



Our Reference: 10857.1 (FNDC)

5 March 2026

Resource Consents Department
Far North District Council
JB Centre
KERIKERI

Dear Sir/Madam

RE: Proposed subdivision of land on Kapiro Road – T & G Global Limited

I am pleased to submit application on behalf of T & G Global Limited, for a proposed subdivision to create one additional lot on land legally described as Lot 5 DP 191086, located on Kapiro Road, Kerikeri. The property is zoned Rural Production. The subdivision is a restricted discretionary activity under the Operative District Plan. The subdivision is a controlled activity under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.

The application fee of \$5,072 has been paid separately via direct credit.

Regards

Lynley Newport
Senior Planner
THOMSON SURVEY LTD

Application for resource consent or fast-track resource consent

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA)) (If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of [Form 9](#)). Prior to, and during, completion of this application form, please refer to [Resource Consent Guidance Notes](#) and [Schedule of Fees and Charges](#) — both available on the Council's web page.

1. Pre-Lodgement Meeting

Have you met with a council Resource Consent representative to discuss this application prior to lodgement?

Yes No

2. Type of consent being applied for

(more than one circle can be ticked):

- | | |
|--|---|
| <input type="radio"/> Land Use | <input type="radio"/> Discharge |
| <input type="radio"/> Fast Track Land Use* | <input type="radio"/> Change of Consent Notice (s.221(3)) |
| <input checked="" type="radio"/> Subdivision | <input type="radio"/> Extension of time (s.125) |
| <input checked="" type="radio"/> Consent under National Environmental Standard
(e.g. Assessing and Managing Contaminants in Soil) | |
| <input type="radio"/> 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?

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:

T&G Global Limited on behalf of Turners & Growers Fresh Limited

Email:

Phone number:

Postal address:

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

Have you been the subject of abatement notices, enforcement orders, infringement notices and/or convictions under the Resource Management Act 1991? Yes No

If yes, please provide details.

6. Address for correspondence

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

Name/s:

Lynley Newport

Email:

Phone number:

Postal address:

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

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

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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:

Turners & Growers Fresh Limited

Property address/
location:

C/- T&G Global Limited

PO Box 56

Shortland Street

Auckland 1010

Postcode

8. Application site details

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

Name/s:	Turners & Growers Fresh Limited		
Site address/ location:	Kapiro Road		
	KERIKERI		
	Postcode		
Legal description:	Lot 5 DP 191086	Val Number:	211/23605
Certificate of title:	NA120C/947		

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.

Contact Stephanie Fife (T&G Site Manager) before accessing site

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.

Subdivision of land zoned Rural Production as a restricted discretionary activity, to create one additional lot.

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

10. Would you like to request public notification?

Yes No

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

(more than one circle can be ticked):

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

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

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

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

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

Subdividing land

Disturbing, removing or sampling soil

Changing the use of a piece of land

Removing or replacing a fuel storage system

13. Assessment of environmental effects:

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

Your AEE is attached to this application Yes

14. Draft conditions:

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

If yes, please be advised that the timeframe will be suspended for 5 working days as per s107G of the RMA to enable consideration for the draft conditions.

15. 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)

T&G Global Limited c/- Ian Hendry

Email:

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.

15. Billing details continued...

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)

Ian David Hendry

Signature:

(signature of bill payer)

Date 04-Mar-2026

MANDATORY

16. 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.

17. Declaration

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

Name (please write in full)

Ian David Hendry

Signature

Date 04-Mar-2026

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

See overleaf for a checklist of your information...

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.

T & G Global

PROPOSED SUBDIVISION

**Requiring consent under the Far North District Plan
and the
National Environmental Standard for Assessing and Managing
Contaminants in Soil to Protect Human Health**

Kapiro Road, Kerikeri

PLANNING REPORT AND ASSESSMENT OF ENVIRONMENTAL EFFECTS



**Thomson Survey Ltd
Kerikeri**

1.0 INTRODUCTION

1.1 The Proposal

The applicants propose to carry out a subdivision of land at Kapiro Road, Kerikeri to create one additional lot. The proposal is to create two separate lots of just over 2ha apiece where both lots are vacant land and will be accessed via an existing appurtenant right of way over 107 Kapiro Road. The subdivision is a restricted discretionary activity under the Far North District Plan.

A proposed scheme plan is attached in Appendix 1 and a Location Map is attached in Appendix 2.

The subdivision requires consent under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS) as a controlled activity.

1.2 Scope of this Report

This assessment and report accompanies the Resource Consent Application and is provided in accordance with Section 88 and Schedule 4 of the Resource Management Act 1991. The application seeks consent under the District Plan for a restricted discretionary activity subdivision. The name and address of the owner of the property is contained in the Form 9 Application form.

2.0 PROPERTY DETAILS

Location:	Kapiro Road, Kerikeri
Legal description:	Lot 5 DP 191086
Record of Title:	NA120C/947, dated November 1998, with an area of 4.1275ha (copy attached in Appendix 3).

3.0 SITE DESCRIPTION

3.1 Physical Site Characteristics

The property has historically been utilised for horticulture, however has lain fallow with all crops removed for several years now. Shelter rows remain. The site does not contain any buildings or paved access. An overland flow path passes through the site, exiting at the southeastern corner. The site slopes gently downwards to the southeast.



Looking west across the southern edge of proposed Lot 2

The site is not connected to any Council reticulated wastewater, water or stormwater system.

3.2 Mapped Site Characteristics

The property is zoned Rural Production in the Operative District Plan, with no resource overlays applying. It is proposed to be zoned Horticulture in the Proposed District Plan, again with no overlay applying.

The Land Use Capability classifications (soil class) mapped across the site is Class 3s2 [source: FNDC online land cover map].

The site is not shown/listed as a HAIL site or Selected Land Use [source: FNDC online HAIL sites map and NRC online SLU map] currently, but is known to have historically been used for horticulture.

The site does not contain any mapped or scheduled historic sites, notable trees, archaeological sites or Sites of Significance to Maori [source: FNDC online Historic sites map]. The site is not mapped as containing any areas of significant indigenous vegetation or habitat and has no areas set aside for Conservation.

The site is not mapped as containing any high or outstanding landscape or natural character values [source: FNDC and NRC online maps]. Neither does the site contain any biodiversity wetlands [source: NRC online maps]. The site is mapped as being within a 'kiwi present' area [source: FNDC online maps].

The site is not mapped as being subject to any flood hazard [source: FNDC's PDP maps].

3.3 Legal Interests

The property has appurtenant right of way, right to convey electricity, telecommunications and computer media and water – shown A on the scheme plan in Appendix 1. The site also has appurtenant right of way in Easement Instrument 11304603.3.

3.4 Consent History

The site is vacant so has no building consent history. The property file includes a single subdivision consent, issued in 2018, referenced RC 2190149-RMACOM. This did not directly involve the application site.

4.0 SCHEDULE 4 – INFORMATION REQUIRED IN AN APPLICATION

Clauses 2 & 3: Information required in all applications

<i>(1) An application for a resource consent for an activity must include the following:</i>	
<i>(a) a description of the activity:</i>	Refer Sections 1 and 5 of this Planning Report.
<i>(b) an assessment of the actual or potential effect on the environment of the activity:</i>	Refer to Section 6 of this Planning Report.

<i>(b) a description of the site at which the activity is to occur:</i>	Refer to Section 3 of this Planning Report.
<i>(c) the full name and address of each owner or occupier of the site:</i>	This information is contained in the Form 9 attached to the application.
<i>(d) a description of any other activities that are part of the proposal to which the application relates:</i>	Refer to Section 3 of this Planning Report. for existing activities within the site. The application is for subdivision only and there are no other activities that are part of the proposal.
<i>(e) a description of any other resource consents required for the proposal to which the application relates:</i>	Consent is only being sought for subdivision, pursuant to the Far North Operative District Plan.
<i>(f) an assessment of the activity against the matters set out in Part 2:</i>	Refer to Section 7 of this Planning Report.
<p><i>(g) an assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b), including matters in Clause (2):</i></p> <p><i>(a) any relevant objectives, policies, or rules in a document; and</i> <i>(b) any relevant requirements, conditions, or permissions in any rules in a document; and</i> <i>(c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).</i></p>	Refer to Sections 5 and 7 of this Planning Report.
(3) An application must also include any of the following that apply:	
<p><i>(a) if any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity (so that a resource consent is not required for that activity under section 87A(1)):</i></p> <p><i>(b) if the application is affected by section 124 or 165ZH(1)(c) (which relate to existing resource consents), an assessment of the value of the investment of the existing consent holder (for the purposes of section 104(2A)):</i></p> <p><i>(c) if the activity is to occur in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai</i></p>	<p>The site is vacant land.</p> <p>There is no existing resource consent. Not applicable.</p> <p>The site is not within an area subject to a customary marine title group. Not applicable.</p>

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)).

Clause 4: Additional information required in application for subdivision consent

(4) 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 Plans in Appendix 1.

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

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 Section 6 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 Section 6 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—
(i) the nature of the discharge and*

The subdivision does not involve any discharge of contaminant.

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

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

<i>(1) An assessment of the activity's effects on the environment must address the following matters:</i>	
<i>(a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:</i>	Refer to Sections 6 and 8 of this planning report and also to the assessment of objectives and policies in Section 7.
<i>(b) any physical effect on the locality, including any landscape and visual effects:</i>	Refer to Section 6. The activity is a restricted discretionary activity and visual effects are not a matter to which the Council restricts its discretion. The site has no outstanding or high landscape or natural character values.
<i>(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:</i>	Refer to Section 6.
<i>(d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future</i>	Refer to Section 6.

<i>generations:</i>	
<i>(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:</i>	The subdivision will not result in the discharge of contaminants, nor any unreasonable emission of noise.
<i>(f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.</i>	The subdivision site is not subject to natural hazards and does not involve hazardous installations.

5.0 ACTIVITY STATUS

5.1 Operative District Plan

The property is zoned Rural Production. No resource features apply. The subdivision standards applying in the zones are contained in Table 13.7.2.1 as shown below.

TABLE 13.7.2.1: MINIMUM LOT SIZES

(viii) RURAL PRODUCTION ZONE

Controlled Activity Status (Refer also to 13.7.3)	Restricted Discretionary Activity Status (Refer also to 13.8)	Discretionary Activity Status (Refer also to 13.9)
The minimum lot size is 20ha.	1. Subdivision that complies with the controlled activity standard, but is within 100m of the boundary of the Minerals Zone; 2. The minimum lot size is 12ha; or 3. A maximum of 3 lots in any subdivision, provided that the minimum lot size is 4,000m² and there is at least 1 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; 4. 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; 5.....	1. The minimum lot size is 4ha; or 2. A maximum of 3 lots in any subdivision, provided that the minimum lot size is 2,000m ² and there is at least 1 lot in the subdivision with a minimum 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 3. A subdivision in terms of a management plan as per Rule 13.9.2 may be approved.

The Title is dated 1998. This application seeks to create two lots, both in excess of 2ha in area. This makes the application a restricted discretionary application utilising Option 3 in the above RD options.

Zone Rules

The lots are vacant so the subdivision does not create any breach of zone rules. Future development within the lots is expected to readily comply with permitted activity zone rules, so no consent is being sought in this regard.

District Wide Rules

There are no applicable rules in Chapter 12 of the Operative District Plan. Excavation and/or filling will be minimal, related solely to access. Volume will be well within permitted activity thresholds.

The existing appurtenant right of way off Kapiro Road will be upgraded, as required, to be to the appropriate standard.

5.2 Proposed District Plan

The property is zoned Rural Production under the new Proposed District Plan, publicly notified on 27th July 2022. Immediate legal effect has been given to a limited number of rules and these are addressed below.

Rules HS-R2, R5, R6 and R9 in regard to hazardous substances on scheduled sites or areas of significance to Maori, significant natural areas or a scheduled heritage resource.

As the application site and proposal does not involve hazardous substances, and the site does not contain any heritage resources of significant natural areas, these rules are not relevant to the proposal.

Heritage Area Overlays – N/A as none apply to the application site.

Historic Heritage rules and Schedule 2 – N/A as the site does not have any identified (scheduled) historic heritage values.

Notable Trees – N/A – no notable trees on the site.

Sites and Areas of Significance to Maori – N/A – the site does not contain any site or area of significance to Maori.

Ecosystems and Indigenous Biodiversity – Rules IB-R1 to R5 inclusive.

As no clearance of any indigenous vegetation is proposed, these rules are not relevant.

Subdivision (specific parts)

Only subdivision provisions relating to land containing Significant Natural Area or Heritage Resources have immediate legal effect. The site contains no scheduled or mapped Significant Natural Areas or Heritage Resources.

Activities on the surface of water – N/A as no such activities are proposed.

Earthworks – Only some rules and standards have legal effect. These are Rules EW-R12 and R13 and related standards EW-S3 and ES-S5 respectively. EW-R12 and associated EW-S3 relate to the requirement to abide by Accidental Discovery Protocol if carrying out earthworks and artefacts are discovered. The subdivision works will involve only very minor earthworks related to access. Such works can be subject to the ADP. EW-13 and associated EW-S5 relate to ensuring Erosion and Sediment Control measures are in place during earthworks. They cite compliance with GD05. Any earthworks necessary for access can be subject to GD05.

Signs – N/A – signage does not form part of this application.

Orongo Bay Zone – N/A as the site is not in Orongo Bay Zone.

In summary, there are no zone rules in the PDP with immediate legal effect that affect the proposal's activity status.

6.0 ASSESSMENT OF ENVIRONMENTAL EFFECTS

The assessment of environmental effects below includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment, as required by Clause 2(3)(c) of Schedule 4 of the Act.

A restricted discretionary activity is described in s87A of the Act, clause (3).

If an activity is described in this Act, regulations (including any national environmental standard), a plan, or a proposed plan as a restricted discretionary activity, a resource consent is required for the activity and—

*(a) **the consent authority's power to decline a consent, or to grant a consent and to impose conditions on the consent, is restricted to the matters over which discretion is restricted** (whether in its plan or proposed plan, a national environmental standard, or otherwise); and*

(b) if granted, the activity must comply with the requirements, conditions, and permissions, if any, specified in the Act, regulations, plan, or proposed plan.

It is also subject to s104C of the Act:

*(1) 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;

*(3) 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.

The subdivision meets the restricted discretionary number/size of lots specified in Table 13.7.2.1. Far North District Plan lays out in 13.8.1, the matters to which it restricts its discretion in

determining whether to grant consent to a restricted discretionary activity, and then lays out the matters to which it will restrict its discretion when considering whether to impose conditions.

13.8.1 SUBDIVISION WITHIN THE RURAL PRODUCTION ZONE

..... 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

In the case of this application, the application is lodged pursuant to 13.8.1(b), and therefore clause (ii) applies. The matters listed under clause (ii) are all addressed below in the matters covered in the AEE, however a summary is provided below:

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

The property is not within 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;

There is no land administered by the Department of Conservation within 500m of the application site.

- effects on areas of significant indigenous flora and significant habitats of indigenous fauna;

The site contains no areas of significant indigenous flora or significant habitat of indigenous fauna.

- the mitigation of fire hazards for health and safety of residents.

There are no areas of bush from which setback is required for future residential units.

In summary, there are no grounds for the Council to refuse consent.

In determining conditions of consent, the following AEE is offered.

6.1 Allotment sizes and dimensions

Both lots can readily accommodate a 30m x 30m square building envelope complying with permitted activity boundary setbacks. The lots are considered of a suitable size and shape.

6.2 Property Access

Access to both lots will be via an existing appurtenant right of way off Kapiro Road.



Looking north along existing appurtenant right of way

This access is well formed for the majority of its length within A on the scheme plan, before entering the application site.



Looking along alignment of easement C internal to the site

It is proposed to form access within easement C along the southern and western boundaries of Lot 2, in order to provide access into Lot 1 – see photo on previous page. It will be formed to the standard required by Appendix 3B-1.

The Subdivision Site Suitability Report (SSSR) in Appendix 4 discusses internal access in its section 6. The report notes the existing access width is 3m. The ROW A access will be widened to 5m width for the first 65m up to an existing culvert to comply with width requirements for accessing the number of lots in accordance with Appendix 3B-1. Beyond the culvert, the number of lots accessed drops down to three and the existing width remains suitable.

6.3 Natural and Other Hazards

The site is not subject to any natural hazards. The overland flow path through the site can be kept clear of any built development, and flow appropriately managed. There is no risk from erosion, alluvium, avulsion, subsidence, rockfall, landslip or flooding. There is no reason under section 106 of the Act to decline the subdivision.

The site has historically been in horticulture, and is therefore subject to assessment under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. This is discussed in more detail in Section 7.5. In summary, the Combined Preliminary and Detailed Site Investigation Report supporting the application – refer Appendix 5 – concludes it is highly unlikely that there will be any risk to human health as a result of the proposed activity.

6.4 Water Supply

There is no Council reticulated water supply available to the property. The SSSR in Appendix 4 recommends roof runoff water tanks be adopted for potable water supply. In addition, the Council can impose its standard requirement in regard to providing fire fighting water supply for any new residential development within the lots, at time of building consent.

6.5 Sanitary Sewage Disposal

The SSSR addresses on site wastewater treatment and disposal in its section 2. It conservatively uses a 5 bedroom (8 person) scenario for its preliminary design assessment. The SSSR recommends that each lot is subject to building consent specific review and design for any on site wastewater system. It concludes that both lots can provide for on site treatment and disposal in compliance with the Regional Plan's permitted activity standards. The SSSR includes a preliminary AEE in its Appendix D to demonstrate the proposed wastewater disposal concept will have a less than minor effect on the environment.

6.6 Stormwater Disposal

The SSSR assesses on-site stormwater management in its section 3. Development can occur on both lots readily complying with the zone's permitted activity coverage thresholds. The

report includes a stormwater management concept for both future development within the lots, and proposed new right of way (C). No mitigation is proposed for the existing paved area within easement A while the new additional paved area (estimated at 130m²) will be accounted for with offset mitigation within a proposed stormwater pond for ROW easement C.

The SSSR also contains concept stormwater attenuation calculations. The stormwater pond referred to above is addressed in more detail in the reports section 3.5.

6.7 Energy Supply & Telecommunications

Power and telecoms are not a requirement for rural subdivisions. Council can impose a consent notice to this effect.

6.8 Easements for any purpose

Refer to Scheme Plan (s) in Appendix 1. This shows existing appurtenance easement A and new easement C over Lot 2 in favour of Lot 1.

6.9 Preservation of heritage resources, vegetation, fauna and landscape, and land set aside for conservation purposes

The site contains none of the following items listed in Rule 13.7.3.9 of the District Plan. There are no Notable Trees (Appendix 1D of the DP); no Historic Sites, Buildings or Objects (1E); no Outstanding Natural Features or Outstanding Landscape Features (1A and 1B); and no archaeological sites (1G) or Sites of Cultural Significance to Māori (1F).

Indigenous Flora & Fauna:

The property contains no areas of significant indigenous vegetation or habitat. The property is within a large mapped kiwi present area but not close to any mapped high density kiwi area. I believe a simple advice note would suffice to remind the consent holder and future purchasers of the potential for kiwi to be present and to therefore ensure any dogs or cats kept on site are kept inside at night.

6.10 Access to reserves and waterbodies

There are no qualifying waterbodies to which public access is required and no nearby reserves.

6.11 Earthworks

Minor subdivision earthworks may be required to upgrade and form access. These can be subject to the ADP and to appropriate Erosion and Sediment Control measures.

6.12 Land use compatibility (reverse sensitivity)

The application site is in an area that has seen significant change in land use over the years. There are still properties in the area that continue to be utilised for horticultural purposes. However, there are also a number of residential sites in amongst those larger holdings. Intensive horticultural use has been discontinued on some holdings, and continued on others. Conifer Lane, to the northwest of the application site, is dominated by residential use. So too is land along the northern side of Kapiro Road on both sides of the property's entrance. In short, there is an existing mix of land uses in the general area.

I believe the proposal, which would see one additional opportunity for a residential use than currently exists, does not represent any significant increase in the risk of reverse sensitivity. The lots are large and future residential development can be well away from boundaries with operational horticultural activities. Future lot owners can choose location and setback and also decide to plant screening/shelter vegetation should they wish to.

7.0 STATUTORY ASSESSMENT

7.1 Operative District Plan Objectives and Policies

As a restricted discretionary subdivision activity, the proposal is considered consistent with the relevant Objectives and Policies in Chapter 13 Subdivision. The proposal promotes sustainable management of the natural and physical resources of the District. It is an appropriate subdivision that does not compromise the life-supporting capacity of air, water, or ecosystems, and adverse effects are capable of mitigation (Objectives 13.3.1 and 2 and Policy 13.4.14).

The lots have ample scope for on-site wastewater treatment and disposal. The lots will be reliant on on-site water catchment and supply. On site stormwater management is feasible so as to avoid off site effects (Objective 13.3.5 and related Policy 13.4.8).

I am not aware of any sites of significance to Māori or cultural values associated with the site. Building setbacks can readily meet requirements from overland flow paths. No major earthworks are required and no indigenous vegetation clearance is envisaged or required (Objective 13.3.7 and Policy 13.4.11)

Objectives 13.3.8-13.3.10 are about ensuring subdivisions have access to adequate services and make efficient use of infrastructure. I believe the proposal is consistent with these objectives. Power and telecoms are not a requirement of rural subdivisions.

The site displays no landscape values and no known cultural or heritage values. The site does not have high or outstanding natural character values. I do not believe the subdivision will prevent adjacent land uses from continuing to operate (Policy 13.4.1).

Safe and efficient access can be provided (Policies 13.4.2 and 3)

Relevant Rural Production Zone objectives and policies include:

Objectives:

8.6.3.1 To promote the sustainable management of natural and physical resources in the Rural Production Zone.

8.6.3.2 To enable the efficient use and development of the Rural Production Zone in a way that enables people and communities to provide for their social, economic, and cultural well being and for their health and safety.

8.6.3.3 To promote the maintenance and enhancement of the amenity values of the Rural Production Zone to a level that is consistent with the productive intent of the zone.

8.6.3.4 To promote the protection of significant natural values of the Rural Production Zone.

8.6.3.6 To avoid, remedy or mitigate the actual and potential conflicts between new land use activities and existing lawfully established activities (reverse sensitivity) within the Rural Production Zone and on land use activities in neighbouring zones.

8.6.3.7 To avoid remedy or mitigate the adverse effects of incompatible use or development on natural and physical resources.

8.6.3.8 To enable the efficient establishment and operation of activities and services that have a functional need to be located in rural environments.

8.6.3.9 To enable rural production activities to be undertaken in the zone.

And policies

8.6.4.1 That a wide range of activities be allowed in the Rural Production Zone, subject to the need to ensure that any adverse effects on the environment, including any reverse sensitivity effects, on the environment resulting from these activities are avoided, remedied or mitigated and are not to the detriment of rural productivity.

8.6.4.2 That standards be imposed to ensure that the off site effects of activities in the Rural Production Zone are avoided, remedied or mitigated.

8.6.4.3 That land management practices that avoid, remedy or mitigate adverse effects on natural and physical resources be encouraged.

8.6.4.4 That the type, scale and intensity of development allowed shall have regard to the maintenance and enhancement of the amenity values of the Rural Production Zone to a level that is consistent with the productive intent of the zone.

8.6.4.5 That the efficient use and development of physical and natural resources be taken into account in the implementation of the Plan.

8.6.4.7 That although a wide range of activities that promote rural productivity are appropriate in the Rural Production Zone, an underlying goal is to avoid the actual and potential adverse effects of conflicting land use activities.

8.6.4.8 That activities whose adverse effects, including reverse sensitivity effects cannot be avoided remedied or mitigated are given separation from other activities

8.6.4.9 That activities be discouraged from locating where they are sensitive to the effects of or may compromise the continued operation of lawfully established existing activities in the Rural Production zone and in neighbouring zones.

Objective 8.6.3.5 and Policy 8.6.4.6 are not considered relevant as they are solely related to Kerikeri Road.

The proposed subdivision promotes an efficient use and development of the land (Objective 8.6.3.2). It is not in horticultural use any longer (and hasn't been for some time) due to low productivity. To convert to more of a lifestyle land use is a sustainable use of the land's natural and physical resources, providing for rural living with enough land to establish and maintain domestic level production.

Amenity values can be maintained (8.6.3.3). Reverse sensitivity effects are satisfactorily addressed. The continued use of parts of both lots, and adjacent land, for productive uses, is not threatened by the subdivision (Objectives 8.6.3.6-8.6.3.9 inclusive and Policies 8.6.4.8 and 8.6.4.9).

Policy 8.6.4.7 anticipates a wide range of activities that promote rural productivity, whilst avoiding the actual and potential adverse effects of conflicting land use activities. The proposed subdivision does not affect the ability of any nearby productive unit to continue to operate and lots of 2ha can continue to be utilised for limited productive use reliant on the soil. The immediate area supports an existing range of activities, including productive use and residential. I am of the view that the subdivision does not create additional land use incompatibility effects of a minor or more than minor nature.

The proposal provides for sustainable management of natural and physical resources (8.2.4.1). Off site effects can be avoided, remedied or mitigated (8.6.4.2 and 8.6.4.3). Amenity values can be maintained through the size of the lots (open space to built environment ratio) (8.6.4.4). The proposal enables the efficient use and development of natural and physical resources (8.6.4.5).

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

7.2 Proposed District Plan

An assessment against the relevant objectives and policies in the Subdivision section of the Proposed District Plan (PDP) follows:

SUB-O1

Subdivision results in the efficient use of land, which:

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

SUB-O2

Subdivision provides for the:

Proposed subdivision

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

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

- a. there is existing infrastructure connection, infrastructure should be provided in an integrated, efficient, coordinated and future-proofed manner at the time of subdivision; and
- b. where no existing connection is available infrastructure should be planned and consideration be given to connections with the wider infrastructure network.

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 water bodies

I consider the subdivision to be an efficient use of land for reasons outlined earlier in this report. The subdivision is in keeping with the local character in terms of lot size being proposed and future likely use. Whilst the application site, and a large area around it, is proposed to be zoned or identified for Horticulture, it should be acknowledged by the Council that this area already accommodates a large amount of residential living set amongst productive uses, as well as commercial activities. The proposal does not create adverse reverse sensitivity effects. The site is not subject to any hazard. Adverse effects on the environment are considered to be minor and capable of mitigation (SUB-O1).

The subdivision is of land that contains no outstanding natural features or landscapes and is not in the coastal environment. Neither does the site have any areas of high or outstanding natural character. The site is not identified as having any Site or Areas of Significance to Maori or Heritage Resources. The land is currently in grass with remnant shelter rows, having been retired from horticulture more than 10 years' ago. The site proved to have limitations for high yield horticultural cropping (SUB-O2). Whilst it is acknowledged that the lots contain LUC 3 soils, and that such soils fall within the NPS Highly Productive Land's definition of 'highly productive land', the Council's discretion to consider the fragmentation or sterilisation of such land is limited due to the restricted discretionary activity status of the application. In any event, existing vacant land within the proposed lots will remain available for some form of land use that is reliant on the soils.

The lots will have onsite servicing and have access to Council road network (SUB-O3). No Esplanade Reserve is required (SUB-O4).

SUB-P1

Enable boundary adjustments that:

.....

Not relevant – application is not a boundary adjustment.

SUB-P2

Enable subdivision for the purpose of public works, infrastructure, reserves or access.

Not relevant – application does not involve public works, infrastructure, reserves or access lots.

SUB-P3

Provide for subdivision where it results in allotments that:

- a. are consistent with the purpose, characteristics and qualities of the zone;
- b. comply with the minimum allotment sizes for each zone;
- c. have an adequate size and appropriate shape to contain a building platform; and
- d. have legal and physical access.

The proposal does not meet the minimum lot size applying in the PDP's Horticulture zone, but neither does the existing site, without subdivision. Whilst the proposal might be seen as inconsistent with the 'purpose' of the Horticulture Zone, it is consistent with the characteristics and qualities of the zone in this particular area. The lots are of an appropriate shape and size to support development; and have legal and physical access.

SUB-P4

Manage subdivision of land as detailed in the district wide, natural environment values, historical and cultural values and hazard and risks sections of the plan

The subdivision has had regard to all the matters listed, where relevant.

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: ...

Not relevant as the site is not zoned any of the zones referred to.

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

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

The site is reliant on existing on-site servicing. The sites have access to Council road network.

SUB- P7

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

No Esplanade Reserve is required.

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

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

Not relevant as the site is not proposed to be zoned Rural Production.

SUB-P9

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

Not relevant as the site is not zoned Rural Production or Rural Lifestyle.

SUB-P10

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

Not relevant. No minor residential units proposed.

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.

All of the above have been considered in the layout and number of lots being proposed.

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

The site is zoned Horticulture in the Proposed District Plan.

Objectives

HZ-O1

The Horticulture zone is managed to ensure its long-term availability for horticultural activities and its longterm protection for the benefit of current and future generations.

HZ-O2

The Horticulture zone enables horticultural and ancillary activities, while managing adverse environmental effects on site.

HZ-O3

Land use and subdivision in the Horticulture zone:

- a. avoids land sterilisation that reduces the potential for highly productive land to be used for a horticulture activity;
- b. avoids land fragmentation that compromises the use of land for horticultural activities;
- c. avoids any reverse sensitivity effects that may constrain the effective and efficient operation of primary production activities;
- d. does not exacerbate any natural hazards;
- e. maintains the rural character and amenity of the zone;
- f. is able to be serviced by on-site infrastructure.

The site has not proven to be a good producer in terms of crop yield and does not have irrigation water available to it. Whilst the subdivision provides for an additional lot, the overall impermeable coverage provided for as a permitted activity remains the same over the

subject land whether subdivided or not. I do not believe, therefore, that the subdivision of itself results in sterilisation of the land. It is acknowledged that subdivision equates to 'fragmentation', however, I believe the use of the land for intensive horticulture is already compromised due to physical characteristics of the land and presence of a number of residential activities in the immediate vicinity.

Reverse sensitivity effects can be effectively mitigated. The site is not subject to any natural hazard. The subdivision maintains rural character and amenity and the lots are able to be serviced by on-site infrastructure. Overall, I believe the proposal to be more consistent than not with the objectives of the Horticulture Zone.

It is important to note that the Horticulture Zone and its provisions have no legal effect and the presiding document in assessing this application is the ODP. As a restricted discretionary activity under the ODP, the Council's discretion is restricted to matters relating to reverse sensitivity only when it comes to so-called highly productive land.

Policies

HZ-P1

Identify a Horticulture zone in the Kerikeri/Waipapa area using the following criteria:

- a. presence of highly productive land suitable for horticultural use;*
- b. access to a water source, such as an irrigation scheme or dam able to support horticultural use; and*
- c. infrastructure available to support horticultural use.*

This policy applies to the consent authority, not an individual property owner. Information is provided with this application that would suggest the Council has not necessarily been accurate or successful in its determination of the location of its Horticulture Zone, having included a multitude of smaller properties supporting residential use, as well as land that is not LUC 1, 2 or 3 soils.

HZ-P2

Avoid land use that:

Not relevant as the application is a subdivision, not a land use.

HZ-P3

Enable horticulture and associated ancillary activities that support the function of the Horticulture zone, where:

- a. adverse effects are contained on site to the extent practicable; and*
- b. they are able to be serviced by onsite infrastructure.*

Not relevant as application is not for a horticulture or associated ancillary activity.

HZ-P4

Ensure residential activities are designed and located to avoid, or otherwise mitigate, reverse sensitivity effects on horticulture activities, including adverse effects associated with dust, noise, spray drift and potable water collection.

The lots are large and will enable future lot owners to be consistent with this policy.

HZ-P5

Manage the subdivision of land in the Horticulture zone to:

- a. avoid fragmentation that results in loss of highly productive land for use by horticulture and other farming activities;
- b. ensure the long-term viability of the highly productive land resource to undertake a range of horticulture uses;
- c. enable a suitable building platform for a future residential unit; and
- d. ensure there is provision of appropriate onsite infrastructure.

Firstly the current site has not proven to be a high producer. Subdividing it in half does not worsen the situation in terms of availability of land. In fact in providing for smaller lots the opportunity arises for more cost effective site management. The lots both have building platforms and can provide for on site infrastructure.

HZ-P6

Encourage the amalgamation or boundary adjustments of Horticulture zoned land where this will help to make horticultural activities more viable on the land.

This is not considered a viable or practical alternative.

HZ-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.

The subdivision does not require any consent under the PDP and the above policy is therefore of limited relevance. I consider the subdivision to maintain rural character and amenity and the lots are suitable for their intended use.

7.3 Part 2 Matters

The subdivision is a restricted discretionary subdivision activity. It is therefore deemed to be consistent with the Operative District Plan, a document prepared in order to give effect to Part 2.

5 Purpose

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

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

6 Matters of national importance

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

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

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

Proposed subdivision

7 Other matters

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

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

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

8 Treaty of Waitangi

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

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

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

7.4 National Policy Statements

The only relevant national policy statement that I have identified is the National Policy Statement for Highly Productive Land (NPS-HPL). This requires regional councils to map highly productive land within their region. No such mapping has yet been carried out and in the interim, the NPS outlines what should be 'treated' as highly productive land (clause 3.5(7)):

- *land zoned general rural or rural production; and*
- *LUC 1, 2, or 3 land; but*
- *Is not identified for future urban development; or*
- *Subject to a Council initiated, or an adopted, notified plan change to rezone it from general rural or rural production to urban or rural lifestyle; or*

-
- *Subject to a resource consent application for subdivision, use or development on LUC 3 land for any activity other than rural lifestyle.*

In this instance the site is zoned rural production under the ODP (the only zone with legal effect), and contains some LUC 3 land. Therefore consideration must be given to the NPS HPL to the extent provided for in the ODP in terms of the Council's discretion. The Council has confirmed that where the application is a restricted discretionary subdivision application, any assessment of the proposal against the NPS HPL can and will be limited to **Reverse Sensitivity Effects**.

Policy 9: Reverse sensitivity effects are managed so as not to constrain land-based primary production activities on highly productive land.

In regard to Policy 9, the proposal does not create any additional reverse sensitivity effects that cannot be managed appropriately. The lots are expansive and future residential development can be established well clear of any boundary with an operational horticulture activity. Any roof catchment water supply can be filtered. Future lot owners can establish boundary screening/shelter plantings to provide additional screening between any adjacent horticultural operations and their residence. I do not believe the subdivision will result in any additional constraint to land-based primary production activities continuing on any highly productive land on adjacent sites.

Clause 3.8 of the NPS HPL requires territorial authorities (not individual property owners) to "avoid the subdivision of highly productive land". However, the avoidance of the subdivision of highly productive land is not a matter to which the Council has restricted its discretion in its Operative District Plan and therefore it has no ability to consider the avoidance of subdivision of highly productive land.

Sub part 2(b) states:

(2) Territorial authorities must take measures to ensure that any subdivision of highly productive land: (b) avoids if possible, or otherwise mitigates, any actual or potential reverse sensitivity effects on surrounding land-based primary production activities.

This part of 3.8 is within the Council's restricted discretion to consider.

Reverse sensitivity issues have been assessed at length elsewhere in this report, and in commentary under Policy 9 above. In my opinion, the proposal will not create any actual or potential reverse sensitivity effects on surrounding land-based primary production activities.

In summary I do not believe there will be adverse reverse sensitivity effects as a result of this subdivision and the proposal has had adequate regard to those parts of the NPS HPL that the Council's discretion is restricted to.

7.5 National Environmental Standards (NES)

The NES for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS) is relevant given the site's historic horticultural use.

A Combined Preliminary and Detailed Site Investigation is attached in Appendix 5. This provides site information and informs of the history of the site. It provides a sampling and analysis plan and provides the sample results. In summary no sample exceeded the relevant human health standard. No site remediation is required. The report assesses risk as minimal and concludes the activity is a controlled activity under the NES-CS.

7.6 Regional Policy Statement for Northland (RPS)

The RPS contains objectives and policies related to infrastructure and regional form and economic development. These are enabling in promoting sustainable management in a way that is attractive for business and investment. The proposal is consistent with these objectives and policies.

The RPS also has policies ensuring that productive land is not subject to fragmentation and/or sterilisation to the point where productive capacity is materially reduced, and that reverse sensitivity effects be avoided, remedied or mitigated. It should be noted that this subdivision is a restricted discretionary subdivision application and the Council's powers and matters of discretion are restricted accordingly.

Objective 3.6 Economic activities – reverse sensitivity and sterilisation

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

(a) Reverse sensitivity for existing:

(i) Primary production activities;

In regard to this subdivision, it is considered that the risk of reverse sensitivity issues arising is not significantly increased and can be successfully managed. The area around the site supports a mixture of horticultural and residential uses already. In my opinion the proposal does not prevent or threaten the continuation of any adjacent land in productive use, for that use to continue.

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

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

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

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

(f) Ensures that plan changes and subdivision to / in a primary production zone, do not materially reduce the potential for soil-based primary production on land with highly versatile soils, or if they do,

the net public benefit exceeds the reduced potential for soil-based primary production activities; and
...

Objectives and Policies in the Regional Policy Statement for Northland (RPS) provide direction when examining the subdivision of land in production zones where the soils meet the definition of 'highly versatile', the RPS states that Class I, II and III soils are 'highly versatile'. The site contains some LUC III soils. However, the land has not proven overly productive and for this reason was not kept in intensive productive use over a sustained period. In any event, the subdivision will enable a high proportion of each proposed lot to remain available for soil based production should a new lot owner seek to re-establish some form of productive use.

Overall, I do not believe that the materially reduces the potential for soil-based primary production to continue on land with highly versatile soils.

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);.....

The proposal does not, in my opinion, prevent the continued use of adjacent land for production use. Reverse sensitivity effects have been addressed earlier.

I believe the proposal is not contrary to any of the objectives or policies in the Regional Policy Statement for Northland.

7.7 Regional Plans

The subdivision does not result in any breaches of the Regional Plan (Appeals version).

8.0 S 95A-E & CONSULTATION

8.1 S95A Public Notification Assessment

A consent authority must follow the steps set out in s95A to determine whether to publicly notify an application for a resource consent. Step 1 specifies when public notification is mandatory in certain circumstances. No such circumstances exist. Step 2 of s95A specifies the circumstances that preclude public notification. No such circumstances exist. Step 3 of s95A must therefore be considered. This specifies that public notification is required in certain circumstances. No such circumstance exists. The application is not subject to a rule or national environmental standard that requires public notification. This report and AEE concludes that the activity will not have, nor is it likely to have, adverse effects on the environment that are more than minor. In summary public notification is not required pursuant to Step 3 of s95A.

8.2 S95B Limited Notification Assessment

A consent authority must follow the steps set out in s95B to determine whether to give limited notification of an application for a resource consent, if the application is not publicly notified pursuant to s95A. Step 1 identifies certain affected groups and affected persons that must be notified. No such group or persons are identified in this instance. Step 2 of s95B specifies the circumstances that preclude limited notification. No such circumstances exist and Step 3 of s95B must be considered. This specifies that certain other affected persons must be notified, specifically:

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

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

8.3 S95D Level of Adverse Effects

The AEE in this report assesses effects on the environment and concludes that these will be no more than minor.

8.5 S95E Affected Persons

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

The activity is a restricted discretionary activity under the ODP and a controlled activity under the NES-CS. The activity is therefore considered an anticipated and expected one. Access is existing and will be upgraded to the required standard. Off site effects will be mitigated so as to be less than minor. No adjacent properties have been identified as affected.

The site does not contain any heritage or cultural sites or values and there are no areas of indigenous vegetation or habitat. The site is not accessed off state highway. No pre lodgement consultation has been considered necessary with tangata whenua, Heritage NZ, Department of Conservation or Waka Kotahi.

9.0 CONCLUSION

The site is considered suitable for the proposed subdivision, and effects on the wider environment are no more than minor. There is no District Plan rule or national environmental standard that requires the proposal to be publicly notified. No special circumstances have

been identified that would suggest public notification is required. No affected persons are identified.

I consider the proposal to be consistent with the Operative District Plan and consistent with most, but not all of the Proposed District Plans' objectives and policies. However, in saying that, the Council discretion in considering the granting of the consent, pursuant to the ODP, and what conditions to impose, is restricted to reverse sensitivity matters in terms of the PDP's objectives and policies.

I consider the proposal to be consistent with Part 2 of the Act and any relevant national or regional planning instrument.

It is requested that the Council give favourable consideration to this application and grant approval, on a non notified basis.



Signed
Lynley Newport
Senior Planner
THOMSON SURVEY LTD

Dated

5th March 2026

10.0 LIST OF APPENDICES

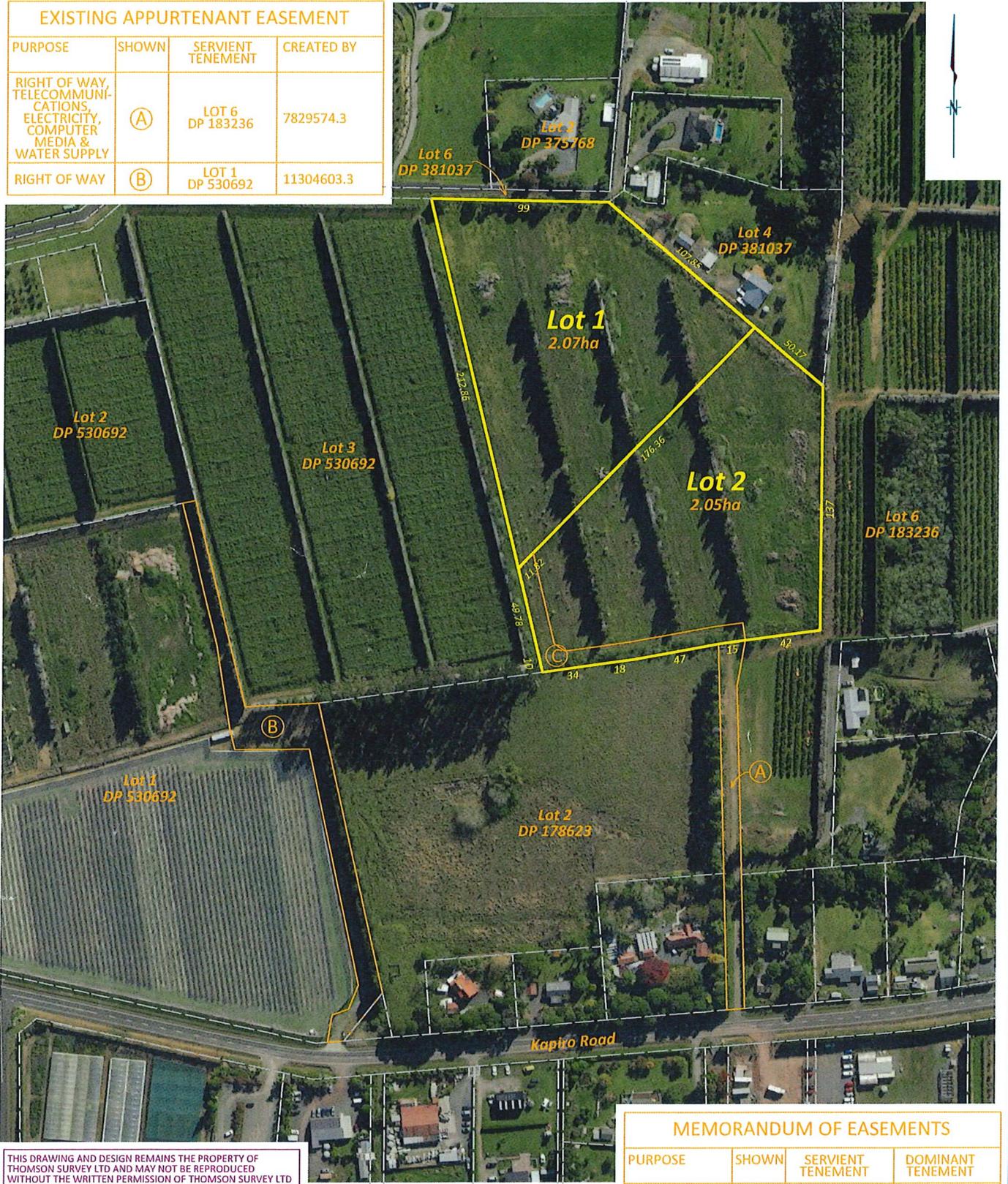
Appendix 1	Scheme Plan(s)
Appendix 2	Locality Plan
Appendix 3	Record of Title and relevant instruments
Appendix 4	Subdivision Site Suitability Engineering Report
Appendix 5	Combined Preliminary and Detailed Site Investigation

Appendix 1

Scheme Plan(s)

EXISTING APPURTENANT EASEMENT

PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT OF WAY, TELECOMMUNICATIONS, ELECTRICITY, COMPUTER MEDIA & WATER SUPPLY	(A)	LOT 6 DP 183236	7829574.3
RIGHT OF WAY	(B)	LOT 1 DP 530692	11304603.3



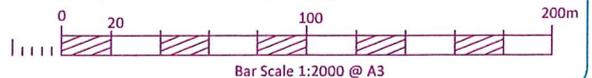
THIS DRAWING AND DESIGN REMAINS THE PROPERTY OF THOMSON SURVEY LTD AND MAY NOT BE REPRODUCED WITHOUT THE WRITTEN PERMISSION OF THOMSON SURVEY LTD
 AREAS AND MEASUREMENTS ARE SUBJECT TO FINAL SURVEY
 TOPOGRAPHICAL DETAIL IS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY

Local Authority: Far North District Council
 Comprised in: NA120C/947
 Total Area: 4.1275ha
 Zoning: Rural Production
 Resource features: NIL

MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, TELECOMMUNICATIONS & ELECTRICITY	(C)	LOT 2 HEREON	LOT 1 HEREON

This plan and accompanying report(s) have been prepared for the purpose of obtaining a Resource Consent only and for no other purpose. Use of this plan and/or information on it for any other purpose is at the user's risk.



315 Kerikeri Rd
 P.O. Box 372 Kerikeri
 Email: kerikeri@tsurvey.co.nz
 Ph: (09) 4077360
 www.tsurvey.co.nz

Registered Land Surveyors, Planners & Land Development Consultants

PROPOSED SUBDIVISION OF LOT 5 DP 191086

KAPIRO ROAD, KERIKERI

PREPARED FOR: T & G GLOBAL

Name	Date	ORIGINAL
Survey		SCALE
Design		SHEET
Drawn	KY 19.11.25	SIZE
Approved		1:2000 A3
Rev		
10857 Scheme		

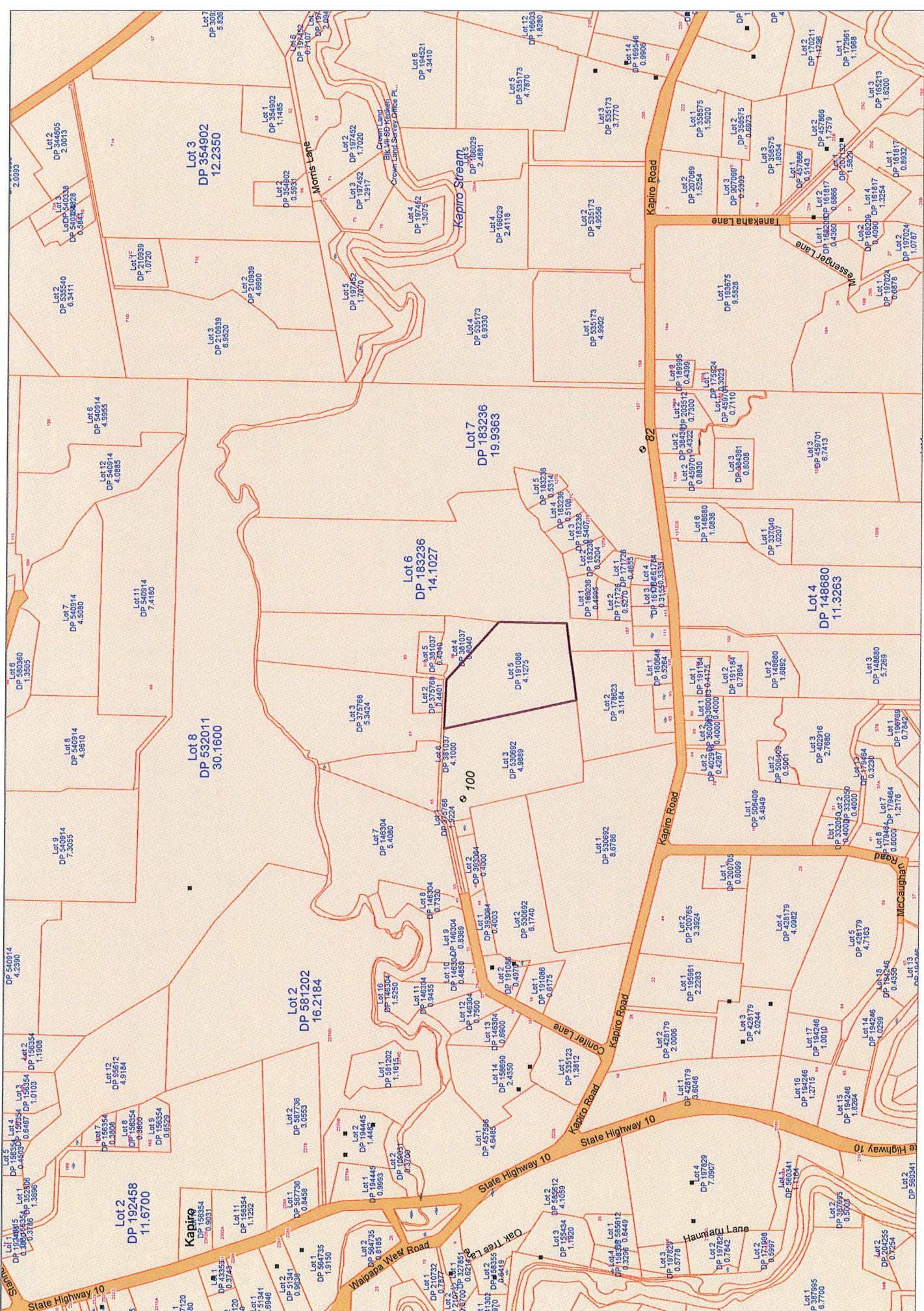
Surveyors Ref. No.:

10857

Sheet 1 of 1

Appendix 2

Locality Plan



Appendix 3

Record of Title and relevant instruments



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




R. W. Muir
Registrar-General
of Land

Identifier NA120C/947
Land Registration District North Auckland
Date Issued 05 November 1998

Prior References
NA87B/97

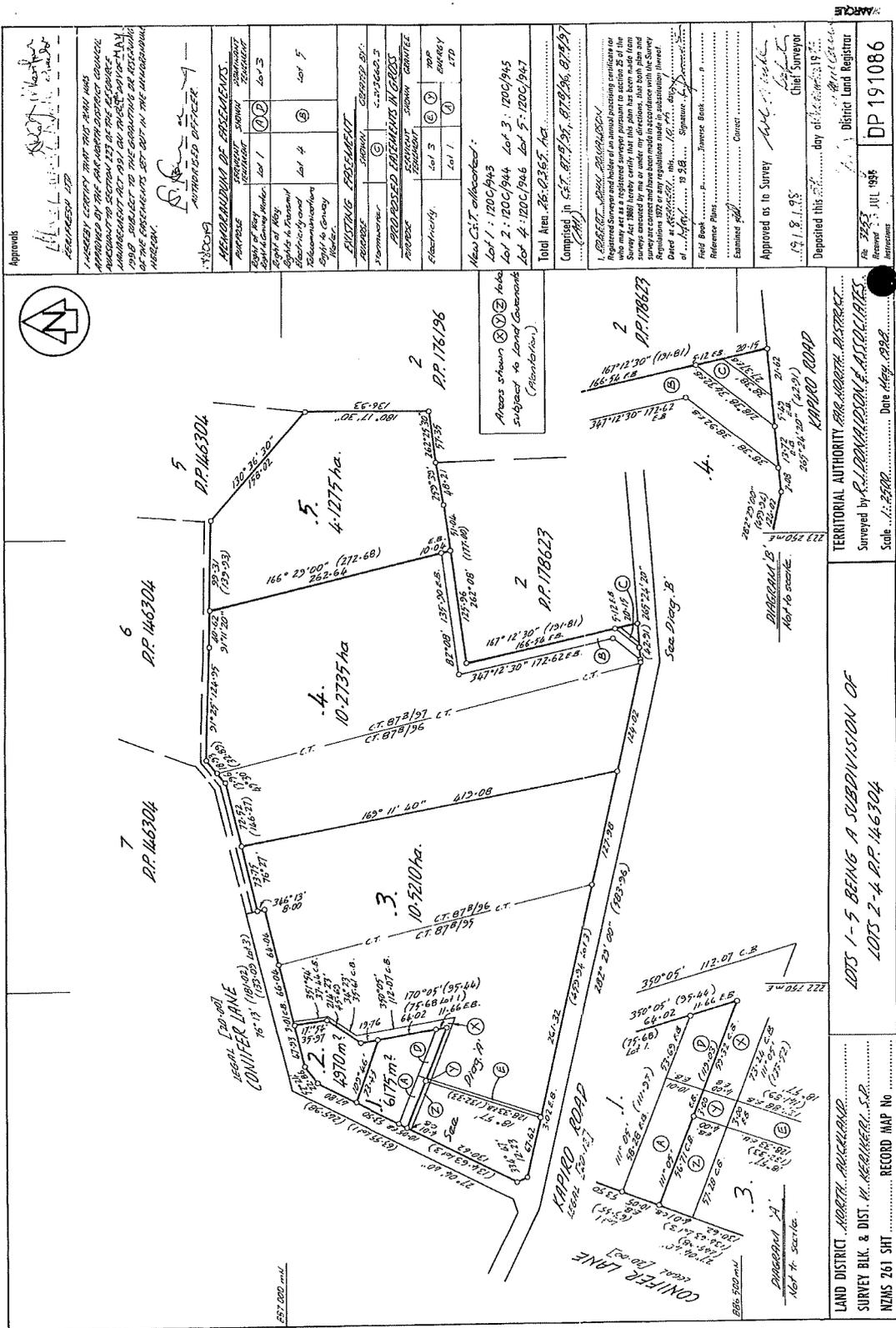
Estate Fee Simple
Area 4.1275 hectares more or less
Legal Description Lot 5 Deposited Plan 191086
Registered Owners
Turners & Growers Fresh Limited

Interests

Appurtenant hereto is a right of way, right to convey electricity, telecommunications and computer media and water created by Easement Instrument 7829574.3 - 28.5.2008 at 9:00 am

Appurtenant hereto is a right of way created by Easement Instrument 11304603.3 - 11.12.2018 at 6:09 pm

The easements created by Easement Instrument 11304603.3 are subject to Section 243 (a) Resource Management Act 1991
13332929.5 Mortgage to Bank of New Zealand - 2.7.2025 at 7:01 am



17 NOV 1986

DP 191086

RECORDED

19 JUL 1986

CHIEF SURVEYOR

RECEIVED

DISTRICT LAND REGISTRAR

19 JUL 1986

RECORDED

17 NOV 1986

Approved by Registrar-General of Land under No. 2007/6225

Easement instrument to grant easement or profit à prendre. or create land covenant
Sections 90A and 90F, Land Transfer Act 1

Land registration district

NORTH AUCKLAND



EI 7829574.3 Easement I

Cpy - 01/01, Page - 008, 27/06/08, 10:30



DocID: 313123045

Grantor

Surname(s) must be underlined or in CAPITALS.

Kerifresh Limited

Grantee

Surname(s) must be underlined or in CAPITALS.

Kerifresh Limited

Grant* of easement or profit à prendre or creation or covenant

The Grantor, being the registered proprietor of the servient tenement(s) set out in Schedule A, grants to the Grantee (and, if so stated, in gross) the easement(s) or profit(s) à prendre set out in Schedule A, or creates the covenant(s) set out in Schedule A, with the rights and powers or provisions set out in the Annexure Schedule(s).

Dated this 17 day of April 2008

Attestation

 David Herbert Callagher Paul Roy Knight	Signed in my presence by the Grantor
	Signature of witness Witness to complete in BLOCK letters (unless legibly printed) Witness name Occupation RICHARD ADRIAN AYTON SOLICITOR Address KERIKERI
Signature [common seal] of Grantor	

 David Herbert Callagher Paul Roy Knight	Signed in my presence by the Grantee
	Signature of witness Witness to complete in BLOCK letters (unless legibly printed) Witness name Occupation RICHARD ADRIAN AYTON SOLICITOR Address KERIKERI
Signature [common seal] of Grantee	

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

[Solicitor for] the Grantee

*If the consent of any person is required for the grant, the specified consent form must be used.

Annexure Schedule 1



Easement instrument

Dated

17 April 2008

Page

2

of

4

pages

Schedule A

(Continue in additional Annexure Schedule if required.)

Purpose (nature and extent) of easement, profit, or covenant	Shown (plan reference)	Servient tenement (Identifier/CT)	Dominant tenement (Identifier/CT or in gross)
Right of way, rights to convey electricity, telecommunications, computer media and water	"A" on DP 391681	Lot 6 DP 183236 Identifier NA114A/950	Lot 5 DP 191086 Identifier NA120C/947

Delete phrases in [] and insert memorandum number as required.

Continue in additional Annexure Schedule if required.

Easements or profits à prendre rights and powers (including terms, covenants, and conditions)

Unless otherwise provided below, the rights and powers implied in specific classes of easement are those prescribed by the Land Transfer Regulations 2002 and/or the Fifth Schedule of the Property Law Act 2007.

The implied rights and powers are ~~varied~~ ~~negated~~ ~~added to~~ or ~~substituted~~ by:

~~{Memorandum number _____, registered under section 155A of the Land Transfer Act 1952}~~

~~{the provisions set out in Annexure Schedule 2}.~~

Covenant provisions

Delete phrases in [] and insert memorandum number as required.

Continue in additional Annexure Schedule if required.

The provisions applying to the specified covenants are those set out in:

~~{Memorandum number _____, registered under section 155A of the Land Transfer Act 1952}~~

~~{Annexure Schedule 2}.~~

All signing parties and either their witnesses or solicitors must sign or initial in this box

Annexure Schedule 2

2003/5038EF
Approved
Registrar-General of Land

*Easement Instrument

Dated 17.04.08 Page 3 of 4 pages

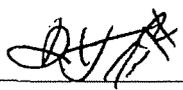
* Insert type of instrument.

Continue in additional Annexure Schedule if required.

The implied rights and powers are varied as follows:

Any maintenance, repair or replacement of the right of way, stormwater, sewage drains and pipes, and telecommunication, computer media and electric power cables on the servient or dominant land that is necessary because of any act or omission by the Grantor or Grantee (which includes agents, employees, contractors, subcontractors and invitees of that Grantor or Grantee) must be carried out promptly by that owner and at that owner's sole cost. Where the act or omission is the partial cause of the maintenance, repair or replacement, the costs payable by that owner responsible must be in proportion to the amount attributable to that act or omission (with the balance payable in accordance with Clause 11 of the Fourth Schedule to the Land Transfer Regulations 2002).

If this Annexure Schedule is used as an expansion of an instrument, all signing parties and either their witnesses or solicitors must sign or initial in this box.



Annexure Schedule



Insert type of instrument
"Mortgage", "Transfer", "Lease" etc

Easement Instrument

Dated 17 April 2008

Page 4 of 4 pages

(Continue in additional Annexure Schedule, if required.)

ANZ Banking Group (New Zealand) Limited the Mortgagee of the within described land under and by virtue of Memorandum of Mortgage No. 6830271.3 and D657782.1 (North Auckland Registry) HEREBY CONSENTS to within Easement Instrument but without releasing or discharging the Mortgagor or any other person or persons or any other security or securities for the time being held by the Mortgagee from payment of any monies whatsoever remaining owing to it under the within obligation or any collateral instrument or otherwise.

Signed by
ANZ NATIONAL BANK LIMITED
by its Attorney
in the presence of


Evangeline Jenita Spencer
Manager
Corporate Security Services


WEI JING TAN
BANK OFFICER
AUCKLAND

If this Annexure Schedule is used as an expansion of an instrument, all signing parties and either their witnesses or solicitors must sign or initial in this box.





**CERTIFICATE OF NON-REVOCATION OF POWER OF
ATTORNEY**

I, Evangeline Jenita Spencer of Auckland, New Zealand, Manager
Corporate Securities Services of ANZ National Bank Limited, certify –

1. That by deed dated 15th June 2005, ANZ National Bank
Limited of Wellington, New Zealand appointed me its attorney.
2. That I have not received notice of any event revoking the
power of attorney.

A handwritten signature in black ink, appearing to read 'E. Spencer'.

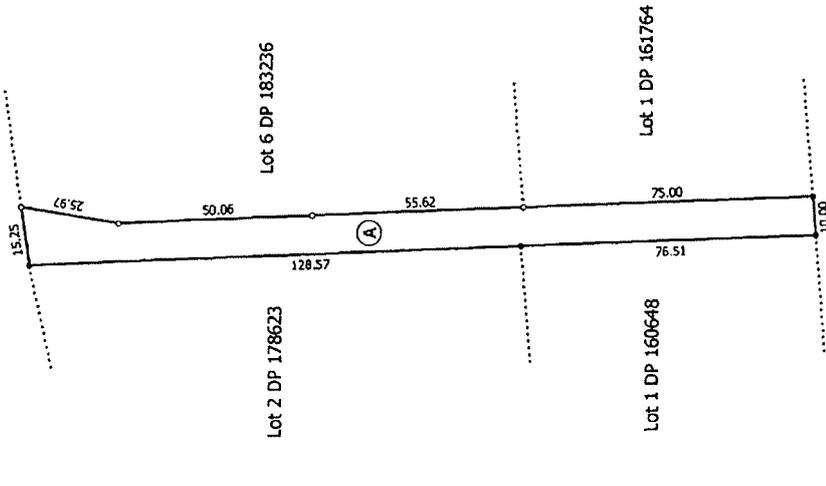
Signed at Auckland this 24th day of April 2008.

Registered Proprietor:

Kerifresh Limited

Non Primary

Lot 5 DP 191086



KAPIRO ROAD

Lot 1 DP 191184 Lot 2 DP 191184 Lot 2 DP 148680

Easements over Lot 6 DP 183236

T 1/1

[Signature]
 Directors

David Herbert Paul Roy Knight
 Callagher



Land District: North Auckland

Digitally Generated Plan
Generated on: 13/02/2008 07:11am Page 3 of 3

Surveyor: Robert John Donaldson
Firm: Donaldsons

Digital Title Plan
LT 391681
Approved on: 13/02/2008

Appendix 4

Subdivision Site Suitability Engineering Report



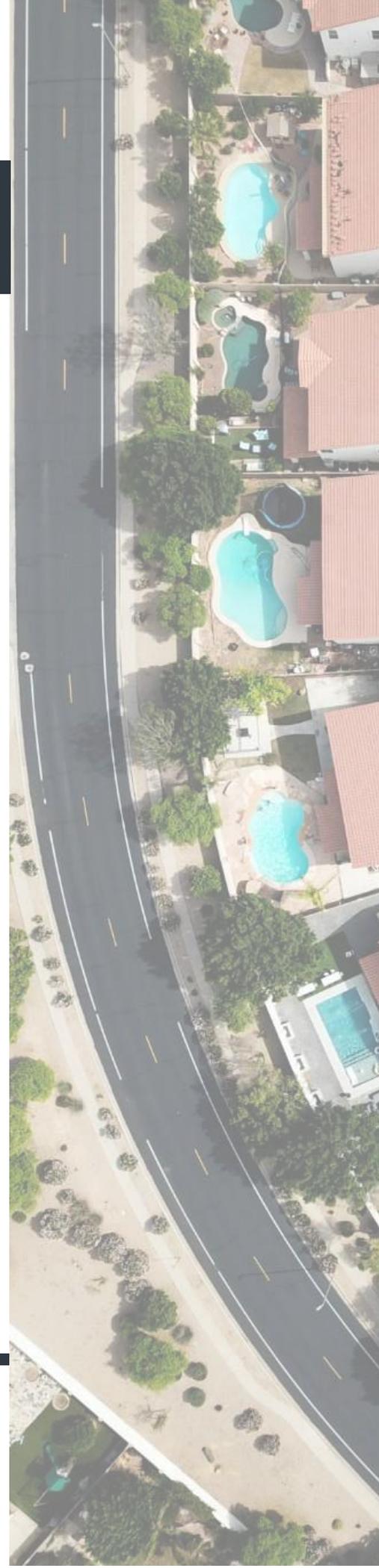
geologix
consulting engineers

SUBDIVISION SITE SUITABILITY ENGINEERING REPORT

LOT 5 DP 191086 KAPIRO ROAD,
KERIKERI

T & G GLOBAL

C0749N-S-01
FEBRUARY 2026
REVISION 1





DOCUMENT MANAGEMENT

Document Title Subdivision Site Suitability Engineering Report

Site Reference Lot 5 DP 191086 Kapiro Road, Kerikeri

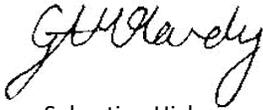
Client T & G Global

Geologix Reference C0749N-S-01

Issue Date February 2026

Revision 01

Prepared Gerard McHardy
Civil Design Engineer, BEng Civil, MEngNZ

Reviewed 
Sebastian Hicks
Principal Civil Engineer, CPEng Reg. 1168062, CMEngNZ, IntPE(NZ) /APEC
Engineer



Approved Edward Collings
Managing Director, CEnvP Reg. 0861, CPEng Reg. 1033153, CMEngNZ

File Reference Z:\Projects\C0700-C0799\C0749N - T&G Global, Kapiro Road, Kerikeri\C0749N-01\06 - Reports\C0749N-01-S 1 (2).docx

REVISION HISTORY

Date	Issue	Prepared	Reviewed	Approved
February 2026	First Issue	GM	SH	EC



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1 INTRODUCTION

This Site Suitability Engineering Report has been prepared by Geologix Consulting Engineers Ltd (Geologix) for T & G Global 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 the Resource Consent application in relation to the proposed subdivision of Lot 5 DP 191086 Kapiro, Kerikeri, the 'site', to create two rural residential lots.

This assessment addresses preliminary engineering elements of wastewater, stormwater, water supply, firefighting, access and associated earthworks requirements to provide building platforms with less than minor effects on the environment as a result of the proposed activities outlined in Section 1.1. This report is purposed to support the Resource Consent application and guide the requirements of future detailed design and/ or engineering plan approval processes. This report should be read in conjunction with other reports and documents prepared in support of the application.

1.1 Proposal

A proposed scheme plan was presented to Geologix at the time of writing, prepared by Thompson Survey Ltd¹ and has been reproduced within Appendix A as Drawing No 100. It is understood from the scheme plan that there will be two separate Lots. 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 development. The probable future on-lot development concept includes up to 300 m² potential roof area and up to 200 m² potential driveway or parking areas within a designated 30 x 30 m square building site.

The above is summarised in Table 1 and detailed further within this report, with reference to the Preliminary Engineering Design Plans enclosed within Appendix A. Any amendments to the referenced scheme plan may require an update to the recommendations of this report.

Table 1: Summary of Proposed Subdivision

Proposed Lot No.	Size	Purpose
1	2.0700 ha	New rural residential
2	2.0500 ha	New rural residential

¹ Thompson Survey Ltd, Scheme Plan Ref 10857. Proposed Subdivision of Lot 5 DP 191086, November 2025



1.2 Site Description and Existing Infrastructure

The site is legally described as Lot 5 DP 191086 with a total site area of 4.1275 ha and designated by the FNDC Operative District Plan as within the Rural Production zone. The current title comprises an existing agricultural block. The site does not contain any existing structures of paved areas, being essentially empty except for three rows of existing shelter belts.

Available LiDAR data indicates an overland flow path passing through the site exiting the site at the southeastern corner and continuing through the neighbouring property. Geologix have undertaken a site visit and assessment of the overland flowpath on the 28th of January and specific mitigation of stormwater flows is proposed by means of detention within a stormwater pond as described in the follow sections of this report.

The site is outside of a mapped flood hazard area, there is however downstream flooding hazard associated with Kapiro Stream, a minor tributary of the Rangitane River. The property is surrounded by similar, agricultural blocks and rural residential sites.

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

2 WASTEWATER ASSESSMENT

2.1 Wastewater Volume and Treatment

It is proposed that the new Lots will be serviced by on-site wastewater treatment systems and disposal fields. A preliminary design is presented in this section and on Drawing No. 100 to demonstrate the proposed new Lots can support on-site wastewater management. In lieu of specific development plans, the preliminary design assumes that the proposed new Lots may support up to a five-bedroom dwelling with a peak occupancy of eight people².

In lieu of potable water infrastructure servicing the site, roof rainwater collection within on-lot tanks has been proposed for this assessment. The design water volume for roof water tank supply is estimated at 160 litres/ person/ day³ based upon standard water saving fixtures⁴ being installed within the future development. This results in a total daily wastewater generation of 1,280 litres/ day per proposed lot.

No specific treatment system design restrictions and manufacturers are currently in place. Future developers will be required to elect a treatment system and provide system specifications at Building Consent. It is recommended that secondary treatment systems are accounted for within future developments. However, primary treatment systems may be suitable, provided the developer can demonstrate suitable treatment quality, disposal area and compliance with the NRC Proposed Regional Plan.

2.2 Wastewater Discharge

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

Available geological mapping⁵ indicates the site to be directly underlain by Kerikeri Volcanic Group Late Miocene basalt of Kaikohe - Bay of Islands Volcanic Field. These Neogene igneous rocks (basalt) can be expected to contain Basalt lava material, volcanic plugs and minor tuff material.

A site walkover survey and intrusive ground investigation was undertaken by Geologix on 3rd February 2026. Two hand auger boreholes were formed to depths of 1.2 m bgl, in the locations recorded on Drawing No. 100 and engineering logs presented as Appendix C. A qualified engineering geologist recorded the recovered arisings as brown clayey silt with trace gravel with depth, moist and of low plasticity. Groundwater was not encountered during the ground investigation.

² TP58 Table 6.1.

³ TP58 Table 6.2, AS/ NZS 1547:2012 Table H3.

⁴ Low water consumption dishwashers and no garbage grinders.

⁵ Geological & Nuclear Science, 1:250,000 scale Geological Map, Sheet 2, Whangarei, 2009.



The shallow soils are generally inferred to meet the drainage characteristics of TP58 Category 5/ NZS1547 Category 4. For a typical PCDI discharge system, a Soil Loading Rate (SLR) of 3.5mm/ day has been adopted from NZS1547 Table 5.2.

The proposed PCDI system may be surface laid, covered with minimum 150 mm mulch and planted with specific evapotranspiration species to provide a minimum of 80 % species canopy cover. Alternatively, lines could be subsurface laid to topsoil with minimum 200 mm thickness and planted with lawn grass. Clean, inert site-won topsoil sourced during development from building and/ or driveways footprints may be used in the land disposal system to increase minimum thicknesses.

To satisfy the preliminary design, primary and reserve disposal fields are required as follows, as presented on Drawing No. 100.

- **Preliminary Primary Disposal Field.** A minimum PCDI primary disposal field of 366 m² laid parallel to the natural contours.
- **Preliminary Reserve Disposal Field.** A minimum reserve disposal field equivalent to 30% of the primary disposal field is required under NRP rule C.6.1.3(9)(b) for secondary or tertiary treatment systems. It is recommended each proposed lot provides a 110 m² reserve disposal area.

2.3 Summary and Assessment of Environmental Effects

Based on the above concept design assumptions a summary of the concept wastewater design is presented as Table 2. It is recommended that each lot is subject to Building Consent specific review and design amendment according to final development plans by a suitably qualified professional. This is typically applied as a condition of consent.

Table 2: Concept Wastewater Design Summary

Design Element	Specification
Concept development	Five-bedroom, peak occupancy of 8 (per lot)
Concept design generation volume	160 litres/ person/ day – 1,280 litres/ day/ lot
Water saving measures	Standard. Combined use of 11 litre flush cisterns, automatic washing machine & dishwasher, no garbage grinder ¹
Water meter required?	No
Recommended treatment quality	Secondary
Soil drainage category	TP58 Category 5, NZS1547 Category 4
Soil loading rate	3.5mm/ day
Concept primary disposal field size	Surface/ subsurface laid PCDI. Min. 366 m ²
Concept reserve disposal field size	Surface/ subsurface laid PCDI. Min. 30 %, or 110 m ²
Concept disposal field level	Sited above 5 % AEP event. No specific site requirements.
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. Contour drains not required. Stormwater management discharges downslope of all disposal fields.



A preliminary site-specific Assessment of Environmental Effects (AEE) is presented as Appendix D to demonstrate the proposed wastewater disposal concept will have a less than minor effect on the environment. 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.



3 STORMWATER ASSESSMENT

The permitted activity rules of the Far North District Plan allow for up to 15% impermeable surfaces in the Rural Production Zone. Whilst built development within the new rural lots following subdivision will result in an increase in impermeable surfaces from the existing coverage, it is highly unlikely to exceed the 15% permitted activity threshold, which would equate to approximately 3,000 m² per site, even taking into account ROW coverage. 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.

3.1 Impervious Surfaces and Activity Status

A summary of the impervious areas of the proposed lots is provided as Table 3 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.

The activity status reflected in Table 5 is with respect to Operative FNDC Plan Section 8.6.5.1.3 only. Considering this, both proposed Lot 1 and Lot 2 are considered **Permitted Activity**.

Table 3: Summary of Impervious Surfaces

Surface	Proposed Lot 1		Proposed Lot 2		Access/Right of Way (Within Lot 2 DP 183236)	
Existing Condition	(20,700m²)		(20,500 m²)		(140,711 m²)	
Roof	0 m ²	0 %	0 m ²	0 %	0 m ²	0 %
Driveway + Parking	0 m ²	0 %	0 m ²	0 %	0 m ²	0 %
Right of Way	0 m ²	0 %	0 m ²	0 %	615 m ²	0.44 %
Total impervious	0 m ²	0 %	0m ²	0 %	615 m ²	0.44 %
Proposed Condition	(20,700m²)		(20,500 m²)		(140,711 m²)	
Roof	300 m ² (Concept)	1.45 %	300 m ²	1.46 %	0 m ²	0 %
Driveway + Parking	200 m ² (Concept)	0.97 %	200m ²	0.98 %	0 m ²	0 %
Right of Way	0 m ²	0 %	501 m ²	2.44 %	745 m ²	0.53 %
Total impervious	500 m ²	2.42 %	1,001 m ²	4.88 %	745 m ²	0.53 % (< PA = 15%)
Activity Status	Permitted		Permitted		Permitted	

3.2 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 (Lot 1 & 2).** The probable future on-lot development concept for Lots 1 & 2 includes up to 300 m² potential roof area and up to 200 m² potential driveway or parking areas within the lot boundary.

Stormwater mitigation will be achieved by means of attenuation within roof water tanks with driveway and parking areas being treated as an offset.

- **Proposed RoW (Easement C).** The proposed RoW within Easement C will be 167m long and 3m wide and will cover an area of 501 m².



Stormwater mitigation will be achieved by means of direct runoff collection and attenuation within a dry stormwater pond.

The new RoW will be an unsealed metal roadway. Runoff from this new impervious area will be collected in lined channels parallel to the road edge. The channels will convey runoff to the proposed stormwater attenuation pond, discharging via a suitable energy dissipation outlet to mitigate against erosion and scour.

- **Existing RoW (Easement A).** The existing RoW within Easement A is 205m long and 3m wide, covers an area of 615 m² and is an unsealed metal roadway. This will be widened to 5m wide for the first 65m of the RoW up to an existing culvert to comply with the width requirements for accessing 5 Lots in accordance with Appendix 3B-1 Standards for Private Access of the Far North District Plan. Just beyond the culvert, the number of lots accessed drops to 3. The widening results in a total area for a total area of 745 m².

No mitigation is proposed for the existing paved area within Easement A while the new additional paved area (130 m²) will be accounted for with offset mitigation within the proposed stormwater pond for ROW Easement C.

3.3 Design Storm Event

Relevant design rainfall intensity and depths have been ascertained for the site location from the NIWA HIRDS meteorological model⁹. 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.

Noting the risk of flood hazard downstream of the site as discussed in Section 1.2, this assessment has been modelled to provide stormwater attenuation up to and including 80 % of the pre-development condition for the 1 % AEP storm event which is recommended for the site including any future activities to comply with FNDC Engineering Standard Table 4-1.

This provides additional conservatism over the 10 % AEP pre-development requirement to comply with NRP Rule C6.4.2(2) and also with the Operative District Plan 13.7.3.4 (a). Attenuation modelling under this scenario avoids exacerbating downstream flooding and provides for sufficient flood control as presented in the FNDC Engineering Standards.

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. 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 5, with calculations provided in full in Appendix B.

Outlet dispersion devices have been designed to manage the 1% AEP event to reduce scour and erosion at discharge locations. These are detailed further in Section 3.4.1.

3.4 Concept Stormwater Attenuation

Based on the design storm events indicated above and the corresponding modelling results (in Appendix B) 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 Standards¹⁰ to provide a suitable concept attenuation design to limit post-development peak flows to 80% of pre-development conditions. The proposed devices with the concept design are listed below:

- Roof Runoff Tanks

Conceptual storage and outlet requirements within the tanks are included in Table 4 and a typical schematic retention/ detention tank arrangement detail is presented as Drawing No. 400 within Appendix A.

Table 4: Summary of Concept Stormwater Attenuation

Item	Pre-development Impervious Area	Post-development Impervious Area	Proposed Concept Attenuation Method
Future Concept Development (Lot 1, 2)			
Potential buildings	0 m ²	300 m ²	Detention within roof water tanks
Potential driveways	0 m ²	200 m ²	Off-set detention in roof water tanks
Total	0 m²	500 m²	

Calculations to support the concept design are presented within Appendix B to this report. A summary of the probable future development attenuation concept design is presented as Table 5. It is recommended that this concept design is refined at the Building Consent stage once final development plans are available.

Table 5: 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	Flood Control: 1 % AEP (80 % of pre dev)
Proposed Lot 1,2				
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	5.27 l/s	6.83 l/s	7.97 l/s	11.88 l/s
80 % pre-development peak flow	4.22 l/s	5.46 l/s	NA	9.51 l/s
Post-development peak flow	9.60 l/s	12.44 l/s	14.52 l/s	21.65 l/s
Total Storage Volume Required	8,027 litres	10,503 litres	5,172 litres	18,828 litres
Concept Summary:	<ul style="list-style-type: none"> - Attenuation storage calculation accounts for offset flow from 200 m² driveway (not indicated explicitly indicated in summary above. Refer Appendix B 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 tanks is sufficient for attenuation (18,828 l) + domestic water storage (31,172 l) - 1 % AEP attenuation (in isolation) requires a 34 mm orifice 0.98 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. 			

3.4.1 On-Lot Discharge

The direct discharge of water tank overflow in a concentrated manner can cause scour and erosion in addition to excessive saturation of shallow soils. Roof water will be captured in detention tanks and used for drinking supply needs. It is recommended that overflow from rainwater detention tanks is conveyed in sealed pipes to a designated discharge point downslope of proposed building footprints and wastewater disposal fields. A concept design accommodating this is presented within Appendix A on Drawing No 401.



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

Typical rural residential developments construct either above or below ground discharge dispersion pipes. Feeding pipes can be either buried or pinned to the surface as desired. It is recommended that all pipes are designed to accommodate the design storm event peak flows from the attenuation tank and including minimum 100 mm dia. PVC piping.

3.5 Stormwater Pond

Stormwater management in rural areas often employs detention basins or ponds to control runoff. Detention ponds are typically dry, except during rainfall events, and quickly increase in depth during storm events.

A pond is proposed to collect runoff from common accessway (ROW) impervious area as far as possible. Any runoff that cannot be conveyed to the pond, will have an equivalent offset mitigation provided within the ponds' detention storage.

The concept pond shall have 1V:3H side slopes (minimum), be grass lined only, and have an outlet manhole structure. The outlet structure shall comprise specifically sized orifice inlets to suit the constraints of the design storms, a scruffy dome lid for overflow, and a suitably sized pipe culvert outlet that must not be smaller than the inlet pipe (or any combination of inlet pipes). Furthermore, the pond must have an emergency spillway structure.

Due to the presence of downstream flooding associated with Rangitane River and in accordance with Table 4-1 of the FNDC Engineering Standards 2011, the concept has presented a suitability sized pond to manage the 1% AEP design storm. It has not undertaken the detailed analysis to accommodate the lesser design storms, but this shall be required in detailed design. The effect of the multi-storm design will likely increase the overall storage requirement of the pond but not significantly. Similarly, the detailed design process shall aim to provide optimisations of the pond to suit topographical survey and final design constraints, which may yield alternative parameters from the pond concept, including different shape, footprint and storage capacities.

Considering the above limitations of the concept pond design, the selected pond dimensions are considered to be conservative for feasibility assessment, with respect to hydraulic function.

The conceptual design parameters for the pond are summarised in Table 7 below. The catchment of the pond includes an area of 501 m² from the new RoW within Easement C, 1,109 m² of pervious lawn area and 130 m² of widening within RoW Easement A has been accounted for as an offset within the stormwater pond.

The position of the pond is presented on Sheet 100 in Appendix A.



Table 7 Subdivision Development Attenuation Concept – Pond

Design Parameter	Pond
Regulatory Compliance	FNDC Engineering Standards Table 4-1
Pre-development peak flow (1% AEP)	41.35 l/s
80 % pre-development peak flow (1% AEP)	33.08 l/s
Post-development peak flow (1% AEP)	56.39 l/s
Total Storage Volume (1% AEP) Required	13,984 m ³
Total Storage Volume (1% AEP) Provided	14,000 m ³ (at 1 m depth)
Orifice Ø (1% AEP)	136 mm
Concept Summary:	<ul style="list-style-type: none">- Attenuation storage calculation accounts for offset flows where impervious area runoff cannot be directed to the pond (not indicated explicitly indicated 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 pond storage.- Pond sized with 1V:3H side slopes- Pond sized with 300mm deep spillway, positioned 100mm above top of outlet manhole- 1 % AEP attenuation (in isolation) requires above orifice diameters. 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 approval.



3.6 Stormwater Quality

The key contaminant risks of the site 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.
- Stormwater discharges directed towards roading swale drains where possible.
- Grassed swale drains from rainwater inception (road surfaces) to discharge points, where required.

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

4 POTABLE WATER & FIRE FIGHTING

In the absence of potable water infrastructure within Kapiro Road or within the site it is recommended that roof runoff water tanks are adopted for potable water supply with appropriate filtration and UV disinfection at point of use. The volume of potable water supply on each lot should consider the required stormwater detention volume identified within Table 5 for proposed Lots 1 and 2. On these properties an additional tank may be required for sufficient potable water volumes.

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

5 EARTHWORKS

The following earthworks provisions are anticipated to form the subdivision:

- **Construction of new RoW within Easement C.**
- **Widening of existing RoW within Easement A.**
- **Re-instatement of ROW A's metal wearing course over final 65m length.**
- **Construction of stormwater pond (near ROW C).**
- **Vehicle crossing to RoW A.**

Based on an area of 501 m² for the new RoW within Easement C and widening of 130 m² to the existing RoW within Easement A to an average depth of 300mm, as well as 65m of ROW A to have its existing top 150mm ripped and reinstated, the total volume of earthworks will be approximately 220 m³.

Proposed earthwork volumes are well within the 5000m³ Permitted Activity volume limit outlined by FNDC District Plan Rule 12.3.6.1.1(a) and the maximum cut and fill height of <3.0 m combined cut and fill to comply with 12.3.6.1.1(b).

6 INTERNAL ACCESS

The existing vehicle crossing off Kapiro Road will provide access to proposed lots 1 and 2 in combination with the private accessways designated within Right of Way Easements A and C. The existing access width was measured at 3.0 m. The RoW A will be widened to 5m wide for the first 65m of the RoW up to an existing culvert to comply with the width requirements for accessing 5 Lots in accordance with Appendix 3B-1 Standards for Private Access of the Far North District Plan. Just beyond the culvert, the number of lots accessed drops to 3 and the existing width remains suitable.

It is proposed that the final 65m length of existing metal access within ROW A receives a rip and reinstatement of its wearing course and base, which has become rutted in sections and requires maintenance/renewal. This has been included within the proposed earthworks for subdivision formation – Refer Section 5.

It is proposed to upgrade the existing gravel vehicle crossing to the RoW A to a concrete crossing to the requirements of the FNDC Type 1A standard. The above is detailed on Drawing No. 100 within Appendix A.

7 LIMITATIONS

This report has been prepared for T & G Global 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



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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.



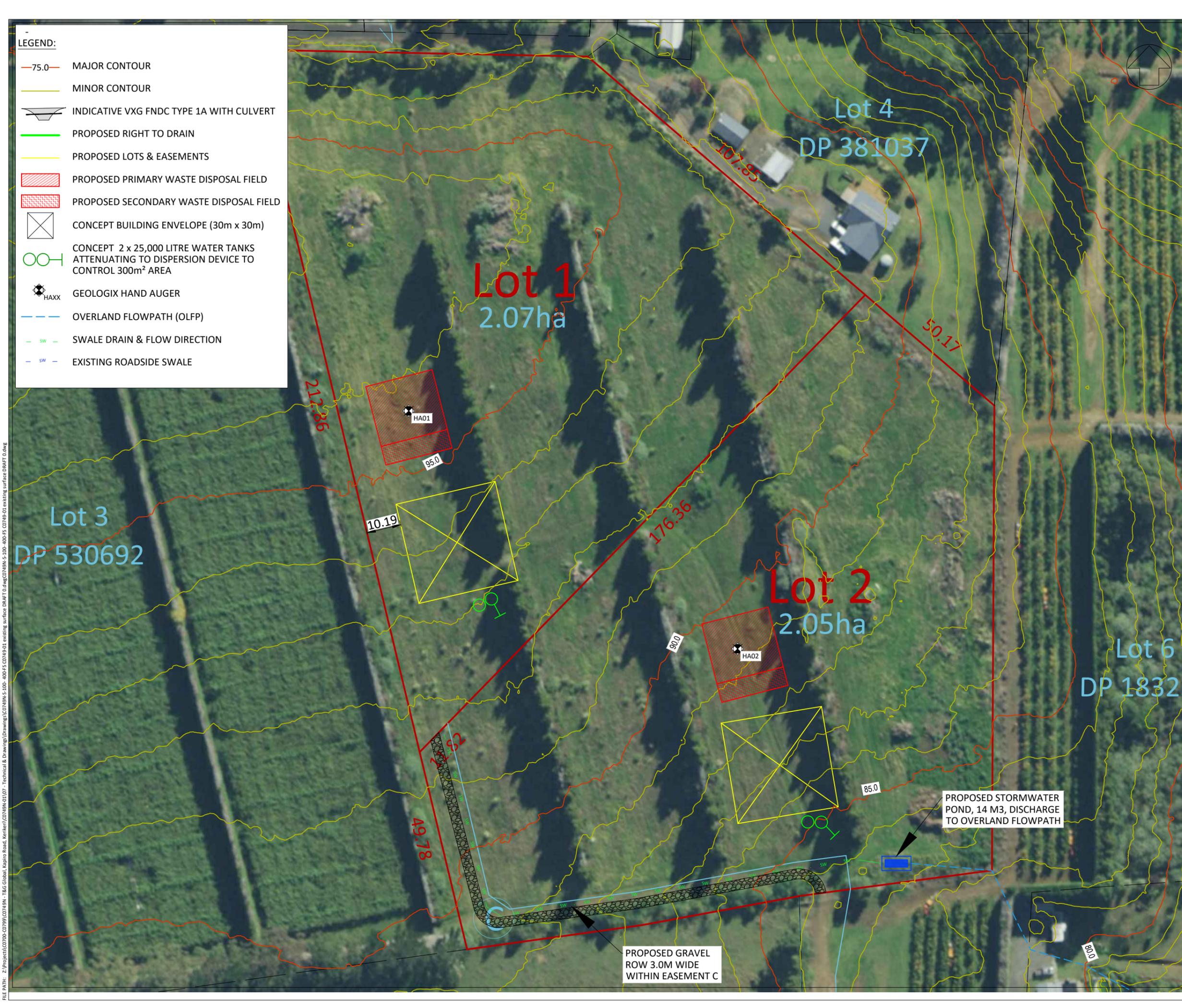
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APPENDIX A

Drawings

LEGEND:

- 75.0— MAJOR CONTOUR
- MINOR CONTOUR
- INDICATIVE VXG FNDC TYPE 1A WITH CULVERT
- PROPOSED RIGHT TO DRAIN
- PROPOSED LOTS & EASEMENTS
- PROPOSED PRIMARY WASTE DISPOSAL FIELD
- PROPOSED SECONDARY WASTE DISPOSAL FIELD
- CONCEPT BUILDING ENVELOPE (30m x 30m)
- CONCEPT 2 x 25,000 LITRE WATER TANKS ATTENUATING TO DISPERSION DEVICE TO CONTROL 300m² AREA
- GEOLOGIX HAND AUGER
- - - OVERLAND FLOWPATH (OLFP)
- SW - SWALE DRAIN & FLOW DIRECTION
- SW - EXISTING ROADSIDE SWALE

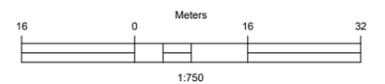


GENERAL NOTES

1. DRAWING REPRODUCED FROM THOMSON SURVEY PROPOSED SCHEME PLAN REF. 10856, DATED NOVEMBER 2025.
3. HORIZ. CO ORDINATE SYSTEM = MT EDEN 2000.
4. VERTICAL DATUM = NZVD2016.
5. MAJOR INTERVALS 5.0 m.
6. MINOR INTERVALS 1.0 m.
7. FOR INDICATION ONLY, NOT FOR CONSTRUCTION.

CONCEPT WASTEWATER DESIGN

CONCEPT DEVELOPMENT	5 BEDROOM
CONCEPT NO. OF OCCUPANTS	8 PERSONS
DAILY WASTEWATER GEN.	160 LITRES/PERSON/ DAY
TOTAL WASTEWATER GEN.	1,280 LITRES/ DAY
SOIL CATEGORY (TP58)	CATEGORY 5
SOIL CATEGORY (NZS1547)	CATEGORY 4
SOIL LOADING RATE	3.5 mm/ DAY
TREATMENT SYSTEM	NO - SUBJECT TO BUILDING CONSENT DESIGN
PRIMARY DISPOSAL AREA	366 m²
RESERVE DISPOSAL AREA	110 m² (30 %)



A	FOR CONSENT	05/02/2026
Revision	Issue	Date

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AUCKLAND | NORTHLAND

Project Name and Address
C0749-01
KAPIRO ROAD,
KERIKERI
PROPOSED SUBDIVISION OF LOT 5 DP 191086

Project	Drawn By
C0749N-01	FS/GM

Client
T&G Global

Sheet Title
ENGINEERING LAYOUT

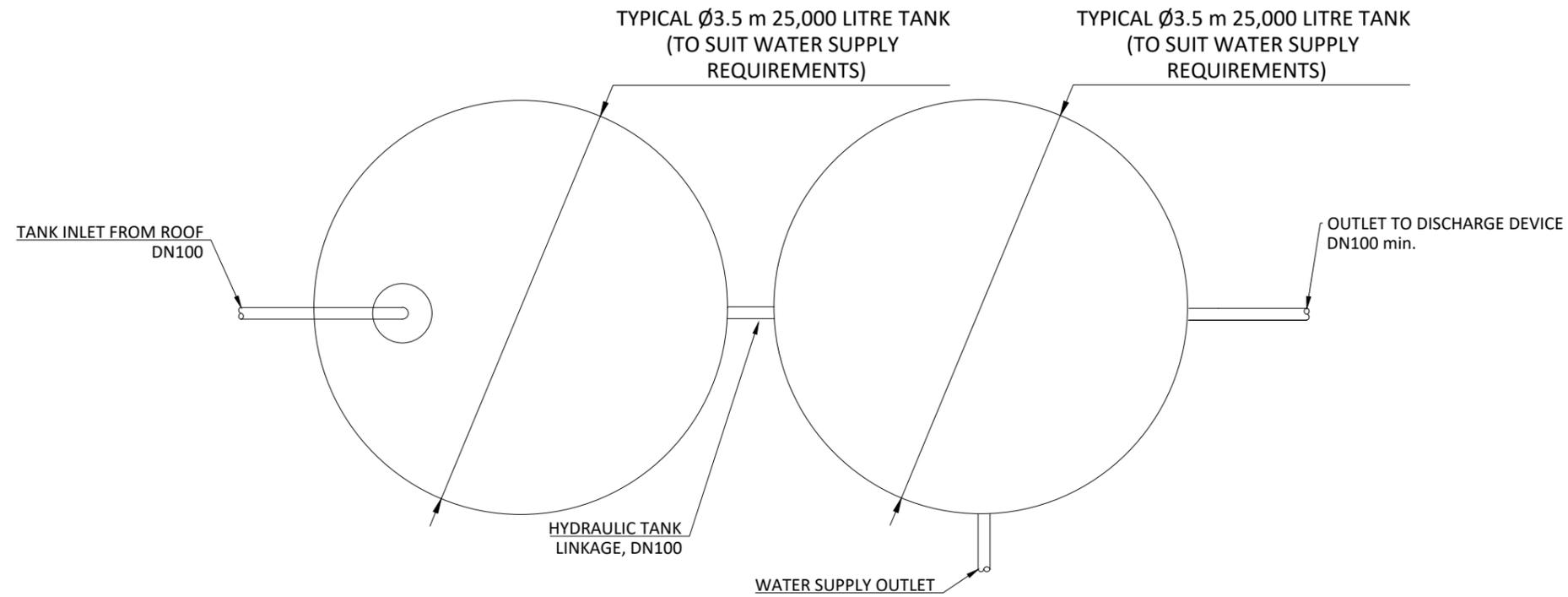
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101

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PLOTED: 05/02/2022

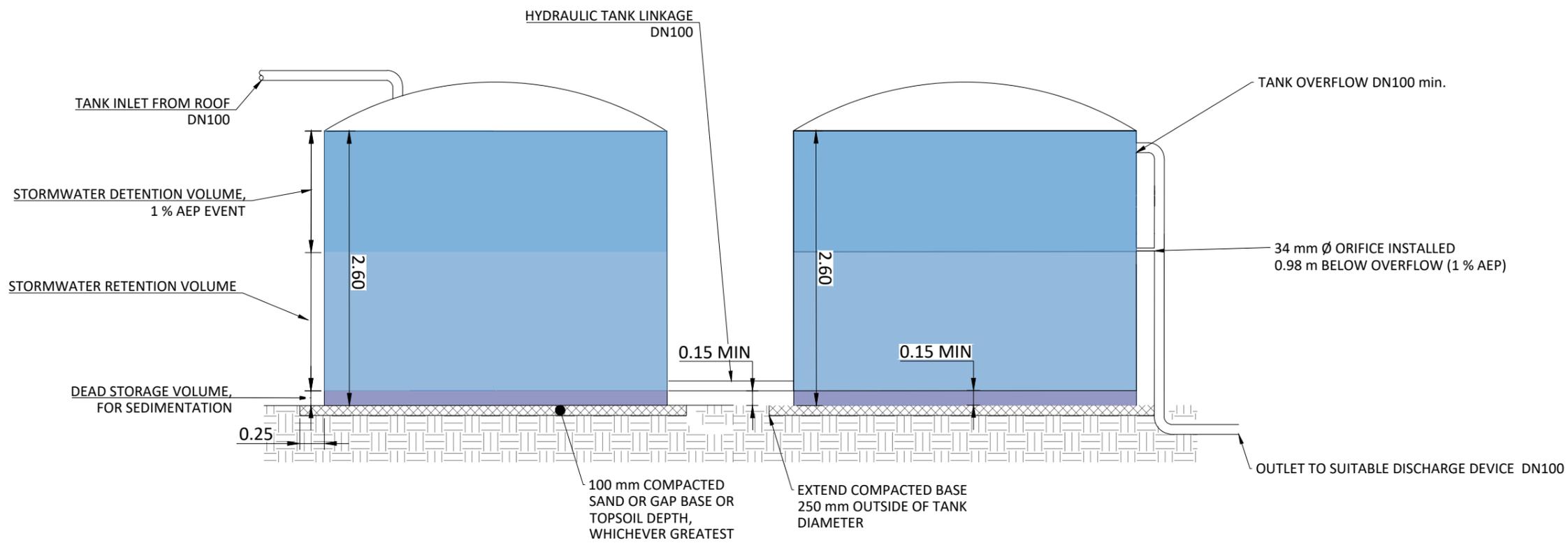
PROPOSED TANK PLAN VIEW

1:50, A3

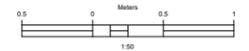


PROPOSED TANK SIDE VIEW

1:50, A3



GENERAL NOTES



A	FOR CONSENT	05/02/2026
Revision	Issue	Date



Project Name and Address
 C0749-01
 KAPIRO ROAD,
 KERIKERI
 PROPOSED SUBDIVISION OF LOT 5 DP 191086

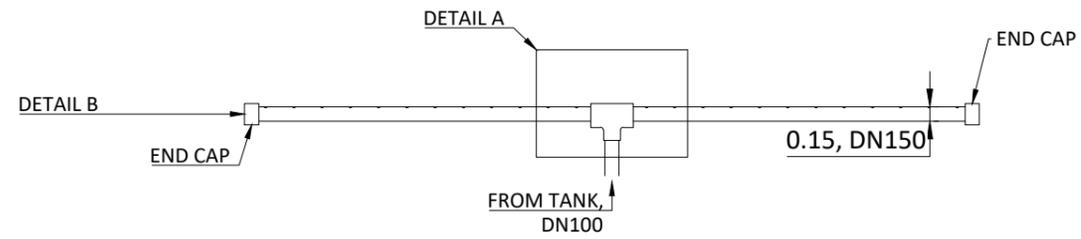
Project C0749N-01	Drawn By FS
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Client
T&G Global
 Sheet Title
STORMWATER TANK DETAILS

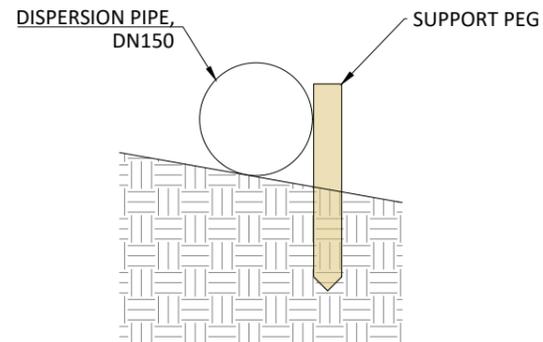
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OPTION 1: DISPERSION VIA ABOVE GROUND PIPE

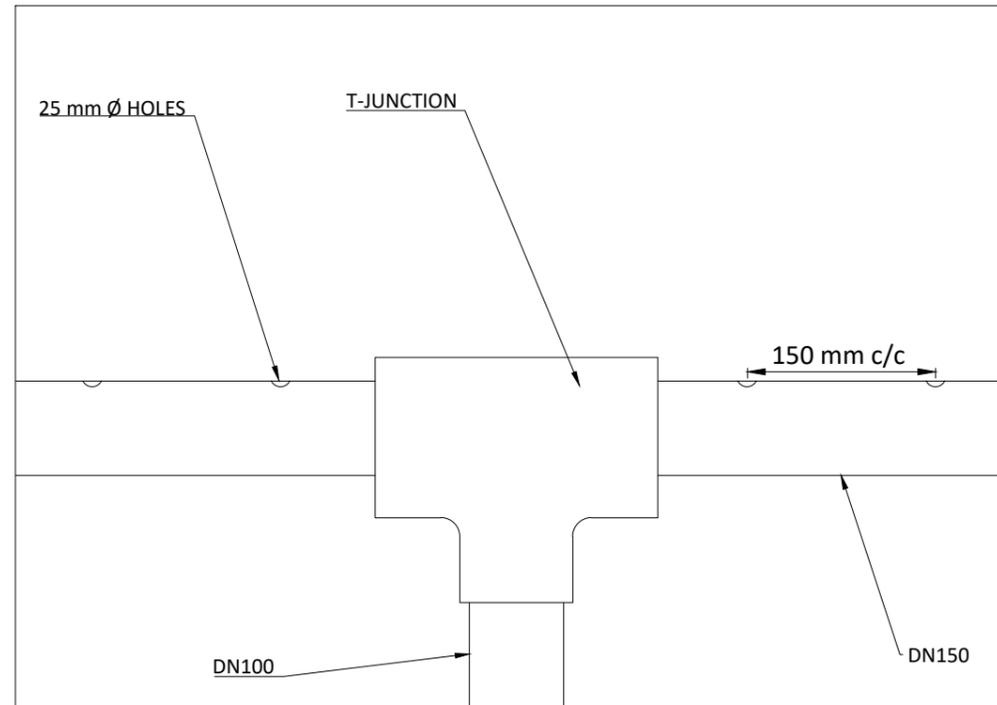
NOT TO SCALE



DETAIL B - SIDE VIEW
NOT TO SCALE



DETAIL A - T JUNCTION AND PERFORATIONS
NOT TO SCALE



GENERAL NOTES

A	FOR CONSENT	05/02/2026
Revision	Issue	Date



Project Name and Address
 C0749-01
 KAPIRO ROAD,
 KERIKERI
 PROPOSED SUBDIVISION OF LOT 5 DP 191086

Project C0749N-01	Drawn By FS
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Client
T&G Global

Sheet Title
STORMWATER DETAILS

Sheet
401

FILE PATH: Z:\Projects\C0700-C0799\C0749N - T&G Global, Kapiro Road, Kerikeri\C0749N-01\07 - Technical & Drawings\Drawings\C0749N-5-100-400-FS-000-FS-00749-01 existing surface DRAFT 0.dwg

PLOTED: 05/02/2022



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APPENDIX B

Stormwater Calculations

Project Ref:	IC0749N	STORMWATER ATTENUATION TANK DESIGN	
Project Address:	Lot5 DP191086,KAPIRO RD,KERIKERI		
Design Case:	PROPOSED DEVELOPMENT	50 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT	
Date:	27/1/2026	REV 1	

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

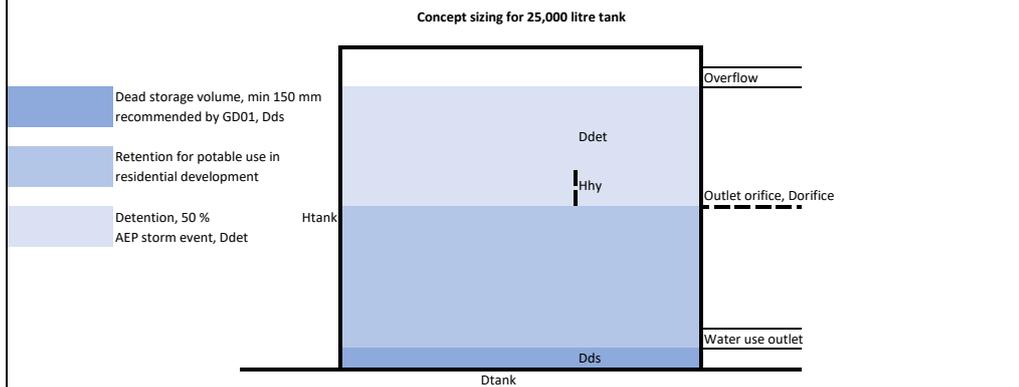
PRE DEVELOPMENT CATCHMENT PARAMETERS				POST DEVELOPMENT CATCHMENT PARAMETERS			
ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m2	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A				TO TANK	300	0.96	ROOF
IMPERVIOUS B	0	0		OFFSET	200	0.8	DRIVEWAY - METAL
IMPERVIOUS C	0	0		PERVIOUS	0	0	
EX. PERVIOUS	500	0.59	PASTURE	EX. CONSENTED	0	0	
TOTAL	500	TYPE C		TOTAL	500	TYPE C	

RAINFALL INTENSITY, 50% AEP, 10MIN DURATION			
50 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	64.3	mm/hr	* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN	20	%	
50 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	77.16	mm/hr	

PRE AND POST-DEVELOPMENT RUNOFF, 50%AEP, VARIOUS DURATIONS							
DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	64.30	1.2	77.16	9.60	5.27	4.22	Critical duration (time of concentration) for the catchments is 10min
20	46.80	1.2	56.16	6.99	3.84	3.07	
30	38.80	1.2	46.56	5.79	3.18	2.54	
60	27.90	1.2	33.48	4.17	2.29	1.83	Pre-dev calculated on Intensity without CC factor
120	19.80	1.2	23.76	2.96	1.62	1.30	
360	10.90	1.2	13.08	1.63	0.89	0.71	
720	7.17	1.2	8.60	1.07	0.59	0.47	
1440	4.52	1.2	5.42	0.67	0.37	0.30	
2880	2.72	1.2	3.26	0.41	0.22	0.18	
4320	1.96	1.2	2.35	0.29	0.16	0.13	

ATTENUATION ANALYSIS, VARIOUS DURATIONS							
DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW, Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	COMMENTS
10	3.43	6.17	0.79	0.79	5.39	3232	Selected Tank Outflow is selected for critical duration (time of concentration).
20	2.50	4.49	0.57	0.79	3.71	4448	
30	2.07	3.72	0.47	0.79	2.94	5290	
60	1.49	2.68	0.34	0.79	1.89	6813	select largest required storage, regardless of duration, to avoid overflow for event of any duration
120	1.06	1.90	0.24	0.79	1.11	8027	
360	0.58	1.05	0.13	0.79	0.26	5627	
720	0.38	0.69	0.09	0.79	No Att. Req.	0	
1440	0.24	0.43	0.06	0.79	No Att. Req.	0	
2880	0.15	0.26	0.03	0.79	No Att. Req.	0	
4320	0.10	0.19	0.02	0.79	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT



SPECIFICATION

TOTAL STORAGE REQUIRED	8.027 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	0.42 m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15 m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.57 m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00079 m3/s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.21 m	
AREA OF ORIFICE, Aorifice	6.27E-04 m2	
ORIFICE DIAMETER, Dorifice	28 mm	
VELOCITY AT ORIFICE	2.86 m/s	At max. head level

Project Ref:	IC0749N	STORMWATER ATTENUATION TANK DESIGN	
Project Address:	Lot5 DP191086,KAPIRO RD,KERIKERI		
Design Case:	PROPOSED DEVELOPMENT	20 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT	
Date:	27/1/2026	REV 1	

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

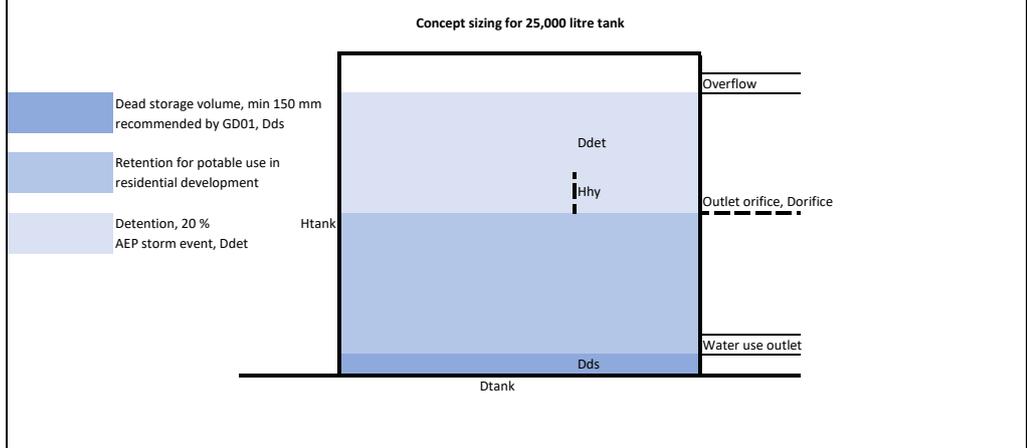
PRE DEVELOPMENT CATCHMENT PARAMETERS				POST DEVELOPMENT CATCHMENT PARAMETERS			
ITEM	AREA, A, m ²	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m ²	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0		TO TANK	300	0.96	ROOF
IMPERVIOUS B	0	0		OFFSET	200	0.8	DRIVEWAY - METAL
IMPERVIOUS C	0	0		PERVIOUS	0	0	
EX. PERVIOUS	500	0.59	PASTURE	EX. CONSENTED	0	0	
					0	0	
TOTAL	500		TYPE C	TOTAL	500		TYPE C

RAINFALL INTENSITY, 20% AEP, 10MIN DURATION			
20 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	83.3	mm/hr	* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%	
20 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	100.0	mm/hr	

PRE AND POST-DEVELOPMENT RUNOFF, 20%AEP, VARIOUS DURATIONS							
DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	83.30	1.2	99.96	12.44	6.83	5.46	<i>Critical duration (time of concentration) for the catchments is 10min</i>
20	60.70	1.2	72.84	9.06	4.97	3.98	
30	50.40	1.2	60.48	7.53	4.13	3.30	
60	36.30	1.2	43.56	5.42	2.97	2.38	<i>Pre-dev calculated on Intensity without CC factor</i>
120	25.80	1.2	30.96	3.85	2.11	1.69	
360	14.30	1.2	17.16	2.14	1.17	0.94	
720	9.39	1.2	11.27	1.40	0.77	0.62	
1440	5.93	1.2	7.12	0.89	0.49	0.39	
2880	3.57	1.2	4.28	0.53	0.29	0.23	
4320	2.58	1.2	3.10	0.39	0.21	0.17	

ATTENUATION ANALYSIS, VARIOUS DURATIONS							
DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW, Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	COMMENTS
10	4.44	8.00	1.02	1.02	6.98	4187	<i>Selected Tank Outflow is selected for critical duration (time of concentration).</i>
20	3.24	5.83	1.74	1.02	4.81	5771	
30	2.69	4.84	1.44	1.02	3.82	6877	
60	1.94	3.48	1.04	1.02	2.47	8880	<i>select largest required storage, regardless of duration, to avoid overflow for event of any duration</i>
120	1.38	2.48	0.74	1.02	1.46	10503	
360	0.76	1.37	0.41	1.02	0.35	7661	
720	0.50	0.90	0.27	1.02	No Att. Req.	0	
1440	0.32	0.57	0.17	1.02	No Att. Req.	0	
2880	0.19	0.34	0.10	1.02	No Att. Req.	0	
4320	0.14	0.25	0.07	1.02	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT



SPECIFICATION		
TOTAL STORAGE REQUIRED	10.503 m ³	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 m ²	Area of two tanks hydraulically linked
TANK MAX STORAGE VOLUME, Vtank	50030 litres	
REQUIRED STORAGE HEIGHT, Ddet	0.55 m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15 m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.70 m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00102 m ³ /s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.27 m	
AREA OF ORIFICE, Aorifice	7.10E-04 m ²	
ORIFICE DIAMETER, Dorifice	30 mm	
VELOCITY AT ORIFICE	3.27 m/s	At max. head level

Project Ref:	IC0749N	STORMWATER ATTENUATION TANK DESIGN	
Project Address:	Lot5 DP191086,KAPIRO RD,KERIKERI		
Design Case:	PROPOSED DEVELOPMENT	10 % AEP STORM EVENT, TO PRE-DEVELOPMENT FLOW	
Date:	27/1/2026	REV 1	

ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER 2023 FNDC ENGINEERING STANDARDS). THE 10% AEP SCENARIO IS PROVIDED TO SATISFY FNDC DISTRICT PLAN RULE 13.7.3.4 (FOR CONTROLLED ACTIVITY). PRE-DEVELOPMENT RUNOFF REMAINS UNFACTORED IN THIS SCENARIO. RUNOFF COEFFICIENTS DETERMINED FROM FNDC ENGINEERING STANDARDS 2023 TABLE 4-3.

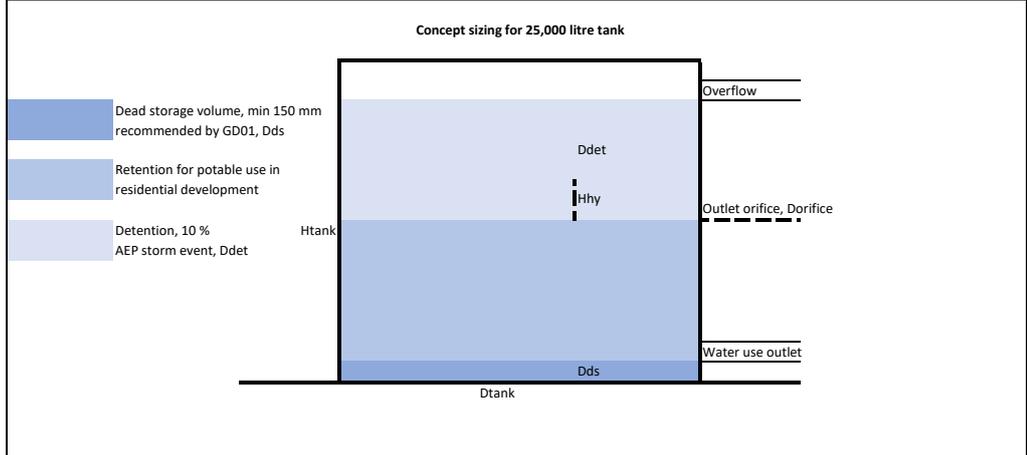
PRE DEVELOPMENT CATCHMENT PARAMETERS				POST DEVELOPMENT CATCHMENT PARAMETERS			
ITEM	AREA, A, m ²	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m ²	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0		TO TANK	300	0.96	ROOF
IMPERVIOUS B	0	0		OFFSET	200	0.8	DRIVEWAY - METAL
IMPERVIOUS C	0	0		PERVIOUS	0	0	
EX. PERVIOUS	500	0.59	PASTURE	EX. CONSENTED	0	0	
	0	0			0	0	
TOTAL	500	TYPE C		TOTAL	500	TYPE C	

RAINFALL INTENSITY, 10% AEP, 10MIN DURATION			
10 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	97.2	mm/hr	* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%	
10 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	116.6	mm/hr	

PRE AND POST-DEVELOPMENT RUNOFF, 10%AEP, 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	97.20	1.2	116.64	14.52	7.97	Critical duration (time of concentration) for the catchments is 10min
20	70.90	1.2	85.08	10.59	5.81	
30	58.90	1.2	70.68	8.80	4.83	
60	42.50	1.2	51.00	6.35	3.48	Pre-dev calculated on Intensity without CC factor
120	30.20	1.2	36.24	4.51	2.47	
360	16.70	1.2	20.04	2.49	1.37	
720	11.00	1.2	13.20	1.64	0.90	
1440	6.98	1.2	8.38	1.04	0.57	
2880	4.21	1.2	5.05	0.63	0.34	
4320	3.05	1.2	3.66	0.46	0.25	

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	COMMENTS
10	5.18	9.33	2.78	2.78	6.55	3930	Selected Tank Outflow is selected for critical duration (time of concentration).
20	3.78	6.81	2.03	2.78	4.03	4830	
30	3.14	5.65	1.69	2.78	2.87	5172	
60	2.27	4.08	1.22	2.78	1.30	4676	select largest required storage, regardless of duration, to avoid overflow for event of any duration
120	1.61	2.90	0.86	2.78	0.12	851	
360	0.89	1.60	0.48	2.78	No Att. Req.	0	
720	0.59	1.06	0.31	2.78	No Att. Req.	0	
1440	0.37	0.67	0.20	2.78	No Att. Req.	0	
2880	0.22	0.40	0.12	2.78	No Att. Req.	0	
4320	0.16	0.29	0.09	2.78	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT



SPECIFICATION		
TOTAL STORAGE REQUIRED	5.172 m ³	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 m ²	Area of two tanks hydraulically linked
TANK MAX STORAGE VOLUME, Vtank	50030 litres	
REQUIRED STORAGE HEIGHT, Ddet	0.27 m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15 m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	0.42 m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00278 m ³ /s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.13 m	
AREA OF ORIFICE, Aorifice	2.76E-03 m ²	
ORIFICE DIAMETER, Dorifice	59 mm	
VELOCITY AT ORIFICE	2.30 m/s	At max. head level

Project Ref:	IC0749N	STORMWATER ATTENUATION TANK DESIGN	
Project Address:	Lot5 DP191086,KAPIRO RD,KERIKERI		
Design Case:	PROPOSED DEVELOPMENT	1 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT	
Date:	27/1/2026	REV 1	

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

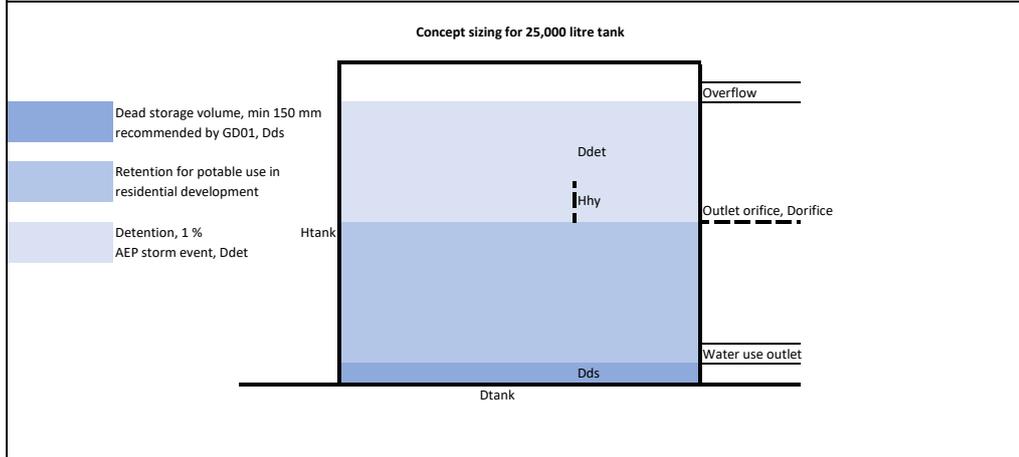
PRE DEVELOPMENT CATCHMENT PARAMETERS				POST DEVELOPMENT CATCHMENT PARAMETERS			
ITEM	AREA, A, m ²	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m ²	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0		TO TANK	300	0.96	ROOF
IMPERVIOUS B	0	0		OFFSET	200	0.8	DRIVEWAY - METAL
IMPERVIOUS C	0	0		PERVIOUS	0	0	
EX. PERVIOUS	500	0.59	PASTURE	EX. CONSENTED	0	0	
	0	0			0	0	
TOTAL	500	TYPE C		TOTAL	500	TYPE C	

RAINFALL INTENSITY, 1% AEP, 10MIN DURATION			
1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	145.0	mm/hr	* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%	
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	174.0	mm/hr	

PRE AND POST-DEVELOPMENT RUNOFF, 1%AEP, VARIOUS DURATIONS							
DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Qpost, l/s	PRE DEV RUNOFF, Qpre, l/s	80% of PRE DEV RUNOFF, Qpre(80%), l/s	COMMENTS
10	145.00	1.2	174.00	21.65	11.88	9.51	<i>Critical duration (time of concentration) for the catchments is 10min</i>
20	106.00	1.2	127.20	15.83	8.69	6.95	
30	88.20	1.2	105.84	13.17	7.23	5.78	
60	64.00	1.2	76.80	9.56	5.24	4.20	<i>Pre-dev calculated on Intensity without CC factor</i>
120	45.70	1.2	54.84	6.82	3.74	3.00	
360	25.40	1.2	30.48	3.79	2.08	1.67	
720	16.80	1.2	20.16	2.51	1.38	1.10	
1440	10.70	1.2	12.84	1.60	0.88	0.70	
2880	6.46	1.2	7.75	0.96	0.53	0.42	
4320	4.69	1.2	5.63	0.70	0.38	0.31	

ATTENUATION ANALYSIS, VARIOUS DURATIONS							
DURATION, min	OFFSET FLOW, Qoff, l/s	TANK INFLOW, Qin, l/s	ALLOWABLE TANK OUTFLOW, Qpre(80%) - Qoff, l/s	SELECTED TANK OUTFLOW, Qout, l/s	DIFFERENCE (Qin - Qout), l/s	Required Storage, litres	COMMENTS
10	7.73	13.92	1.77	1.77	12.15	7289	<i>Selected Tank Outflow is selected for critical duration (time of concentration).</i>
20	5.65	10.18	1.30	1.77	8.40	10085	
30	4.70	8.47	1.08	1.77	6.69	12051	
60	3.41	6.14	0.78	1.77	4.37	15738	<i>select largest required storage, regardless of duration, to avoid overflow for event of any duration</i>
120	2.44	4.39	0.56	1.77	2.61	18828	
360	1.35	2.44	0.31	1.77	0.67	14389	
720	0.90	1.61	0.21	1.77	No Att. Req.	0	
1440	0.57	1.03	0.13	1.77	No Att. Req.	0	
2880	0.34	0.62	0.08	1.77	No Att. Req.	0	
4320	0.25	0.45	0.06	1.77	No Att. Req.	0	

ATTENUATION TANK DESIGN OUTPUT



SPECIFICATION

TOTAL STORAGE REQUIRED	18.828 m ³	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 m ²	Area of two tanks hydraulically linked
TANK MAX STORAGE VOLUME, Vtank	50030 litres	
REQUIRED STORAGE HEIGHT, Ddet	0.98 m	Below overflow
DEAD STORAGE VOLUME, Dds	0.15 m	GD01 recommended minimum
TOTAL WATER DEPTH REQUIRED	1.13 m	
SELECTED TANK OUTFLOW, Qout, l/s	0.00177 m ³ /s	Selected tank outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.49 m	
AREA OF ORIFICE, Aorifice	9.23E-04 m ²	
ORIFICE DIAMETER, Dorifice	34 mm	
VELOCITY AT ORIFICE	4.38 m/s	At max. head level

Project Ref:	IC0749N	STORMWATER ATTENUATION POND DESIGN	
Project Address:	Lot5 DP191086,KAPIRO RD,KERIKERI		
Design Case:	POND NEAR ROW C		
Date:	3 February 2026	REV 1	1 % AEP STORM EVENT, 80 % OF PRE DEVELOPMENT

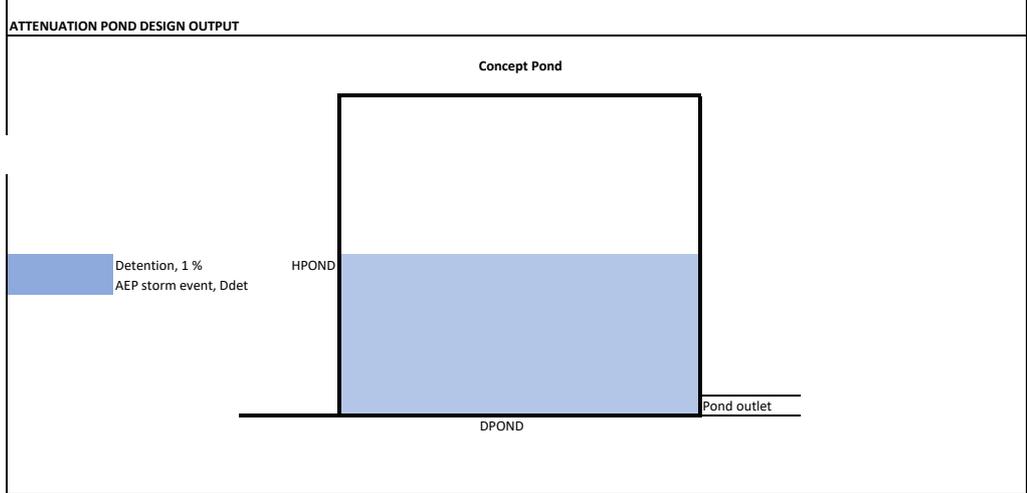
ATTENUATION DESIGN PROVIDED IN ACCORDANCE WITH NEW ZEALAND BUILDING CODE E1 FOR THE RATIONALE METHOD ACCOUNTING FOR THE EFFECTS OF CLIMATE CHANGE (20% FACTOR AS PER 2023 FNDC ENGINEERING STANDARDS).
 PRE-DEVELOPMENT RUNOFF IS FACTORED BY 80% TO SUIT FNDC STANDARDS
 RUNOFF COEFFICIENTS DETERMINED FROM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

PRE DEVELOPMENT CATCHMENT PARAMETERS				POST DEVELOPMENT CATCHMENT PARAMETERS			
ITEM	AREA, A, m ²	COEFFICIENT, C	DESCRIPTION	ITEM	AREA, A, m ²	COEFFICIENT, C	DESCRIPTION
IMPERVIOUS A	0	0		TO POND	1610	0.66	RoW & UPSTREAM PERVIOUS (WEIGHTED AVERAGE)
IMPERVIOUS B	0	0		OFFSET	130	0.8	RoW NOT TO POND
IMPERVIOUS C	0	0		PERVIOUS	0	0	
EX. PERVIOUS	1740	0.59	PASTURE	EX. CONSENTED	0	0	
	0	0			0	0	
TOTAL	1740	TYPE C		TOTAL	1740	TYPE C	

RAINFALL INTENSITY, 1% AEP, 10MIN DURATION			
1 % AEP RAINFALL INTENSITY, 10 MIN, I, mm/hr	145.0	mm/hr	* CLIMATE CHANGE FACTOR OF 20% APPLIED IN ACCORDANCE WITH FNDC ENGINEERING STANDARDS 4.3.9.1. NIWA HISTORIC RAINFALL INTENSITY DATA, 10MIN, IS MULTIPLIED BY CLIMATE CHANGE FACTOR.
CLIMATE CHANGE FACTOR, 2.1 DEG, 10 MIN*	20	%	
1 % AEP RAINFALL INTENSITY, 10 MIN WITH CC	174.0	mm/hr	

PRE AND POST-DEVELOPMENT RUNOFF, 1%AEP, VARIOUS DURATIONS							
DURATION, min	INTENSITY, mm/hr	CC FACTOR	INTENSITY WITH CC, mm/hr	POST DEV RUNOFF, Q _{post} , l/s	PRE DEV RUNOFF, Q _{pre} , l/s	80% of PRE DEV RUNOFF, Q _{pre(80%)} , l/s	COMMENTS
10	145.00	1.2	174.00	56.39	41.35	33.08	Critical duration (time of concentration) for the catchments is 10min
20	106.00	1.2	127.20	41.22	30.23	24.18	
30	88.20	1.2	105.84	34.30	25.15	20.12	
60	64.00	1.2	76.80	24.89	18.25	14.60	Pre-dev calculated on intensity without CC factor
120	45.70	1.2	54.84	17.77	13.03	10.43	
360	25.40	1.2	30.48	9.88	7.24	5.79	
720	16.80	1.2	20.16	6.53	4.79	3.83	
1440	10.70	1.2	12.84	4.16	3.05	2.44	
2880	6.46	1.2	7.75	2.51	1.84	1.47	
4320	4.69	1.2	5.63	1.82	1.34	1.07	

ATTENUATION ANALYSIS, VARIOUS DURATIONS							
DURATION, min	OFFSET FLOW, Q _{off} , l/s	POND INFLOW, Q _{in} , l/s	ALLOWABLE POND OUTFLOW, Q _{pre(80%) - Q_{off}} , l/s	SELECTED POND OUTFLOW, Q _{out} , l/s	DIFFERENCE (Q _{in} - Q _{out}), l/s	Required Storage, litres	COMMENTS
10	5.03	51.36	28.05	28.05	23.31	13984	Selected POND Outflow is selected for critical duration (time of concentration).
20	3.67	37.55	20.51	28.05	9.49	11391	
30	3.06	31.24	17.06	28.05	3.19	5738	
60	2.22	22.67	12.38	28.05	No Att. Req.	0	select largest required storage, regardless of duration, to avoid overflow for event of any duration
120	1.58	16.19	8.84	28.05	No Att. Req.	0	
360	0.88	9.00	4.91	28.05	No Att. Req.	0	
720	0.58	5.95	3.25	28.05	No Att. Req.	0	
1440	0.37	3.79	2.07	28.05	No Att. Req.	0	
2880	0.22	2.29	1.25	28.05	No Att. Req.	0	
4320	0.16	1.66	0.91	28.05	No Att. Req.	0	



SPECIFICATION		
TOTAL STORAGE REQUIRED	13.984 m ³	Select largest storage as per analysis
POND HEIGHT, HPOND	1 m	Concept sizing for 25,000 litre tank
POND AREA, APOND	14.00 m ²	Area of pond
POND MAX STORAGE VOLUME, VPOND	14000 litres	
REQUIRED STORAGE HEIGHT, Ddet	1.00 m	Below overflow
DEAD STORAGE VOLUME, Dds	0.00 m	Outlet at base
TOTAL WATER DEPTH REQUIRED	1.00 m	
SELECTED POND OUTFLOW, Q _{out} , l/s	0.02805 m ³ /s	Selected POND outflow
AVERAGE HYDRAULIC HEAD, Hhy	0.50 m	
AREA OF ORIFICE, A _{orifice}	1.45E-02 m ²	
ORIFICE DIAMETER, D _{orifice}	136 mm	
VELOCITY AT ORIFICE	4.43 m/s	At max. head level

HIRDS V4 Intensity-Duration-Frequency Results

Site name: Custom Location

Coordinate system: WGS84

Longitude: 173.9428

Latitude: -35.1938

DDF Mode Parameters: c d e f g h i

Values: 0.00234073 0.5155522 -0.0165708 -0.00362778 0.25359755 -0.0116598 3.2387231

Example: Duration (hrs) ARI (yrs) x y Rainfall Rate (mm/hr)

24 100 3.17805383 4.60014923 10.6907631

Rainfall intensities (mm/hr) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	58.8	42.7	35.4	25.5	18.1	9.94	6.53	4.1	2.5	1.8	1.4	1.15
2	0.5	64.3	46.8	38.8	27.9	19.8	10.9	7.17	4.5	2.7	2	1.5	1.27
5	0.2	83.3	60.7	50.4	36.3	25.8	14.3	9.39	5.9	3.6	2.6	2	1.67
10	0.1	97.2	70.9	58.9	42.5	30.2	16.7	11	7	4.2	3.1	2.4	1.97
20	0.05	111	81.3	67.6	48.9	34.8	19.3	12.7	8.1	4.9	3.5	2.8	2.28
30	0.033	120	87.5	72.7	52.6	37.5	20.8	13.8	8.7	5.3	3.8	3	2.47
40	0.025	126	91.8	76.4	55.3	39.4	21.9	14.5	9.2	5.5	4	3.2	2.61
50	0.02	130	95.4	79.3	57.4	40.9	22.8	15.1	9.6	5.8	4.2	3.3	2.71
60	0.017	134	98.2	81.7	59.2	42.2	23.5	15.5	9.9	6	4.3	3.4	2.8
80	0.013	140	103	85.4	61.9	44.1	24.6	16.3	10	6.2	4.5	3.6	2.94
100	0.01	145	106	88.2	64	45.7	25.4	16.8	11	6.5	4.7	3.7	3.04
250	0.004	163	121	99.8	72.5	51.8	28.9	19.2	12	7.4	5.4	4.2	3.48

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	7.6	4.8	3.6	2.6	1.8	1.1	0.77	0.6	0.4	0.3	0.2	0.19
2	0.5	8.3	5.2	3.9	2.8	2	1.2	0.84	0.7	0.4	0.3	0.3	0.21
5	0.2	12	7.4	5.7	3.8	2.8	1.7	1.2	0.9	0.6	0.5	0.4	0.29
10	0.1	15	9.8	7.6	4.8	3.6	2.2	1.5	1.1	0.7	0.5	0.4	0.34
20	0.05	19	13	10	6.2	4.7	2.9	1.9	1.3	0.9	0.6	0.5	0.41
30	0.033	21	15	12	7.2	5.6	3.4	2.2	1.5	1	0.7	0.6	0.45
40	0.025	24	17	14	8	6.3	3.9	2.5	1.6	1	0.8	0.6	0.48
50	0.02	26	18	14	8.7	6.9	4.2	2.7	1.7	1.1	0.8	0.6	0.5
60	0.017	27	19	15	9.3	7.4	4.5	2.9	1.8	1.1	0.8	0.7	0.53
80	0.013	30	22	17	10	8.3	5.1	3.3	1.9	1.2	0.9	0.7	0.56
100	0.01	33	23	19	11	9.1	5.6	3.6	2	1.3	0.9	0.7	0.59
250	0.004	44	33	26	16	13	8	5.2	2.5	1.6	1.2	0.9	0.73

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	62.9	45.7	37.9	27.3	19.2	10.5	6.84	4.3	2.6	1.8	1.4	1.18
2	0.5	69	50.2	41.6	30	21.2	11.5	7.53	4.7	2.8	2	1.6	1.3
5	0.2	89.6	65.3	54.2	39.1	27.7	15.1	9.9	6.2	3.7	2.7	2.1	1.72
10	0.1	105	76.4	63.4	45.8	32.5	17.8	11.7	7.3	4.4	3.2	2.5	2.04
20	0.05	120	87.7	72.9	52.7	37.4	20.6	13.5	8.5	5.1	3.7	2.9	2.36
30	0.033	129	94.4	78.5	56.8	40.3	22.2	14.5	9.1	5.5	4	3.1	2.56
40	0.025	136	99.2	82.5	59.7	42.4	23.4	15.3	9.6	5.8	4.2	3.3	2.7
50	0.02	141	103	85.6	62	44.1	24.3	15.9	10	6	4.4	3.4	2.81
60	0.017	145	106	88.2	63.9	45.4	25	16.4	10	6.2	4.5	3.5	2.9
80	0.013	151	111	92.2	66.8	47.5	26.2	17.2	11	6.5	4.7	3.7	3.04
100	0.01	156	115	95.3	69.1	49.2	27.2	17.8	11	6.8	4.9	3.8	3.15
250	0.004	176	129	108	78.3	55.8	30.9	20.3	13	7.7	5.6	4.4	3.61

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	62.9	45.7	37.9	27.3	19.2	10.5	6.84	4.3	2.6	1.8	1.4	1.18
2	0.5	69	50.2	41.6	30	21.2	11.5	7.53	4.7	2.8	2	1.6	1.3
5	0.2	89.6	65.3	54.2	39.1	27.7	15.1	9.9	6.2	3.7	2.7	2.1	1.72
10	0.1	105	76.4	63.4	45.8	32.5	17.8	11.7	7.3	4.4	3.2	2.5	2.04
20	0.05	120	87.7	72.9	52.7	37.4	20.6	13.5	8.5	5.1	3.7	2.9	2.36
30	0.033	129	94.4	78.5	56.8	40.3	22.2	14.5	9.1	5.5	4	3.1	2.56
40	0.025	136	99.2	82.5	59.7	42.4	23.4	15.3	9.6	5.8	4.2	3.3	2.7
50	0.02	141	103	85.6	62	44.1	24.3	15.9	10	6	4.4	3.4	2.81
60	0.017	145	106	88.2	63.9	45.4	25	16.4	10	6.2	4.5	3.5	2.9
80	0.013	151	111	92.2	66.8	47.5	26.2	17.2	11	6.5	4.7	3.7	3.04
100	0.01	156	115	95.3	69.1	49.2	27.2	17.8	11	6.8	4.9	3.8	3.15
250	0.004	176	129	108	78.3	55.8	30.9	20.3	13	7.7	5.6	4.4	3.61

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	64	46.5	38.5	27.7	19.5	10.6	6.92	4.3	2.6	1.9	1.5	1.19
2	0.5	70.2	51	42.3	30.5	21.5	11.7	7.63	4.8	2.8	2	1.6	1.31
5	0.2	91.2	66.5	55.1	39.8	28.1	15.4	10	6.3	3.8	2.7	2.1	1.74
10	0.1	107	77.8	64.6	46.7	33.1	18.1	11.8	7.4	4.4	3.2	2.5	2.05
20	0.05	122	89.3	74.2	53.7	38.1	20.9	13.7	8.6	5.1	3.7	2.9	2.38
30	0.033	132	96.2	80	57.9	41.1	22.5	14.8	9.3	5.5	4	3.1	2.58
40	0.025	138	101	84	60.8	43.2	23.7	15.5	9.8	5.8	4.2	3.3	2.72
50	0.02	143	105	87.2	63.2	44.9	24.7	16.2	10	6.1	4.4	3.5	2.83
60	0.017	148	108	89.8	65.1	46.2	25.4	16.7	11	6.3	4.5	3.6	2.92
80	0.013	154	113	94	68.1	48.4	26.6	17.5	11.6	6.5	4.8	3.7	3.07
100	0.01	159	117	97.1	70.4	50.1	27.6	18.1	11	6.8	4.9	3.9	3.18
250	0.004	180	132	110	79.8	56.8	31.4	20.6	13	7.8	5.6	4.4	3.64

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	67	48.9	40.5	29.2	20.5	11.1	7.16	4.5	2.6	1.9	1.5	1.21
2	0.5	73.8	53.7	44.5	32.1	22.6	12.2	7.91	4.9	2.9	2.1	1.6	1.34
5	0.2	96.2	70.1	58.2	42	29.6	16.1	10.4	6.5	3.9	2.8	2.2	1.78
10	0.1	113	82.2	68.2	49.3	34.8	18.9	12.3	7.7	4.6	3.3	2.6	2.11
20	0.05	129	94.4	78.5	56.7	40.2	21.9	14.2	8.9	5.3	3.8	3	2.44
30	0.033	139	102	84.5	61.7	43.3	23.6	15.4	9.6	5.7	4.1	3.2	2.65
40	0.025	146	107	88.8	64.3	45.6	24.9	16.2	10	6	4.4	3.4	2.79
50	0.02	152	111	92.3	66.8	47.4	25.9	16.9	11	6.3	4.5	3.6	2.91
60	0.017	156	114	95	68.8	48.8	26.7	17.4	11	6.5	4.7	3.7	3
80	0.013	163	119	99.4	72.1	51.1	28	18.2	11	6.8	4.9	3.8	3.15
100	0.01	169	123	103	74.5	52.9	29	18.9	12	7.1	5.1	4	3.27
250	0.004	190	140	116	84.4	60	32.9	21.5	14	8.1	5.8	4.6	3.74

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	63.5	46.2	38.3	27.5	19.4	10.6	6.89	4.3	2.6	1.9	1.5	1.19
2	0.5	69.7	50.7	42	30.3	21.4	11.6	7.59	4.8	2.8	2	1.6	1.31
5	0.2	90.5	66	54.8	39.5	28	15.3	9.98	6.3	3.7	2.7	2.1	1.73
10	0.1	106	77.2	64.1	46.3	32.8	18	11.8	7.4	4.4	3.2	2.5	2.05
20	0.05	121	88.7	73.7	53.3	37.8	20.7	13.6	8.5	5.1	3.7	2.9	2.37
30	0.033	131	95.5	79.4	57.4	40.8	22.4	14.7	9.2	5.5	4	3.1	2.57
40	0.025	137	102	83.4	60.4	42.9	23.6	15.4	9.7	5.8	4.2	3.2	2.65
50	0.02	142	104	86.6	62.7	44.6	24.5	16.1	10	6.1	4.4	3.4	2.82
60	0.017	146	107	89.2	64.6	45.9	25.3	16.6	10	6.3	4.5	3.5	2.91
80	0.013	153	112	93.3	67.6	48.1	26.5	17.4	11	6.6	4.7	3.7	3.06
100	0.01	158	116	96.4	69.9	49.7	27.4	18	11	6.8	4.9	3.9	3.17
250	0.004	178	131	109	79.2	56.4	31.2	20.5	13	7.8	5.6	4.4	3.63

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HIRDS V4 Depth-Duration-Frequency Results
 Sitename: Custom Location
 Coordinate system: WGS84
 Longitude: 173.9428
 Latitude: -35.1938
 DDF Model

Parameters: c d e f g h i
 Values: 0.00234073 0.5155522 -0.0165708 -0.00362778 0.25359755 -0.0116598 3.23872
 Example: Duration (hrs) ARI (yrs) x v Rainfall Depth (mm)
 24 100 3.17805383 4.60014923 256.5783143

Rainfall depths (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	9.8	14.2	17.7	25.5	36.1	59.6	78.4	99	119	129	134	138
2	0.5	10.7	15.6	19.4	27.9	39.6	65.5	86.1	109	130	141	146	152
5	0.2	13.9	20.2	25.2	36.3	51.6	85.5	113	142	171	186	195	200
10	0.1	16.2	23.6	29.4	42.5	60.5	100	132	168	202	219	230	236
20	0.05	18.6	27.1	33.8	48.9	69.6	116	153	194	233	254	266	274
30	0.033	19.9	29.2	36.4	52.6	75	125	165	209	252	275	288	296
40	0.025	20.9	30.6	38.2	55.3	78.9	131	174	220	266	290	304	313
50	0.02	21.7	31.8	39.7	57.4	81.9	137	181	229	277	301	316	325
60	0.017	22.4	32.7	40.8	59.2	84.4	141	186	236	286	311	326	336
80	0.013	23.4	34.2	42.7	61.9	88.3	147	195	248	299	326	342	352
100	0.01	24.1	35.3	44.1	64	91.3	153	202	257	310	338	354	365
250	0.004	27.2	39.9	49.9	72.5	104	173	230	293	354	386	406	418

Depth standard error (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	1.3	1.6	1.8	2.4	3.3	6.6	9.1	15	19	21	22	23
2	0.5	1.4	1.8	2	2.6	3.6	7.3	10	17	21	24	25	26
5	0.2	1.9	2.6	2.8	3.7	5.1	10	14	23	29	32	34	35
10	0.1	2.4	3.3	3.7	4.9	6.7	13	18	28	34	38	40	42
20	0.05	3	4.3	4.9	6.4	8.9	17	23	33	41	45	48	50
30	0.033	3.5	5	5.7	7.5	11	20	26	37	45	50	53	55
40	0.025	3.8	5.6	6.4	8.4	12	22	29	40	48	53	57	59
50	0.02	4.1	6	7	9.2	13	24	32	42	50	56	60	62
60	0.017	4.4	6.4	7.4	9.9	14	26	34	44	53	58	63	65
80	0.013	4.8	7.1	8.3	11	16	29	38	47	56	62	67	70
100	0.01	5.2	7.7	9	12	17	31	42	50	59	65	71	73
250	0.004	6.9	11	12	17	25	45	59	62	74	81	89	91

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	10.5	15.2	19	27.3	38.5	62.9	82.1	103	123	132	138	142
2	0.5	11.5	16.7	20.8	30	42.3	69.2	90.4	113	135	146	152	156
5	0.2	14.9	21.8	27.1	39.1	55.3	90.8	119	149	178	193	201	207
10	0.1	17.4	25.5	31.7	45.8	65	107	140	176	210	228	238	244
20	0.05	20	29.2	36.4	52.7	74.8	123	162	203	243	264	276	283
30	0.033	21.5	31.5	39.2	56.8	80.7	133	175	219	263	285	299	307
40	0.025	22.6	33.1	41.2	59.7	84.9	140	184	231	278	301	315	324
50	0.02	23.5	34.3	42.8	62	88.2	146	191	241	289	313	328	337
60	0.017	24.1	35.3	44.1	63.9	90.8	150	197	248	298	323	338	348
80	0.013	25.2	36.9	46.1	66.8	95.1	157	207	260	313	339	355	365
100	0.01	26.1	38.2	47.7	69.1	98.4	163	214	270	324	352	368	378
250	0.004	29.4	43.1	53.9	78.3	112	185	244	307	370	402	421	433

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	10.5	15.2	19	27.3	38.5	62.9	82.1	103	123	132	138	142
2	0.5	11.5	16.7	20.8	30	42.3	69.2	90.4	113	135	146	152	156
5	0.2	14.9	21.8	27.1	39.1	55.3	90.8	119	149	178	193	201	207
10	0.1	17.4	25.5	31.7	45.8	65	107	140	176	210	228	238	244
20	0.05	20	29.2	36.4	52.7	74.8	123	162	203	243	264	276	283
30	0.033	21.5	31.5	39.2	56.8	80.7	133	175	219	263	285	299	307
40	0.025	22.6	33.1	41.2	59.7	84.9	140	184	231	278	301	315	324
50	0.02	23.5	34.3	42.8	62	88.2	146	191	241	289	313	328	337
60	0.017	24.1	35.3	44.1	63.9	90.8	150	197	248	298	323	338	348
80	0.013	25.2	36.9	46.1	66.8	95.1	157	207	260	313	339	355	365
100	0.01	26.1	38.2	47.7	69.1	98.4	163	214	270	324	352	368	378
250	0.004	29.4	43.1	53.9	78.3	112	185	244	307	370	402	421	433

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	10.7	15.5	19.3	27.7	39.1	63.8	83	104	124	133	139	143
2	0.5	11.7	17	21.2	30.5	43	70.2	91.5	114	136	147	154	158
5	0.2	15.2	22.2	27.6	39.8	56.3	92.2	120	151	180	195	203	208
10	0.1	17.8	25.9	32.3	46.7	66.1	108	142	178	212	230	240	246
20	0.05	20.4	29.7	37.1	53.7	76.1	125	164	205	246	267	278	286
30	0.033	21.9	32.1	40	57.9	82.1	135	177	222	266	288	301	309
40	0.025	23	33.7	42	60.8	86.4	142	187	234	280	304	318	326
50	0.02	23.9	35	43.6	63.2	89.8	148	194	243	292	316	331	340
60	0.017	24.6	36	44.9	65.1	92.5	153	200	251	301	327	341	351
80	0.013	25.7	37.6	47	68.1	96.8	160	207	263	313	338	353	363
100	0.01	26.6	38.9	48.6	70.4	100	166	217	273	327	355	372	382
250	0.004	30	44	54.9	79.8	114	188	247	311	374	406	425	437

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	11.2	16.3	20.3	29.2	41	66.4	85.9	107	127	136	142	146
2	0.5	12.3	17.9	22.3	32.1	45.2	73.2	94.9	118	140	151	157	161
5	0.2	16	23.4	29.1	42	59.3	96.4	125	156	185	200	208	213
10	0.1	18.8	27.4	34.1	49.3	69.7	114	148	184	219	237	247	253
20	0.05	21.5	31.5	39.2	56.7	80.3	131	171	213	254	274	286	293
30	0.033	23.2	33.9	42.3	61.2	86.7	142	185	230	275	297	310	318
40	0.025	24.3	35.6	44.4	64.3	91.2	149	195	243	290	313	327	335
50	0.02	25.3	37	46.1	66.8	94.8	155	202	252	302	326	340	349
60	0.017	26	38.1	47.5	68.8	97.6	160	209	261	311	337	351	360
80	0.013	27.2	39.8	49.7	72.1	102	168	219	273	327	353	369	378
100	0.01	28.1	41.2	51.4	74.5	106	174	227	283	336	362	382	392
250	0.004	31.7	46.5	58.1	84.4	120	198	258	323	386	419	437	449

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	10.6	15.4	19.1	27.5	38.9	63.4	82.6	103	123	133	139	142
2	0.5	11.6	16.9	21	30.3	42.8	69.8	91.1	114	136	147	153	157
5	0.2	15.1	22	27.4	39.5	55.9	91.6	120	150	179	194	202	208
10	0.1	17.6	25.7	32.1	46.3	65.7	108	141	177	212	229	239	246
20	0.05	20.2	29.6	36.8	53.3	75.6	124	163	204	245	265	277	283
30	0.033	21.8	31.8	39.7	57.4	81.5	134	176	221	265	287	300	308
40	0.025	22.9	33.4	41.7	60.4	86.7	142	185	233	277	299	312	320
50	0.02	23.7	34.7	43.3	62.7	89.1	147	193	242	291	315	330	339
60	0.017	24.4	35.7	44.6	64.6	91.8	152	199	250	300	325	340	349
80	0.013	25.5	37.4	46.6	67.6	96.1	159	208	262	315	341	357	367
100	0.01	26.4	38.6	48.2	69.9	99.4	164	216	272	326	354	370	380
250	0.004	29.7	43.6	54.5	79.2	113	187	246	310	372	404	423	435

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	11.7	17	21.1	30.4	42.7	68.7	88.6	110	130	13		



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APPENDIX C

Engineering Borehole Records



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WASTEWATER LOG

Project Ref:

Client: Regeneration Holdings Ltd

Project Name: T&G Global, Kapiro Road, Karikeri

Hole ID: **HA01 (S1Lot1)**

Project Location: Kapiro Road, Kerikeri

Date: 04-02-2026

Hole Position: 1,683,893.04 mE 6,105,515.61 mN 89 m

Logged By: CA Approved: AW

DEPTH (M)	MATERIAL DESCRIPTION (SEE CLASSIFICATION AND SYMBOLGY SHEET FOR DETAILS)	LEGEND	WASTEWATER CATEGORY (NZS1547)	WASTEWATER ASSESSMENT		GROUND WATER
				MOISTURE	COLOR	
0	SILT, with trace rootlets, trace gravel; dark grey; moist; friable. Gravel is fine to medium, sub-rounded to sub-angular. [TOPSOIL].					0
0.5 m	Clayey SILT, with trace gravel; dark grey mottled reddish brown; moist; friable. Gravel is fine to medium, sub-rounded to sub-angular. [RESIDUAL SOIL].					
0.8 m	Silty CLAY, with trace gravel; reddish brown; moist; low plasticity. Gravel is fine to medium, sub-rounded to sub-angular. [KERIKERI VOLCANICS].					
1.2 m	Terminated at 1.2 m					

Remarks:

1. Hand Auger terminated at target depth.
2. Groundwater not encountered during drilling.



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WASTEWATER LOG

Project Ref:

Client: Regeneration Holdings Ltd

Project Name: T&G Global, Kapiro Road, Karikeri

Hole ID: **HA02 (S1Lot2)**

Project Location: Kapiro Road, Kerikeri

Date: 04-02-2026

Hole Position: 1,683,975.4 mE 6,105,425.04 mN 85 m

Logged By: CA Approved: AW

DEPTH (M)	MATERIAL DESCRIPTION (SEE CLASSIFICATION AND SYMBOLOGY SHEET FOR DETAILS)	LEGEND	WASTEWATER CATEGORY (NZS1547)	WASTEWATER ASSESSMENT		GROUND WATER
				MOISTURE	COLOR	
0	SILT, with trace rootlets; dark grey; moist; friable; [TOPSOIL].					0
0.2 m	EL 85 m					
0.8 m	EL 84.8 m Clayey SILT, with trace gravel; brown mottled reddish brown; moist; low plasticity. Gravel is fine to medium, sub-rounded to sub-angular; [RESIDUAL SOIL].					
1.2 m	EL 84.2 m Clayey SILT, with trace gravel; reddish brown; moist; low plasticity; [KERIKERI VOLCANICS].					
1.2 m	EL 83.8 m Terminated at 1.2 m					

Remarks:

1. Hand Auger terminated at target depth.
2. Groundwater not encountered during drilling.

APPENDIX D

Wastewater Assessment of Effects

Table 5: 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. Disposal field well above mapped flood hazard.
Stormwater flowpath ⁴	5 m	NR	Complies
Surface water feature ⁵	15 m	15 – 30 m	Complies.
Coastal Marine Area	15 m	30 m	Complies.
Existing water supply bore.	20 m	NR	Complies.
Property boundary	1.5 m	1.5	Complies. Including proposed subdivision boundaries.
Winter groundwater table	0.6 m	0.6 m	Complies.
Topography			Complies, <10 °.
Cut off drain required?			No.
Discharge Consent Required?			No.
	TP58	NZS1547	
Cumulative Effects			
Biological Oxygen Demand		≤20 g/m ³	Complies – secondary treatment.
Total Suspended Solids		≤30 g/m ³	Complies – secondary treatment.
Total Nitrogen	10 – 30 g/m ³	15 – 75 g/m ³	Complies – secondary treatment.
Phosphorous	NR	4 – 10 g/m ³	Complies – secondary treatment.
Ammonia	NR	Negligible	Complies – secondary treatment.
Nitrites/ Nitrates	NR	15 – 45 g/m ³	Complies – secondary treatment.
Conclusion: Effects are less than minor on the environment.			
1. AEE based on proposed secondary treated effluent.			
2. Northland Regional Plan Table 9.			
3. Based on the recommendations of this report and Drawing No. 100.			
4. Including any formed road with kerb and channel, and water-table drain that is down-slope of the disposal area.			
5. River, lake, stream, pond, dam, or natural wetland.			
AEP Annual Exceedance Probability.			
NR No Requirement.			

Appendix 5

Combined Preliminary and Detailed Site
Investigation



geologix
consulting engineers

COMBINED PRELIMINARY AND DETAILED SITE INVESTIGATION

LOT 5 DP 191086,
KAPIRO ROAD, KERIKERI

T & G GLOBAL

C0749N-E-01
FEBRUARY 2026
REVISION 1





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1 INTRODUCTION

This combined Preliminary and Detailed Site Investigation (PSI/ DSI) report has been prepared by Geologix Consulting Engineers Ltd (Geologix) for T & G Global as our Client in accordance with our standard short form agreement and general terms and conditions of engagement.

This investigation was to assist with the Resource Consent application in relation to the proposed subdivision of Lot 5 DP 191086, Kapiro Road, Kerikeri (herein, referred to as the 'site', Figure 1, Section 2.1).

1.1 Background and Objectives

At the time of writing this report, the site is proposed for a two-lot subdivision. Proposed subdivision plans by Thomson Survey Limited dated 19 November 2025 are provided in Appendix A.

The Ministry for Environment's (MfE's) Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES:CS) (MfE, 2011a) applies to all site activities that trigger the NES:CS which are defined by Regulation 5 Subclauses (2) to (6). When one or more of these activities occur within a piece of land for which an activity or industry described by the Hazardous Activities and Industries List (HAIL) is either being undertaken, has previously been undertaken or is more likely than not to have occurred on it the NES:CS is enacted.

Therefore, the objective of this investigation was to:

- Determine the applicability of the NES:CS to the site.
- Assess the likelihood of human health risk associated with the proposed subdivision.
- Characterise site soils within the site (refer to Section 4), to assess the potential risks to human health and the environment; and
- Assess the requirements for potential consents in relation to the NES:CS.

1.2 Scope of Works

The following scope of works was undertaken in accordance with the staged process defined by the MfE Contaminated Land Management Guidelines (CLMG) No. 1 - *Reporting on Contaminated Site in New Zealand*. Ministry for the Environment, Wellington, New Zealand, Revised in 2021 (MfE 2011b).

- Desktop review of:
 - Provided council property information.
 - The Northland Regional Council (NRC) Selected Land Use Register (SLUR).



- The Far North District (FNDC) Far North Maps.
- Historical aerial photography available on the Local Government Geospatial Alliance's (LGGA's) Retrolens webpage as well as FNDC Maps LINZ Aerial Imagery.
- Soil sampling comprising the collection of 54 surface soil samples (including six duplicate samples) from 48 locations within the site.
- As required by the NES:CS, six duplicate sample were collected to confirm the consistency of the analysis.
- Soil samples were sent to RJ Hill Laboratories (Hills) for analysis (with Chain of Custody documentation).
- Preparation of this report in general accordance with current contaminated land guideline documents by a Suitably Qualified and Experienced Practitioner (SQEP) as defined by the NES:CS.

2 SITE INFORMATION/ DESCRIPTION

2.1 Site Identification

The site is located off Kapiro Road in Kerikeri, approximately 1 km east of the State Highway 10 (Twin Coast Discovery Highway) and Kapiro Road intersection. The site setting is presented in Figure 1 below with the centre of the site approximately at geographical position NZGD: 1683952, 6105480.

Figure 1: Site Setting.





The site is legally described as Lot 5 DP 191086 with a total site area of 4.1275 ha and designated by the FNDC Operative District Plan as within the Rural Production zone. The current title comprises an existing agricultural block. The site does not contain any existing structures or paved areas, being essentially empty except for three rows of existing shelter belts. Details of the site are listed in Table 1 below.

Table 1: Site Details.

Address	Zone	Legal Description	Area (m ²)
Off Kapiro Road, Kerikeri	Rural Production	Lot 5 DP 191086	41,275

2.2 Proposal and Proposed Site Use

It is understood that the Client proposes to subdivide the rural property into two separate sites. The proposed application includes subdivision formation only and not lot-specific development at this stage. A summary of the proposed subdivision plan is outlined in Table 2 below.

Table 2: Summary of Proposed Subdivision

Proposed Subdivision of Lot 5 DP 191086		
Proposed Lots	Size Range (ha)	Purpose
1	2.0700	New Rural Residential
2	2.0500	New Rural Residential

This understanding has been established from the proposed subdivision plan provided by Thomson Survey Limited dated 19 November 2025, provided in Appendix A. Any amendments to the referenced proposed subdivision plan may require an update to the scope and/ or recommendations of this report.

It is expected that any future soil disturbance activities will be required to potentially upgrade the existing site access road, create a new site access/ driveway for the proposed new lots, and to form potential future building platforms. However, no earthworks are proposed at this stage.

The current site use for the proposed rural residential subdivision is anticipated to change from rural production to rural residential.

2.3 Current Land Use

The site currently does not appear to be in use. The site is zoned Rural production under the FNDC Operative District Plan.

The future site use is anticipated to change following the proposed subdivision.

2.4 Surrounding Land Uses

The site is surrounded by mixed use rural properties including horticultural land use to the west, east and south-east, rural residential properties to the north and north-east. And grazing land to the north and south.

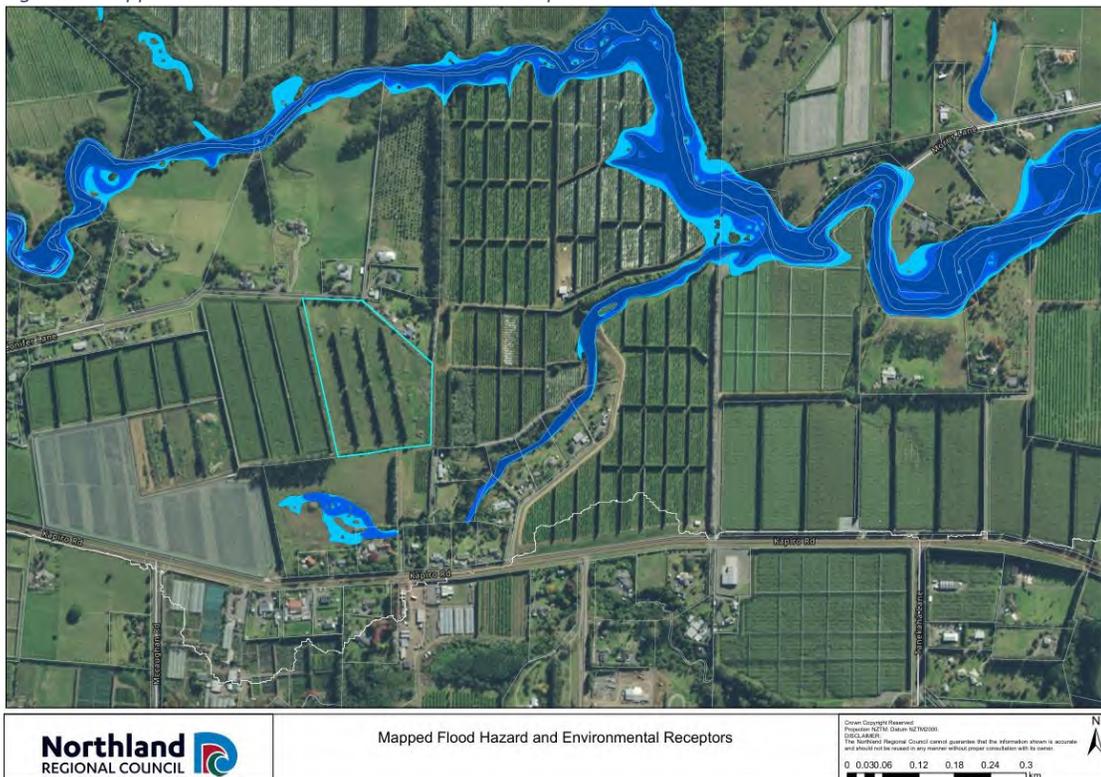
2.5 Environmental Setting/ Ecological Receptors

To provide protection for natural resources, ecological receptors on or near a site should be considered. The nearest ecological receptors are tributaries of the Rangitane River; Wairawarawa Stream approximately 290 m to the north-west and Kapiro Stream approximately 80 m to the south (includes associated overland flow path).

In relation to this consent application, the Kapiro Stream is located within an influencing distance (i.e., less than 100 m), therefore, is considered an environmental receptor.

Additionally, Figure 2 indicates the site is outside of a mapped flood hazard area, flood hazard under all modelled scenarios

Figure 2: Mapped Flood Hazard and Environmental Receptors



2.6 Geology

Published geological records indicates that to be directly underlain by Kerikeri Volcanic Group Late Miocene basalt of Kaikohe - Bay of Islands Volcanic Field. These Neogene igneous rocks (basalt) can be expected to contain Basalt lava material, volcanic plugs and minor tuff material. (GNS Science, 2022).

2.7 Site Inspection

A site walkover in conjunction with onsite investigation works was undertaken in January 2026 and the following observations were made (selected site photographs are



provided in Appendix B):

- The site appears as outlined by the most recent available 2025 aerial photograph (Google Earth Pro).
- Site does not appear to be in use.
- Site is heavily grassed/ overgrown.
- No structures present.
- No horticulture was present at the time of investigation, however, some evidence of horticultural activities were recorded within the site boundaries, namely existing shelter belts typical of horticultural activities.
- No burn pits/ burn areas (e.g., burning of refuse) were observed on site.
- Green waste piles were observed, located on the northern and south-eastern portions of the site.
- No treated timber posts observed onsite which is typical of the type of horticulture (e.g., citrus orchard).

3 HISTORICAL SITE USE

A review of selected publicly available information was undertaken to gain an understanding of the history of the site, particularly the nature and location of potentially contaminating activities that may have occurred within the site. This included reviews of:

- Publicly available historical aerial photographs from the Local Government Geospatial Alliance's (LGGAs) Retrolens and FNDC Maps (LINZ Aerial Imagery).
- Provided council property information, and
- NRCs SLUR.

3.1 Historical Aerial Photographs

Historical aerial photographs of the site and the surrounding area taken between 1950 and 2025 were sourced from the LGGAs Retrolens and FNDC Maps. A summary of observations made from the review of these photographs is provided below. Historical aerial photographs are provided in Appendix C.

Our review comprises visually evident land-use activities within the site boundaries of the site which may pose a risk to human or environmental receptor health. Land-use history activities relevant to the site are summarised as follows:

LGGAs Retrolens



- **1950-1979:** The earliest available historical aerial photographs indicate that the site appears to have been used for grazing land prior to 1950. No significant changes are observed within the site over this period.
- **1982:** The available historical aerial photograph indicates that the entire site and land adjacent to the site (west) appears to have been set up for horticultural activities with the potential establishment of an orchard circa 1982.

There are no available historical aerial photographs between 1982 and 2000.

FNDC Maps LINZ Aerial Imagery

- **2000-2006:** No significant changes observed within the site boundaries over this period. Horticulture use has intensified to the east of the site.

Residential dwellings are observed to the north-east and south of the site.

There are no available historical aerial photographs between 2006 and 2014.

- **2014-Present:** The 2014-2016 aerial image shows no horticulture present on site, therefore, horticulture activities/ use ceased sometime between 2006 and 2014.

With the exception of the removal of the shelter belt from the central portion of the site (running east to west), no significant changes observed over this period to date.

Green waste stockpiles (2014-2016 aerial image) are observed within the northern and south-eastern portions of the site, as observed during the site inspection.

In summary, the site was in use for grazing land purposes prior to 1950 until circa 1982, where the site was then used for horticultural land use with the establishment of an orchard. Horticultural activities ceased prior to 2014; the site appears to have not been utilised since the removal of horticulture circa 2014 to date.

3.2 Property Information

A summary of the relevant property information reviewed is provided below and selected relevant property information is provided in Appendix D.

3.2.1 Property Files

The review of the site property information provided by the client contained limited information only, no additional relevant information regarding contamination and/ or contaminating activities were noted within the provided information.

3.2.2 Selected Land Use Register

A review of the NRCs selected land use register (SLUR) was undertaken in February 2026. No HAIL activities have currently been identified within the property. The nearest identified HAIL



area identified is located adjoined to the west of the site.

3.3 Actual/ Potential HAIL Activities

Specific land use and associated activities through the available site history can be appointed to a site wide HAIL category A10; persistent pesticide bulk storage or use including sport turfs, market gardens, orchards, glass houses or spray sheds.

The above desktop review presents current and historical potential land-use activities that may have impacted the natural environmental properties of the shallow soils. Considering the nature of these activities are surface based and significant ground disturbance has not visibly been undertaken it can be concluded that potentially impacted soils will lie within the upper 0.5 m of the soil column.

The above land use activities equate to the whole site area (i.e., horticulture over the entire site). Therefore, the entire, 41,275 m² area of the site can be determined as a 'piece of land' according to the definitions of the NES:CS.

4 SAMPLING AND ANALYSIS PLAN

4.1 Potential Contaminants of Concern

Based on the potential HAIL activity(s) identified and from our experience, it is expected that contaminants of concern (CoC) (if any) associated with horticultural activities would typically be contained within the topsoil/ shallow site soils and may include heavy metals and, organochlorine pesticides resulting from the potential spraying of crops.

4.2 Sampling Methodology

Due to the potential HAIL activities identified (Section 3.3), the following sampling was undertaken to determine contaminant concentrations within the identified HAIL area (i.e., the entire site). Based on this, the sampling investigation has targeted the surface horizon from within the site comprising topsoil/ shallow site soils from up to 0.2 m below ground level (bgl) to target the CoCs and to quantify the nature and dispersion of any residual contamination. Sample locations are indicated on Figure 4 below and Drawing 700 in Appendix E.

Soil sampling was undertaken in general accordance with the MfE CLMG No.5 - *Site Investigation and Analysis of Soils* (revised 2021) (MfE, 2011c). The MfE sampling guidelines for a site of this size (41,275 m²) recommend up to 50 sampling points. From our experience, the following sampling programme was undertaken:

- From a total of 51 sample locations (designated S1C01a, S1C01b, S1C01c to S1C017a, S1C017b, S1C17c), 51 shallow soil samples were collected from the surface horizon comprising topsoil from 0.0 - 0.2 m bgl. Samples were composited into 17 samples (three primary subsamples per one composite sample) and analysed for the CoCs (metals (arsenic, cadmium, chromium, copper, lead, nickel and zinc) and OCPs))



- As required by the NES:CS, six duplicate soil samples from six locations were also collected and labelled under a unique identification (S1QC1a, b and c samples, and S1QC2a, b and c samples) and composited into two duplicate composite samples and analysed for metals only.
- Samples were composited within the laboratory environment.
- Two individual samples designated S1PH1 and S1PH2 were also collected and analysed for pH.
- Sampling was undertaken in accordance with Geologix Standard Operating Procedures including:
 - Each soil sample was collected using a clean pair of nitrile gloves for each sample, then placed into laboratory supplied sample containers. Prior to sampling at each location, the sampling equipment was decontaminated by washing with potable water, followed by a decontamination solution, and rinsing with deionised water.
 - The soil samples were placed in new laboratory supplied sample containers, placed in chilly bins with ice and couriered to a RJ Hill Laboratories (Hills) in Hamilton alongside Chain of Custody documentation.

Figure 3: Approximate Sample Locations.





4.3 Quality Assurance and Quality Control

The quality assurance/ quality control (QA / QC) procedures employed during the works included:

- Collection of soil samples by suitably qualified staff in accordance with Geologix standard operating procedures.
- Submission of all samples to the analytical laboratory within the acceptable holding times for the contaminants of concern.
- Submission of six duplicate soil samples from locations S1C01 (a, b and c samples) and S1C15 (a, b and c samples). These duplicate samples were composited into two composite samples and submitted under the unique identification S1QC01 and S1QC2 respectively and analysed for metals only.
- Sample analysis by Hill Laboratories who are accredited by International Accreditation New Zealand (IANZ) for the analyses performed.

4.4 Soil Guideline Values

The following environmental guidelines were used to screen the sample results. Relevant guideline values are provided in the data analysis table attached as Appendix E.

4.4.1 *Background Concentrations*

According to Regulation 5(9) of the NES:CS, if a DSI can demonstrate that any contaminants on a HAIL site are at, or below, background concentrations, then the NES:CS regulations do not apply. However, there are no natural background concentration available for Northland region at the time of this investigation. Therefore Regulation 5(9) of the NES:CS is not applicable.

4.4.2 *Soil Contaminant Standards (NES:CS)*

The NES:CS (MfE, 2011) details soil contaminant standards (SCSs) for seven inorganic substances. SCSs are available for these substances and compounds when present in land used for five land use scenarios. The contaminants analysed at this site for which SCSs are available are arsenic, cadmium, chromium, copper and lead. For this site, a rural residential/ lifestyle block 25% produce and commercial land use scenarios were adopted, which includes the following source-pathway-receptor assumptions:

- The selected residential SCSs assume that intended future land use will be either:
 - Rural residential/ lifestyle lot, for single dwelling sites with gardens, including some home-grown produce consumption, or
 - Commercial site with varying degrees of exposed soil.



- Potential receptors include site workers during the redevelopment works and residents or workers (dependant on the site use) following the redevelopment.
- The NES:CS adopted standards for rural residential/ lifestyle block 25% produce and commercial have been used to assess risks to both site workers and end users of the site.
- It has been assumed that the average soil pH is 5, and that all lead is present in inorganic form.

4.4.3 Other Applicable Human Health Standards

For contaminants of potential concern that are not priority contaminants, the NESCS references the hierarchy defined in the MfE CLMG No.2 – *Hierarchy and Application in New Zealand of Environmental Guideline Values* (MfE, 2011d).

In accordance with this hierarchy, the Australian National Environment Protection Council (NEPC) (1999 rev: 2013) National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM) has been used for two metals (nickel and zinc). Health-based investigation levels for 'Residential A' and 'Commercial/ industrial' land use have been selected in accordance with the potential proposed end use of the site and to protect site workers during the development work.

'Residential A' investigation levels are described in the ASC NEPM to include "*Residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes childcare centres, preschools and primary schools*" (NEPC 2013).

'Commercial/ Industrial' investigation levels are described in the ASC NEPM to include "*premises such as shops, offices, factories and industrial sites*" (NEPC 2013).

5 SAMPLING RESULTS

Laboratory analytical results of the samples collected are summarised in Section 5.1 below and the soil analytical results table attached as Appendix E. The full laboratory analytical reports are provided in Appendix F.

5.1 Analytical Results

As previously mentioned, all composite samples were analysed for metals (arsenic, cadmium, chromium, copper, lead, nickel, and zinc) and OCPs with the two individual samples for pH only. The results of the laboratory analysis indicated the following:

- No heavy metals were detected above human health criteria.
- No OCPs were detected above the laboratory level of reporting.
- From the two samples collected for pH analysis, pH was measured at 5.8 (sample S1PH1) and 6.3 (sample S1PH2).



- In addition, no visual or olfactory evidence of contamination was observed in any of the soil samples collected.

5.2.1 Confidence in Results

The analytical laboratory is required to conduct cross checking and routine duplicate sample analysis to maintain an IANZ accreditation. Discrete project specific duplicate analysis was undertaken to confirm the reliability of laboratory analysis. In accordance with CLMG, primary to secondary sample acceptable relative difference (RPD) is 50 % for soil samples.

Six duplicate samples (S1QC1a, b and c samples, and S1QC2a, b and c samples) were composited into two composite samples and analysed for metals to replicate the analysis of composite samples S1C01 (a, b and c samples) and S1C15 (a, b and c samples) respectively. The relative percentage difference (RPD) between the primary and duplicate samples ranged between 0% and 29%. As such, it is considered that the precision of the sampling and analysis is well within acceptable limits. The results are presented in the data analysis table attached as Appendix E.

5.2 Summary of Results

The result of analytical testing indicates that contaminants concentrations of the CoCs are below human health guidelines for a rural/ lifestyle block land use scenario.

6 DISPOSAL DOCUMENTATION

A disposal criteria analysis for metals has been made in accordance with the MfE Hazardous Waste Acceptance Criteria (WAC) screening criteria for Class A and B landfill facilities and summarised as follows:

- Site wide exceedance of Class A landfill screening criteria for total chromium from all sample locations.
- Site wide exceedance of Class B landfill screening criteria for:
 - Total chromium from all sample locations.
 - Copper from all sample locations.
 - Localised exceedance of Class B landfill screening criteria for zinc from sample locations Composite Samples 9 and 11-16 (i.e., eastern half of the site).

Based on the above, and as natural background concentrations are not available for Northland, soils do not meet the requirement and definition of clean fill and any soil proposed for removal from site shall be disposed of to an appropriate managed fill facility. Sample results should be provided to a managed fill facility to determine if they can accept.



7 RISK ASSESSMENT

Although all laboratory results were below the human health criteria and no natural background concentrations for northland region are available. Based on the information presented in this report, a quantitative risk assessment of contamination potential to cause an effect upon human and/ or ecological receptors was still undertaken. This is further developed into a regulatory assessment for consent.

The available information summarised above (Sections 2 – 6) indicates the site has been used for horticultural activities conducted from circa 1982 to circa 2014. HAIL activities (category A10 particularly associated with contaminants associated with historical horticultural land-use.

The following Conceptual Site Model (CSM) has been developed for the potentially complete contaminant pathways at the site:

Table 3: Conceptual Site Model.

Source	Pathway	Receptor	Risk Score
Metals and OCPs	<ul style="list-style-type: none"> Incidental soil ingestion. Inhalation of dusts. Dermal absorption. 	<ul style="list-style-type: none"> Site users/ workers of the site. Future site users. 	<ul style="list-style-type: none"> Incomplete/ very low – as results below human health limits
Metals and OCPs in soil remaining on site.	<ul style="list-style-type: none"> Migration 	<ul style="list-style-type: none"> Groundwater Surface water 	<ul style="list-style-type: none"> Incomplete/ very low – as results below human health limits
Metals and OCPs in soil taken away from site.	<ul style="list-style-type: none"> Migration 	<ul style="list-style-type: none"> Groundwater Surface water 	<ul style="list-style-type: none"> Low – provided taken to a suitable managed fill facility

For an exposure pathway to be complete and subsequently cause a risk, there must be a contamination source, a contaminant transport mechanism (pathway) and a receptor, typically human or ecological.

7.1 Quantification of Risk and Discussion

The actual and potential HAIL activities undertaken (refer to Section 3.3) on site identifies a very low potential risk to human health and ecological receptors across the site area.

As such, due to concentrations below human health criteria, a very low risk is applied to long-term human health exposure to the proposed use for rural residential purposes if these soils are to remain on site.



8 REGULATORY CONSIDERATIONS (CONTAMINATED LAND)

Based on the findings of this investigation, the NES:CS regulations apply to the entire site area. Proposed subdivision plans by Thomson Survey Limited dated 19 November 2025 are provided in Appendix A. This section provides clarification of consent conditions against national, regional and local standards and regulations in regard to the proposed subdivision only.

8.1 National Environmental Standards

The NES:CS regulation applies to activities of subdivision and soil disturbance where HAIL activity is being / has been / more likely than not to have been undertaken. The results of the historical review indicated that, under subclause (7) the NES:CS applies to the site due to the HAIL Category A10; Persistent pesticide bulk storage or use including sport turfs, market garden green house or spray sheds.

In relation to soil disturbance, no soil disturbance is proposed as part of the subdivision at this time, however, the NES:CS allows (per year) a soil disturbance volume of 25 m³ per 500 m² of `piece of land` area and soil disposal volume of 5 m³ per 500 m² of piece of land area.

Calculated on a `piece of land` basis, to be able to comply with this activity status, allowable earthwork volumes to form the subdivision and post subdivision (i.e., site development) have been provided on Table 4 below.

Table 4: Allowable Soil Disturbance Volumes

Site	Site Area (m ²)	Allowable Soil Disturbance - Per Year (m ³)	Allowable Off-site Disposal - Per Year (m ³)
Lot 5 DP 191086 (subdivision)	41,275	2,063.75	412.75 m ³
Proposed Lot 1 (site development)	20,700	1,035	207
Proposed Lot 2 (site development)	20,500	1,025	205

Therefore, where any potential future soil disturbance volume remains below or at the allowable limits, the activity of soil disturbance would be considered to be a permitted activity. In addition, should any soil disturbance volumes exceed the above allowable thresholds, the activity would be considered as a controlled activity

For subdivision and soil disturbance activities (if undertaken) under Regulation 9 of the NES:CS the soil contamination does not exceed the applicable standard in Regulation 7. Therefore, activities of subdivision and proposed soil disturbance (if any) is considered to be a controlled activity.



8.2 Northland Regional Plan

Potentially contaminated land refers to land where a HAIL activity is / has been undertaken. Due to the identified HAIL activity within the site, the piece of land (i.e., the entire site) is considered to be potentially contaminated land. However, based on our investigation, contaminants do not pose a human health risk or environmental risk. Therefore, the proposed activity (subdivision, and potential future soil disturbance) complies with rule C.6.8.2 (discharges from contaminated land), which is considered a permitted activity under the proposed regional plan.

In addition, and to be noted; Northland Regional Plan Rule C.6.8.1 (Investigating potentially contaminated land – permitted activity), the disturbance of land for a site investigation to assess the concentration of hazardous substances in soil, water or air is a permitted activity, provided:

- 1) The site investigation is certified by a suitably qualified and experienced practitioner, and
- 2) The person or organisation initiating the site investigation provides a copy of the site investigation report to the Regional Council within three months of the completion of the investigation, and
- 3) Site investigations undertaken to assess the concentrations of contaminants in soil are undertaken in accordance with Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils (Ministry for the Environment, 2011).

This report complies with items 1 and 3 above, therefore, to fully comply with rule C.6.8.1, this report must be submitted to the Regional Council within three months of the completion of the investigation.

9 SUMMARY AND RECOMMENDATIONS

This combined Preliminary and Detailed Site Investigation (PSI/ DSI) report has been prepared by Geologix Consulting Engineers Ltd (Geologix) for T & G Global (the 'Client'). This investigation was to assist with the Resource Consent application in relation to the proposed subdivision of Lot 5 DP 191086, Kapiro Road, Kerikeri ('site'). The following summarises the findings of the investigation:

In summary, the site was in use for grazing land purposes prior to 1950 until circa 1982, where the site was then used for horticultural land use with the establishment of an orchard. Horticultural activities ceased prior to 2014; the site appears to have not been utilised since the removal of horticulture circa 2014 to date.

Based on the HAIL activity above, the NES:CS applies.

HAIL category A10 was identified (as indicated in Section 3.3), however, soil results confirm that:

- No heavy metals or OCPs were detected over human health criteria guidelines.



- No OCPs were detected above the laboratory level of reporting.

Based on the findings of the investigation, Geologix considers that there is very low risk to long-term human health exposure in the proposed subdivision and soil disturbance activities (if undertaken) if these soils are to remain on site. Site soils, while suitable for onsite use (subject to geotechnical suitability), any soils proposed for removal from site (if any) shall be disposed of to an appropriate managed fill facility.

For subdivision and soil disturbance activities (if undertaken) under Regulation 9 of the NES:CS the soil contamination does not exceed the applicable standard in Regulation 7. Therefore, subdivision and/ or any soil disturbance activities (if required) associated with the proposed subdivision regarding contaminated land will be required as a controlled activity under the NES:CS and in addition permitted activity under the proposed Northland Regional Plan.

As previously mentioned, to comply with rule C.6.8.1, this report must be submitted to the Regional Council within three months of the completion of the investigation.

10 LIMITATIONS

This report has been prepared for T & G Global 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 provide 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 plan.

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



11 REFERENCES

Far North District Council Maps, <https://www.fndc.govt.nz/Our-services/Far-North-Maps>. Accessed February 2026.

GNS Science, 2022. New Zealand Geology Webmap, Scale 1:250,000, <http://data.gns.cri.nz/geology/>. Accessed February 2026.

Ministry for the Environment, 2011a. Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.

Ministry for the Environment, 2011b. Contaminated Land Management Guidelines No. 1: Reporting on Contaminated Sites in New Zealand (revised 2021). Wellington, New Zealand.

Ministry for the Environment, 2011c. Contaminated Land Management Guidelines No. 5: Site Investigation and Analysis of Soils (revised 2021). Wellington, New Zealand.

Ministry for the Environment, 2011d. Contaminated Land Management Guidelines No. 2: Hierarchy and Application in New Zealand of Environmental Guideline Values (revised 2011). Wellington, New Zealand.

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Retrolens Historical Image Resource. <https://retrolens.co.nz/>. Accessed February 2026.

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APPENDIX A

Subdivision Plans

EXISTING APPURTENANT EASEMENT

PURPOSE	SHOWN	SERVIENT TENEMENT	CREATED BY
RIGHT OF WAY, TELECOMMUNICATIONS, ELECTRICITY, COMPUTER MEDIA & WATER SUPPLY	(A)	LOT 6 DP 183236	7829574.3
RIGHT OF WAY	(B)	LOT 1 DP 530692	11304603.3



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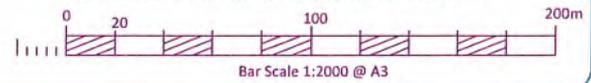
TOPOGRAPHICAL DETAIL IS APPROXIMATE ONLY AND SCALED FROM AERIAL PHOTOGRAPHY

Local Authority: Far North District Council
 Comprised in: NA120C/947
 Total Area: 4.1275ha
 Zoning: Rural Production
 Resource features: NIL

MEMORANDUM OF EASEMENTS

PURPOSE	SHOWN	SERVIENT TENEMENT	DOMINANT TENEMENT
RIGHT OF WAY, TELECOMMUNICATIONS & ELECTRICITY	(C)	LOT 2 HEREON	LOT 1 HEREON

This plan and accompanying report(s) have been prepared for the purpose of obtaining a Resource Consent only and for no other purpose. Use of this plan and/or information on it for any other purpose is at the user's risk.



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Registered Land Surveyors, Planners & Land Development Consultants

PROPOSED SUBDIVISION OF LOT 5 DP 191086
 KAPIRO ROAD, KERIKERI
 PREPARED FOR: T & G GLOBAL

Name	Date	ORIGINAL	SHEET SIZE
Survey			
Design			
Drawn	KY 19.11.25		
Approved		1:2000	A3
Rev	10857 Scheme		

Surveyors Ref. No:
10857
 Sheet 1 of 1



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APPENDIX B

Selected Site Photographs



Photograph 1: Example of the site condition, eastern side. Looking south-east.



Photograph 2: Example of the site condition, western side. Looking north-west.





Photograph 3: Example of one of the vegetation stockpiles observed on-site, south-western corner of the site. Looking north-east.





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APPENDIX C

Historical aerial photographs

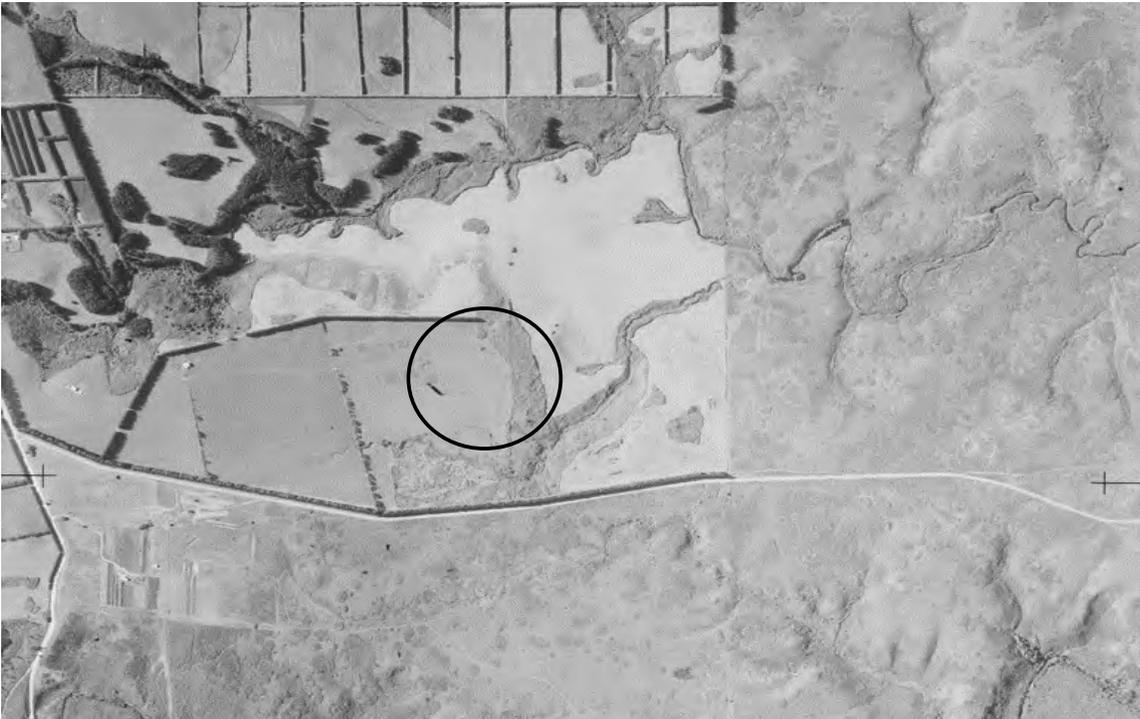


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Historical Aerial Photographs

Project: Lot 5 DP 191086, Kapiro Road, Kerikeri
Project no.: C0749N
Figure no.: 1 of 5

1950: Retrolens



1968: Retrolens





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Historical Aerial Photographs

Project: Lot 5 DP 191086, Kapiro Road, Kerikeri
Project no.: C0749N
Figure no.: 2 of 5

1977: Retrolens



1979: Retrolens





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Historical Aerial Photographs

Project: Lot 5 DP 191086, Kapiro Road, Kerikeri
Project no.: C0749N
Figure no.: 3 of 5

1982: Retrolens



2000: FNDC Maps (LINZ Aerial Imagery)





2005-2006: FNDC Maps (LINZ Aerial Imagery)



2014-2016: FNDC Maps (LINZ Aerial Imagery)





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Historical Aerial Photographs

Project: Lot 5 DP 191086, Kapiro Road, Kerikeri
Project no.: C0749N
Figure no.: 5 of 5

2023-2025: FNDC Maps (LINZ Aerial Imagery)





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APPENDIX D

Selected Property Information

Application No: 2190149-RMACOM

Te Kaunihera o Tai Tokerau Ki Te Raki

19 October 2018

Turners and Growers Horticulture Ltd
c/- Barker & Associates
Att: Burnette O'Connor
PO Box 591
Warkworth 0941

Dear Sir / Madam,

Re: RESOURCE CONSENT APPLICATION BY Turners & Growers Horticulture Limited

I am pleased to inform you that your application for resource consent has been approved. The decision is enclosed for your information. The application was considered and determined under authority delegated to the Team Leader Resource Consents of the Far North District Council, pursuant to Section 34A of the Resource Management Act 1991.

It is very important that you understand and comply with any conditions of consent. If you have any questions or concerns about any aspect of your consent or its conditions, please contact the planner who prepared the decision.

Please note, that you will be sent either an invoice or credit note depending on the actual cost of processing your application. Any additional costs shown on an invoice need to be paid by the 20th of the month following the date of the invoice. If you receive a credit note, you have the option of requesting a refund by bank transfer, or transferring the amount to any other Council account. Please advise and supply a printed bank deposit slip and allow 10 working days for the refund to be processed.

If you have any further queries regarding this matter, please contact the reporting Planner.

Yours faithfully



Chris Rowse
Planning Support
Resource Consents Department





FAR NORTH DISTRICT COUNCIL

**FAR NORTH OPERATIVE DISTRICT PLAN
DECISION ON RESOURCE CONSENT APPLICATION (COMBINED)**

Resource Consent Number: 2190149-RMACOM

Pursuant to section 104B of the Resource Management Act 1991 (the Act), the Far North District Council hereby grants resource consent to:

Turners & Growers Horticulture Limited

The activities to which this decision relates are listed below:

- i) undertake subdivision to create one additional lot and an amalgamation condition**
- ii) landuse consent is required as the existing tunnel house and crop structures breach *Setback from Boundaries and Passing Bays on Private Accessways in all Zones* in the Rural Production Zone**

Activity A – Subdivision:

To undertake subdivision to create one additional lot and an amalgamation condition.

Activity B – Landuse:

Landuse consent is required as the existing tunnel house and crop structures breach *Setback from Boundaries and Passing Bays on Private Accessways in all Zones* in the Rural Production Zone.

Subject Site Details

Address: Lot 2, Kapiro Road, Kerikeri 0294
Legal Description: Lot 2 DP 457586 Lot 3 DP 393064 Lot 5 DP 191086 Lot 4 DP 403439
Certificate of Title reference: CT-593591, NA-120C/947, CT-411322

Pursuant to Section 108 of the Act, this consent is issued subject to the following conditions:

Decision A – Subdivision:

- 1 The subdivision shall be carried out in accordance with the approved plan of subdivision prepared by Terrain Surveying Ltd, referenced C 3401 /1, dated 17 October 2018, and attached to this consent with the Council's "Approved Stamp" affixed to it.



Legend

Permitted Activities - Permitted Activity (Point)

- Coastal Permit
- Discharge Permit
- Land Use Consent
- Water Permit
- SLU Points
- SLU Polygons



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APPENDIX E

Summary of Soil Analytical Results

Sample Location Plan

Table 1a: Soil Analytical Results	Sample Name	Composite Sample 1 (S1C01a, S1C01b & S1C01c)			Composite Sample 2 (Composite of S1C02a, S1C02b & S1C02c)	Composite Sample 3 (Composite of S1C03a, S1C03b & S1C03c)	Composite Sample 4 (Composite of S1C04a, S1C04b & S1C04c)	Composite Sample 5 (Composite of S1C05a, S1C05b & S1C05c)	Composite Sample 6 (Composite of S1C06a, S1C06b & S1C06c)	Composite Sample 7 (Composite of S1C07a, S1C07b & S1C07c)	Composite Sample 8 (Composite of S1C08a, S1C08b & S1C08c)	Composite Sample 9 (Composite of S1C09a, S1C09b & S1C09c)	Composite Sample 10 (Composite of S1C10a, S1C10b & S1C10c)	NES:CS ¹ Human Health Rural/ Lifestyle Block Criteria	NES:CS ² Human Health Commercial/ Industrial Criteria
		Primary	Duplicate (S1QC1)	RPD (%)											
Heavy Metals															
Arsenic		4	3	29	3	3	4	5	6	4	3	4	2	17	70
Cadmium		0.17	0.17	0	0.23	0.25	0.15	0.17	0.14	0.14	0.17	0.17	0.22	0.8	1,300
Chromium ⁵		162	155	4	144	137	158	163	183	184	184	138	143	290	6,300
Copper		28	26	7	19	25	23	20	26	26	27	30	28	>10,000	>10,000
Lead		7.1	6.8	4	5.3	5.2	5.5	5.9	6.9	5.2	6.2	7.7	6.3	160	3,300
Nickel		12	9	29	6	6	5	6	6	5	6	9	6	400 ³	6,000 ⁴
Zinc		20	19	5	15	15	13	14	16	15	18	23	20	7,400 ³	400,000 ⁴
Organochlorine Pesticides (OCPs) - None detected in any of the samples analysed for OCPs over laboratory limit of reporting. Refer to full laboratory reports attached.															

Table 1b: Soil Analytical Results	Sample Name	Composite Sample 11 (Composite of S1C11a, S1C11b & S1C11c)	Composite Sample 12 (Composite of S1C12a, S1C12b & S1C12c)	Composite Sample 13 (Composite of S1C13a, S1C13b & S1C13c)	Composite Sample 14 (Composite of S1C14a, S1C14b & S1C14c)	Composite Sample 15 (Composite of S1C15a, S1C15b & S1C15c)			Composite Sample 16 (Composite of S1C16a, S1C16b & S1C16c)	Composite Sample 17 (Composite of S1C17a, S1C17b & S1C17c)	S1PH1	S1PH2	NES:CS ¹ Human Health Rural/ Lifestyle Block Criteria	NES:CS ² Human Health Commercial/ Industrial Criteria	
						Primary	Duplicate (S1QC2)	RPD (%)							
Heavy Metals															
Arsenic		8	5	6	5	3	4	29	2	3	pH 5.8	pH 6.3	17	70	
Cadmium		0.24	0.23	0.27	0.28	0.22	0.24	9	0.13	<0.10			0.8	1,300	
Chromium ⁵		210	160	148	171	146	141	3	124	163			290	6,300	
Copper		43	30	37	30	38	37	3	35	27			>10,000	>10,000	
Lead		7.1	6.5	8.8	7.7	9	9	3	6.2	6.4			160	3,300	
Nickel		6	7	7	8	12	12	0	17	14			400 ³	6,000 ⁴	
Zinc		23	22	22	18	24	24	0	29	18	7,400 ³	400,000 ⁴			
Organochlorine Pesticides (OCPs) - None detected in any of the samples analysed for OCPs over laboratory limit of reporting. Refer to full laboratory reports attached.															

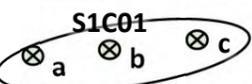
Highlighted, coloured cell indicates samples exceeds human health guideline

Notes:

All results in milligrams per kilogram (mg/kg) unless stated otherwise.
RPD - relative percent difference.

1. Ministry for the Environment National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health -Rural/ Lifestyle Block Land Use Scenario.
2. Ministry for the Environment National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health -Commercial/ Industrial Land Use Scenario.
3. National Environmental Protection Measure (Assessment of Site Contamination)1999, update 2013 Schedule B1, Land use Residential A.
4. National Environmental Protection Measure (Assessment of Site Contamination)1999, update 2013 Schedule B1, Land use Commercial/ Industrial D.
5. Criteria presented are for chromium VI.

LEGEND


 Approximate composite sample locations


 Site Boundary

* Approximate pH sample location



DRAWN: RM	PROJECT: C0749N, LOT 5 DP 191086, KAPIRO ROAD, KERIKERI						STATUS: FINAL
VERIFIED: RM	CLIENT: T&G GLOBAL	0	09/02/26	FIRST ISSUE - RESOURCE CONSENT	RM	EC	DRAWING TITLE: ENVIRONMENTAL SITE PLAN
APPROVED: EC		REV	DATE	REVISION DETAILS	BY	APP	DRAWING NUMBER: 700 SCALE: NTS



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APPENDIX F

Laboratory Reports

Certificate of Analysis

Page 1 of 5

Client:	Geologix Consulting Engineers Limited	Lab No:	4085014	SPV1
Contact:	Ray Mayor C/- Geologix Consulting Engineers Limited 13/2181 East Coast Road Stanmore Bay Silverdale 0932	Date Received:	29-Jan-2026	
		Date Reported:	05-Feb-2026	
		Quote No:	142948	
		Order No:		
		Client Reference:	C0749N	
		Submitted By:	Ray Mayor	

Sample Type: Soil						
Sample Name:		S1PH1 27-Jan-2026	S1PH2 27-Jan-2026	Composite of S1C01a, S1C01b & S1C01c	Composite of S1C02a, S1C02b & S1C02c	Composite of S1C03a, S1C03b & S1C03c
Lab Number:		4085014.58	4085014.59	4085014.60	4085014.61	4085014.62
Individual Tests						
Dry Matter	g/100g as rcvd	-	-	74	78	77
pH*	pH Units	5.8	6.3	-	-	-
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	-	-	4	3	3
Total Recoverable Cadmium	mg/kg dry wt	-	-	0.17	0.23	0.25
Total Recoverable Chromium	mg/kg dry wt	-	-	162	144	137
Total Recoverable Copper	mg/kg dry wt	-	-	28	19	25
Total Recoverable Lead	mg/kg dry wt	-	-	7.1	5.3	5.2
Total Recoverable Nickel	mg/kg dry wt	-	-	12	6	6
Total Recoverable Zinc	mg/kg dry wt	-	-	20	15	15
Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
alpha-BHC	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
beta-BHC	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
delta-BHC	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
gamma-BHC (Lindane)	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
cis-Chlordane	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
trans-Chlordane	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
2,4'-DDD	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
4,4'-DDD	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
2,4'-DDE	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
4,4'-DDE	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
2,4'-DDT	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
4,4'-DDT	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Total DDT Isomers	mg/kg dry wt	-	-	< 0.08	< 0.08	< 0.08
Dieldrin	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Endosulfan I	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Endosulfan II	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Endosulfan sulphate	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Endrin	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Endrin aldehyde	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Endrin ketone	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Heptachlor	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Heptachlor epoxide	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Hexachlorobenzene	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013
Methoxychlor	mg/kg dry wt	-	-	< 0.014	< 0.013	< 0.013

Sample Type: Soil

Sample Name:	Composite of S1C04a, S1C04b & S1C04c	Composite of S1C05a, S1C05b & S1C05c	Composite of S1C06a, S1C06b & S1C06c	Composite of S1C07a, S1C07b & S1C07c	Composite of S1C08a, S1C08b & S1C08c
Lab Number:	4085014.63	4085014.64	4085014.65	4085014.66	4085014.67

Individual Tests						
Dry Matter	g/100g as rcvd	77	78	77	78	75
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	5	6	4	3
Total Recoverable Cadmium	mg/kg dry wt	0.15	0.17	0.14	0.14	0.17
Total Recoverable Chromium	mg/kg dry wt	158	163	183	184	184
Total Recoverable Copper	mg/kg dry wt	23	20	26	26	27
Total Recoverable Lead	mg/kg dry wt	5.5	5.9	6.9	5.2	6.2
Total Recoverable Nickel	mg/kg dry wt	5	6	6	5	6
Total Recoverable Zinc	mg/kg dry wt	13	14	16	15	18

Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
alpha-BHC	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
beta-BHC	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
delta-BHC	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
gamma-BHC (Lindane)	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
cis-Chlordane	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
trans-Chlordane	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
2,4'-DDD	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
4,4'-DDD	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
2,4'-DDE	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
4,4'-DDE	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
2,4'-DDT	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
4,4'-DDT	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Total DDT Isomers	mg/kg dry wt	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Dieldrin	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Endosulfan I	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Endosulfan II	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Endosulfan sulphate	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Endrin	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Endrin aldehyde	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Endrin ketone	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Heptachlor	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Heptachlor epoxide	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Hexachlorobenzene	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014
Methoxychlor	mg/kg dry wt	< 0.013	< 0.013	< 0.013	< 0.013	< 0.014

Sample Name:	Composite of S1C09a, S1C09b & S1C09c	Composite of S1C10a, S1C10b & S1C10c	Composite of S1C11a, S1C11b & S1C11c	Composite of S1C12a, S1C12b & S1C12c	Composite of S1C13a, S1C13b & S1C13c
Lab Number:	4085014.68	4085014.69	4085014.70	4085014.71	4085014.72

Individual Tests						
Dry Matter	g/100g as rcvd	74	73	78	74	73
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	4	2	8	5	6
Total Recoverable Cadmium	mg/kg dry wt	0.17	0.22	0.24	0.23	0.27
Total Recoverable Chromium	mg/kg dry wt	138	143	210	160	148
Total Recoverable Copper	mg/kg dry wt	30	28	43	30	37
Total Recoverable Lead	mg/kg dry wt	7.7	6.3	7.1	6.5	8.8
Total Recoverable Nickel	mg/kg dry wt	9	6	6	7	7
Total Recoverable Zinc	mg/kg dry wt	23	20	23	22	22

Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
alpha-BHC	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
beta-BHC	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
delta-BHC	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014

Sample Type: Soil

Sample Name:		Composite of S1C09a, S1C09b & S1C09c	Composite of S1C10a, S1C10b & S1C10c	Composite of S1C11a, S1C11b & S1C11c	Composite of S1C12a, S1C12b & S1C12c	Composite of S1C13a, S1C13b & S1C13c
Lab Number:		4085014.68	4085014.69	4085014.70	4085014.71	4085014.72
Organochlorine Pesticides Screening in Soil						
gamma-BHC (Lindane)	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
cis-Chlordane	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
trans-Chlordane	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
2,4'-DDD	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
4,4'-DDD	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
2,4'-DDE	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
4,4'-DDE	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
2,4'-DDT	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
4,4'-DDT	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Total DDT Isomers	mg/kg dry wt	< 0.08	< 0.08	< 0.08	< 0.08	< 0.09
Dieldrin	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Endosulfan I	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Endosulfan II	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Endosulfan sulphate	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Endrin	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Endrin aldehyde	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Endrin ketone	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Heptachlor	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Heptachlor epoxide	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Hexachlorobenzene	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014
Methoxychlor	mg/kg dry wt	< 0.013	< 0.014	< 0.013	< 0.014	< 0.014

Sample Name:		Composite of S1C14a, S1C14b & S1C14c	Composite of S1C15a, S1C15b & S1C15c	Composite of S1C16a, S1C16b & S1C16c	Composite of S1C17a, S1C17b & S1C17c	Composite of S1QC1a, S1QC1b & S1QC1c
Lab Number:		4085014.73	4085014.74	4085014.75	4085014.76	4085014.77

Individual Tests						
Dry Matter	g/100g as rcvd	75	71	67	78	-
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	5	3	2	3	3
Total Recoverable Cadmium	mg/kg dry wt	0.28	0.22	0.13	< 0.10	0.17
Total Recoverable Chromium	mg/kg dry wt	171	146	124	163	155
Total Recoverable Copper	mg/kg dry wt	30	38	35	27	26
Total Recoverable Lead	mg/kg dry wt	7.7	9.0	6.2	6.4	6.8
Total Recoverable Nickel	mg/kg dry wt	8	12	17	14	9
Total Recoverable Zinc	mg/kg dry wt	18	24	29	18	19

Organochlorine Pesticides Screening in Soil						
Aldrin	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
alpha-BHC	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
beta-BHC	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
delta-BHC	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
gamma-BHC (Lindane)	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
cis-Chlordane	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
trans-Chlordane	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
2,4'-DDD	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
4,4'-DDD	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
2,4'-DDE	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
4,4'-DDE	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
2,4'-DDT	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
4,4'-DDT	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
Total DDT Isomers	mg/kg dry wt	< 0.08	< 0.08	< 0.09	< 0.08	-
Dieldrin	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
Endosulfan I	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
Endosulfan II	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-

Sample Type: Soil

Sample Name:	Composite of S1C14a, S1C14b & S1C14c	Composite of S1C15a, S1C15b & S1C15c	Composite of S1C16a, S1C16b & S1C16c	Composite of S1C17a, S1C17b & S1C17c	Composite of S1QC1a, S1QC1b & S1QC1c
Lab Number:	4085014.73	4085014.74	4085014.75	4085014.76	4085014.77

Organochlorine Pesticides Screening in Soil						
Endosulfan sulphate	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
Endrin	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
Endrin aldehyde	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
Endrin ketone	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
Heptachlor	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
Heptachlor epoxide	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
Hexachlorobenzene	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-
Methoxychlor	mg/kg dry wt	< 0.013	< 0.014	< 0.015	< 0.013	-

Sample Name:	Composite of S1QC2a, S1QC2b & S1QC2c
Lab Number:	4085014.78

Heavy Metals, Screen Level		
Total Recoverable Arsenic	mg/kg dry wt	4
Total Recoverable Cadmium	mg/kg dry wt	0.24
Total Recoverable Chromium	mg/kg dry wt	141
Total Recoverable Copper	mg/kg dry wt	37
Total Recoverable Lead	mg/kg dry wt	9.3
Total Recoverable Nickel	mg/kg dry wt	12
Total Recoverable Zinc	mg/kg dry wt	24

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%.	-	58-59
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	60-78
Soil Prep Dry & Sieve for Agriculture	Air dried at 35°C and sieved, <2mm fraction.	-	58-59
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	0.10 - 4 mg/kg dry wt	60-78
Organochlorine Pesticides Screening in Soil	Sonication extraction, GC-ECD analysis. Tested on as received sample. In-house based on US EPA 8081.	0.010 - 0.06 mg/kg dry wt	60-76
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	60-76
Composite Environmental Solid Samples*	Individual sample fractions mixed together to form a composite fraction.	-	1-57
pH*	1:2 (v/v) soil : water slurry followed by potentiometric determination of pH. In-house.	0.1 pH Units	58-59

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 29-Jan-2026 and 05-Feb-2026. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.



Martin Cowell - BSc
Client Services Manager - Environmental



STATEMENT OF QUALIFICATION

I Edward John Collings of Geologix Consulting Engineers Ltd certify that:

1. This combined Preliminary and Detailed Site Investigation meets the requirements of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (the NES:CS) because it has been:
 - a. Prepared and certified by a suitably qualified and experienced practitioner registered under the Certified Environmental Practitioner Scheme (Registration Number 0861) and Engineering New Zealand Chartered Professional Engineer (Registration Number 1033153).
 - b. The SQEP has over 18 years post graduate experiencing practicing as an environmental consultant with a tertiary education qualification equivalent to a Master of Science with supporting evidence from Engineering New Zealand that the Consultant has equivalent knowledge to Washington Accord equivalence.
 - c. Reported on in accordance with the current edition of Contaminated Land Management Guidelines No. 1 – Reporting on contaminated sites in New Zealand, 2021.

2. This investigation concludes that:
 - a. For subdivision and soil disturbance activities (if any) under Regulation 9 of the NES:CS the soil contamination does not exceed the applicable standard in Regulation 7 of the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations.

Evidence of qualifications and experience of the suitably qualified and experienced practitioner is available below.

Signed:

Dated: 18 February 2026



Role	Name	Relevant Experience
Project Manager	Ray Mayor Unitec New Zealand, 2010, Bachelor of Engineering (Environmental) Unitec New Zealand, 2007, Diploma in Environmental Technology	Ray is a Senior Environmental Consultant with more than 17 years' experience on contaminated sites. His project experience includes conducting site assessments, compliance monitoring, managing environmental risk and remediation across numerous sites including residential, industrial and commercial developments as well as New Zealand Defence Force sites.
Senior Technical Reviewer	Edward Collings MPhys (Hons) Physical Geography Certified Environmental Practitioner Chartered Professional Engineer	Edward is a Principal Engineer and Managing Director with more than 18 years' experience on geotechnical design and contaminated land remediation on a variety of residential, commercial and critical infrastructure projects in the UK and New Zealand. Edward attained recognition as a Certified Environmental Practitioner in 2016 in Australia and New Zealand with specialist knowledge in contaminated land and groundwater remediation and wastewater design. In recent years Edward has provided professional engineering assessments for prospective candidates to the scheme.