residential site.
242 Tokerau Beach Road	Lot 24 DP 345836	Residential site.
244 Tokerau Beach Road	Lot 25 DP 345836	Residential site.

1.2 An image showing the location of the adjacent land is below in Figure 2 below;

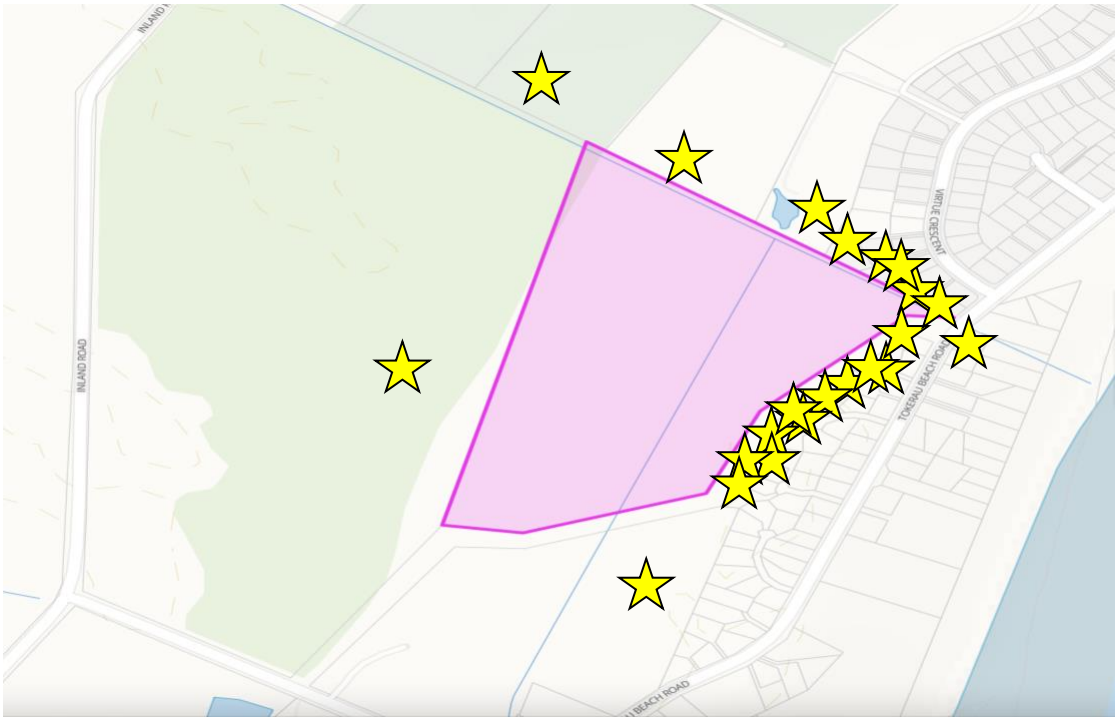
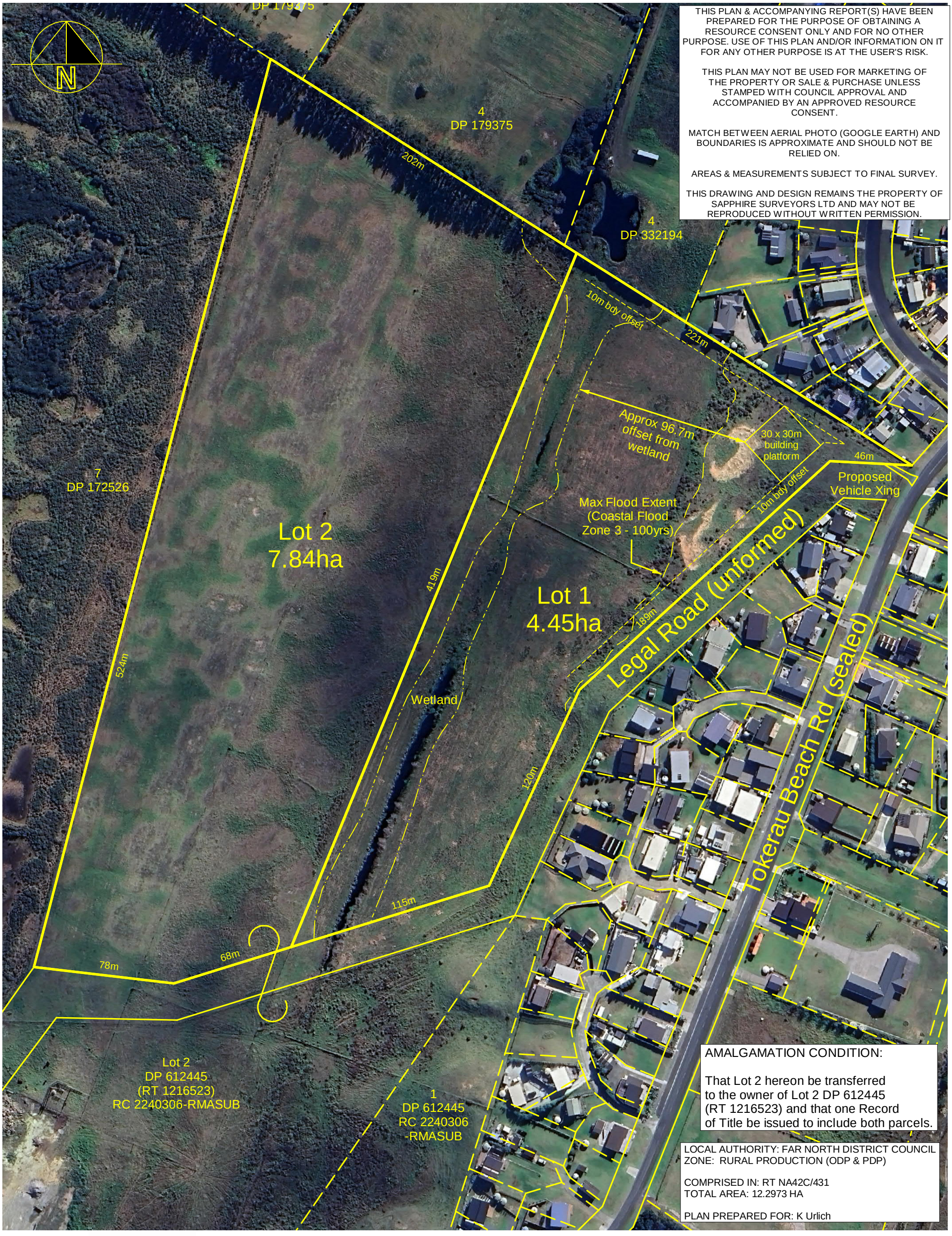


Figure 2 : Adjacent Land Assessment

Key

★ = Adjacent Land

Attachment 3



THIS PLAN & ACCOMPANYING REPORT(S) HAVE BEEN PREPARED FOR THE PURPOSE OF OBTAINING A RESOURCE CONSENT ONLY AND FOR NO OTHER PURPOSE. USE OF THIS PLAN AND/OR INFORMATION ON IT FOR ANY OTHER PURPOSE IS AT THE USER'S RISK.

THIS PLAN MAY NOT BE USED FOR MARKETING OF THE PROPERTY OR SALE & PURCHASE UNLESS STAMPED WITH COUNCIL APPROVAL AND ACCOMPANIED BY AN APPROVED RESOURCE CONSENT.

MATCH BETWEEN AERIAL PHOTO (GOOGLE EARTH) AND BOUNDARIES IS APPROXIMATE AND SHOULD NOT BE RELIED ON.

AREAS & MEASUREMENTS SUBJECT TO FINAL SURVEY.

AMALGAMATION CONDITION:

That Lot 2 hereon be transferred to the owner of Lot 2 DP 612445 (RT 1216523) and that one Record of Title be issued to include both parcels.

LOCAL AUTHORITY: FAR NORTH DISTRICT COUNCIL
ZONE: RURAL PRODUCTION (ODP & PDP)

COMPRISED IN: RT NA42C/431
TOTAL AREA: 12.2973 HA

PLAN PREPARED FOR: K Urlich

Sapphire Surveyors Ltd

Surveyors &
Land Development Specialists

Doubtless Bay, NZ
Ph. 09-406-0001
info@sapphiresurveyors.co.nz

Lots 1 & 2 being a Proposed Subdivision of Section 16 Blk III Rangaunu SD

Tokerau Beach Rd, Karikari Peninsula

Job Ref	0128S	
A3	1:2000	
Surveyed:		
Drawn:	WW	23/12/2024
Version:	A	
Status:	Final	07/04/2025
Sheet:	1 of 1	

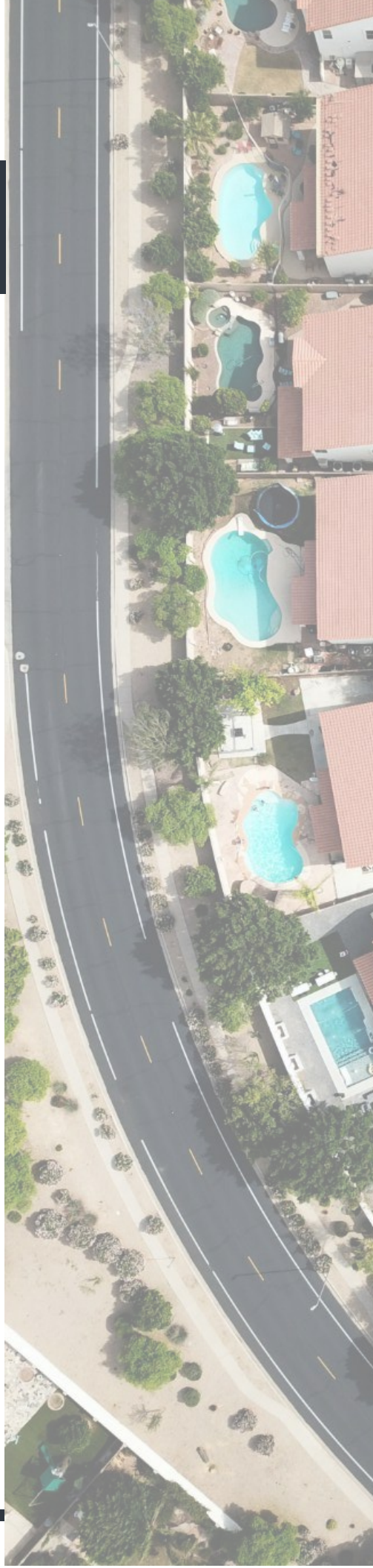
Attachment 4

geologix
consulting engineers

SUBDIVISION SITE SUITABILITY ENGINEERING REPORT

PROPOSED LOTS 1 & 2, SECTION 16 BLOCK III RANGAUNU SD

RIF URLICH FAMILY TRUST & KURLICH FAMILY TRUST



C0584-S-01
MARCH 2025
REVISION 1

geologix
consulting engineers

DOCUMENT MANAGEMENT

Document Title	Subdivision Site Suitability Engineering Report
Site Reference	Proposed Lots 1 & 2, Section 16 Block III Rangaunu SD
Client	RIF Urlich Family Trust & Kurlich Family Trust
Geologix Reference	C0582-S-01
Issue Date	24 March 2025
Revision	01
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REVISION HISTORY

Date	Issue	Prepared	Reviewed	Approved
March 2024	First Issue – For Consent	GM	SH	EC

geologix
consulting engineers

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1 INTRODUCTION

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

Our scope of works has been undertaken to assist with Resource Consent application in relation to the proposed subdivision of a rural property, Section 16 Block III Rangaunu SD, comprising a total net area of 12.29 Ha off Tokerau Beach Road, Karikari Peninsula, the 'site'.

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

1.1 Proposed Development

It is understood the Client proposes to subdivide the site into two lots as outlined in Table 1 below.

This understanding has been established from a proposed scheme plan by Sapphire Surveyors Ltd [1] supplied to Geologix at the time of writing. 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	4.45 ha	New residential
2	7.84 ha	New rural production

Access to the new residential Lot 1 is to be provided with a new vehicle crossing extending from an unformed legal road off Tokerau Beach Road.

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

2 DESKTOP APPRAISAL

The site is presented to the west of the Tokerau Beach township. The site is legally described as Section 16 Block III Rangaunu SD and is irregular in shape with a gross site area of approximately 12.29 ha. The site setting is presented schematically as Figure 1 below.

[1] *Sapphire Surveyors Ltd, Lots 1 & 2 being a Proposed Subdivision of Section 16 Blk III Rangaunu SD Dated 23/12/2024*

Topographically the site area is generally flat and level with low-lying land to the centre of the overall allotment. Along the centre of the site, trending north-south there is a man-made drainage channel parallel to Tokerau Beach Road. An elevated dune runs parallel to Tokerau Beach Road along the eastern side of the site. The CMA is approximately 300 m to the east of the site.

The entire site area is currently in pasture with rough grasses with very sparse vegetation.

A detailed review of existing watercourses and overland flow paths is presented as Section 2.2. In brief, the site is generally gently sloping to level, with some moderately steeper slopes on the ridge at the eastern boundary. A drainage channel with a straight alignment flows roughly through the centre of the site.

Figure 1: Site Setting[2]

2.1 Existing Reticulated Networks

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

There is an existing wastewater network over the north-eastern boundary. No invert level information is available for the existing drains. With the closest possible connection point being approximately 50m away, having an approximate ground level RL of 8.25m and the proposed building platform ranging approximately from RL 5.5m-8.5m it is unlikely to be practical to connect to the existing wastewater network.

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

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

2.2 Geological Setting

Available geological mapping[3] indicates the eastern side of the site (proposed lot 1) is mainly underlain by Late Pleistocene to Holocene estuary, river and swamp deposits of Karioitahi Group. The western side of the site (proposed lot 2) is mainly underlain by Early Pleistocene to Middle Pleistocene) dune deposits of Karioitahi Group. Both geological units are described as uncemented to moderately cemented and partly consolidated sand in coastal foredunes and clay-rich sandy soils.

The sandy geology extends away from the site in all directions with the alluvial Karioitahi Group extending to the north and south following the Coastal Marine Area (CMA) and the sandy dune deposits extends towards the inland to the west of the site.

2.3 Existing Geotechnical Information

A ground investigation was undertaken by Geologix at 1 Simon Ulrich Road, adjacent to the site on the southern boundary on 19 July 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, within the proposed building platform with a target depth of 3.0 m below ground level (bgl).
- BH01 and BH02 was extended with scala penetrometer probing technique to a target depth of 5.0 m bgl.
- Monitoring of groundwater levels with a groundwater dip meter on the day of drilling.

Arisings recovered from the exploratory boreholes were logged by a suitably qualified geotechnical engineering professional in general accordance with New Zealand Geotechnical Society guidelines[4].

- **Topsoil encountered up to 0.1 m bgl.** Described as organic fine sand with trace silt, dark brown, moist and poorly graded.
- **Loose to medium dense Karioitahi Group Sand to depths ranging from 1.1 m to 1.2 m bgl.** The Karioitahi Group soil was generally described as fine sand, light yellowish brown becoming brown with depth and poorly graded with generally increasing strength. The definition of the loose to medium dense layer has been taken as ground not meeting the specific requirements of NZS3604.

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

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

Dynamic Cone Penetrometer (DCP) probing within the loose to medium dense sand layer across both boreholes returned a consistent blow counts of 1 to 5 blows per 100 mm penetration, indicative of a loose to medium dense material.

- **Dense Karioitahi Group Sand to depths of 2.3 m to 3.3 m.** With depth, the strength of the Karioitahi Group Sand increased, and the soil recovered were also described as brown, poorly graded and moist fine sand.

  DCP probing within the dense layer returned a consistent blow counts of 5 to 9 blows per 100 mm penetration, indicative of a consistent medium dense to dense strata.

- **Dense to Very Dense Karioitahi Group Sand to depths >5.0 m bgl.** DCP probing within both boreholes confirmed the presence of Karioitahi Group dense soil from 2.3 m bgl at BH01 and from 3.3 m bgl within BH02. The very dense soil was recovered within BH01 was also a brown, poorly graded and moist fine sand.

  The strength of dense to very dense sand strata also increased with depth, returning 10 to 15 blows per 100 mm penetration, indicative of a dense to very dense layer of sand.

A summary of the above information is presented as Table 2 below.

Table 2: Summary of Ground Investigation

Hole ID	Proposed Lot	Hole Depth	Fill Depth	Depth of Loose to Medium Dense Sand	Depth to Dense to Very Dense Sand	Groundwater[2]
BH01	1	5.0 m	NE	1.1 m	2.3 m	NE
BH02	1	5.0 m	NE	1.2 m	3.3 m	NE

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

3 SURFACE WATER FEATURES AND OVERLAND FLOWPATHS

It is expected that surface water will flow as sheet flow from elevated areas over the building platform to the west into the central overland flow path.

During our site walkover and desktop appraisal of available LiDAR data, Geologix have developed an understanding of the surface water features and overland flow paths influencing the site. The developed understanding is summarised in the following sections.

3.1 Surface Water Features

The drainage channel mentioned above is noted from aerial images to hold standing water during wetter periods. During our time on site (mid January) no surface water was present.

3.2 Sensitive Receptors

Based on GIS data, national topographic maps and site walkover we understand there to be potential wetlands around the drainage channel running through the site. However, we have not been engaged to provide an ecological assessment of the site or surrounding surface water features. We understand that an ecologist has been engaged to provide this assessment in a separate report.

3.3 Overland Flow Paths

A clearly defined overland flow path was observed trending roughly centrally through the site from south to north/ north-east, connecting with adjacent watercourses. The local area includes similar, inter-dune overland flow paths.

3.4 Mapped Flood Hazard

Northland Regional Council Natural Hazard Maps indicates that the site is affected by a river flood hazard of the 10%, 2% and 1% Annual Exceedance Probability (AEP) or 1-in-10, 50 and 100 year rain events as well as coastal flood hazard for the current, 50 year and 100 year extents. The area of the site affected by the river flood hazard comprises approximately the eastern half of the site, excluding the dune ridge containing the building platform. Similarly, the current and 50 year coastal flood hazard extent covers approximately the eastern half of the site. The building platform is proposed on top of the sand dune ridge, away from flooding hazards.

4 GROUND CONDITIONS

A single 1.2m deep borehole was drilled within the area of proposed wastewater disposal fields to assess its' drainage potential. Arisings recovered from the exploratory borehole were logged by a suitably qualified geotechnical engineering professional in general accordance with New Zealand Geotechnical Society guidelines[5]. The borehole log in shown within Appendix B to this report and the approximate borehole position is shown on Drawing No. 500 within Appendix A. Strata identified during the ground investigation can be summarised as follows:

- **Topsoil encountered up to 0.1 m bgl.** Described as have trace rootlets, dark brown, dry and friable.
- **Karioitahi Group Sand to depth of 1.2 m bgl.** The Karioitahi Group soil was generally described as sand, greyish dark brown becoming brown with light orange mottles.

5 WASTEWATER ASSESSMENT

The scope of this wastewater assessment comprised a ground investigation to ascertain a lot-specific wastewater disposal classification for concept design of suitable systems for a

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

probable future rural residential development. Relevant design guideline documents adopted include:

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

The concept rural residential developments within this report assume that the proposed new residential lots may comprise up to a five-bedroom dwelling with a peak occupancy of eight people[6]. This considers the uncertainty of potential future Building Consent designs. The number of usable bedrooms within a residential dwelling must consider that proposed offices, studies, gyms, or other similar spaces maybe considered a potential bedroom by the Consent Authority.

5.1 Existing Wastewater Systems

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

5.2 Wastewater Generation Volume

In lieu of potable water infrastructure servicing the site, roof rainwater collection within on-lot tanks has been assumed for this assessment. The design water volume for roof water tank supply is estimated at 160 litres/ person/ day[7]. This assumes standard water saving fixtures[8] being installed within the proposed future developments. This should be reviewed for each proposed lot at the Building Consent stage.

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

5.3 Treatment System

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

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

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[6] TP58 Table 6.1.

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

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

5.4 Land Disposal System

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

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

Table 3: Disposal Field Design Criteria

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

5.4.1 Soil Loading Rate

Based on the results of the ground investigation, conservatively the shallow soils are inferred to meet the drainage characteristics of TP58 Category 3, Medium-fine and loamy sand – good drainage. This correlates to NZS1547 Category 2, Sandy loams - well drained. For a typical PCDI system, a Soil Loading Rate (SLR) of 4 mm/ day is recommended within NZS1547 Table 5.2 and 15 mm/day in TP58 Table 9.2. The more conservative figure of 4 mm/day has been used for this concept design.

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

- 100 to 150 mm minimum depth of good quality topsoil (NZS1547 Table M1, note 1) to slow the soakage and assist with nutrient reduction.
- Minimum 33 % reserve disposal field area.

5.4.2 Disposal Areas

The sizing of wastewater system disposal areas is a function of soil drainage, the loading rate and topographic relief. For the proposed Lot 1 a primary and reserve disposal field is required as follows. The recommendations below are presented on Drawing No. 500.

- **Primary Disposal Field.** A minimum PCDI primary disposal field of 320 m^2 laid parallel to the natural contours.
- **Reserve Disposal Field.** A minimum reserve disposal field equivalent to 33 % of the primary disposal field is required under NRP rule C.6.1.3(9)(b) for secondary or tertiary treatment systems. It is recommended each proposed lot provides a 107 m^2 reserve disposal area to be laid parallel to the natural contours.
- Concept disposal field locations require the provision of surface water cut-off drains to meet the provisions of NRP rule C.6.1.3.
- Disposal fields discharging secondary treated effluent are to be set at the 20-year ARI (5% AEP) flood inundation height to comply with the above NRP rule. Flood hazard potential has been identified within the site boundaries to an elevation less than RL 4m in the 1 % AEP flood. All wastewater disposal fields are located above this level and as such the site can provide freeboard above the 1 % AEP flood height to comply with this rule.

5.5 Summary of Concept Wastewater Design

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

Table 4: Concept Wastewater Design Summary

Design Element	Specification
Concept development	Five-bedroom, peak occupancy of 8 (per lot)
Design generation volume	160 litres/ person/ day
Water saving measures	Standard. Combined use of 11 litre flush cisterns, automatic washing machine & dishwasher, no garbage grinder[1]
Water meter required?	No
Min. Treatment Quality	Secondary
Soil Drainage Category	TP58 Category 3, NZS1547 Category 2
Soil Loading Rate	4.0 mm/ day

Primary disposal field	Surface/ subsurface laid PCDI, min. 320 m^2
Reserve disposal field	Surface/ subsurface laid PCDI, min. 33 % or 107 m^2
Dosing Method	Pump with high water level visual and audible alarm. Minimum 24-hour emergency storage volume.
Stormwater Control	Divert surface/ stormwater drains away from disposal fields. Cut off drains required. Stormwater management discharges downslope.

1. Unless further water saving measures are included.

5.6 Assessment of Environmental Effects

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

The scale of final development is unknown at the time of writing and building areas, impervious areas including driveways, ancillary buildings, landscaped gardens, and swimming pools may reduce the overall area for on-site wastewater disposal. For the purpose of this report, the above impervious features are considered to be comprised within the conceptual 30 x 30 m square building envelope shown on Drawing 500, Appendix A. The conceptual wastewater disposal field areas are clear of this indicative building envelope area.

It is recommended that the AEE is reviewed at the time of Building Consent once specific development plans, final disposal field locations and treatment systems are established. The TP58 guideline document provides a detailed AEE for Building Consent application. Based on the proposed scheme, ground investigation, walkover inspection and Drawing No. 500, a site-specific AEE is presented as Appendix C to demonstrate the proposed wastewater disposal concept will have a less than minor effect on the environment.

6 STORMWATER ASSESSMENT

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

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

6.1 Impervious Surfaces and Activity Status

A summary of the impervious areas of the proposed lots is provided as below which has been developed from our observations and the provided Scheme Plan. For the proposed lots, this has been taken as conceptual maximum probable development of typical rural residential scenarios. Refer Section 6.2.

The activity status reflected in Table 5 is with respect to Operative FNDC Plan Section 8.6.5.1.3 only. Furthermore, the subdivision stormwater proposal has been assessed in accordance with the Operative FNDC Plan Section 13.8 on the basis that the overall subdivision is determined to be a Restricted Discretionary Activity.

Table 5: Summary of Impervious Surfaces

Surface	Proposed Lot 1		Proposed Lot 2	
Existing Condition		**(122,900 m²)**		**NA**
Roof (house & garage)	0 m²	0 %		
Driveway	0 m²	0 %		
Total impervious	0 m²	0 %		
Proposed Condition		**(44,500 m²)**		**(78,400 m²)**
Roof (house & garage)	300 m²	0.7 %	0 m²	0 %
Driveway	150 m²	0.3 %	0 m²	0 %
Total	450 m²	1.0 %	0 m²	0 %
Activity Status		Permitted		Permitted

6.2 Stormwater Management Concept

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

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

  The probable future on-lot development concept includes up to 300 m² potential roof area and up to 150 m² potential driveway or parking areas. The runoff from the latter area has been modelled as an offset within the lot-specific roof rainwater attenuation devices. Should additional driveway or parking area be incorporated in the future development the runoff from these areas will not be possible to offset within the rain tanks. Runoff from paved areas will shed down towards Tokerau Beach Road and flow towards the catchpit at the corner of Tokerau Beach Road and Virute Crescent. It is anticipated that the area of driveway not offset would not exceed 50 m² and would have limited downstream effect prior to discharge to the CMA.

  In terms of diversion of water that currently flows towards the central drain and wetland areas around that drain, tank overflows from the roof areas will be discharged towards the wetland (minus water retained for water supply). Areas converted into

driveway/parking areas are expected to generally maintain their current topography with rain runoff flow to the east or west of the dune ridge as it currently does. The proposed building platform is located approximately 100m east of the wetland area.

6.3 Design Storm Event

Relevant design rainfall intensity and depths have been ascertained for the site location from the NIWA HIRDS meteorological model[9]. The NIWA HIRDS rainfall data is presented in full within Appendix D. Provision for climate change has been adopted by means of applying a factor of 20% to rainfall intensities, in accordance with FNDC Engineering Standards 2023.

It has been identified that development of the site poses an increase to flooding hazard on downstream property, specifically the flood plain to the west of the proposed building platform. Therefore, in order to provide flood control in compliance with FNDC Engineering Standard Table 4-1, the concept design attenuates the post-development stormwater runoff peak discharge to 80 % of the pre-development condition for the 1 % AEP storm event with provision for climate change. This provision also complies with NRP Rule C6.4.2(2).

Furthermore, the Table 4-1 stipulates that flow attenuation controls reduce the post-development peak discharge to 80 % of the pre-development condition for the 50% and 20 % AEP storm event with provision for climate change.

To be compliant with the above rules, the attenuation modelling within this report has been undertaken for all of the above storm events. The results are summarised in Table 6 and provided in full in Appendix D.

Correctly sized discharge devices have adopted the 1 % AEP event to reduce scour and erosion at discharge locations which may otherwise result in concentrated discharge. These are detailed further in Section 6.5.1 of this report.

6.4 Concept Attenuation Model

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

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

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

development. The probable future on-lot development concept includes up to 300 m^2 potential roof area and up to 150 m^2 potential driveway or parking areas. The latter has been modelled as an offset within lot-specific attenuation devices.

Should additional driveway or parking area be incorporated in the future development the runoff from these areas will not be possible to offset within the rain tanks. Runoff from paved areas will shed down towards Tokerau Beach Road and flow towards the catchpit at the corner of Tokerau Beach Road and Virute Crescent. It is anticipated that no more than an additional 50 m^2 of paving would be required.

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

A summary of the probable future development concept design is presented as Table 6, with a specific summary of the roof tanks concept provided in Table 6.

Table 6: Summary of Probable Future Development Concept

Item	Pre-development Impervious Area	Post-development Impervious Area	Proposed Concept Attenuation Method
Future Concept Development – Lot 1			
Potential buildings	0 m^2	300 m^2	Detention within roof water tanks
Potential driveways	0 m^2	150 m^2	Off-set detention in roof water tanks
Total	**0 m^2**	**450 m^2**	
Future Concept Development - Lot 2			
Potential buildings	0 m^2	0 m^2	NA
Potential driveways	0 m^2	0 m^2	NA
Total	**0 m^2**	**0 m^2**	

Table 7: Probable Future Development Attenuation Concept - Tanks

Design Parameter	Flow Attenuation: 50 % AEP (80% of pre dev)	Flow Attenuation: 20 % AEP (80% of pre dev)	Flood Control: 10 % AEP (80% of pre dev)	Flood Control: 1 % AEP (80% of pre dev)
Proposed Lot 2 - Tanks				
Regulatory Compliance	FNDC Engineering Standards Table 4-1	FNDC Engineering Standards Table 4-1	NRC Proposed Regional Plan	FNDC Engineering Standards Table 4-1
Pre-development peak flow	3.26 l/s	4.24 l/s	4.96 l/s	7.54 l/s
80 % pre-development peak flow	2.61 l/s	3.39 l/s	N/A	6.03 l/s
Post-development peak flow	7.89 l/s	10.24 l/s	11.98 l/s	18.22 l/s

Total Storage Volume Required	10,443 litres	13,656 litres	8,227 litres	25,112 litres
Concept Summary:	- Attenuation storage calculation accounts for offset flow from driveway (not indicated explicitly in summary above. Refer Appendix D for calcs in full) - Attenuation to 80 % of pre-development condition for 1 % AEP storm represents maximum storage requirement and is adopted for the concept design tank storage. - 2 x 25,000 litre tank is sufficient for attenuation (25,112 l) + potable storage (24,888 l) - 1% AEP attenuation in isolation requires a 23 mm orifice 1.31 m below overflow. However regulatory requirements are to consider an additional orifice/s to control the 50%, 20% and 1% AEP events specifically. We note this may vary the concept orifice indicated above. This should be provided with detailed design for building consent approval.			

6.4.1 On-Lot Discharge – Roof tank outlets

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

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

Typical rural residential developments may construct either above ground level spreader or an equivalent in-ground dispersion trench. Feeding pipes can be either buried or pinned to the surface as desired. It is recommended that all pipes are designed to accommodate the 1% AEP event peak overflow from the attenuation tank. A concept above ground level spreader is presented as Table 8. Calculations to derive this are presented within Appendix D, derived from Auckland Council TR2013/018 document.

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

Table 8: Summary of Concept Dispersion Device

Concept Impervious Area to Tank	Tank Outlet Velocity (m/s)	Spreader orifices outlet Velocity	Tank outlet pipe diameter (mm)	Dispersion Pipe	Spreader orifices	Concept
Proposed Lot 1 & 2						
300 m^2	5.06 m/s	5.06 m/s	100 Ø	9.0m long, 150 mmØ	33No. 10mm Ø at 200mm centres	Above-ground level spreader (or equivalent in-ground trench)

6.5 Stormwater Quality

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

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

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

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

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

7 POTABLE WATER & FIRE FIGHTING

In the absence of potable water infrastructure within Tokerau Beach Road or within the site it is recommended that the roof runoff water tanks are adopted for potable water supply with appropriate filtration and UV disinfection at point of use. The volume of potable water supply on each lot should consider the required stormwater detention volume identified within Table 7.

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

8 INTERNAL ROADING AND VEHICLE CROSSINGS

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

8.1 Vehicle Crossings

A vehicle crossing will be formed at subdivision stage directly onto Tokerau Beach Road at the position presented in Drawing Sheet 100, Appendix A.

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

The vehicle crossing is not located within 30m of an intersection and can readily achieve a slope no greater than 1:8 over at least 5m metres from the road boundary with minimal earthworks being required (currently 1:7).

The vehicle crossing will be constructed as per FNDC Engineering Standards 2023 Sheet 18.

9 EARTHWORKS

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

- **New vehicle crossing.** Cut/ fill earthworks for construction of the vehicle crossing to current Council Engineering Standards.
- **Proposed Building Platform and Driveway.** Cut/ fill earthworks for formation of the driveway and building platform.

It is anticipated that earthworks for the future development will not significantly modify existing ground levels and be restricted to approximately 0.3m of cut/fill over 450m^2 (i.e. 135m^3).

Proposed earthwork volumes are well within the 5,000 m^3 Permitted Activity volume limit outlined by FNDC District Plan Rule 12.3.6.1.1(a) and the maximum cut and fill height is <3 m to comply with 12.3.6.1.3(b).

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

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.

9.1 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 fence around the downslope face of the proposed vehicle crossing.

10 LIMITATIONS

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

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

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

APPENDIX A

Drawings

GENERAL NOTES

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

Meters
25 0 25 50
1:2500

Revision	Issue	Date
A	CONSENT	24/03/2025

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
TOKERAU BEACH ROAD
TOKERAU BEACH
SECT. 16 BLK III RANGAUNU

Project	Drawn By
C0584	GM

Client
RIF URLICH FAMILY TRUST

Sheet Title
SITE LAYOUT PLAN

Sheet
100

FILE PATH: C:\Users\GerardMcHardy\SynologyDrive\Projects\C0500-C0599\C0584 - Section 16 Block III Rangaunu Survey District\07 - Technical & Drawings\Drawings\C0584-SS.dwgC0584-SS.dwg

PLOTTED: 03/04/2022

4
DP 332194

4.0
3.0
10m bdy offset
2.0
2.0
221m
30 x 30m
building
platform
3.0
4.0
5.0
6.0
7.0
8.0
8.260
BH1
WASTEWATER DISPOSAL FIELDS
PRIMARY DISPOSAL FIELD 320 M2
RESERVE DISPOSAL FIELD 107 M2
46m
Proposed
Vehicle Xing
8.0
7.0
Lot 1
4.45ha
10m bdy offset
189m
Legal Road (unformed)
sealed)

GENERAL NOTES

1. DRAWING REPRODUCED FROM SAPPHIRE SURVEYORS LTD PROPOSED SCHEME PLAN REF. 0128S, DATED DECEMBER 2024.
2. CONTOURS AT 1 m INTERVALS.
3. LIDAR DATA PROVIDED BY LINZ.
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6. DO NOT SCALE FROM THIS DRAWING.

CONCEPT WASTEWATER DESIGN

CONCEPT DEVELOPMENT	5 BEDROOM
CONCEPT NO. OF OCCUPANTS	8 PERSONS
DAILY WASTEWATER GEN. PERSON/ DAY	160 LITRES/
TOTAL WASTEWATER GEN. DAY	1,280 LITRES/
SOIL CATEGORY (TP58)	CATEGORY 3
SOIL CATEGORY (NZS1547)	CATEGORY 2
SOIL LOADING RATE	4 mm/ DAY
TREATMENT SYSTEM CONSENT	TBC AT BUILDING
PRIMARY DISPOSAL AREA	320 m²
RESERVE DISPOSAL AREA (33 %)	107 m²
FINAL DESIGN?	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS?	NO
DISCHARGE CONSENT?	NO

WATERCOURSE
OVERLAND FLOWPATH
EDGE OF MAPPED WETLAND (BY OTHERS)
SW EXISTING ROADSIDE GRASSED SWALE DRAIN
PRIMARY DISPOSAL FIELD
RESERVE DISPOSAL FIELD
CONCEPT 25,000 LITRE WATER TANK ATTENUATING TO DISPERSION DEVICE
BH1 GEOLOGIX HAND AUGER BOREHOLE JANUARY 2025

10 0 Meters 10 20
1:1000

A	CONSENT	24/03/2025
Revision	Issue	Date

geologix
consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
TOKERAU BEACH ROAD
TOKERAU BEACH
SECT. 16 BLK III RANGAUNU

Project	Drawn By
C0584	GM

Client
RIF URLICH FAMILY TRUST

Sheet Title
STORMWATER LAYOUT PLAN

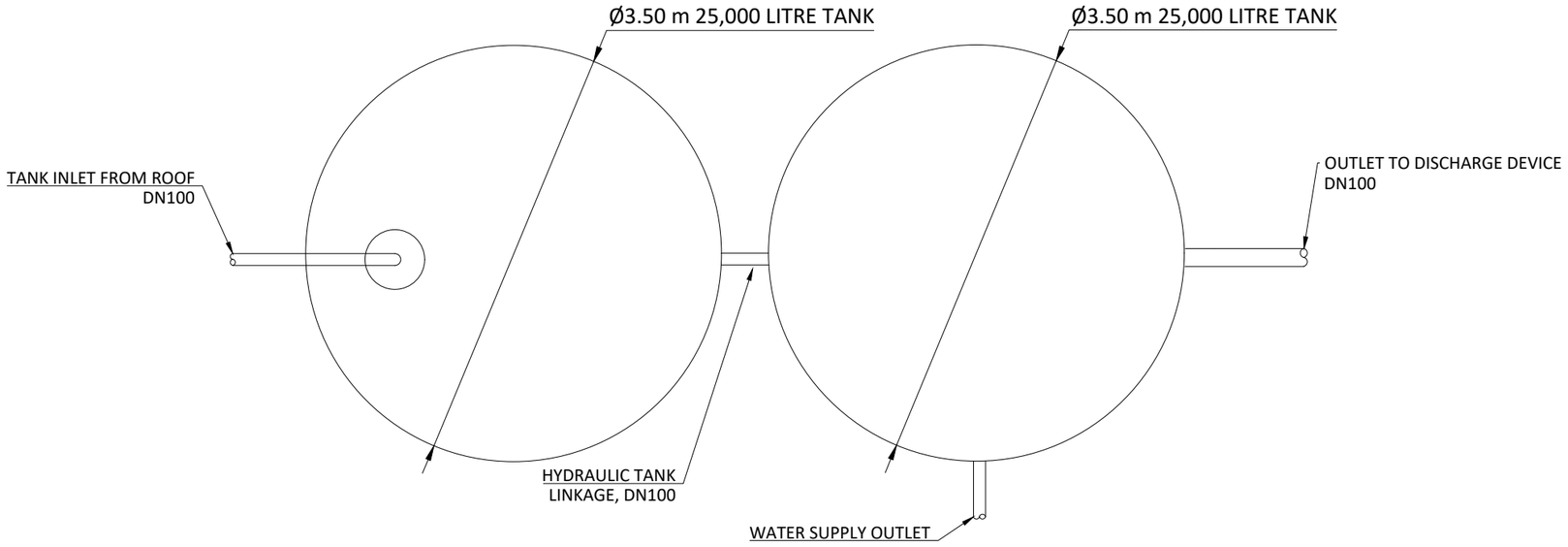
Sheet
400

FILE PATH: C:\Users\GerardMcHardy\SynologyDrive\Projects\C0500-C0599\C0584 - Section 16 Block III Rangaunu Survey District\07 - Technical & Drawings\Drawings\C0584-SS.dwgC0584-SS.dwg

PLOTTED: 09/04/2025

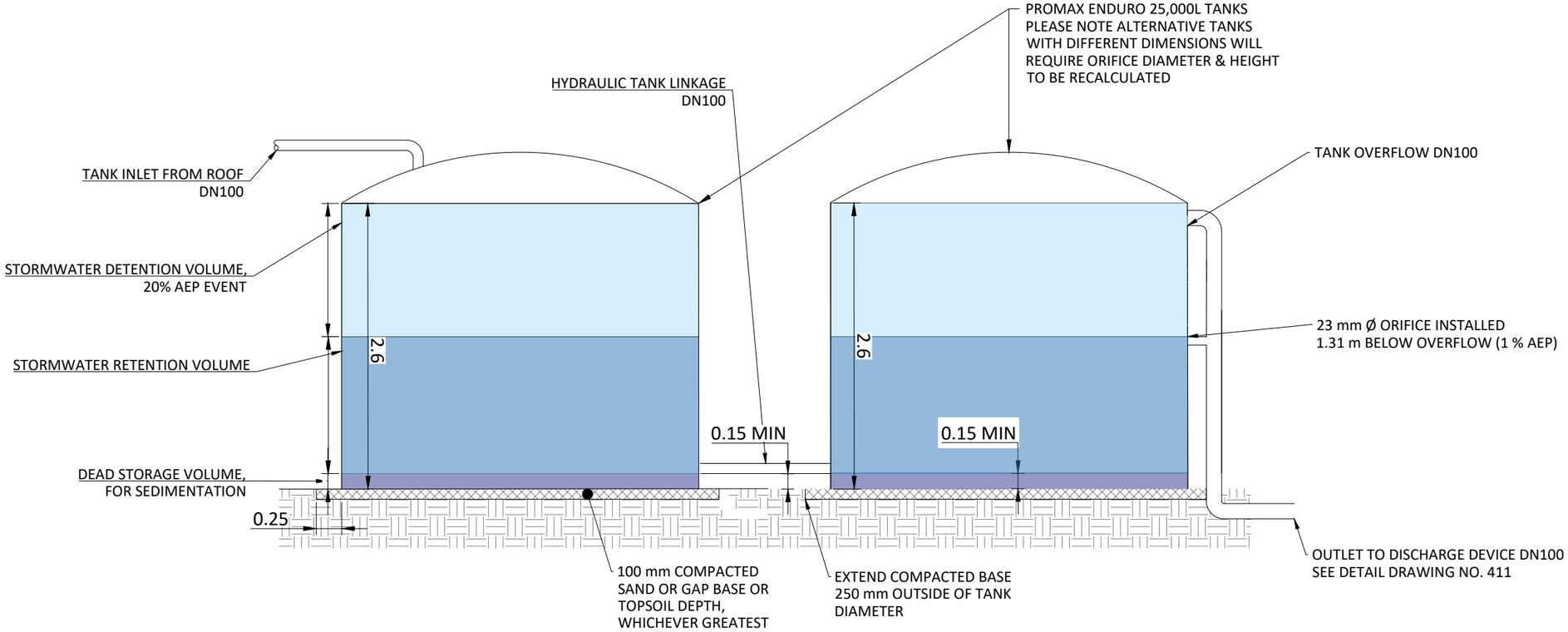
PROPOSED TANK PLAN VIEW

1:50, A3



PROPOSED TANK SIDE VIEW

1:50, A3



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1:50

A	CONSENT	24/03/2025
Revision	Issue	Date

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

TOKERAU BEACH ROAD
TOKERAU BEACH
SECT. 16 BLK III RANGAUNU

Project	Drawn By
C0584	GM

Client

RIF URLICH FAMILY TRUST

Sheet Title

STORMWATER DETAILS

Sheet

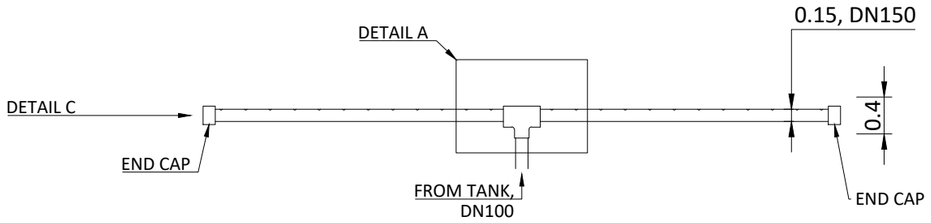
410

FILE PATH: C:\Users\GerardMcHardy\Synology Drive\Projects\C0500-C0599\C0584 - Section 16 Block III Rangaunu Survey District\07 - Technical & Drawings\Drawings\C0584-SS.dwg C0584-SS.dwg

PLOTTED: 09/04/2025

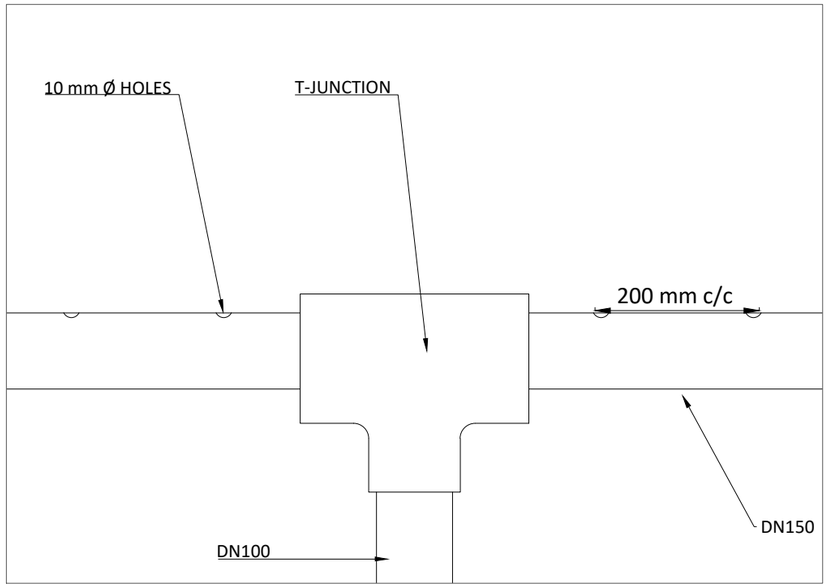
DISPERSION VIA ABOVE GROUND TRENCH

NOT TO SCALE



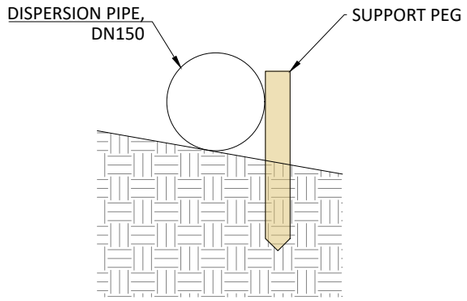
DETAIL A - T JUNCTION AND PERFORATIONS

NOT TO SCALE



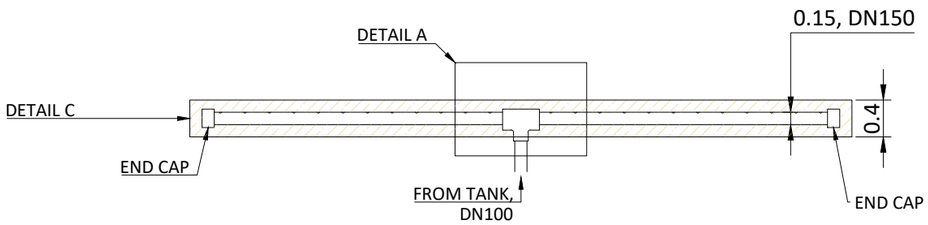
DETAIL B - SIDE VIEW

NOT TO SCALE



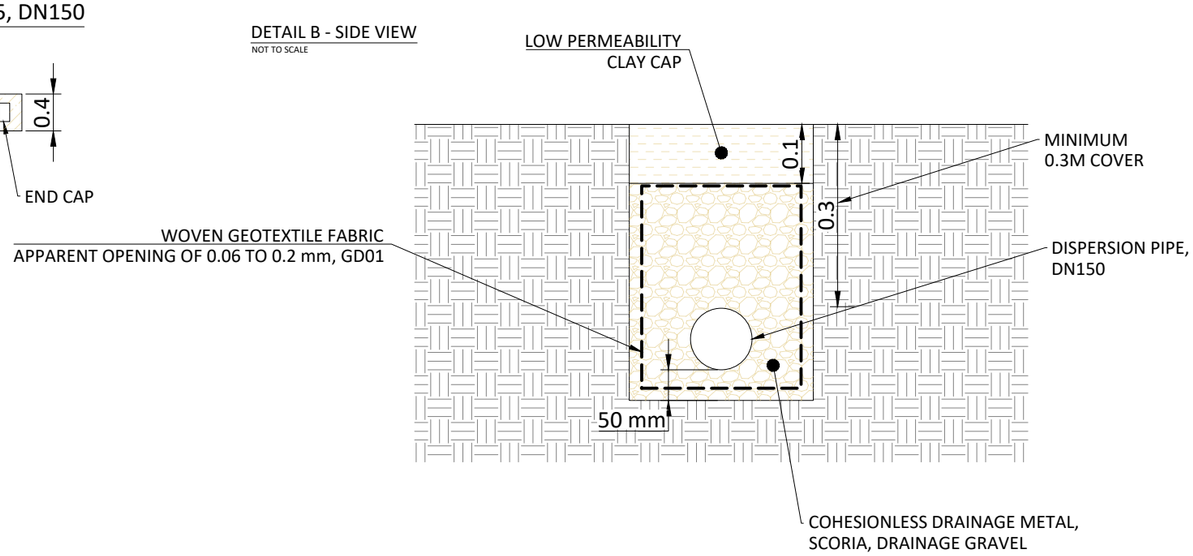
OPTION 2: DISPERSION VIA BELOW GROUND TRENCH

NOT TO SCALE



DETAIL B - SIDE VIEW

NOT TO SCALE



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1:50

Revision	Issue	Date
A	CONSENT	24/03/2025

geologix consulting engineers

AUCKLAND | NORTHLAND

Project Name and Address

TOKERAU BEACH ROAD
TOKERAU BEACH
SECT. 16 BLK III RANGAUNU

Project	Drawn By
C0584	GM

Client

RIF URLICH FAMILY TRUST

Sheet Title

STORMWATER DETAILS

Sheet

411

FILE PATH: C:\Users\GeraldMcHardy\SynologyDrive\Projects\C0500-C0599\C0584 - Section 16 Block III Rangaunu Survey District\07 - Technical & Drawings\Drawings\C0584-SS.dwgC0584-SS.dwg

PLOTTED: 03/04/2025

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TOTAL WASTEWATER GEN.	1,280 LITRES/ DAY
SOIL CATEGORY (TP58)	CATEGORY 3
SOIL CATEGORY (NZS1547)	CATEGORY 2
SOIL LOADING RATE	4 mm/ DAY
TREATMENT SYSTEM	TBC AT BUILDING CONSENT
PRIMARY DISPOSAL AREA	320 m²
RESERVE DISPOSAL AREA (33 %)	107 m²
FINAL DESIGN?	NO - SUBJECT TO BUILDING CONSENT DESIGN
CUT OFF DRAINS?	NO
DISCHARGE CONSENT?	NO

WATERCOURSE
OVERLAND FLOWPATH
EDGE OF MAPPED WETLAND (BY OTHERS)
SW EXISTING ROADSIDE GRASSED SWALE DRAIN
PRIMARY DISPOSAL FIELD
RESERVE DISPOSAL FIELD
CONCEPT 25,000 LITRE WATER TANK ATTENUATING TO DISPERSION DEVICE
BH1 GEOLOGIX HAND AUGER BOREHOLE JANUARY 2025

10 0 Meters 10 20
1:1000

A	CONSENT	24/03/2025
Revision	Issue	Date

geologix consulting engineers
AUCKLAND | NORTHLAND

Project Name and Address
TOKERAU BEACH ROAD
TOKERAU BEACH
SECT. 16 BLK III RANGAUNU

Project	Drawn By
C0584	GM

Client
RIF URLICH FAMILY TRUST

Sheet Title
WASTEWATER LAYOUT PLAN

Sheet
500

FILE PATH: C:\Users\GerardMcHardy\SynologyDrive\Projects\C0500-C0599\C0584 - Section 16 Block III Rangaunu Survey District\07 - Technical & Drawings\Drawings\C0584-SS.dwgC0584-SS.dwg

PLOTTED: 09/04/2025

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APPENDIX B

Engineering Borehole Records

INVESTIGATION LOG

HOLE NO.: HA01

CLIENT: RIF Urlich Family Trust & Kurlich Family Trust

PROJECT: Section 16 Block III Rangaunu Survey District

JOB NO.: C0584

SITE LOCATION: Tokerau Beach Road, Karikari Peninsula

START DATE: 15/01/2025

CO-ORDINATES: 1633812mE, 6139845mN

ELEVATION: Ground

END DATE: 15/01/2025

CONTRACTOR: Internal

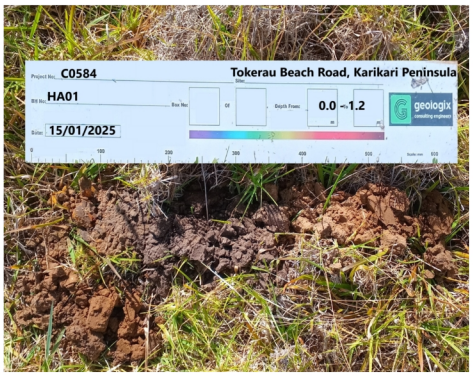
RIG: 50 mm Auger

DRILLER: GB/TW

LOGGED BY: GB

MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa)	WATER
TOPSOIL with trace rootlets; dark brown. Dry; friable.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	Groundwater Not Encountered
SAND, with minor silt; greyish dark brown. Moist; sand, fine; Friable [Holocene Dune Deposits of Karioitahi Group]. 0.1m - 0.2m: Becoming dark brown with some orange mottles.		0.2				
SAND, with minor silt; brown with light orange mottles. Moist; sand, fine; friable [Holocene Dune Deposits of Karioitahi Group]. 0.8m - 1.2m: Becoming moist to wet.		0.4				
End Of Hole: 1.20m		0.6				
		0.8				
		1.0				
		1.2				
		1.4				
		1.6				
		1.8				
		2.0				
		2.2				
		2.4				
		2.6				
		2.8				
		3.0				
		3.2				
		3.4				
		3.6				
		3.8				
		4.0				
		4.2				
		4.4				
		4.6				
		4.8				

PHOTO(S)



REMARKS

1. Hand auger drilled to target depth of 1.2 m bgl.
2. Groundwater not encountered at the time of drilling.
3. Soil was logged in accordance with New Zealand Geotechnical Society (NZGS) guidelines.

WATER

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

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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APPENDIX C

Assessment of Environmental Effects and Assessment Criteria

Table 9: Wastewater Assessment of Environmental Effects

Item	NRC Separation Requirement[2]	FNDC Separation Requirement	Site Assessment[3]
Individual System Effects			
Flood Plains	Above 5 % AEP	NR	Complies according to available GIS data and visual assessment.
Stormwater Flowpath[4]	5 m	NR	Complies, see annotations on Drawing No. 500.
Surface water feature[5]	15 m	15 m (3x feature area in ha)	Complies.
Coastal Marine Area	15 m	30 m	Complies, CMA is approximately 300m to the east.
Existing water supply bore.	20 m	NR	Complies. None recorded within or within 20 m of the site boundaries.
Property boundary	1.5 m	1.5	Complies. Including proposed subdivision boundaries.
Winter groundwater table	0.6 m	0.6 m	Complies.
Topography			Ok – chosen disposal areas are gently sloping to < 15 °.
Cut off drain required?			Yes.
Discharge Consent Required?			No.
	TP58	**NZS1547**	
Cumulative Effects			
Biological Oxygen Demand	≤20 g/m^3		Complies – secondary treatment.
Total Suspended Solids	≤30 g/m^3		Complies – secondary treatment.
Total Nitrogen	10 – 30 g/m^3	15 – 75 g/m^3	Complies – secondary treatment.
Phosphorous	NR	4 – 10 g/m^3	Complies – secondary treatment.
Ammonia	NR	Negligible	Complies – secondary treatment.
Nitrites/ Nitrates	NR	15 – 45 g/m^3	Complies – secondary treatment.
Conclusion: Effects are less than minor on the environment.			

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

AEP Annual Exceedance Probability.
NR No Requirement.

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APPENDIX D

Stormwater Calculations

Project Ref:	C0584		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Tokerau Beach Road			
Design Case:	Concept Future Development		**50 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT**	
Date:	18 February 2025	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 FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0	
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	450	0.44	PASTURE
TOTAL	**450**	TYPE B	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO TANK	300	0.96	ROOF
OFFSET	150	0.74	DRIVEWAY - METAL
PERVIOUS	0	0	
EX. CONSENTED	0	0	
TOTAL	**450**	TYPE B	

RAINFALL INTENSITY, 50% AEP, 10MIN DURATION

50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	59.3	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	71.16	mm/hr

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

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

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Q, l/s	COMMENTS
10	59.30	1.2	71.16	7.89	3.26	2.61	*Critical duration (time of concentration) for the catchments is 10min*
20	44.90	1.2	53.88	5.97	2.47	1.98	
30	37.40	1.2	44.88	4.97	2.06	1.65	
60	26.70	1.2	32.04	3.55	1.47	1.17	
120	18.30	1.2	21.96	2.43	1.01	0.81	*Pre-dev runoff is calculated on intensity with no CC factor.*
360	9.36	1.2	11.23	1.24	0.51	0.41	
720	5.84	1.2	7.01	0.78	0.32	0.26	
1440	3.51	1.2	4.21	0.47	0.19	0.15	
2880	2.03	1.2	2.44	0.27	0.11	0.09	
4320	1.45	1.2	1.74	0.19	0.08	0.06	

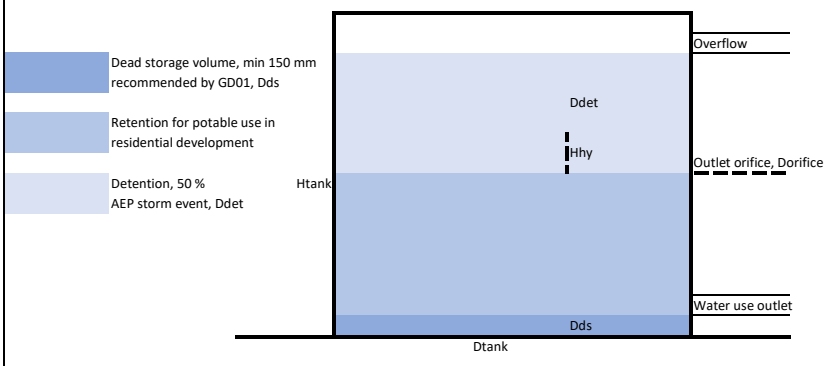
ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	2.19	5.69	0.42	0.42	5.28	3167	*select largest required storage , regardless of duration, to avoid overflow*
20	1.66	4.31	0.31	0.42	3.90	4674	
30	1.38	3.59	0.26	0.42	3.18	5716	
60	0.99	2.56	0.19	0.42	2.15	7733	
120	0.68	1.76	0.13	0.42	1.34	9660	
360	0.35	0.90	0.07	0.42	0.48	10443	
720	0.22	0.56	0.04	0.42	0.15	6287	
1440	0.13	0.34	0.02	0.42	No Att. Req.	0	
2880	0.08	0.19	0.01	0.42	No Att. Req.	0	
4320	0.05	0.14	0.01	0.42	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 for 25,000 litre tank



SPECIFICATION

TOTAL STORAGE REQUIRED	10.443	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	2.6	m	Concept sizing for 25,000 litre tank
TANK DIAMETER, Dtank	3.5	m	No. of Tanks 2
TANK AREA, Atank	19.24	m2	Area of two tanks hydraulically linked
TANK MAX STORAGE VOLUME, Vtank	50030	litres	
REQUIRED STORAGE HEIGHT, Ddet	0.54	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.69	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00042	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.27	m	
AREA OF ORIFICE, Aorifice	2.90E-04	m2	
ORIFICE DIAMETER, Dorifice	19	mm	
VELOCITY AT ORIFICE	3.26	m/s	At max. head level

Project Ref:	C0584		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Tokerau Beach Road			
Design Case:	Concept Future Development		**20 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT**	
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EX. PERVIOUS	450	0.44	PASTURE
TOTAL	**450**	TYPE B	

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ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO TANK	300	0.96	ROOF
OFFSET	150	0.74	DRIVEWAY - METAL
PERVIOUS	0	0	
EX. CONSENTED	0	0	
TOTAL	**450**	TYPE B	

RAINFALL INTENSITY, 20% AEP, 10MIN DURATION

20 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	77.0	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
20 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	92.4	mm/hr

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

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

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Q, l/s	COMMENTS
10	77.00	1.2	92.40	10.24	4.24	3.39	*Critical duration (time of concentration) for the catchments is 10min*
20	58.30	1.2	69.96	7.75	3.21	2.57	
30	48.70	1.2	58.44	6.48	2.68	2.14	
60	34.70	1.2	41.64	4.62	1.91	1.53	
120	23.90	1.2	28.68	3.18	1.31	1.05	*Pre-dev runoff is calculated on intensity with no CC factor.*
360	12.20	1.2	14.64	1.62	0.67	0.54	
720	7.64	1.2	9.17	1.02	0.42	0.34	
1440	4.60	1.2	5.52	0.61	0.25	0.20	
2880	2.66	1.2	3.19	0.35	0.15	0.12	
4320	1.90	1.2	2.28	0.25	0.10	0.08	

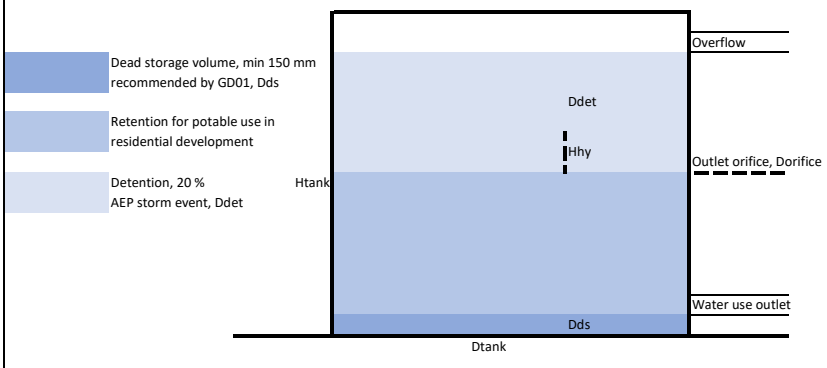
ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	2.85	7.39	0.54	0.54	6.85	4112	*select largest required storage , regardless of duration, to avoid overflow*
20	2.16	5.60	0.41	0.54	5.06	6069	
30	1.80	4.68	0.34	0.54	4.14	7445	
60	1.28	3.33	0.24	0.54	2.79	10052	
120	0.88	2.29	0.17	0.54	1.76	12639	
360	0.45	1.17	0.09	0.54	0.63	13656	
720	0.28	0.73	0.05	0.54	0.19	8400	
1440	0.17	0.44	0.03	0.54	No Att. Req.	0	
2880	0.10	0.26	0.02	0.54	No Att. Req.	0	
4320	0.07	0.18	0.01	0.54	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 for 25,000 litre tank



SPECIFICATION

TOTAL STORAGE REQUIRED	13.656	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	2.6	m	Concept sizing for 25,000 litre tank
TANK DIAMETER, Dtank	3.5	m	No. of Tanks 2
TANK AREA, Atank	19.24	m2	Area of two tanks hydraulically linked
TANK MAX STORAGE VOLUME, Vtank	50030	litres	
REQUIRED STORAGE HEIGHT, Ddet	0.71	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.86	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00054	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.35	m	
AREA OF ORIFICE, Aorifice	3.29E-04	m2	
ORIFICE DIAMETER, Dorifice	20	mm	
VELOCITY AT ORIFICE	3.73	m/s	At max. head level

Project Ref:	C0584		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Tokerau Beach Road			
Design Case:	Concept Future Development		**10 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT**	
Date:	18 February 2025	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 FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0	
IMPERVIOUS B	0	0	
IMPERVIOUS C	0	0	
EX. PERVIOUS	450	0.44	PASTURE
TOTAL	**450**	TYPE B	

POST DEVELOPMENT CATCHMENT PARAMETERS

ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
TO TANK	300	0.96	ROOF
OFFSET	150	0.74	DRIVEWAY - METAL
PERVIOUS	0	0	
EX. CONSENTED	0	0	
TOTAL	**450**	TYPE B	

RAINFALL INTENSITY, 10% AEP, 10MIN DURATION

10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	90.1	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	108.1	mm/hr

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

PRE AND POST-DEVELOPMENT RUNOFF, 10%AEP WITH CC, VARIOUS DURATIONS

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s		COMMENTS
10	90.10	1.2	108.12	11.98	4.96		*Critical duration (time of concentration) for the catchments is 10min*
20	68.30	1.2	81.96	9.08	3.76		
30	57.00	1.2	68.40	7.58	3.14		
60	40.70	1.2	48.84	5.41	2.24		
120	28.00	1.2	33.60	3.72	1.54		*Pre-dev runoff is calculated on intensity with no CC factor.*
360	14.40	1.2	17.28	1.92	0.79		
720	8.99	1.2	10.79	1.20	0.49		
1440	5.41	1.2	6.49	0.72	0.30		
2880	3.14	1.2	3.77	0.42	0.17		
4320	2.25	1.2	2.70	0.30	0.12		

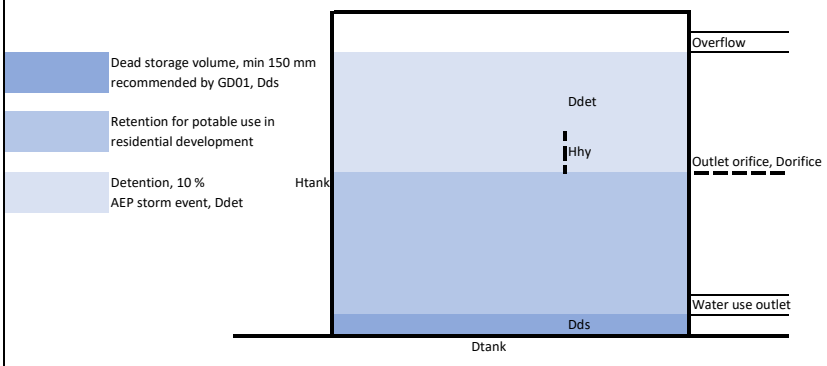
ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	3.33	8.65	1.62	1.62	7.03	4217	*select largest required storage , regardless of duration, to avoid overflow*
20	2.53	6.56	1.23	1.62	4.94	5922	
30	2.11	5.47	1.03	1.62	3.85	6930	
60	1.51	3.91	0.73	1.62	2.29	8227	
120	1.04	2.69	0.50	1.62	1.07	7677	
360	0.53	1.38	0.26	1.62	No Att. Req.	0	
720	0.33	0.86	0.16	1.62	No Att. Req.	0	
1440	0.20	0.52	0.10	1.62	No Att. Req.	0	
2880	0.12	0.30	0.06	1.62	No Att. Req.	0	
4320	0.08	0.22	0.04	1.62	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 for 25,000 litre tank



SPECIFICATION

TOTAL STORAGE REQUIRED	8.227	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	2.6	m	Concept sizing for 25,000 litre tank
TANK DIAMETER, Dtank	3.5	m	No. of Tanks 2
TANK AREA, Atank	19.24	m2	Area of two tanks hydraulically linked
TANK MAX STORAGE VOLUME, Vtank	50030	litres	
REQUIRED STORAGE HEIGHT, Ddet	0.43	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.58	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00162	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.21	m	
AREA OF ORIFICE, Aorifice	1.28E-03	m2	
ORIFICE DIAMETER, Dorifice	40	mm	
VELOCITY AT ORIFICE	2.90	m/s	At max. head level

Project Ref:	C0584		**STORMWATER ATTENUATION TANK DESIGN**	geologix consulting engineers
Project Address:	Tokerau Beach Road			
Design Case:	Concept Future Development		**1 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT**	
Date:	18 February 2025	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 FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

PRE DEVELOPMENT CATCHMENT PARAMETERS				**POST DEVELOPMENT CATCHMENT PARAMETERS**			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0		TO TANK	300	0.96	ROOF
IMPERVIOUS B	0	0		OFFSET	150	0.74	DRIVEWAY - METAL
IMPERVIOUS C	0	0		PERVIOUS	0	0	
EX. PERVIOUS	450	0.44	PASTURE	EX. CONSENTED	0	0	
TOTAL	**450**	TYPE B		**TOTAL**	**450**	TYPE B	

RAINFALL INTENSITY, 1% AEP, 10MIN DURATION

1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	137.0	mm/hr
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	164.4	mm/hr

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

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

DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Q, l/s	COMMENTS
10	137.00	1.2	164.40	18.22	7.54	6.03	*Critical duration (time of concentration) for the catchments is 10min*
20	104.00	1.2	124.80	13.83	5.72	4.58	
30	87.00	1.2	104.40	11.57	4.79	3.83	
60	62.30	1.2	74.76	8.29	3.43	2.74	
120	43.00	1.2	51.60	5.72	2.37	1.89	*Pre-dev runoff is calculated on intensity with no CC factor.*
360	22.10	1.2	26.52	2.94	1.22	0.97	
720	13.90	1.2	16.68	1.85	0.76	0.61	
1440	8.38	1.2	10.06	1.11	0.46	0.37	
2880	4.88	1.2	5.86	0.65	0.27	0.21	
4320	3.49	1.2	4.19	0.46	0.19	0.15	

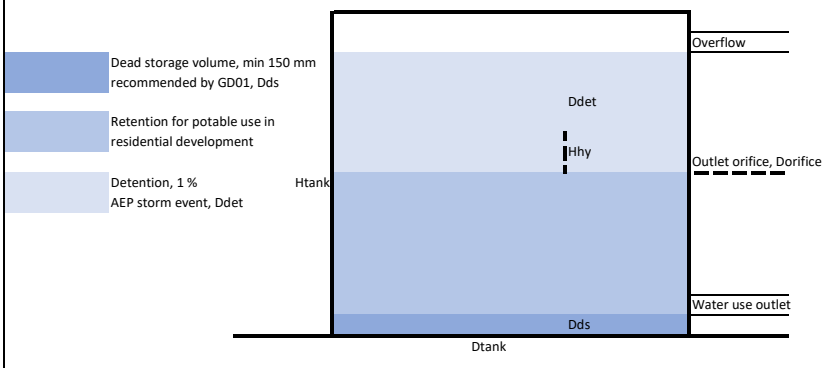
ATTENUATION ANALYSIS, VARIOUS DURATIONS

DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW , Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	
10	5.07	13.15	0.96	0.96	12.19	7316	*select largest required storage , regardless of duration, to avoid overflow*
20	3.85	9.98	0.73	0.96	9.03	10830	
30	3.22	8.35	0.61	0.96	7.39	13307	
60	2.31	5.98	0.44	0.96	5.02	18078	
120	1.59	4.13	0.30	0.96	3.17	22817	
360	0.82	2.12	0.15	0.96	1.16	25112	
720	0.51	1.33	0.10	0.96	0.38	16217	
1440	0.31	0.80	0.06	0.96	No Att. Req.	0	
2880	0.18	0.47	0.03	0.96	No Att. Req.	0	
4320	0.13	0.34	0.02	0.96	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 for 25,000 litre tank



1.31

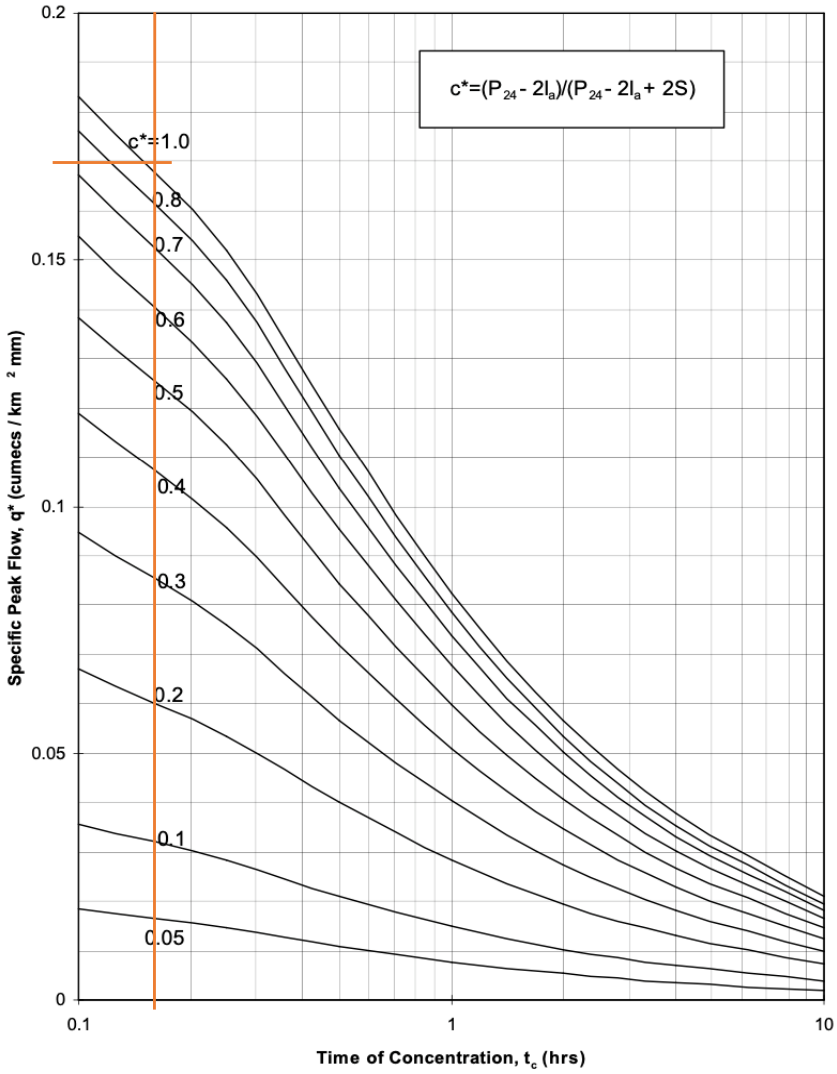
TOTAL STORAGE REQUIRED	25.112	m3	Select largest storage as per analysis
TANK HEIGHT, Htank	2.6	m	Concept sizing for 25,000 litre tank
TANK DIAMETER, Dtank	3.5	m	No. of Tanks 2
TANK AREA, Atank	19.24	m2	Area of two tanks hydraulically linked
TANK MAX STORAGE VOLUME, Vtank	50030	litres	
REQUIRED STORAGE HEIGHT, Ddet	1.31	m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15	m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	1.46	m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00096	m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.65	m	
AREA OF ORIFICE, Aorifice	4.32E-04	m2	
ORIFICE DIAMETER, Dorifice	23	mm	
VELOCITY AT ORIFICE	5.06	m/s	At max. head level

Project Ref:	C0584		STORMWATER DISPERSION PIPE/ TRENCH	geologix consulting engineers
Project Address:	Tokerau Beach Road			
Design Case:	Concept Future Development		WEIGHTED RUNOFF	
Date:	18 February 2025	REV 1		

TP108 Worksheet 1 - Runoff curve number & Initial Abstraction

Soil Class	Cover description	Curve Number, CN	Area	Product of CN * Area
TYPE B	TO TANK	98	300	29400
TYPE B	OFFSET	89	150	13350
TYPE B	PERVIOUS	80	0	0
TYPE B	EX. CONSENTED	98	0	0
		Total	**450**	**42750**
		Total Pervious	0	m2
		Total Impervious	450	m2
		Weighted Runoff, CN	**95**	
		Weighted Initial Abstraction, Ia	**0.0**	mm

TP108, FIGURE 5.1



Project Ref:	C0584	**STORMWATER DISPERSION PIPE/ TRENCH**	geologix consulting engineers
Project Address:	Tokerau Beach Road		
Design Case:	Concept Future Development	**DISCHARGE DEVICE - LEVEL SPREADER OR TRENCH**	
Date:	18 February 2025 REV 1		

DESIGN BASED ON REFERENCED DEVELOPMENT PLANS TO PROVIDE A MINIMUM LENGTH OF ABOVE OR BELOW GROUND STORMWATER TANK OVERFLOW DISCHARGE DISPERSION DEVICE. IN GENERAL ACCORDANCE WITH 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%	201	mm
CLIMATE CHANGE FACTOR	PER FNDC	1%	20	%
RAINFALL DEPTH WITH CC, P24			241.2	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)	95		See summary table.
INITIAL ABSTRACTION, Ia	0.00	mm	As TP108, adopt 0 mm impervious, 5 mm pervious, value adopted is weighted
MITIGATION AREA, Am	450	m2	Impervious areas within this design
SOIL STORAGE, S	13.4	mm	
RUNOFF INDEX, C*	0.90	mm	
TIME OF CONCENTRATION, tc	0.167	hrs	
SPECIFIC PEAK FLOWRATE, q*	0.166		TP108, Figure 5.1, see next page.
PEAK FLOWRATE, qp	18.02	l/s	
RUNOFF DEPTH, Q24	228.5	mm	
RUNOFF VOLUME, V24	102840	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	5.06	m/s
NUMBER OF ORIFICES	46	No.
ORIFICE INTERVALS, C/C	200	mm
DISPERSION PIPE LENGTH	9	m

HIRDS V4 Intensity-Duration-Frequency Results
Sitename: Custom Location
Coordinate system: WGS84
Longitude: 173.3705
Latitude: -34.8841

DDF Model Parameters:	c	d	e	f	g	h	i
Values:	0.001634	0.48403	-0.03867	0	0.25188	-0.01038	3.193108

Example:	Duration (h)	ARI (yrs)	x	y	Rainfall Rate (mm/hr)
	24	100	3.178054	4.600149	8.378402

Rainfall intensities (mm/hr) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	54.2	41	34.2	24.4	16.7	8.53	5.32	3.2	1.85	1.32	1.03	0.849
2	0.5	59.3	44.9	37.4	26.7	18.3	9.36	5.84	3.51	2.03	1.45	1.13	0.933
5	0.2	77	58.3	48.7	34.7	23.9	12.2	7.64	4.6	2.66	1.9	1.49	1.22
10	0.1	90.1	68.3	57	40.7	28	14.4	8.99	5.41	3.14	2.25	1.76	1.45
20	0.05	104	78.6	65.7	47	32.4	16.6	10.4	6.26	3.64	2.6	2.04	1.68
30	0.033	112	84.8	70.9	50.7	35	18	11.2	6.78	3.94	2.82	2.21	1.82
40	0.025	118	89.3	74.7	53.5	36.8	18.9	11.9	7.15	4.16	2.98	2.33	1.92
50	0.02	122	92.9	77.7	55.6	38.3	19.7	12.3	7.45	4.33	3.1	2.43	2
60	0.017	126	95.8	80.1	57.3	39.5	20.3	12.7	7.69	4.47	3.2	2.51	2.06
80	0.013	132	100	84	60.1	41.5	21.3	13.4	8.08	4.7	3.36	2.63	2.17
100	0.01	137	104	87	62.3	43	22.1	13.9	8.38	4.88	3.49	2.73	2.25
250	0.004	156	119	99.5	71.3	49.3	25.4	15.9	9.63	5.61	4.02	3.15	2.6

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	6.9	4.5	3.3	2.4	1.7	1	0.71	0.57	0.33	0.26	0.21	0.17
2	0.5	7.5	4.9	3.6	2.6	1.8	1.1	0.79	0.63	0.37	0.29	0.23	0.19
5	0.2	11	6.9	5.4	3.7	2.6	1.5	1.1	0.84	0.5	0.38	0.31	0.26
10	0.1	14	9.2	7.3	4.8	3.4	1.9	1.3	1	0.6	0.46	0.37	0.31
20	0.05	17	12	10	6.2	4.4	2.4	1.7	1.2	0.71	0.54	0.44	0.37
30	0.033	20	14	12	7.3	5.2	2.8	2	1.3	0.79	0.6	0.49	0.4
40	0.025	23	16	13	8.2	5.8	3.2	2.2	1.4	0.84	0.64	0.52	0.43
50	0.02	25	18	15	8.9	6.3	3.4	2.4	1.5	0.89	0.67	0.55	0.45
60	0.017	26	19	16	9.6	6.8	3.7	2.5	1.5	0.92	0.7	0.57	0.47
80	0.013	29	22	18	11	7.6	4.1	2.8	1.7	0.99	0.75	0.61	0.5
100	0.01	32	24	20	12	8.2	4.5	3.1	1.7	1	0.79	0.64	0.53
250	0.004	45	33	28	17	12	6.4	4.3	2.2	1.3	0.98	0.79	0.65

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	58	43.8	36.6	26.1	17.8	9.01	5.57	3.33	1.91	1.36	1.06	0.871
2	0.5	63.6	48.1	40.1	28.6	19.6	9.9	6.13	3.66	2.11	1.5	1.17	0.959
5	0.2	82.8	62.7	52.3	37.4	25.6	13	8.05	4.81	2.77	1.97	1.54	1.26
10	0.1	97.1	73.5	61.5	43.9	30.1	15.3	9.49	5.67	3.27	2.33	1.82	1.49
20	0.05	112	84.8	70.9	50.7	34.8	17.7	11	6.57	3.79	2.7	2.11	1.73
30	0.033	121	91.5	76.6	54.7	37.6	19.1	11.9	7.11	4.11	2.93	2.29	1.88
40	0.025	127	96.4	80.6	57.7	39.6	20.2	12.5	7.51	4.34	3.1	2.42	1.99
50	0.02	132	100	83.9	60	41.3	21	13.1	7.82	4.52	3.22	2.52	2.07
60	0.017	136	103	86.5	61.9	42.6	21.7	13.5	8.08	4.67	3.33	2.6	2.14
80	0.013	143	108	90.7	65	44.7	22.8	14.2	8.48	4.91	3.5	2.73	2.25
100	0.01	148	112	94	67.3	46.3	23.6	14.7	8.8	5.09	3.63	2.84	2.33
250	0.004	169	128	107	77	53.1	27.1	16.9	10.1	5.86	4.19	3.27	2.69

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	58	43.8	36.6	26.1	17.8	9.01	5.57	3.33	1.91	1.36	1.06	0.871
2	0.5	63.6	48.1	40.1	28.6	19.6	9.9	6.13	3.66	2.11	1.5	1.17	0.959
5	0.2	82.8	62.7	52.3	37.4	25.6	13	8.05	4.81	2.77	1.97	1.54	1.26
10	0.1	97.1	73.5	61.5	43.9	30.1	15.3	9.49	5.67	3.27	2.33	1.82	1.49
20	0.05	112	84.8	70.9	50.7	34.8	17.7	11	6.57	3.79	2.7	2.11	1.73
30	0.033	121	91.5	76.6	54.7	37.6	19.1	11.9	7.11	4.11	2.93	2.29	1.88
40	0.025	127	96.4	80.6	57.7	39.6	20.2	12.5	7.51	4.34	3.1	2.42	1.99
50	0.02	132	100	83.9	60	41.3	21	13.1	7.82	4.52	3.22	2.52	2.07
60	0.017	136	103	86.5	61.9	42.6	21.7	13.5	8.08	4.67	3.33	2.6	2.14
80	0.013	143	108	90.7	65	44.7	22.8	14.2	8.48	4.91	3.5	2.73	2.25
100	0.01	148	112	94	67.3	46.3	23.6	14.7	8.8	5.09	3.63	2.84	2.33
250	0.004	169	128	107	77	53.1	27.1	16.9	10.1	5.86	4.19	3.27	2.69

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	59	44.6	37.2	26.5	18.1	9.13	5.64	3.36	1.93	1.37	1.07	0.877
2	0.5	64.7	48.9	40.8	29.1	19.9	10	6.21	3.7	2.12	1.51	1.18	0.966
5	0.2	84.3	63.8	53.3	38	26.1	13.2	8.15	4.86	2.8	1.99	1.55	1.27
10	0.1	98.9	74.9	62.6	44.7	30.7	15.5	9.62	5.74	3.3	2.35	1.83	1.51
20	0.05	114	86.3	72.2	51.6	35.4	18	11.1	6.64	3.83	2.73	2.13	1.75
30	0.033	123	93.2	78	55.8	38.3	19.4	12.1	7.2	4.15	2.96	2.31	1.9
40	0.025	129	98.2	82.1	58.8	40.4	20.5	12.7	7.6	4.38	3.13	2.44	2
50	0.02	135	102	85.4	61.1	42	21.3	13.2	7.91	4.57	3.26	2.54	2.09
60	0.017	139	105	88.1	63.1	43.3	22	13.7	8.17	4.72	3.37	2.62	2.16
80	0.013	145	110	92.4	66.2	45.5	23.1	14.4	8.58	4.96	3.54	2.76	2.27
100	0.01	151	114	95.8	68.6	47.2	24	14.9	8.91	5.15	3.67	2.87	2.35
250	0.004	172	131	109	78.5	54	27.6	17.1	10.2	5.92	4.23	3.3	2.71

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	62	46.9	39.1	27.9	19	9.5	5.84	3.47	1.98	1.4	1.09	0.895
2	0.5	68.1	51.5	43	30.6	20.9	10.5	6.44	3.82	2.18	1.55	1.2	0.987
5	0.2	88.9	67.3	56.2	40.1	27.4	13.8	8.48	5.03	2.88	2.05	1.59	1.3
10	0.1	104	79.1	66.1	47.2	32.3	16.3	10	5.94	3.41	2.42	1.88	1.55
20	0.05	120	91.3	76.3	54.5	37.4	18.8	11.6	6.89	3.96	2.81	2.19	1.79
30	0.033	130	98.6	82.4	59	40.4	20.4	12.6	7.46	4.29	3.05	2.37	1.95
40	0.025	137	104	86.8	62.1	42.6	21.5	13.3	7.88	4.53	3.22	2.51	2.06
50	0.02	142	108	90.4	64.7	44.4	22.4	13.8	8.2	4.72	3.35	2.61	2.14
60	0.017	147	111	93.2	66.7	45.8	23.1	14.3	8.48	4.87	3.47	2.7	2.21
80	0.013	154	117	97.8	70	48.1	24.3	15	8.91	5.12	3.65	2.84	2.33
100	0.01	159	121	101	72.6	49.8	25.2	15.6	9.25	5.32	3.78	2.95	2.42
250	0.004	182	138	116	83	57.1	28.9	17.9	10.6	6.12	4.36	3.4	2.79

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	58.6	44.3	36.9	26.3	18	9.08	5.61	3.35	1.92	1.37	1.07	0.875
2	0.5	64.3	48.6	40.5	28.9	19.8	9.98	6.18	3.68	2.12	1.51	1.17	0.963
5	0.2	83.7	63.3	52.9	37.8	25.9	13.1	8.11	4.84	2.79	1.98	1.55	1.27
10	0.1	98.1	74.4	62.1	44.4	30.4	15.4	9.57	5.71	3.29	2.35	1.83	1.5
20	0.05	113	85.7	71.7	51.2	35.2	17.9	11.1	6.61	3.82	2.72	2.12	1.74
30	0.033	122	92.6	77.4	55.4	38	19.3	12	7.16	4.14	2.95	2.3	1.89
40	0.025	128	97.5	81.5	58.3	40.1	20.4	12.7	7.56	4.36	3.11	2.43	2
50	0.02	134	101	84.8	60.7	41.7	21.2	13.2	7.87	4.55	3.24	2.53	2.08
60	0.017	138	105	87.5	62.6	43	21.9	13.6	8.13	4.7	3.35	2.62	2.15
80	0.013	144	110	91.7	65.7	45.2	23	14.3	8.54	4.94	3.52	2.75	2.26
100	0.01	150	114	95	68.1	46.8	23.9	14.8	8.87	5.12	3.66	2.85	2.34
250	0.004	171	130	109	77.9	53.6	27.4	17	10.2	5.9	4.21	3.29	2.7

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	64.7	48.9	40.8	29.1	19.8	9.84	6.01	3.56	2.03	1.43	1.11	0.911
2	0.5	71.1	53.8	44.9	32	21.8	10.9	6.65	3.92	2.24	1.58	1.23	1.01
5	0.2	93	70.4	58.8	42	28.7	14.3	8.78	5.18	2.96	2.1	1.63	1.33
10	0.1	109	82.8	69.2	49.4	33.8	16.9	10.4	6.13	3.5	2.48	1.93	1.58
20	0.05	126	95.7	80	57.2	39.1	19.6	12	7.1	4.07	2.88	2.24	1.83
30	0.033	136	103	86.4	61.8	42.3	21.2	13	7.7	4.41	3.13	2.43	1.99
40	0.025	143	109	91	65.1	44.6	22.4	13.8	8.13	4.65	3.31	2.57	2.11
50	0.02	149	113	94.8	67.8	46.4	23.3	14.3	8.47	4.85	3.44	2.68	2.19
60	0.017	154	117	97.7	70	47.9	24.1	14.8	8.75	5.01	3.56	2.77	2.27
80	0.013	161	123	103	73.5	50.3	25.3	15.6	9.19	5.27	3.74	2.91	2.38
100	0.01	167	127	106	76.1	52.2	26.3	16.2	9.55	5.47	3.88	3.02	2.48
250	0.004	191	145	122	87.1	59.8	30.2	18.6	11	6.3	4.47	3.48	2.85

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	59.7	45.1	37.6	26.8	18.3	9.21	5.68	3.39	1.94	1.38	1.07	0.881
2	0.5	65.5	49.5	41.3	29.5	20.1	10.1	6.26	3.72	2.14	1.52	1.18	0.971
5	0.2	85.4	64.6	54	38.5	26.4	13.3	8.23	4.9	2.82	2	1.56	1.28
10	0.1	100	75.9	63.4	45.3	31	15.7	9.71	5.79	3.33	2.37	1.85	1.52
20	0.05	115	87.5	73.1	52.3	35.9	18.2	11.2	6.7	3.86	2.75	2.14	1.76
30	0.033	125	94.5	79	56.5	38.8	19.7	12.2	7.26	4.18	2.98	2.32	1.91
40	0.025	131	99.5	83.2	59.5	40.9	20.8	12.9	7.66	4.42	3.15	2.45	2.02
50	0.02	136	104	86.6	62	42.6	21.6	13.4	7.98	4.6	3.28	2.56	2.1
60	0.017	141	107	89.3	63.9	43.9	22.3	13.8	8.24	4.75	3.39	2.64	2.17
80	0.013	147	112	93.7	67.1	46.1	23.4	14.5	8.66	5	3.56	2.78	2.28
100	0.01	153	116	97.1	69.5	47.8	24.3	15.1	8.99	5.19	3.7	2.89	2.37
250	0.004	174	133	111	79.6	54.7	27.9	17.3	10.3	5.97	4.26	3.32	2.73

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	70.9	53.5	44.7	31.8	21.5	10.6	6.42	3.77	2.13	1.5	1.16	0.947
2	0.5	78	59	49.2	35.1	23.9	11.7	7.12	4.16	2.35	1.66	1.28	1.05
5	0.2	102	77.5	64.7	46.2	31.5	15.5	9.45	5.52	3.13	2.21	1.71	1.4
10	0.1	121	91.3	76.3	54.5	37.2	18.4	11.2	6.54	3.71	2.62	2.03	1.66
20	0.05	139	106	88.3	63.1	43	21.4	13	7.59	4.31	3.05	2.36	1.93
30	0.033	151	114	95.5	68.3	46.6	23.1	14.1	8.23	4.68	3.31	2.56	2.09
40	0.025	158	120	101	71.9	49.1	24.5	14.9	8.7	4.94	3.5	2.71	2.21
50	0.02	165	125	105	74.9	51.2	25.4	15.5	9.06	5.16	3.64	2.83	2.31
60	0.017	170	129	108	77.3	52.8	26.3	16	9.38	5.33	3.77	2.92	2.38
80	0.013	179	136	113	81.2	55.5	27.6	16.8	9.85	5.61	3.96	3.07	2.51
100	0.01	185	140	118	84.2	57.5	28.7	17.5	10.2	5.82	4.11	3.19	2.61
250	0.004	211	160	134	96.3	65.9	32.9	20.1	11.8	6.7	4.74	3.68	3

HIRDS V4 Depth-Duration-Frequency Results
Sitename: Custom Location
Coordinate system: WGS84
Longitude: 173.3705
Latitude: -34.8841

DDF Model Parameters:	c	d	e	f	g	h	i
Values:	0.001634	0.48403	-0.03867	0	0.25188	-0.01038	3.193108

Example:	Duration (h	ARI (yrs)	x	y	Rainfall Depth (mm)
	24	100	3.178054	4.600149	201.0816

Rainfall depths (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	9.04	13.7	17.1	24.4	33.4	51.2	63.9	76.7	88.8	95.1	99.1	102
2	0.5	9.89	15	18.7	26.7	36.6	56.2	70.1	84.2	97.6	105	109	112
5	0.2	12.8	19.4	24.3	34.7	47.8	73.3	91.6	110	128	137	143	147
10	0.1	15	22.8	28.5	40.7	56.1	86.2	108	130	151	162	169	173
20	0.05	17.3	26.2	32.9	47	64.7	99.6	125	150	175	187	195	201
30	0.033	18.6	28.3	35.5	50.7	69.9	108	135	163	189	203	212	218
40	0.025	19.6	29.8	37.4	53.5	73.7	114	142	172	200	214	224	230
50	0.02	20.4	31	38.8	55.6	76.6	118	148	179	208	223	233	240
60	0.017	21	31.9	40.1	57.3	79.1	122	153	185	215	231	241	248
80	0.013	22	33.5	42	60.1	83	128	160	194	226	242	253	260
100	0.01	22.8	34.7	43.5	62.3	86	133	166	201	234	251	262	270
250	0.004	26	39.6	49.7	71.3	98.5	152	191	231	269	290	302	311

Depth standard error (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	1.1	1.5	1.7	2.4	3.4	5.8	8.2	13	16	19	20	20
2	0.5	1.2	1.6	1.8	2.5	3.7	6.4	9	15	18	21	23	22
5	0.2	1.7	2.3	2.6	3.5	5.3	8.7	12	20	24	29	31	30
10	0.1	2.1	3	3.5	4.7	6.8	11	15	24	29	34	37	36
20	0.05	2.7	4	4.7	6.2	9	14	19	28	34	40	43	42
30	0.033	3.1	4.7	5.6	7.4	11	17	22	31	38	44	48	47
40	0.025	3.5	5.3	6.3	8.3	12	19	24	33	40	47	51	50
50	0.02	3.8	5.8	6.9	9.1	13	20	26	35	42	50	54	52
60	0.017	4	6.2	7.4	9.9	14	22	28	36	44	52	56	55
80	0.013	4.5	7	8.4	11	16	24	31	39	47	56	60	58
100	0.01	4.9	7.6	9.2	12	17	27	34	41	50	59	63	61
250	0.004	6.8	11	13	18	25	38	47	52	62	72	77	76

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	9.67	14.6	18.3	26.1	35.6	54	66.9	79.9	91.9	98	102	105
2	0.5	10.6	16	20.1	28.6	39.2	59.4	73.6	87.8	101	108	112	115
5	0.2	13.8	20.9	26.2	37.4	51.2	77.9	96.6	115	133	142	148	152
10	0.1	16.2	24.5	30.7	43.9	60.3	91.7	114	136	157	168	175	179
20	0.05	18.6	28.3	35.4	50.7	69.6	106	132	158	182	195	203	208
30	0.033	20.1	30.5	38.3	54.7	75.2	115	143	171	197	211	220	226
40	0.025	21.2	32.1	40.3	57.7	79.3	121	151	180	208	223	232	238
50	0.02	22	33.4	41.9	60	82.5	126	157	188	217	232	242	248
60	0.017	22.7	34.5	43.2	61.9	85.1	130	162	194	224	240	250	256
80	0.013	23.8	36.1	45.4	65	89.4	137	170	204	236	252	262	270
100	0.01	24.6	37.4	47	67.3	92.6	142	176	211	244	262	273	280
250	0.004	28.1	42.8	53.7	77	106	163	203	243	281	301	314	323

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	9.67	14.6	18.3	26.1	35.6	54	66.9	79.9	91.9	98	102	105
2	0.5	10.6	16	20.1	28.6	39.2	59.4	73.6	87.8	101	108	112	115
5	0.2	13.8	20.9	26.2	37.4	51.2	77.9	96.6	115	133	142	148	152
10	0.1	16.2	24.5	30.7	43.9	60.3	91.7	114	136	157	168	175	179
20	0.05	18.6	28.3	35.4	50.7	69.6	106	132	158	182	195	203	208
30	0.033	20.1	30.5	38.3	54.7	75.2	115	143	171	197	211	220	226
40	0.025	21.2	32.1	40.3	57.7	79.3	121	151	180	208	223	232	238
50	0.02	22	33.4	41.9	60	82.5	126	157	188	217	232	242	248
60	0.017	22.7	34.5	43.2	61.9	85.1	130	162	194	224	240	250	256
80	0.013	23.8	36.1	45.4	65	89.4	137	170	204	236	252	262	270
100	0.01	24.6	37.4	47	67.3	92.6	142	176	211	244	262	273	280
250	0.004	28.1	42.8	53.7	77	106	163	203	243	281	301	314	323

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	9.83	14.9	18.6	26.5	36.2	54.8	67.6	80.7	92.7	98.7	103	105
2	0.5	10.8	16.3	20.4	29.1	39.8	60.2	74.5	88.7	102	109	113	116
5	0.2	14	21.3	26.6	38	52.1	79	97.9	117	134	143	149	153
10	0.1	16.5	25	31.3	44.7	61.3	93.1	115	138	159	170	176	181
20	0.05	19	28.8	36.1	51.6	70.8	108	134	159	184	197	204	210
30	0.033	20.5	31.1	39	55.8	76.6	117	145	173	199	213	222	227
40	0.025	21.6	32.7	41.1	58.8	80.7	123	153	182	210	225	234	240
50	0.02	22.4	34	42.7	61.1	84	128	159	190	219	234	244	250
60	0.017	23.1	35.1	44.1	63.1	86.7	132	164	196	226	242	252	259
80	0.013	24.2	36.8	46.2	66.2	91	139	172	206	238	255	265	272
100	0.01	25.1	38.1	47.9	68.6	94.3	144	179	214	247	264	275	282
250	0.004	28.7	43.6	54.7	78.5	108	165	206	246	284	304	317	326

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	10.3	15.6	19.6	27.9	38	57	70	83.2	95.1	101	105	107
2	0.5	11.4	17.2	21.5	30.6	41.8	62.8	77.3	91.6	105	111	116	118
5	0.2	14.8	22.4	28.1	40.1	54.9	82.7	102	121	138	147	153	157
10	0.1	17.4	26.4	33	47.2	64.6	97.5	120	143	164	174	181	185
20	0.05	20.1	30.4	38.1	54.5	74.7	113	139	165	190	202	210	215
30	0.033	21.7	32.9	41.2	59	80.8	122	151	179	206	219	228	233
40	0.025	22.8	34.6	43.4	62.1	85.2	129	159	189	217	232	241	247
50	0.02	23.7	36	45.2	64.7	88.7	134	166	197	226	242	251	257
60	0.017	24.5	37.1	46.6	66.7	91.5	139	171	204	234	250	259	266
80	0.013	25.7	39	48.9	70	96.1	146	180	214	246	262	272	279
100	0.01	26.6	40.4	50.7	72.6	99.6	151	187	222	255	272	283	290
250	0.004	30.3	46.1	57.9	83	114	174	215	255	294	314	326	334

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	9.77	14.8	18.5	26.3	36	54.5	67.3	80.4	92.3	98.4	102	105
2	0.5	10.7	16.2	20.3	28.9	39.6	59.9	74.1	88.4	102	108	113	116
5	0.2	13.9	21.1	26.4	37.8	51.8	78.6	97.4	116	134	143	148	152
10	0.1	16.4	24.8	31.1	44.4	60.9	92.6	115	137	158	169	176	180
20	0.05	18.8	28.6	35.8	51.2	70.3	107	133	159	183	196	204	209
30	0.033	20.3	30.9	38.7	55.4	76.1	116	144	172	199	212	221	227
40	0.025	21.4	32.5	40.8	58.3	80.2	122	152	181	210	224	233	240
50	0.02	22.3	33.8	42.4	60.7	83.4	127	158	189	218	233	243	249
60	0.017	23	34.8	43.7	62.6	86.1	131	163	195	225	241	251	258
80	0.013	24.1	36.5	45.9	65.7	90.3	138	171	205	237	254	264	271
100	0.01	24.9	37.9	47.5	68.1	93.6	143	178	213	246	263	274	281
250	0.004	28.4	43.3	54.3	77.9	107	164	204	245	283	303	316	324

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	10.8	16.3	20.4	29.1	39.5	59	72.2	85.5	97.2	103	107	109
2	0.5	11.9	17.9	22.4	32	43.6	65.1	79.8	94.1	107	114	118	121
5	0.2	15.5	23.5	29.4	42	57.3	85.9	105	124	142	151	156	160
10	0.1	18.2	27.6	34.6	49.4	67.6	101	125	147	168	179	185	190
20	0.05	21	31.9	40	57.2	78.2	118	144	170	195	208	215	220
30	0.033	22.7	34.5	43.2	61.8	84.6	127	156	185	212	225	234	239
40	0.025	23.9	36.3	45.5	65.1	89.2	135	165	195	223	238	247	253
50	0.02	24.9	37.8	47.4	67.8	92.9	140	172	203	233	248	257	263
60	0.017	25.6	38.9	48.9	70	95.8	145	178	210	241	256	266	272
80	0.013	26.9	40.9	51.3	73.5	101	152	187	221	253	269	279	286
100	0.01	27.9	42.3	53.1	76.1	104	158	194	229	263	280	290	297
250	0.004	31.8	48.4	60.8	87.1	120	181	223	264	302	322	335	342

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	9.95	15	18.8	26.8	36.6	55.3	68.2	81.3	93.2	99.3	103	106
2	0.5	10.9	16.5	20.7	29.5	40.3	60.8	75.1	89.4	103	109	114	117
5	0.2	14.2	21.5	27	38.5	52.8	79.9	98.8	118	135	144	150	154
10	0.1	16.7	25.3	31.7	45.3	62.1	94.2	117	139	160	171	177	182
20	0.05	19.2	29.2	36.6	52.3	71.8	109	135	161	185	198	206	211
30	0.033	20.8	31.5	39.5	56.5	77.6	118	146	174	201	215	223	229
40	0.025	21.9	33.2	41.6	59.5	81.8	125	154	184	212	227	236	242
50	0.02	22.7	34.5	43.3	62	85.1	130	161	191	221	236	246	252
60	0.017	23.4	35.6	44.7	63.9	87.8	134	166	198	228	244	254	260
80	0.013	24.6	37.3	46.8	67.1	92.2	140	174	208	240	256	267	274
100	0.01	25.4	38.7	48.5	69.5	95.6	146	181	216	249	266	277	284
250	0.004	29	44.2	55.5	79.6	109	167	208	248	287	307	319	328

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	11.8	17.8	22.3	31.8	43.1	63.6	77	90.6	102	108	111	114
2	0.5	13	19.7	24.6	35.1	47.7	70.4	85.4	99.9	113	119	123	126
5	0.2	17.1	25.8	32.4	46.2	62.9	93.2	113	132	150	159	164	167
10	0.1	20.1	30.4	38.2	54.5	74.3	110	134	157	178	189	195	199
20	0.05	23.2	35.2	44.1	63.1	86.1	128	156	182	207	219	227	231
30	0.033	25.1	38.1	47.7	68.3	93.2	139	169	198	225	238	246	251
40	0.025	26.4	40.1	50.3	71.9	98.2	147	179	209	237	252	260	266
50	0.02	27.5	41.7	52.4	74.9	102	153	186	217	248	262	271	277
60	0.017	28.3	43	54	77.3	106	158	192	225	256	272	280	286
80	0.013	29.8	45.2	56.7	81.2	111	166	202	236	269	285	295	301
100	0.01	30.8	46.8	58.8	84.2	115	172	210	246	279	296	306	313
250	0.004	35.2	53.5	67.2	96.3	132	198	241	283	322	341	353	360

Attachment 5

WETLAND DETERMINATION

PROPOSED SUBDIVISION
SEC 16 BLK III RANGAUNU SD, TOKERAU BEACH
URLICH

Bay Ecological
CONSULTANCY LTD

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CONTENTS

This report may be cited as-
BAY ECOLOGICAL CONSULTANCY LTD (7/3/25) WETLAND DELINEATION PROPOSED URLICH SUBDIVISION SEC 16 BLK III RANGAUNU SD (NA42C/431); TOKERAU

EXECUTIVE SUMMARY

Bay Ecological Consultancy Ltd has been engaged by Karen Urlich to determine the presence or otherwise of *natural inland wetland (NPS FM 2020),* in regard to a proposed subdivision of SEC 16 BLK III RANGAUNU SD (RT NA42C/431), Tokerau Beach, Karikari Peninsula.
The subject site is located to the west of the popular residential area flanking Tokerau Beach Rd, with no built form, having been in pasture for 20 years with varied levels of management.
The activity will result in two Lots:

- **LOT 1** 4.45ha with designated house site
- **LOT 2** 7.84ha to remain in production for the foreseeable future, amalgamated with Lot 2 DP 612445 to the south.

The proposal has been considered on the basis of a desktop review of available ecological information, complimented by fieldwork (3/03/25), to determine wetland extent and associated *values*[1], subject to regulations of the *NES-F (2020)*. *Extent* and *values* are primary considerations in avoidance of adverse effects of any development, largely dependant on maintenance of hydrology. Site photos are provided for illustration.

We understand the house site has been designated as per geotechnical constraints. Earthworks for this, together with a new access off Tokerau Beach Rd and stormwater discharge from the new residence are the only activities currently tabled for consideration against the *NES-F (2020)*.

Key findings from this reporting are:

- *Natural inland wetlands* subject to the National Environmental Standards for Freshwater NES – F (2020) have been recognized, according to definitions of the NPS FM (2020) and PNRP (2021), by dominant hydrophytic (OBL, FACW) floral assemblages supported by evidence of persistent site hydrology.
- Site wetlands are diagnostically
    - *Fen*
    - *Swamp*
- The Rapid Test, as the first strata of wetland delineation, was sufficient to determine wetland presence with dominance typified by obligate (OBL) and facultative wetland (FACW) species forming very obvious *natural inland wetland* communities. Abrupt loss of wetland dominance occurs with slight elevation in contour at the edges.
- Primary hydric indicators included saturation and surface water, with supportive indicators of the dominant drainage pattern of the landscape ie. natural basal contour in gully and underlying peat soils.

[1] VALUES (NPS FM 2020 Amendment No.1 (2022) (i) ecosystem health; (ii) indigenous biodiversity; (iii) hydrological function; (iv) Maori freshwater values; (v) amenity values

- The central waterway did not have perceptible flow during our visit but had standing water, open surfaced at depths where the dominant *Isolepis prolifera* could not root (>0.8m). Peripheral wetlands exhibited saturation at/ or just below surface level during the site visit (extended dry conditions).
- The primary wetland species onsite are a consistent suite in associations varying with depth of saturation and >50% indigenous in coverage.
    - The central waterway contains a dense monoculture of *Isolepsis prolifera* (OBL) through the majority of its extent with *Paspalum distichum** (FACW) rafting in peripheral areas, *Eleocharis acuta* (OBL) and *Machaerina juncea* (FACW) to the northern end. *Persicaria decipens* (*OBL)* is scattered throughout as individual plants.
    - These extend into the peripheral peaty wetland including large *Juncus pallidus* (*FACW*) with *Callitriche stagnalis (OBL); Carex leporina* (FACW); Cyperus spp*(FACW); Ludwigia palustris* (OBL); Myriophyllum (OBL); Mysotis laxa subsp. caespitosa*(OBL); Schoenus concinnus (FACW); Epilobium chionanthum (FACW).* Further *Juncus spp (FACW)* present are common generalists on the margins –*Juncus effusus*; J. edgariae* and *J. acuminatus* (OBL).*
- No rare/ threatened flora were found within the wetlands.
- The dominance of OBL *Isolepis* in the waterway implies consistent hydrology with FACW species dominating the periphery are adapted to tolerate a greater variation seasonally in response to rainfall, supported in the peaty soil.
- The area of the wetlands is shown on historic topo maps from 1929 as such, and the central waterway is a mapped *river* [2] *NZSEG#1001918*. The central basal contour the waterway occupies would historically have had the most extant saturation in a predeveloped landscape. It is first shown as channelized in the 1971 aerial. Occupying former wetland it cannot be considered a *deliberately constructed wetland*[3] *, waterbody*[4] or *artificial watercourse*[5] or subject to exclusion in the *natural inland wetland* definition*(c)*[6] .
- Whereas historically the peat soils may have supported wider wetland, decades of drainage and cultivation for pastoral use will have resulted in shrinkage and dessication, compromising it's capability.
- The prevailing character of the site beyond identified wetland is rough pastoral- kikuyu dominance; rye; browntop; ratstail and large strong clumps of *Paspalum dilatum*; with further common FACU / UPL grass and weed species e.g. *Senecio; Plantago* and abundant *Daucus*. None of the *natural inland wetland* mapped in this reporting would be subject to the pastoral exclusion clause of the *natural inland wetland* definition *(e)*[7].
- Predicted ecosystem[8] types corresponding with soil type are
    - ***WF5: Totara, kanuka, broadleaved forest (Dune Forest)***

[2] RMA (1991) ***RIVER*** - *a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal)*

[3] PRPN (2021) Definitions | Whakamāramatanga ***CONSTRUCTED WETLAND*** *A wetland developed deliberately by artificial means or constructed on a site where: 1) a wetland has not occurred naturally previously, or 2) a wetland has been previously constructed legally.*

[4] RMA (1991) ***WATER BODY*** *means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area*

[5] *PNRP (2021) B Definitions | Whakamāramatanga* ***ARTIFICIAL WATERCOURSE*** *: A man-made channel constructed in or over land for carrying water and includes an irrigation canal, roadside drains and water tables, water supply race, canal for the supply of water for electricity power generation and farm drainage canals. It does not include a channel constructed in or along the path of any historical or existing river, stream or natural wetland.*

[6] NPS – FM (2020 Amendment 8th December 2022) *Natural inland wetland* is NOT … *(c) a wetland that has developed in or around a deliberately constructed water body, since the construction of the water body*

[7] (e) a wetland that: (i) is within an area of pasture used for grazing; and(ii) has vegetation cover comprising more than 50% exotic pasture species (as identified in the National List of Exotic Pasture Species using the Pasture Exclusion Assessment Methodology (see clause 1.8)(iii) the wetland is a location of a habitat of a threatened species identified under clause 3.8 of this National Policy Statement, in which case the exclusion in (e) does not apply

[8] https://services2.arcgis.com/J8errK5dyxu7Xjf7/arcgis/rest/services/Northland_Biodiversity_Ranking/FeatureServer

- ***WL** Bog/ fen*

- Ecological site values within the designated footprint are related to the wetland area. No indigenous vegetation clearance is required.
- No *Threatened* or *At Risk* species recorded on the Karikari Peninsula area are located in the wetlands or wider site.
- No *Naturally Rare* indigenous sand dune association is present. There is no representation of potential ecosystem *WF5 Dune Forest*.
- Five minute bird counts during fieldwork determined habitat suitable for insectivourous generalists sighted e.g. kingfisher; skylark; pitpit (*At Risk – Declining*) utilizing wetlands as part of wider territorial economics. Omnivorous pūkeko and matuku moana (*Egretta novaehollandiae*) were sighted utilizing the wetland, likely providing part of wider feeding habitat, not suitable for roosting or nesting due to lack of taller riparian cover. The wetlands do not provide cover for fernbird or reticent wetland birds crakes, rails or bittern.
- A fish survey was not undertaken. Protection of wetland habitat as per the NES-F (2020) confers protection to any species present. Predicted species[9] for NZSEG# 1001918 are those that favour the site habitat niche of coastal low elevation; fine substrate and slow moving character - redfin bully; common bully; giant bully (*At Risk- Naturally Uncommon*); inanga and shortfin eel. However, the waterway is now occluded offsite by bunding at the northern boundary, since excavations of ponds in approx. 2003 & 2012. Tuna may be able to traverse the bunding and pasture under wet nocturnal conditions and common bully may form landlocked populations.
- To the south beyond Simon Urlich Rd there are 2 Aupouri PNA[10] sites, also listed in the *Northland Top 150* known wetlands documentation:
    - Simon Urlich Wetland (*Unit #O03/008*)
    - Northern Tokerau Swamp (*Unit #O04/230)*
- These are not considered within a zone of influence (ZOI) of the proposal, as they occupy a separate catchment, draining as creek from the south, under Simon Urlich Rd and ultimately across Tokerau Beach. Tokerau Beach PNA *(#O04/232)* is also outside the ZOI .
- The Lot is *not* mapped as *TEC Level I or II*- referenced in regional significance assessment *RPS (2018) Appendix 5: 2(a)1.*
- The house site and associated earthworks will be within 100m of *natural inland wetland*, subject to *NES-F Reg 52*. However, this area does not occupy a critical source area and is unlikely to cause drainage. We recommend the wetland is formally surveyed, likely required for future Sec 223 compliance and construction envelopes be established to prevent inadvertent damage.
- We understand stormwater is to be partially directed from the access to the Tokerau Beach Rd established network. Inputs to the wetland from increased impervious area may represent a discharge <100m, addressed in *NES- F Reg 54.* Species composition throughout has a level of tolerance adapted to periodic increase. Inputs should be diffuse and in a manner that prevents sediment, scouring or erosion as best practice to avoid measurable *change in range of water levels or hydrological function* and other adverse effects such as loss or smothering of wetland and associated adverse impacts on any species present. This includes birds, fish & invertebrate communities adapted to require the reliable wetland ecosystem niches for at least part of their lifecycle, flagshipped by the OBL & FACW plant composition.
- It should be noted that any planting within 10m of wetland must be locally appropriate and indigenous as per *REG 55 NES- F (2020)* to create a natural ecosystem pattern and to avoid potential adverse effect of loss of values.

[9] Shiny Rivers NIWA
[10] Conning & Holland (2003) Natural Areas of the Aupouri Ecological District Reconnaisance Survey for the Protected Natural Areas Programme

Adherence to the NES-F (2020) and best practice stormwater management will provide for maintenance of wetland functional values, including as catchment water quality protection and habitat patches in the wider landscape, aligned with aspirations of the NPS-FM (2020) & PNRP wetland policies and objectives.

VIEW NORTH FROM LOWER PROPOSED LOT 2 WETLAND IN CENTRAL CHANNEL AND EXTENDING INTO LESS SATURATED PERIPHERY

INTRODUCTION

The subject property SEC 16 BLK III RANGAUNU SD (RT NA42C/431), Tokerau Beach, Karikari Peninsula is located to the west of the popular residential area flanking Tokerau Beach Rd, with no built form, having been in pasture for 20 years with varied levels of management. It slopes from its eastern seaward boundary to central basal contour 10-2masl, illustrated in earliest topographic mapping (1929) as wetland.

The activity will result in two Lots:

- LOT 1 4.45ha with designated house site and accessed from Tokerau Beach Rd
- LOT 2 7.84ha to remain in production for the foreseeable future, amalgamated with Lot 2 DP 612445 to the south.

The site and proposal are illustrated in *Figs 1 - 3* and described in *Table 1.* Earthworks will be required for the house site and to upgrade the access from Tokerau Beach Rd. Stormwater will be generated from the increased impervious area.

FIGURE 1: SITE LOCATION

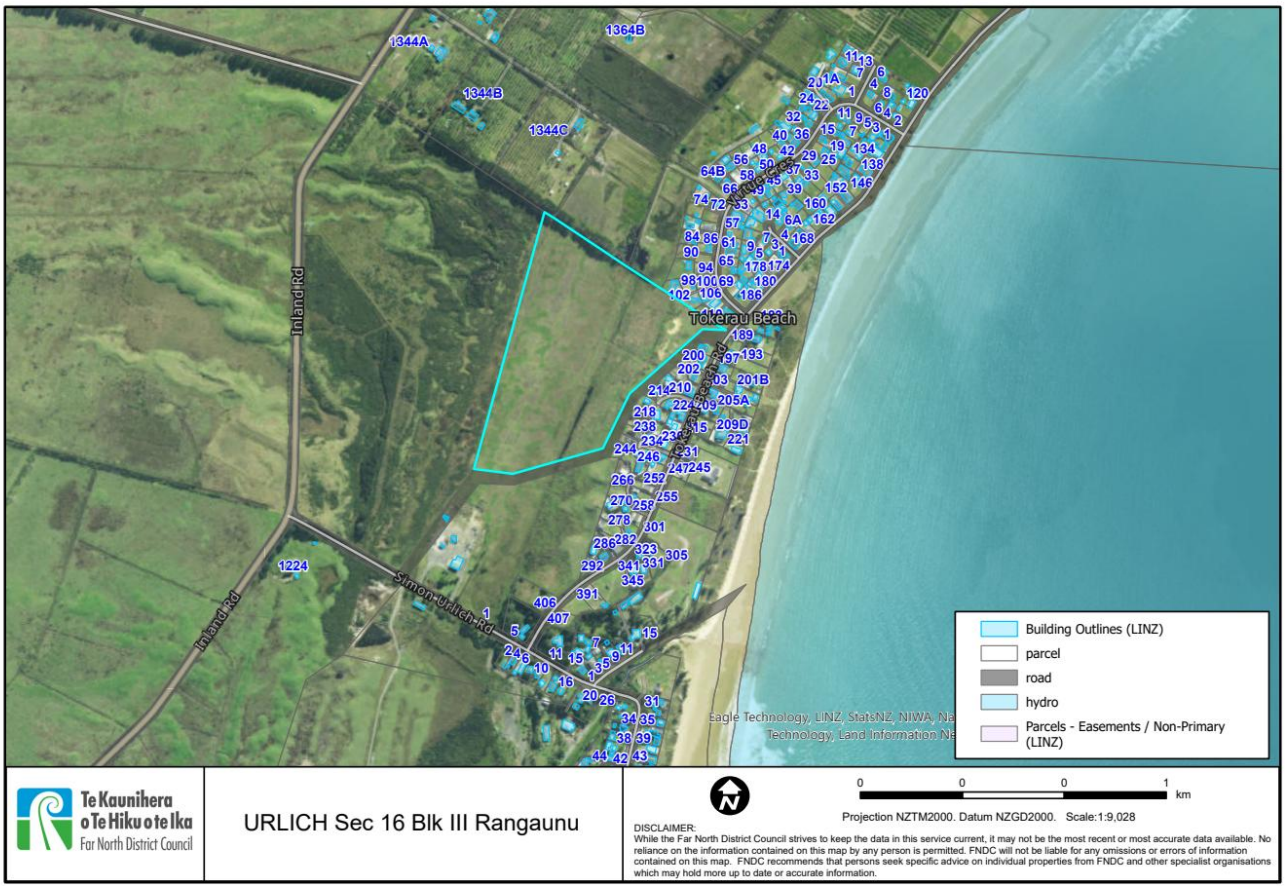


FIGURE 2: PROPOSED SCHEME

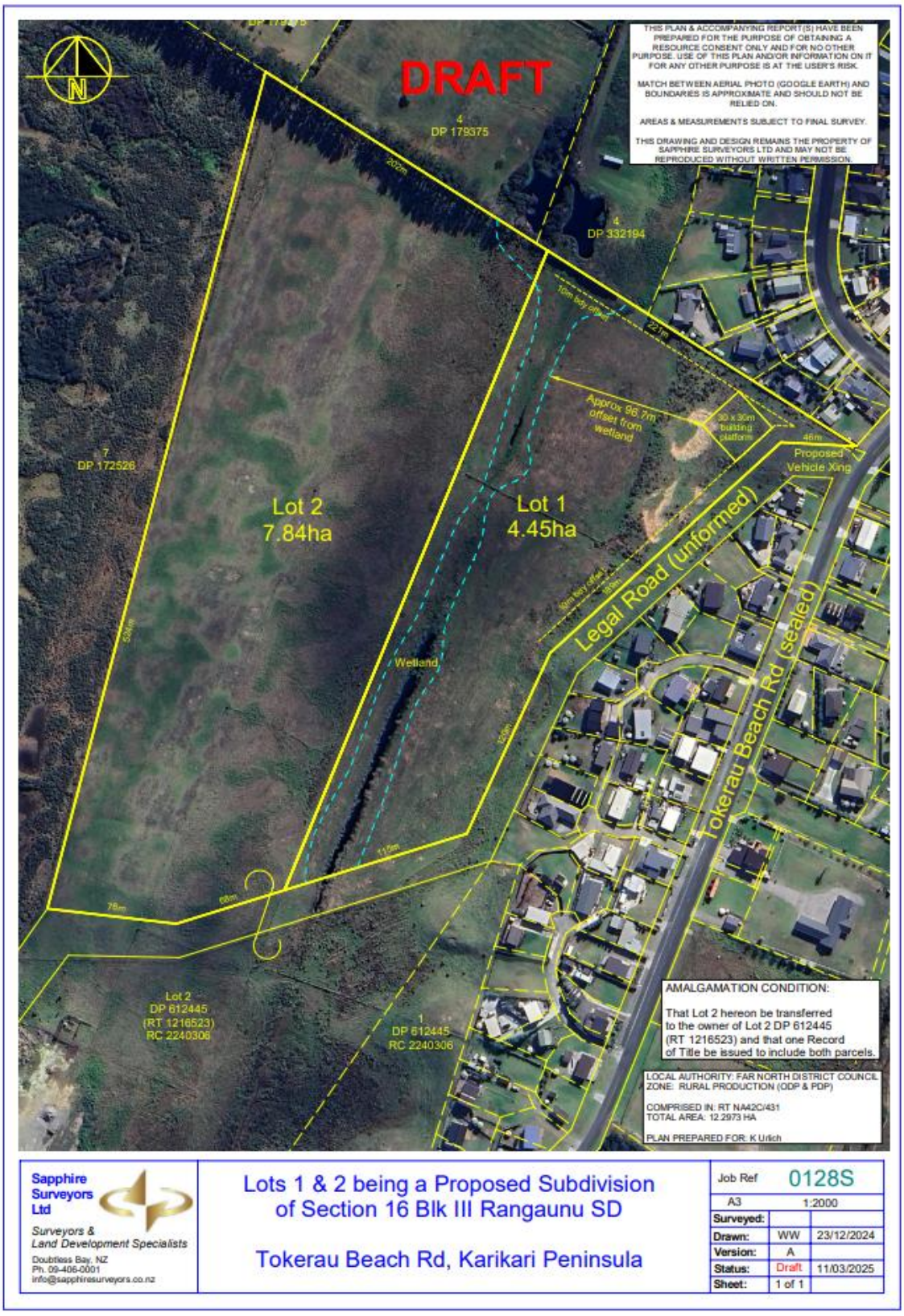
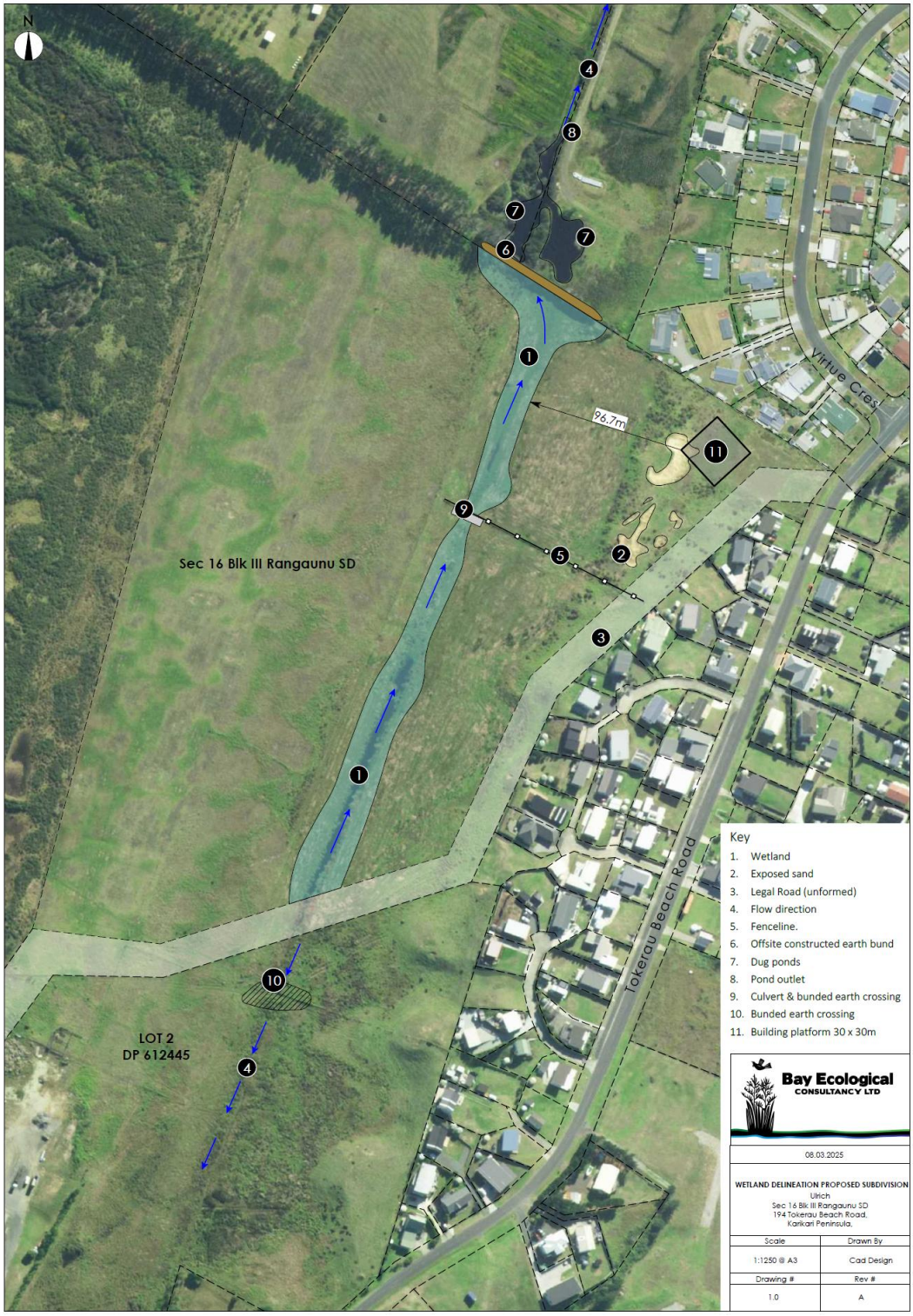


FIGURE 3: SITE FEATURES



SITE CONTEXT

The following site context is a combination of desktop review and site visit, including detail of the immediate surrounding landscape.

TABLE 1: MAPPED SITE SUMMARY

DESCRIPTION	*SEC 16 BLK III RANGAUNU SD (RT NA42C/431)*
OWNER	Karen Urlich and BOI Taxation Trustee Company Limited
FNDP OPERATIVE ZONE	RURAL PRODUCTION
AREA & INTENDED PURPOSE	TOTAL 12.2973ha *Proposed Lot 1: 4.45ha* house site adjacent Tokerau Beach Rd *Proposed Lot 2: 7.84ha* to continue as pastoral
ECOLOGICAL DISTRICT	AUPOURI
COVER	• EXOTIC GRASS/ PASTURE • WETLAND - FEN; SHALLOW WATER largely on proposed Lot 1 • NO BUILT FORM
RIVERS[11]	• NZSEG# #1001918 *modified watercourse* • Currently exhibits as a drain, form created late 1960s
SOIL TYPE[12]	• **RUAKĀKĀ PEATY SILT LOAM (RKV) (OMA)** • **MAUNGAREI CLAY LOAM (MEH) (UST)**
POTENTIAL ECOSYSTEM[13]	• ***WF5: Totara, kanuka, broadleaved forest - dune forest on UST soil*** • ***WL: BOG/ FEN on***
TEC CLASSIFICATION[14]	• *CLASS V*
MAPPED PNA;NORTHLAND BIODIVERSITY RANKING - TERRESTRIAL TOP 30 SITES; RANKED RIVERS; KNOWN WETLANDS; RANKED WETLANDS	• *NONE MAPPED ONSITE* • *Nearby sites are not within a ZOI*
RARE ECOSYSTEMS[15]	• WETLANDS

Key sources of the desktop review included:

- *Retrolens aerial photography www.retrolens.co.nz*
- *https://data.linz.govt.nz/*
- *Connin; Holland & Miller (2004) Natural Areas of Hokianga Ecological District Reconnaissance Survey Report for the PNA Programme. DoC, Whangarei*
- *Forester & Townsend (2004) Threatened plants of the Northland Conservancy*
- *Johnson & Gerbeaux (2004) Wetland types in NZ. DoC, Wellington*
- *LRIS portal https://lris.scinfo.org.nz/*
- *NRC Local Mapping & supporting documents – Leathwick (2018); Singers (2018)*
- *TEC Classification https://ourenvironment.scinfo.org.nz/*
- *Wildlands Consultants (2011) Ranking of top Wetlands in the Northland Region Stage 4 - Rankings for 304 Wetlands Wildlands Contract Report No. 2489 for the Northland Regional Council*
- *Wildlands Consultants (2012) Report on Wetland Guidelines for the Northland Region Contract Report 2952*

[11] LINZ 2022 NZ River Centrelines https://data.linz.govt.nz/layer/50327-nz-river-centrelines-topo-150k/

[12] https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=fd6bac88893049e1beae97c3467408a9

[13] https://services2.arcgis.com/J8errK5dyxu7Xjf7/arcgis/rest/services/Northland_Biodiversity_Ranking/FeatureServer/0

[14] https://ourenvironment.scinfo.org.nz/maps-and-tools/app/Habitats/lenz_tec

[15] Williams et al (2007) New Zealand's historically rare terrestrial ecosystems set in a physical and physiognomic framework *New Zealand Journal of Ecology 31(2):* 119-128

HISTORIC AERIAL REVIEW

Review of available aerial photography preceded fieldwork to determine historic location and subsequent persistence of any site hydrology/ wetland. *Retrolens* aerial photography of Karikari is limited to 1944, 1970s and 1984.

KEY FINDINGS

- Wetland is indicated on the earliest available topo maps (1929). The track visible is represented by the current *Legal Road* and the approx. southern boundary of Sec 16. This remains consistent through 1939 & 1949 topos (the 1959 topo was not available).
- The earliest aerial photography (1944) indicates an extensive backdune system west beyond the beach in the approximate area off Sec 16, with natural swales and crests. A waterway is visible as a thin line at the base of the slope.
- Drains are visible to the south in the 1942 aerial, and then first in 1964 topo north and south but not onsite.
- The waterway is visible as a straightened drain first in the 1970 aerial.

FIG 4: NZMS13/NAK11 1929

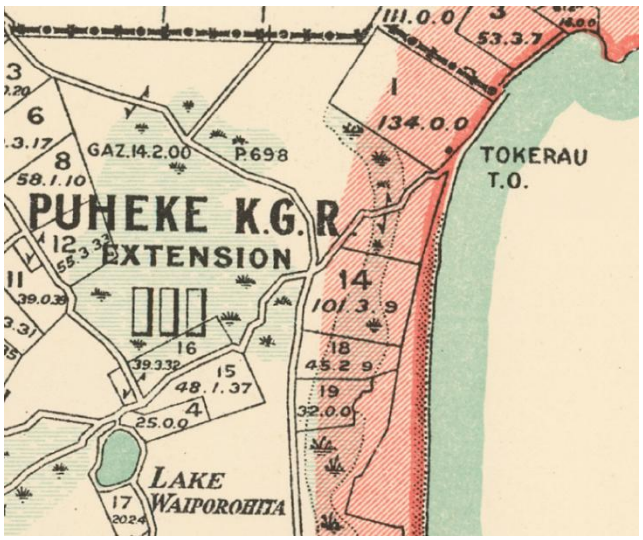


FIG 5: RETROLENS 1944

FIG 6: NZMS 1 N7 1964

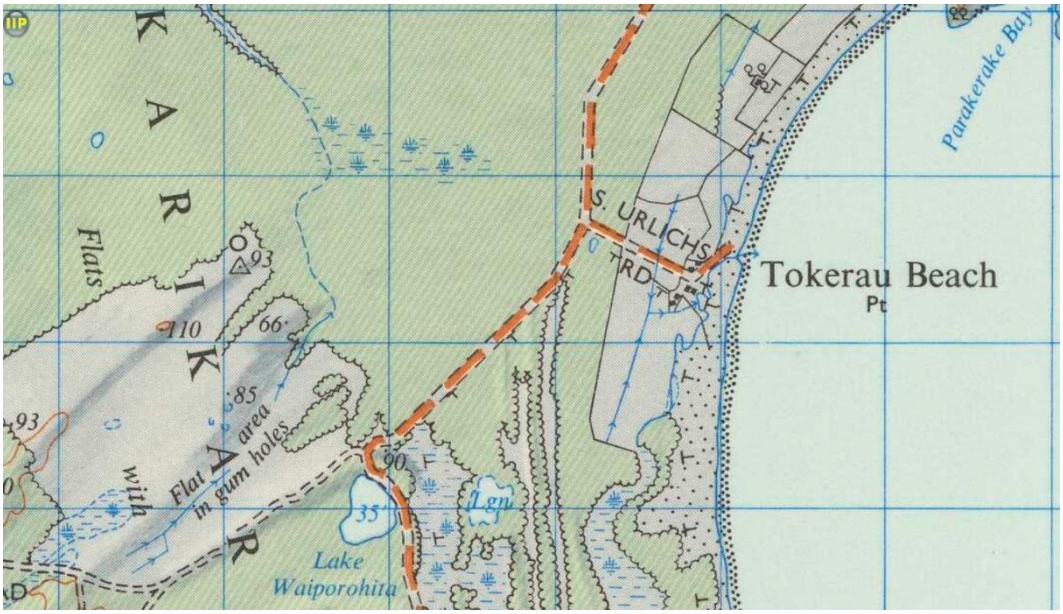
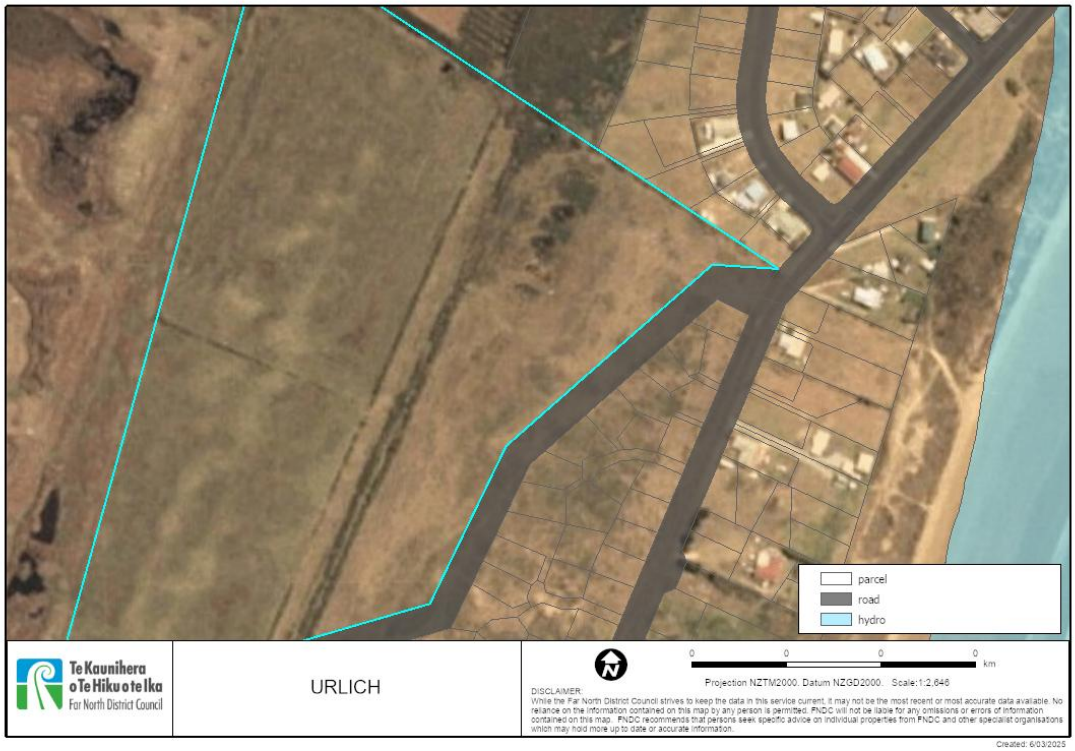


FIG 7: RETROLENS 1971

FIG 8: LINZ/FNDC 2000



VALUES MAPPING

WATERWAY

The area of the wetlands is shown on historic topo maps from 1929 as such, and the central waterway is a mapped *river* [16] *NZSEG#1001918* of A3 type that existed prior to straightening, characterized as per its REC II entry in *Table 2* below. It is considered natural in origin and now a *modified watercourse.* The central basal contour the waterway occupies would historically have had the most extant saturation in a predeveloped landscape. It is first shown as channelized in the 1971 aerial. Occupying former wetland it cannot be considered a *deliberately constructed wetland*[17] *, waterbody*[18] or *artificial watercourse*[19] or subject to exclusion in the *natural inland wetland* definition*(c)*[20] .

TABLE 2: NZSEG#1001918

CHARACTERISTIC	UNNAMED CREEK
NZ SEGMENT	#1001918
ORDER	1st (CURRENT)
TYPE	**A3** - very small, gentle gradient streams on sandy substrates occurring in coastal locations Widespread in coastal parts of the Eastern Northland unit
MEAN FLOW (m^{-3} s^{-1})	0.07
CONDITION SCORE (SITE c.f A3 TYPE)	0.137 / 0.325
CLIMATE	**WD** Warm Dry
SOURCE OF FLOW	**L** Low Elevation
GEOLOGY	**SS** Soft Sedimentary
LAND COVER	**P** Pastoral
NETWORK POSITION	**MO** Mid Order
VALLEY -LANDFORM	**LG** Low Gradient

Previously it free flowed north into Lot 4 DP 179375 & Lot 4 DP 332194. Ponding on these Lots at the boundary is first visible 2003 and 2012 respectively. The more recent ponding on the later has created an earth bund preventing overland through flow, allowing only seepage and purportedly resulting in retention onsite in excess of that prior.

[16] RMA (1991) ***RIVER*** *- a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal)*

[17] PRPN (2021) Definitions | Whakamāramatanga ***CONSTRUCTED WETLAND*** *A wetland developed deliberately by artificial means or constructed on a site where: 1) a wetland has not occurred naturally previously, or 2) a wetland has been previously constructed legally.*

[18] RMA (1991) ***WATER BODY*** *means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area*

[19] *PNRP (2021) B Definitions | Whakamāramatanga* ***ARTIFICIAL WATERCOURSE*** *: A man-made channel constructed in or over land for carrying water and includes an irrigation canal, roadside drains and water tables, water supply race, canal for the supply of water for electricity power generation and farm drainage canals. It does not include a channel constructed in or along the path of any historical or existing river, stream or natural wetland.*

[20] NPS – FM (2020 Amendment 8th December 2022) *Natural inland wetland* is NOT … *(c) a wetland that has developed in or around a deliberately constructed water body, since the construction of the water body*

FIG 9: 2003 PONDING LOT 4 DP 179375 & 2012 PONDING LOT 4 DP 332194

The low *elevation origin (L)*, typically has marked seasonal flow patterns: high in winter, low in summer. Erosion rates in the *pastoral (P*) setting tend to be high, with rapid and more extreme flood peaks, resulting in higher suspended sediment compared to natural land cover. The flow is assigned a lower condition score than the type, likely influenced by the pastoral cover and modification. Condition scores are based on FENZ database parameters,[21] values closest to 1 representing optimal condition.

The A3 character was considered likely to contain wetland prior to straightening due to the typically slow flow rate for its class and low *Landform* class, corroborated by the aerial review.

[21] Ranking parameters include indigenous cover in the upstream catchment; estimates of instream nitrogen concentrations; alteration of river flows and fish passage by control structures; introduced fish, discharges from industry; and impervious surfaces from development. DoC 2010

FISH

A primary freshwater fish survey was outside the scope of this report. There are no site, reach or further downstream extent specific FWFD records[22], and local records are limited in general. NIWA has combined REC V2 classification with monitoring data to extrapolate a wide range of instream water quality and fish habitat parameters for all mapped NZ rivers. This resource gives potential fish species interacting directly with the site as below *TABLE 3.*

Giant bully favour the near marine lotic lowland environment provided by the waterway Common bully and shortfin eel are also common in slow moving water/ swamp with areas of open water. Redfin are commonly associated with both species. However, only tuna are likely to navigate the offsite bund now occluding the waterway. Common bully may form landlocked populations.

TABLE 3: NIWA PREDICTED SPECIES

PREDICTED SPECIES NZSEG#1001918	COMMON NAME	THREAT STATUS
Anguilla australis	**SHORTFIN EEL**	NOT THREATENED
Galaxias maculatus	**INANGA**	NOT THREATENED REGIONALLY SIGNIFICANT
Gobiomorphus cotidianus	**COMMON BULLY**	NOT THREATENED
Gobiomorphus gobioides	**GIANT BULLY**	AT RISK- NATURALLY UNCOMMON
Gobiomorphus hutonni	**REDFIN BULLY**	NOT THREATENED

REDFIN BULLY (NOT TAKEN ONSITE) © BAY ECOLOGICAL CONSULTANCY 2025

[22] Freshwater Fish Database records NIWA

SOILS & PREDICTED ECOSYSTEM TYPE

Underlying soil patterns provide an indication wetland likelihood e.g. poor permeability or podzolisation. Broad scale geology changes across a site may also promote the eruption of hydrological sources. Soil types infer an historic associated cover, which is a relevant reference for any revegetation or amenity planting.

Site soils are mapped throughout as *Ruakaka peaty silt loam* with a small contribution of *Maungarei clay* (MEH) adjacent the road in the area of the proposed house site.

TABLE 4: MAPPED SOIL TYPE

SOIL TYPE NZRLI	SOIL TYPE FSL	DESCRIPTORS	PREDICTED COVER
RUAKĀKĀ PEATY SILT LOAM (RKV)	ACID MESIC ORGANIC SOIL (OMA)	RUAKĀKĀ SUITE -ORGANIC PEAT/ SAND SOILS • formed from peat and windblown sand adjoining sand dunes or downstream of old dune terraces wet sites (or in sites that have been artificially drained) and the peat materials are moderately decomposed Mineral soil material is commonly present but organic soil material is dominant • very poorly drained, high in organic matter and very low in pH (acidic) organic soil material to a depth of 60 cm from the soil surface • over-cultivation of peat and sand soils, particularly when dry, causes break down of organic matter and shrinkage of peat leading to an extremely uneven surface and disturbed drainage patterns • major nutrients deficiencies - nitrogen, phosphorus, potassium and sulphur, and the trace elements copper, selenium and molybdenum	WL BOG/FEN
MAUNGAREI CLAY (MEH)	TYPIC SANDY ULTIC SOIL (UST)	MAUNGAREI SUITE- YOUNG VOLCANIC SOIL • Ultic soils with more than 60% sand in the B horizon. • shallow, friable topsoils are weakly to strongly leached, with high proportions of silica and little or no iron less naturally fertile than some other volcanic soils • well to imperfectly drained, dry out severely in summer. Organic matter levels are generally low. Less available water than is typical of Ultic Soils. • exposed subsoils are difficult to revegetate. These soils lack aluminium and iron and do not strongly fix phosphate	WF5 TOTARA KANUKA BROADLEAVED

FIG 10: NRC SOIL MAPPING

POTENTIAL ECOSYSTEM TYPE

Broad ecosystem classification[23] shows the potential vegetation type as correlated with soil type and climate:

TABLE 5: MAPPED POTENTIAL ECOSYSTEM TYPE

ECOSYSTEM CLASSIFICATION	TYPE DISTRIBUTION	TYPE DESCRIPTION
WF5 TOTARA KANUKA BROADLEAVED *DUNE FOREST*	*Warm in climatic zone in northern dunelands. Stable dunes with free-draining recent sandy soils.* **NOT REPRESENTED ON SITE**	*Mosaic of kānuka forest on younger (Holocene) dunes, grading into podocarp, broadleaved forest of tītoki, tōtara, māhoe, karaka, kohekohe, tawa, pūriri and hīnau, and locally pōhutukawa, narrow-leaved maire and taraire on older dunes.*
WL BOG/ FEN	*Mapped as bog/fen as per areas with the organic soil type OMA.* Fen wetland remains on edges of waterway The main channel tends to swamp/ shallow water type – promoted by the channelisation	**FEN** – toes of slopes to central waterway Sedgeland, rushland with a high water table dominated by species of Machaerina, square sedge, Eleocharis and Juncus.

The dune forest ecosystem once occupied stabilised dunes along substantial areas of Northland's east coast, on generally low fertility soils, derived from coastal sands of varied rock types. These range from very recent Holocene coastal sands to older Pleistoscene sands with a higher (10–20%) clay content[24].
Limited examples of this type exist today because of NZs more concentrated coastal population distribution, usually kanuka dominant with scattered pōhutukawa. Sizeable trees or areas often persist in isolation, protected from historic clearance by topography and/or considered to have amenity value. No typic species are present onsite.

Organic soil layers are a diagnostic feature of the predicted fen and bog wetland type. However, the hydrosystem of fens includes throughflow, while bogs are closed systems fed by rain, as can occur in dune hollows.

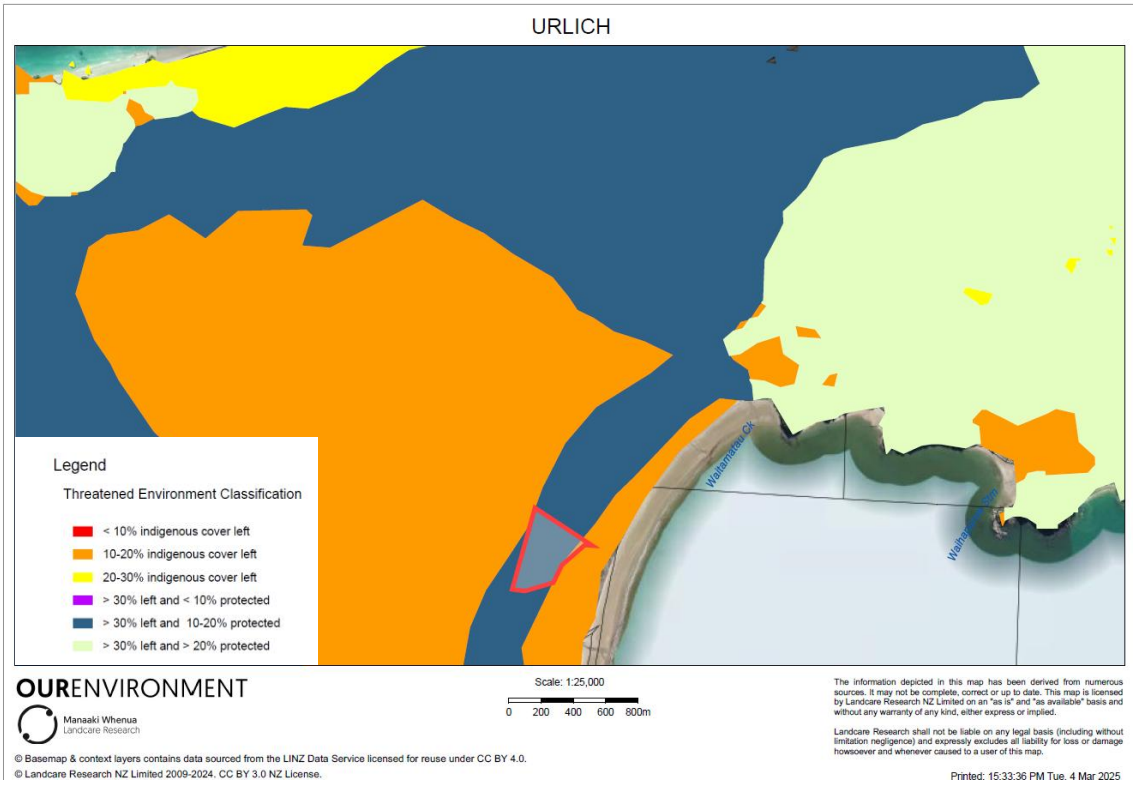
[23] Singers & Rogers (2014) A classification of NZs terrestrial ecosystems. DoC Wellington
[24] Singers, N. (2018) A potential ecosystem map for the Northland Region: Explanatory information to accompany the map. Prepared for Northland Regional Council.

LANDSCAPE CONTEXT

There are no NRC Biodiversity Ranking[25] or PNA[26] areas within the proposal.

The TEC mapping[27] layer most appropriately applied to help identify priorities for formal protection against clearance and/or incompatible land-uses, and/or to restore lost species, linkages and buffers. The first two levels have been incorporated into national and regional policy[28] to address biodiversity protection on private land. Any remaining indigenous vegetation on such sites is considered significant and a priority for formal protection, linkage and buffering, including wetland. The site is encompassed by *Level V Underprotected (>30% Indigenous cover remains, 10-20% protected),* based on cover in the wider area.

FIG 11: TEC CLASSIFICATION



The Aupouri Ecological District PNA report[29] describes wetland sites further to the south, also included in the NRC known wetlands mapping and *Northland Region Top 150 Wetlands* mapping and description.

- Simon Urlich Wetland (*Unit #O03/008*)
- Northern Tokerau Swamp (*Unit #O04/230)*

[25] https://services2.arcgis.com/J8errK5dyxu7Xjf7/arcgis/rest/services/Northland_Biodiversity_Ranking/FeatureServer
[26] https://services5.arcgis.com/H4FlrMy6xTBd6Ywx/arcgis/rest/services/Protected_Natural_Areas_(DOC_2016)/FeatureServer
[27] Threatened Environment Classification (2012) Landcare Research Manaaki Whenua. Based on Land Environments New Zealand (LENZ), classes of the 4th Land Cover Database (LCDB4, based on 2012 satellite imagery) and the protected areas network (version 2012, reflecting areas legally protected for the purpose of natural heritage protection).Combination of components of *Land Environments New Zealand Level VI; Land Cover Database 4 (2012); Protected Areas Network (2012).* Classifications – *Acutely Threatened (<10% Indigenous cover remains); Chronically Threatened (10-20% Indigenous Cover remains); At Risk (20-30%) Indigenous Cover Remains; Critically Underprotected (>30% cover, <10% protected);Underprotected(>30% Indigenous cover remains, 10-20% protected); Better Protected(>30 indigenous cover, >20% protected)*
[28] National Policy Statement for Indigenous Biodiversity 2023; Northland Regional Policy Statement 2018 Appendix 5:2(a)i
[29] Conning, L; Holland, W. (2003) Natural Areas of the Aupouri Ecological District. Reconnaissance Survey Report for the Protected Natural Areas Programme. DoC, Whangarei.

These are in a separate catchment and not considered in a zone of influence (ZOI) of the proposal, nor is the Tokerau Beach active sand dune system *(#O04/232*) to the east.

FIG 12: LOCAL FEATURES

There are local records[30] for a wide range of indigenous orchids and other *Threatened* & *At Risk* species including:

- marsh fern (*Thelypteris confluens; At Risk – Declining)*
- bog club moss (*Brownseya serpentine; Threatened –Nationally Vulnerable)*
- sand pimelea (*Pimelea villosa subsp. villosa; At Risk – Declining)*

Specific search was made however none located within the proposal area.

[30] Conning & Holland (2003);ala.org.nz; inaturalist org nz; nzpcn org nz

WETLAND

REGULATORY CONTEXT

Site investigation has been undertaken specifically with regard to the presence or otherwise of *natural inland wetland,* as defined in the National Policy Statement for Freshwater Management (NPS -FM2020) and subject to the protective regulations within the National Environmental Standards for Freshwater (NES-F 2020). There is no previously mapped *known wetland*[31] or ranked wetland[32] on the parent parcel. We are not aware of any previous reporting on site wetland.

The definition of **wetland** is given in the Resource Management Act (1991):

Wetland includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals adapted to wet conditions.

Plants adapted to live in wetland conditions as above are defined in three categories –

- **OBL**: Obligate. Almost always is a hydrophyte, rarely in uplands (estimated probability >99% occurrence in wetlands)
- **FACW**: Facultative Wetland. Usually is a hydrophyte but occasionally found in uplands (estimated probability 67–99% occurrence in wetlands)
- **FAC**: Facultative. Commonly occurs as either a hydrophyte or non-hydrophyte (estimated probability 34–66% occurrence in wetlands)

(Clarkson, B. et al 2021)

Identification and dominance of these species in vegetation forms the basis for diagnosis as wetland and has been incorporated into the NPS –FM (2020). To this end, both exotic and native species have been categorised by NZ experts in supporting documentation.

The NPS – FM (2020) & accompanying regulations of the NPS- F (2020) have recently been amended[33], incorporating a new definition of *natural inland wetland* as subject to the *NES F (2020)* as below, providing exclusions of some classes of wetland as per the broader RMA definition:

Natural inland wetland means a wetland (**as defined in the Act) that is not**:
(a) in the coastal marine area; or
(b) a deliberately constructed wetland, other than a wetland constructed to offset impacts on, or to restore, an existing or former natural inland wetland; or
(c) a wetland that has developed in or around a deliberately constructed water body, since the construction of the water body; or
(d) a geothermal wetland; or
(e) a wetland that:
*(i) is within an area of pasture used for grazing; **and***
*(ii) has vegetation cover comprising more than 50% exotic pasture species (as identified in the National List of Exotic Pasture Species using the Pasture Exclusion Assessment Methodology (see clause 1.8); **unless***

[31] NRC BIODIVERSITY WETLANDS https://localmaps.nrc.govt.nz/localmapsviewer/?map=55bdd943767a493587323fc025b1335c
[32] Wildlands (2011) RANKING OF TOP WETLANDS IN THE NORTHLAND REGION STAGE 4 - RANKINGS FOR 304 WETLANDS Contract Report No. 2489
[33] 8th December 2022 NPS; 5th December NES effective 5 Jan 2023

(iii) the wetland is a location of a habitat of a threatened species identified under clause 3.8 of this National Policy Statement, in which case the exclusion in (e) does not apply

Under these updates, Regulation (e) (i) & (ii) only apply while a site is in active pastoral use, and not once its purpose changes[34]. The planning application is for anticipated residential purpose and Lots singularly insufficient for continued pastoral use, also evident onsite in pasture quality and bedrock protrusion.

Exotic pasture species[35] as per definition do not include common wetland/ wet pasture grasses *Glyceria*; *Paspalum distichum**[36] *(FACW), Isachne globosa* (OBL); *Alopecaurus geniculatus (FACW)* and *Agrostis stolonifera* (FACW*) or unpalatable exotics such as *Ranunculus repens (FAC).*

SITE VISIT

Visual vegetation survey was undertaken to characterize the site associations for wetland presence with regard to the MfE Wetland Delineation Protocol (2022) and supporting documents:

- *A vegetation tool for wetland delineation in New Zealand (Clarkson et al 2021)*
- *Hydric soils – a field identification guide (Fraser et al 2018)*
- *Wetland delineation hydrology tool for Aotearoa New Zealand. (MfE 2021)*
- *Wetlands types in New Zealand (Johnson & Gerbeaux 2004)*

The Rapid Test, as the first strata of wetland delineation, was sufficient to determine wetland presence with dominance typified by obligate (OBL) and facultative wetland (FACW) species in saturated ground forming very obvious *natural inland wetland* communities. Hydrology and vegetation precluded the need for repeated soil observations, however banks and exposed faces and sand pans corresponded with features of the mapped types.

Wetland determination as per the Protocols is not dependent on indigenous dominance. Regardless of origin, wetland species have high functionality in retaining sediment and protecting groundwater or open waterways from nutrient input. However, the species present are >50% indigenous in dominance and the wetlands may be considered indigenous.

The primary *FACW & OBL* short herbaceous, grass and *Juncus* species represent a typical pastoral association commonly able to persist regardless of grazing and pugging due to growth form and/or unpalatability.

The central waterway contains a dense monoculture of *Isolepsis prolifera* (OBL) through the majority of its extent with *Paspalum distichum** (FACW) rafting in peripheral areas with *Juncus effusus* & J. pallidus (FACW);* and *Eleocharis acuta* (OBL) and *Machaerina juncea* (FACW) to the northern end. *Persicaria decipens* (*OBL)* is scattered throughout as individual plants.

[34] *"This exclusion is not targeted at pasture being targeted for urban development or for other land uses. It does not apply to wetlands in other areas of grassland that are not grazed, such as in parklands, golfcourses, landscaped areas and areas of farmland not used for grazing purposes".* MfE (December 2022) Pasture Exclusion Assessment Methodology *Pg 9*
[35] National List of Exotic Pasture Species List (2022) MFE
[36] * denotes exotic

These species extend into the peripheral peaty wetland commingling including with *Carex leporina* (FACW); Cyperus spp. (FACW); Ludwigia palustris(OBL); Myriophyllum (OBL); Mysotis laxa subsp. caespitosa*(OBL); Schoenus concinnus (FACW); Sparganium subglobosum (OBL)*; *Epilobium chionanthum (FACW).* Further *Juncus spp (FACW)* present are common generalists on the margins –*Juncus effusus*; J. edgariae* and *J. acuminatus* (OBL).*
A full species list is given in *Appendix 1.*

There are no rare/ threatened flora within the wetlands. The dominance of OBL *Isolepis* in the waterway implies consistent hydrology with FACW species dominating the periphery are adapted to tolerate a greater variation seasonally in response to rainfall, supported in the peaty soil.
The large stature perennial *Juncus palladis* and *Machaerina juncea* suggest prolonged stability of hydrology. Filamentous green algae and *Callitriche* (OBL) imply nutrient enrichment in some areas of standing water.

Associations and character vary with depth of saturation, grading through fen-swamp- open water. Wetland typology is based on the emphasis of observed vegetation and hydrology, however in reality the two types intergrade and are dynamic systems with potential to change extent and composition over time due to natural factors e.g. drought; invasion; interspecific competition.

TABLE 6: IDENTIFIED NATURAL INLAND WETLAND

TYPE	SWAMP	FEN
CHARACTERISTIC	• *standing water and/ or surface channels; leads with slow flow* • *mainly surface water with groundwater* • *water table usually above the surface* • *moderate to high fluctuation but permanent wetness at depth* • *poor drainage* • *combination of mineral and peat soils* • *wide spread - basins; valleys, gullies and plains*	• *water table near surface* • *rain + groundwater source* • *very slow flow* • *poor drainage* • *wetness near- permanent* • *peat substrate receiving inputs of water and nutrients from adjacent mineral soils* • *occupy slight slopes, such as fans or the toes of hillsides*
CLASSIFICATION	**WL11- MACHAERINA SEDGELAND** Shallow palustrine/riverine/lacustrine wetlands of a wide range of variants throughout New Zealand. Sedgeland, rushland with a high water table Dominated by species of *Machaerina*, square sedge, *Eleocharis, Carex spp. & Juncus* spp	
TYPIC SITE SPECIES	• *Isolepis prolifera (OBL) DOMINANT* • *Juncus spp (FACW)* • *Persicaria spp (FACW & OBL)* • *Paspalum distichum*(FACW)*	• *Eleocharis acuta (OBL)* • *Carex (FACW)* • *Cyperus* spp(FACW)* • *Epilobium (OBL)* • *Isolepis spp (OBL & FACW)* • *Juncus spp (FACW)* • *Paspalum distichum*(FACW)* • *Machaerina juncea (FACW)*
LOCATION	CENTRAL WATERWAY	SLOPE TOE ADJACENT WATERWAY

The occurrence of innocuous exotics *Holcus lanatus*; Ranunculus repens* & Lotus pedunculatus* (FAC)* within peripheral fen wetland is not sufficiently frequent to alter the evident wetland diagnosis. These species are common throughout many forms of wetland in

Northland, particularly on margins or on slightly raised microtopography, not preferring prolonged submersion.

Wetland throughout grades quickly with reduced soil saturation and slight micro elevation to loss of dominance typified by FACU & UPL exotic grass species including kikuyu; ryegrass; browntop; hairstail (*Lagurus ovatus*); carrotweed (UPL); *Paspalum dilatatum*; *Paspalum urvillei (FAC);* rough meadow grass *(Poa trivialis)* and ratstail with common herbaceous pasture weeds such as hawksbeard (FACU), plantain (FACU). Mexican tea (*Dysphania ambrosioides); Asphodelus fistulosus*s; sand primrose (*Oenothera stricta);* smooth stemmed turnip *(Brassica oxyrrhina)* and cudweed *(Gamochaeta americana)* were scattered. These represent non wetland both in terms of wetland ratings and NEPSL[37] pastoral exclusion species.

There was an absence of riparian shrubland vegetation on site. Prevalent gorse is controlled on a regular pastoral maintenance cycle, visible in aerial photography and remnant scattered onsite. Tall terrestrial vegetation is limited to exotic shelterbelt over the northern boundary. There are no kauri in the development area to invoke consideration of the *Biosecurity (National PA Pest Management Plan) Order 2022.* No flora species with threat status or locally uncommon were found within or beyond the wetlands.

Grasses were recognised through professional experience from leaf form, ligule; growth habit and habitat, with simple determination from seed heads practicable at this time of year. The NLEPS does not include common wetland grasses *Glyceria spp (FACW & OBL)*; *Paspalum distichum*[38] (FACW), Isachne globosa* (OBL) and *Agrostis stolonifera* (FACW*).

Rushes are visible dotted within some areas. Discrete plants of *Juncus* scattered throughout dominant exotic pasture do not uphold a *natural inland wetland* diagnosis in isolation. A key visual cue is dominance of associated ground cover that cannot withstand long term saturation necessary for wetland species dominance e.g. clovers; *Lotus corniculatus*; kikuyu & further *FACU & UPL* exotic pasture grasses.
The larger FACW *Juncus* are adapted with root structure; shoot water retention capacity and mass production of long lived seeds which allow them to compete within pasture, and persist through drier periods as opposed to other smaller FACW or specialized OBL hydrophilic species.

[37] National Exotic Pasture Species List (2022) AgResearch for MfE
[38] * denotes exotic

FROM LEFT: VIEW SOUTH VERY DENSE DOMINANT OBL ISOLEPIS PROFILERA APPEARS AS TERRESTRIAL GRASS FROM DISTANCE, DEPTH VARIES UNDERNEATH; UNTIL EXAMINED; VIEW NORTH CONTINUES IN CHARACTER TO BOUNDARY (TREES); SCATTERED MYOSOTIS (OBL) WITH DISTINCTIVE BLUE FLOWERS;

VIEW SOUTH SOUTHERN PROPOSED LOT 2 OPEN WATER VARIES IN DEPTH WETLAND RAFTING SPECIES EG LUDWIGIA: PASPALUM DISTICHUM; ISOLEPSIS WITH DENSE HERBACEOUS; P. DISTICHUM AND JUNCUS PERIPHERY ABRUPT CHANGE TO NON WETLAND WITH SLIGHT ELEVATION

CLOCKWISE: JUNCUS (FACW) BORDER INCLUDES INDIGENOUS SPP J.PALLIDUS; J. EDGARIAE & EXOTIC J. EFFUSUS ; DOMINANT INDIGENOUS ISOLEPIS PROLIFERA IS ADAPTED TO NUTRIENT ENRICHED CONDITIONS; DENSITY OF ISOLEPIS ACHIEVES MONOCULTURE IN SOME AREAS; ELEOCHARIS ACUTA (OBL) FREQUENT SCATTERED PATCHES; INDIGENOUS JUNCUS PALLIDAS (FACW) LARGE CULMS WITH CONTINUOUS PITH; MACHAERINA JUNCEA (FACW) AND CYPERUS EXCULENTUS (FACW)*

CLOCKWISE FROM LEFT:PONDS ACROSS NORTHERN BOUNDARY; EARTH BUND CULVERT CROSSING BETWEEN PROPOSED LOTS 1 & 2 VIEW EAST;

CLOCKWISE: DRY PASTURE VIEW ACROSS PROPOSED LOT 1 NORTH; PROPOSED LOT 2 VIEW SOUTH WETLAND ON LEFT IN LOWEST CONTOUR; DEPRESSED WETLAND EMBEDDED IN LOWER CONTOUR MID LOT CONTRASTING COLOUR; VIEW WEST SOUTHERN END OF LOT 1; PROPOSED HOUSE SITE UPPER LOT 1; UPPER LOT 1 EXPOSED SAND PAN

CLOCKWISE FROM LEFT: UPPER CONTOUR PROPOSED LOT 1 ADJACENT TOKERAU BEACH RD EXPOSED SANDY CLAY SOILS NO WETLAND;LOWER PROPOSED LOT 1 VIEW PASTURE CONTRAST WITH WETLAND TOP LEFT TOWARDS NORTHERN BOUNDARY(TREES); MID PROPOSED LOT 1 PASTURE; LOWER PROPOSED LOT 2 VIEW TOWARD WETLAND EAST

FAUNA

Basic observations were incidental to the main consideration of wetland and vegetation significance, soils and hydrology, but complement the characterisation of the site. Pest control and an increased density of peripheral shrubby riparian cover would create better functional habitat for any species on site including as a buffer for aquatic function and internal habitat, mitigatory of increased residential occupation.

AVIFAUNA

5 minute bird counts were undertaken on the 3/3/25 in the morning under fine clear conditions

- Lot 1 – Upper eastern contour proposed house site
- Lot 1 – Adjacent central waterway
- Lot 2- Broad extent midsite
- Lot 2 Bunded earth crossing

Conspicuous birdlife was limited largely to exotic and native insectivorous generalists for which the pasture , wetlands and scattered podocarps contribute to territorial feeding areas habitat e.g. skylark; kingfisher; pitpit
An increase in shrubby riparian cover and pest control would improve functional habitat. The lack of surrounding cover negates the wetlands even as foraging habitat for specialist fernbird; rail; crakes or bittern, as supplementary to their preferred habitat from professional experience of tall dense sedge/ rush wetland with open water edges.

INVERTEBRATES

Invertebrate survey was outside the scope of this reporting. However, the proliferation of OBL & FACW wetland species is also an indicator of niches supportive of invertebrate populations adapted to complete at least a portion of their lifecycle in wet conditions, and it may be assumed they are present. In NZ this has been shown to vary with region; wetland type and water chemistry (largely acidity) with fauna dominated by communities of five invertebrate groups -*Chironomidae* midges; aquatic mites (*Acarina*); microcrustacea (copepods &ostracods) and aquatic nematodes. The mud snail *Potamopyrgus antipodarum* is cosmopolitan across NZ. Unlike aquatic insects, meiofauna such as the nematodes, copepods and ostrocods do not leave the wetland environment as winged adults.

Despite their inconspicuousness and little recognition in comparison to fauna commonly valued by society e.g. birds & fish - they have a critical role in wider ecosystem function e.g. organic carbon and nutrient turnover; as part of the food web reaching large densities and in terms of intrinsic biodiversity value -many being known only to NZ.

SIGNIFICANCE

Consideration of significance is given, in regard to *Northland Regional Policy Statement Appendix 5 (2018) as* the standard Northland criteria for assessing significance of an ecological site. It directly reflects those contained in *Appendix 1* of the recently mandated *National Policy Statement for Indigenous Biodiversity (2023)* including consideration of *Representativeness; Diversity & Pattern; Rarity and Distinctiveness & Ecological Context .*

TABLE 7: ASSESSMENT OF SIGNIFICANT INDIGENOUS VEGETATION AND SIGNIFICANT HABITATS OF INDIGENOUS FAUNA IN TERRESTRIAL, FRESHWATER AND MARINE ENVIRONMENTS NORTHLAND REGIONAL POLICY STATEMENT (2018) APPENDIX 5

	WETLAND
(1)REPRESENTATIVENESS ***(A)****Regardless of its size, the ecological site is largely indigenous vegetation or habitat that is representative , typical and characteristic of the natural diversity at the relevant and recognised ecological classification and scale to which the ecological site belongs* *(i) if the ecological site comprises largely indigenous vegetation types: and* *(ii) Is typical of what would have existed circa 1840* *(iii)Is represented by the faunal assemblages in most of the guilds expected for the habitat type* ***(B)*** *The ecological site* *(i) Is a large example of indigenous vegetation or habitat of indigenous fauna* *(ii) Contains a combination of landform and indigenous vegetation and habitats of indigenous fauna that is considered to be a good example of its type at the relevant and recognised ecological classification and scale*	A)i.dominated by *Isolepis prolifer; Juncus pallidas; J.edgariae Eleocharis Machaerina* ii. Modified by channelization iii. wetland bird guild absent due to lack of riparian cover; insectivorous generalists and highly adaptable pukeko. Visiting herons. Fish predicted spp - lowland coastal slow moving niche, not surveyed B (i)no (ii) fen on peat at slope toe however impacted by pastoral use ***LOW***
(2)RARITY/ DISTINCTIVENESS *(A)The ecological site comprises indigenous ecosystems or indigenous vegetation types that:* *(i) Are acutely or chronically threatened land environments associated with LENZ Level 4* *(ii) Excluding wetlands, are now less than 20% original extent* *(iii) excluding man made wetlands are examples of wetland classes that either otherwise trigger Appendix 5 criteria or exceed any of the following area threshold:* *(a) Saltmarsh 0.5ha* *(b) Shallow water lake margins and rivers 0.5ha* *(c) Swamp >0.4* *(d) Bog >0.2 ha* *(e) Wet heathlands>0.2 ha* *(f) Marsh; fen; ephemeral wetland or seepage/flush >0.05ha* *(B) Indigenous vegetation or habitat of indigenous fauna that supports one or more indigenous taxa that are threatened, at risk, data deficient , or uncommon either nationally or within the relevant ecological scale* *(C) The ecological site contains indigenous vegetation or an indigenous taxon that is* *(i) endemic to the Northland/ Auckland region* *(ii) At its distribution limit in the Northland region* *(D) The ecological site contains indigenous vegetation or an association of indigenous taxa that* *(i) Is distinctive of a restricted occurrence* *(ii) Is part of an ecological unit that occurs on a originally rare ecosystem* *(iii) Is an indigenous ecosystem and vegetation type that is naturally rare or has developed as a result of an unusual environmental factor(s) that occur or are likely to occur in Northland: or* *(iv) Is an example of a nationally or regionally rare habitat as recognised in the New Zealand Marine Protected Areas Policy*	A(i) No (ii) mapped WF5 but absent (iii) requires calculation from survey but estimated at less than threshold B) Pitpit sighted *At Risk -Declining*; Giant bully predicted *At Risk – Naturally Uncommon* C) none observed *D) i) i& ii)indigenous vegetation associated with wetland* ***LOW***
(3)DIVERSITY AND PATTERN *(A) Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of:* *(i) Indigenous ecosystem or habitat types; or* *(ii) Indigenous taxa* *(B) Changes in taxon composition reflecting the existence of diverse natural features or ecological gradients; or* *(C) Intact ecological sequences*	(A) ii. Diversity reasonable in context of grazed lowland pastoral > 50% species numbers and dominance B & C) **Sequence of taxon composition/** dominance changes with water depth and/ or nutrients. Diversity higher whin ecotone where depth varies **LOW**
(4) ECOLOGICAL CONTEXT *(A) Indigenous vegetation or habitat of indigenous fauna is present that provides or contributes to an important ecological linkage or network, or provides an important buffering function: or* *(B) The ecological site plays an important hydrological, biological or ecological role in the natural functioning of a riverine, lacustrine, palustrine, estuarine, plutonic(including karst), geothermal or marine system* *(C) The ecological site is an important habitat for critical life history stages of indigenous fauna including breeding/ spawning, roosting, nesting, resting, feeding, moulting, refugia or migration staging point (as used seasonally, temporarily or permanently*	(A) & B) Wetland nutrient processing buffers groundwater and surface water in near coastal catchment; retains sediment C) Damp pasture function as heightened feeding territorial economics for ground dwelling species and insectivores e.g. heron; kingfisher; pitpit over pasture dry extent. Likely invertebrate communities with lifestages requiring wet conditions; potential limited freshwater fish community ***MODERATE***

Wetlands have LOW significance overall, but retain value related to their water quality protection functionality, indigenous dominance and potential habitat. The individual species value is largely LOW as per EIANZ (2018)[39] criteria below, other than *Moderate – High* NZ pitpit (*At Risk – Declining)* and potential giant bully (*At Risk – Naturally Uncommon)*.
A shift in vegetation associations from heightened stormwater input from impervious surfaces would not likely result in loss of habitat or threatened species, with the proviso it is diffuse and not in a manner that will increase scour, erosion or sediment input.

TABLE 8: FACTORS TO CONSIDER IN ASSESSING SPECIES VALUE (TABLE 5 EIANZ 2018)

VALUE	EXPLANATION
VERY HIGH	*Nationally Threatened species (Critical, Endangered or Vulnerable*) found in the Zone of Influence (ZOI) or likely to occur there, either permanently or occasionally
HIGH	*At Risk (Declining)* species found in the Zone of Influence or likely to occur there, either permanently or occasionally
MODERATE-HIGH	Species listed in any other category of *At Risk category (Recovering, Relict or Naturally Uncommon*) found in the Zone of Influence or likely to occur there, either permanently or occasionally.
MODERATE	Locally uncommon/rare species but not *Nationally Threatened or At Risk*.
LOW	Species *Not Threatened* nationally and common locally.
NEGLIGIBLE	Exotic species, including pests

[39] (2018) EIANZ Ecological Impact Assessment Guidelines for New Zealand 2nd Edition

NES-F (2020)

Recognition of *natural inland wetland* onsite promotes the intent of *NPS-FM(2020)* Policies 5 & 6[40] and avoidance of effects through adherence to protective measures as per the *NES –F (2020)* in layout and best practice stormwater design.

In the absence of unmitigated point source discharge there is highly unlikely to be any wetland change in seasonal or annual range water levels, as per *PNRP Policy H.4.2 Minimum levels for Lakes and natural wetlands.*

Drainage/ destruction of wetlands is a prohibited adverse effect as per *NES- F Reg 53* and it is presupposed through the current pre emptive subdivision and infrastructure design parameters that this will not occur.

Refer Tables 9 & 10 below. Beyond a proposed house site, which we understand is dictated by required boundary setbacks and geological constraints, the proposed stormwater design[41] *includes subdivision formation only and not lot-specific residential development at this stage.*

No vegetation clearance within 10m is required as per *NES-F Reg 52(i).*

The proposed house site does not occupy critical source areas, seepages or overland flow paths. As per *NES F Reg 52(2) & 54(c)* minor natural diffuse or sheetflow inputs permeating to the wetlands within 100m will likely be *diverted* by the change of site cover, however this will not result in *complete or partial drainage***, or** *change the water level range or hydrological function of the wetland.*

No earthworks are proposed within 10m, but are unlikely to change the *water level range or hydrological function of the wetland* as per *NES F Reg 54 (b)* if they do not occupy or intersect with the mapped wetlands. This is also the case for earthworks required for house platform and access (<100m) which are not considered to likely result in *complete or partial drainage of all or part of the wetland* as per *NES F Reg 52(1).*

Stormwater inputs to the wetland likely represent a discharge within 100m, controlled by *NES F Reg 54(d).* The wetland type current has developed in a pastoral catchment with variable output, highly responsive to meteorological conditions, and is adapted to moderate to high fluctuations in **water level range** without discernible shift in extent or value, including **hydrological function.** Dominant species OBL & FACW *Isolepis, Paspalum distichum, Ludwigia, Machaerina, Eleocharis, Persicaria; Juncus* are adapted to raft or persist through the current inundation cycle in response to rainfall. A shift in species composition that retains an indigenous *natural inland wetland* composition is considered not to be a loss of *value* or *extent* and a less than minor level of effects.

Under the proviso inputs modelled to date should be diffuse and avoid scouring, gross sediment input or displacement of wetland vegetation, adverse effects are avoided and aquatic values and extent will be maintained.

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[40] **Policy 5:** Freshwater is managed (including through a National Objectives Framework) to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved.
Policy 6: There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.

[41] Subdivision Site Suitability Engineering Report Proposed Lots 1 & 2 RIF Urlich Family Trust & K Urlich Family Trust C0582-S-01

TABLE 9: NES-F (2020) REG 52

DRAINAGE OF NATURAL INLAND WETLANDS: 52 NON-COMPLYING ACTIVITIES	
(1) Earthworks outside, but within a 100 m setback from, a natural inland wetland is a non-complying activity if it—	
(a) results, or is likely to result, in the complete or partial drainage of all or part of a natural inland wetland; ***and***	**NO** platform and access do not occupy source areas or CSAs. Construction envelope and formal survey of wetland for Sec 223 recommended to allow visual constraint to damage
(b) does not have another status under any of regulations 38 to 51.	N/A
(2) The taking, use, damming, or diversion of water outside, but within a 100 m setback from, a natural inland wetland is a non-complying activity if it—	
(a) results, or is likely to result, in the complete or partial drainage of all or part of a natural inland wetland; ***and***	**NO** Proposed building platforms and access do not occupy source areas or CSAs.
(b) does not have another status under any of regulations 38 to 51.	N/A

TABLE 10: NES-F (2020) REG 54

OTHER ACTIVITIES: 54 NON-COMPLYING ACTIVITIES	
The following activities are non-complying activities if they do not have another status under this subpart:	
(a) vegetation clearance within, or within a 10 m setback from, a natural inland wetland:	**NONE REQUIRED IN THE PROPOSAL**
(b) earthworks within, or within a 10 m setback from, a natural inland wetland:	**NONE REQUIRED IN THE PROPOSAL** – proposed building platform and infrastructure works all outside 10m
(c) the taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland if—	
(i) there is a hydrological connection between the taking, use, damming, or diversion and the wetland; ***and***	Likely earthworks within 100m of wetland. Minor natural diffuse or sheetflow inputs within 100m may be diverted by the change of site cover however in the absence of alteration of any point source inputs or CSAs this is **unlikely to change the water level range or hydrological function of the wetlands.**
(ii) the taking, use, damming, or diversion will change, or is likely to change, the water level range or hydrological function of the wetland:	
(d) the discharge of water into water within, or within a 100 m setback from, a natural inland wetland if—	
(i) there is a hydrological connection between the discharge and the wetland; ***and***	Potential stormwater
(ii) the discharge will enter the wetland; ***and***	Likely
(iii) the discharge will change, or is likely to change, the water level range or hydrological function of the wetland.	**NO** –The wetland type current has developed in a pastoral catchment with variable output highly responsive to meteorological conditions and is adapted to moderate to high fluctuations without discernible shift in extent or value, including **hydrological function under the proviso inputs modelled to date** should be diffuse and avoid scouring, sediment input or displacement of wetland vegetation

Controls as above are considered sufficient to avoid adverse effects on any species and habitat downstream.

Site procedures for residential and infrastructure development should include designated earthworks envelopes or marking of wetlands prior to ensure contractors avoid accidental incursion and unquantifiable effects.

A bunded culvert crossing between Proposed Lots 1 & 2 is not designated for any upgrade at this point. It is considered *other infrastructure*[42], illustrated in the historic aerial review as long established before the ratification of the NES-F 92020), however remains subject to *NES- F (2020) Reg 46 Maintenance and operation of specified infrastructure and other infrastructure.* Application for resource consent will be required to NRC in this regard based on design of the modifications. Permitted activity status for culvert design should reference *NES-F Regs 70 as below*, *62 & 63* with a CIMMP provided as per *Reg 69*.

TABLE 11: NES-F (2020) REG 70 PERMITTED ACTIVITIES

NES- F REG 70 ***(1) THE PLACEMENT, USE, ALTERATION, EXTENSION, OR RECONSTRUCTION OF A CULVERT IN, ON, OVER, OR UNDER THE BED OF ANY RIVER OR CONNECTED AREA IS A PERMITTED ACTIVITY IF ITCOMPLIES WITH THE CONDITIONS.***	
(2) THE CONDITIONS ARE THAT—	
(A) THE CULVERT MUST PROVIDE FOR THE SAME PASSAGE OF FISH UPSTREAM AND DOWNSTREAM AS WOULD EXIST WITHOUT THE CULVERT, EXCEPT AS REQUIRED TO CARRY OUT THE WORKS TO PLACE, ALTER, EXTEND, OR RECONSTRUCT THE CULVERT; AND	
(B) THE CULVERT MUST BE LAID PARALLEL TO THE SLOPE OF THE BED OF THE RIVER OR CONNECTED AREA; AND	
(C) THE MEAN CROSS-SECTIONAL WATER VELOCITY IN THE CULVERT MUST BE NO GREATER THAN THAT IN ALL IMMEDIATELY ADJOINING RIVER REACHES; AND	
(D) THE CULVERT'S WIDTH WHERE IT INTERSECTS WITH THE BED OF THE RIVER OR CONNECTED AREA (S) AND THE WIDTH OF THE BED AT THAT LOCATION (W), BOTH MEASURED *IN METRES, MUST COMPARE AS FOLLOWS:* *(I) WHERE $W \leq 3$, $S \geq 1.3 \times W$:* *(II) WHERE $W > 3$, $S \geq (1.2 \times W) + 0.6$; AND*	
(E) THE CULVERT MUST BE OPEN-BOTTOMED OR ITS INVERT MUST BE PLACED SO THAT AT LEAST 25% OF THE CULVERT'S DIAMETER IS BELOW THE LEVEL OF THE BED; AND	
(F) THE BED SUBSTRATE MUST BE PRESENT OVER THE FULL LENGTH OF THE CULVERT AND STABLE AT THE FLOW RATE AT OR BELOW WHICH THE WATER FLOWS FOR 80% OF THE TIME; AND	
(G) THE CULVERT PROVIDES FOR CONTINUITY OF GEOMORPHIC PROCESSES (SUCH AS THE MOVEMENT OF SEDIMENT AND DEBRIS).	

It should also be noted that *REG 55 NES- F (2020)* requires any planting within 10m of wetland to be locally appropriate and indigenous to create a natural ecosystem pattern and avoid potential loss of values.

[42] As defined in the NPS-FM Infrastructure present prior to commencement of the regulations (2/9/2020) is considered *existing infrastructure.*

VALUES & EXTENT

Preservation of *extent* is central to the intent of the NPS – FM (2020) and accompanying protective regulations of the NES-F (2020). Consideration of the site wetland also informs potential *values.* Avoidance of loss of *values* in addition to *extent* is core policy[43] of the NPS – FM (2020).

V*alues* as per NPS- FM definition–

ECOSYSTEM HEALTH

- Currently impacted condition –functionality of sediment retention and processing, no riparian buffers on wetlands, grazed
- Remains indigenous and dense
- Contribution of basic feeding habitat and heightened territorial economics across guilds in otherwise production site

INDIGENOUS BIODIVERSITY

- Limited bird guild - insectivores dominant
- Pastoral influence – largely exotic and/or common wetland species typical of this setting
- Likely invertebrate communities adapted to wet conditions
- Wetland is > 50% indigenous in species and dominance
- Predicted fish species include a wide range that have potentially not been able to access the site for an extended period due to the downstream bunding. However, tuna may traverse pasture to the site from likely habtat adjacent and common bully readily form land locked populations.

HYDROLOGICAL FUNCTION

- Sediment retention and nutrient processing in impounded closed system, protective of groundwater and sediment control under rainfall when hydrological connections to ground and surface water pronounced.

MĀORI FRESHWATER VALUES

- outside scope of this report

[43] *Policy 6: There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.*

CONCLUSION

Wetland delineation as per MfE protocols has been undertaken on the subject property SEC 16 BLK III RANGAUNU SD (RT NA42C/431), Tokerau Beach, Karikari Peninsula, in order to determine obligations of the scheme under the NES- F (2020), identifying *natural inland wetland (NPS FM 2020)* subject to the National Environmental Standards for Freshwater NES – F (2020).

The wetlands are an intergraded combination of *fen/ swamp*, confined to lower contour within otherwise dry pasture and currently impounded by offsite bunding to the north.

The wetland assemblages have both intrinsic and functional aspects that contribute to *Low-Moderate* significance in regard to *Appendix 5 Northland Regional Policy Statement (2018)* including protection of ground and surfacewater quality, potential habitat, and natural rarity of the fen on peat.
There are no *constructed wetlands* or *artificial watercourses* or wetlands onsite as per definitions of the RMA or PNRP.

We recommend formal topographical survey for inclusion on the scheme for Sec 223 approval.

Potential adverse development effects on wetlands and terrestrial habitat can be pre empted by their recognition and best practice in the proposal and engineering design in accordance with the NES-F (2020). Buffering would serve to commend persistent habitat and character in the residential design, avoiding any further loss of extent or value of *natural inland wetland* which have persisted throughout the sites pastoral legacy.

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APPENDIX 1: SPECIES LIST

Species are listed as per Clarkson, B. et al (2021):

- **OBL: OBLIGATE**. Almost always is a hydrophyte, rarely in uplands (estimated probability >99% occurrence in wetlands)
  FACW: FACULTATIVE WETLAND. Usually is a hydrophyte but occasionally found in uplands (estimated probability 67–99% occurrence in wetlands)
- **FAC: FACULTATIVE**. Commonly occurs as either a hydrophyte or non-hydrophyte (estimated probability 34–66% occurrence in wetlands)
- **FACU: FACULTATIVE UPLAND**. Occasionally is a hydrophyte but usually occurs in uplands (estimated probability 1–33% occurrence in wetlands)
- **UPL: OBLIGATE UPLAND**. Rarely is a hydrophyte, almost always in uplands (estimated probability <1% occurrence in wetlands)

The majority of tree species are considered upland unless otherwise described.

*Denotes exotic species

MONOCOT TREES & SHRUBS

DICOT HERBS

Asphodelus fistulosuss	
Callitriche stagnalis (OBL)	starwort
Brassica oxyrrhina	smooth stemmed turnip
Crepsis capillaris(FACU)*	hawksbeard
Daucus carota (UPL presumed)*	carrot weed
Dysphania ambrosioides	Mexican tea
Epilobium pallidiflorum(OBL)	tarawera, willowherb
Gamochaeta americana	cudweed
Leondonton saxatilis (FAC)*	hawkbit
*Lotus pendunculatus** (FAC)	Lotus
Ludwigia palustris (OBL)*	ludwigia
*Myosotis laxa subsp. caespitosa**	water forget me not
Myriophyllum triphyllum (OBL)	common milfoil
Oenothera stricta	sand primrose
Persicaria hydropiper (FACW)*	Persicaria
P. decipiens (OBL)	tutanawai willow weed persicaria
Plantago lanceolata (FACU)*	narrow leaved plantain
Trifolium spp(FACU/ UPL)*	clover

GRASSES

Agrostis capillaris (FACU)*	browntop
*Alopecurus pratensis** (FACU)	meadow foxtail
Cenchrus clandestinus(FACU)*	kikuyu
Glyceria declinata (OBL)*	sweet grass
*Holcus lanatus** (FAC)	Yorkshire fog
Isachne globosa (OBL)	native swamp millet
Lagurus ovatus(UPL)	hairstail

Lolium spp (FACU/ UPL)*	ryegrass
Paspalum dilatatum (FACU)*	paspalum
P. distichum (FACW)*	mercer grass
Paspalum urvillei (FAC)	
Poa trivialis (FACU)	rough medow grass
Sporobolus africanus (FACU)*	ratstail

SEDGES & RUSHES

Carex leporina (FACW)*	
Cyperus brevifolius (FACW)*	*globe sedge*
C. eragrostis (FACW)*	
Cyperus esculentus (FACW)*	*yellow nutsedge*
Eleocharis acuta(OBL)	
Isolepis prolifera (OBL)	
I.reticularis (FACW)	
Juncus articulatus (FACW)	*jointed rush*
J. australis (FACW)	*wiwi*
J.effusus (FACW)*	*soft rush*
J.edgariae (FACW)	*wiwi/ Edgars rush*
Machaerina juncea(FACW)	
Schoenus concinnus (FACW)	
Sparganium subglobosum (OBL)	

TREES & SHRUBS

*Ulex europaeus** (FACU)	gorse

FERNS

Astroblechnum penna marina	Swamp kiokio

VINES

Blackberry *

LICHENS LYCOPODS BRYOPHYTES

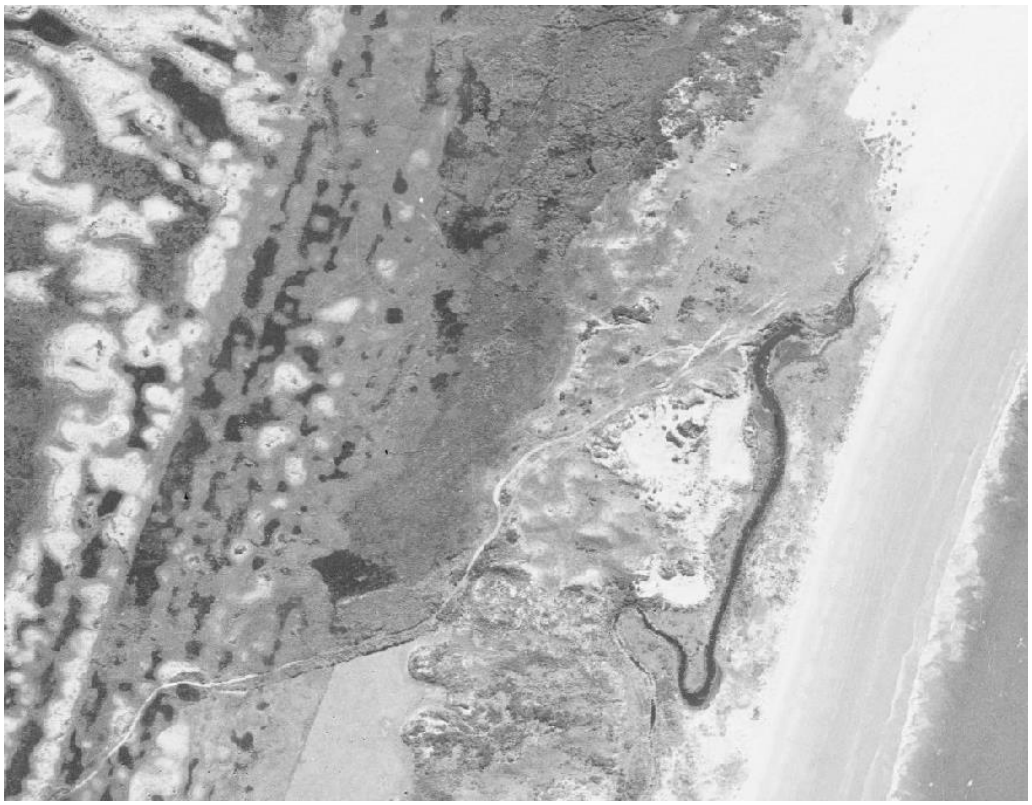
Plants given as rare in Northland as per Wildlands (2012)

No orchids were observed

Attachment 6

Archaeological Survey and Assessment of Section 16 Blk III Rangaunu SD, Tokerau, Karikari Peninsula

Prepared for Karen Urlich



Jennifer Huebert and Justin Maxwell

Sunrise Archaeology Report No. 2025-01

March 2025

Sunrise Archaeology

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Cover image: Project area in 1944. Source: Retrolens.nz.

1 Introduction

Karen Urlich commissioned this archaeological survey and assessment of her property at Tokerau, Karikari Peninsula, west of Tokerau Beach Road (Figure 1). The legal description of the property is Section 16 Blk III Rangaunu SD.

The owner wishes to subdivide this property. A draft plan showing the proposed division was supplied (Figure 2). Because there are recorded archaeological sites nearby, an archaeological assessment was recommended.

This purpose of this work was to determine whether archaeological sites or remains are located on the property, to accurately demarcate the extent of any sites and determine how intact they are, and to investigate subdivision options that would not affect any remains. It was also done to advise the landowner as to their obligations under the *Heritage New Zealand Pouhere Taonga Act 2014*, in respect to any affected archaeological sites. The survey was undertaken by Justin Maxwell and Jennifer Huebert. This report outlines the results.

Figure 1. Location of subject property, red outline. Base figure: LINZ Topo50.

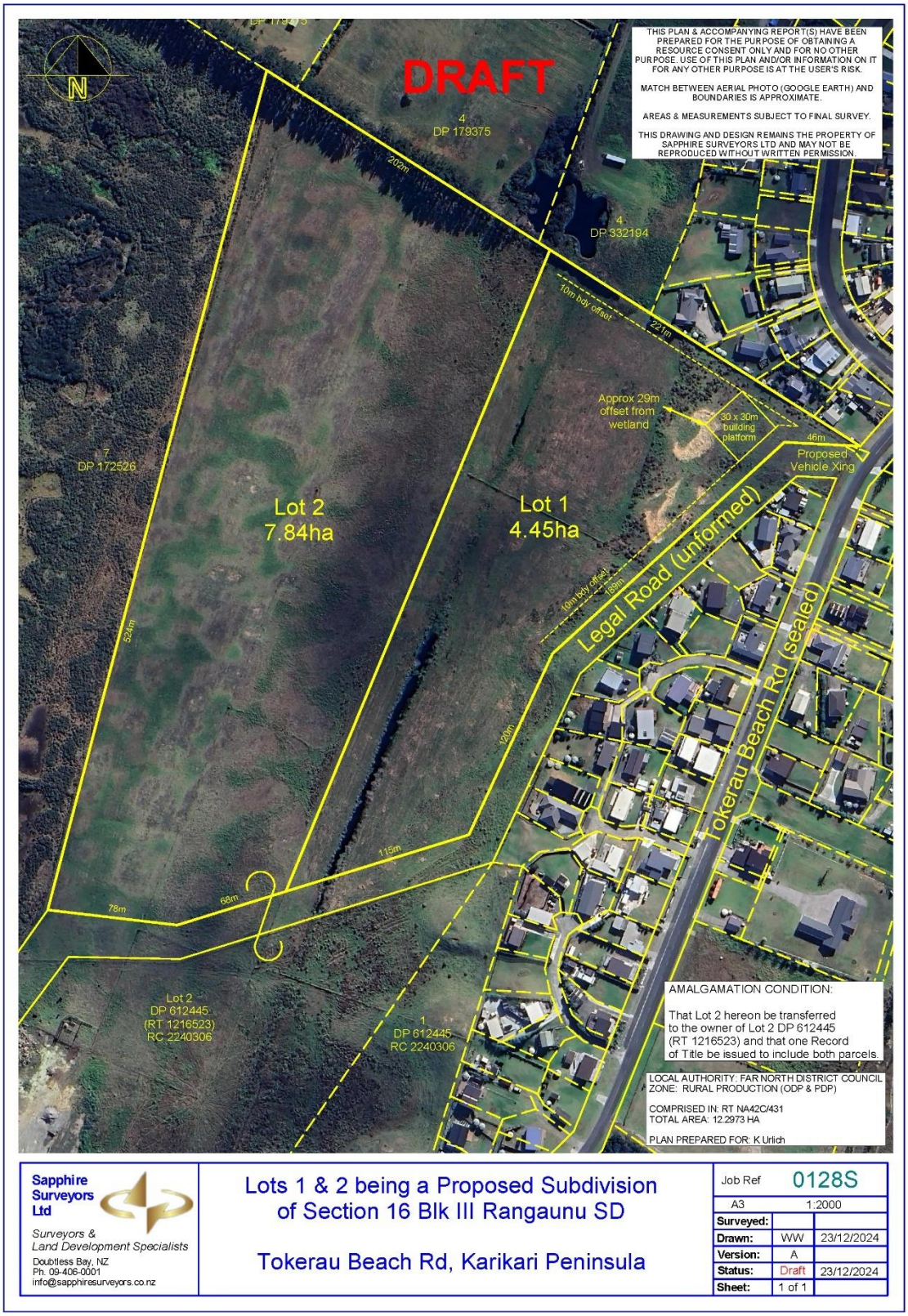

Figure 2. Overview of draft subdivision plan. Supplied by client. Draft dated 23/12/2024.

2 Statutory Requirements

There are two main pieces of legislation in New Zealand that control work affecting archaeological sites. These are the *Heritage New Zealand Pouhere Taonga Act*, 2014 (HNZPTA), and the *Resource Management Act*, 1991 (RMA).

Heritage New Zealand Pouhere Taonga Act 2014 - Archaeological Provisions

Heritage New Zealand Pouhere Taonga (HNZPT) administers the *Heritage New Zealand Pouhere Taonga Act* (HNZPTA). All archaeological sites in New Zealand are protected under this act and may only be modified with the written authority of the HNZPT. The act contains a consent (commonly referred to as an "Authority") process for work of any nature affecting archaeological sites, which are defined as:

Any place in New Zealand, including any building or structure (or part of a building or structure), that:

> *(i) Was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where the wreck occurred before 1900; and*
>
> *(ii) Provides or may provide, through investigation by archaeological methods, evidence relating to the history of New Zealand; and*

(b) Includes a site for which a declaration is made under section 43(1)

Any person who intends carrying out work that may damage, modify, or destroy an archaeological site must first obtain an authority from the HNZPT (Part 3 Section 44). The process applies to archaeological sites on all land in New Zealand irrespective of the type of tenure. The maximum penalty in the HNZPTA for un-authorised damage of an archaeological site is $120,000. The maximum penalty for un-authorised site destruction is $300,000.

The archaeological authority process applies to all sites that fit the Heritage New Zealand definition, regardless of whether:

- The site is recorded in the New Zealand Archaeological Association (NZAA) Site Recording Scheme or registered/declared by the Heritage New Zealand Pouhere Taonga,
- The site only becomes known about as a result of ground disturbance and /or,
- The activity is permitted under a district or regional plan, or resource or building consent has been granted.

HNZPT also maintains a Register of Historic Places, Historic Areas, Wahi Tapu and Wahi Tapu Areas. The register can include some archaeological sites (though the main database for archaeological sites is maintained independently by the NZAA). The purpose of the register is to inform members of the public about such places and to assist with their protection under the *Resource Management Act, 1991.*

The Resource Management Act 1991 - Archaeological Provisions

The RMA requires City, District and Regional Councils to manage the use, development, and protection of natural and physical resources in a way that provided for the well-being of today's communities while safeguarding the options for future generations. The protection of

historic heritage from inappropriate subdivision, use, and development is identified as a matter of national importance (section 6f).

Historic Heritage is defined as those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, derived from archaeological, architectural, cultural, historic, scientific, or technological qualities.

Historic heritage includes:

- historic sites, structures, places, and areas;
- archaeological sites;
- sites of significance to Māori, including wāhi tapu;
- surroundings associated with the natural and physical resources (RMA section 2).

These categories are not mutually exclusive, and some archaeological sites may include above ground structures or may also be places that are of significance to Māori.

Where resource consent is required for any activity, the assessment of effects is required to address cultural and historic heritage matters (RMA 4th Schedule and the District Plan assessment criteria (if appropriate).

3 Methodology

Sunrise Archaeology consulted local histories and other relevant archaeological literature in preparation of this assessment. The New Zealand Archaeological Association (NZAA) site recording scheme ArchSite (www.archsite.org.nz) was consulted to determine whether any previously known sites were present on or near the property. Historical land ownership records from LINZ, Archives New Zealand, and Turton's Index were consulted. Historical photograph searches were also conducted, and other records and reference texts were reviewed.

Prior to the site visit, aerial photos and cartographic records were researched to indicate potential areas of interest. Old survey plans were also examined for information relating to early structures and infrastructure in the area.

The archaeological survey was undertaken on foot. Soil probing was undertaken and shovel tests were done in areas that were potentially of interest. The location of archaeological features, if found, were recorded with a GPS unit (Garmin 64st). Photographs were taken with a hand-held camera and a drone. See Site Visit section for other particulars of this survey.

This survey was conducted to locate and record archaeological remains. The survey and report do not aim to locate or identify wāhi tapu or other places of cultural or spiritual significance to Māori. Those assessments are to be made by Tangata Whenua, who may be approached independently for any information or concerns they may have.

4 Physical Setting

The property is a large parcel of approximately 12 ha between Tokerau Beach Road and Inland Road at Tokerau, Karikari Peninsula. The entrance gate is along Tokerau Beach Road just south of Virtue Crescent. It is adjacent to a small settlement bordering Tokerau Beach and Doubtless Bay, about 11 km north of the SH10 turnoff to the peninsula. This area is composed of small residential sections developed from the mid-1970s onwards, which include numerous holiday homes.

The Karikari Peninsula was formed by several volcanic hills along its head, which over time have become joined to the mainland by tombolo, which are a series of sand dunes. Most of the peninsula lands are low-lying and exposed to winds, except for the hilly inner arm that faces Doubtless Bay. Small watercourses are present in some areas, draining into the bays on either side of the peninsula; the stream south of the project area near Simon Urlich Road is one such example. Several larger swamps are interspersed through the dunelands. Some of these, such as Lake Ohia, had large areas drained away in the later nineteenth and twentieth century.

The wide area was once home to kauri forests, which cycled through periods of growth and decline over a very long time, leaving buried timber and gum resin which can still be encountered there today. There are also indications a forest of rimu and beech persisted in places, possibly down to the foredunes, along with landbirds (including moa) and other fauna not known there today (Millener 1981, 766; Phillips 1987, 37-46). After human arrival and repeated burnings the vegetation became greatly reduced, becoming mainly a low formation with pockets of bush in some of the gullies.

The soils of most of this section are undulating bands of peat and sand. A smaller portion near the entrance along Tokerau Beach Road is a young volcanic, Maungarei clay (MEH), which is an acidic and silica-rich soil with a friable clayey topsoil over rock (Northland Regional Council, 2025).

5 Historical Background

Maōri trace some of their earliest ancestors to the Karikari Peninsula. According to oral histories, people were already inhabiting the area when the Mamaru Canoe arrived at Rangiawhia. Their descendants settled and spread throughout the area, intermarrying with other groups, and today Tokerau (Doubtless Bay) is considered the cradle of Ngāti Kahu (Wai-22 1988:260-1).

While Captain James Cook sailed past the bay in the *Endeavour* in 1769, the first consequential visit by Europeans was by the *St. Jean Baptiste* and French explorer Jean-Francis-Marie de Surville, who sailed into the bay and spent several weeks anchored off Whatuwhiwhi, going to and from shore (McNab 1914, 45). Pottier de l'Horme, the ship's lieutenant, provided firsthand observations regarding the cultivation of gourds (l'Horme in Spencer 1985, 137) along with dwellings and pā. A map of the bay made on this voyage shows the long expanse of Tokerau flanked by the dune ridge and several Maōri settlements along the Whatuwhiwhi coast. Tokerau and the central Karikari Peninsula beyond it are also described in a map note: "The Lands are low, it is a fine Sandy Beach".

The subject property was part of the large Crown purchase of the Puheke Block in 1859 (Figure 3). By the 1870s, much of the Karikari Peninsula had become one of several extensive gumfields in the Muriwhenua, in terms of land area, and the present subject property was at the margins of a large gum reserve (Greville 1914). Flax was also grown and harvested on the peninsula on a large scale during this time. The main settlements on the peninsula were at Lake Ohia, Toanga, and Rangiputa (Coster 1984/5), and at its height there were up to 1500 men on the gumfields (Greville 1914:42).

By 1944, the project area was undeveloped with a track to the south/southeast and few small structures in the dunes to the north, near what is today Virtue Crescent (Figure 4). This figure shows much of the subject property was swampy, with the northeastern corner extending into dunes which were covered in patchy low scrub and/or grasses. A small stream meanders through the dunes to the east, emptying onto the beach near the northeast corner of the property.

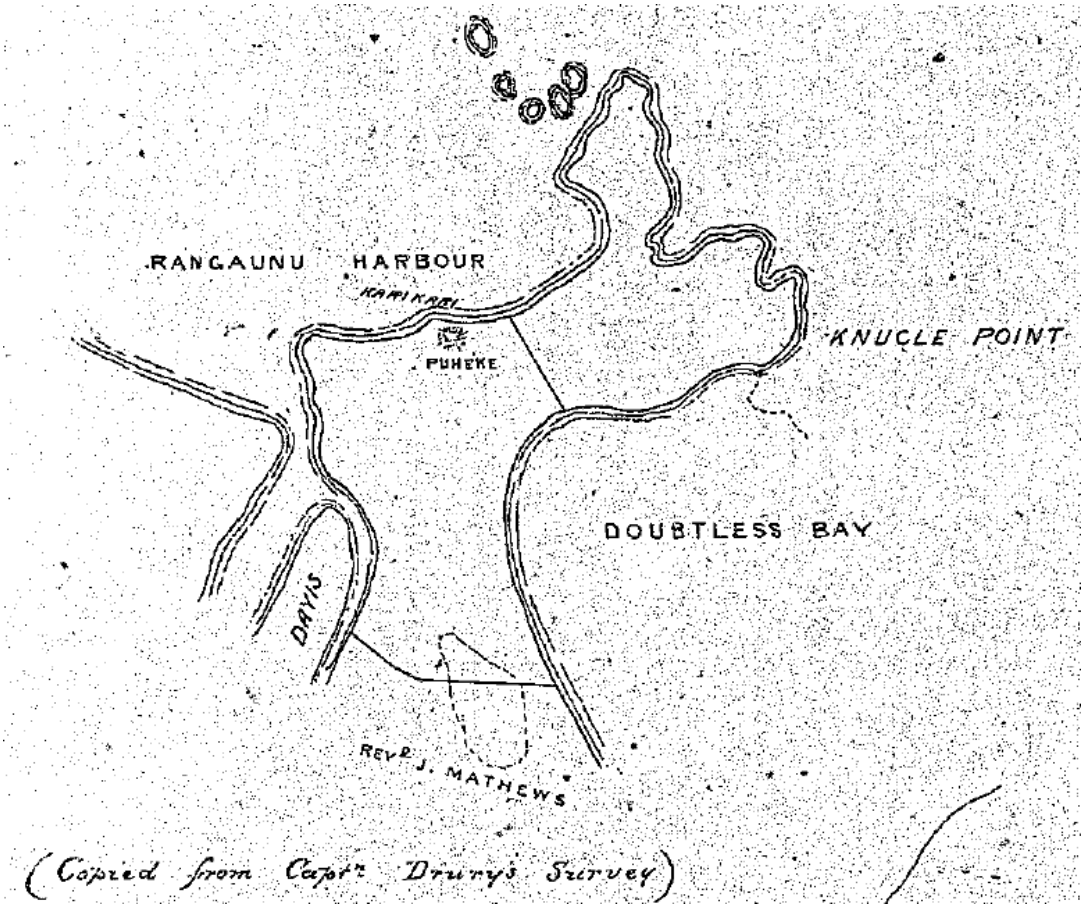

Figure 3. Puheke Block, 7 September 1859. Source: Turton 1877.

Figure 4. Project area in 1944. Source: Retrolens image #350/1048/23.

6 Previous Archaeology

The most detailed surveys of the Karikari Peninsula were conducted by Phillips (1987) as part of a dissertation focused mainly on Māori-associated, pre-European sites. These surveys resulted in the recording of several midden sites near the present project area.

Other surveys have been done for the Carrington Estate to the north, and various subdivisions in and around Whatuwhiwhi (Taylor 1999 and others). There have also been a number of surveys in the sand dunes of Tokerau, which covered large areas of the dunes south of the present project area (Coster 1984/5; Slocombe 1997). These surveys have documented a nearly-continuous series of Māori middens and deflated middens which continue for many km along the Tokerau coast.

A recorded midden (O03/71) is within ~225 m of the proposed house platform, and several others are less than 250 m from the property boundaries. Site types within the area of interest are all shell midden (Figure 5, Table 1), some of which include burnt shells and the remains of cooking fires including oven stones, fire-cracked rock, and charcoal.

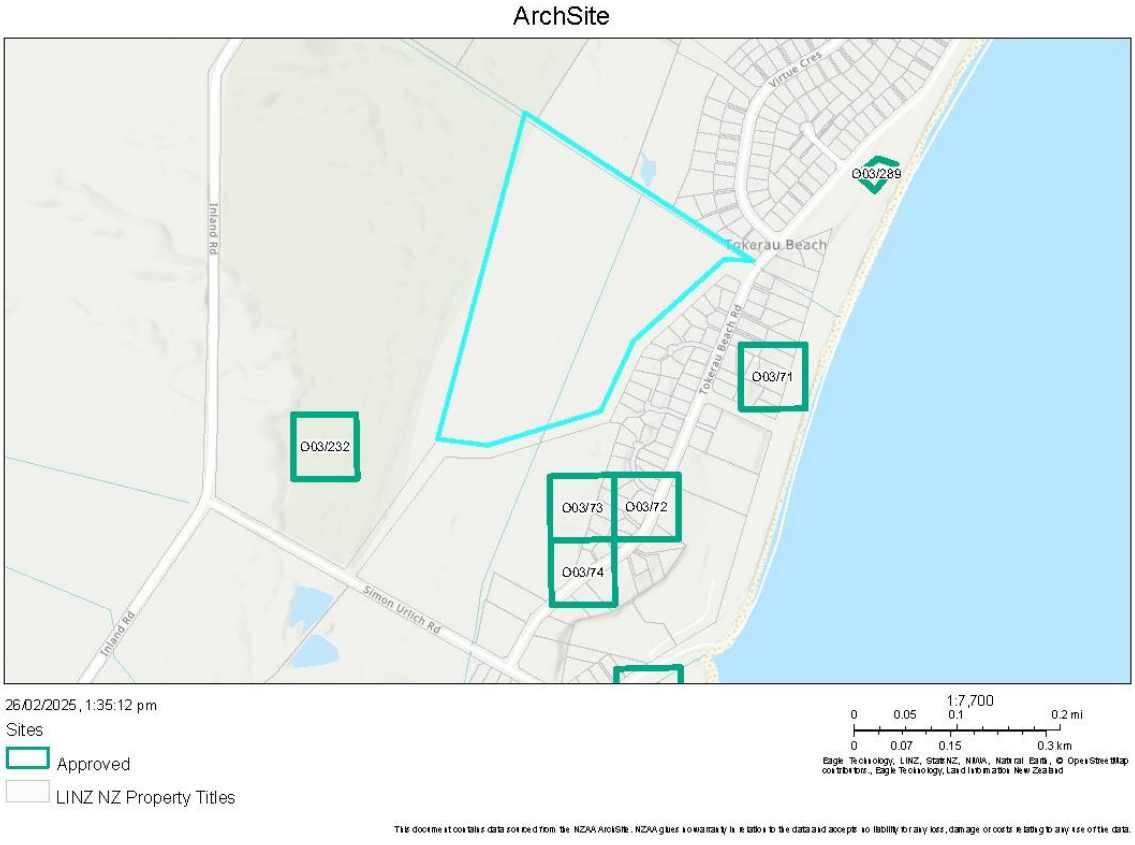

Figure 5. Recorded archaeological sites on or in the vicinity of the project area. Property outlined in blue. Source: NZAA Archsite (www.archsite.org.nz).

Table 1. Recorded archaeological sites on or near the subject property. Source: NZAA Archsite 2025. Shaded sites adjoin the subject property.

NZAA Site Number	Site Type	Year Recorded / Revisited	Description
O03/71	Midden	1978	Shell, burnt and fire cracked rock; midden scatters and lenses on gentle dune slope; some possibly modern
O03/72	Midden	1978	Lens of shell, charcoal, ash, and fragment of seal bone
O03/73	Midden	1978	Scatter of burnt and cracked shell, fire-cracked rock, and charcoal in dark stained sand. Mixed with subfossil shell
O03/74	Midden	1978	Two scatters of shell, burnt and cracked, fire cracked rock, charcoal, on dark sand
O03/232	Midden	1995	Two shell scatters on ridge around swamp head; may be associated with gum digging activities
O03/289	Midden	2024	Patchy midden over ~500m², including whole and fragmentary shell, charcoal, a fragment of flaked stone

7 Site Visit

The authors visited the project area on 14 February 2025. The weather was fine and there were no limitations to the survey. Visibility of the ground surface was good as much of the property is grazed. Large areas were wet and covered in sedges and/or grasses.

The survey was focused on the proposed house platform and its surroundings and the accessway from Tokerau Beach Road. Other areas of higher ground were also probed or tested. Overall, twenty shovel tests were dug in a grid across the proposed building platform and accessway which crosses part of a paper road (see Figure 2). Larger areas of exposed sand were also visually inspected, and portions of the low-lying ground were walked. Lot 2 was not surveyed as it is to remain in pasture.

No above-ground features were identified. Topsoil depth was shallow, ~5 cm, overlaying a fine, light brown semi-consolidated sand. All tests were sterile.

Figure 6. Drone photograph of subject property. Proposed building platform on rise where vehicle is parked. Facing east.

Figure 7. Drone photograph of subject property. Facing south.

Figure 8. Drone photograph of subject property. Facing north.

Figure 9. Entrance to property off Tokerau Beach Road. Facing west.

Figure 10. Proposed building platform. Facing east. Scale units: 20 cm.

Figure 11. View from west edge of proposed building platform. Facing northwest.

Figure 12. Typical ground cover.

Figure 13. Results of shovel testing showing typical stratigraphy. Scale units: 20 cm.

8 Archaeological Significance

Heritage New Zealand Pouhere Taonga requires certain matters to be taken into account when assessing the archaeological value or significance of an archaeological site. These are: condition; rarity, unusualness, uniqueness; the context; information potential; amenity potential; and any cultural associations (HNZPT 2014).

Testing suggests that soils in the proposed building platform are culturally sterile and are likely to be fill. Any in situ archaeological materials that might be below this would be significant, as they could inform on past Māori activities. Though deemed unlikely, it is possible low-lying wet areas of the property may contain archaeological features or materials.

Overall, the archaeological evidence for this area indicates the dunes extending all along Tokerau are part of a vast area used by Māori frequently and over a long period before contact. This area typifies New Zealand archaeological landscapes where the primary activities were specialised and related to gathering and processing marine resources. While many sites such as these reflect short-term uses, is possible that small groups also lived permanently near the shores of Doubtless Bay, most likely to the north and along the inner arm of the peninsula.

9 Heritage Significance

Heritage significance and values accounted for under the Resource Management Act 1991. The following matters must be taken into account when assessing Heritage significance/values include: historical, architectural, cultural, scientific, and technological qualities (RMA 1991).

Table 2. Heritage significance evaluation.

Location	Criteria	Assessment	Significance
Tokerau, Karikari Peninsula	Historical: the place reflects important or representative aspects of national, regional, or local history, or is associated with an important event, person, group or idea or early period of settlement within NZ, the region or locality.	This area forms part of a wider cultural/ archaeological landscape, associated with Māori use of the Karikari Peninsula, some of which may date to an early period of use.	Moderate
	Architectural attributes: the place is notable or representative example of its type, design or style, method of construction, craftsmanship or use of materials or the work of a notable architect, designer, engineer or builder.	The location has no architectural significance/value.	None
	Social: the place has a strong or special association with or is held in high esteem by a particular community or cultural group for its symbolic, spiritual, commemorative, traditional or other cultural value.	Significance to Māori be determined by the affected tangata whenua.	N/A

Location	Criteria	Assessment	Significance
	Cultural/Mana whenua: the place has a strong or special association with or is held in high esteem by mana whenua for its symbolic, spiritual, commemorative, traditional or other cultural value.	This to be determined by tangata whenua.	N/A
	Scientific: the place has potential to provide knowledge through scientific or scholarly study or to contribute to an understanding of the cultural or national history of NZ, the region or locality.	Middens have potential to provide scientific information on Māori activities, though many of these features along Tokerau are exposed on the surface and eroding.	Low-Moderate
	Technology: the place demonstrates technical accomplishment, innovation or achievement in its structure, construction, components, or use of materials.	Sites have no technological significance/value.	None
	Aesthetic: the place is notable or distinctive for its aesthetic, visual or landmark qualities.	The site has no aesthetic value.	None
	Context: the place contributes to or is associated with a wider historic or cultural context, streetscape, townscape, landscape or setting.	The expansive Tokerau dunes provide views across most of Doubtless Bay, several pā sites on the inner arm of the Karikari Peninsula, and high points farther distant. The adjacent Tokerau Beach has long been used as a pathway connecting communities on the outer peninsula and those to the south.	Moderate

Additional comments

Overall, the heritage value of the location/sites/area is of low-moderate significance, at a local and regional level. No additional ranking is appropriate or required.

10 Assessment of Effects on Archaeological Features

This survey was undertaken to relocate and establish the extent of known archaeological sites on the property, and to determine whether the proposed building platforms and associated infrastructure would affect known or unidentified archaeological material or sites. The assessment was done to determine whether the sites would be damaged during the planned development, and advise as to how site damages could be mitigated.

No archaeological sites were found during this survey. Overall, ground disturbance in that area is determined to have a low likelihood of encountering intact archaeological material or features. If there any in situ features remain in the area of the building platform, they are deeply buried under sterile fill.

This survey was conducted specifically to locate and record archaeological remains. The survey and report does not necessarily include the location and/or assessment of wāhi tapu or sites of cultural or spiritual significance to the local Māori community, who may be approached independently for any information or concerns they may have.

11 Recommendations and Conclusion

Sunrise Archaeology was commissioned by Karen Urlich to provide an archaeological assessment of their property west of Tokerau Beach Road, Karikari Peninsula, just south of Virtue Crescent. The legal description of the property is Section 16 Blk III Rangaunu SD.

No sites were identified during the field survey. It is possible that archaeological materials may be present on the property, notably below deep fill where the building platform is proposed.

The following recommendations are made:

1) The subdivision can proceed without requirement for a Heritage New Zealand Authority to damage, modify or destroy an archaeological site.

2) In the unlikely event that subsurface archaeological remains are uncovered during earthworks, all work affecting such remains will need to cease immediately and an archaeologist must be notified so that appropriate action can be taken.

3) Any alterations to the proposed works need to be reviewed for comment and/or assessment by an archaeologist.

The survey of the property was conducted specifically to locate and record archaeological remains. The survey and report does not necessarily include the location and/or assessment of wāhi-tapu or sites of cultural or spiritual significance to the local Māori community, who may be approached independently for any information or concerns they may have.

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Attachment 7

PROPOSED DISTRICT PLAN – DEVELOPMENT CONTROL CHECK S.86B OF THE RMA 1991

RIF Urlich Family Trust & K Urlich Family Trust, Tokerau Beach

Rule	Assessment
Hazardous Substances HS-R2, R5, R6, R9	The site does not contain, nor are any hazardous substance facilities proposed.
Heritage Area Overlays HA-R1 to R14 inclusive. HA S1 & S2	N/A as none apply to the application site.
Historic Heritage Rules and Schedule 2. Rules HH R1-R9 Inclusive.	N/A as the site does not have any identified (scheduled) historic heritage values.
Notable Trees NT R1 – R9 inclusive and NT S1 & S2	N/A – no notable trees present on the site.
Sites and Areas of Significance to Māori SASM R1 – R7 inclusive.	The PDP does not list any site or area of significance to Māori as being present on the site.
Ecosystems and Indigenous Biodiversity – IB-R1 to R5	No indigenous vegetation clearance is proposed.
Subdivision SUB R6, R13, R14, R15, R17.	The site contains no Heritage Resources, Scheduled Sites of Significance to Māori or a Scheduled Significant Natural Area. No Environmental Benefit subdivision is proposed.
Activities on the Surface of Water ASW R1 – R4 inclusive.	N/A as no such activities are proposed.
Earthworks EW R12 & EW R13 and EWS3 & EWS5	EW-R12 and associated EW-S3 relate to the requirement to abide by Accidental Discovery Protocol if carrying out earthworks and artefacts are discovered. EW-R13 and associated EW-S5 refer to operating under appropriate Erosion and Sediment Control measures. These are addressed in the earthworks methodology.
Signage – SIGN R9 & R10 and S1 to S6 Inclusive.	N/A – No heritage resources are present on the site and signage does not form part of this application.

Attachment 8

OPERATIVE DISTRICT PLAN – DEVELOPMENT CONTROL CHECK

RIF Urlich Family Trust & K Urlich Family Trust, Tokerau Beach

Chapter / Rule	Compliance Statement
Chapter 12.1 - Landscapes and Natural Features	Does not apply as there is no landscape or natural feature overlay applying to the site.
Chapter 12.2 Indigenous Flora and Fauna	Does not apply as there is no clearance of indigenous vegetation proposed. The supplied ecological report demonstrates that there are no effects on indigenous flora and fauna.
Chapters 12.5, (5A) and (5B) Heritage	Does not apply as the site does not contain any heritage sites, notable trees, sites of cultural significance to Māori that are scheduled in the ODP. Whilst there are no recorded archaeological sites as shown on the NZAA Database on the site, there are sites in the vicinity and outside of the subject site. Please refer to the supplied Archaeological report.
Chapter 12.7 Waterbodies	The subdivision does not include any buildings or other impermeable surfaces, nor on-site wastewater system, breaching the setback requirements specified in this chapter. Whilst there is a wetland on the property, the proposed building platform is greater than 30 metres from the wetland edge and no change to wetland water levels will result. Please refer to the attached ecological report.
Chapter 12.8 Hazardous Substances	Does not apply as the activity being applied for is not a hazardous substances facility.
Chapter 12.9 Renewable Energy	Does not apply as the activity does not involve renewable energy.
13.6.5 Legal Road Frontage	The lot has adequate legal frontage as shown on plan of subdivision.
13.6.8 Subdivision Consent before work commences	All necessary calculations and assessment of effects have been provided so that this subdivision consent application is deemed to include consent to excavate and fill land for access and building platforms. No vegetation clearance is proposed. Please refer to the attached engineering report.
13.7.2 Allotment size	Complies with standards for RDA subdivision under Rule 13.7.2.1 (4)
13.7.2.2 Allotment Dimensions	30 metre by 30 metre building platforms are shown on plan of subdivision

13.7.2.3 Amalgamation of Land	N/A as whilst amalgamation will occur, this is with a site in the Rural Production Zone.
13.7.2.4 Lots Divided by Zone Boundaries	N/A
13.7.2.5 Outstanding Landscape, Outstanding Landscape Feature Or Outstanding Natural Feature	N/A as the ODP does not list any of these items on the site.
13.7.2.6 Access, Utilities, Roads, Reserves	N/A
13.7.2.7 Savings as to previous proposals	N/A
13.7.2.8 Proximity To Top Energy Transmission Lines	N/A
13.7.2.9 Proximity To The National Grid	N/A
13.7.3.1 Property Access	Complies - and as addressed under the Chapter 15 assessment below. See attached engineering report.
13.7.3.2 Natural And Other Hazards	Complies – see attached engineering report on s.106 matters.
13.7.3.3 Water Supply	Complies - Water supply will be via roof catchment and used for firefighting. See attached engineering report.
13.7.3.4 Stormwater Disposal	Complies – an engineering report from a Chartered Professional Engineer has been supplied.
13.7.3.5 Sanitary Sewage Disposal	Complies - a report from a Chartered Professional Engineer has been supplied.
13.7.3.6 Energy Supply	Complies - see correspondence from Top Energy confirming connections available.
13.7.3.7 Telecommunications	See correspondence from the telecommunications provider confirming connections are available.
13.7.3.8 Easements For Any Purpose	N/A none proposed.
13.7.3.9 Preservation Of Heritage Resources, Vegetation, Fauna And Landscape, And Land Set Aside For Conservation Purposes	N/ A as there are no listed items present.
13.7.3.10 Access To Reserves And Waterways	N/A
13.7.3.11 Land Use Compatibility	Conditions of consent are provided to address this issue.

13.7.3.12 Proximity To Airports	N/A
Chapter 14 Financial Contributions	No esplanade reserve or strip is offered is as part of this subdivision.
Chapter 15.1.6A.1 & 15.1.6A.2 & 15.1.6A.2.1 – Traffic Movements	The rules in Chapter 15.1.6A.1 & 15.16A.2 are clear that they are to be applied in conjunction with the Traffic Intensity Factor ("TIF") Tables in Appendix 3A. These only apply to land use activities so are not relevant to the proposed subdivision.
15.1.6B - Parking Requirements	As above, these rules apply to land use activities and not subdivision.
Rule 15.1.6C.1.1 to 15.1.6C.1.11 inclusive. Access	Complies – The proposed lot will have a minimum carriage way width of three metres or more and an access gradient of less than 1:5. No crossings are proposed within 30 metres of an intersection with an arterial or collector road. All crossings can be formed to Council's "Engineering Standards and Guidelines" (June 2004 – Revised 2009). General access standards can be complied with. The supplied engineering report addresses these matters.

Attachment 9

Operative District Plan – Relevant Assessment Criteria

Urlich Tokerau Beach

Restricted Discretionary Subdivision Consent : Matters for Discretion & Assessment Criteria

13.8.1 SUBDIVISION WITHIN THE RURAL PRODUCTION ZONE

Subdivision is a restricted discretionary activity where:

(a) the minimum lot size is 12ha; or alternatively

(b) a maximum of 3 lots in any subdivision, provided that the minimum size of any lot is 4,000m^2 and there is at least one lot in the subdivision with a minimum lot size of 4ha, and provided further that the subdivision is of sites which existed at or prior to 28 April 2000, or which are amalgamated from titles existing at or prior to 28 April 2000; or alternatively

(c) a maximum of 5 lots in a subdivision (including the parent lot) where the minimum size of lots is 2ha, and where the subdivision is created from a lot that existed at or prior to 28 April 2000.

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

(i) for applications under ***13.8.1(a)***:

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

(ii) for applications under ***13.8.1(b)*** or ***(c)***:

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

In considering whether or not to impose conditions on applications for restricted discretionary subdivision activities the Council will restrict the exercise of its discretion to the following matters:

(1) the matters listed in ***13.7.3***;

(2) the matters listed in ***(i)*** and ***(ii)*** above.

For the purposes of this rule the upstream boundary of the coastal environment in the upper reaches of harbours is to be established by multiplying the width of the river mouth by five.

13.7.3 CONTROLLED (SUBDIVISION) ACTIVITIES: OTHER MATTERS TO BE TAKEN INTO ACCOUNT

Any application for a controlled (subdivision) activity resource consent must also make provision (where relevant) for the matters listed under ***Rules 13.7.3.1*** to ***13.7.3.12*** (inclusive), and the Council shall take account of these matters in reaching a decision on the application.

13.7.3.1 PROPERTY ACCESS (see ***Chapter 15 Transportation***)

A controlled (subdivision) activity application must comply with rules for property access in ***Chapter 15***, namely ***Rules 15.1.6C.1.1 - 15.1.6C.1.11*** (inclusive).

13.7.3.2 NATURAL AND OTHER HAZARDS

Any proposed subdivision shall avoid, remedy or mitigate any adverse effects of natural hazards.

In considering a controlled (subdivision) activity application under ***Rule 13.7.3.2*** the Council will restrict the exercise of its control to the following matters and shall have regard to section 106 of the Resource Management Act 1991:

(a) the degree to which the proposed subdivision avoids, remedies or mitigates the potential adverse effects of:

(i) erosion;

(ii) overland flow paths, flooding and inundation;

(iii) landslip;

(iv) rockfall;

(v) alluvion (deposition of alluvium);

(vi) avulsion (erosion by streams or rivers);

(vii) unconsolidated fill;

(viii) soil contamination;

(ix) subsidence;

(x) fire hazard;

(xi) sea level rise

Provided that where ***Coastal Hazard Maps*** show land as being within a Coastal Hazard 1 Area, any subdivision that will create additional allotments (other than to facilitate the subdivision of land for the purposes of transfer to the Council) shall be a non-complying subdivision activity.

13.7.3.3 WATER SUPPLY

All new allotments shall be provided with the ability to connect to a safe potable water supply with an adequate capacity for the respective potential land uses, except where the allotment is for a utility, road, reserve or access purposes, by means of one of the following:

(a) a lawfully established reticulated water supply system; or

(b) where no reticulated water supply is available, the ability to provide an individual water supply on the respective allotment.

In considering a controlled (subdivision) activity application under ***Rule 13.7.3.3*** the Council will restrict the exercise of its control to the following matters:

(i) the adequacy of the supply of water to every allotment being created on the subdivision, and its suitability for the likely land use, for example the installation of filtration equipment if necessary;

(ii) adequacy of water supplies, and access for fire fighting purposes;

(iii) the standard of water supply infrastructure installed in subdivisions, and the adequacy of existing supply systems outside the subdivision.

13.7.3.4 STORMWATER DISPOSAL

(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).

(b) The preferred means of disposal of collected stormwater in urban areas will be by way of piping to an approved outfall, each new allotment shall be provided with a piped connection to the outfall laid at least 600mm into the net area of the allotment. This includes land allocated on a cross lease or company lease. The connection should be at the lowest point of the site to enable water from driveways and other impervious surfaces to drain to it. Where it is not practical to provide stormwater connections for each lot then the application for subdivision shall include a report detailing how stormwater from each lot is to be disposed of without adversely affecting downstream properties or the receiving environment.

(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).*

In considering a controlled (subdivision) activity application under ***Rule 13.7.3.4*** the Council will restrict the exercise of its control to the following matters:

(i) control of water-borne contaminants, litter and sediments;

(ii) the capacity of existing and proposed stormwater disposal systems (refer also to the Council's various urban stormwater management plans and any relevant Northland Regional Council stormwater discharge consents);

(iii) the effectiveness and environmental impacts of any measures proposed for avoiding or mitigating the effects of stormwater runoff, including low impact design principles;

(iv) the location, scale and construction of stormwater infrastructure;

(v) measures that are necessary in order to give effect to any drainage or catchment management plan that has been prepared for the area.

13.7.3.5 SANITARY SEWAGE DISPOSAL

(a) Where an allotment is situated within a duly gazetted district or drainage area of a lawfully established reticulated sewerage scheme, or within an area to be serviced by a private reticulated sewerage scheme for which Northland Regional Council has issued a consent, each new allotment shall be provided with a piped outfall connected to that scheme and shall be laid at least 600mm into the net area of the allotment.

(b) Where connection is not available, all allotments in urban, rural and coastal zones shall be provided with a means of disposing of sanitary sewage within the net area of the allotment, except where the allotment is for a road, or for access purposes, or for a purpose or activity for which sewerage is not necessary (such as a transformer).

Note: Allotments include additional vacant sites on cross lease or unit titles.

In considering a controlled (subdivision) activity application under ***Rule 13.7.3.5*** the Council will restrict the exercise of its control to the following matters:

(i) the method and adequacy of sewage disposal where a Council owned reticulated system is not available;

(ii) the capacity of, and impacts on, the existing reticulated sewage disposal system;

(iii) the location, capacity and environmental effects of the proposed sanitary sewerage system.

13.7.3.6 ENERGY SUPPLY

All urban allotments (Residential, Commercial, Industrial Zones) including the Coastal Residential, Russell Township, and Rural Living Zones, shall be provided with the ability to connect to an electrical utility system and applications for subdivision consent should indicate how this could be done.

In considering a controlled (subdivision) activity application under ***Rule 13.7.3.6*** the Council will restrict the exercise of its control to the following matters:

(i) the adequacy and standard of any electrical utility system.

13.7.3.7 TELECOMMUNICATIONS

All urban allotments (Residential, Commercial, Industrial Zones) including the Coastal Residential, Russell Township, and Rural Living Zones, shall be provided with the ability to connect to a telecommunications system at the boundary of the site.

In considering a controlled (subdivision) activity application under ***Rule 13.7.3.7*** the Council will restrict the exercise of its control to the following matters:

(i) the adequacy and standard of telecommunication installations.

13.7.3.8 EASEMENTS FOR ANY PURPOSE

Easements shall be provided where necessary for public works and utility services.

In considering a controlled (subdivision) activity application under ***Rule 13.7.3.8*** the Council will restrict the exercise of its control to the following matters:

(a) Easements in gross where a service or access is required by the Council.

(b) Easements in respect of other parties in favour of nominated allotments or adjoining Certificates of Title.

(c) Service easements, whether in gross or private purposes, with sufficient width to permit maintenance, repair or replacement. Centre line easements shall apply when the line is privately owned and unlikely to require upgrading.

(d) The need for easements for any of the following purposes:

(i) private ways, whether mutual or not;

(ii) stormwater, sanitary sewer, water supply, electric power, gas reticulation;

(iii) telecommunications;

(iv) party walls and floors/ceilings;

(v) other utilities.

13.7.3.9 PRESERVATION OF HERITAGE RESOURCES, VEGETATION, FAUNA AND LANDSCAPE, AND LAND SET ASIDE FOR CONSERVATION PURPOSES

Where any proposed allotment contains one or more of the following:

(a) a Notable Tree as listed in ***Appendix 1D***;

(b) an Historic Site, Building or Object as listed in ***Appendix 1E***;

(c) a Site of Cultural Significance to Maori as listed in ***Appendix 1F***;

(d) an Outstanding Natural Feature as listed in ***Appendix 1A***;

(e) an Outstanding Landscape Feature as listed in ***Appendix 1B***;

(f) an archaeological site as listed in ***Appendix 1G***;

(g) an area of significant indigenous vegetation or significant habitats of indigenous fauna, as defined in ***Method 12.2.5.6***.

The continued preservation of that resource, area or feature shall be an ongoing condition for approval to the subdivision consent.

Note: There are many ways in which preservation/protection can be achieved, and the appropriate means will vary according to the circumstance. In some cases physical means (e.g. fencing) may be appropriate. In other cases, a legal means will be preferred instead of (or as well as) physical means.

Council encourages permanent protection by:

(i) a reserve or covenant under the Reserves Act;

(ii) a Maori reservation under s338 and s340 of Te Ture Whenua Maori (Maori Land) Act;

(iii) a conservation covenant with the Department of Conservation or the Council;

(iv) an open space covenant with the Queen Elizabeth II National Trust;

(v) a heritage covenant with the Heritage New Zealand Pouhere Taonga.

In considering a controlled (subdivision) activity application under ***Rule 13.7.3.9*** the Council will restrict the exercise of its control to the preservation of significant indigenous vegetation and fauna habitats, heritage resources and landscape.

Where an application is made under this provision, the following shall be included as affected parties in terms of s93 and s94 of the Act:

- for an Historic Site, Building or Object, or archaeological site, the Heritage New Zealand Pouhere Taonga and the Department of Conservation;
- for a Site of Cultural Significance to Maori, the tangata whenua for whom the site has significance;
- for an area of significant indigenous vegetation or significant habitat of indigenous fauna, the Department of Conservation.

13.7.3.10 ACCESS TO RESERVES AND WATERWAYS

Where appropriate and relevant, public access shall be provided in proposed subdivisions, to public reserves, waterways and esplanade reserves.

The Council may decide, on application, that public access to reserves or public areas may be provided in lieu of, or partially in lieu of, any reserves or financial contribution that is required in respect of the subdivision.

In considering a controlled (subdivision) activity application under ***Rule 13.7.3.10*** the Council will restrict the exercise of its control to the provision of easements or registration of an instrument for the purpose of public access and the provision of public works and utility services.

13.7.3.11 LAND USE COMPATIBILITY

Subdivision shall avoid, remedy or mitigate any adverse effects of incompatible land uses (reverse sensitivity). In considering a controlled subdivision activity under **Rule 13.7.3.11** the Council will restrict the exercise of its control to the following matters:

(i) the degree to which the proposed allotments take into account adverse effects arising from incompatible land use activities (including but not limited to noise, vibration, smell, smoke, dust and spray) resulting from an existing land use adjacent to the proposed subdivision.

13.7.3.12 PROXIMITY TO AIRPORTS

Where applications for subdivision consent relate to land that is situated within 500m of the nearest boundary of land that is used for an airport, the airport operator will be considered by the Council to be an affected party. The written approval of the airport operator to the proposed subdivision must be obtained by the applicant. Where this approval cannot be obtained, the Council will consider the application as a discretionary activity application.

Attachment 10

Fourth Schedule Assessment under Resource Management Act 1991

Compliance Check for Information Required

RIF Urlich Family Trust & K Urlich Family Trust, Tokerau Beach

Clause 2 Information Required in all applications	
(1) An application for a resource consent for an activity must include the following:	
(a) a description of the activity: .	Refer Paragraphs 2.1 to 2.5 of this Planning Report and attachments.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Paragraphs 4.3 to 4.11 of this Planning Report and attachments.

(b) a description of the site at which the activity is to occur:	Refer to Paragraphs 1.7 to 1.16 of this report.
(c) the full name and address of each owner or occupier of the site:	This information is contained in the Form 9 attached to the application.
(d) a description of any other activities that are part of the proposal to which the application relates:	The application is for subdivision for a vacant lot subdivision under the provisions of the ODP. No other breaches of the ODP have been identified. Please refer to Attachment 8.
(e) a description of any other resource consents required for the proposal to which the application relates:	Consent is being sought for subdivision under the ODP only.
(f) an assessment of the activity against the matters set out in Part 2:	Refer to Paragraphs 6.0 to 6.5 of this Planning Report.
(g) an assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b), including matters in Clause (2): *(2) The assessment under subclause (1)(g) must include an assessment of the activity against—* *(a). any relevant objectives, policies, or rules in a document; and* *(b) any relevant requirements, conditions, or permissions in any rules in a document; and* *(c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).* *(3) An application must also include an assessment of the activity's effects on the environment that—* *(a) includes the information required by clause 6; and* *(b) addresses the matters specified in clause 7; and* *(c)includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.*	Refer to Paragraphs 5.0 to 5.21 of this Planning Report.

Clause 3. Additional Information Required in Some Applications	
An application must also include any of the following that apply:	
a. *if any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1)):*	Please refer to Attachment 5.
b. *if the application is affected by section 124 or 165ZH(1)(c) (which relate to existing resource consents), an assessment of the value of the investment of the existing consent holder (for the purposes of section 104(2A)):*	There is no existing resource consent. Not applicable.
c. *if the activity is to occur in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai Moana) Act 2011, an assessment of the activity against any resource management matters set out in that planning document (for the purposes of section 104(2B)).*	The site is not within an area subject to a customary marine title group. Not applicable.

Clause 4 Additional Information required in application for subdivision consent	
An application for a subdivision consent must also include information that adequately defines the following:	
(a) the position of all new boundaries: *(b) the areas of all new allotments, unless the subdivision involves a cross lease, company lease, or unit plan:* *(c) the locations and areas of new reserves to be created, including any esplanade reserves and esplanade strips:* *(d) the locations and areas of any existing esplanade reserves, esplanade strips, and access strips:* *(e) the locations and areas of any part of the bed of a river or lake to be vested in a territorial authority* *under section 237A:* *(f) the locations and areas of any land within the coastal marine area (which is to become part of the common marine and coastal area under section 237A):* *(g) the locations and areas of land to be set aside as new roads.*	Refer to Scheme Plan in Attachment 3.

Clause 6: Information required in assessment of environmental effects	
(1) An assessment of the activity's effects on the environment must include the following information:	
(a) if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:	Refer to Paragraphs 4.3 to 4.11 of this planning report. The activity will not result in any significant adverse effect on the environment.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Paragraphs 4.3 to 4.11 of this planning report.
(c) if the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use:	Not applicable as the application does not involve hazardous installations.
(d) if the activity includes the discharge of any contaminant, a description of—	The subdivision does not involve any discharge of contaminant.

(i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and *(ii) any possible alternative methods of discharge, including discharge into any other receiving environment:*	
(e) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:	Refer to Paragraphs 4.3 to 4.11 of this planning report and attachments.
(f) identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted:	Refer to Paragraphs 7.0 to 7.3 of this planning report. No affected persons have been identified.
g) if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved:	No monitoring is required as the scale and significance of the effects do not warrant it.
(h) if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).	No protected customary right is affected.

Clause 7: Matters that must be addressed by assessment of environmental effects	
(1) An assessment of the activity's effects on the environment must address the following matters:	
(a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:	Refer to Paragraphs 4.3 to 4.11, and also to the assessment of objectives and policies Paragraphs 5.0 to 5.21.
(b) any physical effect on the locality, including any landscape and visual effects:	Refer to Paragraphs 4.3 to 4.11, and also to the assessment of objectives and policies Paragraphs 5.0 to 5.21. The site has no high or outstanding landscape or natural character values.
(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:	Refer to Paragraphs 4.3 to 4.11 and Attachment 5. The subdivision has no effect on ecosystems or habitat.
(d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations:	Refer to Paragraphs 4.3 to 4.11 and Attachment 6. The site has no aesthetic, recreational, scientific, spiritual or cultural values that will be adversely affected by the act of subdividing.
(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:	The subdivision will not result in the discharge of contaminants, nor any unreasonable emission of noise.
(f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.	The subdivision site is within a mapped flood hazard area, but development can occur outside of these areas. The proposal does not involve hazardous installations.

Attachment 11

Northland Regional Policy Statement – Objectives and Policies

Objective 3.6 - Economic activities – reverse sensitivity and sterilisation

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

(a) Reverse sensitivity for existing:

(i) Primary production activities;

(ii) Industrial and commercial activities;

(iii) Mining; or*

(iv) Existing and planned regionally significant infrastructure; or

(b) Sterilisation of:

(i) Land with regionally significant mineral resources; or

(ii) Land which is likely to be used for regionally significant infrastructure.

**Includes aggregates and other minerals.*

Objective 3.13 - Natural Hazard Risk

The risks and impacts of natural hazard events (including the influence of climate change) on people, communities, property, natural systems, infrastructure and our regional economy are minimised by:

(a) Increasing our understanding of natural hazards, including the potential influence of climate change on natural hazard events;

(b) Becoming better prepared for the consequences of natural hazard events;

(c) Avoiding inappropriate new development in 10 and 100 year flood hazard areas and coastal hazard areas;

(d) Not compromising the effectiveness of existing defences (natural and man-made);

(e) Enabling appropriate hazard mitigation measures to be created to protect existing vulnerable development; and

(f) Promoting long-term strategies that reduce the risk of natural hazards impacting on people and communities.

(g) Recognising that in justified circumstances, critical infrastructure may have to be located in natural hazard-prone areas.

5.1.3 Policy – Avoiding the adverse effects of new use(s) and development

Avoid the adverse effects, including reverse sensitivity effects of new subdivision, use and development, particularly residential development on the following:

(a) Primary production activities in primary production zones (including within the coastal marine area);

(b) Commercial and industrial activities in commercial and industrial zones;

(c) The operation, maintenance or upgrading of existing or planned[13] regionally significant infrastructure[14]; and

(d) The use and development of regionally significant mineral resources[15].

7.1.1 Policy – General risk management approach

Subdivision, use and development of land will be managed to minimise the risks from natural hazards by:

(a) Seeking to use the best available information, including formal risk management techniques in areas potentially affected by natural hazards;

(b) Minimising any increase in vulnerability due to residual risk;

(c) Aligning with emergency management approaches (especially risk reduction);

(d) Ensuring that natural hazard risk to vehicular access routes and building platforms for proposed new lots is considered when assessing subdivision proposals; and

(e) Exercising a degree of caution that reflects the level of uncertainty as to the likelihood or consequences of a natural hazard event.

Attachment 12

Operative District Plan - Subdivision Objectives and Policies

Objectives

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

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

13.3.3 To ensure that the subdivision of land does not jeopardise the protection of outstanding landscapes or natural features in the coastal environment.

13.3.4 To ensure that subdivision does not adversely affect scheduled heritage resources through alienation of the resource from its immediate setting/context.

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

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

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

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

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

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

13.3.11 To ensure that the operation, maintenance, development and upgrading of the existing National Grid is not compromised by incompatible subdivision and land use activities.

Policies

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

(a) natural character, particularly of the coastal environment;

(b) ecological values;

(c) landscape values;

(d) amenity values;

(e) cultural values;

(f) heritage values; and

(g) existing land uses.

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

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

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

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

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

13.4.7 That the need for a financial contribution be considered only where the subdivision would:

(a) result in increased demands on car parking associated with non-residential activities; or

(b) result in increased demand for esplanade areas; or

(c) involve adverse effects on riparian areas; or

(d) depend on the assimilative capacity of the environment external to the site.

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

13.4.9 That bonus development donor and recipient areas be provided for so as to minimise the adverse effects of subdivision on Outstanding Landscapes and areas of significant indigenous flora and significant habitats of fauna.

13.4.10 The Council will recognise that subdivision within the Conservation Zone that results in a net conservation gain is generally appropriate.

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

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

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

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

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

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

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

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

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

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

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

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

(a) development of energy efficient buildings and structures;

(b) reduced travel distances and private car usage;

(c) encouragement of pedestrian and cycle use;

(d) access to alternative transport facilities;

(e) domestic or community renewable electricity generation and renewable energy use.

13.4.16 When considering proposals for subdivision and development within an existing National Grid Corridor the following will be taken into account:

(a) the extent to which the proposal may restrict or inhibit the operation, access, maintenance, upgrading of transmission lines or support structures;

(b) any potential cumulative effects that may restrict the operation, access, maintenance, upgrade of transmission lines or support structures; and

(c) whether the proposal involves the establishment or intensification of a sensitive activity in the vicinity of an existing National Grid line.

Note 1: Structures and activities located near transmission lines must comply with the safe distance requirements in the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP34:2001). Compliance with this plan does not ensure compliance with NZECP34:2001.

Note 2: Vegetation to be planted within, or adjacent to, the National Grid Corridor should be selected and/or managed to ensure that it will not result in that vegetation breaching the Electricity (Hazards from Trees) Regulations 2003.

Operative District Plan – Rural Production Zone Objectives & Policies

Objectives

8.3.1 To promote the sustainable management of natural and physical resources of the rural environment.

8.3.2 To ensure that the life supporting capacity of soils is not compromised by inappropriate subdivision, use or development.

8.3.3 To avoid, remedy or mitigate the adverse and cumulative effects of activities on the rural environment.

8.3.4 To protect areas of significant indigenous vegetation and significant habitats of indigenous fauna.

8.3.5 To protect outstanding natural features and landscapes.

8.3.6 To avoid actual and potential conflicts between land use activities in the rural environment.

8.3.7 To promote the maintenance and enhancement of amenity values of the rural environment to a level that is consistent with the productive intent of the zone.

8.3.8 To facilitate the sustainable management of natural and physical resources in an integrated way to achieve superior outcomes to more traditional forms of subdivision, use and development through management plans and integrated development.

8.3.9 To enable rural production activities to be undertaken in the rural environment.

8.3.10 To enable the activities compatible with the amenity values of rural areas and rural production activities to establish in the rural environment.

Policies

8.4.1 That activities which will contribute to the sustainable management of the natural and physical resources of the rural environment are enabled to locate in that environment.

8.4.2 That activities be allowed to establish within the rural environment to the extent that any adverse effects of these activities are able to be avoided, remedied or mitigated and as a result the life supporting capacity of soils and ecosystems is safeguarded and rural productive activities are able to continue.

8.4.3 That any new infrastructure for development in rural areas be designed and operated in a way that safeguards the life supporting capacity of air, water, soil and ecosystems while protecting areas of significant indigenous vegetation and significant habitats of indigenous fauna, outstanding natural features and landscapes.

8.4.4 That development which will maintain or enhance the amenity value of the rural environment and outstanding natural features and outstanding landscapes be enabled to locate in the rural environment.

8.4.5 That plan provisions encourage the avoidance of adverse effects from incompatible land uses, particularly new developments adversely affecting existing land-uses (including by constraining the existing land-uses on account of sensitivity by the new use to adverse affects from the existing use – i.e. reverse sensitivity).

8.4.6 That areas of significant indigenous vegetation and significant habitats of indigenous fauna habitat be protected as an integral part of managing the use, development and protection of the natural and physical resources of the rural environment.

8.4.7 That Plan provisions encourage the efficient use and development of natural and physical resources, including consideration of demands upon infrastructure.

8.4.8 That, when considering subdivision, use and development in the rural environment, the Council will have particular regard to ensuring that its intensity, scale and type is controlled to ensure that adverse effects on habitats (including freshwater habitats), outstanding natural features and landscapes on the amenity value of the rural environment, and where appropriate on natural character of the coastal environment, are avoided, remedied or mitigated. Consideration will further be given to the functional need for the activity to be within rural environment and the potential cumulative effects of non-farming activities.

Attachment 13

Proposed District Plan – Objectives and Policies

Objectives – Rural Production Zone

RPROZ-O1 - The Rural Production zone is managed to ensure its availability for primary production activities and its long-term protection for current and future generations.
RPROZ-O2 - The Rural Production zone is used for primary production activities, ancillary activities that support primary production and other compatible activities that have a functional need to be in a rural environment.
RPROZ-O3 - Land use and subdivision in the Rural Production zone:

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

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

Policies Rural Production Zone

RPROZ-P1 - Enable primary production activities, provided they internalise adverse effects onsite where practicable, while recognising that typical adverse effects associated with primary production should be anticipated and accepted within the Rural Production zone.
RPROZ-P2 - Ensure the Rural Production zone provides for activities that require a rural location by:

a. enabling primary production activities as the predominant land use;
b. enabling a range of compatible activities that support primary production activities, including ancillary activities, rural produce manufacturing, rural produce retail, visitor accommodation and home businesses.

RPROZ-P3 - Manage the establishment, design and location of new sensitive activities and other non-productive activities in the Rural Production zone to avoid where possible, or otherwise mitigate, reverse sensitivity effects on primary production activities.
RPROZ-P4 Land use and subdivision activities are undertaken in a manner that maintains or enhances the rural character and amenity of the Rural Production zone, which includes:

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

RPROZ-P5 - Avoid land use that:

a. is incompatible with the purpose, character and amenity of the Rural Production zone;
b. does not have a functional need to locate in the Rural Production zone and is more appropriately located in another zone;
c. would result in the loss of productive capacity of highly productive land;
d. would exacerbate natural hazards; and
e. cannot provide appropriate on-site infrastructure.

RPROZ-P6 - Avoid subdivision that:

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

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

a. whether the proposal will increase production potential in the zone;
b. whether the activity relies on the productive nature of the soil;
c. consistency with the scale and character of the rural environment;
d. location, scale and design of buildings or structures;
e. for subdivision or non-primary production activities:
    i. scale and compatibility with rural activities;
    ii. potential reverse sensitivity effects on primary production activities and existing infrastructure;
    iii. the potential for loss of highly productive land, land sterilisation or fragmentation
f. at zone interfaces:
    i. any setbacks, fencing, screening or landscaping required to address potential conflicts;
    ii. the extent to which adverse effects on adjoining or surrounding sites are mitigated and internalised within the site as far as practicable;
g. the capacity of the site to cater for on-site infrastructure associated with the proposed activity, including whether the site has access to a water source such as an irrigation network supply, dam or aquifer;
h. the adequacy of roading infrastructure to service the proposed activity;
i. Any adverse effects on historic heritage and cultural values, natural features and landscapes or indigenous biodiversity;
j. Any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.

Objectives – Subdivision

SUB-O1

Subdivision results in the efficient use of land, which:

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

SUB-O2

Subdivision provides for the:

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

SUB-O3

Infrastructure is planned to service the proposed subdivision and development where:

a. there is existing infrastructure connection, infrastructure should provided in an integrated, efficient, coordinated and future-proofed manner at the time of subdivision; and
b. where no existing connection is available infrastructure should be planned and consideration be given to connections with the wider infrastructure network.

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.

Subdivision - Policies

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 and comply with access, infrastructure and esplanade provisions.

SUB-P2

Enable subdivision for the purpose of public works, infrastructure, reserves or access.

SUB-P3

Provide for subdivision where it results in allotments that:

a. are consistent with the purpose, characteristics and qualities of the zone;
b. comply with the minimum allotment sizes for each zone;
c. have an adequate size and appropriate shape to contain a building platform; and
d. have legal and physical access.

SUB-P4

Manage subdivision of land as detailed in the district wide, natural environment values, historical an cultural values and hazard and risks sections of the plan

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:

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, characteristics and qualities of the zone.

SUB- P7

Require the vesting of esplanade reserves when subdividing land adjoining the coast or other qualifying waterbodies.

SUB-P8

Avoid rural lifestyle subdivision in the Rural Production zone unless the subdivision:

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

SUB-P9

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

SUB-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.

SUB-P11

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

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

Objectives - Natural Hazards

NH-O1
The risks from natural hazards to people, infrastructure and property are managed, including taking into account the likely long-term effects of climate change, to ensure the health, safety and resilience of communities.
NH-O2
Land use and subdivision does not increase the risk from natural hazards or risks are mitigated, and existing risks are reduced where there are practicable opportunities to do so.
NH-O3
New infrastructure is located outside of identified natural hazard areas unless:
it has a functional or operational need to be located in that area;
it is designed to maintain its integrity and function, as far as practicable during a natural hazard event; and
adverse effects resulting from that location on other people, property and the environment are mitigated.
NH-O4
Natural defences, such as natural systems and features, and existing structural mitigation assets are protected to maintain their functionality and integrity and used in preference to new structural mitigation assets to manage natural hazard risk.

Policies - Natural Hazards

NH-P2
Manage land use and subdivision so that natural hazard risk is not increased or is mitigated, giving consideration to the following:

a. the nature, frequency and scale of the natural hazard;
b. not increasing natural hazard risk to other people, property, infrastructure and the environment beyond the site;
c. the location of building platforms and vehicle access;
d. the use of the site, including by vulnerable activities;

e. the location and types of buildings or structures, their design to mitigate the effects and risks of natural hazards, and the ability to adapt to long term changes in natural hazards;
f. earthworks, including excavation and fill;
g. location and design of infrastructure;
h. activities that involve the use and storage of hazardous substances;
i. aligning with emergency management approaches and requirements;
j. whether mitigation results in transference of natural hazard risk to other locations or exacerbates the natural hazard; and
k. reduction of risk relating to existing activities.

NH-P3 Take a precautionary approach to the management of natural hazard risk associated with land use and subdivision.

NH – P5 Require an assessment of risk prior to land use and subdivision in areas that are subject to identified natural hazards, including consideration of the following:

a. the nature, frequency and scale of the natural hazard;
b. the temporary or permanent nature of any adverse effect;
c. the type of activity being undertaken and its vulnerability to an event, including the effects of climate change;
d. the consequences of a natural hazard event in relation to the activity;
e. any potential to increase existing risk or creation of a new risk to people, property, infrastructure and the environment within and beyond the site and how this will be mitigated;
f. the design, location and construction of buildings, structures and infrastructure to manage and mitigate the effects and risk of natural hazards including the ability to respond and adapt to changing hazards;
g. the subdivision/site layout and management, including ability to access and exit the site during a natural hazard event; and .
h. the use of natural features and natural buffers to manage adverse effects.

NH – P6 Manage land use and subdivision in river flood hazard areas to protect the subject site and its development, and other property, by requiring:

a. subdivision applications to identify building platforms that will not be subject to inundation and material damage (including erosion) in a 1 in 100 year flood event;
b. a minimum freeboard for all buildings designed to accommodate vulnerable activities of at least 500mm above the 1 in 100 year flood event and at least 300mm above the 1 in 100 year flood event for other new buildings;
c. commercial and industrial buildings to be constructed so they will not be subject to material damage in a 1 in 100 year flood event;
d. buildings within a 1 in 10 Year River Flood Hazard Area to be designed to avoid material damage in a 1 in 100 year flood event;

e. storage and containment of hazardous substances so that the integrity of the storage method will not be compromised in a 1 in 100 year flood event;
f. earthworks (other than earthworks associated with flood control works) do not divert flood flow onto surrounding properties and do not reduce flood plain storage capacity within a 1 in 10 Year River Flood Hazard area;
g. the capacity and function of overland flow paths to convey stormwater flows safely and without causing damage to property or the environment is retained, unless sufficient capacity is provided by an alternative method; and
h. the provision of safe vehicle access within the site

NH P8 - Locate and design subdivision and land use to avoid land susceptible to land instability, or if this is not practicable, mitigate risks and effects to people, buildings, structures, property and the environment.

Objectives – Coastal Environment

CE-01 - The natural character of the coastal environment is identified and managed to ensure its long term preservation and protection for current and future generations

CE-03 - Land use and subdivision in the coastal environment within urban zones is of a scale that is consistent with existing built development

Policies – Coastal Environment

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.

Attachment 14

Chorus New Zealand Limited

03 April 2025

Chorus reference: 11130366

Attention: Neil Mumby

Quote: New Property Development

1 connections at Section 16 Block III Rangaunu Survey District, Tokerau

Your project reference: RIF Urlich Family Trust & K Urlich Family Trust

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 12 February 2025. 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

7 February 2025

Neil Mumby
Cable Bay Consulting Ltd

Email: neil.mumby@cablebayconsulting.co.nz

To Whom It May Concern:

RE: PROPOSED SUBDIVISION
K Urlich - Tokerau Beach Road, Karikari Peninsula. Section 16 BLK III Rangaunu SD.

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

Top Energy's requirements for this subdivision are nil.
Design and costs to make power available could be provided after application and an on-site survey have been completed.
Link to application: Top Energy | Top Energy

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

Yours sincerely

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

Attachment 15