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

Office Use Only
Application Number:

Application for resource consent or fast-track resource consent

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

1. Pre-Lodgement Meeting

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

2. Type of Consent being applied for

(more than one circle can be ticked):

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

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

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

◯ **Yes** ◯ **No** If we qualify it will be great to have this.

4. Consultation

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

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

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

5. Applicant Details

Name/s: Angela Vujcich

Email:

Phone number:

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

6. Address for Correspondence

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

Name/s: CPPC Planning - Claire Phillips

Email:

Phone number:

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

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

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

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

Name/s: Winnie Mitchell Descendants Whanau Trust

Property Address/ Location: 583 Matawaia-Maromaku Road, Matawaia

Postcode

8. Application Site Details

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

Name/s: Winnie Mitchell Descendants Whanau Trust

Site Address/ Location: 583 Matawaia-Maromaku Road, Matawaia

Postcode

Legal Description: Motatau 2 Section 29A 2 Block Bloc **Val Number:**

Certificate of title:

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 let advise when site visit will be planned - stock could be present and whanau live on site

9. Description of the Proposal:

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

To relocate 4 brand new pre built dwellings to site.
Please refer to the AEE for further details.

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

10. Would you like to request Public Notification?

◯ **Yes** ✔ **No**

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

(more than one circle can be ticked):

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

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

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

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

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

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

13. Assessment of Environmental Effects:

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

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

13. Draft Conditions:

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

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

14. Billing Details:

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

Name/s: (please write in full)	Advance Build Ltd
Email:	
Phone number:	
Postal address: (or alternative method of service under section 352 of the act)	

Fees Information

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

Declaration concerning Payment of Fees

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

Name: (please write in full)	Angela Vujcich	
Signature: (signature of bill payer		Date 10-Feb-2026

MANDATORY

15. Important Information:

Note to applicant

You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.

You may apply for 2 or more resource consents that are needed for the same activity on the same form. You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991.

Fast-track application

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

Privacy Information:

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

15. Important information continued...

Declaration

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

Name: (please write in full) Angela Vujcich

Signature:

Date 10-Feb-2026

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

Checklist (please tick if information is provided)

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

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

CPPC PLANNING
PLANNING DEVELOPMENT CONSULTANT

PO Box 550, Warkworth 0941
Mobile: 021 302 340
Email: claire.phillips1@xtra.co.nz
Web: www.cppcplanning.co.nz

RESOURCE CONSENT APPLICATION FOR 583 MATAWAIA-MAROMAKU ROAD,MATAWAIA

FEBRUARY 2026

CONTENTS

APPLICANT DETAILS

Applicant:	Advance Build
Owners:	Winnie Mitchell Descendants Whanau Trust – See title for list
Site Address:	583 Matawaia-Maromaku Road, Matawaia
Legal Description:	Motatau 2 Section 29A 2 Block Block
Site Area:	61.1840 hectares
Consent:	Land Use
Activity:	Land use consent for the relocation four new prebuilt papakainga dwellings and servicing.
District Plan Zones:	
Operative District Plan	
	Zone Rural Production
	Overlays Flood Susceptible Land River Flood Zone Railway
Proposed District plan	
	Zone Maori Purpose – Rural
Address for Service:	Claire Phillips Consultant Planner CPPC Planning PO Box 550, Warkworth, 0941, New Zealand Mobile: 021302340 Email: claire.phillips1@xtra.co.nz

Consent is being sought pursuant to section 88 of the Resource Management Act 1991 for the relocation four new prebuilt papakainga dwellings and servicing. There will be a total of 8 papakainga dwellings at 583 Matawaia-Maromako Road, Maromako.

The proposal involves the following elements:

- The existing four papakainga dwellings are to be retained on-site.

- The construction of four new dwellings are proposed at the factory, then relocated to the application site. All four dwellings have the same floor plan and elevations. Each of the dwelling will have a floor area of 93.6m^2 and will contain three bedrooms, bathroom, laundry, kitchen, dining and living room. Each dwelling will have an entry deck (1.98m^2) and larger deck (12.48m^2) of the living area.

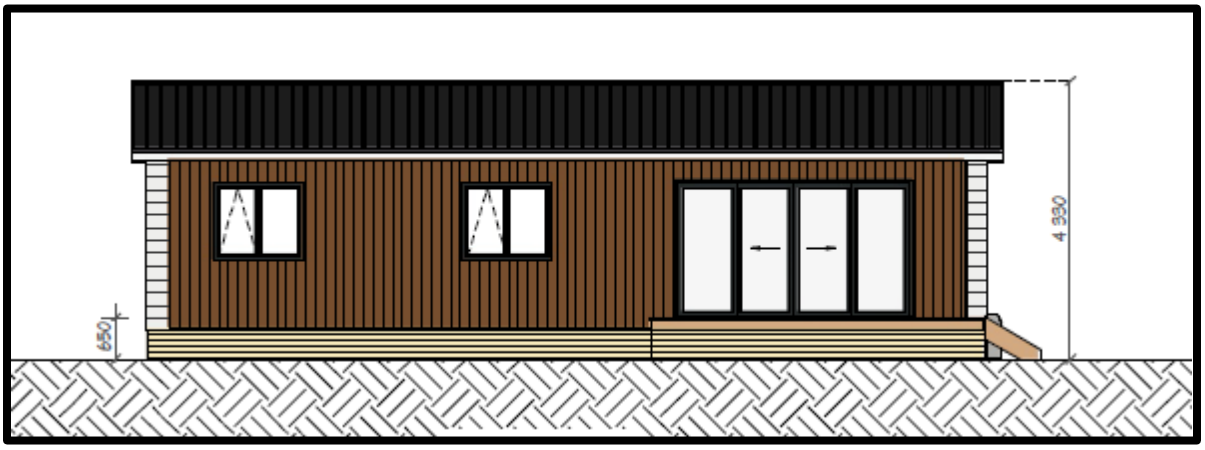


Figure 1: Elevation of House 1

- The new dwellings are to be constructed out of weathergroove cladding, aluminum joinery and colorsteel roofing with a mixture of recessive colours and complimentary with one another.

- Houses 1 to 3 will each have two 25,000 litre water tanks for water supply. House 4 will have two 30,000 litre water tank for water supply. Provision within these water tanks will allow for firefighting supply.

- Water Flow NZ Ltd has proposed an on-site septic system for each zone for effluent disposal and will be designed in accordance with TP 58. Details of on-site wastewater can be found in the report prepared by Water Flow NZ Ltd. Regional consent is being sought by others for wastewater.

- To provide for driveway access to the papakainga dwellings earthworks are to be undertaken over an area of 487.20m^2 and with a volume of 247.68m^3. Any earthworks will be undertaken in accordance with Council's Guidance Document GD05 which provides guidance on erosion and sediment control. In particular this proposal will utilize silt fencing and a stabilized crossing with Matawaia-Maromaku Road. Further earthworks are proposed to be undertaken during good weather conditions. It is noted that we are seeking separate consent from NRC for works within 10 metres of a watercourse.

- The proposal involves impervious surfaces of 5650.8m^2, which includes the proposed dwellings, existing dwellings, driveways and new access. All stormwater/water from the roof is to be collected for portable water supply with an on-site detention tank to mitigate post development flows. The proposed driveway and access are to be shaped and directed towards grass lined swale for stormwater run off.

- To provide access to the proposed development, the existing driveway is proposed to be upgraded (3.0 metres carriageway and passing bays, upgrade culvert at CH660m and gradient less than 20%) and extended to accommodate the proposed development and exiting four users. This will include a new bridge. The crossing with Matawaia-Maromaku Road has suitable site distances and formation. It is acknowledged that the property is accessed and traverses the North Auckland Line (KiwiRail). Consultation is underway with KiwiRail for a Level Crossing Deed of Grant Agreement to permit access. We will be upgrading this to comply with Council. Based on the plan, vehicle movements associate with Papakainga will be in the vicinity of 40 traffic vehicle intensity (TIF), which includes the existing four dwellings.

- It is noted that we consenting is underway with the Northland Regional Council for earthworks within 10 metres of a natural wetland and wastewater.

RECORD OF TITLE

The subject property is currently legally described as Motatau 2 Section 29A 2 Block Block with an area of 61.1840 hectares and is contained with Identifier 500543. Interest 8299034.3 declares the land Maori Freehold Land.

SITE DESCRIPTION

The property contains four existing dwellings and accessory buildings. The property is accessed over an existing driveway from Matawaia-Maromaku Road as well as access over the North Auckland Railway Line.

There is a stream that traverses the property, with a bridge crossing over.

The remainder of the property is in grass, indigenous vegetation through the property. The topography is undulating.

Figure 5: Aerial Photo of site and locality – Source – FNDC maps

Photo 1: View of existing bridge crossing

Photo 2: View of existing access, including railway crossing

FAR NORTH DISTRICT COUNCIL – OPERATIVE DISTRICT PLAN

The subject site is zoned Rural Production as shown on the portion of planning map below:

Figure 6: Zone Map – Source – Far North Operative District Plan

Chapter 8 – Rural Environment

Section 6 – Rural Production Zone

- Papakainga housing is a controlled activity in the Rural Production Zone under Rule 8.6.5.2.2. The papakainga housing cannot comply with the permitted standards (setback and impervious surfaces), but complies with the other provisions, therefore Rule 6.6.5.4.2 for Integrated Development applies as a **Discretionary Activity**.

Chapter 15 -Transportation

Section 1 – Traffic, Parking and Access

- Based on Appendix 3A Traffic Intensity Factor (TIF), each papakainga house equates to 5 one-way vehicle movements. As there will be 5 papakainga houses on-site, there will be a total TIF of 40. Rule 15.1.6A states that a Rural Production Zoned property allows for a total TIF of 60 as a permitted activity.

- Based on Appendix 3C Parking Spaces Required (PSR), 1 space for the first house plus one space per 2 additional house. As there will be 5 papakainga houses on-site, there will be 9 parking spaces required under Rule 15.1.6B.1.1. Each new dwelling has 2 spaces provided therefore complies as a permitted activity.

- Rule 15.1.6C.1.1(a) states that the construction of private accessway is to be undertaken in accordance with Appendix 3B-1 in Part 4 of this Plan. Appendix 3B-1 states that for between 6-8 household equivalents requires a carriageway width of 5.0 metres. In this instance, the carriageway width is proposed to be 3.0 metres. To infringe this standard is a **Discretionary Activity** under Rule 15.1.6C.2(a). It is noted that passing bays will be provided in accordance with Rule 15.1.6C.1.3.

FAR NORTH DISTRICT COUNCIL – PROPOSED DISTRICT PLAN

The Far North Proposed District Plan was notified on July 27, 2022. Only some parts of this plan have legal effects and only those rules where relevant are assessed below.

The subject site is zoned Maori Purpose – Rural as shown on the portion of planning map below:

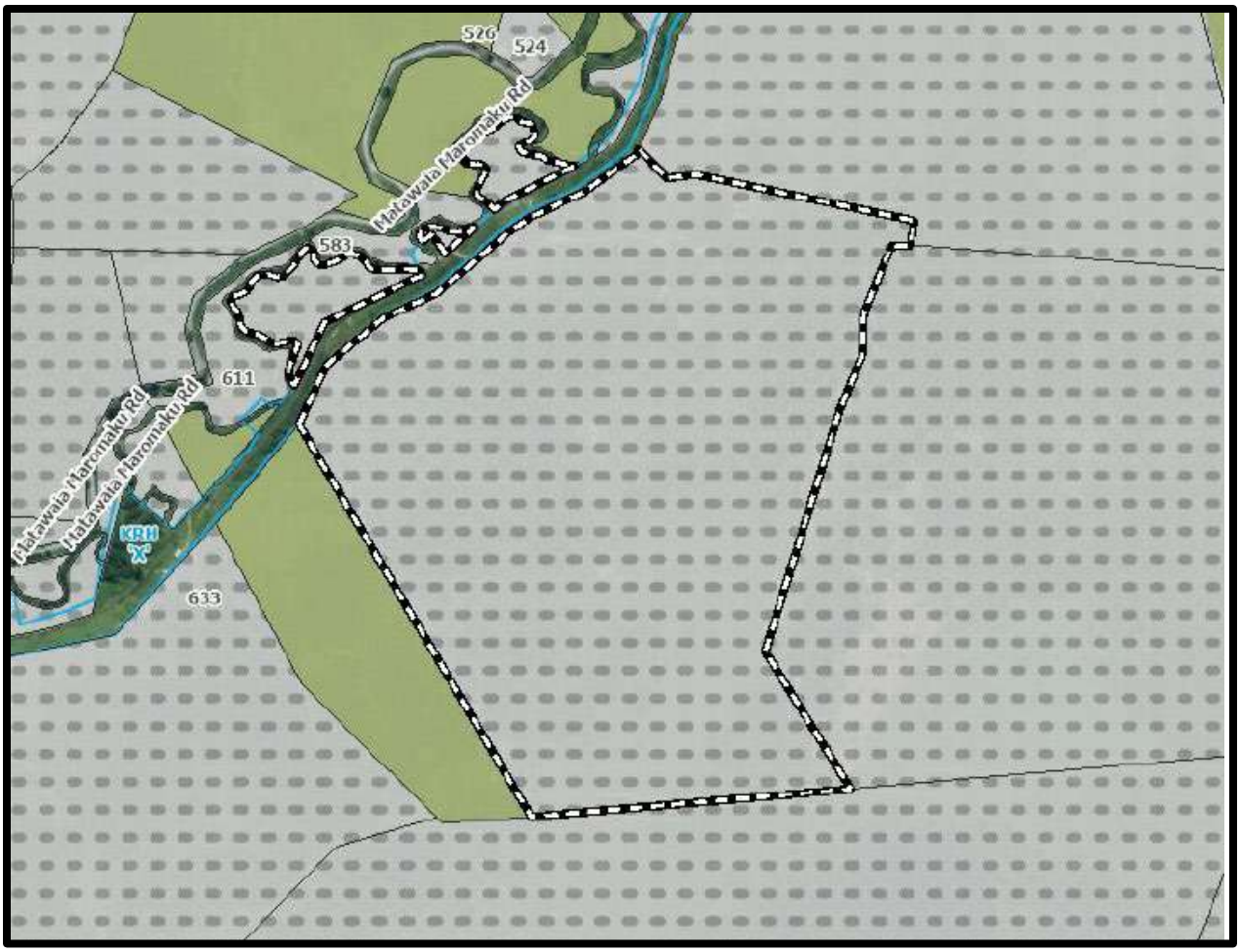


Figure 7: Zone Map Source – Far North Proposed District Plan

PART 2 – DISTRICT-WIDE MATTERS - NATURAL ENVIRONMENT VALUES - Natural character

- No parts of this chapter have legal effect.

Part 2 – District Wide – General District Wide Matter Earthworks

- Earthworks that comply with the standards in EW-S5 Erosion and Sediment Control are permitted under rule EW-R13. As demonstrated on the plans and within this application, the proposal involves the installation of a stabilized crossing and silt fencing, that is commensurate of the level of earthworks proposed. Accidental discovery protocol will be employed should discovery occur.

PART 3 – AREA-SPECIFIC MATTERS - SPECIAL PURPOSE ZONES - Māori Purpose

- No parts of this chapter have legal effect.

Note: The above only reflects those rules that have immediate legal effect. If the Council considers that more rules require assessment, I am sure you will let us know.

Overall, the proposal is considered to be a Discretionary Activity.

PUBLIC NOTIFICATION ASSESSMENT

ASSESSMENT OF STEPS 1 TO 4 (SECTION 95A)

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

STEP 1: MANDATORY PUBLIC NOTIFICATION IN CERTAIN CIRCUMSTANCES

Step 1 states that no mandatory notification is required as:

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

In this case the applicant does not request notification.

STEP 2: IF NOT REQUIRED BY STEP 1, PUBLIC NOTIFICATION PRECLUDED IN CERTAIN CIRCUMSTANCES

Step 2 states that the application is not precluded from public notification as:

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

In this case, the proposal is not precluded from notification.

STEP 3: IF NOT PRECLUDED BY STEP 2, PUBLIC NOTIFICATION REQUIRED IN CERTAIN CIRCUMSTANCES

The application is not required to be publicly notified as the activity are not subject to any rule or a NES that requires public notification (s95A(8)(a)).

The following assessment addresses the adverse effects of the activities on the environment, as public notification is required if the activities will have or are likely to have adverse effects on the environment that are more than minor (s95A(8)(b)).

STEP 4: PUBLIC NOTIFICATION IN SPECIAL CIRCUMSTANCES

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

Special circumstances are those that are:

- exceptional, abnormal or unusual, but something less than extraordinary or unique.
- outside of the common run of applications of this nature; or
- circumstances which make notification desirable.

In this instance I have turned my mind specifically to the existence of any special circumstances and conclude that there is nothing exceptional or unusual about the application, and that the proposal has nothing out of the ordinary run of things to suggest that public notification should occur.

ASSESSMENT OF ENVIORNMENTAL EFFECTS

EXISTING ENVIRONMENT AND PERMITTED BASELINE

ENVIRONMENT

The 'Environment' includes the 'Existing Environment' which includes all lawfully established activities that exist – and the 'Future Environment' which includes the effects of activities enabled by an unimplemented consent where the consent is 'live' that have not lapsed and there are no reasons why the consent is not likely to be implemented.

These activities and their constituent effects form part of the existing (lawfully established) environment.

In this case the site and locality have been described in the site description above.

PERMITTED BASELINE

RMA states that for the purposes of formulating an opinion as to whether the adverse effects on the environment will be minor or more than minor a consent authority may disregard an adverse effect of an activity on the environment if the plan permits an activity with that effect. In this case the site is within Rural Production Zone and the following activities are provided for as it relates to this application:

- The traffic intensity value for each dwelling is 5 vehicle movements, the proposal results in 25 vehicle movements, with 60 movements permitted from the site.
- Earthworks up to 5000m^3 and with a cut/fill less than 1.5 metres in height.

ASSESSMENT OF EFFECTS

Having regard to the above and after an analysis of the application, including any proposed mitigation measures, the adverse effects of the activity on the environment are identified and discussed below.

RURAL CHARACTER AND AMENITY VALUES

The character and amenity values of an area are those special qualities, in particular natural and physical characteristics that make an area pleasant, unique or different.

In this case, the site is within the Rural Production Zone, known for a wide range of rural and rural residential activities. The property in the vicinity of the Motatau Marae to the north west. The property contains existing built development, with the introduction of more papakainga housing to complement the existing activities operating in this locality.

The future development will be integrated into the site through design as well as some screen planting proposed, which will help to screen the papakainga. The scale and design of the proposed Papakainga Houses will be better suited and integrated into the site through the proposed landscape planting, design of buildings along with their colour pallet, being appropriate for this rural zone.

The development will not result in buildings that could be considered dominant or out of character, particularly when viewed in conjunction with other dwellings of this nature and are considered to be an improvement on the existing buildings within the site to be removed.

These factors when combined with the minor nature of the infringement, ensures that any effects on are considered to be no more than minor. There will be no obvious differences which differentiate the infringement from that of a complying activity, particularly when viewed from adjacent properties.

The dwelling is considered to be of a size and scale consistent with other dwellings in this immediate vicinity, therefore will maintain the existing character of the area.

Overall, it is considered that the adverse effects of the proposed dwelling on residential character and visual amenity will be no more than minor.

CULTURAL/HISTORIC HERITAGE

There are no known heritage sites or archaeological sites within the area adjacent to the application site.

In accordance with standard protocols accidental discovery, work must cease immediately, and Council and Heritage NZ notified should any archaeological or heritage site be uncovered during the earthworks. Given this standard and the relatively unlikely nature of any archaeological site being uncovered, it is considered that the effects of the proposal on cultural matters will be less than minor.

The proposal will not have effects on the cultural or heritage values of the area.

EARTHWORKS

To provide for driveway access to the papakainga dwellings earthworks are to be undertaken over an area of 487.20m^2 and with a volume of 247.68m^3. Any earthworks will be undertaken in accordance with Council's Guidance Document GD05 which provides guidance on erosion and sediment control. In particular this proposal will utilize silt fencing and a stabilized crossing with Waimanoni Road. Further earthworks are proposed to be undertaken during good weather conditions.

The main adverse effects on the environment that could potentially arise from earthworks relate to the silt discharge from the earthworks site. The building platform is vacant of any vegetation apart from pasture. If silt is uncontrolled, it can create adverse effects on water quality of a waterway.

The effect of the proposed earthworks on water quality and quantity will be largely avoided by the location of the proposed earthworks being relatively distant from any waterways.

The applicant is to install measures to control and/or mitigate any silt/stormwater run-off. In particular the applicant proposes to install appropriate silt fencing until the completion of the dwelling construction. Further the earthworks will be undertaken during good weather in order to minimise sediment run-off.

The applicant intends to implement erosion and sediment control measures in accordance with the Auckland Councils GD05, which in this case includes clean water diversion and a sediment pond, as well as a stabilised crossing.

In terms of off-site effects such as noise, dust, vibration, and traffic generation, these effects on the surrounding environment will be no more than minor, given that the majority of earthworks are cut to fill on the site and because of the central location of the works within the site.

Overall, it is considered that the proposed earthworks will not compromise the use of the surrounding land for any other permitted or controlled activities and the potential off-site effects of the earthworks such as noise, dust, vibration, and traffic generation are considered to be no more than minor.

TRAFFIC AND ACCESS EFFECTS

To provide access to the proposed development, the existing driveway is proposed to be upgraded (3.0 metres carriageway and passing bays, upgrade culvert at CH660m and gradient less than 20%) and extended to accommodate the proposed development and exiting four users. This will include a new bridge. The crossing with Matawaia-Maromaku Road has suitable site distances and formation. It is acknowledged that the property is accessed and traverses the North Auckland Line (KiwiRail). Consultation is underway with KiwiRail for a Level Crossing Deed of Grant Agreement to permit access. We will be upgrading this to comply with Council. Based on the plan, vehicle movements associate with Papakainga will be in the vicinity of 40 traffic vehicle intensity (TIF), which includes the existing four dwellings.

The level of traffic that will frequent the site is appropriate and consistent with other rural properties, being well within the envisaged or allowable 60 vehicle movements. Each dwelling will have the provision for two car parking spaces along with appropriate on-site manoeuvring, ensuring vehicles leave the site forward facing.

Construction machinery will be delivered to the site for the earthworks and once the earthworks and associated impervious surfaces are completed the construction machinery will be removed. The traffic movements to and from the site will be minimal and not outside the level anticipated in a Rural Production zone.

It is considered that any adverse traffic or roading effects will be less than minor.

NATURAL HAZARDS AND SERVICING EFFECTS

The applicant has had RS Eng Ltd have prepared a Civil Reporting Assessment, given the access is subject to flooding. This mainly affects the existing access and bridge, which is to be upgraded.

Water Flow NZ Ltd has proposed an on-site septic system for each zone for effluent disposal and will be designed in accordance with TP 58. Details of on-site wastewater can be found in the report prepared by Water Flow NZ Ltd. Regional consent is being sought by others for wastewater.

The proposal involves impervious surfaces of 5650.8m^2, which includes the proposed dwellings, existing dwelling and driveways. All stormwater/water from the roof is to be collected for portable water supply with an on-site detention tank to mitigate post development flows.

It is considered that the effects of the natural hazards and servicing of the site will be less than minor.

SUMMARY

In summary, having assessed the adverse effects of the activity on the environment, it is considered that the proposed new pre-built papakainga housing with associated earthworks and servicing will have no more than minor adverse effects on the environment. In particular the proposal is considered to be consistent with the type of building anticipated within this coastal living environment.

LIMITED NOTIFICATION ASSESSMENT

ASSESSMENT OF STEPS 1 TO 4 (SECTION 95B)

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

STEP 1: CERTAIN AFFECTED PROTECTED CUSTOMARY RIGHTS GROUPS MUST BE NOTIFIED

Step 1 requires limited notification where there are any affected protected customary rights groups or customary marine title groups or affected persons under a statutory acknowledgement affecting the land (ss95B (2) and 95B (3)).

The application site is not affected by customary rights.

STEP 2: IF NOT REQUIRED BY STEP 1, LIMITED NOTIFICATION PRECLUDED IN CERTAIN CIRCUMSTANCES

Step 2 describes that limited notification is precluded where all applicable rules and NES preclude public notification; or the application is for a controlled activity (other than the subdivision of land) or a prescribed activity (ss95B (5) and 95B (6)).

The proposal is a Discretionary activity and there are no rules precluding notification.

STEP 3: IF NOT PRECLUDED BY STEP 2, CERTAIN OTHER AFFECTED PERSONS MUST BE NOTIFIED

Step 2 requires that where limited notification is not precluded under step 2 above, a determination must be made as to whether any of the following persons are affected persons:

- In the case of a boundary activity, an owner of an allotment with an infringed boundary.
- In the case of a prescribed activity under s360H(1(b), a prescribed person; and
- In the case of any other activity, a person affected in accordance with s95E.

The application is not for a boundary or prescribed activity, and therefore an assessment in accordance with s95E is required. This assessment is set out below.

Overall, it is considered that any adverse effects in relation to adjacent properties will be less than minor, and accordingly that no persons are adversely affected.

STEP 4: FURTHER NOTIFICATION IN SPECIAL CIRCUMSTANCES

In addition to the findings of the previous steps, the council is also required to determine whether special circumstances exist in relation to the application that warrant notification of the application to any other persons not already determined as eligible for limited notification.

There are not considered to be any special circumstances that would warrant notification.

SECTION 95E STATUTORY MATTERS

As required by step 3 above, certain other affected persons must be notified, and the following assessment addresses whether there are any affected persons in accordance with s95E. A person is affected if the effects of the activity on that person are minor or more than minor (but not less than minor).

In deciding who is an affected person under section 95E:

- Adverse effects permitted by a rule in a plan or NES (the permitted baseline) may be disregarded.

It is considered that there is no useful baseline that can be applied as the land needs to be earth worked to provide building platforms and subdivision of the land would also require resource consent.

- The adverse effects on those persons who have provided their written approval must be disregarded.

Because of the minor scale of the proposal no written approvals have been sought for this proposal.

The sections below set out an assessment in accordance with section 95E, including identification of adjacent properties, and an assessment of adverse effects.

ADJACENT PROPERTIES

The adjacent properties to be considered in the limited notification assessment under section 95B and 95E are set out below:

No persons are considered to be adversely affected by the activity because:

- The design of the proposal has been designed to be sympathetic with the residential environment, through nestling into the site through earthworks and integrated as a result of the screen planting and the design, materials proposed and colours.

- The proposal retains sufficient separation distances between the neighbouring dwellings (consistent with other locations within this locality) and will not compromise the existing

levels of amenity or residential character enjoyed by adjacent properties to a minor or more than minor extent.

- The proposal will be consistent in the rural character and scale to other dwellings located within the local vicinity and will comply with all the relevant development standards so will not generate adverse effects in terms of shading, overbearance and overlooking to the adjoining properties.
- There is a suitable water supply for firefighting purposes to ensure that the fire hazard (dwelling) is mitigated. Further the dwelling will contain standard fire safety.
- Any potential adverse noise, dust and sedimentation effects generated during the land disturbance and construction phase will be temporary in nature and can be suitably managed through appropriate erosion and sediment control measures. Earthworks are cut to fill on site, with no excess cut to be removed from the site.
- During the construction, there will be traffic, however these movements are considered consistent with the permitted level of traffic movements associated with a residential building. The proposal is not expected to greatly increase the amount of vehicular traffic to and from the site beyond what can generally be associated with a rural residential activity.
- Any construction related effects will be temporary and transient and less than minor.
- Suitable erosion and sediment control methods will be utilized to ensure that the effects on the adjacent sites as a result of the earthworks will be less than minor.

The matters that require consideration in assessing this application are set out in section 104 of the Resource Management Act 1991. These matters include the actual and potential effects of the allowing the activity on the environment and the relevant rules and assessment criteria.

ASSESSMENT CRITERIA AND MATTERS FOR CONTROL/DISCRETION

FAR NORTH DISTRICT PLAN

Whilst the proposal is a discretionary activity, the following assessment criteria, matters for control and discretion are considered relevant to the application and provide a reliable basis to determine the effects of the proposal.

10.6.5.2.1	**Papakainga Housing**		
	Requirement	**Comment**	**Compliance**
	(i) the number and location of dwellings;	The proposal involves the relocation of three modest papakainga houses to provide for the needs of this iwi. Each dwelling has sufficient open space and outdoor living commensurate and necessary within the coastal environment.	**Compliant**
	(ii)the location and standard of access;	Access to the site is over an existing driveway to be upgraded with Matawaia-Maromaku Road which is fit for purpose. The driveway will have passing bays and width of 3.0 metres.	**Compliant**
	(iii) screening and planting.	The papakainga housing is to be fully integrated into the site through the implementation of screening planting.	**Compliant**

OBJECTIVES AND POLICIES

FAR NORTH DISTRICT COUNCIL – OPERATIVE DISTRICT PLAN

The following objectives and policies are considered relevant when considering this application:

Chapter 8.6 Rural Environment – Section 6 Rural Production

- *Objectives 8.6.3.1 to 8.6.3.9*
- *Policies 8.6.4.1 to 8.6.4.9*

The above objectives and policies seek to promote the sustainable management of natural and physical resources in the Rural Production Zone, enable the efficient use and development of the Rural Production Zone in a way that enables people and communities to provide for their social, economic, and cultural well being and for their health and safety, maintenance and enhancement of the amenity values, avoid potential conflicts. The proposed Papakainga housing takes into consideration the existing features of the property and is considered to adequate avoid, remedy and mitigate any potential effects through the design of the buildings, including colours and materials and the screen planting. Overall, the proposal is in keeping with these objective and policies.

In summary it is concluded that this proposal satisfies the relevant matters requiring consideration under section 104.

FAR NORTH DISTRICT COUNCIL – PROPOSED DISTRICT PLAN

Part 3 – Area Specific Matters – Special Purpose Zones – Maori Purpose

- *Objectives MPZ-01 – MPZC03*
- *Policies MPZ-P1 – MPZ-P4*

The above objectives and policies seek to ensure the viability of the Māori Purpose zone is for future generations, to enable a range of social, cultural and economic development opportunities that support the occupation, use, development and ongoing relationship with ancestral land and the use and development in the Māori Purpose zone reflects the sustainable carrying capacity of the land and surrounding environment. The proposed Papakainga housing on the proposed site is consistent with the direction of the above objectives and policies and allows iwi to reconnect with the land in a more whanau-based living situation.

In summary it is concluded that this proposal satisfies the relevant matters requiring consideration under section 104.

NATIONAL POLICY STATEMENT FOR FRESHWATER MANAGEMENT 2020 (NPSFM)

The NPSFM aims to maintain and enhance freshwater quality. In this case the site does not contain any wetlands.

PART II OF THE RESOURCE MANAGEMENT ACT

Part II of the Act sets out the Purpose and Principles. This proposal is in keeping with Part II as the effects of the proposal on the environment will be minor and the proposal will not compromise the ability of this site to be used by existing and future generations, also the life supporting capacity of air, water, soil and ecosystems will not be compromised.

Section 5 of the Resource Management Act 1991 (the Act) describes the Purpose and Principles of the Act and provides a definition of 'sustainable management' which includes reference to managing the use and development of natural and physical resources at a rate that allows people and communities to provide for their wellbeing, whilst avoiding, remedying and mitigating any adverse effects of activities on the environment.

This involves sustaining resource potential (excluding minerals), safeguarding the life supporting capacity of air, water, soil and ecosystems and avoiding, remedying or mitigating adverse effects. The effects of this proposal on the environment have been described above.

The proposal is considered to be consistent with the Purposed and Principles outlined above as the effects on character and amenity will be no more than minor. Further any potential effects can be adequately avoided, remedied and mitigated.

Section 6 of the Act requires all persons exercising functions and powers under the Act to recognise and provide for matters of national importance in relation to the natural character of the coastal environment, wetlands, lakes and rivers and the protection of them from inappropriate subdivision use and development. Outstanding natural features and landscapes are also to be protected from inappropriate subdivision, use and development.

The proposal is considered to be consistent with section 6 of the Act as there are considered to be no matters of national importance on this site.

Section 7 relates to other matters that are to which regard must be had in achieving the sustainable management of natural and physical resources: The proposed shed is considered to be consistent with the provisions of the section of the Act.

Section 8 requires that account shall be taken of the principles of the Treaty of Waitangi. The proposal is considered to be consistent with the matters outlined in Section 8.

Overall, it is considered that the proposal is in keeping with Part II of the Resource Management Act 1991.

CONCLUSION

It is concluded that the proposal will have less than minor adverse effects on the surrounding environment. Further the proposed activity is in keeping with the relevant assessment criteria, objectives and policies set out in Far North District Plan.

As a result of the above granting consent to this proposal will be in keeping with the provisions set out in Part II of the Resource Management Act 1991 and sections 104 and 104B.

Appendix 1 – Record of Title

Appendix 2 – Plans

Appendix 3 – Site Suitability Report

Appendix 4 – Geotechnical Report

Appendix 5 – On-Site Wastewater Report

Appendix 6 – Wetland Determination

Appendix 7 – Management Plan

Appendix 8 – Fire Fighting Approval

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
QUALIFIED

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

R.W. Muir
Registrar-General of Land

Identifier **500543**

Land Registration District **North Auckland**

Date Registered 28 September 2009 09:02 am

Prior References

8299034.1 NA602/215

Type Partition Order

Instrument MFPO 8299034.1

Area 61.1840 hectares more or less

Legal Description Motatau 2 Section 29A 2 Block Block

Registered Owners

Ahe George as to a 4.4020 share

Celia Blackledge as to a 5.0300 share

Georgina Croft as to a 0.5600 share

Hiamoe Croft (also known as Hia Moa Croft) as to a 0.5600 share

Hone Rei Hereora (also known as John George) as to a 5.0300 share

Hopa Croft as to a 0.5600 share

Hurikino Hereora as to a 4.4010 share

Janis Croft (also known as James Croft) as to a 0.5590 share

Kataraina George as to a 4.4020 share

Lydia Croft as to a 0.5600 share

Mirimay Croft (also known as Miria Mae Croft) as to a 0.5600 share

Ngaongi Croft (also known as Naomi Croft) as to a 0.5600 share

Paremo George as to a 4.4020 share

Pere George as to a 4.4010 share

Puti George as to a 4.4010 share

Rewatoto Moriki Hoterene as to a 57.2250 share

Ruth Croft as to a 0.5600 share

Thomas Croft as to a 0.5590 share

Waa Hereora as to a 0.6290 share

Harry Brian Mitchell, Moana Hannah Tamatea, Matekino Rowena Brucker, Arthur Thomas Mitchell, Noel Tepania Mitchell and Kiri Frances Pita as responsible trustees jointly, no survivorship as to 50.986 shares

Hoterene Ariki Shortland, Barbara Anne Shortland-Van de Wiel, Nigel Ariki Shortland, Ria Iris Daphne Bond, Honi Hoterene Shortland and Leanne Marie Campbell as responsible trustees jointly, no survivorship as to 50.985 shares

Marara Shortland as to 50.986 shares

Joseph George as to 2.2000 shares

Reenie Te Mamae Rapana as to 2.2010 shares

Joseph George as to a 0.3145 share

Reenie Te Mamae Rapana as to a 0.3145 share

Registered Owners

Elsie (George) Marsh as to a 0.8380 share

Huri George as to a 0.8390 share

Katarina (George) Lefale as to a 0.8380 share

Paremo (George) Tristam as to a 0.8380 share

Pere Hereora (George) as to a 0.8390 share

Puti (George) Taufa as to a 0.8380 share

Mangaiti Cissie Hoterene Conrad as to a 42.4874 share

Korea Joseph Shortland as to a 8.4976 share

Aaron Joseph Shortland, Albert Agnacias Shortland, Alex Shortland, Erana Matire Tanuvasa, Hare Heihei Shortland, Joseph Wilcox Shortland, Lawrence William Shortland, Winifred Moera Wihongi and Lou Taiwhanga Shortland as responsible trustees jointly, no survivorship as to a 50.9860 share

Te Ringitaimana Brodrick, Ruth Mabel Beghetti, Michael Rainier Toi, Richard Alexander Toi and Herbert Haukaha Toi as responsible trustees jointly, no survivorship as to a 50.986 share

Te Ruma Lucy Anna Marsh as to a 0.5029 share

Maria May Marsh as to a 0.5029 share

Leo Patrick Marsh as to a 0.5029 share

Maurice Michael Marsh as to a 0.5029 share

Peter Raymond Marsh as to a 0.5029 share

Rora Emateroa Marsh as to a 0.5029 share

Mary Lee Ann Hauraki (nee Marsh) as to a 0.5029 share

Jane Te Aroha Tautari as to a 0.5029 share

Anita Lee Marsh as to a 0.5029 share

Jackson Karawhiu Marsh as to a 0.5029 share

Heeni Jane Kiri Hoterene and Te Turi Beth Hoterene as responsible trustees jointly, no survivorship as to a 50.986 share

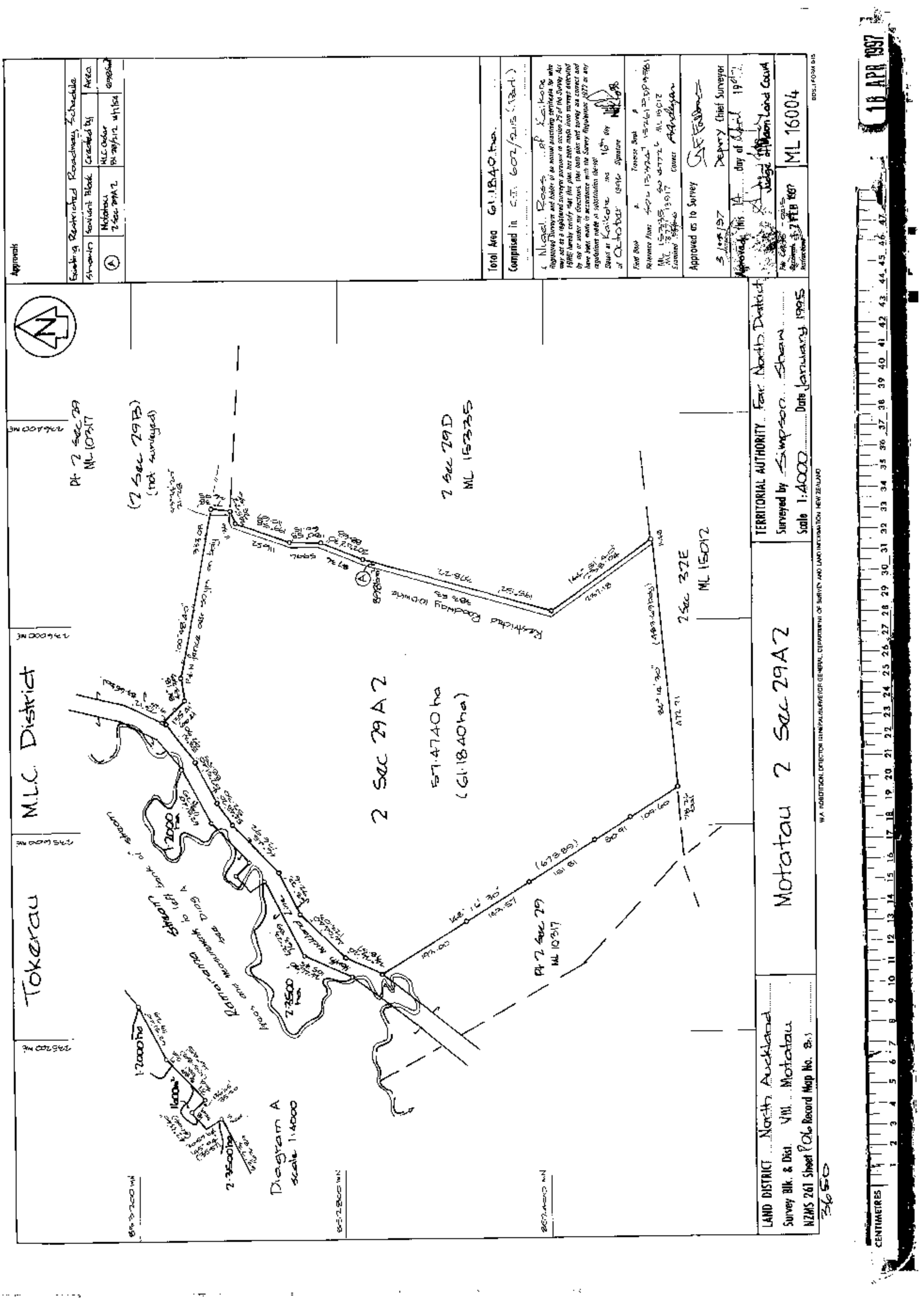
Waihoroi Paraone Hoterene as to a 13.85 share

Interests

The proprietors listed above hold the shares out of a total of 485.2000 shares.

The within order has been embodied in the register pursuant to Section 124(1) Te Ture Whenua Maori Act 1993. It will not be finally constituted a folium of the register until a plan has been deposited pursuant to Section 167(5) Land Transfer Act 1952

8299034.3 Status Order determining the status of the within land to be Maori Freehold Land - 28.9.2009 at 9:02 am


Tokerau M.L.C. District
2 Sec 29A2
57.4740 ha
(61.1840 ha)
2 Sec 29D ML 15335
2 Sec 32E ML 15012
Pt 2 Sec 29 ML 10317
(2 Sec 29B) (not surveyed)
Restricted Roadway 10.06m wide
Diagram A Scale 1:4000
Existing Restricted Roadway Schedule
Total Area 61.1840 ha
Approved as to Survey
Deputy Chief Surveyor
LAND DISTRICT North Auckland
Survey Blk. & Dist. VIII Motatau
TERRITORIAL AUTHORITY Far North District
Surveyed by Simpson Shaw
Scale 1:4000 Date January 1995
Motatau 2 Sec 29A2
ML 16004
18 APR 1997
CENTIMETRES

Report on Maori Land details for the following Record(s) of Title

Record(s) of Title

500543	Identified as potentially Maori Freehold Land

***** End of Report *****

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Proposed New Project

583 Matawaia-Maromaku Road, Matawaia

For: Winnie Mitchell Descendants Whanau Trust

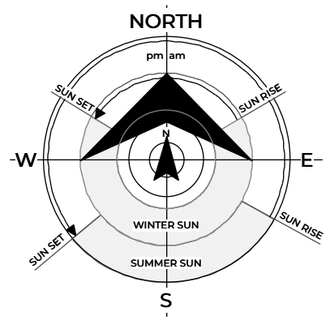
CONTENTS

Concept Plans

Concept 1
February 2026

FINAL WORKING DRAWINGS TAKE PRECEDENCE OVER CONCEPT PLANS. ALL LANDSCAPING, PLANTING, LIGHTING & FENCING IS SHOWN FOR IMAGING PURPOSES ONLY

REVISION:	C01
PROJECT NO.	1297
DRAWN BY:	NMB
HC:	JCS



NB: Boundary Lines are Indicative Only

REVISION:	BY:	DATE:
Drawn	NMB	Aug 28 2025

Verify all dimensions on site before commencing work. Refer to figured dimensions. Refer any discrepancies to Advance manufacturing Ltd.

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Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Location Plan

SCALE: NTS

PROJECT #:	PAGE:	REVISION:
1298	01	C01

REVISION:	BY:	DATE:
Drawn	NMB	Jul 14 2025
Rev	NMB	Aug 21 2025
Rev	NMB	Sep 26 2025
Rev	NMB	Nov 03 2025

Verify all dimensions on site before commencing work. Refer to figured dimensions. Refer any discrepancies to Advance manufacturing Ltd.

Advance build

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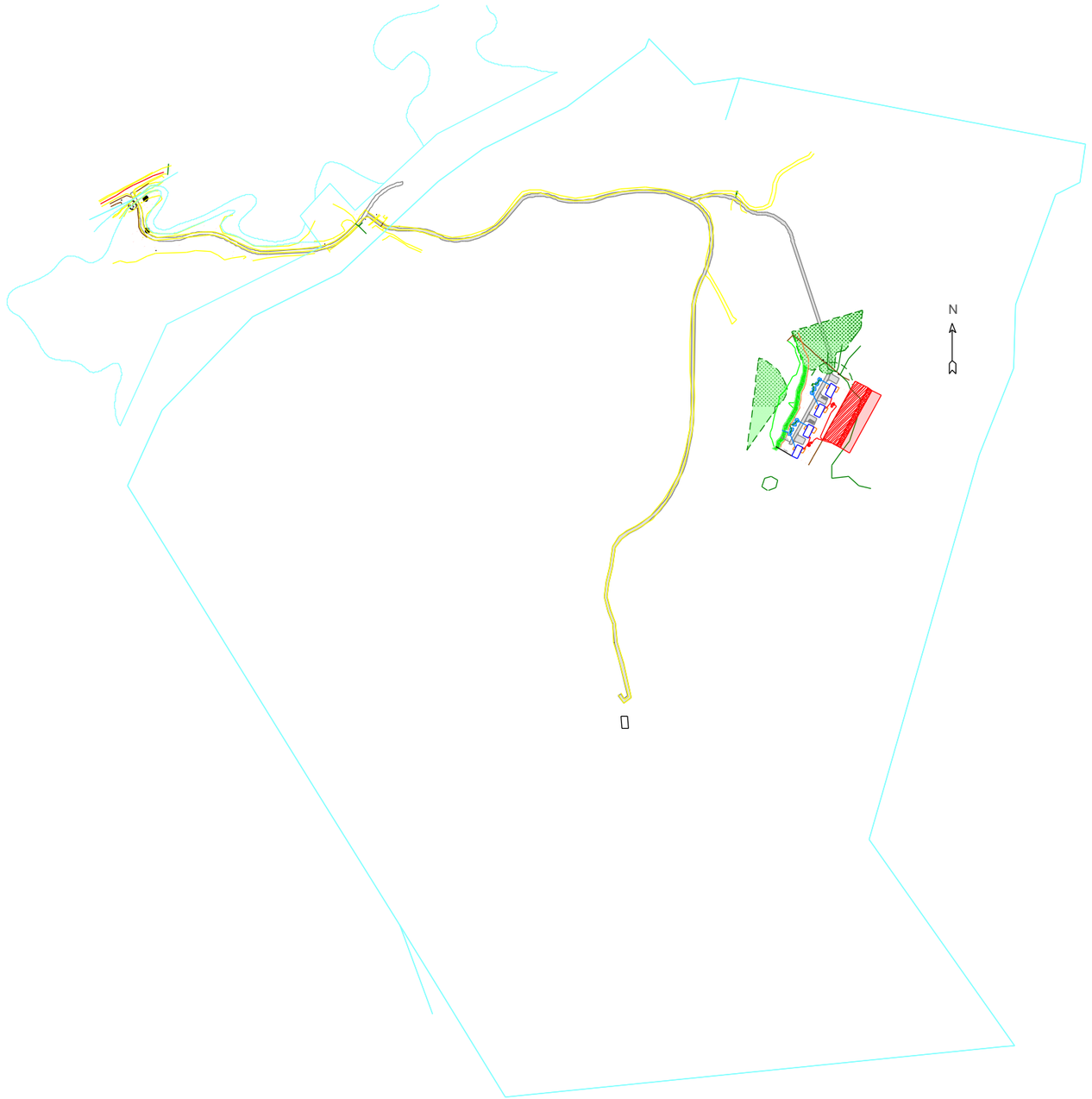
Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Overall Site Plan

SCALE: 1 : 5000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
1297	01A	C01



REVISION:	BY:	DATE:
Drawn	NMB	Jul 14 2025
Rev	NMB	Aug 21 2025
Rev	NMB	Sep 26 2025

Advance build

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Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Overall Site Plan - No Contours

SCALE: 1 : 5000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
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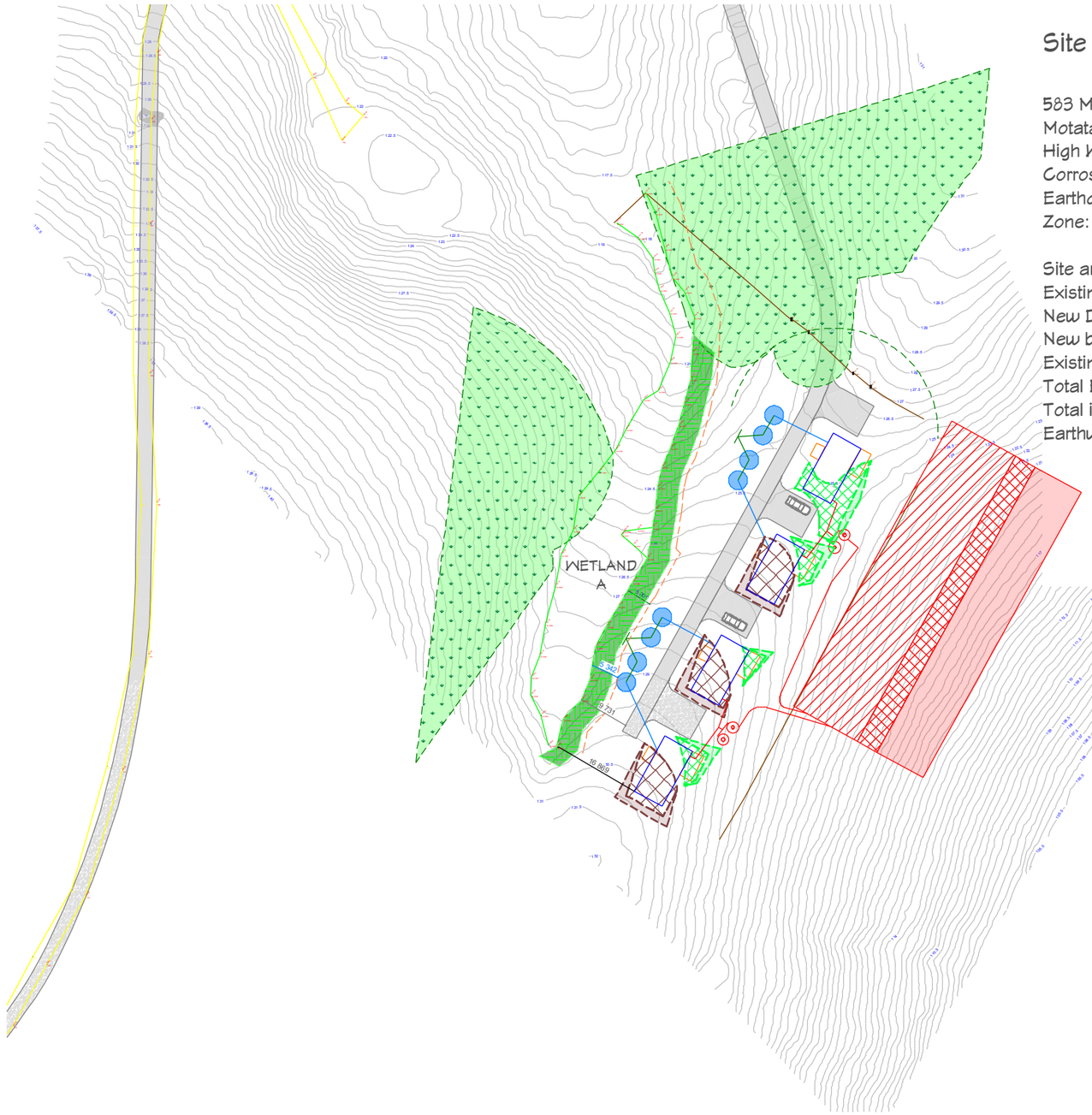

Site Information

583 Matawaia-Maromaku Road, Matawaia
Motatau 2 Section 29A 2 Block Block
High Wind Zone
Corrosion Zone B
Earthquake Zone 1
Zone: Rural Production

Site area: 611840m ^{2}
Existing driveways area: 3630m ^{2}
New Driveway & Parking area: 1140m ^{2}
New buildings coverage: 228m ^{2}
Existing buildings coverage: 446m ^{2}
Total Building coverage: 674m2 = 0.11%
Total impermeable surfaces: 5650.8m ^{2} = 0.92%
Earthworks:

- Average Cut Depth= 450mm
- Average Fill Depth= 600mm
- Total Site Cut Area= 297.6m ^{2}
- Total Site Cut Volume= 133.92m ^{3}
- Total Site Fill Area= 189.6m ^{2}
- Total Site Fill Volume= 113.76m ^{3}

N

REVISION	BY:	DATE
Drawn	NMB	Sep 26 2025
Rev	NMB	Nov 03 2025

Advance build
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Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Plan

SCALE: 1 : 1000 (A3 Original)

PROJECT #:	PAGE :	REVISION :
1297	02	C01

Site Information

583 Matawaia-Maromaku Road, Matawaia
Motatau 2 Section 29A 2 Block Block
High Wind Zone
Corrosion Zone B
Earthquake Zone 1
Zone: Rural Production

Site area: 611840m ^{2}
Existing driveways area: 3630m ^{2}
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N

REVISION:	BY:	DATE:
Drawn	NMB	Sep 26 2025
Rev	NMB	Nov 03 2025

Advance build
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Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Plan - No Services

SCALE: 1 : 1000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
1297	03	C01

Site Information

N

583 Matawaia-Maromaku Road, Matawaia
Motatau 2 Section 29A 2 Block Block
High Wind Zone
Corrosion Zone B
Earthquake Zone 1
Zone: Rural Production

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- Total Site Cut Area= 297.6m ^{2}
- Total Site Cut Volume= 133.92m ^{3}
- Total Site Fill Area= 189.6m ^{2}
- Total Site Fill Volume= 113.76m ^{3}

Site Legend

	100mm SW Connection
	150mm SW Main
	100mm Water Supply
	25,000L Water Tank
	30,000L Water Tank
	Wetland Boundary
	Wetland Setback
	Planted Visual Buffer
	Existing Fence
	Metal
	Existing Metal Driveway

REVISION:	BY:	DATE:
Drawn	NMB	Aug 28 2025
Rev	NMB	Nov 03 2025

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Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Plan - S/W & Water

SCALE: 1 : 1000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
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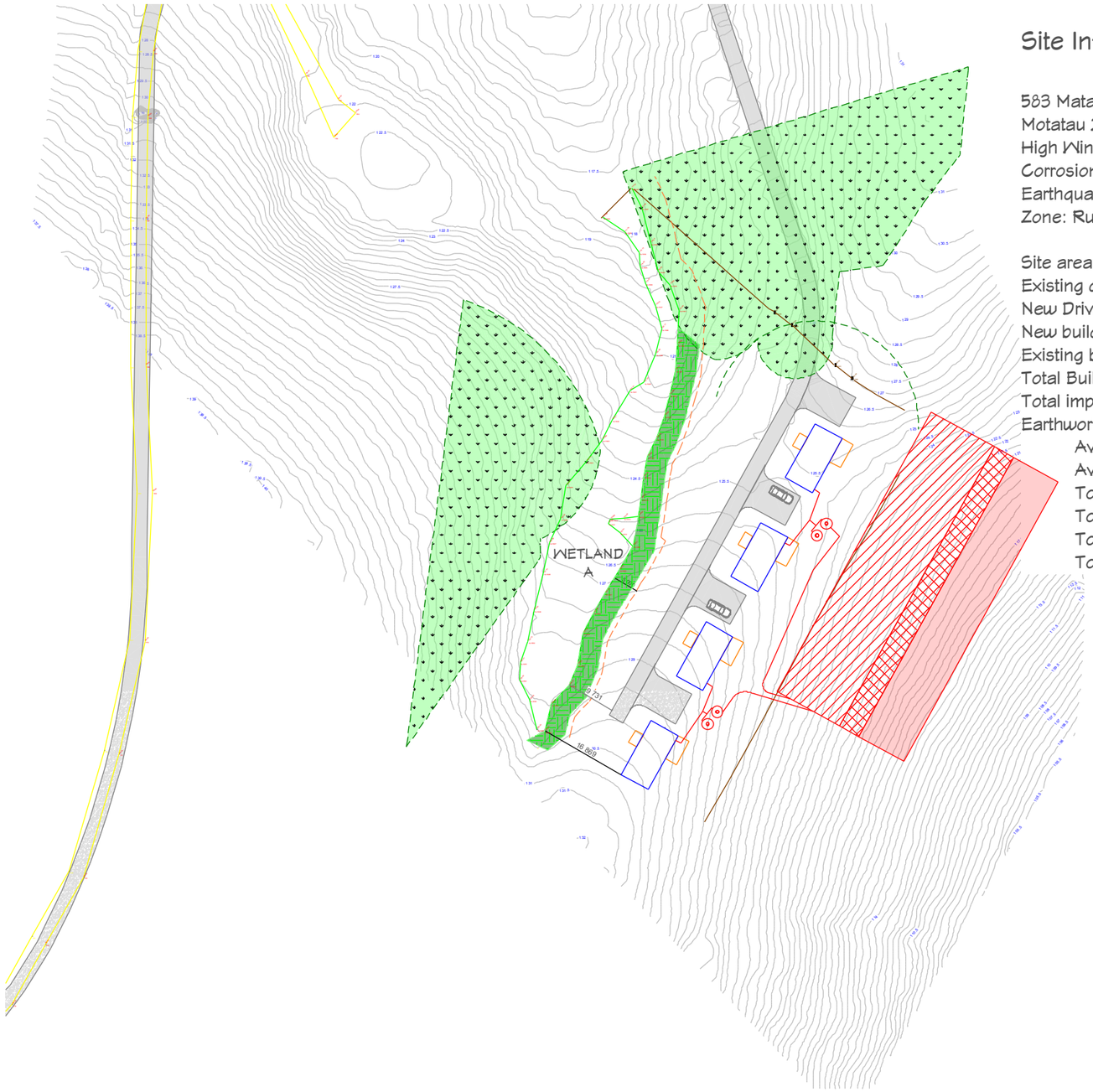

Site Information

N

583 Matawaia-Maromaku Road, Matawaia
Motatau 2 Section 29A 2 Block Block
High Wind Zone
Corrosion Zone B
Earthquake Zone 1
Zone: Rural Production

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- Total Site Fill Area= 189.6m ^{2}
- Total Site Fill Volume= 113.76m ^{3}

Site Legend

	Description	
	100mm Sewer Connection	
	20mm Sewer Connection	
	Septic Tank	
	Septic Field	
	Septic Field- Reserve Area	
	Septic Field- Buffer Area	
	Plinth	
	Mains Cable Connection	
	Wetland Boundary	
	5 m Wetland Setback	
	Planted Visual Buffer	
	Existing Fence	/
	Metal	
	Existing Metal Driveway	

REVISION:	BY:	DATE:
Drawn	NMB	Sep 26 2025
Rev	NMB	Dec 04 2025

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Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Plan - Sewer & Power

SCALE: 1 : 1000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
1297	05	C01

Site Information

N

583 Matawaia-Maromaku Road, Matawaia
Motatau 2 Section 29A 2 Block Block
High Wind Zone
Corrosion Zone B
Earthquake Zone 1
Zone: Rural Production

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- Total Site Fill Area= 189.6m ^{2}
- Total Site Fill Volume= 113.76m ^{3}

Site Legend

	Description	
	Wetland Setback	
	Planted Visual Buffer	
	Existing Fence	
	Wetland	
	Proposed Cut Area	
	Proposed Cut Batter	
	Proposed Fill Area	
	Proposed Fill Batter	

REVISION:	BY:	DATE:
Drawn	NMB	Feb 05 2026

Advance build
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Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Plan - Cut & Fill

SCALE: 1 : 1000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
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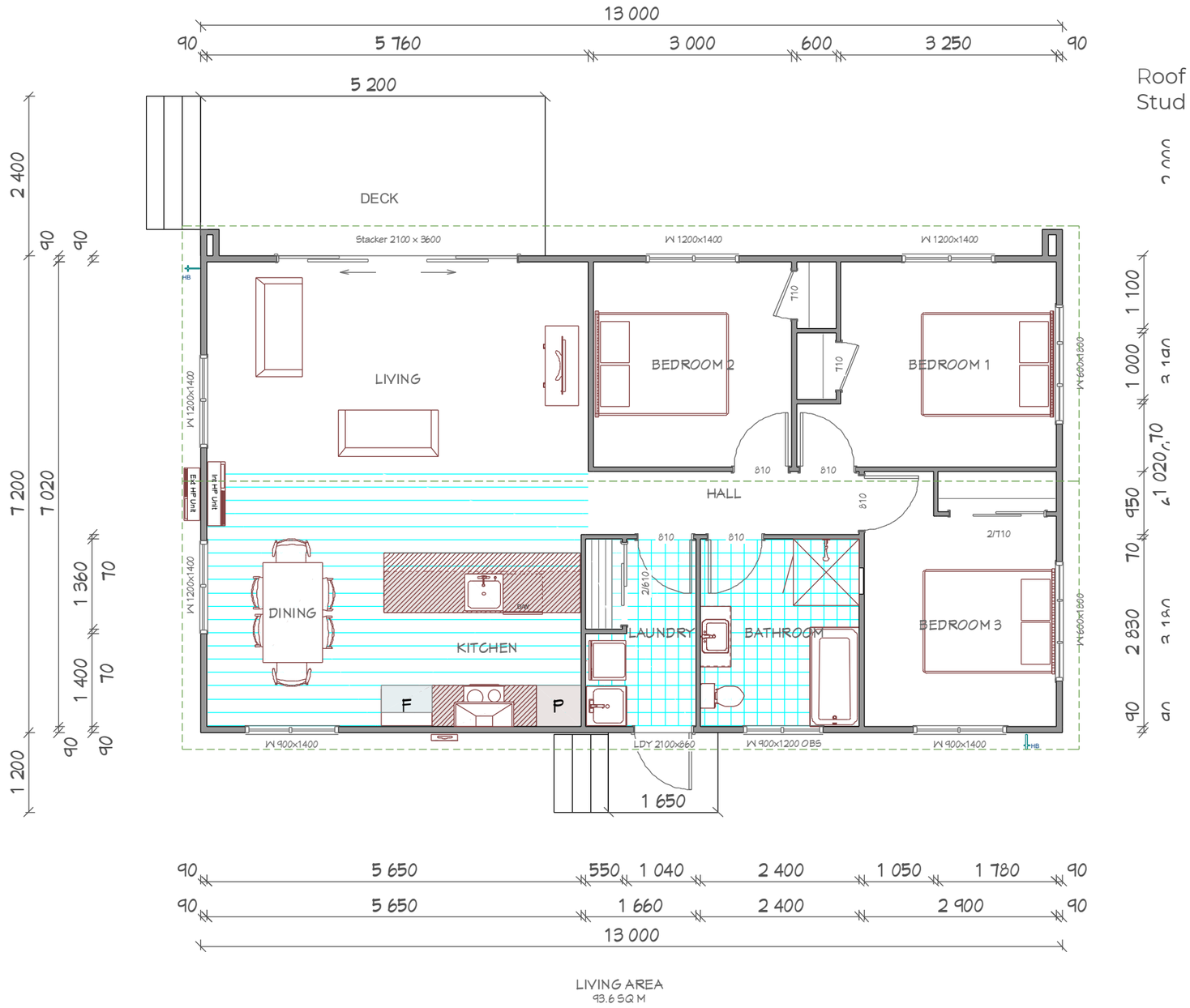

1
4 2
3

Elevations

Roof Pitch 15 deg
Stud height - 2.4m Flat Ceiling

REVISION:	BY:	DATE:
Drawn	NMB	Feb 05 2026

Advance build
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Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Floorplan

SCALE: 1 : 75 (A3 Original)

PROJECT #:	PAGE:	REVISION:
1297	07	C01

Roof Pitch 15 deg
Stud height - 2.4m Flat Throughout

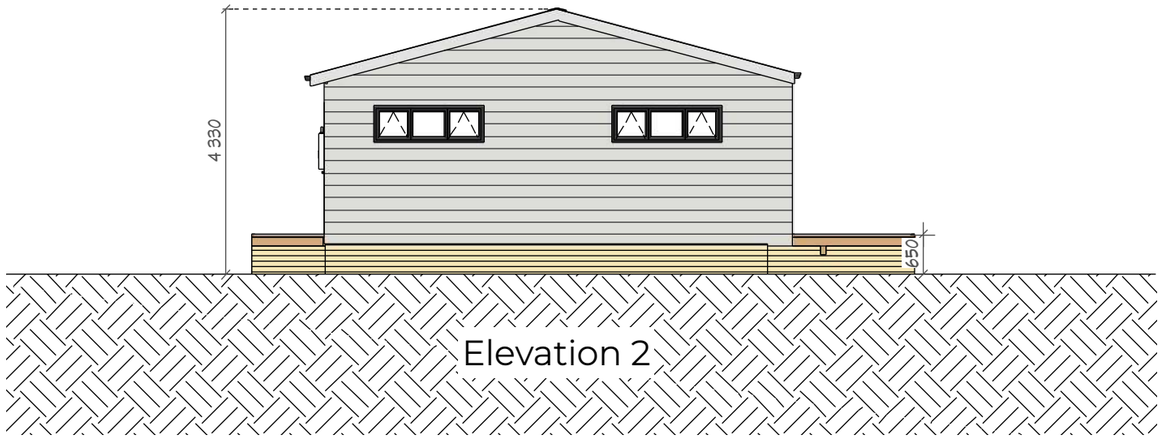
Weathertex Primelok Smooth 200mm

Armorsteel 5-Rib, Standard 0.40mm

Weathergroove Natural 150mm
Vertical Groove-Stained
(Between wing walls)

Elevation 1

Elevation 4



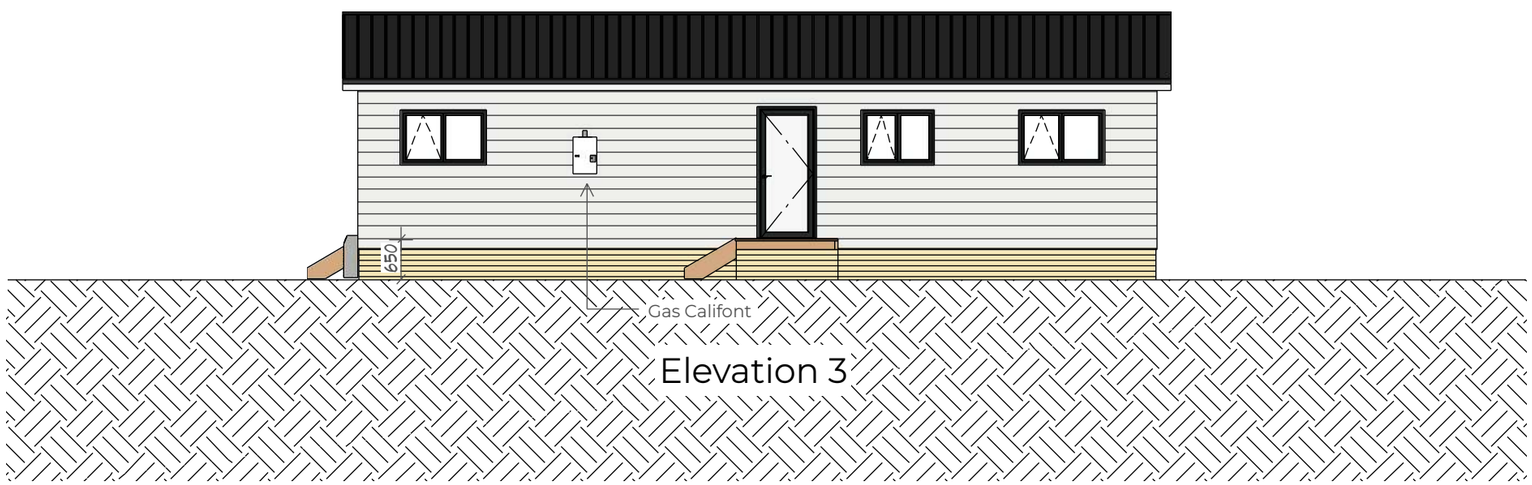
Elevation 2

REVISION:	BY:	DATE:
Drawn	NMB	Feb 02 2026

Low-E Light Bridge,
Double Glazed Windows

140x35 Premium smooth H3 Pine
decking - uncoated, Nail fixed

140x20 PG H3 Pine baseboards Unpainted



Elevation 3

Advance build
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Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Elevations

SCALE: 1 : 100 (A3 Original)

PROJECT #:	PAGE:	REVISION:
1297	07A	C01

CIVIL SUITABILITY REPORT

583 Matawaia-Maromaku Road

Maromaku

(Motatau 2 Section 29A 2 Block)

RS Eng Ltd • 2 Seaview Road, Whangarei 0110 • **09 438 3273** • **office@RSEng.co.nz**
Consulting Engineers

CIVIL SUITABILITY REPORT

583 Matawaia-Maromaku Road

Maromaku

(Motatau 2 Section 29A 2 Block)

Report prepared for: Advance Build

Report reference: 19880

Date: 19 January 2026

Revision: 2

Document Control

Date	Revision	Description	Prepared by:	Reviewed by:	Authorised by:
12/12/2025	1	Resource Consent Issue	S Scott Compton	C Hay	M Jacobson
19/01/2026	2	Revision 2	S Scott Compton	C Hay	M Jacobson

Contents

Appendices

File: 19880
19 January 2026
Revision: 2

CIVIL SUITABILITY REPORT

583 Matawaia-Maromaku Road, Maromaku

(Motatau 2 Section 29A 2 Block)

1.0 Introduction

RS Eng Ltd (RS Eng) has been engaged by Advance Build to investigate the suitability of their client's property (Motatau 2 Section 29A 2 Block) for Papakainga construction. The purpose of this report is to undertake a flood assessment and to assess crossing, access and pavement design. This report is being prepared to support a resource consent application.

The client proposes to construct four new dwellings, founded on timber pile type foundations. A bridge is also proposed in place of the existing bridge.

2.0 Site Description

This 61.184ha property is accessed off southeast off Matawaia-Maromaku Road. The property consists of gentle to steep slopes, underlain with Mahurangi Limestone. Ground coverage at the proposed building areas consists of vegetation and pasture.

Figure 1: Motatau 2 Section 29A 2 Block.

3.0 Flooding and Overland Flows

The NRC have mapped the bridge and accessway within a flood hazard. To assess the flood hazard and overland flows, RS Eng have undertaken modelling using Hec-Ras. The NRC has provided spot depths, and velocities from the Priority and Regionwide Rivers model.

The catchment runoff upstream was modelled with HydroCAD, using rainfall flows from HIRDS V4 (High Intensity Rainfall Design System, NIWA). Attached in Appendix C are the calculations for average slope (Sc) and time of concentration (tc) used in the HydroCAD model.

Figure 2: NRC Priority River Map.

3.1 Hec-Ras

The modelling was completed in Hec-Ras V6.6, using the TR55 Type 1A storm with flow hydrographs upstream and tailwater downstream adjusted to be calibrated to the NRC model for this site.

The soils have been taken as Class D, for Alluvium and Northland Allochthon with a CN value of 78 adopted to represent the rural and widely undeveloped catchment. Selected results of the Hec-Ras modelling are included in Appendix B. Table 1 below provides a summary of the modelling.

Table 1: Hec-Ras Model Summary

Model Type	Rain on grid
24hr Rainfall (HIRDS V4 +20%)	1%AEP+CC; 290mm
CN Value (MPD)	78
Terrain Model	Pre Dev – 2018 NRC LiDAR
Boundary Inlet	250m^3/s Flow Hydrograph 800m upstream
Boundary outlet	Staged hydrograph 2.5km downstream
Equation Set	Diffusion Wave
Computation Interval	5s
Modelled grid	10m, refined to 1m adjacent to the area in question.

Figure 3 below provide the flood depth and extent during a 1% AEP+CC flood event amongst the lower lying terrain in the property. It is noted that the building areas are well elevated and outside of the mapped flood hazard and any major overland flow paths.

3.2 Access

Some 270m of the accessway is inundated during the designed event, upwards of 2.2m. It is not considered safe or passable at these depths however, the remainder of the property and building site provide safe refuge being well elevated above the flood hazard.

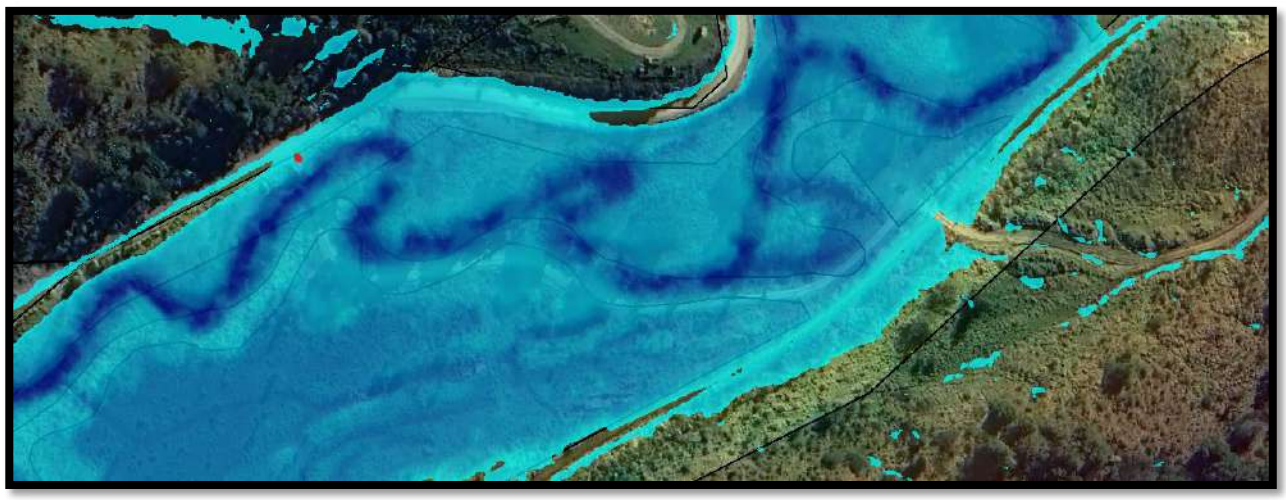


Figure 3: 1%AEP+CC depth extents

3.3 Bridge Recommendations

A replacement bridge is proposed where an existing is located just south off Matawaia-Maromaku Road. The following information should be considered for the bridge design.

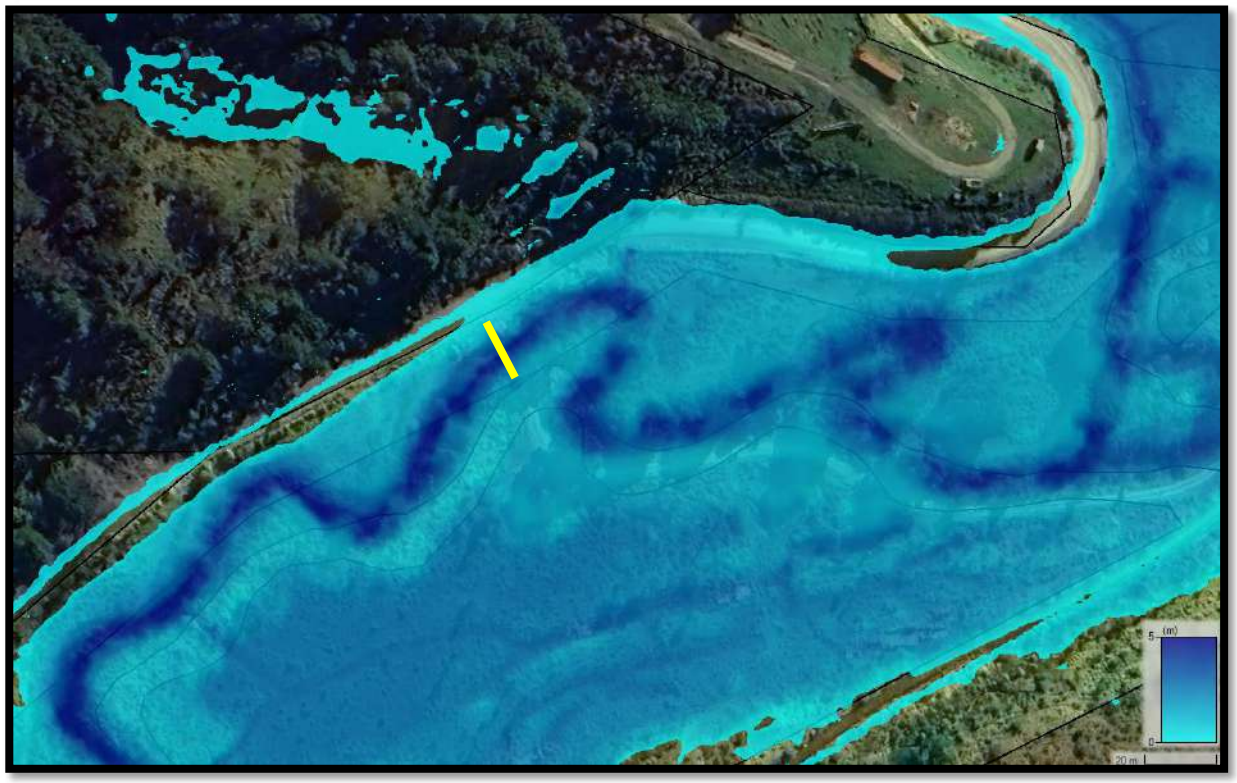


Figure 4: 1%AEP+CC depth extents (yellow marker approx bridge location).

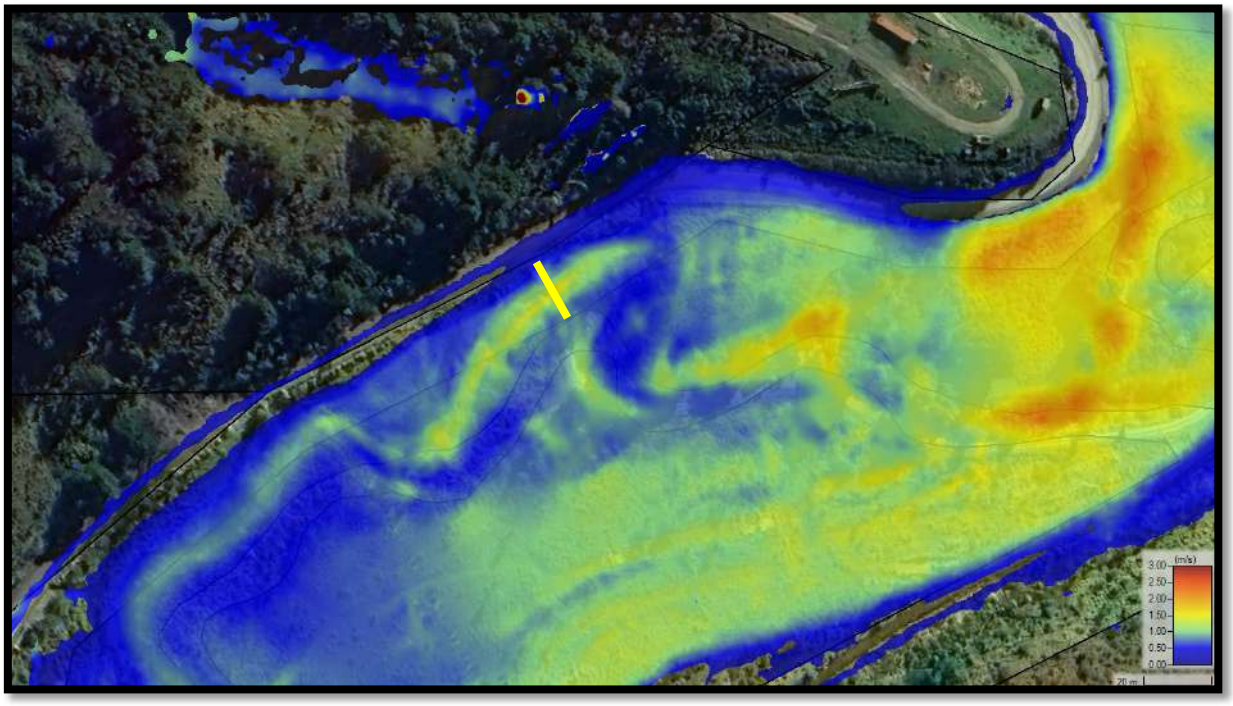


Figure 5: 1%AEP+CC Velocity (yellow marker approx bridge location).

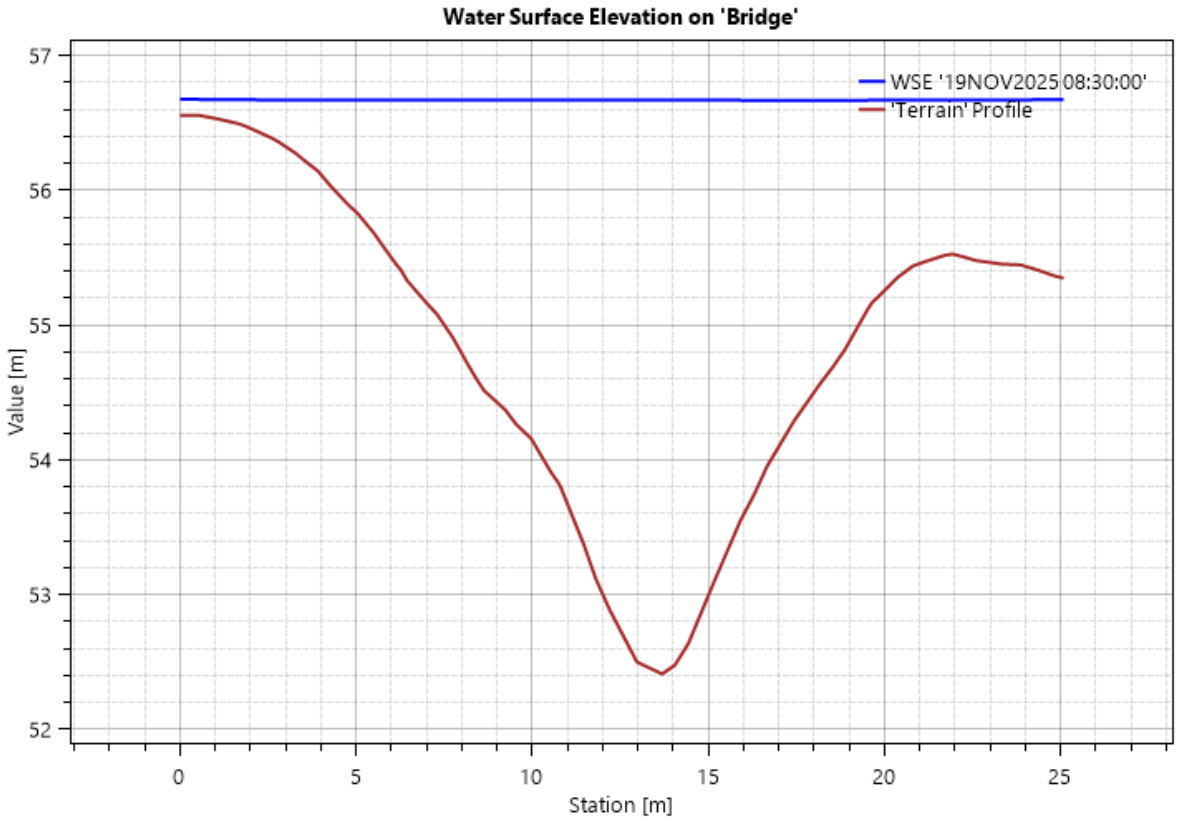


Table 2: Results of flood modelling at bridge

Storm	Parameter	Hec-Ras Output
1% AEP +CC	Peak Flow (m^3/s)	53.0
	Peak velocity (m/s)	1.50
	Peak Elevation (mNZVD)	56.7

4.0 Transport

To provide access to the proposed development, the existing driveway is proposed to be upgraded and extended to accommodate the proposed development and exiting four users. This assessment is based on two vehicle movements per day per household. The proposed and existing Papakainga equate to eight household units, being sixteen traffic movements per day, akin to two Household Equivalents in terms of the FNDC District Plan.

4.1 Culverts

An overland flow path passed through the accessway at approx. CH660m. The upstream catchment is in the order of 1.79ha, made up of pasture. An existing 150mm culvert is in this location. To assess suitable sizing of the culvert, HydroCAD has been used for the 10% AEP+cCC storm event (HIRDS Rainfall). A Ø375mm culvert is required to pass the 10%AEP+CC event.

4.2 Pavement

The investigations completed along the proposed accessway encountered alluvium made up of sandy silts and clayey silts. DCP results ranged from 2 to 3 blows/100mm. In-Situ Undrained Shear Strengths ranged from 136kPa to 160kPa commonly averaging closer to 150kPa. Based on the results above, RS Eng have assessed that a sub grade CBR of 3 is available. Refer to Appendix A and B for locations and investigations.

4.3 Accessway

In accordance with the FNDC district Plan, Appendix 3B-1, for two household equivalents. A 3.0m carriageway is required. Assessed gradients of the proposed accessway do not exceed 20% and so gravelled surfaces are acceptable for the rural zoning.

4.4 Crossing

The existing crossing to Matawaia-Maromaku Road shall be used for the development. Approaching from the eastern side of the existing crossing, the road consists of a sharp S bend with an assessed operational speed of less than 70km/hr. Approaching from the western side, has an assessed operational speed of 90km/hr. Refer to Sheet 1 of Appendix A for locations and Table 3 below of assessed available sight distances in accordance with the current FNDC District Plan and FNDC ES 2004. It is recommended that vegetation be cleared for the benefit of this crossing, refer to Appendix E.

Table 3: Assessed Sight Distances

Crossing	Direction	Available Sight Distance (m)	Required Sight Distance (m)
Proposed Crossing	East Sight Distance	152m	95m
	West Sight Distance	184m	140m

5.0 Limitations

This report has been prepared solely for the benefit of our client. The purpose is to determine the civil suitability of the proposed dwellings and bridge, in relation to the material covered by the report. The reliance by other parties on the information, opinions or recommendations contained therein shall, without our prior review and agreement in writing, do so at their own risk.

Recommendations and opinions in this report are based on data obtained as previously detailed. The nature and continuity of subsoil conditions away from the test locations are inferred and it should be appreciated that actual conditions could vary from those assumed. If during the construction process, conditions are encountered that differ from the inferred conditions on which the report has been based, RS Eng should be contacted immediately.

Prepared by:

Sarah Scott Compton
Senior Technician
NZDE(Civil)

Reviewed by:

Codie Hay
Senior Technician
NZDE(Civil)

Approved by:

Matthew Jacobson
Director
NZDE(Civil), BE(Hons)(Civil), CPEng, CMEngNZ
RS Eng Ltd

Appendix A

Drawings

NOTES:

- If any part of these documents are unclear, please contact RSEng Ltd.
- This plan is copyright to RSEng Ltd and should not be reproduced without prior permission.

LEGEND

- Hand Auger Location
- Cone Penetration Test Location

Contour Interval:	1.0m
Vertical Datum:	NZVD2016
Survey Data Source:	LiDAR (2018)

0 12.5 25
PLAN 1:1250

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

PROPOSED DWELLINGS
SITE PLAN
SITE INVESTIGATIONS

Client: ADVANCE BUILD

Location: 583 MATAWAIA MAROMAKU ROAD
MAROMAKU

Date	Rev	Notes
28/10/2025	A	Original Issue

Drawn by: LMC | Reviewed by: RB | Approved by: MJ

Scale	1:1250
Original	A3
Job No.	19880
Rev No.	A
Sheet No.	C01

Advance build

A smarter move

Proposed New Project

583 Matawaia-Maromaku Road, Matawaia

For: Winnie Mitchell Descendants Whanau Trust

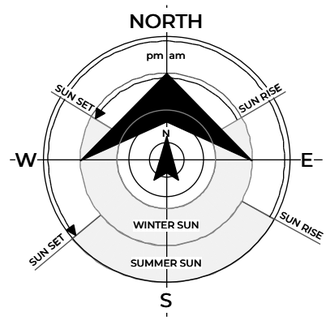
CONTENTS

Concept Plans

Concept 1
September 2025

FINAL WORKING DRAWINGS TAKE PRECEDENCE OVER CONCEPT PLANS. ALL LANDSCAPING, PLANTING, LIGHTING & FENCING IS SHOWN FOR IMAGING PURPOSES ONLY

REVISION:	C01
PROJECT NO.	1297
DRAWN BY:	NMB
HC:	JCS



NB: Boundary Lines are Indicative Only

REVISION:	BY:	DATE:
Drawn	NMB	Aug 28 2025

Verify all dimensions on site before commencing work. Refer to figured dimensions. Refer any discrepancies to Advance manufacturing Ltd.

Advance build

A smarter move

Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Location Plan

SCALE: NTS

PROJECT #:	PAGE:	REVISION:
1298	01	C01

REVISION:	BY:	DATE:
Drawn	NMB	Jul 14 2025
Rev	NMB	Aug 21 2025
Rev	NMB	Sep 26 2025

Advance build

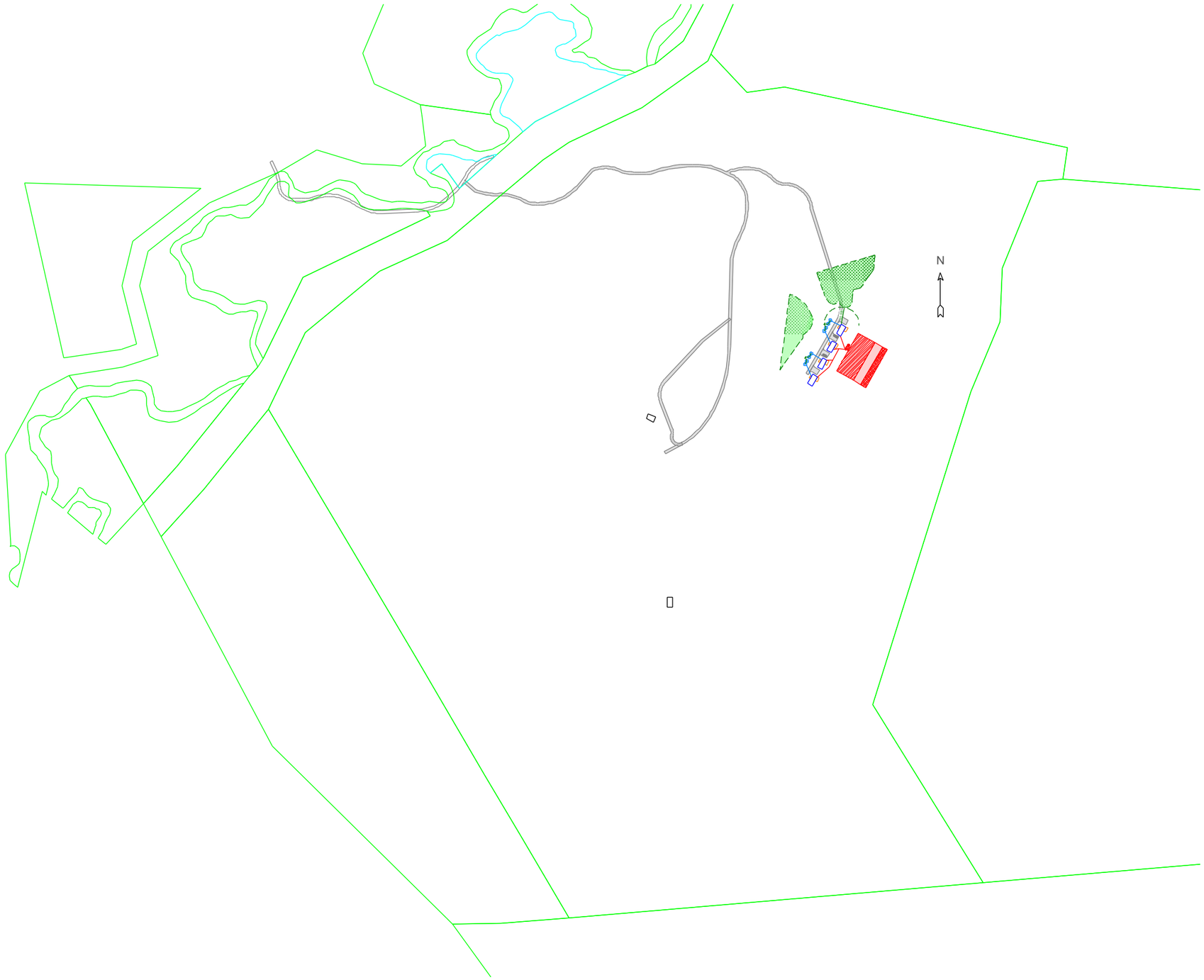
A smarter move

Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Overall Site Plan

SCALE: 1 : 5000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
1297	01A	C01



REVISION:	BY:	DATE:
Drawn	NMB	Jul 14 2025
Rev	NMB	Aug 21 2025
Rev	NMB	Sep 26 2025

Advance build

A smarter move

Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Overall Site Plan - No Image

SCALE: 1 : 5000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
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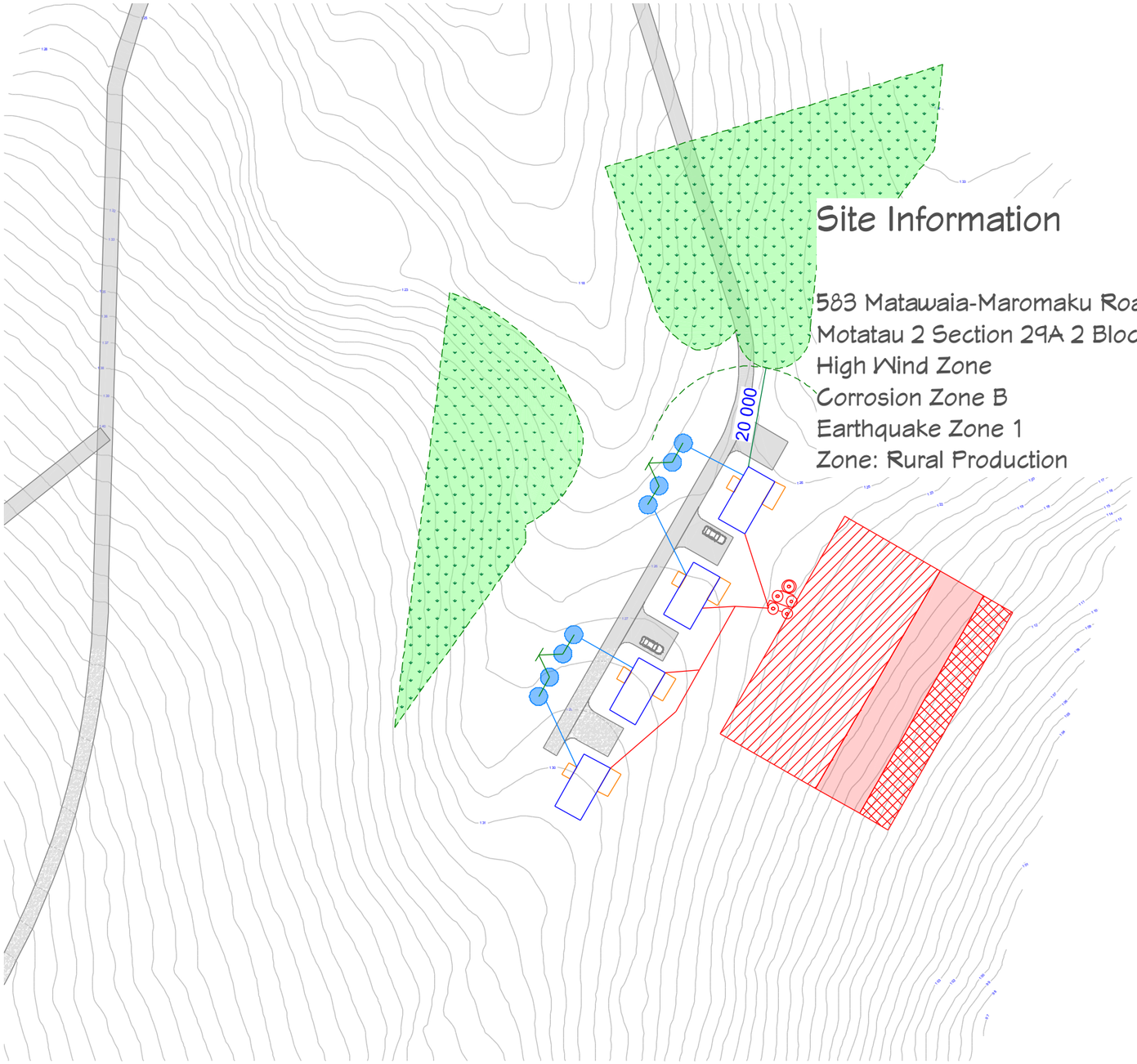


Site Information

583 Matawaia-Maromaku Road, Matawaia
Motatau 2 Section 29A 2 Block Block
High Wind Zone
Corrosion Zone B
Earthquake Zone 1
Zone: Rural Production

N

REVISION	BY:	DATE
Drawn	NMB	Sep 26 2025

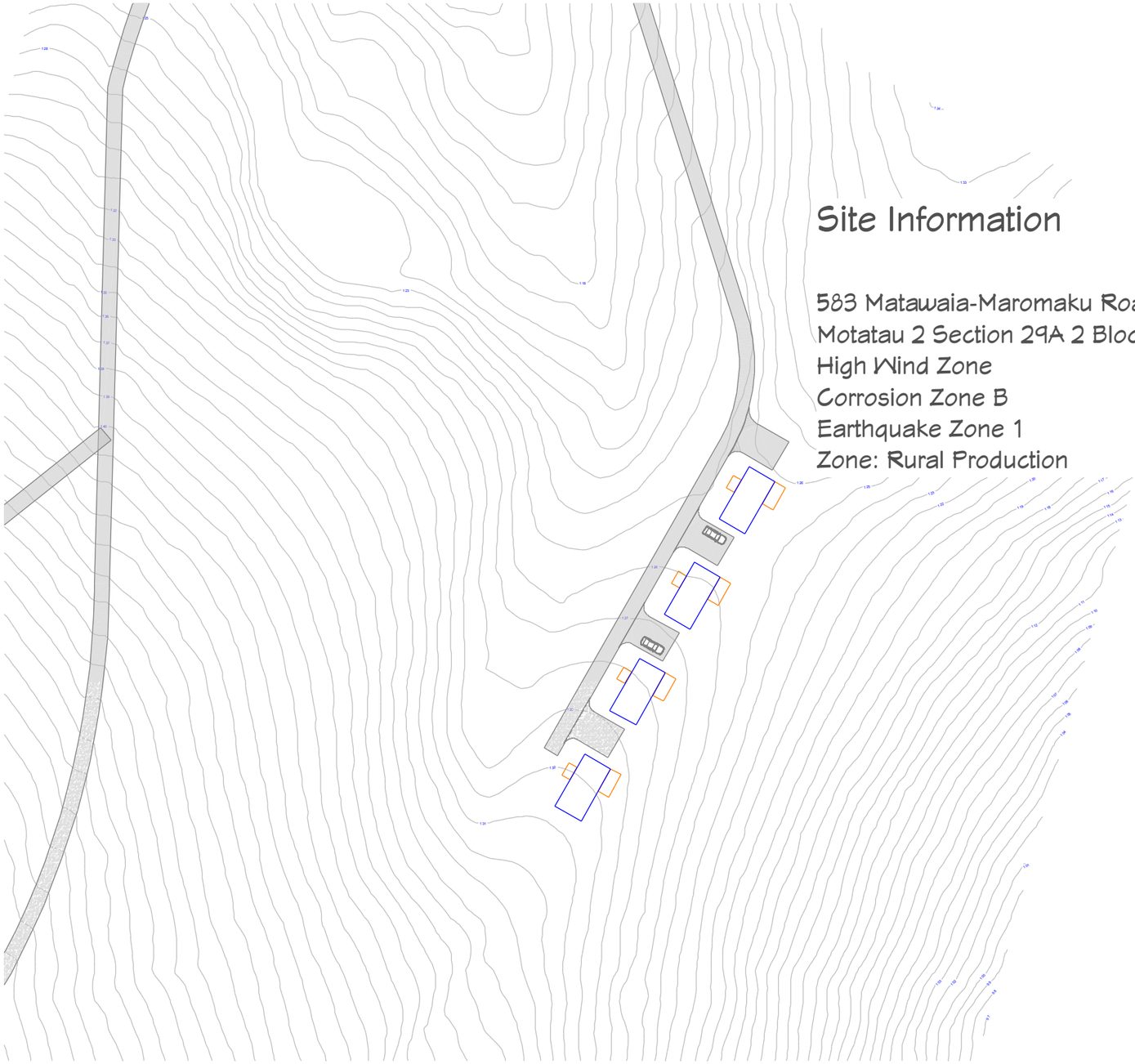
Advance build
A smarter move

Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Plan - No Image

SCALE: 1 : 1000 (A3 Original)

PROJECT #:	PAGE :	REVISION :
1297	02	C01



Site Information

583 Matawaia-Maromaku Road, Matawaia
Motatau 2 Section 29A 2 Block Block
High Wind Zone
Corrosion Zone B
Earthquake Zone 1
Zone: Rural Production

N

REVISION:	BY:	DATE:
Drawn	NMB	Sep 26 2025

Advance build
A smarter move

Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Plan - No Services

SCALE: 1 : 1000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
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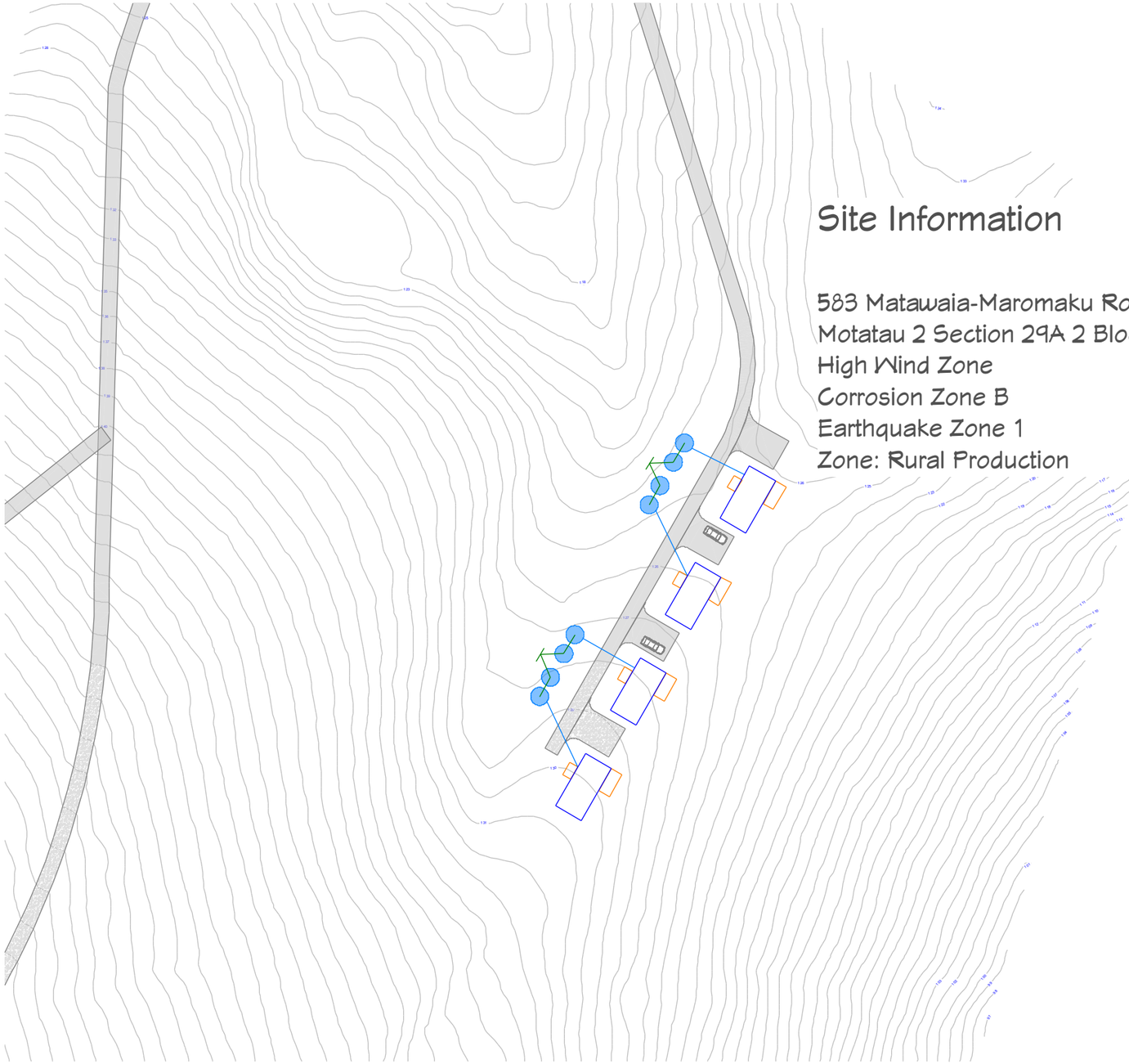

Site Information

583 Matawaia-Maromaku Road, Matawaia
Motatau 2 Section 29A 2 Block Block
High Wind Zone
Corrosion Zone B
Earthquake Zone 1
Zone: Rural Production

N

REVISION:	BY:	DATE:
Drawn	NMB	Aug 28 2025

Advance build
A smarter move

Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Plan - S/W & Water

SCALE: 1 : 1000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
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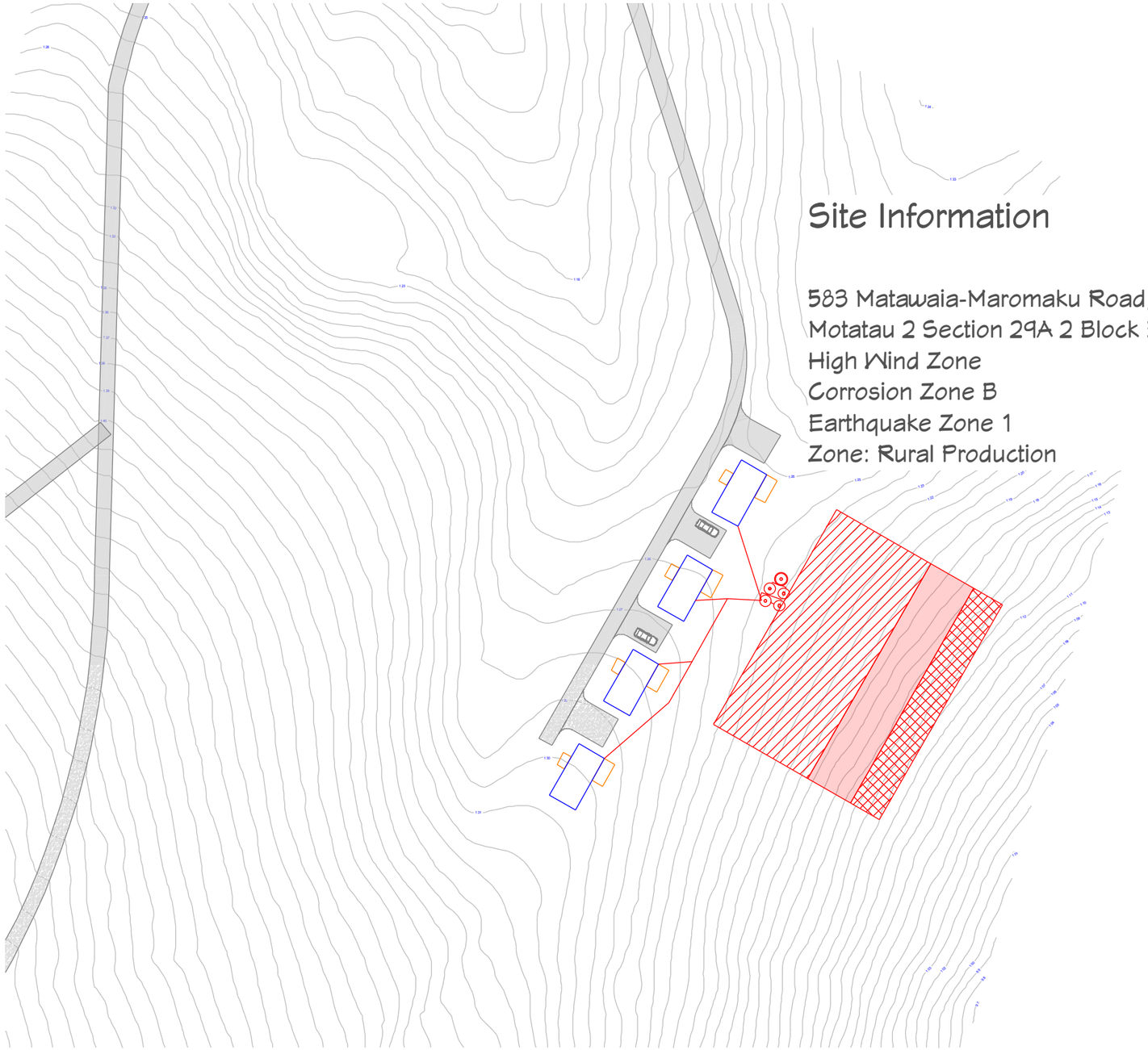


Site Information

583 Matawaia-Maromaku Road, Matawaia
Motatau 2 Section 29A 2 Block Block
High Wind Zone
Corrosion Zone B
Earthquake Zone 1
Zone: Rural Production

N

REVISION:	BY:	DATE:
Drawn	NMB	Sep 26 2025

Advance build

A smarter move

Proposed New Project for:
Winnie Mitchell Whanau
583 Matawaia-Maromaku Road
Matawaia

SHEET TITLE:
Site Plan - Sewer & Power

SCALE: 1 : 1000 (A3 Original)

PROJECT #:	PAGE:	REVISION:
1297	05	C01

Appendix B

Investigations

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

HAND AUGER LOG

HOLE NO.: HA16

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695388mE, 6071293mN
ELEVATION: 58.96m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: RB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)
	Sandy SILT; orange/brown. Very stiff; dry; non-plastic; sand, fine.		0.0 – 1.5
	Moist.		1.5 – 1.6
	With minor clay.		1.6 – 2.0
	Clayey SILT; brown/grey/orange. Very stiff; moist; low plasticity.		2.0 – 3.2
	End Of Hole: 3.20m		3.2

LEGEND

SCALA PENETROMETER (Blows / 100mm)

Depth (m)	Blows / 100mm
0.0 – 0.2	3
0.2 – 0.4	3
0.4 – 0.6	3
0.6 – 0.8	2
0.8 – 1.0	2
1.0 – 1.2	3
1.2 – 1.4	3
1.4 – 1.6	3
1.6 – 1.8	3
1.8 – 2.0	2
2.0 – 2.2	2

VANE SHEAR STRENGTH (kPa)
Vane: GEO3603

Depth (m)	Values
0.4	152
0.6	46
1.0	160
1.2	43
1.4	152
1.6	46
2.0	152
2.2	76
2.4	152
2.6	53
3.0	136
3.2	75

WATER: Groundwater Not Encountered

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

HAND AUGER LOG

HOLE NO.: HA17

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695382mE, 6071318mN
ELEVATION: 56.73m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	Values	WATER
Alluvium	Sandy SILT, with minor clay; orange/brown. Stiff; moist.		0.0 – 1.0				99 30	
	Clayey SILT, with trace sand; brown/orange. Very stiff; moist; low plasticity.		1.0 – 1.6				137 61 72 30	◁
	Sandy CLAY; grey/brown/blue. Firm; moist; high plasticity.		1.6 – 3.0				73 38 61 30	
	SAND, with minor carbonaceous wood; dark bluish grey. Saturated.		3.0 – 3.2				61 30	
	Saturated - core loss. End Of Hole: 3.20m		3.2 – 3.4					

Scala penetrometer scale: 2, 4, 6, 8, 10, 12, 14, 16, 18 (Blows / 0mm)
Vane shear strength scale (kPa): 50, 100, 150, 200

PHOTO(S)

REMARKS

WATER

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

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

HAND AUGER LOG

HOLE NO.: HA18

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695378mE, 6071324mN
ELEVATION: 56.79m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
TS	TOPSOIL.		0.0				Groundwater Not Encountered
Alluvium	Sandy SILT, with some clay; dark brown/grey. Very stiff; moist; low plasticity.		0.4			152	
Alluvium	CLAY, with minor sand; orange/brown/yellow/grey. Stiff; moist; low plasticity.		0.6			61	
	End Of Hole: 0.90m		0.9				

Scala Penetrometer: 2 4 6 8 10 12 14 16 18
Vane Shear Strength (kPa): 50 100 150 200 Values
Depth (m): 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

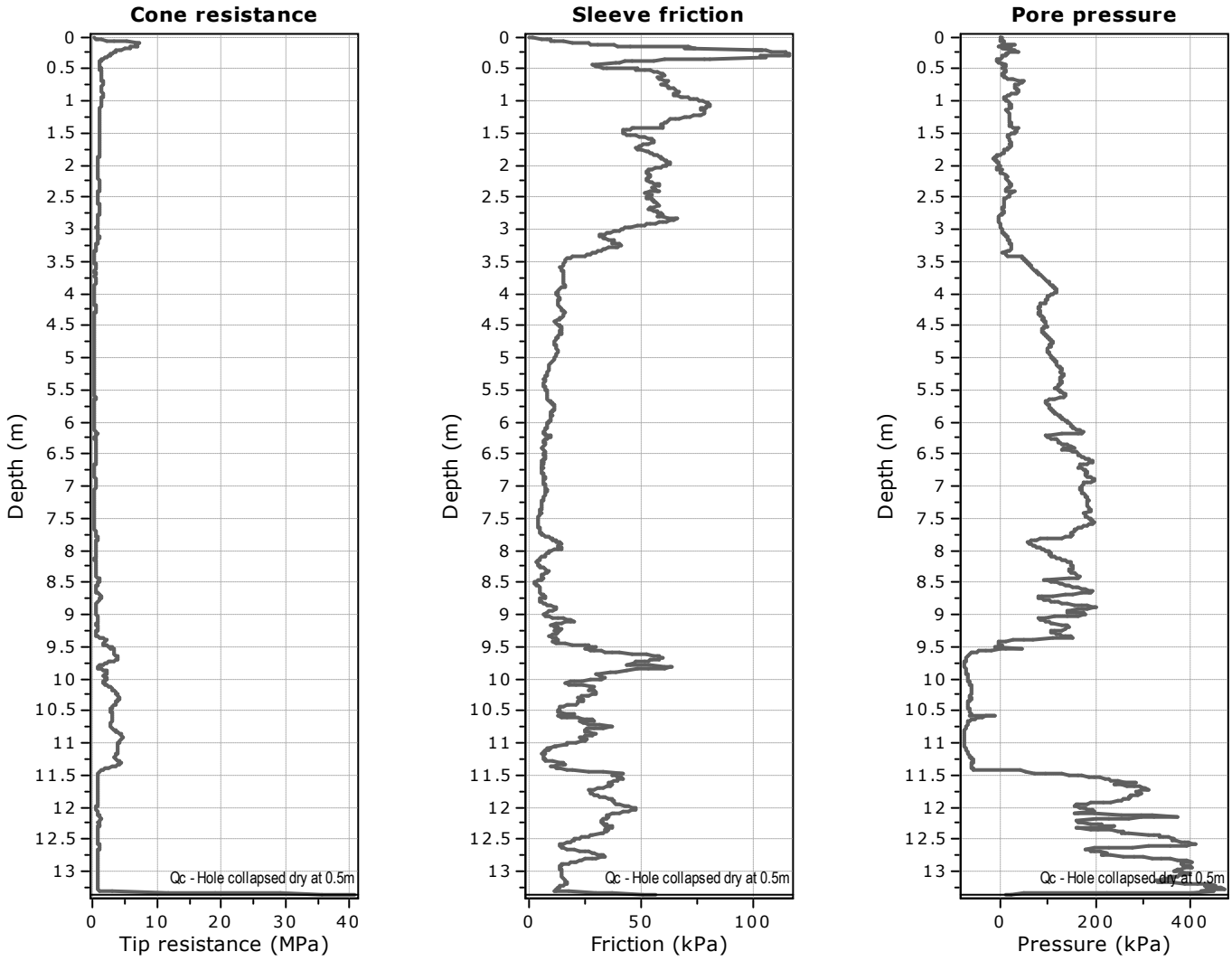
- [x] Hand Auger
- [ ] Test Pit

Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

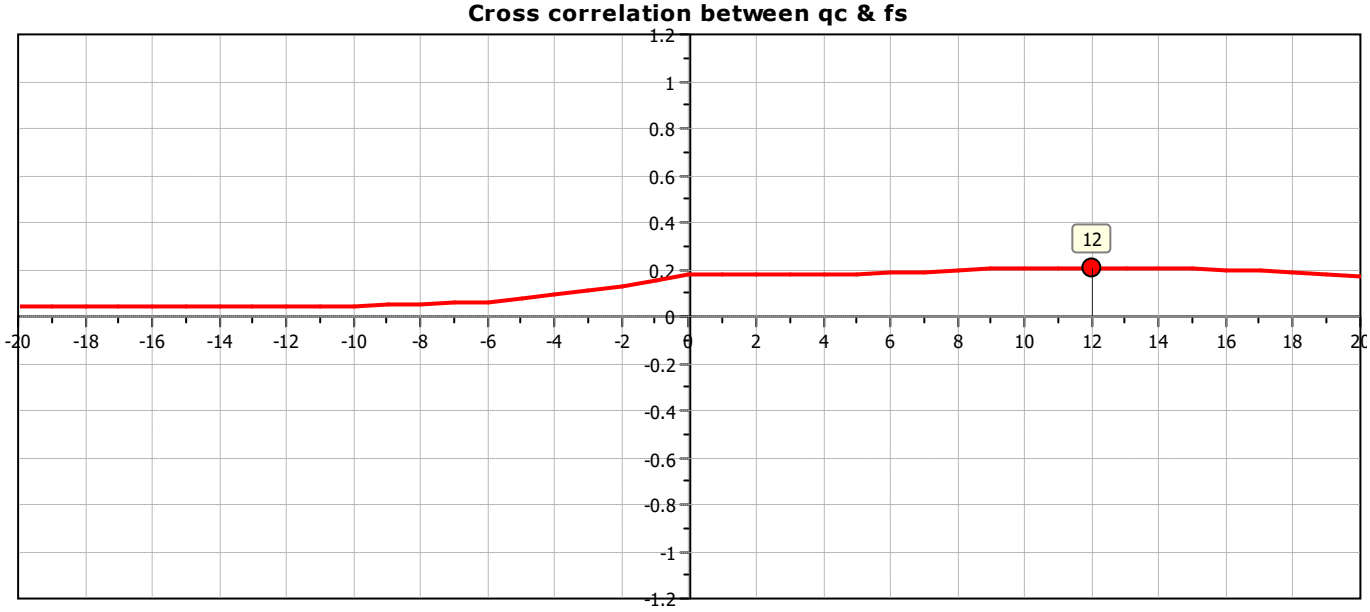
CPT: 01

Total depth: 13.36 m, Date: 6/11/2025
Coords: lat -35.497163° lon 174.051707°
Cone Type: DC10

Project: **RS Eng | 19880 | GDS NZ Ltd**
Location: **583 Matawaia-Maromaku Road, Maromaku | Holes dipped onsite using Dipmeter**



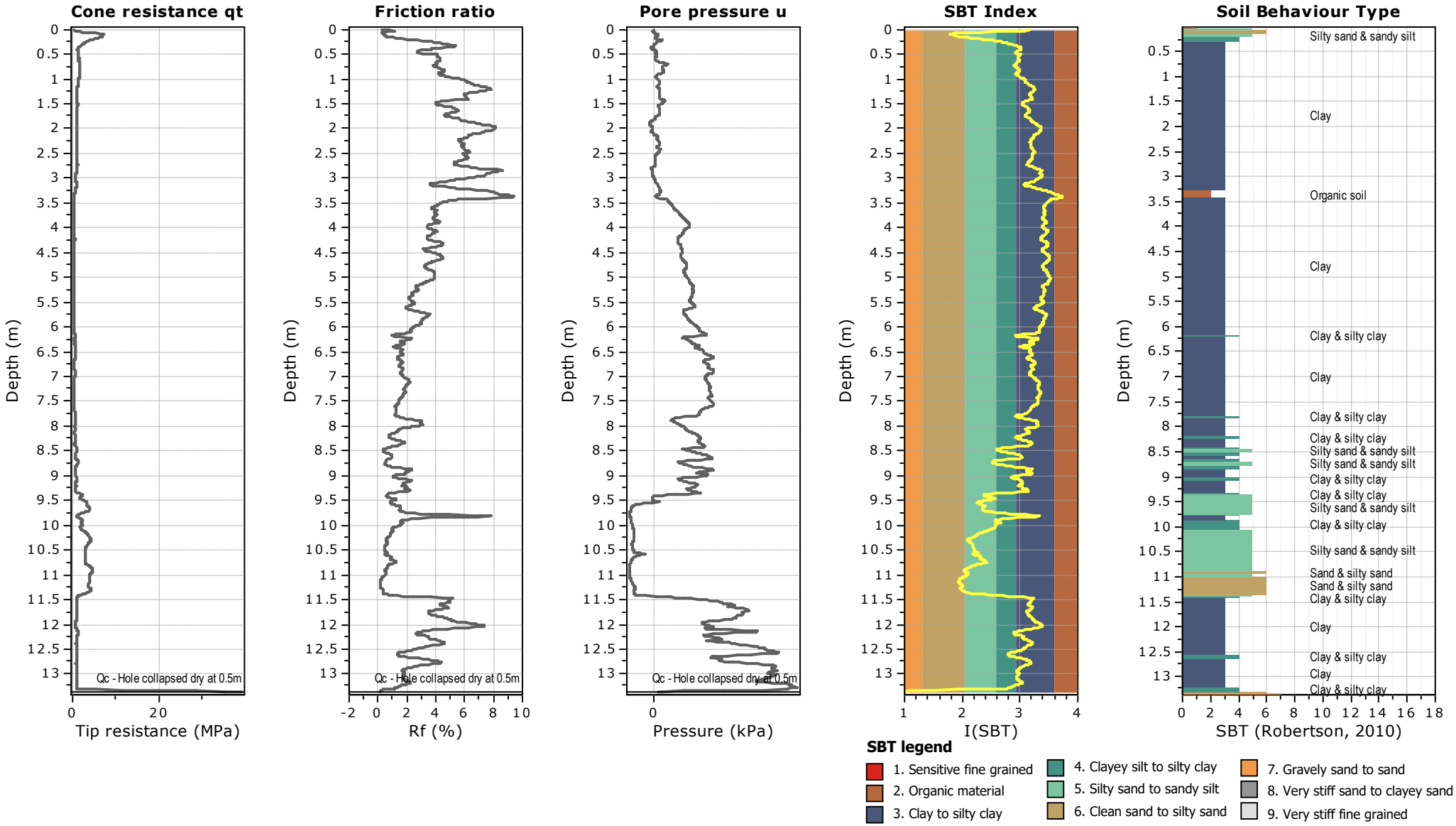
The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 01
Total depth: 13.36 m, Date: 6/11/2025
Coords: lat -35.497163° lon 174.051707°
Cone Type: DC10

Project: **RS Eng | 19880 | GDS NZ Ltd**
Location: **583 Matawaia-Maromaku Road, Maromaku | Holes dipped onsite using Dipmeter**

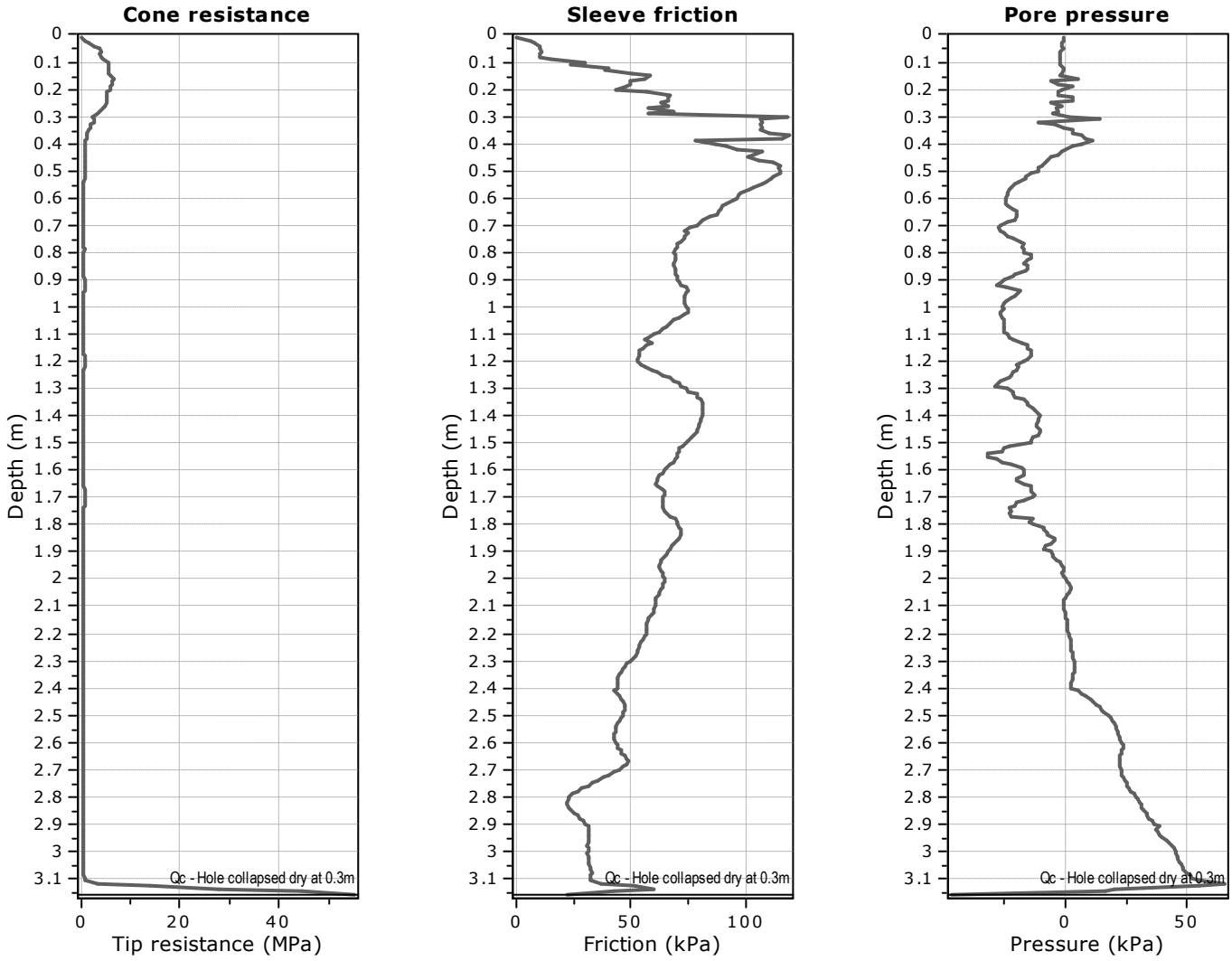


Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

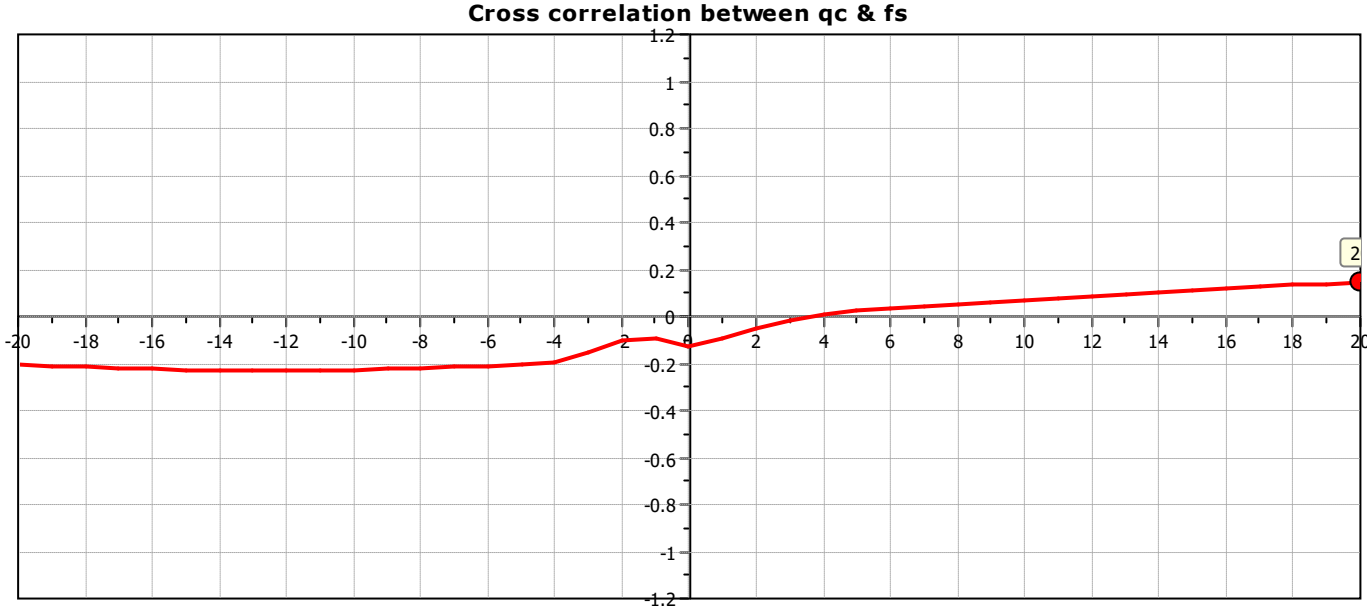
CPT: 02

Total depth: 3.16 m, Date: 6/11/2025
Coords: lat -35.497056° lon 174.051493°
Cone Type: DC10

Project: **RS Eng | 19880 | GDS NZ Ltd**
Location: **583 Matawaia-Maromaku Road, Maromaku | Holes dipped onsite using Dipmeter**



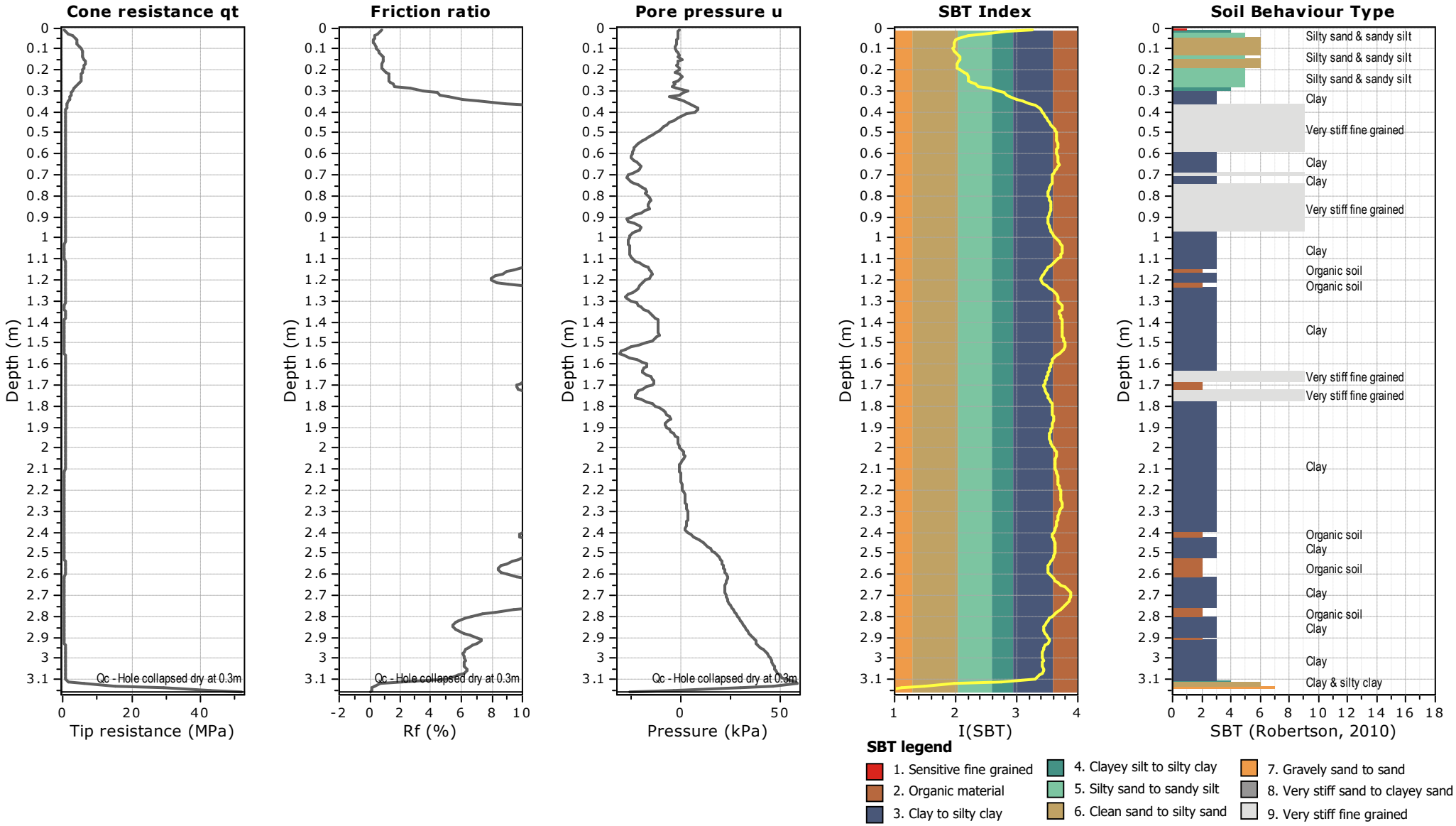
The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

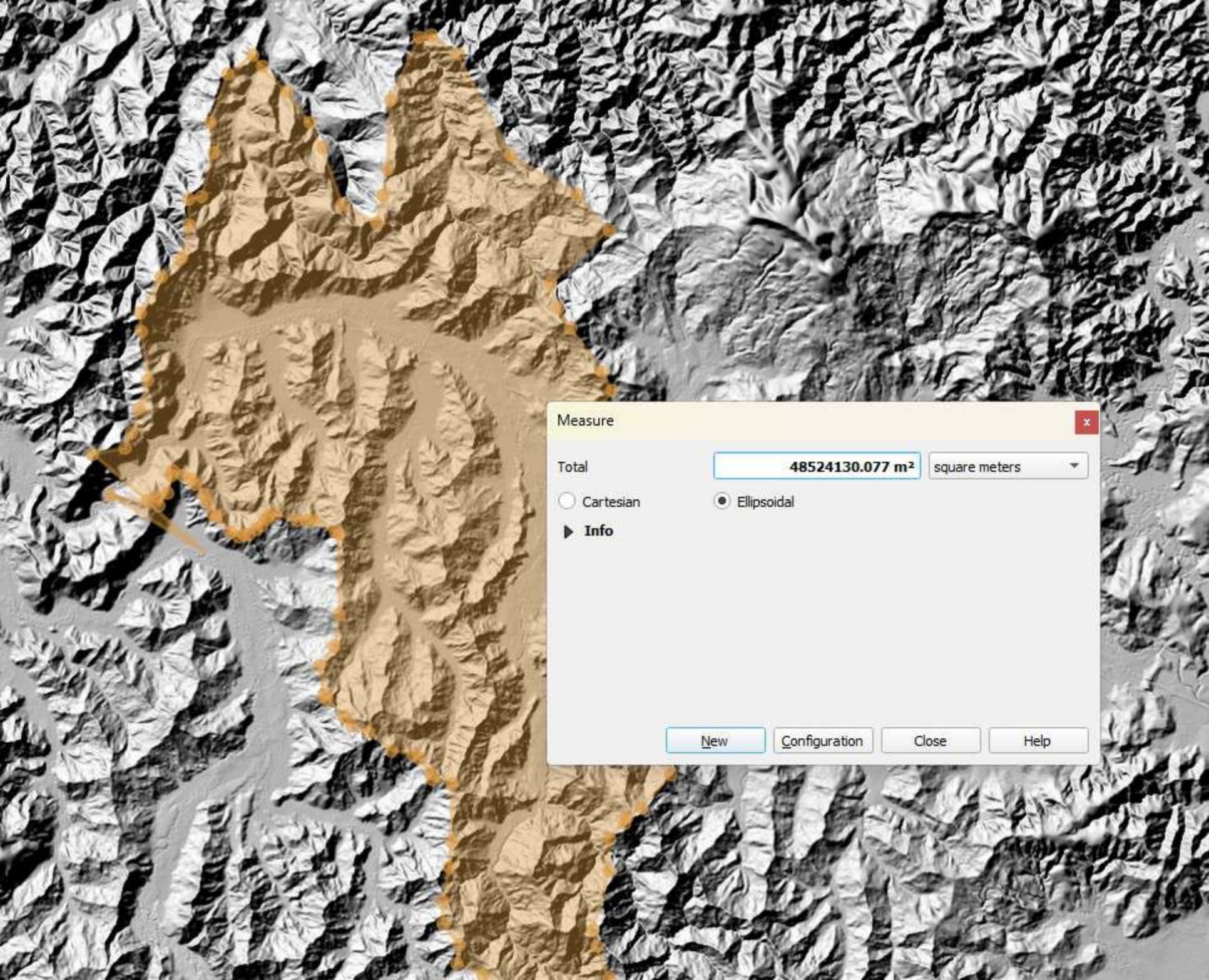
CPT: 02
Total depth: 3.16 m, Date: 6/11/2025
Coords: lat -35.497056° lon 174.051493°
Cone Type: DC10

Project: **RS Eng | 19880 | GDS NZ Ltd**
Location: **583 Matawaia-Maromaku Road, Maromaku | Holes dipped onsite using Dipmeter**



Appendix C

TP108 Calculations


Measure
Total
48524130.077 m²
square meters
Cartesian
Ellipsoidal
Info
New
Configuration
Close
Help

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

Page No.	1
File No.	19880
Calculated by	SSC
Checked by	MJ
Date	27 November 2025

Project 6162 State Highway 12, Dargaville

Client David Bond

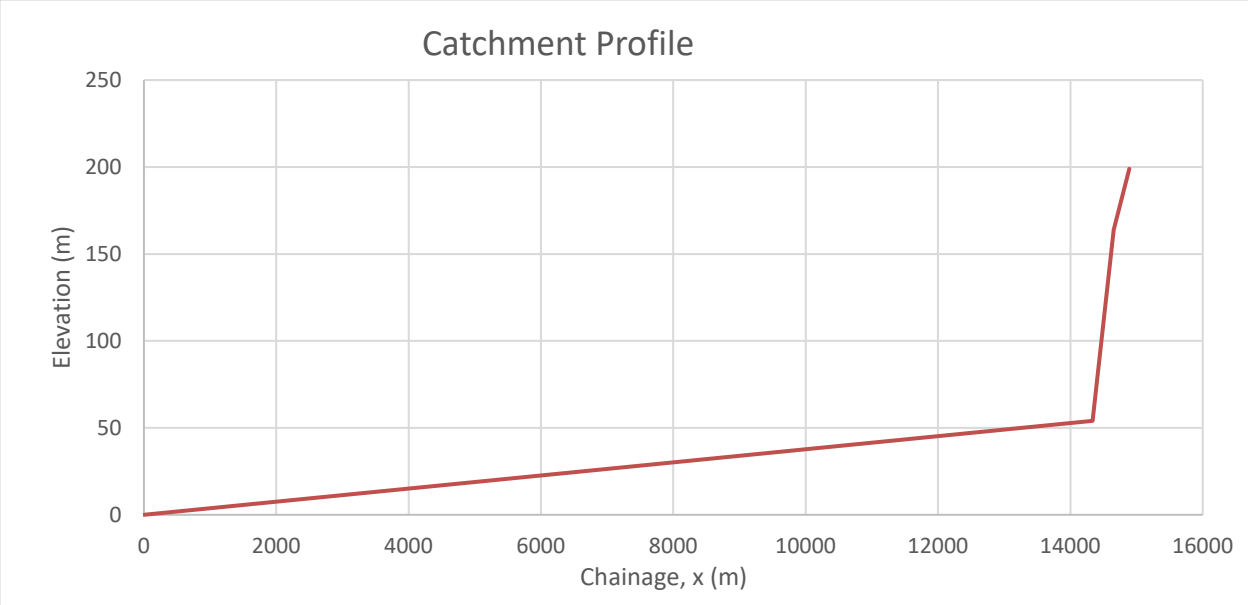
North Catchment

Time of Concentration (TP108 Method)

$\Delta A = h \,.\, \Delta x$

Elevation (m)	h (m)	x (m)	Δx (m)	ħ (m)	ΔA (m2)
54	0	0			
108	54	14335	14335	27	387045
218	164	14653	318	109	34662
253	199	14891	238	181.5	43197
Total			14891		464904

Total Catchment Area
4884 ha



Average Slope (Sc)

$$Sc = \frac{2\Delta A}{L^2}$$

Sc= 0.004193

Channelisation Factor (C),
1 Natural Channels

Curve Number (CN)
78 2 Acres, Class C

Time of Concentration (Tc)

$$tc = 0.14.C.L^{0.66}\left(\frac{CN}{200-CN}\right)^{-0.55} Sc^{-0.3}$$

tc= 5.499713 hr
329.9828 mins

Summary for Subcatchment 12S: Catchment

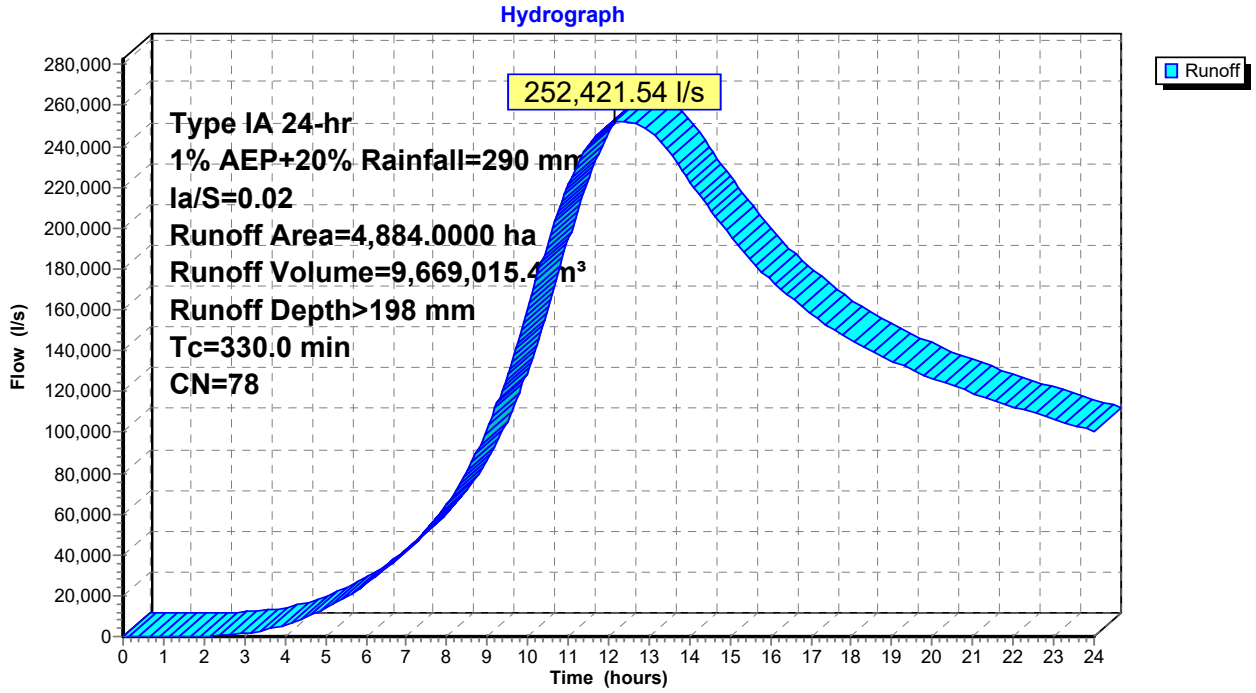
Runoff 252,421.54 l/s @ 12.15 hrs, Volume= 9,669,015.4 m³, Depth> 198 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 1% AEP+20% Rainfall=290 mm, Ia/S=0.02

Area (ha)	CN	Description
4,884.0000	78	Meadow, non-grazed, HSG D
4,884.0000		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
330.0					**Direct Entry,**

Subcatchment 12S: Catchment



Appendix D

Culvert; HydroCAD Calculations

Location

Address search	583, Matawaia Maromaku Road, Bay of Islands, Far North District, Northland,

Site Information

To generate a set of results, either click on an existing data point, or a new location and enter a site name, then press the Generate Report button.

Latitude	-35.497706603426714
Longitude	174.0521165809507
Site Name	Custom Location

Site Id	

Output Table Format

- (•) Depth - Duration - Frequency
- ( ) Intensity - Duration - Frequency

Generate Report

Results Spreadsheet Download

Site Details | Historical Data | RCP2.6 Scenario | RCP4.5 Scenario | RCP6.0 Scenario | RCP8.5 Scenario

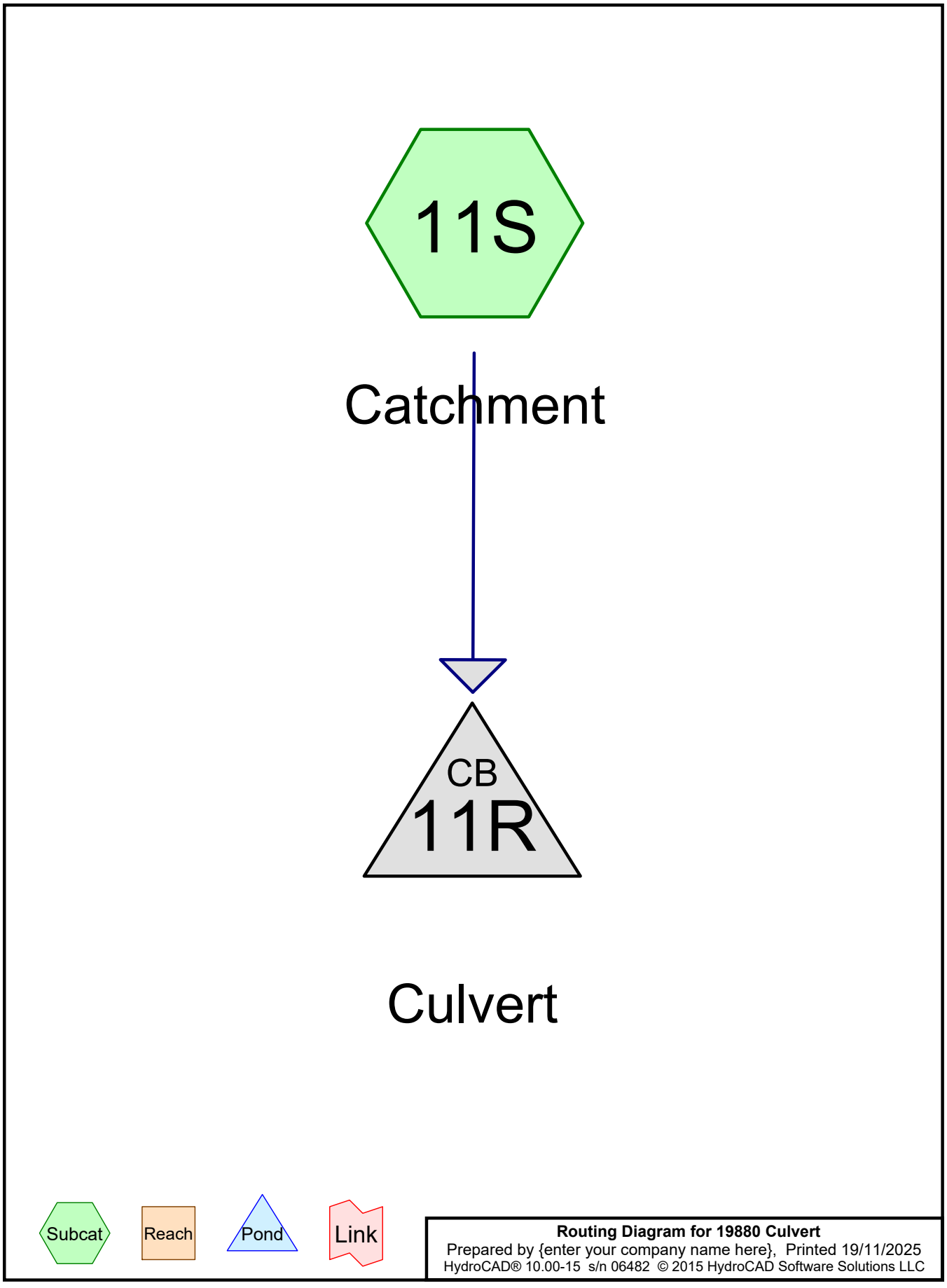
Rainfall depths (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	10.2	15.2	18.9	26.9	37.2	58.6	75.4	94.2	114	126	135	141
2	0.500	11.2	16.7	20.8	29.5	40.8	64.5	82.9	104	126	139	149	156
5	0.200	14.6	21.7	27.1	38.5	53.3	84.3	109	136	165	183	195	205
10	0.100	17.1	25.4	31.7	45.2	62.6	99.0	128	160	194	215	230	241
20	0.050	19.6	29.2	36.4	51.9	71.9	114	147	184	224	248	265	279
30	0.033	21.1	31.4	39.2	55.9	77.5	123	158	199	242	268	287	301
40	0.025	22.2	33.0	41.2	58.7	81.5	129	167	209	255	282	302	317
50	0.020	23.0	34.2	42.7	60.9	84.5	134	173	217	265	293	314	329
60	0.017	23.6	35.2	44.0	62.7	87.1	138	178	224	273	302	323	339
80	0.013	24.7	36.8	45.9	65.6	91.0	145	187	234	286	317	339	355
100	0.010	25.5	38.0	47.4	67.7	94.1	149	193	242	296	328	350	368
250	0.004	28.7	42.9	53.5	76.5	106	169	219	275	335	372	398	418

Depth standard error (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	1.2	1.4	1.7	2.5	3.3	6.2	9.2	14	18	21	23	23
2	0.500	1.3	1.6	1.8	2.7	3.6	6.9	10	16	21	23	26	26
5	0.200	1.9	2.3	2.7	3.9	5.2	9.6	14	21	28	32	35	35

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
10	0.100	2.4	3.1	3.6	5.2	6.9	12	18	26	33	38	42	42
20	0.050	3.2	4.2	4.9	7.0	9.2	16	22	30	39	44	49	49
30	0.033	3.7	5.0	5.9	8.3	11	18	26	33	43	48	53	54
40	0.025	4.1	5.6	6.6	9.3	12	21	28	36	46	52	57	58
50	0.020	4.4	6.1	7.3	10	13	23	31	37	48	54	60	61
60	0.017	4.7	6.6	7.8	11	14	24	33	39	50	57	62	63
80	0.013	5.2	7.3	8.8	12	16	27	36	42	54	60	66	67
100	0.010	5.7	8.0	9.6	13	18	29	40	44	56	63	69	71
250	0.004	7.8	11	14	19	26	42	55	54	69	77	84	86



Routing Diagram for 19880 Culvert
Prepared by {enter your company name here}, Printed 19/11/2025

Summary for Subcatchment 11S: Catchment

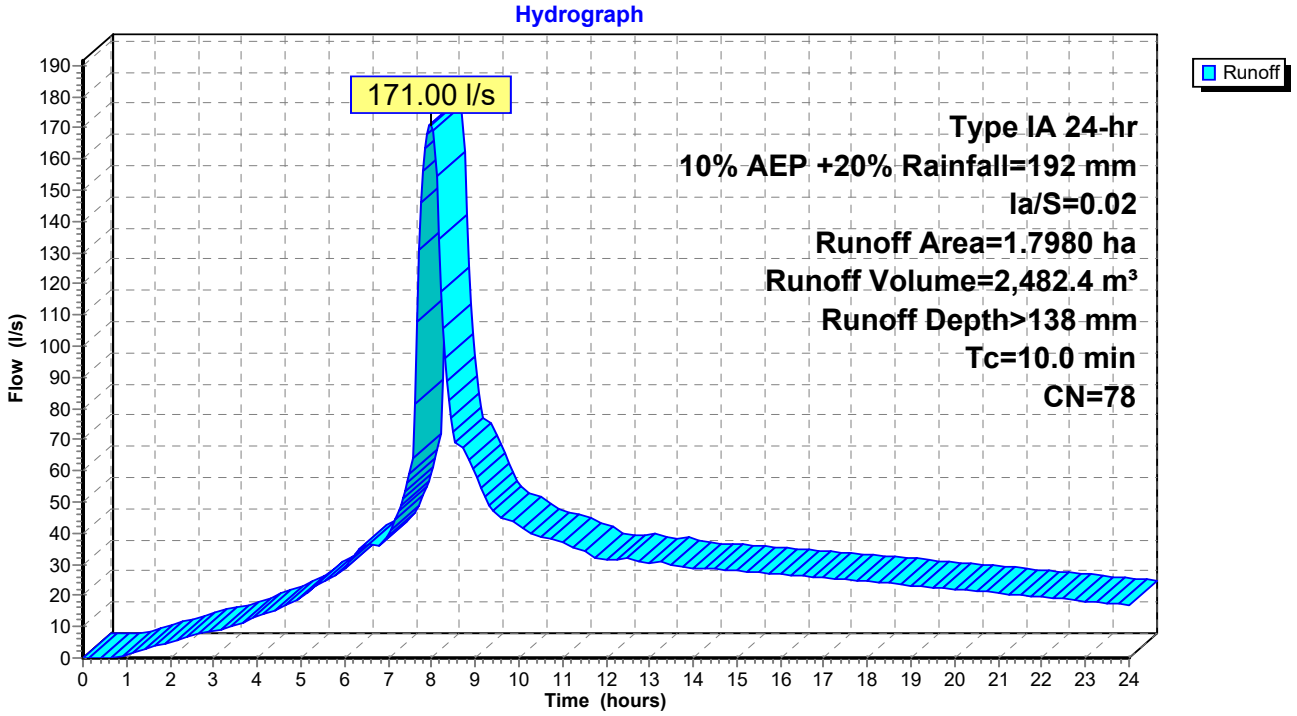
Runoff = 171.00 l/s @ 7.98 hrs, Volume= 2,482.4 m³, Depth> 138 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 10% AEP +20% Rainfall=192 mm, Ia/S=0.02

Area (ha)	CN	Description
1.7980	78	Meadow, non-grazed, HSG D
1.7980		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m³/s)	Description
10.0					**Direct Entry,**

Subcatchment 11S: Catchment



Summary for Pond 11R: Culvert

[57] Hint: Peaked at 0.527 m (Flood elevation advised)

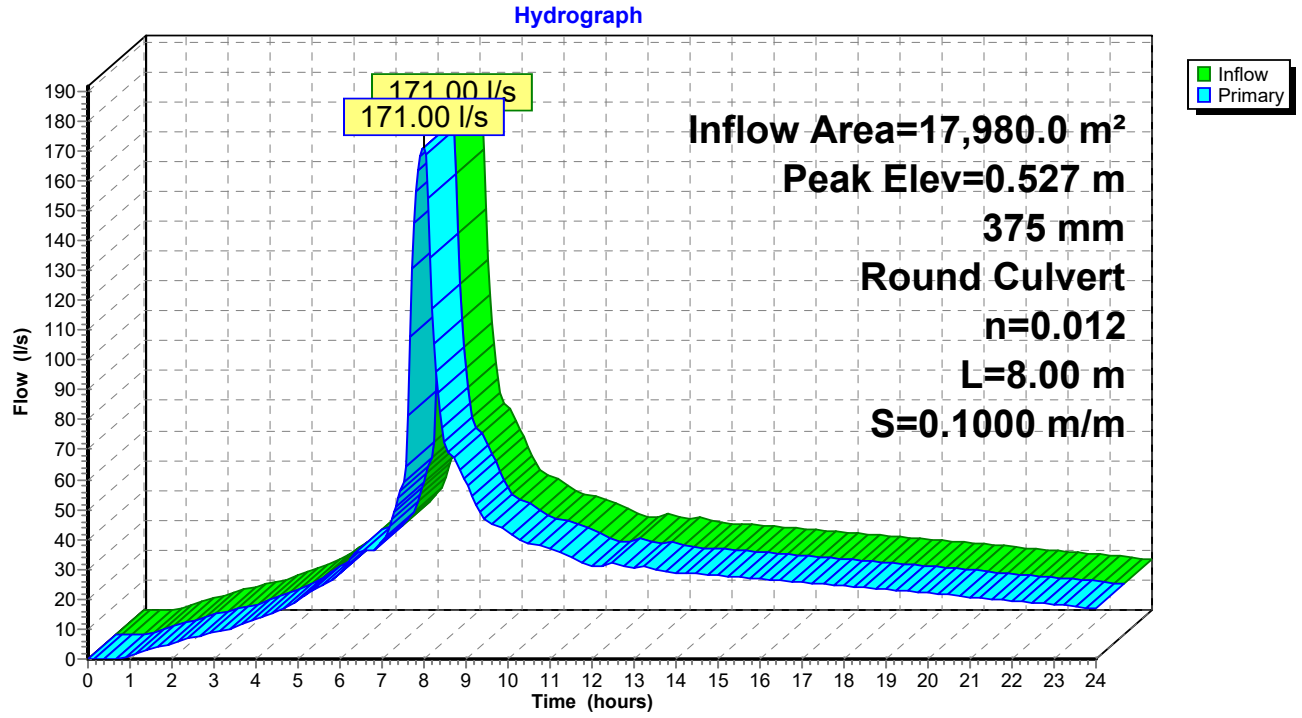
Inflow Area = 17,980.0 m², 0.00% Impervious, Inflow Depth > 138 mm for 10% AEP +20% event
Inflow = 171.00 l/s @ 7.98 hrs, Volume= 2,482.4 m³
Outflow = 171.00 l/s @ 7.98 hrs, Volume= 2,482.4 m³, Atten= 0%, Lag= 0.0 min
Primary = 171.00 l/s @ 7.98 hrs, Volume= 2,482.4 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 0.527 m @ 7.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**375 mm Round Culvert** L= 8.00 m Ke= 0.500 Inlet / Outlet Invert= 0.000 m / -0.800 m S= 0.1000 m/m Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.110 m²

Primary OutFlow Max=170.56 l/s @ 7.98 hrs HW=0.525 m (Free Discharge)
1=Culvert (Inlet Controls 170.56 l/s @ 1.54 m/s)

Pond 11R: Culvert



Appendix E

Crossing Sights

Right-hand Eastern Side

Left-hand Western Side

GEOTECHNICAL INVESTIGATION REPORT

583 Matawaia-Maromaku Road

Maromaku

(Motatau 2 Section 29A 2 Block)

RS Eng Ltd • 2 Seaview Road, Whangarei 0110 • **09 438 3273** • **office@RSEng.co.nz**
Consulting Engineers

GEOTECHNICAL INVESTIGATION REPORT

583 Matawaia-Maromaku Road

Maromaku

(Motatau 2 Section 29A 2 Block)

Report prepared for: Advance Build

Report reference: 19880

Date: 23 December 2025

Revision: 1

Document Control

Date	Revision	Description	Prepared by:	Reviewed by:	Authorised by:
23/12/2025	1	Resource Consent Issue	R Beasley	S Scott Compton	M Jacobson

Contents

Appendices

File: 19880
23 December 2025
Revision: 1

GEOTECHNICAL INVESTIGATION REPORT

583 Matawaia-Maromaku Road, Maromaku

(Motatau 2 Section 29A 2 Block)

1.0 Introduction

RS Eng Ltd (RS Eng) has been engaged by Advance Build to investigate the suitability of their clients property (Motatau 2 Section 29A 2 Block) for residential construction. The purpose of this report is to assess the suitability of the proposed building sites and bridge site, making foundation and earthworks recommendations.

The client proposes to construct four new dwellings, founded on timber pile type foundations. A bridge is also proposed in place of the existing bridge.

2.0 Site Description

This 61.184ha property is accessed off southeast off Matawaia-Maromaku Road. The property consists of gentle to steep slopes, underlain with Mahurangi Limestone amongst elevated terrain and alluvium amongst the lower lying terrain and water courses. Ground coverage at the proposed building areas consists of vegetation and pasture.

Figure 1: Motatau 2 Section 29A 2 Block.

3.0 Desk Study

3.1 Referenced/Reviewed Documents

The following documents have been referenced in this report:

- GNS – Geology Of The Whangarei Area – Edbrooke & Brook – 2009.

3.2 Site Geology

The GNS 1:250,000 scale New Zealand Geology Web Map indicates that the building sites are located within an area that is underlain by Mahurangi Limestone, which has been described as follows: *"Blue-grey to white micritic, muddy limestone, commonly with glauconitic sandstone beds."*

The bridge location was found to be underlain with alluvium during the investigation.

3.3 Aerial Photography

RS Eng has undertaken a review of historical aerial photography, specifically images from 1951, 1968, 1984 and Google Earth Imagery. See Figure 2 below of the 1968 image. Several notable features were observed, listed below.

- No evidence of deep-seated slope instability at or immediately adjacent to the building areas.
- The building areas remained undeveloped throughout the imagery. Farm tracks were observed to the building areas in 2011. The existing dwelling to the northwest of the building area was constructed prior to 2004 imagery.

Figure 2: 1968 Aerial Image *(Source: www.retrolens.nz) (yellow marker indicates proposed building area).*

4.0 Field Investigation

A Technician and Geologist from this office visited the property on 21 October 2025 to undertake a walkover inspection, one Scala Penetrometer tests and eighteen hand augers.

The walkover inspection did not observe any signs of concern at the building site in relation to the proposal.

The hand augers were dug to a maximum depth of 3.2m below ground level (BGL). Shear Vane readings were taken at regular intervals throughout the hand augers. Soil and rock descriptions are in general accordance with the New Zealand Geotechnical Society guideline.

The Scala Penetrometer test was conducted to a maximum depth of 1.1mBGL with results ranging between 2 blows/100mm to 3 blows/100mm.

5.0 Subsoil Conditions

Interpretation of the subsurface conditions is based on the investigations shown on the drawings in Appendix A. The conditions are summarised below.

- Topsoil was encountered to a maximum depth of 0.2mBGL.

Building Areas

- Residual soils of Mahurangi Limestone were encountered to a maximum depth of 1.3mBGL, consisting of very stiff sandy silts, very stiff to hard clayey sandy silts, firm to very silty clays and stiff to very stiff clayey silts. In-Situ Undrained Shear Strengths ranged between 61kPa to 126kPa.
- Completely weathered limestone was encountered to a maximum investigated depth of 3.0mBGL, consisting of very stiff sandy silts, very stiff to hard clayey sandy silts, very dense sands and very stiff clayey sandy silts. In-Situ Undrained Shear Strengths ranged between 168kPa to greater than 213kPa.
- Highly weathered limestone was encountered in HA09, consisting of gravelly silts.
- Groundwater was encountered at 1.0mBGL.

Bridge

- Alluvium was encountered consisting of firm sandy clays, saturated sands and stiff clays. In-Situ Undrained Shear Strengths ranged between 61kPa to 73kPa.
- Underlying this alluvium material, limestone is inferred at depths of 3.0m and 13.0m at the north and south abutments, respectively.
- Groundwater inflow was encountered at 1.6mBGL.

6.0 Geotechnical Assessment

6.1 Slope Stability

The property consists of gentle to steep slopes, with the proposed building area situated on a gently sloping long wide saddle feature (approximately 20m wide) with surrounding slopes gradually becoming moderate to steep (10-20°) to the southeast. The proposed building areas were found to be underlain with shallow limestone, consisting of very stiff to very dense sandy silts and sands. Slopes to the east fall steeply, RS Eng recommend a minimum setback of 8m from the crest of these steep slopes.

The proposed accessway to the building areas follows an existing road/track traversing up gentle to steep slopes. The limestone outcrops observed along the accessway have been assessed as being moderately to steeply inclined and moderately jointed. Minor cut and fill operations will be required along the accessway, RS Eng consider the risk of slope instability to the accessway to be low.

Based on the underlying geology encountered and given the recommendations made in this report are adhered to, the risk of slope instability to the proposed building works is considered to be low.

6.2 Liquefaction

6.2.1 Dwellings

The proposal is positioned on land underlain by Mahurangi Limestone, consisting of shallow limestone being relatively elevated and consisting of a cohesive rock mass, therefore unlikely to liquefy when subjected to seismic shaking. RS Eng considers the risk of liquefaction to be low.

6.2.2 Bridge

The bridge is positioned on land underlain by alluvium, generally consisting of soils that are cohesive. Provided foundations are keyed into the underlying inferred limestone, the risk of liquefaction to the proposed bridge is considered to be low.

6.3 Expansive Soils

The clayey soils encountered on-site are likely to be subject to volumetric change with seasonal changes in moisture content (wet winters / dry summers); this is known as expansive or reactive soils. Apart from seasonal changes in moisture content other factors that can influence soil moisture content at the include:

- Influence of garden watering and site drainage.
- The presence of large trees close to buildings. Large trees can cause variation in the soil moisture content for a distance of up to 1.5 times their mature height.

- Initial soil moisture conditions during construction, especially during summer and more so during a drought. Building platforms that have dried out after initial excavation should be thoroughly wet prior to any floor slabs being poured.
- Plumbing leaks.

Based on a visual tactile assessment made during the subsoil investigation at the proposed building sites, RS Eng considers the soils as being Class A (Non Expansive) as per AS 2870.

Based on a visual tactile assessment made during the subsoil investigation at the proposed bridge, RS Eng considers the soils as Class H1 (Highly Expansive) as per AS 2870.

6.4 Shallow Soil Creep

Seasonal changes in moisture content of clayey soils cause shrink/swell effects (expansive soils). On slopes generally more than 14° the cyclic shrink/swell characteristics combined with gravity forces cause the surface soil to displace downslope over time. This can be accelerated and exaggerated by stock. Soil creep can affect shallow slope angles where underlain by weaker materials but may not affect steeper slopes when soil strengths are high.

Shallow soil creep was evident on the moderate slopes downslope to the building areas. Provided the proposed buildings are setback a minimum of 5.0m from the moderate slopes (>14°) the risk of soil creep is considered to be low.

7.0 Engineering Recommendations

7.1 Site Subsoil Class

In accordance with NZS 1170.5:2004, Section 3.12.3 the site has been assessed for its Site Subsoil Class. Based on the observations listed above RS Eng considers the site soils lie within Site Class C *"Shallow Soil Site."*

7.2 Earthworks

To create building platforms for the proposed buildings, earthworks are proposed. To suitably develop the building areas, RS Eng recommend as follows.

- Cuts and fills shall be limited to 0.5m, without further geotechnical assessment.
- Cut and fill batter should be sloped at angles less than 1V to 3H.
- Site works shall generally be completed in accordance with NZS 4431.
- The building sites and driveway should be shaped to assist in stormwater run-off and avoid ponding of surface water.

7.3 Shallow Foundations

It is proposed to construct timber floor dwellings on standard NZS 3604 type pile foundations. To suitably found the proposed construction RS Eng make the following recommendations.

- Timber pile type foundations designed to NZS 3604 shall extend to a minimum of 0.5m below clear ground level or keyed 0.3m into highly weathered limestone, whichever is greater.

Notwithstanding the recommendations of this report, for the specific design of shallow foundations, RS Eng has assessed the following.

- 300kPa Ultimate Bearing Capacity (Geotechnical Ultimate).
- 150kPa Dependable Bearing Capacity (Ultimate Limit State).
- 100kPa Allowable Bearing Capacity (Serviceability Limit State).

7.4 Bridge Foundations

It is proposed to construct a bridge on pile foundations. Due to the depth of weak underlying soils, and shallow groundwater, foundations shall consist of piles. These piles shall be specifically designed by a Chartered Professional Engineer using acceptable methods. Piles shall extend to a minimum depth of 3.0m and 13.0m at the north and south abutments, respectively. Vertical pile capacities shall be determined using B1/VM2 of the NZ Building Code. Under no circumstances shall the Hiley Formula be solely used to determine pile capacities. The Hiley Formula using a FoS=5 could be adopted to assess driven pile sets and to review capacities during pile installation.

For specific design of deep pile foundations, RS Eng have assessed the following as per B1/VM4 of the NZ Building Code.

- 10MPa Ultimate End Bearing Capacity (Geotechnical Ultimate).

7.5 Stormwater Disposal

Uncontrolled and concentrated stormwater discharges can result in erosion and slope instability. RS Eng recommends that stormwater is collected where possible and piped to a suitably sized dispersal trench. See Appendix A for sizing and details.

8.0 Construction Monitoring and Producer Statements

RS Eng recommends a suitably experienced Chartered Professional Engineer monitor the construction of the following works to confirm if the geotechnical conditions are consistent with that outlined in this report.

- Foundation excavations.

Any works not inspected will be excluded from future producer statements (PS4) to be issued by RS Eng. In any event, where doubt exists regarding inspections, this office should be contacted for advice and provided with reasonable notice of inspections.

9.0 Conclusions

It is the conclusion of RS Eng Ltd that the building areas are suitable for the proposal provided the recommendations and limitations stated within this report are adhered to.

RS Eng Ltd also concludes that subject to the recommendations of this report, in terms of Section 72 of the Building Act 2004;

(a) the building work to which an application for a building consent relates will 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

(b) the land is neither subject to nor likely to be subject to slippage or subsidence.

10.0 Limitations

This report has been prepared solely for the benefit of our client. The purpose is to determine the engineering suitability of the proposed building areas, in relation to the material covered by the report. The reliance by other parties on the information, opinions or recommendations contained therein shall, without our prior review and agreement in writing, do so at their own risk.

Recommendations and opinions in this report are based on data obtained as previously detailed. The nature and continuity of subsoil conditions away from the test locations are inferred and it should be appreciated that actual conditions could vary from those assumed. If during the construction process, conditions are encountered that differ from the inferred conditions on which the report has been based, RS Eng should be contacted immediately.

Construction site safety is the responsibility of the builder/contractor. The recommendations included herein should not be construed as direction of the contractor's methods, construction sequencing or procedures. RS Eng can provide recommendations if specifically engaged to, upon request.

This report does not address matters relating to the National Environmental Standard for Contaminated Sites, and if applicable separate advice should be sought on this matter from a suitably qualified person.

Prepared by:

Rachel Beasley
Geologist
BSc(Geology)

Reviewed by:

Sarah Scott Compton
Senior Technician
NZDE(Civil)

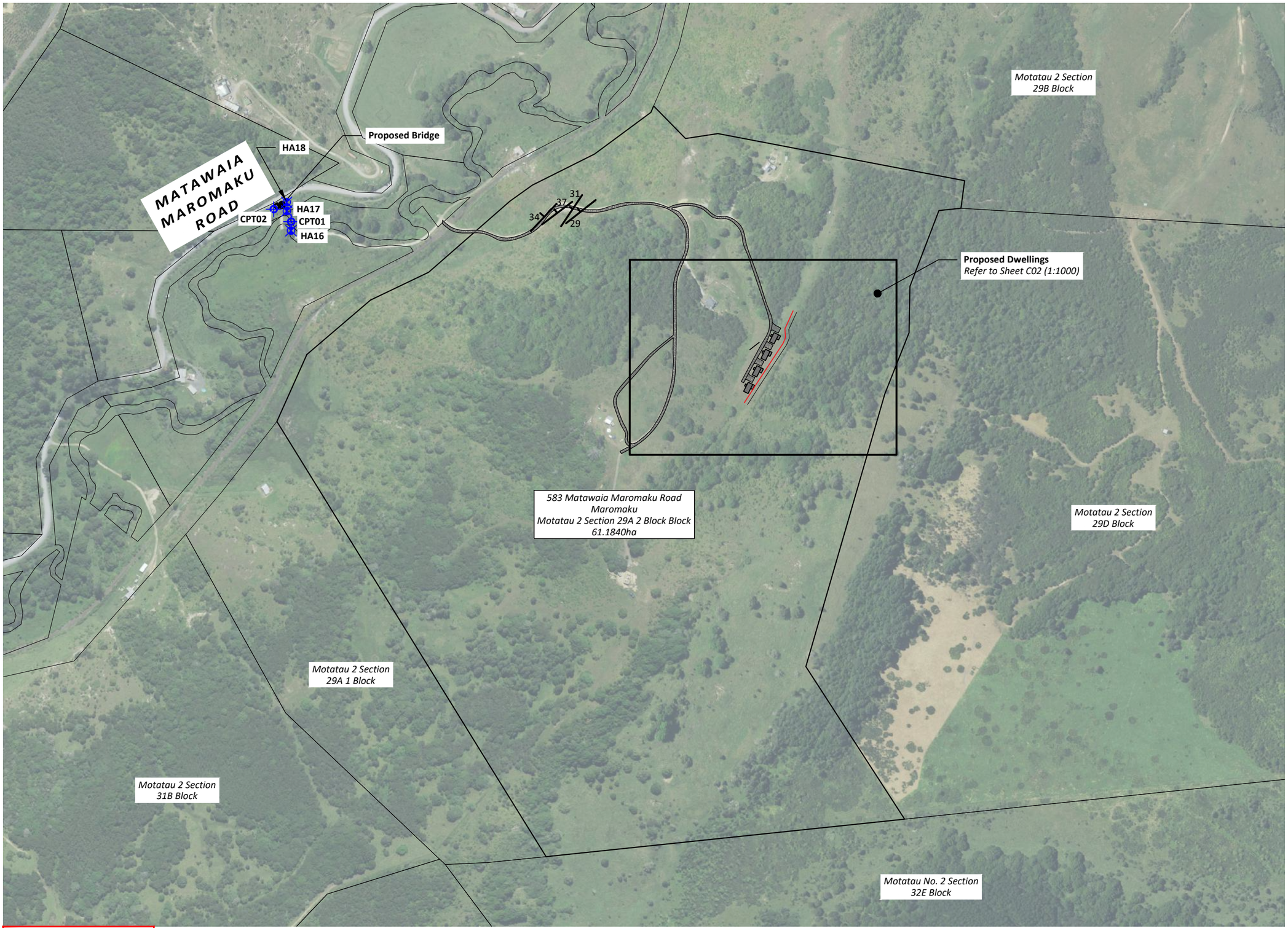
Approved by:

Matthew Jacobson
Director
NZDE(Civil), BE(Hons)(Civil), CPEng, CMEngNZ

RS Eng Ltd

Appendix A

Drawings



NOTES:

- If any part of these documents are unclear, please contact RSEng Ltd.
- This plan is copyright to RSEng Ltd and should not be reproduced without prior permission.

LEGEND

- Proposed Dwelling
- Proposed Deck
- Proposed Driveway
- Hand Auger Location
- Cone Penetration Test Location
- Bedding

Contour Interval: 1.0m
Vertical Datum: NZVD2016
Survey Data Source: LiDAR (2018)

0 50 100
PLAN 1:5000

FOR CONSENT

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

PROPOSED DWELLINGS
SITE PLAN
SITE INVESTIGATIONS

Client: ADVANCE BUILD
Location: 583 MATAWAIA MAROMAKU ROAD MAROMAKU

Date	Rev	Notes
23/12/2025	A	Original Issue

Drawn by: LMC | Reviewed by: RB | Approved by: MJ

Scale: 1:5000
Original: A3
Job No.: 19880
Rev No.: A
Sheet No.: C01

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LEGEND

- Proposed Dwelling
- Proposed Deck
- Proposed Driveway
- Hand Auger Location

Contour Interval: 1.0m
Vertical Datum: NZVD2016
Survey Data Source: LiDAR (2018)

0 10 20
PLAN 1:1000

FOR CONSENT

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

PROPOSED DWELLINGS
SITE PLAN
SITE INVESTIGATIONS

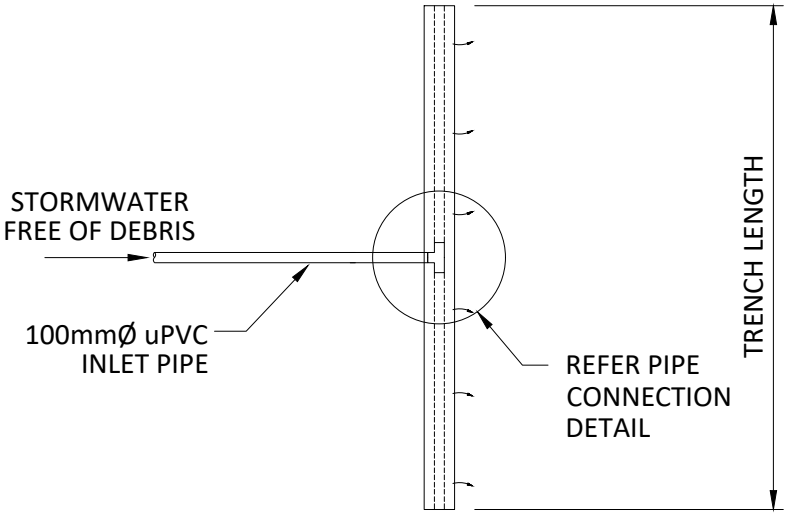
Client: ADVANCE BUILD

Location: 583 MATAWAIA MAROMAKU ROAD
MAROMAKU

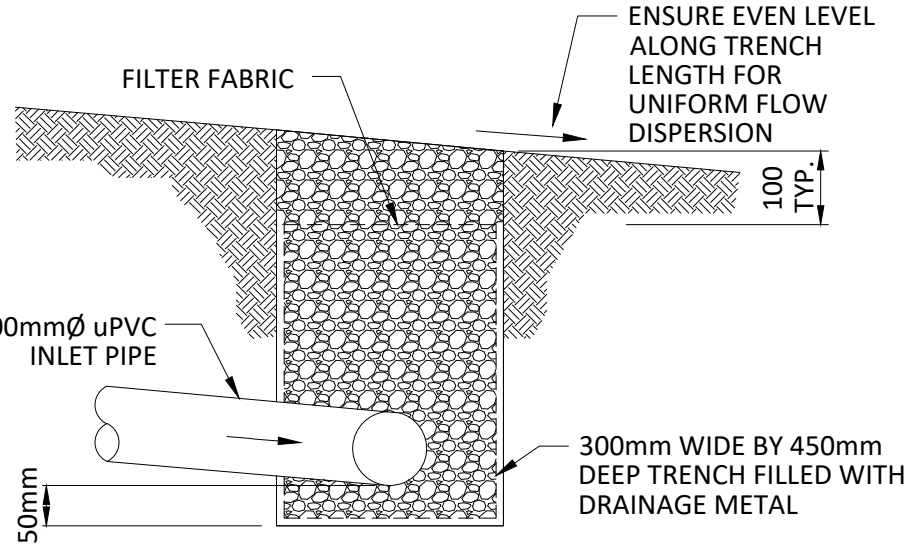
Date	Rev	Notes
23/12/2025	A	Original Issue

Drawn by: LMC | Reviewed by: RB | Approved by: MJ

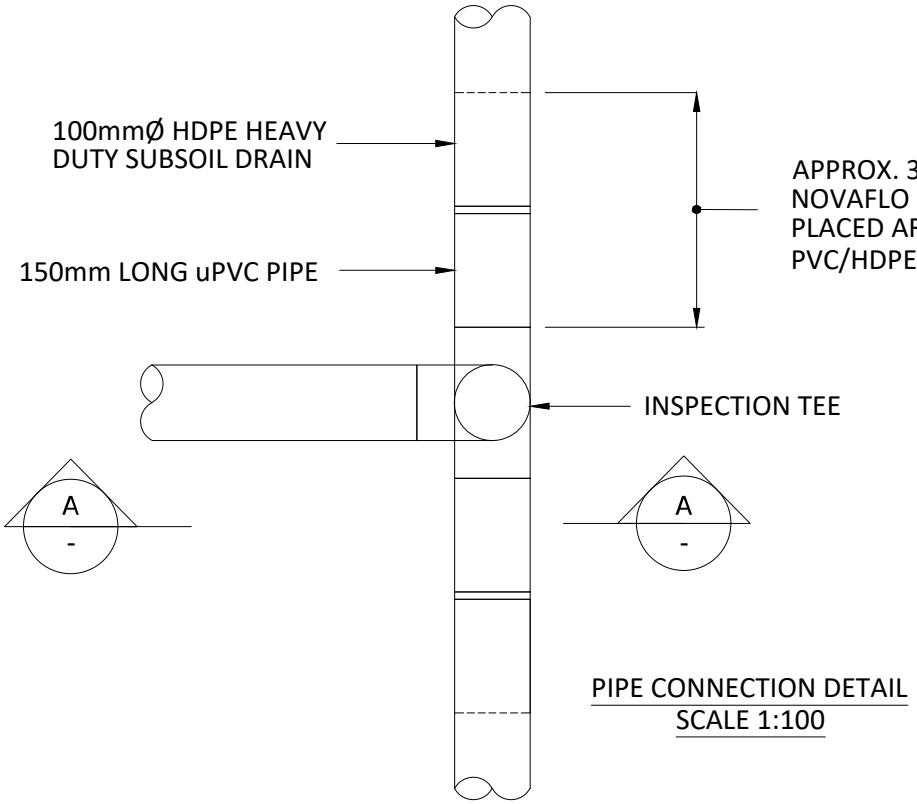
Scale: 1:1000
Rev No.: A
Original: A3
Sheet No.: C02
Job No.: 19880



PLAN SCALE: 1:75



A - SECTION SCALE 1:100



PIPE CONNECTION DETAIL
SCALE 1:100

DESIGN PARAMETERS

EFFECTIVE CATCHMENT AREA DRAINED (m^2)	TRENCH LENGTH (m)
100	8
200	12
300	14
400	16
500	18
600	20

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Whangarei 0110

Title
STANDARD DISPERSAL DRAIN
TYPICAL DETAIL

Client

Location

Date	Rev	Notes
2018	A	Original Issue

Scale	Original	Rev
As Shown	A4	

Drawn by	Approved by	File	Sheet
NW	ST		1

Appendix B

Subsurface Investigations

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

HAND AUGER LOG

HOLE NO.: HA01

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1696036mE, 6071108mN
ELEVATION: 125.85m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: RB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
TS	Silty TOPSOIL.		0.0 – 0.2	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	ndwater Not Encoun
Tahurangi I	Sandy SILT, with some clay; dark grey/brown. Very stiff; dry; low plasticity; sand, fine to medium.		0.2 – 0.4				
	Unable to penetrate - boulder. End Of Hole: 0.40m		0.4 – 3.4				

0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

HAND AUGER LOG

HOLE NO.: HA02

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1696033mE, 6071106mN
ELEVATION: 126.31m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: RB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
TS	TOPSOIL.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	Groundwater Not Encountered
Mahurangi Li	Sandy SILT, with some clay; greyish orange/some yellow. Very stiff; dry to moist; low plasticity.		0.2			UTP -	
	Unable to penetrate - boulder. End Of Hole: 0.60m		0.4				
			0.6				
			0.8				
			1.0				
			1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				

PHOTO(S)

REMARKS

WATER

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

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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HAND AUGER LOG

HOLE NO.: HA03

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1696037mE, 6071103mN
ELEVATION: 125.24m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: RB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
TS	Silty TOPSOIL.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	Groundwater Not Encountered
Mahurangi Li	Sandy SILT, with some clay; greyish orange some yellow. Very stiff; moist; low plasticity.		0.2			UTP -	
	Unable to penetrate - limestone. End Of Hole: 0.60m		0.4				
			0.6				
			0.8				
			1.0				
			1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA04

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1696003mE, 6071074mN
ELEVATION: 128.73m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: RB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
TS	Silty TOPSOIL.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	Water Not Encountered
Quaternary	Clayey sandy SILT; brown/grey. Very stiff to hard; moist; low plasticity.		0.2				
	Unable to penetrate - limestone. End Of Hole: 0.30m		0.4				
			0.6				
			0.8				
			1.0				
			1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA05

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695989mE, 6071071mN
ELEVATION: 129.67m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: RB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
TS	Silty TOPSOIL.		0.0	TS			Groundwater Not Encountered
Mahurangi Li	Clayey sandy SILT; brown/grey. Very stiff to hard; moist; low plasticity.		0.2			126	
			0.4			30	
	SAND; grey/white. Very dense; dry; limestone.		0.6				
	Unable to penetrate - limestone. End Of Hole: 0.60m		0.8				
			1.0				
			1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				

Scala penetrometer scale: 2 4 6 8 10 12 14 16 18
Vane shear strength scale (kPa): 50 100 150 200
Values

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA06

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1696005mE, 6071057mN
ELEVATION: 129.28m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: RB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
TS	TOPSOIL.		0.0	TS	2 4 6 8 10 12 14 16 18	50 100 150 200 Values	dwater Not Encou
hurang	Clayey sandy SILT; orange/brown/yellowish. Very stiff; moist; low plasticity.		0.2				
	Unable to penetrate. End Of Hole: 0.35m		0.4				
			0.6				
			0.8				
			1.0				
			1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA07

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695996mE, 6071054mN
ELEVATION: 131.64m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: RB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND
TS	TOPSOIL.		0.0	TS
Mahurangi Li	Sandy SILT, with some clay; orange/brown/grey some yellow. Very stiff; dry to moist; low plasticity.		0.2	
	With some gravel. Gravel, fine to medium, quartz.		0.4	
	Unable to penetrate. End Of Hole: 0.60m		0.6	
			0.8	
			1.0	
			1.2	
			1.4	
			1.6	
			1.8	
			2.0	
			2.2	
			2.4	
			2.6	
			2.8	
			3.0	
			3.2	
			3.4	

SCALA PENETROMETER (Blows / 0mm)
2 4 6 8 10 12 14 16 18

VANE SHEAR STRENGTH (kPa)
Vane: 50 100 150 200 Values

WATER
Groundwater Not Encountered

PHOTO(S)

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA08

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1696025mE, 6071100mN
ELEVATION: 127.46m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
TS	TOPSOIL.		0.0		2 4 6 8 10 12 14 16 18	50 100 150 200 Values	ter Not En
ra	Clayey SILT; orange/brown. Very stiff; moist; low plasticity.		0.2				
	Unable to penetrate - fine limestone. End Of Hole: 0.20m		0.4				
			0.6				
			0.8				
			1.0				
			1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA09

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1696019mE, 6071097mN
ELEVATION: 128.25m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND
TS	TOPSOIL.		0.0	
Mahurangi Li	Highly weathered; LIMESTONE. - -. Gravelly SILT; white/grey. Gravel, coarse, quartz.		0.2	
	Unable to penetrate. End Of Hole: 0.40m		0.4	
			0.6	
			0.8	
			1.0	
			1.2	
			1.4	
			1.6	
			1.8	
			2.0	
			2.2	
			2.4	
			2.6	
			2.8	
			3.0	
			3.2	
			3.4	

SCALA PENETROMETER (Blows / 0mm)
2 4 6 8 10 12 14 16 18

VANE SHEAR STRENGTH (kPa)
Vane:
50 100 150 200
Values

WATER
ndwater Not Encoun

PHOTO(S)

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA10

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1696030mE, 6071094mN
ELEVATION: 126.9m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
TS	TOPSOIL.		0.0		2 4 6 8 10 12 14 16 18	50 100 150 200 Values	ndwater Not Encoun
Mahurangi Li	Clayey SILT; orange/brown. Very stiff; moist; low plasticity.		0.2				
	Unable to penetrate. End Of Hole: 0.40m		0.4				
			0.6				
			0.8				
			1.0				
			1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA11

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1696012mE, 6071084mN
ELEVATION: 129.13m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND
TS	TOPSOIL.		0.0	TS
Mahurangi Lt	Clayey SILT; orange/brown. Very stiff; moist; low plasticity.		0.2	
	Unable to penetrate. End Of Hole: 0.40m		0.4	
			0.6	
			0.8	
			1.0	
			1.2	
			1.4	
			1.6	
			1.8	
			2.0	
			2.2	
			2.4	
			2.6	
			2.8	
			3.0	
			3.2	
			3.4	

SCALA PENETROMETER (Blows / 0mm)
2 4 6 8 10 12 14 16 18

VANE SHEAR STRENGTH (kPa)
Vane: 50 100 150 200 Values

WATER
ndwater Not Encoun

PHOTO(S)

REMARKS

WATER
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE
- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA12

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1696017mE, 6071090mN
ELEVATION: 128.52m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
TS	TOPSOIL.		0.0	TS			ter Not En
	Unable to penetrate. End Of Hole: 0.20m		0.2				
			0.4				
			0.6				
			0.8				
			1.0				
			1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				

PHOTO(S)

REMARKS

WATER

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

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

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HAND AUGER LOG

HOLE NO.: HA13

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695996mE, 6071111mN
ELEVATION: 125.85m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: Values	WATER
TS	TOPSOIL.		0.0				Groundwater Not Encountered
Mahurangi Li	Silty CLAY; greyish. Very stiff; moist; low plasticity.		0.2				
	Unable to penetrate - rock. End Of Hole: 0.50m		0.4				
			0.6				
			0.8				
			1.0				
			1.2				
			1.4				
			1.6				
			1.8				
			2.0				
			2.2				
			2.4				
			2.6				
			2.8				
			3.0				
			3.2				
			3.4				

Scala penetrometer scale: 2 4 6 8 10 12 14 16 18
Vane shear strength scale: 50 100 150 200

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA14

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695997mE, 6071066mN
ELEVATION: 130.53m
START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
TS	TOPSOIL.		0				Groundwater Not Encountered
Mahurangi Li	Clayey SILT, with some gravel; orange/brown. Very stiff; moist; low plasticity; gravel, angular, quartz.		0.2 0.4 0.6				
	Unable to penetrate - rock. End Of Hole: 0.60m		0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4				

Scala penetrometer scale: 2 4 6 8 10 12 14 16 18
Vane shear strength scale: 50 100 150 200 Values

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA15

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695973mE, 6071096mN
ELEVATION: 130.52m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: RB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
TS	Silty TOPSOIL.		0.0	TS			
Mahurangi Li	Silty CLAY; orangish brown. Firm to stiff; moist; low plasticity.		0.2			61	
	Firm; moist to wet.		0.4			30	
			0.6			61	
			0.8			15	
	Clayey SILT; bluish grey. Stiff; moist; low plasticity.		1.0			168	
	Completely weathered; LIMESTONE. - -. Clayey sandy SILT, with minor gravel; brownish grey. Very stiff; moist; gravel, fine.		1.2			15	
	Clayey sandy SILT; brown/grey some orange/yellow. Very stiff; moist; low plasticity; sand, fine.		1.4			213+	
			1.6			-	
			1.8			152	
			2.0			30	
			2.2			213+	
			2.4			-	
			2.6				
			2.8				
	End Of Hole: 3.00m		3.0				
			3.2				
			3.4				

21/10/2025

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA16

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695388mE, 6071293mN
ELEVATION: 58.96m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: RB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)
	Sandy SILT; orange/brown. Very stiff; dry; non-plastic; sand, fine.		0.0 – 1.5
	Moist.		1.5 – 1.6
	With minor clay.		1.6 – 2.0
	Clayey SILT; brown/grey/orange. Very stiff; moist; low plasticity.		2.0 – 3.2
	End Of Hole: 3.20m		3.2

LEGEND

SCALA PENETROMETER (Blows / 100mm)

Depth (m)	Blows / 100mm
0.0 – 0.2	3
0.2 – 0.4	3
0.4 – 0.6	3
0.6 – 0.8	2
0.8 – 1.0	2
1.0 – 1.2	3
1.2 – 1.4	3
1.4 – 1.6	3
1.6 – 1.8	3
1.8 – 2.0	2
2.0 – 2.2	2

VANE SHEAR STRENGTH (kPa)
Vane: GEO3603

Depth (m)	Values
0.4	152
0.6	46
1.0	160
1.2	43
1.4	152
1.6	46
2.0	152
2.2	76
2.4	152
2.6	53
3.0	136
3.2	75

WATER: Groundwater Not Encountered

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

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HAND AUGER LOG

HOLE NO.: HA17

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695382mE, 6071318mN
ELEVATION: 56.73m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	Values	WATER
Alluvium	Sandy SILT, with minor clay; orange/brown. Stiff; moist.		0.0 – 1.0				99 30	
	Clayey SILT, with trace sand; brown/orange. Very stiff; moist; low plasticity.		1.0 – 1.6				137 61 72 30	◁
	Sandy CLAY; grey/brown/blue. Firm; moist; high plasticity.		1.6 – 3.0				73 38 61 30	
	SAND, with minor carbonaceous wood; dark bluish grey. Saturated.		3.0 – 3.2				61 30	
	Saturated - core loss. End Of Hole: 3.20m		3.2 – 3.4					

Scala penetrometer scale: 2, 4, 6, 8, 10, 12, 14, 16, 18 (Blows / 0mm)
Vane shear strength scale (kPa): 50, 100, 150, 200

PHOTO(S)

REMARKS

WATER

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

INVESTIGATION TYPE

- ☑ Hand Auger
- ☐ Test Pit

RS Eng Ltd
09 438 3273
office@RSEng.co.nz
2 Seaview Road,
Whangarei 0110

HAND AUGER LOG

HOLE NO.: HA18

CLIENT: Advance Build
PROJECT: Geotechnical Investigations

JOB NO.: 19880

SITE LOCATION: 583 Matawaia-Maromaku Road, Maromaku
CO-ORDINATES: 1695378mE, 6071324mN
ELEVATION: 56.79m

START DATE: 21/10/2025
END DATE: 21/10/2025
LOGGED BY: SSC

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: GEO3603	WATER
TS	TOPSOIL.		0.0				Groundwater Not Encountered
Alluvium	Sandy SILT, with some clay; dark brown/grey. Very stiff; moist; low plasticity.		0.4			152	
Alluvium	CLAY, with minor sand; orange/brown/yellow/grey. Stiff; moist; low plasticity.		0.6			61	
	End Of Hole: 0.90m		0.9				

Scala Penetrometer: 2 4 6 8 10 12 14 16 18
Vane Shear Strength (kPa): 50 100 150 200 Values
Depth (m): 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4

PHOTO(S)

REMARKS

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

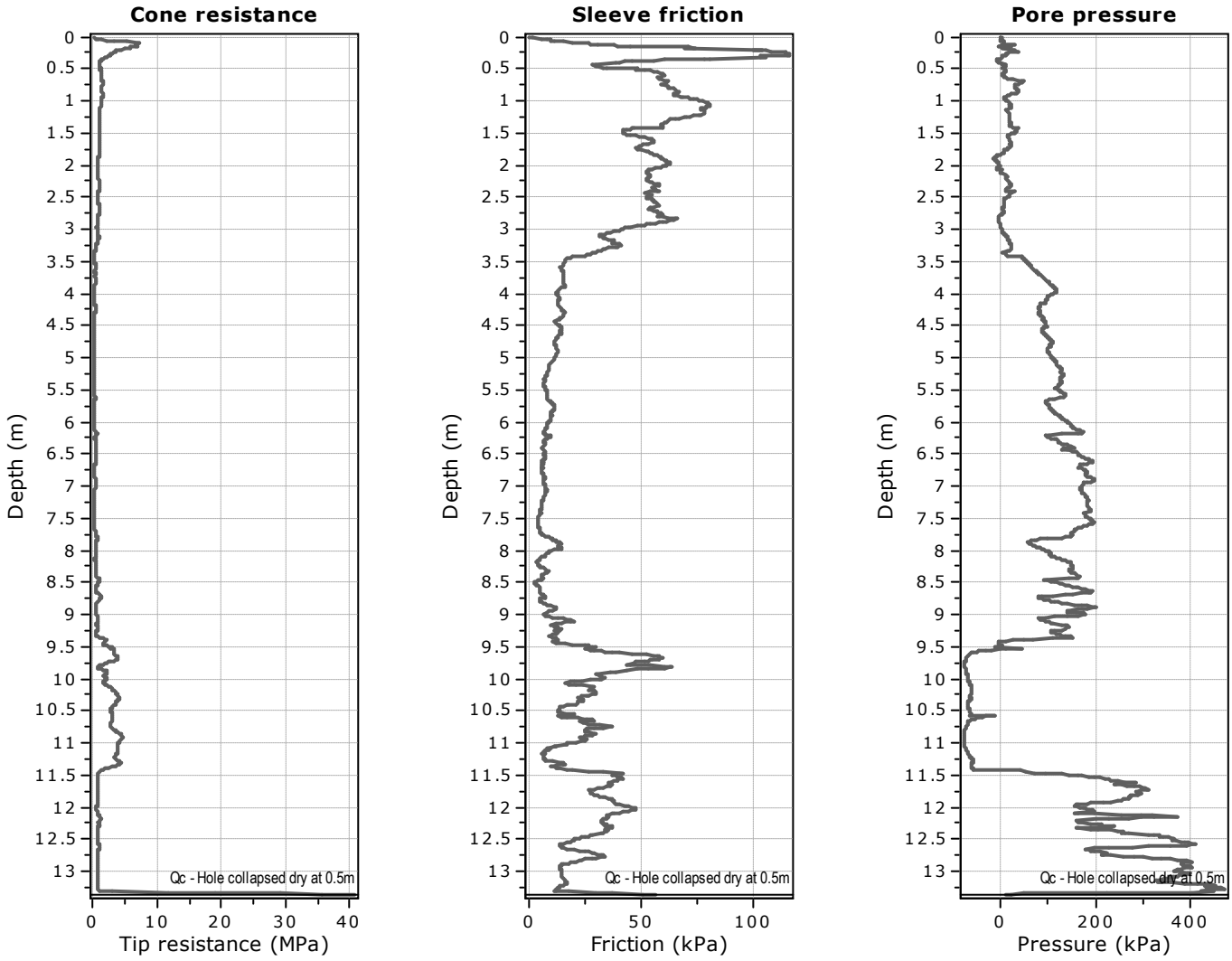
- [x] Hand Auger
- [ ] Test Pit

Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

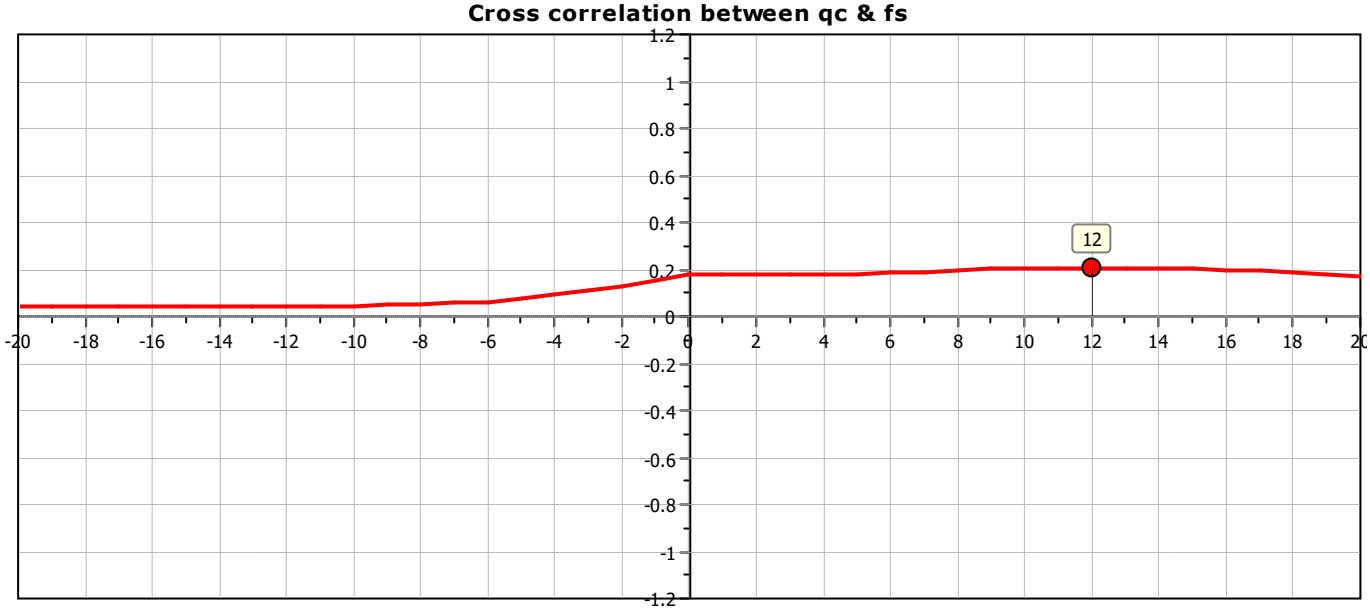
CPT: 01

Total depth: 13.36 m, Date: 6/11/2025
Coords: lat -35.497163° lon 174.051707°
Cone Type: DC10

Project: **RS Eng | 19880 | GDS NZ Ltd**
Location: **583 Matawaia-Maromaku Road, Maromaku | Holes dipped onsite using Dipmeter**



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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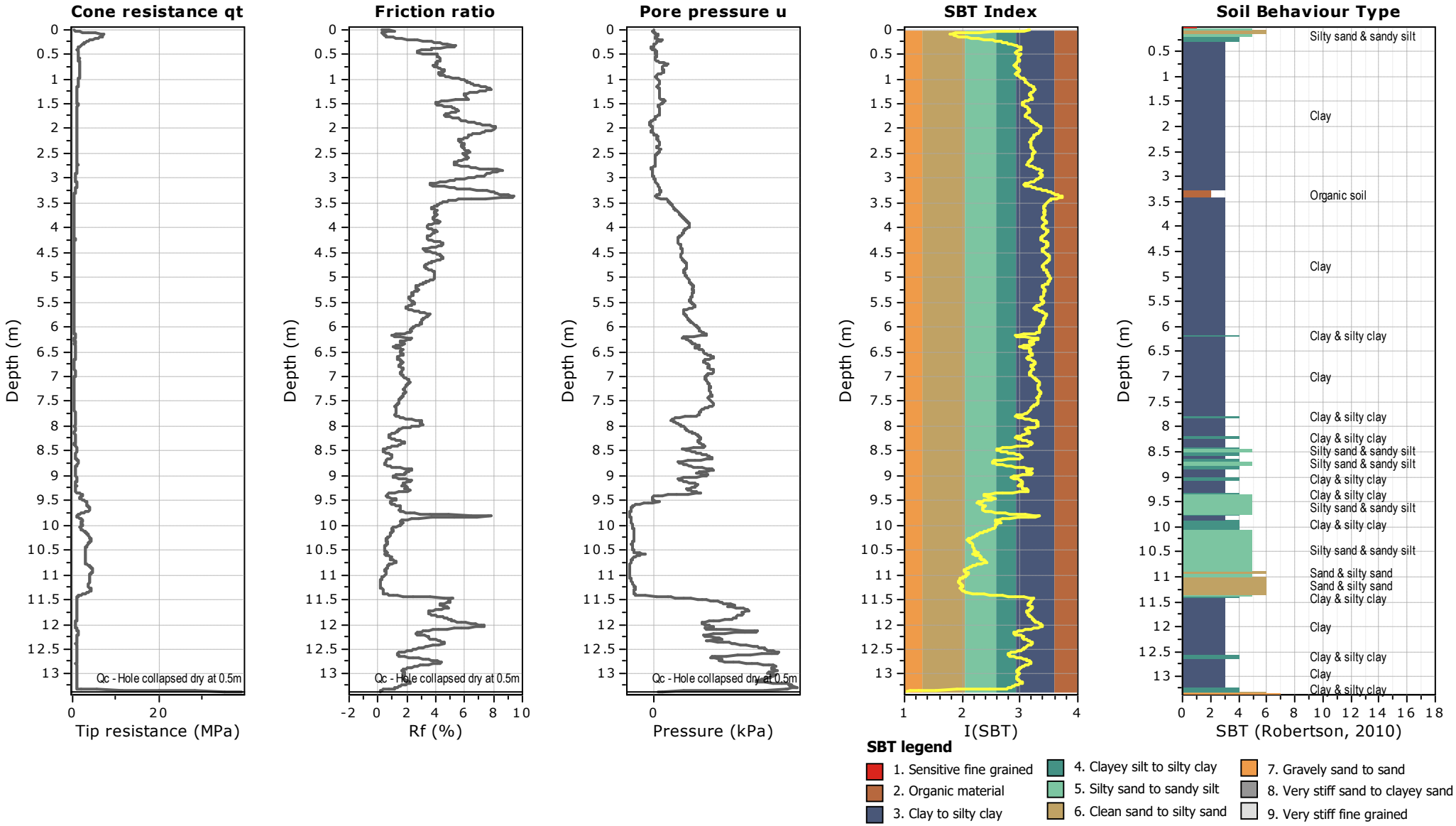
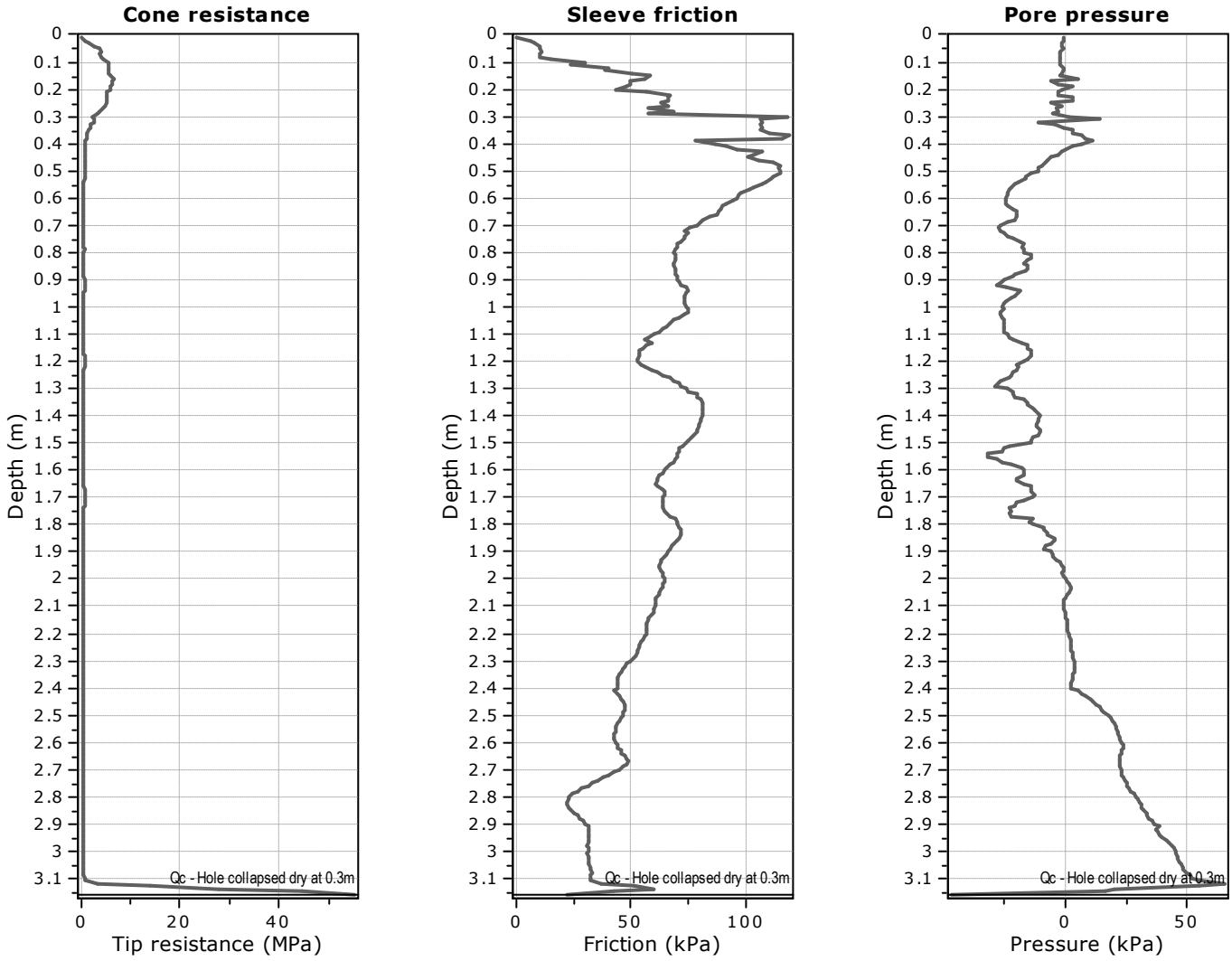


Geo Data Solutions (GDS) NZ Ltd.
Email: Josh@gdsnz.co. nz
www.gdsnz.co.nz

CPT: 02

Total depth: 3.16 m, Date: 6/11/2025
Coords: lat -35.497056° lon 174.051493°
Cone Type: DC10

Project: **RS Eng | 19880 | GDS NZ Ltd**
Location: **583 Matawaia-Maromaku Road, Maromaku | Holes dipped onsite using Dipmeter**



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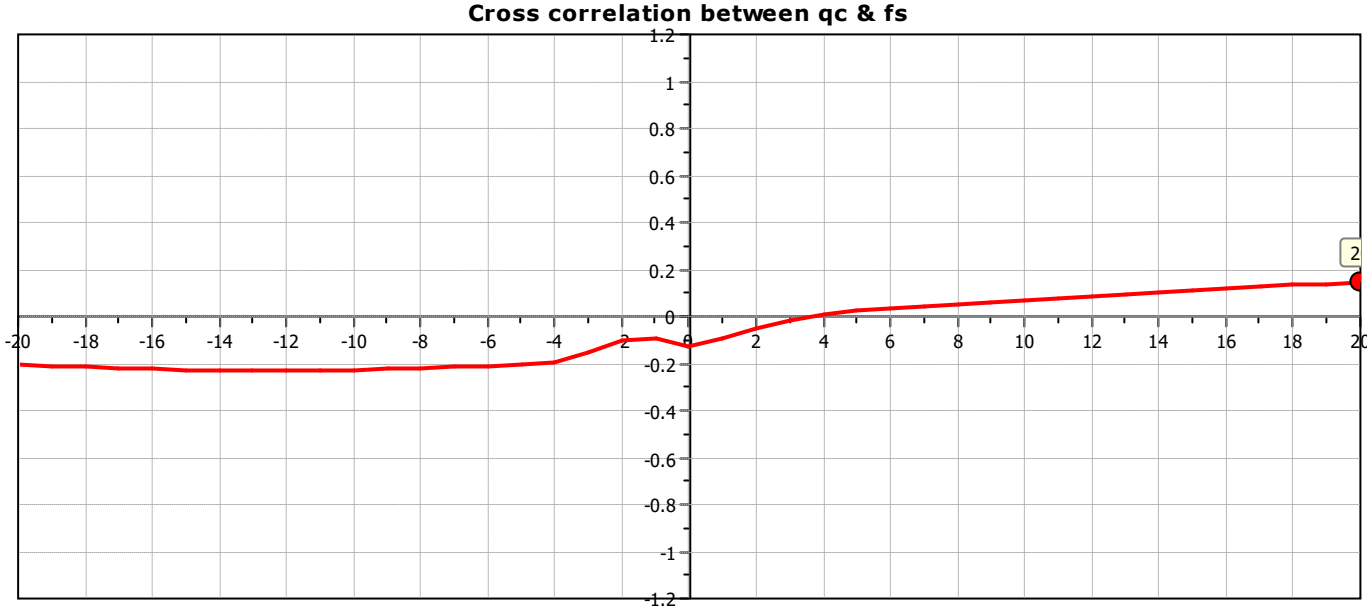

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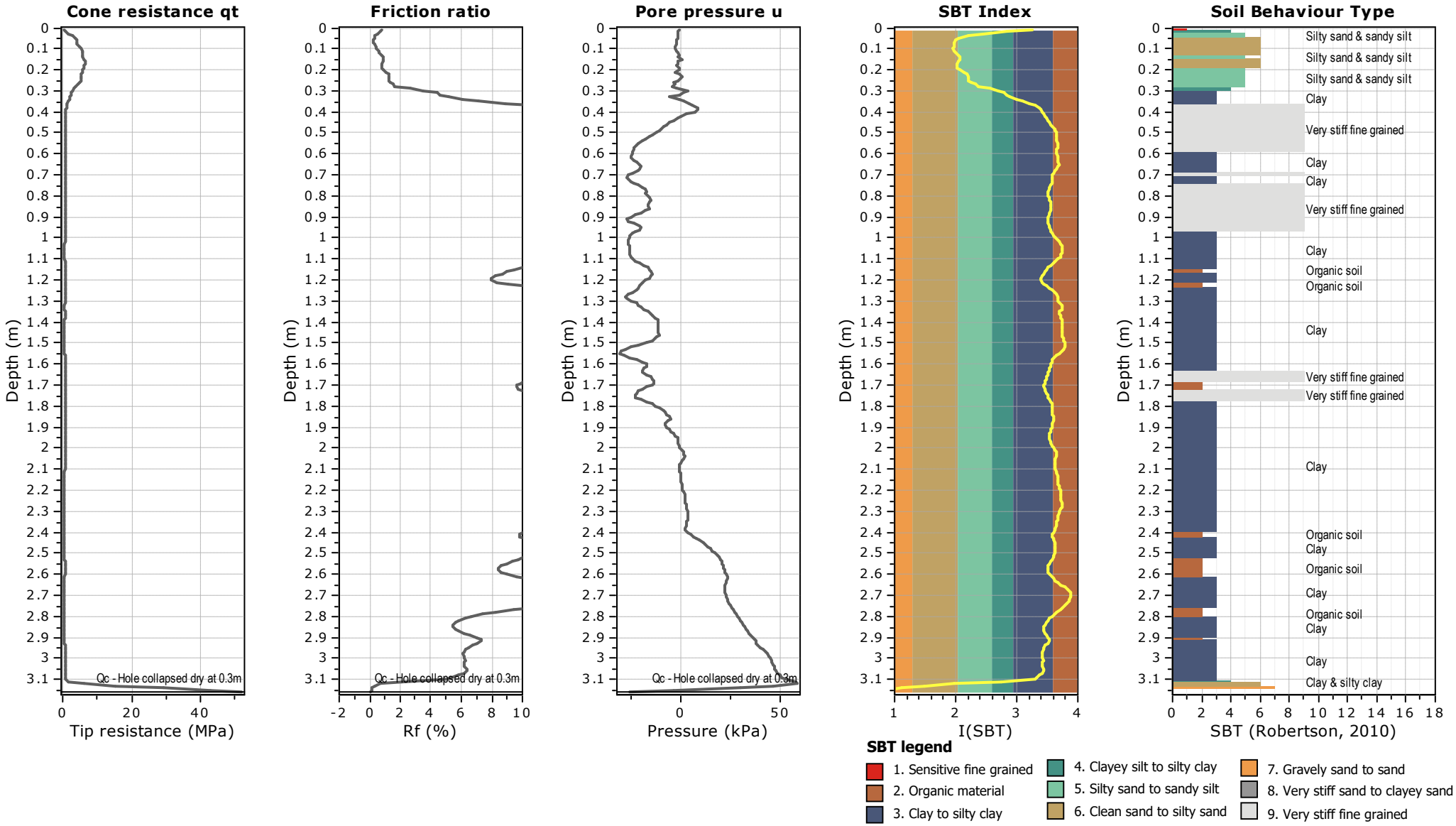

STATEMENT OF DESIGN - PS1

Issued by: Matt Riddell
To: Winnie Mitchell Descendants Whanau Trust
Copy to be supplied to: Far North District Council
In Respect of: Econotreat Domestic Onsite Wastewater and Sewage System Design
At: 583 Matawaia-Maromaku Road, Maromaku
Legal Description: Lot Motatau 2 DP Section 49A 3B Block

Waterflow NZ Ltd has been engaged by Winnie Mitchell Descendants Whanau Trust to provide the technical design services and details in respect of the requirements of G13/VM4 and B2 Durability of the Building Code 2004, for an Onsite Wastewater and Sewage System for their building at the above location.

The Design has been carried out in accordance with AS/NZS 1547/2012 and Clause B2, G13 and G14 of the Building Regulations 2004.

The proposed building work covered by this producer statement is described on the drawings titled: Winnie Mitchell Descendants Whanau Trust Onsite Wastewater Design Report, and numbered 1-42 together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:
(i) Site verification of the following design assumptions: correct installation of the system and drainage fields
(ii) All proprietary products meeting their performance specification requirements;

As an independent design professional covered by a current policy for Professional Indemnity Insurance, no less than $200,000*, I **believe on reasonable grounds** the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code.

Signed by: Matt Riddell - PS Author '2384' Auckland Council, NZQA Onsite Wastewater Training/Opus, Approved Designer

Date: 12/11/2025

Signature: 

Waterflow NZ Ltd
4/525 Great South Road
Penrose, Auckland 1061

Note: This statement shall only be relied upon by the Building Consent Authority named above. Liability under this statement accrues to the Design Firm only. The total maximum amount of damages payable arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in contract, tort or otherwise (including negligence), is limited to the sum of $200,000.*

WaterFlow
Bringing Clarity to Wastewater

2025

Waterflow NZ Ltd
Certified Designer

Winnie Mitchell Descendants Whanau Trust
583 Matawaia-Maromaku Road
Maromaku
Motatau 2 Section 49A 3B
Block

Reference Number: WF24733
Issued 12/11/2025

ONSITE WASTEWATER DESIGN REPORT

WaterFlow
Bringing Clarity to Wastewater

TABLE OF CONTENTS

Attachments

- **PS1**
- **Land Application System Schematics**
- **Pump Specification**
- **Electrical Diagram**
- **Assessment of Environmental Effects**
- **System & Installation Specifications**
- **Home Owners Care Guide**

Disclaimer

The design presented herein is based on the information available at the time of preparation and reflects the conditions known at that time.

If additional information comes to light or if there are significant changes in site conditions or circumstances, the design may no longer be valid. In such cases, the design must be reassessed and potentially revised by the designer to ensure its continued suitability.

The designer(s) disclaim any responsibility for the design's applicability or effectiveness under new or altered conditions and recommend a review before implementation if any such changes occur.

PART A: CONTACT AND PROPERTY DETAILS

A 1. Consultant / Evaluator

Name:	Xandir Fatialofa
Company/Agency:	Waterflow New Zealand Ltd
Address:	4/525 Great South Road, Penrose, Auckland 1061
Phone:	09 431 0042
Fax:	
Email Address:	xandir@waterflow.co.nz

A 2: Applicant Details

Applicant Name:	Winnie Mitchell Descendants Whanau Trust
Company Name:	
Property Owner:	Winnie Mitchell Descendants Whanau Trust
Owner Address:	583 Matawaia-Maromaku Road, Maromaku
Phone:	
Mobile:	
Email Address:	angela@advancebuild.co.nz

A 3: Site Information

Sited Visited by:		Ken Hoyle		**Date:**	Tuesday, 28 October 2025		
Physical Address:		583 Matawaia-Maromaku Road, Maromaku					
Territorial Authority:		Far North District Council					
Regional Council:		Northland Regional Council					
Regional Rule		C.6.1.5					
Legal Status of Activity:		**Permitted:**		**Controlled:**		**Discretionary:**	**x**
Total Property Area (m^2):		354100m ^{2}					
Map Grid Reference:							
Legal Description of Land (as on Certificate of Title):							
Lot No:	Motatau 2						
DP No:	Section 49A 3B Block						
CT No:	NA17B/1197						

A 4: Are there any previous existing discharge consents relating to this proposal or other waste discharge/disposal on the site?

Yes:		**No:**	**x**

If yes, give reference No's and description:

A 5: Dwelling(s) for which on-site wastewater service is to be provided

Status of dwelling(s) to be serviced:		**New**	**x**	**Existing**		**Multiple**	
How many dwellings on the property?		4					
Capacity of dwellings:	**Dwelling 1**	2 x 2 bedroom and 2 x 3 bedroom					
(or number of bedrooms)	**Dwelling 2**						
	Dwelling 3						
	Other:						
Notes:							

PART B: SITE ASSESSMENT - SURFACE EVALUATION

B 1: Site Characteristics

Performance of adjacent systems:	**(Unknown)**			
Estimated annual rainfall (mm):	1250 - 1500 **(as per NIWA statistics)**			
Seasonal variation (mm):	300-400mm			
Vegetation cover:	Grass and scrub			
Slope shape:	Linear Planar			
Slope angle:	10-15 °			
Surface water drainage characteristics:	Broad overland to distant overland flow path			
Flooding potential?	**Yes:**		**No:**	**x**
If Yes, specify relevant flood levels relative to disposal area:				
Site characteristics:	**583 Matawaia-Maromaku Road is a large rural property of about 35 hectares. This development involves the creation of additional 2 x 2 bedroom dwellings and 2 x 3 bedroom dwellings. The domestic wastewater from the new dwellings will drain to two new onsite wastewater management systems detailed in this report. The land where the disposal of secondary treated wastewater is proposed is moderately sloped towards the east and the area is currently covered with grass and scrub. There are no overland flow paths, surface waters or flood plains in the area proposed for onsite**			

B 2: Slope Stability

Has a slope stability assessment been carried out on the site?

Yes:		**No:**	**x**

If no, why not?

Low slope:	**x**	**No signs of instability:**	**x**	**Other:**

If yes, give brief details of report:

Details:	
Author:	
Company/Agency:	
Date of report:	

B 3: Site Geology

B 4: Slope Direction

What aspect does the proposed disposal system face?

North		West	
North-West		South-West	
North-East		South-East	
East	x	South	

B 5: Site Clearances if applicable (also on site plan)

	Treatment Separation Distance (m)	Disposal Field Separation Distance (m)
Boundaries:	>1.5	>1.5
Surface Water:	>15	>15
Ground Water:	>1.2	>1.2
Stands of Trees / Shrubs:	n/a	n/a
Wells/Water Bores:	>20	>20
Embankments / Retaining Walls:	>3	>3
Buildings:	>3	>3
Other:		

B 6: Please identify any site constraints applicable for this property, and indicate how the design process is to deal with these.

Constraints	Explain how constraints are being dealt with
1 Site constraints:	n/a

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PART C: SITE ASSESSMENT - SOIL INVESTIGATION

C 1: Soil Profile Determination Method

Test pit:		Depth (mm):		No. of Test pits:	
Bore hole:	x	Depth (mm):	1200	No. of Bore holes	2
Other:					

C 2: Fill Material

Was fill material intercepted during the subsoil investigation?

Yes:		No:	x

If yes, please specify the effect of the fill on wastewater disposal:

C 3: Permeability Testing

Has constant head Permeability Testing (Ksat) been carried out?

Yes:		No:	x

If yes, please indicate the details (test procedure, number of tests):

Test report attached?

Yes:		No:	x

C 4: SURFACE WATER CUT OFF DRAINS

Are surface water interception/diversion drains required?

Yes:	x	No:	

C 5: DEPTH OF SEASONAL WATER TABLE:

Winter (m):	>1.2
Summer (m):	>1.2

Was this:

Measured:	✓ no sign of ground water or mottling in bore holes
Estimated:	

C 6: SHORT CIRCUITS

Are there any potential short circuit paths?

Yes:		No:	x

If yes, how have these been addressed?

C 7: SOIL CATEGORY

Is topsoil present?

Yes:	x	**No:**	

If yes, what is the topsoil depth & soil description?

350mm silty loam topsoil over clay loam

Indicate the disposal field soil category (as per AS/NZS 1547:2012 Table E1)

Category	Description	Drainage	(x)
1	Gravel, coarse sand	Rapid draining	
2	Loamy sand, sandy loam	Free draining	
3	Medium-fine sandy loam, loam & silt loam	Good draining	
4	Sandy clay-loam, clay loam & silty clay-loam	Moderate draining	
5	Sandy clay, light clay, silty clay	Moderate to slow draining	x
6	Medium to Heavy Clays	Slow draining	

Reason for placing in stated category:

Result of bore hole/test pit sample	x
Profile from excavation	
Geotech report	
Other:	

C 8: SOIL STRUCTURE

Based on results of the in-situ soil profile investigation above (C7) please indicate the disposal (land application) field soil structure:

Massive	
Single grained	
Weak	
Moderate	x
Strong	

C 9: As necessary, provide qualifying notes on the relationship of Soil Category (C7) to Soil Structure (C8) and the effect this relationship will have on design loading rate selection:

PART D: DISCHARGE DETAILS

D 1: Water supply source for the property:

Rain water (roof collection)	**x**
Bore/well	
Public supply	

D 2: Are water reduction fixtures being used?

Yes:		**No:**	**x**	(according to our knowledge at time of design report)

If 'yes' Please state:

Standard Fixtures include dual flush 11/5.5 or 6/3 litre toilet cisterns, and includes standard automatic washing machine, but a low water use dishwasher, no garbage grinder.

D 3: Daily volume of wastewater to be discharged:

No. of bedrooms/people:	**1:** **:** **:**	2 x 2 bedroom dwellings (8 people) and 2 x 3 bedroom dwellings (10 people)
Design occupance (people): **(as per AC TP-58, Table 6.1)**	**1:** **:** **:**	18 People
		Black / Grey water
Per capita wastewater production (litres/person/day): **(as per AS/NZS 1547:2012 Table H3, Note 2)**	**1:** **:** **:**	145 L/day
Total daily wastewater production (litres per day):		2610 L/day
Notes:		

D 4: Is daily wastewater discharge volume more than 2000 litres?

Yes:	**x**	**No:**	

D 5: Gross lot area to discharge ratio:

Gross lot area:	354100 m²
Total daily wastewater production (litres/day):	2610 L
Lot area to discharge ratio:	135.67

D 6: Net Lot Area

Area of lot available for installation of the disposal (land application) field and reserve area:

Net lot area (m²):	353100 m²	
Reserve area (m²):	30%	261m²

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PART E: LAND DISPOSAL METHOD

E 1: Indicate the proposed loading method:

	Black / Grey Water
Gravity Dose:	
Dosing Siphon:	
Pump:	D42A/B

E 2: If a pump is being used please provide following information:

Total Design Head (m):	12
Pump Chamber Volume (litres):	1600
Emergency Storage Volume (litres):	4240

Is a high water level alarm being installed in pump chambers?

Yes:	**x**	**No:**	

E 3: Identify the type(s) of Land Disposal method proposed for this site:

	Black / Grey Water
P.C.D.I. Dripper Irrigation:	PCDI surface laid and mulched
L.P.E.D. System:	
Evapo-Transpiration Beds:	
Other:	
	(as per Schematics attached)

E 4: Identify the Loading Rate proposed for option selected in E3:

as per AS/NZS 1547:2012 Table L1 & M1	**Black / Grey Water**
Loading Rate (litres/m²/day):	3
Disposal Area Basal (m²):	
Areal (m²):	870

E 6: Details and dimensions of the disposal (land application) field:

Length (m):	62.1	**No. Lines:**	14	**Hole Size:**	N/A
Width (m):	14.0	**Spacing (m):**	1.0	**Hole Spacing:**	N/A

Notes:	**870sqm of Surface laid PCDI dripline pinned at 1m centers and covered with a minimum covering of 100mm mulch. See schematic drawing attached.**

PART F: PROPOSED WASTEWATER TREATMENT SYSTEM

Two Econotreat ET52C.WM System, fed through surface laid PCDI dripline is suitable for this site. The two ET52C.WM System have enough capacity to accommodate 4400ltr per day, so design flow will be well within the total capacity. The land application system is designed to discharge a maximum volume of 2610ltrs per day and if this is exceeded it could cause failure resulting in environmental and public harm.

PART G: OPERATION AND MAINTENANCE OF SYSTEM

The operation of this complete system will be explained verbally to the owner by the Installer or Agent on Completion of Installation; also provided with Waterflow's Home Owner's Manual.

Waterflow NZ Ltd encourages the Home Owner to monitor and care for your Econotreat system yourself, with our backing and support, and by doing so you will learn how your system works and operates and how to keep it in top working order.

It is also recommended that a Maintenance Program contract is in place at all times to ensure this system is maintained at top performance at all times.

All on site wastewater systems require regular maintenance; in this case once annually is suffice and may be specified within the consent process by the Building Department of Far North District Council. This Maintenance will be recorded on hard copy and supplied to both the Owner and Far North District Council Compliance Officer if requested.

NOTE TO OWNER: All written records pertaining to the wastewater system should be retained in a safe place. When a change of ownership occurs, a full and complete history is able to be passed to the new owners.

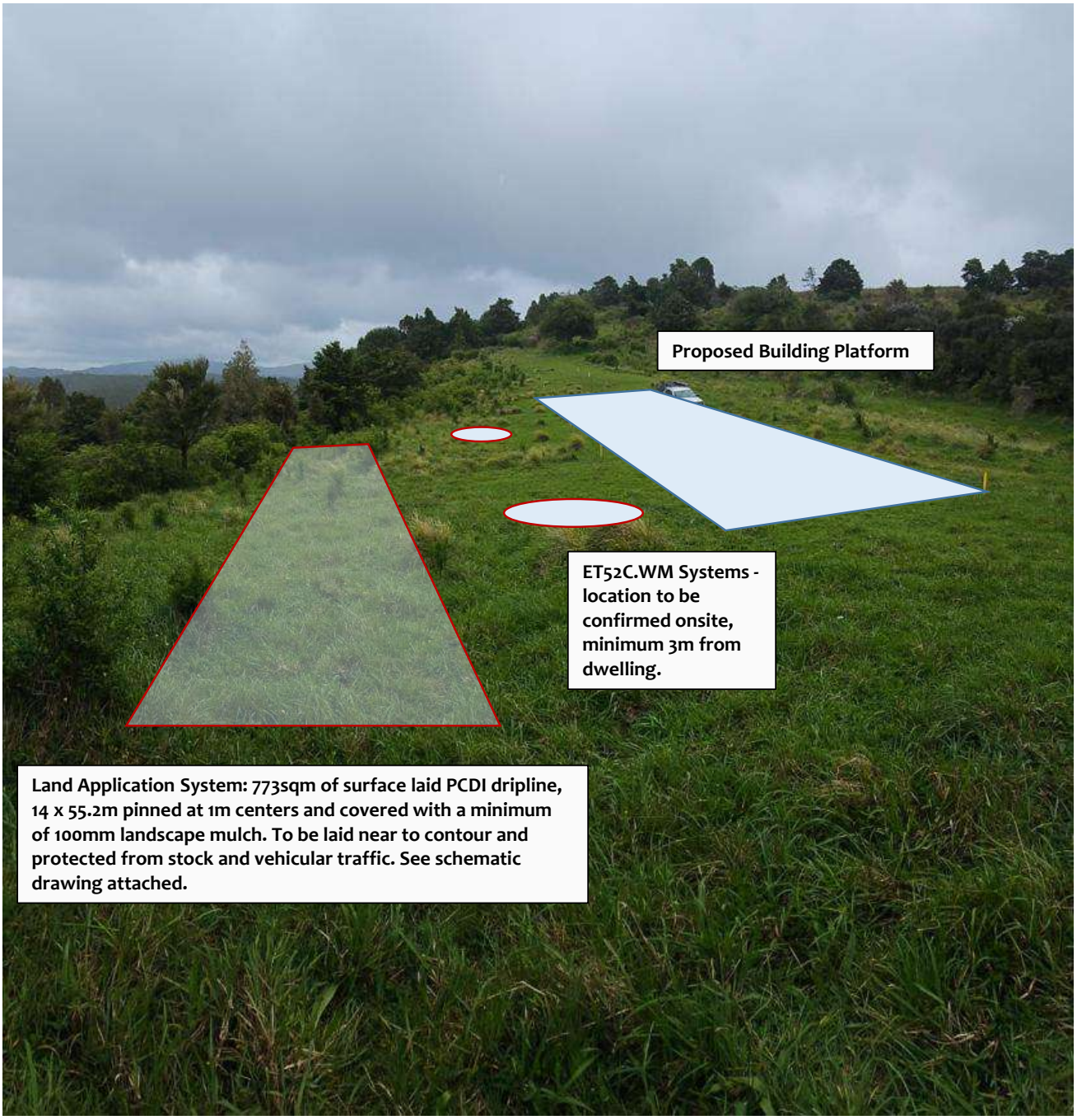
Animals are to be physically excluded from the installed effluent field to avoid damage, and to reduce the risk of soil compaction in the vicinity of the bed.

Planting within this area is encouraged to assist with evapotranspiration by plants.

PART H: SOIL LOG PROFILE

350mm silty loam topsoil over clay loam. Soil Category 5, (as per AS/NZS 1547:2012 Table E1)

PART I: SITE IMAGES



DECLARATION

I, hereby certify that, to the best of my knowledge and belief, the information given in this application is true and complete.

Prepared By:	
Name:	**Xandir Fatialofa - Design Technician**
Signature:	
Date:	12/11/2025

Designed By:	
Name:	**Matt Riddell - PS Author '2384' Auckland Council, NZQA Onsite Wastewater Training/Opus, Approved Designer**
Signature:	
Date:	12/11/2025

NOTE: The Waterflow Systems are to be installed by a registered drainlayer to the designs supplied by Waterflow NZ Ltd. All work to comply with Regional Council Water and Soil Plans.

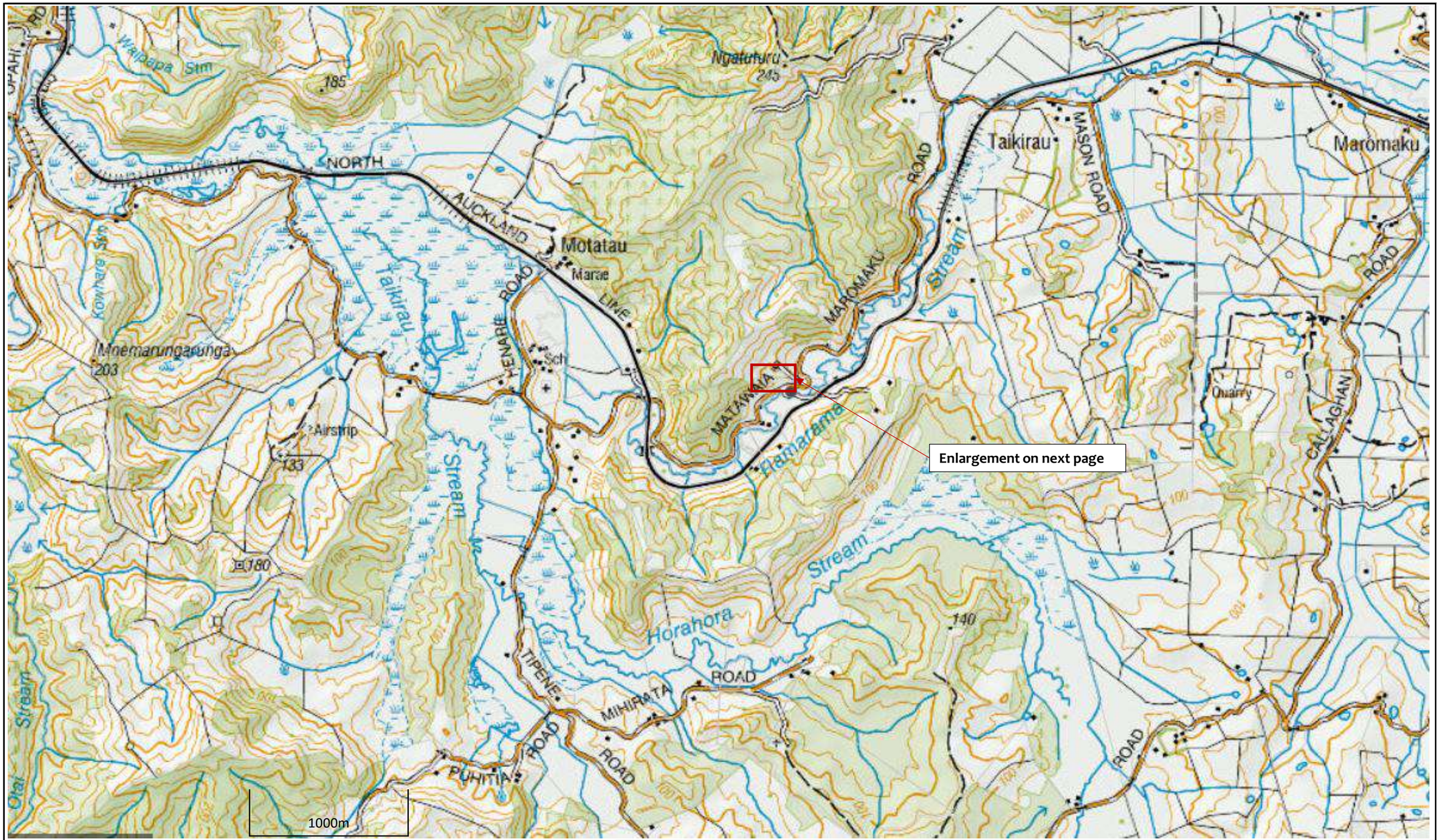
Comments/Summary:

The disposal field will need to be protected from traffic and animal grazing. Planting this area is recommended to increase Evapotranspiration.

Suitable plants for the disposal field can be found on our website www.naturalflow.co.nz

Waterflow Treatment systems to be installed by accredited installer unless other arrangements have been made by Waterflow NZ Ltd

For more information do not hesitate to contact the team at Waterflow NZ Ltd on 0800 628 356



N	WaterFlow Bringing Clarity to Wastewater	**SITE LOCATION PLAN:** Winnie Mitchell Descendants Whanau Trust 583 Matawaia-Maromaku Road Maromaku Motatau 2 Section 49A 3B Block 35.41HA	**SCALE:** 1 : 25130 @ A3

DESIGN FLOW = 2610 LITRES PER DAY

CATEGORY 5 SOILS:
DLR = 3mm/DAY
MINIMUM DISPOSAL AREA = 870m2
MINIMUM RESERVE DISPOSAL AREA = 261m2 (30%)

MINIMUM 1.5m FROM PROPERTY BOUNDARIES
MINIMUM 3.0m FROM HABITABLE BUILDINGS
MINIMUM 5m FROM OPEN DRAINS
MINIMUM 15m FROM OTHER SURFACE WATER

PROPOSED LAND DISPOSAL AREA:

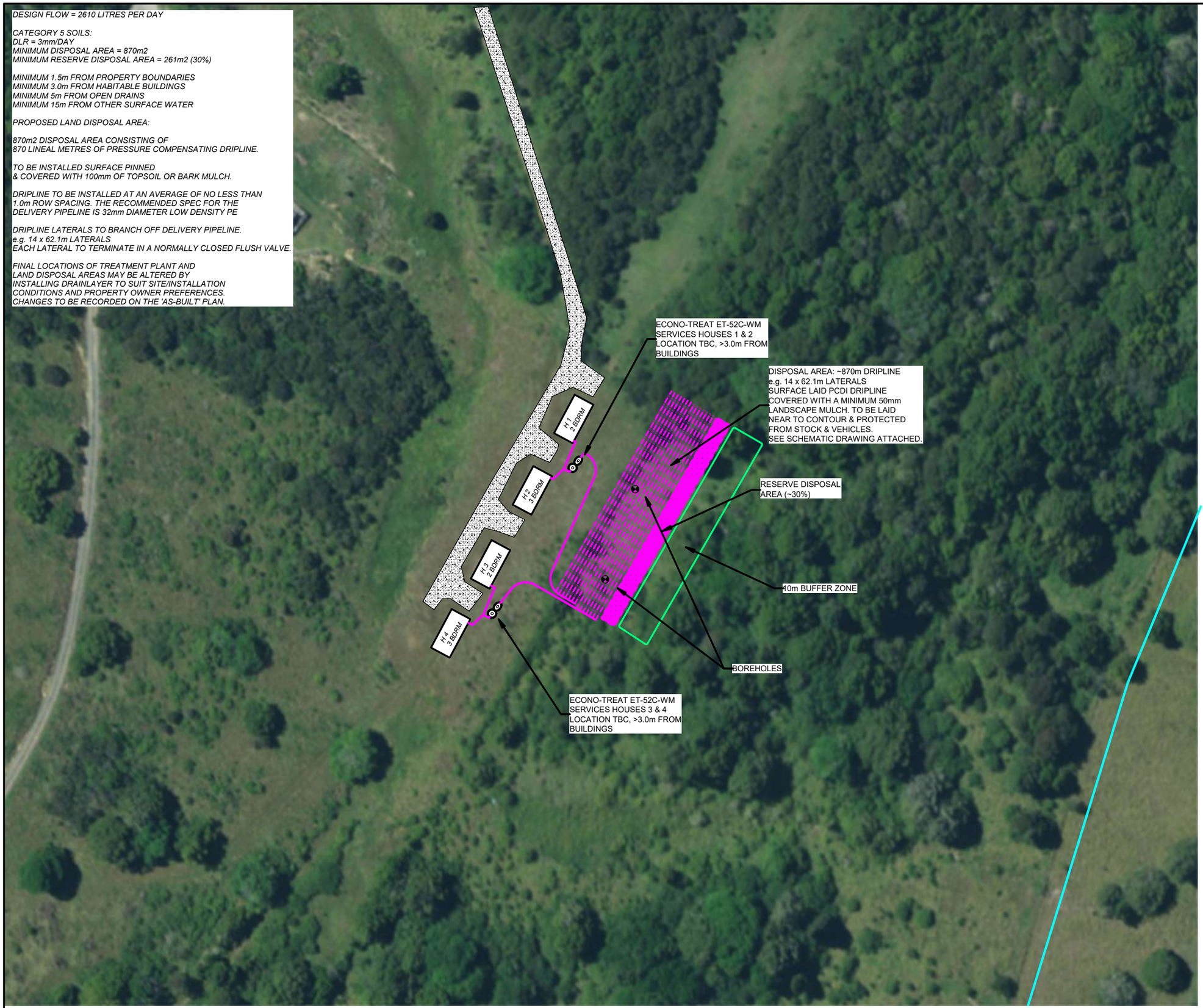
870m2 DISPOSAL AREA CONSISTING OF
870 LINEAL METRES OF PRESSURE COMPENSATING DRIPLINE.

TO BE INSTALLED SURFACE PINNED
& COVERED WITH 100mm OF TOPSOIL OR BARK MULCH.

DRIPLINE TO BE INSTALLED AT AN AVERAGE OF NO LESS THAN
1.0m ROW SPACING. THE RECOMMENDED SPEC FOR THE
DELIVERY PIPELINE IS 32mm DIAMETER LOW DENSITY PE

DRIPLINE LATERALS TO BRANCH OFF DELIVERY PIPELINE.
e.g. 14 x 62.1m LATERALS
EACH LATERAL TO TERMINATE IN A NORMALLY CLOSED FLUSH VALVE.

FINAL LOCATIONS OF TREATMENT PLANT AND
LAND DISPOSAL AREAS MAY BE ALTERED BY
INSTALLING DRAINLAYER TO SUIT SITE/INSTALLATION
CONDITIONS AND PROPERTY OWNER PREFERENCES.
CHANGES TO BE RECORDED ON THE 'AS-BUILT' PLAN.



0m 100m 200m

WaterFlow
Bringing Clarity to Wastewater

PO Box 24
Maungaturoto
www.waterflow.co.nz

CLIENT

ADVANCE BUILD
(WINNIE MITCHELL WHANAU)

PROJECT

583 MATAWAIA-MAROMAKU ROAD
KAWAKAWA
ON-SITE WASTEWATER
TREATMENT AND DISPOSAL

TITLE

PROPOSED ONSITE
WASTEWATER LAYOUT

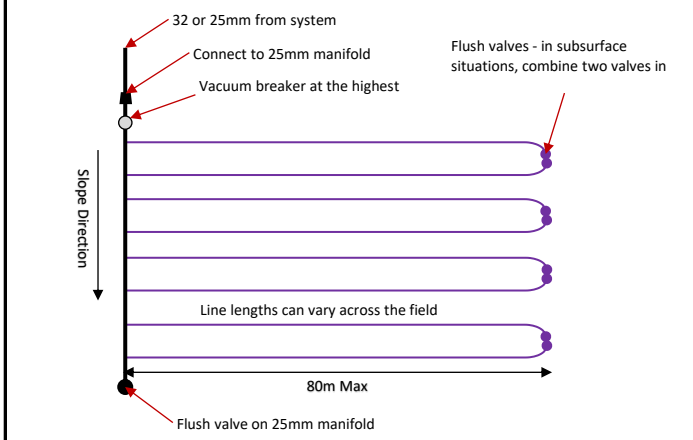
DATE	*21/11/25*	
DRAWN	*MR*	
DESIGN	*MR*	
CHECKED	*KH*	

JOB No.	SCALE.
WF24733	1:1000@A3

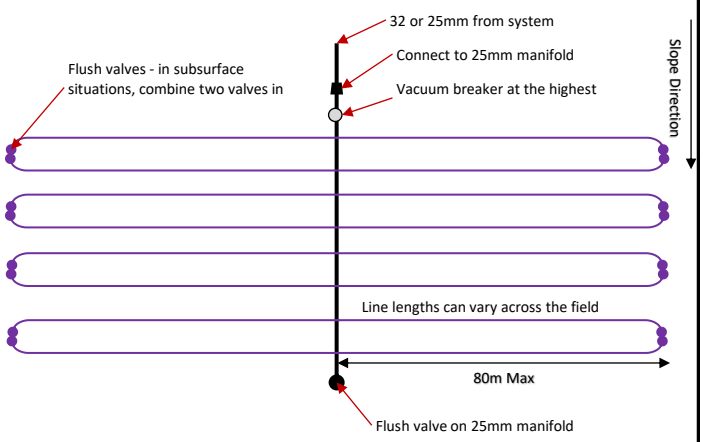
DWG No.	REV.
WF24733-01	*B*

Common PCDI Layouts

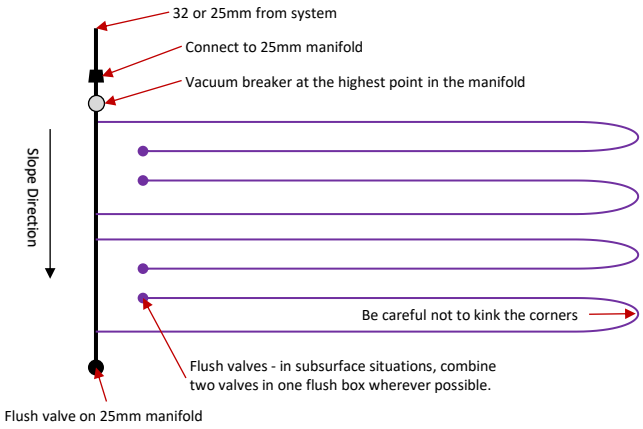
Single Side Manifold - straight



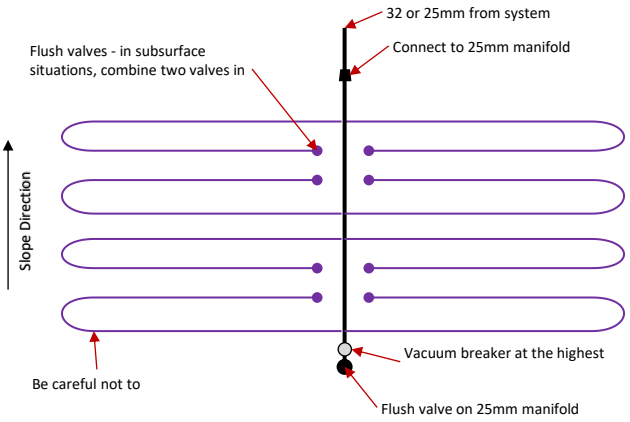
Single Center Manifold - straight



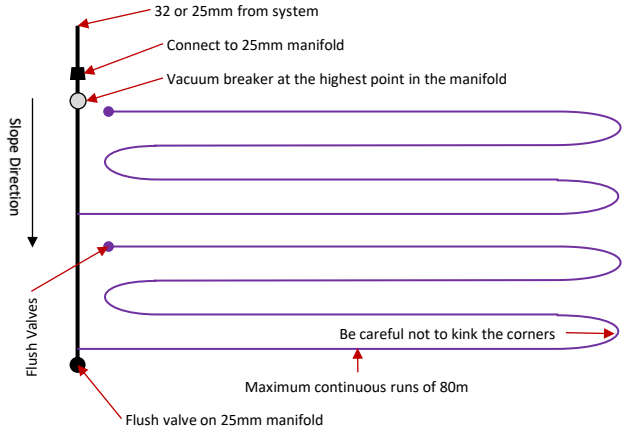
Single Side Manifold - curled



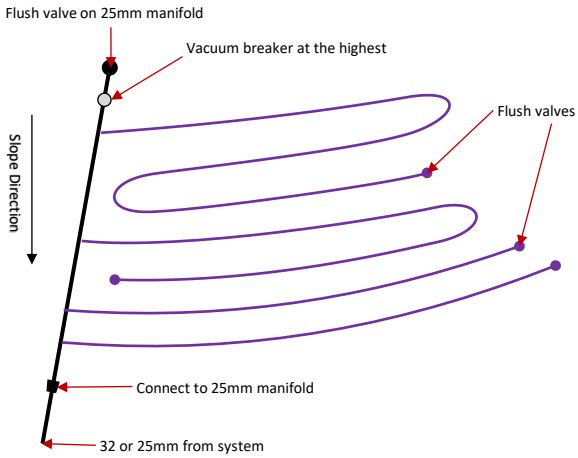
Single Center Manifold - curled



Long Single Runs



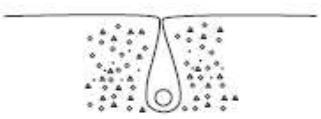
Custom Layout



Cross Sections of PCDi installation

150mm Mulch or Leaf Litter

Subsoil Buried @ 100-150mm

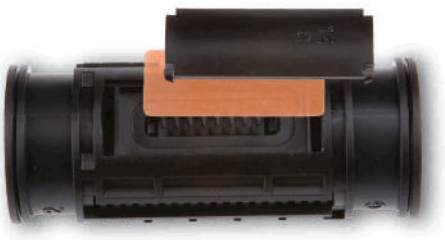


METZERPLAS

ADI

Cylindrical PC (Pressure Compensated) dripper.

- Cylindrical PC dripper, with unique regulating labyrinth with self-flushing operation at the beginning and the end of each irrigation cycle.
- Triple inlet filter with filtering area 10 times larger than any other dripper.
- High clog resistance.
- Suitable for poor quality and effluent water.
- Large pressure compensation range up to 4.3 bars.
- Dripline diameter: 16, 18 and 20 mm.
- Dripper flow rate: 1.6, 2.2 and 3.5 l/h.
- *Rootguard*® configuration available for extra root protection in SDI (Subsurface Drip Irrigation).



ADI Dripline Technical Data:

Model	Inside Diameter (mm)	Wall Thickness (mm)	Min. Working Pressure (bars)	Max. Working Pressure (bars)	KD
ADI 16	13.8	0.9	0.8	3.5	1.12
		1.15	0.8	4.3	0.95
ADI 18	15.8	1.2	0.8	4.3	0.95
ADI 20	17.4	1.0	0.8	3.5	0.85
		1.25	0.8	4.3	0.6

METZERPLAS IRRIGATION SYSTEMS

Kibbutz Metzer M.P. Heffer 38820 ISRAEL Tel: 972-4-6387001 Fax: 972-4-6385385
info@metzerplas.com • www.metzerplas.com

METZERPLAS

ADI

Cylindrical PC (Pressure Compensated) dripper.

ADI 16 mm. Maximum lateral length (I.D. 13.8 mm, W.T 0.9 mm, Inlet pressure 2.5 bars):

Nom. Flow Rate (l/h)	Spacing Between Drippers (m)						
	0.20	0.30	0.40	0.50	0.60	0.75	1.00
1.6	86	122	156	188	218	260	324
2.2	72	103	131	157	182	216	269
3.5	51	73	94	113	131	156	195

ADI 18 mm. Maximum lateral length (I.D. 15.8 mm, W.T 1.2 mm, Inlet pressure 2.5 bars):

Nom. Flow Rate (l/h)	Spacing Between Drippers (m)						
	0.20	0.30	0.40	0.50	0.60	0.75	1.00
2.0	93	134	171	205	238	284	355
3.5	65	92	118	142	166	198	247

ADI 20 mm. Maximum Lateral length (I.D. 17.4 mm, W.T 1.0 mm, Inlet pressure 2.5 bars):

Nom. Flow Rate (l/h)	Spacing Between Drippers (m)						
	0.20	0.30	0.40	0.50	0.60	0.75	1.00
1.6	128	182	234	281	325	388	484
2.2	113	159	202	242	279	331	409
3.5	76	109	140	168	196	233	291

For additional tables and data please contact Metzerplas Technical Department or visit our website: www.metzerplas.com

Packaging Data

Model	Roll Length (m)	Quantity Per Container (Rolls)		
		20	40	40 h
ADI 16	400	150	300	350
ADI 18	300	150	300	333
ADI 20	300	133	266	300

METZERPLAS IRRIGATION SYSTEMS
Kibbutz Metzer M.P. Heffer 38820 ISRAEL Tel: 972-4-6387001 Fax: 972-4-6385385
info@metzerplas.com • www.metzerplas.com

SUBMERSIBLE DRAINAGE PUMPS
Model Numbers: D42A, D42M, D42A/B, D53A/B

DEPEND ON DAVEY

WATER PRODUCTS

D42A, D42M

D42A/B, D53A/B

SUMP PUMPS

PRODUCT DESCRIPTION

Submersible sump pump with two and three impeller designs for higher pressure, up to 45m head

APPLICATIONS

- Lawn & garden irrigation
- Sump emptying to higher heads
- Treated effluent disposal
- Water transfer from wells
- A/B models are specially designed for non potable rainwater applications

"A" suffix models equipped with present length automatic float switch fitted for automatic operation.

FEATURES & BENEFITS

Double mechanical seal, one in oil bath on motor and extra mechanical seal on pump
- Superior reliability
- Long service life

Corrosion resistant 304 stainless steel shaft, motor shell and fasteners
- Long service life

D42A/B & D53A/B have cast 316 stainless steel motor caps and super tough engineered thermo plastic pump casing
- Outstanding corrosion resistance
- Long life

Centrifugal multistage 2 & 3 impeller designs
- Higher pressures & increased efficiency

Closed vane impellers with long engagement "D" drives
- Positive operation
- Long service life

D42A & D42M have labyrinth impeller neck rings
- Maintain pump performance
- Less susceptible to wear

D42A/B & D53A/B have patented independently floating neck rings
- Outstanding pump performance
- Long pump life

Corrosion resistant hard wearing polycarbonate impellers
- Long service life

Corrosion resistant stainless steel fine mesh suction strainer with large surface area
- Prevents blockages of the pump by solids

In-built automatic thermal overload
- Protects the motor in the event of blockage or voltage supply problems

HO7RNF oil resistant leads, 10 metres long with 3 pin power plug
- Easy to connect to power supply
- Longer life in dirty water

OPERATING LIMITS

	D42A,M	D42A/B, D53A/B
Capacities to	110 lpm	130 lpm
Max. total head	26m	32m, 45m
Max. submergence	12m	
Max. pumped water temperature	40°C	
Max. soft solids	1.9mm O.D.	
Outlet size (BSP)	1" F	

Suitable Fluids
Clean water of neutral pH containing up to 1% small solids. Some wear should be expected while pumping hard solids in suspension.

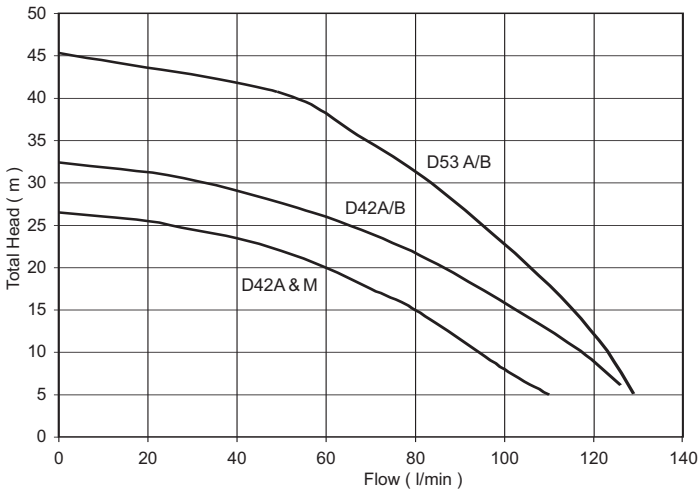
H/O & MFG SCORESBY Quality System™
Quality Endorsed Company
ISO 9001 Lic 10636

TECHNICAL SPECIFICATIONS

MATERIALS OF CONSTRUCTION

PART	MATERIAL
Impeller	Glass filled polycarbonate
Lock nut	304 stainless steel
Pump casing	Cast iron - FC200 (D42A&M) Glass filled polycarbonate (D42A/B), (D53A/B)
Diffuser and blanking ring	Glass filled noryl
Mechanical seal - pump	Carbon/ceramic
Mechanical seal - motor	Silicon carbide/ceramic in oil bath
Shaft seal elastomer	Nitrile rubber
Pump shaft	304 stainless steel
Orings	Nitrile rubber
Motor shell	304 stainless steel
Bottom bearing housing	Cast iron - FC200 (D42A&M) Cast 316 stainless steel (D42A/B), (D53A/B)
Upper motor cover	Cast iron - FC200 (D42A&M) Cast 316 stainless steel (D42A/B), (D53A/B)
Handle	304 stainless steel
Fasteners	304 stainless steel
Float & power supply leads	HO7RN-F oil resistant

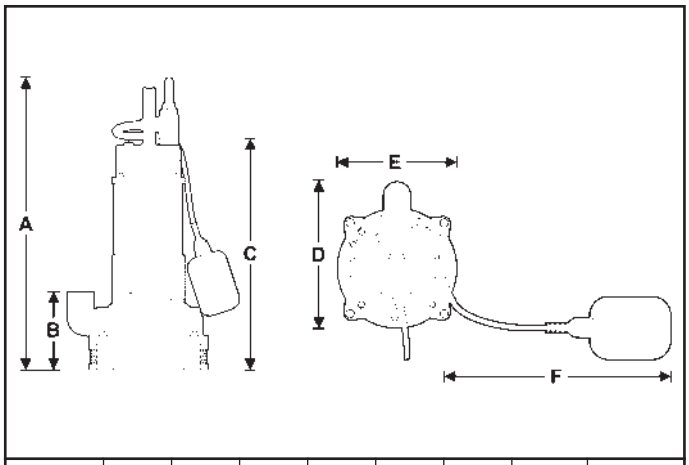
HYDRAULIC PERFORMANCE



ELECTRICAL DATA

	D42, D42A/B	D53A/B
Supply voltage	220-240V	
Supply frequency	50Hz single phase	
Speed	2 pole, 2850rpm	
Full load current	4.0A	5.7A
Locked rotor current	14A	
Input power (P_1)	0.94kW	1.31kW
Output power (P_2)	0.60kW	0.84kW
IP rating	X8	
Insulation class	Class F	
Starting	P.S.C.	
Lead	10m long	

DIMENSIONS



Model	A	B	C	D	E	F	Outlet B.S.P.	Net Weight (kg)
D42A	475	130	370	235	195	330	1"F	20
D42M	475	130	370	235	195	330	1"F	19.5
D42A/B	475	130	370	235	195	330	1"F	18.5
D53A/B	535	170	430	235	195	330	1"F	19.5

All dimensions in mm unless otherwise stated.

INSTALLATION & PRIMING

Use a rope to position and retrieve the pump. Do not lower or retrieve the pump using the power lead as this may damage the cable entry seals, causing water leaks and unsafe operation.
Don't use this product for recirculating or filtering swimming pools, spas, etc.
While these pumps are built to high safety standards, they are not approved for installations where people will be in the water while they are operating.
Don't pump abrasive materials. Sand and grit in the water being pumped will accelerate wear, causing shortened pump life.
Keep your pump clean, particularly in situations where lint, hair or fibrous materials may get bound around the pump shaft. Regular inspection and cleaning will extend pump life.
Make room for the float switch to operate. Automatic models have a float switch to turn them on when the water level rises and turn them off again when it has been pumped down to the safe operating level of the pump. If the float switch is not free to rise and fall, correct pump operation may not be possible.
Don't run your pump dry. Non-automatic models must be switched off manually or by way of an external float/level switch when the water level is reduced to the top of the pump housing.

DEPEND ON DAVEY
WATER PRODUCTS

Davey Water Products Pty Ltd
Member of the GUD Group
ABN 18 066 327 517

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HIQ & MFG SCORESBY Certified System TM Quality ISO 9001

HIQ & MFG SCORESBY Certified System TM Environment ISO 14001

DPM128-4a Web /0313

Assessment of Environmental Effects

Winnie Mitchell Descendants Whanau Trust of 583 Matawaia-Maromaku Road, Maromaku
Lot Motatau 2 DP Section 49A 3B Block

1.1 Description of Proposal

The owners of the prooperty propose the construction of 2 new two bedroom dwellings and 2 new three bedroom dwellings. The new buildings will require onsite wastewater management.

1.2 Site Description

583 Matawaia-Maromaku Road is a large rural property of about 35 hectares. This development involves the creation of additional 2 x 2 bedroom dwellings and 2 x 3 bedroom dwellings. The domestic wastewater from the new dwellings will drain to two new onsite wastewater management systems detailed in this report. The land where the disposal of secondary treated wastewater is proposed is moderately sloped towards the east and the area is currently covered with grass and scrub. There are no overland flow paths, surface waters or flood plains in the area proposed for onsite wastewater management.

1.3 Wastewater Volume

In calculating the wastewater flows we have allowed for a maximum occupancy of 18 persons in the four new buildings, based on 2 x 2 bedroom dwelling and 2 x 3 bedroom dwelling (as per AC TP-58, Table 6.1). Total wastewater production is based on an allowance of 145 litres per person per day (as per AS/NZS 1547:2012 Table H3, Note 2), which is conservative given that water supply is roof collected rain water and standard water reduction fixtures will be used throughout the dwellings.

1.4 Wastewater Volume

The two ET52C.WM wastewater systems that are proposed will treat the wastewater to a high standard prior to dispersal using a PCDI drip line, into a purpose-designed disposal field, where the removal of nutrient will continue, both in the receiving soils and by plant uptake.

The system will be capable of producing reductions in Biochemical Oxygen Demand, Total Suspended Solids, Nitrogen, and Coliforms to a standard that meets the requirements (see details below). The system will cater for the wastewater requirements of the private dwellings (domestic wastewater) and will not service any commercial or trade waste sources. Risk Minor to Nil.

1.5 Proposed Treatment System

The objective of the treatment system is to reduce and remove much of the contaminants from the wastewater prior to discharge into the receiving soil. This will improve the long-term performance of the disposal field as well as reducing the risk to the receiving environment. The system will consist of:

- Septic Tank Module
- 2 x ET52C.WM Econotreat wastewater treatment plants
- Land Application System

The system is constructed using concrete tanks. The system produces treated effluent with BOD <20mg/l, Suspended solids <20mg/l.

1.6 Land Application System

The proposed irrigation system uses pressure-compensating dripper lines ensuring an even delivery of moisture over the entire irrigation field and a conservative DLR of 3mm. We propose the use of Metzerplas unibioline ADI16/2.2 @ 0.6m/c with the Dripline laid out at 1m centres. This Dripline will then be covered by 100mm landscape mulch. Densely planting this area will greatly enhance evapo-transpiration and be very beneficial especially in the wetter months of the year. This irrigation can be installed in conjunction with existing or proposed landscaping.

1.7 Surface & Ground Water

It is proposed to treat the water to a high standard prior to discharge and the proposed irrigation system will introduce the water into the topsoil horizon using PCDI irrigation. A low application rate of treated effluent into the topsoil will significantly reduce the likelihood of, any breakout or runoff or any risk of surface water contamination. With the ground water levels being >1.2m this conservative DLR also means the risk of ground water contamination is virtually nil. A majority of the undeveloped areas of this site are suitable for a PCDI disposal field when the necessary setbacks are observed. Risk Minor to Nil.

1.8 Air Quality

The proposed ET52C.WM wastewater systems will produce no noticeable odour when functioning correctly. Any odour will be contained within the tanks. The PCDI irrigation system will load the soil at a rate that should not cause ponding, spraying or aerosol of the effluent that could potentially cause odours. Risk Minor to Nil.

1.9 Visual Impact

The tanks are installed wholly below ground level with only the lids being visible. The lids will protrude approximately 100mm to prevent egress of storm water into the system. The disposal field will be located in a purpose designed mulched and intensively planted disposal area. Warning signs may be installed to indicate the presence of the disposal area, although probably not necessary in a domestic situation, also the area may be fenced to restrict access.

1.10 Environmental Risks

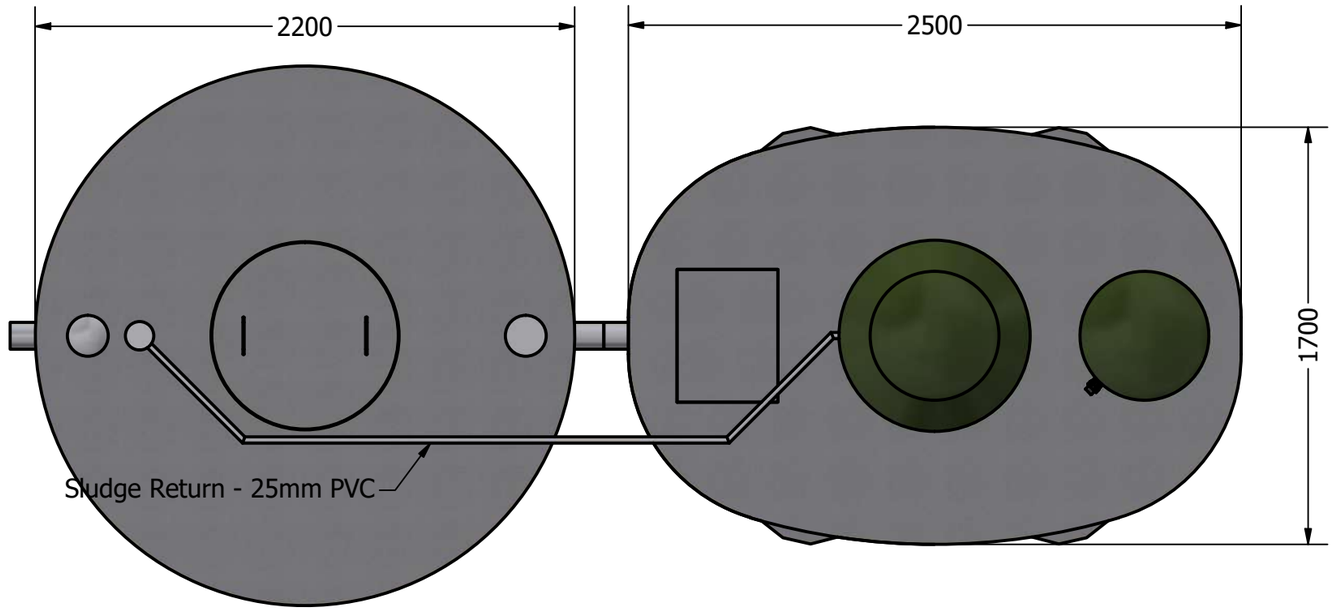
Risks are associated with this proposal are minor. The treatment system will be automated, and the Home Owner will be given a 'Home Owners Care Guide' which explains the necessary visual checks to ensure no issues arise with the system, specifically – solids build-up - high water level – discharge failure – filter blockage.

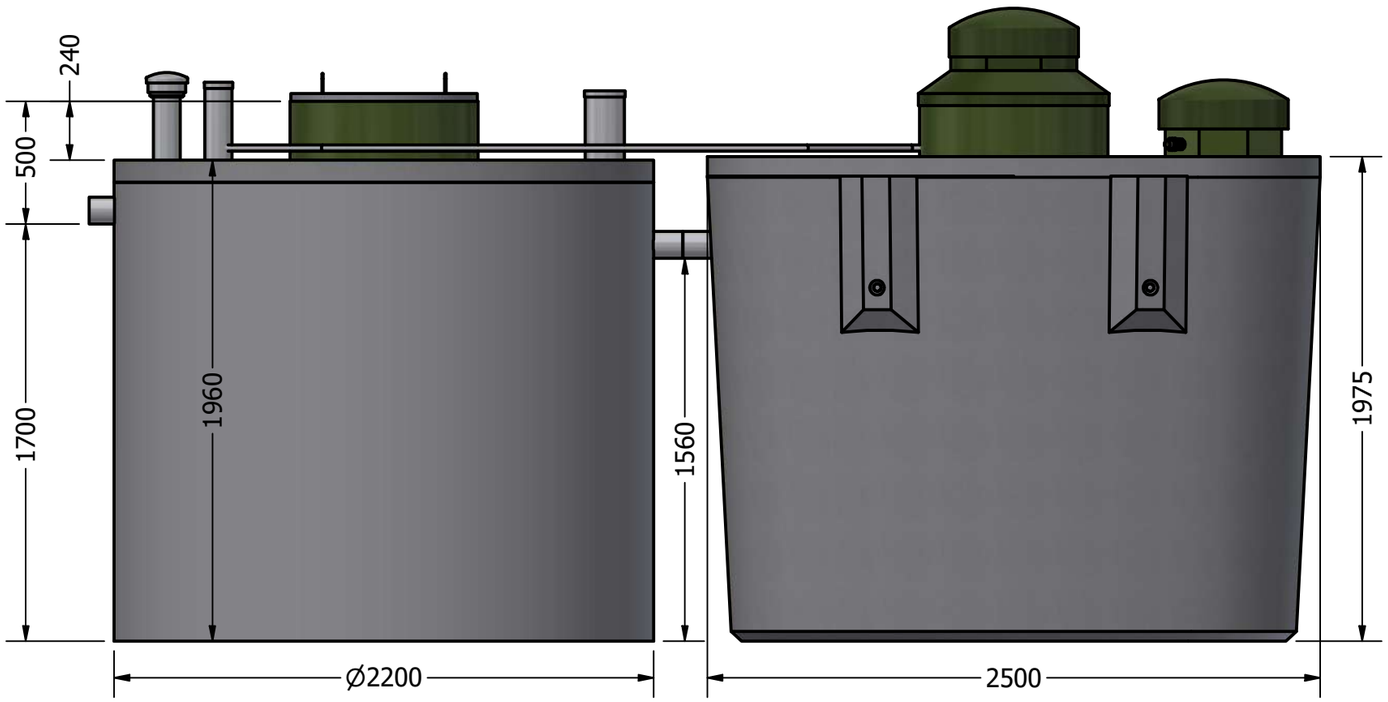
Peak flow into the system are not expected to be significant and the system includes a large emergency storage volume.

1.11 Maintenance Requirements

The maintenance requirement of this system is minimal, with the system fully automated. The system requires little input from the operator apart from the regular cleaning of the outlet filter between the treatment system and the Dripline field. All other maintenance interventions must be carried out by service persons familiar with the operation of the system and approved by the manufacturer. Maintenance may include checking of the dissolved oxygen levels, cleaning of effluent outlet filter, removal of excess sludge volume, checking of control panel function, etc.…

The disposal field is quite possibly the most important and sensitive part of the treatment system and requires a reasonable amount of maintenance to keep it functioning well. Any leaking or damaged Dripline must be fixed quickly using the appropriate materials, the planting must be maintained, weeds removed and grass kept cut. The Dripline should be kept covered with a suitable bark, mulch, or topsoil.





Econotreat VBB-C-2200-WM System

Flow Rate	2200L/day
Treament Levels BOD TSS TN	 <10mg/L <10mg/L <15mg/L
System Process	Aerated submerged fixed film media (open and closed type). Intermittent operation (fine and very large bubble combo)
Volumes (Litres) Number of chambers/tanks (volume) Normal operating volume/capacity Normal emergency storage Operating level (internal-mm) P.O.D operating Primary chamber/septic tank Aeration chamber Clarification/Re-circulation chamber Total emergency volume	 2 x Tanks, 5 Chambers (10400L) 9280L 1200L 1250mm 250L with high level & pump float 2 stage 5500L 3230L 300L with surge control 2120L
Outlet Filter	Reln 100mm Outlet Filter
Blower	Nitto LA80
Irrigation Pump	Davey D42 A/B
Electrical Controls	Air & High Water Alarms, both audible & visual.Aeration controlled by time clock. 10A circuit breaker on all components.

WaterFlow
Bringing Clarity to Wastewater

1160 SH12
MAUNGATUROTO 0548
PH: 0800 628 356
E: sales@waterflow.co.nz

Econotreat VBB-C-2200-WM System

PREPARED FOR:

Sheet 1 of 1

DRAWN: GeraldHoyle | DWG:

REVISION | DATE: 17/04/2019

SCALE: 1 / 25

WaterFlow
Bringing Clarity to Wastewater

ECONOTREAT™

ET52C Treatment System

System Specificatons & Installation Instructions

ET-52C-SpecInstall-250516

ET52C

System Specificatons & Installation Instructions

Compliance Requirements

All Waterflow Septic Tanks and Treatment Modules meet the requirements of the New Zealand Building Code G13-VM4, Clause B1 - Structure, and Clause B2 Durability As stated in the AS/NZS 1546.1:2008 Standard, 1.5.2.1, all septic tanks constructed to this Standard meet the requirements of the New Zealand Building Code for Clause B1 - Structure and Clause B2 Durability.

The design and specifications of the septic tank are fully compliant with the AS/NZS1546.1:2008 Standard, including but not limited to:

Structural Integrity: The tank is designed using 50 MPa fibre-reinforced concrete with appropriate foot anchors and reinforcement, ensuring it meets the structural requirements specified in the standard.
Material Specifications: All materials used, including the reinforcing details and concrete mix, comply with the necessary standards for durability and suitability in septic tank applications.
Capacity and Dimensions: The tank's dimensions and baffle placements align with the standard's guidelines, ensuring proper functionality and waste management.
Access and Maintenance Provisions: The design includes provisions for easy access, necessary for regular inspection, cleaning, and maintenance in accordance with the standard.

Please feel free to ask for a copy of this complete document, if required.

ET52C

System Specificatons & Installation Instructions

Treatment Process

Primary Chamber / Tank
Influent enters the chamber via the source whereby scum and solids capable of settling are separated from the raw influent. Primary treated effluent flows through a transfer port to the aeration tank. This primary tank will also act as a storage chamber for sludge returned from the Clarification Chamber.
After primary settling, the sewage passes through a Reln outlet filter.

Aeration Chamber
Water enters from the Primary Chamber. Air is introduced into this chamber via an air blower to create an environment for aerobic bacteria and other helpful organisms to consume the organic matter present. The aeration tank is designed in a manner to help prevent short circuiting of the wastewater to ensure extended aeration. Media is present in the tank to support the growth of bacteria.

Clarification Chamber
The Clarification chamber is essentially a quiescent zone where suspended particles/solids are settled out of the water. These particles are returned to the Primary chambers via a sludge return which aids in further biological reduction, denitrification and providing a constant food supply rich in microbes supporting the system through periods of limited flows.

System Performance
The Econotreat ET52C system is capable of treating up to 2200L per day peak flow to an advanced secondary standard. The effluent is suitable for UV disinfection where required.

Benchmark Ratings
The **Waipapa Tanks Econo-Treat® VBB C-2200-2** system **achieved** the following effluent quality ratings:

Indicator Parameters	Median	Std Dev.	Rating	Rating System				
				A+	A	B	C	D
BOD (g/m^3)	3.4	1.5	A+	<5	<10	<20	<30	≥30
TSS (g/m^3)	4.98	3.49	A+	<5	<10	<20	<30	≥30
Total nitrogen TN (g/m^3)	13.6	1.3	A	<5	<15	<25	<30	≥30
Ammonia Nitrogen NH4-N (g/m^3)	1.1	1.8	A	<1	<5	<10	<20	≥20
Total phosphorus TP (g/m^3)	4.2	0.5	B	<1	<2	<5	<7	≥7
Faecal Coliforms FC (cfu/100mL)	11,200	50,196	B-	<10	<200	<10,000	<100,000	≥100,000
Energy (kWh/d) (mean)	1.8	-	B	0	<1	<2	<5	≥5

ET52C

System Specificatons & Installation Instructions

Effluent Quality

The EconoTreat ET52C wastewater treatment system generates advanced secondary treated effluent of the following quality provided that there are no inhibitory or toxic substances within the wastewater that will impair the biological performance of the system:

- 5-day Biochemical Oxygen Demand (BOD5) 15 mg/L
- Suspended solids 15 mg/L

Note: Please read Guidelines on how to care for your EconoTreat wastewater system which are to be adhered to at all times.

The treated wastewater will usually be disposed of via a land application system, designed accordingto AS/NZS 1547:2012which describes various land application systems for primary treated effluent. Disposal systems must also comply with the relevant Regional Authority rules, and these should be consulted.

Loading Rates

• Total Daily Flow Rate	2200 L per day
• Organic loading as BOD5	700g per day
• Suspended solids loading	700g per day

Important: the actual maximum loading of an installed EconoTreat VBB-C-2200 System is limited to the capacity of the land application system it discharges to. For example if the land application system is designed with a capacity of 800L per day, then the VBB-C-2200 System must not be loaded at more then 800L per day.

Dual Chamber Septic Tank

5200L Nominal Capacity
2500mm Long
1700mm Wide
1975mm High
- 3100kg

Aeration Tank

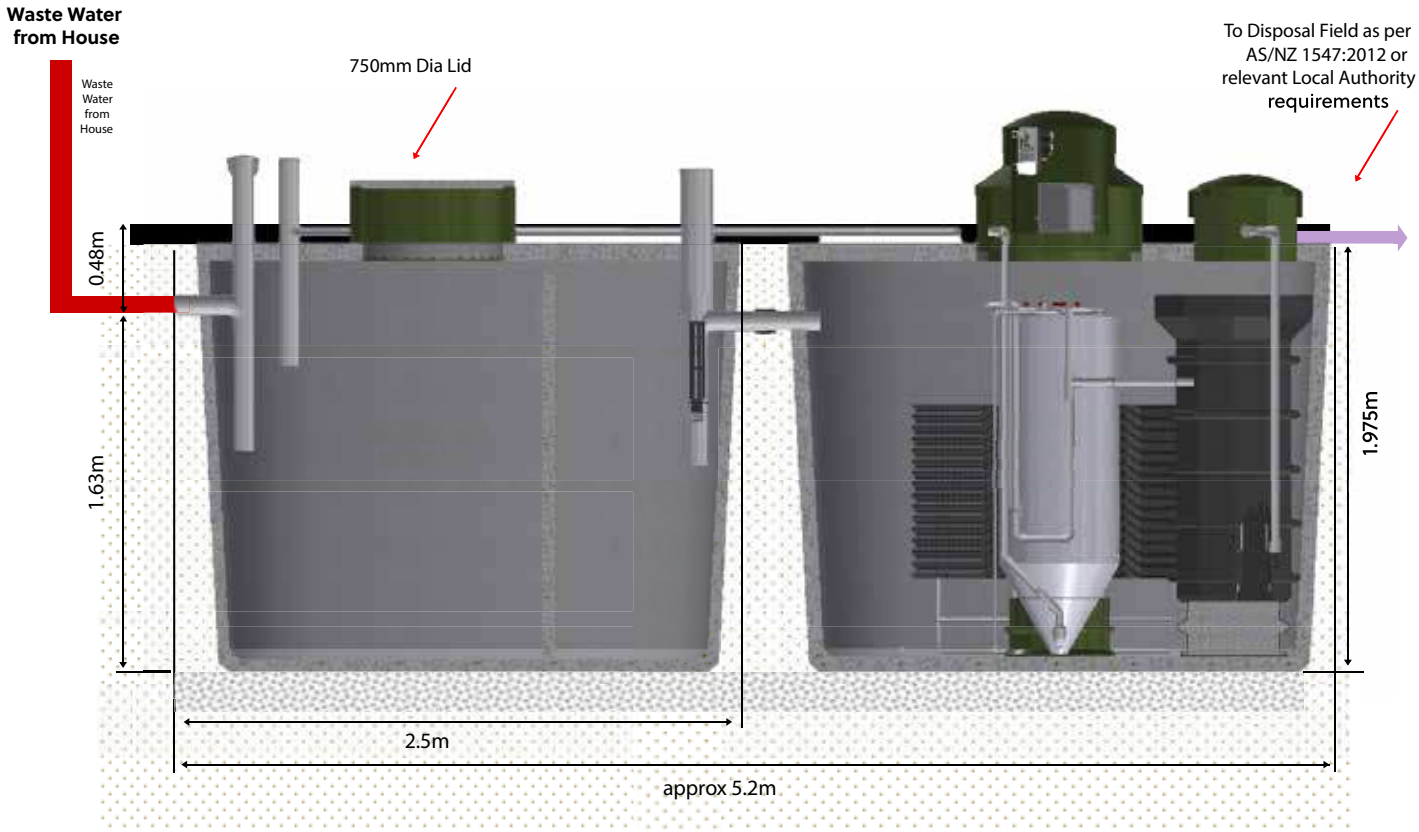
5200L Nominal Capacity
2500mm Long
1700mm Wide
1975mm High
- 2900kg

Pump Chamber

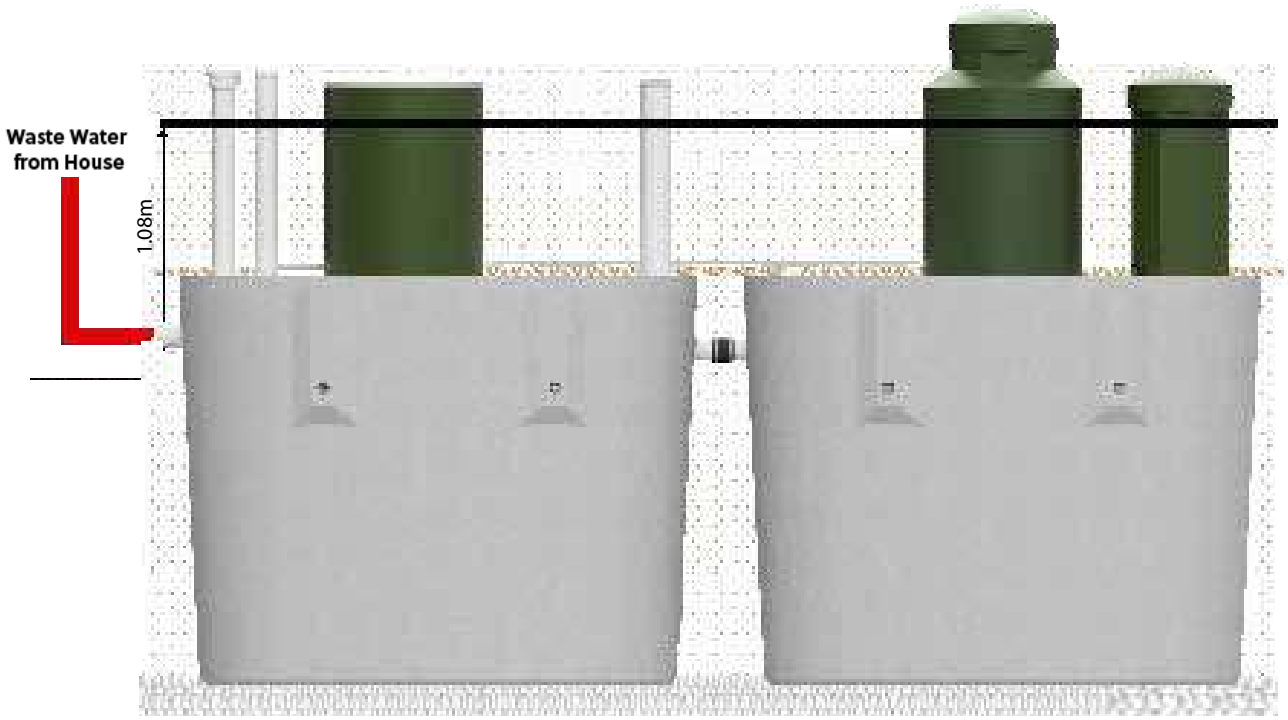
500L Pump Chamber
2200L Emergency Storage

ET52C

Schematic Drawings



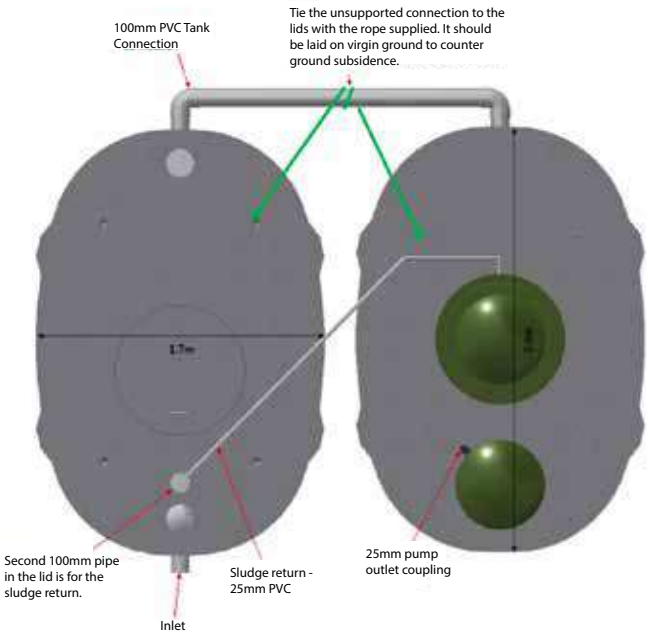
Maximum Invert Specifications



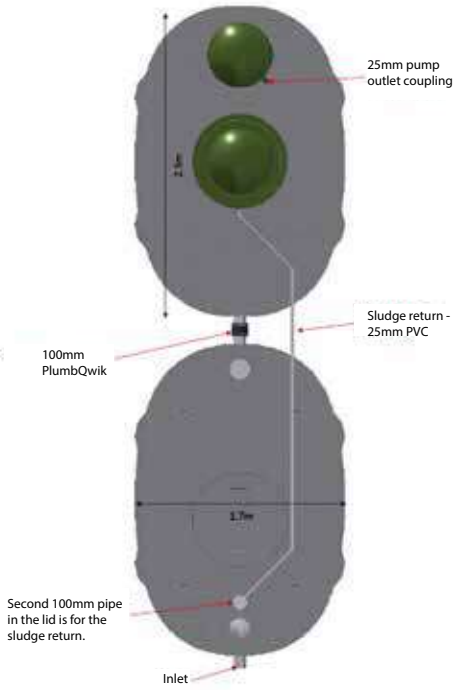
ET52C

Schematic Drawings

Side by Side Installation



End to End Installation



ET52C

Instructions for Installation

The EconoTreat system is to be installed or signed off by a registered Drain layer to the design specified by Waterflow NZ Ltd. The following installation instructions and procedures followed correctly will ensure System performance is not compromised in any way.

1. Excavate two 3m x 2m level platforms at an appropriate depth to ensure adequate fall for inlet pipe from the source. This has to be installed on virgin ground. The two platforms are ideally on the same level and next to each other, either side-by-side or end-on-end.

2. Lay 100mm of bedding metal on platform and place the Septic and Aeration tanks next to each other. As close as practically possible to minimize the connection distance between the tanks.

3. Connect the two tanks with 100mm PVC. If the tanks are side-by-side the connection will need supporting. This is done by, extending the connection back onto virgin ground or hard-filling and compacting and also tying it back to the wire on the lids with a length of rope supplied. The rope can be found in the top of the treatment tank.

ET52C

Instructions for Installation

4. Next connect the sludge return. This is a 25mm PVC pipe that come out of the central riser on the treatment tank. This must be plumbed back to the second 100mm PVC at the start of the septic tank. It is important that this pipe is falling slightly or at minimum flat.

5. Trench from Dose Chamber outlet to disposal field and lay the 25mm alkathene feed line.

6. Take a minimum of 3 photos at this point to showing connections and back fill, to ensure correct installation for sign off.

7. Back fill around tanks. Using spoil from the excavation is fine if it is suitable otherwise consider a hard fill. Please be aware that soils will settle over time though.

Caution: System must be protected from excessive super imposed loads both lateral and top loads. E.g. loads from vehicular traffic. There needs to be at least 2m of clearance maintained around system.

ET52C

System Specificatons & Installation Instructions

Installation Location and Certification

These tanks are not designed for vehicle loads and shall be located no closer than 2m to a driveway, road frontage or a building. If for any reason the tank is located where vehicle traffic may drive over the tank or approach closer than 2m, or where it may be trampled on by farm stock then the tank should be protected by a concrete slab designed to support these loads. Surface water must also be diverted from flowing into the installation.

Installation must be certified to AS/NZS 1547:2012, the certificate to be issued and held by the regulatory authority.

High Water Table Installations

All tanks have been engineered and designed for maximum strength, in accordance with the NZC 3604. Clauses B1 and B2 for structure and durability, to withstand any hydraulic pressures, both lateral and uplift, created by high water table conditions.

In high water table installations, it is important to fill the tanks with water. This removes the hydraulic uplift and simplifies the installation. In extremely high-water tables, cement can be added to fine metal to create a mass around the dead men anchors secured to the tanks (alternately concrete could be used). Waterflow must be made aware of this early on in vies of supplying a tank that is fit for purpose.

Plumbing Pipes and Fittings

All internal plumbing is done with PVC pipes with appropriate connections according to AS/NZS 1260 and AS/NZS 4130.

Alarm System

The VBB-C-2200 System is equipped with an AS/NZS 1546.3 compliant audible and visual alarm with a mutable alarm signal and alarm light. The alarm panel must be mounted in a location that is readily visible within the dwelling.

Alarm is triggered by a high-level float switch in the pump well.

ET52C

System Specificatons & Installation Instructions

Plumbing Pipes and Fittings

All internal plumbing is done with PVC pipes with appropriate connections according to AS/NZS 1260 and AS/NZS 4130.

Backfill and Bedding

Backfill the excavation from the base of the tank with a GAP/PAP 20 metal, dry mixed with cement to form a solid mass, to a minimum of 400mm above the anchor plates. Then continue with metal, clean unsaturated soils or spoil from the excavation, (if suitable i.e. up to Class 4 as per AS/NZS 1547:2012) in approximately 200mm layers. Compact each layer evenly with a mechanical compactor to minimise subsidence and back fill to the level of the invert pipe.

Electrical

Where a pump is required to dose the Land Application System, all electrical connections must be installed according to AS/NZS 3000. The electrical connections are housed in an enclosure on the top of the tank. Please see separate Electrical Guide for more details.

Warranty

WATERFLOW NZ LTD warrants that all Treatment Systems manufactured by WaterFlow NZ Ltd will be free from defects in materials and workmanship for the following periods from the date of installation, under the following conditions:

1. Plastic-Moulded tanks: 15 years

2. Concrete Tanks: 15 years

3. Filter Media: 5 years

4. Dosing float: 2 years

5. Electrical Components and Pump: 2 years

WATERFLOW NZ LTD will, at its discretion, repair or replace any defective components with the same or equivalent part at no charge to the consumer, in accordance with the following terms and conditions laid out in the WaterFlow NZ's Warranty Certificate. Full text warranty available on request.

1st June 2025
Dean Hoyle
Managing Director

WaterFlow

Bringing Clarity to Wastewater

Our team of wastewater experts are here to help.
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ECONOTREAT™

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Bringing Clarity to Wastewater

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Advanced Secondary Treatment Aerated Wastewater System

Owner's Manual

EconoTreat Wastewater Systems

Owner's Manual

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EconoTreat Wastewater Systems

Owner's Manual

To the Owner

Thank you for choosing an EconoTreat System to treat and care for your on-site sewage and wastewater.

Your EconoTreat System is fully automatic in operation and requires little owner intervention to ensure years of service. It is useful that the owner/operator of the system understand some of the broad concepts of the system operation. This manual has been written to provide this simple explanation and to serve as a future reference so that you can ensure that the system is operating effectively at all times.

We encourage you to monitor and care for your EconoTreat system with our backing and support. By doing so you will learn how your system works and operates and how to keep it in top working order. WaterFlow promises consistent results year after year.

Kind regards,
The Waterflow Team

WaterFlow NZ Ltd Warranty

WATERFLOW NZ LTD warrants that the Waterflow NZ System will be free from defects in materials and workmanship for the following periods from the date of installation, under the following conditions:

1. Plastic-Moulded tanks: 15 years
2. Concrete Tanks: 15 years
3. Filter media: 5 years
4. Dosing float: 2 years
5. Electrical components and Pump: 2 years

WATERFLOW NZ LTD will, at its discretion, repair or replace any defective components with the same or equivalent part at no charge to the consumer, in accordance with the full terms.

Note: Full warranty document available at your request.

EconoTreat Wastewater Systems

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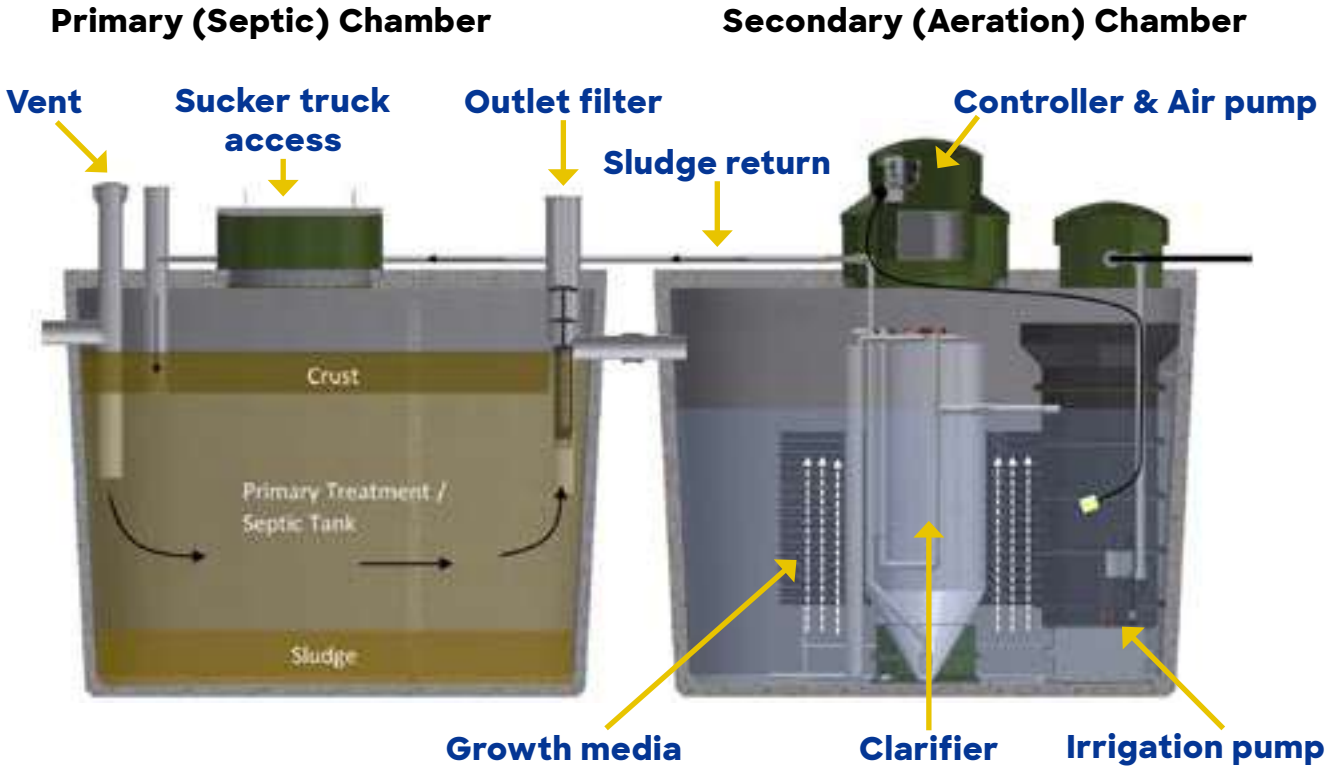
Components of Your Wastewater Septic System

Primary Chamber / Tank
Influent enters the chamber via the source whereby scum and solids capable of settling are separated from the raw influent. Primary treated effluent flows through a transfer port to the aeration tank. This primary tank will also act as a storage chamber for sludge returned from the Clarification Chamber.

Aeration Chamber
Water enters from the Primary Chamber. Air is introduced into this chamber via an air blower to create an environment for aerobic bacteria and other helpful organisms to consume the organic matter present. The aeration tank is designed in a manner to help prevent short circuiting of the wastewater to ensure extended aeration. Media is present in the tank to support the growth of bacteria.

Clarification Chamber
The Clarification chamber is essentially a quiescent zone where suspended particles/solids are settled out of the water. These particles are returned to the Primary chambers via a sludge return which aids in further biological reduction, denitrification and providing a constant food supply rich in microbes supporting the system through periods of limited flows.



Service Agent Role

Your EconoTreat System requires annual service and maintenance inspections unless otherwise specified by local regulations. This will need to be done by our trained technicians. We will phone to arrange a suitable time to attend to your servicing needs. Servicing done by technicians who are not approved by WaterFlow will void your Warranty.

A record sheet (in duplicate) will be completed by our technician at the time of service. One copy is for you the customer and available upon payment, the other copy will be retained for our records.

Please call our office for the cost of servicing after the initial 12-month period.

Servicing includes:

1. A general inspection of tank area, irrigation and drainage.
2. Inspection of electrical equipment including timer, Low powered Blower, irrigation pump, warning lights and connections.
3. Inspection of Pump-out Chamber and septic tank, checking air lines, adjusting air supply (if necessary), operating de-sludging unit, resetting air control, operating submersible switch, checking bio-mass growth, checking sludge level.
4. Inspection of irrigation including lines, jets and outlets. Between 4 - 9 years the tank will need to be de-sludged (pumped out) as with any septic tank. We will notify you of this requirement, as the service technicians will be monitoring sludge depth annually.

EconoTreat Wastewater Systems

Owner's Manual

Owner Care Role

Did you know...
...that as a homeowner you're responsible to make sure your wastewater system gets the required maintenance needed to protect the investment in your home? This guide will help you care for your wastewater system. It will help you understand how your system works and what steps you can take as a homeowner to ensure your system will work efficiently.

The owner is greatly encouraged to maintain a monthly visual check of the operation of their system and to make sure their land application systems are maintained in good condition.

1. Industry recommendation is to have a maintenance contract in place at all times
2. Visual check of treatment system
3. Visual check of land application system
4. Notify your approved service provider of any issues

Intermittent Use
There are no precautions to take. Your EconoTreat can be left to function automatically for 6 to 12 months. However, if you are likely to be away from home for more than six months you may like to contact our office, so we can make a routine check.

Efficient Water Use - it really does make a difference
Average indoor water use in the typical single-family home is approximately 180ltrs per person per day. The more water a household conserves, the less water enters the septic system. Efficient water use can improve the operation of the wastewater system and reduce any risk of disposal field overload.

Washing machines
By selecting the proper load size, you'll reduce wastewater. Washing small loads of laundry on the large-load cycle wastes precious water and energy. If you can't select load size, run only full loads of laundry. N.B. A new Energy Star washing machine uses 35 percent less energy and 50 percent less water than a standard model.

EconoTreat Wastewater Systems

Owner's Manual

Inspection Checklist

When checking the system operation, take particular note of;

1. Remove and clean outlet filter every 3-4 months.
2. Field performance, particularly looking for any undue odours or effluent breakout (flush field lines 2-3 monthly).
3. All electrical parts (if applicable). Ensure all pump alarms are working.
4. Clean disc filter 2–3 monthly (if applicable)

EconoTreat Wastewater Systems

Owner's Manual

Care for your Land Application System (LAS / Disposal Field)
Your disposal field is an important part of your wastewater system. Here are a few things you should do to maintain it:

- Flush driplines regularly – every 3 months recommended
- Mow your disposal field and maintain plantings regularly to ensure access to flushpoints etc.
- Plant only recommended wetland plants over and near your wastewater system. Roots from nearby trees or shrubs might clog and damage the disposal field
- Protect both the treatment system and the disposal field from vehicle traffic, including livestock to avoid damage to the pipes, tank, or other septic system components.
- Do not build any structures over it or seal it with concrete, asphalt etc
- Keep roof drains, basement sump pump drains, and other rainwater or surface water drainage systems away from the disposal field. Flooding the disposal field with excessive water slows down or stops treatment processes and can cause plumbing fixtures to back up
- Trees with very aggressive roots, such as willows, should be kept well away from the disposal field
- A soggy disposal field won't absorb and neutralise liquid waste. Plan landscaping, roof gutters and foundation drains so that excess water is diverted away from the disposal field

Effects of Household Cleaning Chemicals

Use of many cleaning chemicals in facilities served by on-site disposal systems, can result in high concentrations of the constituents in those cleaning agents being discharged into the receiving soils. These chemicals and constituents can have a massive impact on the quality and condition of the receiving soils over time.

Many of the chemicals can disrupt soil structure and decrease hydraulic conductivity while others can act as bactericides, destroying the essential micro-organisms required to achieve the high level of biodegradation in the treatment and disposal systems.

The following matters need to be considered when using cleaning agents in a domestic situation:

- Laundry powders are often extremely high in sodium which will destroy the salt balance in the soils. Check the labels for low sodium and phosphorous contents.
- Wastewater flow from dishwashing machines can have an impact on wastewater treatment systems, in terms of the strong cleaning chemicals used, so check labels for low sodium products
- Highly corrosive cleaners (such as toilet and drain cleaners) that have precautionary labels warning users to minimise direct contact, are an indication that they can adversely affect the wastewater treatment system. Up to 1 cup of bactericides such as bleach can be sufficient to impact on all the micro-organisms/bugs in a septic system.

Substitutes For Household Cleaning Chemicals

Use of the following readily biodegradable substitutes for common potentially harmful household cleaning chemicals will reduce the stress on any wastewater system, significantly enhance the performance of the whole system and increase the life of the land application system, while reducing the potential effects of the receiving soils.

General Cleaners
Use soft soap cleaners and bio-degradable cleaners and those low in chlorine levels. Contact us for a new biological cleaner that will help you system.

Ammonia-Based Cleaners
Instead sprinkle baking soda on a damp sponge.

Disinfectants
In preference use Borax (sold in most Bin Inn stores): ½ cup in 4-litres of water.

Drain De-Cloggers
Avoid using de-clogging chemicals. Instead use a plunger or metal snake, or remove and clean trap. Contact us for very effective, worm friendly, drain cleaning products.

Scouring Cleaners and Powders
Instead sprinkle baking soda on a damp sponge or add 4-Tbs baking soda to 1-Litre warm water. It's cheaper and won't scratch.

Toilet Cleaners
Sprinkle on baking soda, then scrub with toilet brush.

Laundry Detergent
Choose one with a zero phosphate content and low in alkaline salts (in particular, a low sodium level) and no chlorine.

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Do's and don'ts

DO

- If your system requires power supply make sure this remains on continuously
- Wipe and bin your fats and frying oils rather than rinsing them down the drain
- Check faucets and toilets for leaks; make repairs if necessary
- Use low flush toilets where possible
- Use a 'displacer' to reduce the amount of water needed to flush older toilets
- Use aerators on faucets and flow reducer nozzles on showers to help lower water consumption
- Reduce water levels for small loads of laundry
- Wait until the dishwasher is full to run it
- Perform regular monthly visual checks of your system and field
- Keep records of all maintenance undertaken on the wastewater systems

DO NOT

- Switch off power unless servicing
- Use cleaners high in chlorine, phosphorous or ammonia in toilets or kitchen sink
- Pour any toxic/strong chemicals (paint, oil, grease, paint thinners or pesticides) down any drains
- Pour strong or large volumes of acid down any drains. These include: vinegar, brine, lemon juice.
- Flush down your toilet – Dental floss, feminine hygiene products, diapers, wipes, cotton swabs, cigarette butts, cat litter, dog poo, and other kitchen and bathroom items. Flushing household chemicals, gasoline, oil, pesticides, antifreeze, and paint can also stress or destroy the biological treatment taking place in the system or might contaminate surface or ground waters.
- Discard any drugs down the sink or toilet
- Alter or add any part of your system without Waterflow NZ LTD's approval

Troubleshooting

To ensure the most effective operation of your EconoTreat System you should familiarize yourself with the contents of this manual. The EconoTreat has been designed to include additional safety margins and minor mishaps and normal household usage will not usually affect the operation of the system.

However, if the alarm sounds or strong odours persist, please call your service agent.

Problem	Potential Cause(s)	Remedial Action(s)
Alarm sounds (will indicate air or water alarm)	Irrigation pump not working Air supply not working No power at the tank Blocked Septic filter	Check power source and wriggle pipe from pump to ensure float is not stuck Check water levels Listen for the air compressor Clean septic outlet filter Check your fuse board Open the taps on your drip field to assist water exiting faster High level float switch in the pump well may be triggered – the alarm will reset after the water level in the sump subsides If your system has a disc filter, remove and clean it If everything all looks to be ok, it may be a faulty alarm sensor (mute alarm and contact your service provider.
Water around tank	System overflowing Blocked outlet filter Storm/Surface water	Check there is power on at the system Remove and clean outlet filter Divert Storm/Surface water away from the system
Excessive foaming	Too much laundry detergent Too many washes	Use recommended quantities Spread wash loads over different days

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Problem	Potential Cause(s)	Remedial Action(s)
Persistent odours	Too much water usage Excessive chemicals in use Gully traps dried out or non-existent (if the bathroom does not get used often, the water can evaporate out of a gully trap allowing odour to escape into the house).	Add biologic starter pack Install water saving devices Stop fats, oils, and grease going down the drain Reduce water usage or install water saving devices Avoid using nasty chemicals (Eco store, Earthwise, Ecobeings and Dishpod are great options) Run water down drain to ensure gully trap is blocking odour System will recover
Irrigation system not working	Irrigation pump not working Irrigation lines kinked or blocked Saturated areas at the end of the irrigation field	Check power source and wriggle pipe from pump to ensure float is not stuck Locate all flush valves, check if water is exiting Flush irrigation line and remove kinks or blockages Turn flush valves off to avoid further saturation Check if any large machinery has driven over / near it
Water ponding on irrigation field	Storm/Surface water Irrigation line blocked Excessive water use	Install water saving devices Repair irrigation pipe Redirect any surface water away from the irrigation field
Household drains gurgling	Blocked drain to the tank Check your main switchboard that the power to the system is on Check water levels, if flooded then a technician may be needed to investigate further	Check and make sure you can see the inlet into the tank. If you can you have a drainage issue. Send pictures of the inside of the tank to **service@waterflow.co.nz** to arrange an inspection Please limit water usage until we can come to site Stop and fats, oils, or grease going down the drain

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WaterFlow

WETLAND DETERMINATION

PAPAKĀINGA PROPOSAL

WINNIE MITCHELL WHĀNAU
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MATAWAIA

Bay Ecological
CONSULTANCY LTD

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This report may be cited as-
BAY ECOLOGICAL CONSULTANCY LTD (10/11/25) WETLAND DETERMINATION PROPOSED PAPAKĀINGA WINNIE MITCHELL WHĀNAU 583 MATAWAIA – MAROMĀKŪ RD

EXECUTIVE SUMMARY

Bay Ecological Consultancy Ltd has been engaged by Advance Build on behalf of the Winnie Mitchell whānau to determine the presence or otherwise of *natural inland wetland* in regard to a proposed papakāinga at 583 Matawaia – Maromākū Rd (Pt Motatau 2Sec29A2).
The property is accessed off a formed shared driveway from Matawaia – Maromākū Rd, crossing the Ramarama Stream via a wooden plank bridge, winding south uphill over the disused main North Line from approx. 54msl to the development site at 127msl.
The activity will result in the creation of 4 whare within a designated area with shared wastewater and tankwater to allow residential occupation.

The proposal site has been considered on the basis of a desktop review of available ecological information, complimented by fieldwork (21/10/25), to determine wetland extent and associated *values*[1], subject to regulations of the *NES-F (2020)*. *Extent* and *values* are primary considerations in avoidance of adverse effects of any development, largely dependant on maintenance of hydrology.

The broad extent of the residential development site is short exotic pasture bounding *natural inland wetland* and the *Horahora Stream Swamp Association PNA (#P06/075).* These significant ecological site values have been acknowledged by early survey and refinement of the proposal.

KEY FINDINGS

- *Natural inland wetlands* subject to the National Environmental Standards for Freshwater NES – F (2020) have been recognized according to definitions of the NPS FM (2020) and PNRP (2021), by dominant hydrophytic (OBL, FACW) floral assemblages .
- Wetland is visible from aerial photography dating to the 1950s showing prolonged periodicity and occupancy within an unnamed headwater adjacent the housing proposal, as well as on the lower contour toward the Matawaia – Maromākū Rd access, all v in the Ramarama Stream catchment.
- Primary hydric indicators included saturation and surface water, with supportive indicators of the geomorphic profile and drainage patterns in the landscape.
- Site wetlands are diagnostically
    - *swamp*
    - *seepage*
- Associations vary with depth and reliability of saturation/standing water in contour. The primary wetland association
    - **UPPER CONTOUR HOUSING PROPOSAL AREA (WETLAND A)**

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

        - *Agrostis stolonifera (FACW); Paspalum distichum (FACW) Glyceria (OBL); Carex (FACW) Ludwigia (OBL)-Isolepis (OBL) – Juncus (FACW)*
    - **MID SLOPE SEEPAGE (WETLAND B)**
        - *Agrostis stolonifera (FACW); Paspalum distichum (FACW) – Juncus (FACW) dominant with Isolepis(OBL) & Rununculus (FACW)*
    - **LOWER CONTOUR & ACCESS (WETLAND C)**
        - raupō - *Isachne globosa (OBL) - Machaerina teretifolia(OBL) Schoenoplectus (OBL) ; Eleocharis spp (OBL) Isolepis (OBL) Carex (OBL) Juncus(FACW)*

- Throughout associations frequent species include *Eleocharis acuta(OBL); Epilobium pallidiflorum (OBL)*; *Persicaria* (OBL & FACW spp); Cyperus brevifolius* (FACW); Galium palustre (OBL);Carex spp maorica & secta (OBL); Parablechnum minus (FACW)*; *Ranunculus repens * (FAC); Ranunculus glabrifolius (OBL); Lotus* (FAC); Myosotis laxa* (OBL); Bolboschoenus fluviatilis (OBL)*
- None of the *natural inland wetland* mapped in this reporting would be subject to the pastoral exclusion clause of the *natural inland wetland* definition[2].
- The prevailing character of the housing footprint is open rough pastoral- kikuyu dominance, strong clumps of *Paspalum dilatum*; rye; browntop; clovers, & further common FACU / UPL grass and weed species e.g. *Senecio; Plantago* and prolific *Daucus (*carrot weed*)*.
- Wetland C and the Ramarama stream on the lower contour between the railwayline and Matawaia – Maromākū Rdare included in Tec Class II Mapping, associated with previous ***WF7.1 Puriri totara*** rare forest type on Wharekohe Clay Loam (WF). This is represented to date only as a thin riparian remnant of individual large stature trees visible first in the early aerials (1950s amongst common exotics; kanuka and seral broadleaves.
- On the upper plateau the predicted ecosystem[3] type on *Motatau clay (MTH)*[4] soils is
    - ***WF9 Taraire, tawa podocarp forest***

  This is represented in adjacent terrestrial vegetation encompassed within the *Horahora Stream Swamp Association PNA (#P06/075) & NRC Biodiversity Top 30% Unit #*617 (Rank 12%), but does not overlap with the proposed development.

- The PNA also contains the Horahora Wetland (*Ranked 10th Wetland Tangihua ED*). This is considered outside a zone of influence (ZOI) of the proposal, separated by a distance of over 500m and topography, in a separate catchment from the proposed housing, as the closest activity.
- Vegetation requiring clearance from the indicated footprint is privet, tobacco weed; gorse and individual isolated mānuka of no significance. Individual mature trees ie. pūriri; tōtara; taraire overhanging the long established access (pre 1950s) may require trimming of singular limbs to allow the housing units to be trucked onsite – we recommend this is undertaken by a professional arborist to ensure minimal damage.
- There are no kauri in the development areas to invoke consideration of the *Biosecurity (National PA Pest Management Plan) Order 2022* in terms of earthworks management.
- No flora species present in a ZOI have threat status or are regionally rare/significant.
- No fish survey was undertaken. NIWA predicted species for the Ramarama are common bully; short fin eel; banded kokopu and redfin bully (*At Risk – Declining).* These are likely present in Wetland C only, in areas of surface flow. Controls on inputs and adherence to the NES-F (2020) as above are considered sufficient to avoid adverse effects on any species present. Wetland A

[2] (e) a wetland that:
(i) is within an area of pasture used for grazing; and(ii) has vegetation cover comprising more than 50% exotic pasture species (as identified in the National List of Exotic Pasture Species using the Pasture Exclusion Assessment Methodology (see clause 1.8)(iii) the wetland is a location of a habitat of a threatened species identified under clause 3.8 of this National Policy Statement, in which case the exclusion in (e) does not apply
[3] https://services2.arcgis.com/J8errK5dyxu7Xjf7/arcgis/rest/services/Northland_Biodiversity_Ranking/FeatureServer
[4] https://lris.scinfo.org.nz/layer/48066-nzlri-soil/

has been occluded from downstream creek flow by a perched culvert for many years. It is not considered fish habitat, neither is Wetland B due to steep shallow character.

- Five minute bird counts and incidental observation during fieldwork determined habitat throughout suitable for insectivourous generalists sighted e.g. kingfisher; pukeko; rosella; myna; grey warbler; fantail; skylark; sparrow utilizing wetlands as part of wider territorial economics. Waterfowl within the lower contour (Wetland C) included common pukeko, mallard and paradise ducks and a singular white faced heron. None have threat status. Playback was undertaken for fernbird at the edge of terrestrial cover on the northside of Wetland A adjacent the housing proposal. No response was received, although the habitat combination is typical of this more curious and vocal wetland bird.
- Pest control is actively undertaken by diligent members of the wider hapū already residing on the parcel. Bittern (*Threatened -Nationally Critical*) are suggested as resident within the Horahora Wetland in the PNA & NRC wetland ranking documentation and from anectodal information from residents. They have wide territories (15km) and are a *highly mobile species* under the NPS-IB (2023). Wetland A is very short stature and not considered critical habitat. Pest control, water quality maintenance and retention of tall stature rush and sedge wetland habitat as present to a degree in the Ramarama Streamwetland adjacent Matawaia Road (Wetland C) are crucial for their persistence, and not considered at risk of adverse impact by the proposal as currently presented.
- The development is not within a mapped DoC Kiwi Zone, nor within 1km of a *High Density* designation. Anecdotal conversation with a resident suggests kiwi have not been present for some years, potentially due to dogs. We recommend exclusion of cats due to further high value documented wildlife in the adjacent PNA, regardless of kiwi presence. We assume residents will have access to the wider parcel which extends toward the ranked areas with high observed and implied avian values (bittern *Threatened -Nationally Critical*) associated with the surrounds and therefore recommend restrictions on dogs regardless of kiwi (*Not Threatened).*
- Recognition of the extent and values of *natural inland wetland* onsite promotes avoidance of effects through adherence to protective measures as per the NES –F (2020) in design. The proposed housing will utilise an existing access, culverted crossings and bridge across the Ramarama Stream adjacent Matawaia Maromākū Rd. The access, bridge and associated culverts are considered *other infrastructure*[5]*,* in place before prior commencement of the freshwater reforms. Should any altering or upgrade be required they remain subject to *NES- F (2020)* ***REG 46 Maintenance and operation of specified infrastructure and other infrastructure.*** In this regard they may not comply with 4(b)[6] and therefore have *Restricted Discretionary* status requiring consideration of matters in ***REG 56 Restricted discretionary activities: matters to which discretion is restricted*** and resource consent application to NRC once detailed design is finalised, prior to works.
- The proposed housing area is in exotic pasture with negligible ecological value. The building platforms and the majority of associated infrastructure are within 100m of *natural inland wetland* but do not occupy critical source areas, seepage or overland flow path that through their formation may change the water level range or hydrological function of the wetland. Diversion of diffuse natural discharge naturally permeating or sheetflow downslope through the building sites or ROW across pasture *will not cause drainage of all or part of the wetlands or likely change the water level range or hydrological function of the wetland* in any measureable way in reference to *Reg 52(i);(ii)* & *Reg 54 (c) & (d).*
- Likewise earthworks within 100m or 10m will not result in *complete or partial drainage of all or part of the wetland or likely change the water level range or hydrological function of the*

[5] ***other infrastructure*** means infrastructure, other than *specified infrastructure*, that was lawfully established before, and in place at, the close of 2 September 2020 NES-F (2020)

[6] **NES- (2020) REG 46(4)b** *the activity must not be for the purpose of increasing the size, or replacing part, of the specified infrastructure or other infrastructure unless the increase or replacement is to provide for the passage of fish in accordance with these regulations*

wetlands as per *Reg 52(i);(ii)* & *Reg 54 (c) & (d)* if they do not occupy or intersect with the wetlands. This includes for the placement of watertanks (5m distant) at the housing site.

- In the absence of unmitigated point source discharge there is highly unlikely to be any wetland *change in seasonal or annual range water levels*, as per *PNRP Policy H.4.2 Minimum levels for Lakes and natural wetlands*.
- No detailed stormwater design is yet available. The overflow from the watertanks is indicated as discharging adjacent Wetlands A via spreader bars. Point source discharge should be avoided to avoid scour, erosion and sediment discharge to the receiving wetland with direct hydrological connection that may then cause loss of wetland vegetation *(extent)* and hydrological function (*values).* This input is considered not to be significant in terms of water quality or amount that would in any measurable way effect the hydrological function or water level range of Wetland A, as before.
- Wetland A's extant hydrological source is to upper western contour fed by spring / seepage with variable output highly responsive to meteorological conditions in a pastoral setting. Species composition of the swamp type throughout has a level of tolerance adapted to periodic moderate to high fluctuation in water levels without discernible shift in composition or aquatic life. Coeval exclusion of stock through instigation of the development will allow recovery of the wetland vegetation from the current condition and reduce direct nutrient input.

Wetland A is in close proximity to the housing development on reasonably flat contour. This increases the chances of unquantified effects through use of the flat margin for additional activities post residential occupation, such as intrusion into the wetland or destabilization or subsidence of the bank (loss of extent). Although it does not currently represent fish or wetland bird habitat it retains intrinsic hydrological function and represents a CSA to downstream creek.

To avoid loss of *extent* or *values* as per the NPS- FM (2020) definitions we recommend a protective 4m buffer of simple, dense low flammability vegetation along the margin adjacent the housing e.g. flax as a riparian buffer . This will provide a visually obvious cue to avoid ingress and disturbance from residential occupation, providing joint functional purpose of aquatic function (attenuation of sheet flow from increased impermeable surface; shade; sediment control; bank stabilization) and amenity within the rural landscape. On minimal contour the majority of sediment is trapped within the first few meters of a source by dense ground cover and this is considered an appropriate width.

Site procedures for residential and infrastructure development should include designated earthworks envelopes or marking of wetlands to ensure contractors avoid accidental incursion and unquantifiable effects. For all earthworks for the development we recommend erosion and sediment control measures are applied and maintained at the site of the activity including stabilising or containing soil that is exposed or disturbed by the activity and the area between the development and the wetland not remaining bare for longer than 3 months. This will minimise potential adverse effects of sediment intrusion including the smothering of indigenous vegetation by debris and sediment.

These mechanisms are wholly in sympathy with the intent of *NPS-FM Policy 3:*
Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.

PROPOSAL

The subject property (PT MOTATAU 2SEC29A2 - RT 323865) is accessed across the Ramarama Stream on the southern side of Matawaia – Maromākū Rd, approx. 4.5km west of SH1. The majority of the parent parcel has been in exotic pasture throughout the available historic aerial record, on hill country sloping upwards to the south from the road to the upper contour proposal site, approx. 54-127masl.

Individual housing units have existed onsite elsewhere since prior the earliest available historic aerials (1950s). The current proposed activity will result in the creation of 4 additional whare to allow residential occupation, with shared access; parking; wastewater and stormwater outputs within a designated papakāinga development site in the wider Title.

It will utilise an existing gravelled access way which extends all the way to the site.

Conclusions of our current reporting are based on current available information and the proviso that engineering design will be best practice to minimize any potential adverse effects from increased impermeable surface, concentrated stormwater and any crossing or culvert establishment or upgrade in accordance with the NES-F (2020) protective regulations as in regard to site waterways. This report does not constitute an EcIA of the proposal. Due to the existing separate occupation/ ownership within the wider Title separate management recommendations therein to protect *extent and values* are limited to activities of the current housing proposal toward water quality and wildlife. The site is described in *FIGS 1-6* and *Table 1* below.

Key sources of the desktop review included:

- *Retrolens aerial photography www.retrolens.co.nz*
- *https://data.linz.govt.nz/*
- Goldwater, Beadle & Martin (2009) *Natural Areas of the Tangihua Ecological District. Reconnaissance Report for the Protected Natural Areas Programme*. Wildlands
- *Forester & Townsend (2004) Threatened plants of the Northland Conservancy*
- *Johnson & Gerbeaux (2004) Wetland types in NZ. DoC, Wellington*
- *LRIS portal https://lris.scinfo.org.nz/*
- *NRC Local Mapping & supporting documents – Leathwick (2018); Singers (2018)*
- *TEC Classification https://ourenvironment.scinfo.org.n*

MATURE TŌTARA & TARAIRE AT ENTRANCE FROM MATAWAIA MAROMĀKŪ RD

FIG 1: SITE LOCATION

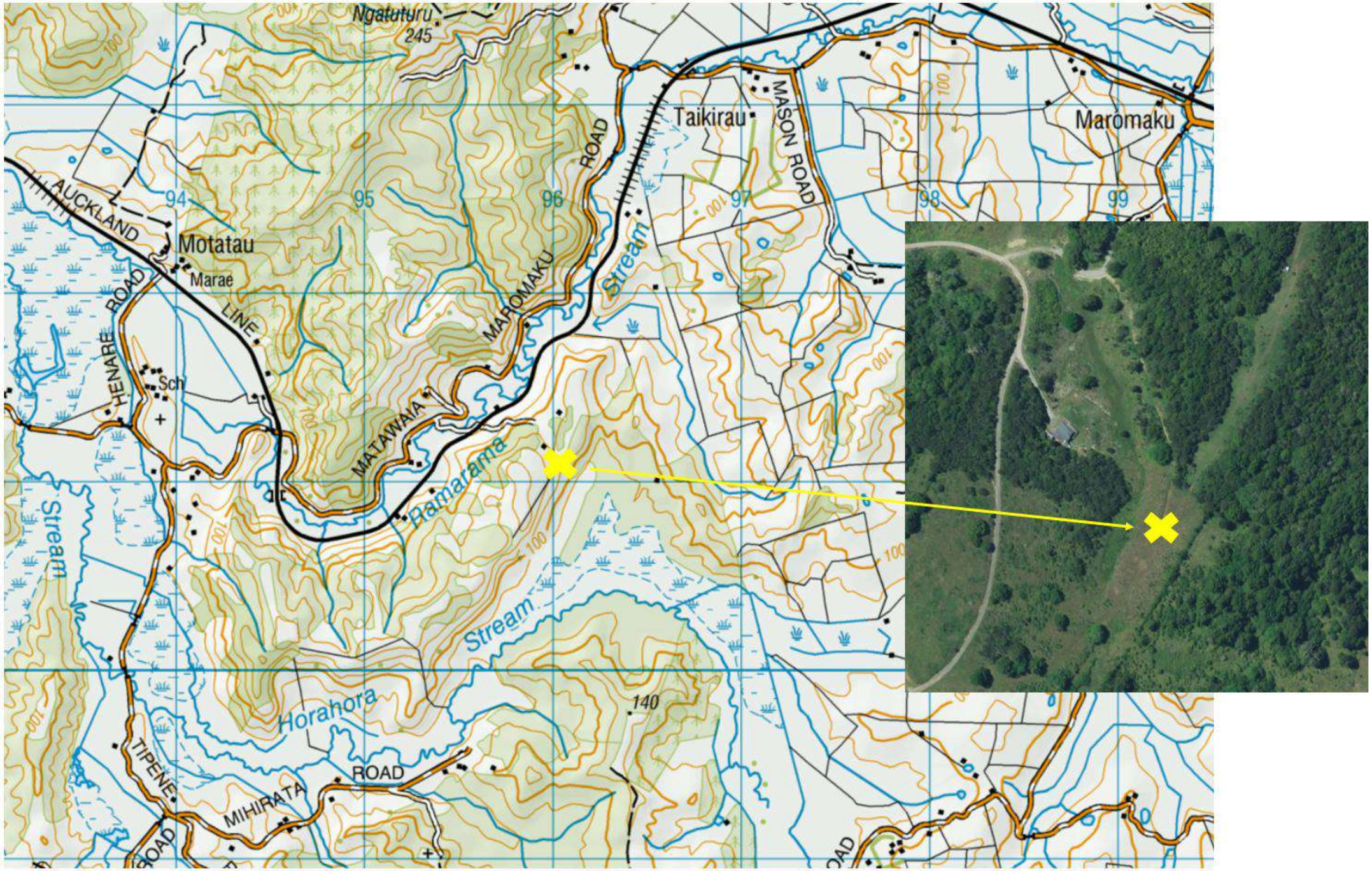


FIG 2: CURRENT PROPOSED SCHEME

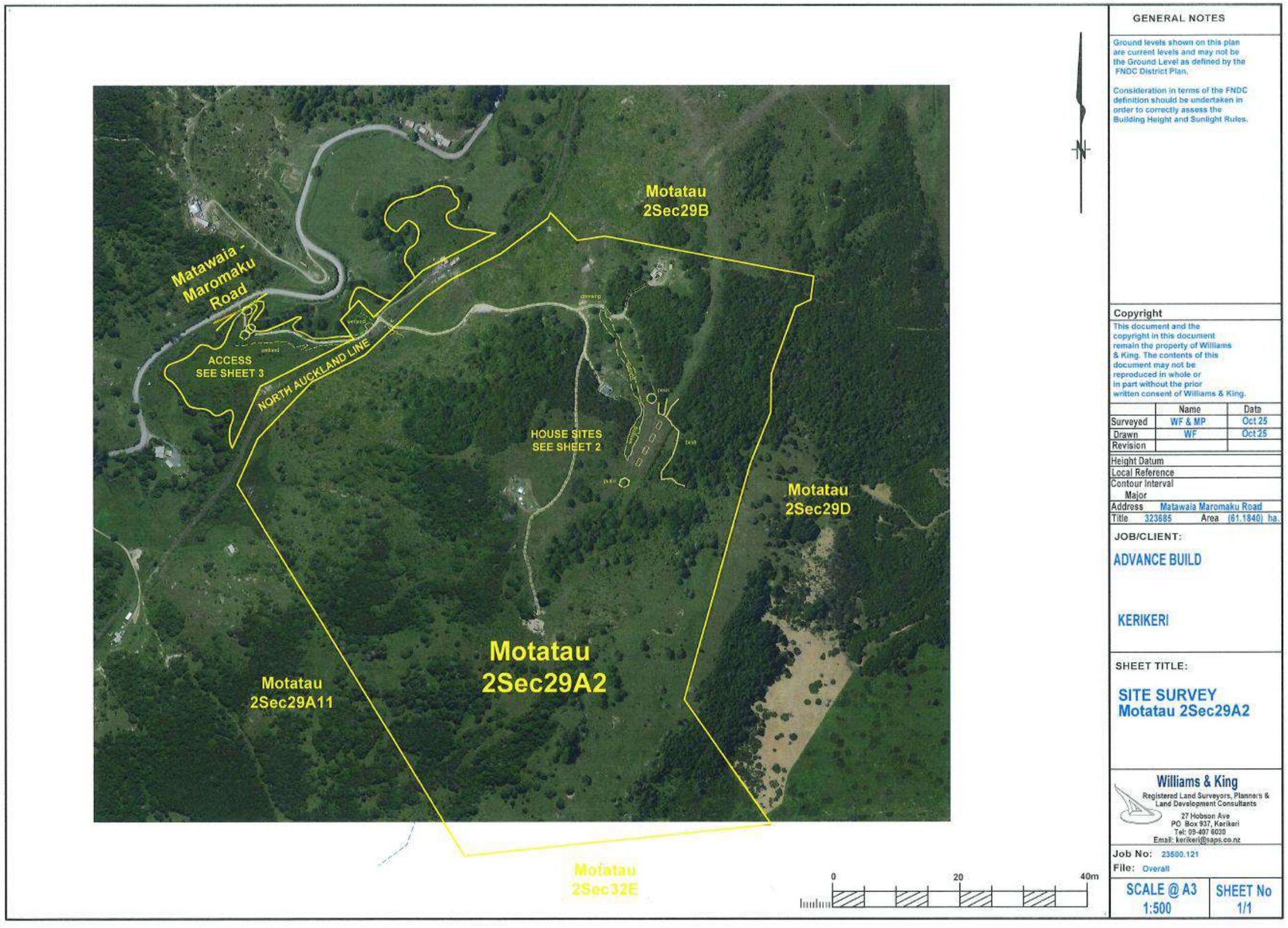


FIG 3: HOUSING AREA DETAIL & WETLAND A

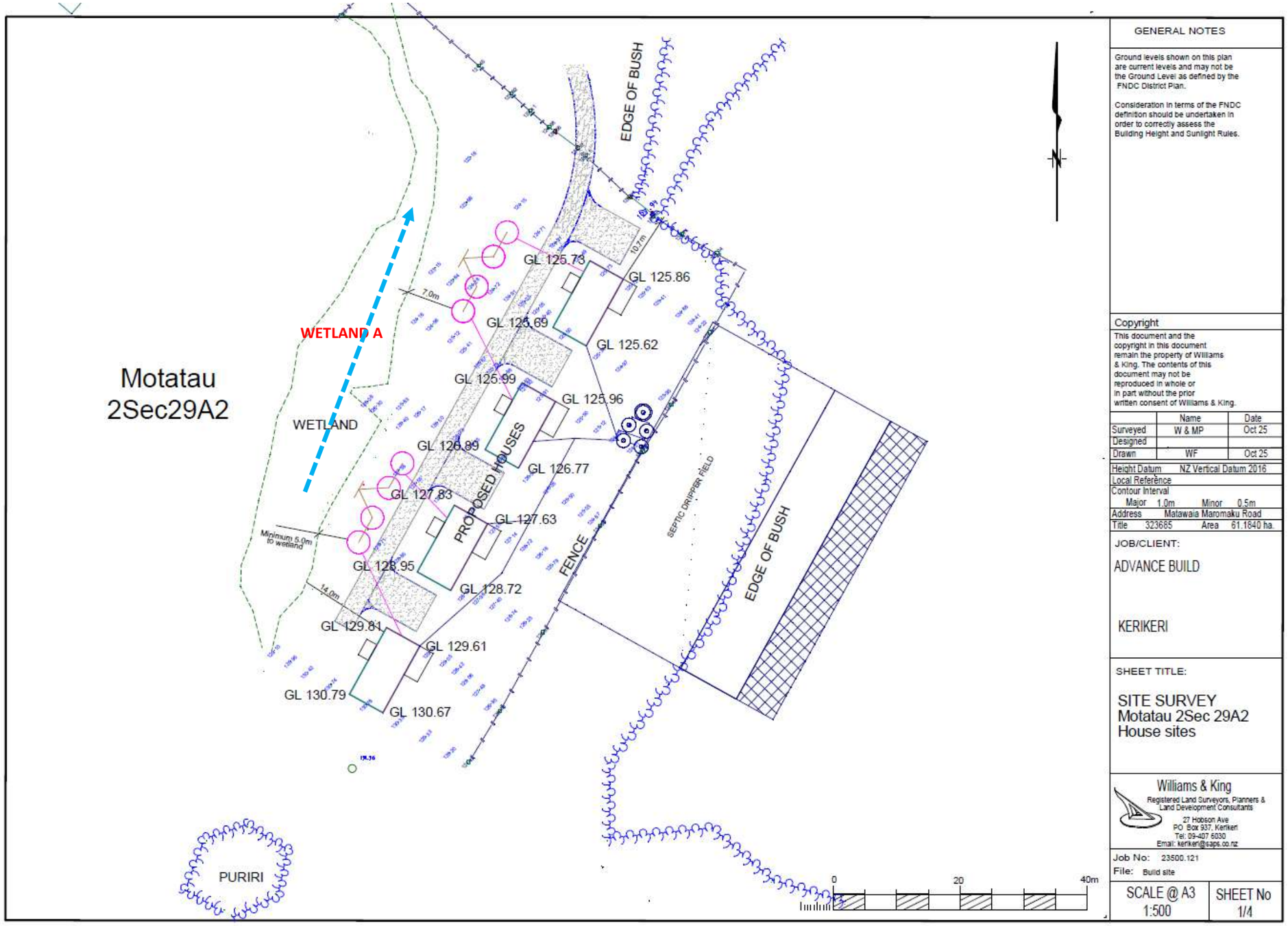


FIG 4: HOUSING AREA DETAIL & WETLAND A

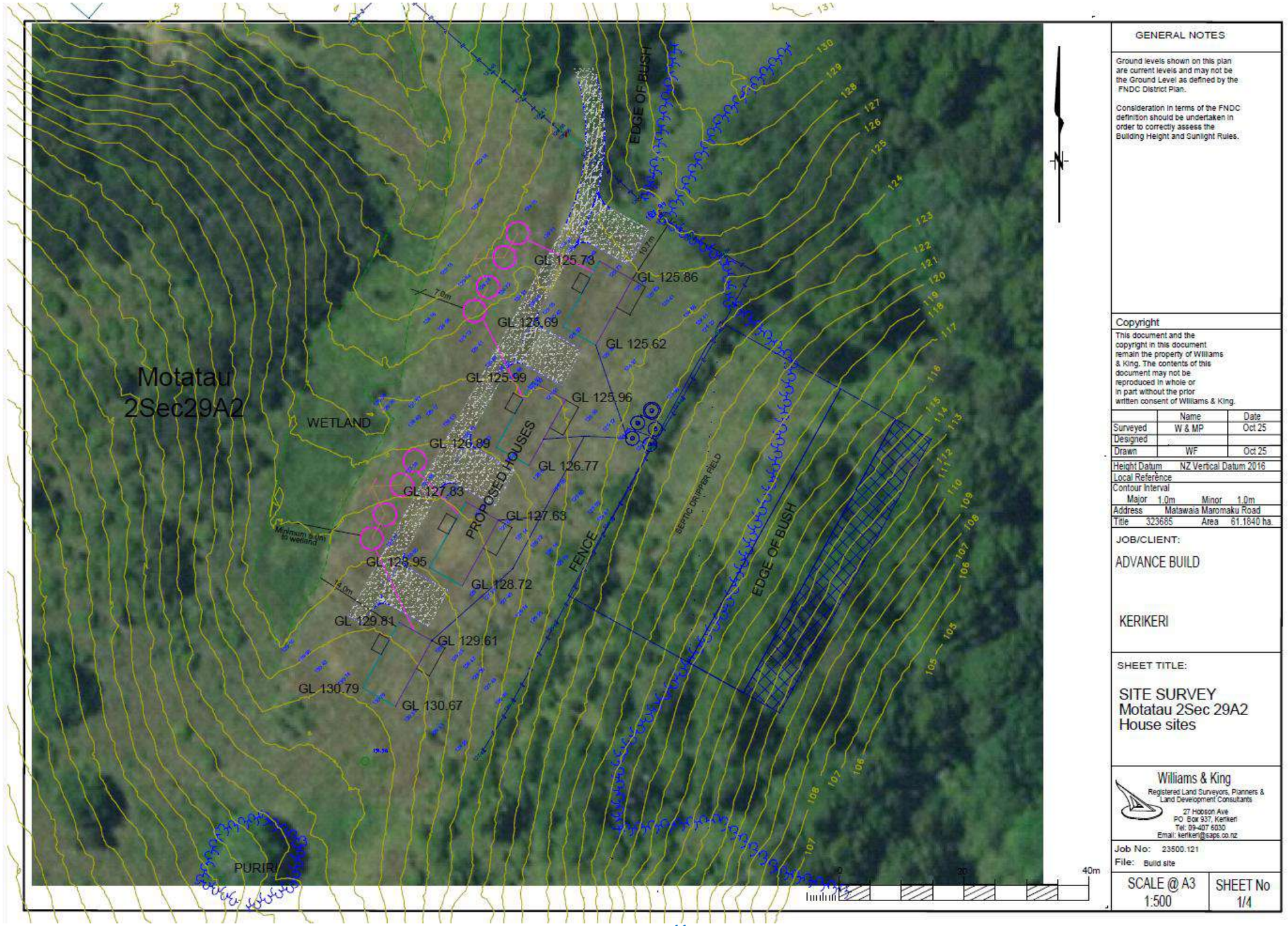


FIG 5: RAILWAY CROSSING & WETLAND B; C

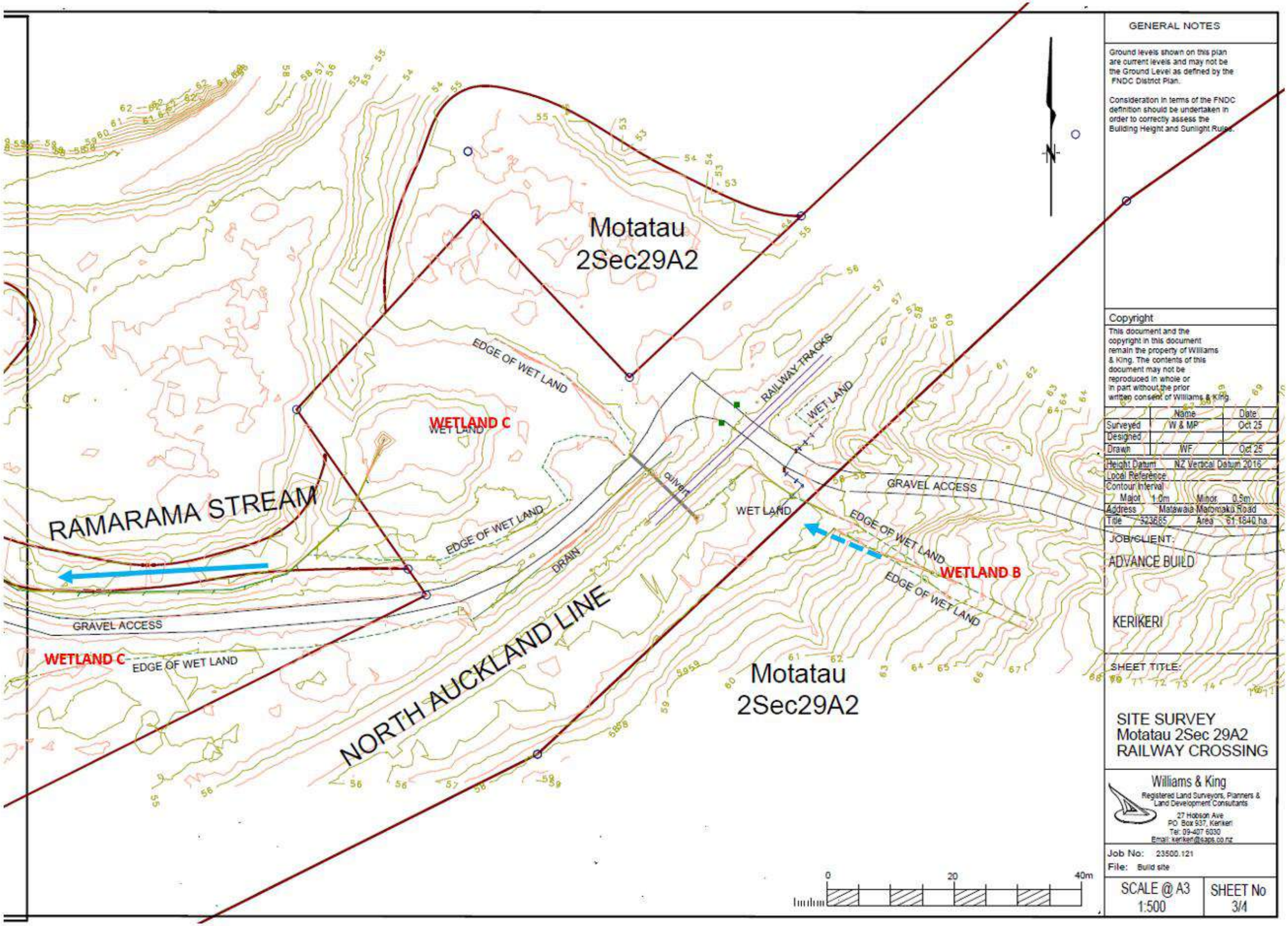
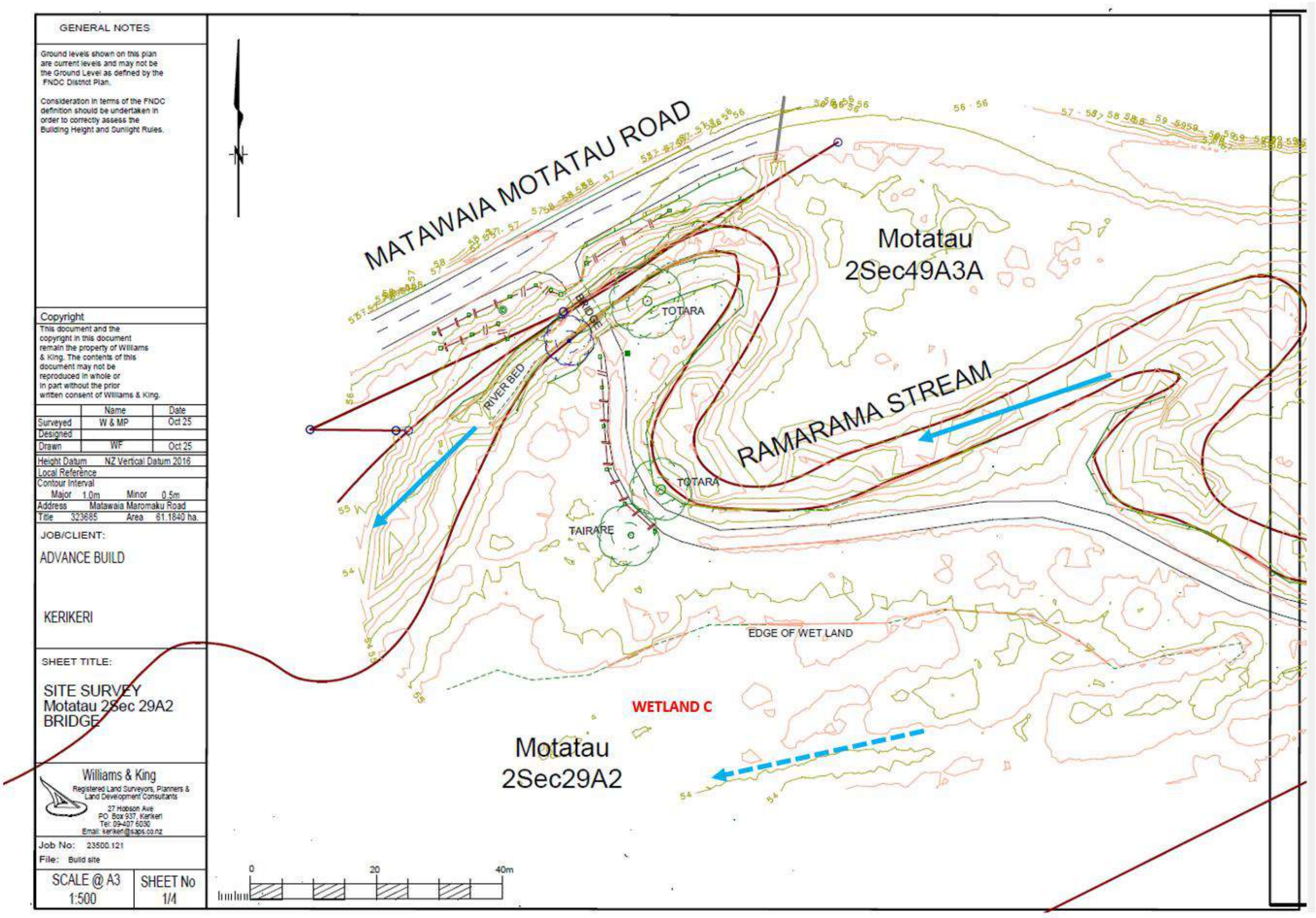


FIG 6: LOWER CONTOUR BRIDGE & WETLAND C



SITE CONTEXT

A desktop review of the available ecological site context and surrounding area in the potential zone of influence (ZOI) was undertaken. Although generally from broad scale mapping, requiring finer ground truthing, this standard scoping phase may suggest potential wetland presence and *values,*[7] including species occurrence and associations influenced by underlying abiotic influences of soils and hydrology.

TABLE 1: MAPPED SITE SUMMARY

DESCRIPTION	PT MOTATAU 2SEC29A2 (RT 323865)
ADMINISTRATION	WINNIE MITCHELL WHANAU
FNDP OPERATIVE ZONE	RURAL PRODUCTION
FNDP PROPOSED ZONE	MAORI PURPOSE RURAL
RPS COASTAL ENVIRONMENT	NO
TOTAL PARCEL AREA	611840 m^2 approx.
FOCUS AREAS	**HOUSING AREA** PASTURE; KĀNUKA - TŌTARA WETLAND PERIPHERY NORTH WESTERN BANK WETLAND A WITH EXISTING ACCESS & CULVERT CROSSING *Northern Extent of Horahora Stream Swamp Association PNA (#P06/075) to the south >20m* **RAILWAY CROSSING** WETLAND AREAS B & C; EXISTING ACCESS & CULVERT CROSSINGS MAIN NORTH LINE (CURRENTLY NOT IN USE) **BRIDGE** CROSSES RAMARAMA STREAM; LARGE STATURE PRE 1950s TREES; FURTHER AREA OF LARGEST WETLAND C TO THE WEST
ECOLOGICAL DISTRICT	TANGIHUA
HYDROLOGY & RIVERS[8]	• RAMARAMA STREAM ADJACENT MATAWAIA MAROMĀKŪ RD • NZ SEGMENT #1013878 • A1 TYPE CONDITION 0.17 • WETLANDS A; B & C TRIBUTARY TO THE RAMARAMA
SOIL TYPE[9]	*Whakapara Silt Loam (WF) & Mototau Clay HILL Country Variant (MTH).*
POTENTIAL ECOSYSTEM[10]	• ***WF9: TARAIRE TAWA PODOCARP FOREST (MTH SOIL)*** • ***WF7.1 PURIRI TORARA FOREST (WF SOIL)***
TEC CLASSIFICATION[11]	• *CLASS IV: AT RISK (20-30% indigenous cover remains) HOUSING AREA* • *CLASS II CHRONICALLY THREATENED WETLAND C & RAMARAMA STREAM AREA LOWER PLATEAU*
MAPPED SNA;NORTHLAND BIODIVERSITY RANKING - TERRESTRIAL TOP 30 SITES; RANKED RIVERS; KNOWN WETLANDS; RANKED WETLANDS	• *Horahora Wetland Top 150 Wetland* • *10th ranked wetland Tangihua ED* • *Horahora Stream Swamp Association PNA (#P06/075) overlaps with NRC Biodiversity Top 30% Unit #617* (Rank 12%)
RARE ECOSYSTEMS[12]	• *NATURAL INLAND WETLANDS* • ***WF9: Taraire, tawa podocarp forest (PNA)***
KIWI DISTIBUTION (DoC 2018)	• *NONE MAPPED*

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

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

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

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

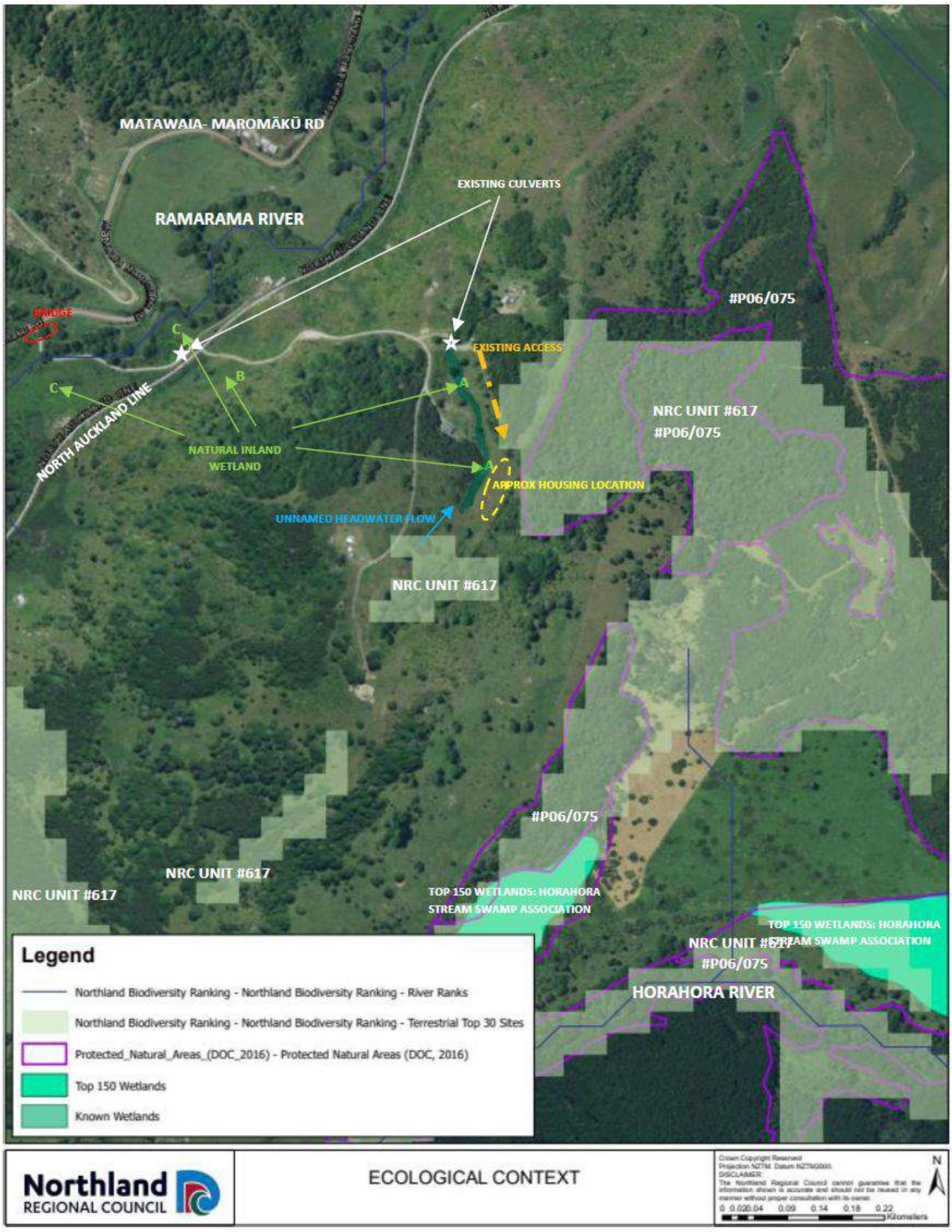
[11] https://ourenvironment.scinfo.org.nz/maps-and-tools/app/Habitats/lenz_tec

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

VALUES MAPPING

The wider Lot interacts with several regional ecological context GIS layers, the underlying assessment of which may be considered as a surrogate guide for aspects of potential significance.

FIG 7: ECOLOGICAL SITE CONTEXT



HYDROLOGY

The Ramarama Stream is the only mapped waterway that interacts with the Lot. It flows west through the site at the Matawaia – Maromākū Rd boundary and is crossed by a wooden bridge to gain site access. The site segment is described below:

TABLE 2: RAMARAMA STREAM CLASSIFICATION

CHARACTERISTIC	RAMARAMA STREAM
NZ SEGMENT	*#1013878*
ORDER	*4*
TYPE	***A1*** *- small, gentle gradient streams on sandy substrates, occurring mostly in moderately inland locations; this is the most widespread river ecosystem in Northland, occurring on gentle terrain*
NRC BIODIVERSITY RANKING	0.51 (IN TOP 50% of SIMILAR NORTHLAND WATERWAYS)
MEAN FLOW (m^{-3} s^{-1})	0.49
CONDITION SCORE (SITE/ A1 TYPE)	0.17 / 0.262
CLIMATE	***WW*** *Warm Wet*
SOURCE OF FLOW	***L*** *Low Elevation*
GEOLOGY	***SS*** *Soft Sedimentary*
LAND COVER	***P*** *Pastoral*
NETWORK POSITION	***MO*** *Medium Order*
VALLEY -LANDFORM	***LG*** *LOW Gradient*

The low *elevation origin (L)*, typically has marked seasonal flow patterns: high in winter, low in summer. Erosion rates in the *soft sediment (SS) pastoral (P*) setting tend to be high, with rapid and more extreme flood peaks, resulting in low water clarity and higher suspended sediment compared to natural land cover. The A1 character potentially promotes wetland due to the typically slower flow combined with the setting and sediment and low *Landform* class.

The flow is assigned a lower condition score than the type, likely influenced by the wider catchments dominant pastoral cover. Condition scores are based on FENZ database parameters,[13] values closest to 1 representing optimal condition.

NRC *known wetland* mapping is limited to the northwestern end of the *Horahora Wetland* (Top 150 NRC Wetlands; Ranked 10th overall wetland Tangihua ED) in the associated *Horahora Stream Swamp Association PNA (#P06/075) and NRC Biodiversity Top 30% Unit #*617 (Rank 12%). It is approx. 500m away, separated from the housing proposal by topography in a seperate catchment.

The Horahora Wetland is described in the accompanying documentation as below, providing relevant potential associations and fauna to consider in regard to any further site wetlands encountered during site visits.

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

TABLE 3: TOP 150 WETLANDS: HORAHORA STREAM SWAMP ASSOCIATION[14]

HORAHORA STREAM SWAMP ASSOCIATION
LANDFORM/GEOLOGY *Holocene alluvium; bounded by hillslopes and gullies underlain by Eocene glauconitic sandstone (Ruatangata Sandstone). The site contains an excellent example of an alluvial floodplain swamp forest-wetland-terrestrial forest and shrubland ecological sequence, which is very rare in Tangihua ED and throughout Northland.*
VEGETATION *The site is representative for sole records in Tangihua ED of* • *Coprosma propinqua-kahikatea tikouka shrubland in marsh* • *harakeke-ti kouka flaxland in swamp* *Harakeke-dominant habitat types are regionally uncommon.* *The site contains a relatively diverse wetland flora, which form part of an excellent alluvial floodplain swamp forest- wetland-terrestrial forest sequence. The site is part of is part of a diverse assemblage of hill country forest and shrubland, wetland, swamp forest and riverine forest types.*
FAUNA *NI fernbird; bittern and spotless crake.*
SIGNIFICANCE **Ranked 10th Tangihua ED** *Habitat for threatened species. Site supports 3 regionally significant plant species, and provides potential habitat for indigenous wetland bird species It is representative for two wetland vegetation types, both of which have only been recorded once in Tangihua ED. It is part of an ecological sequence which is uncommon in Northland.* *Site is being grazed. The wetland is largely surrounded by pasture and is subjected to drainage.*

Although a useful starting point, the NRC *Known Wetland* layer is largely derived from a variety of GIS and mapping sources, supplemented on an ongoing basis by delineations undertaken for resource consent applications. It carries the disclaimer that its content is incomplete and should not be relied upon as a definitive illustration of presence/ absence or extent.

SOILS & PREDICTED ECOSYSTEM TYPE

Underlying soil patterns provide an indication of wetland likelihood e.g. poor permeability or podzolisation. Broad scale geology changes across a site promote the eruption of hydrological sources and are also often an approx. marker of potential seepages/wet areas. Additionally, soil types infer an associated historic cover, which is a relevant reference for any revegetation or amenity planting.

Site soils are mapped[15] as *Whakapara Silt Loam (WF) & Mototau Clay HILL Country Variant (MTH)*. Broad ecosystem classification[16] shows the potential vegetation type mapped as correlated historically with soil type as before and climate –

- ***WF9 – TARAIRE TAWA***
- ***WF7.1 PŪRIRI TŌTARA***

[14]Wildlands (2011) RANKING OF TOP WETLANDS IN THE NORTHLAND REGION STAGE 4 - RANKINGS FOR 304 WETLANDS Contract Report No. 2489 for NRC

[15] https://lris.scinfo.org.nz/layer/48066-nzlri-soil/

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

TABLE 4: MAPPED SOIL TYPE

SOIL TYPE NZRLI	SOIL TYPE FSL	DESCRIPTORS	PREDICTED FOREST TYPE
WHAKAPARA SILT LOAM (WF)	**MOTTLED FLUVIAL RECENT SOILS (RFM)**	WHAREORA SUITE Recent alluvial from sedimentary rocks e.g. mudstone of the MTH soils • Moderately – well drained • Distinct topsoil but less than 30cm of non fluvial A horizon with mottled profile form as a result of frequent inundation on land susceptible to flooding • Moderately – well drained • Nutrient status varies widely over time and position on the floodplain. Upper valley floodplains have coarse sediment soils (silt loams), while lower valley floodplains support fine sediment soils (clays and clay loams) • Mapped as Flood Prone (NRC HAZARD MAPPING)	***WF7.1 PŪRIRI TŌTARA*** *Broadleaved forest of abundant pūriri of three variants determined by landform and soil type: Variant 1 occurs on moderately well-drained soils in Northland, south Auckland, western Waikato and the East Coast (e.g. Greys Bush near Gisborne). All types now extremely rare, fragmented and generally modified.* *Dominant pūriri with occasional tōtara, mataī, kahikatea and tītoki locally, with kōwhai and taraire on alluvial, free-draining soils*
MOTOTAU CLAY (MTH) HILL COUNTRY VARIANT	**WEATHERED RENDZIC MELANIC SOILS (ERW)**	ARAPOHUE SUITE Formed under broadleaf forest on argillaceous limestone • limestone bedrock or rock debris occur at shallow depths. Relatively young on gently to strongly rolling - very thin on slopes • Topsoils are weakly to strongly leached; well structured, very dark A horizons, and with weakly alkaline or weakly acid weathered-B or cutanic horizon. • Imperfectly to very poorly drained -winter wet and prone to pugging and compaction • soil materials are sticky and plastic; expected to have significant shrink/swell potential	***WF9 – TARAIRE TAWA*** *Broadleaved, podocarp forest of abundant taraire, with occasional rimu, miro, northern rātā, tawa, kohekohe, hīnau and rewarewa, and with pukatea and kahikatea commonly in gullies. Locally includes tōtara, pūriri and tōwai. Predominantly in the warm climatic zone throughout Northland below 450 m altitude (predominantly eastern). Kauri is absent. Kohekohe can be locally abundant (e.g. Waipoua), while tawa is more common at higher altitudes.*

The slopes of the MTH soils to the lower contour are given as *Recent* type (WX) -majority Bedrock & thin overlaying MTH topsoil - essentially exposed limestone bedrock.

All types of *WF7 Pūriri forest* are now extremely rare, fragmented and generally modified. This is represented onsite by the mature ribbon of vegetation that follows the Ramarama, which is tōtara dominant with only occasional pūriri; taraire.

The *WF9 Taraire tawa* type is represented in the PNA on the upper contour. Like the WF7 type its association with fertile soils has resulted in historic clearance and rare status, having been reduced to less than 20% of its historical extent in Northland as per regional significance[17] criteria.

[17] Appendix 5 RPS(2018) 2(a)(ii) Excluding wetlands, are now less than 20% original extent

FIG 8:MAPPED SOIL TYPES (NRC)

Horahora Stream Swamp Surrounds PNA (#P06/075)[18] straddles the broader parcel (contains the *Horahora Wetland* described as before) and continues in separate Title to the south. It coincides with the *NRC Biodiversity Top 30% Unit #*617 (Rank 12%). Although dated (1994), the underlying assessment may be considered as a surrogate for potential significance and serve to direct any field work as pertinent. It is illustrated in *FIG 6*, with documented values given below *Table 5* as:

[18] Goldwater, Beadle & Martin (2009) Natural Areas of the Tangihua Ecological District. Reconnaissance Report for the Protected Natural Areas Programme. Wildlands

TABLE 5: HORAHORA STREAM SWAMP ASSOCIATION PNA (#P06/075)

HORAHORA STREAM SWAMP ASSOCIATION PNA (#P06/075)
LANDFORM/GEOLOGY *Valley floor wetland on Holocene alluvium; bounded by hillslopes and gullies underlain by Eocene glauconitic sandstone (Ruatangata Sandstone).*
VEGETATION **Seven remnants survey 1994** The site comprises a diverse assemblage of hill country forest and shrubland, wetland, swamp forest and riverine forest types. *(a) Taraire forest on hillslope (10%)* *(b) kānuka/ mānuka-puriri-tōtara forest on toeslope (5%)* *(c) Kahikatea-tōtara forest on alluvium (10%)* *(d) Kahikatea-pukatea forest in marsh (10%)* *(e) Coprosma propinqua-kahikatea-ti kouka shrubland in marsh (5%)* *(f) Harakeke-ti kouka flaxland in swamp (20%)* *(g) kānuka/ mānuka shrubland on hillslope (40%)* The forest in the northern end is represented by common taraire (a) with frequent puriri and occasional kahikatea, rewarewa, pukatea and rimu. kānuka/ mānuka-puriri-tōtara forest (b) dominates the lower slopes, occurring with frequent kahikatea and occasional kowhai, northern rata, karaka, titoki and ti kouka. On the alluvial terraces adjacent to the Horahora Stream, kahikatea and tōtara (c) are co-dominant, with frequent titoki, kowhai, and occasional karaka and matai. Alluvial forest in the west is defined by common kahikatea and pukatea (d), with frequent ti kouka and occasional titoki, matai, tarata, kowhai, tōtara and maire tawake. In the south-west corner of the wetland, Coprosma propinqua, kahikatea, and ti kouka (e) occur with the occasional maire tawake. Harakeke and ti kouka (f) are co-dominant in the body of the wetland, with frequent *Coprosma tenuicaulis* and Muehlenbeckia sp., and occasional kohuhu, pampas, raupō and crack willow. Remaining hillslope areas are largely characterised by kānuka/ mānuka shrubland (g).
FAUNA *Crake; fernbird; bittern*
SIGNIFICANCE *The site contains an excellent example of an alluvial floodplain swamp forest-wetland-terrestrial forest and shrubland ecological sequence, which is very rare in Tangihua ED and throughout Northland. The site is therefore representative for seven ecological units: (a), (b), (c), (d), (e), (f) and (g). Freshwater wetlands are also a threatened habitat type regionally and nationally. The site supports three regionally significant plant species* • *Hukihuki (FACW) (Coprosma tenuicaulis Regionally significant*) • maire tawake swamp maire (*Syzygium maire Threatened ; Regionally significant*) • northern rata (*At Risk – Declining Regionally significant*) • This is the only site in Tangihua ED in which tarata (lemonwood) was recorded *Provides potential habitat for indigenous wetland bird species such as NI fernbird and spotless crake. At the time of survey this site was being grazed.*

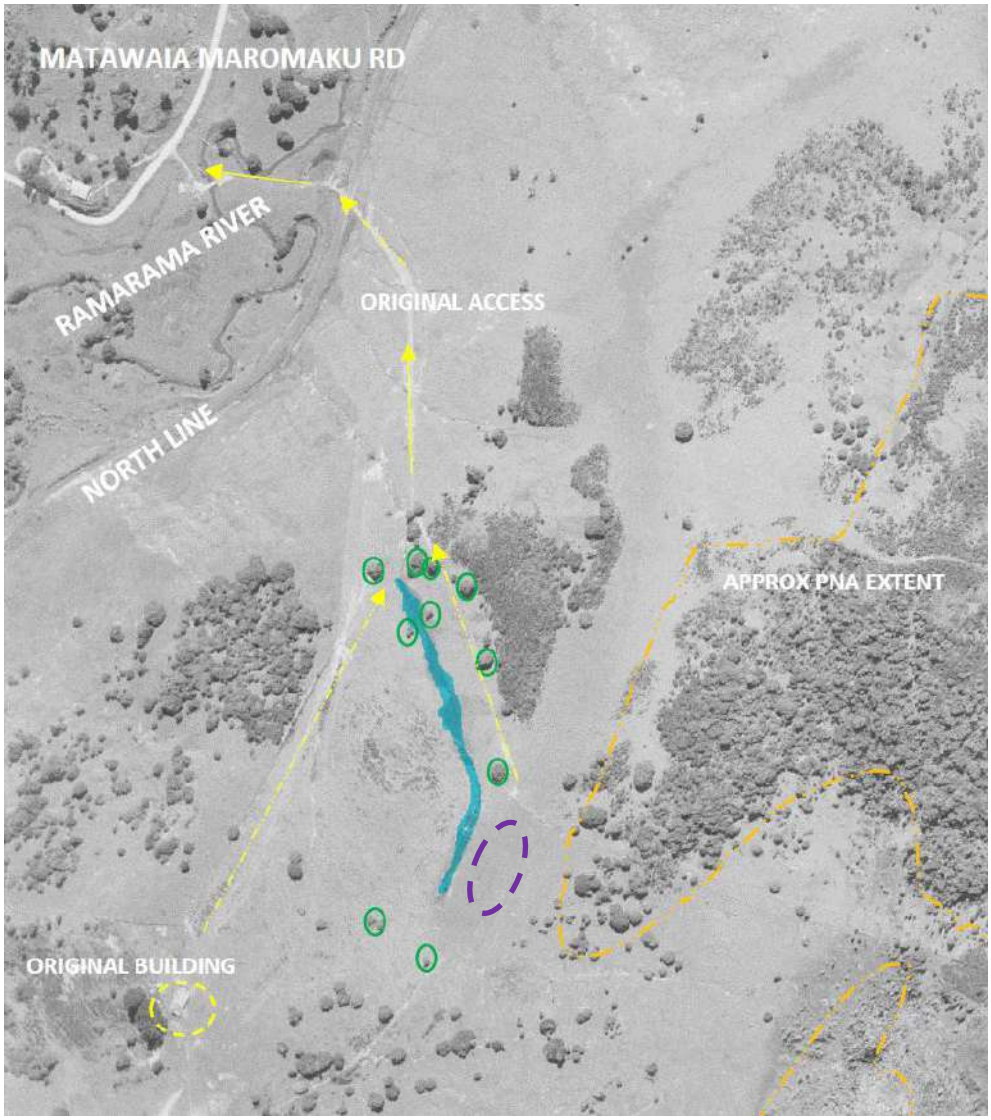
HISTORIC AERIAL REVIEW

Review of available aerial photography preceded fieldwork to determine historic location and subsequent persistence of any site hydrology/ wetland. In addition to confirming wetland periodicity, review is useful to determine the status of any infrastructure in regard to the NES-F (2020).

The 1961 Retrolens aerial illustrates a previous crossing of the railway and Ramarama that changes to the current alignment by 2004 with the additional house on the upper plateau. The current access to the proposed housing footprint east of Wetland A is also visible, as is its crossing at the northern end, rendering both *other infrastructure*[19], as long established before the ratification of the NES-F (2020) prior to the 1961 photo. Fish passage likely ceased at this point with the perched culverted crossing at its northern extent.

Early topographical mapping revealed no further detail of relevance.

FIG 9: RETROLENS 1961



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

The approximate PNA border as it interacts closest to the proposal is shown (dashed orange line), and pūriri and tōtara along the housing access (green circles) adjacent the wetland. Vegetation outside the PNA has remained pastoral largely across the wider Lot, with terrestrial cover beginning to establish to the north west bank of Wetland A adjacent the housing proposal area, now kānuka- tōtara- towai broadleaved. Further vegetation to the northeast bank adjacent the access to the proposal area has increased in density and stature. Individual trees outside these areas visible in the historic aerials remain c including adjacent the housing proposal.

Configuration from 2004 to date remains approximately the same.

FIG 10: RETROLENS 1977

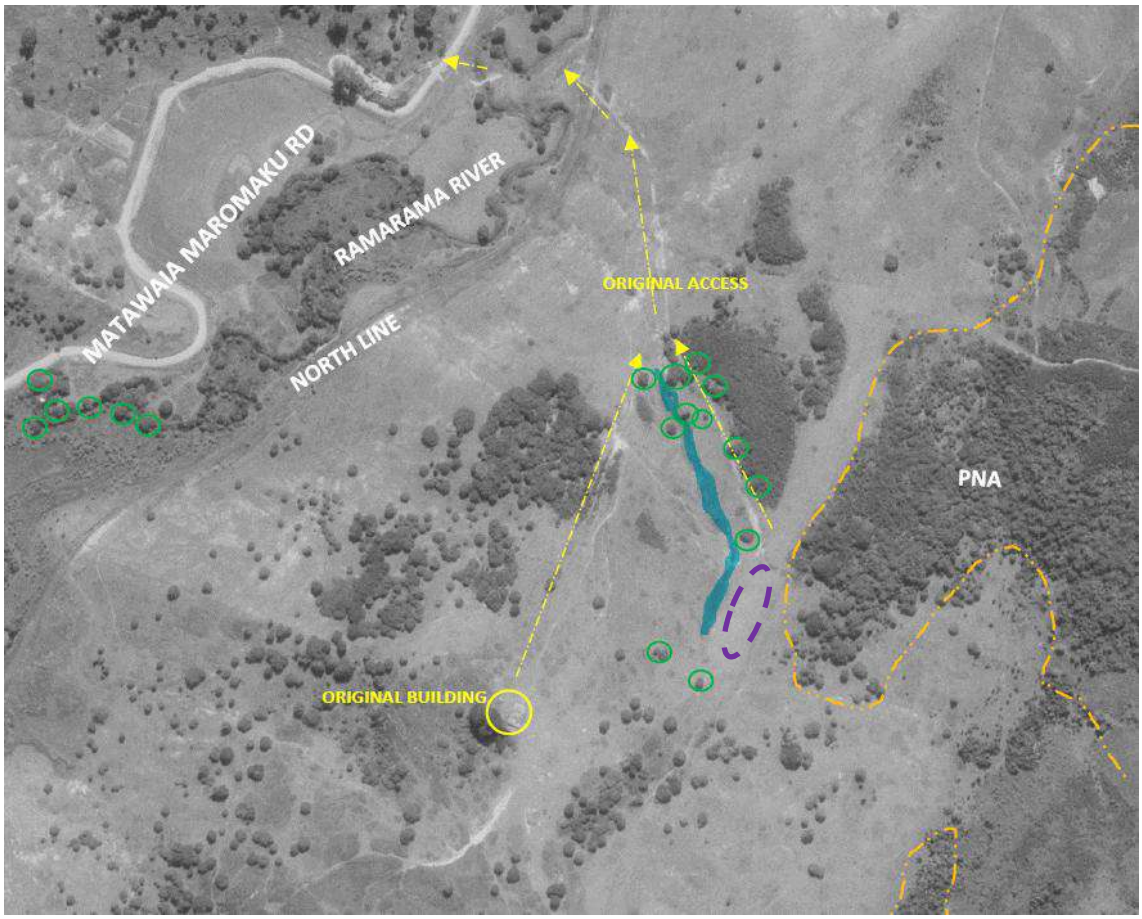
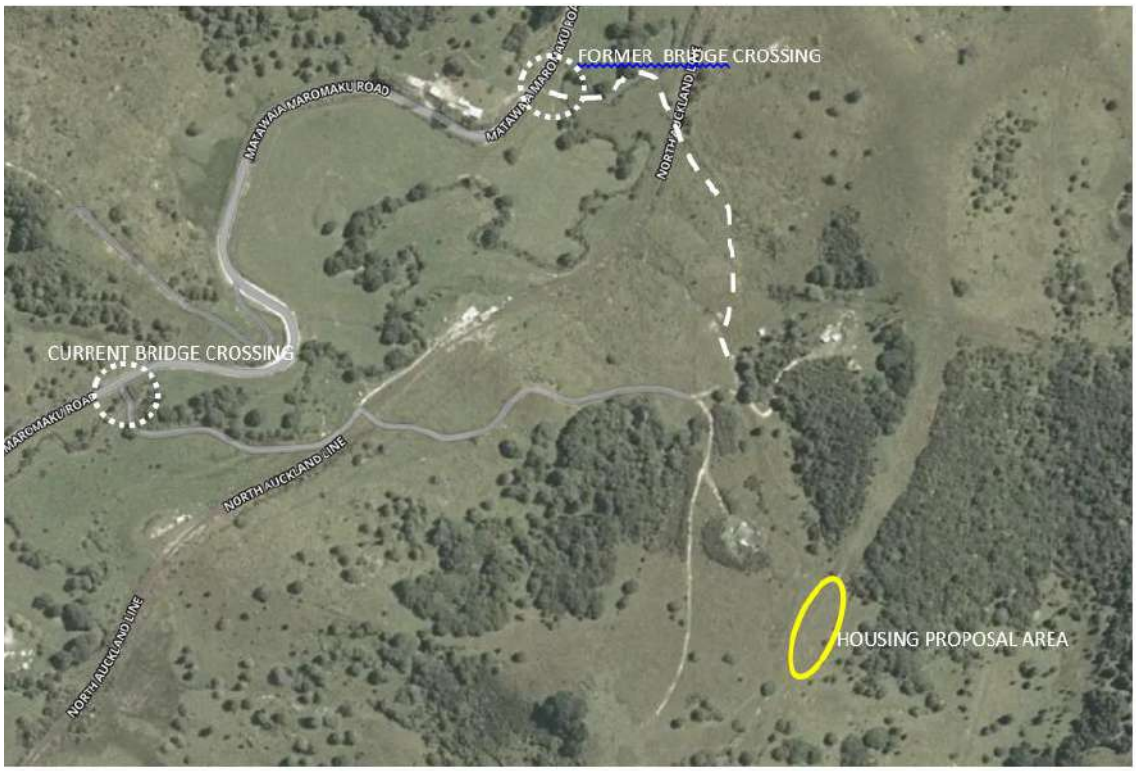


FIG 11: RETROLENS 1983

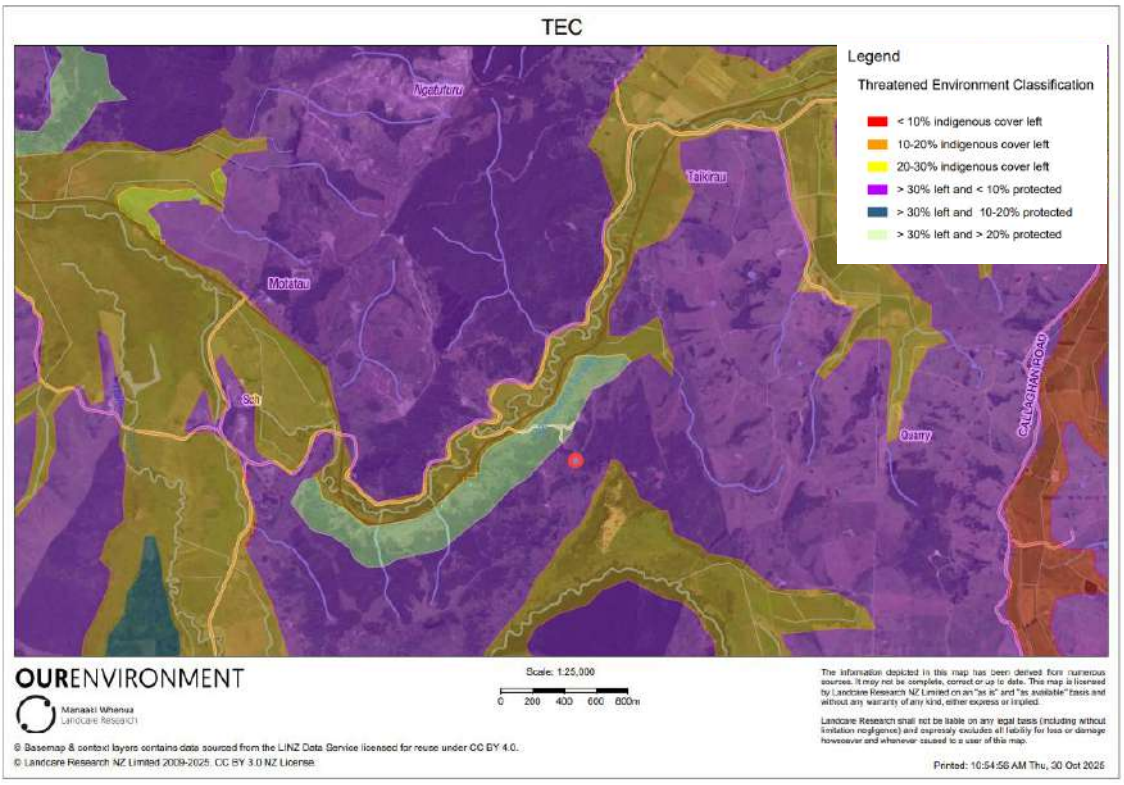
FIG 12: LINZ BASEMAPS 2004 CURRENT CROSSING LOCATION



THREATENED ENVIRONMENT CLASSIFICATION (TEC)

The TEC classification is most appropriately applied to help identify priorities for formal protection against clearance and/or incompatible land-uses, and/or to restore lost species, linkages and buffers. The first two levels of the Threatened Land Environment mapping [20] has been incorporated into national and regional policy[21] to address biodiversity protection on private land. Any remaining indigenous vegetation on such sites is considered significant and a priority for protection, including wetland. The Ramarama Stream and Wetland C below the railway line are *CLASS II Chronically Threatened (10-20% Indigenous Cover remains),* influenced by Northland wide loss of historic WF7.1 vegetation on the landform and soil type.
The proposed development area is *CLASS IV Underprotected (> 30%* left and < 10% protected). Indigenous vegetation in these environments are less reduced (> 30% indigenous cover left) and fragmented than the above categories, but have little protection (< 10% of the area legally protected). The remaining indigenous vegetation is poorly represented in private or public conservation areas. Positive gains may be obtained through revegetation, buffering, pest and weed control, as standard measures.

FIG 13: TEC CLASSIFICATION



[20] Threatened Environment Classification (2012) Landcare Research Manaaki Whenua. Based on Land Environments New Zealand (LENZ), classes of the 4th Land Cover Database (LCDB4, based on 2012 satellite imagery) and the protected areas network (version 2012, reflecting areas legally protected for the purpose of natural heritage protection).Combination of components of *Land Environments New Zealand Level VI; Land Cover Database 4 (2012); Protected Areas Network (2012).* Classifications – Acutely Threatened <10% indigenous cover remains; *Chronically Threatened (10-20% Indigenous Cover remains); At Risk (20-30%) Indigenous Cover Remains; Critically Underprotected (>30% cover, <10% protected);Underprotected(>30% Indigenous cover remains, 10-20% protected); Better Protected(>30 indigenous cover, >20% protected)*

[21] National Policy Statement for Indigenous Biodiversity 2023; Northland Regional Policy Statement 2018 Appendix 5:2(a)i

SITE VISIT

A comprehensive site visit was made on the 21 October 2025 with specific regard to the proposed scheme, prior reporting, aerial photography and desktop review. Visual vegetation survey was undertaken to characterise the site and habitat and to confirm wetland presence.

WETLAND

Site investigation has been undertaken specifically with regard to the presence or otherwise of *natural inland wetland,* as defined in the National Policy Statement for Freshwater Management (NPS –FM 2020) and subject to the protective regulations within the National Environmental Standards for Freshwater (NES-F 2020). Reporting considered both *extent* and *values,* the primary variables of any proposal to consider in avoidance of effects.

Mapped *known wetland*[22] is limited to the northwestern extent of the ranked Horahora Wetland, in a separate topographical catchment and approx. 500m distant to the south of the Title.

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

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

Plants adapted to live in wetland conditions as above are defined in three categories[23] –

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

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

The NPS – FM (2020) & accompanying regulations of the NPS- F (2020) have recently been amended[24], incorporating a revised definition of *natural inland wetland* as subject to the *NES F (2020)* as below, providing exclusions of some classes of wetland as per the broader RMA definition:

Natural inland wetland means a wetland (**as defined in the Act**) **that is not**:
(a) in the coastal marine area; or
(b) a deliberately constructed wetland, other than a wetland constructed to offset impacts on, or to restore, an existing or former natural inland wetland; or
(c) a wetland that has developed in or around a deliberately constructed water body, since the construction of the water body; or
(d) a geothermal wetland; or
(e) a wetland that:

[22] NRC BIODIVERSITY WETLANDS https://localmaps.nrc.govt.nz/localmapsviewer/?map=55bdd943767a493587323fc025b1335c
[23] Clarkson, B. et al (2021) New Zealand wetland plant list
[24] 8th December 2022 NPS; 5th December NES effective 5 Jan 2023

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

Under these updates, *Regulation (e) (i) & (ii)* only apply while a site is in active pastoral use, and not once its purpose changes[25]. None of the wetland identified in this report would be subject to these exclusions.

Exotic pasture species[26] as per definition do not include common wetland/ wet pasture grasses *Glyceria*; *Paspalum distichum**[27] *(FACW), Isachne globosa* (OBL); *Alopecaurus geniculatus (FACW)* and *Agrostis stolonifera* (FACW*) or unpalatable exotics such as *Ranunculus repens (FAC).* Grasses were recognized through professional experience from leaf form, ligule; growth habit and habitat, with simple determination from seed heads not yet practicable at this time of year.

In conjunction with staff from Williams & King Surveyors, visual vegetation assessment was undertaken to determine and topographically survey wetland presence, with regard to the MfE Wetland Delineation Protocol (2022) and supporting documents:

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

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

Wetland determination as per the Protocols is not dependent on indigenous dominance. Regardless of origin, wetland species have high functionality in retaining sediment and protecting groundwater or open waterways from nutrient input.

Primary hydric indicators included saturation and surface water, with supportive indicators of the geomorphic profile and drainage patterns in the landscape. Associations vary in character with saturation/depth of standing water, promoting biodiversity in terms of individual species and also pattern. Wetland C is the largest and most diverse. Wetland B is essentially a hillslope headwater seepage of Wetland C, separated for decades by the railway and access culvert but still hydrologically connected as a reliable water source and a CSA.
Classification into wetland subtype e.g. swamp; seepage observed both the vegetation associations and hydrological character. However, all wetlands are dynamic systems with

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

potential to change extent and composition over time due to natural factors e.g. drought; invasion; interspecific competition.

Site wetlands are diagnostically

- *swamp*
- *seepage*

The primary wetland associations a represent typical local scenarios set in wider pastoral use with reliable hydrology.

UPPER CONTOUR HOUSING PROPOSAL AREA (WETLAND A)

- *Glyceria (OBL); Agrostis stolonifera (FACW); Paspalum distichum (FACW) Carex (OBL) Isolepis (OBL)with Juncus (FACW) Ludwigia (OBL)*

MID SLOPE SEEPAGE (WETLAND B)

- *Agrostis stolonifera (FACW); Paspalum distichum (FACW) – Juncus (FACW) dominant with Isolepis(OBL) & Rununculus (FACW)*

LOWER CONTOUR & ACCESS (WETLAND C)

- raupō - *Isachne globosa (OBL) - Machaerina spp (OBL) – Juncus (FACW); kuta (OBL) Schoenoplectus (OBL)*

Throughout associations frequent species include *Eleocharis acuta(OBL); Epilobium pallidiflorum (OBL)*; *Persicaria* (OBL & FACW spp); Cyperus brevifolius* (FACW); Galium palustre (OBL);Carex spp maorica & secta (OBL); Parablechnum minus (FACW)*; *Ranunculus repens * (FAC); Ranunculus glabrifolius (OBL); Lotus* (FAC); Myosotis laxa* (OBL); Bolboschoenus fluviatilis (OBL).*

TABLE 6: DOMINANT SITE WETLAND TYPE

TYPE	SWAMP
CHARACTERISTIC	*standing water and/ or surface channels; leads with gentle flow* *mainly surface water with groundwater* *water table usually above the surface* *moderate to high fluctuation but permanent wetness at depth* *poor drainage* *combination of mineral and peat soils* *wide spread - basins; valleys, gullies and plains*
CLASSIFICATION	***WL11- MACHAERINA SEDGELAND*** *Shallow palustrine/riverine/lacustrine wetlands of a wide range of variants throughout New Zealand.* *Sedgeland, rushland with a high water table* *Dominated by species of Machaerina, Schoenoplectus, Eleocharis, Carex spp. & Juncus spp*
TYPIC SITE SPECIES	*Agrostis stolonifera (FACW)* *Epilobium(OBL)* *Myosotis(FACW)* Cyperus brevifolius* (FACW) Galium palustre (OBL); *Juncus spp (FACW)* *Persicaria spp (FACW & OBL)* *Carex spp (OBL)* *Paspalum distichum(FACW)* *Isolepis spp (OBL & FACW)* *Raupō (OBL)* *Bolboschoenus fluvitalis (OBL)* *Glyceria (OBL)*
LOCATION	Main extent A & C

The presence of *OBL* perennial and large stature species raupō ; *Machaerina; Schoenoplectus tabernaemontani* and *Eleocharis* infers areas of prolonged stability of deeper hydrology, representative of a broad type[28] reference: ***WL19 RAUPŌ REEDLAND.*** This is predominantly Wetland C, however a small patch of raupō is located in Wetland A, along with some *Schoenoplectus*.

As typical of local character in the ED and at this altitude, large stature OBL Carex species occurred in swathes of local dominance in Wetland C and to a minor degree in deeper pockets of Wetland A.

Juncus species identified onsite include taller native *Juncus edgariae, Juncus australis (wiwi)* & exotic *Juncus effusus,* as well as smaller leafy FACW rushes e.g. *J. acuminatus* and flat leaved *J. prismatocarpus*.

Innocuous facultative (FAC) exotics *Ranunculus repens; Lotus pedunculatus; Lolium arundinaceum and Holcus lanatus* tend to dry hummocks within wetlands and to the wetland-non wetland ecotone. These species are common throughout many forms of wetland in Northland on margins or on slightly raised microtopography, not preferring prolonged submersion.
Wetland throughout grades quickly with reduced soil saturation and slight micro elevation to loss of dominance typified by FACU & UPL rough pasture of exotic grass species including kikuyu; ryegrass; browntop; cocksfoot; abundant carrotweed (UPL); *Paspalum dilatatum*; and ratstail with common herbaceous pasture weeds such as hawksbeard (FACU), plantain (FACU), and dock (FACU). This represents non wetland both in terms of species dominance and NEPSL[29] pastoral exclusion species. This is the prevailing character of the housing footprint.

Swamp kiokio (*Parablechnum minus FACW*) is found scattered toward edges of Wetlands A; B & C with swathes of *Paesia scaberula (FACU)* and pockets of *Adiantum hispidulum* on drier banks.

Under prolonged stock access typical prostrate annual and stoloniferous species dominate the reduced wetland character of Wetland A. Although nevertheless qualifying as *natural inland wetland*, the expected vegetation composition switches to exotic hydrophilic grasses (*Paspalum distichum*; *Agrostis stolonifera*), herbaceous species such as *Ludwigia & Periscaria* (unpalatable to stock); rampant seeding and less palatable *Juncus* spp. and prolific *Isolepis* spp. Their resilient growth forms, rapid reproductive rate and even positive growth under grazing and nutrient enrichment allows their faster recovery and persistence, combined with reduction of competing palatable species through grazer selectivity and long term loss of biodiversity in this manner. Taller palatable species are more apparent to stock and also slower to replace lost tissue, declining in biomass *(Machaerina; kuta).*
Stature decreases in overall height in order from Wetland C >A- >B. As per positive site indicators of current and historic hydrology areas of Wetland A & B are assumed to have carried taller hydrophytic vegetation prior to long term grazing modification.Seepage Wetland

[28] Singers & Rogers (2014) A classification of New Zealand's terrestrial ecosystems. Science for Conservation 325, DoC Wellington
[29] National Exotic Pasture Species List (2022) AgResearch for MfE

B may be considered a critical source area[30] (CSAs) to the receiving waterway/ Wetland C. Likewise Wetland A is tributary to downstream creeky flow to the Ramarama.

CLOCKWISE: VIEW WEST HOUSING AREA UPPER PLATEAU FLAT CONTOUR ; VIEW NORTHEAST;VIEW SOUTHEAST TALL VEGETATION IS THE EDGE OF THE HORAHORA PNA; RAMPANT PRIVET & GORSE AT THE EDGE OF THE PNA EXHIBITS AS THE LOWER <2M BRIGHT GREEN VEGETATION IN GRASS

[30] **CSA Critical source area**: Means a landscape feature such as a gully, swale or depression that accumulates surface run-off from adjacent land; and delivers, or has the potential to deliver, one or more contaminants to one or more rivers, Lakes, wetlands, or surface drains, or their beds (regardless of whether there is any water in them at the time).

CLOCKWISE FROM LEFT: LOOKING SOUTH FROM UPPER PROPOSED HOUSING AREA PRIVET; MATURE DIVERSE CANOPY OF THE PNA; LARGE TOARA; LARGE PURIRI; PURIRI ON EDGE OF PNA;

WETLAND A CLOCKWISE: COMMENCEMENT IN DEPRESSED FORM INTERMITTANT FLOWPATH AT HEADSTANDING WATER AMONGST OBL CAREX; ISOLEPIS & AGROSTIS STOLONIFERA; CONTINUES DOWNHILL WITHIN WELL FORM DEPRESSED BANKS INDIGENOUS TERRESTRIAL COVER ON THE NORTHWESTERN BANK KANUKA- TOTARA BROADLEAVED DOMINANT; WETLAND WIDENS AS IT PROGRESSES DOWNSLOPE WITH LARGER STATURE TERRSTRIAL COVER BEYOND THE ACCESS TO THE NORTHEAST; LOWER WETLAND WETLAND GRASSES; CAREX & ISOLEPIS DOMINANT

CLOCKWISE LAKE EDGE: VIEW OVER WETLAND A FROM ACCESS LOOKING NORTHWEST; WETLAND A PASSES BETWEEN REMNANT TREES VISIBLE IN 1960S AERIAL PURIRI AND KAHIKATEA; LOWER END OF WETLAND A CULVERT AND ACCESS; LOOKING DOWNSTREAM PERCHED CULVERT; DOWNSTREAM VIEW FROM CROSSING MATAWAIA MAROMAKA RD VISBLE IN DISTANCE

LOOKING DOWNSLOPE OVER WETLAND BTO RAILWAY TALLER VEGETATION IN BACKGROUND FRINGES THE RAMARAMA; CULVERT UNDER THE ACCESS TO WETLAND C FROM WETLAND B ADJACENT RAILWAY LINE

CULVERT FROM WETLAND B EMERGES ON THE NORTHERN SIDE OF THE ACCESS IN A PATCH OF PUHA INTO GLYCERIA AND AGROSTIS DOMINATED WETLAND (FACW);UPPER WETLAND C BECOMES RAUPO DOMINANT BUNDED CROSSING ON EASEMENT LOT FOR UPGRADE LOOKING NORTH; CULVERT LEFT HAND SIDE LOOKING EAST; UPSTREAM BEYOND CROSSING LOT 1 DP 442820; WETLAND BELOW CROSSING OBL & FACW CAREX; JUNCUS: ISACHNE GLOBOSA: PERSICARIA & ISOLEPSIS; GRADES TO RAUPŌ TOWARDS LAKE IN DEEPER HYDROLOGY;RAUPŌ AND MACHAERINA SHALLOW WETLAND AT LAKE EDGE

RAUPO DOMINANCE WITH ISACHNE TYPICAL ASSOCIATION IN WETLAND C ; LOOKING SOUTH EAST UP TO HEAD OF WETLAND C; LOOKING DOWNSTREAM WETLAND C NORTHWEST SCATTERED CABBAGE TREES IN WETLAND

CLOCKWISE FROM LEFT:ACCESS FROM LOWER CONTOUR BETWEEN THE RAMARAMA STREAM & WETLAND C LOOKING UPSLOPE . THE HOUSING PROPOSAL IS TO THE REAR OF THE RIGHTHAND TOTARA DOMINATED COVER ON AN UPPER PLATEAU OUT OF VIEW; LOOKING TOWARD THE MAIN ROAD WETLAND C TO THE LEFTBEYOND THE DRY NON WETLAND MARGIN; THE RIBBON OF VEGETATION BESIDE THE RAMARAM A CONTAINS MATURE TOTARA & PURIRI WITH INDIVIDUAL KAHIKATEA ; TARAIRE AND SMALLER COMMON BROADLEAVES WITH KANUKA; LOOKING EAST ALONG RAMARAMA FROM BRIDGE; VIEW DOWNSTREAM TO THE WEST FROM BRIDGE

TERRESTRIAL VEGETATION

The landscape pattern observed today is pasture dominant. A snapshot of remnant indigenous character is represented by mature forest comprising the *Horahora PNA #P05/075* and mature riparian ribbon adjacent the Ramarama Stream on the lower contour by Matawaia – Maromākū Rd. Individual trees outside these areas visible in the historic aerials remain (refer Figs 9 – 12), including adjacent the housing proposal.

To the south of the house proposal there is prevalent exotics privet and gorse with some tobacco weed. We recommend this is controlled during development to reduce impact on the PNA or potential spread to the wetland margins that have been kept grazed short but will be retired.

In the period since PNA survey (1994) stock exclusion and pest control have resulted in recovery of the understorey of the PNA portion most closely adjacent the housing proposal. It is representative of the predicted WF9 forest type. Diversity includes taraire; kohekohe; pūriri; nīkau; *Coprosma* diversity including dense understorey of *Coprosma arborea* ; māhoe; *Pseudopanax spp.*; tītoki; mamaku; kiokio; shining spleenwort; *Sticherus*; hounds tongue; maidenhair ferns; rimu; taraire; mataī; northern rata; pigeonwood (*Hedycarya arborea);* tānekaha; karaka; kahikatea, cabbage tree. Seedlings of palatable species e.g. kohekohe suggest pest control is contributing to long term recovery.

Adjacent the Ramarama Stream the narrow ribbon of the tōtara dominant remnant is a more recent expression of the more historic **WF7.1** cover, with muted representation of larger stature expected species as individuals e.g. taraire by entrance. This scenario was visible in the historic aerial photography. It is otherwise of a younger cohort largely limited to kānuka, tōwai, Coprosma; hange hange & terrestrial ferns on banks.

No flora species with threat status or locally uncommon were found within the PNA during walkthrough recce, despite search for those recorded[31] locally from the desktop review, including in the PNA/ Top Wetland documentation.

There are no kauri local to or in any designated development area to invoke consideration of the *Biosecurity (National PA Pest Management Plan) Order 2022.*

FAUNA

Basic observations were incidental to the main consideration of hydrology and wetland, but complement the characterisation of the site in terms of *values.*

AVIFAUNA

Six 5 minute bird counts were undertaken on the morning of the 21/10/25 under fine clear conditions to observe species utilising the site as we progressed down the wider Lot from the proposed housing area and PNA to the bridge access to Matawaia – Maromākū Rd. Incidental observation was also made elsewhere during the site visit.

Conspicuous terrestrial birdlife was limited largely to exotic and native insectivorous generalists for which the pasture, wetlands and terrestrial cover contribute to territorial

[31] ala.org.au; inaturalist,; PNA reports

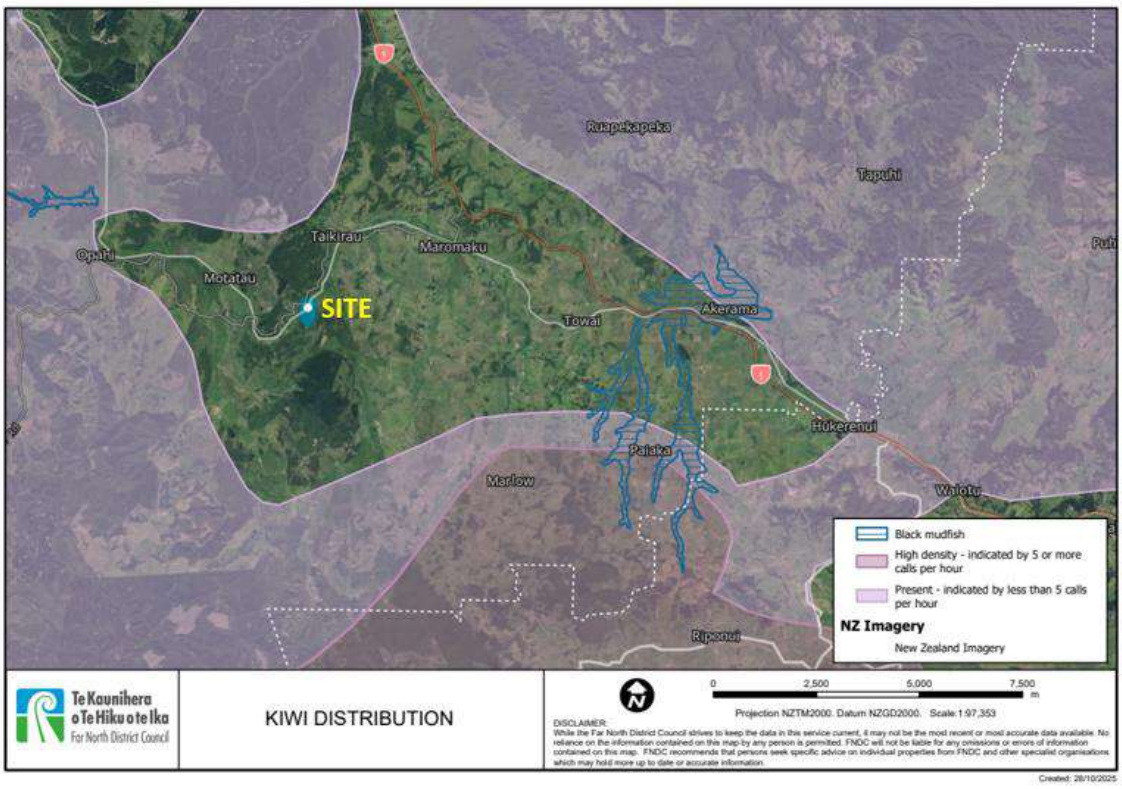
feeding areas habitat e.g. skylark; swallow; fantail; myna; grey warbler; rosella; fantail. Numerous kingfisher were sighted on fenceposts and in trees. Kahu were sighted using open pasture as hunting ground, likely for rabbits. Waterfowl within the lower contour (Wetland C) included common pukeko, mallard and paradise ducks and a singular white faced heron. None have threat status.

Unsuccessful playback was undertaken for fernbird (*At Risk – Declining*), as the most likely specialist wetland bird to respond, at the edge of terrestrial cover on the northside of Wetland A adjacent the housing proposal and the edge of Wetland C.

The lower contour taller stature and larger Wetland C are also potentially suitable for crake (*At Risk- Declining*). Bittern (*Threatened -Nationally Critical)* are noted in the PNA documentation for the Horahora Wetland and from anectodal recount from residents. The Horahora Wetland is an extensive area and habitat in comparison to limited fringing raupō/ rushland onsite in Wetland C. The housing footprint wetland is open, short stature and unlikely to represent critical habitat in any regard.

The site is not allocated a kiwi concentration designation (DoC 2020). It is not within a kilometre of any *High Density* designation. It is not possible to state with certainty that kiwi are not present outside these identified areas as they are nocturnal and not all birds call, they also may have such low numbers in that particular area it is difficult to detect their presence[32]. Therefore, areas marked as kiwi absent should be interpreted as 'data deficient', meaning there is not enough information to determine whether kiwi are presence or absent due to lack of exhaustive kiwi survey. Anecdotal discussion with a resident indicated that kiwi have not been heard in the vicinity of the development for some time, potentially due to local dogs.

FIG 14: KIWI DISTRIBUTION



[32] DoC (2018) BAY OF ISLANDS KIWI DISTRIBUTION MAP – SUPPORT DOCUMENT

FISH

A primary freshwater fish survey was outside the scope of this report. There are no site or reach specific FWFD records[33] onsite or in the further downstream extent of the Ramarama. NIWA has combined REC V2 classification with monitoring data to extrapolate a wide range of instream water quality and fish habitat parameters for all mapped NZ rivers. This resource gives potential fish species interacting directly with the site as below *Table 7.*
As well as the river, common bully prefer the lotic environment provided by Wetland C, as do shortfin eel, also common in swamp with areas of open water. Redfin are commonly associated with both species but more commonly found in running riffles and small pools. Banded Kōkopu are typically found in pools within creeky environments.

Wetland A has been separated from downstream creek by the access infrastructure/ culverting throughout including downstream for many years likely from the first formation of the access in the 1950s. It is not considered fish habitat.

The steep shallow seepage Wetland B is not considered fish habitat. It is occluded from Wetland C by the railway infrastructure.

All wetlands are in a separate catchment from the Horahora Wetland.

TABLE 7: NIWA PREDICTED SPECIES

PREDICTED SPECIES NZSEG# 1013878	COMMON NAME	THREAT STATUS
Anguilla australis	SHORTFIN EEL	NOT THREATENED
Galaxias fasciatus	BANDED KŌKOPU	NOT THREATENED REGIONALLY SIGNIFICANT
Gobiomorphus cotidianus	COMMON BULLY	NOT THREATENED
Gobiomorphus hutonni	REDFIN BULLY	AT RISK - DECLINING

INVERTEBRATES

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

Despite their inconspicuousness and little recognition in comparison to fauna commonly valued by society e.g. birds & fish - they have a critical role in wider ecosystem function e.g.

[33] Freshwater Fish Database records NIWA

organic carbon and nutrient turnover; as part of the food web reaching large densities and in terms of intrinsic biodiversity value -many being known only to NZ.

REDFIN (NOT TAKEN ONSITE) BAY ECOLOGICAL CONSULTANCY 2025

NES-F (2020) WETLAND

Recognition of *natural inland wetland* onsite promotes the intent of *NPS-FM (2020)* Policies 5 & 6[34] and avoidance of effects through and use of existing access pre emptive location of the housing units at the maximal distance from the wetland.

Drainage/ destruction of wetlands is a prohibited adverse effect as per REG 53 and it is presupposed through the current pre emptive subdivision and infrastructure design parameters that this will not occur. The existing bridge/ crossings/ culverts and access are considered *other infrastructure*[35] as illustrated in the historic aerial review to be long established before the ratification of the NES-F (2020). The bridge is >10m from *natural inland wetland*.

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

The housing footprint area is in pasture and no vegetation clearance within 10m is required as per *NES-F Reg 52(i).*

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

The new watertanks will require earthworks within 10m are required to create a platform. As before, this is unlikely to change the *water level range or hydrological function of the wetland* as per *NES F Reg 54 (b)* if they do not occupy or intersect directly with the mapped wetland. This is the same scenario for earthworks to enable houses and parking just beyond 10m distant from the wetland footprint as per *NES F REG 52(1)a*

The overflow from the watertanks is indicated as discharging adjacent Wetland A via spreader bars, regulated by *NES-F 54(d)* . This input is considered not to be significant in terms of water quality or amount that would in any measurable way effect the hydrological function or water level range of Wetland A, as before. Point source discharge should be avoided in this way to avoid scour, erosion and sediment discharge to the receiving wetland with direct hydrological connection that may then cause loss of wetland vegetation (extent) and hydrological function (values).

There is no detailed design of other development stormwater inputs to the wetland, but these likely represent a discharge within 100m, again controlled by *NES F Reg 54(d).* The Wetland A swamp type has developed in a pastoral catchment with variable output, highly responsive to meteorological conditions, and is adapted to moderate to high fluctuations in **water level range** without discernible shift in extent or value, including **hydrological function.** Dominant

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

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

species OBL & FACW *Paspalum ditstichum, Glyceria; Ludwigia; Eleocharis, Persicaria; Juncus* are adapted to raft or persist through the current inundation cycle in response to rainfall. A shift in species composition that retains an indigenous *natural inland wetland* composition is considered not to be a loss of *value* or *extent* and a less than minor level of effects.
Under the proviso inputs should be diffuse and avoid scouring, and no gross sediment input or displacement of wetland vegetation occurs, adverse effects will be avoided and *values* & *extent* will be maintained.
Site procedures for residential and infrastructure development should include designated earthworks envelopes or marking of wetlands to ensure contractors avoid accidental incursion and unquantifiable effects. For all earthworks for the development we recommend erosion and sediment control measures are applied and maintained at the site of the activity including stabilising or containing soil that is exposed or disturbed by the activity and the area between the development and the wetland not remaining bare for longer than 3 months. This will minimise potential adverse effects of sediment intrusion including the smothering of indigenous vegetation by debris and sediment. Due to the flat contour and increased occupation there is a risk of the area between the housing and wetland being used for parking, manoevering or storage resulting in unquantified effects such as intrusion into the wetland or destabilization or subsidence of the bank.

TABLE 8: NES-F (2020) REG 52

DRAINAGE OF NATURAL INLAND WETLANDS: 52 NON-COMPLYING ACTIVITIES	
(1) Earthworks outside, but within a 100 m setback from, a natural inland wetland is a non-complying activity if it—	
(a) results, or is likely to result, in the complete or partial drainage of all or part of a natural inland wetland; and	**NO**- works for the housing proposal do not occupy source areas or CSAs. Will not result in a constriction on the flow of water within, into, or out
(b) does not have another status under any of regulations 38 to 51.	*N/A*
(2) The taking, use, damming, or diversion of water outside, but within a 100 m setback from, a natural inland wetland is a non-complying activity if it—	
(a) results, or is likely to result, in the complete or partial drainage of all or part of a natural inland wetland; and	*NO Proposed building platforms and access do not occupy source areas or CSAs. Will not result in a constriction on the flow of water within, into, or out in any measurable way*
(b) does not have another status under any of regulations 38 to 51.	*N/A*

It is considered the proposal will not result in ***complete or partial drainage of all or part of the Wetland A***.

TABLE 9: NES-F (2020) REG 54

OTHER ACTIVITIES: 54 NON-COMPLYING ACTIVITIES	
The following activities are non-complying activities if they do not have another status under this subpart:	
(a) vegetation clearance within, or within a 10 m setback from, a natural inland wetland:	*NONE REQUIRED IN THE PROPOSAL*
(b) earthworks within, or within a 10 m setback from, a natural inland wetland:	*REQUIRED FOR WATERTANKS & PARKING* *ACCESS PROPER IS OTHER INFRASTRUCTURE WITH STATUS UNDER REG 46*
(c) the taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland if—	
(i) there is a hydrological connection between the taking, use, damming, or diversion and the wetland; and	*Minor natural diffuse or sheetflow inputs within 100m may be diverted by the change of site cover however in the absence of alteration of any point source inputs or CSAs this is unlikely to change the water level range or hydrological function of the wetlands.*
(ii) the taking, use, damming, or diversion will change, or is likely to change, the water level range or hydrological function of the wetland:	
(d) the discharge of water into water within, or within a 100 m setback from, a natural inland wetland if—	
(i) there is a hydrological connection between the discharge and the wetland; and	*WATERTANKS OVERFLOW & POTENTIAL STORMWATER INPUTS (AS YET UNQUANTIFIED)*
(ii) the discharge will enter the wetland; and	*Likely*
(iii) the discharge will change, or is likely to change, the water level range or hydrological function of the wetland.	*NO –The wetland type current has developed in a pastoral catchment with variable output highly responsive to meteorological conditions and is adapted to moderate to high fluctuations without discernible shift in extent or value, including hydrological function under the proviso inputs modelled to date are diffuse and avoid scouring, sediment input, bank or bed destabilisation or displacement of wetland vegetation*

Any upgrade of the access proper as *other infrastructure*[36] is considered subject to *NES- F (2020) REG 46 Maintenance and operation of specified infrastructure and other infrastructure (Refer Table 10).* It is therefore a *Restricted Discretionary* activity as per *REG 47*, with matters subject to *REG 56 Restricted discretionary activities: matters to which discretion is restricted.* Application for resource consent will be required to NRC in this regard based on final detailed design to achieve an acceptable level of effects. Modifications to the culvert whether permitted or otherwise, are subject to NES-F (2020) Subpart 3, including emphasis on the passage of fish.

[36] Infrastructure present prior to commencement of the regulations (2/9/2020) is considered *existing infrastructure.*

TABLE 10: PERMITTED ACTIVITIES REG 46 MAINTENANCE AND OPERATION OF SPECIFIED INFRASTRUCTURE AND OTHER INFRASTRUCTURE

PERMITTED ACTIVITIES REG 46 MAINTENANCE AND OPERATION OF SPECIFIED INFRASTRUCTURE AND OTHER INFRASTRUCTURE	
(1) Vegetation clearance within, or within a 10 m setback from, a natural inland wetland is a permitted activity if it— *(a) is for the purpose of maintaining or operating specified infrastructure or **other infrastructure**; and* *(b) complies with the conditions.*	*N/A*
(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural inland wetland is a permitted activity if it— *(a) is for the purpose of maintaining or operating specified infrastructure or **other infrastructure**; and* *(b) complies with the conditions.*	*CANNOT COMPLY WITH CONDITION 4 (B) & (C)*
(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural inland wetland is a permitted activity if— *(a) the activity is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and* *(b) there is a hydrological connection between the taking, use, damming, diversion, or discharge and the wetland; and* *(c) the taking, use, damming, diversion, or discharge will change, or is likely to change, the water level range or hydrological function of the wetland.*	*TO BE DETERMINED & CONTROLLED TO AN ACCEPTABLE LEVEL OF EFFECTS THROUGH DIFFUSE DISCHARGE VIA SPREADER BAR TO PREVENT SCOURING & EROSION*
CONDITIONS ***(4) THE CONDITIONS ARE THAT—***	
(a) the activity must comply with the general conditions on natural inland wetland activities in regulation 55, but regulation 55(2), (3)(b) to (d), and (5) do not apply if the activity is for the purpose of maintaining or operating— *(i) hydro-electricity infrastructure; or* *(ii) any public flood control, flood protection, or drainage works that are specified infrastructure; and* ***(b) the activity must not be for the purpose of increasing the size, or replacing part, of the specified infrastructure or other infrastructure unless the increase or replacement is to provide for the passage of fish in accordance with these regulations; and*** ***(c) the activity must not result in the formation of new pathways, boardwalks, or other accessways; and*** *(d) if the activity is vegetation clearance, earthworks, or land disturbance, the activity must not occur over more than 500 m^2 or 10% of the area of the natural inland wetland, whichever is smaller; and* *(e) if the activity is earthworks or land disturbance,—* *(i) trenches dug (for example, to maintain pipes) must be backfilled and compacted no later than 48 hours after being dug; and* *(ii) the activity must not result in drains being deeper, relative to the natural inland wetland's water level, than they were before the activity; and* *(f) if the activity is a discharge of water, it must not be a restricted discretionary activity as described in regulation 47(3A)*	*CANNOT COMPLY WITH CONDITION 4 (B) & (C)*

SIGNIFICANCE

NPS-FM VALUES (2020)

Values[37] of the wetlands were considered. These translate to potential significance aspects for consideration against *RPS 2018 Appendix 5* criteria. Avoidance of *extent* and *values* loss in regard to wetlands is core policy[38] of the NPS – FM (2020).

TABLE 10: VALUES NPS-FM (2020)

VALUE	WETLAND A	WETLAND B	WETLAND C
ECOSYSTEM HEALTH	Currently impacted condition due to long term grazing – limited diversity, exotic dominant with functionality of sediment retention and processing No fish passage to downstream waterway beyond existing culvert crossing at northern end – long term scenario since approx.. Basic water source for fauna in landscape Exotic dominant Open no riparian buffer other than PNA Water quality -sediment retention and nutrient processing function ; diffuse stormwater interception from pastoral catchment Consistent water regime implied by OBL & FACW dominance species Exotic influence typical pastoral assemblages Some local pest control implied	Currently impacted condition due to long term grazing – limited diversity, exotic dominant with functionality of sediment retention and processing Basic water source for fauna in landscape Exotic dominant Open no riparian buffer other than PNA Water quality -sediment retention and nutrient processing function ; diffuse stormwater interception from pastural catchment Consistent water regime implied by OBL & FACW dominance species Exotic influence typical pastoral assemblages Some local pest control implied	Extant hydrological promotes higher biodiversity and indigenous associations e.g raupō -Isachne – limited diversity, exotic dominant with functionality of sediment retention and processing No fish passage to downstream waterway beyond existing culvert crossing at northern end – long term scenario since approx.. Large water source for fauna in landscape Limited riparian buffer Water quality -sediment retention and nutrient processing function ; diffuse stormwater interception from pastoral catchment Consistent water regime implied by large stature OBL species species Some local pest control implied
INDIGENOUS BIODIVERSITY	Limited bird guild - insectivores use as wider feeding territory No specialist wetland birds evident other than common water fowl likely due to lack of riparian buffer and tall stature rushes for cover Not currently wetland bird habitat Limited flora diversity, exotic dominant. No woody riparian buffer No fish passage long term scenario	Limited bird guild - insectivores use as wider feeding territory No specialist wetland birds evident other than common water fowl likely due to lack of riparian buffer and tall stature rushes for cover Not wetland bird habitat Limited flora diversity, exotic dominant. No woody riparian buffer Not fish habitat	Contribution of habitat diversity and species retention for insectivorous, wetland birds & water fowl guild in wider pastoral site Fish upland guild predicted for the Ramarama implies wider use of connected wetland onsite
HYDROLOGICAL FUNCTION	Sediment retention and nutrient processing protective of groundwater and downstream creek, hydrologically connected as headwater to lower creek as a CSA Stock nutrient inputs directly to waterway Slows stormwater from existing pastoral setting to lower creek Long historically modified beyond access	Sediment, stormwater retention and nutrient processing as headwater source in pasture. Hydrologically connected as headwater to wetland as a CSA Long historically modified beyond access	Sediment, stormwater retention and nutrient processing closely adjacent to Ramarama Stream
MĀORI FRESHWATER VALUES	Outside scope of this report	Outside scope of this report	Outside scope of this report
AMENITY VALUES	Not considered to provide direct opportunity for human contact; recreation or food provision. Visually apparent from housing proposal	Not considered to provide direct opportunity for human contact; recreation or food provision. Not visually apparent from other than from access	Not considered to provide direct opportunity for human contact; recreation or food provision other than potentially tuna. Visually apparent from the main road and access Limited riparian vegetation other than Ramarama riparian mature trees

All three wetlands maintain their intrinsic sediment retention and nutrient processing protective of groundwater and downstream waterways, hydrologically connected as headwaters and CSAs. Larger wetland C with wider provision of habitat and niche diversity is likely habitat for wetland specialist fish and birds, as well as the generalists that will utilise A & B as part of wider territorial economics. It has patches of indigenous association dominance

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

[38] *Policy 6: There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted. Policy 7: The loss of river extent and values is avoided to the extent practicable. Policy 8: The significant values of outstanding water bodies are protected.*

Consideration of significance is given in regard to *Northland Regional Policy Statement Appendix 5 (2018) as* the standard Northland criteria for assessing significance of an ecological site, and directly reflects those contained in *Appendix 1* of the recently mandated *National Policy Statement for Indigenous Biodiversity (2023)* including consideration of *Representativeness; Diversity & Pattern; Rarity and Distinctiveness & Ecological Context.* The PNA and the tōtara – pururi remnant as an extension are considered to have *HIGH* significance as per values described in the accompany documentation and observed onsite. Comment is instead focused on the wetland/ waterways as per the scope of this report.

TABLE 11: ASSESSMENT OF SIGNIFICANT INDIGENOUS VEGETATION AND SIGNIFICANT HABITATS OF INDIGENOUS FAUNA IN TERRESTRIAL, FRESHWATER AND MARINE ENVIRONMENTS NORTHLAND REGIONAL POLICY STATEMENT (2018) APPENDIX 5

	WETLAND A	WETLAND C
(1) REPRESENTATIVENESS ***(A)****Regardless of its size, the ecological site is largely indigenous vegetation or habitat that is representative , typical and characteristic of the natural diversity at the relevant and recognised ecological classification and scale to which the ecological site belongs* *(i) if the ecological site comprises largely indigenous vegetation types: and* *(ii) Is typical of what would have existed circa 1840* *(iii)Is represented by the faunal assemblages in most of the guilds expected for the habitat type* ***(B)*** *The ecological site* *(i) Is a large example of indigenous vegetation or habitat of indigenous fauna* *(ii) Contains a combination of landform and indigenous vegetation and habitats of indigenous fauna that is considered to be a good example of its type at the relevant and recognised ecological classification and scale*	A(i) No large exotic component (ii) in occupancy however character likely different due to exotic component and modification from pastoral setting/ culvert at northern end restricting fish passage (iii) no fish; no wetland birds sighted or responded to playbacks; insectivores B) (i) yes as habitat to freshwater fish is above swamp significance size with headwater creek (ii) headwater swamp as most freshwater wetlands have been reduced in the ecological district as nationally ***LOW***	A – Yes overall (ii) In occupancy as mid elevation wetland, modified by adjacent pastoral use; railway; and access (iii) Internal habitat for birds/ fish/ invertebrates available. Insectivores present; wetland birds potentially;common &adaptable waterfowl; pukeko. B (i)meets swamp size criteria in main body alone connection with further upstream Wetland B (ii) as mid elevation riverine wetland impacted by weeds and little riparian vegetation ***MODERATE***
(2)RARITY/ DISTINCTIVENESS *(A)The ecological site comprises indigenous ecosystems or indigenous vegetation types that:* *(i) Are acutely or chronically threatened land environments associated with LENZ Level 4* *(ii) Excluding wetlands, are now less than 20% original extent* *(iii) excluding man made wetlands are examples of wetland classes that either otherwise trigger Appendix 5 criteria or exceed any of the following area threshold* *(a) Saltmarsh 0.5ha* *(b) Shallow water lake margins and rivers 0.5ha* *(c) Swamp >0.4* *(d) Bog >0.2 ha* *(e) Wet heathlands>0.2 ha* *(f) Marsh; fen; ephemeral wetland or seepage/flush >0.05ha* *(B) Indigenous vegetation or habitat of indigenous fauna that supports one or more indigenous taxa that are threatened, at risk, data deficient , or uncommon either nationally or within the relevant ecological scale* *(C) The ecological site contains indigenous vegetation or an indigenous taxon that is* *(i) endemic to the Northland/ Auckland region* *(ii) At its distribution limit in the Northland region* *(D) The ecological site contains indigenous vegetation or an association of indigenous taxa that* *(i) Is distinctive of a restricted occurrence* *(ii) Is part of an ecological unit that occurs on a originally rare ecosystem* *(iii) Is an indigenous ecosystem and vegetation type that is naturally rare or has developed as a result of an unusual environmental factor(s) that occur or are likely to occur in Northland: or* *(iv) Is an example of a nationally or regionally rare habitat as recognised in the New Zealand Marine Protected Areas Policy*	A(i)NO (iii) NO- swamp size *D (i) wetland & part of WF9 area* ***LOW***	A(i)YES (iii) YES - swamp size in main body alone additional connection to B B) Potentially wetland birds; Red fin bully (At Risk -Declining); Banded kokopu Regionally Significant *D (i) wetland & fish in swamp ;* *(ii) associated with TEC Level II environment* ***MODERATE***
(3)DIVERSITY AND PATTERN *(A) Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of:* *(i) Indigenous ecosystem or habitat types; or* *(ii) Indigenous taxa* *(B) Changes in taxon composition reflecting the existence of diverse natural features or ecological gradients; or* *(C) Intact ecological sequences*	A) The wetland does not have a high diversity of indigenous flora B/C) Some variation of species associations throughout broad extent dependant on hydrology / saturation Intact ecological sequences and vegetation change when considered in association with the wider PNA P06/075 as part riparian and downstream wetland to Ramarama Headwater –swamp-creek-river **LOW -MODERATE**	(A)variation of species associations throughout broad extent dependant on hydrology / saturation diversity of fish/ bird habitat niches B) Variation in species composition with saturation/ surface water within wetland e.g. raupō , Eleocharis, Schoenoplectus & *Machaerina* in deepestreliable flow; Isachne and Paspalum distichum rafting; Carex *Isolepis* & *Juncus* margins; herbaceous component; abrupt change from wetland species to terrestrial dryland C) Slope Headwater B to wetland C on lower contour to Ramarama Stream ; loss of riparian terrestrial vegetation **MODERATE**
(4) ECOLOGICAL CONTEXT *(A) Indigenous vegetation or habitat of indigenous fauna is present that provides or contributes to an important ecological linkage or network, or provides an important buffering function: or* *(B) The ecological site plays an important hydrological, biological or ecological role in the natural functioning of a riverine, lacustrine, palustrine, estuarine, plutonic(including karst), geothermal or marine system* *(C) The ecological site is an important habitat for critical life history stages of indigenous fauna including breeding/ spawning, roosting, nesting, resting, feeding, moulting, refugia or migration staging point (as used seasonally, temporarily or permanently*	A) & B) The wetland buffers downstream creek from pastoral contribution of sediment; nutrient with additional high flow/ stormwater retention . Will continue to do so adjacent residential development C) Freshwater source and higher territorial economics for local insectivorous fauna territorial c.f dominant pasture **LOW --MODERATE**	(A) & B) Indigenous dominant Nutrient processing & retains sediment; buffers groundwater and surface water short hydrological linkage to Ramarama. C) Heightened feeding territorial economics for insectivores and waders; waterfowl over pasture dry extent. Likely invertebrate communities with lifestages requiring wet conditions. Taller reed and sedge cover for potential wetland birds **MODERATE- HIGH**

Although considered separately the wetlands are all tributary to the Ramarama Stream in an immediate catchment and may be considered an hydrological unit. Significance includes as higher territorial economics for birds including potential wetland birds in larger Wetland C; fish values in C; integral connectivity and physical and functional buffering to the downstream aquatic environments including the Ramarama; size .

As Wetlands A & B are not indigenous dominant they therefore cannot fill specific criteria in Appendix 5 that refer to indigenous vegetation. However all wetlands are significant in the criteria of *3(B) Changes in taxon composition reflecting the existence of diverse natural features or ecological gradients;* and *4(B) The ecological site plays an important hydrological, biological or ecological role in the natural functioning of a riverine, lacustrine, palustrine, estuarine, plutonic(including karst), geothermal or marine system*. These criteria reflect their functionality in water quality protection, in which origin of vegetation is largely irrelevant. Wetland C is predominantly indigenous, and significant to a degree in all counts.

The significance ratings for each of the 4 criteria in RPS Appendix 5 are combined to give an overall single value according to Table 12 (*EIANZ Table 6)*, below. This should not however suppress any impact consideration of a single value or component.

TABLE 12: SCORING FOR SITES COMBINING VALUES FOR SIGNIFICNCE CRITERIA (TABLE 6 EIANZ)

VALUE	*EXPLANATION*
VERY HIGH	*Area Rates VERY HIGH for 4 or all of the matters in Appendix 5 RPS. Likely to be nationally important and recognised as such*
HIGH	*Area rates HIGH for 2 of the assessment matters. Moderate and LOW for the remainder*
MODERATE	*Area rates HIGH for one matter, MODERATE & LOW for the remainder* *Area rates MODERATE for 2 or more of the criteria. LOW or very LOW for the remainder. Likely to be significant in the ED*
LOW	*Area rates LOW or VERY LOW for all but one MODERATE. Limited ecological value other than as habitat for local tolerant species.*
NEGLIGIBLE	*Area rates VERY LOW for 3 matters and MODERATE LOW or VERY LOW for the remainder.*

On this basis the wetlands have an overall *MODERATE VALUE* in the landscape.

Consideration of identified site species value is also given as below (EIANZ 2018). There is ***potential*** for *High* value species to be present in the Wetland C environs with deeper more reliable flow and larger extent with tall reed/sedge cover. It reinforces the emphasis for commendable pest control efforts as established to continue. This may include bittern, known from the wider area, to be present in intermittently as part of wider site territory (to 15km) although they are unlikely to breed there given higher quality habitat nearby. This is outside an immediate zone of influence or effects of the housing development in the absence of gross sediment or stormwater input or loss of extent from any enabling activities e.g. alteration of access. In that regard, interaction of the proposal with the wetlands is restrained by protective regulations of the NES-F; Proposed Regional Plan and best practice stormwater and sediment control. We rate the proposed housing area development footprint area as

NEGLIGIBLE . It is not habitat for any of the potential higher value species. No highly mobile species[39] are likely dependant on Wetland A or the footprint for any part of their lifecycle.

TABLE 13: FACTORS TO CONSIDER IN ASSESSING SPECIES VALUE (TABLE 5 EIANZ 2018)

VALUE	EXPLANATION	SPECIES PRESENT IN ZOI	STATUS
VERY HIGH	*Nationally Threatened* species (*Critical, Endangered or Vulnerable)* found in the Zone of Influence or likely to occur there, either permanently or occasionally		
HIGH	Nationally *At Risk* species (*Declining*) found in the ZOI or likely to occur there, either permanently or occasionally	Potential wetland birds in C fernbird; crake Potential fish in C Redfin bully	*AT RISK- DECLINING*
MODERATE-HIGH	Species listed in any other category of *At Risk* category (*Recovering, Relict or Naturally Uncommon*) found in the Zone of Influence or likely to occur there, either permanently or occasionally.		
MODERATE	Locally uncommon/rare species but not *Nationally Threatened or At Risk.*	Wetland C Banded Kōkopu *Eleocharis sphacaelata* Increasing *Locally uncommon* in the ED due to palatability and drainage	*NOT THREATENED- REGIONALLY SIGNIFICANT*
LOW	Species *Not Threatened* nationally and common locally.	Insectivores e.g. fantail; kingfisher; grey warbler	*NOT THREATENED*
NEGLIGIBLE	Exotic species, including pests	e.g. magpie; skylark	*INTRODUCED - NATURALISED*

[39] NPSIB (2023) *Appendix 2: Specified highly mobile fauna*

CONCLUSION

This review included available documentation of the proposal and ecological context from aerial photography and online mapping, complimented by fieldwork.

N*atural inland wetland (NPS FM 2020)* of swamp character subject to the National Environmental Standards for Freshwater NES – F (2020) is present within the site waterways. *Extent* has been topographically surveyed for pre emptive recognition in the proposal layout. The proposed residential footprint area has NEGLIGIBLE significance as pasture.
Individually and as a broader ecological unit, the wetlands have both intrinsic and functional *values* that contribute to significance in regard to *Appendix 5 Northland Regional Policy Statement (2018)* - indigenous character; potential habitat; pattern and water quality protection; linkage and buffering to further aquatic environments downstream.
The housing development has been considered in terms of the interrelation with the wetland and opinion provided in regard to the NES- F (2020). If upgrade of culverts or the access as *other infrastructure* by definition is required this may represent a *Restricted Discretionary* activity, subject to *NES-F REG 56* and requiring regional authority resource consent with provision of the final detailed design to ensure an acceptable level of effects.

Best practice sediment control and diffuse stormwater inputs will be required to prevent impacts on Wetland A during the housing development. Buffering planting directly adjacent Wetland A will concomitantly provoke positive amenity and ecological gain in comparison to the current status, recognising the interdependency of the wetland with surrounding terrestrial areas and hydrological linkage across the landscape to the Ramarama River.

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BScEcology **PGDipSci** (Distinction) Botany

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MANAGEMENT PLAN

WINNIE MITCHELL DESCENDANTS WHANAU TRUST
583 MATAWAIA-MAROMAKU ROAD, MATAWAIA

CPPC PLANNING
PLANNING DEVELOPMENT CONSULTANT

EXECUTIVE BRIEF

This Management Plan is prepared on behalf of Winnie Mitchell Descendants Whanau Trust for the relocation of for the relocation four new prebuilt papakainga dwellings and associated access, earthworks and servicing.

The objective of the proposal is to provide for Papakainga Housing on Maori Land on a 61.1840 hectares property in the way of a low-impact and appropriate development on the subject property at 583 Matawaia-Maromaku Road, Matawaia.

The Management Plan describes the sites of cultural and historical significance on the property and provides protocols for ensuring these are respected and protected.

The Management Plan facilitates the sustainable management of natural and physical resources in an integrated way.

The responsibility for the implementation of the Management Plan shall fall on the current and the future owners of the property.

The Management Plan should be read in conjunction with the Assessment of Environmental Effects (AEE) dated 9 February 2026.

CONTEXT

Winnie Mitchell Descendants Whanau Trust property is a 61.1840 hectare site located at 583 Matawaia-Maromaku Road, Matawaia.

The property contains four existing dwelling and associated servicing and access from Matawaia-Maromaku Road over the Auckland Railway Line.

To the north-west of the application site is the location of the Matatau Marae and associated activities. The property is located within the rural environment, with dotted rural and rural residential buildings with accessory buildings, pasture grass, ti tree and rural activities.

The Management Plan enables the land to be developed in a holistic manner, encompassing all natural and physical features.

The Management Plan outlines the use of the land within the Winnie Mitchell Descendants Whanau Trust property.

The effective implementation of the management plan will ensure that the rural character of the site will be preserved for current and future generations.

The Management Plan provisions are an ideal way to manage the resources on the site in a holistic manner and with significant landscape planting, recessive colours and materials and earthworks to ensure the development is integrated into this landscape.

The architectural plans are included with this Management Plan.

1.0 PURPOSES OF THE MANAGEMENT PLAN

The purposes of this Management Plan are as follows:

- To allow Māori to return to their ancestral home as a communal group and provide for their customary connection, power and authority from the land.
- To effectively manage the site to ensure that the rural character of the site will be preserved for current and future generations.
- To manage the resources on the site in a holistic manner and with significant landscape planting, recessive colours and materials and earthworks to ensure the development is integrated into this landscape.
- To ensure that the site and associated development does not result in instability.
- That the site can be suitably services with on-site wastewater, stormwater, access and maneuvering.

1.1 General Objective

The overall objective of the Management Plan is to provide a mechanism to control, manage and maintain the subject property. The property is to be viewed as a whole and in a holistic manner. This includes the utilization of the existing natural features and the preservation of these features for the use of current and future generations, the design and location of buildings on the property and on-going maintenance.

2.0 SITE DESIGN

2.1 Objective

Indigenous Māori have an intricate, holistic and interconnected relationship with the natural world and its resources, with a rich knowledge base – Mātauranga Māori. The body of knowledge originating from Māori ancestors, including the Māori world view and perspectives, Māori creativity and cultural practices. It is critical to ensure that the values that are and were placed do not devalue with any development that may occur. What is taken from the environment must be put back.

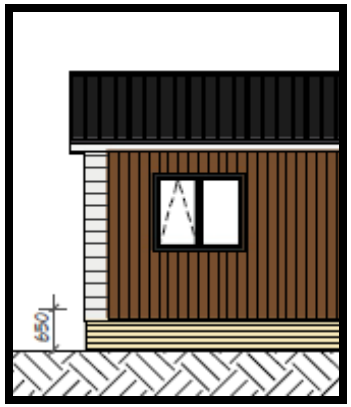
Papakainga Housing to allow whanau to utilize the land in a manner that is customary, whilst taking into consideration the character and amenity values of the site. The design controls seek to ensure that

the development of the site is undertaken in such a manner that the integrity of the landscape is enhanced and that buildings, and structures are sympathetic to the landscape and character of the property as a whole. The weed and pest control plans and monitoring programs seek to ensure that the proposed landscape planting is established satisfactorily and can be maintained in a healthy state.

2.2 Design Controls

The Papakainga houses have been designed to be integrated into the site and will be:

- Constructed and finished with appropriate rural colours and materials.



2.3 Landscape Planting

The property contains large areas of indigenous vegetation. The proposal involves additional landscape/visual mitigation planting to help screen the Papakainga houses and integrate them and complement the existing vegetation within the site.

2.4 Weed Control

The owners of the site agree to undertake weed and pest control of the areas to be planted within the site.

2.5 Implementation

Implementation of the weed control plan will be the responsibility of the owners.

3.0 LANDSCAPE MITIGATION

3.1 Objectives

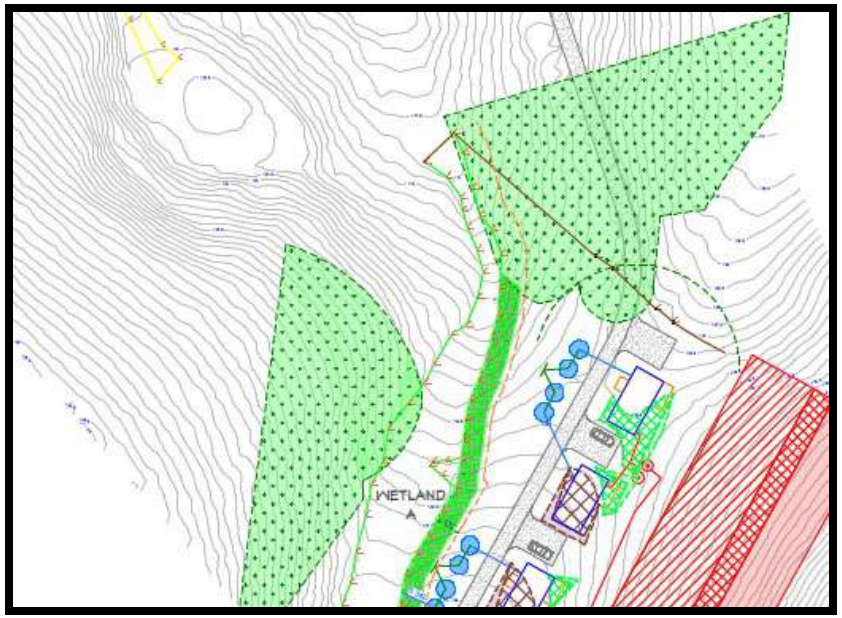
To mitigate the Papakainga housing by ensuring the development is well screened from public vantage points and integrated into the site by utilizing the indigenous values and features within the site.

To ensure that the natural and landscape character of the site and surrounding area is maintained.

3.2 Mitigation Plan

The mitigation plant for landscape planting is to assist with the visual and landscape integration of the proposed Papakainga Housing project.

The mitigation planting plan utilizes a mixture of exotic and indigenous species.



4.0 MAORI CULTURE AND HERITAGE

5.1 Objective

To protect, preserve and maintain areas of cultural or archaeological value.

5.2 Introduction and Overview

The Far North and west coast have a rich historical legacy. Evidence exists of European occupation as well as Maori occupation on the subject site. There are no known/identified items/features of cultural heritage within the site or adjacent.

This section of the Management Plan sets out the procedures and protocols for ensuring that these areas are properly protected and respected.

Because the area has a rich historic legacy archaeological features may be discovered either during earthworks for the establishment or simply be uncovered over time naturally. This section of the management plan includes protocols and procedures to ensure minimal disturbance of any sites and ensure that proper processes are followed, including the legal requirements of the Heritage New Zealand (HNZ).

5.3 Maori Principles and Key Values

Fundamental principles for protecting and preserving cultural values as follows.

5.3.1 Principles

- Avoid Contact and Impacts. - Ultimately, best practice planning is required to avoid contact or intrusion in areas significant to Maori that may threaten or impact upon heritage and cultural values. Maori input into this plan provided appropriate information to assist the owners with the future management and development of their property.

- Remedy Proposals - In the event that a proposed activity or development suggests impact on heritage and cultural values, revision of the proposal to avoid such contact or impact must then be attempted. The owners of the lots are encouraged to discuss their proposal with local Maori prior to initiating any developments.

- Mitigate Negative Effects - In the event that principles 1 & 2 above cannot be achieved, negative impact to heritage and cultural value is most certain. This is the least desired outcome as it contradicts the objectives of this management plan. In most cases, mitigating negative effects results in loss of values. It must be clearly understood that Maori do not favorably support mitigating negative effects therefore extensive discussions with Maori must be engaged for all proposals.

5.3.2 Koiwi (Human Remains)

Koiwi were often buried in areas through out the Far North and west coast that have no identification as to their whereabouts. However, they are largely discovered along beach-front areas, at times in great

numbers. It is however unlikely that koiwi are buried on the property, as it does not contain a pa in the location of the building areas. It is however noted that precautions must be taken on the property.

5.4 Maori Taonga and Wahi Tapu

5.4.1 Archaeology

The ongoing protection, maintenance and integrity of heritage sites and matters of cultural importance are the responsibility of owners of the site in the development and maintenance of their properties. No known archaeological sites are within the application site.

5.4.2 Implementation

The implementation section is broken down into protocols and controls for the following:

- Identification of archaeological sites;
- Discovery of potential sites of archaeological or cultural value.

The section concludes with the protocols for consultation with iwi representatives if changes are proposed to the Management Plan, and the contact details of relevant parties in relation to this section.

5.4.3 Discovery of potential sites of archaeological or cultural value

In some instances, such as natural erosion, archaeological material or koiwi may become unearthed. If subsurface evidence (e.g. pipi shell or other shellfish material, signs of charred wood or rock and any other material which may indicate possible historic activities or bones of any kind) should be unearthed during earthworks or construction, earthworks, other activities or natural events the following protocol shall be followed:

1) Work shall cease in the vicinity of the remains immediately. Maori remains shall not be removed from their resting place and no other archaeological items shall be removed.

2) The person undertaking or monitoring the works shall contact the Heritage New Zealand. If the archaeological remains relate to Maori occupation of the land, then the iwi contacts shall be advised. If the remains are koiwi then the New Zealand Police, Heritage New Zealand and local iwi shall be advised; in that order.

3) No work shall resume around the area of the remains until the following procedure has been undertaken and the approval of the New Zealand Police, Heritage New Zealand and iwi has been obtained as required.

Local iwi have identified sites on the property for the placement of archaeological remains and re-interment of koiwi (urupa). Any koiwi uncovered on the property shall be interred in these locations by iwi and in accordance with their cultural requirements. Property owners shall allow access to the urupa for the re-interment of koiwi and shall respect and not disturb these places.

4) Unless otherwise approved by local iwi, archaeological remains shall stay on the property in depositories approved by local iwi. Property owners shall allow access to these for placement of archaeological remains and shall respect and not disturb these places.

5) Individual allotment owners, in conjunction with local iwi, shall keep a record of koiwi and archaeological remains interred on the property, including their location.

Individual allotment owners shall advise all visitors to their property of areas that should not be disturbed.

5.5 Contacts

This section of the Management Plan details procedures and protocols which involve local Maori and the New Zealand Historic

Places Trust. At present the key contact people in this regard are as follows:

Heritage New Zealand
Regional Archaeologist Northland
PO Box 836, Kerikeri
Telephone: (09) 401-7947
Facsimile: (09) 407-3454
Mobile: (027) 249 0864

The applicants are part of the local marae located across the road at Waimanoni.

5.0 EARTHWORKS

5.1 Objective

To control and manage earthworks during the installation of the access way and driveways.

5.2 Implementation

5.2.1 Surface materials

All surface soil material along the access way and driveway alignment is to be removed and stockpiled on the site for reuse on battered slopes.

The extent of the finished slope shall be such that it shall be able to be married into the existing slope.

5.2.2 Subgrade

The subgrade surface of any batters shall be prepared to level and shape to produce a smooth hard tightly bound surface, free from depressions capable of holding water. It shall then be lightly scarified.

5.2.3 Topsoiling

A minimum of 100mm of topsoil shall be placed over the subgrade-sloping up to a depth of 50mm within 100mm of the access way surface. It shall be leveled but not compacted, except for the verge areas, which shall be compacted. Topsoil on batters shall be placed so as to avoid filling.

5.2.4 Surface treatment

Planting shall be undertaken in the next planting season following construction.

Excavation undertaken outside this period shall be grassed within 1 week of final gradients being established provided the establishment period is between 1st April and the 31st November.

If surfaces are completed between the 1st December and the 31st March, they shall be mulched with hay or straw, or bark, wood residue/wood pulp spread over the surface of the disturbed ground in an even layer a minimum of 25mm thick within one week of final gradients being established. Grass seed shall be installed later as above.

6.0 EROSION AND SILT CONTROL

6.1 Objective

To control and manage erosion and silt run off.

6.2 Implementation

Silt control measures such as the provision of silt fences and regrassing, or other appropriate devices shall be installed down hill of any works to control any silt runoff and erosion from the site during the construction process.

7.0 STORMWATER AND EFFLUENT DISPOSAL

7.1 Objective

To control and maintain storm water produced as a result of the proposal and on-site effluent disposal.

7.2 Implementation

The following methods are to be implemented to control storm water.

The proposal involves impervious surfaces of 5650.8m^2, which includes the existing dwellings, proposed dwellings and driveways.

All stormwater/water from the roof is to be collected for portable water supply with an on-site detention tank to mitigate post development flows. The proposed driveway and access are to be shaped and directed towards grass lined swale for stormwater run off.

For the collection and distribution of effluent each new household unit is shown on the development plan. The on-site effluent is addressed in the report prepared by Water Flow NZ Ltd and in accordance with the approved consents from Northland Regional Council.

8.0 WATER SUPPLY

8.1 Objective

To provide sufficient water supply to meet the residential needs of the occupants of the property.

8.2 Implementation

All houses will have access to at least 25,000 litre water tank for water supply. Provision within these water tanks will allow for firefighting supply

9.0 GEOTEHCINAL CONSIDERATIONS

9.1 Objective

To ensure that the land is geotechnically stable for the Papakainga housing development.

9.2 Implementation

RS Eng Ltd have prepared a geotechnical report and site suitability reports for each Papakainga houses and confirm that the land is stable for development.

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 200m^2 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:	Angela Vujcich /- Advance Build
Address:	2077 State Highway 10, Waipapa
Contact Details:	021351467
Return Email Address:	angela@advancebuild.co.nz

Section C – Property Details

Property Details	
Address of Property:	583 Matawaia-Maromaku Road, Matawaia
Lot Number/s:	Motatau 2 Section 29A 2 Block Block
Dwelling Size: (Area = Length & Width)	4 new Dwellings, plus 4 existing dwellings
Number of levels: (Single / Multiple)	Single

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 **approx 10-20m**	

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: Click or tap here to enter text.

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 litres

2 (b) Water Supply Multi-Title Subdivision Lots / Communal Supply	
Tank Farm	☐ Concrete Tank Will be either a coupling or accessible lid ☒ 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 10000 litres

2 (c) Alternative Water Supply	
Pond:	Volume of water: Click or tap here to enter text.
Pool:	Volume of water: Click or tap here to enter text.
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: Tanks will be visible

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: Cable Tie

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: Rain Water collection

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.

See attached site plan

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
Given the size of the site and location to the scrub in the reserve, the proposal is mostly able to comply with the 20-meter setback from vegetation on site. With respect to the site itself, the vegetation and scrub have been cleared as much as possible. In terms of fire hazard, Advance Build has included in there design the following mitigation: i.The use of fire-resistant building materials – Weathertex weathergroove with Armosteel roofing, metal guttering and aluminium joinery. As per the product fact sheet, Weathertex weathergroove are flammable but difficult to ignite. ii.Remove all scrub on the property where able to do so. The property has good egress to allow for the evacuation and the access via fire appliances

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: Angela Vujcich c/o Advance Build

Dated: 08/08/2025

Contact No. 021351467

Email: angela@advancebuild.co.nz

Signature:

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

Signature: Click or tap he

P.P on behalf of the Area

Fire and Emergency New Zealand
Te Tai Tokerau / Northland District

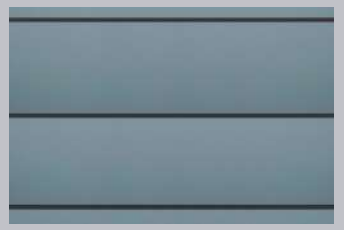
APPROVED
By GoffinJ at 12:06 pm, Oct 10, 2025

Jason Goffin- Advisor Risk Reduction

SCHEDULE OF COLOURS

Exterior Cladding
LRV ≤ 40%

1. Weathergroove Smooth



2. Weathergroove Natural

3. Primelok Weatherboard

4. Selflok Weatherboard

Roofing
LRV ≤ 30%

COLORSTEEL® ENDURA® roofing represents the perfect blend of form and function. It has been created alongside global leaders in both paint technology and the manufacture of pre-painted steel products.

T-Rib
T-Rib profile and matching flashings. T-Rib is a popular and versatile 5 Rib trapezoidal roofing profile that can be used in residential applications as a roof. T-Rib offers the value of Corrugate whilst being able, by design, to achieve roof pitches down to 3 degrees.

Corrugate
Corrugate profile and matching flashings. A true icon of Kiwi culture and construction, the Corrugate profile is cost effective and versatile, able to handle a wide range of roofing and wall cladding applications. To be used on roof pitches over 8degrees'

Inspired by New Zealand, loved by New Zealanders. Colorsteel offers a blend of classic, timeless shades and modern, on-trend tones.

Thunder Grey TSR : 27% LRV : 12%	**Ebony** TSR : 5% LRV : 5%
Karaka TSR : 25% LRV : 8%	**Slate** TSR : 27% LRV : 9%
Windsor Grey TSR : 21% LRV : 7%	**Flaxpod** TSR : 23% LRV : 11%
New Denim Blue TSR : 25% LRV : 11%	**Ironsand** TSR : 25% LRV : 8%
Grey Friars TSR : 26% LRV : 10%	

Total Solar Reflectance (TSR)
Measures the amount of solar energy across the entire spectrum that is reflected away from an object. This correlates closely to the temperature that the object will reach on a hot summer's day.

Light Reflectance Value (LRV)
The approximate light reflectance value (LRV) of a colour indicates the amount of visible light that a colour will reflect. Black has a light reflectance value of 0% and absorbs all light. The surfaces are consequently very dark and can get very hot. In contrast, white has a light reflectance value of 100% and keeps a building light and cool. All colours fit within these two extremes

Trims
Windows

Box Corners

Colours of minor decorative exterior features such as joinery, downpipes and box corners to be in keeping with rural environment and style of house. Lighter colours may be used in conjunction with the proposed roof and cladding palette.

Advance build

Project Starter Pack

Authorisation for Council

As the ~~legal owner/s or~~ representative/s of property at: 583 Matawaia-Maromaku Rd, Matawaia

I give authority for the builder (Advance Manufacturing Ltd) or nominated delegates to apply for a PIM Report, Resource Consent, Building Consents on my behalf and to undertake site visits on my property.

It is not a requirement for all landowners to give authorisation, one or more key stakeholders is sufficient.

Date: 7th of October 2025 Project Consultant: Joseph Simpkin

Owner/ Representative Name: Rowena Brücker Signature: R Brücker

Owner/ Representative Name: Moana Tamatea Signature: M Tamatea

Owner/ Representative Name: Arthur Mitchell Signature:

Owner/ Representative Name: Kiri Pitá Signature: K Pitá

Owner/ Representative Name: Noel Mitchell Signature:

Owner/ Representative Name: Signature:

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