Far North District Council

Office Use Only
Application Number:

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

APPLICATION FOR RESOURCE CONSENT OR FAST-TRACK RESOURCE CONSENT

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA))
(If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of Form 9)

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

1. Pre-Lodgement Meeting

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

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

☑ Land Use ○ Fast Track Land Use* ○ Subdivision ○ Discharge

○ Extension of time (s.125) ○ Change of conditions (s.127) ○ Change of Consent Notice (s.221(3))

○ Consent under National Environmental Standard (e.g. Assessing and Managing Contaminants in Soil)

○ Other (please specify) _____

***The fast track for simple land use consents is restricted to consents with a controlled activity status and requires you provide an electronic address for service.**

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

~~Yes~~ / No

4. Applicant Details:

Name/s: Peter & Joan Honeyfield

Electronic Address Service (E-mail): [redacted]

Phone Numbers:

Postal Address: (*or* alternative method of service under section 352 of the Act)

_____ Post Code: _____

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

Name/s: Steven Sanson

Electronic Address for Service (E-mail): [redacted]

Phone Numbers: Home:_____

Postal Address: (*or* alternative method of service under section 352 of the Act)

_____

_____ Post Code: _____

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

6. Details of Property Owner/s and Occupier/s: *Name and Address of the Owner/Occupiers of the land to which this application relates (where there are multiple owners or occupiers please list on a separate sheet if required)*

Name/s: Refer applicants above and record of title attached

Property Address/: Location 269E Opito Bay Road, RD1, Kerikeri 0294

7. Application Site Details:

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

Site Address/ Location: 269E Opito Bay Road, RD1, Kerikeri 0294

Legal Description: Lot 3 DP 55229 Val Number:

Certificate of Title: NA58B/421

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

Site Visit Requirements:

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

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

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

Please call applicant prior to site visit.

8. Description of the Proposal:

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

Proposed poolhouse in the General Coastal Zone, Kerikeri.

If this is an application for an Extension of Time (s.125); Change of Consent Conditions (s.127) or Change or Cancellation of Consent Notice conditions (s.221(3)), please quote relevant existing Resource Consents and Consent Notice identifiers and provide details of the change(s) or extension being sought, with reasons for requesting them.

9. Would you like to request Public Notification

~~Yes~~/No

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

O Building Consent (BC ref # if known)

O Regional Council Consent (ref # if known)

O National Environmental Standard consent

O Other (please specify)

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

The site and proposal may be subject to the above NES. In order to determine whether regard needs to be had to the NES please answer the following (further information in regard to this NES is available on the Council's planning web pages):

Is the piece of land currently being used or has it historically ever been used for an activity or industry on the Hazardous Industries and Activities List (HAIL)

O yes O no O don't know

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

O yes O no O don't know

O Subdividing land

O Changing the use of a piece of land

O Disturbing, removing or sampling soil

O Removing or replacing a fuel storage system

12. Assessment of Environmental Effects:

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

Please attach your AEE to this application.

13. Billing Details:

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

Name/s: (please write all names in full) _____

Email: _____

Postal Address: _____

_____

_____ Post Code: _____

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

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

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

Name: _____ (please print)

Signature: _____ (signature of bill payer – **mandatory**) Date: _____

14. Important Information:

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

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

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

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

Name:_____(please print)

Signature:_____(signature) Date: _____

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

Checklist (please tick if information is provided)

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

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

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

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

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

O Building Consent (BC ref # if known)

O Regional Council Consent (ref # if known)

O National Environmental Standard consent

O Other (please specify)

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

The site and proposal may be subject to the above NES. In order to determine whether regard needs to be had to the NES please answer the following (further information in regard to this NES is available on the Council's planning web pages):

Is the piece of land currently being used or has it historically ever been used for an activity or industry on the Hazardous Industries and Activities List (HAIL) O yes O no O don't know

Is the proposed activity an activity covered by the NES? (If the activity is any of the activities listed below, then you need to tick the 'yes' circle). O yes O no O don't know

O Subdividing land

O Changing the use of a piece of land

O Disturbing, removing or sampling soil

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Please attach your AEE to this application.

13. Billing Details:

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

Name/s: (please write all names in full) PETER AND JOAN HONEYFIELD

Email: [redacted]

Postal Address: [redacted]

Phone Numbers: [redacted]

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

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

Name: PETER R. HONEYFIELD (please print)

Signature [redacted] (signature of bill payer – **mandatory**) Date: 5/7/24

BAY OF ISLANDS PLANNING (2022) LIMITED

Kerikeri House

Suite 3, 88 Kerikeri Road

Kerikeri

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

15 July 2024

Re: Proposed land use consent at 269E Opito Bay Road, Kerikeri

Our clients, Peter and Joan Honeyfield, seek a land use consent to construct a new poolhouse in the General Coastal Zone. We attach information required to be included in this application by the relevant statutory documents as follows:

- **Planning Report and Assessment of Environmental Effects [Bay of Islands Planning Ltd];**
- **Appendix A – Record of Title;**
- **Appendix B – Architectural Plans [Arcline]**
- **Appendix C – Geotech Report [Wilton Joubert]**
- **Appendix D – FENZ Approval**

Please do not hesitate to contact me should you require any further information.

Steven Sanson
Consultant Planner

INTRODUCTION

The applicant, Peter & Joan Honeyfield seek a land use consent for an architecturally designed poolhouse with associated courtyard and living areas. The site is legally described as Lot 3 Deposited Plan 55229. A copy of the Record of Title is attached at **Appendix A.**

There are no instruments or records of concern attached to the Title in relation to the proposal.

The details of the poolhouse and associated development is portrayed within the Architectural Plans prepared by Arcline in **Appendix B**.

The proposal is also supplemented by a Geotechnical Report from Wilton Joubert in **Appendix C**. Consultation has been undertaken with Fire & Emergency New Zealand [FENZ] to confirm fire safety in relation to the proposal. Their approval is provided in **Appendix D**.

The application is a **Discretionary Activity** under the Operative Far North District Plan [ODP]. There are no consents required under the Proposed District Plan [PDP].

The poolhouse is a 'residential unit' as defined under Chapter 3 of the Operative District Plan.

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

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

It is concluded that any potential adverse effects arising from the land use application would be less than minor and that the proposal is appropriate for this site.

SITE AND LOCALITY DESCRIPTION

The site 13.8605ha in size and located off a private access from Opito Bay Road. Figure 1 portrays the size and location of the site.

Figure 1 - Site (Source: Prover)

The site is zoned General Coastal under the ODP and is also subject to an Outstanding Natural Landscape [ONL] overlay. Zoning / Resource Feature matters are portrayed in Figures 2-4 below.

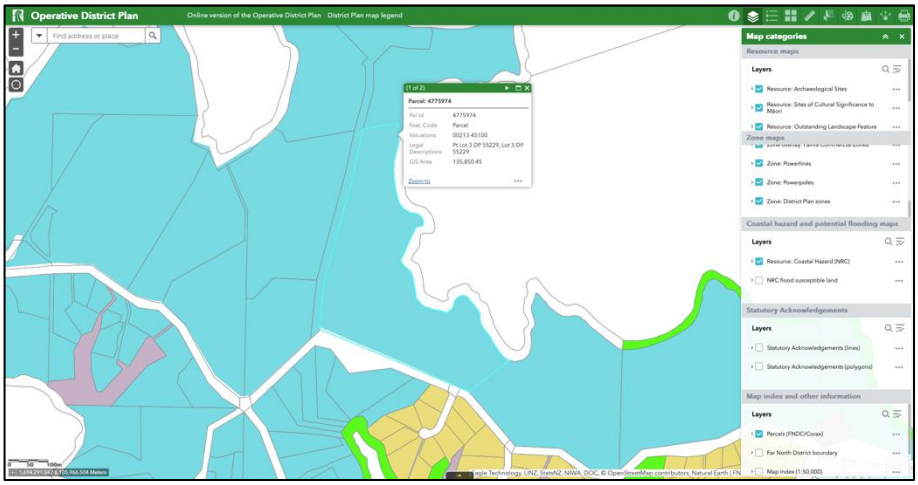

Figure 2 – ODP Zoning (Source: Far North Maps)

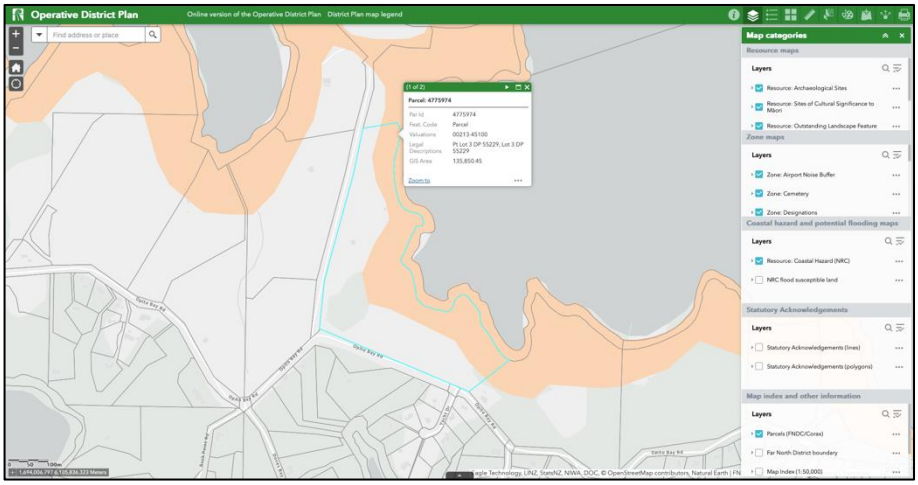

Figure 3 – ODP Resource Features (Source: Far North Maps)

The PDP considers the site to be zoned Rural Production. The ONL overlay is no longer applicable to the site, however pockets of areas on the site are considered to have High Natural Character [HNC].

The site is located in the Coastal Environment as defined by the Northland Regional Council. These are all detailed in Figure 4.

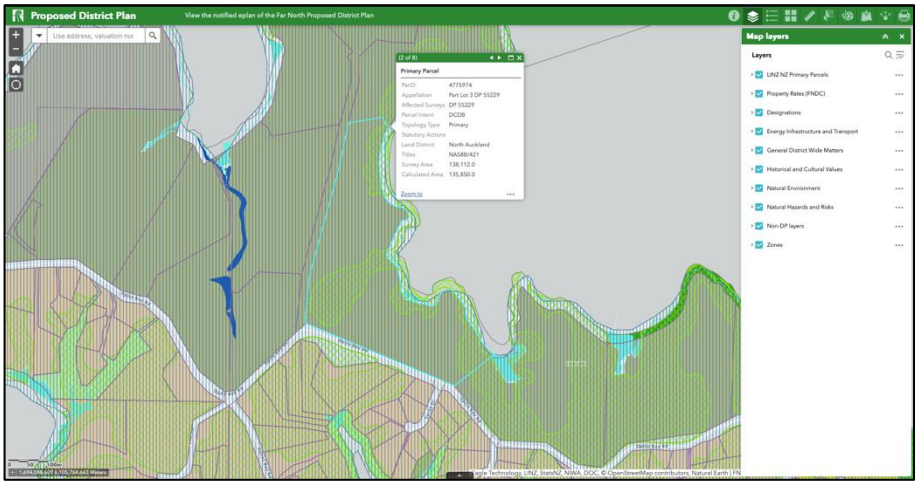

Figure 4 – PDP Maps (Source: Far North Maps)

The land is not serviced by FNDC reticulated services, however there is both power and telecoms available.

Access to the existing dwelling is via a shared ROW. The ROW appears to service 6 x lots at present (including the application site). Therefore, the additional dwelling will raise this to seven ‘users’.

The site is located within a Kiwi High-Density area. Soils of the site are not considered to be highly productive as they are Class 4 and Class 6 across the site.

The site contains a range of existing and legally established built features. This includes the existing ring road access from the private ROW, an existing shed, tennis court, principal dwelling and studio.

The site features pockets of vegetation as well as landscaped areas where development exists. Outside of the main residential use of the site, the applicant stocks the farm with beef to ensure appropriate maintenance of the overall block.

The site contains tracks down towards the coastal marine area which according to the Record of Title contain an existing road that borders mean high water springs and the site.

The wider locality contains very similar coastal development, usually large architecturally designed homes that complement the existing landscape pattern and functions. The sites are of a similar size down the private ROW, however the Coastal Living Zone arrangement to the south promotes a far denser allotment size and residential intensity.

The site represents a typical rural site with a coastal outlook. The surrounds have a similar nature and character.

DESCRIPTION OF THE PROPOSAL

The proposed poolhouse has a total floor area of 259.68m^2. This is made up of a 90m^2 habitable building and a courtyard of 174.48m^2. The proposal will sit within existing mature lawns and gardens, overlooking the Te Puna Inelt.

This poolhouse includes 1bdr, bathroom, kitchen and living areas. The courtyard includes areas around the pool including a secondary outdoor kitchen and dining area. These items are shown in Figure 5.

The proposed development in relation to the site is outlined in Figure 6 and the positioning of the poolhouse relative to the existing studio on site is shown in Figure 7. Locationally, the proposed development is located to the north of the existing principal dwelling and north east of the tennis courts.

The proposed development has been designed to orient along a similar west / east plane similar to that already established by the existing studio. The studio will be removed as a result of the development.

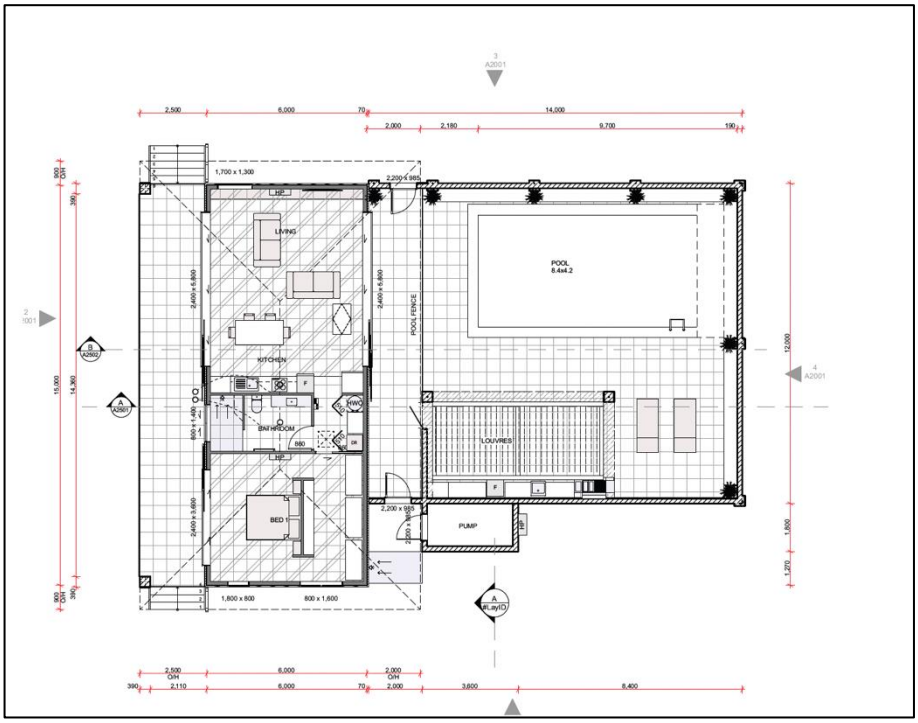

Figure 5 – Proposal Floor Plan (Source: Arcline)

Figure 6 – Proposal Location Plan (Source: Arcline)

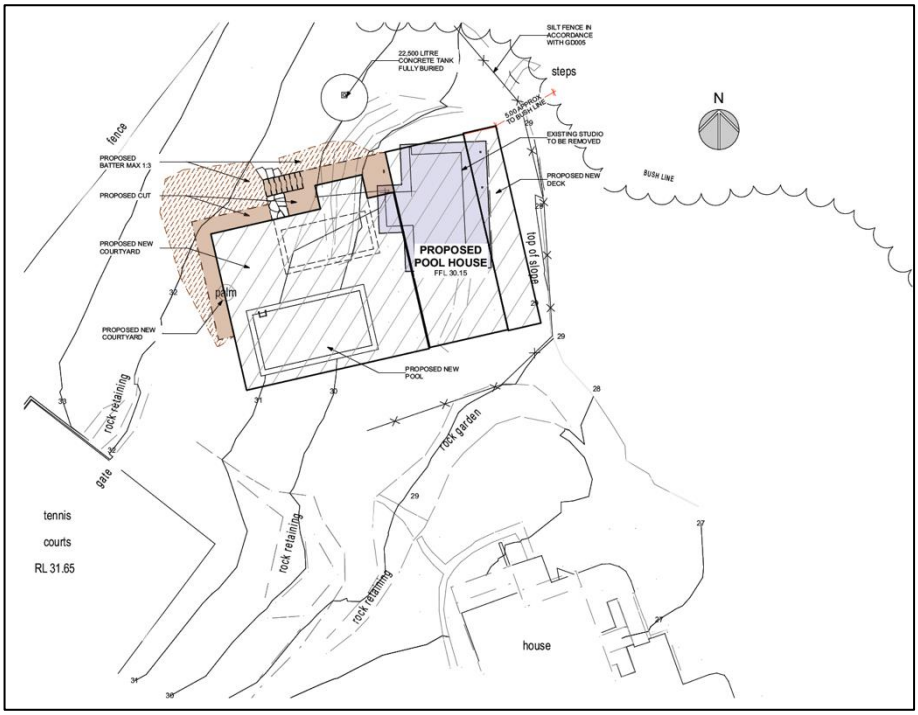

Figure 7 – Proposal Site Plan (Source: Arcline)

Other locational factors include the location of the residential unit in relation to the bushline [within 5m] as well as its location near the top of the bank / slope which has required additional expert assessment. The development is ~15m away from the principal unit.

The colour of roof, window joinery and walls will be those of the primary residence. The predominant, east-facing colour will be Coloursteel New Denim Blue, which has an LRV of 11%.

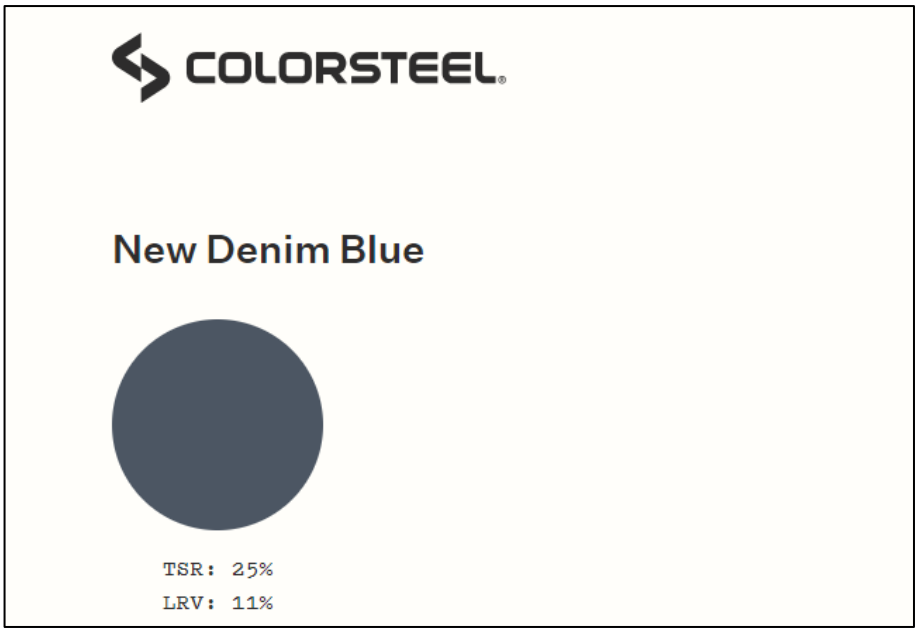

Figure 8 – New Denim Blue (Source: Coloursteel)

The existing building is already connected to the electrical, water, wastewater and septic system of the principal unit. These can accommodate the proposed development. Solar panels will be added where possible to supplement the existing panels on the primary residence (shed). Rainwater will be collected preferentially in an underground 22,000L concrete storage tank. Excess stormwater will be disposed of by a spreader system across the eastern slope below the deck according to Geotech specifications.

The height of the proposed development is 4.6m which is slightly higher than the existing 4m high studio. The proposal includes a sympathetic hipped roof profile to account for this change in height.

The site already has existing mature landscaping comprising regenerating native bush on the coastal aspect, gardens, and lawn areas.

Areas where there is excavation will be either pathways or retained / battered slopes with a mix of subtropical and native plantings consistent with those of the adjacent grounds.

The alignment of the deck facing the Te Puna Inlet will be angled approximately 10 degrees toward the north compared to the current structure. This will allow for less excavation into the sloping ground towards the tennis court.

The existing 20-year old timber retaining wall in front of the deck will be removed and replaced with an appropriate geotechnical structure.

The ground will be benched with either a retaining wall of field rocks or timber per Geotech specifications. Plantings in this area will be native grasses, flaxes or low plants. The effect will be to tidy-up the current mix of kikuyu and bracken fern to further stabilise the bank.

There is ample parking within the confines of the primary residence and 3-bay shed for a minimum of 2 additional vehicles. An indicative additional crossing and ring road is shown into the poolhouse. Please note that these are general locations only and actual location of the ring road and access will need to be confirmed by a contractor to ensure the best location is selected.

The building replaces an existing smaller structure and is only visible to marine traffic on the Te Puna Inlet from the east. There is minimal visibility from the foreshore below – and only at low tide. There is no visibility to the north or west and minimal visibility from the south (Opito Bay Road) which is over 250m away

A series of photos of the site and development area are located in the figures below.

Figure 9 – Existing Studio (Source: Steven Sanson)

Figure 10 – View to Te Puna Inlet From Studio (Source: Steven Sanson)

Figure 11 – View of General Development Area (Source: Steven Sanson)

Figure 12 – Front On View of Studio (Source: Steven Sanson)

Whilst the primary purpose of the proposed poolhouse and dwelling is for the owners of the site and overflow accommodation associated with family use, a component of small scale transient accommodation is also sought [i.e AirBnB] type use that is commensurate with the scale of the unit.

In terms of the access to the site down the private ROW, there appears to be 6 residential units in place at present. The proposal would therefore be the 7th household equivalent on site.

Figure 13 – ROW Access (Source: Google Maps)

REASONS FOR CONSENT

Operative Far North District Plan

Table 1 - General Coastal Zone Rule Assessment

Chapter 10 – Coastal Environment – General Coastal Zone	
Performance Standard	**Assessment**
10.6.5.1.1 Visual Amenity	The proposal includes buildings which extend above the permitted 50m^2 limitation for habitable buildings. **Restricted Discretionary Activity**
10.6.5.1.1 Residential Intensity	The proposal is for a second dwelling on a site that is less than 20ha in size. However the site can accommodate 2 units per 12ha of land. **Discretionary Activity**
10.6.5.1.3 Scale of Activities	The proposal seeks to include small scale AirBnB type tenanting when family will not be using the poolhouse. The site is allowed up to 13 additional persons on site. **Permitted Activity**
10.6.5.1.4 Building Height	The proposal is 4.694m in height. **Permitted Activity**
10.6.5.1.5 Sunlight	Sunlight rule is not of concern in this location. **Permitted Activity**
10.6.5.1.6 Stormwater Management	Please refer to Appendix 2 [Location Plan] for compliance. **Permitted Activity**
10.6.5.1.7 Setback from boundaries	Please refer to Appendix 2 [Location Plan] for compliance. **Permitted Activity**
10.6.5.1.8 Transportation	Refer to Table 3 below. **Permitted Activity**
10.6.5.1.9 Keeping of Animals	Not relevant

	Permitted Activity
10.6.5.1.10 Noise	Not relevant **Permitted Activity**
10.6.5.1.11 Helicopter Landing Area	Not relevant **Permitted Activity**

Part 3 – District Wide Rules	
Performance Standard	**Assessment**
12.1 Landscapes & Natural Features	The proposal includes buildings which extend above the permitted 25m^2 limitation for habitable buildings and cut or filled height exceeding 1.5 metres. **Restricted Discretionary Activity**
12.2 Indigenous Flora and Fauna	The proposal does not require vegetation clearance. **Permitted Activity**
12.3 Soils & Minerals	The proposal includes up to 145m^3 of earthworks. Engineering retaining walls are proposed at 2.6m in height to the rear of the poolhouse. At time of detailed design, and engineered structure of potentially more than 1.5m is also required. Consent is also sought for this structure. **Restricted Discretionary Activity**
12.4 Natural Hazards	The proposal is within 20m of natural vegetation. Rules 12.4.6.1.2 is therefore breached. **Discretionary Activity**
12.5 Heritage / 12.5A Heritage Precincts	Not relevant. **Permitted Activity**
12.6 Air	Not relevant. **Permitted Activity**
12.7 Lakes, Rivers, Wetlands and the Coastline	Please refer to Appendix 2 [Location Plan] for compliance. **Permitted Activity**

12.8 Hazardous Substances	Not relevant. **Permitted Activity**
12.9 Renewable Energy & Energy Efficiency	Not relevant. **Permitted Activity**
13 Subdivision	Not relevant. **Permitted Activity**
14 Financial Contributions	Not relevant. **Permitted Activity**
15 Transport	Traffic The proposal would generate an additional 10 traffic movements [residential unit]. Given the scale of the Poolhouse, no other categories within Casual Accommodation would trigger a breach [proposed AirBnB type use]. **Permitted Activity** Parking There is sufficient parking for the proposed use on the sites ring road or within associated sheds. **Permitted Activity** Access The access is considered to meet Council requirements. The proposal will be for the 7th household equivalent of the private ROW and the private ROW is considered to be sufficient as are the existing internal access arrangements off the private ROW. **Permitted Activity**

16 Signs and Lighting	Not relevant. **Permitted Activity**

Proposed Far North District Plan

Under the Proposed Far North District Plan, the site is zoned **Rural Production** with a coastal overlay and high natural character areas of the site.

An assessment of the relevant rules that have legal effect within the PDP are found below.

Proposed District Plan				
Matter	**Rule/Std Ref**	**Relevance**	**Compliance**	**Evidence**
Hazardous Substances Majority of rules relates to development within a site that has heritage or cultural items scheduled and mapped however Rule HS-R6 applies to any development within an SNA – which is not mapped	Rule HS-R2 has immediate legal effect but only for a new significant hazardous facility located within a scheduled site and area of significance to Māori, significant natural area or a scheduled heritage resource HS-R5, HS-R6, HS-R9	N/A	Yes	Not relevant as no such substances proposed.
Heritage Area Overlays (Property specific) This chapter applies only to properties within identified heritage area overlays (e.g. in the operative plan they are called precincts for example)	All rules have immediate legal effect (HA-R1 to HA-R14) All standards have immediate legal effect (HA-S1 to HA-S3)	N/A	Yes	Not indicated on Far North Proposed District Plan
Historic Heritage (Property specific and applies to adjoining sites (if the boundary is within 20m of an identified heritage item)). Rule HH-R5 Earthworks within 20m of a scheduled heritage resource. Heritage resources	All rules have immediate legal effect (HH-R1 to HH-R10) Schedule 2 has immediate legal effect	N/A	Yes	Not indicated on Far North Proposed District Plan

are shown as a historic item on the maps) This chapter applies to scheduled heritage resources – which are called heritage items in the map legend				
Notable Trees (Property specific) Applied when a property is showing a scheduled notable tree in the map	All rules have immediate legal effect (NT-R1 to NT-R9) All standards have legal effect (NT-S1 to NT-S2) Schedule 1 has immediate legal effect	N/A	Yes	Not indicated on Far North Proposed District Plan
Sites and Areas of Significance to Māori (Property specific) Applied when a property is showing a site / area of significance to Maori in the map or within the Te Oneroa-a Tohe Beach Management Area (in the operative plan they are called site of cultural significance to Maori)	All rules have immediate legal effect (SASM-R1 to SASM-R7) Schedule 3 has immediate legal effect	N/A	Yes	Not indicated on Far North Proposed District Plan
Ecosystems and Indigenous Biodiversity SNA are not mapped – will need to determine if indigenous vegetation on the site for example	All rules have immediate legal effect (IB-R1 to IB-R5)	N/A	Yes	Not indicated on Far North Proposed District Plan. No vegetation clearance proposed.
Activities on the Surface of Water	All rules have immediate legal effect (ASW-R1 to ASW-R4)	N/A	Yes	Not indicated on Far North Proposed District Plan
Earthworks all earthworks (refer to new definition) need to comply with this	The following rules have immediate legal effect: EW-R12, EW-R13 The following standards have immediate legal effect: EW-S3, EW-S5	Yes	Yes	Proposed earthworks will be in accordance with the relevant standards including GD-05 and will have an ADP applied.

Signs (Property specific) as rules only relate to situations where a sign is on a scheduled heritage resource (heritage item), or within the Kororareka Russell or Kerikeri Heritage Areas	The following rules have immediate legal effect: SIGN-R9, SIGN-R10 All standards have immediate legal effect but only for signs on or attached to a scheduled heritage resource or heritage area	N/A	Yes	Not indicated on Far North Proposed District Plan
Orongo Bay Zone (Property specific as rule relates to a zone only)	Rule OBZ-R14 has partial immediate legal effect because RD-1(5) relates to water	N/A	Yes	Not indicated on Far North Proposed District Plan
Subdivision	SUBR13-SUB R17 have legal effect.	N/A	Yes	No subdivision proposed.
Comments:				
No consents are required under the PDP.				

SECTION 104 ASSESSMENT

Section 104B governs the determination of applications for discretionary activities:

104B Determination of applications for discretionary or non-complying activities

After considering an application for a resource consent for a discretionary activity or non-complying activity, a consent authority—

(a) may grant or refuse the application; and

(b) if it grants the application, may impose conditions under section 108.

Section 104B: inserted, on 1 August 2003, by section 44 of the Resource Management Amendment Act 2003 (2003 No 23).

Applications for discretionary activities may be granted or refused and if granted, may be subject to conditions of consent.

When considering an application for resource consent, a consent authority must have regard to the matters under section 104 of the Resource Management Act 1991, including any matters relating to Part 2. References to Part 2 in applications are only required where Plans may be deficient in terms of giving effect to the purpose and principles of the Act.

Section 104 specifies that consent authorities have regard to the following matters when considering whether to grant or refuse an application for resource consent.

(a) any actual and potential effects on the environment of allowing the activity; and

(ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment that will or may result from allowing the activity; and;

(c) any relevant provisions of –

i. a national environmental standard:

ii. other regulations:

iii. a national policy statement:

iv. a New Zealand Coastal Policy Statement:

v. a regional policy statement or proposed regional policy statement:

vi. a plan or proposed plan; and

(d) any other matter the consent authority considers relevant and reasonably necessary to determine the application."

In the case of the subject application those considerations include the actual and potential effects of an activity on the environment, the relevant provisions of the regional policy statement or other relevant statutory document, a district plan and any other matter the consent authority considers relevant and reasonably necessary to determine the application. As the site is within the Coastal Environment the NZCPS is relevant.

The following assessment addresses all relevant considerations under s104 of the RMA.

Section 104 (1)(a) Assessment of Effects on the Environment

Section 104(1)(a) requires that consent authorities have regard to any actual or potential effects on the environment of allowing the activity. Section 2 of the RMA defines 'Environment' as follows:

environment includes—

(a) ecosystems and their constituent parts, including people and communities; and

(b) all natural and physical resources; and

(c) amenity values; and

(d) the social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) or which are affected by those matters

Section 3 defines the meaning of 'effect' to include:

3 Meaning of effect

In this Act, unless the context otherwise requires, the term **effect** includes—

(a) any positive or adverse effect; and

(b) any temporary or permanent effect; and

(c) any past, present, or future effect; and

(d) any cumulative effect which arises over time or in combination with other effects—

regardless of the scale, intensity, duration, or frequency of the effect, and also includes—

(e) any potential effect of high probability; and

(f) any potential effect of low probability which has a high potential impact.

Section 3: amended, on 7 July 1993, by section 3 of the Resource Management Amendment Act 1993 (1993 No 65).

Positive Effects

Positive effects associated with this activity are associated with economic and social wellbeing. The proposed development includes an architecturally designed poolhouse which will create a series of economic growth and employment effects of importance to Kerikeri and the Northland region.

Hazards / Fire Risk Effects

Chapter 12.7 contains assessment criteria relating to hazard mitigation. The primary hazards for the proposal are those associated with land stability and fire hazard.

In terms of the fire hazard, Fire and Emergency NZ [FENZ] have provided their written approval on this matter. Therefore, the fire risk is mitigated sufficiently.

Wilton Joubert have been engaged to provide detailed technical services to provide development on the site. They confirm in section 9 of their Site Specific Geotech Report that the risk of moderate to deep seated slope instability impacting on the proposed development to be low provided recommendations within the report are adhered to. This can form a condition of consent.

From a foundation perspective, specific design is required and this can be provided at time of building consent. This can form a condition of consent.

The proposed 2.6m high masonry block wall comes with specific requirements in terms of construction staging if undertaken during wet conditions. In essence, its construction must be fast tracked and protected from weather. This can form a condition of consent.

The Geotech Report contains conclusions on other site development matters such as preparation, earthworks [cut / fill], clearance, batters, subgrade protection, hardfill compaction, stormwater and surface water control, and potential construction monitoring. Similar to the above, these can be

conditioned.

Provided the above is undertaken there are no adverse effects resulting from the proposal.

Retaining Wall / Earthwork / New Crossing & Driveway Effects

As outlined in the Geotech Report a 2.6m high retaining wall is proposed along the upslope western perimeter of building footprint. A further memorandum prepared by Wilton Joubert dated 2 July 2024 notes that a pile wall would be required to minimise stability issues at the front of the site.

At time of drafting the consent, the geotechnical experts conclude that the final depth and strength of the wall requires far more specific design that would be provided at the building consent stage. As the depth of the wall is unknown, for clarity this application also seeks for this wall should it require resource consent.

Earthworks are required to provide for the proposal and these are above permitted standards. Wilton Joubert comment extensively on earthworks in their geotechnical report and provide appropriate recommendations in this respect. Provided these are adhered to the proposed earthworks can be appropriately undertaken.

In terms of the new crossing and driveway, the crossing will meet the appropriate engineering standards for a crossing from a private ROW. The Type 1B has been selected in this instance. In terms of the ring road, the exact location of this is to be finalised on site with contractor input to ensure that the proposed access suits the ground contours of the site and that it fits with the overall makeup of the poolhouse. It would be appreciated that in this instance that plans are considered in 'general accordance'.

In terms of effects, there are no effects resulting provided the recommendations of the geotechnical reports are carried out in the manner required as outlined in the Wilton Joubert Reports.

Residential Intensity Effects

Chapter 11.1 sets out the assessment requirements for a breach to the residential intensity rule. This part of the Plan also considers scale of activities.

The character and appearance of the building will be aligned with the principal residential unit on the site in terms of colour, style and design. The pre-dominant east facing colour will be Colorsteel New Denim Blue [11% LRV].

The proposed poolhouse is situated away from all neighbouring sites and the ROW. Visual domination

and loss of privacy / sunlight concerns are all avoided due to the location and the surrounding courtyard walls proposed.

The majority of the site remains as open space. On completion 2.0% of the site is covered in impervious surface. This open space is mixed in the form of grassed lawns, grassed pasture, and mature landscaping and native vegetation. No further landscaping is considered to be required.

The proposal does not increase traffic to a level that warrants any change to the existing ROW, vehicle crossing or internal accessway. Despite the proposed use for AirBnB type arrangements these are still on the lower scale due to the size of the Poolhouse and its accommodation offering of 1 x bdr.

In terms of hours of operation and noise generation these are associated with residential uses and will be of minimal concern.

The proposal can be adequately serviced and will share these with the existing dwelling in terms of wastewater. A 22,500l water tank is proposed for the Poolhouse. There are no obvious stormwater concerns but note the above requirements provided by Wilton Joubert with respect to this matter.

Landscaping is already mature and existing on the site. The existing house contains no vegetation in front of its immediate location due to topography, however lower slopes are all well vegetated.

The outdoor areas associated with this proposal are screened effectively by the courtyard wall. The applicant will be able to undertake landscaping as required to supplement that already undertaken on the site. There is no loss of vegetation as a result of the proposal.

Soils are not adversely impacted as the site does not contain suitable soils.

Visual and aural privacy are minimised through the design of the Poolhouse and its separation from the principal unit. In any event, the major use of the Poolhouse will be for family and the applicants use.

In terms of visual effects, the proposal seeks to locate the Poolhouse in a very similar position to the existing studio unit. There is a slight increase in the Poolhouse with decking but is of a very similar orientation and size. Given the proposal seeks to utilise an existing footprint and be coloured similarly, there are considered to be minimal effects resulting to the natural character of the coastal environment.

The site is located within a Kiwi High Density area but the addition of the Poolhouse does little to impact this feature. The applicant has one pet dog [as of right] and does not envisage that the application would result in the need to better manage such dog, particularly when the site contains stock to manage the broader site that is in pasture.

With respect to natural hazards these are addressed above. With respect to land use compatibility and reverse sensitivity, the residential activities on the site are well insulated from the applicant's own small scale stocking of the site as well as any wider rural production activities which are of a similar / low density.

For the reasons above, the proposal is considered to result in less than minor effects.

Visual Amenity and Outstanding Natural Landscape Effects

Despite the site being identified in the ODP as containing an Outstanding Landscape, the proposal is no longer mapped as being within the ONL as per the Regional Policy Statement for Northland maps. This is followed through in the PDP mapping for ONL. Therefore, the breach is technical in nature but no assessment of effects on this feature is required as the mapping has been updated and changed.

In terms of visual amenity, the location of the Poolhouse is as shown on the attached site plans. It is located where an existing studio is currently built. The size, bulk and height are also shown on attached plans. The proposal is sited above natural vegetation, but no ridgelines. The pool and courtyard area is built into an existing sloping lawn which has been modified over time.

Its location where existing built form is located as well as its narrow design [15m wide], does not give rise to any additional visual amenity effects. It is a larger structure, however the difference in increase is very small and those viewers in the CMA would only consider it a marginal increase.

Its location has minimal opportunities for public viewing, perhaps a very small component of Opito Bay Road, and parts of the CMA. Otherwise, topography, existing buildings and separation from the ROW limit public viewing opportunities. There are no resulting privacy, outlook or domination effects arising to neighbours.

The colour of the proposed building is outlined above and will mirror the existing building. Reflectivity will be in line with permitted standards and appropriate glass will be used.

The site is already well landscaped. There is considered to be no need to formally landscape any additional areas for the purposes of mitigation. The applicant is likely to carry out some landscaping around the extend of the Poolhouse. The natural and landscape vegetation surrounding the site already provides sufficient integration for the proposal into its landscape.

No vegetation clearance is required, however there will be earthworks required as outlined above. The earthwork effects are all temporary in nature and will eventually subside once development is

completed.

The location of the access, parking and manouvring areas are all shown on plans and linked to the existing dwelling. They are to the rear of the existing house and not easily visible from the CMA.

For the reasons above, the proposed building is not considered to be visually obtrusive. In terms of cumulative effects, the proposal results in 2.0% site coverage. At this level the buildings cannot be said to result in any cumulative effects. The buildings are contained within a defined area and consolidated on the site. Beyond this area, the majority of the site is in open space, pasture and vegetation.

For the reasons above, effects are considered to be less than minor.

STATUTORY CONSIDERATIONS

Section 104 (b)(i) and (ii) National Environmental Standards & Other Regulations

The NES for Assessing and Managing Contaminants in Soil to Protect Human Health and NES for Freshwater are not of relevance to this site. As discussed in the sections above this, neither of these standards will be breached by the proposal.

Section 104 (b)(iii) National Policy Statement(s)

The National Policy Statement on Highly Productive Land is not applicable as the soil is not classed as LUC 1, 2 or 3.

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Section 104 (b)(iv) New Zealand Coastal Policy Statement

The New Zealand Coastal Policy Statement is relevant to this application. The application is considered to reflect an appropriate level and form of consolidated development within the coastal environment and those associated effects have been considered in the assessment above.

Section 104 (b)(v) Regional Policy Statement or Proposed Regional Policy Statement

The subject site is within the Northland region and is subject to the governing objectives and policies of the operative Northland Regional Policy Statement (operative May 2016).

Although the jurisdiction for land use and subdivision activities is governed by the Far North District Council and the policy framework for development activities and the management of potential adverse effects is set out in the Far North District Plan. As outlined below the proposal is considered to be

consistent with the relevant objectives and policies.

Regional Policy Statement For Northland	
Objective / Policy	**Assessment**
Integrated Catchment Management	Not relevant.
Region Wide Water Quality	Not relevant.
Ecological Flows and Water Quality	Not relevant.
Enabling Economic Wellbeing	The proposal will increase economic wellbeing for the applicants, local building and construction suppliers.
Economic Activities – Reverse Sensitivity and Sterilisation.	Not relevant.
Regionally Significant Infrastructure	Not relevant.
Efficient and Effective Infrastructure	The proposal largely relies on on-site services. Once on Opito Bay Road, residents use local infrastructure.
Security of Energy Supply	The site is serviced in this respect.
Use and Allocation of Common Resources	Not relevant.
Regional Form	The proposal does not result in any reverse sensitivity of a change or change in character. The proposed use is aligned with the existing residential nature and character of the site and surrounds.
Tangata Whenua Role in Decision Making	Council may seek relevant input through the consent process.
Natural Hazard Risk	Natural hazards have been assessed as above and in accompanying engineering reports.
Natural Character, Outstanding Natural Features, Outstanding Natural Landscapes and Historic Heritage	The site is no longer mapped as outstanding under the RPS. No other features are relevant to the development.

Section 104 (b)(vi) Plans or Proposed Plans

Operative District Plan Objectives and Policies

The relevant objectives and policies are addressed below. I haven't undertaken an assessment of Chapter 12 of the ODP where the breaches are relevant for the following reasons:

- In terms of ONL, the site is no longer mapped as such my the RPS and the PDP.
- Whilt there is a breach to Chapter 12.3 this is relation to retaining wall structures and their heights. These matters are wholly addressed in the accompanying engineering report.
- In terms of chapter 12.4 the application is accompanied by the approval of FENZ.

As such the proposal is in general accordance with the aims and intent of Chapter 12 of the ODP.

OBJECTIVE OR POLICY		**PERFORMANCE OF PROPOSAL**
OBJECTIVES		
10.3.1	To manage coastal areas in a manner that avoids adverse effects from subdivision, use and development. Where it is not practicable to avoid adverse effects from subdivision use or development, but it is appropriate for the development to proceed, adverse effects of subdivision use or development should be remedied or mitigated.	All effects have been mitigated for the proposal.

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
10.3.2	To preserve and, where appropriate in relation to other objectives, to restore, rehabilitate, protect, or enhance: (a) the natural character of the coastline and coastal environment; (b) areas of significant indigenous vegetation and significant habitats of indigenous fauna; (c) outstanding landscapes and natural features; (d) the open space and amenity values of the coastal environment; (e) water quality and soil conservation (insofar as it is within the jurisdiction of the Council)	The site is considered meet the objective as the development is appropriate with effects that can be mitigated in the coastal environment. The proposal does not affect or require vegetation clearance. While the site is located within an Outstanding Landscape, it is no longer considered to be in the mapping of the higher order RPS, and within the PDP. Open space dominates the sites landscape.
10.3.3	To engage effectively with Māori to ensure that their relationship with their culture and traditions and taonga is identified, recognised, and provided for.	There are no such features noted on the ODP / PDP. The site is contained within an area already disturbed in terms of development and grassed landscape.
10.3.4	To maintain and enhance public access to and along the coast whilst ensuring that such access does not adversely affect the natural and physical resources of the coastal environment, including Maori cultural values, and public health and safety.	Public access is already provided along the water margin.
8.3.5	To secure future public access to and along the coast, lakes and rivers (including access for Maori) through the development process and specifically in accordance with the Esplanade Priority Areas mapped in the District Plan.	As above.

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
10.3.6	To minimise adverse effects from activities in the coastal environment that cross the coastal marine area boundary.	Effects do not cross the CMA into NRC jurisdiction.
10.3.7	To avoid, remedy or mitigate adverse effects on the environment through the provision of adequate land-based services for mooring areas, boat ramps and other marine facilities.	Not relevant.
10.3.8	To ensure provision of sufficient water storage to meet the needs of coastal communities all year round.	Water is provided for the proposal.
10.3.9	To facilitate the sustainable management of natural and physical resources in an integrated way to achieve superior outcomes to more traditional forms of subdivision, use and development through management plans and integrated development.	This approach is not proposed.

POLICIES		
10.4.1	That the Council only allows appropriate subdivision, use and development in the coastal environment. Appropriate subdivision, use and development is that where the activity generally: (a) recognises and provides for those features and elements that contribute to the natural character of an area that may require preservation, restoration or enhancement; and (b) is in a location and of a scale and design that minimises adverse effects on the natural character of the coastal environment; and (c) has adequate services provided in a manner that minimises adverse effects on the coastal environment and does not adversely affect the safety and efficiency of the roading network; and (d) avoids, as far as is practicable, adverse effects which are more than minor on heritage features, outstanding landscapes, cultural values, significant indigenous vegetation and significant habitats of indigenous fauna, amenity values of public land and waters and the natural functions and systems of the coastal environment; and (e) promotes the protection, and where appropriate restoration and enhancement, of areas of significant indigenous vegetation and significant habitats of indigenous fauna; and (f) recognises and provides for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga; and (g) where appropriate, provides for and, where possible, enhances public access to and along the coastal marine area; and (h) gives effect to the New Zealand Coastal Policy Statement and the Regional Policy Statement for Northland.	Discussed under Objective 10.3.2.

10.4.2	That sprawling or sporadic subdivision and development in the coastal environment be avoided through the consolidation of subdivision and development as far as practicable, within or adjoining built up areas, to the extent that this is consistent with the other objectives and policies of the Plan.	The proposal is neither sprawling nor sporadic. The development on the site is consolidated.
10.4.3	That the ecological values of significant coastal indigenous vegetation and significant habitats are maintained in any subdivision, use or development in the coastal environment.	These are maintained.
10.4.4	That public access to and along the coast be provided, where it is compatible with the preservation of the natural character and amenity, cultural, heritage and spiritual values of the coastal environment, and avoids adverse effects in erosion prone areas	Public access is already provided.
10.4.5	That access by tangata whenua to ancestral lands, sites of significance to Maori, maahinga mataitai, taiapure and kaimoana areas in the coastal marine area be provided for in the development and ongoing management of subdivision and land use proposals and in the development and administration of the rules of the Plan and by non-regulatory methods. Refer Chapter 2, and in particular Section 2.5, and Council's "Tangata Whenua Values and Perspectives (2004)".	These are not known to be in the surrounds.
10.4.6	That activities and innovative development including subdivision, which provide superior outcomes and which permanently protect, rehabilitate and/or enhance the natural character of the coastal environment, particularly through the establishment and ongoing management of indigenous coastal vegetation and habitats, will be encouraged by the Council.	Not considered necessary for this proposal.

10.4.7	To ensure the adverse effects of land-based activities associated with maritime facilities including mooring areas and boat ramps are avoided, remedied or mitigated through the provision of adequate services, including where appropriate: (a) parking; (b) rubbish disposal; (c) waste disposal; (d) dinghy racks	NA
10.4.8	That development avoids, remedies or mitigates adverse effects on the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.	There are no such features noted on the ODP / PDP. The site is contained within an area already disturbed in terms of development and grassed landscape.
10.4.9	That development avoids, where practicable, areas where natural hazards could adversely affect that development and/or could pose a risk to the health and safety of people.	Considered within engineering reports and the approval of FENZ.
10.4.10	To take into account the need for a year-round water supply, whether this involves reticulation or on-site storage, when considering applications for subdivision, use and development	Adequate water is provided.
10.4.11	To promote land use practices that minimise erosion and sediment run-off, and storm water and waste water from catchments that have the potential to enter the coastal marine area.	Refer recommendations within the Geotech Report.
10.4.12	That the adverse effects of development on the natural character and amenity values of the coastal environment will be minimised through: (a) the siting of buildings relative to the skyline, ridges, headlands and natural features; (b) the number of buildings and intensity of development; (c) the colour and reflectivity of buildings; (d) the landscaping (including planting) of the site; (e) the location and design of vehicle access, manoeuvring and parking areas.	These effects have already been considered above.

Table 8 - Objectives and Policies for the General Coastal Zone

OBJECTIVE OR POLICY		PERFORMANCE OF PROPOSAL
OBJECTIVES		
10.6.3.1	To provide for appropriate subdivision, use and development consistent with the need to preserve its natural character	The proposal is considered appropriate.
10.6.3.2	That the visual and landscape qualities of the coastal environment in be protected from inappropriate subdivision, use and development.	The proposal is considered appropriate.
10.6.3.3	To manage the use of natural and physical resources (excluding minerals) in the general coastal area to meet the reasonably foreseeable needs of future generations..	The proposal provides for future generations.
POLICIES		
10.6.4.1	That a wide range of activities be permitted in the General Coastal Zone, where their effects are compatible with the preservation of the natural character of the coastal environment.	The activity will not have any reverse sensitivity effects on adjacent sites as they are all lifestyle in nature.
10.6.4.2	That the visual and landscape qualities of the coastal environment in be protected from inappropriate subdivision, use and development	The proposal is considered appropriate.

10.6.4.3	Subdivision, use and development shall preserve and where possible enhance, restore and rehabilitate the character of the zone in regards to s6 matters, and shall avoid adverse effects as far as practicable by using techniques including: (a) clustering or grouping development within areas where there is the least impact on natural character and its elements such as indigenous vegetation, landforms, rivers, streams and wetlands, and coherent natural patterns; (b) minimising the visual impact of buildings, development, and associated vegetation clearance and earthworks, particularly as seen from public land and the coastal marine area; (c) providing for, through siting of buildings and development and design of subdivisions, legal public right of access to and use of the foreshore and any esplanade areas; (d) through siting of buildings and development, design of subdivisions and provision of access, that recognise and provide for the relationship of Maori with their culture, traditions and taonga including concepts of mauri, tapu, mana, wehi and karakia and the important contribution Maori culture makes to the character of the District. (Refer Chapter 2 and in particular Section 2.5 and Council's "Tangata Whenua Values and	As already noted – the proposal is consolidated around existing use, the majority of the site is in open space, earthworks effects are temporary, and there is no vegetation clearance proposed.

	Perspectives (2004)"; (e) providing planting of indigenous vegetation in a way that links existing habitats of indigenous fauna and provides the opportunity for the extension, enhancement or creation of habitats for indigenous fauna, including mechanisms to exclude pests; (f) protecting historic heritage through the siting of buildings and development and design of subdivisions	
10.6.4.4	That controls be imposed to ensure that the potentially adverse effects of activities are avoided, remedied or mitigated as far as practicable..	Noted. Conditions are expected in this regard.
10.6.4.5	Maori are significant land owners in the General Coastal Zone and therefore activities in the zone should recognise and provide for the relationship of Maori and their culture and traditions, with their ancestral lands, water, sites, waahi tapu and other taonga and shall take into account the principles of the Treaty of Waitangi.	Refer above to response to similar objectives / policies.
10.6.4.6	The design, form, location and siting of earthworks shall have regard to the natural character of the landscape including terrain, landforms and indigenous vegetation and shall avoid, remedy or mitigate adverse effects on those features.	Earthworks will have temporary effects.

8.7.4.11	That the built form of development allowed on sites with frontage to Kerikeri Road between its intersection with SH10 and Cannon Drive be maintained as small in scale, set back from the road, relatively inconspicuous and in harmony with landscape plantings and shelter belts.	Not relevant.
8.7.4.12	That the Council maintains discretion over new connections to a sewerage system to ensure treatment plant discharge quality standards are not compromised (refer to Rule 13.7.3.5).	Not relevant.

Assessment of Objectives and Policies Conclusion

The proposal is not considered to be contrary to the relevant objectives and policies considered above.

The proposed District Plan Policies and Objective.

The proposal is zoned Rural Production with a Coastal Overlay

The relevant objectives and policies are addressed below. I haven't undertaken an assessment of Coastal Environment chapter of the PDP for the following reasons:

- The assessment of effects with respect to visual amenity has been undertaken above.
- An extensive assessment of the coastal environment objectives and policies in the ODP has been undertaken above. The provisions are very similar in both plans, as such it is deemed unnecessary to repeat.

As such the proposal is in general accordance with the aims and intent of the Coastal Environment chapter in the ODP.

Table 8 assessment against the RPZ rules in the PDP

Objectives	Assessment
RPROZ-O1 - The Rural Production zone is managed to ensure its availability for primary production activities and its long-term protection for current and future generations.	Primary production will continue.
RPROZ-02 The Rural Production zone is used for primary production activities, ancillary activities that support primary production and other compatible activities that have a functional need to be in a rural environment.	As above.
RPROZ-03 Land use and subdivision in the Rural Production zone: a. protects highly productive land from sterilisation and enables it to be used for more productive forms of primary production; b. protects primary production activities from reverse sensitivity effects that may constrain their effective and efficient operation; c. does not compromise the use of land for farming activities, particularly on highly productive land; d. does not exacerbate any natural hazards; and e. is able to be serviced by on-site infrastructure.	a. There is no HPL on the sites b. Reverse sensitivity effects are also not anticipated. The existing house has been present for many years. c. There is no HPL associated with this proposal. The land can continue to be used for very low stocking rate grazing due to the poor quality of the soils. d. Hazards have been considered and assessed. e. Proposal can be serviced on site.
RPROZ-04 The rural character and amenity associated with a rural working environment is maintained.	This is maintained.
RPROZ-P1 Enable primary production activities, provided they internalise adverse effects onsite where practicable, while recognising that typical adverse effects associated with primary	The site is only suitable for low stocking rate grazing. All adverse effects of this activity will be internalised.

production should be anticipated and accepted within the Rural Production zone.	
RPROZ-P2 Ensure the Rural Production zone provides for activities that require a rural location by: a. enabling primary production activities as the predominant land use; b. enabling a range of compatible activities that support primary production activities, including ancillary activities, rural produce manufacturing, rural produce retail, visitor accommodation and home businesses.	This is basically a repeat of above and has been addressed above.
RPROZ-P3 Manage the establishment, design and location of new sensitive activities and other non-productive activities in the Rural Production Zone to avoid where possible, or otherwise mitigate, reverse sensitivity effects on primary production activities.	This is mitigated through the proposal and the site itself which is well separated from other uses.
RPROZ-P4 Land use and subdivision activities are undertaken in a manner that maintains or enhances the rural character and amenity of the Rural Production zone, which includes: a. a predominance of primary production activities; b. low density development with generally low site coverage of buildings or structures; c. typical adverse effects such as odour, noise and dust associated with a rural working environment; and d. a diverse range of rural environments, rural character and amenity values throughout the District.	There remains a predominance of rural production activities on the site. Low site coverage exists and those typical rural working environment effects are small on the site and the surrounds as rural lifestyle use is the predominant use.

RPROZ-P5 Avoid land use that: a. is incompatible with the purpose, character and amenity of the Rural Production zone; b. does not have a functional need to locate in the Rural Production zone and is more appropriately located in another zone; c. would result in the loss of productive capacity of highly productive land; d. would exacerbate natural hazards; and e. cannot provide appropriate on-site infrastructure.	The proposal is considered compatible with a rural environment which is rural lifestyle in character. There is no HPL on the site. Natural hazards can be managed. The site can be serviced internally.
RPROZ-P6 Avoid subdivision that: a. results in the loss of highly productive land for use by farming activities; b. fragments land into parcel sizes that are no longer able to support farming activities, taking into account: 1. the type of farming proposed; and 2. whether smaller land parcels can support more productive forms of farming due to the presence of highly productive land. c. provides for rural lifestyle living unless there is an environmental benefit.	No subdivision is proposed.
RPROZ-P7 Manage land use and subdivision to address the effects of the activity requiring resource consent, including (but not limited to) consideration of the following matters where relevant to the application:	a. The proposal will not increase the rural production potential but it will not decrease it either as the proposed development is located on areas of grassed landscaping and well within the permitted coverage

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;	requirements.. The soil is of low quality and only suitable for low stocking rates for grazing purposes. b. No c. The proposal is consistent with the existing scale and character in existence on Opito Bay Road and the ROW which has large scale and extensive architecturally designed homes. d. Refer development plans attached. e. There is unlikely to be any reverse sensitivity effects of an additional dwelling in this location for the reasons outlined above. There is no HPL on the site. f. NA g. The site is able to cater for onsite infrastructure. h. Access is existing i. NA j. The proposal is not expected to offend this policy and an ADP will be in place at all times.

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.	

Proposed Far North District Plan Objectives & Policies & Weighting

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

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

i. The extent (if any) to which the proposed measure might have been exposed to testing and independent decision making;
ii. Circumstances of injustice; and
iii. The extent to which a new measure, or the absence of one, might implement a coherent pattern of objectives and policies in a plan.

In my view the PDP has not gone through the sufficient process to allow a considered view of the objectives and policies for the Rural Production Zone or the Coastal Environment, however this has still been provided.

Both the PDP and ODP have been assessed accordingly and the proposal is deemed to meet the relevant objectives and policies.

Assessment of Objectives and Policies Conclusion

The proposal is not considered to be contrary to the relevant objectives and policies considered

above.

Notification Assessment (s95matters)

The Council will need to determine the basis on which the application will be processed. These include public notification, limited notification, or non-notification. Resource Legislation Amendment Act (2017) has introduced several changes to the notification assessment process. Amended sections 95A and 95B have introduced a step-by-step process that Council must follow when determining whether to publicly or limited notify an application.

Public Notification (s95A)

Section 95A outlines the steps that must be followed to determine whether an application should be publicly notified.

Step 1 – Details requirements for mandatory public notification. None of these apply to the proposal.

Step 2 – Details situations where public notification is precluded (if not required under step 2). The application is for a residential Discretionary Activity that is not a boundary activity, therefore public notification is not precluded under this step.

Step 3 – Details requirements for public notification in certain circumstances. This includes applications that are determined to be publicly notified under s95D. For this application, it is concluded that potential adverse effects beyond the immediately adjacent environment would not be more than minor.

Step 4 – Details requirements in special circumstances. It is considered that there are no special circumstances that would warrant notification.

Limited Notification (s95B)

The amended s95B also includes steps to be followed when deciding whether an application should be subject to limited notification.

Step 1 – relates to the consideration of certain affected groups and affected persons including any protected customary rights groups or affected marine title groups. There are no such groups affected by this application.

Step 2 – details requirements for limited notification where the application is for one or more activities

that is precluded from limited notification by a rule or standard or is a controlled or prescribed activity. This step does not preclude this application from limited notification.

Step 3 – relates to boundary adjustments, where an owner of an infringed boundary is to be notified or a prescribed activity. Also relates to any other activity where it is required to determine if a person is an affected person in accordance with s95E. For the purpose of limited notifying an application, a person is an affected person if a consent authority decides that the activity's adverse effects on the person are minor or more than minor (but are not less than minor). It is assessed these two factors are not triggered by the application.

Step 4 – relates to requirements to notify where special circumstances exist.

There are no special circumstances that would warrant limited notification of this application.

Potentially Affected Persons

No persons are considered to be potentially affected.

PART II – Resource Management Act 1991

Purpose of the RMA

The proposal can promote the sustainable management of natural and physical resources on site, as current and future owners and users of the land are able to provide for their social, cultural and economic wellbeing and their health and safety.

The proposal will enable the construction of an additional house (poolhouse), pool and courtyard which will provide opportunities for people within the construction industry. Those persons help contribute to the local economy and utilise local services and infrastructure.

The proposal mitigates effects on the environment. There are no cultural resources of relevance located on the site.

In doing so, the proposal is considered to achieve all four well beings as identified within Part 2. Air, water, soil, and ecosystems are not anticipated to be adversely affected by this proposal. Any effects on the environment are not anticipated to be more than minor.

Matters of National Importance

Māori are not considered to be adversely affected by this proposal, nor is any historic heritage likely to be impacted, however in the event anything is discovered the accidental discovery protocol will be adhered to.

Other Matters

The development will result in an efficient use of resources with the development occurring in a highly desirable area to live providing for additional residential housing where agricultural activities will not be adversely impacted. There will be no adverse impact on local ecosystems.

CONCLUSION

This application seeks a discretionary resource consent to undertake a land use development within the General Coastal Zone. The assessment of effects on the environment concludes that for the reasons outlined in the application, the effects of undertaking this development will be less than minor on the surrounding environment.

The proposal was considered to be consistent with all relevant National Environmental Standards and National Policy Statements.

The Regional Policy Statement for Northland was also reviewed as part of this application. The proposal was considered to be consistent with the aims of this document.

In terms of the operative Far North District Plan, the proposal was assessed against the objectives and policies for the Coastal Environment in general, the General Coastal Zone, with the conclusion that it is generally compatible with the aims of the District Plan as expressed through those relevant objectives and policies.

The relevant assessment criteria within the District Plan were also considered, the conclusions reached being that the proposal fulfilled the relevant criteria when assessed within the context of the outcomes the rules aim to achieve.

In terms of the potential adverse effects being minor or more than minor, it is considered that there are no directly affected parties to this proposal as all effects can be adequately mitigated.

An assessment of Part II of the Act has also been completed with the proposal generally able to satisfy this higher order document also.

We look forward to receiving acknowledgment of the application and please advise if any additional information is required.

Yours sincerely,

Steven Sanson
Consultant Planner

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

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

R.W. Muir
Registrar-General of Land

Identifier **NA58B/421**

Part-Cancelled

Land Registration District **North Auckland**

Date Issued 19 August 1985

Prior References
NA7C/1427

Estate Fee Simple

Area 13.8605 hectares more or less

Legal Description Lot 3 Deposited Plan 55229

Registered Owners

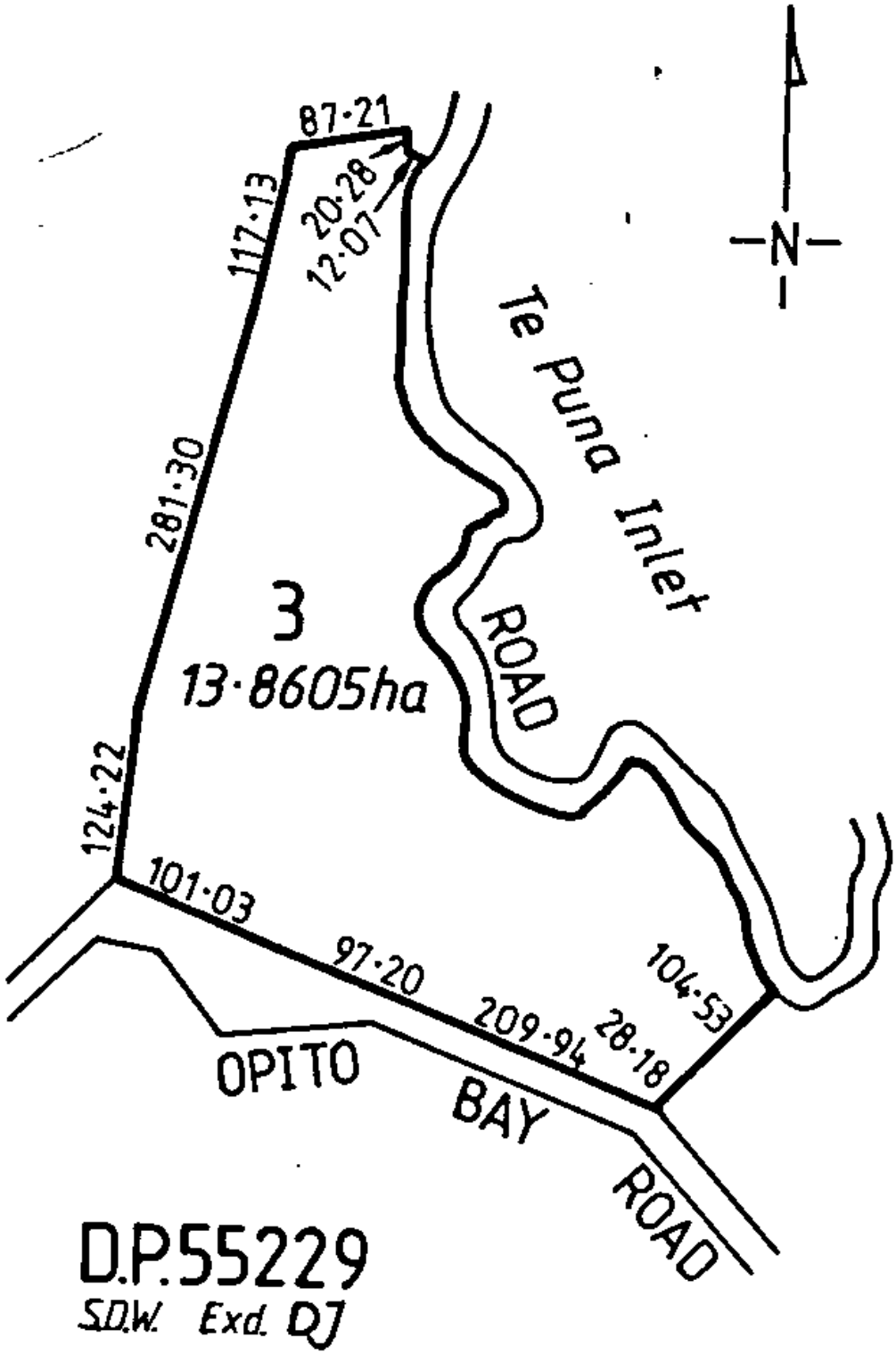
Peter Reginald Honeyfield

Interests

Appurtenant hereto is a right of way created by Transfer A125172

D325601.1 Gazette Notice (1997 p4072) taking part, 492 square metres for road and vesting the same in The Far North District Council - 2.11.1998 at 9.11 am

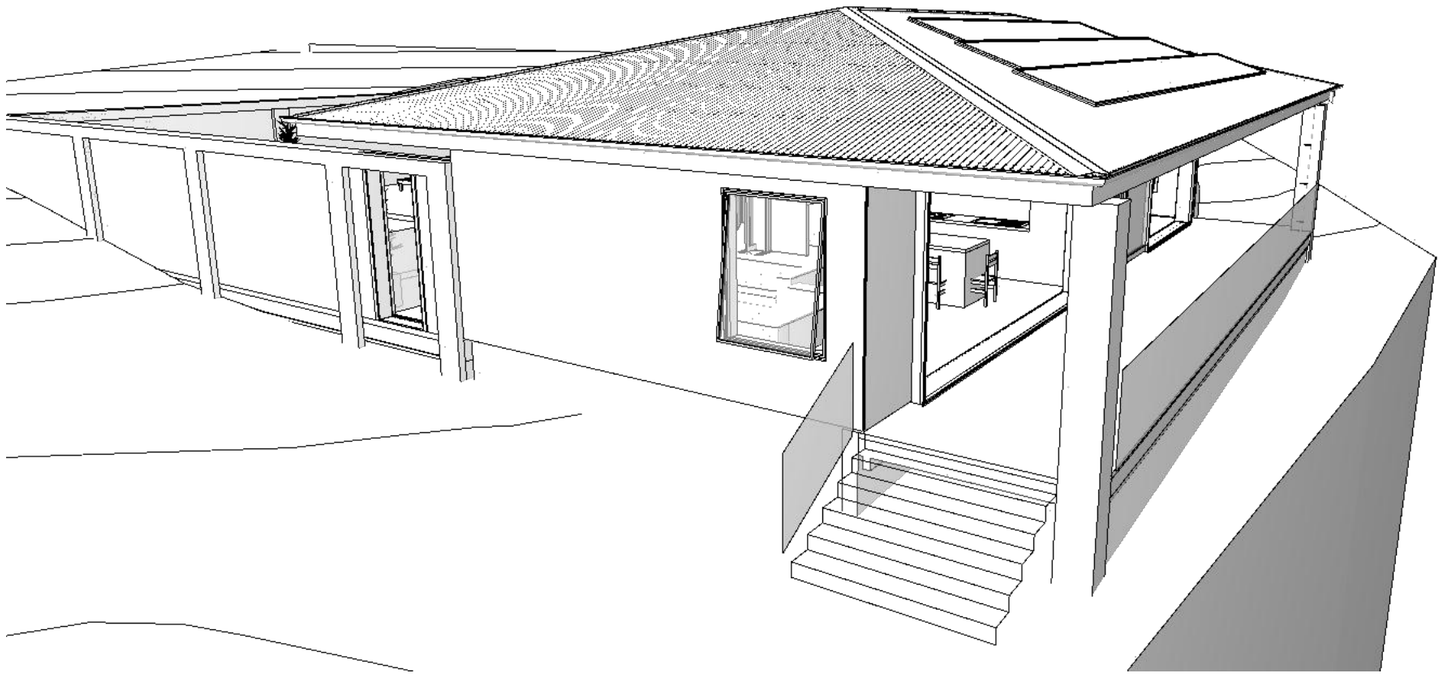
Bay of Islands County



NEW POOL HOUSE FOR

PETER & JOAN HONEYFIELD

	SHEET INDEX
A0001	Cover Page
A0002	Presentation
A1001	Location Plan
A1002	Site Plan
A1501	Floor Plan
A1511	Wall Framing Plan
A2001	Elevations
A2501	Section A-A
A2502	Section B-B



Pt LOT 3 DP 55229
269E OPITO BAY ROAD OPITO BAY KERIKERI
NORTHLAND

CLIENT CONCEPT APPROVAL

CONCEPT PLAN APPROVED BY CLIENT TO PROCEED TO DETAILED DESIGN.

DATE: _____

SIGNED:_____

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Arcline Architecture

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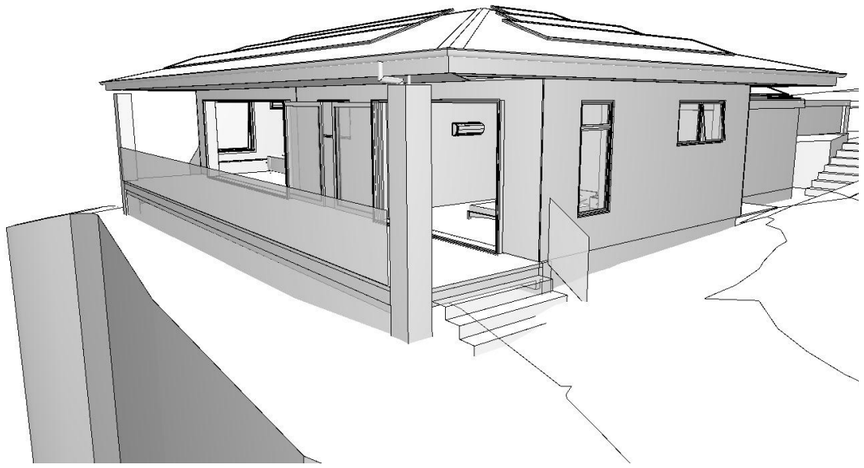

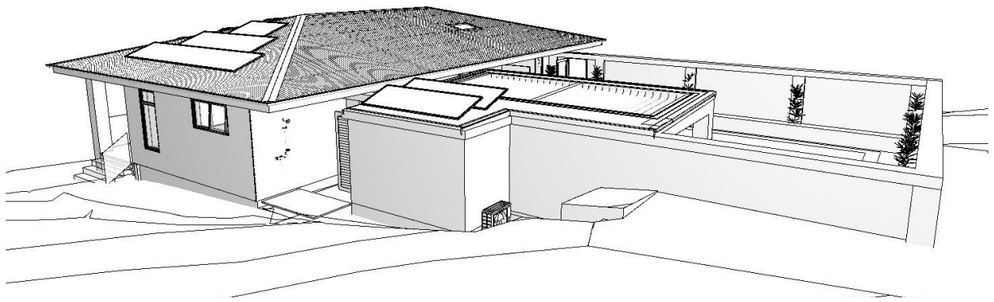

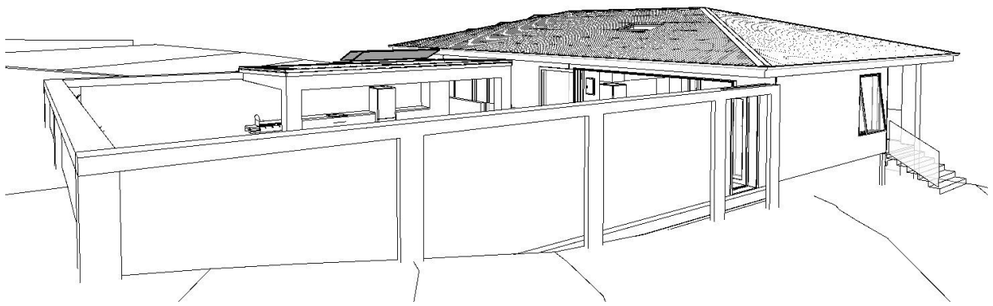

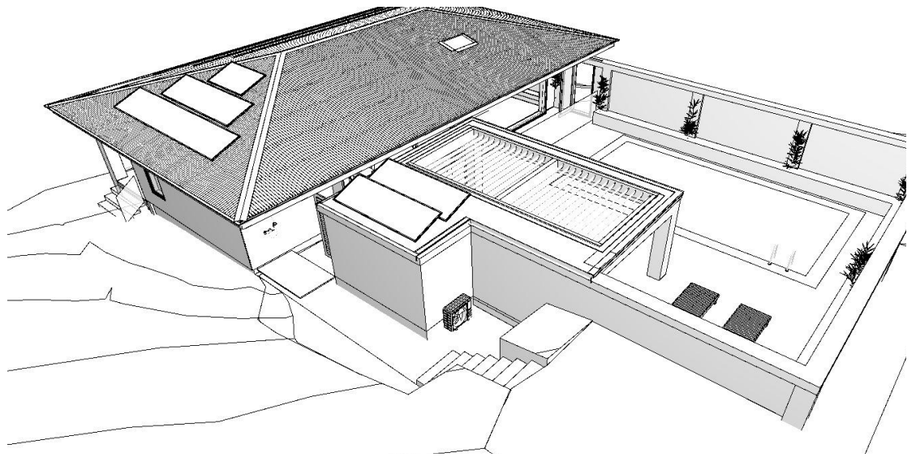

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Presentation

PETER & JOAN HONEYFIELD

269E OPITO BAY ROAD OPITO BAY,
KERIKERI
NORTHLAND

Rev No.	Revision	Date

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3:46 pm

Honeyfield Pool House 24.pln

Sheet No:

A0002

RC SET

SITE PLAN NOTES:

SITE DESCRIPTION

LOT NUMBER:	Pt LOT 3
DP NUMBER:	DP 55229
ADDRESS:	269E OPITO BAY ROAD OPITO BAY KERIKERI NORTHLAND

SITE ENVIRONMENT

CLIMATE ZONE	1
EARTHQUAKE ZONE	ZONE 1
EXPOSURE ZONE	ZONE D
LEE ZONE	NO
WIND ZONE	VERY HIGH
WIND REGION	A
RAINFALL RANGE	102mm/hr
SNOW ZONE	N0

DISTRICT PLAN COMPLIANCE

PLANNING ZONE	GENERAL COASTAL
SITE AREA	13.8112Ha

VISUAL AMENITY

MAX. FLOOR AREA PERMITTED:	25m²
PROPOSED	90m² **DOES NOT COMPLY**

BUILDING HEIGHT

MAX. HEIGHT PERMITTED	8.0m
PROPOSED HEIGHT	5.2m COMPLIES
HIRB	2.0m/45° COMPLIES

SETBACK TO BOUNDARIES

10m SETBACK	COMPLIES

SETBACK TO BUSH

GREATER THAN 20m?	NO **DOES NOT COMPLY**

STORMWATER MANAGEMENT

SITE AREA	13.8112Ha
TOTAL AREA PERMITTED	10% 13811m²
PROPOSED HOUSE ROOF AREA	213m²
PROPOSED PAVING	120m²
PROPOSED DRIVE APPROX	500m²
EXISTING HOUSE APPROX	340m²
EXISTING PAVING APPROX	100m²
EXISTING SHED APPROX	100m²
EXISTING TENNIS COURT APPROX	530m²
EXISTING DRIVE APPROX	900m²
TOTAL PROPOSED	2803m² 2.0% COMPLIES

EARTHWORKS:

VOLUME PERMITTED	300m² MAX EARTHWORKS
CUT - REMOVED FROM SITE	140m³
FILL	5m³
GROSS CUT/FILL (EST):	145m³ COMPLIES

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Location Plan

PETER & JOAN HONEYFIELD

269E OPITO BAY ROAD OPITO BAY,
KERIKERI
NORTHLAND

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Honeyfield Pool House 24.pln

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A1001
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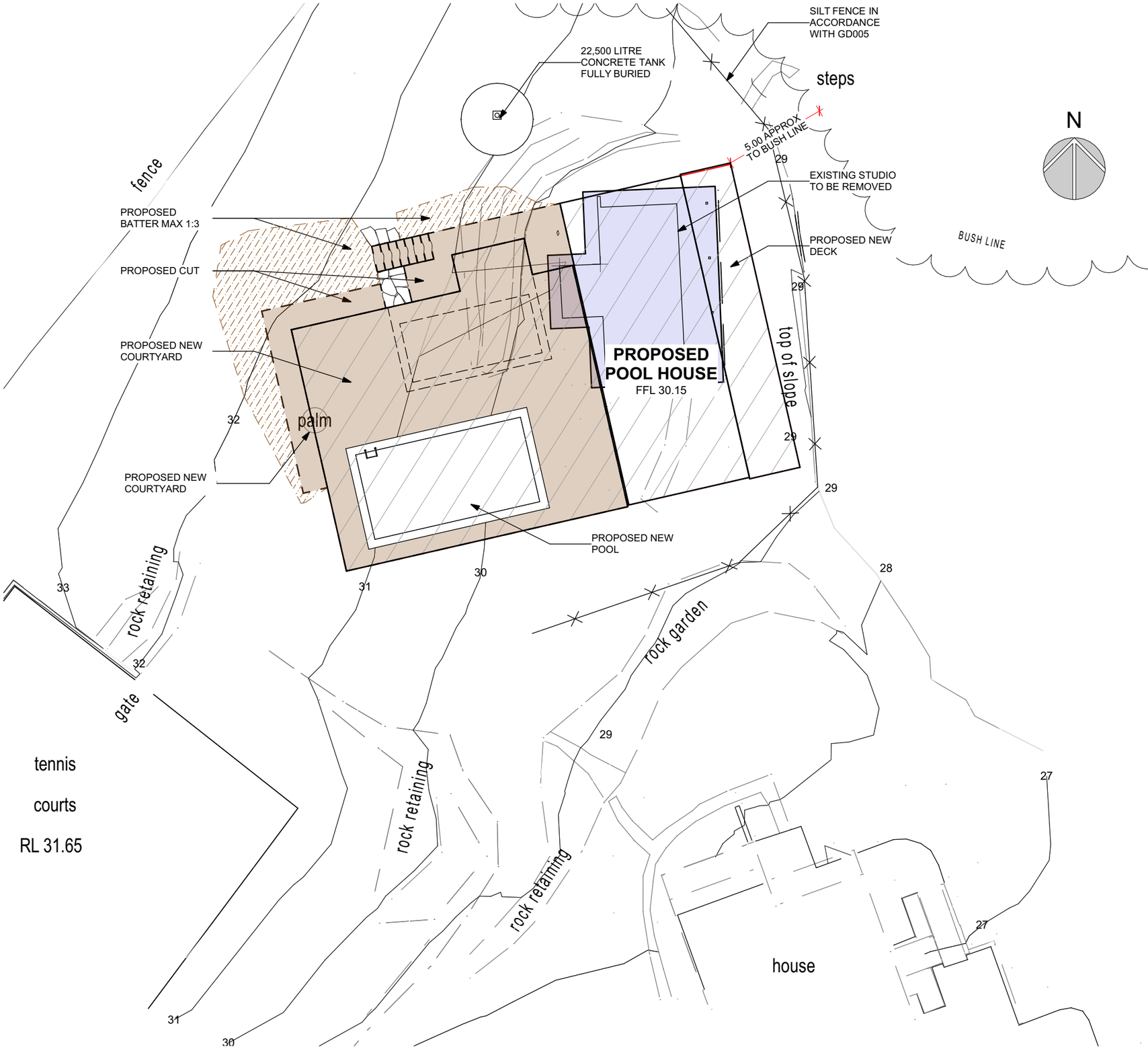

SITE PLAN NOTES:

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DP NUMBER:	DP 55229
ADDRESS:	269E OPITO BAY ROAD OPITO BAY KERIKERI NORTHLAND

SITE ENVIRONMENT

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EXPOSURE ZONE	ZONE D
LEE ZONE	NO
WIND ZONE	VERY HIGH
WIND REGION	A
RAINFALL RANGE	102mm/hr
SNOW ZONE	N0

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MAX. HEIGHT PERMITTED	8.0m
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HIRB	2.0m/45° COMPLIES

SETBACK TO BOUNDARIES

10m SETBACK	COMPLIES

SETBACK TO BUSH

GREATER THAN 20m?	NO **DOES NOT COMPLY**

STORMWATER MANAGEMENT

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EARTHWORKS:

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CUT - REMOVED FROM SITE	140m³
FILL	5m³
GROSS CUT/FILL (EST):	145m³ COMPLIES

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Site Plan

PETER & JOAN HONEYFIELD

269E OPITO BAY ROAD OPITO BAY,
KERIKERI
NORTHLAND

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Honeyfield Pool House 24.pln

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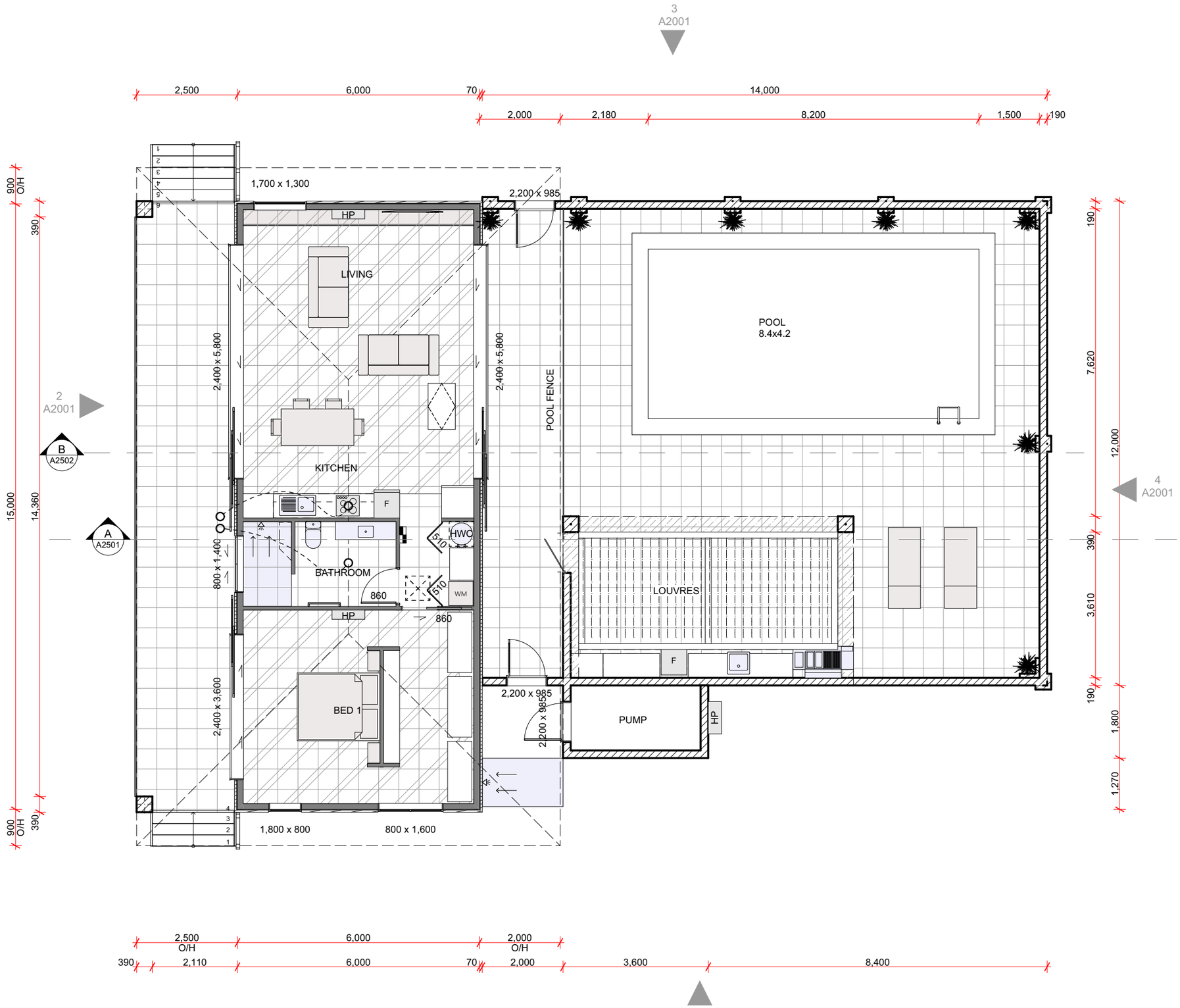

FLOOR AREAS

HABITABLE FLOOR AREA:	90.00 m²
COURTYARD AREA:	174.48 m²
DECK AREAS:	42.61m²
TOTAL FLOOR AREA:	**307.09m²**

INTERIOR LININGS / TRIMS

WALL LININGS
10mm GIB.
9mm VILLABOARD TO TILED WALLS

INTERNAL DOORS
2.4m TYPICAL INTERNAL DOOR HEIGHT.

TRIMS
60x10 FJ PINE, SINGLE BEVEL SKIRTING.
SQUARE STOP (40x18 IN CUPBOARDS) SCOTIA.

KEY:

- RAKING CEILING
- CEILING HATCH
- WARDROBE
- SMART METER BOX
- FLOORING: TILE
- INSULATION TO INTERNAL WALLS
- MECHANICAL VENT DUCTED TO EXTERIOR
- EXTERIOR WATER TAP

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Floor Plan

PETER & JOAN HONEYFIELD

269E OPITO BAY ROAD OPITO BAY,
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NORTHLAND

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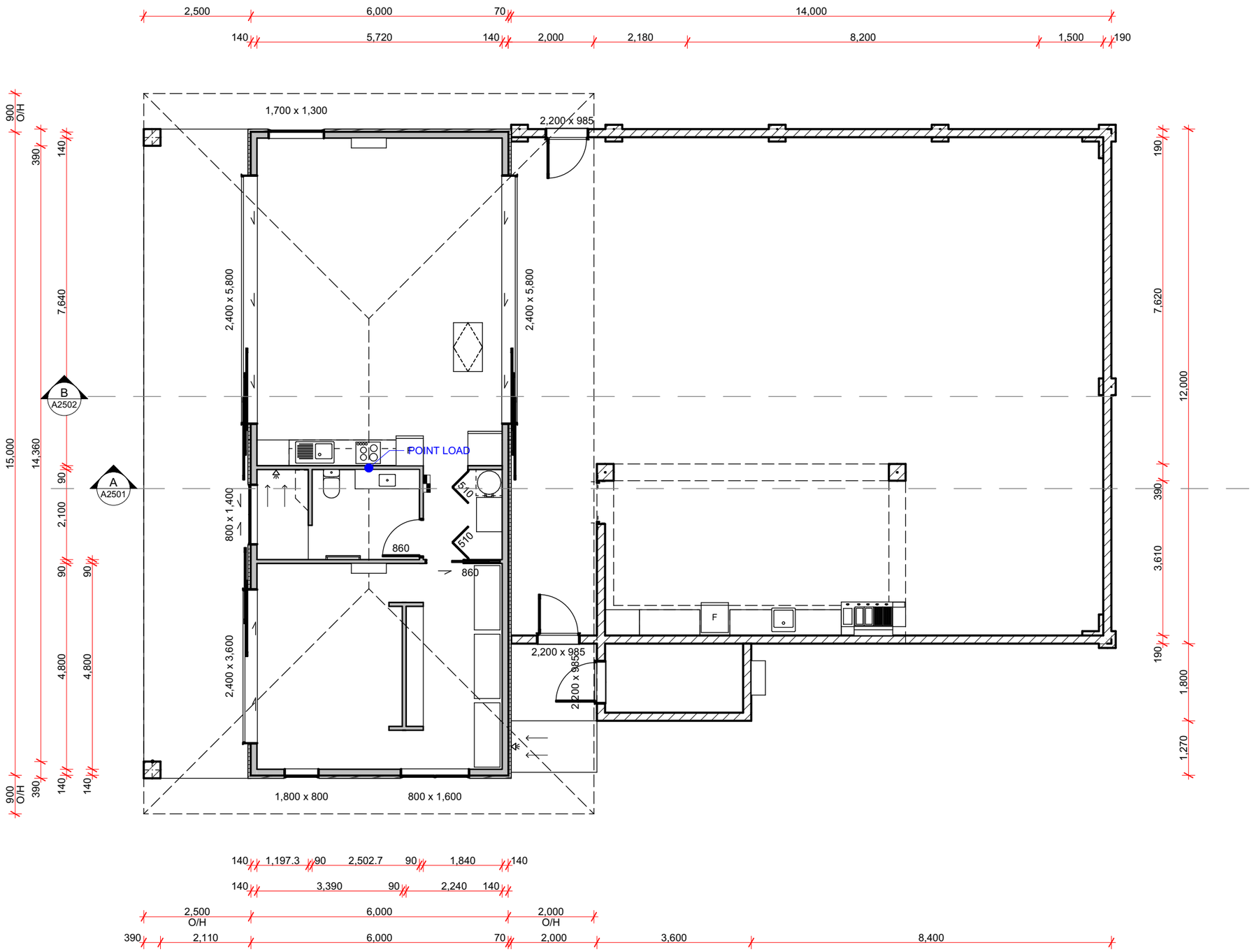
WALL FRAMING PLAN NOTES



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Wall Framing Plan

PETER & JOAN HONEYFIELD

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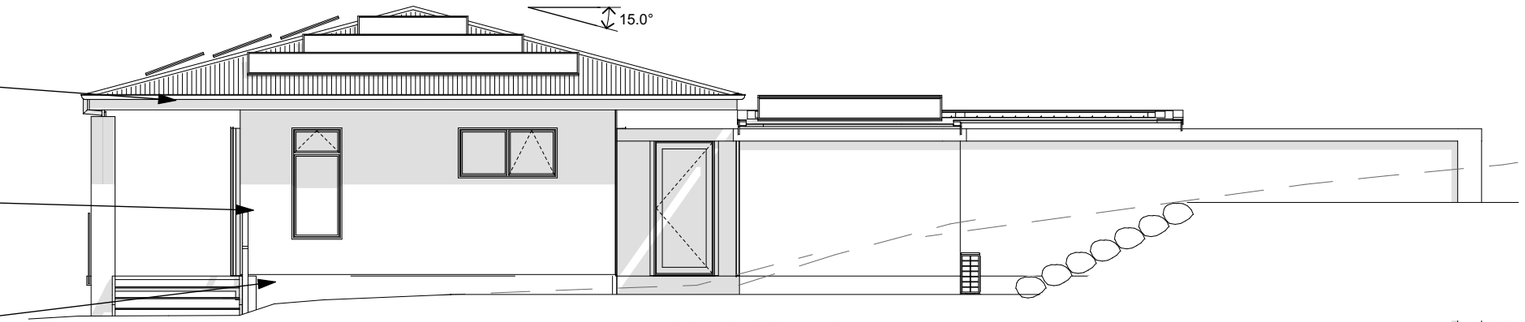
Sheet No:
A1511
RC SET

BUILDING ENVELOPE RISK MATRIX		
All Elevations		
Risk Factor	**Risk Severity**	**Risk Score**
Wind zone (per NZS 3604)	Very high risk	2
Number of storeys	Low risk	0
Roof/wall intersection design	Low risk	0
Eaves width	Low	0
Envelope complexity	Low	0
Deck design	Low	0
Total Risk Score:		**2**

6.0mm VILLABOARD SOFFIT LINING WITH STOPPED JOINTS, INSTALL TO MANUFACTURERS RECOMMENDATIONS

EZPANEL CLADDING INSTALLED AS PER MANUFACTURERS SPECIFICATIONS ON 20mm CAVITY SYSTEM - CAVITY TREATMENT TO COMPLY WITH B2.

RAFT SLAB AS PER ENGINEERS DESIGN AND DETAILS.



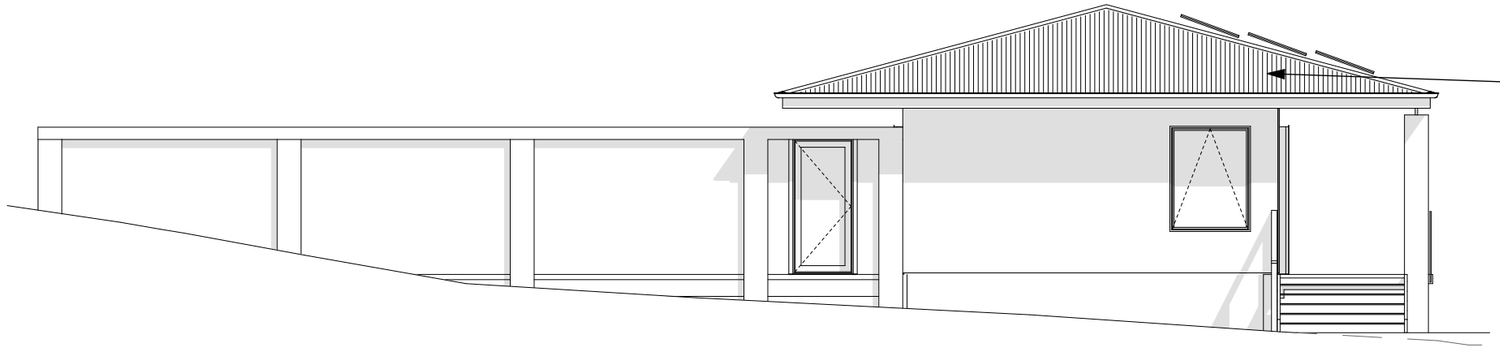
1 North Elevation 1:100

R0.37?? DOUBLE GLAZED POWDER COATED ALUMINIUM JOINERY.
2,415 WINDOW HEAD HEIGHT TYPICAL

1.0m HIGH GLASS BALUSTRADE IF REQUIRED

100x25 H3.2 HORIZONTAL BASE BOARDS WITH 25mm GAP

2 East Elevation 1:100

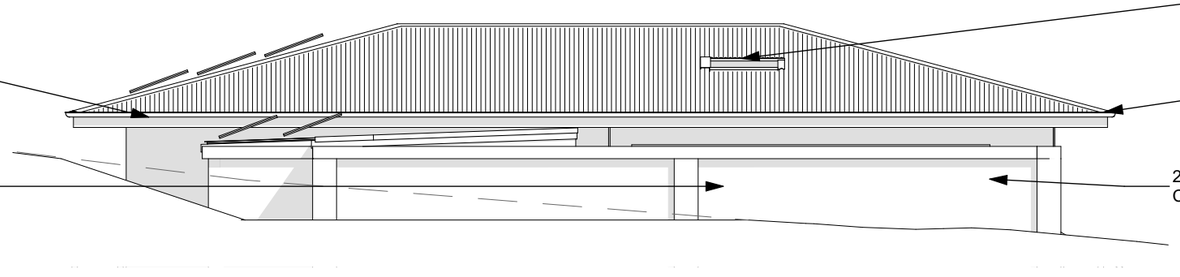


COLORSTEEL MAXX. 0.40G CORRUGATE.
SCREW FIXED WITH PROFILED WASHERS WITH EPDM SEALING WASHER
AS PER ROOFING MANUFACTURERS SPECIFICATIONS
0.55 COLORSTEEL MAXX EDGE FLASHINGS, COLOUR TO MATCH ROOFING

3 South Elevation 1:100

FASCIA TYPICAL
Ex 250X40 H3.1 FASCIA BOARD

20 BLOCK MASONRY COURTYARD WALL



VELUX SKYLIGHT
700X1140

CONTINIOUS COLORSTEEL GUTTER
?? PROFILE

20 BLOCK MASONRY COURTYARD WALL

4 West Elevation 1:100

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Elevations

PETER & JOAN HONEYFIELD

269E OPITO BAY ROAD OPITO BAY,
KERIKERI
NORTHLAND

Rev No.	Revision	Date

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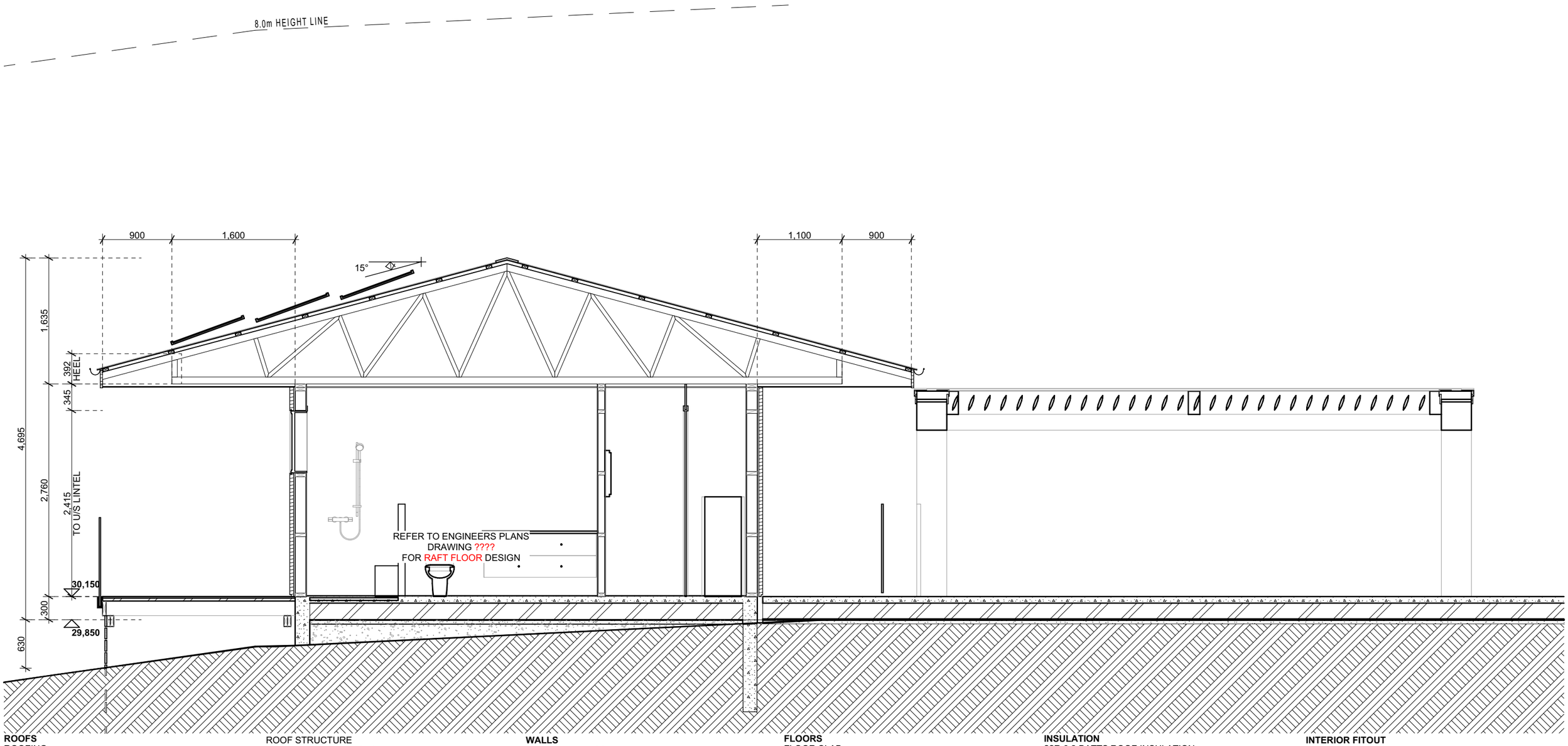

ROOFS
ROOFING
COLORSTEEL MAXX. 0.40G CORRUGATE.
SCREW FIXED WITH PROFILED WASHERS WITH EPDM SEALING WASHER
AS PER ROOFING MANUFACTURERS SPECIFICATIONS
0.55 COLORSTEEL MAXX EDGE FLASHINGS, COLOUR TO MATCH ROOFING
MEMBRANE ROOFING

ROOF UNDERLAY
BAYONET BAYOWRAP FLAMESPEC 05 ROOF UNDERLAY LAID HORIZONTALLY (OVER GALV MESH TO 3° ROOF ONLY).
PURLINS TYPICAL
70x45 SG8 H1.2 PURLINS AT 900mm CRS.
80mm, 10g SCREW FIXING (BLUE SCREW)
SKYLIGHTS
VELUX SKYLIGHT
700X1140

ROOF STRUCTURE
CANTILEVERED TRUSES
??RAFTERS
EAVES
EAVE-900mm, 2000mm, 2500mm
GUTTER / ROOF DRAINAGE
COLORSTEEL
CONTINUOUS GUTTER
??QUARTER ROUND
DOWNPIPES
80Ø COLOURED UPVC DOWNPIPES
INSTALL TO MANUFACTURERS' RECOMMENDATIONS
FASCIA
Ex 250X40 H3.1 FASCIA BOARD
SOFFIT LININGS TYPICAL
6.0mm VILLABOARD SOFFIT LINING WITH STOPPED JOINTS, INSTALL TO MANUFACTURERS RECOMMENDATIONS

WALLS
WALL CLADDINGS
EZPANEL CLADDING INSTALLED AS PER MANUFACTURERS SPECIFICATIONS ON
20mm CAVITY SYSTEM - CAVITY TREATMENT TO COMPLY WITH B2.
20 BLOCK MASONRY COURTYARD WALL

ECOPLY RAB BOARD
STUD HEIGHT
2.760m - 3.300m
BOTTOM PLATES
H1.2 BOTTOM PLATES

LININGS
WALL LININGS DWELLING
10mm GIB.
9mm VILLABOARD TO TILED WALLS
CEILING LININGS DWELLING
13mm GIB CEILING TO DWELLING
GIB AQUALINE TO WET AREAS
RAKING CEILINGS
RAKING CEILINGS. TO LIVING AREAS.
CEILING BATTENS
70x35 H1.2 TIMBER CEILING BATTENS @ 600CRS

FLOORS
FLOOR SLAB
RAFT SLAB AS PER ENGINEERS DESIGN AND DETAILS.
FLOOR FINISHES
TILES
WET AREA FLOORING
TILES TO WET AREAS.

JOINERY
R0.37?? DOUBLE GLAZED POWDER COATED ALUMINIUM JOINERY.
2,415 WINDOW HEAD HEIGHT TYPICAL

DECKING
SELECTED TILES ON SILCA SYSTEM GRATES

SUBFLOOR TO DECK
100x25 H3.2 HORIZONTAL BASE BOARDS WITH 25mm GAP
??SUBFLOOR ACCESS DOOR WITH 150mm SS TEE HINGES AND PADBOLT
SS REQUIRED TO SEA SPRAY ZONE

INSULATION
??R 3.2 BATTS ROOF INSULATION
??R2.4 BATTS WALL INSULATION
R2.4 INSULATION TO BE INSTALLED AROUND/BETWEEN BATHROOMS AND BEDROOMS.

SPACE HEATING
HEAT PUMP

SHOWERS
TILED SHOWERS (9mm VILLABOARD)

WATER HEATING
GAS CALIFONT AS SHOWN ON THE ELECTRICAL PLAN.
2X45KG BOTTLES AS SHOWN ON FLOOR PLAN. (WITH SEISMIC RESTRAINTS)

DRIVEWAY FINISH
EXISTING CONCRETE DRIVEWAY

INTERIOR FITOUT
INTERIOR DOORS
2.4m TYPICAL INTERNAL DOOR HEIGHT.
TRIMS
60x10 FJ PINE, SINGLE BEVEL SKIRTING.
60x10 FJ PINE SINGLE BEVEL ARCHITRAVE.
SQUARE STOP (40x18 IN CUPBOARDS) SCOTIA.

CLIENT CONCEPT APPROVAL

CONCEPT PLAN APPROVED BY CLIENT TO PROCEED TO DETAILED DESIGN.

DATE: _____

SIGNED: _____

NOTE: CHANGES TO PLANS ONCE CONCEPT APPROVAL SIGNED ARE LIABLE TO INCUR ADDITIONAL CHARGES.

Arcline Architecture
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Section A-A

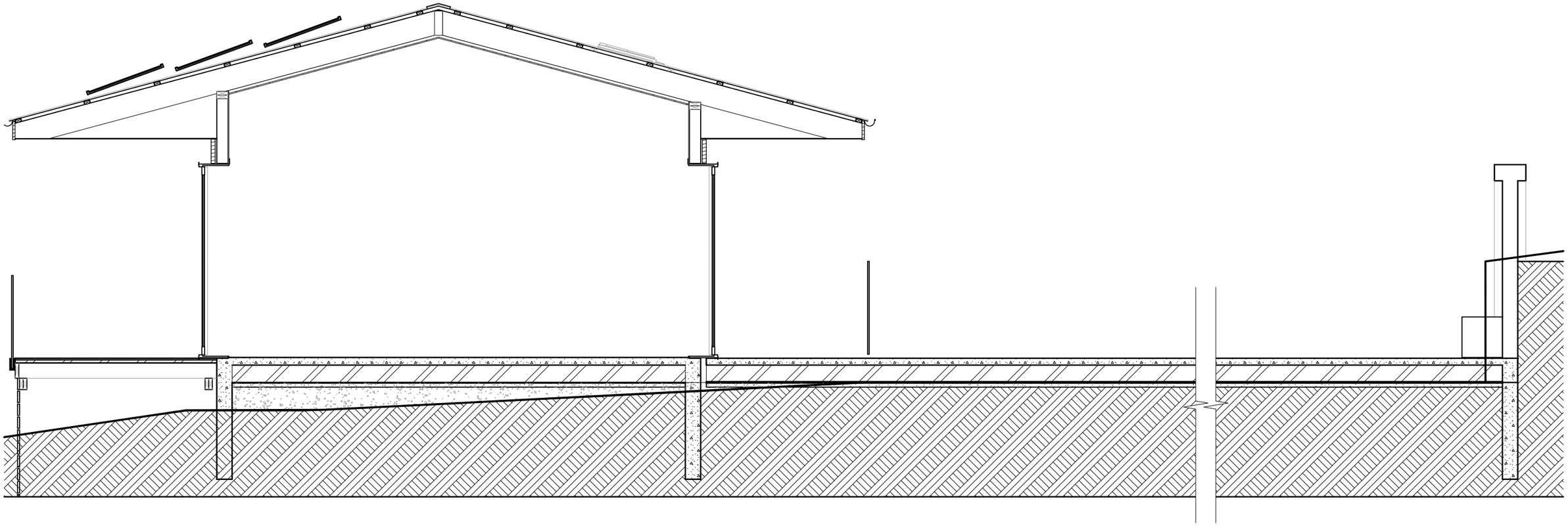
PETER & JOAN HONEYFIELD

269E OPITO BAY ROAD OPITO BAY,
KERIKERI
NORTHLAND

Rev No.	Revision	Date

Scale @ A3: 1:50
Drawn By RH
Issued: 10/07/2024 3:46 pm
Honeyfield Pool House 24.pln

Sheet No:
A2501
RC SET



ROOFS
ROOFING
COLORSTEEL MAXX. 0.40G CORRUGATE.
SCREW FIXED WITH PROFILED WASHERS WITH EPDM SEALING WASHER
AS PER ROOFING MANUFACTURERS SPECIFICATIONS
0.55 COLORSTEEL MAXX EDGE FLASHINGS, COLOUR TO MATCH ROOFING
MEMBRANE ROOFING

ROOF UNDERLAY
BAYONET BAYOWRAP FLAMESPEC 05 ROOF UNDERLAY LAID HORIZONTALLY (OVER GALV MESH TO 3º ROOF ONLY).
PURLINS TYPICAL
70x45 SG8 H1.2 PURLINS AT 900mm CRS.
80mm, 10g SCREW FIXING (BLUE SCREW)
SKYLIGHTS
VELUX SKYLIGHT
700X1140

ROOF STRUCTURE
CANTILEVERED TRUSES
??RAFTERS
EAVES
EAVE-900mm, 2000mm, 2500mm
GUTTER / ROOF DRAINAGE
COLORSTEEL
CONTINUOUS GUTTER
??QUARTER ROUND
DOWNPIPES
80Ø COLOURED UPVC DOWNPIPES
INSTALL TO MANUFACTURERS' RECOMMENDATIONS
FASCIA
Ex 250X40 H3.1 FASCIA BOARD
SOFFIT LININGS TYPICAL
6.0mm VILLABOARD SOFFIT LINING WITH STOPPED JOINTS, INSTALL TO MANUFACTURERS RECOMMENDATIONS

WALLS
WALL CLADDINGS
EZPANEL CLADDING INSTALLED AS PER MANUFACTURERS SPECIFICATIONS ON
20mm CAVITY SYSTEM - CAVITY TREATMENT TO COMPLY WITH B2.
20 BLOCK MASONRY COURTYARD WALL

ECOPLY RAB BOARD
STUD HEIGHT
2.760m - 3.300m
BOTTOM PLATES
H1.2 BOTTOM PLATES

LININGS
WALL LININGS DWELLING
10mm GIB.
9mm VILLABOARD TO TILED WALLS
CEILING LININGS DWELLING
13mm GIB CEILING TO DWELLING
GIB AQUALINE TO WET AREAS
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CLIENT CONCEPT APPROVAL

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Section B-B

PETER & JOAN HONEYFIELD

269E OPITO BAY ROAD OPITO BAY,
KERIKERI
NORTHLAND

Rev No.	Revision	Date

Scale @ A3: 1:50
Drawn By RH
Issued: 10/07/2024
3:46 pm
Honeyfield Pool House 24.pln

Sheet No:
A2502
RC SET

Wilton Joubert Limited
09 527 0196
185 Waipapa Road
Kerikeri 0295

SITE	**269E Opito Bay Road, Kerikeri**
LEGAL DESCRIPTION	**Part Lot 3 DP 55229**
PROJECT	**Proposed Pool House**
CLIENT	**Peter Honeyfield**
REFERENCE NO.	**131797**
DOCUMENT	**Site Specific Geotech Report**
STATUS/REVISION NO.	**FINAL – For Building Consent**
DATE OF ISSUE	**9 February 2024**

Attention	Email
Peter Honeyfield	peter@honeyfield.co.nz

Authored by	N. Ngaropo *BSc (Geology)*	Engineering Geologist	nikora@wjl.co.nz	
Approved by	SJ Woodward *MEng, CMEngNZ, CPEng*	Principal Geotechnical Engineer	simonwoodward@wjl.co.nz	

1 EXECUTIVE SUMMARY

The following table is intended to be a concise summary which must be read in conjunction with the relevant report sections as referenced herein.

Development Type:	Proposed Pool House including pool – Assumed NZS3604:2011 Type Loads
Development Proposals Supplied:	No – Draft Floor Plans and Sketch only.
NZS3604 Type Structure/s:	Yes
Geology Encountered:	Waipapa Group Soils
TOPSOIL/Fill Encountered:	Non-engineered fill was encountered to a depth of 0.7mbgl in HA03, next to the existing minor dwelling and to a depth of 0.6mbgl in HA04, on the crest of the nearby slope below the filled retaining wall. Surficial topsoil was encountered in other boreholes.
Overall Site Gradient in Proximity to Development:	The proposed development is situated on near level to gently sloping ground with steeply sloping terrain dipping north-east. Slope grades within the proposed building platform range from 0-8° before dropping off downslope with grades ranging between 20°-43°. The toe of the slope is approximately 20-25m below in elevation from the proposed development.
Natural Hazards:	Slope Stability: Overall Low Risk of Global Instability affecting the Building Platform, provided recommendations made in this report are followed. Refer to Section 8.2 Liquefaction: Overall negligible risk of liquefaction susceptibility. Refer to Section 8.3
Suitable Foundation Type(s):	Concrete Slab-On-Grade: - Designed for Class H soils. Pile Footings: - A minimum embedment depth of 0.90m below finished ground level and 0.30m into natural ground, whichever is deeper. Refer to Section 9.1
Shallow Soil Bearing Capacity:	Natural Soils & Engineered Fill Only Geotechnical Ultimate Bearing Capacity = 300 kPa
NZBC B1 Expansive Soil Classification:	Class H – Highly Expansive (y_s = 78mm). Refer report text for design guidance.
NZS1170.5:2004 Site Subsoil Classification:	Class C – Shallow Soil stratigraphy
Earthworks:	Proposed Earthworks: At the time of preparing this report, the proposed Finished Floor Level (FFL) for this structure had not been finalised. The supplied plans and on-site measurements indicate that a 'cut' of up to approximately 2.6m in height will made into the western slope above the building platform, which the client has indicated will be retained by a masonry block wall. Additionally, we anticipate the FFL for the proposed deck to be level with that of the pool house concrete floor. Please refer to text of report for further detail.
Further Geotechnical Review of Development Proposals Required:	Once development proposals are finalised, they should be referred to WJL for review before this report can be used to support a Building Consent application.

2 INTRODUCTION

2.1 SCOPE OF WORK

Wilton Joubert Limited (WJL) was engaged by Peter Honeyfield (the Client) to undertake a geotechnical assessment of ground conditions at the above site, where we understand, it is proposed to:

- Remove an existing minor dwelling positioned to the north of the existing principal dwelling and construct a new pool and pool house collectively extending beyond the previous building footprint but in an unconfirmed configuration.

For the purpose of this report, we have assumed that the development will comprise a lightweight structure designed and constructed generally in keeping with the requirements of NZS3604:2011.

2.2 SUPPLIED INFORMATION

Our assessment is based on email correspondence and information provided by the:

- Digital Sketch indicating the proposed building location.
- Draft Floor Plan sketch indicating proposed building dimensions.

Once development proposals are finalised, they should be referred to WJL for review to confirm compatibility with the assumptions applied in this report before it is submitted to Council to support a Building Consent application.

3 SITE DESCRIPTION

The overall property (legally described as Part Lot 3 DP 55229 encompassing an area of ~13.8ha), containing the subject building site is located at 269E Opito Bay Road, Kerikeri, and is currently accessed at approximately mid-length of the western boundary, from a privately shared roadway off the northern side of Opito Bay Road.

The site is shown on the appended Site Plan (ref: 131797-G600) and in Figures 1-3 below.

Figure 1 – Aerial view from Far North District Council's (FNDC) on-line GIS Maps. Subject property highlighted in cyan. North is up the page.

In broad terms, the development is situated on near level to gently sloping ground containing an existing minor dwelling located above steeply sloping terrain falling directly below to the north-east as indicated in figure 2 and 3 below.

Figure 2: Screenshot of WJL Site Plan (Drawing No. 131208-G600). Contours at 1.0m Intervals.

Figure 3: Drone Photo – Facing Northwest towards the Proposed Development.

More specifically, slope grades within the proposed building platform range from 0-8° before dropping off downslope at grades ranging between 20°-43°. The toe of the slope is approximately 20-25m below in elevation from the proposed development with the eastern boundary of the property located approximately halfway between. Refer Figure 4.

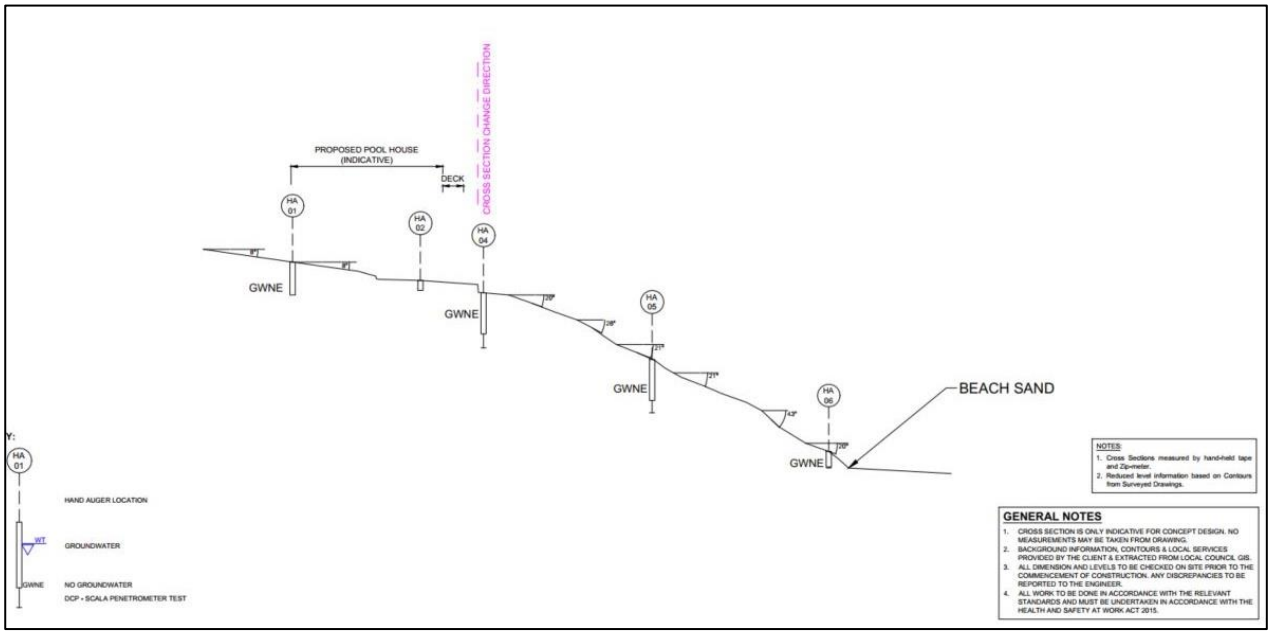

Figure 4: Screenshot of WJL Cross-Section (Drawing No. 131208-G610).

An existing timber retaining wall, approximately 1.0m high, has been erected directly in front of the minor dwelling at the crest of the slope, with the sole purpose of providing a flat front lawn. It is noted, however, that the timber wall is leaning out of the slope at an angle of ~2° implying that the pile embedment's into good natural ground are inadequate. Some obvious cracks within the backfilled/push-over material were observed from above and below the wall. Refer Figure 5.

Figure 5: Site Photos – Existing Retaining Wall with obvious Cracking Observed On-Site.

Apart from the cracking, there were no signs of soil creep and/or hummocky ground apparent within the immediate vicinity of the subject building site during our on-site investigation.

Land use of the surrounding properties is similar with neighbouring coastal residential lifestyle blocks/developments and farmland properties as well.

The FNDC on-line GIS Water Services Map indicates that reticulated potable water, wastewater, and stormwater service connections are not available to the property.

4 DEVELOPMENT PROPOSALS

At the time of preparing this report, the client has supplied the following documentation:

- Digital Sketch indicating proposed building location.
- Draft Floor Plan sketch with proposed building dimensions.

Based on our review of the supplied sketches and verbal advice, we understand that the client proposes to:

- Remove an existing minor dwelling positioned to the north of the existing dwelling and construct a new pool house extending beyond the previous building footprint in a configuration confirmed on final drawings.

The ~215m² pool house is assumed to comprise of lightweight timber framing, cladding and roofing generally commensurate with the loadings of NZS3604:2011, and proposed to be founded on slab-on-grade with an in-ground pool. Additionally, the client has indicated that a masonry block retaining wall, approximately 2.6m high, will be erected along the upslope western perimeter of the building footprint.

Extending beyond the building footprint along the leading edge, a 35m² deck is proposed to be founded on concreted tanalised piles.

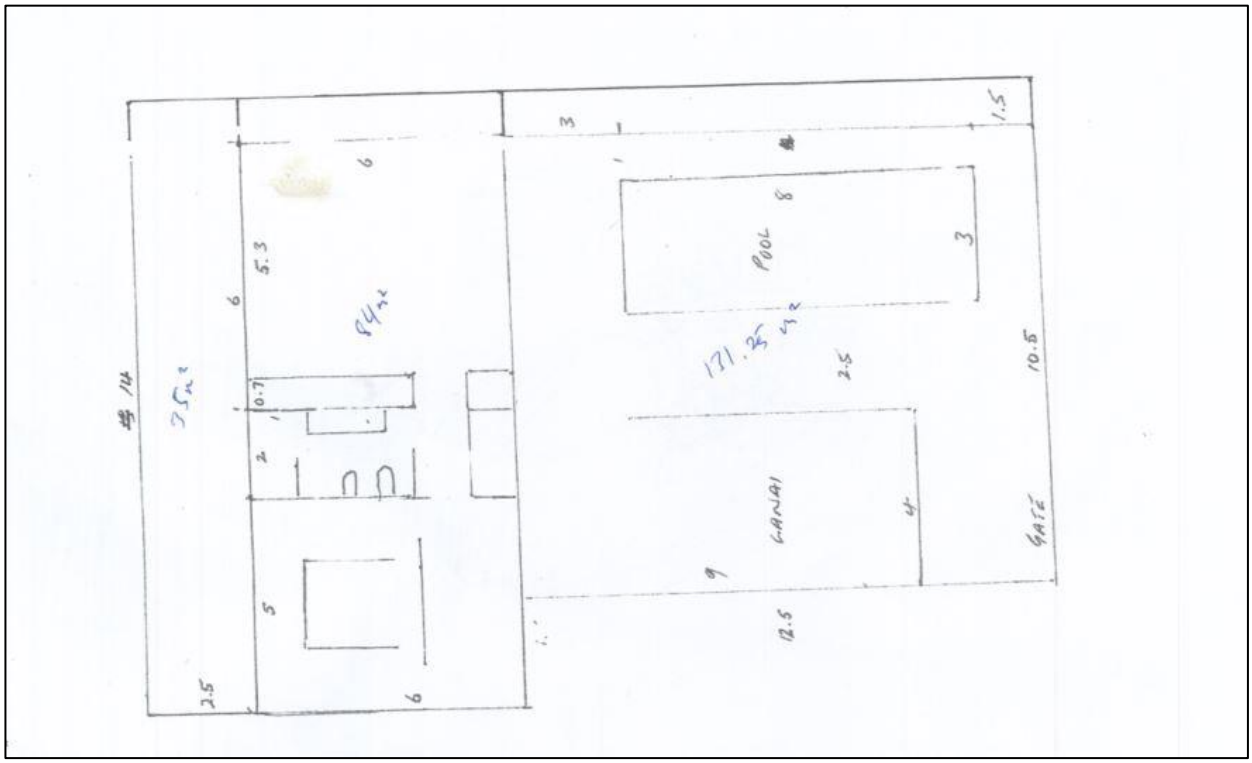

Figure 6: Screenshot of the Draft Floor Plan Provided by Client.

At the time of preparing this report, the proposed FFL for this structure has not yet been finalised. The supplied floor plan and on-site measurements indicate that a 'cut' of up to approximately 2.6m in height will be made into the western slope above the building platform, which the client has indicated will be retained by a masonry block wall. Additionally, we anticipate the FFL for the proposed deck to be more or less level with that of the pool house concrete floor.

The principal objectives were to investigate and assess the suitability of potential foundation options for the site subsoils, not only primarily in terms of bearing capacity, but also for slope stability and differential foundation movement.

5 PUBLISHED GEOLOGY

Local geology across the property and greater surrounding area is noted on the GNS Science New Zealand Geology Web Map, Scale 1:250,000, as; ***Waipapa Group sandstone and siltstone (Waipapa Composite Terrane)***. These deposits are approximately 270 to 154 million years in age and described as; "*Massive to thin bedded, lithic volcaniclastic metasandstone and argillite, with tectonically enclosed basalt, chert and siliceous argillite.*" (refer: GNS Science Website).

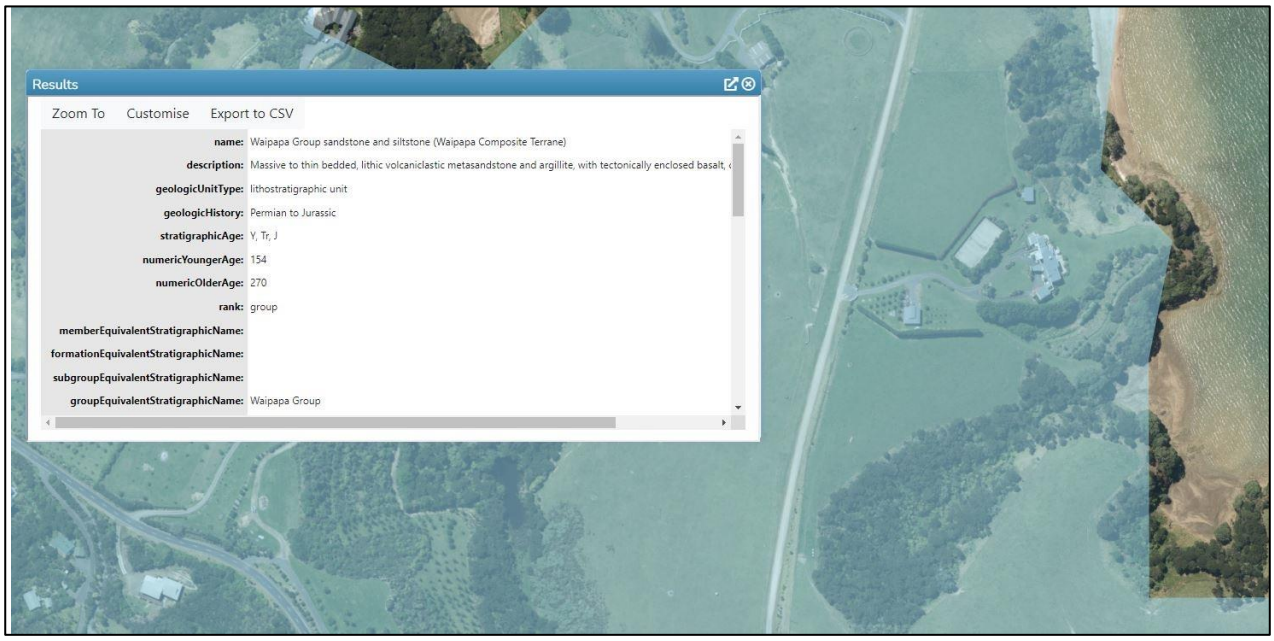

Figure 7: Screenshot from New Zealand Geology Web Map hosted by GNS Science.

6 GEOTECHNICAL INVESTIGATION

WJL carried out a shallow ground investigation on 1 February 2024. Our subsoil testing of the proposed development involved the following:

- Six hand auger boreholes (HA) of 50mm diameter, drilled to a maximum depth of 5.0m below present ground level (bpgl), with HA01-03 being located around the building platform, and HA04, 05 & 06 being distributed down the slope below, and
- Undertaking three DCP-Scala penetrometer tests (DCP) from the base of HAs 04, 05 & 06, to a maximum depth of 6.7m bpgl to better inform the slope stability modelling, and
- The measurement of a single electronic Zip Level and tape cross-section A-A' (ref: 131797-G610) through the proposed development and surrounding slopes above and below.

The approximate locations of the HAs and cross-section are shown on the appended site plan (ref: 131797-G600) and in Figure 2 above.

The soil sample arisings from the boreholes were logged in accordance with the "Field Description of Soil and Rock", NZGS, December 2005. In-situ undrained shear vane tests were measured at intervals of depth and then adjusted in accordance with the New Zealand Geotechnical Society (NZGS); Guidelines for Handheld Shear Vane Testing, August 2001, with strengths classified in accordance with the NZGS Field Classification Guidelines; Table 2.10, December 2005. The materials identified are described in detail on the appended

records, together with the results of the various tests undertaken, plus the groundwater conditions as determined during time on site.

7 GEOTECHNICAL FINDINGS

The following is a summary of the ground conditions encountered in our investigation. Please refer to the appended logs for greater detail.

7.1 FILL/TOPSOIL

Non-engineered fill was encountered to a depth of 0.7mbgl in HA03, next to the existing minor dwelling and to a depth of 0.6mbgl in HA04, on the crest of the nearby slope below the backfilled retaining wall. Natural surficial topsoil was encountered in all other boreholes, to a maximum depth of 0.4m.

7.2 NATURAL GROUND

The underlying natural deposits encountered on-site were consistent with our expectations of Waipapa Group soils. The soils generally comprised of varying plasticity, very stiff silty CLAY and clayey SILT with varying fractions of weakly to strongly cemented clasts.

Measured in-situ, BS1377 adjusted peak shear strengths in the natural soils ranged from 155kPa (31kPa remoulded) to greater than 224kPa, where soil strength was excess of the shear vane capacity and/or UTP (unable to penetrate). Sensitivities to disturbance, were variable with soils generally 'Moderately Sensitive to Sensitive' as determined in Section 2.4.3.2;Table 2.10 of the NZGS guidelines.

Figure 8: Arisings from HA01 (0.0m – 4.0m)

Figure 9: Arisings from HA03 (0.0m – 5.0m)

Figure 10: Arisings from HA06 (0.0m – 1.9m)

7.3 GROUNDWATER

Groundwater was not encountered in any of the boreholes drilled on site.

7.4 DCP -SCALA PENETROMETER TESTING

DCP's carried out from the base of the three slope HA's, with blow counts per 0.10m of ground penetration ranging from 4 to greater than 30 at varying depths throughout the site. These results indicate very dense materials not only at depth but also in early refusal of HA06 located near the toe of the slope.

7.5 SUMMARY TABLE

The following table summarises our inferred stratigraphic profiling.

Table 1: Stratigraphic Summary Table; NE=Not Encountered UTP=Unable to Penetrate

Hole ID	Termination Depth (m)	Depth to Base of Topsoil/FILL (m)	Minimum Peak Vane Shear Strength (kPa) within Natural ground	Maximum Peak Vane Shear Strength (kPa) within Natural ground	Average Peak Vane Shear Strength (kPa) within Natural ground	Groundwater Encountered / Resting Depth (m)
HA01	4.00	0.20	155	217+ / UTP	194 kPa	NE/NE
HA02	1.20	1.20	197+	197+ / UTP	197+	NE/NE
HA03	1.20	0.70m	197+	197+ / UTP	197+	NE/NE
HA04	5.00	0.60m	130	197+ / UTP	166 kPa	NE/NE
HA05	5.00	0.40	208	224+ / UTP	221 kPa	NE/NE
HA06	1.90	0.10	202	217+ / UTP	213 kPa	NE/NE

8 GEOTECHNICAL ASSESSMENT

8.1 SHALLOW SOIL EXPANSIVITY

In this instance, without any laboratory testing and considering the variable nature of the surficial soils, we have adopted a conservative primary classification of Class H (Highly) expansive soils, as defined in clause 7.5.13.1.2 and introduced to NZS3604 by Amendment 19 of NZBC Structure B1/AS1.

- NZBC B1 Expansive Soil Class H
- Upper Limit of Characteristic surface movement (ys) 78mm

Foundation design recommendations are given in the appropriate Conclusions and Recommendations section below.

Given that the soils are not considered to lie within the definition of “good ground” as per NZS3604, the design of shallow foundations are no longer covered by that standard, and care must be taken to mitigate against the potential seasonal shrinkage and swelling effects of expansive foundation soils on both superstructures and floors. We therefore recommend specific engineering design (SED) be undertaken by a qualified engineer for the design of the proposed foundations.

8.2 SITE STABILITY

8.2.1 QUALITATIVE SLOPE STABILITY ASSESSMENT

The proposed development area is situated on near level to gently sloping ground with steeply sloping terrain falling directly below to the north-east. Slope grades within the proposed building platform range from 0-8° before dropping off downslope with grades ranging between 20°-43°. The toe of the slope is approximately 20-25m below in elevation from the proposed development with the eastern boundary of the property located approximately halfway between.

Our assessment also considered the following:

- Very stiff to hard (dense to very dense) soils of the Waipapa Group encountered during our investigations,
- Groundwater was not present within any of the hand auger investigated boreholes,
- The development area is situated on highly elevated terrain with good water-shedding characteristics,
- There are no known active faults traversing through or close to the site,
- No visual signs of natural ground instability were observed at the time of our investigation, and
- The proposed development will be on near level (cut) natural ground.

8.2.2 QUANTITATIVE SLOPE STABILITY ASSESSMENT

Cross Section A-A' was drawn using a combination of tape and Zip-level measurements coupled with publicly available LiDAR contour data to represent the topography of the site and surrounding land, as shown on our appended site plan and cross-section (ref: 131797-G600 and 131797-G610). Where ground inclination could not be measured (due to dense vegetation), contours from Lidar data were implemented to represent the ground profile of those subject areas.

Slope stability analyses were undertaken using computer program Slide 2 by Rocscience Limited. Theoretical circular and non-circular (composite) surfaces were assessed using the Spencer method.

An assumed Uniformly Distributed Load (UDL) of 10kPa was applied to represent the surcharge load of the proposed pool house. Our slope stability modelling has also been based on a fully embedded proprietary pool. Any variations from what has been modelled will need to be re-evaluated for potential adverse effects on the completed modelling.

The stability analyses have been undertaken for existing conditions (moderate groundwater) and worst-case ground conditions (elevated groundwater) and extreme scenarios (seismic loading).

A Peak Ground Acceleration (PGA) value of 0.19g (ULS) was used for the 500-year seismic event with an effective earthquake magnitude of 6.5 as recommended by the New Zealand Geotechnical Society (Earthquake Geotechnical Engineering Practice Module 1, Dated: November 2021).

For our assessments, effective stress parameters were chosen for normal and extreme groundwater conditions based on our experience of the geology and applied to test assumed failure surfaces Undrained soil strength parameters (zero friction angle) were used to model the extreme conditions of a seismic event.

The soil strength parameters used in the stability assessment are shown in the following table:

Table 2: Effective Shear Stress (Shear Strength) Parameters.

Soil Parameters	Non-Engineered Fill	Completely Weathered Waipapa Group Soils	Highly Weathered Waipapa Group Soils	Highly Weathered Waipapa Group Rock
Unit Weight, γ (kN/m³)	18.5	17	18	20
Effective Cohesion c' (kPa)	2	5	10	45
Friction Angle, ϕ' (°)	25	30	32	45
Undrained (zero ϕ') Su	30	60	120	250

We commenced our assessment with a number of sensitivity analyses (not presented here), using more conservative parameters for the soil stratum, and groundwater day-lighting positions which confirmed that the slope is very sensitive to fluctuations in groundwater level near the surficial soil layers, and furthermore, that elevated groundwater (if present) would be the result of rapid infiltration of rainfall (wetting occurs from top down) rather than the unlikely gradual rise in groundwater levels from depth, so we have assumed the following groundwater scenarios:

1. Moderate Groundwater Level. Long-term stability when modelling the existing ground conditions based on an assumed a groundwater depth of approximately 2.5m-4.5m below the building site.

   Factor of Safety (FoS) required >1.5

2. Elevated Groundwater Level. Transient (medium-term) stability when modelling the worst-case scenario based on an assumed raised groundwater depth of approximately 2.0m-2.5m below the building site.

   FoS required >1.3

3. Seismic Loading. Short-term stability when modelling extreme ground conditions under a 500-year seismic event and assuming a moderate groundwater depth of approximately 2.5m-4.5m below the building site.

   FoS required >1.1

A summary of the calculated minimum FoS using the Spencer Method against failure across the proposed development area for each of the above scenarios is shown in the the following table:

Table 3: Stability Analysis Results – Post-Development (Proposed)

Section	Design Conditions	Factor of Safety (FoS) influencing the Proposed Building Platform		Pass / Fail
		Required	Calculated	
A-A'	Moderate Groundwater, plus Surcharge Load	≥1.5	>1.5	Pass
	Elevated Groundwater, plus Surcharge Load	≥1.3	>1.3	Pass
	Moderate Groundwater, plus Surcharge Load, plus Seismic Load	≥1.1	>1.1	Pass

8.2.3 SLOPE STABILITY CONCLUSIONS

The analyses indicate that a satisfactory FoS should be available for the global stability of the site under all conditions, provided that:

- The foundations of the development are not constructed within any existing non-engineered fill material present on-site,
- No additional fill is placed on slopes below the building site without re-evaluating the slope stability model,
- No leakage and/or discharge from any existing stormwater pipes occurs within the fill and/or other areas near the mentioned slope,
- All stormwater run-off and discharge from the new development area is appropriately managed and controlled on-site (refer Section 9.5 below for details), which will further aid in stabilisation of the building site and land downslope, and
- Any future construction on site, not included, or differing from the proposals modelled in this report, should be subject to further geotechnical investigation and comprehensive stability assessment.

8.3 LIQUEFACTION HAZARD ASSESSMENT

Liquefaction is a natural phenomenon where a loss of strength of sand-like soils is experienced following cyclic induced stress, which is typically a result of prolonged seismic shaking and the resultant increase in pore water pressure of saturated soils. Recent examples of this were experienced in Christchurch and the greater Canterbury Region during the Canterbury Earthquake Sequence between 2010-2011.

Cyclic loading during prolonged seismic shaking induces an increase in pore water pressure, which in turn decreases the effective stress of a sand-like deposit of soil. Excess pore water pressure (EPWP) can build to such an extent that the effective stress of the underlying soils is reduced to near zero, whereby the soils no longer carry shear strength and behave as a semi solid/fluid. In such a scenario, excess pore water pressures will follow the path of least resistance to eventual dissipation, which can lead to the manifestation of liquefied soils towards the surface, or laterally towards a free-face (edge of slope, riverbank, etc.) or layers that have not yet undergone liquefaction.

A screening procedure based on geological criteria was adopted to examine whether the proposed development might be susceptible to liquefaction, with observations as follows:

- There are no known active faults traversing through the site,
- There is no historical evidence of liquefaction at this location,
- The site is situated on an elevated location with good water-shedding characteristics,
- The absence of shallow groundwater within investigated depths,
- Very stiff in-situ measured Vane Shear Strength readings recorded during our investigation,
- The underlying natural soil deposits generally comprise very stiff cohesive soils which are not generally considered susceptible to liquefaction, and last but most significantly,
- The subsoils within the building platform are Waipapa Group soils being ~154-270 million years of age, allowing for adequate consolidation in comparison to Holocene age material (10,000 years). This also corroborates with the high Vane Shear Strengths and DCP Test results recorded during our investigation.

Furthermore, the FNDC GIS maps show an "Unlikely" Liquefaction Vulnerability classification for this site.

Figure 11 – Screenshot of the FNDC GIS Liquefaction Vulnerability Map. Dark blue circle depicts proposed development area.

Based on the above, we conclude that the soils at the development site have a negligible risk of liquefaction susceptibility and liquefaction damage is therefore considered to be unlikely.

9 CONCLUSIONS AND RECOMMENDATIONS

On the basis of the above analyses, we consider that the risk of moderate to deep-seated slope instability impacting on the proposed development to be satisfactorily low, provided all recommendations contained within our report are implemented in design and construction.

With regard to the Building Act 2004; Sections 71-72, we believe on reasonable grounds that:

i. The current proposed site development and associated building work within the relayed building platform should not accelerate, worsen, or result in slippage or subsidence on the land on which the building work is to be carried out or any other property; and

ii. The land beneath the building footprint and surrounding immediate amenity areas of the relayed building platform is neither subject nor likely to be subject to slippage or subsidence, provided

the development is undertaken in accordance with the recommendations and guidance of this report.

9.1 FOUNDATION DESIGN

9.1.1 SHALLOW FOUNDATION BEARING CAPACITY

The following bearing capacity values are considered to be appropriate for the design of shallow foundations for the proposed pool house and deck, subject to founding directly on or within competent natural ground and/or engineered hardfill, for which careful Geo-Professional inspections of the subgrade should be undertaken to check that underlying ground conditions are in keeping with our expectations:

Geotechnical Ultimate Bearing Capacity	300 kPa
ULS Dependable Bearing Capacity (Φ=0.5)	150 kPa

When finalising development proposals, it should be checked that all foundations lie outside 45° envelopes rising up from:

- 0.50m below the invert of service trenches and/or
- the toe of adjacent retaining walls,

unless such foundation details are found by SED to be satisfactory. Deeper foundation embedment with piles may be required for any surcharging foundations.

During inspections, it is important to exercise caution to verify that the natural ground meets the recommended bearing capacity mentioned in this report. This is crucial for preserving stability and structural integrity.

9.1.2 SHALLOW FOUNDATIONS ON EXPANSIVE SOILS

As described earlier in this report, we have estimated the classification of the soils:

- NZBC B1 Expansive Soil Class H
- Upper Limit of Characteristic surface movement (ys) 78mm

For a shallow foundation, possessing sufficient lateral stability is crucial. Adequate lateral stability is essential to protect the foundation's integrity and prevent any potential damage to the structure and adjacent elements. It is also essential to ensure that the load from a foundation does not impose any additional stress or load on the surrounding features.

Soil expansiveness can be mitigated for foundations as follows:

- Concrete Slab-On-Grade:
  - Designed for Class H soils.

- Pile foundations:
  - A minimum embedment depth of 0.90m below finished ground level and 0.30m into natural ground, whichever is deeper.

9.1.3 RETAINING WALL DESIGN AND CONSTRUCTION

An approximate 2.6m high masonry block retaining wall is proposed along the upslope western perimeter of the building footprint. For the design of stiff, inflexible retaining walls, which are unable to deflect sufficiently to generate active earth pressures (i.e. concrete and/or masonry retaining walls supporting building loads and/or driveways/car-parking areas), we recommend calculating coefficients of at-rest lateral earth pressure (Ko).

We further anticipate that the critical design case will be for the provision of adequate sliding resistance, and we recommend assuming the following soils parameters for retaining wall design: (Table 4)

Table 4: Soil Parameters for Retaining Wall Design

Soil Parameters	Weathered Waipapa Group Soils
Unit Weight, γ (kN/m3)	18.5
Friction Angle, ϕ' (°)	30
Peak Undrained Shear Strength (Su) (kPa)	120
Residual Undrained Shear Strength (Su) (kPa)	45

To the above figures, please apply an appropriate strength reduction factor for satisfying Ultimate Limit State conditions.

Furthermore, the above figures make no allowances for any surcharges, be they ground slopes and/or applied loads, and hence, all retaining wall designs should also accommodate all anticipated upslope surcharges, and in a converse manner, reduced toe support by existing or proposed excavations and/or slopes must be taken into consideration.

To avoid build-up of hydrostatic pressures, retaining walls must be constructed with appropriate behind-wall drainage comprising:

- A perforated drain coil wrapped in filter sock, located at the base of the walls, connected into an approved stormwater disposal system,
- Followed by backfilling behind all retaining walls with lightly tamped, free draining granular backfill, such as scoria or 40/20 blue chip, extending up to within 0.3m of their full height with material, before being sealed with a clay cap.

If earthworks construction is to be undertaken during wet conditions, a prudent construction methodology should be adopted for the masonry block retaining wall and implemented into the planning of the earthworks to maintain stability of the site. The wall construction must be fast-tracked, protected from the weather, and staged so that instability of temporary cut faces is prevented/mitigated.

9.2 NZS1170.5:2004 SITE SUBSOIL CLASSIFICATION

We consider the proposed building to be underlain with a Class C – Shallow Soil stratigraphy.

9.3 SITE PREPARATION & EARTHWORKS

At the time of preparing this report, the proposed FFL for this structure had not yet been finalised. The supplied floor plan and on-site measurements indicate that a 'cut' of up to approximately 2.6m in height will be made into the western slope above the building platform, which the client has indicated will be retained by a masonry block wall. Additionally, we anticipate the FFL for the proposed deck to be approximately level with that of the pool house concrete floor.

All earthworks should be undertaken in accordance with the following standards:

- NZS4431:2022 "Engineered fill construction for lightweight structures",
- Section 2 "Earthworks & Geotechnical Requirements" of NZS4404:2010 "Land Development and Subdivision Infrastructure" &
- Chapter 2 "Site Development Suitability (Geotechnical and Natural Hazards" of the Far North District Council Engineering Standards, (Version 0.6 issued May 2023).

9.3.1 SITE CLEARANCE & PREPARATION

Competency of the exposed subgrade underlying all future foundations and structures should be confirmed by a Geo-Professional. In this regard, we recommend the stripping of all vegetation, topsoil as well as any non-engineered fill deposits prior to requesting Geo-Professional inspection/s of the stripped ground to confirm that the underlying natural subgrade conditions are in keeping with the expectations of this report.

Without such inspections being undertaken, a Chartered Professional Geotechnical Engineer is unable to issue a Producer Statement - PS4 – Design Review which could result in the failure to meet Building Consent requirements as set by Council as conditions of consent.

Additionally, it is recommended that topsoil be stripped first from any areas beyond the cut platform prior to the placement of landscaping fill.

9.3.2 TEMPORARY & LONG-TERM EARTHWORK BATTERS

We recommend that the approximate 2.6m deep cut above the proposed building platform, as well as any other earthworks herein, not be undertaken during periods of heavy rainfall and instead, should only be undertaken during periods of prolonged forecasted dry weather, until such time that the cut is adequately supported. The wall must also be constructed promptly following cutting excavations.

For the 'non-specific' design of cut slope batters, where 'n' = cut height not exceeding 3.0m, we recommend batter slope configurations as follows:

Unsupported cut slopes	Cut clearance from structures and boundaries (m)	Slope 1V:
Temporary	n	0.25nH
Long term	n	nH

During times of inclement weather, the earthworks site should be shaped to assist in stormwater run-off. Any batter excavations should be protected with either polythene, or a geotextile fabric with the toe of the excavations shaped so as to avoid ponded water, as saturating site soils could result in a reduction of bearing capacities.

Temporary stormwater diversion must be constructed around the upslope perimeter of bulk excavations to direct overland flows away from excavations. This could take the form of a soil bund or other measures as deemed appropriate by the supervising Geo-Professional.

Unsupported temporary cuts can induce slippage of the ground above, especially where heavy construction plant is present close to the edge of the cut. We recommend intensive monitoring of the site by a Geotechnical Engineer or a similarly qualified professional where temporary unsupported cuts are present.

It is our understanding that all proposed fills are to be confined. If this assumption changes, WJL must be contacted prior to the finalisation of development drawings and commencement of construction works.

Finally, all exposed batters should be covered with topsoil or geotextile before being re-grassed and/or planted as soon as practicable to aid in stabilising the slopes.

The structural designer and building contractor should ensure that a satisfactory FoS against ground instability is available at all stages of the development.

9.4 CUT/FILL LIMITATIONS

Non-engineered fills should be considered as being outside the constraints of NZS3604, and hence should not be relied on for the support of development loads. It is also imperative that no further filling be undertaken on any of the slopes below the proposed development as they may, in certain circumstances, disturb existing stability conditions such as by overloading slopes and/or retaining walls, or inducing consolidation settlements of adjacent structures.

In a like fashion, cuts that could remove the support from slopes and/or adjacent structures (be they existing or future proposed), should also be restricted unless specifically reviewed and approved. We believe the cut platform for the proposed development should not have an adverse impact on the global stability of the site.

9.4.1 SUBGRADE PROTECTION

The subgrade, where exposed, should not be exposed for any prolonged period but should be covered with a 100mm thick layer of granular fill such as GAP40 basecourse, as soon as possible.

Likewise, pile/pier inverts should be poured as soon as possible once inspected by a Geo-Professional or covered with a protective layer of site concrete.

If subgrade degradation occurs by:

- Excessive drying out resulting in desiccation shrinkage cracking, it will be necessary to either re-hydrate the subgrade or undercut the degraded material and replace with compacted hardfill, or
- Excessive subgrade softening after a period of wet weather resulting in weakened soils, it will be necessary to undercut the degraded material and replace with compacted hardfill.

9.4.2 HARDFILL COMPACTION REQUIREMENTS

Imported hardfill (GAP 40 recommended or Granular Base complying with NZS3604, cl7.5.3) compacted in accordance with NZS:4431 should be utilised for all fills beneath the building footprint, which should extend a minimum of 1.0m beyond the edge of any raft slab foundation system.

The compaction of the hardfill should be undertaken using either a heavy plate compactor or a steel wheeled roller with low frequency dynamic compaction. Hardfill layers should not exceed 0.20m (loose) at a time.

We recommend achieving the following compacted target values, with equivalence testing using either a Clegg Impact Hammer or DCP-Scala Penetrometer:

Foundation Support Type	CBR	Equivalent Clegg Impact Value (CIV)	Equivalent DCP-Scala Penetrometer Blows
Foundation Footings & Beams (Over a depth of no less than twice the foundation width)	≥ 10%	Minimum 15 Average 18	≥5 blows/100mm. (NZS3604)
Floor Slabs	≥ 7%	Minimum 12 Average 15	≥3.5 blows/100mm (NZS3604)

Table 5: Hardfill Compaction Specifications

All exposed soils should be re-grassed and / or planted as soon as practicable to aid in reducing the risk of erosion.

9.4.3 GENERAL SITE WORKS

We stress that any and all works should be undertaken in a careful and safe manner so that Health & Safety is not compromised, and that suitable Erosion & Sediment control measures should be put in place. Any stockpiles placed should be done so in an appropriate manner so that land stability and/or adjacent structures are not compromised.

Furthermore:

- All works must be undertaken in accordance with the Health and Safety at Work Act 2015.
- Any open excavations should be fenced off or covered, and/or access restricted as appropriate.
- The location of all services (if any) should be verified at the site prior to the commencement of construction.
- The Contractor is responsible at all times for ensuring that all necessary precautions are taken to protect all aspects of the works, as well as adjacent properties, buildings and services.
- Should the contractor require any site-specific assistance with safe construction methodologies, please contact WJL for further assistance.

9.5 STORMWATER & SURFACE WATER CONTROL

Uncontrolled stormwater flows must not be allowed to run onto or over site slopes, or to saturate the ground, so as to adversely affect slope stability or foundation conditions.

Overland flows and similar runoff such as from any higher ground should be intercepted by means of shallow surface drains and/or small bunds and be directed away from the building footprints to protect the building platforms from both saturation and erosion. Water collected in interceptor drains should be diverted away from the building sites to an appropriate disposal point. All stormwater runoff from roofs and paved areas, should be collected in sealed pipes and be discharged to a Council approved stormwater reticulation system.

Under no circumstances should concentrated overflows from any source discharge into or onto the ground in an uncontrolled fashion.

10 UNDERGROUND SERVICES

FNDC GIS Maps do not indicate any public underground services to be present within and/or immediately surrounding the property, however, other underground services, public or private, mapped, or unmapped, of any type could be present, hence we recommend staying on the side of caution during the commencement of any work within the proposed development areas.

11 FUTURE CONSTRUCTION MONITORING

The foregoing statements are Professional Opinion, based on a limited collection of information, some of which is factual, and some of which is inferred. Because soils are not a homogeneous, manufactured building component, there always exists a level of risk that inferences about soil conditions across the greater site, which have been drawn from isolated "pin-prick" locations, may be subject to localized variations. Generally, any investigation is deemed less complete until the applicability of its inferences and the Professional Opinions arising out of those are checked and confirmed during the construction phase, to an appropriate level.

It is increasingly common for the Building Consent Authorities (BCA) to require a Producer Statement – Construction (PS4) which is an important document. The purpose of the PS4 is to confirm the Engineers' Professional Opinion to the BCA that specific elements of construction, such as the verification of design assumptions and soil parameters (NZBC clause B1/VM4 2.0.8), are in accordance with the approved Building Consent (BC) and its related documents, which should include the subject Geotechnical Report. Where site works will involve the placement of fill, the PS4 should reference NZBC clause B1/VM1 10.1.

For WJL to issue a PS4 to meet the above clauses of the NZBC, we will need to carry out the site inspections as per the BC and Council requirements.

We require at least 48 hours' notice for site inspections.

Site inspections should be undertaken by a Chartered Professional Geotechnical Engineer or their Agent, who is familiar with both this site and the contents of this geotechnical report.

Prior to works commencement, the above Engineer should be contacted to confirm the construction methodologies, inspection, and testing frequency.

The primary purpose of the site inspections is to check that the conditions encountered are consistent with those expected from the investigations and adopted for the design as discussed herein. If anomalies or uncertainties are identified, then further Professional advice should be sought from the Geo-Professional, which will allow the timely provision of solutions and recommendations should any engineering problems arise.

Upon satisfactory completion of the above work aspects, Wilton Joubert Limited would then be in a position to issue the PS4 as required by Council.

At this time, the following Geotechnical Site Inspections & Testing should include, but are not limited to:

- Site cut, including temporary batter excavations for the masonry block retaining wall,
- Pre-pour masonry block retaining wall footings,
- Hardfill compaction,
- Pre-pour pile footings.

12 LIMITATIONS

We anticipate that this report is to be submitted to Council in support of a Building Consent application.

This report has been commissioned solely for the benefit of our client, Peter Honeyfield, in relation to the project as described herein, and to the limits of our engagement, with the exception that the local Territorial Authority may rely on it to the extent of its appropriateness, conditions and limitations, when issuing the subject consent. Any variations from the development proposals as described herein as forming the basis of our appraisal should be referred to us for further evaluation. Copyright of Intellectual Property remains with Wilton Joubert Limited, and this report may NOT be used by any other entity, or for any other proposals, without our written consent. Therefore, no liability is accepted by this firm or any of its directors, servants, or agents, in respect of any other geotechnical aspects of this site, nor for its use by any other person or entity, and any other person or entity who relies upon any information contained herein does so entirely at their own risk. Where other parties may wish to rely on it, whether for the same or different proposals, this permission may be extended, subject to our satisfactory review of their interpretation of the report.

It is important to note that additional refinement of the assessment may be required, based on the requirements of regional councils.

The report does not cover the necessary information regarding the required floor level in relation to the flood level that must be considered during foundation design. Expert input is needed to address this aspect.

Although this report may be submitted to a local authority in connection with an application for a consent, permission, approval, or pursuant to any other requirement of law, this disclaimer shall still apply and require all other parties to use due diligence where necessary and does not remove the necessity for the normal inspection of site conditions and the design of foundations as would be made under all normal circumstances.

Thank you for the opportunity to provide our service on this project, and if we can be of further assistance, please do not hesitate to contact us.

Yours faithfully,
WILTON JOUBERT LIMITED

Enclosures:
Site Plan (1 sheet)
Cross-section A-A' (1 sheet)
Hand Auger Borehole Records (6 sheets)
Slope Stability Assessment (3 sheets)
'Foundation Maintenance & Footing Performance' sheet BTF18: A Homeowner's Guide, published by CSIRO (4 sheets)
Construction Monitoring (1 sheet)

SITE LOCATION

IMAGE SOURCE:
FAR NORTH DISTRICT COUNCIL LOCALMAPS

SYMBOL KEY	
HA	HAND AUGER LOCATIONS
	PROPOSED DEVELOPMENT LOCATION
A G610 A' G610	CROSS SECTION

GENERAL NOTES

1. SITE PLAN IS ONLY INDICATIVE FOR CONCEPT DESIGN. NO MEASUREMENTS MAY BE TAKEN FROM DRAWING.
2. BACKGROUND INFORMATION, CONTOURS & LOCAL SERVICES PROVIDED BY THE CLIENT & EXTRACTED FROM LOCAL COUNCIL GIS.
3. ALL DIMENSION AND LEVELS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
4. ALL WORK TO BE DONE IN ACCORDANCE WITH THE RELEVANT STANDARDS AND MUST BE UNDERTAKEN IN ACCORDANCE WITH THE HEALTH AND SAFETY AT WORK ACT 2015.

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ISSUE / REVISION

No.	DATE	BY	DESCRIPTION
A	FEB 2024	NPN	ISSUED WITH GEOTECHNICAL REPORT

DESIGNED BY:
DRAWN BY: NPN
CHECKED BY: SJW
SURVEYED BY:

SERVICES NOTE

WHERE EXISTING SERVICES ARE SHOWN, THEY ARE INDICATIVE ONLY AND MAY NOT INCLUDE ALL SITE SERVICES. WILTON JOUBERT LTD DOES NOT WARRANT THAT ALL, OR INDEED ANY SERVICES ARE SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE AND PROTECT ALL EXISTING SERVICES PRIOR TO AND FOR THE DURATION OF THE CONTRACT WORKS.

GEOTECHNICAL

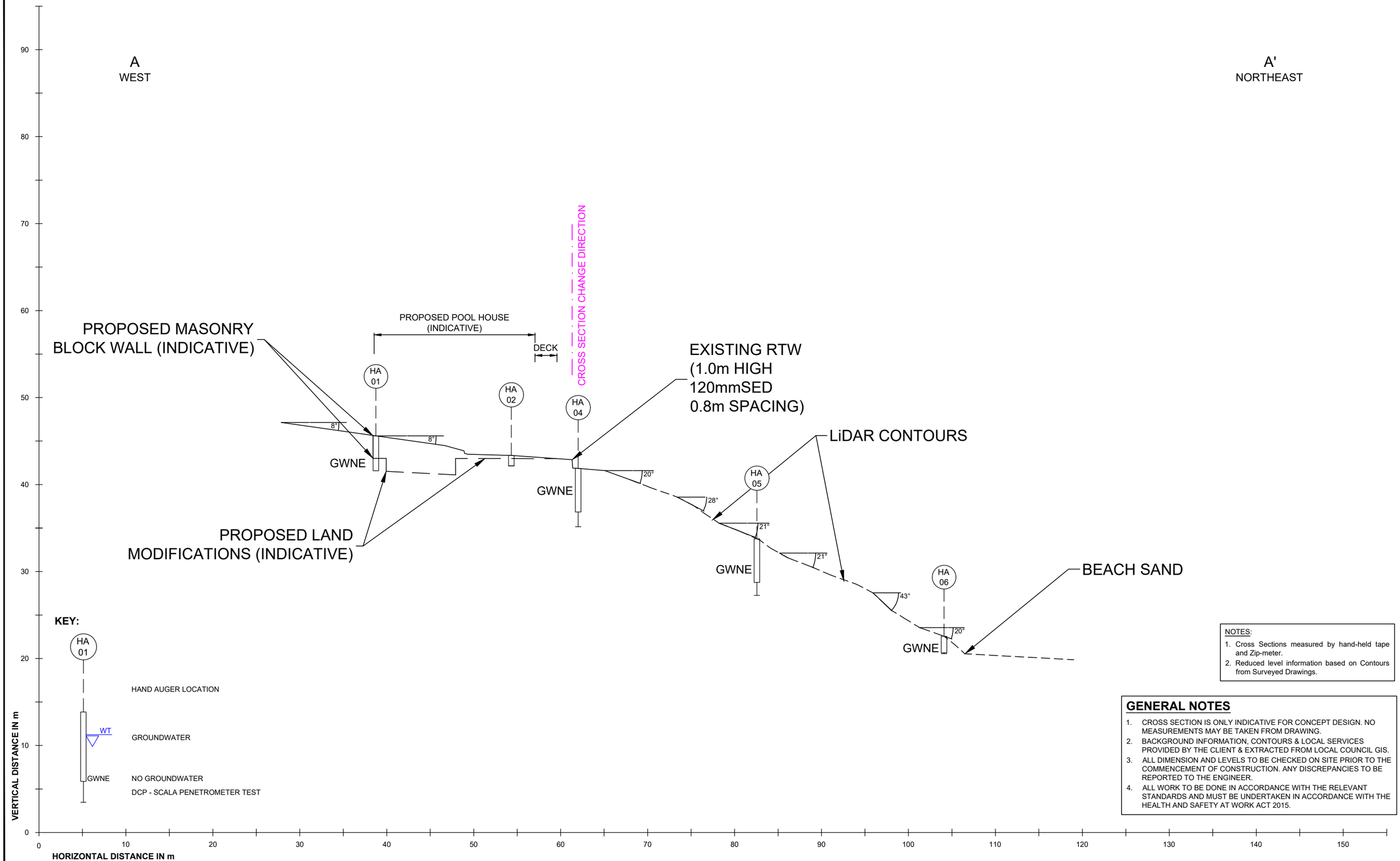
DESIGN / DRAWING SUBJECT TO ENGINEER'S APPROVAL

DRAWING TITLE:
SITE PLAN

PROJECT DESCRIPTION:
PROPOSED POOL HOUSE

PROJECT TITLE:
PART LOT 3 DP 55229
269E OPITO BAY ROAD
KERIKERI
NORTHLAND

ORIGINAL DRAWING SIZE:	OFFICE:
A3	KERIKERI
DRAWING SCALE:	CO-ORDINATE SYSTEM:
1:750	NOT COORDINATED
DRAWING NUMBER:	ISSUE:
131797-G600	A



NOTES:

1. Cross Sections measured by hand-held tape and Zip-meter.
2. Reduced level information based on Contours from Surveyed Drawings.

GENERAL NOTES

1. CROSS SECTION IS ONLY INDICATIVE FOR CONCEPT DESIGN. NO MEASUREMENTS MAY BE TAKEN FROM DRAWING.
2. BACKGROUND INFORMATION, CONTOURS & LOCAL SERVICES PROVIDED BY THE CLIENT & EXTRACTED FROM LOCAL COUNCIL GIS.
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ISSUE / REVISION

No.	DATE	BY	DESCRIPTION
A	FEB 2024	NPN	ISSUED WITH GEOTECHNICAL REPORT

DESIGNED BY:
DRAWN BY: NPN
CHECKED BY: SJW
SURVEYED BY:

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GEOTECHNICAL
DESIGN / DRAWING SUBJECT TO ENGINEER'S APPROVAL

DRAWING TITLE: **CROSS SECTION A-A'**

PROJECT DESCRIPTION: **PROPOSED POOL HOUSE**

PROJECT TITLE: **PART LOT 3 DP 55229 269E OPITO BAY ROAD KERIKERI NORTHLAND**

ORIGINAL DRAWING SIZE:	OFFICE:
A3	KERIKERI
DRAWING SCALE:	CO-ORDINATE SYSTEM:
1:400	NOT COORDINATED
DRAWING NUMBER:	ISSUE:
131797-G610	A

HAND AUGER : HA01

JOB NO.: 131797 **SHEET:** 1 OF 6

START DATE: 01/02/2024 **NORTHING:** **GRID:**

CLIENT: Peter Honeyfield **DIAMETER:** 50mm **EASTING:**

PROJECT: Geotechnical Investigation for Building Consent **SV DIAL:** DR4802 **ELEVATION:** Ground

SITE LOCATION: 269E Opito Bay Road, Kerikeri - Part Lot 3 DP 55229 **FACTOR:** 1.55 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE: PEAK STRENGTH (kPa)	SHEAR VANE: REMOULD STRENGTH (kPa)	SHEAR VANE: SENSITIVITY	DCP - SCALA (Blows / mm)	COMMENTS, SAMPLES, OTHER TESTS
Topsoil	TOPSOIL - light brown, dry, non plastic	TS	0.0	Groundwater Not Encountered					
Waipapa Group	Silty CLAY, light orange yellow, brown, very stiff, moist, medium plasticity (NATURAL)		0.2						
			0.4		217+	-	-		
			0.6						
			0.8		217+	-	-		
			1.0						
			1.2		217+	-	-		
			1.4						
			1.6		217+	-	-		
	Clayey SILT, orange pink, white with brown specks, very stiff, moist, low to medium plasticity		1.8						
			2.0		155	31	5.0		
			2.2						
	2.5m: some weakly cemented clasts throughout <10mmØ		2.4		202	46	4.4		
			2.6						
			2.8		174	43	4.0		
			3.0						
	Slightly Clayey SILT, brownish yellow, orange and pink, very stiff, moist, low plasticity		3.2		169	50	3.4		
			3.4						
			3.6		177	46	3.8		
			3.8						
	EOH: 4.00m - (Target Depth)		4.0		202	56	3.6		
			4.2						
			4.4						
			4.6						
			4.8						
			5.0						
			5.2						
			5.4						
			5.6						
			5.8						
			6.0						
			6.2						
			6.4						
			6.6						
			6.8						

REMARKS

End of borehole @ 4.00m (Target Depth: 4.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: NPN

CHECKED BY: SJP

▼ Standing groundwater level

▽ GW while drilling

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HAND AUGER : HA02

CLIENT: Peter Honeyfield
PROJECT: Geotechnical Investigation for Building Consent
SITE LOCATION: 269E Opito Bay Road, Kerikeri - Part Lot 3 DP 55229

JOB NO.: 131797 **SHEET:** 2 OF 3
START DATE: 01/02/2024 **NORTHING:** **GRID:**
DIAMETER: 50mm **EASTING:**
SV DIAL: 1994 **ELEVATION:** Ground
FACTOR: 1.41 **DATUM:**

SOIL DESCRIPTION: TOPSOIL, CLAY, SAND, PEAT, FILL, SILT, GRAVEL, ROCK

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE PEAK STRENGTH (kPa)	SHEAR VANE REMOULD STRENGTH (kPa)	SHEAR VANE SENSITIVITY	DCP - SCALA (Blows / mm)	COMMENTS, SAMPLES, OTHER TESTS
Top soil	TOPSOIL - brown, dry, non plastic	TS	0.0	Groundwater Not Encountered					
Waipapa Group	Silty CLAY, yellowish brown, very stiff, dry to moist, medium plasticity (NATURAL)		0.2						
			0.4		197+	-	-		
			0.6						
			0.8		197+	-	-		
			1.0						
			1.2		197+	-	-		
	EOH: 1.20m - (Target Depth)		1.4						
			1.6						
			1.8						
			2.0						
			2.2						
			2.4						
			2.6						
			2.8						
			3.0						
			3.2						
			3.4						
			3.6						
			3.8						
			4.0						
			4.2						
			4.4						
			4.6						
			4.8						

REMARKS
End of borehole @ 1.20m (Target Depth: 1.20m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: JEM
CHECKED BY: SJP

▼ Standing groundwater level
▽ GW while drilling

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HAND AUGER : HA03

JOB NO.: 131797 **SHEET:** 3 OF 6

START DATE: 01/02/2024 **NORTHING:** **GRID:**

CLIENT: Peter Honeyfield **DIAMETER:** 50mm **EASTING:**

PROJECT: Geotechnical Investigation for Building Consent **SV DIAL:** 1994 **ELEVATION:** Ground

SITE LOCATION: 269E Opito Bay Road, Kerikeri - Part Lot 3 DP 55229 **FACTOR:** 1.41 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE PEAK STRENGTH (kPa)	SHEAR VANE REMOULD STRENGTH (kPa)	SHEAR VANE SENSITIVITY	DCP - SCALA (Blows / mm)	COMMENTS, SAMPLES, OTHER TESTS
Top soil	TOPSOIL - brown, dry, non plastic		0.0	Groundwater Not Encountered					
FILL	FILL - Clayey SILT with topsoil intermixed, brown, orange, very stiff, dry to moist, low plasticity		0.2						
			0.4		197+	-	-		
			0.6		197+	-	-		
Waipapa Group	Silty CLAY to Clayey SILT, yellowish brown, very stiff, dry to moist, low to medium plasticity (NATURAL)		0.8						
			1.0		197+	-	-		
	EOH: 1.20m - (Target Depth)		1.2		197+	-	-		
			1.4						
			1.6						
			1.8						
			2.0						
			2.2						
			2.4						
			2.6						
			2.8						
			3.0						
			3.2						
			3.4						
			3.6						
			3.8						
			4.0						
			4.2						
			4.4						
			4.6						
			4.8						

SOIL DESCRIPTION

TOPSOIL CLAY SAND PEAT

FILL SILT GRAVEL ROCK

REMARKS

End of borehole @ 1.20m (Target Depth: 1.20m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: JEM

CHECKED BY: SJP

▼ Standing groundwater level

▽ GW while drilling

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HAND AUGER : HA04

CLIENT: Peter Honeyfield
PROJECT: Geotechnical Investigation for Building Consent
SITE LOCATION: 269E Opito Bay Road, Kerikeri - Part Lot 3 DP 55229

JOB NO.: 131797 **SHEET:** 4 OF 6
START DATE: 01/02/2024 **NORTHING:** **GRID:**
DIAMETER: 50mm **EASTING:**
SV DIAL: 1994 **ELEVATION:** Ground
FACTOR: 1.41 **DATUM:**

SOIL DESCRIPTION: TOPSOIL, CLAY, SAND, PEAT, FILL, SILT, GRAVEL, ROCK

STRATIGRAPHY	SOIL DESCRIPTION	DEPTH (m)	WATER	SHEAR VANE PEAK STRENGTH (kPa)	SHEAR VANE REMOULD STRENGTH (kPa)	SHEAR VANE SENSITIVITY	DCP - SCALA (Blows / 100mm)	COMMENTS, SAMPLES, OTHER TESTS
FILL	Silty CLAY - Clayey SILT intermixed with topsoil unclusions throughout, yellow, brown, orange, stiff, moist, low plasticity (FILL)	0.2	Groundwater Not Encountered					
		0.4		65	11	5.9		
		0.6						
Waipapa Group	Silty CLAY, some fine sand, some weakly cemented clasts, yellowish brown, very stiff, moist, low to medium plasticity (NATURAL)	0.8		197+	-	-		
		1.0						
		1.2		197+	-	-		
		1.4						
		1.6		197+	-	-		
		1.8						
		2.0		189	96	2.0		
	Clayey SILT, reddish orange with white streaks, very stiff, moist, low plasticity	2.2						
		2.4		144	68	2.1		
		2.6						
		2.8		161	48	3.4		
		3.0						
	3.2m: becoming moist to wet	3.2		144	59	2.4		
		3.4						
		3.6		130	56	2.3		
		3.8						
		4.0		144	79	1.8		
		4.2						
		4.4		147	87	1.7		
		4.6						
		4.8		178	118	1.5		
		5.0					9	
	EOH: 5.00m - (Target Depth)	5.2					9	
		5.4					8	
		5.6					8	
		5.8					9	
		6.0					8	
		6.2					9	
		6.4					9	
		6.6					12	
		6.8					11	
							11	
							12	
							11	
							12	
							15	
							22	
							20	

REMARKS
End of borehole @ 5.00m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: SJP
CHECKED BY: NPN

▼ Standing groundwater level
▽ GW while drilling

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HAND AUGER : HA05

CLIENT: Peter Honeyfield
PROJECT: Geotechnical Investigation for Building Consent
SITE LOCATION: 269E Opito Bay Road, Kerikeri - Part Lot 3 DP 55229

JOB NO.: 131797 **SHEET:** 5 OF 6
START DATE: 01/02/2024 **NORTHING:** **GRID:**
DIAMETER: 50mm **EASTING:**
SV DIAL: 772 **ELEVATION:** Ground
FACTOR: 1.6 **DATUM:**

STRATIGRAPHY	SOIL DESCRIPTION	DEPTH (m)	WATER	SHEAR VANE PEAK STRENGTH (kPa)	SHEAR VANE REMOULD STRENGTH (kPa)	SHEAR VANE SENSITIVITY	DCP - SCALA (Blows / 100mm)	COMMENTS, SAMPLES, OTHER TESTS
Topsoil	TOPSOIL - brown, dry, non plastic	0.4	Groundwater Not Encountered					
Waipapa Group	Silty CLAY, yellowish brown, very stiff, dry, medium plasticity (NATURAL)			224	-	-		
	1.0m: Becoming light orange with brown mottling, frequent pockets of orange silt	1.0		224	-	-		
	Clayey SILT, orange, brown and white, very stiff, dry, low plasticity	1.2		UTP	-	-		
		1.6		UTP	-	-		
	Slightly Clayey SILT, light orange brown, orange, white, very stiff, dry, non plastic - becoming friable	1.8						
	2.0m: becoming orangey brown with white mottling	2.0		208	48	4.3		
	Clayey SILT, orange brown, white, very stiff, moist, low plasticity	2.2						
	2.4m: orangey brown with pink and white mottling, occasional weakly cemented clasts inclusions <10mmØ	2.4		224+	-	-		
		2.8		221	48	4.6		
		3.2		224+	-	-		
	3.5m: occasional manganese staining, white, orangey brown	3.6		211	58	3.6		
		4.0		UTP	-	-		
	4.1m: light brown with white and orange mottling, occasional manganese staining	4.2						
	Slightly Clayey SILT, frequent manganese staining, frequent weakly cemented clast inclusions, light brown, white, orange brown, very stiff to hard, dry to moist, non plastic - friable	4.4						
	4.5m: becoming orangey brown, white specks, frequent manganese staining	4.6		UTP	-	-		
	4.7m: becoming light brown with orange and white mottling	4.8						
		5.0		UTP	-	-	4	
	EOH: 5.00m - (Target Depth)	5.2					7	
		5.4					7	
		5.6					6	
		5.8					6	
		6.0					6	
		6.2					6	
		6.4					6	
		6.6					7	
		6.8					7	
							12	
							15	
							15	
							15	
							20	

REMARKS
End of borehole @ 5.00m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: JEM
CHECKED BY: SJP

▼ Standing groundwater level
▽ GW while drilling

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HAND AUGER : HA06

CLIENT: Peter Honeyfield
PROJECT: Geotechnical Investigation for Building Consent
SITE LOCATION: 269E Opito Bay Road, Kerikeri - Part Lot 3 DP 55229

JOB NO.: 131797 **SHEET:** 6 OF 6
START DATE: 01/02/2024 **NORTHING:** **GRID:**
DIAMETER: 50mm **EASTING:**
SV DIAL: DR4802 **ELEVATION:** Ground
FACTOR: 1.55 **DATUM:**

SOIL DESCRIPTION: TOPSOIL, CLAY, SAND, PEAT, FILL, SILT, GRAVEL, ROCK

STRATIGRAPHY	SOIL DESCRIPTION	LEGEND	DEPTH (m)	WATER	SHEAR VANE PEAK STRENGTH (kPa)	SHEAR VANE REMOULD STRENGTH (kPa)	SHEAR VANE SENSITIVITY	DCP - SCALA (Blows / 100mm)	COMMENTS, SAMPLES, OTHER TESTS
Top soil	TOPSOIL - brown, dry, non plastic	TS	0.0	Groundwater Not Encountered					
Waipapa Group	Silty CLAY, yellowish brown, very stiff, dry to moist, medium plasticity (NATURAL)		0.2						
			0.4		217+	-	-		
			0.6						
			0.8		217+	-	-		
			1.0						
			1.2		217+	-	-		
	Clayey SILT, yellowish brown with occasional white specks, very stiff, moist, low plasticity to medium plasticity		1.4						
	1.7m: becoming silty with weathered rock fragments as weakly to strongly cemented clasts <20mmØ		1.6		202	67	3.0		
			1.8						
	EOH: 1.90m - (Too Dense To Auger)		2.0		UTP	-	-	30	
			2.2						
			2.4						
			2.6						
			2.8						
			3.0						
			3.2						
			3.4						
			3.6						
			3.8						
			4.0						
			4.2						
			4.4						
			4.6						
			4.8						

REMARKS
End of borehole @ 1.90m (Target Depth: 5.00m)

NZGS Definition of Relative Density for Coarse Grain soils: VL - Very Loose; L - Loose; MD - Medium Dense; D - Dense; VD - Very Dense

LOGGED BY: NPN
CHECKED BY: SJP

▼ Standing groundwater level
▽ GW while drilling

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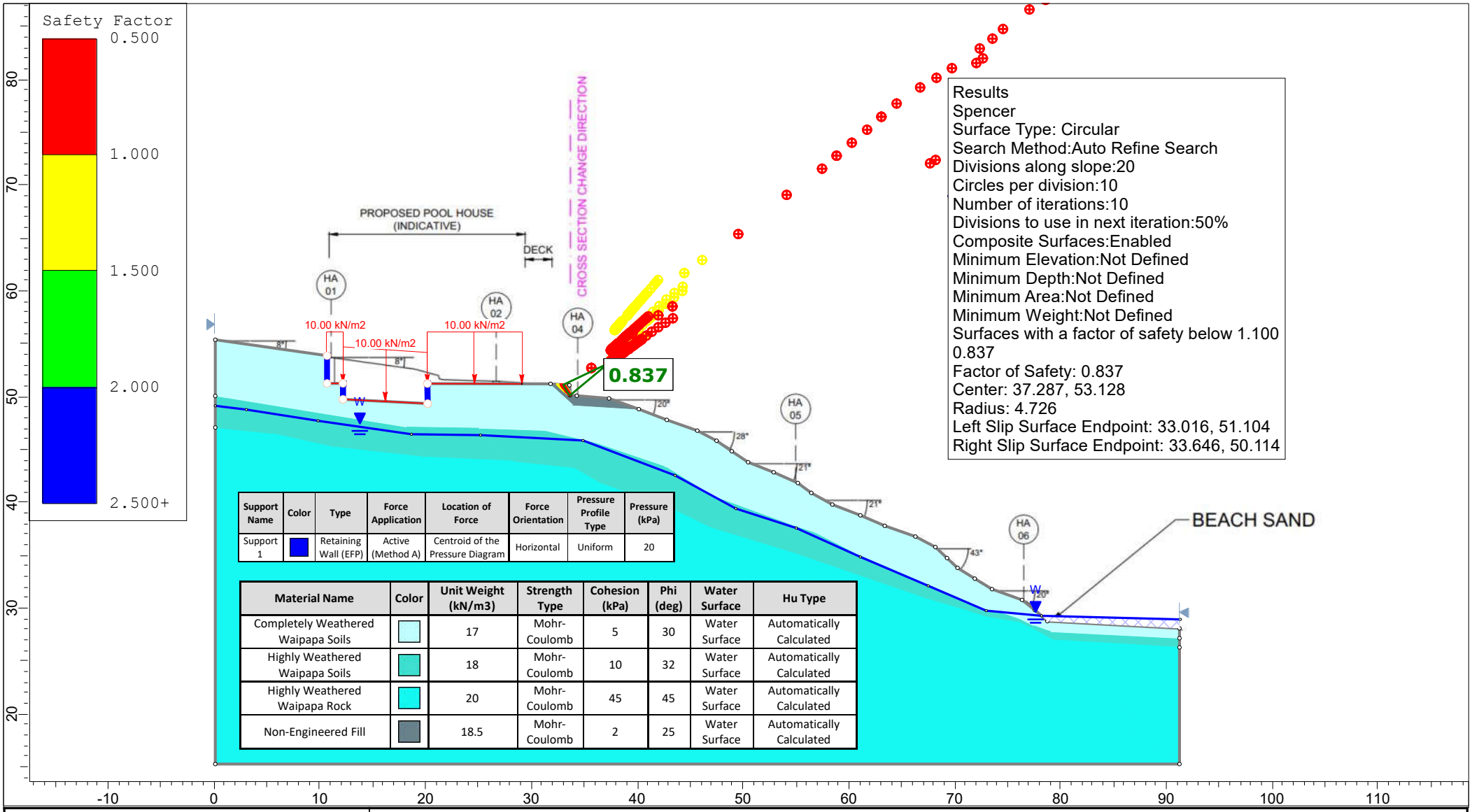

Support Name	Color	Type	Force Application	Location of Force	Force Orientation	Pressure Profile Type	Pressure (kPa)
Support 1		Retaining Wall (EFP)	Active (Method A)	Centroid of the Pressure Diagram	Horizontal	Uniform	20

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type
Completely Weathered Waipapa Soils		17	Mohr-Coulomb	5	30	Water Surface	Automatically Calculated
Highly Weathered Waipapa Soils		18	Mohr-Coulomb	10	32	Water Surface	Automatically Calculated
Highly Weathered Waipapa Rock		20	Mohr-Coulomb	45	45	Water Surface	Automatically Calculated
Non-Engineered Fill		18.5	Mohr-Coulomb	2	25	Water Surface	Automatically Calculated

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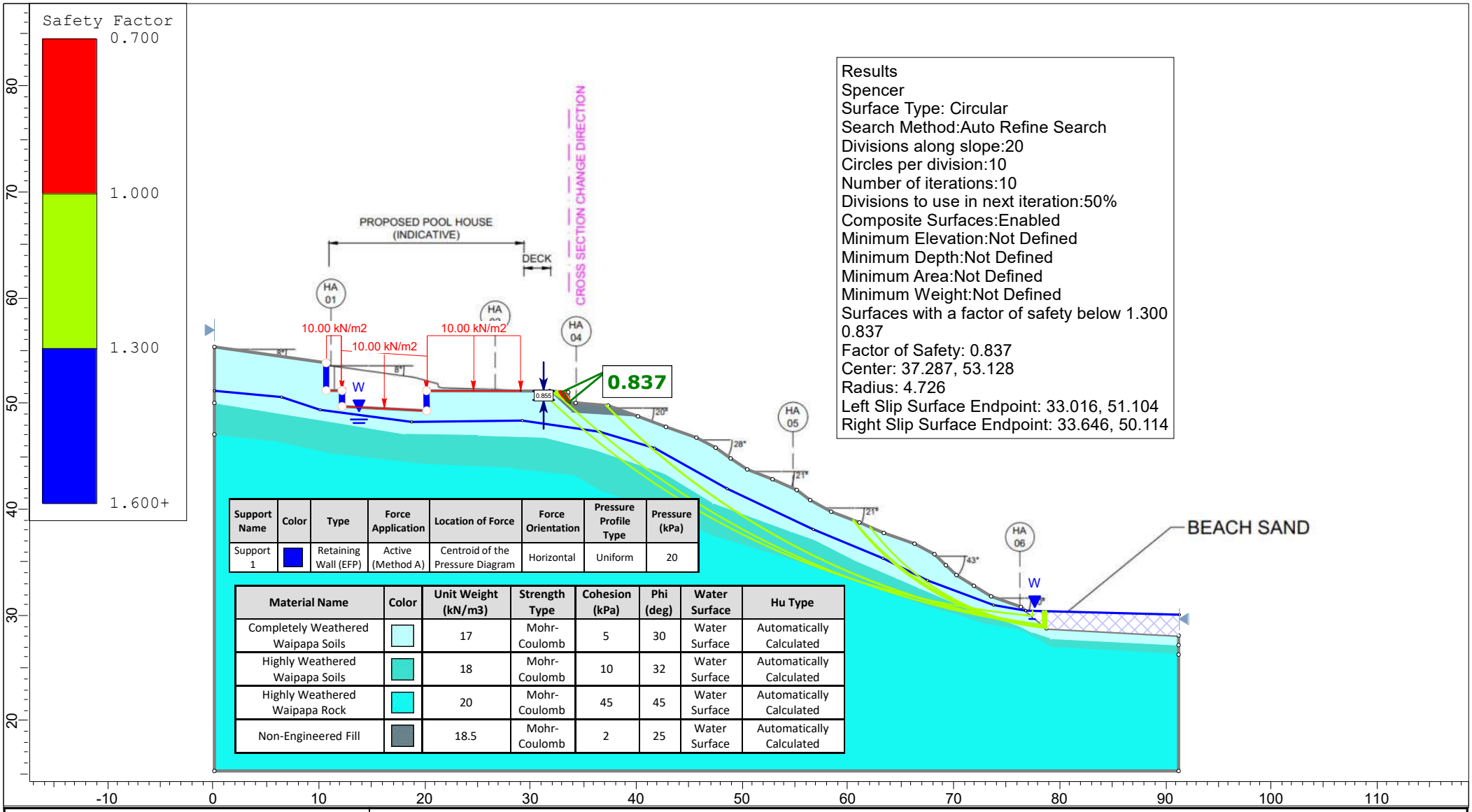
SLIDEINTERPRET 9.024

Project	269E Opito Bay Road, Kerikeri		
Group	Cross-section A-A'	*Scenario*	Moderate Groundwater
Drawn By	NPN	*Company*	Wilton Joubert Consulting Engineers Ltd
Date	8/02/2024, 10:36:56 am	*File Name*	master scenario1.slmd



Support Name	Color	Type	Force Application	Location of Force	Force Orientation	Pressure Profile Type	Pressure (kPa)
Support 1		Retaining Wall (EFP)	Active (Method A)	Centroid of the Pressure Diagram	Horizontal	Uniform	20

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface	Hu Type
Completely Weathered Waipapa Soils		17	Mohr-Coulomb	5	30	Water Surface	Automatically Calculated
Highly Weathered Waipapa Soils		18	Mohr-Coulomb	10	32	Water Surface	Automatically Calculated
Highly Weathered Waipapa Rock		20	Mohr-Coulomb	45	45	Water Surface	Automatically Calculated
Non-Engineered Fill		18.5	Mohr-Coulomb	2	25	Water Surface	Automatically Calculated

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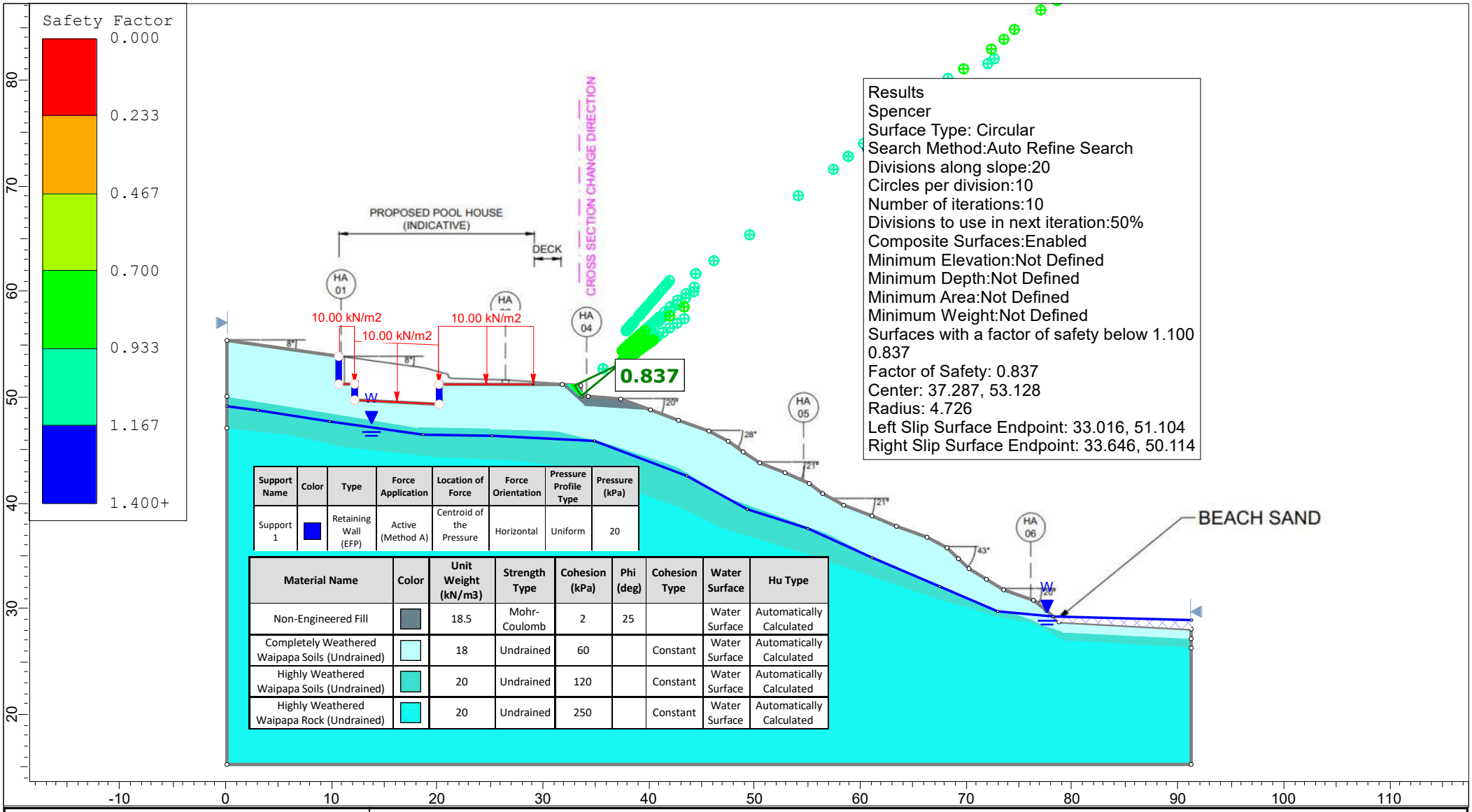
SLIDEINTERPRET 9.024

Project	269E Opito Bay Road, Kerikeri		
Group	Cross-section A-A'	*Scenario*	Extreme Groundwater
Drawn By	NPN	*Company*	Wilton Joubert Consulting Engineers Ltd
Date	8/02/2024, 10:36:56 am	*File Name*	master scenario1.slmd



Support Name	Color	Type	Force Application	Location of Force	Force Orientation	Pressure Profile Type	Pressure (kPa)
Support 1		Retaining Wall (EFP)	Active (Method A)	Centroid of the Pressure	Horizontal	Uniform	20

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Cohesion Type	Water Surface	Hu Type
Non-Engineered Fill		18.5	Mohr-Coulomb	2	25		Water Surface	Automatically Calculated
Completely Weathered Waipapa Soils (Undrained)		18	Undrained	60		Constant	Water Surface	Automatically Calculated
Highly Weathered Waipapa Soils (Undrained)		20	Undrained	120		Constant	Water Surface	Automatically Calculated
Highly Weathered Waipapa Rock (Undrained)		20	Undrained	250		Constant	Water Surface	Automatically Calculated

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SLIDEINTERPRET 9.024

Project	269E Opito Bay Road, Kerikeri		
Group	Cross-section A-A'	Scenario	Seismic
Drawn By	NPN	Company	Wilton Joubert Consulting Engineers Ltd
Date	8/02/2024, 10:36:56 am	File Name	master scenario1.slmd

Foundation Maintenance and Footing Performance:
A Homeowner's Guide

PUBLISHING

BTF 18-2011 replaces Information Sheet 10/91

Buildings can and often do move. This movement can be up, down, lateral or rotational. The fundamental cause of movement in buildings can usually be related to one or more problems in the foundation soil. It is important for the homeowner to identify the soil type in order to ascertain the measures that should be put in place in order to ensure that problems in the foundation soil can be prevented, thus protecting against building movement.

This Building Technology File is designed to identify causes of soil-related building movement, and to suggest methods of prevention of resultant cracking in buildings.

Soil Types

The types of soils usually present under the topsoil in land zoned for residential buildings can be split into two approximate groups – granular and clay. Quite often, foundation soil is a mixture of both types. The general problems associated with soils having granular content are usually caused by erosion. Clay soils are subject to saturation and swell/shrink problems.

Classifications for a given area can generally be obtained by application to the local authority, but these are sometimes unreliable and if there is doubt, a geotechnical report should be commissioned. As most buildings suffering movement problems are founded on clay soils, there is an emphasis on classification of soils according to the amount of swell and shrinkage they experience with variations of water content. The table below is Table 2.1 from AS 2870-2011, the Residential Slab and Footing Code.

Causes of Movement

Settlement due to construction

There are two types of settlement that occur as a result of construction:

- Immediate settlement occurs when a building is first placed on its foundation soil, as a result of compaction of the soil under the weight of the structure. The cohesive quality of clay soil mitigates against this, but granular (particularly sandy) soil is susceptible.
- Consolidation settlement is a feature of clay soil and may take place because of the expulsion of moisture from the soil or because of the soil's lack of resistance to local compressive or shear stresses. This will usually take place during the first few months after construction, but has been known to take many years in exceptional cases.

These problems are the province of the builder and should be taken into consideration as part of the preparation of the site for construction. Building Technology File 19 (BTF 19) deals with these problems.

Erosion

All soils are prone to erosion, but sandy soil is particularly susceptible to being washed away. Even clay with a sand component of say 10% or more can suffer from erosion.

Saturation

This is particularly a problem in clay soils. Saturation creates a bog-like suspension of the soil that causes it to lose virtually all of its bearing capacity. To a lesser degree, sand is affected by saturation because saturated sand may undergo a reduction in volume, particularly imported sand fill for bedding and blinding layers. However, this usually occurs as immediate settlement and should normally be the province of the builder.

Seasonal swelling and shrinkage of soil

All clays react to the presence of water by slowly absorbing it, making the soil increase in volume (see table below). The degree of increase varies considerably between different clays, as does the degree of decrease during the subsequent drying out caused by fair weather periods. Because of the low absorption and expulsion rate, this phenomenon will not usually be noticeable unless there are prolonged rainy or dry periods, usually of weeks or months, depending on the land and soil characteristics.

The swelling of soil creates an upward force on the footings of the building, and shrinkage creates subsidence that takes away the support needed by the footing to retain equilibrium.

Shear failure

This phenomenon occurs when the foundation soil does not have sufficient strength to support the weight of the footing. There are two major post-construction causes:

- Significant load increase.
- Reduction of lateral support of the soil under the footing due to erosion or excavation.

In clay soil, shear failure can be caused by saturation of the soil adjacent to or under the footing.

GENERAL DEFINITIONS OF SITE CLASSES

Class	Foundation
A	Most sand and rock sites with little or no ground movement from moisture changes
S	Slightly reactive clay sites, which may experience only slight ground movement from moisture changes
M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes
H1	Highly reactive clay sites, which may experience high ground movement from moisture changes
H2	Highly reactive clay sites, which may experience very high ground movement from moisture changes
E	Extremely reactive sites, which may experience extreme ground movement from moisture changes

Notes

1. Where controlled fill has been used, the site may be classified A to E according to the type of fill used.
2. Filled sites. Class P is used for sites which include soft fills, such as clay or silt or loose sands; landslip; mine subsidence; collapsing soils; soil subject to erosion; reactive sites subject to abnormal moisture conditions or sites which cannot be classified otherwise.
3. Where deep-seated moisture changes exist on sites at depths of 3 m or greater, further classification is needed for Classes M to E (M-D, H1-D, H2-D and E-D).

Tree root growth
Trees and shrubs that are allowed to grow in the vicinity of footings can cause foundation soil movement in two ways:

- Roots that grow under footings may increase in cross-sectional size, exerting upward pressure on footings.
- Roots in the vicinity of footings will absorb much of the moisture in the foundation soil, causing shrinkage or subsidence.

Unevenness of Movement

The types of ground movement described above usually occur unevenly throughout the building's foundation soil. Settlement due to construction tends to be uneven because of:

- Differing compaction of foundation soil prior to construction.
- Differing moisture content of foundation soil prior to construction.

Movement due to non-construction causes is usually more uneven still. Erosion can undermine a footing that traverses the flow or can create the conditions for shear failure by eroding soil adjacent to a footing that runs in the same direction as the flow.

Saturation of clay foundation soil may occur where subfloor walls create a dam that makes water pond. It can also occur wherever there is a source of water near footings in clay soil. This leads to a severe reduction in the strength of the soil which may create local shear failure.

Seasonal swelling and shrinkage of clay soil affects the perimeter of the building first, then gradually spreads to the interior. The swelling process will usually begin at the uphill extreme of the building, or on the weather side where the land is flat. Swelling gradually reaches the interior soil as absorption continues. Shrinkage usually begins where the sun's heat is greatest.

Effects of Uneven Soil Movement on Structures

Erosion and saturation
Erosion removes the support from under footings, tending to create subsidence of the part of the structure under which it occurs. Brickwork walls will resist the stress created by this removal of support by bridging the gap or cantilevering until the bricks or the mortar bedding fail. Older masonry has little resistance. Evidence of failure varies according to circumstances and symptoms may include:

- Step cracking in the mortar beds in the body of the wall or above/below openings such as doors or windows.
- Vertical cracking in the bricks (usually but not necessarily in line with the vertical beds or perpends).

Isolated piers affected by erosion or saturation of foundations will eventually lose contact with the bearers they support and may tilt or fall over. The floors that have lost this support will become bouncy, sometimes rattling ornaments etc.

Seasonal swelling/shrinkage in clay
Swelling foundation soil due to rainy periods first lifts the most exposed extremities of the footing system, then the remainder of the perimeter footings while gradually permeating inside the building footprint to lift internal footings. This swelling first tends to create a dish effect, because the external footings are pushed higher than the internal ones.

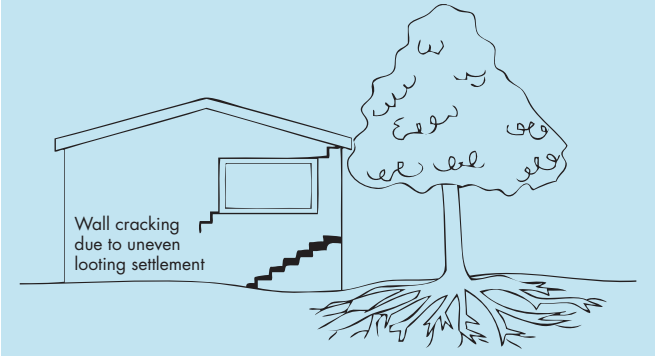
The first noticeable symptom may be that the floor appears slightly dished. This is often accompanied by some doors binding on the floor or the door head, together with some cracking of cornice mitres. In buildings with timber flooring supported by bearers and joists, the floor can be bouncy. Externally there may be visible dishing of the hip or ridge lines.

As the moisture absorption process completes its journey to the innermost areas of the building, the internal footings will rise. If the spread of moisture is roughly even, it may be that the symptoms will temporarily disappear, but it is more likely that swelling will be uneven, creating a difference rather than a disappearance in symptoms. In buildings with timber flooring supported by bearers and joists, the isolated piers will rise more easily than the strip footings or piers under walls, creating noticeable doming of flooring.

As the weather pattern changes and the soil begins to dry out, the external footings will be first affected, beginning with the locations where the sun's effect is strongest. This has the effect of lowering the external footings. The doming is accentuated and cracking reduces or disappears where it occurred because of dishing, but other cracks open up. The roof lines may become convex.

Doming and dishing are also affected by weather in other ways. In areas where warm, wet summers and cooler dry winters prevail, water migration tends to be toward the interior and doming will be accentuated, whereas where summers are dry and winters are cold and wet, migration tends to be toward the exterior and the underlying propensity is toward dishing.

Trees can cause shrinkage and damage



Movement caused by tree roots
In general, growing roots will exert an upward pressure on footings, whereas soil subject to drying because of tree or shrub roots will tend to remove support from under footings by inducing shrinkage.

Complications caused by the structure itself
Most forces that the soil causes to be exerted on structures are vertical – i.e. either up or down. However, because these forces are seldom spread evenly around the footings, and because the building resists uneven movement because of its rigidity, forces are exerted from one part of the building to another. The net result of all these forces is usually rotational. This resultant force often complicates the diagnosis because the visible symptoms do not simply reflect the original cause. A common symptom is binding of doors on the vertical member of the frame.

Effects on full masonry structures
Brickwork will resist cracking where it can. It will attempt to span areas that lose support because of subsided foundations or raised points. It is therefore usual to see cracking at weak points, such as openings for windows or doors.

In the event of construction settlement, cracking will usually remain unchanged after the process of settlement has ceased.

With local shear or erosion, cracking will usually continue to develop until the original cause has been remedied, or until the subsidence has completely neutralised the affected portion of footing and the structure has stabilised on other footings that remain effective.

In the case of swell/shrink effects, the brickwork will in some cases return to its original position after completion of a cycle, however it is more likely that the rotational effect will not be exactly reversed, and it is also usual that brickwork will settle in its new position and will resist the forces trying to return it to its original position. This means that in a case where swelling takes place after construction and cracking occurs, the cracking is likely to at least partly remain after the shrink segment of the cycle is complete. Thus, each time the cycle is repeated, the likelihood is that the cracking will become wider until the sections of brickwork become virtually independent.

With repeated cycles, once the cracking is established, if there is no other complication, it is normal for the incidence of cracking to stabilise, as the building has the articulation it needs to cope with the problem. This is by no means always the case, however, and monitoring of cracks in walls and floors should always be treated seriously.

Upheaval caused by growth of tree roots under footings is not a simple vertical shear stress. There is a tendency for the root to also exert lateral forces that attempt to separate sections of brickwork after initial cracking has occurred.

The normal structural arrangement is that the inner leaf of brickwork in the external walls and at least some of the internal walls (depending on the roof type) comprise the load-bearing structure on which any upper floors, ceilings and the roof are supported. In these cases, it is internally visible cracking that should be the main focus of attention, however there are a few examples of dwellings whose external leaf of masonry plays some supporting role, so this should be checked if there is any doubt. In any case, externally visible cracking is important as a guide to stresses on the structure generally, and it should also be remembered that the external walls must be capable of supporting themselves.

Effects on framed structures
Timber or steel framed buildings are less likely to exhibit cracking due to swell/shrink than masonry buildings because of their flexibility. Also, the doming/dishing effects tend to be lower because of the lighter weight of walls. The main risks to framed buildings are encountered because of the isolated pier footings used under walls. Where erosion or saturation causes a footing to fall away, this can double the span which a wall must bridge. This additional stress can create cracking in wall linings, particularly where there is a weak point in the structure caused by a door or window opening. It is, however, unlikely that framed structures will be so stressed as to suffer serious damage without first exhibiting some or all of the above symptoms for a considerable period. The same warning period should apply in the case of upheaval. It should be noted, however, that where framed buildings are supported by strip footings there is only one leaf of brickwork and therefore the externally visible walls are the supporting structure for the building. In this case, the subfloor masonry walls can be expected to behave as full brickwork walls.

Effects on brick veneer structures
Because the load-bearing structure of a brick veneer building is the frame that makes up the interior leaf of the external walls plus perhaps the internal walls, depending on the type of roof, the building can be expected to behave as a framed structure, except that the external masonry will behave in a similar way to the external leaf of a full masonry structure.

Water Service and Drainage

Where a water service pipe, a sewer or stormwater drainage pipe is in the vicinity of a building, a water leak can cause erosion, swelling or saturation of susceptible soil. Even a minuscule leak can be enough to saturate a clay foundation. A leaking tap near a building can have the same effect. In addition, trenches containing pipes can become watercourses even though backfilled, particularly where broken rubble is used as fill. Water that runs along these trenches can be responsible for serious erosion, interstrata seepage into subfloor areas and saturation.

Pipe leakage and trench water flows also encourage tree and shrub roots to the source of water, complicating and exacerbating the problem. Poor roof plumbing can result in large volumes of rainwater being concentrated in a small area of soil:

- Incorrect falls in roof guttering may result in overflows, as may gutters blocked with leaves etc.
- Corroded guttering or downpipes can spill water to ground.
- Downpipes not positively connected to a proper stormwater collection system will direct a concentration of water to soil that is directly adjacent to footings, sometimes causing large-scale problems such as erosion, saturation and migration of water under the building.

Seriousness of Cracking

In general, most cracking found in masonry walls is a cosmetic nuisance only and can be kept in repair or even ignored. The table below is a reproduction of Table C1 of AS 2870-2011.

AS 2870-2011 also publishes figures relating to cracking in concrete floors, however because wall cracking will usually reach the critical point significantly earlier than cracking in slabs, this table is not reproduced here.

Prevention/Cure

Plumbing
Where building movement is caused by water service, roof plumbing, sewer or stormwater failure, the remedy is to repair the problem. It is prudent, however, to consider also rerouting pipes away from the building where possible, and relocating taps to positions where any leakage will not direct water to the building vicinity. Even where gully traps are present, there is sometimes sufficient spill to create erosion or saturation, particularly in modern installations using smaller diameter PVC fixtures. Indeed, some gully traps are not situated directly under the taps that are installed to charge them, with the result that water from the tap may enter the backfilled trench that houses the sewer piping. If the trench has been poorly backfilled, the water will either pond or flow along the bottom of the trench. As these trenches usually run alongside the footings and can be at a similar depth, it is not hard to see how any water that is thus directed into a trench can easily affect the foundation's ability to support footings or even gain entry to the subfloor area.

Ground drainage
In all soils there is the capacity for water to travel on the surface and below it. Surface water flows can be established by inspection during and after heavy or prolonged rain. If necessary, a grated drain system connected to the stormwater collection system is usually an easy solution.

It is, however, sometimes necessary when attempting to prevent water migration that testing be carried out to establish watertable height and subsoil water flows. This subject is referred to in BTF 19 and may properly be regarded as an area for an expert consultant.

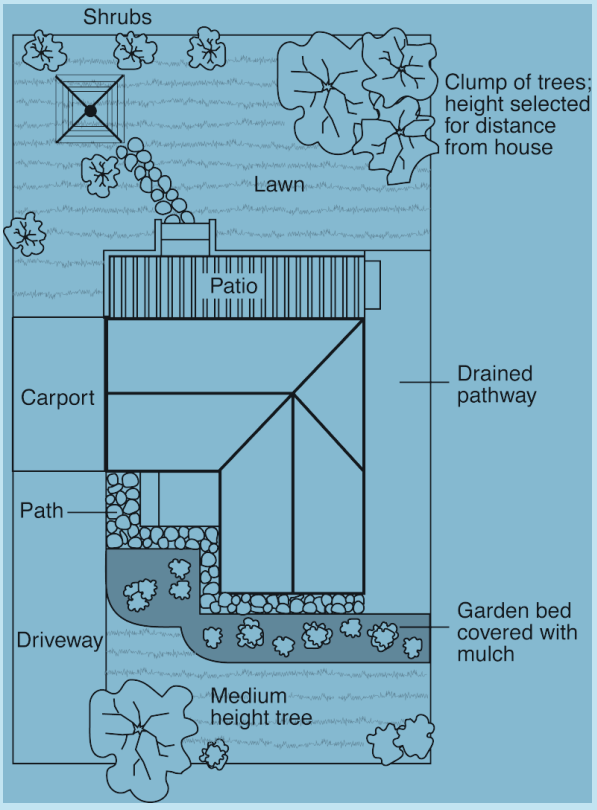
Protection of the building perimeter
It is essential to remember that the soil that affects footings extends well beyond the actual building line. Watering of garden plants, shrubs and trees causes some of the most serious water problems.

For this reason, particularly where problems exist or are likely to occur, it is recommended that an apron of paving be installed around as much of the building perimeter as necessary. This paving should

CLASSIFICATION OF DAMAGE WITH REFERENCE TO WALLS

Description of typical damage and required repair	Approximate crack width limit (see Note 3)	Damage category
Hairline cracks	<0.1 mm	0
Fine cracks which do not need repair	<1 mm	1
Cracks noticeable but easily filled. Doors and windows stick slightly.	<5 mm	2
Cracks can be repaired and possibly a small amount of wall will need to be replaced. Doors and windows stick. Service pipes can fracture. Weathertightness often impaired.	5–15 mm (or a number of cracks 3 mm or more in one group)	3
Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Window and door frames distort. Walls lean or bulge noticeably, some loss of bearing in beams. Service pipes disrupted.	15–25 mm but also depends on number of cracks	4

Gardens for a reactive site



extend outwards a minimum of 900 mm (more in highly reactive soil) and should have a minimum fall away from the building of 1:60. The finished paving should be no less than 100 mm below brick vent bases.

It is prudent to relocate drainage pipes away from this paving, if possible, to avoid complications from future leakage. If this is not practical, earthenware pipes should be replaced by PVC and backfilling should be of the same soil type as the surrounding soil and compacted to the same density.

Except in areas where freezing of water is an issue, it is wise to remove taps in the building area and relocate them well away from the building – preferably not uphill from it (see BTF 19).

It may be desirable to install a grated drain at the outside edge of the paving on the uphill side of the building. If subsoil drainage is needed this can be installed under the surface drain.

Condensation

In buildings with a subfloor void such as where bearers and joists support flooring, insufficient ventilation creates ideal conditions for condensation, particularly where there is little clearance between the floor and the ground. Condensation adds to the moisture already present in the subfloor and significantly slows the process of drying out. Installation of an adequate subfloor ventilation system, either natural or mechanical, is desirable.

Warning: Although this Building Technology File deals with cracking in buildings, it should be said that subfloor moisture can result in the development of other problems, notably:

- Water that is transmitted into masonry, metal or timber building elements causes damage and/or decay to those elements.
- High subfloor humidity and moisture content create an ideal environment for various pests, including termites and spiders.
- Where high moisture levels are transmitted to the flooring and walls, an increase in the dust mite count can ensue within the living areas. Dust mites, as well as dampness in general, can be a health hazard to inhabitants, particularly those who are abnormally susceptible to respiratory ailments.

The garden

The ideal vegetation layout is to have lawn or plants that require only light watering immediately adjacent to the drainage or paving edge, then more demanding plants, shrubs and trees spread out in that order.

Overwatering due to misuse of automatic watering systems is a common cause of saturation and water migration under footings. If it is necessary to use these systems, it is important to remove garden beds to a completely safe distance from buildings.

Existing trees

Where a tree is causing a problem of soil drying or there is the existence or threat of upheaval of footings, if the offending roots are subsidiary and their removal will not significantly damage the tree, they should be severed and a concrete or metal barrier placed vertically in the soil to prevent future root growth in the direction of the building. If it is not possible to remove the relevant roots without damage to the tree, an application to remove the tree should be made to the local authority. A prudent plan is to transplant likely offenders before they become a problem.

Information on trees, plants and shrubs

State departments overseeing agriculture can give information regarding root patterns, volume of water needed and safe distance from buildings of most species. Botanic gardens are also sources of information. For information on plant roots and drains, see Building Technology File 17.

Excavation

Excavation around footings must be properly engineered. Soil supporting footings can only be safely excavated at an angle that allows the soil under the footing to remain stable. This angle is called the angle of repose (or friction) and varies significantly between soil types and conditions. Removal of soil within the angle of repose will cause subsidence.

Remediation

Where erosion has occurred that has washed away soil adjacent to footings, soil of the same classification should be introduced and compacted to the same density. Where footings have been undermined, augmentation or other specialist work may be required. Remediation of footings and foundations is generally the realm of a specialist consultant.

Where isolated footings rise and fall because of swell/shrink effect, the homeowner may be tempted to alleviate floor bounce by filling the gap that has appeared between the bearer and the pier with blocking. The danger here is that when the next swell segment of the cycle occurs, the extra blocking will push the floor up into an accentuated dome and may also cause local shear failure in the soil. If it is necessary to use blocking, it should be by a pair of fine wedges and monitoring should be carried out fortnightly.

This BTF was prepared by John Lewer FAIB, MIAMA, Partner, Construction Diagnosis.

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CONSTRUCTION MONITORING SERVICES

Construction monitoring is a service, which provides the client with independent verification (to the extent of the consultant's engagement) that the works have been completed in accordance with specified requirements. Most construction projects are unique, and construction works are often complex in detail and skilled professional involvement is necessary for the successful execution of such projects.

The decision as to which level is appropriate will be project dependent, but factors influencing the level of construction monitoring for a project are the size and importance of the project, the complexity of the construction works, and the experience and demonstrated skill in quality management of the constructor. The primary responsibility for completing the contract works in accordance with the requirements of the plans and specifications is the constructor's.

The involvement of the consultants is important during the construction phase to ensure that the design is being correctly interpreted, the construction techniques are appropriate and do not reduce the effectiveness of the design and the work is completed generally in accordance with the plans and specifications. The risk of non-compliance can be reduced by increasing the involvement of the consultant.

Table 1 sets out the five levels of construction monitoring, describes the types of review and indicates where a particular level of monitoring is appropriate. Tables 2 and 3 provide rating values for various aspects of a project to enable an assessment of an appropriate monitoring level to be made.

Table 1

LEVEL	REVIEW	COMMENT
CM1	Monitor the outputs from another party's quality assurance programme against the requirements of the plans and specifications. Visit the works at a frequency agreed with the client to review important materials of construction critical work procedures and/or completed plant or components. Be available to advise the constructor on the technical interpretation of the plans and specifications.	This level is only a secondary service. It may be appropriate where:- For the design consultant when another party is engaged to provide a higher level of construction monitoring or review during the period of construction or:- When the project works are the subject of a performance based specification and performance testing is undertaken and monitored by others.
CM2	Review, preferable at the earliest opportunity, a sample of each important work procedure, material of construction and component for compliance with the requirements of the plans and specifications and review a representative sample of each important completed work prior to enclosure or completion s appropriate. Be available to provide the constructor with technical interpretation of the plans and specification.	This level of service is appropriate for smaller projects of a routine nature being undertaken by an experienced and competent constructor and where a higher than normal risk of non-compliance is acceptable. It provides for the review of a representative sample of work procedures and materials of construction. The assurance of compliance of the finished work is dependent upon the constructor completing the work to at least the same standard as the representative sample reviewed.
CM3	Review, to an extent agreed with the client, random samples of important work procedures, for compliance with the requirements of the plans and specifications and review important completed work prior to enclosure or on completion as appropriate. Be available to provide the constructor with technical interpretation of the plans and specifications.	This level of service is appropriate for medium sized projects of a routine nature being undertaken by an experienced constructor when a normal risk of non-compliance is acceptable.
CM4	Review, at a frequency agreed with the client, regular samples of work procedures, materials of construction and components for compliance with the requirements of the plans and specifications and review the majority of completed work prior to the enclosure or on completion as appropriate.	This level of service is appropriate for projects where a lower than normal risk of non-compliance is required.
CM5	Maintain personnel on site to constantly review work procedures, materials of construction and components for compliance with the requirements of the plans and specifications and review completed work prior to enclosure or on completion as appropriate.	This level of service is appropriate for Major projects -Projects where the consequences of failure are critical -Projects involving innovative or complex construction procedures. The level of service provides the client with the greatest assurance that the completed work complies with the requirements of the plans and specifications.

Source www.ipenz.org.nz/ipenz/practicesupport/endorsedinfo/codes

Table 2

CRITERIA	K	ASSESSMENT				SELECTED VALUE
Project Status		Small	Medium	Large	Major	
	KA	1	2	3	4	
Complexity of work procedures		Routine	Difficult	Complex		
	KB	2	4	6		
Constructor's relevant experience		Inexperienced	Experienced	Certified ISO 9000		
	KC	6	2	1		
Consequences of non-compliance		Minor	Moderate	Serious	Critical	
	KD	1	4	6	12	
					KTOTAL = KA + KB + KC + KD ->	

Table 3

	LEVEL OF CONSTRUCTION MONITORING				
KTOTAL	CM1	CM2	CM3	CM4	
5-6	-	Sampling only	-	-	-
7-8	-	N/A	Weekly	-	-
9-10	A	N/A	Twice Weekly	-	-
11-12	Secondary	N/A	N/A	Twice Weekly	-
13-14	Service	N/A	N/A	Every second day	-
15-16	-	N/A	N/A	Daily	-
17-	-	N/A	N/A	N/A	Constant

N/A = Not Appropriate

- Secondary Service - This level of service is only appropriate when another party is responsible for undertaking the primary review of construction standards.
- Table 3 indicates the frequency of review considered to be appropriate for the project concerned. Not indicated is the time input requirement at each review. The time on each occasion will increase with the increased size and complexity of the construction works and should be agreed with the consultant at the time of engagement.
- Frequency of inspection is intended to be indicative of involvement with actual frequency dependent on the rate of progress of the works.

Wilton Joubert Limited
185 Waipapa Road
Kerikeri 0295

Geotechnical Review Memorandum

To:	Peter Honeyfield	Date:	2 July 2024
Site:	269E Optito Bay Road, Kerikeri,	Ref:	131797
Re:	Geotechnical Review of Pool House Proposals		

We have reviewed the Arcline Architectural Ltd drawings RC set time stamped 11/06/2024, 4:15pm, in relation to the content of our geotechnical report ref 131797, dated 9 February 2024, which had been based on sketches only for the building proposals. Since then, the writer has been to site and viewed the pegged locations for the leading edge of the pool house deck, and these latest drawings show more specific information in regard to the nature and location of the proposed pool house, this having been set to achieve "dramatic effect" while overlooking the sea views.

It is noted that although the stability analyses reported in our previous report found satisfactory factors of safety for the slope against calamitous deep-seated instability, the now delineated building location will place it in close proximity to steep soils which, having observed the presence of a sidling soil crack at the crest of the slope, we consider would be prone to the more pernicious phenomenon of soil creep.

Soil creep is largely a cyclical phenomenon arising out of seasonal variations in groundwater, resulting in shrinking and swelling of surficial plastic soils. In the dry seasons, the soils shrink and tension cracks are formed, sometimes with some minor down slope movement. When it rains, those cracks fill with water, which not only softens the adjacent soils, but also exerts hydrostatic lateral pressures on the sides of the cracks. As the desiccated soils absorb this free water, they swell, and exert further lateral pressures on the adjacent block of soil. Conversely, as a block dries, it shrinks, and doing so under gravity, causes it to shrink away and remove support from the next block of soil above it.

This cyclic action leads to the formation of "minor slump terracettes", which, because they are often exacerbated by the passage of stock, are more commonly known as sheep tracks, and which are readily visible around areas of steep country-side. Hence, the soil 'creeps' downhill in blocks.

To contend with creep on less steep slopes, typically foundations on or within about 5 metres of slopes of 1V to 4H or steeper might be designed to resist loss of lateral down-slope support, extending to an appropriate depth below ground level, and which for poles, results in a load acting over a width of 3 pile diameters. For example, where cut benches are employed, once the cut depth exceeds the creep depth, this requirement may be able to be relaxed, provided that continued creep movement below the bench will not result in an increased loss of support to any structure above.

So on this site, a robust approach would be to encapsulate the building behind a buried barrier pile wall of sufficient strength, rigidity and depth and which might then permit some appropriate amelioration of the building's foundation requirements. The use of such a wall recognises that soils down-slope of it may still be permitted to creep, and that with the passage of time, the wall is called upon more and more, to serve its purpose. We also recommend the general planting and maintenance of high water demand trees and shrubs on slopes steeper than 1V:4H, to help reduce the effects of near surface soil creep, and care should also be taken to avoid concentrating stormwater flows into or onto the underlying soils but rather, intercept and discharge them to an inconsequential overland flow path or bubble-up level-spreader. If such creep is to be avoided or remediated at a later date then further engineering works such as Soil Nailing might be implemented.

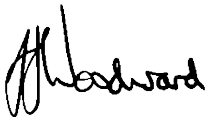
Therefore, the design of such a barrier pile wall depends on its location relative to both the slopes and the building, but in any event, the closer a wall is to either, the stiffer it should be. Providing some clearance between the wall and the building foundations is desirable to ensure access for general landscape maintenance, and cantilevering the deck out from the building foundation line as proposed should serve this purpose.

The final depth and strength of the wall are best determined by the structural engineering requirements at the time of Building Consent application, so that the slope, wall and building all work in holistic harmony, but in the underlying Waipapa Group geology on this site, we would expect soil creep to be active to around 1.0 to 1.5m depth, depending on the steepness of the slopes.

Thank you for the opportunity to provide our service on this project, and if we can be of further assistance, please do not hesitate to contact us.

Yours faithfully,

WILTON JOUBERT LIMITED



Simon Woodward
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ME (Civil), CMEngNZ, CPEng
Chartered Member Engineering NZ
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Non-Reticulated Firefighting Water Supplies, Vehicular Access & Vegetation Risk Reduction Application for New and Existing Residential Dwellings and Sub-Divisions

Contents

Section A - Firefighting Water Supplies and Vegetation Risk Reduction Waiver

"Fire and Emergency New Zealand strongly recommends the installation of automatic fire detection system devices such as smoke alarms for early warning of a fire and fire suppression systems such as sprinklers in buildings (irrespective of the water supply) to provide maximum protection to life and property".

Waiver Explanation Intent

Fire and Emergency New Zealand [FENZ] use the New Zealand Fire Service [NZFS] Code of Practice for firefighting water supplies (SNZ PAS 5409:2008) (The Code) as a tool to establish the quantity of water required for firefighting purposes in relation to a specific hazard (Dwelling, Building) based on its fire hazard classification regardless if they are located within urban fire districts with a reticulated water supply or a non-reticulated water supply in rural areas. The code has been adopted by the Territorial Authorities and Water Supply Authorities. The code can be used by developers and property owners to assess the adequacy of the firefighting water supply for new or existing buildings.

The Area Manager under the delegated authority of the Fire Region Manager is responsible for approving applications in relation to firefighting water supplies. The Area Manager may accept a variation or reduction in the amount of water required for firefighting for example; a single level dwelling measuring 200^{m2} requires 45,000L of firefighter water under the code, however the Area Managers in Northland have excepted a reduction to 10,000L.

This application form is used for the assessment of proposed water supplies for firefighting in non-reticulated areas only and is referenced from (Appendix B – Alternative Firefighting Water Sources) of the code. This application also provides fire risk reduction guidance in relation to vegetation and the 20-metre dripline rule under the Territorial Authority's District Plan. Fire and Emergency New Zealand are not a consenting authority and the final determination rests with the Territorial Authority.

For more information in relation to the code of practice for Firefighting Water supplies, Emergency Vehicle Access requirements, Home Fire Safety advice and Vegetation Risk Reduction Strategies visit www.fireandemergency.nz

Section B – Applicant Information

Applicants Information	
Name:	Peter and Joan Honeyfield
Address:	269E Opito Bay Road, Kerikeri
Contact Details:	c/- Bay of Islands Planning Limited
Return Email Address:	steve@bayplan.co.nz

Section C – Property Details

Property Details	
Address of Property:	269E Opito Bay Road, Kerikeri
Lot Number/s:	Lot 3 DP 55229
Dwelling Size: (Area = Length & Width)	90m2
Number of levels: (Single / Multiple)	1

1. Fire Appliance Access to alternative firefighting water sources - Expected Parking Place & Turning circle

Fire and Emergency have specific requirements for fire appliance access to buildings and the firefighting water supply. This area is termed the hard stand. The roading gradient should not exceed 16%. The roading surface should be sealed, able to take the weight of a 14 to 20-tonne truck and trafficable at all times. The minimum roading width should not be less than 4 m and the property entrance no less 3.5 metres wide. The height clearance along access ways must exceed 4 metres with no obstructions for example; trees, hanging cables, and overhanging eaves.

1 (a) Fire Appliance Access / Right of Way	
Is there at least 4 metres clearance overhead free from obstructions?	☒YES ☐NO
Is the access at least 4 metres wide?	☒YES ☐NO
Is the surface designed to support a 20-tonne truck?	☒YES ☐NO
Are the gradients less than 16%	☒YES ☐NO
Fire Appliance parking distance from the proposed water supply is approximately 20 metres	

If access to the proposed firefighting water supply is not achievable using a fire appliance, firefighters will need to use portable fire pumps. Firefighters will require at least a one-metre wide clear path / walkway to carry equipment to the water supply, and a working area of two metres by two metres for firefighting equipment to be set up and operated.

1 (b) Restricted access to firefighting water supply, portable pumps required
Has suitable access been provided? ☒YES ☐ NO
Comments: Access considered suitable for appliance.

Internal FENZ Risk Reduction comments only:

Click or tap here to enter text.

2. Firefighting Water Supplies (FFWS)

What are you proposing to use as your firefighting water supply?

2 (a) Water Supply Single Dwelling	
Tank	☐ Concrete Tank ☐ Plastic Tank ☐ Above Ground (Fire Service coupling is required - 100mm screw thread suction coupling) ☐ Part Buried (max exposed 1.500 mm above ground) ☐ Fully Buried (access through filler spout) Volume of dedicated firefighting water Click or tap here to enter text.litres

2 (b) Water Supply Multi-Title Subdivision Lots / Communal Supply	
Tank Farm	☐ Concrete Tank ☐ Plastic Tank ☐ Above Ground (Fire Service coupling is required - 100mm screw thread suction coupling) ☐ Part Buried (max exposed 1.500mm above ground) ☐ Fully Buried (access through filler spout) Number of tanks provided Click or tap here to enter text. Number of Tank Farms provided Click or tap here to enter text. Water volume at each Tank Farm Click or tap here to enter text. Litres Volume of dedicated firefighting water Click or tap here to enter text. litres

2 (c) Alternative Water Supply	
Pond:	Volume of water: Click or tap here to enter text.
Pool:	Volume of water: 38,000l
Other:	Specify: Click or tap here to enter text.
	Volume of water: Click or tap here to enter text.

Internal FENZ Risk Reduction comments only:

Click or tap here to enter text.

3. Water Supply Location

The code requires the available water supply to be at least 6 metres from a building for firefighter safety, with a maximum distance of 90 metres from any building. This is the same for a single dwelling or a Multi-Lot residential subdivision. Is the proposed water supply within these requirements?

3 (a) Water Supply Location	
Minimum Distance:	*Is your water supply at least 6 metres from the building?* ☒YES ☐ NO
Maximum Distance	*Is your water supply no more than 90 metres from the building?* ☒YES ☐ NO

3 (b) Visibility
How will the water supply be readily identifiable to responding firefighters? E.g.: tank is visible to arriving firefighters or, there are signs / markers posts visible from the parking place directing them to the tank etc.
Comments: Pool area visible from main house.

3 (c) Security
How will the FFWS be reasonably protected from tampering? E.g.: light chain and padlock or, cable tie on the valve etc.
Explain how this will be achieved: Pool will not be tampered with.

Internal FENZ Risk Reduction comments only:

Click or tap here to enter text.

4. Adequacy of Supply

The volume of storage that is reserved for firefighting purposes must not be used for normal operational requirements. Additional storage must be provided to balance diurnal peak demand, seasonal peak demand and normal system failures, for instance power outages. The intent is that there should always be sufficient volumes of water available for firefighting, except during Civil Défense emergencies or by prior arrangement with the Fire Region Manager.

4 (a) Adequacy of Water supply
Note: *The owner must maintain the firefighting water supply all year round. How will the usable capacity proposed be reliably maintained? E.g. automatically keep the tank topped up, drip feed, rain water, ballcock system, or manual refilling after use etc.*
Comments: Pool has sufficient volume all year round

Internal FENZ Risk Reduction comments only:
Click or tap here to enter text.

5. Alternative Method using Appendix's H & J

If Table 1 + 2 from the Code of Practice is not being used for the calculation of the Firefighting Water Supply, a competent person using appendix H and J from the Code of Practice can propose an alternative method to determine firefighting water supply adequacy.

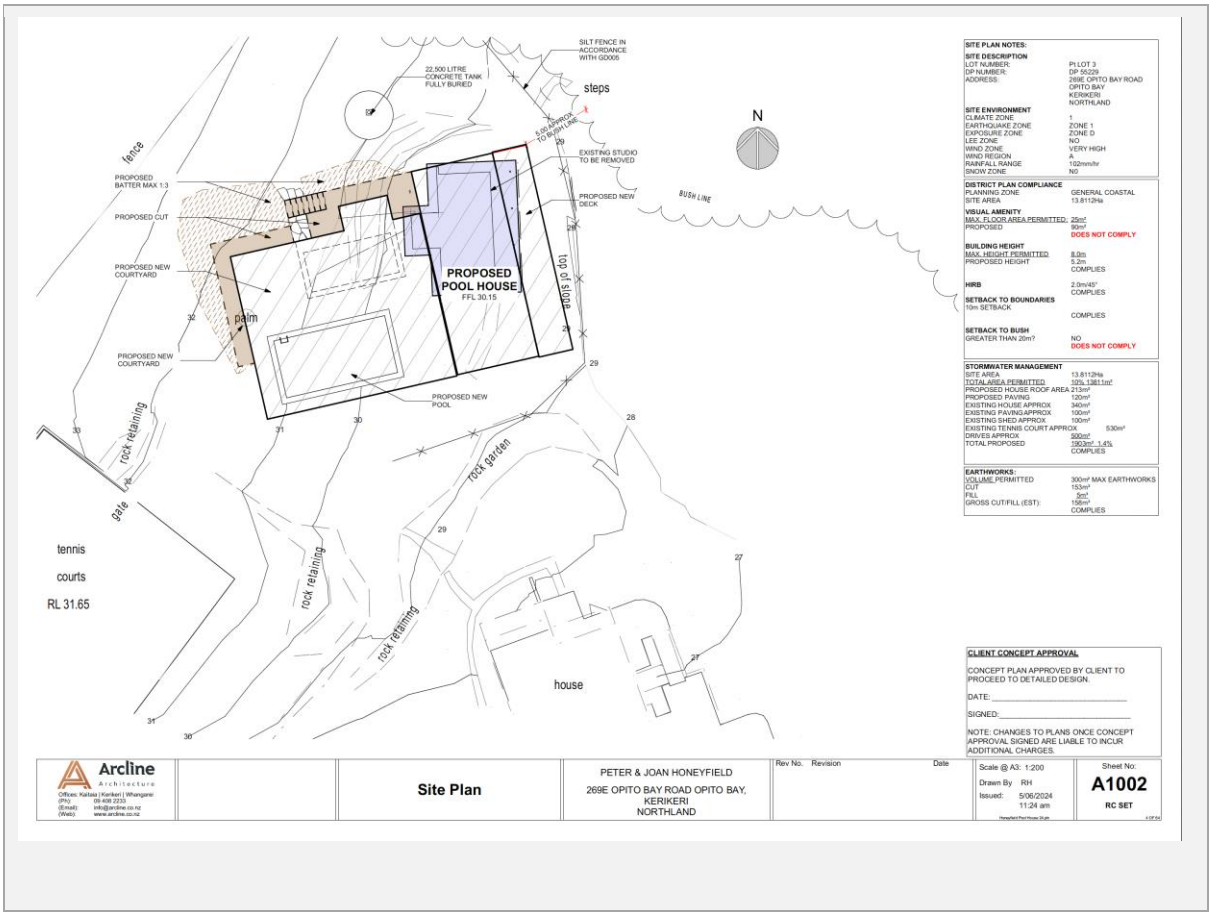
Appendix H describes a method for determining the maximum fire size in a structure. Appendix J describes a method for assessing the adequacy of the firefighting water supply to the premises.

5 (a) Alternative Method Appendix H & J	
If an alternative method of determining the FFWS has been proposed, who proposed it? Name: Click or tap here to enter text.	
Contact Details: Click or tap here to enter text.	
Proposed volume of storage?	Litres: Click or tap here to enter text.
Comments: Click or tap here to enter text. ** Please provide a copy of the calculations for consideration.*	

Internal FENZ Risk Reduction comments only: Click or tap here to enter text.

6. Diagram

Please provide a diagram identifying the location of the dwelling/s, the proposed firefighting water supply and the attendance point of the fire appliance to support your application.



Internal FENZ Risk Reduction comments only:

Click or tap here to enter text.

7. Vegetation Risk Reduction - Fire + Fuel = Why Homes Burn

Properties that are residential, industrial or agricultural, are on the urban–rural interface if they are next to vegetation, whether it is forest, scrubland, or in a rural setting. Properties in these areas are at greater risk of wildfire due to the increased presence of nearby vegetation.

In order to mitigate the risk of fire spread from surrounding vegetation to the proposed building and vice-versa, Fire Emergency New Zealand recommends the following;

I. *Fire safe construction*

Spouting and gutters – Clear regularly and consider screening with metal mesh. Embers can easily ignite dry material that collects in gutters.

Roof – Use fire resistant material such as steel or tile. Avoid butanol and rubber compounds.

Cladding – Stucco, metal sidings, brick, concrete, and fibre cement cladding are more fire resistant than wood or vinyl cladding.

II. *Establish Safety Zones around your home.*

Safety Zone 1 is your most import line of defence and requires the most consideration. Safety Zone 1 extends to 10 metres from your home, you should;

a) *Mow lawn and plant low-growing fire-resistant plants; and*
b) *Thin and prune trees and shrubs; and*
c) *Avoid tall trees close to the house; and*
d) *Use gravel or decorative crushed rock instead of bark or wood chip mulch; and*
e) *Remove flammable debris like twigs, pine needles and dead leaves from the roof and around and under the house and decks; and*
f) *Remove dead plant material along the fence lines and keep the grass short; and*
g) *Remove over hanging branches near powerlines in both Zone 1 and 2.*

III. *Safety Zone 2 extends from 10 – 30 metres of your home.*

a) *Remove scrub and dead or dying plants and trees; and*
b) *Thin excess trees; and*
c) *Evenly space remaining trees so the crowns are separated by 3-6 metres; and*
d) *Avoid planting clusters of highly flammable trees and shrubs*
e) *Prune tree branches to a height of 2 metres from the ground.*

IV. *Choose Fire Resistant Plants*

Fire resistant plants aren't fire proof, but they do not readily ignite. Most deciduous trees and shrubs are fire resistant. Some of these include: poplar, maple, ash, birch and willow. Install domestic sprinklers on the exterior of the sides of the building that are less 20 metres from the vegetation. Examples of highly flammable plants are: pine, cypress, cedar, fir, larch, redwood, spruce, kanuka, manuka.

For more information please go to https://www.fireandemergency.nz/at-home/the-threat-of-rural-fire/

If your building or dwelling is next to vegetation, whether it is forest, scrubland, or in a rural setting, please detail below what Risk Reduction measures you will take to mitigate the risk of fire development and spread involving vegetation?

7 (a) Vegetation Risk Reduction Strategy
Above mitigation measures will be implemented where possible.

Internal FENZ Risk Reduction comments only:

Click or tap here to enter text.

8. Applicant

Checklist	
☒	Site plan (scale drawing) – including; where to park a fire appliance, water supply, any other relevant information.
☒	Any other supporting documentation (diagrams, consent).

I submit this proposal for assessment.

Name: Steven Sanson Dated: 25/06/2024

Contact No.: 0211606035

Email: steve@bayplan.co.nz

Signature: Steven Sanson

9. Approval

In reviewing the information that you have provided in relation to your application being approximately a Click or tap here to enter text. *square metre,* Choose an item. *dwelling/sub division, and non-sprinkler protected.*

The Area Manager of Fire and Emergency New Zealand under delegated authority from the Fire Region Manager, Te Hiku, has assessed the proposal in relation to firefighting water supplies and the vegetation risk strategy. The Manager Choose an item. *agree with the proposed alternate method of Fire Fighting Water Supplies. Furthermore; the Manager agrees with the Vegetation Risk Reduction strategies proposed by the applicant.*

Name: Click or tap here to enter text.

Signature: Click or tap here to enter text. Dated: Click or tap to enter a date.

P.P on behalf of the Area Manager

Fire and Emergency New Zealand
Te Tai Tokerau / Northland District

APPROVED
By GoffinJ at 9:53 am, Jul 01, 2024

Jason Goffin- Advisor Risk Reduction