

# Resource Consent Application Form

Section 88 of the Resource Management Act 1991 (RMA). This form provides us with your contact information and details about your proposal. Please print clearly and complete all sections.

## 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.

**To:** Name of Council that is the consent authority for this application: [Rotorua Lakes Council](#)

## Type of resource consent being applied for:

- Land use
  Subdivision
  Combined land use and subdivision

## Activity Status

- Controlled
  Restricted Discretionary
  Discretionary
  Non-complying
  I don't know

## Fast Track Resource Consent

The Resource Management Act 1991 provides for land use activities that have a controlled activity status to be fast tracked through the resource consent process and processed within 10 working days of the application being lodged with Council. Your consent may be fast tracked if you tick 'yes' to the first two questions below.

1. Is this application for a controlled activity (land use consent only)?  Yes  No
2. Have you provided an electronic address for this service?  Yes  No

If you wish to opt out of the fast track process, tick here:

## Applicant Name

Please provide the full name of the persons, company, society or trust applying for this resource consent. If the applicant is a trust, please provide the full name/s of all trustees of that trust.

Name:

Rotomahana Parekarangi 6J2B3 Trust



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### Applicant Contact Details

Postal Address:	C/O APR Consultants (Deryck Shaw) P O Box 1715 Rotorua		
Post code:	3040	Email:	s7(2)(a)
Phone:	s7(2)(a)	Mobile:	

### Agent Contact Details

If you have an agent or other person acting on your behalf, please complete the details below.

Agent:	Burton Consulting Ltd		
Contact:	Rebecca Burton		
Postal Address:	152 Oturoa Road, RD2, Rotorua		
Post code:	3072	Email:	s7(2)(a)
Phone:	-	Mobile:	s7(2)(a)

### Location of Proposal

Please complete with as much detail as you can, so the site for your proposal is clearly identifiable. Include details such as unit number, street number, street name and town.

Property address:

Tarawera Road, Lake Tarawera, Rotorua

Legal description:

Rotomahana Parekarangi 6J2B3 Block

### Owner/Occupier of Site

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Landowner's full name, phone number and address:

[Empty text box for landowner details]

OR

Same as applicant details

Occupiers full name, phone number and address:

[Empty text box for occupier details]

OR

Same as applicant details

### Description of Proposal

Please provide a brief description of the proposal and the reasons why resource consent is required ie which rules in the district plan are infringed. If the space provided is insufficient, please attach additional pages.

To establish a Marae, Papakainga Housing and Cultural Centre over four stages

### Other Consents

Please let us know of any other consents that you have applied for or know that you need to apply for related to this application. This includes any resource consents that may be required from a regional council under a regional plan.

Other resource consents

Resource consent no. (if known)

[Empty text box for resource consent number]

Building consent

Building consent no. (if known)

[Empty text box for building consent number]

Regional plan consent

Type of regional consent:

*e.g. water discharge permit,  
water intake permit*

[Empty text box for regional consent details]

### National Environmental Standards (NES)\*

Please let us know if you require consent under a National Environmental Standard. National Environmental Standards are regulatory documents that contain standards pertaining to certain matters eg management of contaminated land, telecommunications.

Is consent required under a NES?

Yes

No

I don't know

Tick the following applicable NES:

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- NES for Air Quality
- NES for Drinking Water
- NES for Telecommunication Services
- NES for Electricity Transmission Services
- NES for Assessing and Managing Contaminants in Soil to Protect Human Health
- NES for Plantation Forestry
- Other

\* For further information about National Environmental Standards, their requirements and forms please refer to any other sheets provided with these application forms.

### Assessment of Proposal

Please attach an assessment of your proposal's effects on the environment, an assessment against the relevant matters of Part 2 of the RMA and any relevant provisions of NES, regulations, national policy statement, regional policy statement, regional plan and district plan.

See attached and submitted documents.

### Pre-application Information

We recommend that you have a pre-application discussion about your proposal with a Council planner.

Have you had a pre-application meeting with a Council planner?  Yes  No

Have you had any other conversations with any other Council staff?  Yes  No

Date of meeting:

Please provide the names of Council staff you have spoken with:

Peter Dine, Lorelle Barry, Paula Meredith

If notes of the meeting or other conversations were provided to you, please attach copies.

Have you attached any minutes/notes from the meeting?  Yes  No

### Notification

The Resource Management Act 1991 allows applications to be notified for public submissions on request of the applicant.

Are you requesting that your application be publicly notified?  Yes  No

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If you selected 'yes' to the above question, please attach a short summary outlining the details of your application.

Have you attached a summary?  Yes  No

### Site Visit Requirements

As landowner and with the consent of any occupiers or lessee, I am aware that Council staff or authorised consultants may visit the site which is the subject of this application, for the purposes of assessing this application, and agree to a site visit.

OR

If the applicant is not the owner, I understand that Council staff or authorised consultants may visit the site, which is the subject of this application, for the purposes of assessing this application, and agree to a site visit.

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

Are there any dogs on the property?  Yes  No

Are there any hazards that may place a visitor at risk?  Yes  No

Provide details of any entry restrictions that Council staff should be aware of e.g. health and safety, organic farm etc.

### Draft Conditions

When a consent is granted, Council can include conditions to manage any adverse effects.

Do you wish to see draft conditions prior to Council making a decision on the application?  Yes  No

By ticking this box, I understand that the opportunity to review the draft conditions is an act of good faith by the Council intended to assist with identifying errors before consent is granted. I further understand that Council has the right to continue processing the application if too much time is taken in the review of draft conditions. By requesting draft conditions I agree to an extension of time under section 37 of the RMA.

### Signature of the applicant(s)

Please read the information below before signing the application form.

#### Payment of fees and charges

You must pay the charges payable to Council for this application under the RMA. Please refer to Council's Fees and Charges on its website.

By submitting this application to Council, you agree to pay the charges set out in Council's Fees and Charges relevant to the application.

#### Privacy information

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Council requires the information you have provided on this form to process your application under the RMA. Council will hold and store the information on a public register. The details may also be made available to the public on the Council’s website. If you would like to request access to, or correction of any details, please contact the Council.

**Information checklist**

The information checklist provided with this form sets out the full set of information that Council requires for your application to be considered complete. Your application may be returned as incomplete if you do not provide adequate information. Your completed application should be submitted to Council with any supplementary forms and/or guidance as provided by Council.

**Correspondence and Invoices**

Please let us know where to send any correspondence and invoices. Where possible any correspondence will be sent by email.

All correspondence excluding invoices sent to:  Applicant or  Agent

All invoices sent to:  Applicant or  Agent

**Confirmation by the applicant**

I/we confirm that I/we have read and understood the information and will comply with our obligations as set out above. A signature is not required if you submit this form electronically.

Applicant name:  Signature:  Date:

Applicant name:  Signature:  Date:

Applicant name:  Signature:  Date:

**Confirmation by the agent authorised to sign on behalf of the applicant**

As authorised agent for the applicant, I confirm that I have read and understood the above information and confirm that I have fully informed the applicant of their obligations in connection with this application, including for fees and other charges, and that I have the applicant’s authority to sign this application on their behalf. (A signature is not required if you submit this form electronically.)

Agent’s full name:  Signature:  Date:

**Information Checklist for Resource Consent Application**

All applications must include the following information:

- A description of the activity
- A description of the site where the activity will occur
- The full name and address of each owner or occupier of the site
- A description of any other activities that are part of the proposal to which this application relates

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- A description of any other resource consent required for the proposal to which the application relates
- An assessment of the proposed activity's effects on the environment
- An assessment of the activity against Part 2 of the Resource Management Act 1991. This will need to address section 5 'Purpose', section 6 'Matters of national importance', section 7 'Other matters' and section 8 "Treaty of Waitangi'
- An assessment of the activity against any relevant objectives, policies or rules in the district plan
- An assessment of the activity against any relevant requirements, condition or permissions in any rules in a document listed in section 104(1)(b) of the RMA
- Record of title(s) for the subject site  
This must be less than 3 months old. Please attach the title(s) and any consent notices, covenants, easements attached to the title(s)
- Site plan or scheme plan  
Please provide at an appropriate scale (for example 1:100) showing the location of the building or activity in relation to all site boundaries. The site plan should include the following where relevant:
  - North point
  - Title or Reference No.
  - Scale
  - Date the plans were drawn
  - Topographical information
  - Natural features, including protected trees, indigenous vegetation, water courses
  - Archaeological and/or cultural/heritage sites
  - Record of Title boundaries/location of fence positions relative to boundaries
  - Accessways and road frontages, including proposed crossing places/right of ways
  - Onsite manoeuvring and existing and proposed car parking spaces
  - Legal and physical roads
  - Existing buildings
  - Existing wells and/or effluent disposal systems
  - Buildings on adjacent sites
  - Layout and location of proposed buildings and activities in relation to legal site boundaries
  - Earthworks design and contours/areas of excavation
  - Landscaping
  - Site coverage calculation
  - Details of any signage (sign design, dimensions and location on buildings)
  - Areas subject to hazards e.g. unstable slopes, areas of flooding, peat soils or fill
  - Areas of potential or confirmed contamination
- Elevation plans  
Please provide at an appropriate scale (for example 1:50, 1:100 or 1:200) and show all structures to be constructed or altered, showing the relationship and appearance of proposed buildings.
- Floor plans of proposed building or buildings to be used for the activity  
Please clearly show the use of each area/buildings
- Engineering design plans for any water, wastewater and stormwater works  
(Only concept engineering plans are required at this stage.)
- An assessment of the activity against any relevant provisions of a:
  - National Environmental Standard
  - National Policy Statement
  - Regional Policy Statement
  - Regional Plan
- A description of any part of the activity that is permitted under the district plan

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- If a permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates it complies with the relevant requirements and conditions for that permitted activity (so that resource consent not required for that activity).
- An assessment of effects (AEE) of the activity  

An AEE is an essential part of your application. If an AEE is not provided Council is unlikely to accept your application. The AEE should discuss all the actual and potential effects of your proposed activity on the environment. Schedule 4 of the RMA outlines all of the matters that must be addressed in your AEE. The amount of detail provided must reflect the scale and significance of the effects that the activity may have on the environment. For example, if there are major effects arising from the proposal, a detailed analysis and discussion of these effects must be included in the AEE. It may require the provision of information from specific experts (eg a traffic engineer). If the effects of the proposal are minor, then a less detailed AEE can be submitted. *(The Council has information available to assist you to prepare the AEE – please contact us if you have any questions.)*

**All applications for subdivision consent must also include the following information:**

- The position of all new boundaries
- A north arrow and the scale (1:2000)
- All proposed and existing easements (including private easements)
- Any amalgamations
- Stages (if proposed)
- Dimensions and sizes of existing and proposed new lots
- Legal and physical roads, accessways and rights of way including grades (if applicable)
- All existing buildings and structures, their distance to existing and proposed boundaries and the position of any eaves in relation to rights of way/accessways
- The areas of all new allotments, unless the subdivision involves a cross lease, company lease, or unit plan
- The locations and areas of new reserves to be created, including any esplanade reserves and esplanade strips
- The locations and areas of any existing esplanade reserves, esplanade strips, and access strips
- The locations and areas of any part of the bed of a river or lake to be vested in a territorial authority under section 237A
- The locations and areas of any land within the coastal marine area (which is to become part of the common marine and coastal area under section 237A)
- The locations and areas of land to be set aside as new roads

**Other useful information**

The following examples of information are not compulsory, but they will be useful in helping Council make an informed decision about your application. Submitting this information *if it is relevant to your proposal* may save time and costs further down the track.

- Locality plan or aerial photo  

Please provide at an appropriate scale (for example 1:500). Please indicate the location of the site in relation to roads and other landmarks. Show the street number of the subject site and those of adjoining sites.
- Volume of any earthworks  

This must include area and volume of soil removed/imported and depth of cut/fill
- Details of Hazardous Activities and Industries (HAIL) List activity



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If you are unsure whether your site is on the HAIL list please contact Council for assistance

- Any written approvals including details of those sought but not obtained  
Please include any signed written approval forms and signed plans if acquired.
- Specialist reports to support your application  
This may include traffic impact studies, landscape and planting plans, acoustic design certificates etc.
- Details and outcome of any consultation undertaken with adjacent land owners and occupiers, and relevant bodies. For example, the Regional Council, Heritage New Zealand Pouhere Taonga, Transpower, KiwiRail, NZTA, Department of Conservation etc.
- Details of any consultation undertaken with iwi  
If you are unsure whether your proposal may affect matters of interest to iwi, or who the relevant iwi groups might be, please discuss this with Council prior to lodging your application
- Any other information arising from specific district plan provisions

### Other information to include in an application for subdivision consent if it is relevant to your proposal

#### Proposal details

- Site coverage calculations
- Existing and proposed crossing places and sight distances and separation distances between crossing places
- Building platforms for all allotments including shape factors
- Onsite manoeuvring and existing and proposed vehicle parking spaces (where required)

#### Network utility operations

- Existing high voltage electricity lines and gas lines
- Location of existing and proposed service connections (including connections to reticulated services) and/or systems ie water, wastewater, stormwater and any easements
- Onsite effluent treatment and disposal areas and fields

#### Natural features

- Significant trees, bush stands, protected trees (including their extent of their dripline), covenanted areas or other features
- Water bodies

#### Heritage

- Archaeological and/or cultural heritage sites

#### Hazards

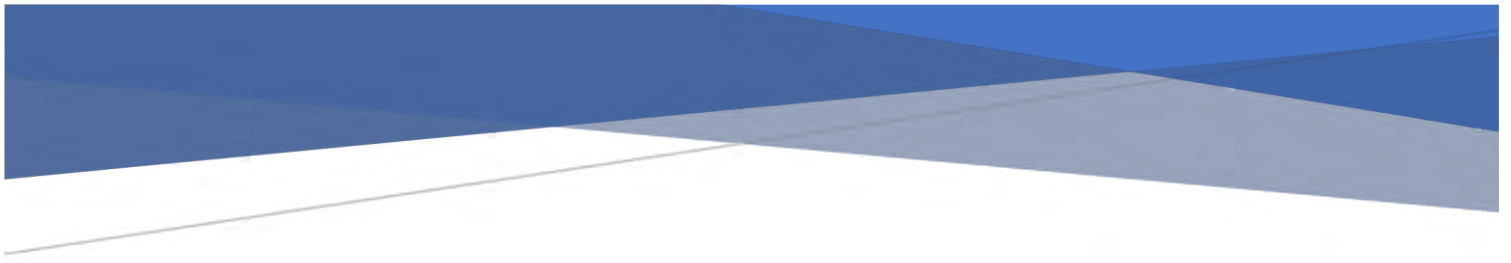
- Areas of likely or confirmed contamination
- Areas subject to land hazards e.g. unstoppable slopes, areas of flooding, peat soils, fill

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- Details of proposed stormwater management appropriate to the scale and nature of the subdivision
- Pipework and onsite stormwater systems
- Open drains (including ownership)
- Effect of subdivision and end use on existing overland flow paths
- Contours showing existing and finished ground level (levels to the relevant datum) at 0.5m intervals within the subdivision, and at 2 metre intervals on adjoining properties (to enable effects on those properties to be assessed). A separate plan may be needed to show these details.
- Areas of proposed or existing fill or excavation
- Any proposed retaining walls or embankments (note if retaining wall over 1m is proposed, a typical cross section is required.)
- In urban areas, details of the percentage of proposed and existing impermeable and permeable areas
- Natural hazards, e.g. unstable slopes, areas of flooding, ponding, peat soils
- Elevations (to scale) of buildings which are affected by the location of new boundaries (e.g. where height in relation to boundary rules apply)

**Applicant to confirm:**

- I/we confirm that this application form has not been altered or amended in any way.



# APPLICATION FOR LANDUSE CONSENT

Tarawera Road, Lake Tarawera, Rotorua

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## 1.0 OVERVIEW

<b>Applicant/s:</b>	Rotomahana Parekarangi 6J2B3 Trust
<b>Location:</b>	Tarawera Road, Lake Tarawera, Rotorua
<b>Legal Description:</b>	Rotomahana Parekarangi 6J2B3 Block
<b>Property File:</b>	P17367
<b>Certificate of Title:</b>	258263
<b>Land Area:</b>	11.4146 hectares
<b>Proposal:</b>	To establish a Marae, Papakainga Housing and Cultural Centre over four stages.
<b>District Plan Zoning:</b>	Lakes A – Sensitive Rural, Lake Tarawera Policy Area
<b>Activity Status:</b>	Non Complying
<b>Site Location:</b>	



## 2.0 DESCRIPTION OF THE SITE & SURROUNDING ENVIRONMENT

### 2.1 Site Background

The subject site is one of the land blocks that once contained part of the historical Te Wairoa Village prior to the Tarawera eruption. This village was one of the first joint Māori and European Villages in New Zealand and was a popular place for tourists to visit during their journey to the Pink and White Terraces. Unfortunately, this settlement was destroyed in the Mount Tarawera eruption of 10 June 1886.

Historic imagery of the site shows the land to consist of gardens and cultivated crops, and developed with the dwelling of Wi Keepa Te Rangipuawhe, the Rangatira (Chief) of Tuhourangi. A number of other residences were also present onsite, further enforcing the role of the site in the wider Te Wairoa Village.

### 2.2 Location, Land use and Surrounding Environment

The subject site is located on Tarawera Road between Lake Rotokakahi (Green Lake) and Lake Tarawera, and just before the Buried Village. The site comprises of two blocks dissected by Tarawera Road. On the northern side of the block is a parcel of land consisting of around 10.5 ha. The development is proposed to occur on this northern land block. The other portion of the site, on the south side of Tarawera Road, has an area of 0.9105 ha. This is an irregularly shaped, flat parcel of land with an added frontage facing the formed and sealed Tarawera Road.

Across from the site is the Buried Village, this being a well-known and established visitor attraction that includes a number of unique exhibits focusing on the eruption of Mount Tarawera in 1886. The carpark and walking access to the Tarawera Walk is also located across from the site within 1134 Tarawera Road.

Adjoining this site is the Rotomahana 6J2B4 block, which was once occupied by the Hinemihi meeting house, which is currently located in Britain. Negotiations are ongoing regarding bringing Hinemihi back to New Zealand with it to be located near its original location onsite.

### 2.3 Zoning and Planning Constraints

The property is zoned as Sensitive Rural under Part 11 - Lakes A and is located within the Lake Tarawera Settlement Policy Area. The adjoining sites are also zoned as Lakes A – Sensitive Rural with the majority of these covered in dense indigenous vegetation.

The site is covered by an identified recommended area of protection (RAP74) site, recorded as the Lake Okareka Scenic Reserve Extension.

The frontage of the site, where the property adjoins Tarawera Road is located within the scenic road buffer, which intends to provide a vegetative setback to the road and maintain the scenic vegetative road corridor experienced when travelling to Lake Tarawera.

Tarawera Road has been constructed over the subject site causing a loss of land. Discussions have been held with Council regarding the legal correction of the road reserve and a land transfer to correct this error. This is a separate process to this application and will be dealt with during the development process. Discussions have also been held with the Council transport department gaining approval for the buildings to encroach on the 10m setback from the formed road which is usually required under roading standards. Approval has been obtained for buildings to be located 3 metres from the edge of the formed road.



## 2.4 Topography & Soils

The land directly adjoining Tarawera Road is relatively flat, with a slight upward slope to the north. This contour exists for approximately 17-60metres, depending on the location of measurement, at which point a sharp steep incline occurs, with the land from here on being less physically accessible.

The site is in a shallow valley between two rhyolite lava domes, with older lava flows forming the valley floor. Airfall ashes and wind-blown loess have built up an overlying sequence many metres thick, which is mantled by a surface layer of Rotomahana Mud. This is a fine sticky pug of basaltic silt and lake mud about 1.0 m thick, deposited by the Mt Tarawera eruption on the 10<sup>th</sup> of June 1886.

## 2.5 Ecology & Vegetation

The subject site is located a recommended area of protection (RAP 74) with this covering a moderately large area of indigenous vegetation that is contiguous with the Lake Okareka and Lake Tarawera Scenic Reserve.

The rear of the site consists of indigenous shrubland then forestland. The front of the site contains a mixture of exotic weeds and scrub. Topsoil is approximately 100 to 150mm thick but is interlaced with roots from ivy which covers large areas of the development site. Creepers also cover and smother many of the trees within this area.

The eastern area of the site contains the bulk of the regenerating native bush but is interspersed with weed species. The vegetation canopy is a mixture of exotic trees, dominated by sycamores, elms, black locust and poplars. Also common, mostly as an understorey on bush margins and in regenerating forest are hawthorn and some native species, including kotukutuku, karamu, wheki-ponga and ponga.

The ground cover is dominated by ivy which grows rampantly throughout many parts of the site, covering the ground and ascending trees to a considerable height. The western end of the site is covered in scrubby vegetation of low botanical value.

Within proximity to the site is the Te Wairoa River which flows through the Buried Village feeds Wairere Falls and flows into Lake Tarawera. this is an important spawning ground for trout and is located to the south of the site.

## 2.6 Existing Infrastructure

### Power and Telecommunications

Power lines dissect the frontage of the subject site and are located towards the southern edge of the proposed development. The site is not currently connected to this supply and discussions are being held with Unison regarding the ability to relocate these lines underground.

### Stormwater:

The site is currently vacant and does not have any connections or methods in place for stormwater discharge. Currently stormwater run-off from Tarawera Road and the site drains into the water table and then through a 400 mm diameter concrete culvert pipe under Tarawera Road. The invert level of the culvert is 383.72 m, which is 1.3 m below the proposed floor level of the development. The volume of water flowing through the culvert is predominantly run-off from the road surface.

### Wastewater

There is no Council infrastructure located within this area. However, the applicants have been advised that the Rotorua Lakes Council is in the process of developing the Tarawera Wastewater Scheme, with this intended to be developed and in operation by 2024.

### Water Supply

There is no Council infrastructure located within this area.

### Roading/access

The subject site adjoins Tarawera Road, which has a speed limit of 80km/hr and is classified as a Collector Road. Under the Lakes A provisions, the road is also classified as a Scenic Road Corridor. Currently there is no formed access or vehicle crossing to the site.

## 2.7 Natural Hazards

The site is subject to a number of natural hazards as shown in Figure 1 below.

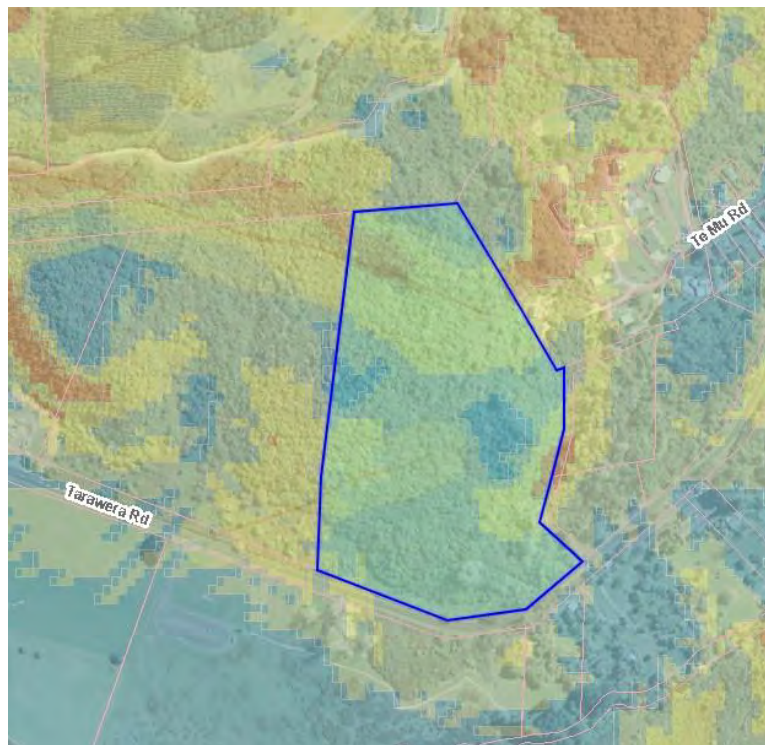


Figure 1 Fault lines and areas susceptible to landslides that impact subject site (sourced from Geyserview V5).

Due to the steep topography located at the rear (north) of the site, areas are subject to landslide susceptibility. Due to the Tarawera eruption there are also risks associated with boulders and rock fall. A ground assessment has been completed by engineers with one large, embedded rock being identified within the upper slopes of the site.

The steep slopes immediately to the north of the development area are overlain in volcanic ash and pre-existing ash/in-situ weathered silts/sands. At the observed gradients these provide slope stability factors that do not comply with current building codes and standards.

Anecdotal evidence demonstrates that current landslip failure mechanisms over such steep escarpments are generally limited to shallow seated (few metres) slumps and slides that run out for significant distances downslope. Therefore, a downslope debris hazard risk exists across the lower slopes of the site

Two faultlines (known as the Highlands Fault) also intersect the site, the recurrence of this faultline is unknown. The Highland Fault hasn't been accurately identified in this location and has been inferred mostly from aerial photography, therefore it is understood that Council has increased the fault avoidance zone from the nominal 20m setback to account for the level of uncertainty in locating the fault.

## 2.8 Planning Background

In 1999 a consent for a tourism activity was lodged with Council, this being declined due to;

- environmental effects of the proposal;
- landscaping and screening being insufficient and;
- uncertainty over the Tarawera variation.

In 2002 a new resource consent application was submitted to Council to develop and operate a visitor attraction Centre. Two associated consents were submitted to the Regional Council for earthworks and the discharge of contaminants to land (ref 60286), and the discharge of effluent via ground soakage (ref 60287). The consent was notified, and submissions were received reading concerns of archaeological impacts, the impact on the stream, drinking water supply, stormwater impacts and the general character and amenity of the Lakes A Zone. Subject to conditions of consent, this application was granted, however the consent was not implemented and has since lapsed.

## 2.9 Existing Title

A copy of the Record of Title is provided within Attachment D. The only matter registered relates to a status order issued in 1982 that determine the status of the land to be Maori freehold land.

There are no other matters registered against the title that may impact the assessment of this application.

## 3.0 DESCRIPTION OF THE PROPOSAL

### ***Te Hokinga Mai Ki Te Wairoa – The return of Tuhourangi to Te Wairoa***

Rotomahana Parekarangi 6J2B3 Trust has a goal of their people returning to their whenua, which they have been displaced from since the eruption of Mount Tarawera in 1886. To achieve this goal housing and employment opportunities are required to be established within with area. In addition, the establishment of a Marae to enforce the cultural connection to the environment will help achieve this goal.

The development consists of four distinct construction stages, being site preparation and investigation, the development of Papakainga, a Marae and lastly a Cultural Centre. An overview of each stage is provided below.

To reflect the comprehensive and integrated nature of the site development, the preferred approach is to seek resource consent for all four stages of the project now.

### 3.1 Stage 1: Site Preparation & Investigation

This stage involves the preparation and stabilisation of sites to enable the development proposed within the subsequent stages. This will involve the following actions:

- Blessing of the site by the Trust prior to commencement of earthworks.
- Vegetation clearance, Earthworks & Sediment control installation.
- Archaeological investigation, collection and recording of archaeological remnants and artefacts.
- Creation of a preliminary site entry from Tarawera Road and internal access.
- Installation of infrastructure.

#### 3.1.1 Overview of Earthworks & Sediment Controls

##### *a) Vegetation Clearance*

The attached ecological assessment identified two main vegetative types to be present within the area of the proposed development, these being Sycamore Forest and Blackberry – Barberry scrub. This vegetation will be cleared to provide for the proposed development.

##### *b) Area and volume of earthworks*

The total area of earthworks required is approximately 1.2ha. This involves a cut volume of approximately 2,600m<sup>3</sup>, a fill volume of 3,400m<sup>3</sup> and an imported fill amount of 800m<sup>3</sup>. A brief overview of the earthworks is provided below. Further information is provided in the attached infrastructure and geotechnical reports.

##### i) Ground clearance, site compaction

Due to the undulating topography of the site earthworks (both cut and fill) are required to generally flatten the land to enable vehicular access and provide building areas for future development and construction. The attached drawings provide a detailed overview of the earthworks required to be undertaken onsite to provide a stable area for development.

Retaining will also be required to stabilise the slope located to the north of the proposed development (refer to attached plans). This will have a maximum height of 3.91metres. A covered walkway will be located along the base of the retaining wall, connecting the Papakainga, carpark and Cultural Centre areas.

##### ii) Water tank platform

Limited vegetation removal and earthworks will be required to form a platform for the water supply tanks located above the Papakainga and Marae.

For the water tanks installed above the development, the diameter of the platform will be 2,200 mm with a depth of 300mm. A 100mm layer of sand or fine gravel will be used to bed the tanks. A retaining cover will be used to prevent the material washing away after installation.

##### iii) Creation of a site entry from Tarawera Road.

The construction of the site access road will be undertaken by an excavator to minimise disturbance of the Rotomahana sediment. The accessway will be located and designed in accordance with the infrastructure plans submitted as part of this application.

*c) Proposed Methodology*

The earthworks will be completed following the below steps;

1. Clear the existing vegetation within the earthwork's areas.
2. Strip topsoil and stockpile on site.
3. Cut and fill earthworks as required.
4. Re-spread topsoil to completed earthworks areas.
5. Seed newly spread topsoil with grass seed and where necessary spread hay mulch.
6. Conduct daily inspections to ensure sediment control measures are operating in accordance with the designs.
7. Once the earthwork sites have been stabilised, the erosion and sediment control measures will be removed.

*d) Overview of Sediment Controls*

The erosion and sediment control measures proposed are outlined within the attached infrastructure plan (MCCL Drawing 2645-1-200 series). All sediment and erosion control measures will adopt Bay of Plenty Regional Council – "Erosion and Sediment Control Guidelines for Soil Disturbing Activities." Implementing these controls will minimise the risk of any adverse effects from sediment laden runoff entering the receiving environment during the construction period.

Specific mitigation measures include:

- Silt fences as required to form a barrier to the sheet flow where there is the possibility of sediment-laden surface runoff to leave the site.
- Establishment of a stabilised entrance.
- Clean water diversion lines will be constructed to divert and collect upstream catchment runoff away from the earthwork sites.
- Construct sediment control ponds to settle out particulate matter and decant clean water prior to discharging into the adjacent stream. PAC flocculating chemicals may be used to assist in the settling of particles.
- Monitor the site after any significant weather events and repair using mitigation devices, as necessary. Regular maintenance of the devices will also be necessary to ensure their effectiveness during bulk earthwork operations.

### 3.1.2 Vegetation of the site

The berm described above will be planted in native vegetation at the end of the initial ground clearing and stabilisation phase during stage 1. This will be completed in accordance with the attached revegetation plan.

Any bare earth areas in the development will be grassed and/or planted as appropriate. As much of the established native trees from around the location of the Cultural Centre will be retained, especially around the eastern and south-eastern boundary of the site.

### 3.1.3 Infrastructure, Access, car parking and internal roading

#### *a) Wastewater*

Connections will be made to the Tarawera Sewage Scheme upon this becoming operational. In the interim a wastewater pipe network has been designed to gravity feed into the onsite wastewater system. This system has been designed to future proof discharge into the future rising sewer main along the road.

The pipe network and tank system has been sized to accommodate the wastewater peak flow from the proposed development. The proposed future wastewater layout to service the development is outlined within the attached infrastructure plan MCCL Drawing 2645-1-500 series.

#### *b) Water supply*

A bore providing potable drinking water is proposed. This bore will be located behind the Cultural Centre and will then be pumped throughout the development to provide drinking water.

Firefighting tanks will be filled from the new bore and tanks will be sized and located to comply with relevant standards. Final sizing of firefighting tanks will be completed as part for building consent after the buildings have been fully designed.

#### *c) Stormwater*

There is an existing culvert onsite crossing Tarawera Road, this will be maintained to service the site. The proposed stormwater management approach for the development is shown on the MCCL Drawings 2645-1-400 series and has been designed in accordance with the Regional Infrastructure Technical Specifications (RITS). The primary drainage that has been designed for the proposed development include a combination of pipe network, soakage system and open channels.

#### *d) Access and onsite parking*

A new vehicle crossing will be established from Tarawera Road. The vehicle crossing, carparking area and accessway have all been designed and will be constructed to RLC RITS standards.

An internal accessway will be created and sealed after the site has been cleared of vegetation and compacted. Allowances will be made to ensure that these are contoured in such a way that run off water is collected by the proposed sediment controls and eventually to onsite soakage.

The carparking areas will not be formed until the building sites have been substantially completed and sediment run-off stabilised. Carparks will be metalled and sealed with asphalt concrete or similar permanent covering.

#### *e) Power and telecommunications*

Currently the front of the site is dissected by Unison powerlines. These were installed within the boundaries of the site without the knowledge or approval of the landowners. As part of the site preparation these are intended to be relocated underground.

The development will require a new transformer to be installed on the nearby power pole. Confirmation from Unison will be provided as part of the associated building consent. The location of each connection and the installation of any required transformer will be included as part of the required building consent.

#### 3.1.4 Archaeological investigation, collection and recording of archaeological remnants

There are presently only two archaeological sites associated with Te Wairoa village recorded by Heritage NZ, a mill and a stone pataka, neither of which will be affected by the proposed works. However, the whole of the area once covered by the Te Wairoa Village. Where development is planned, historic imagery shows expansive gardens of cultivated crops, and the extant remains of the Tuhourangi Rangitira, Wi Keepa Te Rangipuawhe's house, as well as several other properties within the land block and warrant acknowledgement and protection, or archaeological investigation and recording, as appropriate to development plans.

The development provides an opportunity to uncover and collect archaeological remnants of the Te Wairoa Village, and gain information pertaining to New Zealand's past which will then provide greater knowledge and understanding of the past to the nation and associated iwi/hapu groups. The Trust are supportive of this approach, with any archaeological information uncovered being of great cultural value to the Trust and Tuhourangi.

This, and any impact the development may have on archaeological remnants, will be dealt with and managed by a general authority obtained by Heritage NZ upon this consent being granted (if supported) by Council.

### 3.2 Stage 2: Papakainga Development

A total of ten dwellings are proposed to be constructed within the south-western corner of the site. This had been positioned to be located outside of the fault avoidance zone, and away from the Marae and Cultural Centre to provide privacy to residents.

Four of these will be detached dwellings while the other six will be in three semi-detached dwellings. Each of the dwellings will have three-bedrooms and an ability to accommodate a total of three to five persons, resulting in between 30 and 50 people living permanently on site.

Each dwelling will be provided with its own onsite park within a garage. Access will be provided via the private internal accessway as identified on the submitted site plan.

### 3.3 Stage 3: Establishment of a Marae

The establishment of a Marae for the Trust and Tuhourangi is intended to commence in Stage 3 of the development. The Marae complex will include:

- The establishment of a Wharenui to accommodate 100 - 120 people with appropriate storage facilities.

- The provision of a Wharekai to accommodate 100 - 120 people with appropriate cooking, dining and storage facilities.
- The provision of facilities accessory to the Marae such as a Wharepaku and Waharoa.
- The development of an onsite carpark accommodating approximately 51 carparks (49 regular spaces and 2 accessible). With one to two people per car, this will provide for a range of between 50 and 100 to be safely accommodated on site. Future bus parking will also be provided within the Buried Village carpark.
- The formation of an onsite turning area for large vehicles in front of the Wharepaku and Wharenui allowing for the delivery of food or heavy items (carvings etc).
- Minor levels of signage will be included within the proposed development for the purposes of providing directions and public information. The Marae may include tourism components with associated signage.

### 3.4 Stage 4: Cultural Centre

The establishment of the Cultural Centre is intended to commence one to two years after the completion of the Marae. The Centre provides the opportunity for Tuhourangi to tell their stories around the settlement of Te Wairoa and their journey pre- and post-eruption.

The building will comprise of an arrival area, reception, display area, the storage and display of taonga, audio visual area and supporting ablution facilities. Again, directional signs may be used, and public information. The Marae may include tourism components with associated signage. These signs will be internalised within the site and will not be directly visible from Tarawera Road or adjoining sites.

The initial focus is the provision of a hub for training and education for the Trust. In the long term the Centre is intended to operate in conjunction with the Buried Village and expand on the existing tourism experience. It is anticipated that this would generate a maximum of up to an additional 100 visitors per day, however it will take up to ten years for the number of visitors to reach this level.

The location of the Cultural Centre is in an area with the most established indigenous trees and is also the area that is the furthest away from Tarawera Road. Care would be taken to ensure the removal of native trees is kept to a minimum.

As the Centre has been designed to complement to the Buried Village, it is intended to utilise the existing infrastructure in the Buried Village such as car and bus parking, and café. Pedestrian access will be provided via an underpass.

A separate vehicle crossing and accessway will be installed to the east of the Cultural Centre, providing heavy vehicle access for the delivery items such as carvings.

#### 3.4.1 Underground Tunnel/Overpass

As highlighted above, and shown on the submitted site plan, an underpass is proposed to enable pedestrian linkages to the Buried Village, allowing for the experience provided at the Buried Village to be enhanced.

Upon entry and exiting the underpass visitors will immediately view one of the two pou (yet to be designed). These two pou will gain any required consents through a separate process upon being designed.



The Trust have also mentioned the desire to have this underpass available as a safe evacuation point in the event of any future eruptions of Mt Tarawera.

The underpass will be constructed in accordance with the standard specifications outlined for a Hynds Box Underpass (technical guide R4.5) as attached. The approximate size will be a height of 2.0 – 2.5m with a width 2.5m.

Wheelchair accessibility will be incorporated into the design, this having a 7-8% ramp into the underpass floor which will sit at approximately 2.5m below the road level. A lift will also be installed (identified as 'L' on the site plan). This is essential for disabled person access from the tunnel and will take people up from the tunnel floor to the DAP path.

## 4.0 PLANNING PROVISIONS

### 4.1 Operative Rotorua District Plan

#### 4.1.1 Activity Status

Attachment A provides an assessment of the proposal against the performance standards of the Lakes A zone, the rules triggered by the proposed development are outlined in Table 1. Based on this assessment the proposal is a non-complying activity with this being the higher activity status of those listed below.

ACTIVITIES RULES	ACTIVITY STATUS	ASSESSMENT
<b>2.0 INDIGENOUS VEGETATION DISTURBANCE</b>	Discretionary	As the site is located within a RAP site and the development may impact the odd indigenous species scattered through the site and at the toe of the slope, it is considered that this rule is likely to be triggered.
<b>5.0 EARTHWORKS</b>	<b>Discretionary</b>	The proposed earthworks will exceed the permitted fill of 450mm and in areas the permitted excavation depth of 1.5 metres, a small area will require a cut of 3.5metres. The total volume will also exceed 100cubic metres across the site, and due to the extent of works may not be completed within 3months.
<b>6.0 BUILDING PLATFORMS</b>	Discretionary	The proposed building platforms will be located within 25m of a scenic road boundary and the required 10m buffer.
<b>7.0 BUILDINGS</b>	Does not comply	The proposed building does not comply with the permitted conditions relating to indigenous vegetation, earthworks and buffers.
<b>11.0 HARD SURFACES</b>	Restricted Discretionary	The permitted hard surface area is 0.5% of the site being 570.73sqm. The proposal has a total hard surface area of 4597sqm and exceeds the permitted hard surface area by 4026.27sqm.
<b>12.0 RECREATIONAL OPPORTUNITIES</b>	Non Complying	The proposal involves the establishment of a pedestrian track to access the remnants Wiki Keepa's whare, this being a site of cultural significance. The width of the track will not exceed 1.5metres and will follow the existing track present onsite, but slightly overgrown with indigenous vegetation.
<b>17.0 SITE COVERAGE OF BUILDINGS</b>	<b>Non Complying</b>	The development will consist of a floor area of approximately of 3,323.2sqm resulting in a site coverage of 2.9%.
<b>19.0 HEIGHT</b>	<b>Discretionary</b>	The main area of the Cultural Centre is 5.6metres. However, a small design aspect at the north-eastern end being 9.2m in height, reducing to 5.8metres in height.

<b>21.0 REFLECTIVITY VALUES</b>	Permitted	The Papakainga will be developed to comply with the reflectivity values of the zone with the exterior having a timber cladding. The road frontage of the Cultural Centre will also comply with the required reflectivity values, with the frontage consisting of a dark grey coloursteel roof, windows with dark cultural designs on the window, and the arc being concrete. The Marae buildings will be painted in traditional colours these being muted reds, off white/creams. These muted colours align with the Resene Rotorua Colour Palette and will comply with the reflective values.
<b>25.0 BUFFERS</b>	<b>Discretionary</b>	Six Papakainga will be located within 10 metres of the side boundary or the front boundary. A small corner section of the wharenuī will be located within 10 metres of the legal boundary NOTE: the above is based on the legal boundary of the site, not the formed road.
<b>29.0 TRAFFIC GENERATION</b>	Discretionary	Traffic generation will be generated by ten Papakainga occupying the site.
<b>41.0 CONSULTATION WITH TANGATA WHENUA</b>	N/A	The Trust have discussed the proposal with Tuhourangi, who have provided support to the proposal, as outlined the attached email correspondence.

**Table 1 Rules triggered by the proposal**

#### 4.1.2 Proposed Plan Changes

There are no proposed plan changes that impact the activity status of this application.

### 4.2 National Policy Statements and Environmental Standards

#### 4.2.1 NES for Assessing and Managing Contaminants in Soils to Protect Human Health

The site has been vacant since the eruption of Mount Tarawera in 1886. No activities have been or are currently undertaken onsite that are identified within the National Environmental Standard for Soil Health (NES) HAIL list. Since this time the site has been covered in scrub, grass, and indigenous vegetation.

It is considered that the site is not a 'piece of land' as defined by the NESCS and that this NES does not apply to this activity.

#### 4.2.2 Other

There are no other National Policy Statements or Environmental Standards relevant to this application.

### 4.3 Regional Planning Provisions

#### 4.3.1 Bay of Plenty Regional Policy Statement

The proposed activity upholds a number of policies relating to iwi resource management, water quality and land use, matters of national importance and natural hazards. An assessment of the proposal against specific relevant objectives and policies is provided below in section 6.1.

#### 4.3.2 Regional Plans

##### 4.3.2.1 Regional Natural Resources Plan

##### a) Land Management – Earthworks

Rule LM R1 of the Regional Plan identifies earthworks provided for by the Bay of Plenty Regional Council. To classify as a permitted activity the following standards must be met:

<b>Land Slope</b>	<b>Permitted Limits</b>
<b>0-15 degrees</b>	Exposed area no greater than 1 hectare and volume no greater than 5,000 m <sup>3</sup> .

<b>&gt;15 to 25 degrees</b>	Exposed area no greater than 5,000 m <sup>2</sup> and volume no greater than 5,000 m <sup>3</sup> .
<b>&gt;25-35 Degrees</b>	Exposed area no greater than 500 m <sup>2</sup> and volume no greater than 500 m <sup>3</sup> .

The proposed development is located on the lower slopes of the site, adjacent to Tarawera Road, and consists of a slope between 0-15 degrees. The required earthworks are located within this area and will have;

- a total area of 1.2ha;
- a cut volume of approximately 2,600m<sup>3</sup>;
- a fill volume of 3400m<sup>3</sup>; and
- an imported fill amount of 800m<sup>3</sup>.

The exceeds the permitted thresholds specified in within LMR1(h) with the exposed area being greater than the permitted 1.2ha. The total approximate volume is compliant with this being below 5,000m<sup>3</sup>. This does not include the earthworks required for the underpass with any consent being obtained at a later time if required. At this stage of the development the level of works required for the underpass has not been quantified and will be determined as part of proposed Stage 4.

Based on the assessment of the proposal against the rules of the regional plan a controlled activity resource consent is required under LMR2.

#### b) Water Allocation

Water is proposed to be sourced from a new bore onsite which will require a controlled activity resource consent under Rule 40B of the regional plan. The level of water use is yet to be quantified, however given the scale of activity proposed it is likely to exceed 35 cubic metres per day. Therefore, a discretionary consent will be required under Rule 43 of the regional plan. This consent will be obtained prior to construction commencing onsite.

#### c) Other provisions

No other provisions of the RNRP are applicable to this consent.

#### 4.3.2.2 Regional Onsite Effluent Treatment (OSET) Plan

The subject site is located within the Rotorua Lakes Catchments and outside of an Operative Reticulation Zone. The site is proposed to be connected to the future council wastewater line installed within Tarawera Road. Prior to this occurring all wastewater will be discharged to a temporary holding tank and manually drained as and when required. It is considered that no resource consent is required under this regional plan.

## 5.0 ASSESSMENT OF ENVIRONMENTAL EFFECTS

### 5.1 Natural Character & Landscape

The Lakes A zone is identified as an outstanding natural landscape and feature (ONFL) in accordance with section 6 of the Act. This ruling came about as part of an Environment Court decision which resulted in the lakes environment being managed under its own regulatory document, separate to the planning provisions of the remaining Rotorua District. The ONFL aspects of the Lakes A zone apply specifically to the sensitive policy areas, of which the subject site is located within due to being within the sensitive rural management area.

The attributes that contribute to this clarification include natural science, legibility, aesthetic, transient, shared and recognised values, and of particularly significance of this site, tangata whenua and historic values of the area.

With regard to the subject site specific values that contribute to the natural character and landscape include (Page 52, RLC Lakes A Plan);

- *Pa and garden sites form pre-eruption settlement.*
- *Early settlement travelling routes and tourism corridors e.g. Tarawera/Rotomahana Saddle.*
- *Cultural traditions.*
- *Memories of the devastation of Mt Tarawera for Tuhourangi.*
- *Pre-eruption villages and features, e.g. Te Wairoa (the Buried Village).*

It is considered that the proposed development reflects the former uses of the subject site and directly aligns with and upholds the above-listed landscape character values.

An ecological and visual assessment is attached which has assessed the natural character of the site and wider environment. This assessment has been completed in accordance with NZILA Best Practice Note Landscape Assessment and Sustainable Management 10.1, 2010 and the regional criteria set for natural character.

An assessment against the Bay of Plenty RPS criteria Outstanding Natural Feature(s) and Landscape(s) has confirmed that the values of the wider environment are very high with this consisting of Lakes Tarawera and Rotokākahi, Wairoa Stream and waterfall, volcanic hill landforms and associated indigenous vegetation.

However, the values associated with the subject site are medium with the highly modified valley farmland and historical tourist sites being less significant and having a low level of rarity and aesthetic values. The area of development is covered by exotic weeds. The report concludes that whilst the wider environment consists of high level natural systems, the subject site and land adjacent to the property have a low level of natural character with the land being occupied by rural farmland and exotic weeds and human modifications associated with farming, tourism and infrastructure.

Section 3.0 of the attached landscape report identifies the viewing audience as being confined to;

- Travellers on Tarawera Road, for a short distance while passing the site.
- Potentially the Buried Village, with the Buried Village attraction being slightly east of the site and across the road.
- Users of the Tarawera Trail with the main carpark entry being on the southern side of Tarawera Road, slightly west of the site within Rotomahana Trust lands.

The report then confirms that the site is not able to be seen by any residential properties and is not located within any mapped viewshafts, these including the areas of the wider environment identified as having very high natural character and outstanding landscape values.

Based on the visual assessment completed, from a planning perspective it can be concluded that the proposal will not detract from the natural character of Tarawera Road (defined as a scenic road buffer) and will be consistent in character with the uses already present. The development will not adversely impact the significant

values associated with the wider natural environment and will not intrude views obtained from residents located in Te Mu Road.

Therefore, any adverse effects in the natural character of the environment are considered to be less than minor.

## 5.2 Visual and Amenity Effects

### Stage 1: Site Preparation (Earthworks, Vegetation Clearance)

The earthworks are confined to the levelling of the site and installation of infrastructure. This is to be completed in a manner that reduces the level of impact on the potential underlying archaeological remnants from the Tarawera eruption.

During the site preparation stage sediment and erosion controls will be in place to avoid any discharge to adjoining sites, or the road reserve. A member of the Trust will also be present along with an archaeologist to ensure works are undertaken in a culturally sensitive manner, do not result any unnecessary archaeological damage and are undertaken in accordance with the general authority issued by Historic Places Trust.

The earthworks will not be seen from any lake or identified viewpoint. Any visual effects on Tarawera Road will be mitigated upon the site being re-grassed, landscaped and fenced.

### Stage 2 – Papakainga

Due to the topography of the site and presence of faultlines, the location of the proposed Papakainga precinct is pushed to the front of the site and in close proximity to the front and side boundary (1.1m-3.5m) and the formed portion of Tarawera Road. As such landscaping and acoustic fencing has been proposed to increase privacy and reduce road noise for occupiers. These have also been designed to mitigate the visual impacts of the buildings on the scenic road corridor with the proposed fencing being approximately 1.5 – 2.0m in height and positioned on a natural slope between the building and the road reserve. The fence will incorporate cultural designs to align with the overall intent and use of the site.

Each of the proposed Papakainga have been designed to comply with the reflectivity values of the zone. The exterior of the houses will be in timber (shadowclad) and finished with intergrain ultra-clear, this highlighting the wood grain of the timber. This material will reduce the visual dominance of the buildings on the wider environment and will blend with the vegetated backdrop provided on the northern slopes of the site. The papakāinga will not be readily visible from Tarawera Road once the vegetation matures.

The Papakainga have been positioned to maximise the land area available providing a total of 52.2sqm of external living space per dwelling. Each dwelling will also receive late afternoon and evening sun, these being the main hours of the day when desired for outdoor use.

### Stage 3 – Marae

The proposed Marae is an integral component of the development and symbolises the cultural significance of the site to the Trust and Tuhourangi. Since the Tarawera eruption, cultural identity and associated values of the environment have not been present and have been missing in the landscape. Given the history of the site and the wider environment, such cultural elements should be enforced, highlighted, enhanced and should not

be hidden from view. For this reason, the Whareniui has been located in a prominent position with clear uninterrupted sightlines obtained from the Marae areare/atea, this cultural viewshaft being an important aspect of any Marae. The proposed landscaping has taken this into account and have been designed to allow the Marae to be the focal point of the site.

The exterior of the Marae will be painted in colours consistent with colours seen on any other Marae, this being a traditional cream possibly something between Resene Spanish White and Half Spanish White with traditional red trim (see Figure 2 below).

The cladding is intended to be palisade, which is a maintenance free plastic recently used at Hell's Gate, this being UV proof and maintenance free. Palisade do a cream colour (Calico) that is in line with traditional Marae colour schemes.



**Figure 2; Te Papaiouru Marae, Ohinemutu**

Each of the buildings have been positioned to be culturally appropriate and sensitive, as outlined below;

- The entire layout of the Marae was altered at the Trust request to ensure that the Whareniui faced north. The current orientation is thus pointing as due north as possible without changing its relationship to the Wharekai.
- The Wharekai is located to one side of the entry area of the Whareniui to create a courtyard (Atea) and provide a sheltered area for people to sit and listen to whaikōrero/watch ceremonial events etc.
- The Waharoa is located at the opposite end of the formal path to the Whareniui's entrance so that visitors can gather before the formal welcome to the Marae/Whareniui.
- The Trust specifically asked that the footpath for people arriving from the car park and housing, be taken around the north-west (hill side) of the Wharekai and around the north-east end to lead them to the Waharoa. This also facilitates the control of access by means of a gate.

- The Wharepaku, with store and workshop, is located in a discreet location behind the Wharekai and Wharenui adjacent to the service area. This is both culturally correct and functional.
- The Cultural Centre is located on the opposite side of the plaza from the Wharenui so as not to visually or functionally 'disturb' it. In addition, the walkway leads directly to its entry porch for user convenience and access control.
- The entrance of the underpass to the site is located to lead users into the Centre of the atea with equal importance to arriving at the Cultural Centre and Wharenui via the Waharoa. Every effort has been made to make this a special arrival experience. This has also been positioned in an effort to avoid recorded buried buildings located within the Buried Village as advised by the archaeologist.

The required layout, intrusion of Tarawera Road and site restrictions have prevented compliance from being gained with the front yard buffer and required setback from the Scenic Road Corridor. Upon review, there are no other options that will increase the level of compliance with the plan. In an attempt to reduce the visual impacts, the Marae has been orientated to the north causing it to only be visible very briefly (as one drives back to town) through the landscaping after passing the top of the lift shaft.

A traditional style pallisade fencing will be erected around the Marae, providing roadside security to this area of the development, this also reducing views obtained of the development from the road.

The carpark will be concealed from view by proposed landscaping as outlined on the attached landscape plan.

#### Stage 4: Cultural Centre and underpass

The cultural Centre is set back from the road reserve by approximately 6.8m. The height of the building complies with the height restrictions of zone however a small area of the building (the design element) is 9 metres and exceeds the permitted height by 3 metres. The colour of the building will be a dark grey with timber elements this complying with the reflectivity of the Zone. Any carvings or pou around the Cultural Centre will align with colours traditionally used with Maori carving.

It is considered that the elevation and setback from the road reserve, the colour of the building, the vegetative backdrop and the proposed palisade fencing will reduce the visual impacts of these aspects of intrusion.

The underpass will not be seen from Tarawera Road, however the cobbled atea and pou provided at both ends to the underpass will be visible. These elements will blend with the wider uses of each site and will enforce the Maori significance of the site to visitors.

### 5.3 Cultural Impacts

The subject site is one of the land blocks that contained the historical Te Wairoa Village, which was one of the first joint Māori and European villages in Aotearoa. Te Wairoa was a popular place for tourists to visit and stay during their journey to the Pink and White Terraces and effectively started the tourism industry within Rotorua and New Zealand.

Unfortunately, the Te Wairoa Village was destroyed in the Tarawera eruption of 10 June 1886, resulting in the significant loss of lives, and the displacement of Tuhourangi from the area.

The attached cultural assessment has been completed by the Trust. As outlined in this assessment the subject site is extremely important to Tuhourangi being the residence of Te Keepa Te Rangipuawhe; Chief of Tuhourangi and a Magistrate and Custodian of the Pink and White Terraces – Otukapuarangi and Te Tarata.

The development site is not a “mai ra ano” Marae site. There was no Marae on this site previously but was the residence of Te Keepa who had an English cottage built with his chimney being the only remnant post eruption.

Section 5 of the attached cultural impact assessment identifies the positive and negative cultural impacts associated with the development. A brief overview is provided of each below, please note these are to be read alongside the attached cultural assessment.

a) Positive Cultural Effects

The following positive outcomes have been extracted and summarised from the attached Cultural Impacts Assessment;

1. Strengthening the relationship of tangata whenua to their whenua.
2. Reconnecting tangata whenua to waahi tapu and places of significance.
3. Reinforcing tribal whakapapa to the whenua.
4. Reconnecting tangata whenua to their waahi tapu and mahinga kai.
5. Assist in the development of a strong tribal identity and rangatiratanga.
6. Tuhourangi whakawhanaungatanga reinforced.
8. Reinforce tribal bonds and kinship – honohonotanga, whakapapa.
9. Assist in developing whanau and rangatahi connections to their whenua.
10. Assist with the identification and development of significant sites.
11. Assist in the development of tribal Mana Maori Motuhake.
12. Positive economic and social outcomes; providing the ability for Tuhourangi to reconnect with its tourism roots and it is this development that will facilitate this return. This is the vision – *Ko tenei te moemoea o oku Koroua Whaea Kuia – Kia tu tika ano a Tuhourangi I roto I tona ake mana Rangatira kia mau kai u Kia eke*. This was the dream of Tuhourangi pakeke that Tuhourangi should one day stand on its own Mana Rangatiratanga – Stand Strong, Stand Firm and Succeed.

b) Potential Adverse Cultural Effects

1. Earthworks; The impact of the development upon the physical landscape will be minimal, however may impact archaeological remnants of Te Wairoa Village.
2. Disturbance of urupa or waahi tapu; The activities will have no significant impact upon any waahi tapu or urupa.
3. Adverse effects on cultural values; the development of the site may result in archaeological remnant of the village being disturbed and therefore impact cultural values of the site. However, this will not



impact the spiritual and cultural association with the site and wider environment. The proposed development will help restore and enhance the cultural connections to the area by strengthening the relationship of tangata whenua to their whenua, reconnecting tangata whenua to waahi tapu and places of significance and assisting in the development of a strong tribal identity and rangatiratanga.

It is considered that the development reflects and aligns with the former uses of the site prior to the eruption and will be completed in a manner that respects the historic events that occurred onsite. The Trust believes that there will be no significant adverse effects on cultural values, only positive.

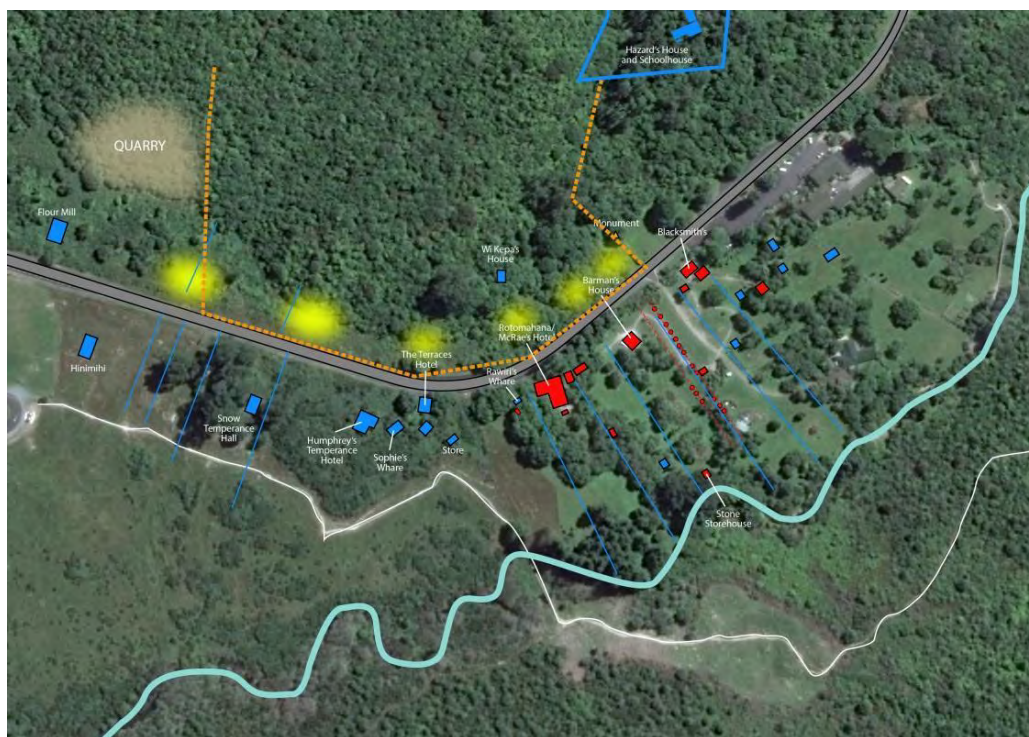
It is noted that the proposed development will uncover archaeological sites due to the site being the former location of Te Wairoa Village. The Trust is aware of the potential impact the development may have and has required that the design and location of the development has the least physical impact possible. However, the Trust also note that the development provides the ability to occupy their whenua and establish uses consistent with those present prior to the Tarawera eruption, this providing a positive cultural effect which to an extent balances any adverse effects.

The Trust is also aware of the opportunities available to uncover and record sites of cultural value, including the collection of historical crops and seeds that were grown onsite, this providing a rare insight of Māori living preserved at a specific point in time by the eruption of Mount Tarawera in 1886. This opportunity has high positive cultural values and benefits.

#### 5.4 Archaeological Effects

There are no known historic places or sites within the subject site other than the site of Chief Wi Keepa's house. This is on the 400m contour above the site and will not be affected by the development.

However, this area has an extensive history and is a site of great historical devastation. Being part of the destroyed Te Wairoa settlement, there are many areas of cultural significance in close proximity to the site. Part of these make up the Buried Village tourism attraction across the road and next to the southern land block, which highlights archaeological excavations of a part of Te Wairoa.



**Figure 3; Approximate locations of known archaeological sites.**

The subject site and the other lands surrounding Te Wairoa are known to contain extensive areas of urupa and sites of significance. Due to the historical importance of this land and the large number of deaths that occurred due to the Mount Tarawera eruption, any development would treat the discovery of human remains, archaeological artefacts and ruins with utmost importance and respect. All artefacts identified would be identified and documented through an accredited archaeologist. Urupa uncovered will be managed tribally and addressed through a cultural assessment. The Trust would work with Heritage New Zealand to ensure any discoveries are protected for future generations.

Attached is an archaeological assessment which concludes *‘that a known pre-1900AD settlement is likely to be encountered as a result of earthworks and ground disturbance. It is the recommendation (.....) on that basis that a General Archaeological Authority should be obtained from Heritage New Zealand Pouhere Taonga prior to ground works commencing.*

*This consent will enable the modification and destruction of archaeology within the area to be affected by development, including earthworks, building and infrastructure for a Marae, Papakainga, Education and Cultural Centre, with conditions, under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA).*

The archaeological report goes on to recommend the following conditions to be put in place as part of any archaeological authority application;

- *Completion of a site management plan to guide archaeological works in relation to the planned development including works before bulk earthworks for the purpose of archaeological investigation and monitoring areas considered to have high archaeological risk.*
- *A prestart meeting to inform all ground workers of their legal archaeological requirements.*

- *Ongoing consultation with Heritage New Zealand and tangata whenua throughout the development and construction stage.*

## 5.5 Noise

Any noise generated upon completion of the three stages will be related to the occupation of the Papakainga, and the use of the Marae and Cultural Centre.

The Papakainga is located approximately 325 metres from the closest residential site on Te Mu Road, whilst the Cultural Centre is approximately 246m from the same lot. Both activities are adjacent to the road reserve and have a side boundary shared with a vacant vegetated lot. Noise emissions will either be residential in nature, or from the use of the Marae and Cultural Centre, which provides an internal environment similar to that of the Rotorua Museum (currently closed), or Te Puia.

The development is physically separated from Te Mu Road by the vegetated steep bank located to the north/north-east, which reduces visibility of the site and mitigates any noise emissions. The residential use of the Papakainga and Cultural Centre is considered to be able to comply with the noise restrictions of the sensitive rural management area when measured at the legal boundaries of the site.

It is noted that the plan does not manage the noise emissions associated with the use of Marae, this excluding such activities as haka and waiata which may be heard beyond the boundaries of the site (mainly in the adjoining the Maori reservations and Buried Village). Therefore, it is considered that the noise emissions of the Marae and its use is provided for by the plan.

## 5.6 Traffic Effects

### a) Traffic generation

Traffic movement will be generated from the ten Papakainga, Marae activities and any visitors accessing the Cultural Centre. The traffic generated from the use of the Marae is deemed a permitted activity under Rule 29.0 of the plan.

A traffic impact assessment has been completed and has identified that the Papakainga will generate approximately 0.85 vehicle trips per dwelling during peak hours and 9vmpd. With regard to the Marae the report predicts that when being utilised to maximum capacity this will generate 50-60 vehicles accessing the site, and a total of 100-120vmpd. The report notes that it is unlikely that the Marae will reach capacity on a typical day and is unlikely to generate vehicle movements during peak hours. The report has assumed 10% of trips (12) may occur during peak hours. Maximum capacity may only occur in the event of a tangi, hui or similar event taking place within the Marae and therefore provides a 'worse-case scenario' rather than a daily occurrence.

With regard to the Cultural Centre this is anticipated to have 100 people visiting per day in the long term. The majority of these will be visitors who are already visiting the Buried Village or are associated with the Papakainga or Marae onsite. The report does not predict any additional vehicle movements to be generated from the use of the Cultural Centre.

The report concludes that the traffic generated by the proposal is deemed acceptable with regard to traffic effects.

There are no residents within proximity to the subject site that may be impacted by the increased traffic movement with the closest residential properties being located on Te Mu Road, or Okareka Loop Road. These residents would not be subject to any increase in traffic pollution or congestion occurring as a direct result of the proposed development with Tarawera Road being a sufficient distance away and being of a size suitable to accommodate the proposed increase in movements.

#### b) Access

Vehicular access to the site will be gained from a new double-lane vehicle crossing/accessway to Tarawera Road. The accessway will be designed and constructed to meet the RTS-6 design which reflects a low volume rural arterial driveway used by heavy vehicles.

Internally a private road will branch off from the main entry, providing access to the each of the ten Papakainga. This will have an initial width of 5 metres, reducing to 4 metres upon the number of houses reduced to three. Vegetated islands have been integrated into the private road to break up the sealed surface area and increase the visual amenity, whilst increasing traffic safety, naturally reducing speed levels and providing a form of stormwater capture of overland flows. The private road leading up to the Papakainga will be gated to increase safety of residents and to distinguish between the public and private areas of the site.

An area for rubbish bins and their collection has been provided at the initial entry point to the internal road leading up to the Papakainga. Sufficient room is available for a rubbish truck to collect the rubbish and then reverse back into the main accessway to exit the site.

The remaining area of the accessway provides vehicular access to the public car park. Any heavy vehicles requiring access to the Cultural Centre will utilise a second smaller accessway located along the eastern boundary. The vehicle crossings and internal road layout will be constructed to meet council specifications.

Pedestrian access will be provided via the underpass which will connect the site with the Buried Village, allowing both the Buried Village and Cultural Centre to operate alongside each other, providing a more in depth holistic overview of the history and cultural importance of the area.

#### c) Sightlines

With regard to access the accessway has been positioned to maximise sight distances. The *Regional Infrastructure Technical Specifications* outlines the specifications for access design and references the RTS6 guidelines for visibility. Tarawera Road is classified as a Collector Road with a posted speed limit of 80km/hr, whilst RTS6 recommends using an operating speed of 92km/hr. However, the operating speed has been recorded to be around 85km/hr from the critical direction. A review of Austroads Part 3 has been completed in relation to the corner speed this identifying a travelling speed of 75-80km/hr around the corner. Due to the horizontal bend in Tarawera Road the sight distance to the east of the main access, and west of the service access, are restricted.

A formal request has been made to Council to reduce the posted speed limit within this area of the road to 50km/hr in order to achieve safe sight distances from the site. The need to reduce the speed level also reflects the presence of the Buried Village and Tarawera Trail Walk which when combined with the proposed development will create a cluster of activities accessing Tarawera Road within a confirmed space, creating the need for increased road safety.

In accordance with RTS6, required sightlines are 90metres. The bank to the east of the main access will be cut back, and the vegetation removed, in order to achieve the required sightlines.

Upon the reduction of speed being considered and approved by Council the attached traffic impact assessment has confirmed that any impacts of traffic movement on the efficient and safe operation of Tarawera Road will be less than minor.

#### d) Parking and Onsite Turning

Each papakainga will have access to onsite parking within the proposed garage attached to each house. Due to the low levels of use and the high sightlines achieved from each house within the papakainga area, onsite turning to enable forward entry to the internal private road is not considered to be required.

Up to 51 public car parks (light vehicle) will be provided onsite for users of the Marae and Cultural Centre. Three of these will be disabled parks and are located in direct proximity to the Marae. An onsite park and turning bay will be provided for any heavy vehicles or occasional buses that may need access to the site (particular the Wharekai).

Overflow parking will also be provided at the Buried Village upon the underpass being constructed. This will provide parks for buses and any tourist who is visiting the both the Buried Village and Cultural Centre.

### 5.7 Earthworks

The extent of earthworks completed within each stage is subject to;

- The existing topography and soil type of the site. Currently the site consists of an undulating landform and a steep slope that prevents a continuous levelled area that is suitable for development being provided.
- The need for the site and each building to be physically accessible from the internal road layout and Tarawera Road.

Sediment control measures will be installed during construction ensuring the works do not impact adjoining sites, the surrounding environment or the nearby Te Wairoa Stream. It is considered that the land use will not alter the natural landform to the extent that it detracts from the character of the wider environment.

### 5.8 Natural Hazards

As outlined in section 2.7 above the site is subject to a range of natural hazards, including landscape susceptibility, overland flow paths, debris/rockfall and fault lines. The buildings have been located to be outside of the required faultline avoidance zones (FAZ) and clear of the overland flow path, which is noted to be dry and has no sign of any recent water movement.

A high level geotechnical report has been completed for the site and has identified suitable foundations for each of the buildings. This has concluded that the site is able to be developed subject to specific foundation designs. Further investigations will be required upon the site being cleared of the exotic vegetation/scrub, and initial levelling of the site being completed. It is proposed that these detailed geotechnical assessments will be provided at time of building consent for each of the proposed stages associated with this development.

To avoid any risks associated with the movement of debris movement and slope stability, debris protection measures will be required and included at the base of the slope. The attached geotechnical report has identified the following mitigation options;

- Regrade the landform between the escarpment toe and building platforms to divert potential debris slides away from future buildings. This is typically in the form of a debris protection bund. For preliminary planning purposes, a typical bund height of 2m to 3m occupying an overall footprint width of 10m to 15m (including upslope collection area) is envisaged, as presented on Drawing 02.
- Construct a debris protection wall/fence between the escarpment toe and the building platform. These typically comprise large (approximately 400mm diameter x 8m long) H5-treated timber poles at 1m Centres or less protruding 2m to 2.5m above finished ground level with hit and miss timber rails to dissipate potential landslip debris energy as presented on Drawing 02. A nominal 2m to 3m setback from the wall to future buildings will be required to allow for some spilling of debris through the wall.
- Alternatively, an assessment on the expected volume of material and potential impact it may have on any structures can be undertaken and where it is economically viable design the buildings to withstand the potential impact.

Due to the area of land available for development onsite being significantly constrained, option 2 is the preferred approach, being a debris protection wall. Specific detailed engineering designs will be provided at the time of building consent.

### 5.9 Alternative Locations

The applicant has analysed and considered three location options (i.e., northern block, southern block and a combination of both). This concluded that due to the close proximity of the site to the Buried Village and historical and cultural values present onsite that the proposed 6J2B3 northern land block above Buried Village is the only suitable option. This site has a number of advantages compared to other locations including:

- The land being relatively flat.
- The scrub is young and not established and contains significant noxious plants (e.g., blackberry, ragwort and associated thistles).
- Close proximity to Tarawera Road, so less earthworks required.
- The northern block has a larger area of land available for development/parking.
- Existing infrastructure at Buried Village will be used for visitors to the Cultural Centre.

### 5.10 Effects Conclusion

Overall, it is concluded that the actual and potential effects of Council granting this consent will be less than minor and will be consistent with the principle of sustainable resource management.

## 6.0 OBJECTIVES AND POLICIES

### 6.1 Bay of Plenty Regional Policy Statement

The proposal involves the construction of Papakainga, Marae and a Cultural Centre on land previously occupied by the Te Wairoa Village. It is considered that a number of regional policies are relevant to this

development, particularly those listed for Iwi Resource Management, and Matters of National Importance due to the presence of a RAP site within the property and the cultural significance of the site.

The proposed development restores the former uses of the site that were present prior to the Tarawera eruption, enabling the restoration of kaitiakitanga over the site and wider area, and re-establish the relationship of Tuhourangi with their ancestral lands and taonga.

The Marae has been positioned in a way to enforce the presence and cultural significance of the site with the Wharenui being a focal point of the site and clear unobstructed viewshafts gained from the Marae areare/atea.

The development has taken into account the presence of the fault line, historical cultural sites, steep slopes and areas planted with indigenous vegetation, with the buildings being confined to the small flat undulating area of land along the front of the site.

Minimal earthworks are proposed, with works being constrained to the levelling of the site, formation of access and a small cut into the toe of the slope. An archaeological assessment has been completed, this sitting alongside a cultural assessment completed by the Trust, which intends to inform and manage the works to ensure these works are completed in a culturally sensitive manner.

The method in which the proposal is to be accessed and serviced will be carried out in a manner that complies with specific engineering standards and Council requirements. Potable water will be sourced from a proposed bore that will be treated to meet NZ drinking water standards and will not undermine the ecological values of the nearby Wairoa Stream or the groundwater system.

Overall, it is considered that the proposal is not contrary to the relevant objectives and policies of the Bay of Plenty Regional Policy Statement.

## 6.2 Bay of Plenty Regional Natural Resources Plan

### *a) Kaitiakitanga*

The proposal allows for the Trust to occupy their ancestral land and re-establish Tuhourangi presence within the Lakes environment. The development enables the Trust to exercise kaitiakitanga and protect the taonga, significant sites, and waahi tapu present onsite and within the wider environment.

### *b) Land Management*

The proposed earthworks are required to enable safe physical access to the development and for the establishment of safe accessible building platforms onsite. The scale of earthworks proposed will not result in the unsustainable use of land nor will this detract from the character and amenity of the environment.

#### *6.2.1 Conclusion*

It is considered that the proposal aligns with and upholds the objectives and policies of the Regional Natural Resources Plan. The objectives and policies relating to groundwater takes will be assessed as part of any future resource consent application.

## 6.3 Operative Rotorua District Plan

The development acknowledges the cultural significance of Iwi with the land and enables the opportunity for the Trust and Tuhourangi expression of kaitiakitanga over ancestral taonga, waahi tapu, mahinga kai areas, Maori land, and taonga raranga.

The proposed development reflects the former uses of the site prior to the Tarawera eruption and has been located in a manner to avoid any unnecessary removal of indigenous vegetation, excessive earthworks and alteration of natural landform. The development does not intrude any identified viewshafts and is not able to be seen from any Lake.

Whilst located outside of the identified Tarawera Settlement, the cultural history and significance of the site to Tuhourangi supports the site's use for residential/papakainga purposes. It is considered that the landscape and character of the Tarawera policy area consists of a strong cultural element, with this currently not highly visible due to the impacts of the Tarawera eruption and displacement of iwi from the area. The proposed development re-establishes and enhances the mana of Tuhourangi within the landscape and visually highlights and enforces this component of the landscape, providing a positive outcome to the Tarawera environment.

The topography and nature of the land present within the subject site has restricted the area of suitable development and has resulted in the buildings being located within close proximity to Tarawera Road, (identified as a scenic road) and the legal boundary of the site. Landscaping and fencing are proposed in an attempt to reduce the visual prominence of the buildings on the wider environment.

Historical photos identify houses and the Te Wairoa settlement to be in similar locations to the buildings proposed, these surrounding a roundabout located within the general position of the existing road reserve.

Surveying, the identification of legal boundaries and the imposition of titles since the Tarawera eruption has resulted in the proposed activities within the site to be inconsistent with the rule framework of the area, even though these activities reflect the former uses of the site.

Whilst this is the case, the former uses of the site and the unique ability to re-establish these uses, the sites cultural significance and return of Tuhourangi to its whenua, should, in this instance, provide an exemplary situation in which any non-compliance with these rules are provided for Council.

Adequate sediment and erosion controls will be installed during construction and works to prevent any discharge to the nearby Te Wairoa Stream, Tarawera Road and the adjoining sites. Earthworks will be undertaken during the summer/autumn months to avoid periods of intense rainfall.

The geotechnical assessment and infrastructure report has identified appropriate methods of wastewater and stormwater disposal which are appropriate for the scale of development, the soils present onsite, and are environmentally friendly.

Safe, potable water supply will be provided from a bore onsite, with this being treated to meet required drinking water standards. Firefighting water supplies will also be provided onsite as outlined in the attached infrastructure report and site plan.

It is considered that the proposal aligns with the intended use of the zone and upholds the above listed objectives and policies.

### 6.3 Conclusion

Overall, it is considered that the proposal will not detract from the amenity and character of the Sensitive Rural Management Area and that the relevant objectives and policies of the plan are upheld.



## 7.0 Statutory Requirements

### 7.1 Sections 88 and 104

Section 88 of the Resource Management Act 1991 (RMA) requires an assessment of any actual or potential effects on the environment arising from the proposal, and the ways in which any adverse effects may be avoided, remedied, or mitigated.

The assessment has to be in such detail as corresponds with the scale and significance of the actual or potential effects that the activity may have on the environment (Section 88(2)(b)). It also has to be prepared in accordance with the requirements of the Fourth Schedule (Section 88(2)(b)).

When assessing an application for resource consent under Section 104(1) of the RMA (subject to Part II), Council shall consider any actual and potential effects on the environment and any relevant objectives, policies, rules, or other provisions of the District Plan.

It is considered that the assessment provided in section 5.0 of this application meets this requirement.

### 7.2 Section 104D

In accordance with Rule RURZ-R2 of the Operative Rotorua District Plan the proposal requires a non-complying resource consent.

Under section 104D of the RMA, Council may grant or refuse the application. Council may only grant a resource consent for a non-complying activity only if it is satisfied that either;

- (a) the adverse effects of the activity on the environment will be minor; or
- (b) the application is for an activity that will not be contrary to the objectives and policies of the relevant plan and any proposed plan.

It is considered that the above assessment of environmental effects has shown that any adverse effects generated by the activity on the environment will be less than minor, and that the relevant objectives and policies of the plan will be upheld. Therefore, Council is able to approve the proposed activity.

## 8.0 PART II MATTERS

The consideration of a resource consent application is subject to the purpose and principles under Part II of the Resource Management Act 1991 (RMA). Under Section 5(1), the purpose of the RMA is to promote the sustainable management of natural and physical resources, with "sustainable management" defined under Section 5(2) as meaning:

*"Managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while -*  
*(a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonable foreseeable needs of future generations; and*  
*(b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*  
*(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment."*

The matters in Sections 6, 7 and 8 which are of relevance to the proposed development are as follows:

*6(e) the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*  
*7(a) kaitiakitanga:*

- 7(b) The efficient use and development of natural and physical resources:*
- 7(c) The maintenance and enhancement of amenity values:*
- (d) intrinsic values of ecosystems:*
- 7(f) Maintenance and enhancement of the quality of the environment:*
- (g) any finite characteristics of natural and physical resources.*

## 8.1 Part II Assessment

The proposal has the sole intent of re-establishing the mana whenua, the mana rangatira, of the Trust and also Tuhourangi and to re-establish their spiritual and cultural identity to the Tarawera environment. This directly upholds section 6(e) of the Act as outlined above.

The assessment in section 5.0 of this application has shown the proposal to uphold the objectives and policies of the district plan with these having been written to ensure the purpose of the Act is upheld.

Given the nature of the surrounding environment the proposal is considered to be an efficient use and development of the site. The proposed activity will not result in adverse reverse sensitivity effects on the wider rural environment, nor will this detract from the amenity and character of the zone.

It is considered that the proposal is consistent with the principles of sustainable management under the Resource Management Act 1991.

## 9.0 NOTIFICATION REQUIREMENTS

### 9.1 Section 95A – Public Notification

The process for public notification is outlined in section 95A of the Act. It is considered that the provisions of steps 1 to 4 as outlined under sections 95A(2) to 95A(8)(a) do not apply.

Under s95A(8)(b) an assessment is required to determine if this activity is or likely to have adverse effects that are no more than minor. This assessment is required in accordance with section 95A of the Act.

#### 9.1.1 Assessment under Section 95D

##### *a) Effects that may or must be disregarded*

*A consent authority that is deciding, for the purpose of section 95A(8)(b), whether an activity will have or is likely to have adverse effects on the environment that are more than minor—*

- (a) must disregard any effects on persons who own or occupy—*
  - (i) the land in, on, or over which the activity will occur; or*
  - (ii) any land adjacent to that land;*

The below figure and table identify the owners and occupiers of the adjoining land. Effects on these parties have been disregarded.

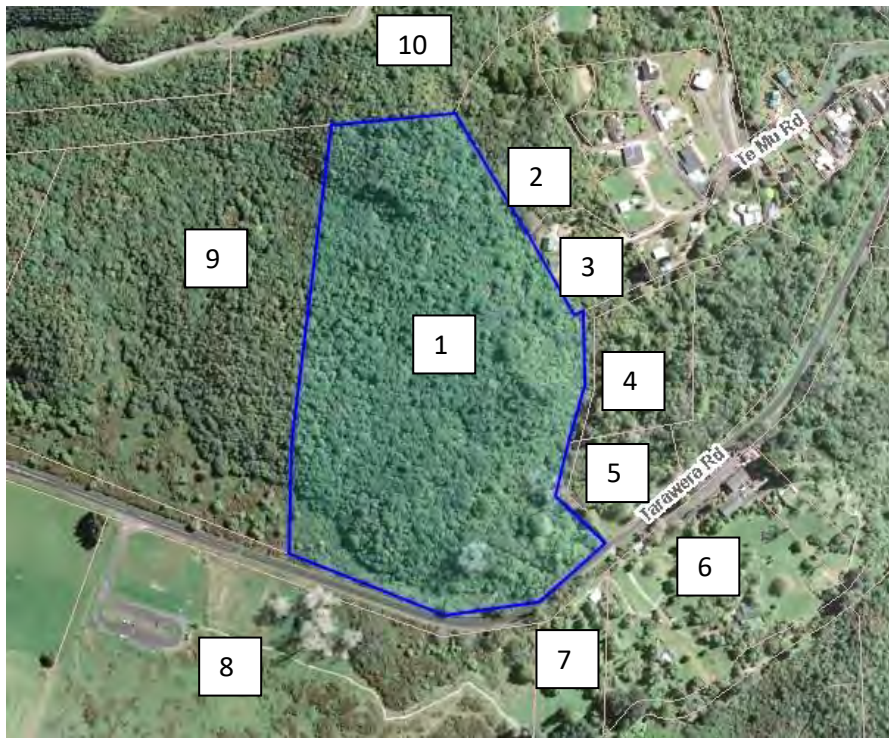


Figure 4; Persons who own of occupy the land subject to of adjacent to the proposed activity.

Reference	Address	Legal Description
1	Tarawera Road	ROTOMAHANA PAREKARANGI 6J2B3 BLOCK
2	17 Te Mu Road	LOT 2 DPS 84772
3	21 Te Mu Road	LOT 1 DPS 84772
4	Tarawera Road	ROTOMAHANA PAREKARANGI 6J BLOCK (ML 14972)
5	Tarawera Road	ROTOMAHANA PAREKARANGI 6J2B1 BLOCK (ML 14972)
6	1180 Tarawera Road	ROTOMAHANA PAREKARANGI 6J2B2 BLOCK (ML 14972)
7	Tarawera Road	ROTOMAHANA PAREKARANGI 6J2B3 BLOCK (ML 14972)
8	1134 Tarawera Road	ROTOMAHANA PAREKARANGI 6J2B4 BLOCK (ML 14972)
9	Tarawera Road	ROTOMAHANA PAREKARANGI 6J2B4 BLOCK (ML 14972)
10	1064b Tarawera Road	PART LOT 1 DPS 47320

Table 2; Persons who own or occupy the land subject to of adjacent to the proposed activity.

*(b) may disregard an adverse effect of the activity if a rule or national environmental standard permits an activity with that effect (this includes the permitted baseline);*

Development complying with the following is a permitted activity;

Earthworks

- The proposed earthworks will exceed the permitted fill depth of 450mm by 50mm to 550mm
- Areas of the proposed earthworks will exceed the permitted excavation depth of 1.5 metres, by 2 metres.

- The total volume will exceed the permitted 100cubic metres across the site with a cut volume of approximately 2,600m<sup>3</sup>, a fill volume of 3,400m<sup>3</sup> and an imported fill amount of 800m<sup>3</sup>.

#### Vegetation

- Removal of vegetation outside of a RAP site is a permitted activity subject to conditions. A small number of indigenous species scattered through the site may be impacted by the proposed development.
- Pedestrian tracks for Tuhourangi to access the remnants Wiki Keepa's whare are permitted where these do not impact any indigenous vegetation and are no more than 1.5m in width. The width of the track will not exceed 1.5metres however will require removal of some indigenous species.

#### Buildings

- Building platforms set back from a scenic road boundary by 25m are permitted. The proposed building intrudes this setback between 23.9m and 18.2metres.
- Building setback from the required 10m side yard buffer is permitted. The buildings intrude this setback between 3.2 - 8.9metres.
- The development will consist of a floor area of approximately of 3,323.2sqm resulting in a site coverage of 2.9%, exceeding the permitted site coverage of 400sqm by 2,923.3sqm.
- The permitted hard surface area is 0.5% of the site being 570.73sqm. The proposal has a total hard surface area of 4,597sqm and exceeds the permitted hard surface area by 4,026.27sqm.
- A small section of the Cultural Centre exceeds the permitted height of 6 metres by three metres.
- A small section of the wharenuī will intrude required solar access angle.
- Traffic generated by two dwellings and a Marae is permitted. The proposal will generate traffic movements from an additional 8 Papakainga (dwellings) and a Cultural Centre.

There are no rules or national environmental standards which permit the level of non-compliance proposed. The above listed permitted thresholds are to be disregarded as part of this assessment.

*(c) in the case of a restricted discretionary activity, must disregard an adverse effect of the activity that does not relate to a matter for which a rule or national environmental standard restricts discretion;*  
Not applicable. The activity is not Restricted Discretionary causing this section to not apply.

*(d) must disregard trade competition and the effects of trade competition;*  
Noted and where applicable disregarded.

*(e) must disregard any effect on a person who has given written approval to the relevant application.*  
No parties have provided written approval to the application.

#### *b) Assessment of Adverse Environmental Effects (S95A)8(b)*

An assessment of environmental effects has been completed under Section 5.0 of this application. This has found the potential adverse effects of this proposal to be less than minor, particularly when taking into account the permitted and consented baseline applicable to the subject site.

#### *c) Public Notification in Special Circumstances*

There are no special circumstances as there is nothing that is unusual, abnormal or exceptional about this application.

#### 9.1.2 Conclusion on Public Notification

In accordance with Section 95A the resource consent application does not need to be publicly notified.

#### 9.2 Section 95B – Limited Notification

The process for limited notification is outlined in section 95B of the Act. It is considered that the provisions of steps 1 and 2 as outlined under sections 95B(2) to 95B(6) do not apply

The application is not solely a boundary activity causing s95B9(7) of Step 3 to not apply. An assessment is now required under s95B(8) to identify any affected persons in accordance with Section 95E.

#### 9.2.1 Assessment under Section 95E

*a) Assessment against section 95E(1)*

The above assessment completed under section 5.0 of this application has identified any adverse effects to be less than minor.

*b) Assessment against section 95E(2)(a)*

An assessment of the activity against the permitted baseline is provided above. There are no relevant rules or national environmental standard which permit the level of non-compliance proposed.

*c) Assessment against section 95E(2)(b)*

Not applicable.

*d) Assessment against section 95E(2)(c)*

There are no statutory acknowledgements relevant to the proposed development within this site.

*e) Assessment against section 95E(3)(a)*

Affected party consent for this application has not been sought or provided with this application.

#### 9.2.2 Identification of Affected Persons

It is considered that the main potential adverse effects resulting from this activity relate to the visual impacts and traffic generation of the proposal on the wider environment. The below provides an assessment of the effects of the development on each of the parties identified in Figure 4. It is noted that the applicants own the site referenced as properties 1, and 7. They also own a small area of the land located within the carpark of the Buried Village (property 6, this being where the entry to the underpass will be located) Therefore the below assessment relates to the properties referenced as 2, 3, 4, 5, 8, 9 and 10. It is considered that these parties will not be affected by the proposal due to the following reasons:

##### Properties 2, 3, 4, 10

- The development will not be seen from these properties with the topography and vegetation present within the subject site provides a physical separation between the activity and these properties. Due to the distance from the site and the subject site and these sites being accessed from a different section of the transport network, no increase in noise levels, traffic or reduction in privacy will be experienced by any occupiers.
- Any noise and traffic generated from the use of the Marae on these properties is a permitted activity.

##### Property 6

- Property 6 contains the majority of the Buried Village. This lot will not be physically impacted by the development, and the owners have been involved in discussions regarding the proposed development.
- The owners are supportive of linking their commercial enterprise with that provided within the proposed cultural centre in the future. Part of the Buried Village extends into Property 7, which is owned by the Trust. The owners of Property 6 and the Trust have established a MoU under which the Buried Village operates and both parties are committed to upholding. It is considered that any discussions with the owners of property 6 will be held in the future in accordance with the MoU.

### Properties 8 and 9

- These two properties are vacant and are either covered by indigenous vegetation or contain the carpark and start of the walking track for the Tarawera Trail. No dwellings are present preventing any visual impacts being created on occupiers. The owners are Trusts associated also with Tuhourangi who will benefit from the presence of the Marae and Cultural Centre onsite and have been involved in internal Iwi discussions regarding the development.
- Any noise and traffic generated from the use of the Marae and two of the Papakainga on these properties is a permitted activity.
- Sedimentation controls will be in place during earthworks and construction of the dwelling ensuring that sediments are not discharged to the road or the adjoining sites.
- Papakāinga dwellings to the western side will be low rise single storey duplex or similar, in recessive colours and softened/screened from Tarawera Road reducing the visual dominance of the buildings.
- The carpark and entry features will be landscaped to enable views through to the regenerating hillsides of indigenous forest behind, and complementary areas of indigenous plantings around the development.
- The vegetation on the steep slopes behind the development will remain vegetated and provide a vegetative backdrop to development again reducing the visual prominence of the buildings on the environment.
- The Marae, Wharekai, and Cultural Centre are designed to be culturally interesting and will be intentionally exposed to views where appropriate, increasing and re-establishing the cultural presence of Tuhourangi in the landscape.

Pursuant to Section 95E(1) it is considered that no parties are considered to be adversely affected and the application may be considered on a non-notified basis (Section 958(1)) without the need for limited notification.

#### 9.2.3 Special Circumstances

There are no special circumstances as there is nothing that is unusual, abnormal or exceptional about this application.

#### 9.3 Notification Conclusion

Accordingly, it is considered that this proposal meets the tests of Sections 95A to 95E and the application can be processed and approved without public or limited notification.

## 10.0 SUMMARY AND CONCLUSIONS

The applicant seeks to develop the site in three distinct stages, being the development of Papakainga, a Marae and lastly a Cultural Centre. As the site is located within the sensitive rural management area of the Lakes A zone a non-complying activity status is required.

The assessment provided under section 5.0 has identified any actual and potential effects on the environment to be less than minor with the activity maintaining the character and amenity of the sensitive rural management area.

The granting of the resource consent would provide for the appropriate use of the site. This approval will be consistent with the principle of sustainable resource management and will not be contrary to the relevant objectives and policies of the plan.

Therefore, it is considered appropriate for consent to be granted by Council subject to fair and reasonable conditions.

## Attachment A – Assessment against the Performance Standards of the District Plan

The below (Table 1) provides an assessment against the performance standards of the sensitive rural management area, identifying the appropriate activity status for this application.

**Table 3 Assessment against the Performance Standards of the Lakes A Zone (Sensitive Rural Management Area)**

ACTIVITIES RULES	ACTIVITY STATUS	ASSESSMENT
<b>2.0 INDIGENOUS VEGETATION DISTURBANCE</b>	Discretionary	The area of the proposed development is mainly in grass sycamore forest and blackberry – Barberry scrub. No significant areas of indigenous vegetation are present within the southern areas of the site that is to be developed this being supported by the attached ecological assessment. However, as the site is located within a RAP site and the development may impact the odd indigenous species scattered through the site and at the toe of the slope, it is considered that this rule is likely to be triggered.
<b>3.0 EXOTIC VEGETATION DISTURBANCE IN RIPARIAN AREAS</b>	N/A	Not Applicable. The site and any vegetation clearance are not located within a riparian area.
<b>4.0 SPECIAL VEGETATION DISTURBANCE &amp; ESTABLISHMENT</b>	N/A	N/A
<b>5.0 EARTHWORKS</b>	<b>Discretionary</b>	The district plan does not record any archaeological site within the area of the development. The old remnants of Wiki Keepa's house is located above the proposed works and will not be impacted. However, an archaeological assessment has identified houses being located within the vicinity of the proposed papakainga and may be impacted by foundations of the proposed houses. A general authority will be sought from Heritage New Zealand. The proposed earthworks will exceed the permitted fill of 450mm and in areas the permitted excavation depth of 1.5 metres but for the majority of the site will not exceed 2.5metres. one small area within the eastern area of the site will involve a cut of 3.5metres. The total volume will also exceed 100cubic metres across the site with total approximate volumes as follows; <ul style="list-style-type: none"> <li>• Cut- 2,600m<sup>3</sup></li> <li>• Fill – 3,400m<sup>3</sup></li> <li>• Balance 800m<sup>3</sup></li> </ul>
<b>6.0 BUILDING PLATFORMS</b>	Discretionary	The proposed building platforms will be located within 25m of a scenic road boundary and the required 10m buffer.
<b>7.0 BUILDINGS</b>	Does not comply	The proposed building does not comply with the permitted conditions relating to indigenous vegetation, earthworks and buffers.
<b>8.0 SECONDHAND BUILDINGS</b>	N/A	The proposal does not consist of a second-hand building/s.
<b>9.0 STRUCTURES &amp; FENCING FOR DEER AND GOAT FARMING</b>	N/A	N/A
<b>10.0 LAKE STRUCTURES</b>	N/A	N/A
<b>11.0 HARD SURFACES</b>	Restricted Discretionary	The proposal involves a hard surface area of approximately 4,597sqm. This consists of the following:

0.5% or  
600sqm  
(lesser)

Description	Area
Papakainga housing patios (under veranda) porches and access paths	211 sqm
Papakainga roading	941 sqm
Bin collection area	25 sqm
Path to Marae from housing	267 sqm
Acceleration/deceleration lanes on the main road at the site entrance	190 sqm
Car park, Wharekai services area and turning area	1,525 sqm
Car park path (mostly covered) to Marae	412 sqm
Plaza paving, up to entrance of the tunnel	587 sqm
Path to lift and lift	25 sqm
Wharenuui paving	93 sqm
Northern service road around Cultural Centre.	210 sqm
Buried Village paving	111 sqm
<b>Total</b>	<b>4,597sqm</b>

This does not include the building areas, or the acceleration/deceleration lands located on Tarawera Road. The proposal exceeds the permitted hard surface area by 4,026.27sqm

<b>12.0 RECREATIONAL OPPORTUNITIES</b>	Non Complying	The proposal involves the establishment of a pedestrian track for Tuhourangi to access the remnants Wiki Keepa's whare, this being a site of cultural significant to the lwi. The width of the track will not exceed 1.5metres and will follow the existing track present onsite, but slightly overgrown with indigenous vegetation.
<b>13.0 HERITAGE FEATURES</b>	N/A	
<b>14.0 SIGNS</b>	N/A	N/A
<b>15.0 OUTDOOR STORAGE</b>	N/A	N/A
<b>16.0 HELICOPTER LANDING AREAS</b>	N/A	N/A

**BUILDING DESIGN RULES**

<b>17.0 SITE COVERAGE OF BUILDINGS</b>	<b>Non complying</b>	The development will consist of a floor area of approximately of 3,323.2sqm resulting in a site coverage of 2%.This consists of the following;																				
		<table border="1"> <thead> <tr> <th>Building</th> <th>Floor area</th> </tr> </thead> <tbody> <tr> <td>House and Garage (x10)</td> <td>209sqm each (clarify) (2090)</td> </tr> <tr> <td>Wharenuui</td> <td>155.9sqm</td> </tr> <tr> <td>Mahau</td> <td>36.3sqm</td> </tr> <tr> <td>Wharepaku, mattress store, workshop</td> <td>102.6sqm</td> </tr> <tr> <td>Wharekai</td> <td>247.3sqm</td> </tr> <tr> <td>Cultural Centre</td> <td>666.4sqm (covered area 122)</td> </tr> <tr> <td>Waharua</td> <td>24.7sqm</td> </tr> <tr> <td><b>TOTAL</b></td> <td><b>3,323.2sqm</b></td> </tr> <tr> <td><b>Percentage</b></td> <td><b>2.9%</b></td> </tr> </tbody> </table>	Building	Floor area	House and Garage (x10)	209sqm each (clarify) (2090)	Wharenuui	155.9sqm	Mahau	36.3sqm	Wharepaku, mattress store, workshop	102.6sqm	Wharekai	247.3sqm	Cultural Centre	666.4sqm (covered area 122)	Waharua	24.7sqm	<b>TOTAL</b>	<b>3,323.2sqm</b>	<b>Percentage</b>	<b>2.9%</b>
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		<b>Permitted threshold – 228.29sqm (0.2%)</b>																				

<b>18.0 - 19.0 HEIGHT</b>	<b>- Discretionary</b>	The proposed buildings will have the following maximum heights. <ul style="list-style-type: none"> <li>- Wharenuui – 6m (6.5 including carving at apex) 7.5metres</li> <li>- Wharekai – 4.5m</li> <li>- Waharua – 3.9m (4.4m including carving)</li> <li>- Cultural Centre – 5.5m (9m (design aspect at theatre end)</li> <li>- Wharepaku – 4.0m</li> </ul>
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		<p>Marae buildings are defined as including as the complex that includes whare whakairo/tupuna whare or carved meeting house, Wharekai and cooking area, Pataka (storehouse), Wharepaku (ablution blocks) in addition to the Marae areare/atea. Therefore, the above buildings, with the exception of the Cultural Centre and Papakainga are deemed to be Marae buildings and comply with the permitted height of 7.5m.</p> <p>The Papakainga have a maximum height of 3.5m and will meet the permitted height of 6.0metres</p> <p>The main area of the cultural Centre is 5.6metres. However, a small design aspect at the north-eastern end being 9.2m in height, reducing to 5.8metres in height.</p>
<b>21.0 REFLECTIVITY VALUES</b>	Permitted	<p>The Papakainga will be developed to comply with the reflectivity values of the zone with the exterior having a timber cladding. The road frontage of the cultural Centre will also comply with the required reflectivity values, with the frontage consisting of a dark grey coloursteel roof, windows with dark cultural designs, and the arc being concrete.</p> <p>The Marae buildings will be painted in traditional colours these being muted reds and off white/creams. This colours align with the Resene Rotorua Colour Palette.</p>
<b>22.0 VIEWPOINTS</b>	Permitted	The subject site and associated proposed development are not able to be seen from any viewpoint.
<b>23.0 SKYLINES</b>	Permitted	The proposed development cannot be viewed against a skyline.
<b>24.0 FLOOR LEVELS</b>	Permitted	A geotechnical assessment has located the ground water to be approximately 6-7 metres below the natural ground level of the site.
<b>25.0 BUFFERS</b>	<b>Discretionary</b>	<p>Six Papakainga will be located either 1.1 or 3.5metres metres of the side boundary or the front boundary.</p> <p>The wharenuui will be located between 0.3 and 5.2 metres of the legal front boundary</p> <p>The Cultural Centre will be located 6.8metres from the front boundary.</p> <p>The Waharua will be located approximately 6.8-7metres from the front legal boundary.</p> <p>NOTE: the above is based on the legal boundary of the site, not the formed road.</p>
<b>EFFECTS RULES</b>	<b>ACTIVITY STATUS</b>	<b>ASSESSMENT</b>
<b>26.0 ELECTROMAGNETIC RADIATION</b>	N/A	N/A
<b>27.0 SPILL LIGHT OR STRAY LIGHT EMISSIONS</b>	Permitted	The proposed activities will not result in any direct artificial illumination that exceeds ten (10) lux when measured at the nearest site boundary.
<b>28.0 NOISE</b>	Permitted	<p>Noise generated from the site will be residential with the occupation of the Papakainga. This will comply with the provisions of the plan.</p> <p>The use of the Marae buildings may result in noise being emitted from waiata or haka. It is noted that Appendix 5 excludes noise generated from legitimate uses of a Marae. Therefore, it is considered that these noise levels comply with the provisions of the plan.</p>
<b>29.0 TRAFFIC GENERATION</b>	Discretionary	<p>Traffic generation will be from 10 Papakainga occupying the site, this exceeding the permitted threshold by 8 dwellings.</p> <p>The traffic generated by the use of the Marae is permitted. No additional traffic is expected to occur from the cultural Centre.</p>
<b>INFRASTRUCTURE AND UTILITY</b>	<b>ACTIVITY STATUS</b>	<b>ASSESSMENT</b>
<b>30.0 ON-SITE CARPARKING AND MANOEUVRING</b>	Permitted	Onsite parking and manoeuvring in accordance with Appendix F (Rule 1.1) will be provided onsite.

<b>31.0 VEHICLE CROSSINGS</b>	Permitted	The proposed vehicle crossings will be formed to meet council requirements.
<b>32.0 PRIVATE ROADS AND PRIVATE WAYS</b>	N/A	N/A
<b>33.0 ROADS</b>	N/A	N/A
<b>34.0 POTABLE WATER SUPPLY</b>	Permitted	The dwelling and Marae buildings (where relevant) will have access to a potable water supply sourced from a bore located onsite. This bore will be located behind the Cultural Centre and water will then be pumped throughout the development to provide drinking water supply. A portable water test will be provided at the time of building consent. Additional water tanks will be installed onsite for firefighting purposes. Firefighting tanks will be filled from the new bore and tanks will be sized and located to comply with relevant standards. Final sizing of firefighting tanks will be completed as part for building consent after the buildings have been fully designed to ensure correct sizing is applied.
<b>35.0 COLLECTION AND DISPOSAL OF STORMWATER</b>	Permitted	A geotechnical assessment has identified the soil onsite to be suitable for onsite stormwater disposal via ground soakage methods. The attached infrastructure report (section 6.0) has provided specific detail on the methods of stormwater disposal.
<b>36.0 SEWAGE COLLECTION AND DISPOSAL</b>	Permitted	The attached infrastructure report has assessed of the future wastewater demand and servicing requirements have been carried out in accordance with the Regional Infrastructure Technical Specifications (RITS). A wastewater pipe network has been designed to gravity feed into the onsite wastewater tank system. This system has been designed to future proof the discharge into the future rising main along the road. The pipe network and tank system has been sized to accommodate the wastewater peak flow from the proposed development.
<b>37.0 ELECTRICAL AND TELECOMMUNICATIONS</b>	Permitted	Power and telecommunication network can be made to service the proposed development. The detailed design and installation will be undertaken in accordance with the utility provider and provided at time of building consent. All utilities reticulation will be designed in accordance with Council engineering and utilities standard requirements. At this stage the utility operators have not commenced any detailed design of the local reticulation. However, it is anticipated that all utility providers will be able to provide the required infrastructure to meet the development requirements. Once consent has been granted detailed design of the utilities will commence. We have shown on the road cross sections the proposed lay positions of the various utilities to ensure there is sufficient room to accommodate them within the road corridors.

## Attachment B – Relevant Objectives and Policies

### Regional Policy Statement

#### Iwi Management

*Objective 13 Kaitiakitanga is recognised and the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) are systematically taken into account in the practice of resource management.*

*Objective 16 Multiple-owned Māori land is developed and used in a manner that enables Māori to provide for their social, economic and cultural wellbeing and their health and safety, while maintaining and safeguarding its mauri*

*Policy IW 1B: Enabling development of multiple-owned Māori land Provide for the development of multiple-owned Māori land<sup>3</sup> in a manner which:*

- (a) Enables sustainable development consistent with Part 2 of the Act;*
- (b) Enables Māori to develop papakāinga, Marae and associated community facilities or housing and, where necessary, shall actively protect these and associated customary activities from the adverse effects of subdivision, use and development, in the vicinity of a Marae;*
- (c) Enables Maori to develop multiply owned Maori land and resources to provide social and economic benefits;*
- (d) Enables Māori to develop geothermal resources for economic and social benefits in a manner consistent with the classification and management purpose of the geothermal resource; and*
- (e) In the western Bay of Plenty sub-region only, protects, to the extent practicable, views from:
  - (i) Marae to landscape features of significance to the hapū and iwi associated with that Marae; and*
  - (ii) Culturally significant features where part of the significance is the view.**

*Policy IW 2B: Recognising matters of significance to Māori Proposals which may affect the relationship of Māori and their culture and traditions must:*

- (a) Recognise and provide for:
  - (i) Traditional Māori uses and practices relating to natural and physical resources such as mahinga mātaītai, waahi tapu, papakāinga and taonga raranga;*
  - (ii) The role of tangata whenua as kaitiaki of the mauri of their resources;*
  - (iii) The mana whenua relationship of tangata whenua with, and their role as kaitiaki of, the mauri of natural resources;*
  - (iv) Sites of cultural significance identified in iwi and hapū resource management plans; and**
- (b) Recognise that only tangata whenua can identify and evidentially substantiate their relationship and that of their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.*

*Objective 17 The mauri of water, land, air and geothermal resources is safeguarded and where it is degraded, where appropriate, it is enhanced over time.*

*Policy IW 5B: Adverse effects on matters of significance to Māori When considering proposals that may adversely affect any matter of significance to Māori recognise and provide for avoiding, remedying or mitigating adverse effects on:*

- (a) The exercise of kaitiakitanga*
- (b) Mauri, particularly in relation to fresh, geothermal and coastal waters, land and air;*
- (c) Mahinga kai and areas of natural resources used for customary purposes;*
- (d) Places sites and areas with significant spiritual or cultural historic heritage value to tangata whenua; and*
- (e) Existing and zoned Marae or papakāinga land.*

#### Matters of National Importance

*Objective 18 The protection of historic heritage and outstanding natural features and landscapes from inappropriate subdivision, use and development.*

*Objective 20 The protection of significant indigenous habitats and ecosystems, having particular regard to their maintenance, restoration and intrinsic values*

*Objective 21 Recognition of and provision for the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga*

*Policy MN 1B: Recognise and provide for matters of national importance*

- (a) Identify which natural and physical resources warrant recognition and provision for as matters of national importance under section 6 of the Act using criteria consistent with those contained in Appendix F of this Statement;*
- (b) Recognise and provide for the protection from inappropriate subdivision, use and development of those areas, places, features or values identified in accordance with (a) in terms of natural character, outstanding natural features and landscapes, and historic heritage;*
- (c) Recognise and provide for the protection of areas of significant indigenous vegetation and habitats of indigenous fauna identified in accordance with (a);*
- (d) Recognise and provide for enhancing and maintaining public access to and along those areas identified in accordance with (a);*
- (e) Recognise and provide for the relationship of Māori and their culture and traditions identified in accordance with (a) and Policy IW 2B; and*
- (f) Recognise and provide for protection to recognised customary activities.*

*Policy MN 2B: Giving particular consideration to protecting significant indigenous habitats and ecosystems Based on the identification of significant indigenous habitats and ecosystems in accordance with Policy MN 1B:*

- (a) Recognise and promote awareness of the life-supporting capacity and the intrinsic values of ecosystems and the importance of protecting significant indigenous biodiversity;*
- (b) Ensure that intrinsic values of ecosystems are given particular regards to in resource management decisions and operations;*
- (c) Protect the diversity of the region's significant indigenous ecosystems, habitats and species including both representative and unique elements;*
- (d) Manage resources in a manner that will ensure recognition of, and provision for, significant indigenous habitats and ecosystems; and*
- (e) Recognise indigenous marine, lowland forest, freshwater, wetland and geothermal habitats and ecosystems, in particular, as being underrepresented in the reserves network of the Bay of Plenty.*

*Policy MN 3B: Using criteria to assess values and relationships in regard to section 6 of the Act Include in any assessment required under Policy MN 1B, an assessment of:*

- (a) Natural character, in relation to section 6(a) of the Act, on the extent to which criteria consistent with those in Appendix F set 1: Natural character are met;*
- (b) Whether natural features and landscapes are outstanding, in relation to section 6(b) of the Act, on the extent to which criteria consistent with those in Appendix F set 2: Natural features and landscapes are met;*
- (c) Whether areas of indigenous vegetation and habitats of indigenous fauna are significant, in relation to section 6(c) of the Act, on the extent to which criteria consistent with those in Appendix F set 3: Indigenous vegetation and habitats of indigenous fauna are met;*
- (d) Public access to and along the coastal marine area, lakes and rivers in relation to section 6(d) of the Act, on the extent to which the criteria consistent with those in Appendix F set 6: Public access are met;*
- (e) The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga, in relation to section 6(e) of the Act, on the extent to which criteria consistent with those in Appendix F set 4: Māori culture and traditions are met; and*
- (f) Historic heritage, in relation to section 6(f) of the Act, on the extent to which criteria consistent with those in Appendix F set 5: Historic heritage are met.*

*Policy MN 7B: Using criteria to assist in assessing inappropriate development Assess, whether subdivision, use and development is inappropriate using criteria consistent with those in Appendix G, for areas considered to warrant protection under section 6 of the Act due to:*

- (a) Natural character;*
- (b) Outstanding natural features and landscapes;*
- (c) Significant indigenous vegetation and habitats of indigenous fauna;*
- (d) Public access;*
- (e) Māori culture and traditions; and*
- (f) Historic heritage.*

*Policy MN 8B: Managing effects of subdivision, use and development Avoid and, where avoidance is not practicable, remedy or mitigate any adverse effects of subdivision, use and development on matters of national importance assessed in accordance with Policy MN 1B as warranting protection under section 6 of the Act.*

## Urban Growth

*Policy UG 22B: Providing for papakāinga*

*Outside existing urban areas and the urban limits shown on Maps 5 to 15 (Appendix E), papakāinga including Marae-based housing shall be provided for.*

## Water quantity

*Objective 30 The quantity of available water: (a) provides for a range of uses and values; (b) is allocated and used efficiently; (c) safeguards the mauri and life supporting capacity of water bodies; and (d) meets the reasonably foreseeable needs of future generations.*

*Policy WQ 1A: Promoting efficient water use, water harvesting and water transfers Promote the efficient use of water, enable water harvesting where adverse effects on the environment can be avoided, remedied or mitigated, and enable the transfer of water permits in whole or in part.*

*Policy WQ 2A: Setting and applying instream flows and allocation limits for taking freshwater*

*(a) Set and apply limits for instream flows for surface water bodies to safeguard their life supporting capacity, and take into account Māori cultural values and other values where relevant;*

*(b) Set and apply allocation limits for the total amount of water that can be taken from surface water bodies to ensure a reliable and accessible amount of water is available for users; and (c) Set and apply allocation limits for groundwater (excluding geothermal water) which take into account, among other things:*

- (i) The interaction between groundwater and surface water;*
- (ii) Sustaining groundwater-fed streams and wetlands;*
- (iii) Preventing the contamination of aquifers by geothermal bore water and saltwater intrusion; and*
- (iv) Water levels in aquifers.*

*Policy WQ 3B: Allocating water Have regard to the following matters when allocating and reallocating freshwater:*

*(a) The demands and availability of water within catchments or areas;*

*(b) Ensuring water in a water body is not over allocated;*

*(c) Making water available to meet existing and reasonably foreseeable domestic, Marae or municipal water supply needs with priority for essential drinking and sanitation requirements;*

*(d) The relative economic benefits of the proposed end use of the water, when allocation limits are exceeded, or are close to being exceeded;*

*(e) The benefits of maintaining instream flows to protect and enhance the cultural values of a waterbody, including its mauri;*

*(f) Requiring the volume of water allocated and taken to be reasonable and justifiable with regard to its intended use;*

*(g) The value of investments that existing consent holders have made which depend on the water abstracted; (h) The availability of the water for other uses, including cultural uses;*

*(i) The benefits to be derived from the use of water for, or directly associated with electricity generation from renewable sources; and*

*(j) The benefits to be derived from the use of water for rural production activities.*

*Policy WQ 6B: Ensuring water availability When applying for designations, plan changes, land use and/or subdivision consent the applicant should ensure that there is sufficient water available at the location to support the activity.*

*Policy WQ 7B: Reducing water demand When applying for land use and/or subdivision consent the applicant shall consider alternative sources of water, and where reasonable, implement water conservation measures and the benefits of water collection and reuse and/or recycling.*

*Policy WQ 8B: Managing consented water takes to ensure efficient use When considering an application for resource consent to take water, regard shall be given to:*

*(a) The extent to which water users have demonstrated a reasonable need for the rates and volumes sought;*

*(b) The extent to which water users have demonstrated that the water will be used efficiently;*

*(c) The extent of potential adverse effects on other authorised users;*

*(d) Specifying the maximum allowable water use as well as maximum abstraction rates;*

*(e) Requiring the consent holder to measure and report the actual amount of water taken;*

*(f) Whether water is able to be taken within pressure catchments and aquifers that are nearing full allocation;*

*(g) Preventing saltwater intrusion;*

*(h) The reasonably foreseeable impacts of climate change;*

- (i) Establishing and applying a consent term of no more than 15 years, unless:
- (i) The take and use of water is necessary to enable the use or development of regionally significant infrastructure;
  - (ii) The take and use of water is for a non-typical activity such as dewatering and the access to, and use and development of mineral resources; or
  - (iii) A longer term is demonstrated by the applicant to be appropriate in the circumstances;
  - (j) The benefits to be derived from the use of water for, or directly associated with electricity, generation from renewable sources.

## Natural Hazards

*Objective 31 Avoidance or mitigation of natural hazards by managing risk for people's safety and the protection of property and lifeline utilities.*

*Policy NH 1B: Taking a risk management approach Take a risk management approach to control the use, development and protection of land to avoid or mitigate natural hazards by assessing the level of risk according to the likelihood of natural hazards occurring and their potential consequences.*

*Policy NH 2B: Classifying risk Classify risk according to the following three category risk management framework as detailed in Appendix L:*

*1 High natural hazard risk being a level of risk beyond what should be tolerated.*

*2 Medium natural hazard risk being a level of risk that exceeds the Low level but does not meet the criteria for High risk.*

*3 Low natural hazard risk being the level of risk generally acceptable. The policy direction associated with these levels of risk is set out in Policy NH 3B Natural hazard risk outcomes.*

*Policy NH 3B: Natural hazard risk outcomes By the application of Policies NH 4B and NH 12A, achieve the following natural hazard risk outcomes at the natural hazard zone scale:*

*(a) In natural hazard zones subject to High natural hazard risk reduce the level of risk from natural hazards to Medium levels (and lower if reasonably practicable); and*

*(b) In natural hazard zones subject to Medium natural hazard risk reduce the level of risk from natural hazards to be as low as reasonably practicable; and*

*(c) In natural hazard zones subject to Low natural hazard risk maintain the level of risk within the Low natural hazard risk range.*

*Policy NH 4B: Managing natural hazard risk on land subject to urban development Require a Low natural hazard risk to be achieved on development sites after completion of the development (without increasing risk outside of the development site) by controlling the form, density and design of:*

*(a) Greenfield development;*

*(b) Any urban activity within the existing urban area that involves the construction of new and/or additional buildings or reconstruction of or addition to existing buildings (including any subdivision associated with such activities); and*

*(c) Rural lifestyle activities; except that a Low level of risk is not required to be achieved on the development site after completion of the development where the development site is located within a natural hazard zone of Low natural hazard risk and that natural hazard zone will maintain a Low level of natural hazard risk after completion of the development.*

## Regional Natural Resources Plan

### Kaitiakitanga

*KT 01 (Objective 1) The principles of the Treaty of Waitangi (Te Tiriti o Waitangi) are recognised and taken into account in the management of water, land and geothermal resources.*

*KT 07 (Objective 7) The extent of the spiritual, cultural and historical values of water, land and geothermal resources (including waahi tapu, taonga and sites of traditional activities) to tangata whenua are identified.*

*KT P1 (Policy 1) To recognise that tangata whenua, as indigenous peoples, have rights protected by the Treaty of Waitangi (Te Tiriti o Waitangi) and that consequently the Act accords Maori a status distinct from that of interest groups and members of the public.*

*KT P2 (Policy 2) To take into account the principles of the Treaty of Waitangi in the management of land, water and geothermal resources.*

*KT P7 (Policy 7) To make provision for kaitiaki to manage their ancestral land, water, and geothermal resources where this is consistent with the Act.*

*KT P8 (Policy 8) To recognise that kaitiakitanga involves both: (a) The use and development of land, water and geothermal resources by tangata whenua, and (b) The protection of taonga, waahi tapu, significant sites, traditional use sites, and other natural and physical resources of importance to tangata whenua.*

*KT P9 (Policy 9) To have particular regard to kaitiakitanga, including customary use and management practices relating to water, land and geothermal resources, including mahinga kai whenua and mahinga kai awa, waahi tapu and taonga raranga, in accordance with tikanga Maori, and the mana and responsibilities of Nga Tangata Pukenga, where this is consistent with the Act.*

*KT P10 (Policy 10) To identify the extent of cultural values associated with rivers, streams, lakes, wetlands, geothermal resources and land, where this is considered appropriate by tangata whenua.*

*KT P11 (Policy 11) To recognise and provide for the mauri of water, land and geothermal resources when assessing resource consent applications.*

## Land Management

*LM O1 (Objective 9) Land use and land management practices are appropriate to the environmental characteristics and limitations of the site, and avoid, remedy or mitigate adverse effects on the life-supporting capacity of soil resources, the receiving environment and heritage values.*

*LM O4 (Objective 20) The intactness and health of the region's soils is maintained.*

## Rotorua District Plan – Lakes A Zone

*OB 1 Maintained or enhanced indigenous biodiversity and natural character of the Lakes Catchments.*

*OB 2 Maintained integrity of eco-units which characterise the Rotorua Lakes Ecological District.*

*OB 7 A network of healthy functioning areas of indigenous vegetation with a high degree of ecological integrity.*

*OB 11 Land management that retains existing landforms as described for each Policy Area.*

*OB 12 Maintained or enhanced naturalness of the landscapes as it contributes to the natural character of the lakes catchments.*

*OB 13 Protected viewpoints and scenic corridors of roads.*

*OB 14 Land management practices that:*

- a) Protect known historic places and historic heritage;*
- b) Recognises the relationships of the Tangata Whenua, their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga;*
- c) Protect known features of scientific importance;*
- d) Reaffirm Tarawera and Okareka as the only settlement areas;*
- e) Recognise existing amenity values (including ambient noise levels which are consistent with amenity values);*
- f) Recognise and protect a unique or representative range of heritage items of value to the community and to the nation.*

*OB 15 Acknowledgement of the Tangata Whenua through:*

- a) Recognition that land and associated resources have characteristics of special spiritual, historical, and cultural significance to the Tangata Whenua;*
- b) Direct and effective involvement of the Tangata Whenua in sustaining the mauri of natural and physical resources;*

*c) Provision of appropriate development opportunities in selected locations to enable the relationship of the Tangata Whenua and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.*

*OB 17 Infrastructure and Utility Services Management of roading, stormwater, sewage disposal, provision of potable water supplies and provision of energy and communication in ways that:*

- a) promote the health and safety, social, economic, and cultural wellbeing of people;*
- b) Avoid, remedy or mitigate adverse effects on the environment, whilst ensuring that the effect from activities on infrastructure and utilities are avoided, remedied or mitigated.*

*OB 18 Limited risks to human occupation and activity caused by the risks posed by natural hazards including:*

- a) Flooding (river and lake level fluctuations);*
- b) Okataina volcanic Centre and localised volcanism;*
- c) Geothermal activity;*
- d) Seismic activity in active fault lines;*
- e) Fires.*

## **Landscape Policies**

*P1.1 To maintain and enhance the lake catchments as outstanding natural features and landscapes, each with its unique character.*

*P1.2 To recognise the heritage and Tangata Whenua values associated with the landscape.*

*P1.3 To maintain and enhance the landscape qualities, including the vegetated character of scenic roads.*

*P1.4 To retain natural character of landscapes by:*

- a) Confining close built development to the settlements of Okareka and Tarawera.*
- b) Managing built development outside the identified settlements according to landscape sensitivity to absorb change.*
- c) Encouraging clustered rather than dispersed built development outside identified settlements.*
- d) Managing traffic in relation to built development.*
- e) Limiting signage where it can be viewed from a lake, public reserve, or public road and where it causes distraction from official signs or reduction of traffic safety.*
- f) To require a sign to directly relate to the site of the activity.*

*P1.5 To avoid, remedy or mitigate adverse effects on the post-eruption cultural landscapes and settlement patterns, and known pre-eruption heritage including archaeological evidence and waahi tapu.*

*P1.6 To ensure scales of building and built elements, and vegetation that contribute to the naturalness, visual consistency, and coherence of the landscape*

*P1.7 To protect identified viewshafts.*

## **P2.5 Tarawera Policy Area**

*P2.5.1 To protect and enhance the natural character of the policy area based on:*

- a) protection of existing indigenous vegetation;*
- b) afforestation and/or re-vegetation of steep land;*
- c) retirement and restoration of the shoreline;*
- d) protection of the outstanding natural feature of Mount Tarawera.*

*P2.5.2 To ensure that activities and recreational opportunities:*

- a) retain a character that has an appearance of being uninhabited away from the settlement;*
- b) protect and enhance the existing natural character of the policy area.*

*P2.5.3 To avoid the presence of buildings and structures which:*

- a) detract from the naturalness of the views of Lake Tarawera and Mount Tarawera from identified viewpoints;*
- b) are obtrusive when viewed from Lake Tarawera;*
- c) reduce the natural landscape context of the settlement;*



*d) are placed on prominent landform units.*

*P2.5.4 To retain the natural character by ensuring that:*

- a) buildings and structures are low-rise, low key, well spaced and nestle into vegetation;*
- b) the proliferation of lake structures is reduced and avoided;*
- c) lake structures adjacent to the settlement do not dominate the unbuilt nature of the lake;*
- d) vessels are restricted on the lake.*

*P2.5.5 To seek protection of vegetation, and to promote re-vegetation around buildings and structures to enhance the naturalness of the policy area*

*P2.5.7 To maintain and enhance a scenic and vegetated roadway character.*

*P2.5.8 To manage subdivision, use, and development of land in ways that:*

- (a) revegetate prominent slopes and erosion prone land;*
- (b) enhance water quality;*
- (c) enhance buffers to protect waterbodies;*
- (d) protect historic places and historic heritage;*
- (e) enhance the integrity of indigenous ecology of the Rotorua Lakes Ecological District;*
- (f) recognise and provide for the Tangata Whenua heritage associations.*

*P2.5.9 In less sensitive areas to maintain and enhance rural amenity values by:*

- a) maintaining a low density of buildings and structures;*
- b) maintaining a large separation between individual buildings or clusters of buildings;*
- c) maintaining expansive areas of vegetation, particularly indigenous vegetation;*
- d) managing building bulk and height to a rural scale;*
- e) screening or landscaping of buildings, structures, or hard surfaces to integrate them into the rural landscape and to avoid adverse visual effects when viewed from roads, reserves and adjacent sites.*

### **P3.0 Tangata Whenua and Cultural Heritage**

*P3.4 To enable the practical expression of kaitiakitanga by the Tangata Whenua over ancestral taonga, in particular waahi tapu, mahinga kai areas, Maori land, and taonga raranga.*

*P3.7 To take into account any special relationship the Tangata Whenua have with their land when considering resource consent applications lodged by Tangata Whenua.*

### **P4. Historic Heritage**

*P4.1 To avoid, remedy or mitigate the adverse effects of activities on the identified heritage items bearing in mind that public access to heritage sites should not jeopardise the integrity of the item or the reasonable operation of activities on the site.*

### **P5.0 Water Quality**

*P5.3 To control small scale earthworks where there is a risk of resulting sedimentation in wetlands, lakes and rivers.*

*P5.4 To require stormwater management within new subdivisions or developments that:*

- a) improves water quality before diffuse discharge to lakes, rivers, streams, or wetlands, by the use of on-site treatment and disposal of stormwater, artificial wetlands, or grassed swales, and by the retention of vegetation on-site;*
- b) minimises increases in peak flows;*
- c) minimise increases in impermeable areas.*

*P5.5 To promote retrofitting of stormwater remediation methods in existing situations where practicable.*

### **P10.0 Landforms**

*P10.1 To ensure that all earthworks are carried out and stabilised in a manner that avoids, remedies or mitigates adverse effects on the environment, and in particular, on the natural character, as described in P2.0 for the Landscape Policy Areas*

#### P12.0 Infrastructure and Utility Services:

*P12.1 To ensure safe potable water supplies for consumption that provide for the health and hygiene of people and which optimises water conservation and continuity of supply.*

*P12.2 To ensure water supplies with sufficient capacity for firefighting within Gazetted Fire Districts.*

*P12.3 To ensure collection and disposal of stormwater where adverse effects on the environment and in particular:*

- a) water quality;*
- b) land stability;*
- c) the safety and health of people;*
- d) the safety of property;*
- e) the functioning of roads intended for public use;*
- f) indigenous flora and fauna; are avoided, remedied or mitigated.*

*P12.4 To ensure that where the collection and disposal of stormwater creates inundation or ponding, the adverse effects can be remedied or mitigated.*

*P12.5 To ensure treatment and disposal of sewage in ways that avoid, remedy or mitigate adverse effects on human health and water quality of streams, lakes and ground water and the amenity values of the settlements and natural character of the lakes.*

*P12.6 To ensure sewerage systems avoid ingress of stormwater.*

#### P12.0 Transport and Rooding

*P12.7 To ensure a rooding network, with practicable access to sites, that enables safe and efficient traffic movement, including separate pedestrian and cycle traffic where appropriate, whilst avoiding, remedying or mitigating adverse effects on the natural character of the environment as described in P2.0 for the Landscape Policy Areas.*

*P12.10 To avoid, remedy or mitigate adverse effects of Traffic Generation on amenity values*

#### P13.0 Natural Hazards

*P13.1 To recognise that hazards arise from volcanic activity, seismic activity, geothermal activity, flooding, fire, erosion and sedimentation and apply measures that reduce risk to people and property.*

*P13.3 To avoid remedy or mitigate the effects of 2% AEP flood events arising from streams, ephemeral watercourses, and high lake levels.*

#### P14.0 Subdivision and Development

*P14.1 To promote the design of sites so as to facilitate development in a manner that is consistent with the objectives, and the policies as described in P2.0 for the Landscape Policy Areas.*

*P14.2 To ensure that each site created is capable of supporting its intended future use and that building platforms are designed and located so as to avoid, remedy or mitigate adverse effects on natural character.*

#### P16.0 Amenity

*P16.1 To manage the level of nuisance to neighbours caused by the adverse effects of noise and light spill.*

*P16.3 To manage nuisances that may arise from the close proximity of buildings and activities by applying separation.*

## Attachment C - Site photos



Figure 1: Tuhourangi Monument on adjoining site.



Figure 2: View outside of site towards Buried Village.



Figure 3 & 4 (below): View within the site, along the front of the property. General location of unison power lines.





Figure 5: View from the end of the site and general location of proposed Papakainga



Figure 6; Lower Bank along rear of the proposed development



Figure 7; View of the bottom of the slope and the indigenous vegetation (RAP site).

### **Attachment D – Council Forms**

Refer to separate attachment lodged with application.

### **Attachment E – Email Correspondence with TTA**

Refer to separate attachment lodged with application.

### **Attachment F – Record of Title**

Refer to separate attachment lodged with application.

### **Attachment G – Archaeological Assessment**

Refer to separate attachment lodged with application

### **Attachment H – Cultural Impacts Assessment**

Refer to separate attachment lodged with application

### **Attachment I – Ecological Assessment**

Refer to separate attachment lodged with application

### **Attachment J – Landscape Assessment**

Refer to separate attachment lodged with application

### **Attachment K – Geotechnical Assessment**

Refer to separate attachment lodged with application

### **Attachment L – Traffic Assessment**

Refer to separate attachment lodged with application

### **Attachment M – Infrastructure Report**

Refer to separate attachment lodged with application

### **Attachment N – Previous Resource Consents**

Refer to separate attachment lodged with application.

### **Attachment O – Underpass Specifications**

Refer to separate attachment lodged with application.

### **Attachment P - Proposed Site Plans and Elevations**

Refer to separate attachment lodged with application



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# ROTOMAHANAH 6J2B3 2001 CULTURAL CENTRE DEVELOPMENT

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GEMSCOTT MONICA LTD

McKENZIE & Co PROJECT No.:  
DATE OF ISSUE  
ISSUE STATUS

2645  
JANUARY 2023  
DRAFT



# ROTOMAHANAH 6J2B3 2001 DRAWING INDEX

DWG NO.	TITLE
	<b>Earthworks</b>
200	Earthworks Finished Contour Overall Plan
201	Earthworks Finished Contour Plan
202	Earthworks Finished Contour Plan
203	Earthworks Cut/Fill Overall Plan
204	Earthworks Cut/Fill Plan
205	Earthworks Cut/Fill Plan
230	Erosion and Sediment Control Plan
231	Erosion and Sediment Control Plan
232	Erosion and Sediment Control Plan
250	Retaining wall plan
	<b>Roads</b>
	See Spectrum Architect Plans for Layout
360	Road Typical Cross-sections
372	Intersection sight distance
375	Road Widening
	<b>Stormwater</b>
400	Stormwater Plan Overall
401	Stormwater Plan
402	Stormwater Plan
	<b>Wastewater</b>
500	Wastewater Plan Overall
501	Wastewater Plan
502	Wastewater Plan
	<b>Water</b>
600	Water Supply Plan Overall
601	Water Supply Plan
602	Water Supply Plan

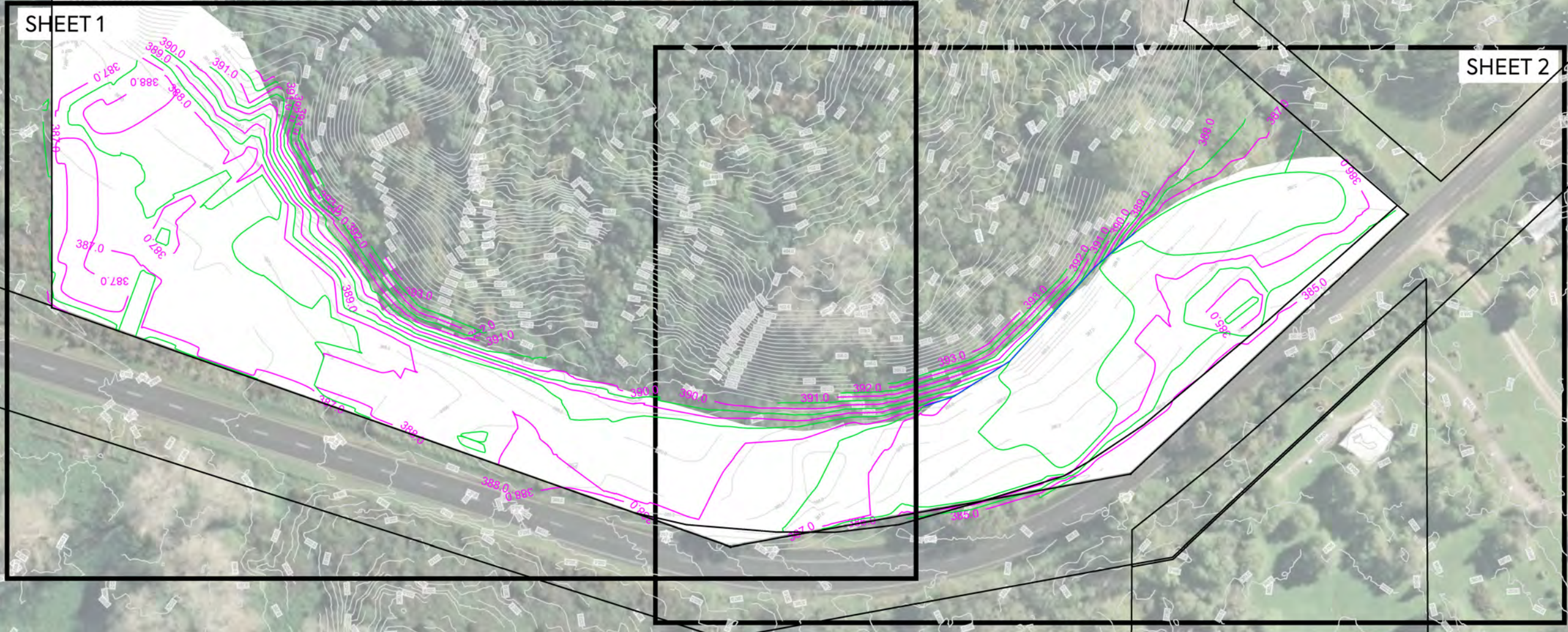
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ROTOMAHANA PAREKARANGI  
6J2B1 BLOCK



SHEET 1

SHEET 2



ROTOMAHANA PAREKARANGI  
6J2B4 BLOCK

ROTOMAHANA PAREKARANGI  
6J2B3 BLOCK

CLIENT:	PROJECT:	TITLE:	PURPOSE OF ISSUE:
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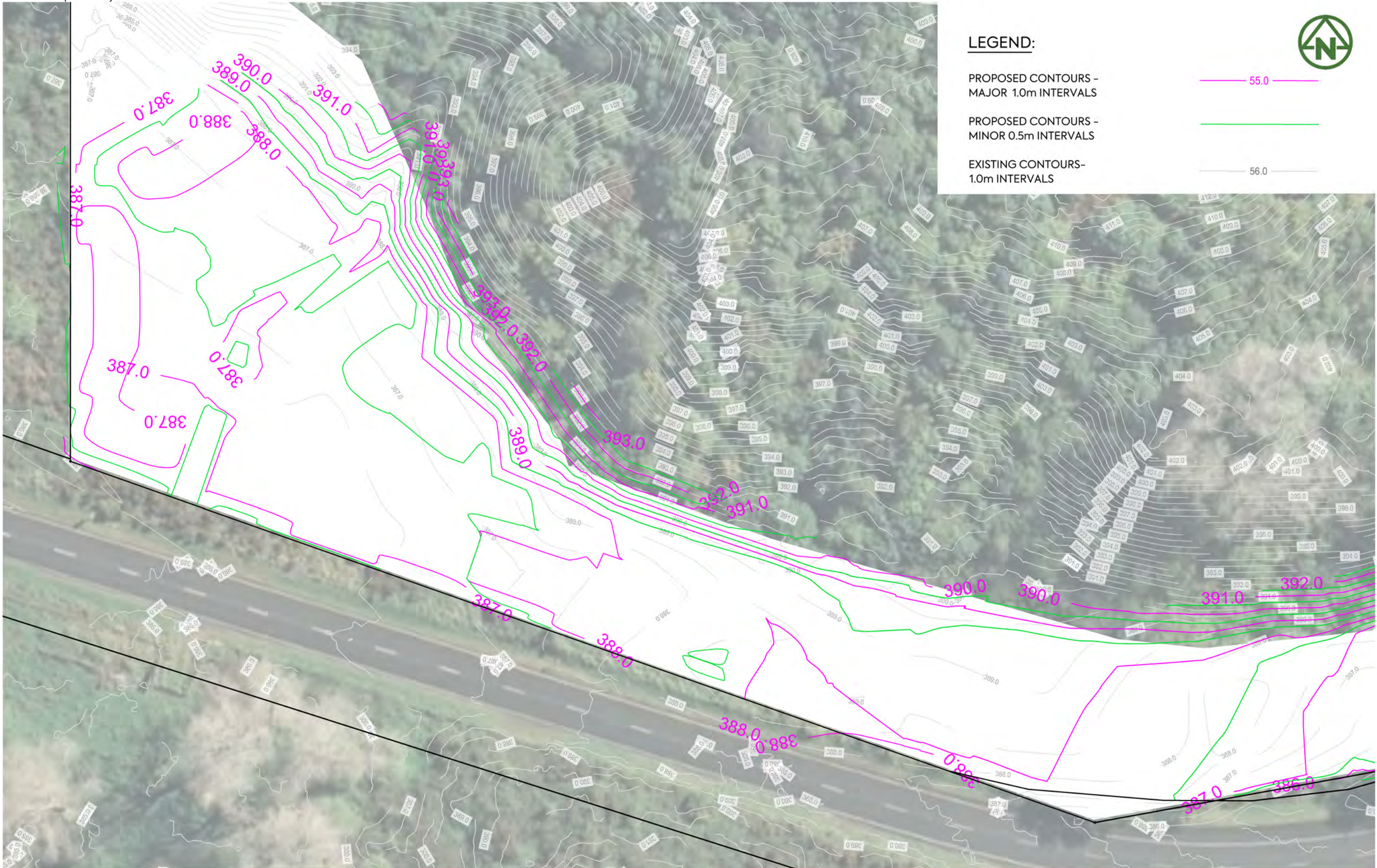


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A	FIRST ISSUE	DZ	LH	LH	31/01/23



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- PROPOSED CONTOURS - MINOR 0.5m INTERVALS ———
- EXISTING CONTOURS - 1.0m INTERVALS ——— 56.0 ———



CLIENT: ADR CONSULTANTS LTD      PROJECT: ROTOMAHANAH 6J2B3 2001      TITLE: EARTHWORKS DESIGN CONTOURS      PURPOSE OF ISSUE: FOR APPROVAL



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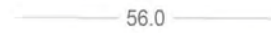
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PROPOSED CONTOURS - MINOR 0.5m INTERVALS



EXISTING CONTOURS - 1.0m INTERVALS



RETAINING WALL



CLIENT: ADR CONSULTANTS LTD PROJECT: ROTOMAHANAH 6J2B3 2001 TITLE: EARTHWORKS DESIGN CONTOURS PURPOSE OF ISSUE: FOR APPROVAL



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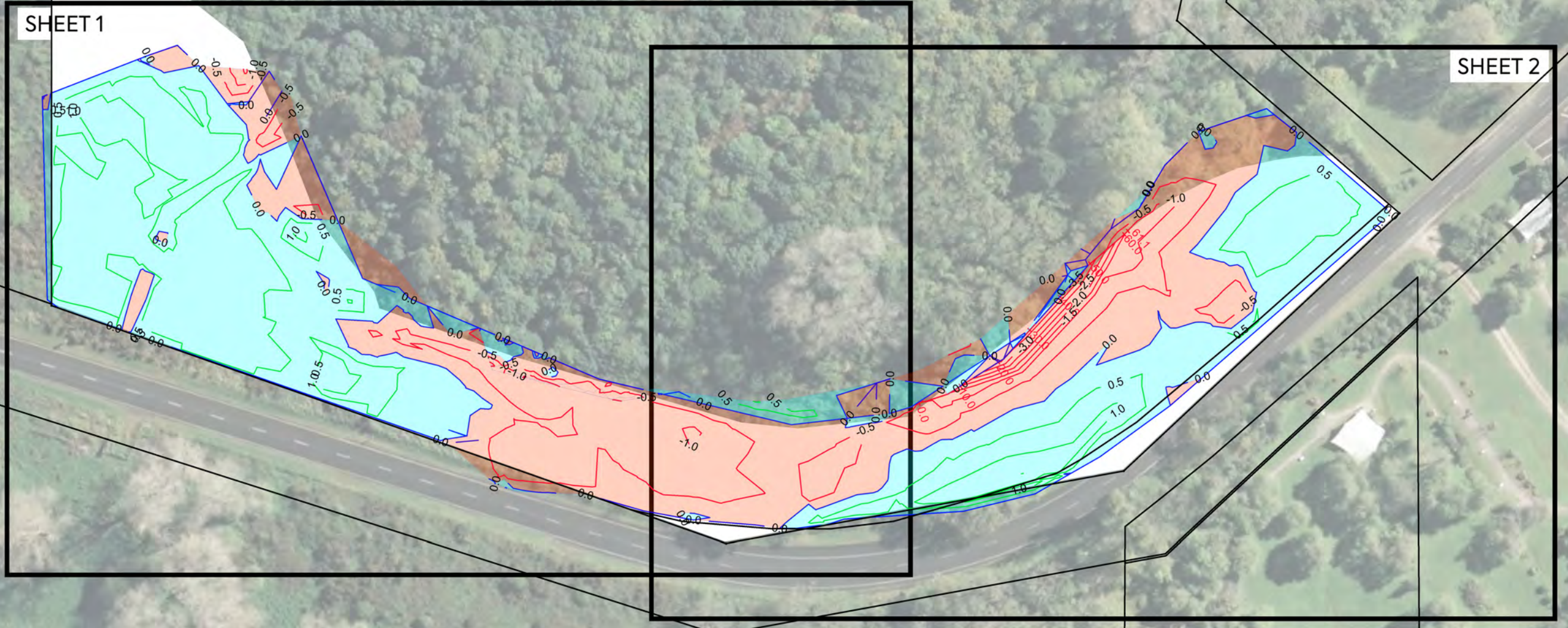
ROTOMAHANA PAREKARANGI  
6J2B3 BLOCK

ROTOMAHANA PAREKARANGI  
6J2B1 BLOCK



SHEET 1

SHEET 2



ROTOMAHANA PAREKARANGI  
6J2B3 BLOCK

ROTOMAHANA PAREKARANGI  
6J2B4 BLOCK

CLIENT:  
APR CONSULTANTS LTD

PROJECT:  
ROTOMAHANA 6J2B3 2001  
TARAWERA ROAD  
ROTORUA

TITLE:  
EARTHWORKS  
CUT FILL CONTOURS  
OVERVIEW

PURPOSE OF ISSUE:  
FOR APPROVAL

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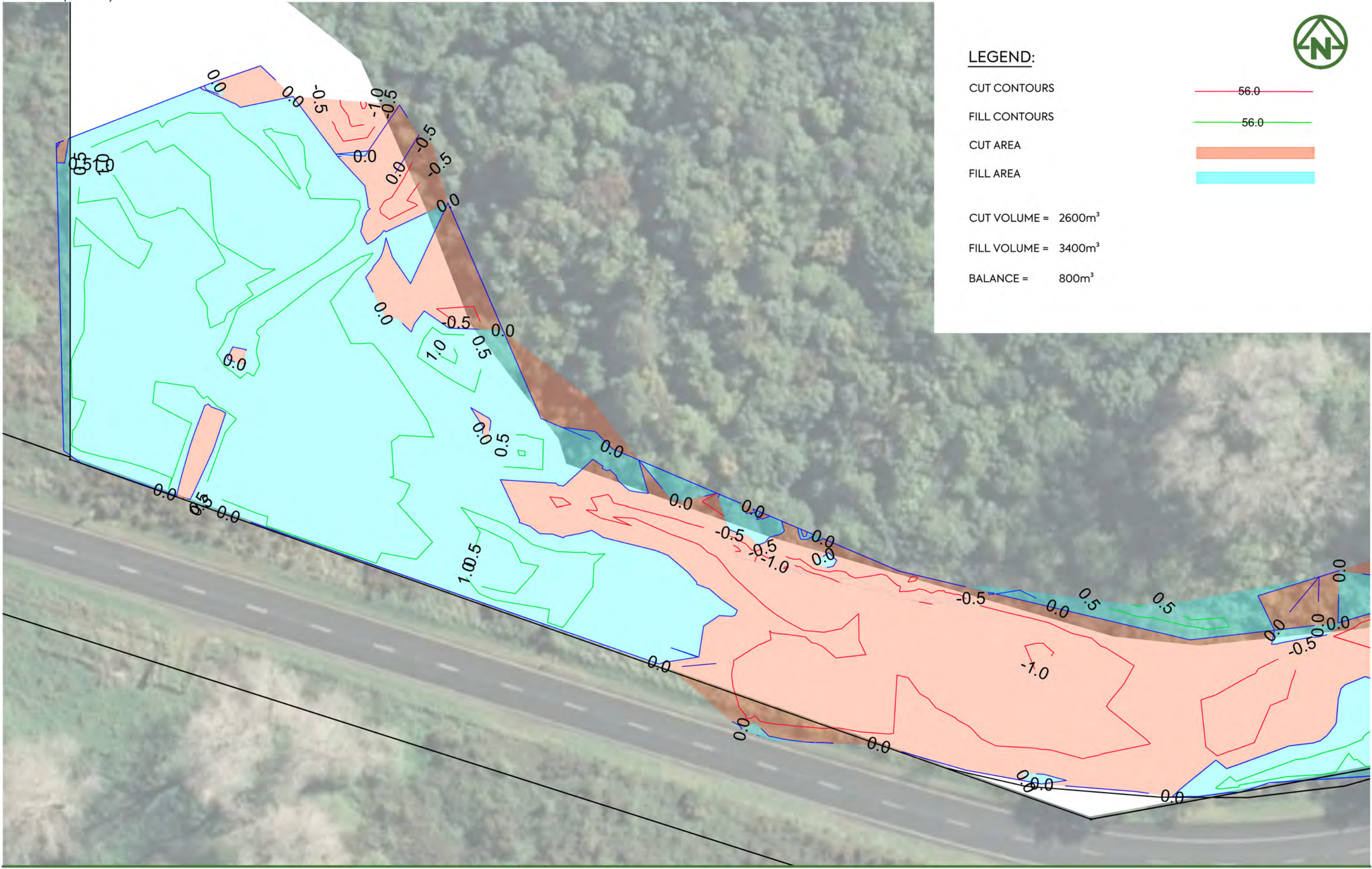
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A	FIRST ISSUE	DZ	LH	LH	31/01/23



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- CUT AREA
- FILL AREA

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 FILL VOLUME = 3400m<sup>3</sup>  
 BALANCE = 800m<sup>3</sup>



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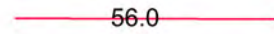


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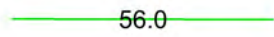
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CUT CONTOURS



FILL CONTOURS



CUT AREA



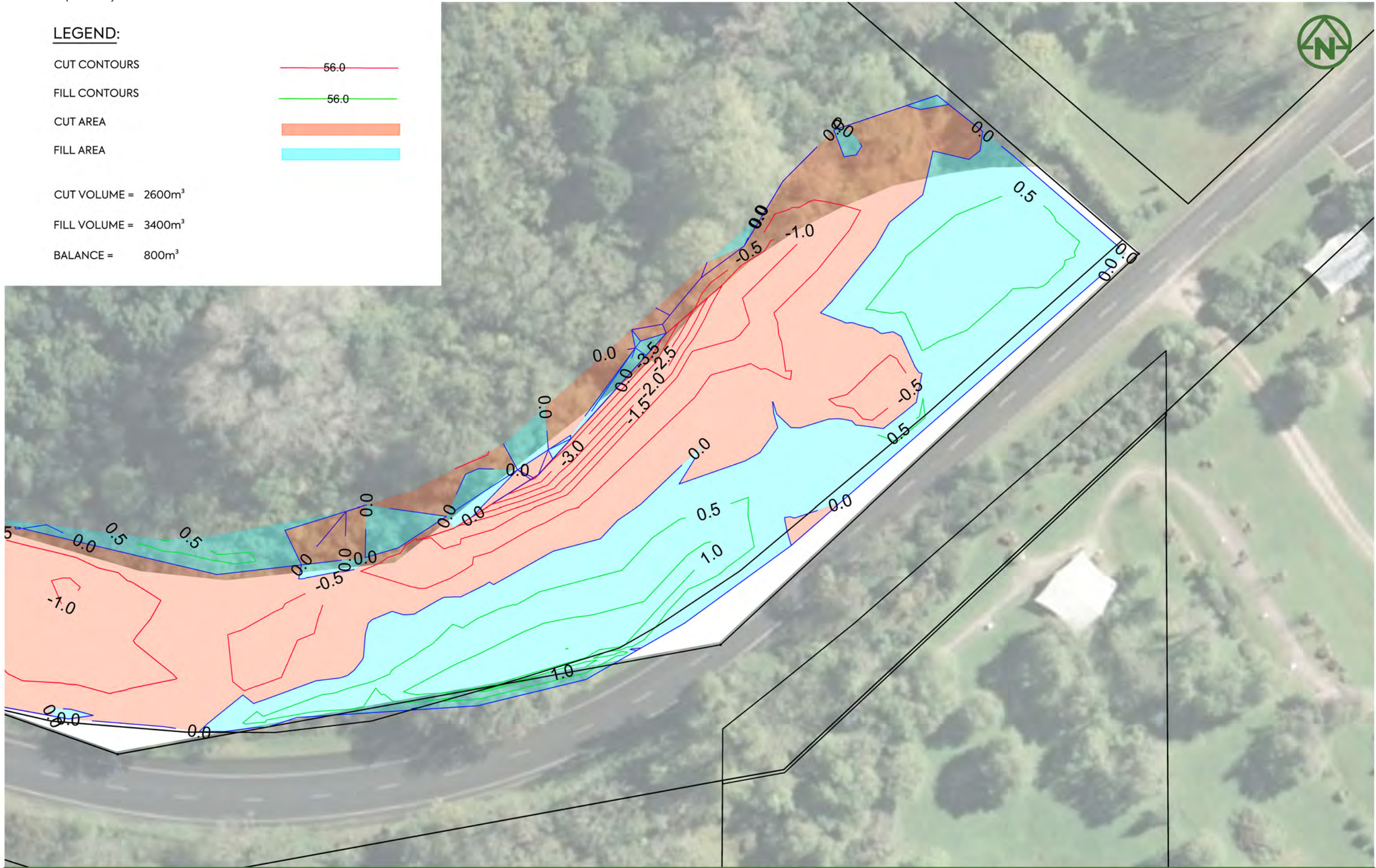
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FILL VOLUME = 3400m<sup>3</sup>

BALANCE = 800m<sup>3</sup>



CLIENT:

ADR CONSULTANTS LTD

PROJECT:

ROTOMAHANAH 6J2B3 2001  
TARAWERA ROAD  
ROTORUA

TITLE:

EARTHWORKS  
CUT FILL CONTOURS  
SHEET 2 OF 2

PURPOSE OF ISSUE:

FOR APPROVAL

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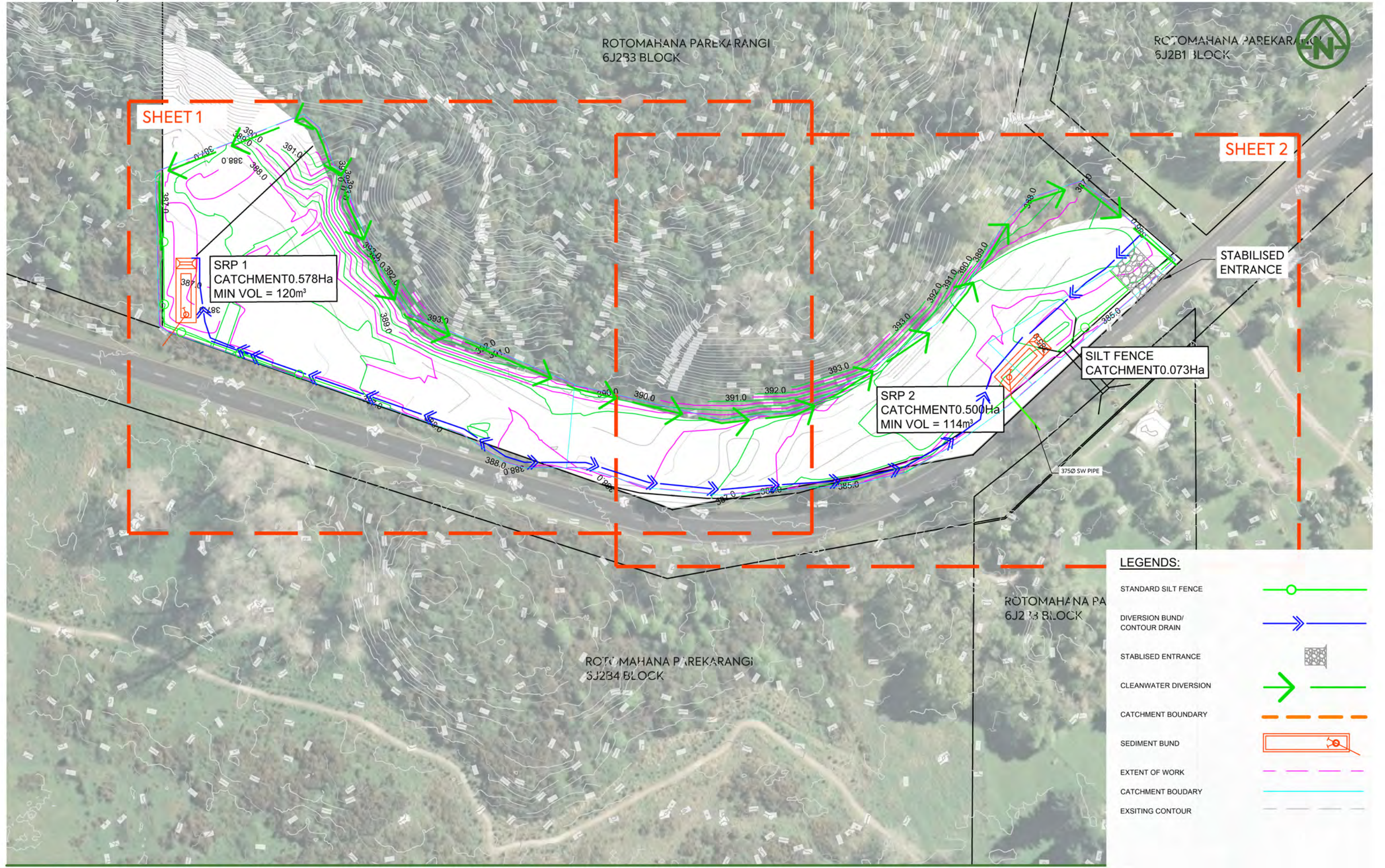
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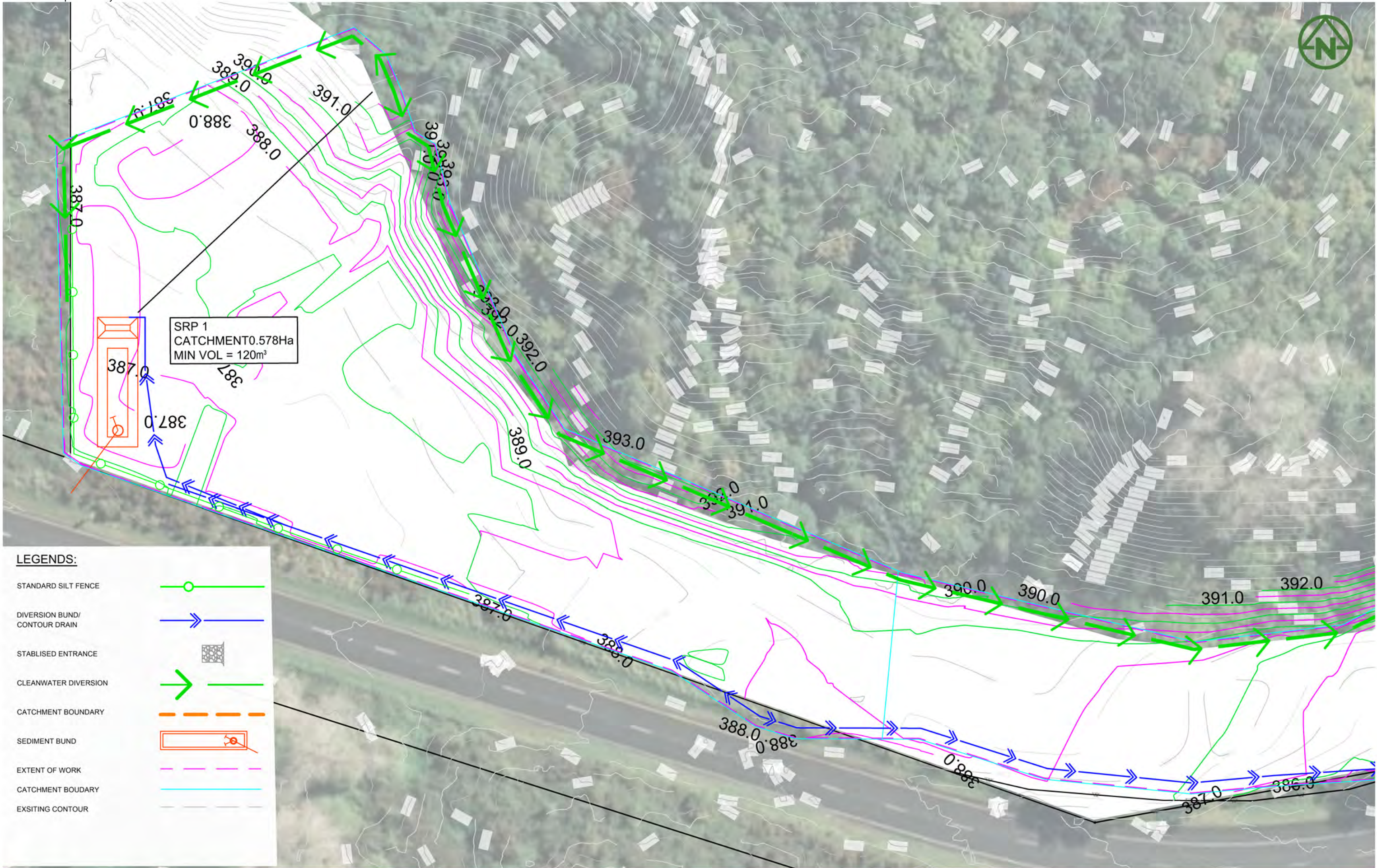
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SEDIMENT BUND	
EXTENT OF WORK	
CATCHMENT BOUNDARY	
EXISTING CONTOUR	

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 PURPOSE OF ISSUE: FOR APPROVAL  
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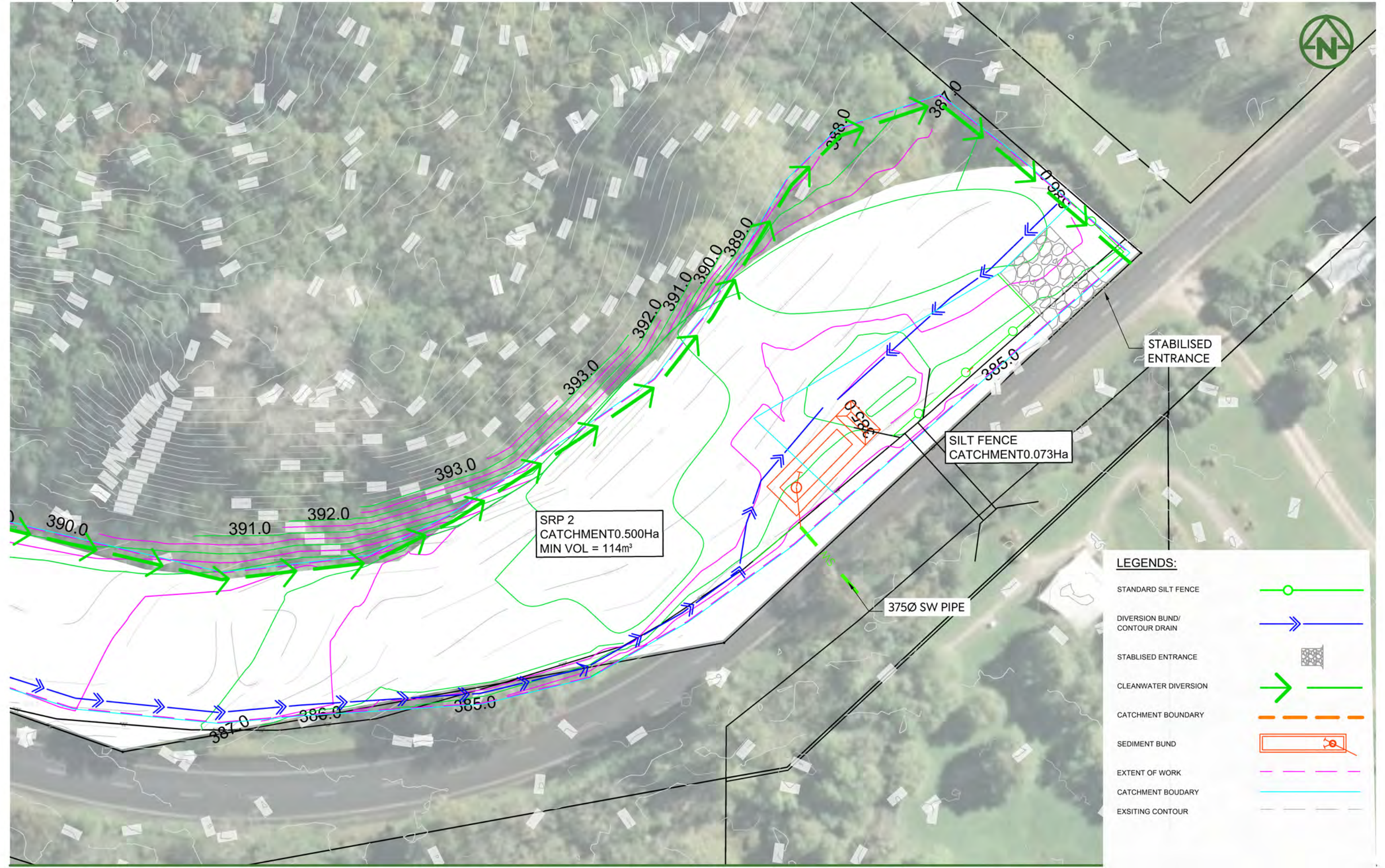
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EXTENT OF WORK	
CATCHMENT BOUDARY	
EXSITING CONTOUR	

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DRAWING NO: 2645-231 REV: A



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SEDIMENT BUND	
EXTENT OF WORK	
CATCHMENT BOUNDARY	
EXISTING CONTOUR	

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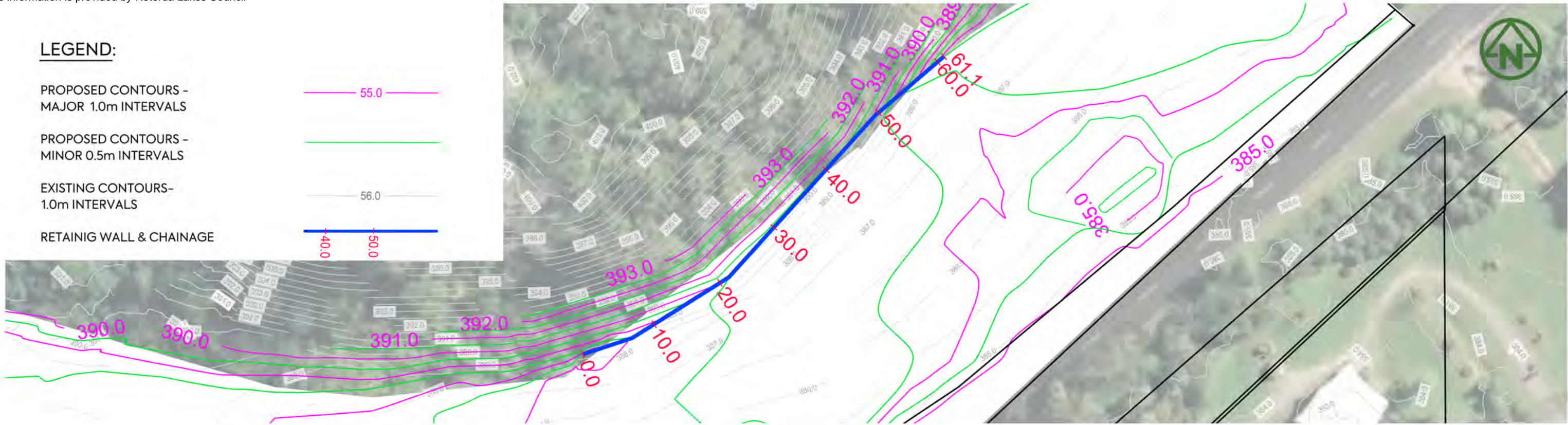
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PROPOSED CONTOURS - MINOR 0.5m INTERVALS

EXISTING CONTOURS - 1.0m INTERVALS

RETAINING WALL & CHAINAGE



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BOTTOM OF RETAINING WALL	387.29	387.15	387.01	386.87	386.73	386.59	386.50	386.50	386.50	386.50	386.50	386.50	386.50	386.50	386.50	386.50	386.50	386.50	386.50	386.50	386.50	386.50
RETAINED HEIGHT	0.35	0.85	1.35	1.86	2.36	2.86	3.32	3.63	3.70	3.76	3.80	3.82	3.85	3.87	3.90	3.91	3.57	2.98	2.18	1.38	0.59	
CHAINAGES	0.00	3.00	6.00	9.00	12.00	15.00	18.00	21.00	24.00	27.00	30.00	33.00	36.00	39.00	42.00	45.00	48.00	51.00	54.00	57.00	60.00	61.08

RETAINING WALL LONGITUDINAL SECTION  
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CLIENT:

ADR CONSULTANTS LTD

PROJECT:

ROTOHAKANAH 6J2B3 2001  
TARAWERA ROAD  
ROTORUA

TITLE:

EARTHWORKS  
RETAINING WALL PLAN  
AND LONGSECTION

PURPOSE OF ISSUE:

FOR APPROVAL

SCALE:  
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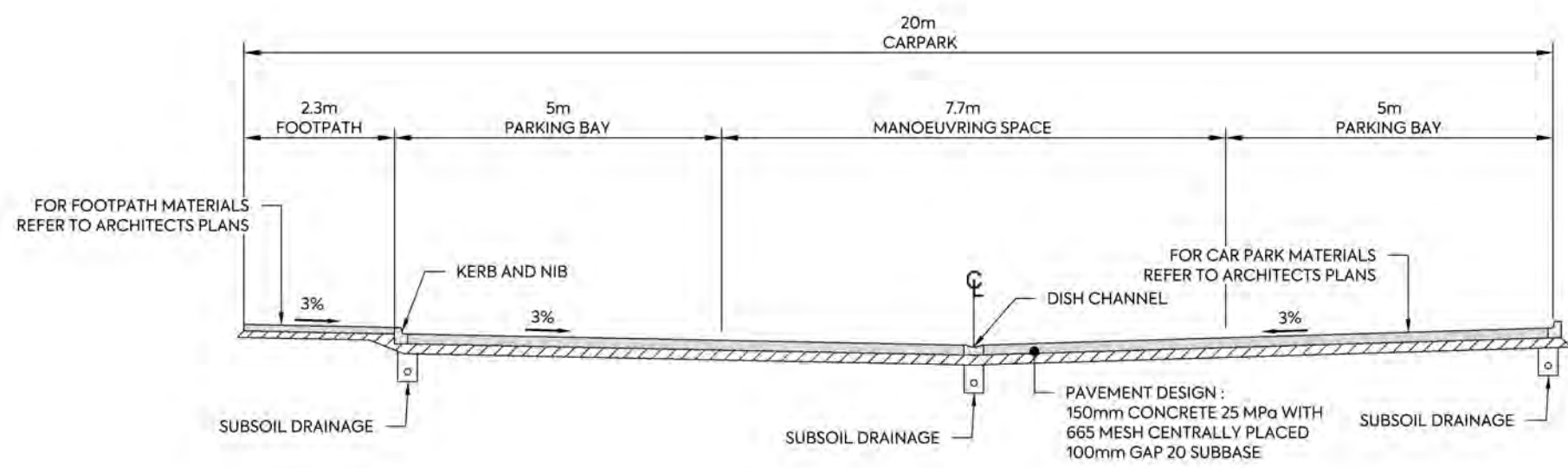
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2645-250

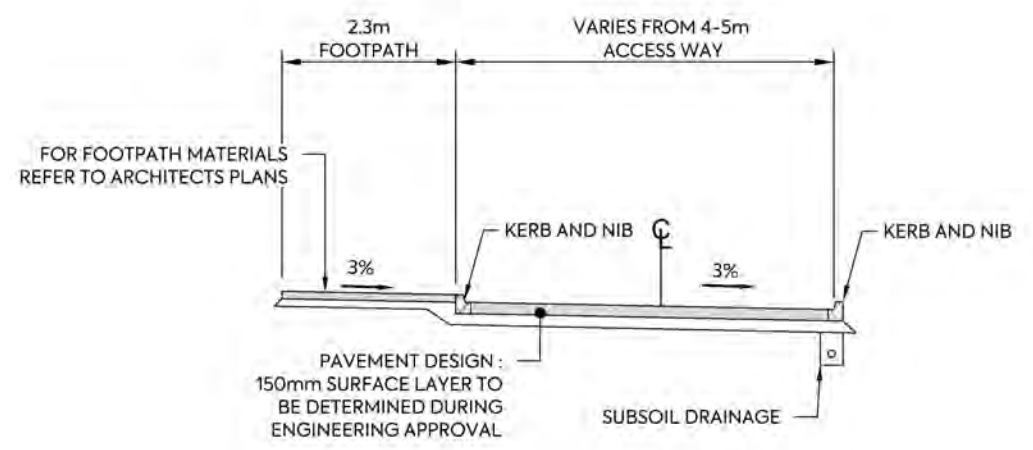
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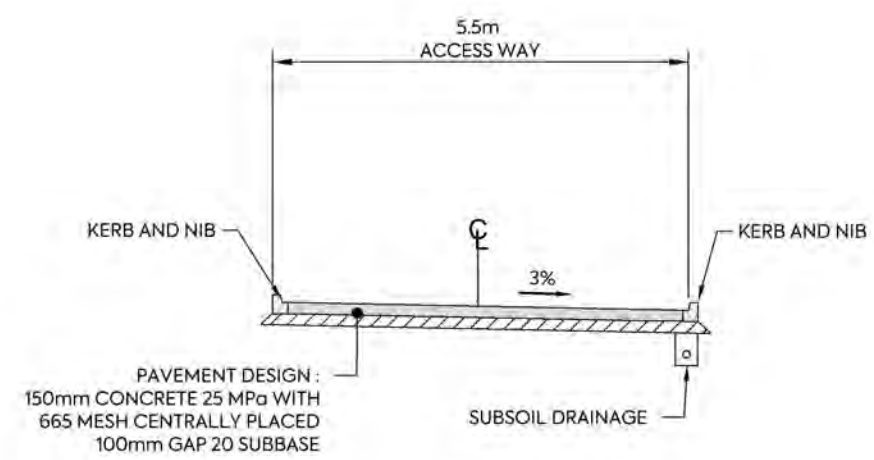
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	DZ	LH	LH	31/01/23



**A**  
300  
TYPICAL CROSS SECTION  
20m CARPARK  
SCALE 1:100



**B**  
300  
TYPICAL CROSS SECTION  
5.5m ACCESSWAY WITH FOOTPATH  
SCALE 1:100



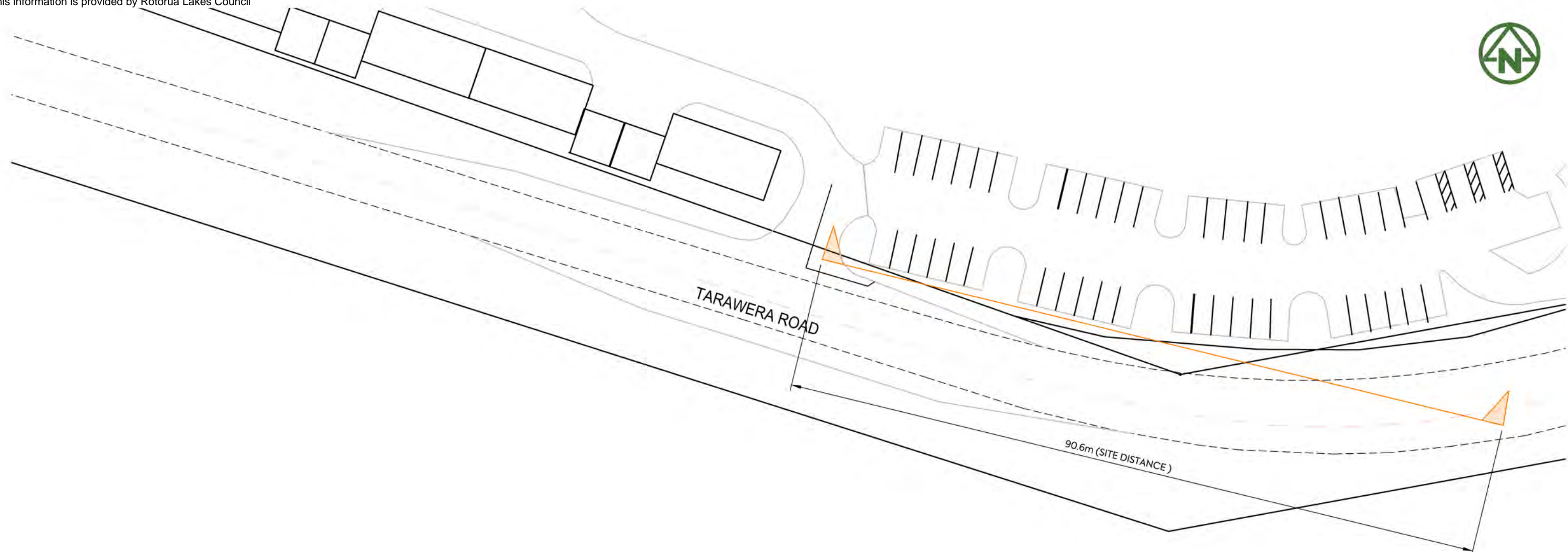
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300  
TYPICAL CROSS SECTION  
5.5m ACCESSWAY  
SCALE 1:100



CLIENT: APR CONSULTANTS LTD PROJECT: ROTOMAHANA 6J2B3 2001 TITLE: PROPOSED ROADING TYPICAL CROSS SECTION PURPOSE OF ISSUE: FOR APPROVAL

REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	DZ	LH	LH	02/02/23

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DRAWING NO:	2645-360
REV:	A



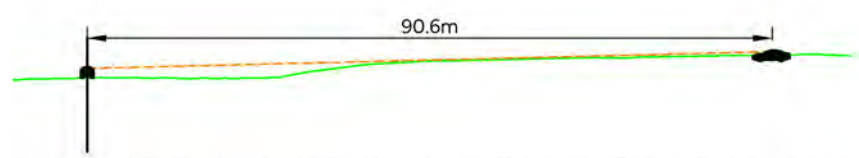
**NOTE:**  
THIS SITE LINE WILL WORK WITH A 50km/h SPEED LIMIT FOR TARAWERA ROAD (COLLECTOR)

Table 1: Sight distances

These sight distances are the distances to be measured along the centre of the appropriate lane to establish points C and D in Figures 1 and 2, Section 2.2.

Driveway classifications	Operating speed (km/h)*	Minimum sight distance (metres)**		
		Frontage road classification		
		Local	Collector	Arterial
Low volume Up to 200 vehicle manoeuvres per day	40	30	35	70
	50	40	45	90
	60	55	65	115
	70	85	85	140
	80	105	105	175
	90	130	130	210
	100	160	160	250
	110	190	190	290
High volume More than 200 vehicle manoeuvres per day	120	230	230	330
	40	30	70	70
	50	40	90	90
	60	55	115	115
	70	85	140	140
	80	105	175	175
	90	130	210	210
	100	160	250	250
110	190	290	290	
120	230	330	330	

\* Operating speed = 85<sup>th</sup> percentile speed on frontage road. This can be taken as the speed limit plus 15% if survey data are not available.



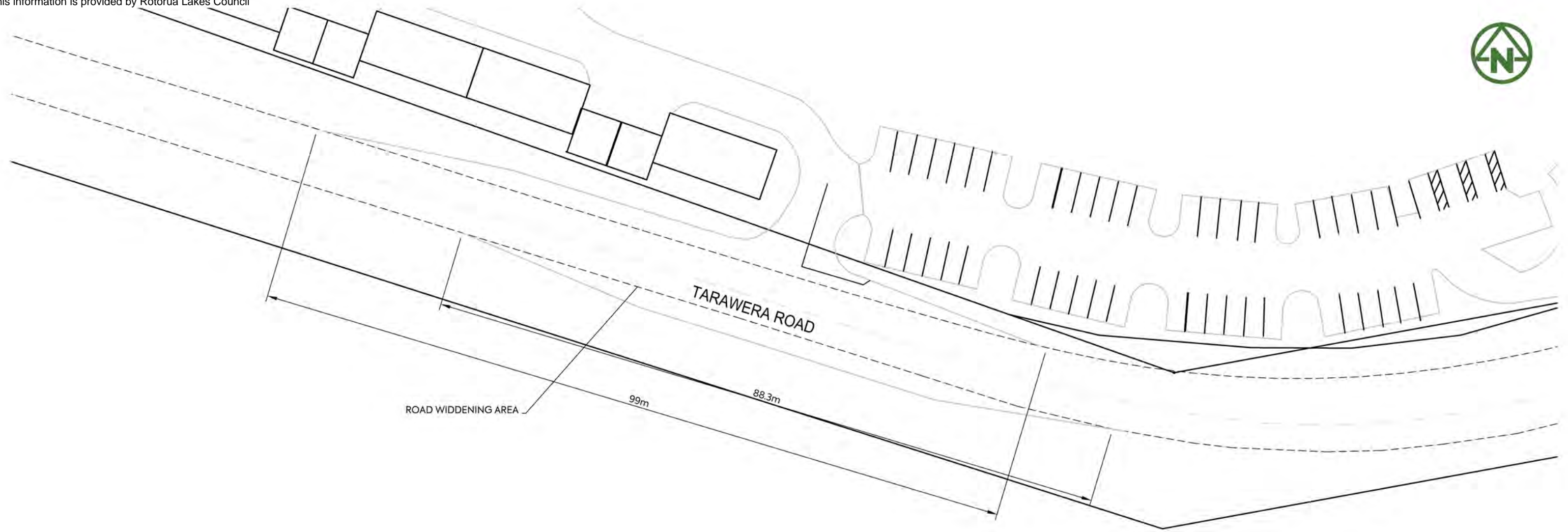
**LONGITUDINAL SECTION LOOKING EAST MODIFYING BANK**  
SCALE HORIZ=1:1000 @ A1      VERT=1:1000 @ A1

CLIENT: APR CONSULTANTS LTD      PROJECT: ROTOMAHANA 6J2B3 2001 TARAWERA ROAD ROTORUA      TITLE: PROPOSED ROADING VISIBILITY PLAN CARPARK ENTRANCE      PURPOSE OF ISSUE: FOR APPROVAL



REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	DZ	LH	LH	02/02/23

SCALE: 1:500  
DRAWING NO: 2645-2-372      REV: A



NOTES:

- 1. REFER TO ARCHITECT PLANS FOR INTERNAL ROADING.

CLIENT:  
APR CONSULTANTS LTD

PROJECT:  
ROTOMAHANA 6J2B3 2001  
TARAWERA ROAD  
ROTORUA

TITLE:  
PROPOSED ROAD  
WIDENING PLAN

PURPOSE OF ISSUE:  
FOR APPROVAL

SCALE:  
1:500  
DO NOT SCALE

DRAWING NO: 2645-2-375  
REV: A

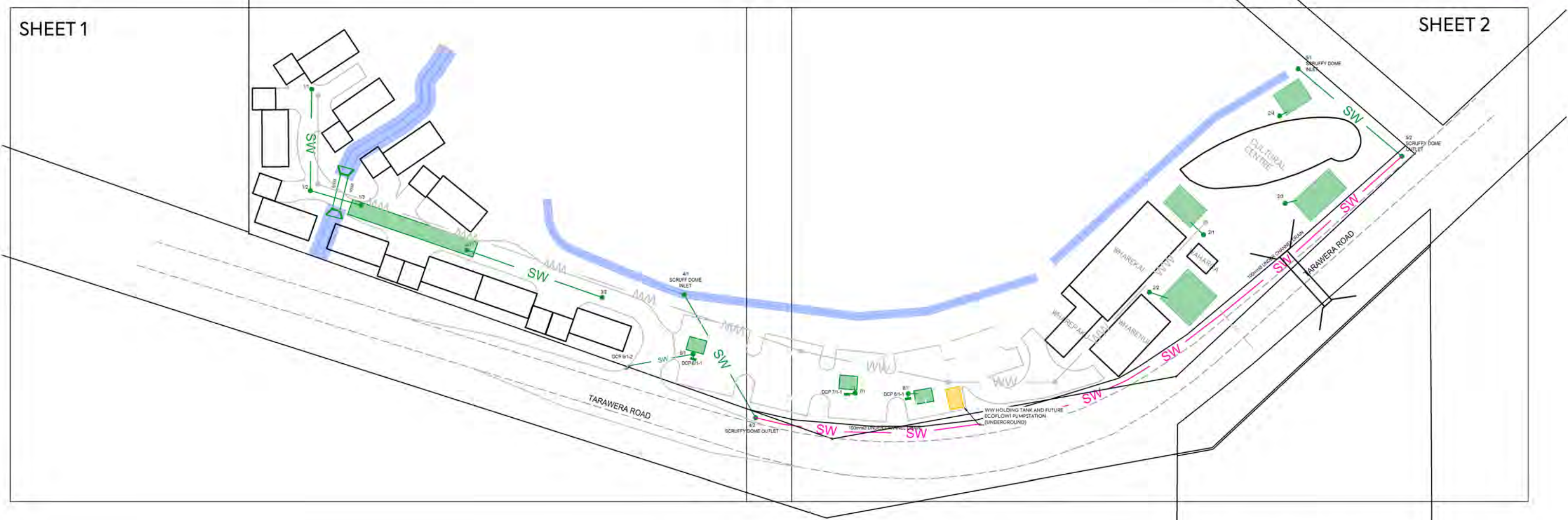


REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	DZ	LH	LH	02/02/23



SHEET 1

SHEET 2



ROTOMAHANA PAREKARANGI  
6J2B3 BLOCK

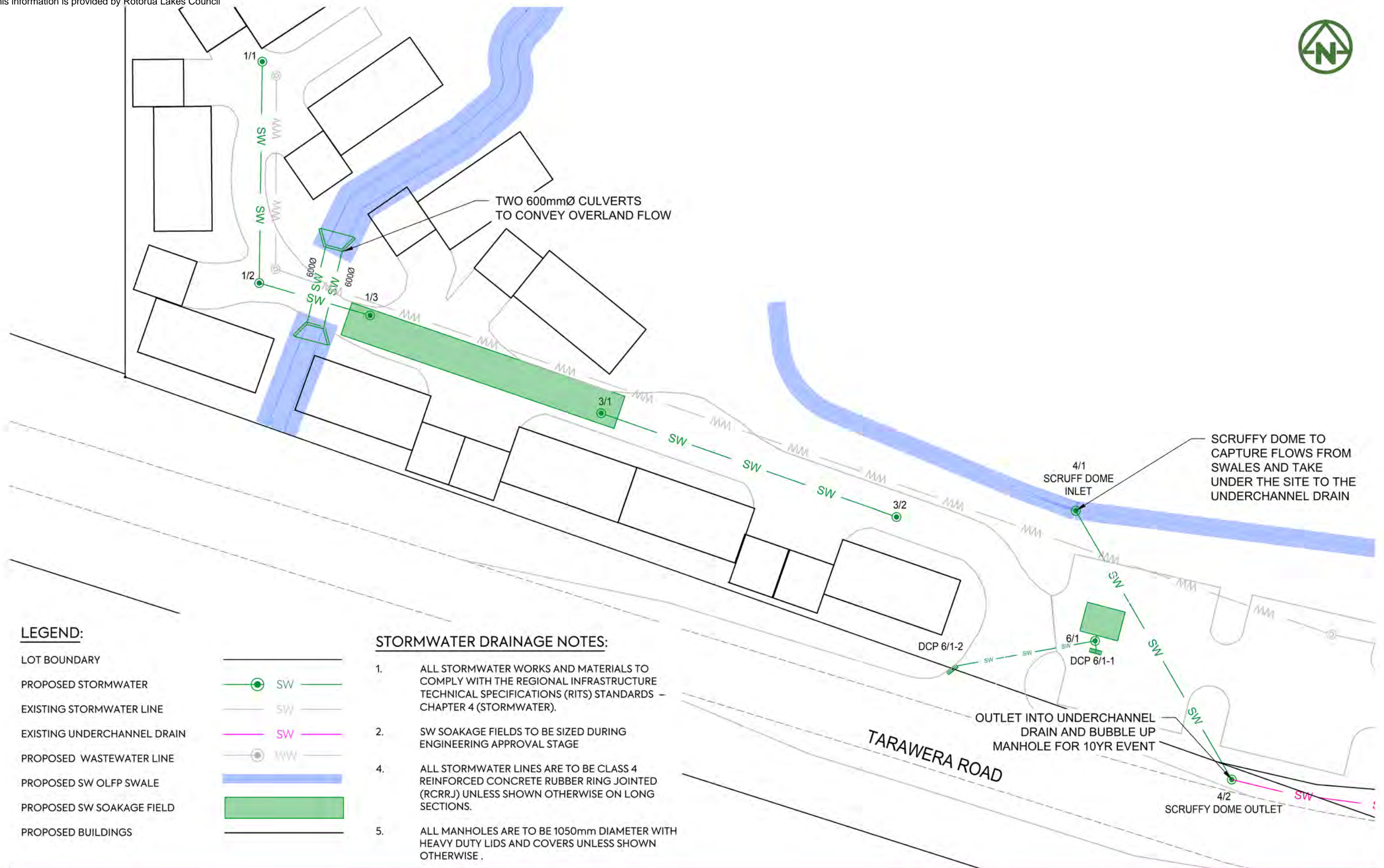
**LEGEND:**

LOT BOUNDARY	
PROPOSED STORMWATER	SW
EXISTING STORMWATER LINE	SW
EXISTING UNDERCHANNEL DRAIN	SW
PROPOSED WASTEWATER LINE	WW
PROPOSED SW OLFP SWALE	
PROPOSED SW SOAKAGE FIELD	
PROPOSED BUILDINGS	

**STORMWATER DRAINAGE NOTES:**

1. ALL STORMWATER WORKS AND MATERIALS TO COMPLY WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS (RITS) STANDARDS – CHAPTER 4 (STORMWATER).
2. SW SOAKAGE FIELDS TO BE SIZED DURING ENGINEERING APPROVAL STAGE
4. ALL STORMWATER LINES ARE TO BE CLASS 4 REINFORCED CONCRETE RUBBER RING JOINTED (RCRRJ) UNLESS SHOWN OTHERWISE ON LONG SECTIONS.
5. ALL MANHOLES ARE TO BE 1050mm DIAMETER WITH HEAVY DUTY LIDS AND COVERS UNLESS SHOWN OTHERWISE .

	CLIENT: APR CONSULTANTS LTD PROJECT: ROTOMAHANA 6J2B3 2001 TARAWERA ROAD ROTORUA	TITLE: STORMWATER OVERVIEW	PURPOSE OF ISSUE: FOR APPROVAL SCALE: 1:1000m DO NOT SCALE DRAWING NO: 2645-400 REV: A
--	---	----------------------------------	--



**LEGEND:**

LOT BOUNDARY	
PROPOSED STORMWATER	
EXISTING STORMWATER LINE	
EXISTING UNDERCHANNEL DRAIN	
PROPOSED WASTEWATER LINE	
PROPOSED SW OLFP SWALE	
PROPOSED SW SOAKAGE FIELD	
PROPOSED BUILDINGS	

**STORMWATER DRAINAGE NOTES:**

1. ALL STORMWATER WORKS AND MATERIALS TO COMPLY WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS (RITS) STANDARDS – CHAPTER 4 (STORMWATER).
2. SW SOAKAGE FIELDS TO BE SIZED DURING ENGINEERING APPROVAL STAGE
4. ALL STORMWATER LINES ARE TO BE CLASS 4 REINFORCED CONCRETE RUBBER RING JOINTED (RCRRJ) UNLESS SHOWN OTHERWISE ON LONG SECTIONS.
5. ALL MANHOLES ARE TO BE 1050mm DIAMETER WITH HEAVY DUTY LIDS AND COVERS UNLESS SHOWN OTHERWISE .

SCRUFFY DOME TO CAPTURE FLOWS FROM SWALES AND TAKE UNDER THE SITE TO THE UNDERCHANNEL DRAIN

OUTLET INTO UNDERCHANNEL DRAIN AND BUBBLE UP MANHOLE FOR 10YR EVENT

CLIENT: APR CONSULTANTS LTD PROJECT: ROTOMAHANA 6J2B3 2001 TITLE: STORMWATER PLAN SHEET 1 OF 2 PURPOSE OF ISSUE: FOR APPROVAL



A	FIRST ISSUE	DZ	LH	LH	01/02/23
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE

SCALE:	1:400
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DRAWING NO:	2645-401
REV:	A

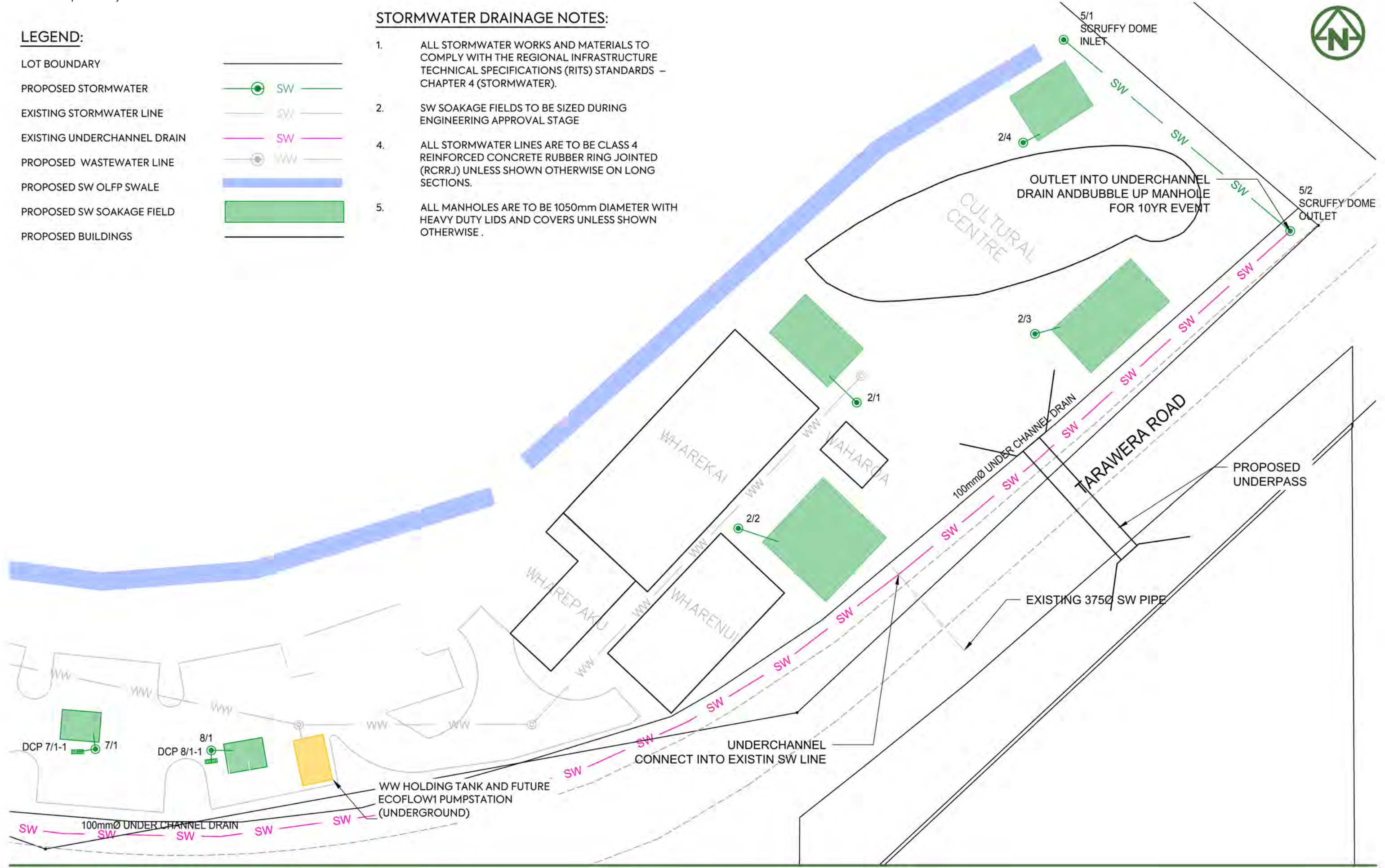


**LEGEND:**

LOT BOUNDARY	
PROPOSED STORMWATER	SW
EXISTING STORMWATER LINE	SW
EXISTING UNDERCHANNEL DRAIN	SW
PROPOSED WASTEWATER LINE	WW
PROPOSED SW OLFP SWALE	
PROPOSED SW SOAKAGE FIELD	
PROPOSED BUILDINGS	

**STORMWATER DRAINAGE NOTES:**

1. ALL STORMWATER WORKS AND MATERIALS TO COMPLY WITH THE REGIONAL INFRASTRUCTURE TECHNICAL SPECIFICATIONS (RITS) STANDARDS – CHAPTER 4 (STORMWATER).
2. SW SOAKAGE FIELDS TO BE SIZED DURING ENGINEERING APPROVAL STAGE
4. ALL STORMWATER LINES ARE TO BE CLASS 4 REINFORCED CONCRETE RUBBER RING JOINTED (RCRRJ) UNLESS SHOWN OTHERWISE ON LONG SECTIONS.
5. ALL MANHOLES ARE TO BE 1050mm DIAMETER WITH HEAVY DUTY LIDS AND COVERS UNLESS SHOWN OTHERWISE .



CLIENT:	PROJECT:	TITLE:	PURPOSE OF ISSUE:
APR CONSULTANTS LTD	ROTOHAHANA 6J2B3 2001 TARAWERA ROAD ROTORUA	STORMWATER PLAN SHEET 2 OF 2	FOR APPROVAL
SCALE: 1:400 DO NOT SCALE			REV:
DRAWING NO: 2645-402			A

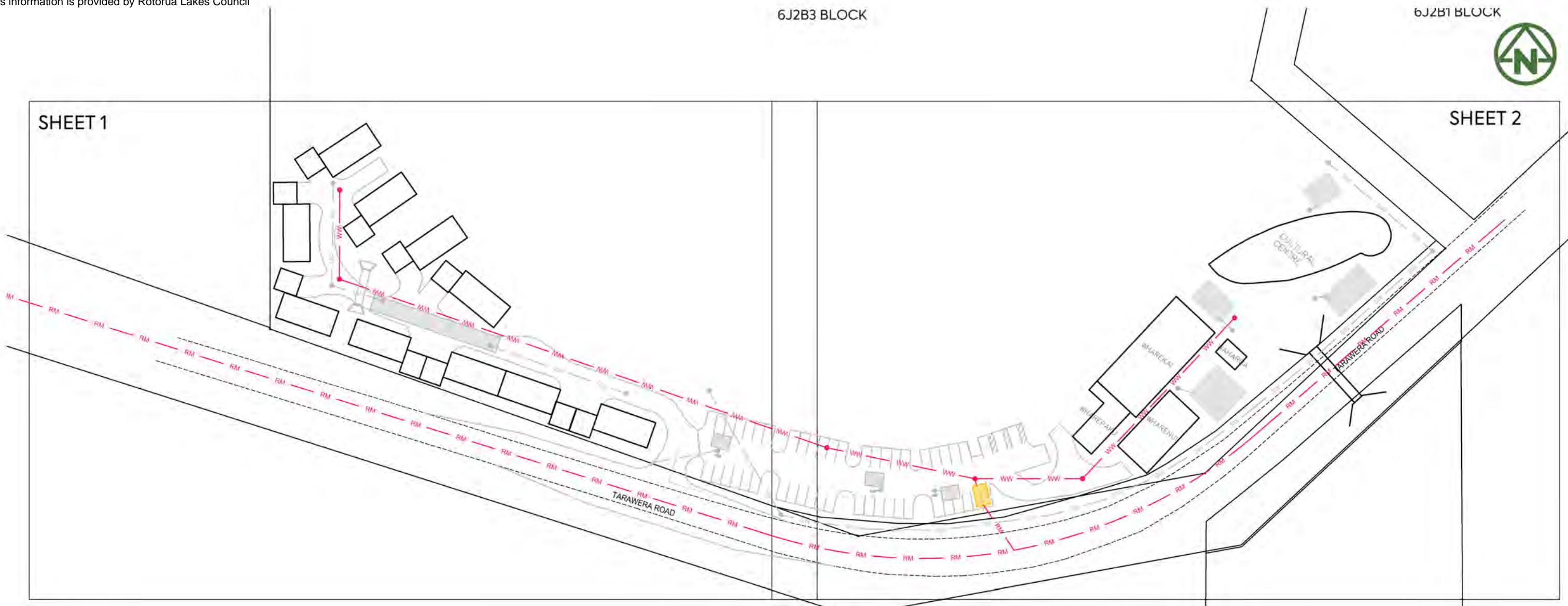


A	FIRST ISSUE	DZ	LH	LH	01/02/23
REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE



SHEET 1

SHEET 2



**LEGEND:**

- LOT BOUNDARY
- PROPOSED STORMWATER
- EXISTING STORMWATER LINE
- PROPOSED WASTEWATER LINE
- FUTURE COUNCIL RISING MAIN (BY OTHERS)
- PROPOSED TEMPORARY HOLDING TANK SEWER
- PROPOSED SW SOAKAGE FIELD

ROTOMAHANA PAREKARANGI  
6J2B3 BLOCK

ROTOMAHANA PAREKARANGI  
6J2B4 BLOCK

CLIENT: APR CONSULTANTS LTD

PROJECT: ROTOMAHANA 6J2B3 2001  
TARAWERA ROAD  
ROTORUA

TITLE: WASTE WATER PLAN  
OVERALL PLAN

PURPOSE OF ISSUE:  
FOR APPROVAL

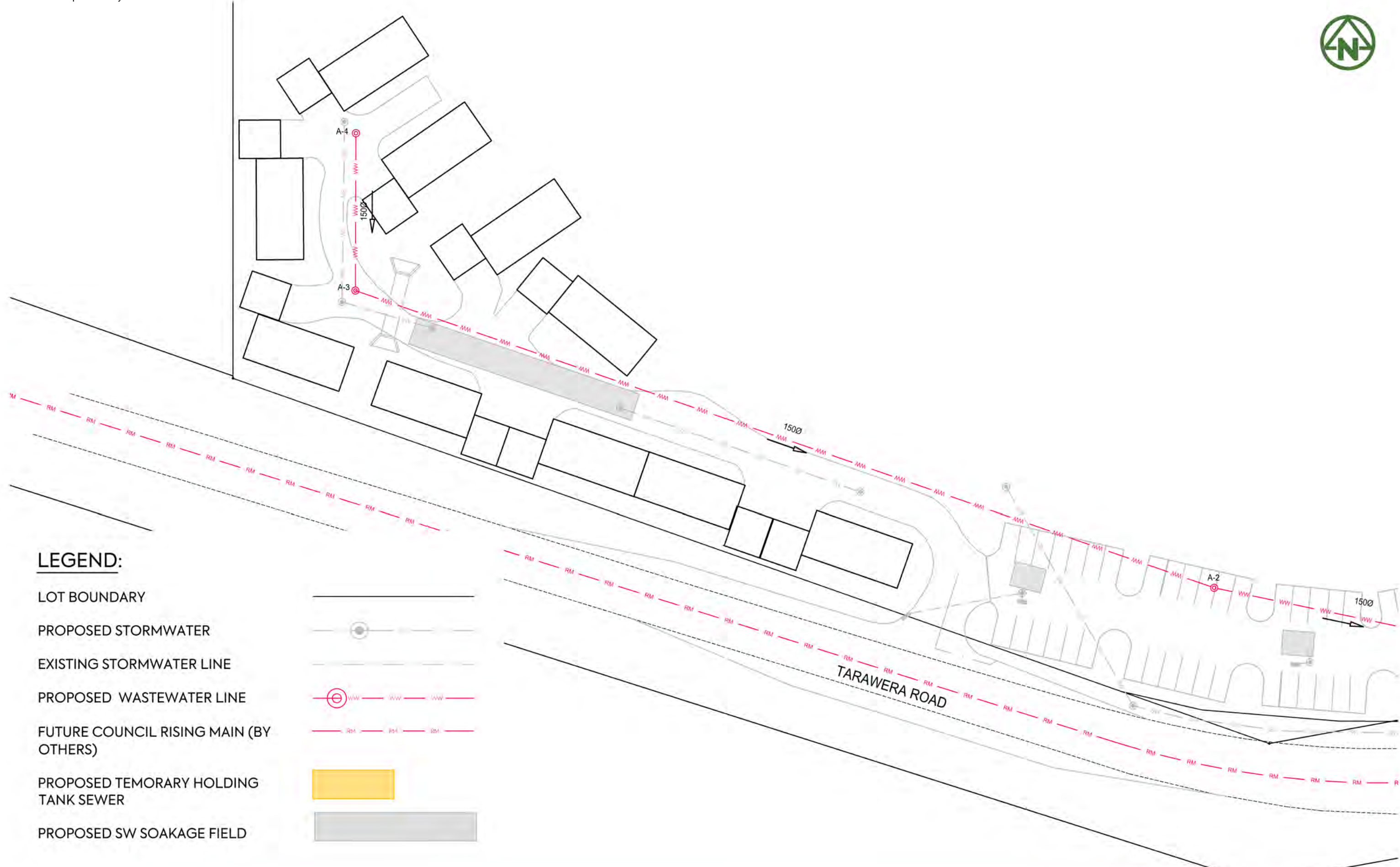
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DO NOT SCALE

DRAWING NO:  
2645-500

REV:  
A



REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE				10/10/22



**LEGEND:**

- LOT BOUNDARY
- PROPOSED STORMWATER
- EXISTING STORMWATER LINE
- PROPOSED WASTEWATER LINE
- FUTURE COUNCIL RISING MAIN (BY OTHERS)
- PROPOSED TEMPORARY HOLDING TANK SEWER
- PROPOSED SW SOAKAGE FIELD

CLIENT: APR CONSULTANTS LTD PROJECT: ROTOMAHANA 6J2B3 2001 TITLE: WASTE WATER PLAN SHEET 1 PURPOSE OF ISSUE: FOR APPROVAL



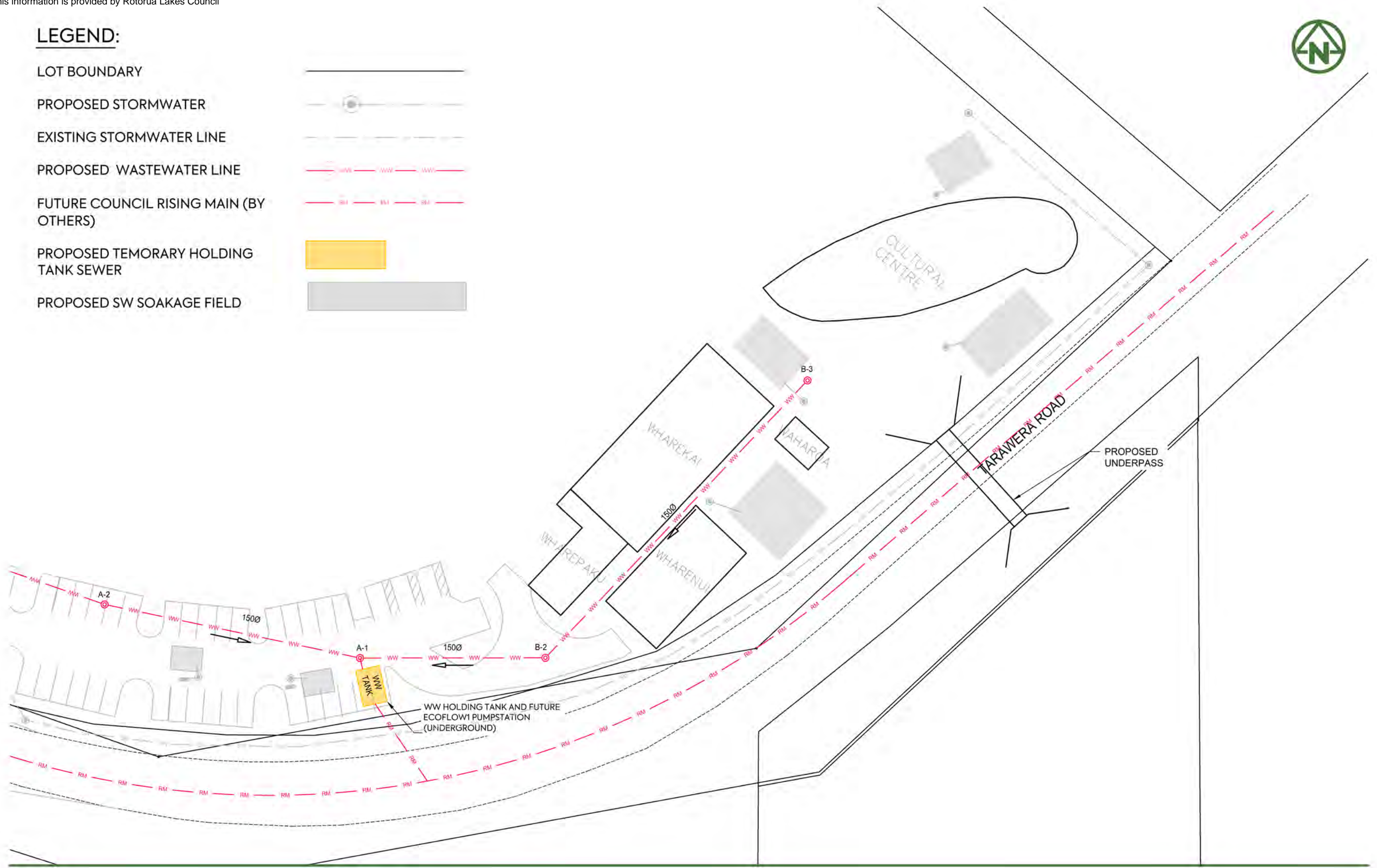
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REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	FW	LH	LH	10/10/22



**LEGEND:**

- LOT BOUNDARY
- PROPOSED STORMWATER
- EXISTING STORMWATER LINE
- PROPOSED WASTEWATER LINE
- FUTURE COUNCIL RISING MAIN (BY OTHERS)
- PROPOSED TEMPORARY HOLDING TANK SEWER
- PROPOSED SW SOAKAGE FIELD

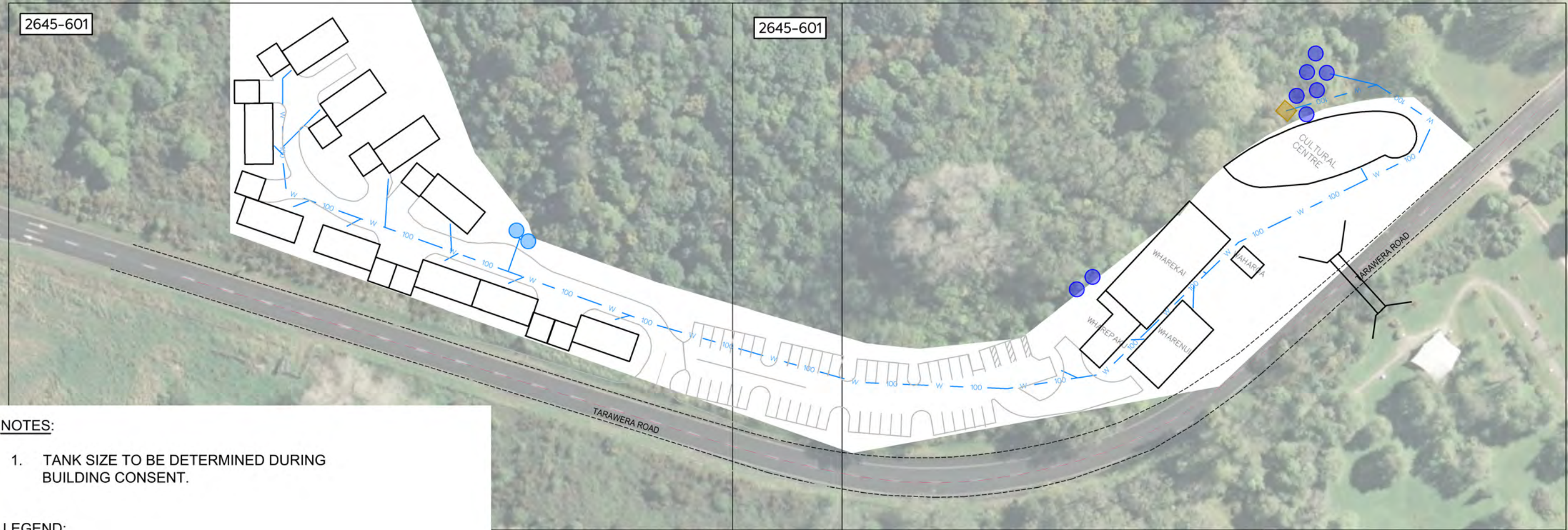


CLIENT: APR CONSULTANTS LTD      PROJECT: ROTOMAHANA 6J2B3 2001      TITLE: WASTE WATER PLAN SHEET 2      PURPOSE OF ISSUE: FOR APPROVAL



SCALE: 1:500  
DO NOT SCALE  
DRAWING NO: 2645-502      REV: A

REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	FW	LH	LH	10/10/22



**NOTES:**

- TANK SIZE TO BE DETERMINED DURING BUILDING CONSENT.

**LEGEND:**

PROPOSED PRIVATE WATERMAIN

PROPOSED FIRE TANK TO SERVICE RESIDENTIAL BUILDINGS

PROPOSED FIRE TANK TO SERVICE NON RESIDENTIAL BUILDINGS

PROPOSED PUMP STATION & TREATMENT PLANT

CLIENT: APR CONSULTANTS LTD PROJECT: ROTOMAHANA 6J2B3 2001 TITLE: WATER PLAN OVERALL PLAN PURPOSE OF ISSUE: FOR APPROVAL



SCALE: 1:1000  
DO NOT SCALE  
DRAWING NO: 2645-600 REV: A

REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	FW	LH	LH	07/10/22



**NOTES:**

1. TANK SIZE TO BE DETERMINED DURING BUILDING CONSENT.

**LEGEND:**

PROPOSED PRIVATE WATERMAIN



PROPOSED FIRE TANK TO SERVICE RESIDENTIAL BUILDINGS



PROPOSED FIRE TANK TO SERVICE NON RESIDENTIAL BUILDINGS



PROPOSED PUMP STATION & TREATMENT PLANT



CLIENT:

APR CONSULTANTS LTD

PROJECT:

ROTOMAHANA 6J2B3 2001  
TARAWERA ROAD  
ROTORUA

TITLE:

WATER PLAN  
SHEET 1

PURPOSE OF ISSUE:

FOR APPROVAL

SCALE:  
1:500

DO NOT SCALE

DRAWING NO:  
2645-601

REV:  
A



REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE
A	FIRST ISSUE	FW	LH	LH	07/10/22

**NOTES:**

1. TANK SIZE TO BE DETERMINED DURING BUILDING CONSENT.

**LEGEND:**

PROPOSED PRIVATE WATERMAIN



PROPOSED FIRE TANK TO SERVICE RESIDENTIAL BUILDINGS



PROPOSED FIRE TANK TO SERVICE NON RESIDENTIAL BUILDINGS



PROPOSED PUMP STATION & TREATMENT PLANT



CLIENT:

APR CONSULTANTS LTD

PROJECT:

ROTOMAHANA 6J2B3 2001  
TARAWERA ROAD  
ROTORUA

TITLE:

WATER PLAN  
SHEET 2

PURPOSE OF ISSUE:

FOR APPROVAL

SCALE:  
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DRAWING NO:  
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REV:  
A



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A	FIRST ISSUE	FW	LH	LH	07/10/22



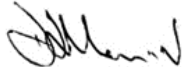
09 February 2022

**ROTOMAHANA DEVELOPMENT  
TARAWERA ROAD, ROTORUA  
GEOTECHNICAL INVESTIGATION REPORT**

APR Consultants Ltd  
TGA2021-0299AB Rev 0



TGA2021-0299AB		
Date	Revision	Comments
14 January 2022	A	Initial draft for internal review
09 February	0	Final issue to support Resource Consent Application

	Name	Signature	Position
Prepared by	Lilly Pendergast		Project Engineering Geologist
Reviewed by	Robert Taylor		Associate Geotechnical Engineer
Authorised by	Dave Morton		Principal Geotechnical Engineer, CMEngNZ (Geotechnical), CPEng



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## **Drawings**

Drawing 01: Geotechnical Investigation Plan

Drawing 02: Geological Section A & B

## **Appendices**

**Appendix A: Statement of Professional Opinion**

**Appendix B: Proposed Development Plans**

**Appendix C: CMW Investigation Results**

**Appendix D: Previous Investigation Results**

**Appendix E: Selected Liquefaction Analyses Outputs**

## 1 INTRODUCTION

### 1.1 Project Brief

CMW Geosciences (CMW) was engaged by APR consultants Ltd to carry out a geotechnical investigation at a rural property on Tarawera Road, Rotorua which is being considered for the construction of a Cultural Village, Marae and 10 housing units, referred to as the Papakainga area.

The subject site is legally described as rural property P17367 - 7426/61 - Tarawera road - Tarawera, Rd 5 - Rotomahana Parekarangi 6J2B3.

The scope of work and associated terms and conditions of our engagement were detailed in our services proposal letter referenced TGA2021-0299AA, Rev 0 dated 13 October 2021.

This report is to support a resource consent application to Rotorua Lakes Council (RLC) and provides the basis for the Statement of Professional Opinion provided in **Appendix A**.

### 1.2 Scope of Work

As summarised in our services proposal letter, the instructed scope of work to be conducted by CMW was:

- Arrange and execute a geotechnical site investigation (SI);
- Evaluate and develop an appropriate geological and geotechnical model;
- Identify any geohazards to the proposed development, including slope stability, liquefaction, static settlements, groundwater issues, and provide strategies to mitigate;
- Recommendations for the design of temporary works and earthworks requirements;
- Provide appropriate geotechnical parameters for the design of proposed building foundations, retaining walls and pavements;
- Compile the above into a concise geotechnical investigation report, incorporating relevant plans, field investigation data and calculations.

## 2 SITE DESCRIPTION

### 2.1 Site Location

The site comprises an area of approximately 11ha on Tarawera Road, Rotorua as shown in Figure 1 below.



Figure 1: Site Location Plan (image obtained Open Maps 2022)

## 2.2 Landform

The current general landform, together with associated features located within and adjacent to the site is presented on the attached Geotechnical Investigation Plan as **Drawing 01**.

The site is located between Lake Tarawera (1.6km northeast) and Lake Rotokakahi or Green Lake (1km west within the active Okataina Volcanic Centre). The proposed development area is situated on the northern edge of a broad valley that drains northeast from Lake Rotokakahi to Lake Tarawera within the active Okataina Volcanic Centre. Immediately to north of the proposed development area the landform rises steeply from RL 387m to RL 412m at gradients of between 30 and 45 degrees onto elevated hill topography.

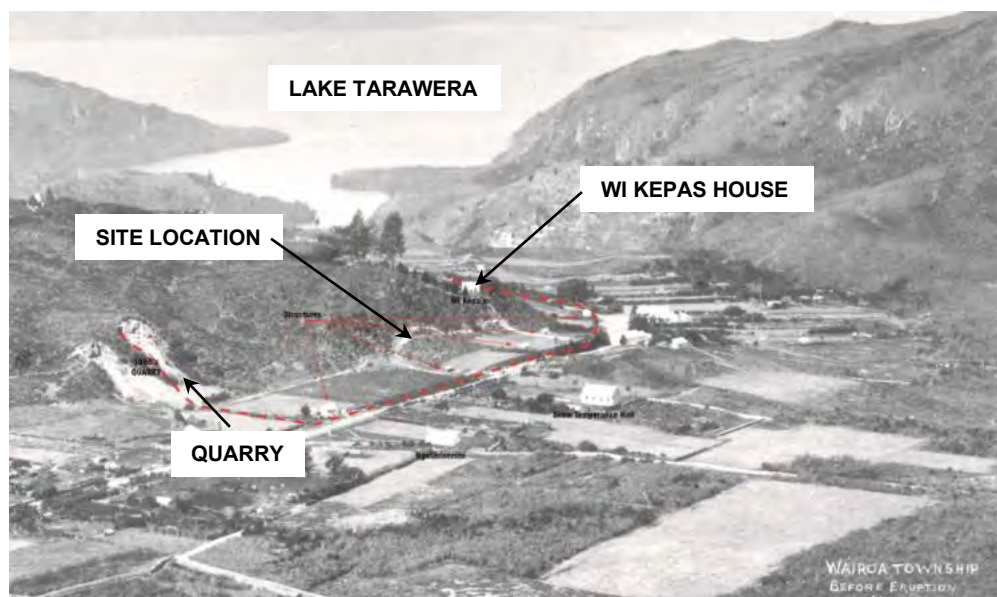
The site is bound to the south by Tarawera Road, to the east by existing residential properties and to the north and west by rural properties. The historic Buried Village is located approximately 100m southeast of the site.

Densely vegetated slopes mask the evidence of historic instability.

## 2.3 Historical Aerial Photographs

A review of available historic photographs of the area is summarised as follows:

- Pre 1886 (oldest available image): An historic aerial photograph provided by the client indicates the neighbouring property to the west was used as a quarry and a house referred to as the Wi Kepas House occupied the south-eastern portion of the site, as shown on Figure 2 below. This quarry and house were associated with the Te Wairoa Village, which was located south of Tarawera Road.



**Figure 2: Te Wairoa Village Pre 1886 Eruption (Image obtained from client)**

- Post June 1886: An historic aerial photograph provided by the client shows the site post the Mt Tarawera / Rotomahana Eruption which occurred in June 1886, with the buildings of the Te Wairoa Village visible, but partially buried by volcanic ash.
- 1945: Quarry is no longer in use and the site is mainly void of vegetation. Many structures from the Te Wairoa Village visible in the 1886 photograph are absent. No vegetation cover is visible within an inferred stormwater overland flow path shown on Drawing 01.
- 1962: A slight increase in vegetation cover across the site.
- 1972 to 2021: Site has become heavily vegetated and has remained relatively unchanged.

### 3 PROPOSED DEVELOPMENT

The current preliminary development plan, as shown on the draft scheme plan provided by Spectrum Architects presented in **Appendix B** and depicted on **Drawing 01**, is to create 10 residential housing units, known as the Papakainga area, a Cultural Centre, a Marae.

The proposed development is located near the toe of the steep slopes within the southern portion of the site, with access from Tarawera Road. The housing units are shown to be located within the southwestern corner, near the historic quarry, with the Marae and Cultural Centre located within the south-eastern corner, and a central carpark separating the commercial and residential areas.

Building loads were unknown at the time of writing this report, however it is understood all buildings are of Importance level 2 (IL2) and single storey.

A tunnel or overpass across Tarawera Road is proposed to connect the site to the Buried Village Centre on the southern side of Tarawera Road however the location and design details are yet to be confirmed and therefore is beyond the scope of this report..

No earthwork plans or design ground levels have been prepared at this stage, however, it is envisaged some earthworks will be required to create level building platforms for buildings located across the toe of the existing slopes.

There is no available connection to council stormwater reticulation, therefore stormwater will need to be attenuated onsite either by above-ground rain tanks or soakage to ground.

### 4 INVESTIGATION SCOPE

#### 4.1 Previous Investigation

The subject site was previously assessed in 2001<sup>1</sup> as part of a wider preliminary investigation to assist in the overall engineering planning for the site. The report was preliminary in nature only and was therefore not prepared to support a development scheme or a resource consent application. A copy of the report has been supplied to CMW Geosciences and reviewed as part of this investigation.

The investigation comprised a walkover survey of the site, the drilling of two hand auger boreholes to 2.6m below existing ground level and two soakage tests within these augers. This data was reviewed during the preparation of this report and is attached in **Appendix D**.

#### 4.2 CMW Field Investigation

Following a dial before you dig search, and onsite service location, the field investigation was carried out between 8 December and 10 December 2021. All fieldwork was carried out under the direction of CMW Geosciences in general accordance with the NZGS specifications<sup>2</sup> and logged in accordance with NZGS guidance<sup>3</sup>. The scope of fieldwork completed was as follows:

- A walkover survey of the site to assess the general landform and site conditions;
- An on-site services search carried out by a specialist contractor to identify the presence of any underground obstructions or hazards prior to the field investigation program commencing;
- Nine Flight Augers denoted FA01 to FA09, were drilled using a machine drill rig with an 80mm diameter auger to depths of up to 5m below existing ground levels to observe the near surface subsoils and facilitate handheld shear vane testing and Dynamic Cone Penetration (DCP) tests. Engineering logs are provided in **Appendix C**;

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<sup>1</sup> APR Consultants Ltd, Engineering Report for Proposed Tarawera Visitor Attraction, Tarawera Road, Rotorua

<sup>2</sup> NZ Geotechnical Society (2017) NZ Ground Investigation Specification, Volume 1 – Master Specification

<sup>3</sup> NZ Geotechnical Society (2005), Field Description of Soil and Rock, Guideline for the field classification and description of soil and rock for engineering purposes.

- Falling head permeability tests were carried out to 3m depth within flight augers FA02, FA04, FA05 and FA07. The falling head tests were carried out by reaming the holes out to 90mm diameter, installing a perforated PVC pipe, pre-soaking and then filling the holes with water and monitoring the rate of water level fall over time. Results of the falling head permeability tests are presented in **Appendix C**;
- Eight Cone Penetrometer Tests denoted CPT01 to CPT08, were pushed to depths of up to 10m below existing ground levels to define the ground model and provide soil parameters for geotechnical analyses. All CPTs refused prior to achieving their target depths of 20m on the account of high tip resistance. Results of the CPT's, presented as traces of tip resistance ( $q_c$ ), friction resistance ( $f_s$ ), friction ratio and pore pressure ( $U_2$ ) are presented in **Appendix C**;

The approximate locations of the respective investigation sites referred to above are shown on **Drawing 01**.

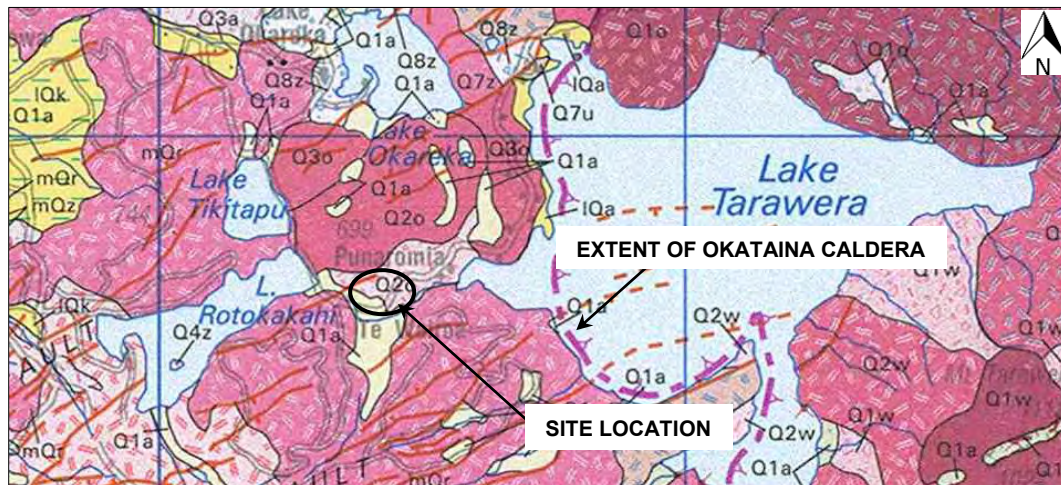
Test locations were measured using hand held GPS whilst test elevations were inferred from RLC online GIS (Geyersview).

## 5 GROUND MODEL

### 5.1 Published Geology

The published geological map<sup>4</sup> for the area depict the regional geology for the area as comprising “*Rhyolite pyroclastic deposits and lavas containing hornblende and biotite with minor clinopyroxene*” of the Pleistocene-aged Rotorua Formation (Haroharo Subgroup, Q2o) and “*alluvial and colluvial gravel and sand dominated by pumice clasts, silt and clay with local peat beds*” of the Holocene Aged Tauranga Group alluvium (Q1a). The elevated topography immediately north of the proposed development area likely comprises deposits from the Rotorua Formation and the proposed development is likely situated across the Holocene Aged Tauranga Group alluvium deposits.

The published extents of these geological units and the Okataina Caldera are illustrated in Figure below.



**Figure 3: Regional Geology (Image obtained from GNS, Geological Map 05)**

The geological units can be typically overlain by recent Holocene-aged volcanic ash with colluvium also expected near the toe of over-steepened escarpments. Based on the published geological information<sup>5</sup> for the area and a review of historic aerial photographs pre and post the Mount Tarawera / Rotomahana 1886 Eruption, as shown on Figure 4 below, the recent Rotomahana Ash is also likely to be encountered.

<sup>4</sup> Leonard, G.S., Bregg, J.G., Wilson, C.J.N. 2010. Institute of Geological and Nuclear Sciences, Geological Map 05: Geology of the Rotorua Area, 1: 250,000

<sup>5</sup> Nairn, I.A. 1993 Volcanic hazards at Okataina Centre. 3rd ed. [Palmerston North, NZ]: Ministry of Civil Defence. *Volcanic hazards information series* 2. 29, [1] p.



**Figure 4: Te Wairoa Village Post 1886 Eruption (Image obtained from client)**

Previous and existing land use activities determine that filling may also be present at the site.

## 5.2 Stratigraphic Units

The ground conditions encountered and inferred from the previous and recent investigations were considered to be generally consistent with the published geology for the area and can be generalised according to the following subsurface sequences.

The distribution of the various units encountered is also presented on the appended Cross Sections on **Drawing 02**.

### 5.2.1 Topsoil

Topsoil comprising friable organic silt was encountered in all investigation locations across the site and was generally 100mm to 200mm thick.

### 5.2.2 Recent Volcanic Ash – Rotomahana Mud

Geologically recent volcanic ash was encountered across the site, which appears to mantle the landform and comprise approximately 0.6m to 1.1m of stiff to very stiff silts. This ash is inferred to be the Rotomahana Mud from the recent Mount Tarawera / Rotomahana eruption which buried the Te Wairoa Village.

Undrained shear strength within the ash ranged from 30kPa to greater than 200kPa, with values typically greater than 100kPa.

### 5.2.3 Alluvium

Very stiff silts were encountered beneath the ash with undrained shear strengths of typically greater than 100kPa to depths of up to 4.2m below existing ground level. Within the upper 100mm to 200mm of this layer, directly below the recent ash, trace organics and dark brown silt layers were observed, inferred to be the pre-1886 topsoil layer.

Beneath the silty alluvial layers, medium dense to dense pumiceous sands were encountered with DCP tests recording values between 2 to 15 blows per 100mm of penetration, with density typically increasing with depth.

Beneath the base of the flight augers, the CPT traces indicated the lower alluvium comprised interbedded silts and sands to depths of between 4.5m to 10m. CPT tip resistance ( $q_c$ ) ranged between 1MPa to greater than 20MPa.



### 5.2.4 Inferred Weathered Rhyolite

All CPTs refused due to excessive tip resistance (qc) between 5m and 10m below existing ground levels which is inferred to be within the published Rotorua Formation Rhyolite that was encountered in Flight Auger FA02 as very dense pinkish coloured pumiceous sands.

### 5.2.5 Summary

The distribution of these units is illustrated on the appended Cross Sections (*Error! Reference source not found. 02*) and presented below in Table 1.

Table 1: Summary of Strata Encountered				
Unit	Depth to base (m)		Thickness (m)**	
	Min	Max	Min	Max
Topsoil/Fill	0.1	0.2	0.1	0.2
Recent Volcanic Ash Deposits	0.6	1.1	0.4	0.9
Interbedded Silts and Sands (Tauranga Group Alluvium)	4.4	10.0	3.3	7.5
Dense Sand (inferred weathered Rhyolite)	>4.5	>10.6	-	-

**Notes:** \*\*Thickness only recorded where base of strata has been confirmed.

## 5.3 Groundwater

During the investigation, which was completed in late spring, groundwater was encountered within some of the CPTs at between 5.6m and 6.9m below ground level equating to approximately RL 381m.

The nearby foreshore of Lake Rotokakahi is elevated at approximately RL 395m, with the nearby foreshore of Lake Tarawera elevated at approximately RL 298m.

## 5.4 Permeability Testing

Results of the on-site permeability testing are summarised in Table 2 below:

Table 2: Summary of Soakage Results				
Permeability Test No.	S01	S02	S03	S04
Test invert depth below existing ground level	3.0	3.0	3.0	3.0
Falling head coefficient of permeability (CIRIA 113) (m/sec)	1.44x10 <sup>-5</sup>	7.39x10 <sup>-6</sup>	3.3x10 <sup>-6</sup>	5.07x10 <sup>-5</sup>
Falling head coefficient of permeability (Hvorslev) (m/sec)	1.18x10 <sup>-6</sup>	5.93x10 <sup>-7</sup>	2.62x10 <sup>-7</sup>	4.51x10 <sup>-6</sup>

## 6 GEOHAZARDS ASSESSMENT

### 6.1 Seismicity

The updated NZGS guidance<sup>6</sup>, recommends the following Peak Ground Acceleration (PGA) values and earthquake magnitudes for geotechnical analyses within the Rotorua area:

<sup>6</sup> NZ Geotechnical Society publication "Earthquake geotechnical engineering practice, Module 1: Overview of the standards", (November 2021)

Limit State	AEP	R	PGA(g)	Magnitude <sub>eff</sub>
SLS	25	0.25	0.09	6.0
ULS	500	1.0	0.36	6.0

Note: SLS = serviceability limit state; ULS = ultimate limit state; AEP = annual exceedance probability

The above SLS and ULS PGA's are based on a 50-year design life in accordance with the New Zealand Building Code and importance level (IL) 2 structures.

## 6.2 Fault Rupture

The Institute of Geological and Nuclear Sciences (GNS) active faults database<sup>7</sup> and the Rotorua District Council (RDC) Hazard Studies: Active Fault Hazard Report<sup>8</sup> identifies a normal fault, named the Highlands Fault, running adjacent to the western site boundary. The recurrence level of the fault is currently unknown.

The RDC Natural Hazard database has identified a Fault Avoidance Zone associated with the Highlands Fault, which extends into the western part of the site. The implications of this are discussed further in Section 7.2 below.

## 6.3 Geothermal Activity

The closest geothermal field to the site is identified as Hot Water Beach Geothermal Field, approximately 6km southeast of the proposed development. As such, the risk of geothermal activity on the proposed development is considered to be low.

## 6.4 Liquefaction

Soil liquefaction is a process where typically saturated, granular soils develop excess pore water pressures during cyclic (earthquake) loading that exceed the effective stress of the soil. In loose soils, some dilation can occur during this process, which can lead to individual soil grains moving into suspension.

Following the onset of liquefaction, the shear strength and stiffness of the liquefied soil is effectively lost causing excessive differential settlement of the ground surface, bearing capacity failure and collapse of structures and low-angle lateral spreading of slopes in liquefiable soils.

In accordance with NZGS guidance<sup>9</sup> the liquefaction susceptibility of the soils at this site has been considered with respect to geological age, soil fabric and soil consistency / density.

- Only saturated soils below the groundwater table are susceptible to liquefaction, which at this site, is at least 5.6m below current ground levels.
- Soils are also classified with respect to their grain size and plasticity to assess liquefaction susceptibility. For this project, reliance was made on the liquefaction analysis software CLiq to predict liquefaction triggering based on a default soil behaviour type index cutoff value (I<sub>c</sub>) of 2.6.
- Specific liquefaction analyses were undertaken on selected CPT traces where groundwater was encountered using the software package CLiq by comparing the cyclic stress ratio (CSR), being a function of the earthquake magnitude for the design return period event, to the cyclic resistance ratio (CRR), being a function of the CPT cone resistance (q<sub>c</sub>) and friction ratio. Results are presented in **Appendix E** and can be summarised as follows:

<sup>7</sup> New Zealand Active Faults Database <https://data.gns.cri.nz/af/>

<sup>8</sup> Villamor, P., Ries, W., Zajac, A 2010. Rotorua District Council Hazard Studies: Active fault hazards. GNS Science Consultancy Report 2010/182.

<sup>9</sup> Earthquake Geotechnical Engineering Practice, Module 3: Identification, assessment and mitigation of liquefaction hazards", (November 2021)

- The results of the analyses under SLS conditions indicate that liquefaction is unlikely to be triggered at any depth across the site.
- Under ULS conditions, liquefaction analysis results indicate liquefaction may occur within medium dense to dense granular soils below the groundwater table, with the vertical settlements summarised in Table 4 below.

Table 4: Liquefaction Analyses Results			
CPT No.	ULS Settlement (mm)	Depth to Liquefied Layer (m)	Accumulative Liquefiable Soil Thickness (m)
CPT01	40	7.0	1.5
CPT03	15	5.6	0.5

Note: Settlements and depths are based on existing ground profiles

With reference to Ishihara (1985)<sup>10</sup>, Table 4 above and groundwater conditions detailed in Section 5.3 suggests a crust of at least 5.5m of non-liquefiable material exists across the site, which is considered sufficient to inhibit the onset of surface manifestation, such as sand boils and surface ejecta, therefore further suppressing the effects of liquefaction.

With consideration of the above ULS liquefaction induced settlements and thickness of non-liquefiable crust, the risk of liquefaction for the site is considered low and specific liquefaction mitigation measures for IL2 structures is not considered necessary.

## 6.5 Slope Stability

The steep slopes immediately to the north of the development area are inferred to be overlain in volcanic ash and pre-existing ash / in-situ weathered silts/sands. At the observed gradients, they are likely to be close to their natural angle of repose and therefore provide slope stability factors of safety that do not comply with current building codes and standards.

Anecdotal evidence demonstrates that current landslip failure mechanisms over such steep escarpments are generally limited to shallow seated (few metres) slumps and slides that run out for significant distances downslope. Therefore, a downslope debris hazard risk exists across the lower development area.

Recommendations to mitigate effects associated with potential landslip debris runout are provided in Section 9.2 below.

Furthermore, cutting into the toe of these natural slopes will remove passive toe support, which will require support by engineer designed retaining walls.

## 6.6 Static Settlement

Load-induced settlements occur in soils that are subject to static loading (e.g. by fill and/or building loads) where the magnitude of settlement is governed by the soil stiffness, its thickness, and the load applied.

Analyses have been undertaken to assess the magnitude of likely total and differential settlement across the site from CPT data using the CPeT-IT software. This calculates the change in vertical stress due to loading according to Boussinesq with 1-D constrained modulus estimated from the CPT.

Elastic settlements have been assessed for the following situations:

- Widespread surcharge load of 5kPa for a 6.5m wide x 15m long building footprint (residential).
- Widespread surcharge load of 10kPa for a 15m wide x 45m long building footprint (commercial).

<sup>10</sup> Ishihara, K., (1985) "Stability of Natural Deposits During Earthquakes," Proc. Of the Eleventh International Conference on Soil Mechanics and Foundation Engineering, San Francisco, 12- 16<sup>th</sup> August 1985, Vol. 1, Theme Lectures Conferences, pp321- 376.

- Shallow strip footing width of 0.3m and allowable bearing pressure of 50kPa.
- Pad footing of 2.0m x 2.0m with an allowable bearing pressure of 100kPa.

Results of settlements analyses are presented in Table 5 below and selected outputs are included in **Appendix F**.

<b>Loaded Dimensions (m)</b>	<b>Applied Pressure (kPa)</b>	<b>Total Settlement (mm)</b>
6.5 x 30	5	<10
15 x 45	10	<10
0.3m strip footing	50	<10
2.0 x 2.0m pad footing	100	5-20

Differential settlements across building platforms may be as much as 1/2 to 3/4 of above total settlements, and therefore a considered to be within typical NZ Building Code limits of 1:240.

## **7 GEOTECHNICAL RECOMMENDATIONS**

### **7.1 Seismic Site Subsoil Category**

The site consists of shallow soils underlain by inferred weathered Rhyolite which we have assumed becomes component rock within 20m from the existing ground level. Based on these ground conditions the seismic site subsoil category is assessed as being Class C in accordance with NZS1170.5.

### **7.2 Fault Avoidance Management**

With respect to the RLC Fault Avoidance Zone within the western part of the site, the RDC fault hazards report recommends the use of the Ministry for the Environment guidelines<sup>11</sup> which suggests a 20-metre avoidance zone be established from identified active faults. The Highland Fault hasn't been accurately identified in this location and has been inferred mostly from aerial photography, therefore it is understood the RLC has increased the fault avoidance zone from the nominal 20m setback to account for the level of uncertainty in locating the fault in this area.

As depicted on the current scheme plan, a proportion of the Papakainga housing area extends across the fault avoidance zone. If the layout of the development cannot be altered to avoid development across this RLC identified zone, then the fault will need to be accurately located by clearing of vegetation followed by intrusive trenching and/or geophysics exploration to locate the fault and further refine the extent of the avoidance zone.

### **7.3 Landslip Debris Protection**

With respect to Section 6.7, specifically designed downslope debris protection measures will be required for the proposed development, with details to be confirmed during detailed design when building platform levels and earthworks extents are further progressed.

Debris protection measures may include:

- Regrade the landform between the escarpment toe and building platforms to divert potential debris slides away from future buildings. This is typically in the form of debris protection bund. For

<sup>11</sup> Kerr et al, 2004. Planning for Development of Land on or Close to Active Faults: A guideline to assist resource management planners in New Zealand. Ministry for the Environment.

preliminary planning purposes, a typical bund height of 2m to 3m occupying an overall footprint width of 10m to 15m (including upslope collection area) is envisaged, as presented on **Drawing 02**;

- Construct a debris protection wall/fence between the escarpment toe and the building platform. These typically comprise large (say 400mm diameter x 8m long) H5-treated timber poles at 1m centres or less protruding 2m to 2.5m above finished ground level with hit and miss timber rails to dissipate potential landslip debris energy as presented on **Drawing 02**. A nominal 2m to 3m setback from the wall to future buildings will be required to allow for some spilling of debris through the wall.
- Alternatively, an assessment on the expected volume of material and potential impact it may have on any structures can be undertaken and where it is economically viable design the buildings to withstand the potential impact.

The adopted landslip debris protection system must be subject to specific geotechnical design and Council approval during detailed design, and specific consideration will be required around the risk of the existing overland flow path as shown on **Drawing 01**.

## 7.4 Earthworks

All earthwork activities must be carried out in general accordance with the requirements of NZS 4431 and the requirements of the Rotorua Lake Council Civil Engineering Standards (RCEIS) under the guidance of a Chartered Professional Geotechnical Engineer.

Preparation of the subgrade soil beneath any proposed cut and fill areas should comprise stripping of all vegetation, topsoil uncontrolled fill and any weak/ yielding natural ground with cut and fill batters formed to no steeper than 1:2.0 (vertical to horizontal). All unsuitable material stripped from across the proposed development should be removed from site or stockpiled away from engineered fill areas for use as landscape fill.

Any proposed cuts across the proposed area are likely to be within the volcanic ash soils comprising very stiff silts, which based on experience, should be suitable for reuse as engineered fill. However, these materials are sensitive to small moisture fluctuations and therefore may only be suitable to earthwork during dry summer conditions.

Any earthfill must be placed, spread and compacted in controlled nominal 300mm loose lifts under the direction of a chartered geotechnical engineer. The fill may comprise either granular or cohesive material subject to being free of any organic material and having no particles greater than 150mm diameter. The source and / or type of fill material used for engineered fill will dictate the type of quality control testing undertaken.

For granular (sand and gravel) fill materials, testing should be with a dynamic cone penetrometer following calibration by proof rolling. Where the source or quality of fill changes, re-calibration will be required.

Where silts and clays are used as filling, test criteria using vane shear strength (minimum of 150kPa) and air voids (maximum 10%) should be used.

To reduce the risk of ongoing minor slumping and scour, permanent cut or fill batters within the upper 5m should be formed to no steeper than 1:2.5 (V:H) to a maximum height of 3m where stiff to medium dense and dry subsoils are encountered. Where proposed batters exceed this grade, they should be specifically designed or supported by engineer designed retaining walls.

Temporary engineered fill batters or cut batters within the upper 5m shall be formed no steeper than 1:1.5(V:H) to a maximum height of 3m provided they comprise stiff and dry subsoils and are provided with a stable foundation support. Where batters are proposed to exceed this height or grade during earthworks, they should be inspected by the project geotechnical engineer and may require specific design.

All formed permanent batters, or where temporary batters are to remain for a period of at least several weeks, surface protection against erosion shall be implemented. Surface protection may include topsoiling and grassing or the use of geofabrics.

## 7.5 Foundation Bearing Capacity

To progress preliminary design of foundations, following earthworks, a geotechnical ultimate bearing capacity of 300kPa should be available for shallow strip and pad footings up to 2m wide and located within engineered fill and natural volcanic ash.

Localised shear strength variation and the presence of a buried topsoil layer will require further investigation for individual building structures at building consent application stage to ensure any isolated weak layers do not lie within foundation zones of influence.

Where soft/loose soil ( $S_u < 60\text{kPa}$ ) is encountered within the footing zone of influence (within a depth equal to the short axis plan dimension below footing invert level), undercutting and replacement may be required.

## 7.6 Geotechnical Strength Reduction Factor

As required by section B1/VM4 of the New Zealand Building Code Handbook, a strength reduction factor of 0.5 and 0.8 must be applied to all recommended geotechnical ultimate soil capacities in conjunction with their use in factored design load cases for static and earthquake overload conditions respectively.

## 7.7 Civil Works

### 7.7.1 Subgrade CBR

Typical CBR values of between 5% and 7% should be available in locally-sourced engineered fill and 3% to 5% within stiff volcanic ash silts. CBR values will however vary depending on the subsoils exposed and their moisture contents.

The CBR values can be significantly increased by allowing the subgrade to dry once exposed, reworking and proof rolling the exposed surface. If particularly poor subsoils are encountered, undercutting and backfilling may be required in combination with installation of an appropriate geogrid. Subgrade improvement with lime (if desired) is expected to provide better results than the use of cement due to the silty nature of the natural soils encountered within the upper 2m.

A program of dynamic cone penetration (DCP) testing will be required to verify available CBR values when roads have been cut / filled to design subgrade levels.

### 7.7.2 Retaining Walls

Although no formal development plans are known at this stage, it is expected retaining walls may be included in the final development plans.

Retaining walls should be designed by a suitably qualified and experienced Chartered Professional Engineer familiar with the contents of this report and taking into consideration slope surcharge, seismic loads, vehicle loads, building loads etc.

Preliminary design parameters for retaining walls are provided in Table 6.

Table 6: Retaining Wall Design Parameters									
Soil Unit	$\gamma$ (kN/m <sup>3</sup> )	$\phi'$ (deg)	$K_0$	$S_u$ (kPa)	$K_{ae}$	No wall friction		Wall friction = 2/3 $\phi$	
						$K_a$	$K_p$	$K_a$	$K_p$
Recent Volcanic Ash	16	30	0.50	100	0.664	0.333	3.00	0.297	6.11
Alluvium	16	35	0.50	-	0.562	0.271	3.69	0.244	9.96
Notes:									
1. Refer to Table 1 for definition of soil unit levels									

2.  $\gamma$  – soil unit weight;  $\phi'$  - angle of internal soil friction;  $K_0$  - coefficient of earth pressure at rest,  $K_a$  - coefficient of active earth pressure,  $K_p$  - coefficient of passive earth pressure;  $S_u$  – Undrained shear strength.  $K_{ae}$  – seismic coefficient of active earth pressure.
3. Values of  $K_0$  are based on initial conditions following construction of the perimeter retention system.
4. The retaining wall designer must adopt the above set of  $K_a$  and  $K_p$  parameters relevant to the actual construction method adopted
5. The above parameters are based on the condition of a horizontal ground surface behind the retaining structure. Applicable surcharge loads behind the wall must also be considered in the design.
6. Use of  $K_p$  values with wall friction must be subject to deflection analyses for wall heights greater than 1.5m.

Where cantilever retaining walls are adopted then by definition, they will exhibit some lateral deflection and associated ground settlement. Future residential building foundations must therefore be set back from the downslope retaining wall by a distance equal to the downslope wall height at any given location. Alternatively, a specific engineer design of foundations, including cantilever slabs or deepened piles may be considered where they extend across this setback zone.

### 7.7.3 Stormwater Soakage

The management of stormwater flows during, and post-building construction is critical to help promote site stability and reduce nuisance effects to adjacent properties.

The site is rural and therefore no public connection is available and stormwater flows generated by the proposed development will need to be captured and attenuated on site.

Soils present within this development are considered appropriate for onsite stormwater disposal via ground soakage methods. A soakage design should target the sandy alluvium layer approximately 2m to 3m below existing ground level and consider the soakage rates given in Table 2. Based on the permeability rates the system will likely be a storage dominated system, otherwise above ground raintanks may be considered. For preliminary soakage design purposes, the lowest permeability rates from the Hvorslev method should be considered.

All soakage systems must be located outside the zone of influence of proposed building foundations. Once final building plans are known this will need to be confirmed and a detailed stormwater design report will be required for Building Consent by a Chartered Professional Engineer.

## 8 FURTHER WORK

Further geotechnical assessment will be required to support future building consents for this development, including:

- Review of the Approved Resource Consent Conditions;
- Specific geotechnical design of debris protection barriers and / or retaining walls;
- Further assessment of static settlements and bearing capacities following confirmation of final platform levels and building loads.
- Geotechnical investigation and design of Tarawera Road pedestrian bridge foundations once general arrangement and structural form is further advanced.

## USE OF THIS REPORT

Site subsurface conditions cause more construction problems than any other factor and therefore are generally the largest technical risk to a project. These notes have been prepared to help you understand the limitations of your geotechnical report.

### **Your geotechnical report is based on project specific criteria**

Your geotechnical report has been developed on the basis of our understanding of your project specific requirements and applies only to the site area investigated. Project requirements could include the general nature of the project; its size and configuration; the location of any structures on or around the site; and the presence of underground utilities. If there are any subsequent changes to your project you should seek geotechnical advice as to how such changes affect your report's recommendations. Your geotechnical report should not be applied to a different project given the inherent differences between projects and sites.

### **Subsurface conditions can change**

Subsurface conditions are created by natural processes and the activity of man. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of subsurface investigation, the conditions may have changed, particularly when large periods of time have elapsed since the investigations were performed.

### **Interpretation of factual data**

Site investigations identify actual subsurface conditions at points where samples are taken. Additional geotechnical information (e.g. literature and external data source review, laboratory testing on samples, etc) are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, can exactly predict what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions.

### **Your report's recommendations require confirmation during construction**

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced. For this reason, you should retain geotechnical services throughout the construction stage, to identify variances, conduct additional tests if required, and recommend solutions to problems encountered on site. A geotechnical designer, who is fully familiar with the background information, is able to assess whether the report's recommendations are valid and whether changes should be considered as the project develops. An unfamiliar party using this report increases the risk that the report will be misinterpreted.

### **Interpretation by other design professionals**








Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical report. Read all geotechnical documents closely and do not hesitate to ask any questions you may have. To help avoid misinterpretations, retain the assistance of geotechnical professionals familiar with the contents of the geotechnical report to work with other project design professionals who need to take account of the contents of the report. Have the report implications explained to design professionals who need to take account of them, and then have the design plans and specifications produced reviewed by a competent Geotechnical Engineer.



# Drawings

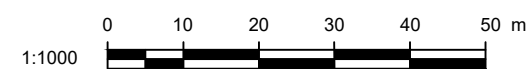


**LEGEND:**

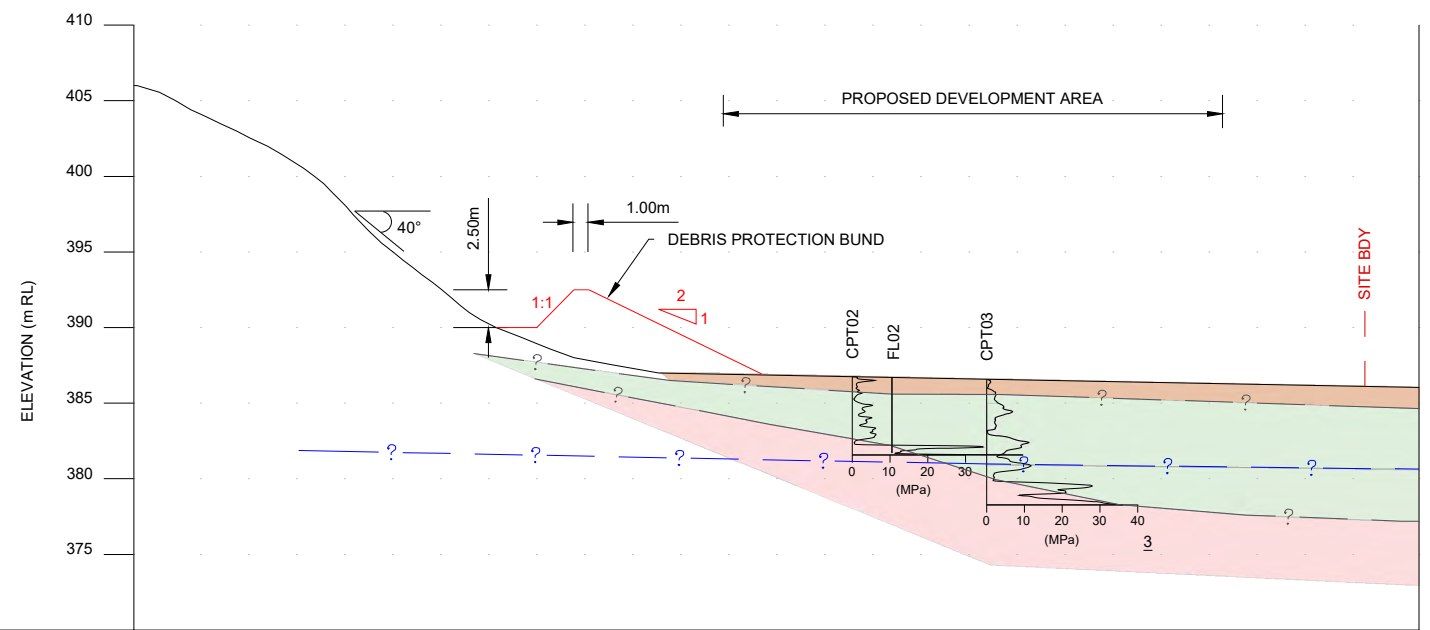
-  **FL01** TEST LOCATION (FLIGHT AUGER)
-  **CPT01** TEST LOCATION (STATIC CPT)
-  SITE BOUNDARY
-  PROPOSED BUILDING LOCATIONS
-  INFERRED OVERLAND FLOW PATH
-  APPROXIMATE HISTORIC WI KĒPA HOUSE LOCATION
-  A1 PREVIOUS AUGER LOCATIONS (2001)

**NOTES:**

1. BASE PLAN ADAPTED FROM GEYSERVIEW.
2. CONTOURS ARE IN 1.0m INTERVALS AND ARE IN TERMS OF MOTURIKI DATUM.
3. TEST LOCATIONS ARE INDICATIVE ONLY.
4. SCHEME PLAN ADOPTED FROM SPECTRUM ARCHITECTS.

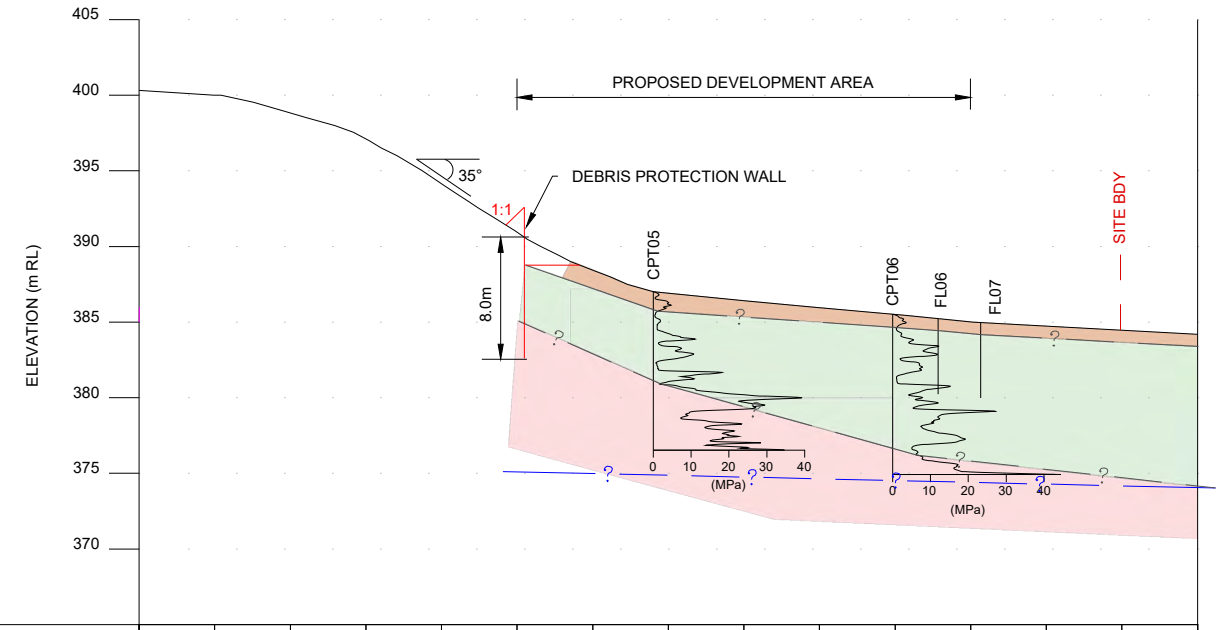


CLIENT:	<b>APR CONSULTANTS LTD</b>	DRAWN:	HR	PROJECT No: TGA2021-0299
PROJECT:	<b>ROTOMAHANA DEVELOPMENT, TARAWEA ROAD, ROTORUA</b>	CHECKED:	LP	DRAWING: 01
TITLE:	<b>GEOTECHNICAL INVESTIGATION PLAN</b>	REVISION:	0	SCALE: 1:1000
		DATE:	19/01/2022	SHEET: A3



EXISTING GROUND (m RL)	403.83	401.30	396.93	392.78	389.60	387.84	386.99	386.90	386.80	386.70	386.60	386.51	386.41	386.32	386.22	386.13	386.03
DISTANCE (m)	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85

SECTION-A

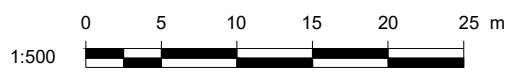


EXISTING GROUND (m RL)	400.00	398.84	397.11	394.15	390.93	388.44	386.90	386.42	385.96	385.51	385.02	384.74	384.46	384.18
DISTANCE (m)	5	10	15	20	25	30	35	40	45	50	55	60	65	70

SECTION-B

- LEGEND:**
- EXISTING GROUND SURFACE
  - ?-? APPROXIMATE GEOLOGICAL BOUNDARY
  - ?-? APPROXIMATE GROUNDWATER TABLE
  - CMW DESIGN OPTION FOR SLOPE STABILITY PROTECTION (TBC ONCE EARTHWORKS PLANS ARE KNOWN)

- RECENT VOLCANIC ASH DEPOSITS - ROTOMAHANA MUD
- ALLUVIUM - INTERBEDDED STIFF SILTS AND MEDIUM DENSE TO DENSE SAND
- INFERRED WEATHERED RHYOLITE - VERY DENSE SAND



CLIENT:	<b>APR CONSULTANTS LTD</b>	DRAWN:	HV	PROJECT No:	TGA2021-0299
PROJECT:	<b>ROTOMAHANA DEVELOPMENT, TARAWEA ROAD, ROTORUA</b>	CHECKED:	LP	DRAWING:	02
TITLE:	<b>GEOLOGICAL SECTION A &amp; B</b>	REVISION:	A	SCALE:	1:500
		DATE:	19/01/2022	SHEET:	A3

## Appendix A: Statement of Professional Opinion

To: **The District Engineer**  
Rotorua District Council  
Private Bag  
**ROTORUA**

**1A - STATEMENT OF PROFESSIONAL OPINION AS TO SUITABILITY OF  
LAND FOR ~~SUBDIVISION~~ DEVELOPMENT**

Subdivision: Rotomahana Development, Tarawera Road, Rotorua

Owner/Developer: APR Consultants Ltd

Location: Tarawera Road, Rotorua

I, David John Morton of CMW Geosciences (NZ) Limited Partnership  
(Full Name) (Name & Address of Firm)

hereby confirm that:

I am a Registered Engineer experienced in the field of soils engineering and more particularly land slope and foundation stability as applicable and was retained by the owner/developer as the Soils Engineer on the above ~~subdivision~~ development.

Site investigations have been carried out under my direction and are described in my report dated 09 February 2022 (TGA2021-0299AB Rev0).

I am aware of the details of the proposed scheme of ~~subdivision~~ development and of the general nature of proposed engineering works as shown on the following drawings:

• CMW Geosciences Drawing No. 01 in my report dated 09 February 2022 (TGA2021-0299AB Rev0).

In my professional opinion, not to be constructed as a guarantee, I certify that the proposed works give due regard to land slope and foundation stability considerations and that the land is suitable for the proposed ~~subdivision~~ development, providing that:

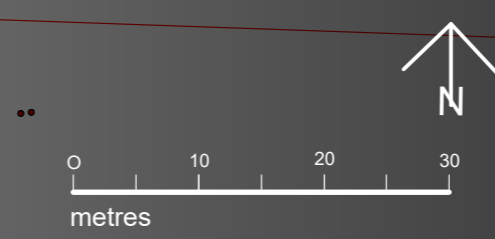
a) The recommendations provided in my report dated 09 February 2022 are adequately implemented.

This professional opinion is furnished to the Council and the owner/developer for their purposes alone, on the express conditions that it will not be relied upon by any other person and does not remove the necessity for further inspection during the course of the works.

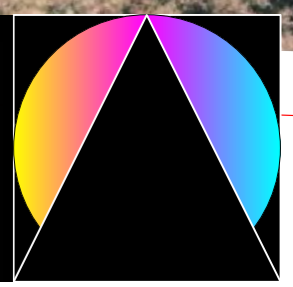
Signed:  \_\_\_\_\_

Date: 09 February 2022

## Appendix B: Proposed Development Plans



SPECTRUM ARCHITECTS



## Appendix C: CMW Investigation Results



# HAND AUGER BOREHOLE LOG - FA01

Client: APR Consultants Ltd  
 Project: Rotomahana Development, Te Wairoa, Tarwera Road  
 Site Location: Tarawera  
 Project No.: TGA2021-0299  
 Date: 08/12/2021



Borehole Location: Refer to Drawing 01      Logged by: TR      Checked by: LP      Scale: 1:25      Sheet 1 of 1

Position: 390583.9mE; 749886.6mN      Projection: BOP2000  
 Elevation: 386.50m      Datum: Moturiki      Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)					
	Depth	Type & Results							5	10	15			
			386.5			OL: Organic SILT: with minor rootlets; dark brown. (Topsoil)								
	0.5	Peak = 114kPa Residual = 29kPa		386.3		ML: Sandy SILT: with minor clay, with minor gravel; dark grey. Low plasticity; sand, fine to medium, gravel, fine, pumiceous. (Ashfall Deposits)								
						... from 0.70m to 1.10m, Contains some clay								
	1.0	Peak = 30kPa Residual = 6kPa		1			M to W							
				385.4		ML: SILT: with some gravel, with minor sand; dark brown mottled white. Low plasticity; sand, fine to medium, gravel, fine, pumiceous. (Alluvium)								
	1.5	Peak = 186kPa Residual = 40kPa		384.9		ML: SILT: with some sand; light greyish brown. Low plasticity; sand, fine. (Alluvium)								
				2										
	2.0	Peak = 171kPa Residual = 43kPa		2										
				3										
	2.5	Peak = 129kPa Residual = 37kPa		383.8		SM: Silty Fine to medium SAND: light grey streaked orange. Poorly graded; sand, pumiceous. (Alluvium)								
				3			M							
				4										
				5										
						Borehole terminated at 5.0 m								

Termination Reason: Target depth  
 Shear Vane No: 2156 - 19mm Blade    DCP No: 10  
 Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

# HAND AUGER BOREHOLE LOG - FA02/SO1

Client: APR Consultants Ltd  
 Project: Rotomahana Development, Te Wairoa, Tarwera Road  
 Site Location: Tarawera  
 Project No.: TGA2021-0299  
 Date: 08/12/2021



Borehole Location: Refer to Drawing 01      Logged by: TR      Checked by: LP      Scale: 1:25      Sheet 1 of 1

Position: 390584.9mE; 749887.6mN      Projection: BOP2000  
 Elevation: 386.50m      Datum: Moturiki      Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)					
	Depth	Type & Results							5	10	15			
			386.5			OL: Organic SILT: with minor rootlets; dark brown. (Topsoil)								
	0.5	Peak = 143kPa Residual = 43kPa		386.3		ML: Clayey SILT: with minor sand, with minor gravel; dark grey. Low plasticity; sand, fine to medium; gravel, fine. (Ashfall Deposits)								
	1.0	Peak = 126kPa Residual = 26kPa		1			M to W							
	1.5	Peak = 157kPa Residual = 40kPa		385.4		ML: SILT: with some gravel, with minor sand; dark brown mottled white. Low plasticity; sand, fine to medium; gravel, fine, pumiceous. (Alluvium)		VSt						
	2.0	Peak = 154kPa Residual = 40kPa		384.7		ML: SILT: with some sand; light greyish brown. Low plasticity; sand, fine. (Alluvium)								
				384.3		SM: Silty Fine to medium SAND: light grey streaked orange. Poorly graded; pumiceous. (Alluvium)		M						
				3				L to MD	2	3	3	3		
				4					5	4	5	8		
				5					5	5	6	8		
				4					8	8	7	7		
				382.1		SM: Silty fine to coarse SAND, with minor gravel : pinkish grey. Poorly graded; gravel, fine to medium, pumiceous. (Minden Rhyolite)		M to W						
				5				D	7	7	7	7		
									8	8	8	8		
									10	15	20			
								VD						
						Borehole terminated at 5.0 m								

Termination Reason: Target depth  
 Shear Vane No: 2156 - 19mm Blade      DCP No: 10  
 Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

# HAND AUGER BOREHOLE LOG - FA03

Client: APR Consultants Ltd  
 Project: Rotomahana Development, Te Wairoa, Tarwera Road  
 Site Location: Tarawera  
 Project No.: TGA2021-0299  
 Date: 08/12/2021



Borehole Location: Refer to Drawing 01      Logged by: TR      Checked by: LP      Scale: 1:25      Sheet 1 of 1

Position: 390610.5mE; 749878.9mN      Projection: BOP2000  
 Elevation: 387.00m      Datum: Moturiki      Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)		
	Depth	Type & Results							5	10	15
			387.0			OL: Organic SILT: with minor rootlets; dark brown. (Topsoil)					
	0.5	Peak = 109kPa Residual = 23kPa	386.8			ML: Clayey SILT: with minor sand, with minor gravel; dark grey. Low plasticity; sand, fine to medium; gravel, fine. (Ashfall Deposits)					
	1.0	Peak = 100kPa Residual = 26kPa	386.4			ML: SILT: with some gravel, with minor sand; dark brown mottled white. Low plasticity; sand, fine to medium; gravel, fine, pumiceous. (Alluvium)					
	1.5	Peak = 171kPa Residual = 43kPa	385.5			ML: SILT: with some sand; light greyish brown. Low plasticity; sand, fine. (Alluvium)					
	2.0	Peak = UTP	385.0			SM: Silty Fine to medium SAND: light grey streaked orange. Poorly graded; pumiceous. (Alluvium)					
				3							
				4							
				5							
						Borehole terminated at 5.0 m					

Termination Reason: Target depth  
 Shear Vane No: 2156 - 19mm Blade    DCP No: 10  
 Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

# HAND AUGER BOREHOLE LOG - FA04/SO2

Client: APR Consultants Ltd  
 Project: Rotomahana Development, Te Wairoa, Tarwera Road  
 Site Location: Tarawera  
 Project No.: TGA2021-0299  
 Date: 08/12/2021



Borehole Location: Refer to Drawing 01      Logged by: TR      Checked by: LP      Scale: 1:25      Sheet 1 of 1

Position: 390627.6mE; 749873.1mN      Projection: BOP2000  
 Elevation: 387.00m      Datum: Moturiki      Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)				
	Depth	Type & Results							5	10	15		
			387.0			OL: Organic SILT: with minor rootlets; dark brown. (Topsoil)							
	0.5	Peak = >218kPa		386.8		ML: Clayey SILT: with minor sand, with minor gravel; dark grey. Low plasticity; sand, fine to medium; gravel, fine. (Ashfall Deposits)	H						
	1.0	Peak = 86kPa Residual = 31kPa		386.2	1	ML: SILT: with some gravel, with minor sand; dark brown mottled white. Low plasticity; sand, fine to medium; gravel, fine, pumiceous. (Alluvium)	St						
	1.5	Peak = >218kPa		385.4		SM: Silty Fine to medium SAND: light grey streaked orange. Poorly graded; pumiceous. (Alluvium)	M						
					2			L to MD	2				
									2				
									3				
									5				
									3				
									5				
									4				
									3				
									3				
									4				
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									8				
									10				
									12				
									15				
									15				
									15				

Termination Reason: Target depth  
 Shear Vane No: 2156 - 19mm Blade    DCP No: 10  
 Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

# HAND AUGER BOREHOLE LOG - FA05/SO3

Client: APR Consultants Ltd  
 Project: Rotomahana Development, Te Wairoa, Tarwera Road  
 Site Location: Tarawera  
 Project No.: TGA2021-0299  
 Date: 08/12/2021



Borehole Location: Refer to Drawing 01      Logged by: TR      Checked by: LP      Scale: 1:25      Sheet 1 of 1

Position: 390642.5mE; 749866.5mN      Projection: BOP2000  
 Elevation: 387.50m      Datum: Moturiki      Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)			
	Depth	Type & Results							5	10	15	
			387.5			OL: Organic SILT: with minor rootlets; dark brown. (Topsoil)						
	0.5	Peak = 140kPa Residual = 37kPa	387.3			ML: Clayey SILT: with minor sand, with minor gravel; dark grey. Low plasticity; sand, fine to medium; gravel, fine. (Ashfall Deposits)						
	1.0	Peak = 114kPa Residual = 29kPa	386.9			ML: SILT: with some gravel, with minor sand; dark brown mottled white. Low plasticity; sand, fine to medium; gravel, fine, pumiceous. (Alluvium)						
	1.5	Peak = 137kPa Residual = 29kPa		1			M	VSt				
	2.0	Peak = 114kPa Residual = 31kPa		2								
			385.0			SM: Silty Fine to medium SAND: light grey streaked orange. Poorly graded; pumiceous. (Alluvium)	M to W	MD	4	4	4	5
				3		Borehole terminated at 3.0 m			4			
				4								
				5								

Termination Reason: Target depth  
 Shear Vane No: 2156 - 19mm Blade      DCP No: 10  
 Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

# HAND AUGER BOREHOLE LOG - FA06

Client: APR Consultants Ltd  
 Project: Rotomahana Development, Te Wairoa, Tarwera Road  
 Site Location: Tarawera  
 Project No.: TGA2021-0299  
 Date: 08/12/2021



Borehole Location: Refer to Drawing 01      Logged by: TR      Checked by: LP      Scale: 1:25      Sheet 1 of 1

Position: 390723.7mE; 749842.3mN      Projection: BOP2000  
 Elevation: 388.00m      Datum: Moturiki      Survey Source: pLog Tablet

Groundwater	Samples & In situ Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)				
	Depth	Type & Results							5	10	15		
			388.0			OL: Organic SILT: with minor rootlets; dark brown. (Topsoil)							
	0.5	Peak = >218kPa	387.8			ML: Clayey SILT: with minor sand, with minor gravel; dark grey. Low plasticity; sand, fine to medium, gravel, fine. (Ashfall Deposits)	H						
	1.0	Peak = 141kPa Residual = 30kPa	387.2	1		ML: SILT: with some gravel, with minor sand; dark brown mottled white. Low plasticity; sand, fine to medium; gravel, fine, pumiceous. (Alluvium) ... from 0.80m to 1.20m, Becomes black with organic lenses							
	1.5	Peak = 171kPa Residual = 34kPa					M	VSt					
	2.0	Peak = 157kPa Residual = 40kPa	386.0	2		ML: SILT: with some sand; light greyish brown. Low plasticity; sand, fine. (Alluvium)							
			385.5	3		SM: Silty Fine to medium SAND: light grey streaked orange. Poorly graded; pumiceous. (Alluvium)	MD to D		5	7	10		
									3	4	5	5	5
							MD		5	5	3	5	6
									15	7	7	6	6
				4			M to W		8	8	12	15	15
									15				
				5		Borehole terminated at 5.0 m							

Termination Reason: Target depth  
 Shear Vane No: 2156 - 19mm Blade      DCP No: 10  
 Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

# HAND AUGER BOREHOLE LOG - FA07/S04

Client: APR Consultants Ltd  
 Project: Rotomahana Development, Te Wairoa, Tarwera Road  
 Site Location: Tarawera  
 Project No.: TGA2021-0299  
 Date: 08/12/2021



Borehole Location: Refer to Drawing 01      Logged by: TR      Checked by: LP      Scale: 1:25      Sheet 1 of 1

Position: 390804.1mE; 749841.6mN      Projection: BOP2000  
 Elevation: 388.00m      Datum: Moturiki      Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)			
	Depth	Type & Results							5	10	15	
			388.0			OL: Organic SILT: with minor rootlets; dark brown. (Topsoil)						
	0.5	Peak = >218kPa	387.8			ML: Clayey SILT: with minor sand, with minor gravel; dark grey. Low plasticity; sand, fine to medium; gravel, fine. (Ashfall Deposits)	M to W	H				
	1.0	Peak = 140kPa Residual = 49kPa	387.2	1		ML: SILT: with some gravel, with minor sand; dark brown mottled white. Low plasticity; sand, fine to medium; gravel, fine, pumiceous. (Alluvium)						
	1.5	Peak = 140kPa Residual = 51kPa				... from 1.60m to 2.00m, Becoming light brown		VSt to H				
	2.0	Peak = 126kPa Residual = 43kPa	386.0	2		ML: SILT: with some sand; light greyish brown. Low plasticity; sand, fine. (Alluvium)	M					
	2.5	Peak = UTP	385.4			SM: Silty Fine to medium SAND: light grey streaked orange. Poorly graded; pumiceous. (Alluvium)		MD to D	4	4	11	
				3				L	2	2		
									7	8		
								D	9	7		
									8	7		
									8	8		
									7	8		
									8	15		
	4.5	Peak = >218kPa	384.0	4		ML: SILT: with minor fine sand, with trace clay; light yellowish white streaked orange. Low plasticity. (Alluvium)	M to W					
	5.0	Peak = >218kPa		5		Borehole terminated at 5.0 m		H				

Termination Reason: Target depth  
 Shear Vane No: 2156 - 19mm Blade    DCP No: 10  
 Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.

# HAND AUGER BOREHOLE LOG - FA08

Client: APR Consultants Ltd  
 Project: Rotomahana Development, Te Wairoa, Tarwera Road  
 Site Location: Tarawera  
 Project No.: TGA2021-0299  
 Date: 08/12/2021



Borehole Location: Refer to Drawing 01      Logged by: TR      Checked by: LP      Scale: 1:25      Sheet 1 of 1

Position: 390843.6mE; 749860.3mN      Projection: BOP2000  
 Elevation: 386.00m      Datum: Moturiki      Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)				
	Depth	Type & Results							5	10	15		
	0.5	Peak = UTP	386.0 385.9		OL: Organic SILT: with minor rootlets; dark brown. (Topsoil)								
	1.0	Peak = 106kPa Residual = 29kPa	385.2	1	ML: Clayey SILT: with minor sand, with minor gravel; dark grey. Low plasticity; sand, fine to medium; gravel, fine. (Ashfall Deposits)								
	1.5	Peak = 140kPa Residual = 43kPa	384.4		ML: SILT: with some gravel, with minor sand; dark brown mottled white. Low plasticity; sand, fine to medium; gravel, fine, pumiceous. (Alluvium) ... from 0.80m to 0.90m, Buried organic lens with some fine pumice gravels	M	VSt to H						
	2.0	Peak = 171kPa Residual = 43kPa		2	ML: SILT: with some sand; light greyish brown. Low plasticity; sand, fine. (Alluvium)								
	2.5	Peak = UTP											
	4.0	Peak = >218kPa	383.0 382.7 381.9	3 4 5	SP: Silty Fine to medium SAND: light brown streaked orange. Poorly graded; pumiceous. (Alluvium)			3	4	5			
					ML: SILT: with minor fine sand, with trace clay; light yellowish white streaked orange. Low plasticity. (Alluvium)				2				
					SM: Silty Fine to medium SAND: with some gravel; light grey streaked orange. Poorly graded; gravel, fine to medium, pumiceous. (Alluvium)	M to W				6			
										5			
										6			
										8			
										8			
										7			
										10			
										9			
										9			
				5	Borehole terminated at 5.0 m								

Termination Reason: Target depth  
 Shear Vane No: 2156 - 19mm Blade    DCP No: 10  
 Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.



# HAND AUGER BOREHOLE LOG - FA09

Client: APR Consultants Ltd  
 Project: Rotomahana Development, Te Wairoa, Tarwera Road  
 Site Location: Tarawera  
 Project No.: TGA2021-0299  
 Date: 08/12/2021  
 Borehole Location: Refer to Drawing 01



Logged by: TR    Checked by: LP    Scale: 1:25

Position: 390852.4mE; 749871.7mN    Projection: BOP2000  
 Elevation: 386.00m    Datum: Moturiki

Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/ Relative Density	Dynamic Cone Penetrometer (Blows/100mm)		
	Depth	Type & Results							5	10	15
			386.0			OL: Organic SILT: with minor rootlets; dark brown. (Topsoil)					
	0.5	Peak = >218kPa	385.9			ML: Clayey SILT: with minor sand, with minor gravel; dark grey. Low plasticity; sand, fine to medium; gravel, fine. (Ashfall Deposits)	H				
	1.0	Peak = 114kPa Residual = 40kPa	385.2	1	X	ML: SILT: with some gravel, with minor sand; dark brown mottled white. Low plasticity; sand, fine to medium; gravel, fine, pumiceous. (Alluvium)	M				
	1.5	Peak = 103kPa Residual = 37kPa	384.4			ML: SILT: with some sand; light greyish brown. Low plasticity; sand, fine. (Alluvium)	VSt to St				
	2.0	Peak = 94kPa Residual = 29kPa	383.5	2	X	SM: Silty Fine to medium SAND: light grey streaked orange. Poorly graded; pumiceous. (Alluvium)		MD to D	5	3	8
									6	10	
									7		
									6		
	4.0	Peak = >218kPa	382.7	3	X	ML: SILT: with minor fine sand, with trace clay; light yellowish white streaked orange. Low plasticity. (Alluvium)	H		3	2	
			381.8	4	X	SM: Silty Fine to medium SAND: with some gravel; light grey streaked orange. Poorly graded; gravel, fine to medium, pumiceous. (Alluvium)	M to W		8	6	5
									7		
									8		
									8		
									6		
									5		
				5	X	Borehole terminated at 5.0 m					

Termination Reason: Target depth

Shear Vane No: 2156 - 19mm Blade    DCP No: 10

Remarks: Groundwater not encountered.

This report is based on the attached field description for soil and rock, CMW Geosciences - Field Logging Guide, Revision 3 - April 2018.



CLIENT:	<b>APR Consultants Ltd</b>
PROJECT:	<b>Rotomahana Development, Tarawera Road, Rotorua</b>
TITLE:	<b>Falling Head Permeability Test 1</b>

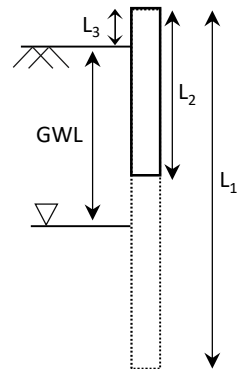
DESIGNER:	TR
CHECKED:	LP
REVISION:	0
DATE:	10/01/2021
PROJECT:	TGA2021-0299

**Specifications - Open-Ended Tube**

Length L <sub>1</sub> :	3 m
Diameter:	90 mm
Non-Perm L <sub>2</sub> :	0 m
Above Gnd L <sub>3</sub> :	0 m

**Ground Conditions**

GWL:	6 m BGL	(Blank = Bottom of hole)
Permeability Anisotropy		
m:	1	$m = \sqrt{k_h/k_v}$
Bottom of Test Hole:	3.00 m BGL	



**Hydraulic Conductivity (k)**

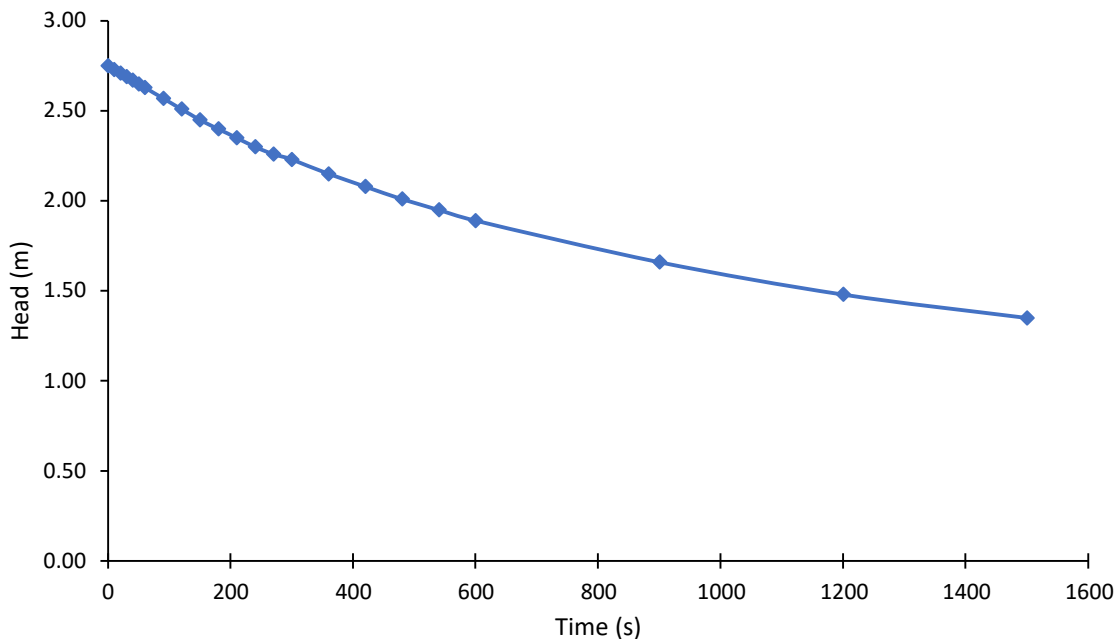
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), Control of groundwater for temporary works, CIRIA Report 113, Appendix 4

$$k = \left( \log \frac{h_1}{h_2} - \log \frac{2h_1 + d}{2h_2 + d} \right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} = 1.44E-05 \text{ ms}^{-1} = 1.25 \text{ m/day}$$

Hvorslev: Hvorslev (1951) Time Lag and Soil Permeability in Ground-Water Observations, Fig 18, p49

$$k = \frac{d^2 \ln \left( \frac{mL}{d} + \sqrt{\left( \frac{mL}{d} \right)^2 + 1} \right)}{8L(t_2 - t_1)} \ln \frac{H_1}{H_2} = 1.18E-06 \text{ ms}^{-1} = 0.10 \text{ m/day}$$



STRATIGRAPHIC LOG	
	Fill
	Clay
	Clayey Sand
EOH @ 3m	



CLIENT:	<b>APR Consultants Ltd</b>
PROJECT:	<b>Rotomahana Development, Tarawera Road, Rotorua</b>
TITLE:	<b>Falling Head Permeability Test 2</b>

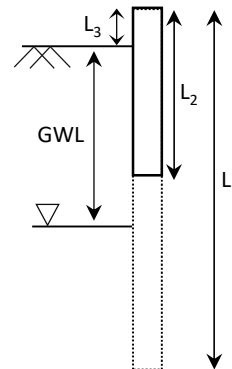
DESIGNER:	TR
CHECKED:	LP
REVISION:	0
DATE:	10/01/2021
PROJECT:	TGA2021-0299

**Specifications - Open-Ended Tube**

Length L <sub>1</sub> :	3 m
Diameter:	90 mm
Non-Perm L <sub>2</sub> :	0 m
Above Gnd L <sub>3</sub> :	0 m

**Ground Conditions**

GWL:	6 m BGL	(Blank = Bottom of hole)
Permeability Anisotropy		
m:	1	$m = \sqrt{k_h/k_v}$
Bottom of Test Hole:	3.00 m BGL	



**Hydraulic Conductivity (k)**

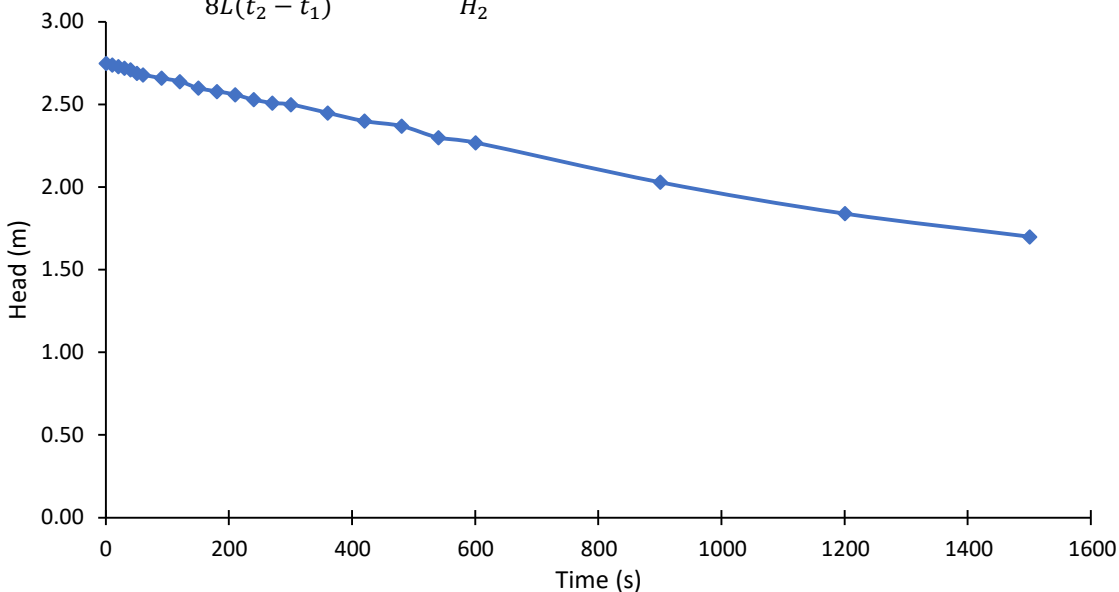
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), Control of groundwater for temporary works, CIRIA Report 113, Appendix 4

$$k = \left( \log \frac{h_1}{h_2} - \log \frac{2h_1 + d}{2h_2 + d} \right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} = 7.39E-06 \text{ ms}^{-1} = 0.64 \text{ m/day}$$

Hvorslev: Hvorslev (1951) Time Lag and Soil Permeability in Ground-Water Observations, Fig 18, p49

$$k = \frac{d^2 \ln \left( \frac{mL}{d} + \sqrt{\left( \frac{mL}{d} \right)^2 + 1} \right)}{8L(t_2 - t_1)} \ln \frac{H_1}{H_2} = 5.93E-07 \text{ ms}^{-1} = 0.05 \text{ m/day}$$



STRATIGRAPHIC LOG	
	Fill
	Clay
	Clayey Sand
EOH @ 3m	



CLIENT:	<b>APR Consultants Ltd</b>
PROJECT:	<b>Rotomahana Development, Tarawera Road, Rotorua</b>
TITLE:	<b>Falling Head Permeability Test 3</b>

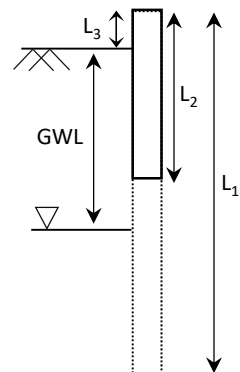
DESIGNER:	TR
CHECKED:	LP
REVISION:	0
DATE:	10/01/2021
PROJECT:	TGA2021-0299

**Specifications - Open-Ended Tube**

Length L <sub>1</sub> :	3 m
Diameter:	90 mm
Non-Perm L <sub>2</sub> :	0 m
Above Gnd L <sub>3</sub> :	0 m

**Ground Conditions**

GWL:	7 m BGL	(Blank = Bottom of hole)
Permeability Anisotropy		
m:	1	$m = \sqrt{k_h/k_v}$
Bottom of Test Hole:	3.00 m BGL	



**Hydraulic Conductivity (k)**

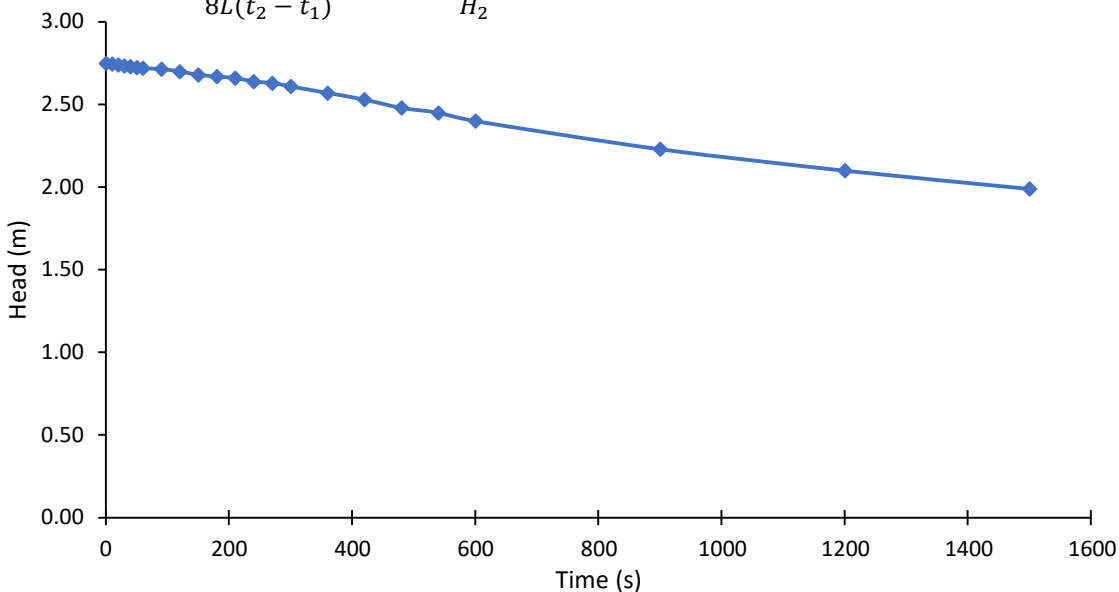
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), Control of groundwater for temporary works, CIRIA Report 113, Appendix 4

$$k = \left( \log \frac{h_1}{h_2} - \log \frac{2h_1 + d}{2h_2 + d} \right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} = 3.30E-06 \text{ ms}^{-1} = 0.28 \text{ m/day}$$

Hvorslev: Hvorslev (1951) Time Lag and Soil Permeability in Ground-Water Observations, Fig 18, p49

$$k = \frac{d^2 \ln \left( \frac{mL}{d} + \sqrt{\left( \frac{mL}{d} \right)^2 + 1} \right)}{8L(t_2 - t_1)} \ln \frac{H_1}{H_2} = 2.62E-07 \text{ ms}^{-1} = 0.02 \text{ m/day}$$



STRATIGRAPHIC LOG	
	Fill
	Clay
	Clayey Sand
EOH @ 3m	



CLIENT:	<b>APR Consultants Ltd</b>
PROJECT:	<b>Rotomahana Development, Tarawera Road, Rotorua</b>
TITLE:	<b>Falling Head Permeability Test 4</b>

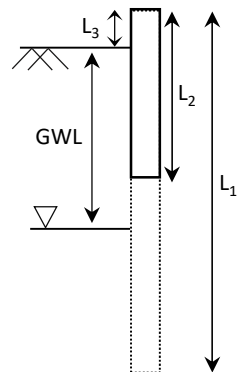
DESIGNER:	TR
CHECKED:	LP
REVISION:	0
DATE:	10/01/2021
PROJECT:	TGA2021-0299

**Specifications - Open-Ended Tube**

Length L <sub>1</sub> :	3 m
Diameter:	90 mm
Non-Perm L <sub>2</sub> :	0 m
Above Gnd L <sub>3</sub> :	0.2 m

**Ground Conditions**

GWL:	10 m BGL	(Blank = Bottom of hole)
Permeability Anisotropy m:	1	$m = \sqrt{k_h/k_v}$
Bottom of Test Hole:	2.80 m BGL	



**Hydraulic Conductivity (k)**

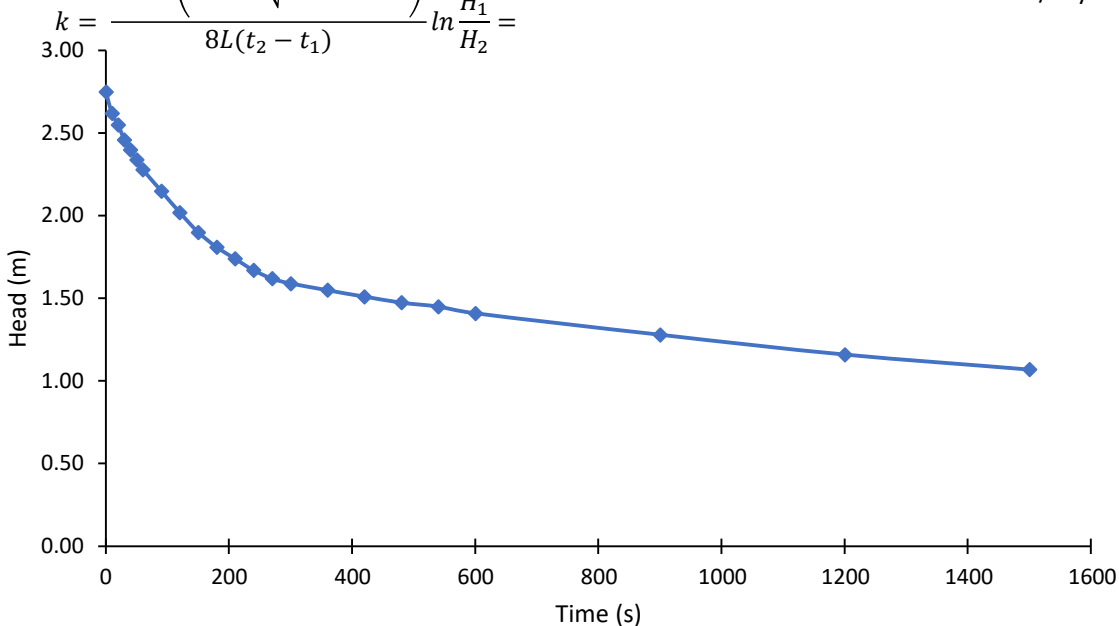
Note: CMW considers the CIRIA 113 value the most appropriate method for most purposes, but also provides the analysis method as outlined by Hvorslev if desired.

CIRIA 113: Somerville (1986), Control of groundwater for temporary works, CIRIA Report 113, Appendix 4

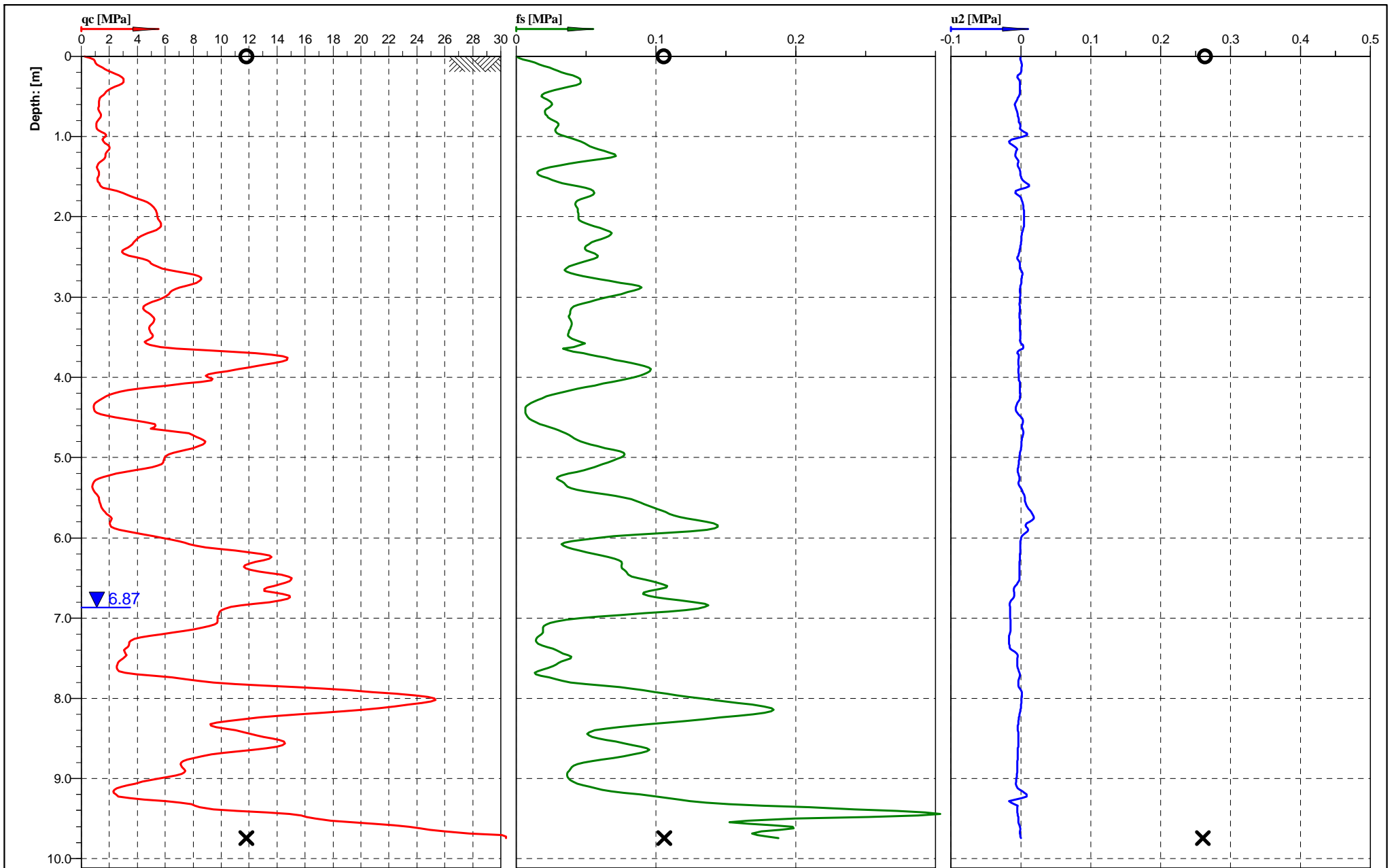
$$k = \left( \log \frac{h_1}{h_2} - \log \frac{2h_1 + d}{2h_2 + d} \right) \cdot \frac{(h_1 + h_2)}{2(t_2 - t_1)} = 5.07E-05 \text{ ms}^{-1} = 4.38 \text{ m/day}$$


Hvorslev: Hvorslev (1951) Time Lag and Soil Permeability in Ground-Water Observations, Fig 18, p49

$$k = \frac{d^2 \ln \left( \frac{mL}{d} + \sqrt{\left( \frac{mL}{d} \right)^2 + 1} \right)}{8L(t_2 - t_1)} \ln \frac{H_1}{H_2} = 4.51E-06 \text{ ms}^{-1} = 0.39 \text{ m/day}$$



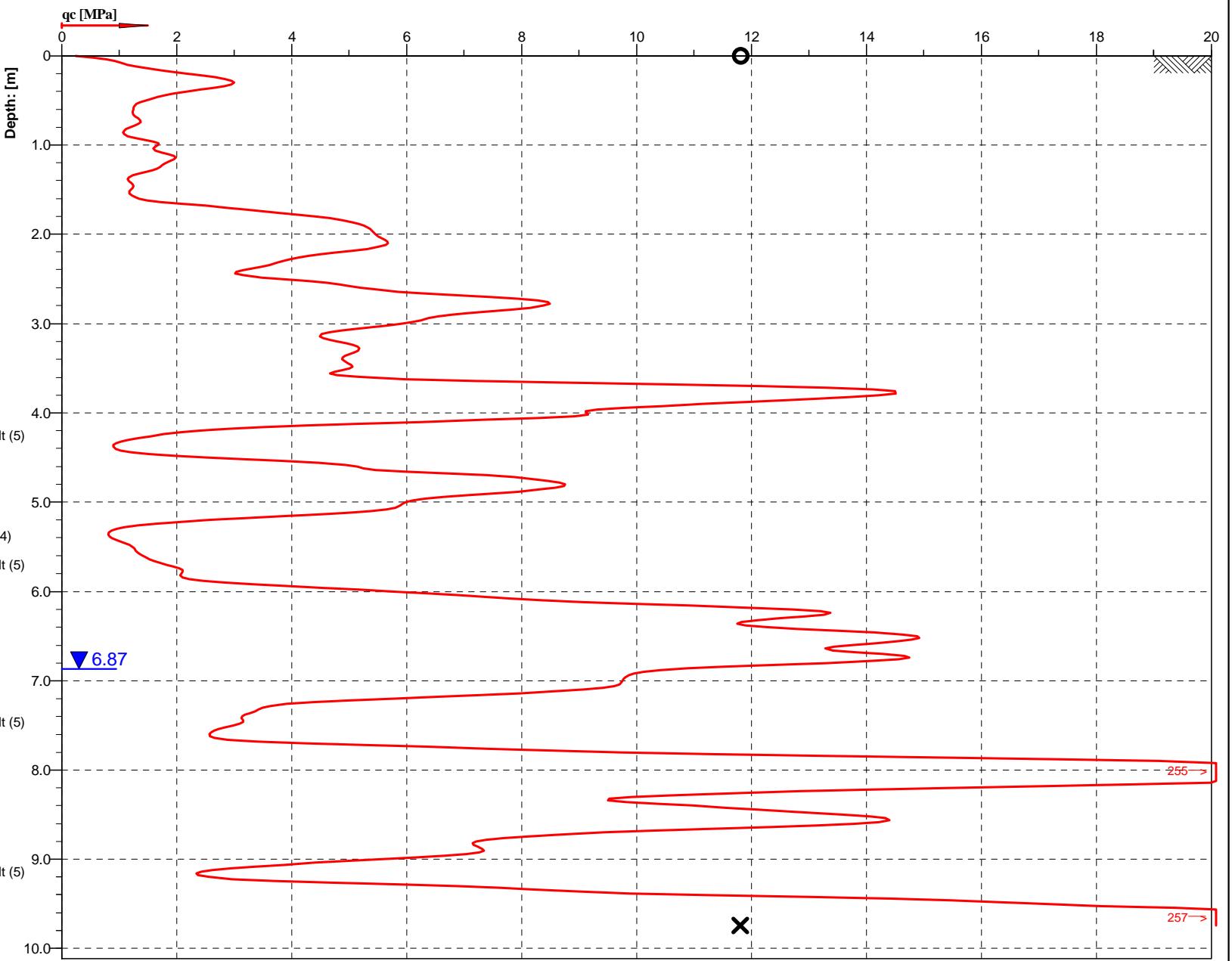
STRATIGRAPHIC LOG	
	Fill
	Clay
	Clayey Sand
EOH @ 2.8m	




  
 Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

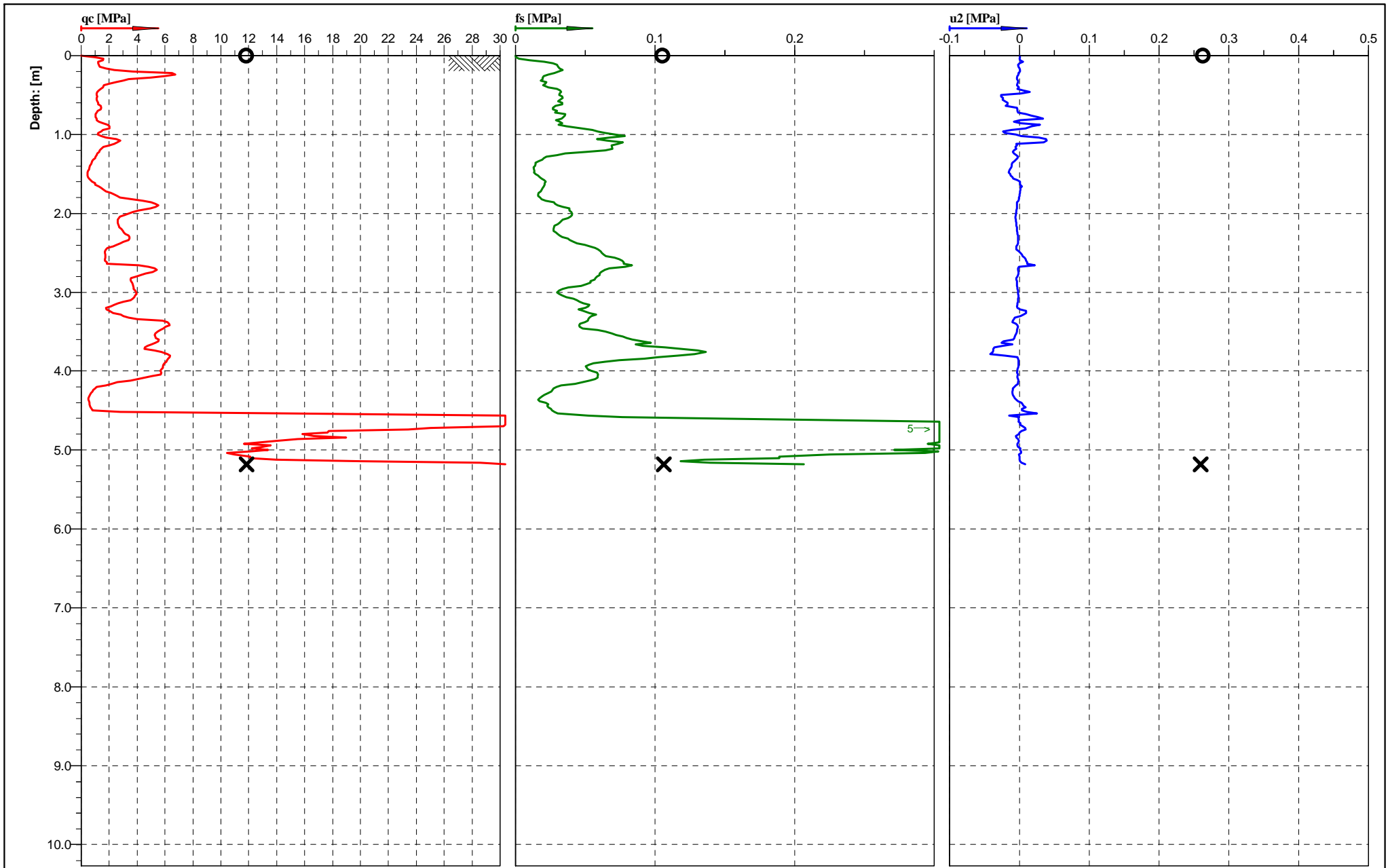
Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT01
Project ID:	S38.21218 E176.35892	Client:	CMW Geosciences Ltd	Date:	10/12/2021	Scale:	1 : 64
Project:	BURRIED VILLAGE ROTORUA			Page:	1/2	Fig.:	
Target depth 20m. Refused at 9.74m.				File:	CPT01.cpt		


**Classification by  
Robertson 1990 b**



  
 Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT01
Project ID:	S38.21218 E176.35892	Client:	CMW Geosciences Ltd	Date:	10/12/2021	Scale:	1 : 64
Project:	BURRIED VILLAGE ROTORUA			Page:	2/2	Fig.:	
Target depth 20m. Refused at 9.74m.				File:	CPT01.cpt		



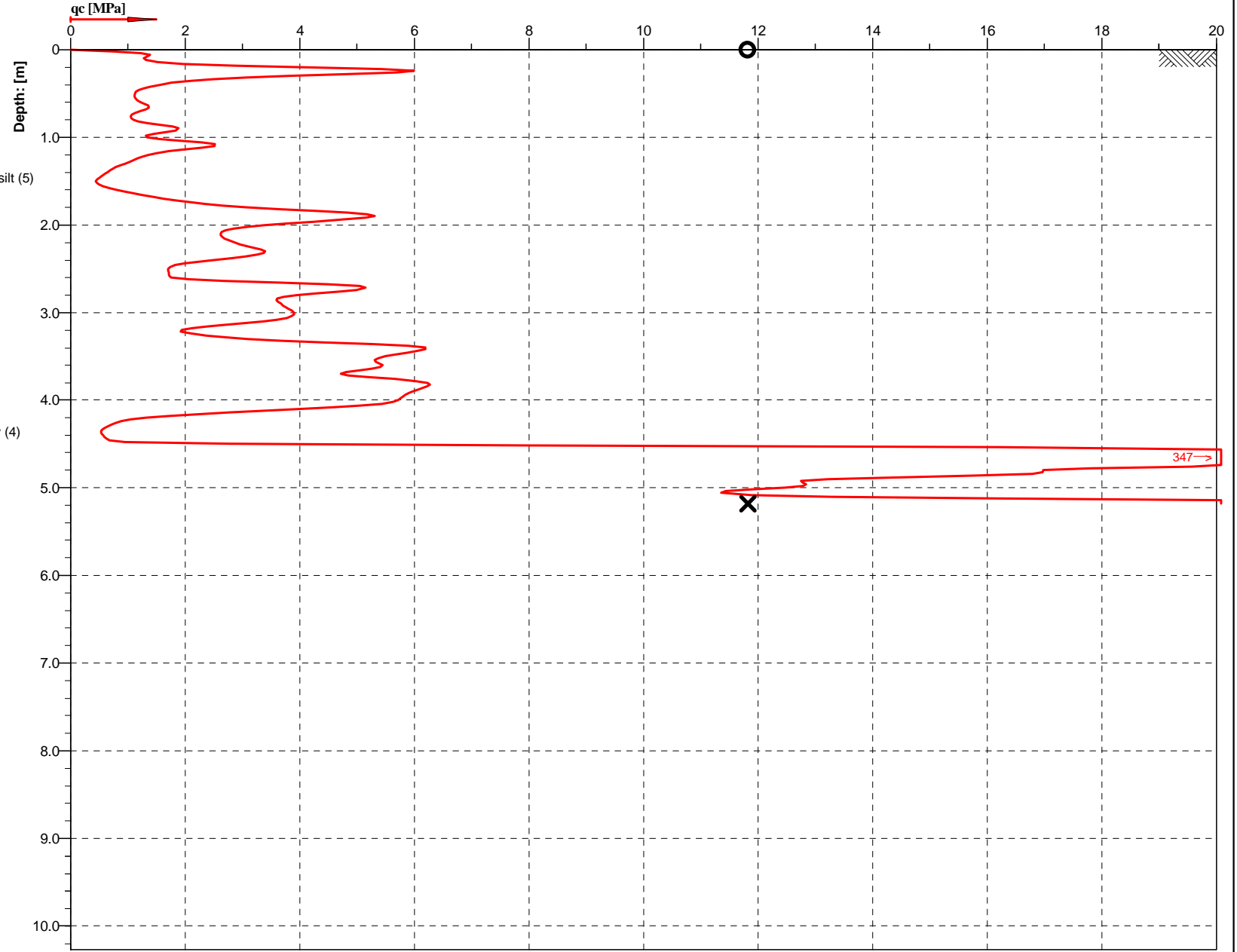
  
 Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT02
Project ID:	S38.21251 E176.35854	Client:	CMW Geosciences	Date:	10/12/2021	Scale:	1 : 65
Project:	BURRIED VILLAGE ROTORUA			Page:	1/2	Fig.:	
Target depth 20m. Refused at 5.18m. No water detected.				File:	CPT02.cpt		



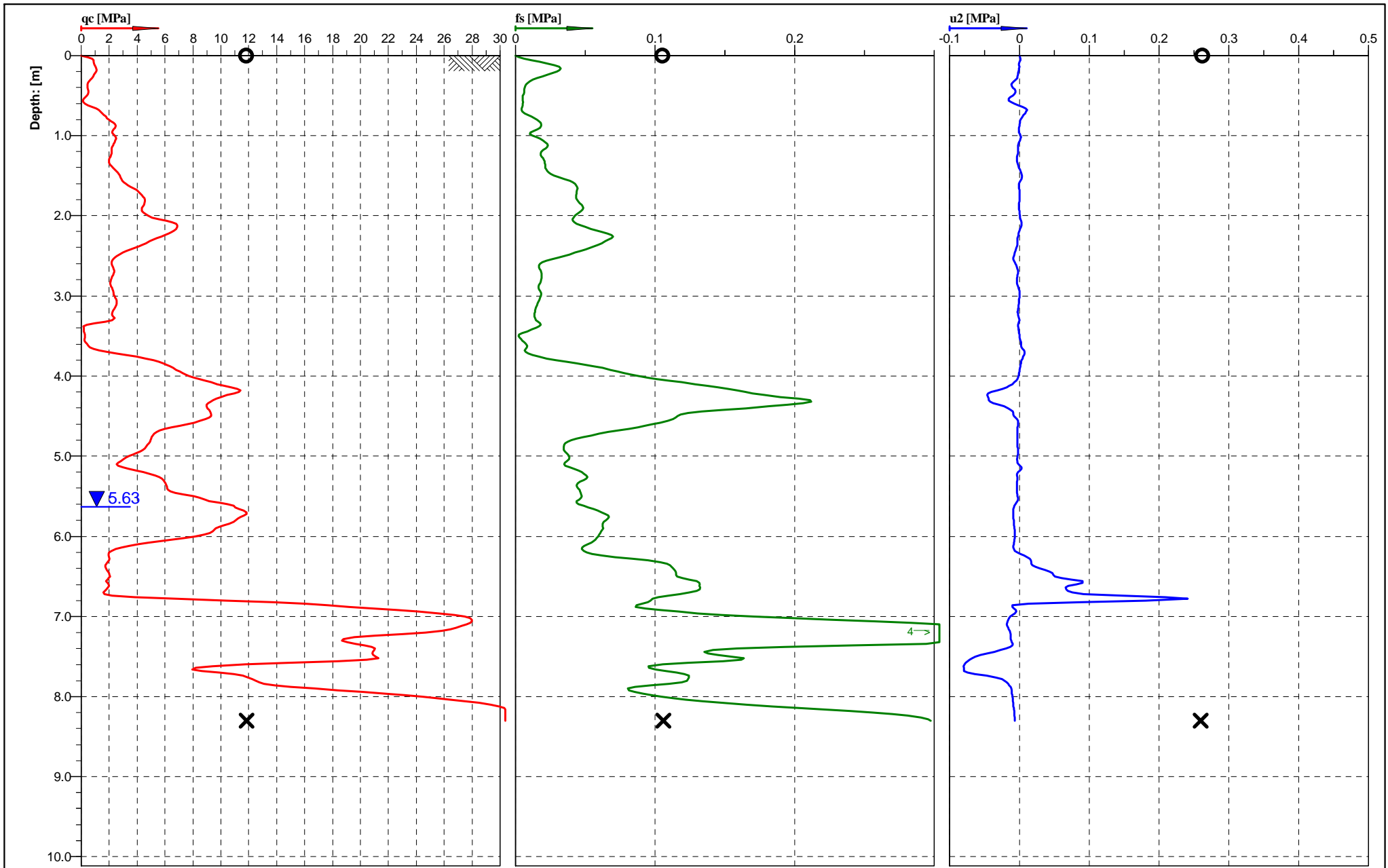
**Classification by Robertson 1990 b**

- Gravely sand to sand (7)
- Gravely sand to sand (7)
- Sands; clean sand to silty sand (6)
- Sand mixtures; silty sand to sandy silt (5)
- Sands; clean sand to silty sand (6)
- Silt mixtures; clayey silt to silty clay (4)
- Gravely sand to sand (7)
- Sands; clean sand to silty sand (6)



Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

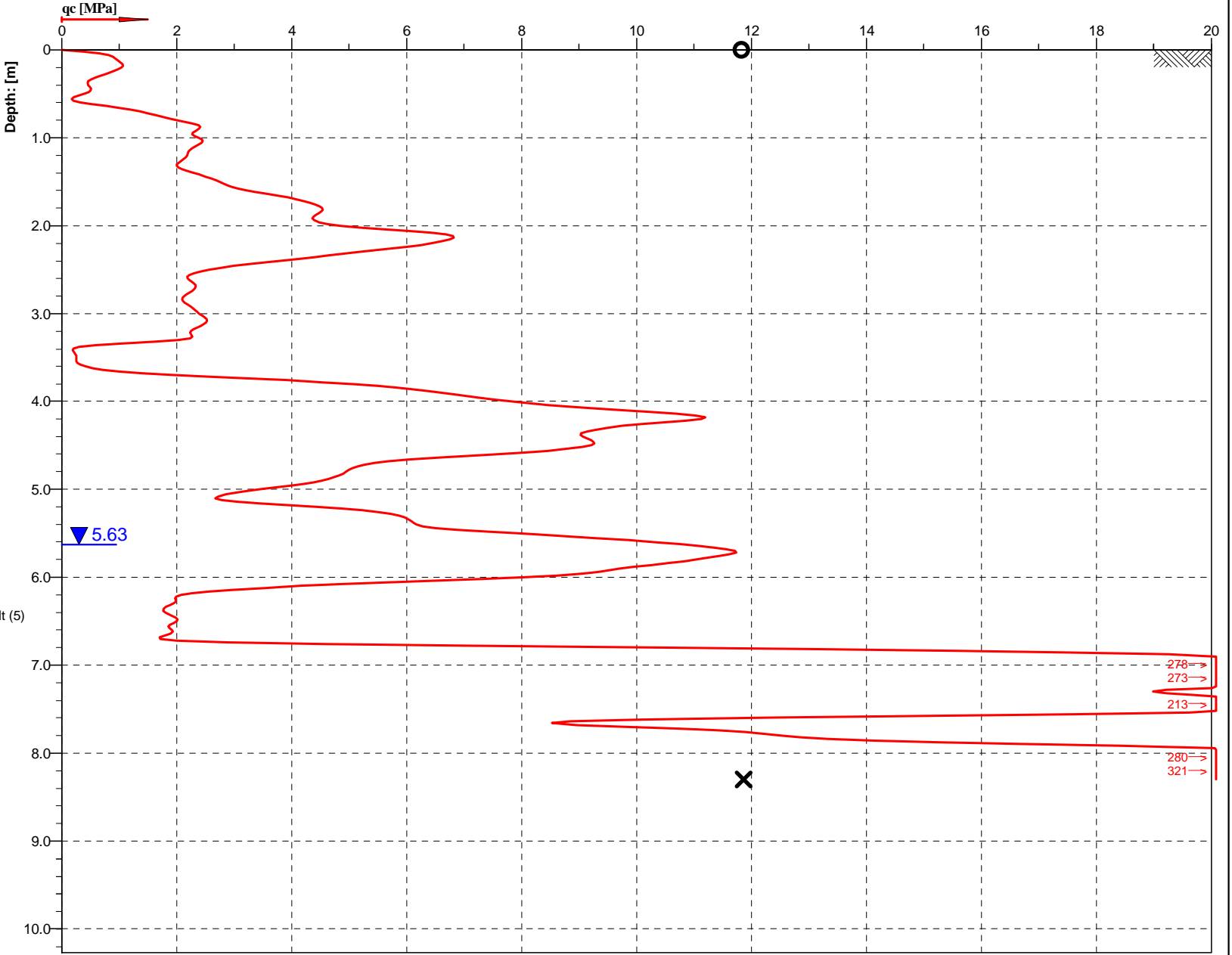
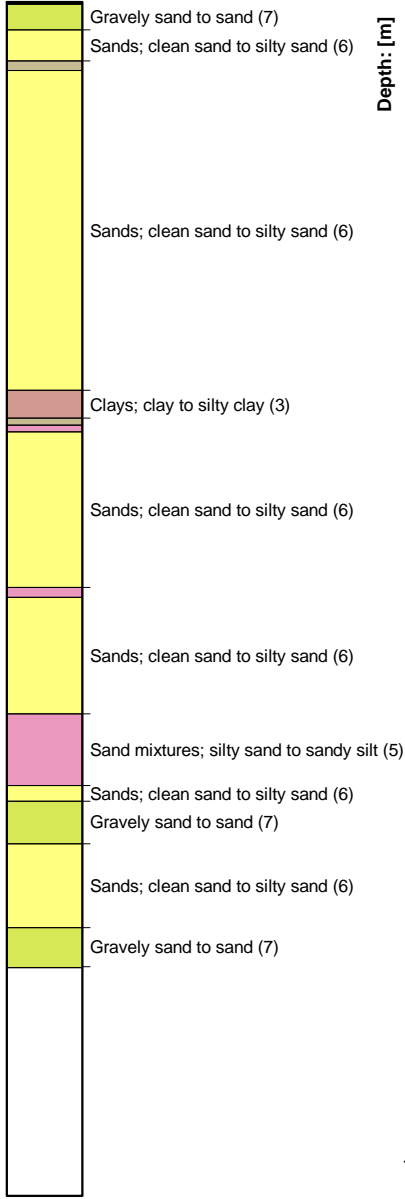
Location: Rotorua	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT02
Project ID: S38.21251 E176.35854	Client: CMW Geosciences	Date: 10/12/2021	Scale: 1 : 65
Project: BURRIED VILLAGE ROTORUA		Page: 2/2	Fig.:
Target depth 20m. Refused at 5.18m. No water detected.		File: CPT02.cpt	



Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

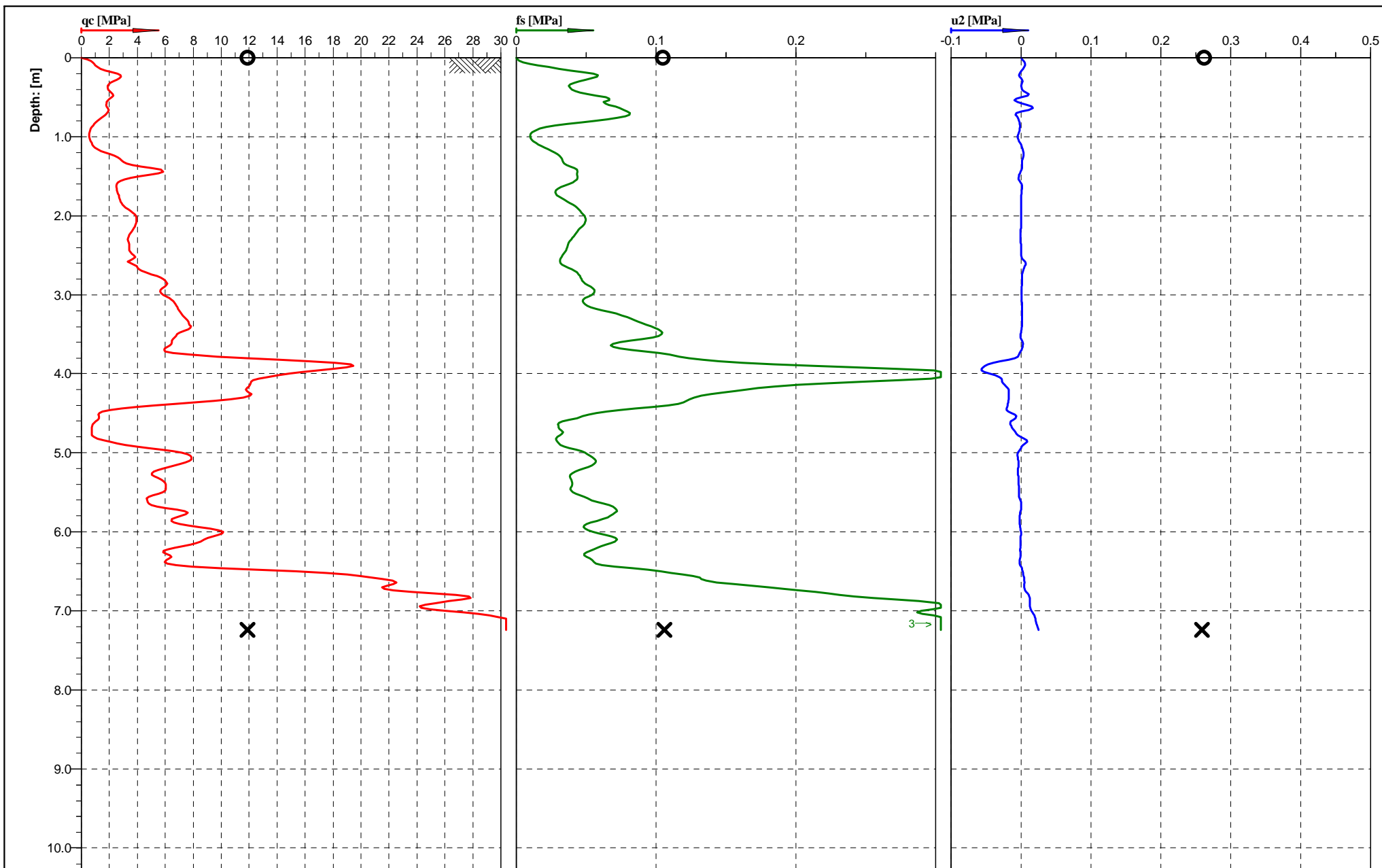
Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT03
Project ID:	S38.21259 E175.35892	Client:	CMW Geosciences Ltd	Date:	10/12/2021	Scale:	1 : 64
Project:	BURRIED VILLAHE ROTORUA			Page:	1/2	Fig.:	
Target depth 20m. Refused at 8.30m.				File:	CPT03.cpt		

**Classification by  
Robertson 1990 b**



Cone No: 5603  
Tip area [cm<sup>2</sup>]: 10  
Sleeve area [cm<sup>2</sup>]: 150

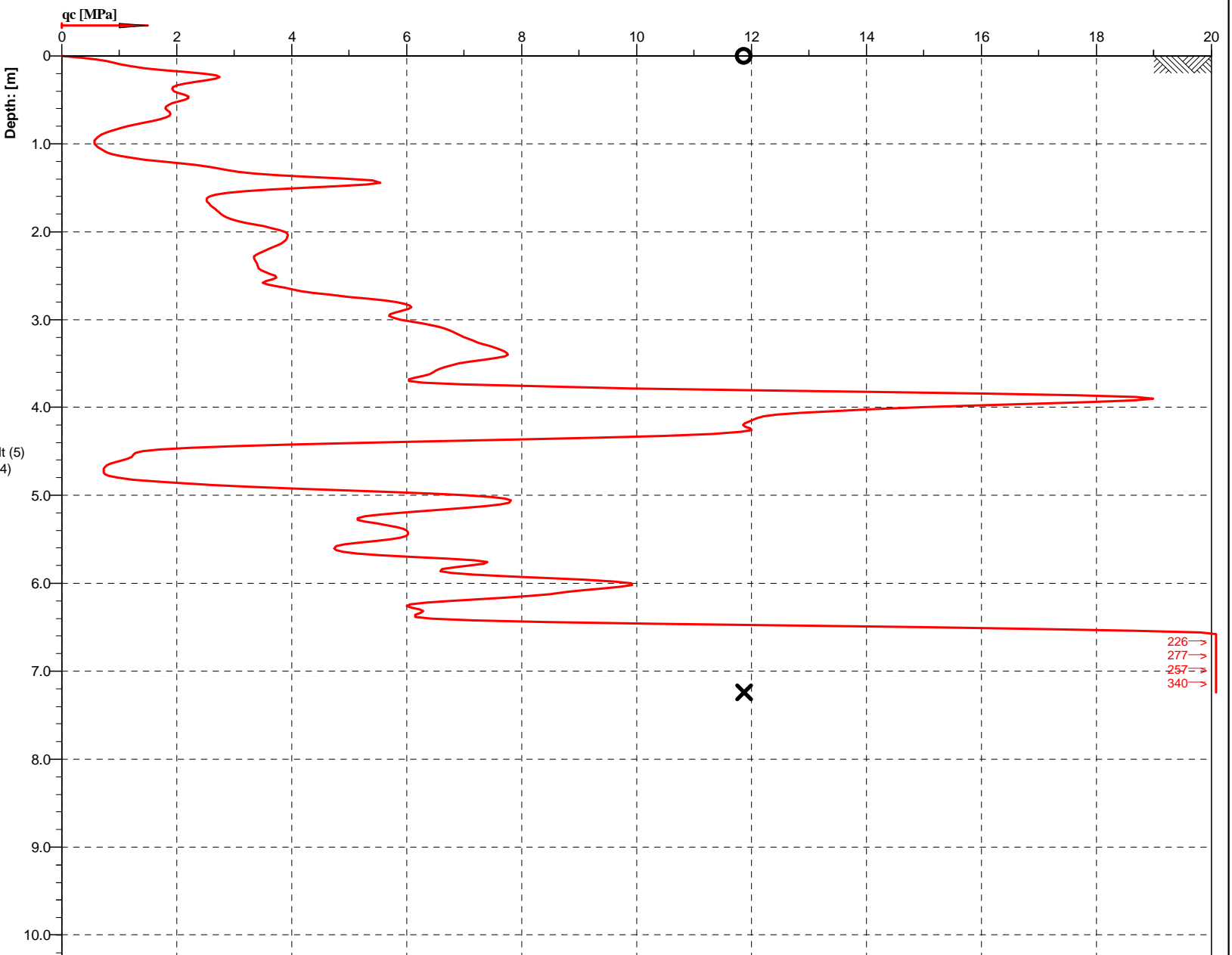
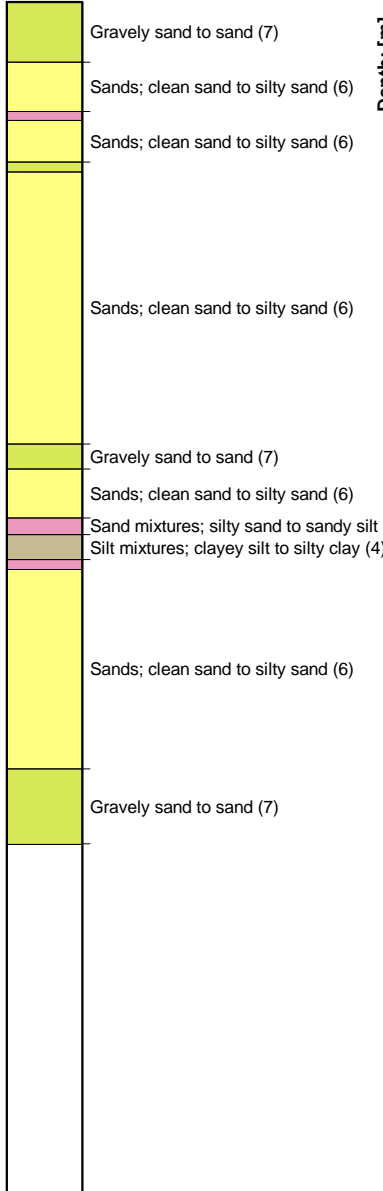
Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT03
Project ID:	S38.21259 E175.35892	Client:	CMW Geosciences Ltd	Date:	10/12/2021	Scale:	1 : 65
Project:	BURRIED VILLAHE ROTORUA			Page:	2/2	Fig.:	
Target depth 20m. Refused at 8.30m.				File:	CPT03.cpt		



Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT04
Project ID:	S38.21276 E176.35927	Client:	CMW Geosciences	Date:	10/12/2021	Scale:	1 : 65
Project:	BURRIED VILLAGE ROTORUA			Page:	1/2	Fig.:	
Target depth 20m. Refused at 7.24m. No water detected.				File:	CPT04.cpt		

**Classification by  
Robertson 1990 b**

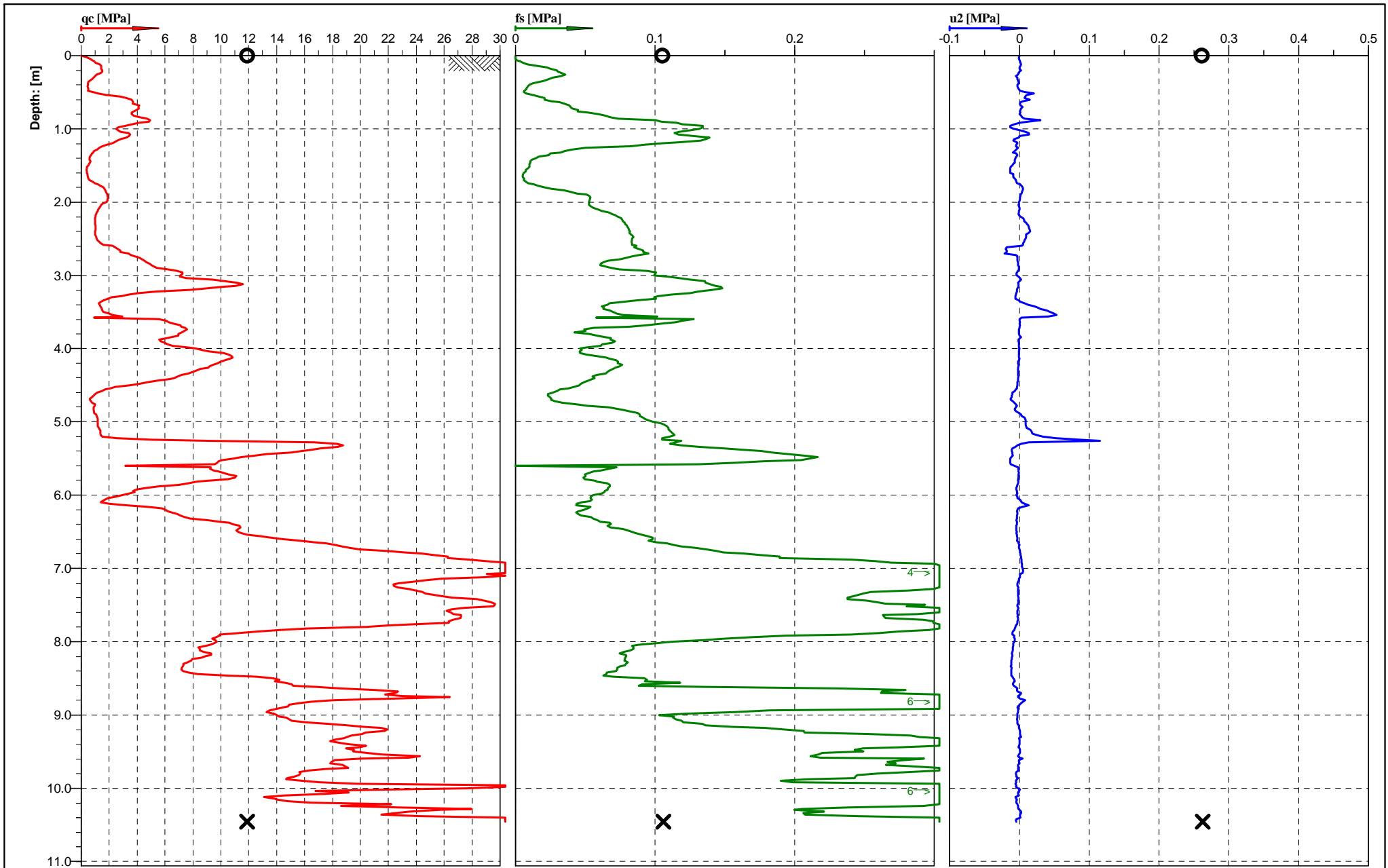



226 →  
277 →  
257 →  
340 →



Cone No: 5603  
Tip area [cm<sup>2</sup>]: 10  
Sleeve area [cm<sup>2</sup>]: 150

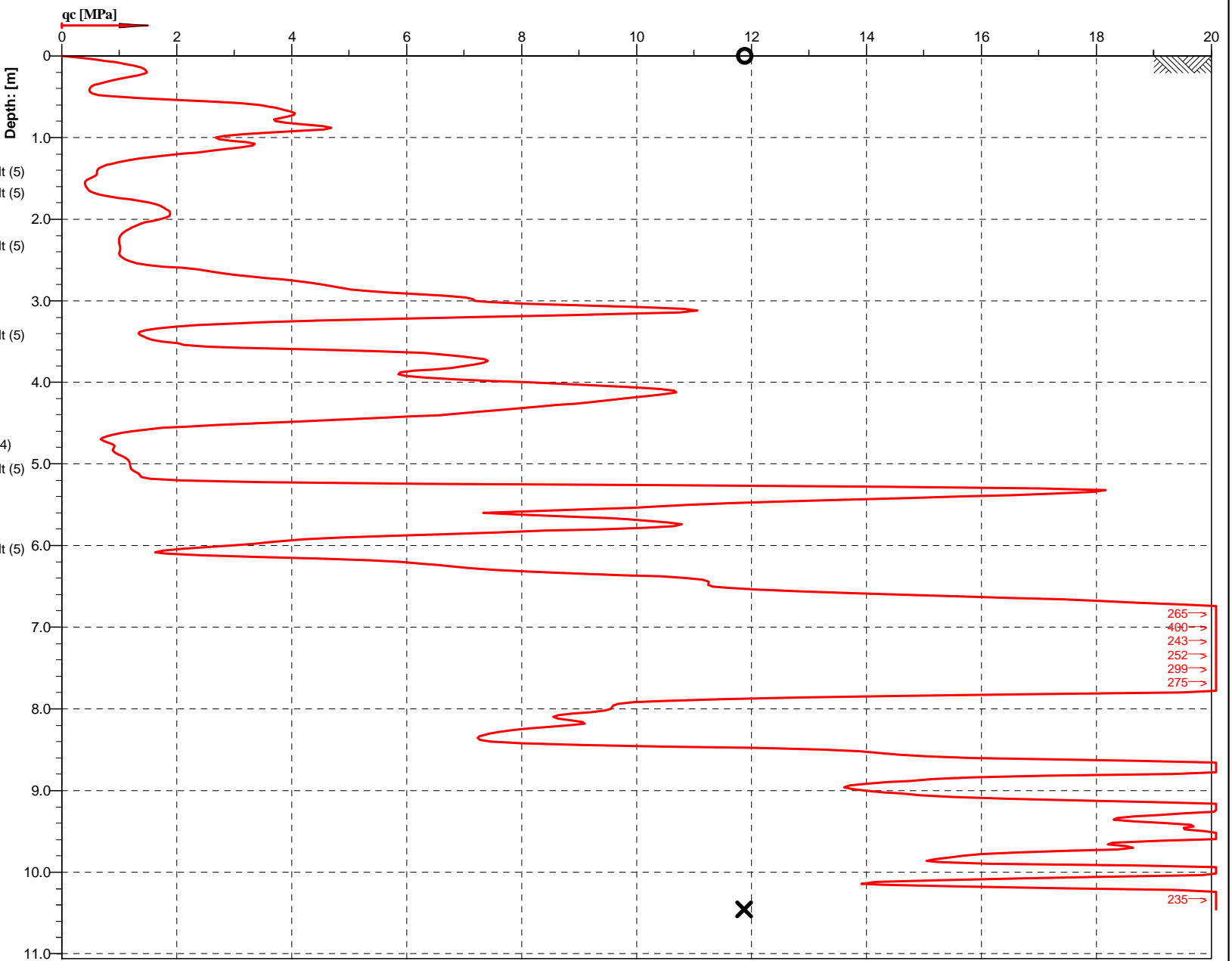
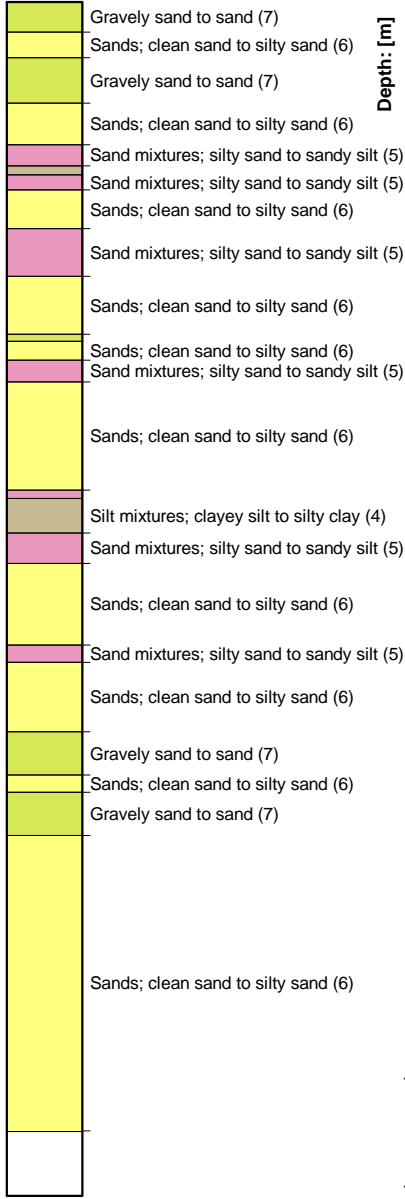
Location: Rotorua	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT04
Project ID: S38.21276 E176.35927	Client: CMW Geosciences	Date: 10/12/2021	Scale: 1 : 65
Project: BURRIED VILLAGE ROTORUA		Page: 2/2	Fig.:
Target depth 20m. Refused at 7.24m. No water detected.			File: CPT04.cpt




  
 Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

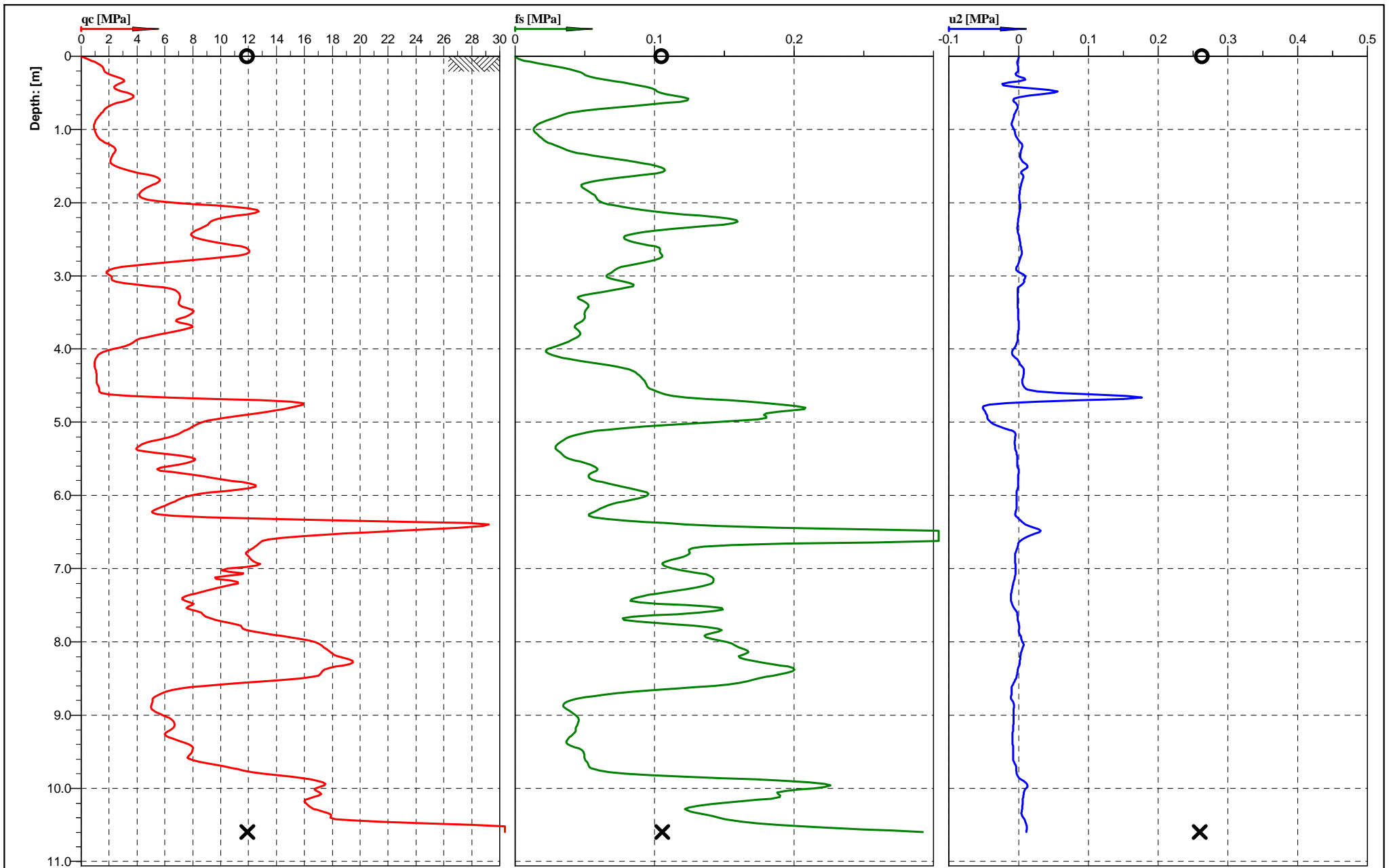
Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT05
Project ID:	S38.21306 E176.36070	Client:	CMW Geosciences Ltd	Date:	10/12/2021	Scale:	1 : 70
Project:	BURRIED VILLAGE ROTORUA			Page:	1/2	Fig.:	
Tagret depth 20m. Refused at 10.46m. No water detected.				File:	CPT05.cpt		

**Classification by Robertson 1990 b**



  
 Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

Location: Rotorua	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT05
Project ID: S38.21306 E176.36070	Client: CMW Geosciences Ltd	Date: 10/12/2021	Scale: 1 : 70
Project: BURRIED VILLAGE ROTORUA		Page: 2/2	Fig.:
Tagret depth 20m. Refused at 10.46m. No water detected.		File: CPT05.cpt	

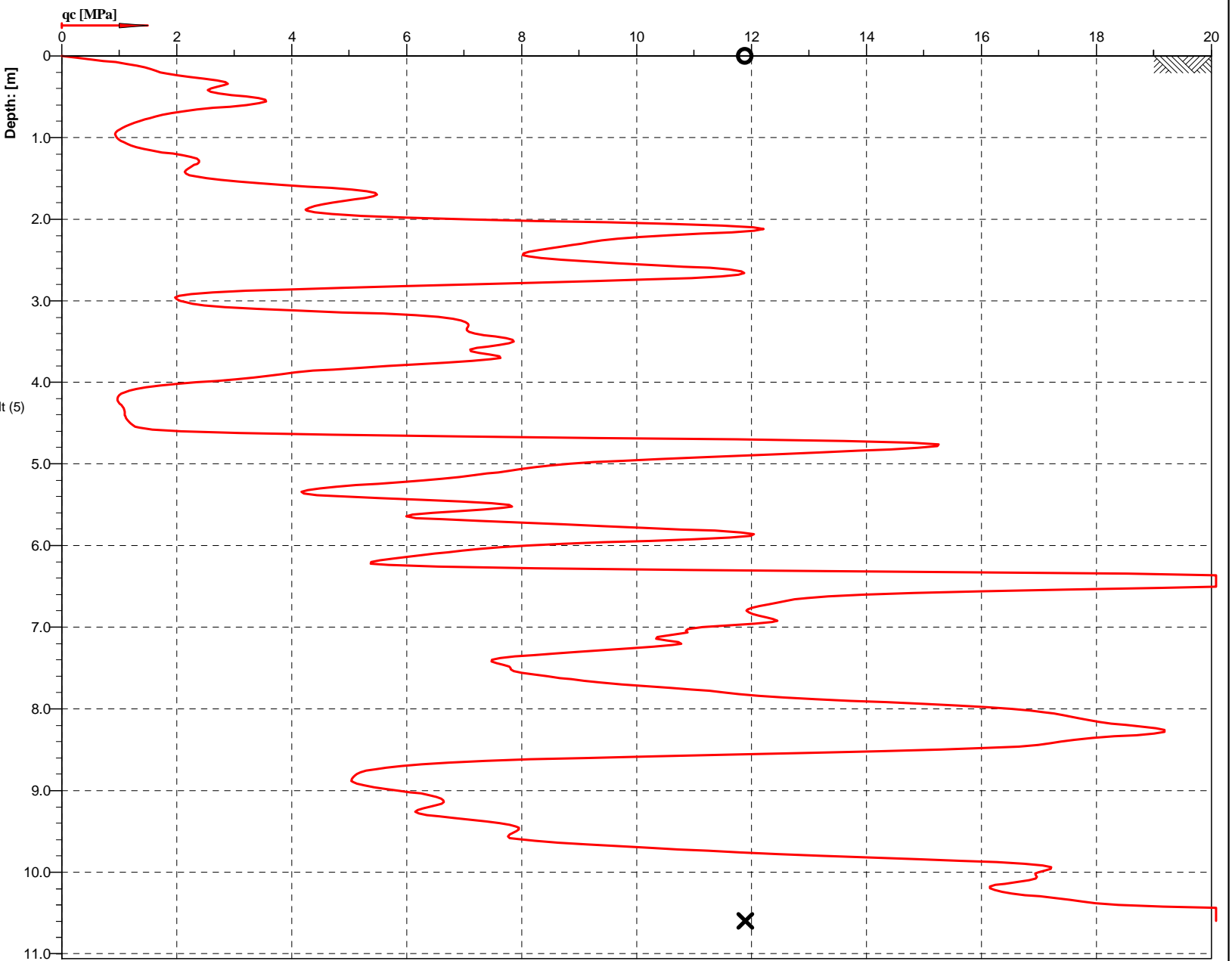
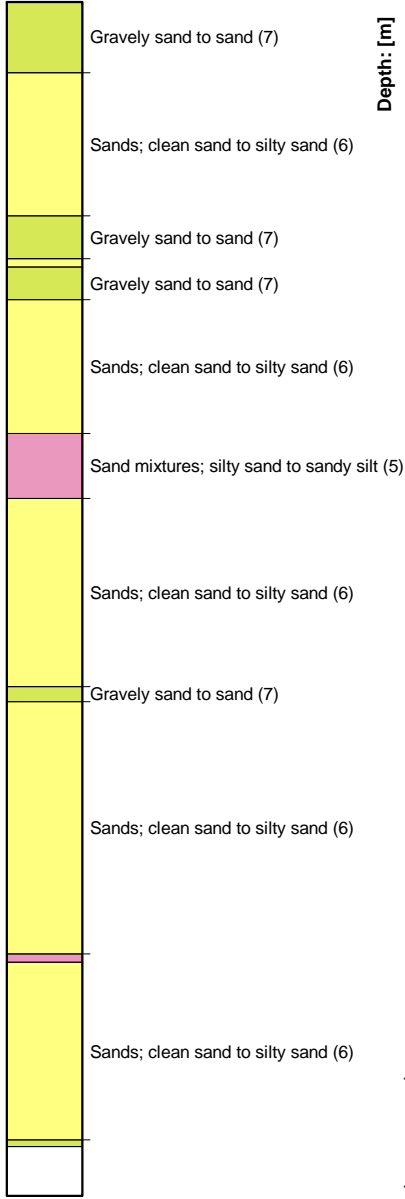


Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT06
Project ID:	S38.21306 E176.36111	Client:	CMW Geosciences Ltd	Date:	10/12/2021	Scale:	1 : 70
Project:	BURRIED VILLAGE ROTORUA			Page:	1/2	Fig.:	
Target depth 20m. Refused at 10.60m. No water detected.				File:	CPT06.cpt		

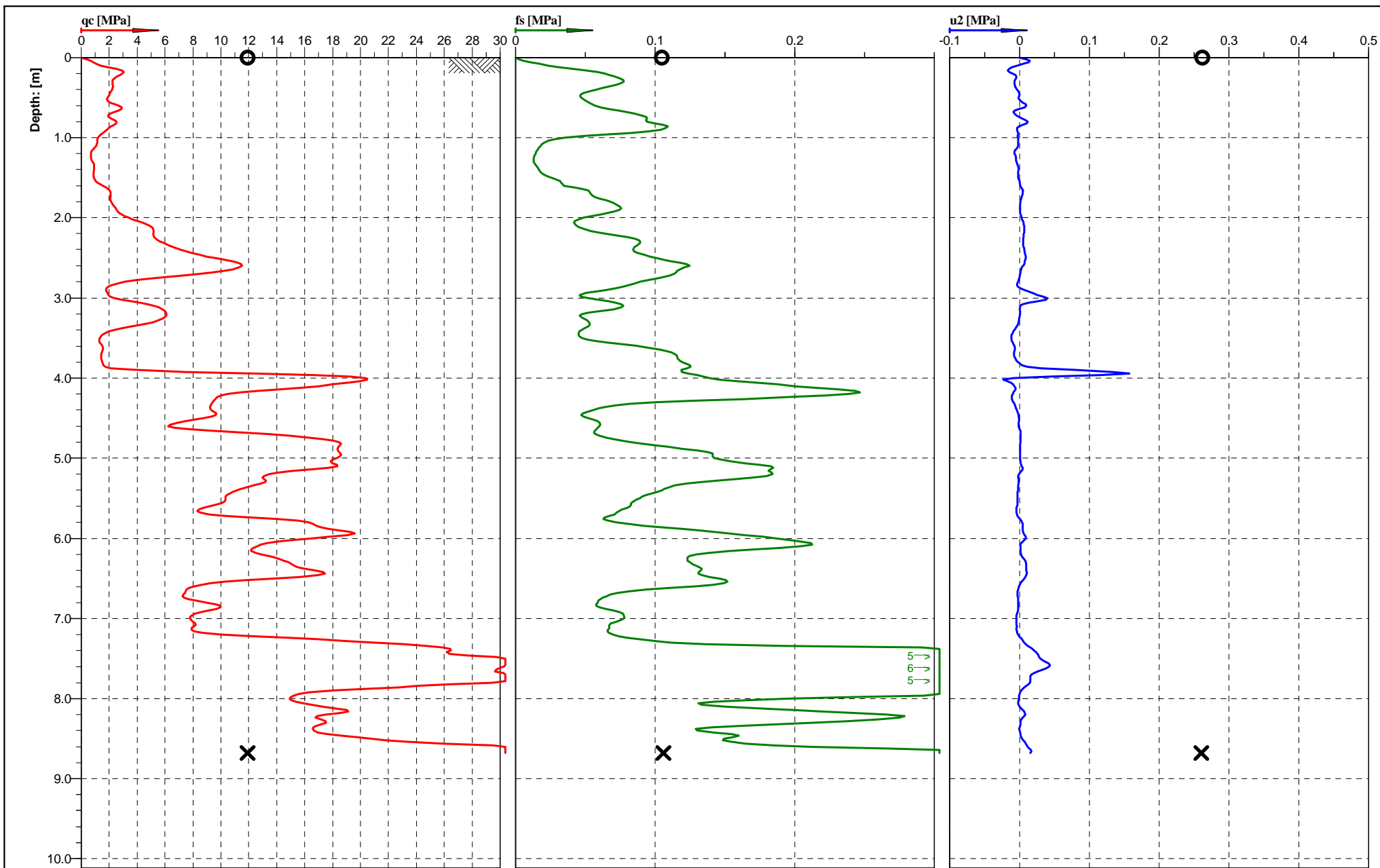



**Classification by  
Robertson 1990 b**



Cone No: 5603  
Tip area [cm<sup>2</sup>]: 10  
Sleeve area [cm<sup>2</sup>]: 150

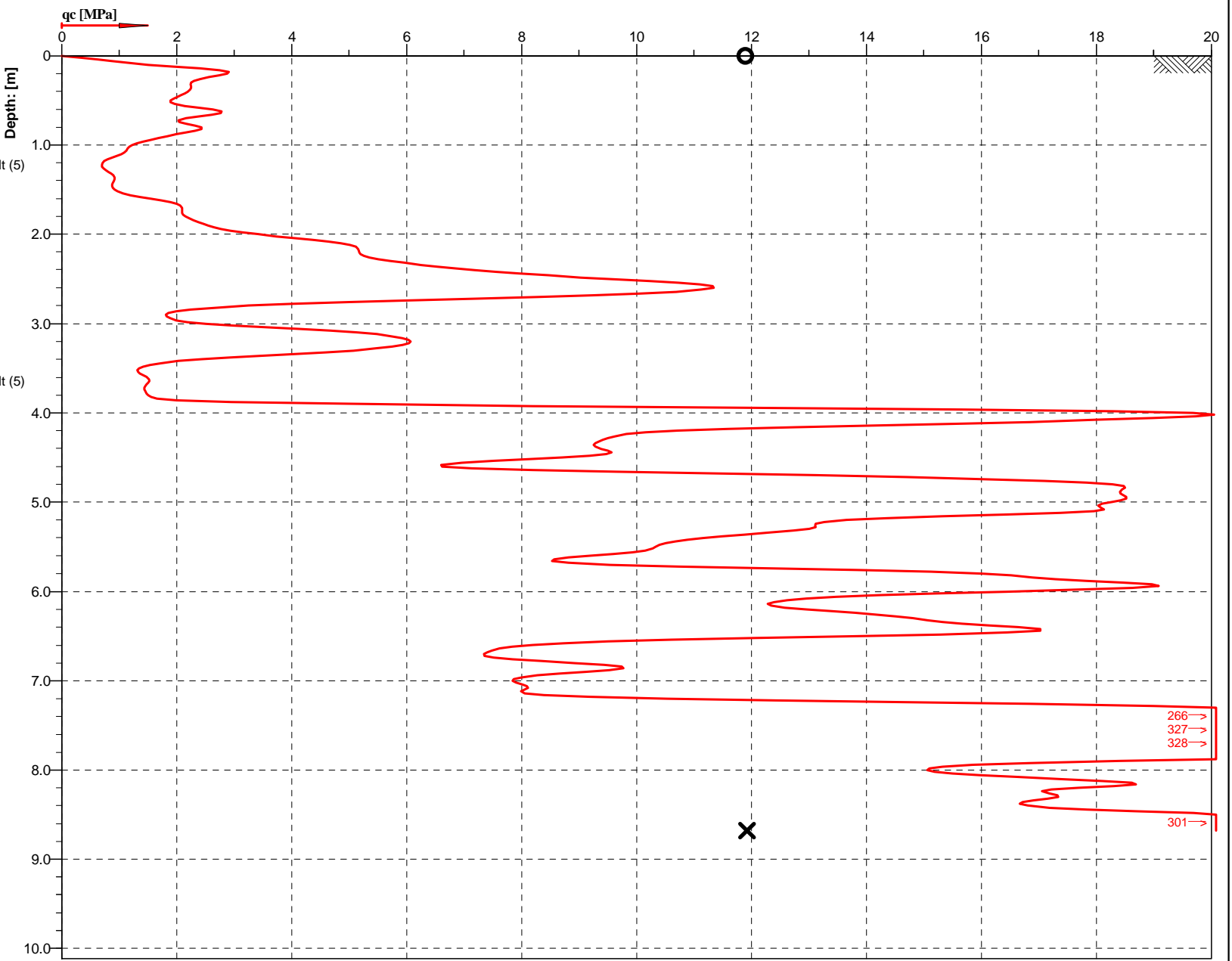
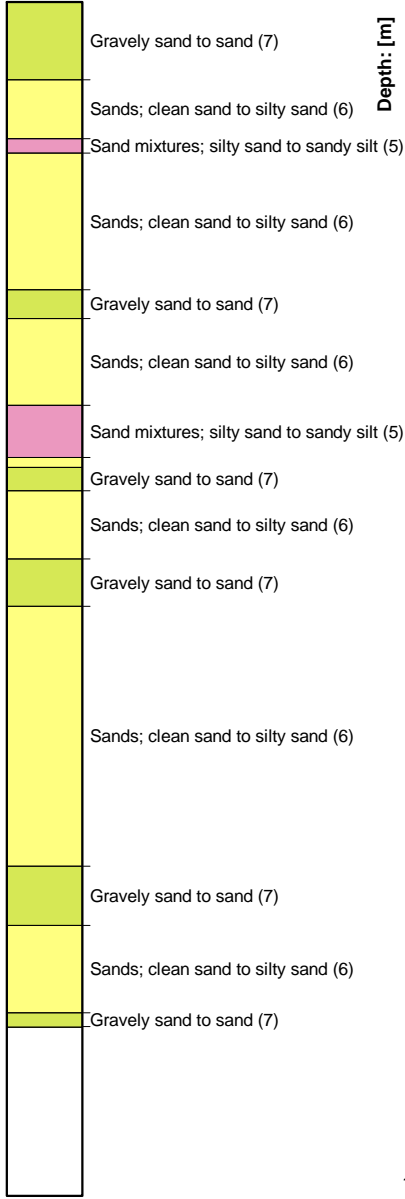
Location: Rotorua	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT06
Project ID: S38.21306 E176.36111	Client: CMW Geosciences Ltd	Date: 10/12/2021	Scale: 1 : 70
Project: BURRIED VILLAGE ROTORUA		Page: 2/2	Fig.:
Target depth 20m. Refused at 10.60m. No water detected.			File: CPT06.cpt



  
 Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

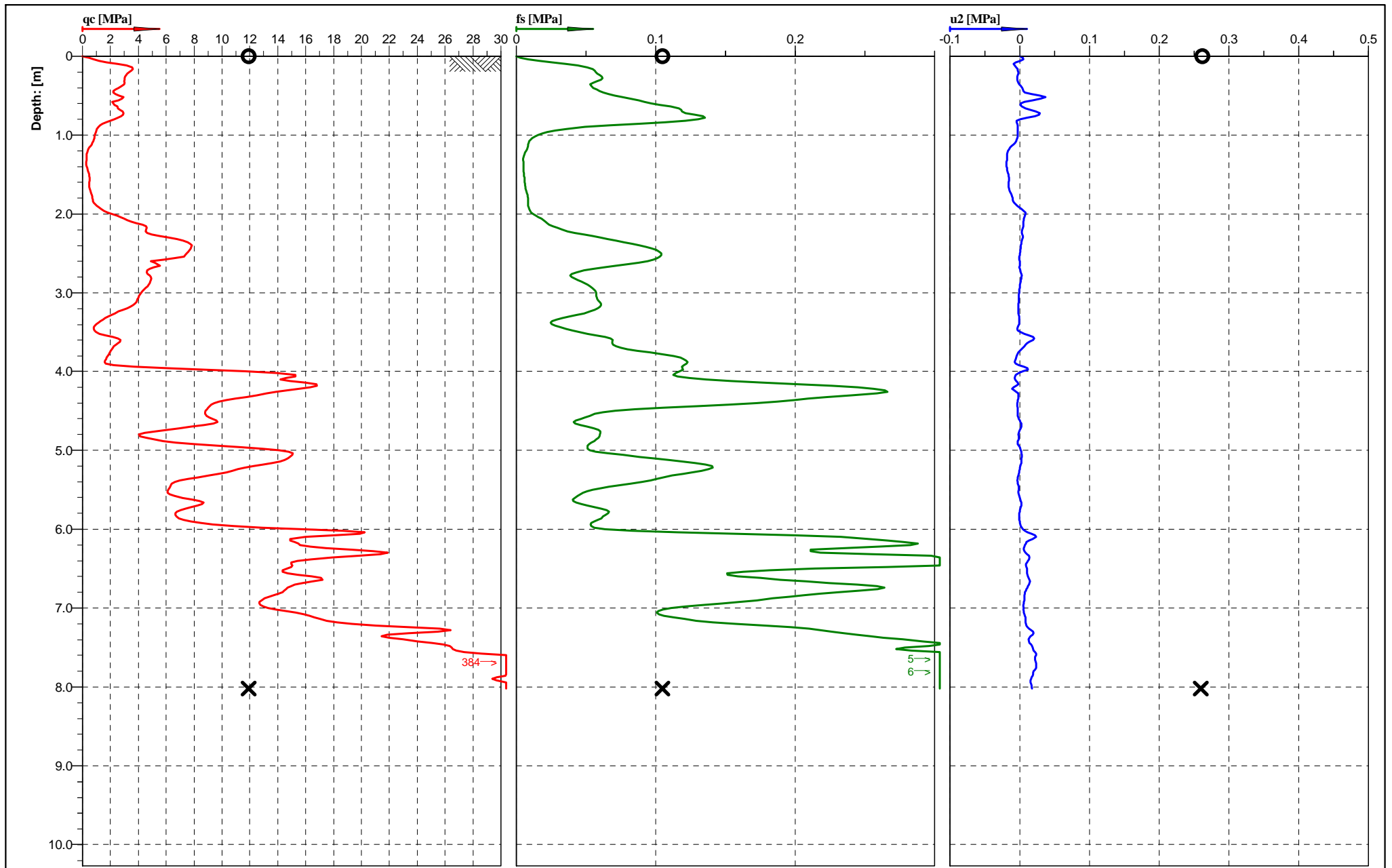
Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT07
Project ID:	S38.21287. E176.36159	Client:	CMW Geosciences Ltd	Date:	10/12/2021	Scale:	1 : 64
Project:	BURRIED VILLAGE ROTORUA			Page:	1/2	Fig.:	
Target depth 20m. Refused at 8.68m. No water detected.				File:	CPT07.cpt		


**Classification by  
Robertson 1990 b**



Cone No: 5603  
Tip area [cm<sup>2</sup>]: 10  
Sleeve area [cm<sup>2</sup>]: 150

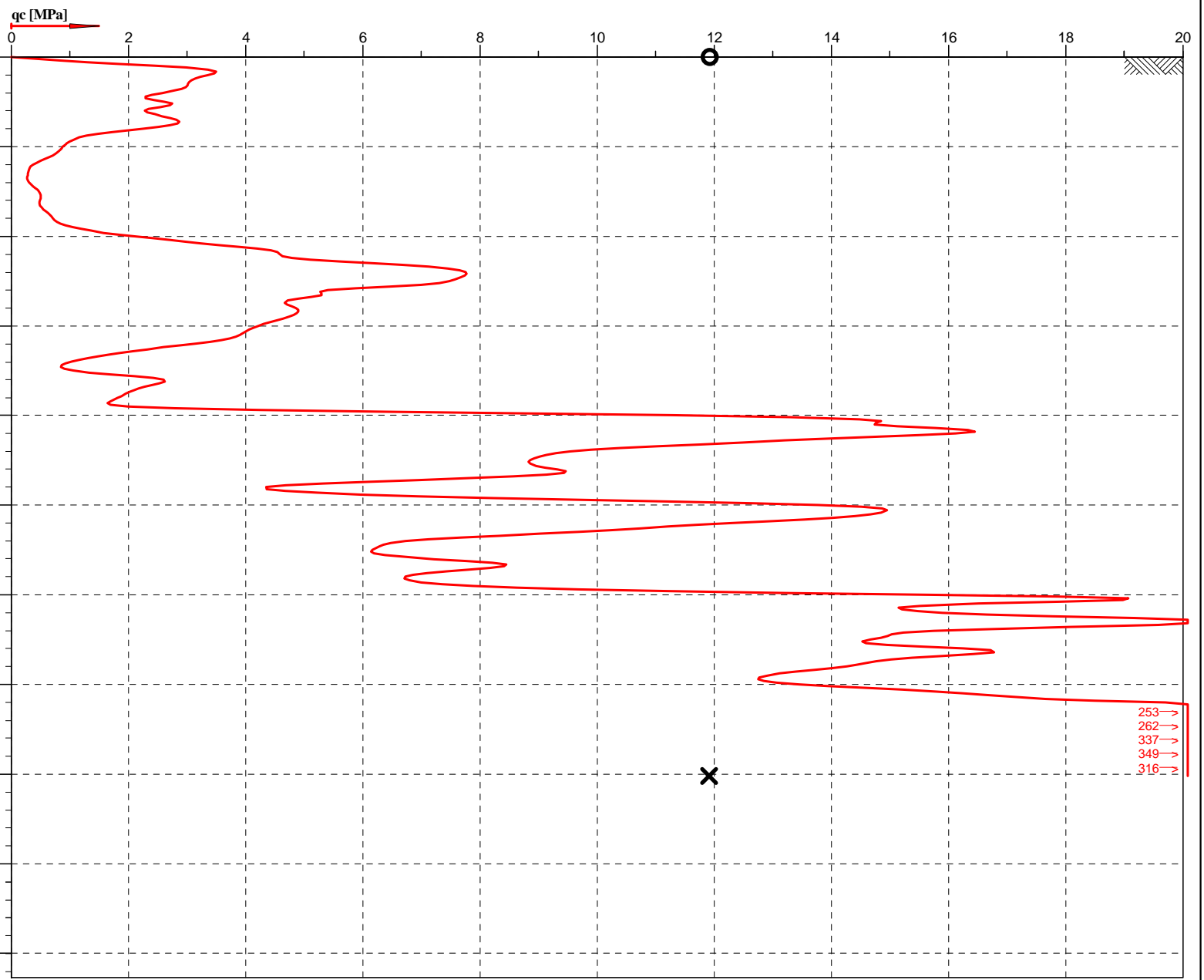
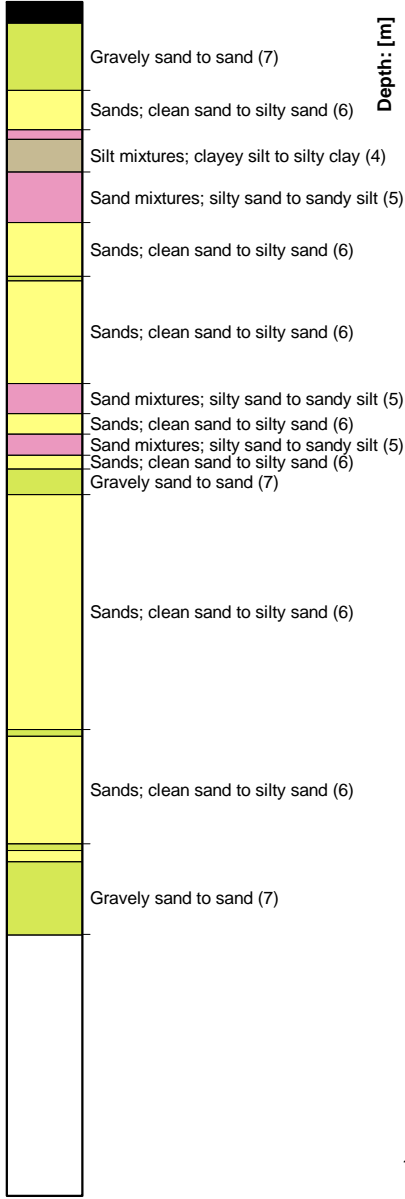
Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT07
Project ID:	S38.21287. E176.36159	Client:	CMW Geosciences Ltd	Date:	10/12/2021	Scale:	1 : 64
Project:	BURRIED VILLAGE ROTORUA			Page:	2/2	Fig.:	
Target depth 20m. Refused at 8.68m. No water detected.				File:	CPT07.cpt		



  
 Cone No: 5603  
 Tip area [cm<sup>2</sup>]: 10  
 Sleeve area [cm<sup>2</sup>]: 150

Location:	Rotorua	Position:	X: 0.00 m, Y: 0.00 m	Ground level:	0.00	Test No.:	CPT08
Project ID:	S38.21267 E176.36185	Client:	CMW Geosciences Ltd	Date:	10/12/2021	Scale:	1 : 65
Project:	BURRIED VILLAGE ROTORUA			Page:	1/2	Fig.:	
Target depth 20m. Refused at 8.02m. No water detected.				File:	CPT08.cpt		

**Classification by Robertson 1990 b**



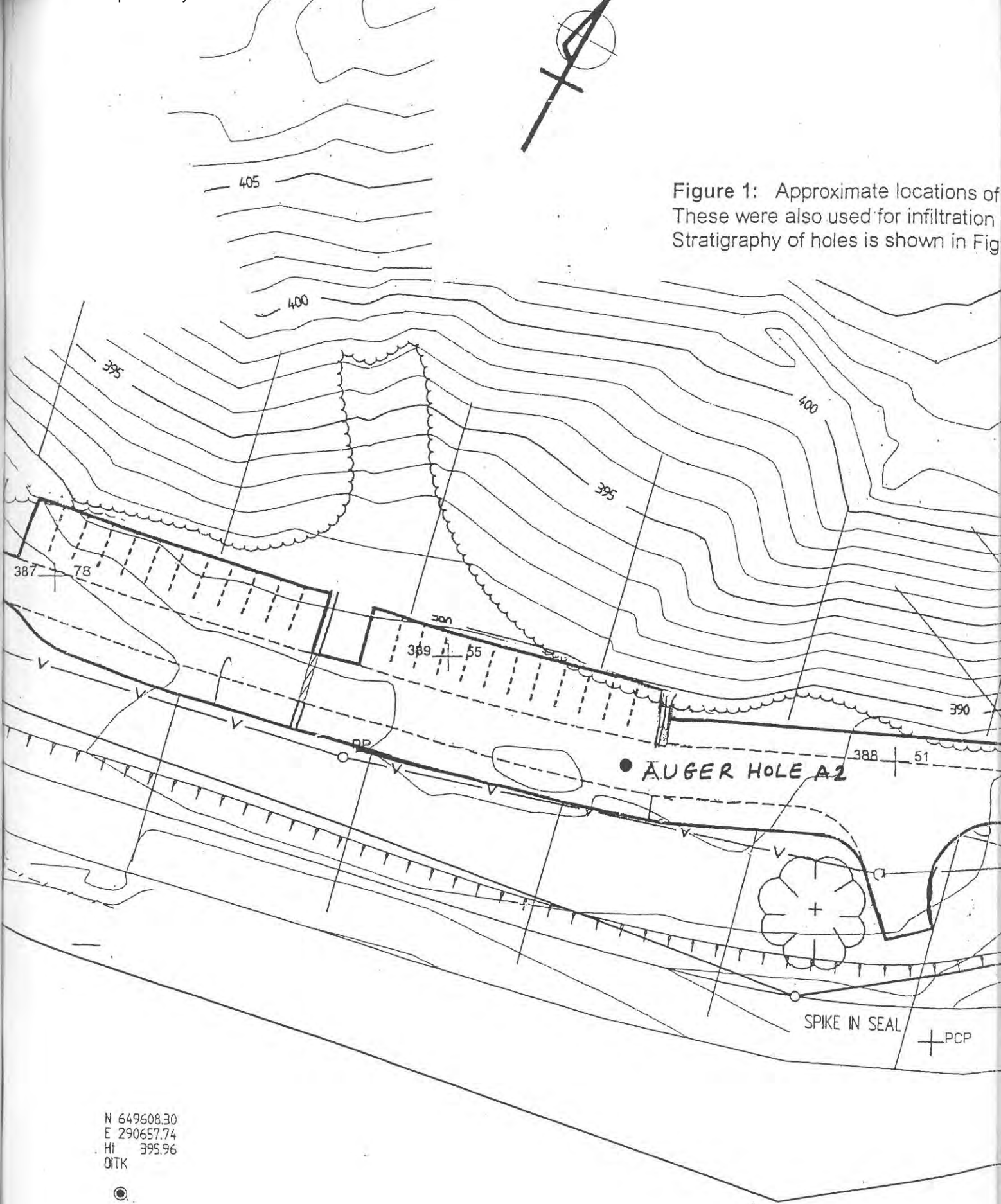
Cone No: 5603  
Tip area [cm<sup>2</sup>]: 10  
Sleeve area [cm<sup>2</sup>]: 150

Location: Rotorua	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT08
Project ID: S38.21267 E176.36185	Client: CMW Geosciences Ltd	Date: 10/12/2021	Scale: 1 : 65
Project: BURRIED VILLAGE ROTORUA		Page: 2/2	Fig.:
Target depth 20m. Refused at 8.02m. No water detected.		File: CPT08.cpt	

## Appendix D: Previous Investigation Results



Figure 1: Approximate locations of  
These were also used for infiltration  
Stratigraphy of holes is shown in Fig

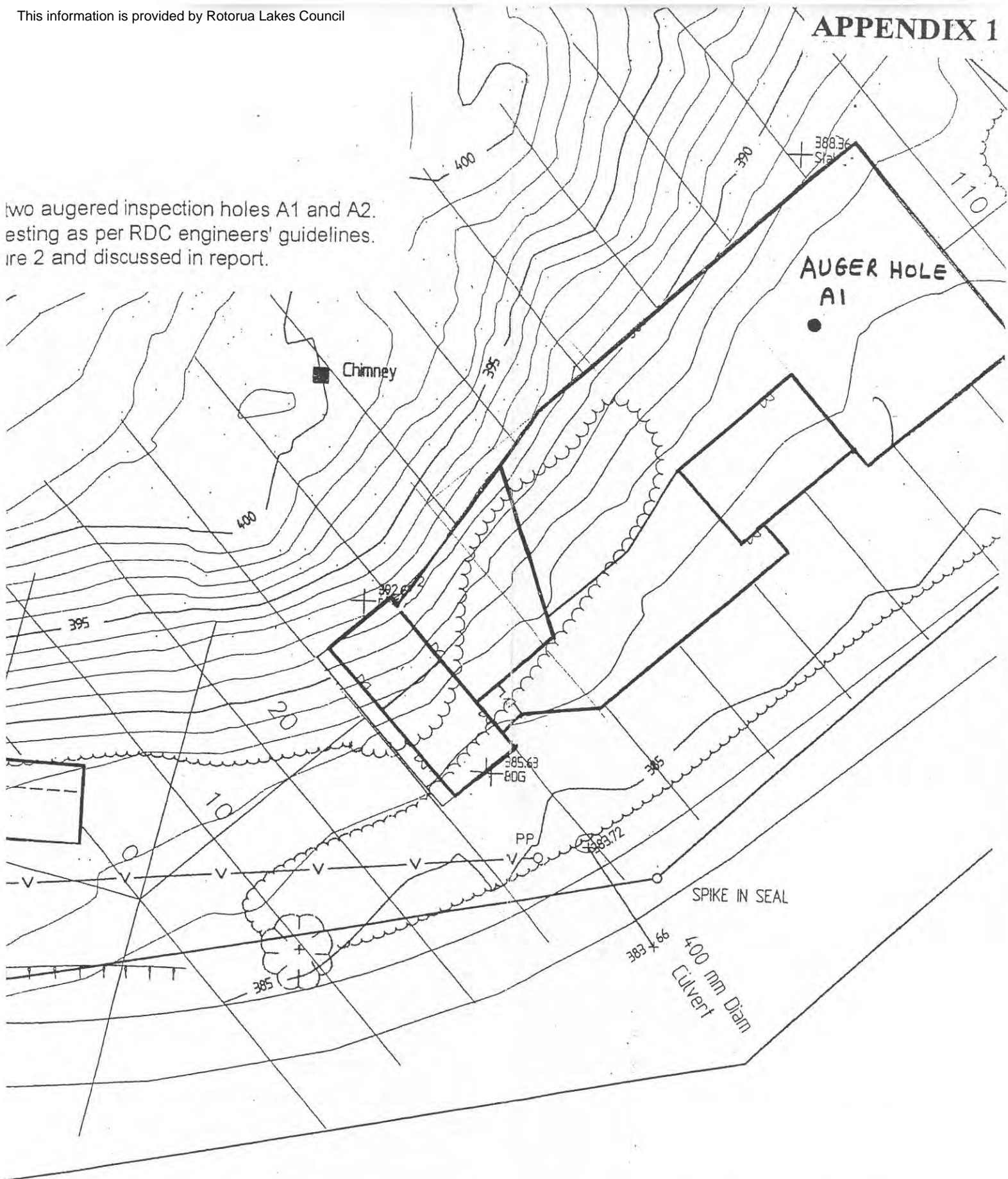


N 649608.30  
E 290657.74  
Ht 395.96  
OITK



N 649604.02  
E 290654.71  
Ht 395.29  
OIT

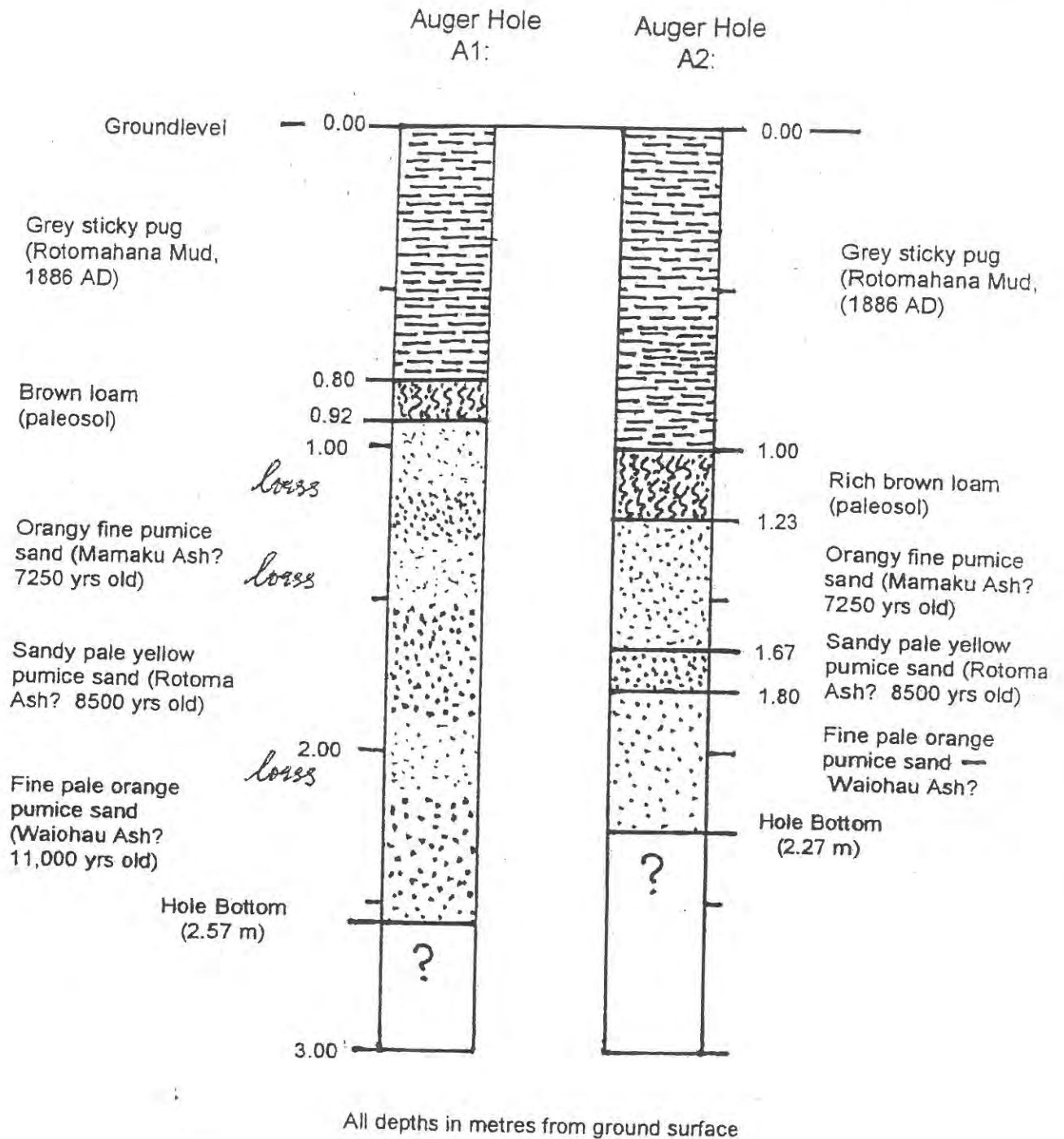
two augered inspection holes A1 and A2, existing as per RDC engineers' guidelines. Figure 2 and discussed in report.



**TARAWERA VISITOR ATTRACTION**  
**LOCATION PLAN FOR AUGERED INSPECTION HOLES**  
**SCALE: 1: 500**      **DATE: MAY 2001**

13117

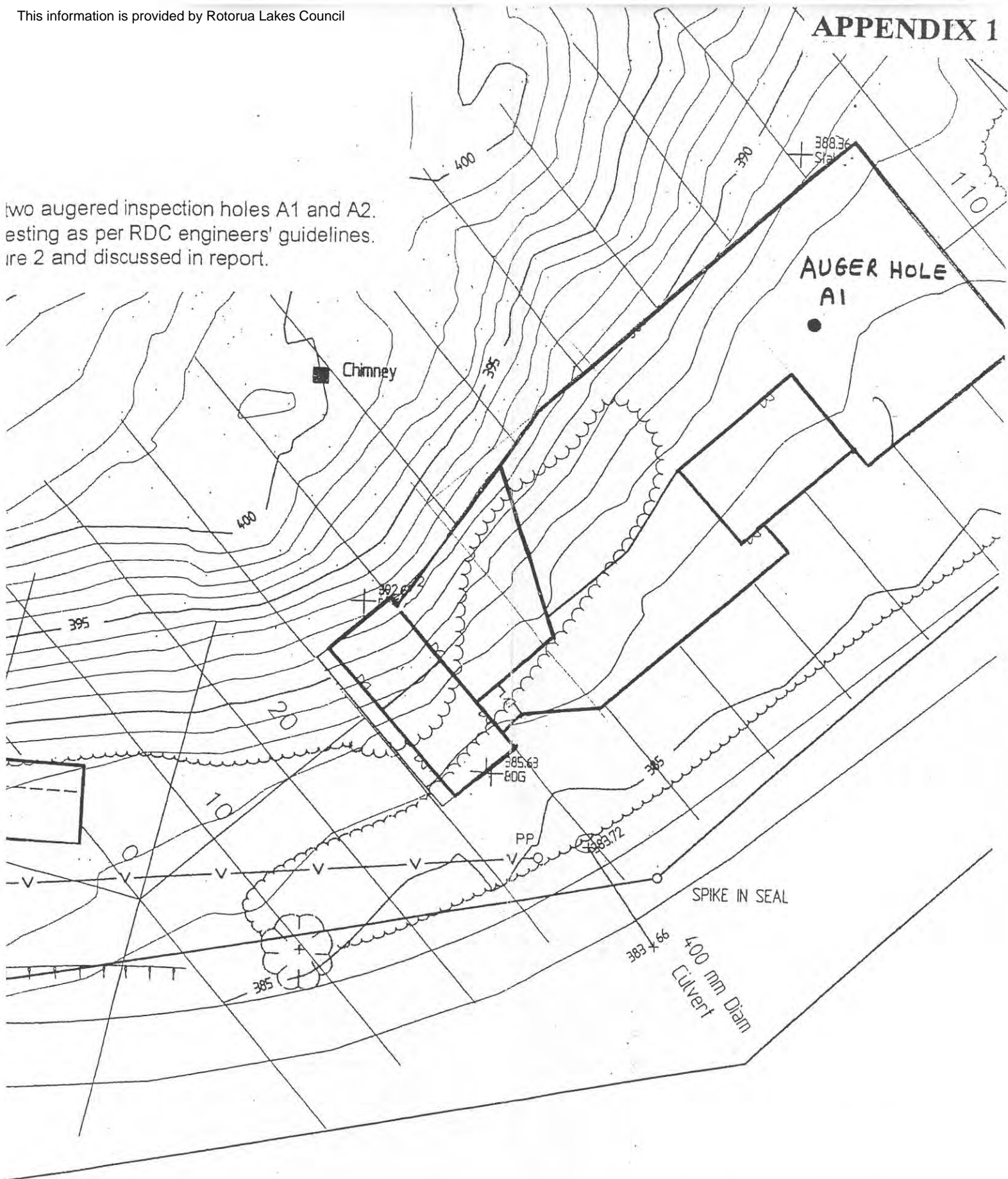




**Figure 2:** Stratigraphy of two augered holes A1 and A2. Locations shown on plan diagram in Figure 1. Holes were 130 m apart.

## **Appendix E: Selected Liquefaction Analyses Outputs**

two augered inspection holes A1 and A2, existing as per RDC engineers' guidelines. Figure 2 and discussed in report.



**TARAWERA VISITOR ATTRACTION**  
**LOCATION PLAN FOR AUGERED INSPECTION HOLES**  
**SCALE: 1: 500**      **DATE: MAY 2001**

13117

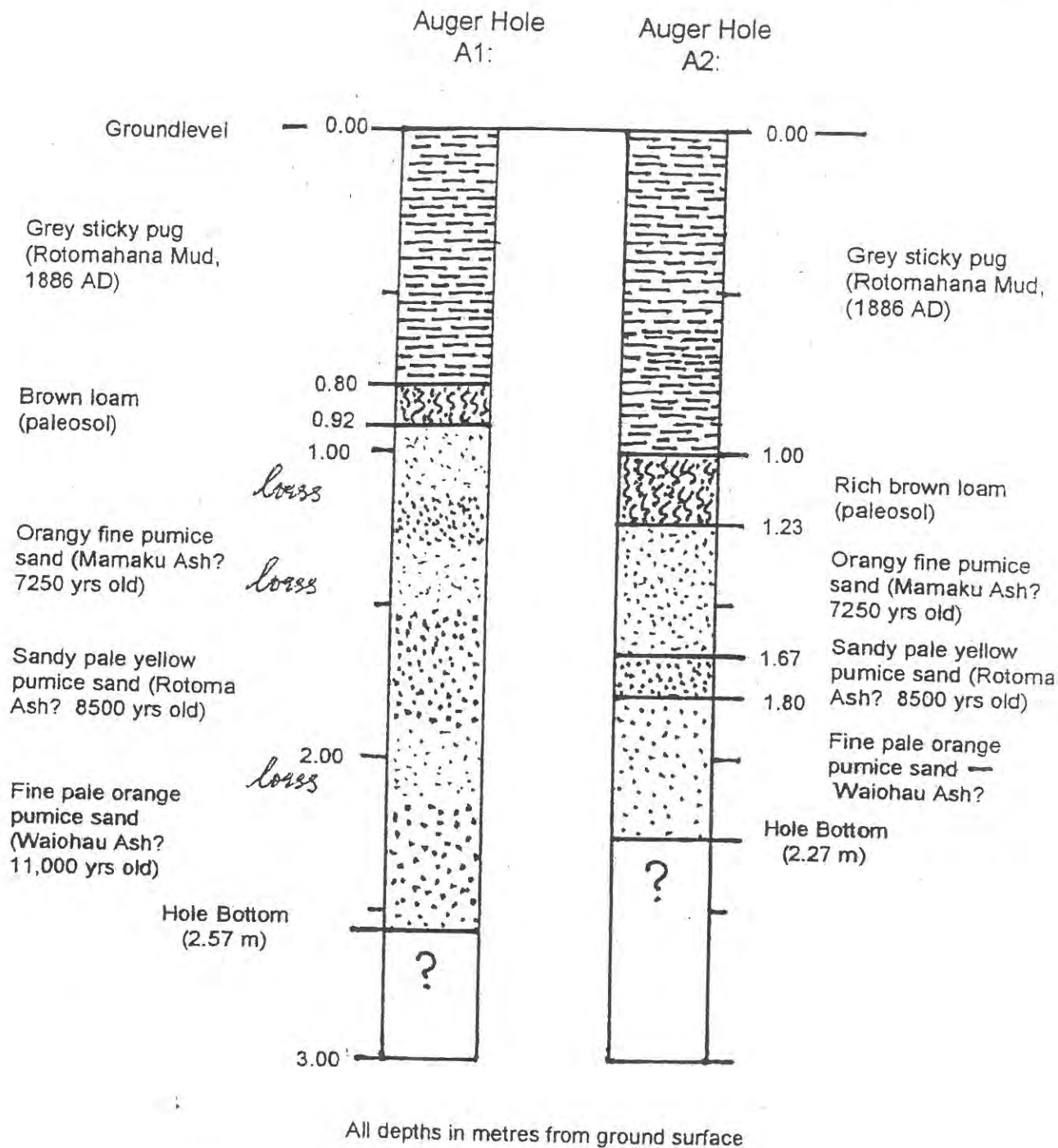
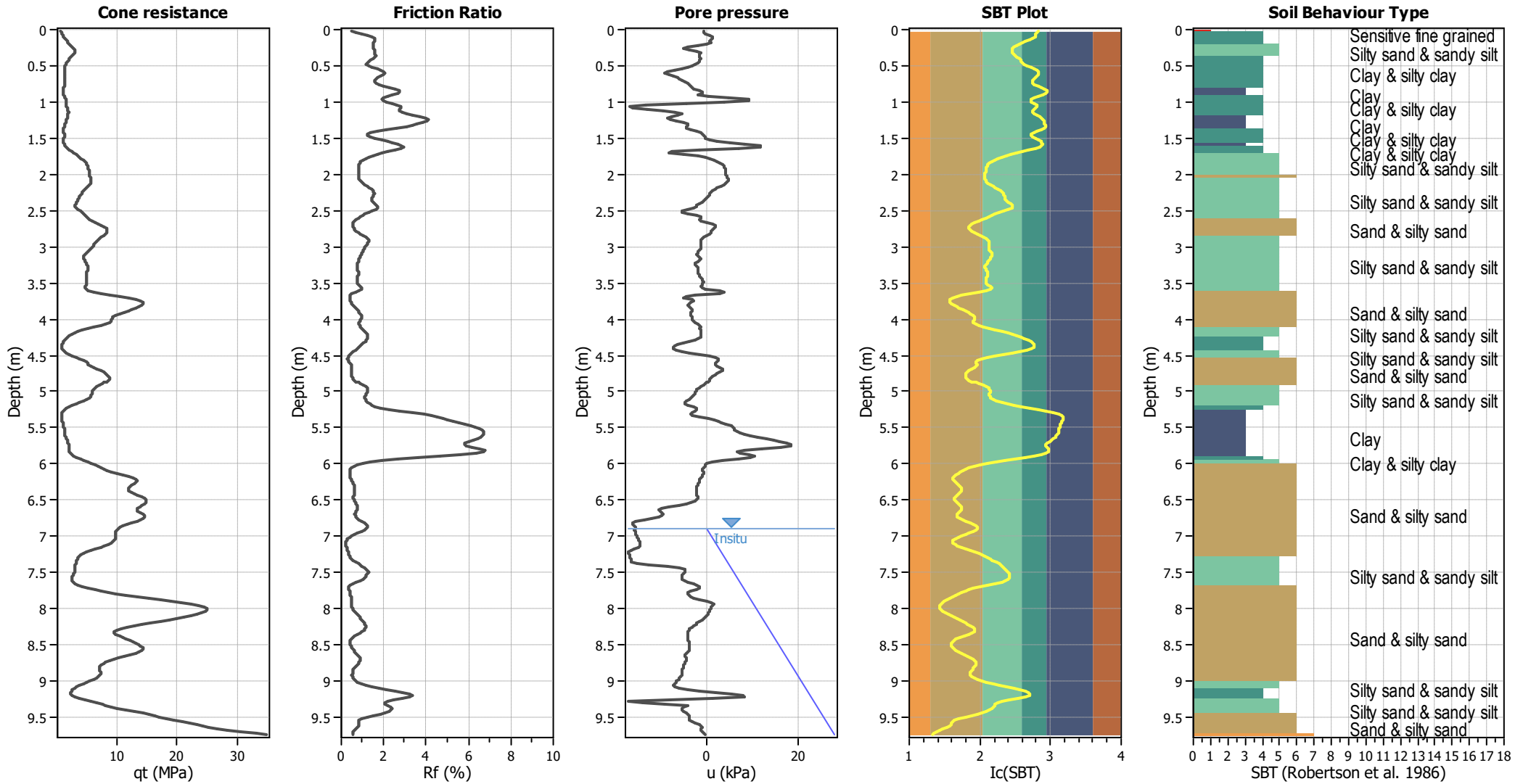


Figure 2: Stratigraphy of two augered holes A1 and A2. Locations shown on plan diagram in Figure 1. Holes were 130 m apart.

B118

### CPT basic interpretation plots



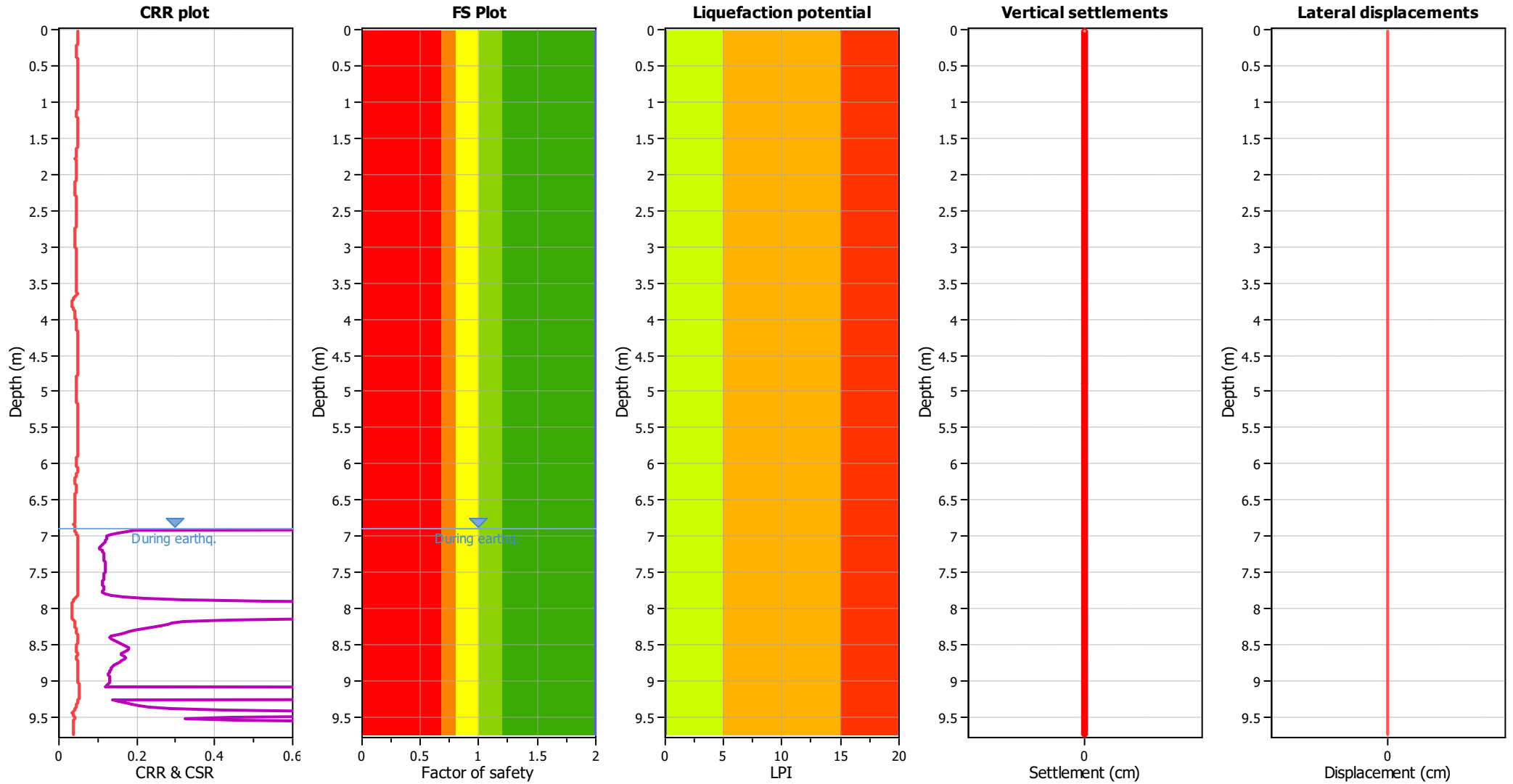
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.90 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>σ</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.09	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	6.90 m	Fill height:	N/A	Limit depth:	N/A

#### SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (earthq.):	6.90 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.09	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	6.90 m	Fill height:	N/A	Limit depth:	N/A

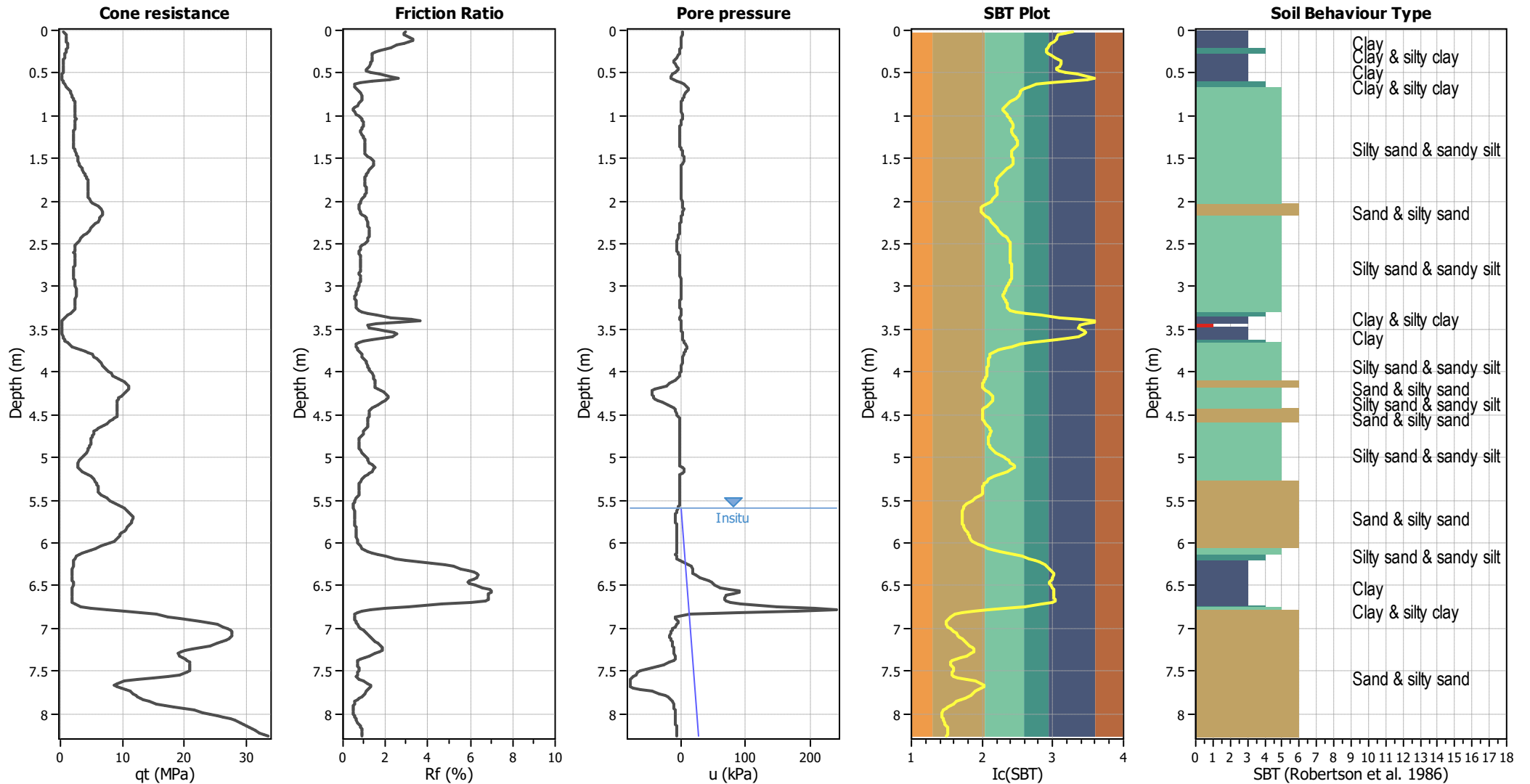
**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

### CPT basic interpretation plots



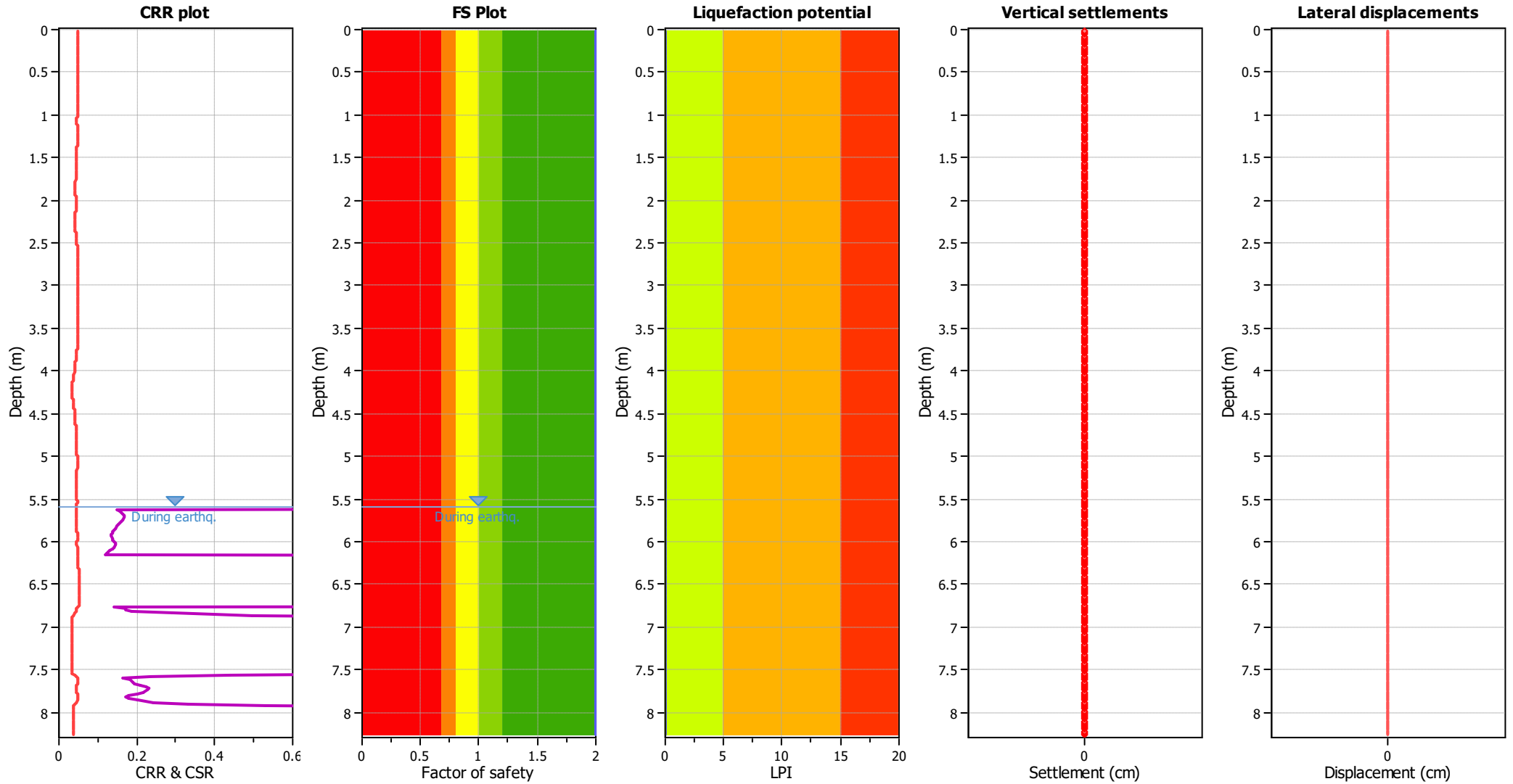
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	5.60 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>σ</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.09	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	5.60 m	Fill height:	N/A	Limit depth:	N/A

#### SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	5.60 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.09	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	5.60 m	Fill height:	N/A	Limit depth:	N/A

**F.S. color scheme**

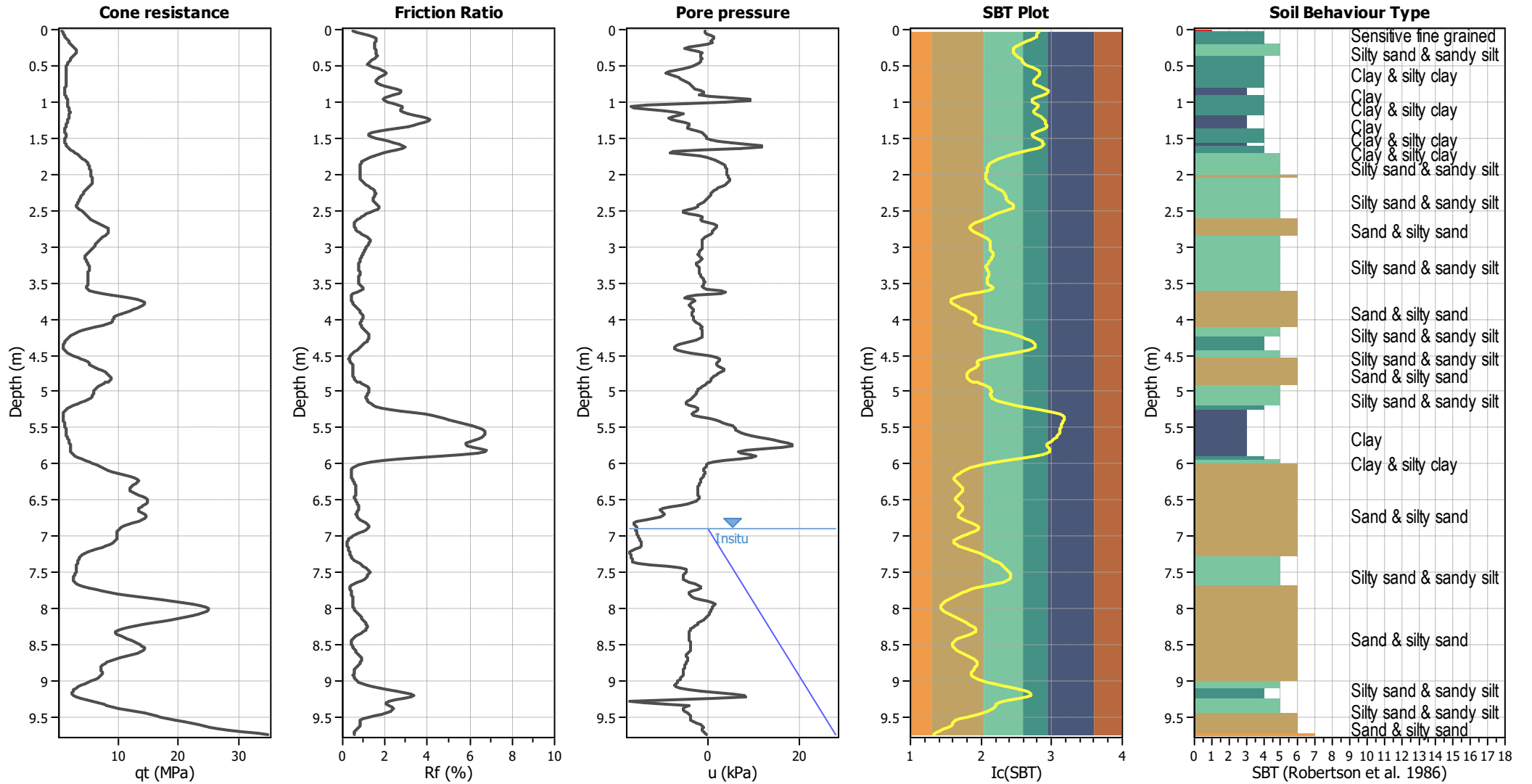
- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk



### CPT basic interpretation plots



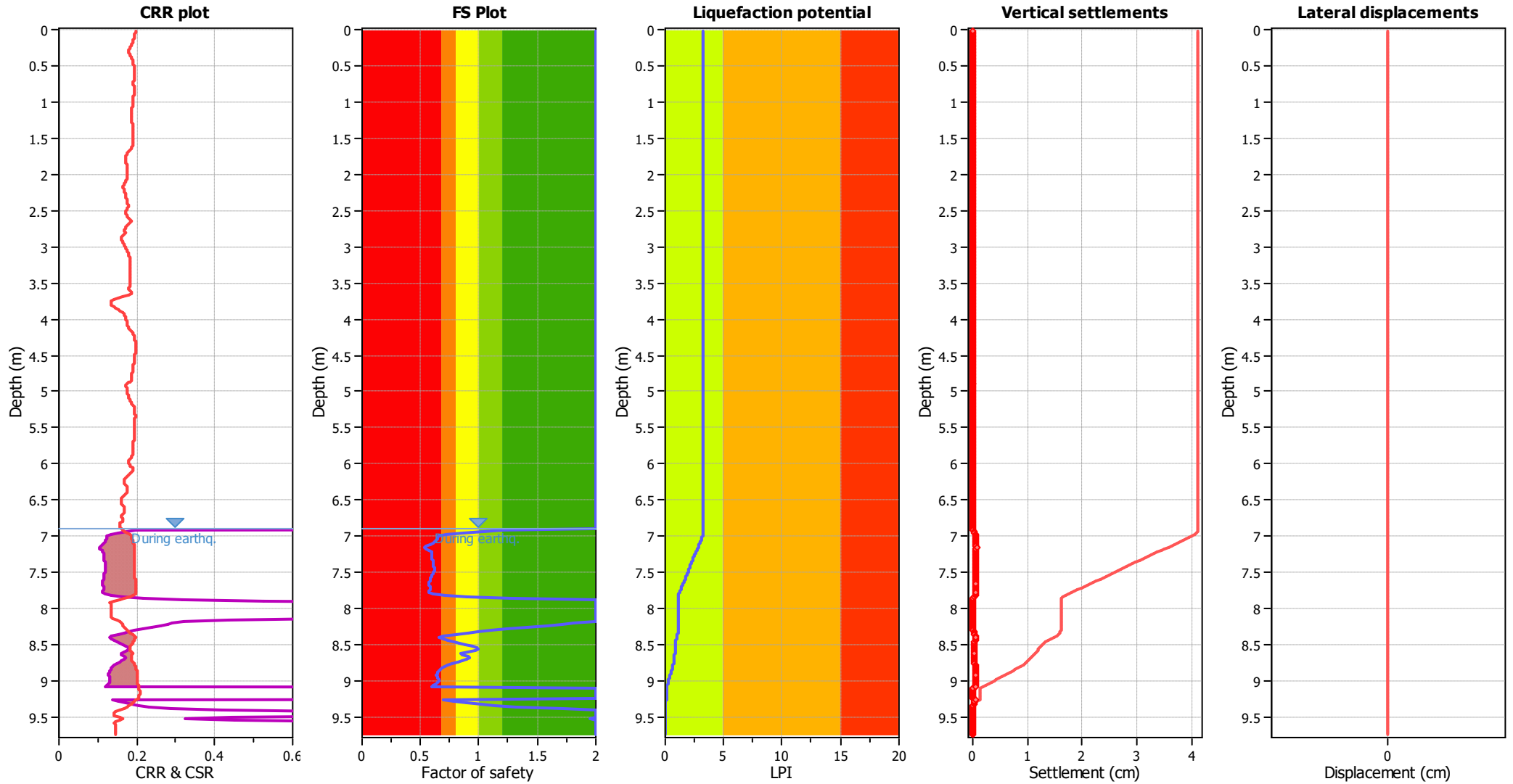
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.90 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>σ</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.36	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	6.90 m	Fill height:	N/A	Limit depth:	N/A

#### SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	6.90 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.36	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	6.90 m	Fill height:	N/A	Limit depth:	N/A

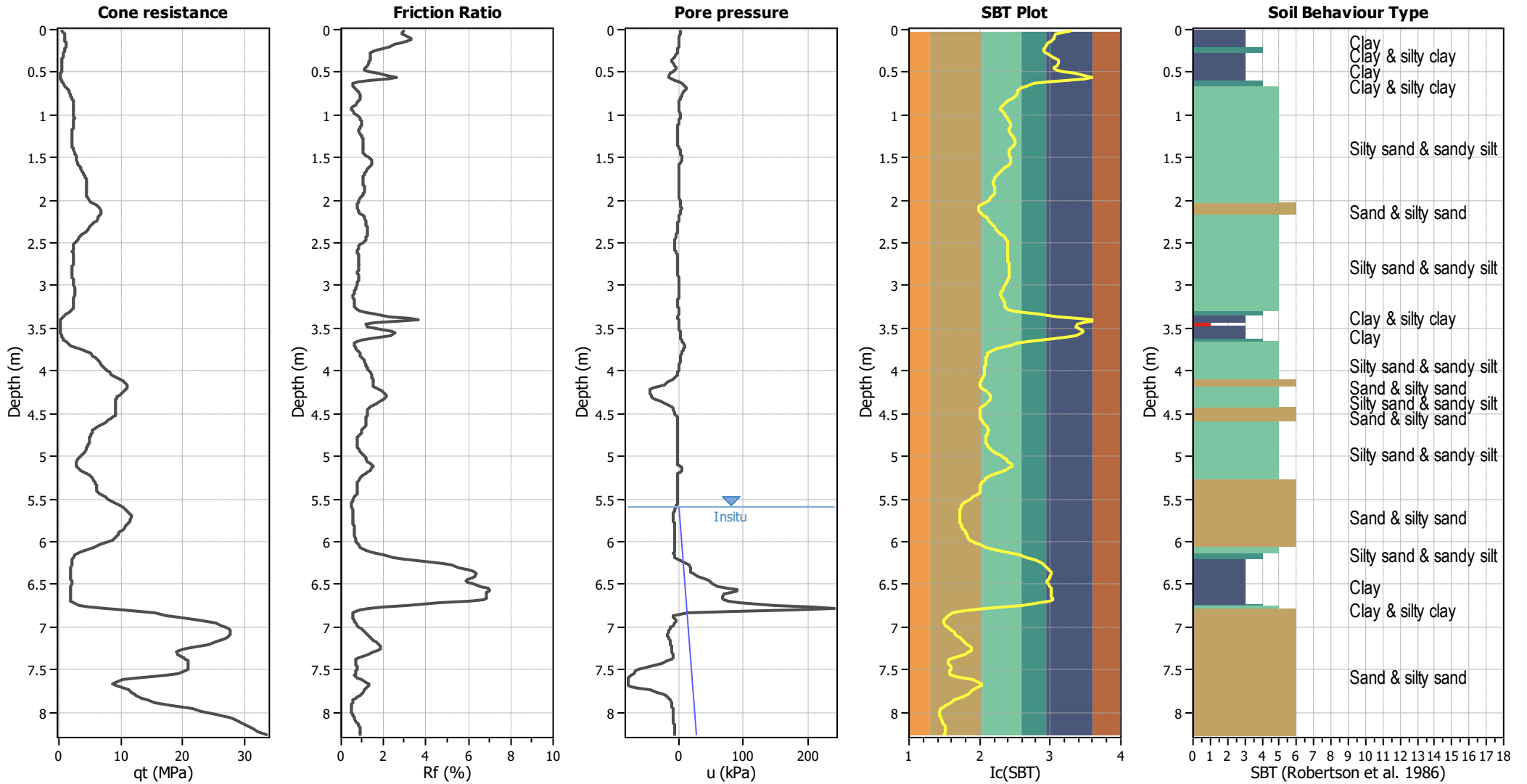
**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

### CPT basic interpretation plots



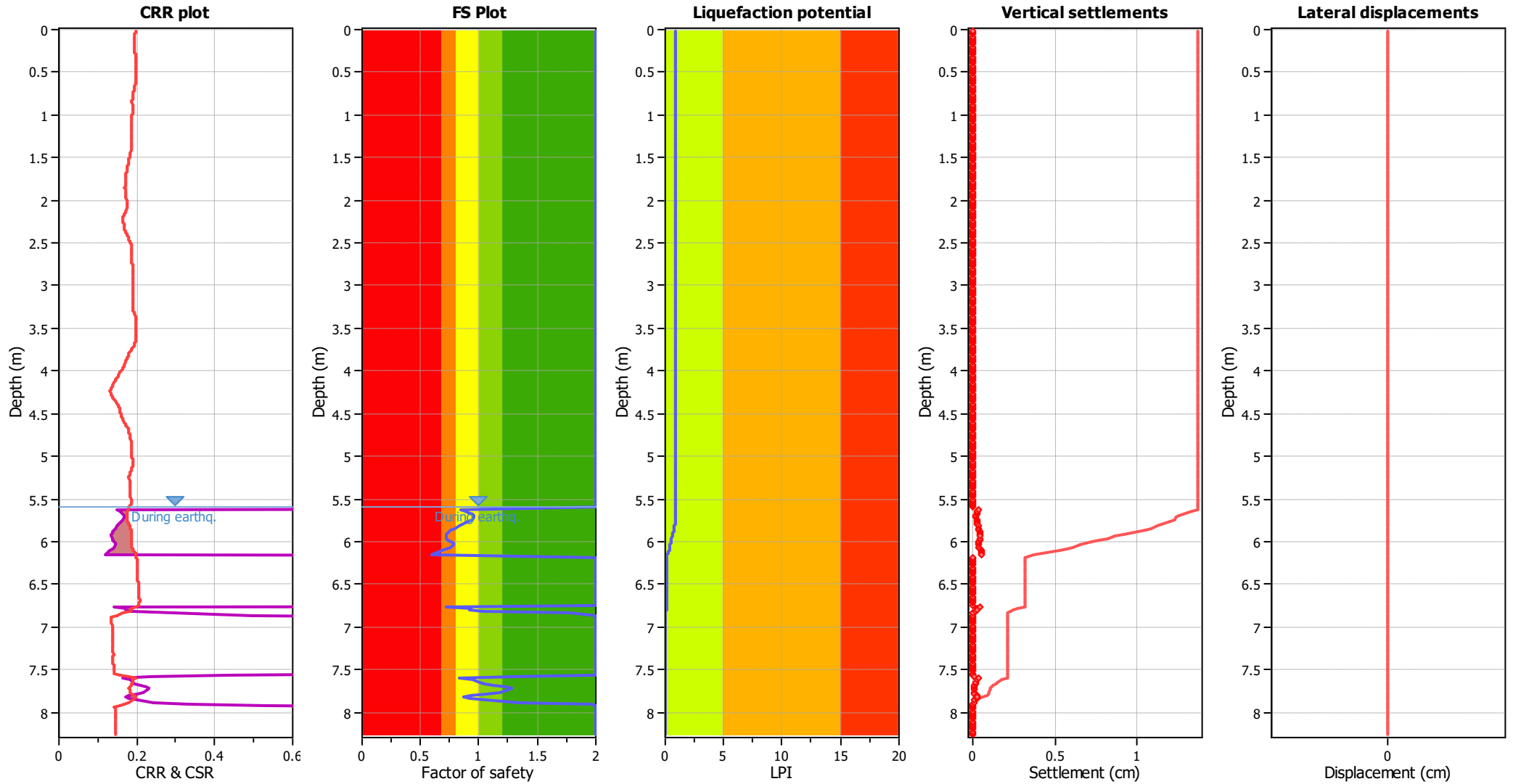
#### Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	5.60 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	K <sub>q</sub> applied:	Yes
Earthquake magnitude M <sub>w</sub> :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.36	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	5.60 m	Fill height:	N/A	Limit depth:	N/A

#### SBT legend

1. Sensitive fine grained	4. Clayey silt to silty	7. Gravely sand to sand
2. Organic material	5. Silty sand to sandy silt	8. Very stiff sand to
3. Clay to silty clay	6. Clean sand to silty sand	9. Very stiff fine grained

### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	5.60 m	Fill weight:	N/A
Fines correction method:	B&I (2014)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_{\sigma}$ applied:	Yes
Earthquake magnitude $M_w$ :	6.00	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.36	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	5.60 m	Fill height:	N/A	Limit depth:	N/A

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

# Appendix F: Selected Static Settlement Analyses Outputs



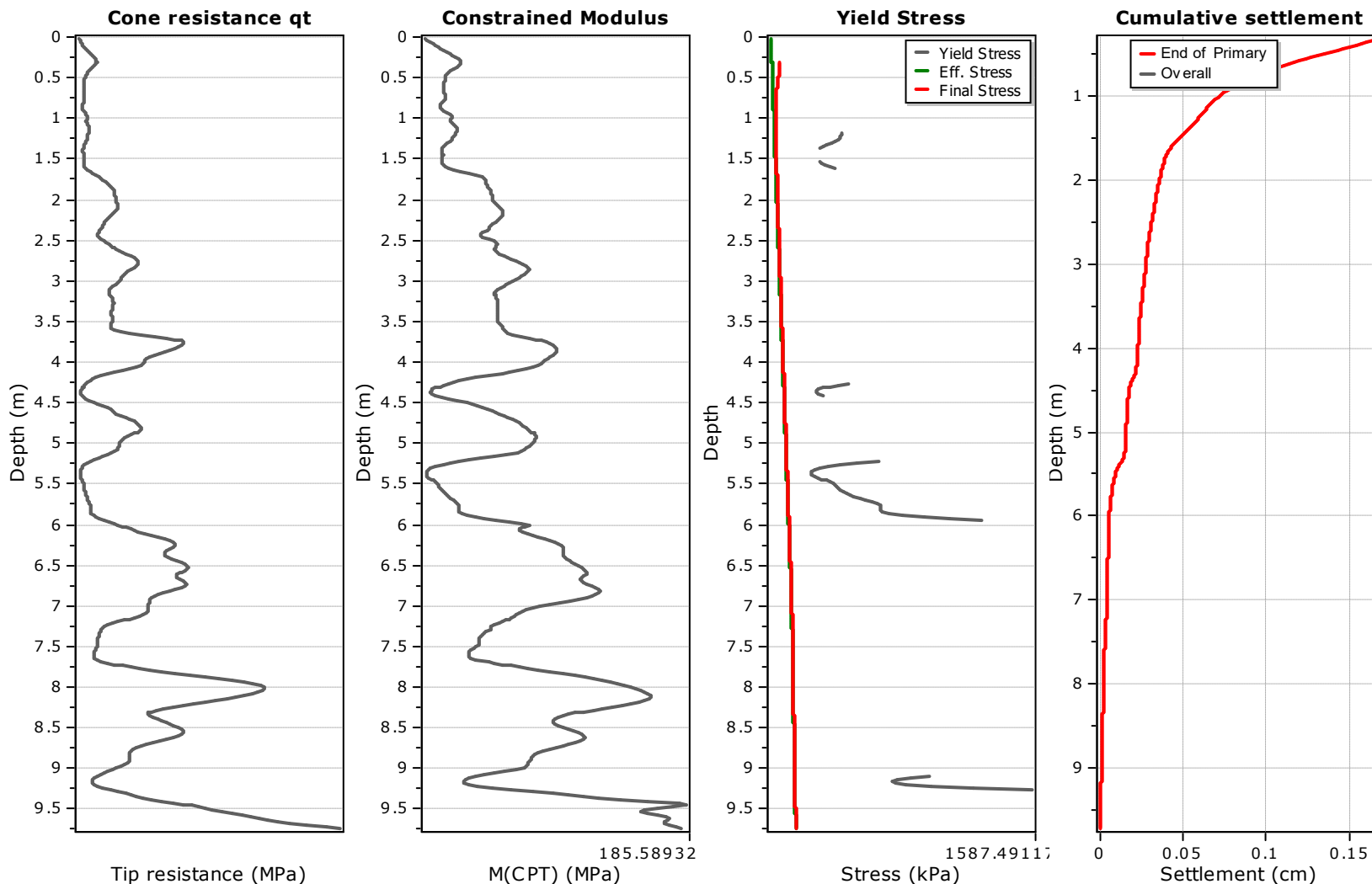
**CMW GEOSCIENCES**  
 1072 HAUPAPA STREET  
 ROTORUA, 3010  
<https://www.cmwgeosciences.com/>

**Project:**  
**Location:**

**CPT: CPT01**

Total depth: 9.74 m, Date: 19/01/2022  
 Surface Elevation: 0.00 m  
 Coords: X:0.00, Y:0.00  
 Cone Type:  
 Cone Operator:

**Settlements calculation according to theory of elasticity\***



**Calculation properties**

Footing type: Rectangular  
 Footing width: 0.30 (m)  
 L/B: 50.0  
 Footing pressure: 50.00 (kPa)  
 Embedment depth: 0.30 (m)  
 Footing is rigid: No  
 Remove excavation load: No  
 Apply 20% rule: No  
 Calculate secondary settlements: No  
 Time period for primary consolidation: N/A  
 Time period for second. settlements: N/A

\* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta\sigma_v}{M_{CPT}} \Delta z$$

\* Secondary (creep) settlement calculation is performed according to the following formula:

$$S = C_\alpha \cdot \Delta z \cdot \log(t/t_p)$$

where  $t_p$  is the duration of primary consolidation



**CMW GEOSCIENCES**  
 1072 HAUPAPA STREET  
 ROTORUA, 3010  
<https://www.cmwgeosciences.com/>

**CPT: CPT02**

Total depth: 5.08 m, Date: 20/01/2022

Surface Elevation: 0.00 m

Coords: X:0.00, Y:0.00

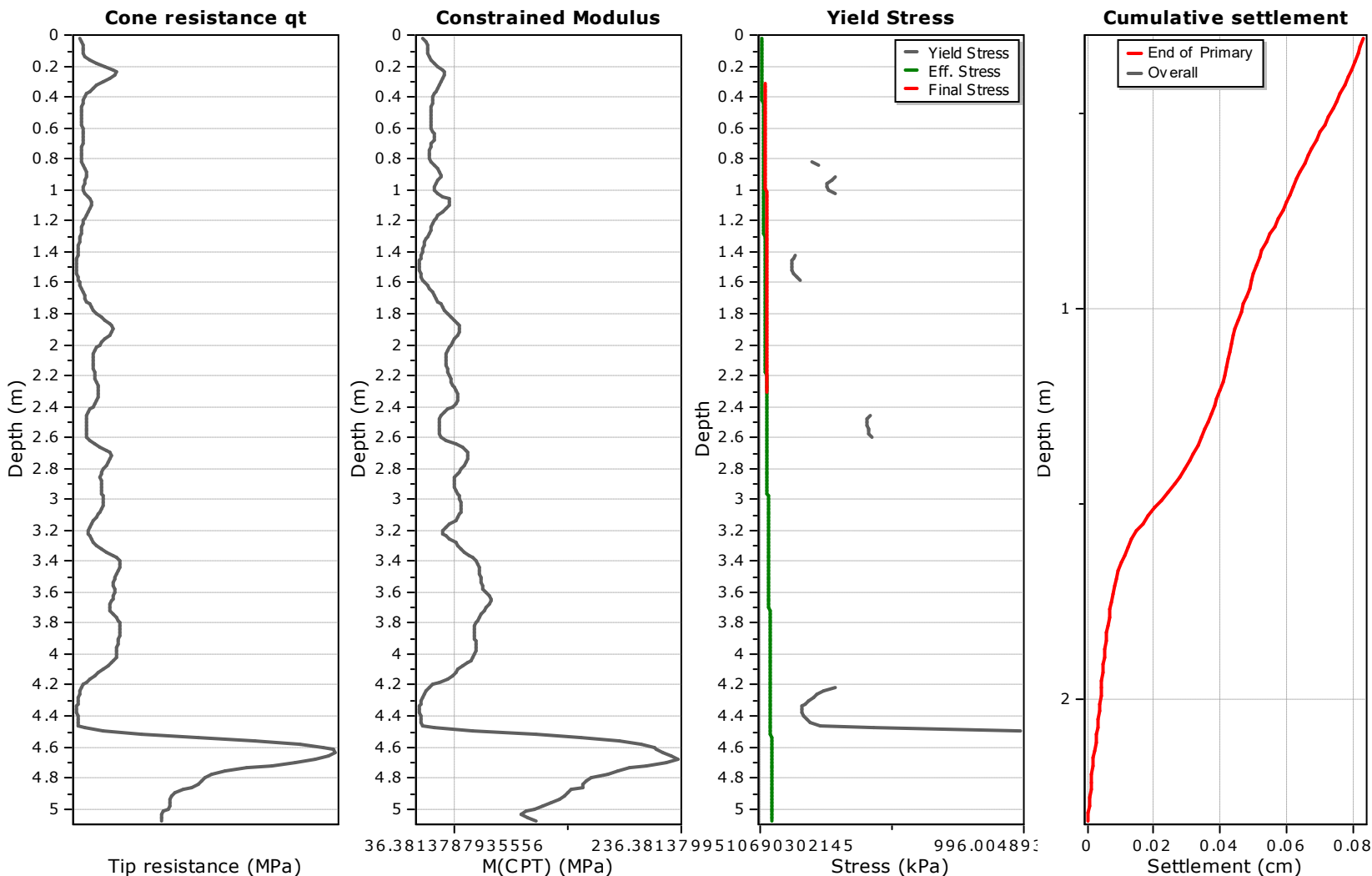
Cone Type:

Cone Operator:

Project:

Location:

**Settlements calculation according to theory of elasticity\***



**Calculation properties**

Footing type: Rectangular  
 Footing width: 2.00 (m)  
 L/B: 1.0  
 Footing pressure: 10.00 (kPa)  
 Embedment depth: 0.30 (m)  
 Footing is rigid: No  
 Remove excavation load: No  
 Apply 20% rule: Yes  
 Calculate secondary settlements: No  
 Time period for primary consolidation: N/A  
 Time period for second. settlements: N/A

\* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta\sigma_v}{M_{CPT}} \Delta z$$

\* Secondary (creep) settlement calculation is performed according to the following formula:

$$S = C_\alpha \cdot \Delta z \cdot \log(t/t_p)$$

where  $t_p$  is the duration of primary consolidation



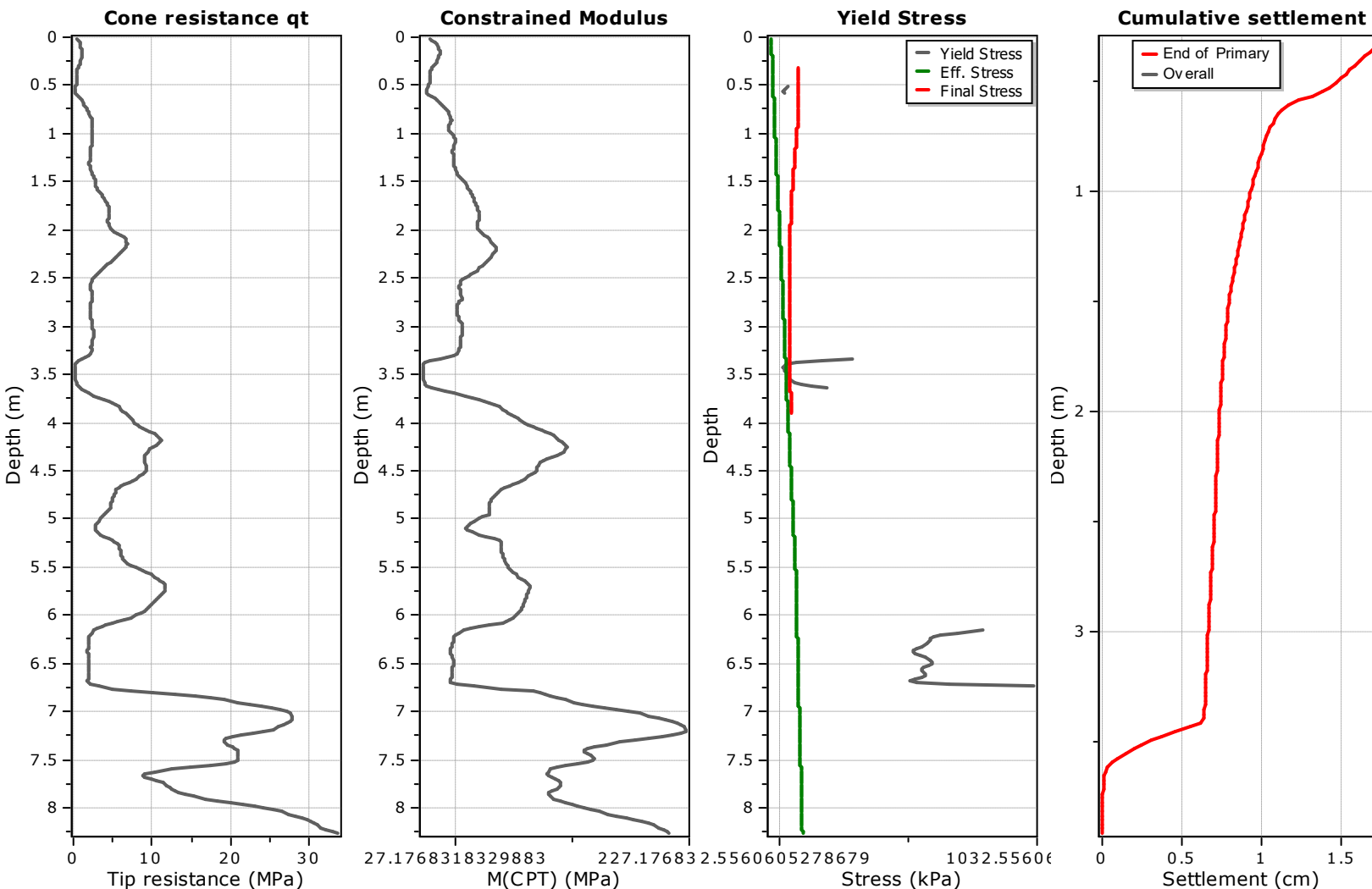
**CMW GEOSCIENCES**  
 1072 HAUPAPA STREET  
 ROTORUA, 3010  
<https://www.cmwgeosciences.com/>

**Project:**  
**Location:**

**CPT: CPT03**

Total depth: 8.26 m, Date: 19/01/2022  
 Surface Elevation: 0.00 m  
 Coords: X:0.00, Y:0.00  
 Cone Type:  
 Cone Operator:

**Settlements calculation according to theory of elasticity\***



**Calculation properties**

Footing type: Rectangular  
 Footing width: 2.00 (m)  
 L/B: 1.0  
 Footing pressure: 100.00 (kPa)  
 Embedment depth: 0.30 (m)  
 Footing is rigid: No  
 Remove excavation load: No  
 Apply 20% rule: Yes  
 Calculate secondary settlements: No  
 Time period for primary consolidation: N/A  
 Time period for second. settlements: N/A

\* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta\sigma_v}{M_{CPT}} \Delta z$$

\* Secondary (creep) settlement calculation is performed according to the following formula:

$$S = C_\alpha \cdot \Delta z \cdot \log(t/t_p)$$

where  $t_p$  is the duration of primary consolidation





**CMW GEOSCIENCES**  
 1072 HAUPAPA STREET  
 ROTORUA, 3010  
<https://www.cmwgeosciences.com/>

**CPT: CPT06**

Total depth: 10.56 m, Date: 20/01/2022

Surface Elevation: 0.00 m

Coords: X:0.00, Y:0.00

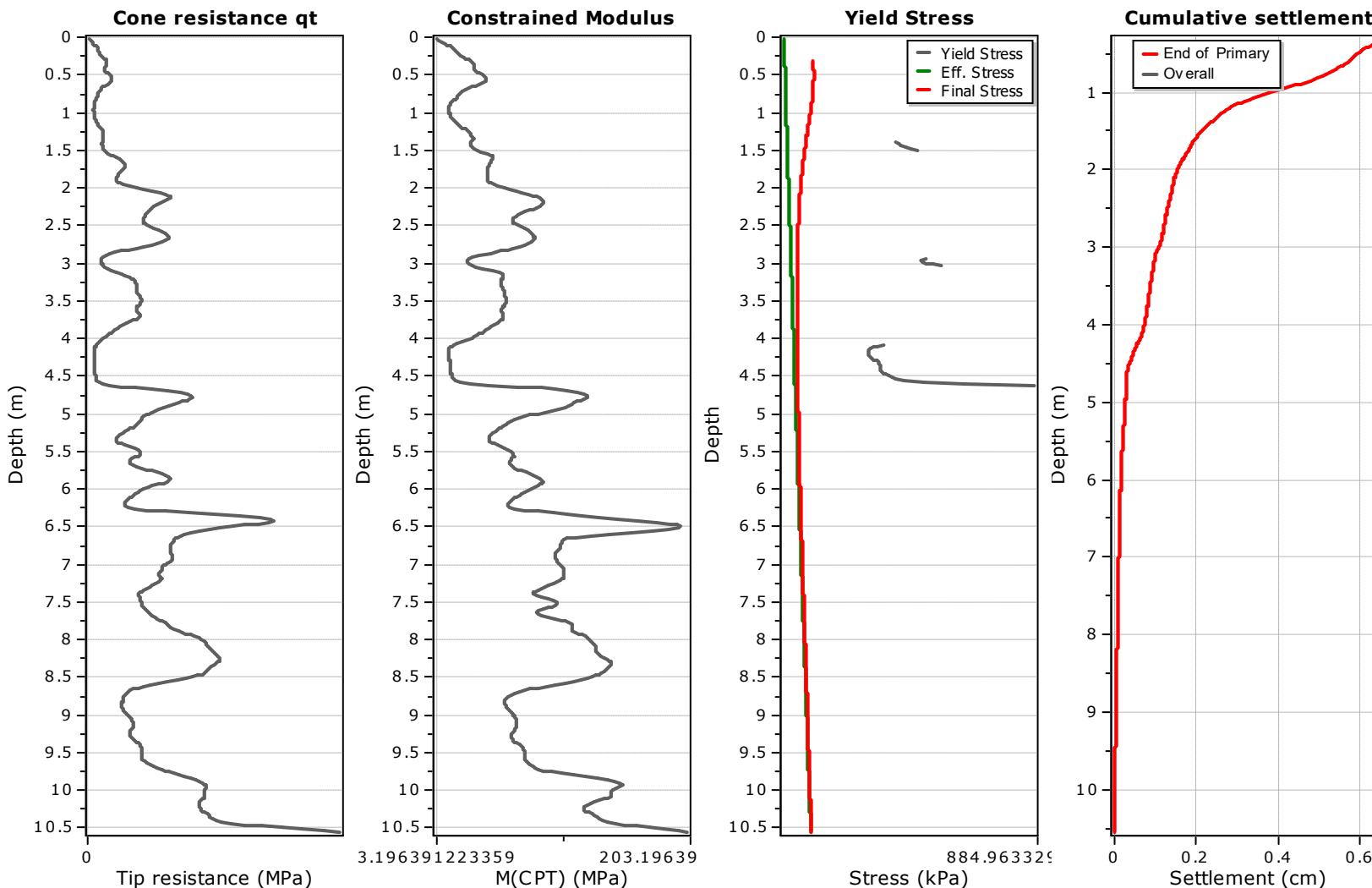
Cone Type:

Cone Operator:

Project:

Location:

**Settlements calculation according to theory of elasticity\***



**Calculation properties**

- Footing type: Rectangular
- Footing width: 2.00 (m)
- L/B: 1.0
- Footing pressure: 100.00 (kPa)
- Embedment depth: 0.30 (m)
- Footing is rigid: No
- Remove excavation load: No
- Apply 20% rule: No
- Calculate secondary settlements: No
- Time period for primary consolidation: N/A
- Time period for second. settlements: N/A

\* Primary settlement calculation is performed according to the following formula:

$$S = \sum \frac{\Delta\sigma_v}{M_{CPT}} \Delta z$$

\* Secondary (creep) settlement calculation is performed according to the following formula:

$$S = C_\alpha \cdot \Delta z \cdot \log(t/t_p)$$

where  $t_p$  is the duration of primary consolidation

Mr J Dufty  
McKenzie & Co

19 April 2023

**Copy via email:**      [james.dufty@mckenzieandco.co.nz](mailto:james.dufty@mckenzieandco.co.nz)

Dear James

## **TRAFFIC ASSESSMENT REPORT – ROTOMAHANA MIXED USE DEVELOPMENT**

Further to your instruction, we are pleased to provide this traffic assessment in respect to the proposed mixed-use development comprised of a marae with Papakainga housing and a cultural centre within Block 6J2B3 Rotomahana Parekarangi, on Tarawera Road in Rotorua.

### **1 INTRODUCTION**

The proposal seeks to establish a mixed-use development within Block 6J2B3 Rotomahana Parekarangi, on Tarawera Road in Rotorua. Overall, the proposal will be comprised of:

- 10 x three-bedroom dwellings
- A Marae
- A Cultural Centre

A parking lot comprised of 51 parking spaces (49 regular spaces and 2 accessible spaces) is proposed to service the marae, while each of the dwelling units has a double garage and 2 parking spaces. The cultural centre is proposed to operate as an extension of the nearby tourist attraction, the Buried Village. Visitors to the cultural centre are anticipated to park at the Buried Village and walk to the cultural centre via the tunnel under Tarawera Road.

Vehicle access to the marae and residential dwellings is proposed via Tarawera Road, with one main vehicle access serving the entire development. A second service access is also proposed behind the cultural centre for the delivery of display items such as wood carvings. The main servicing access of the site is understood to be the main vehicle access which will service day to day access including deliveries and waste collection.

This report assesses the transport-related matters of the proposal, including:

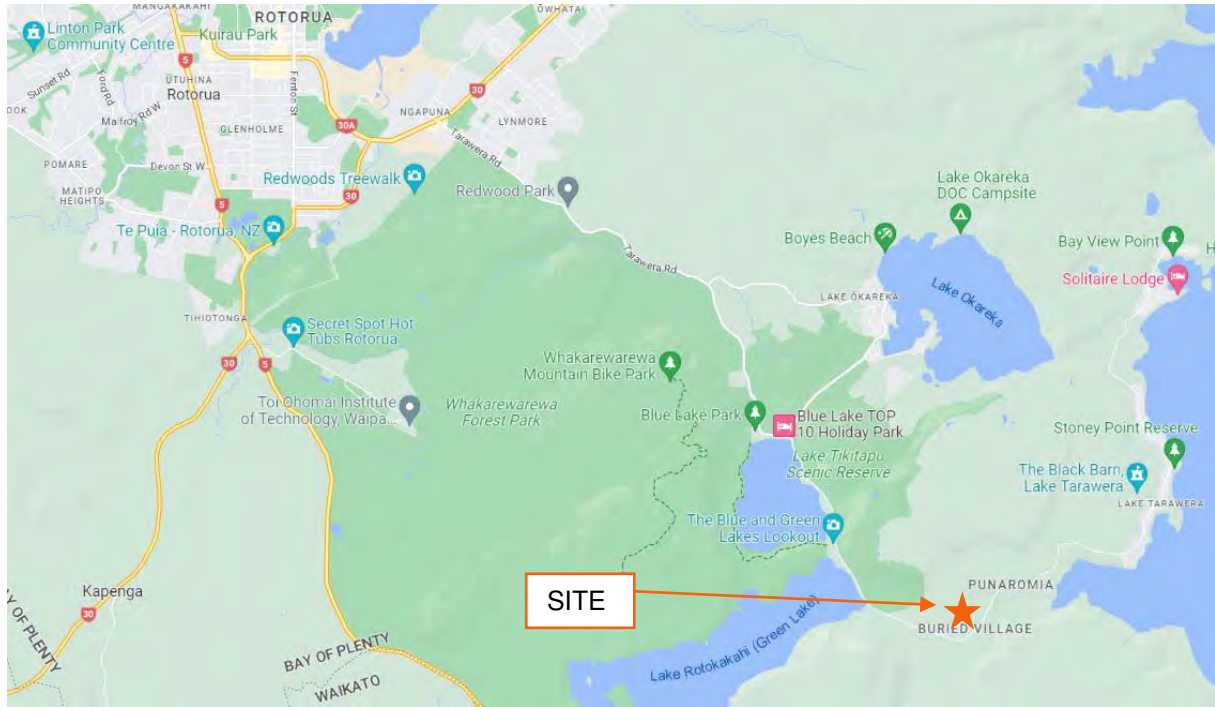
- A description of the site and its surrounding transport environment;
- A description of the key transport-related aspects of the proposed development;
- The likely trip generating potential of the site and effects on the road network;
- The parking and loading provisions of the development and compliance with District Plan standards, and
- The proposed form of access arrangements for vehicles and pedestrians and compliance with District Plan standards.

These and other matters are addressed in detail in this report. By way of summary, it is considered that the proposed development, with the recommendations as detailed in this report, will have minimal traffic effects to the function, capacity, and safety of the surrounding transport network.

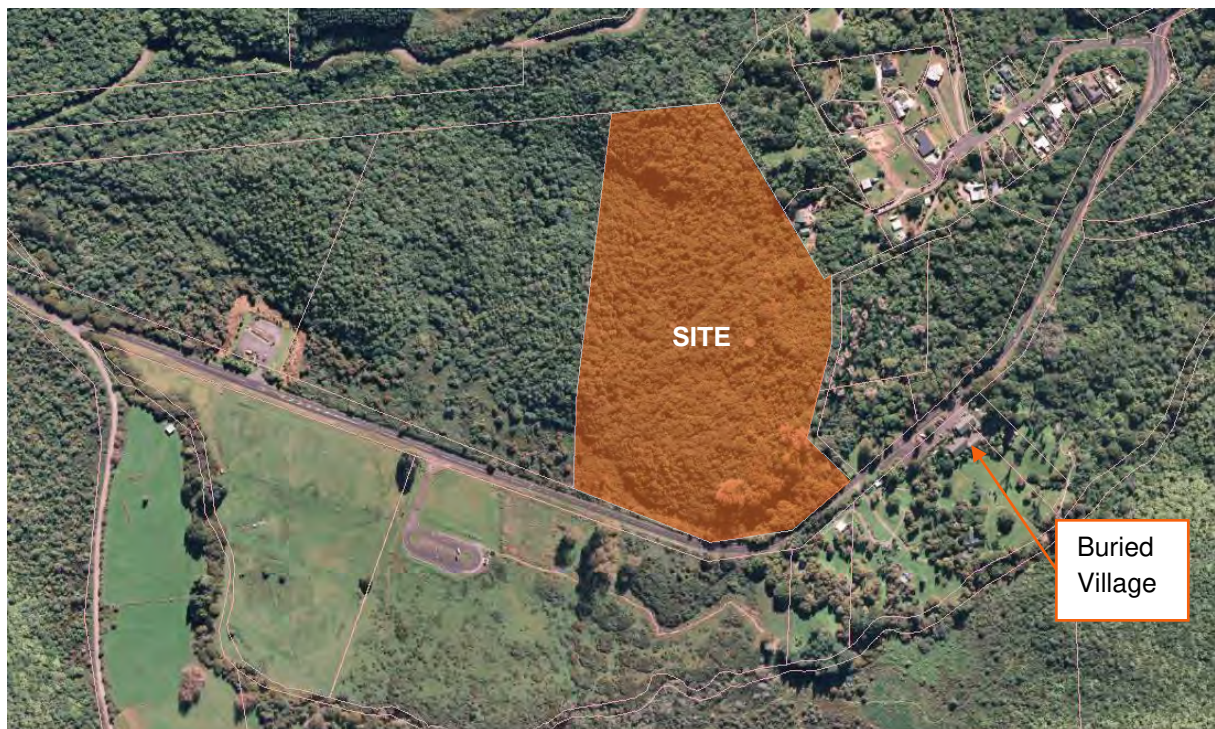
## 2 SITE LOCATION

The site is located within Block 6J2B3 Rotomahana Parekarangi, on Tarawera Road in Rotorua. Figure 2-1 shows the location of the site in relation to the surrounding road network and Figure 2-2 shows the site on an aerial image.

**Figure 2-1: Site Location**



**Figure 2-2: Site Location**



The site is located just west of the Buried Village of Te Wairoa, a local tourist attraction. While there is pedestrian access via tunnel from the Buried Village, vehicular access to the site will be via Tarawera Road. Tarawera Road has a posted speed limit of 80 km/hr and a cross section comprised of one vehicle lane in each direction only. Tarawera Road is classified as a Rural Collector in the Rotorua District Plan.

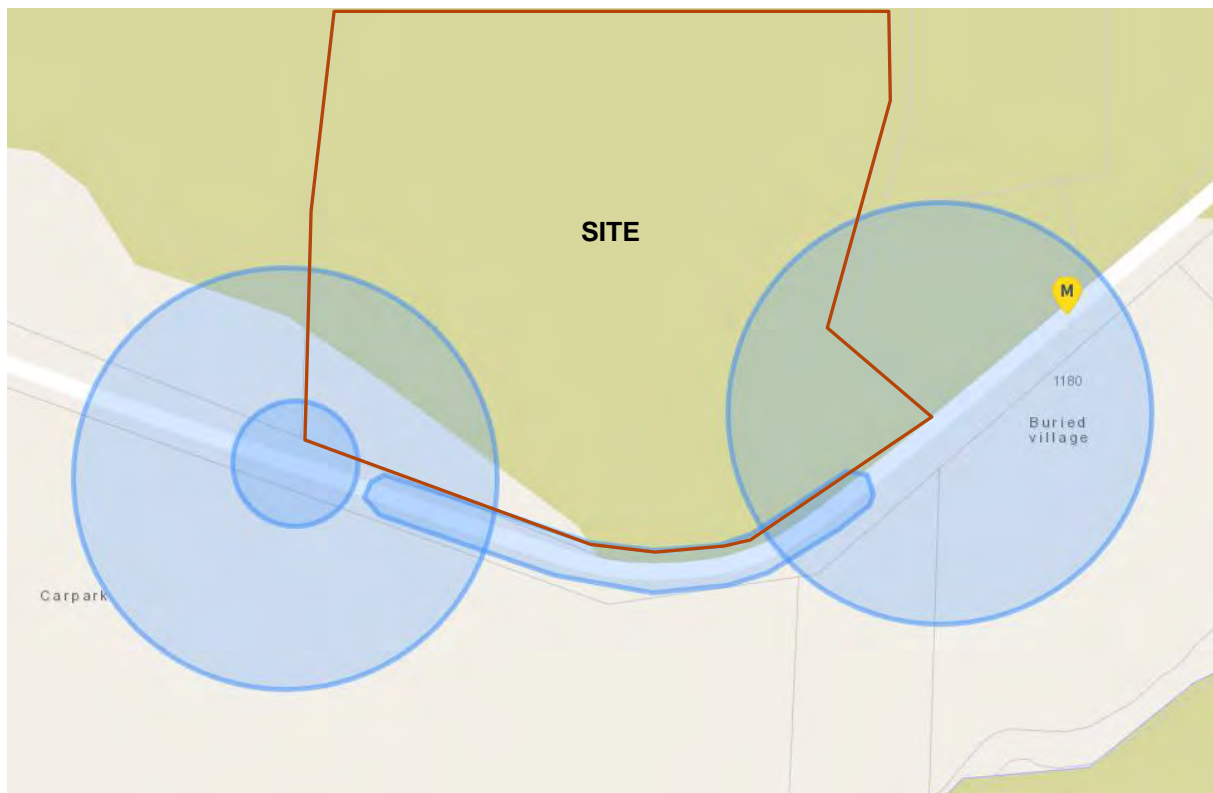
### 3 TRAFFIC VOLUMES

The Rotorua Lake Council traffic count data shows the traffic volumes at 12450 Tarawera Road as being in the order of 990 vpd and 110 peak hour trips, as of June 2021. During our site visit in September 2022 the vehicle volumes were observed to be very low, which supports the low traffic volumes reported by Council.

### 4 ROAD SAFETY ASSESSMENT

An assessment of the surrounding area's safety record has been carried out using the Waka Kotahi CAS database, for the five-year period between 2018 and 2022 plus any crashes entered into the system for 2023. The search included all reported crashes within a 100 m radius of the site frontage onto Tarawera Road. One crash was reported within the search area as shown in Figure 4-1, with the 'M' indicating the location.

Figure 4-1: Crash Map



The one reported crash occurred to the east of the site. This crash was a minor injury crash which occurred in January 2021 and involved a vehicle colliding with a cyclist. Given there was one crash that occurred, which was an uncommon crash, this crash is considered to be an anomaly.

There are no crash trends, nor is there a history of crashes relating to vehicles accessing private driveways, and therefore there are no inherent existing safety concerns.

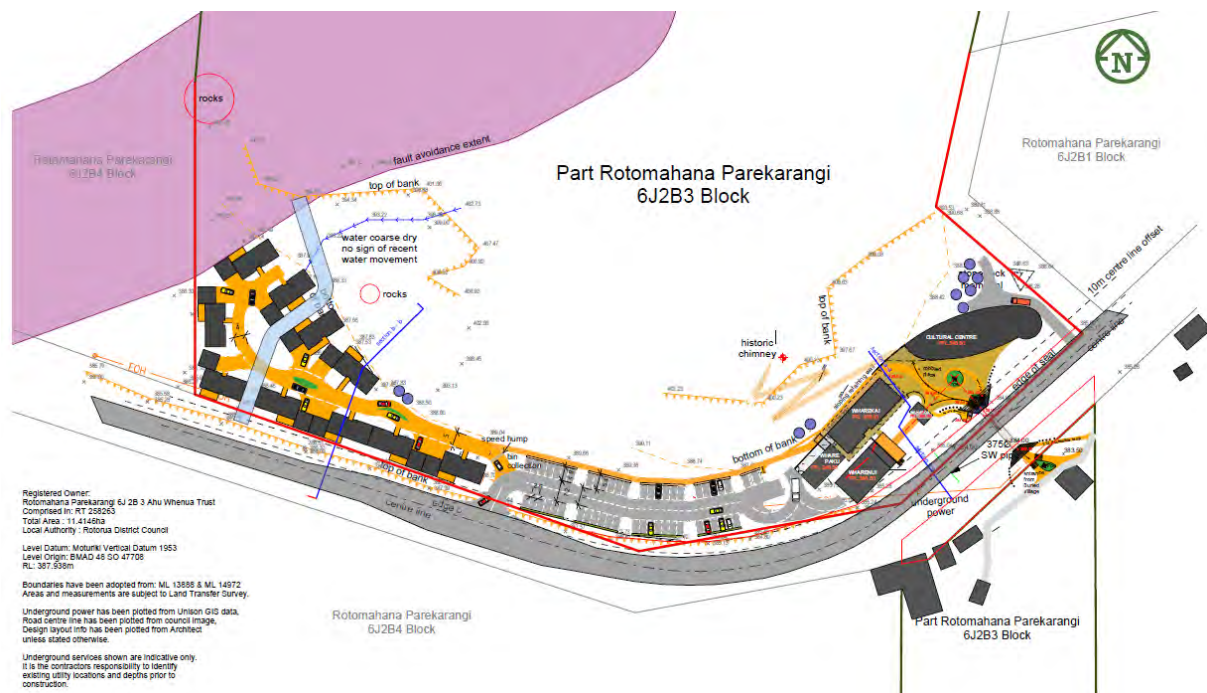
## 5 PROPOSED DEVELOPMENT

The proposal seeks to establish a mixed-use development within Block 6J2B3 Rotomahana Parekarangi, on Tarawera Road in Rotorua. Overall, the proposal will be comprised of:

- 10 x three-bedroom dwellings including:
  - 4 detached dwellings
  - 6 semi-detached dwellings
- A marae including:
  - 156 m<sup>2</sup> Wharenuī (meeting house)
  - 36 m<sup>2</sup> Mahau
  - 103 m<sup>2</sup> Wharepaku (bathroom), mattress store, and workshop
  - 247 m<sup>2</sup> Wharekai (café/resturant)
  - 25 m<sup>2</sup> Waharoa (entrance)
- A 122 m<sup>2</sup> Cultural Centre (this is the GFA for the building only)

Figure 5-1 shows the proposed development plan.

**Figure 5-1: Proposed Development**



A parking lot comprised of 51 parking spaces (49 regular spaces and 2 accessible spaces) is proposed to service the marae, while each of the dwelling units has a double garage and 2 parking spaces. Vehicle access is proposed via Tarawera Road, with two vehicle accesses proposed including:

1. A main access which is to provide car access, as well as servicing, for the residential development as well as the marae and cultural centre, and
2. A secondary access serving for the delivery of oversized items (such as wood carvings) to the cultural centre.

While the site is proposed to have two vehicle accesses, it is understood that most servicing will occur at the main vehicle access, which is where regular waste collection will occur from.

## 6 TRIP GENERATION

### 6.1 GUIDELINES AND TRIPS

#### 6.1.1 RESIDENTIAL TRIPS

The RTA Guide<sup>1</sup> is commonly used by traffic engineering practitioners in Australasia to assess the traffic generating potential of various land uses. In New Zealand, the RTA Guide is frequently used for assessing residential developments.

The proposed residential units were assessed and given their location, are considered to be similar to a 'dwelling house 2'. For these dwellings, the RTA predicts 0.85 vehicle trips / dwelling for peak hour and 9 vehicle trips / dwelling for daily trips.

#### 6.1.2 MARAE

This part of the site includes a number of buildings, many of which provide supporting facilities such as bathrooms and storage. Given the site is to have a specific use and way of operating, the trip generation has been calculated based on a first principle assessment.

Of the marae component to the site, it is the wharenui and wharekai that are anticipated to generate vehicle trips, with the other buildings having an amenity type function. The wharenui and wharekai can each accommodate 100-120 people, but the visitors to these facilities will be the same people and therefore the total visitors to the site will not double.

It is anticipated that majority of visitors to the marae will be travelling in groups and therefore an average vehicle occupancy of 2 is considered appropriate. On this basis, the marae is likely to generate 50-60 vehicles accessing the site, a total of 100-120 trips per day.

On a typical day, it is unlikely that the marae will reach capacity. Furthermore, in most instances the marae is unlikely to generate vehicle traffic during the network peak travel hours. As such, 10% of trips have been assumed to be generated by the marae during the peak network hours (12 trips) which is considered conservative.

#### 6.1.3 CULTURAL CENTRE

The cultural centre is anticipated to be visited by at most 100 people a day. All of these visitors are anticipated to already be visiting the Buried Village, and therefore are not anticipated to be new vehicle trips on the road network.

The cultural centre is anticipated to provide an extension to the Buried Village, with an outdoor viewing area and a small indoor teaching space. It is intended that activities such as wood carving will be undertaken within the cultural centre, and that visitors to the cultural centre will be able to observe such activities.

Given the cultural centre is not anticipated to generate new vehicle trips, this assessment does not include further details regarding these trips.

<sup>1</sup> The Roads and Traffic Authority of New South Wales – Guide to Traffic Generating Developments (RTA), Version 2.2, October 2002

<sup>2</sup> The dwelling house rates are based on surveys conducted in areas there is minimal access to public transport.

## 6.2 TRIP GENERATION

The trip generation for the site based on the aforementioned rates is summarised in Table 1.

**Table 1: Trip Generation Summary**

Land Use	Quantity / Size	Peak Hour Trip Generation Rate	Commuter Peak Hour Trips
Residential	10 Units	0.85 trips per dwelling	9
Wharenui	156 m <sup>2</sup>	Anticipated to generate 12 peak hour trips per assessment above.	12
Mahau	36 m <sup>2</sup>	Supplementary to the Wharenui and Cultural Centre, not a traffic generator	-
Wharepaku	103 m <sup>2</sup>	Supplementary to the Wharenui and Cultural Centre, not a traffic generator	-
Wharekai	247 m <sup>2</sup>	Supplementary to the Wharenui and Cultural Centre. Visitors to the wharekai are either visiting just the wharekai, just the wharenui, or both. It is not intended for two different groups of visitors to visit the wharenui and wharekai at the same time, and therefore the visitors to the wharenui capture the visitors to the wharekai.	-
Cultural Centre	122 m <sup>2</sup>	No new vehicle trips anticipated on the road network	-
Waharoa	25 m <sup>2</sup>	Supplementary to the Wharenui and Cultural Centre, not a traffic generator	-
<b>TOTAL</b>	-	-	<b>21</b>

The site is anticipated to generate 21 trips during the morning and afternoon commuter peaks.

Considering the peak traffic generating hour of the site, at most the site is anticipated to generate 60 trips in an hour. This assumes an event is being held at the marae and that all parking spaces are filled within an hour (51 trips). It also assumes that this coincides with a residential peak travel period (9 trips).

## 6.3 TRAFFIC EFFECTS

Rule 4 of Appendix 1 of the District Plan provides a summary of when an Integrate Transport Assessment is required. For residential activity the threshold is 100 dwellings, and there is no activity comparable to the marae. The site includes 10 dwellings which is less than the 100 dwelling threshold.

Many of the trip generation thresholds are proposed based on a vehicle trip generation rate of 100 peak hour trips. Given the site is anticipated to generate 21 commuter peak hour trips, or in the case

of an event at the site up to 60 trips within an hour, the proposal is considered acceptable with regards to traffic effects.

## 7 PARKING

### 7.1 NUMBER OF PARKING SPACES

The Rotorua District Plan does not specify the number of general parking spaces required. As such, the proposal to provide 51 parking spaces (49 regular spaces and 2 accessible spaces) for the marae, plus 20 parking spaces for the residential dwellings is compliant with the District Plan. This provision is considered appropriate based on our understanding of the intended site usage.

### 7.2 NUMBER OF ACCESSIBLE PARKING SPACES

Appendix 1, Rule 1, of the Rotorua District Plan identifies that accessible parking spaces are required for commercial recreation facilities and places of assembly. For sites with a design capacity greater than 105 people, but less than 985 people, 2 accessible parking spaces are required. The wharenui and wharekai have a capacity for 100-120 people, while the cultural centre is anticipated to have up to 100 people visit over the course of the day, and therefore the site is required to provide 2 accessible spaces for these facilities. A total of 2 accessible space are proposed for the marae and cultural centre, meeting this requirement.

It is noted that the District Plan also refers to NZS 4121 Design for Access and Mobility. Given the site provides 49 general parking spaces, the site is required to provide a minimum of 2 accessible spaces under this standard. Again, the proposal complies with this standard.

No accessible spaces are required for household units. The design does not include accessible parking spaces for the residential dwellings, in accordance with the District Plan. This is also in accordance with the Building Code requirements.

### 7.3 LOADING

Rule 3.a.iv. of Appendix 1 of the District Plan specifies that an 8m rigid truck is to be used for design of ordinary delivery areas, with this size truck also used to assess the path of a fire truck. The vehicle tracking shows that some localised widening is required for an 8m truck to manoeuvre within the site. Vehicle tracking of an 8m rigid truck is included in **Attachment A**.

In addition to an 8m truck, a 9.5m Smart Environmental waste truck has been assessed based on the understanding that this vehicle will be used for waste collection purposes. The truck is anticipated to service the marae and cultural centre from the turning head area, and collect the residential waste from a central collection location. The central waste collection location is adjacent to the site entrance and therefore it is not anticipated that the waste collection truck will route through the residential portion of the site. Vehicle tracking for the rubbish truck is also included in **Attachment A**. Again some localised widening is required for this vehicle to manoeuvre within the site.

### 7.4 PARKING SPACE DESIGN

Rule 3.a.i. of Appendix 1 of the District Plan refers to the NZS2890.1 Off Street car parking guide for parking space design of general parking spaces. This guide specifies parking space dimensions based on the intended user, for which the following is proposed:

- Residential – User class 1A: Residential parking
- Wharenui and wharekai – User class 2: Entertainment centres (generally medium-term parking)



User class 1A spaces are required to be at least 2.4m wide, 5.4m long (or 4.8m where kerb overhang is proposed) and have a 5.8m aisle width. It is understood that all of the residential parking spaces will comply with this requirement.

User class 2 spaces are required to be at least 2.5m wide, 5.4m long (or 4.8m where kerb overhang is proposed) and have a 5.8m aisle width. It is understood that all of the parking spaces within the main parking lot will comply with this requirement.

Accessible spaces are required to be designed to NZS2890.6 as specified by Rule 3.a.ii. This standard specifies that accessible spaces are required to be at least 2.4m wide, have a 1.1m additional width on one side, and 5.0m length. The accessible parking spaces comply with this requirement.

## 8 ACCESS

### 8.1 GENERAL

The site is proposed to be serviced via two vehicle access, one as the main access and the second as a specialty servicing access. The main access design has been designed to accommodate a car entering and exiting simultaneously, as well as the truck turning movements.

It is recommended that the delivery access be designed to accommodate the tracking curves of an 8m truck as per the vehicle tracking included in Attachment A, on the basis that an 8m truck is the largest vehicle anticipated to use this access.

### 8.2 SIGHT DISTANCE

It is understood that Rotorua District use the Road Traffic Standards 6 – Guidelines for Visibility at Driveways (RTS6) to assess sight distance requirements for vehicle crossings. Due to the horizontal bend in Tarawera Road the sight distance to the east of the main access, and west of the service access, are restricted. As such, it is recommended that the speed limit of Tarawera Road is reduced to 50 km/hr to achieve safe sight distances to the site. Given that the tourist attractions, the Buried Village and the Tarawera Trail, are located on the southern side of the road, and the proposal on the northern side of the road, there are additional benefits in reducing the speed environment through this section of the corridor.

For a high volume driveway (more than 200 vehicle movements per day) located on an arterial road, the RTS6 requires 90m sight distance. This sight distance can be achieved at both accesses as per the desktop assessment included in **Attachment A**.

During our site visit the main access was also reviewed, as shown in Photograph 1 and Photograph 2.

**Photograph 1: Main Access - Sight Distance to the west along Tarawera Road**



**Photograph 2: Main Access - Sight Distance to the east along Tarawera Road**

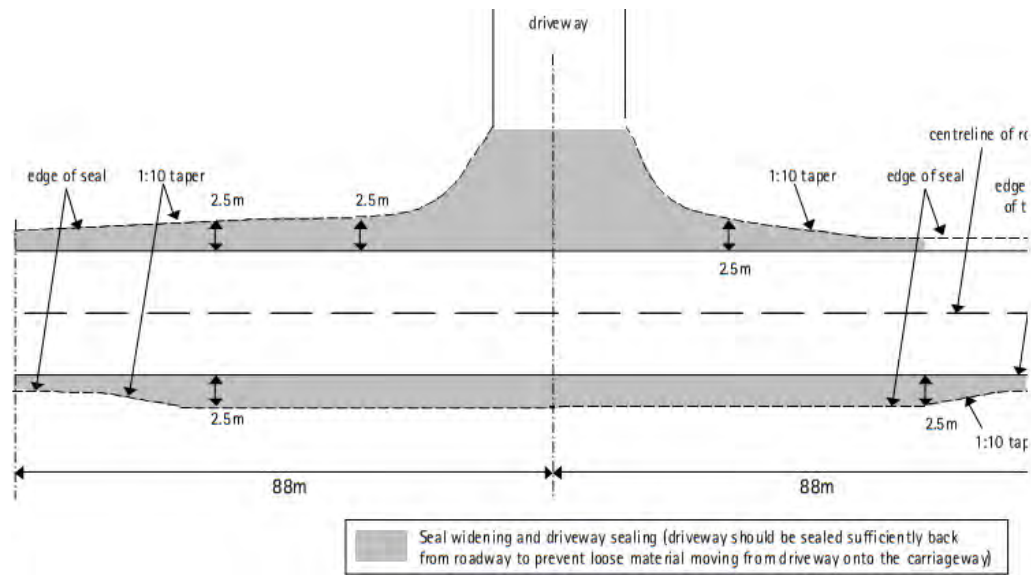


It is understood that the bank to the east of the main access will be cut back, and the vegetation removed, in order to achieve the sight triangles shown in **Attachment A**. Given the desktop assessment and photographs shows the main access can have sufficient sight distance, the servicing access is also considered to have appropriate sight distance. As such, the proposed sightlines are considered acceptable provided the speed limit is reduced to 50km/hr in addition to the bank and vegetation being cut back/removed.

## 9 ACCESS DESIGN

It is understood that the Rotorua District adopts the RTS-6 document in regards to access. The RTS 6 document details accessway form for rural arterial vehicle crossings that feature heavy vehicle use (high volume). The RTS 6 access design for a low volume rural arterial driveway used by heavy vehicles is detailed in Figure 5-1 below.

Figure 9-1: RTS 6 Access Design



This main access has been designed to this RTS-6 design which is considered appropriate.

## 10 CONCLUSION

From a review of the proposal to develop a mixed-use development including 10 residential units, as well as a marae, and a cultural centre development, within Block 6J2B3 Rotomahana Parekarangi, Tarawera Road in Rotorua, the following can be concluded:

- The traffic expected to be generated by the proposed development can be accommodated within the proposed road network. The effects of this generated traffic are considered to be minimal;
- There is no minimum and no maximum parking requirement for general parking spaces, however the marae and cultural centre do require accessible parking space. A total of 2 accessible spaces are required, and 2 accessible parking spaces are proposed in accordance with the District Plan;
- On-site servicing is proposed, with waste of the marae to be collected just west of the wharekai, waste of the cultural centre waste to be generally collected from the same location, and the waste of the residential portion of the site to be collected from a central collection point near the site access. Localised widening is recommended to allow the rubbish truck to turn on site;
- The dimensions of all parking spaces will comply with the dimensions outlined in this report;
- The two accesses proposed are considered appropriate to service the site. It is recommended that the eastern access is designed to accommodate the tracking paths of an 8m truck given this is a servicing access;
- The available sight distances are considered acceptable as discussed above providing the posted speed limit is reduced to 50km/hr, in addition to the bank and vegetation being cut back/removed.

Accordingly, the following recommendations are considered appropriate:

- The posted speed limit should be reduced to 50km/hr past the site to ensure sight distance requirements are met.
- The bank and vegetation along the site frontage should be removed as per Attachment A to ensure sight distance requirements are met.



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- All parking space dimensions should be confirmed to meet district Plan requirements.
- Minor widening of the access / manoeuvring room should occur as per Attachment A.

Overall, (subject to the above) it is concluded that the development is generally in accordance with the District Plan and there are no traffic engineering or transportation planning reasons to preclude approval of the proposed development.

Yours sincerely

**Commute Transportation Consultants**

A handwritten signature in blue ink that reads "R Gasson".

Rachel Gasson

**Senior Transport Consultant**

[Rachel@commute.kiwi](mailto:Rachel@commute.kiwi)

A handwritten signature in black ink that reads "Leo Hills".

Leo Hills

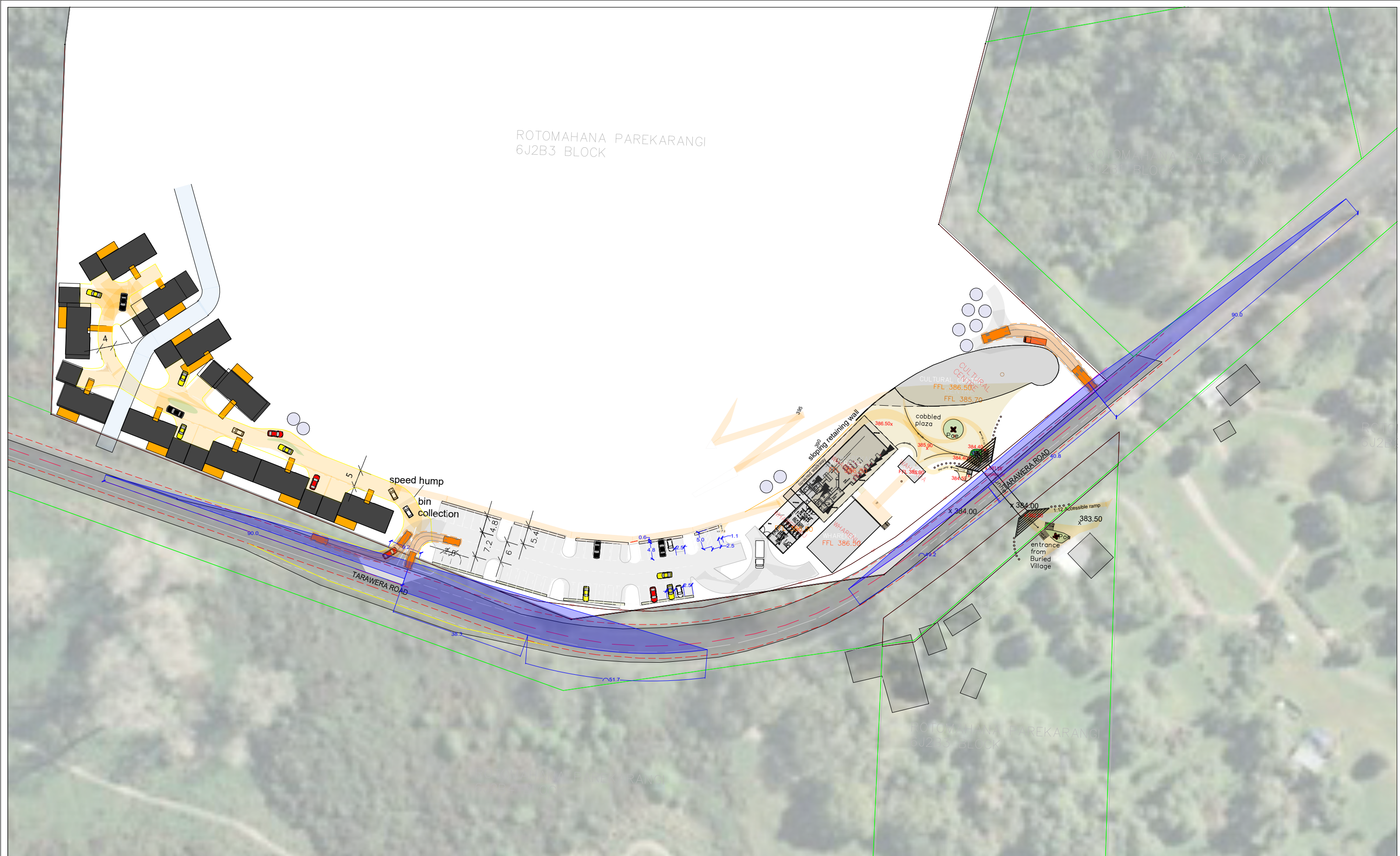
**Director**

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## ATTACHMENT A – DESIGN REVIEW



Revision notes:		
Rev:	Date:	Notes:

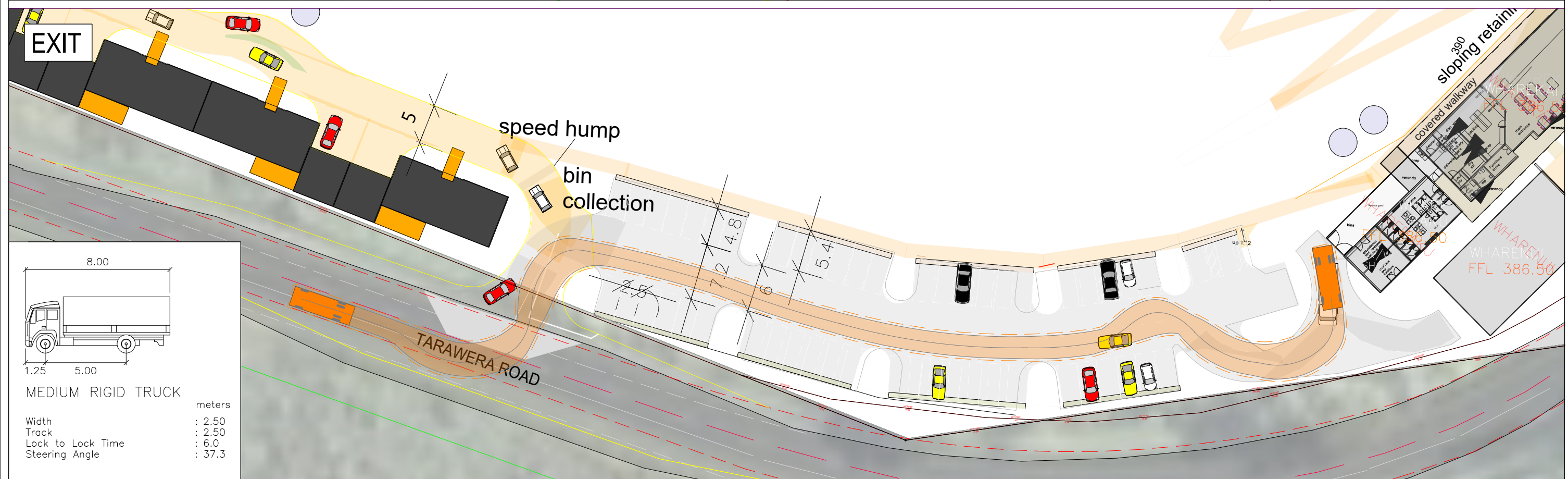
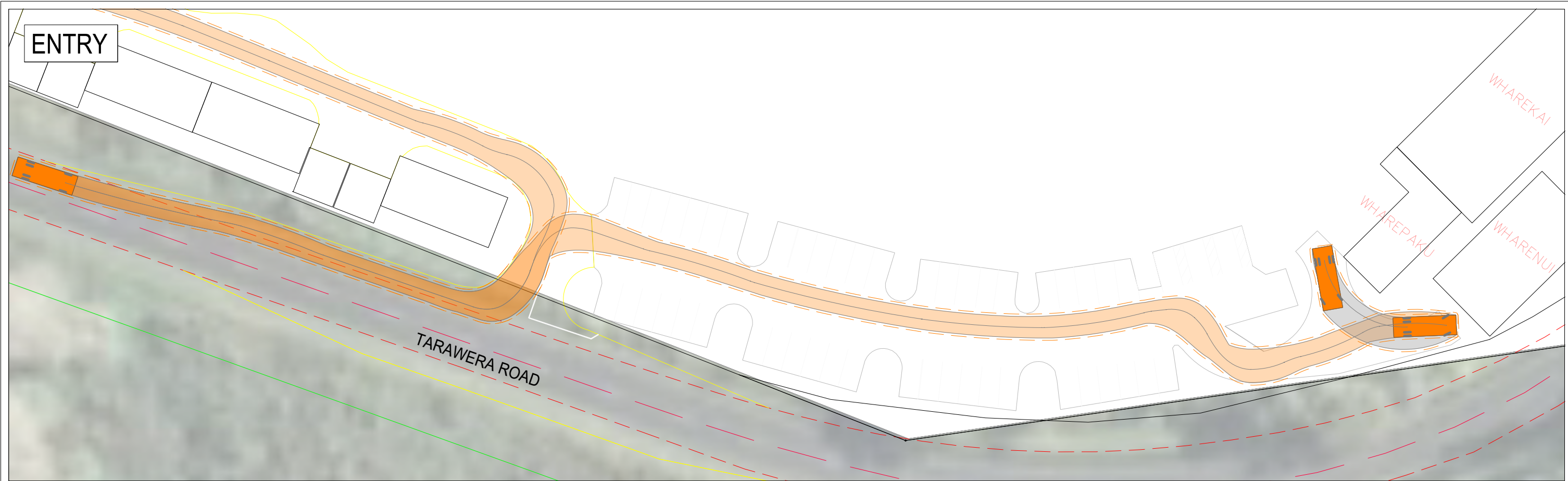
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<b>Client:</b> ROTOMAHANA MIXED USE DEVELOPMENT

<b>Project:</b> ROTOMAHANA MIXED USE DEVELOPMENT
<b>Drawing Title:</b> TRANSPORTATION ASSESSMENT

<b>Date:</b> APRIL 2022
<b>Scale @ A3:</b> 1:1000
<b>Revision:</b> A



Figure:  
**1**



MEDIUM RIGID TRUCK

Width : 2.50 meters  
 Track : 2.50  
 Lock to Lock Time : 6.0  
 Steering Angle : 37.3

Revision notes:		
Rev:	Date:	Notes:

<b>Drawn by:</b> RG J002477	<b>Client:</b> ROTOMAHANA MIXED USE DEVELOPMENT
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<b>Project:</b> ROTOMAHANA MIXED USE DEVELOPMENT	<b>Drawing Title:</b> VEHICLE TRACKING 8M TRUCK
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<b>Date:</b> APRIL 2022	<b>Scale @ A3:</b> 1:500
<b>Revision:</b> A	

Figure:  
**2**



MEDIUM RIGID TRUCK		units
Width	: 2.50	meters
Track	: 2.50	
Lock to Lock Time	: 6.0	
Steering Angle	: 37.3	

Revision notes:		
Rev:	Date:	Notes:

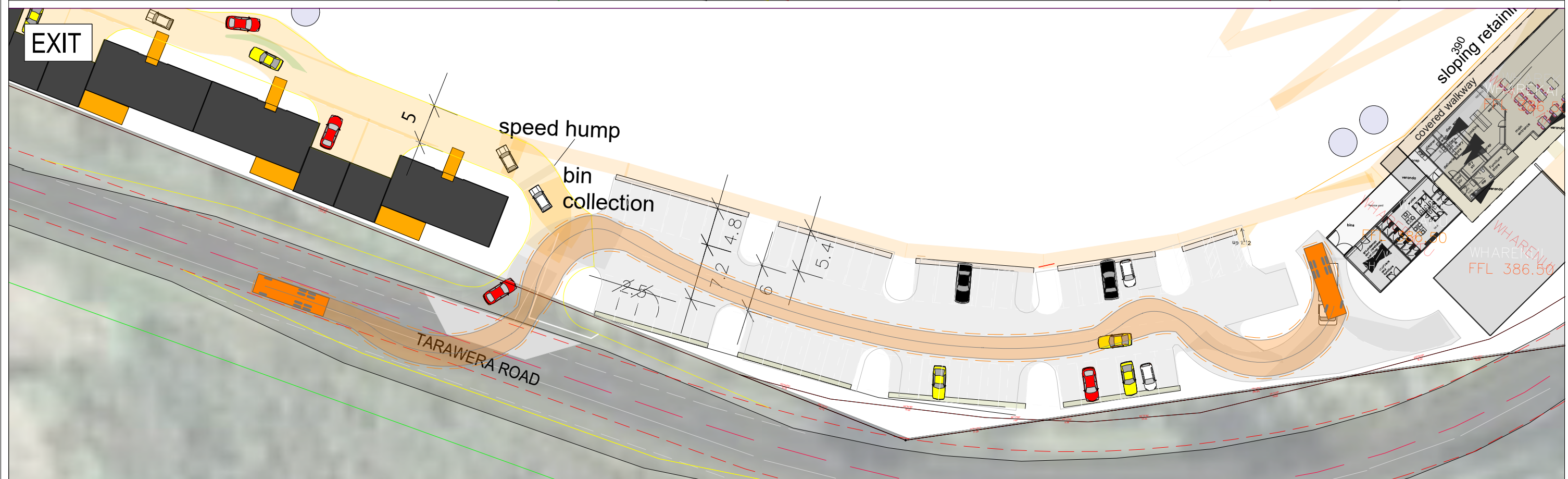
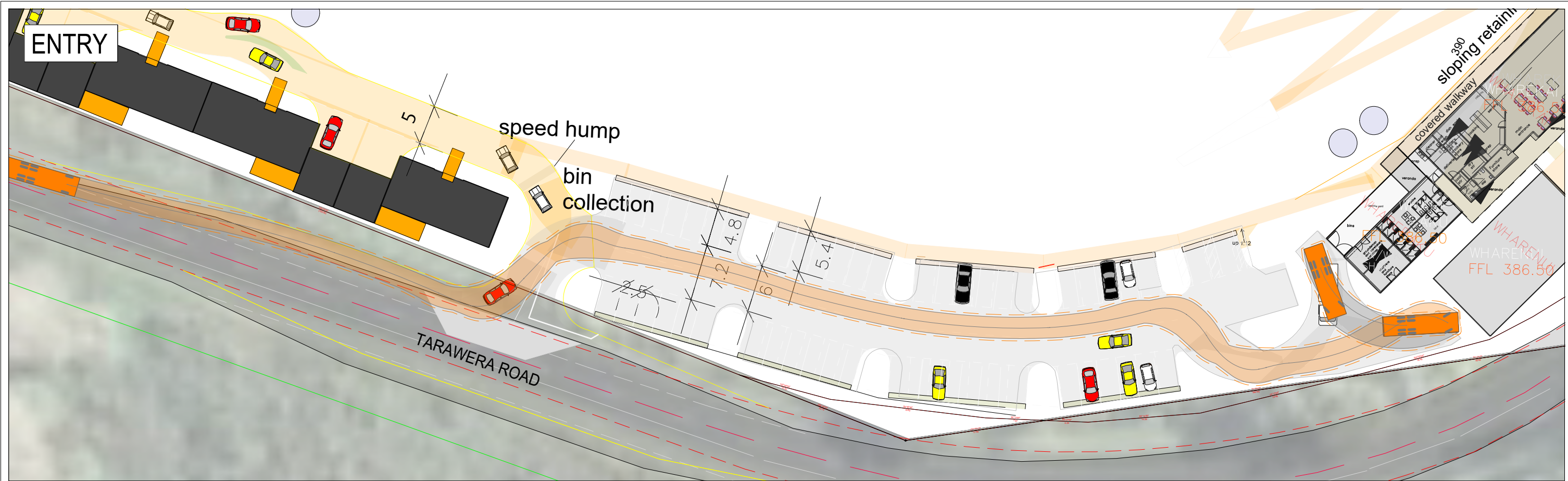
<b>Drawn by:</b> RG J002477	<b>Client:</b> ROTOMAHANA MIXED USE DEVELOPMENT
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<b>Project:</b> ROTOMAHANA MIXED USE DEVELOPMENT	<b>Drawing Title:</b> VEHICLE TRACKING 8M TRUCK
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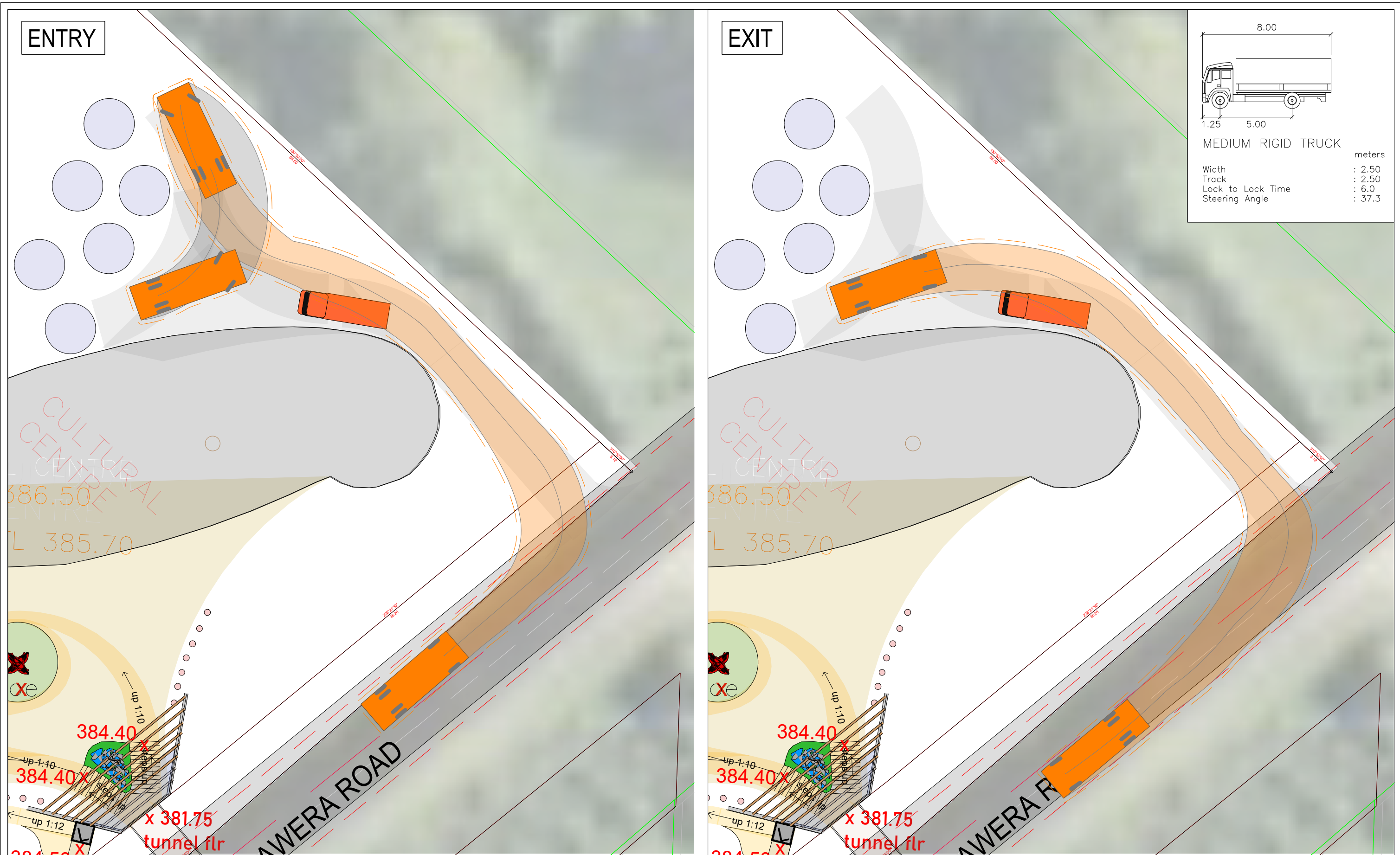
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<b>Revision:</b> A	

Figure:  
**3**





<b>Revision notes:</b> <table border="1"> <thead> <tr> <th>Rev:</th> <th>Date:</th> <th>Notes:</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Rev:	Date:	Notes:				<b>Drawn by:</b> RG J002477  <b>Client:</b> ROTOMAHANA MIXED USE DEVELOPMENT	<b>Project:</b> ROTOMAHANA MIXED USE DEVELOPMENT  <b>Drawing Title:</b> VEHICLE TRACKING 9.5M RUBBISH TRUCK	<b>Date:</b> APRIL 2022  <b>Scale @ A3:</b> 1:500  <b>Revision:</b> A		<b>Figure:</b> <span style="font-size: 2em; font-weight: bold;">4</span>
Rev:	Date:	Notes:											



	units
MEDIUM RIGID TRUCK	width
	Track
	Lock to Lock Time
	Steering Angle
	units
	: 2.50
	: 2.50
	: 6.0
	: 37.3

Revision notes:		
Rev:	Date:	Notes:

<b>Drawn by:</b> RG J002477
<b>Client:</b> ROTOMAHANA MIXED USE DEVELOPMENT

<b>Project:</b> ROTOMAHANA MIXED USE DEVELOPMENT
<b>Drawing Title:</b> VEHICLE TRACKING 8M TRUCK

<b>Date:</b> APRIL 2022
<b>Scale @ A3:</b> 1:250
<b>Revision:</b> A

Figure:  
**5**

**Rotorua District Council Staff Report on Landuse Application  
Rotomahana Parekarangi 6J2B3 Trust – Tarawera Road, Te Wairoa**

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**APPENDICES:**

- A : Zoning Maps**
- B : The Application**
- C : Submissions**
- D : Objectives and Policies of the District Plan**
- E : Council Staff Reports**

**Rotorua District Council Staff Report on Landuse Application  
Rotomahana Parekarangi 6J2B3 Trust – Tarawera Road, Te Wairoa**

## **1.0 FACTUAL INFORMATION**

<b>File Reference:</b>	P 17367
<b>Hearing Date:</b>	15 February 2002
<b>Applicant Name:</b>	Rotomahana Parekarangi 6J2B3 Trust
<b>Legal Description of Property:</b>	Rotomahana Parekarangi 6J2B3 Block VII Tarawera SD
<b>Location:</b>	Tarawera Road, Te Wairoa (approximately 1.5 km west of Lake Tarawera and 200 metres west and on the opposite side of the 'Buried Village')
<b>Site Area:</b>	11.4146 hectares
<b>Zoning:</b>	Transitional District Plan : Rural 1 Proposed District Plan : Rural A Proposed Lakes A Variation : Tarawera Policy Area - Sensitive Rural Management Area with a Recommended Area of Protection (Significant Indigenous Vegetation RAP 74 : Lake Okareka Scenic Reserve Extension) constraint
<b>Purpose of Application:</b>	The proposed development of the site involves the following resource consent application:

- Landuse :

To develop and operate a visitor attraction centre incorporating audiovisual exhibitions, active visitor experiences, static displays, café, administration area, retail shops, toilets and parking. Associated activities include the widening of Tarawera Road and vehicle access to the site, earthworks, landscaping, signage and servicing (eg stormwater, water supply tanks).

In addition, the following two resource consent applications have been made to Environment Bay of Plenty (EBOP):

- Landuse (60286 EBOP):

To undertake cut to fill earthworks of approximately 16,000 m<sup>3</sup> and discharge contaminants from sediment retention facilities to land in circumstances where it may enter the Te Wairoa Stream.

- Discharge Permit (60287 EBOP):

To discharge up to 13 m<sup>3</sup> of treated effluent per day to ground soakage.

## **2.0 SITE DESCRIPTION AND LOCALITY**

2.1 A detailed description of the subject site is contained in the application (at Section 3.3 of the resource consent application) and in the accompanying reports to the resource consent applications (refer to **Appendix B, B1 – B146**) :

- Assessment of Landscape and Visual Effects Report prepared by Isthmus Group;
- Ecological Survey prepared by Analytical and Environmental Consultants;

## Rotorua District Council Staff Report on Landuse Application Rotomahana Parekarangi 6J2B3 Trust – Tarawera Road, Te Wairoa

- Preliminary Archaeological Survey and Assessment of Effects prepared by Archaeology BOP; and
- Engineering Report prepared by APR Consultants Ltd

In summary, the site is uneven, but generally flat along the Tarawera Road frontage and rises steeply to the north towards Te Mu hill. Vegetation cover is a mixture of grassy shrubland and exotic trees with a weedy understorey alongside the Tarawera Road and regenerating native forest on the Te Mu Hill.

- 2.2 The Te Wairoa Stream is on the southern side of Tarawera Road approximately 120 metres from the site's southern boundary and the Buried Village complex is to the east across Tarawera Road. Land immediately to the south (across Tarawera Road) is used for low intensity dry stock grazing. Further east, a number of recreational activities are located, including the Rotorua Model Aircraft Club, Rotorua Microlight Aircraft Club and Rotorua Black Powder Club.
- 2.3 The adjacent reserve on the same side of Tarawera Road and to the east of the site is a Scenic Reserve and contains a picnic area, carpark and memorial cairn.

### 3.0 APPLICATION DESCRIPTION

#### 3.1 Land Use Consent (Rotorua District Council – 'RDC')

A full copy of the land use application, together with the supporting information is contained in **Appendix B**. The main features of this application include:

- A single visitor attraction centre incorporating audiovisual exhibitions, active visitor experiences, static displays, café, administration area, retail shops and toilets within a building with:
  - Gross floor area of 1,850 m<sup>2</sup>
  - Maximum height of 7.44 metres
  - Maximum site coverage of 1.62%
- Parking area for 48 cars and 4 buses with a single entry/exit point. Tarawera Road will be widened in the vicinity of the entry/exit point to accommodate the access.
- Removal of approximately 7,400 cubic metres of soil to provide the building platform for the centre. Surplus excavated material (approx 4,000 m<sup>3</sup>) will be used to create an earth mound alongside Tarawera Road, which is to be landscaped. The remainder of the excavated material is to be stockpiled on the site. (Refer also to landuse consent to EBOP in Section 3.2.1 below)
- Landscaping of the earth mound along the frontage of the site with Tarawera Road and of the visitor attraction centre building.
- Two standard Transit New Zealand signs at 200 and 400 metres from the site and two on-site 'heritage style' signs announcing the attraction.
- The maximum predicted visitor numbers is 450 persons per day during the peak season and an average of 170 persons per day is anticipated. The centre will operate between 8 am to 6 pm seven days per week.
- Water supply is by means of a take from the Te Wairoa Stream and pumping to two 23 m<sup>3</sup> water storage tanks on the hill above the building. The tanks will be partially in-ground. A service vehicle track approximately 3 metres wide will be constructed to the tank site for construction and future maintenance.

## **Rotorua District Council Staff Report on Landuse Application Rotomahana Parekarangi 6J2B3 Trust – Tarawera Road, Te Wairoa**

- Stormwater from the roof of the building, the internal artificial lake and parking area is to be disposed of by means of soak holes.
- Wastewater will be treated using a package treatment plant and discharged to an effluent disposal field. (Refer also to discharge consent to EBOP in Section 3.2.2 below)

### **3.2 Resource Consent Applications to Environment Bay of Plenty**

In addition to the land use consent application to RDC, two resource consent applications have been applied for from EBOP, as outlined below.

#### **3.2.1 Land Use Consent – Earthworks**

The main features of this application include:

- Removal of approximately 7,400 cubic metres of soil to provide the building platform for the centre. Surplus excavated material (approx 4,000 m<sup>3</sup>) will be used to create the earth mound alongside Tarawera Road, which is to be landscaped. The remainder of the excavated material is to be stockpiled on the site.
- Sediment retention ponds will be used to control possible contaminated stormwater during excavation and construction activities. The ponds are to be approximately 2 metres square and 1.5 metres deep and located 50 metres apart.
- A perimeter contour drain and earth bund will be excavated around the site prior to the commencement of bulk earthworks. The drain will collect runoff from the building site and direct it to the sediment ponds. Silt fences or similar temporary sediment barriers (eg check dams) will need to be installed if the grade of the drain exceeds 1%.
- A timber crib retaining wall will be constructed alongside the visitor centre building.
- The access track to the proposed water tanks will be constructed using a small hydraulic excavator.
- A vegetated buffer will be maintained around the northern, eastern and southern sides of the building site.

#### **3.2.2 Discharge Permit – Treated Effluent**

The main features of this application include:

- Installation of a package treatment system comprising an anaerobic receiving chamber, an aeration chamber, a clarification chamber, an irrigation pump chamber and a drip irrigation disposal system.
- Up to 13 m<sup>3</sup> of treated effluent to be disposed to ground on land behind the visitor centre building (above the 413 meter contour), which is moderately flat and covered in regenerating vegetation.

## **4.0 BACKGROUND HISTORY**

### **4.1 Land Ownership**

The applicant is part of Tuhourangi, who were forced to leave the land after the 1886 eruption. Gradually over time, the Crown assumed ownership of the land. In the early 1990's the applicant was given back the block of land known as Rotomahana Parekarangi 6J2B3, and this land is now owned and administered by a Trust. The Trust was formally constituted as an Ahu Whenua Trust under Sections 215 and 220 of the Te Ture Whenua Maori Act 1993.

**Rotorua District Council Staff Report on Landuse Application  
Rotomahana Parekarangi 6J2B3 Trust – Tarawera Road, Te Wairoa**

## 4.2 Previous Application

In April 1999, the applicant lodged a land use consent for a similar development on the subject site. This application was heard by the Statutory Hearings Subcommittee meeting on 15 February 2000 and the Council's decision was to **decline** to grant consent to the application.

In summary, the reasons for declining this application were:

- Environmental effects of the proposal (particularly in relation to the scale of the building and carparking facilities) will be more than minor;
- Landscaping/screening proposed by the applicant would not be sufficient to mitigate against the impact of such a large development on the natural character of the location;
- The changes necessary to mitigate these adverse effects are such that a new application is required for fresh scrutiny and assessment; and
- Uncertainty over the provisions of the Tarawera Variation.

The applicant did not appeal the Council's decision.

## 5.0 SUBMISSIONS

### 5.1 Details of Submitters

A total of twelve (12) submissions were received in time to the application. Nine (9) submissions in opposition, one (1) in support and two (2) neutral submissions (neither in support of opposition) were received as shown in the following table. A copy of all submissions are attached in **Appendix C**.

No.	Submitter	Address	Heard/Not Heard	Appendix C Page Ref
<b>In Opposition</b>				
1	Alexy Simmons	24 Ridout Street Forest Lake Hamilton	Yes	C3-C4
2	P Smith	PO Box 5262 Mount Maunganui	No	C5-C8
3	DW Smith Ltd	DW Smith Ltd c/- P Smith PO Box 5262 Mount Maunganui	No	C9-C12
4	DW Smith Family Trust	DW Smith Family Trust c/- P Smith PO Box 5262 Mount Maunganui	No	C13-C16
6	Tarawera Lakes Protection Society Inc	The Secretary 136 Spence Road RD5 Rotorua	Yes	C17-C18
7	Rotorua Model Aircraft Club	Secretary Rotorua Model Aircraft Club c/- AJ Watson 1A Blackmore Drive Rotorua	Yes	C19-C20



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8	Rotorua Microlight Aircraft Club	Secretary (J Todd) Rotorua Microlight Aircraft Club PO Box 851 Rotorua	No	C21-C22
10	Royal Forest & Bird Protection Society (Rotorua Branch)	Royal Forest & Bird Protection Society (Rotorua Branch) c/- Rod Stace PO Box 1489 Rotorua	Yes	C23-C24
11	Lake Tarawera Ratepayers Assoc Inc	Secretary Lake Tarawera Ratepayers Assoc Inc PO Box 1913 Rotorua	Yes	C25-C26
<b>In Support</b>				
12	NZ Historic Places Trust	PO Box 105 291 Auckland 1030	No	C27-C28
<b>Neutral</b>				
5	Pacific Health Toi Te Ora Public Health	Steve Goodin Senior Health Protection Officer Pacific Health Toi Te Ora Public Health PO Box 1858 Rotorua	No	C29-30
9	Rotorua Black Powder Club Inc	David Bagnall 116 Otonga Road Rotorua	No	C31-C32

## 5.2 Submissions in Opposition/Neutral Submissions

In summary, the concerns raised by submitters are as follows:

- Effects on archaeological features
  - Insufficient information on effects on archaeological features and deposits
  - Archaeological assessment (including sampling of the subsurface) is required to determine the actual effects and mitigation methods
  - Archaeological investigation is required prior to any development
  - NZHPT information is incorrect
- Effects of excessive stormwater causing flooding
  - Volume of stormwater cannot be disposed to ground
  - Flooding already occurs along the roadside and through culverts to the Buried Village
  - Volcanic mud is impermeable to water
  - Effluent disposal system will not cope with torrential rainfall and excess will flow to the Buried Village and Te Wairoa Stream
- Effects on Te Wairoa Stream
  - Low flows in summer could endanger trout stocks and habitat, and affect water quality for downstream users
- Drinking Water Supply
  - Te Wairoa Stream floods and carries high levels of pumice particulates and pathogens from farm runoff and feral animal intrusion
  - Suitable water supply needs to include filtration, disinfection, water supply management plan and water testing complying with Ministry of Health's Drinking Water Standards for New Zealand 2000.

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- Inappropriate activity in relation to natural character of area
  - Contrary to Proposed District Plan and Proposed Lakes A Variation
  - Contrary to Tarawera River Catchment Plan and Regional Policy Statement
  - Contrary to Resource Management Act 1991
  - Contrary to reference RMA 293/96 and associated interim decision
  - Destruction of significant area of native vegetation (within a RAP), excessive earthworks will lead to detract from visual amenity and other adverse effects
- Reverse sensitivity on existing recreational activities
  - Noise from model aircraft, microlight and black powder gun clubs already existing
  - Proposed site too close to these 'noisy activities'
  - Any abatement requirements would affect existing recreational activities
- Road safety issues
  - Entrance/exit is close to a blind corner in a 100 km/hr zone
  - Footpath required between this complex and the Buried Village

### 5.3 *Submission in Support*

The one submission in support from the New Zealand Historic Places Trust requested that two conditions be included on the grant of the resource consent application to address the following matters:

- Identification, avoidance and long term preservation of waihi tapu, traditional sites and other taonga; and
- No compromise of the cultural heritage and traditional character of the ancestral landscape

### 5.4 *Decision/Conditions Requested by Submitters*

A number of the submissions give alternatives for the Council decision sought. Accordingly, the number of decisions sought set out below is more than the number of submitters.

- Ten submitters request refusal of the application
- Six submitters request that if Council were to grant consent, it should be subject to conditions including:
  - Archaeological assessment and protection and preservation of features
  - Water quality
  - Agreement regarding noise from recreation activities.

### 5.5 *Comments from Other Persons Interested in or Affected by the Application*

NA

## 6.0 *DISTRICT PLAN PROVISIONS*

### 6.1 *General*

- 6.1.1 Pursuant to Section 104 of the Resource Management Act 1991 (RMA) the assessment of the applications is required to have regard to the Rotorua Transitional and Proposed District Plans.

Case law has confirmed that when having regard to both a Transitional and Proposed District Plan at the same time, the importance of the Proposed Plan will depend on the extent to which it has proceeded through the submission and reference (appeal) process. This matter is considered further in Section 6.4 below.

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- 6.1.2 In this case, submissions and further submissions to the Proposed District Plan have all been heard and Council's decisions released. There is one outstanding reference to the Environment Court. In response to an interim Environment Court decision on this outstanding reference, the Rotorua District Council has notified Proposed Lakes A Zone Variation (Variation 12). The Variation seeks to give appropriate recognition and environmental protection to the catchments of Lakes Okataina, Okareka, Tikitapu, Rotokakahi, Tarawera, Rotomahana and Okaro.
- 6.1.3 Proposed Lakes A Variation was publicly notified on 13 May 2000, and its provisions encompass the site subject of this application. It is noted that the subject application was lodged with the Council and publicly notified after the notification of Proposed Lakes A Zone Variation. In respect of this variation, submissions and further submissions to it have all been heard, but Council decisions have not been released. Accordingly, regard has to be had to the provisions of the Proposed Lakes A Variation as publicly notified, noting that a number of the provisions are subject to submissions.
- 6.1.4 The zoning activity status of the proposal for both the landuse consent under the Transitional and Proposed Plans and Proposed Lakes A Zone Variation are outlined below.

### **6.2 Transitional District Plan**

#### **6.2.1 Zoning**

The site is zoned Rural 1 (refer Zoning Map, **Appendix A, A1**).

#### **6.2.2 Activity Status**

Section 301 of the Transitional District Plan sets out requirements for activities in the Rural 1 Zone. There is no provision for the type of development proposed in this application as either a permitted, controlled or discretionary activity. This proposal is therefore deemed to be a **non complying** activity.

It is noted that the site is within an area subject to Section 34 of the Soil Conservation and Rivers Control Amendment Act 1959. This matter is a responsibility of the Bay of Plenty Regional Council (Environment BOP) and will be addressed in the land use (earthworks) consent sought from Environment BOP.

### **6.3 Proposed District Plan**

#### **6.3.1 Zoning**

The site is zoned Rural A (General) (refer Zoning Map, **Appendix A, A2**).

#### **6.3.2 Activity Status**

Rule R10.1.1 of the Proposed District Plan sets out requirements for activities in the Rural A Zone. There is no provision for the type of development proposed in this application as either a permitted, controlled or discretionary activity. This proposal is therefore deemed to be a **non complying** activity.

### **6.4 Proposed Lakes A Variation**

#### **6.4.1 Zoning**

The site is zoned Tarawera Policy Area – Sensitive Rural Management Area with a RAP (Significant Indigenous Vegetation) constraint (refer to Zoning Map, **Appendix A, A3**).

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### 6.4.2 Activity Status

Section 8 of Proposed Lakes A Variation sets out the activity status for development in the Tarawera Policy Area. The relevant rules and activity status are shown in the following table:

RULE	ACTIVITY STATUS			
	Permitted	Controlled	Discretionary	Non Complying
2.0 Indigenous Vegetation Disturbance			*	
5.0 Earthworks			*	
6.0 Building Platforms			*	
11.0 Hard Surfaces			*	
14.0 Signs			*	
17.0 Site Coverage			*	
18.0 Gross Floor Area				*
19.0 Height		*		
21.0 Reflectivity	*			
22.0 Viewpoints	*			
23.0 Skyline	*			
24.0 Floor Levels	*			
25.0 Buffers			*	
27.0 Spill Light or Stray Light Emissions	*			
28.0 Noise	*			
29.0 Traffic Generation			*	
30.0 On-Site Carparking and Manoeuvring	*			
31.0 Vehicle Crossings	*			
34.0 Potable Water Supply	*			
35.0 Collection and Disposal of Stormwater	*			
36.0 Sewage Collection and Disposal	*			
37.0 Electricity and Telecommunication Lines	*			
41.0 Consultation with Iwi	*			

The application falls to be considered as a **Non Complying** activity, due to the failure to meet the gross floor area rule.

Each of the relevant rules and related assessment criteria are discussed in **Section 7.3** below, along with other relevant statutory provisions.

## 6.5 Summary

### 6.5.1 Land Use

The application falls to be considered as a **non complying** activity under the Transitional and Proposed District Plans and Proposed Lakes A Variation.

### 6.5.2 Relative Weighting of the Transitional and Proposed District Plans and Proposed Lakes A Variation

The RMA does not distinguish between the relative weighting to be accorded to a Transitional Plan, a Proposed Plan and an Proposed Variation, each case depends on its own circumstances.

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The Proposed District Plan is at the late stage of the planning process. Council decisions have been released on all submissions and further submissions and there is only one outstanding reference. It is therefore my view that significant weight should be given to the Proposed District Plan in this case. It is therefore not intended to undertake an assessment of the relevant matters under the Transitional District Plan.

Proposed Lakes A Zone Variation seeks to replace the provisions of the Proposed District Plan in the Lakes A Zone. However, the Variation is subject to submissions and further submissions that challenge a number of the provisions. The Variation has adopted an effects based approach to the management of the Lakes environment. There is no special consideration given to types of development. Rather, where the effects of any activity are within the prescribed limits or conditions for a permitted activity, the activity is allowed. In this instance, the proposed development falls to be considered as a non complying activity in respect of one (1) matter and a discretionary activity in respect of eight (8) critical matters.

While the objectives, policies and rules of the Proposed Lakes A Variation are subject to submissions in opposition, it is considered that these provisions are of relevance and assistance in the assessment of resource consent applications, as they have been developed to address the specific characteristics of the Lakes A environment and are to give effect to an interim Environment Court decision (refer 6.1.2). Accordingly, significant weighting should be given to them.

As both the Proposed District Plan and Proposed Lakes A Zone Variation are relevant, significant weighting is to be given to both documents.

## **7.0 ASSESSMENT OF MATTERS TO BE CONSIDERED UNDER RMA**

### **7.1 Introduction**

The following assessment of the application considers the land use application in terms of the relevant assessment matters of Section 104 RMA, covering the following matters:

- relevant objectives and policies of the Proposed District Plan and Proposed Lakes A Zone Variation;
- relevant rules and assessment criteria of the Proposed District Plan and Proposed Lakes A Zone Variation;
- relevant regional planning considerations;
- effects of the proposal on the environment (main issues for assessment); and
- purpose and principles of the RMA

Rather than going through the matters contained in each of the above bullets points, an outline of the relevant objectives and policies is provided in Section 7.2. The report then focuses on the effects of the proposal on the environment and sets out each of the relevant statutory provisions (eg rule, objective, policy) in relation to that effect. There is a detailed assessment in the application against these relevant statutory provisions. I generally concur with that assessment, and have not sought to repeat it in this report. The provisions of the Proposed District Plan and the Proposed Lakes A Zone Variation cover similar matters. However, it is my opinion that the provisions in the Proposed Lakes A Zone Variation are more detailed and relevant to assist in the assessment of this application. Accordingly, this report focuses on these provisions (refer to discussion in Section 6.5.2 above).

### **7.2 Objectives and Policies of the Proposed District Plan and Proposed Lakes A Zone Variation**

- 7.2.1 A number of sections of the Proposed District Plan and Section 4.0 of the Proposed Lakes A Zone Variation have objectives and policies relevant to the consideration of the application. These are summarised in the table below and are set out in full in **Appendix D**. Each relevant objective and policy is discussed in Section 7.3 below.

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Proposed District Plan	Proposed Lakes A Zone Variation
Part Five - Maori Development Part Six - Tourism Part Ten - Rural Resources	Objectives : OB1 – OB13  P1.0 - Landscape and Iwi Policies for the Lakes A Zone P2.5 - Tarawera Policy Area
Part Eleven - Reserves, Water Bodies & Heritage Part Sixteen - Subdivision & Development	P3.0 - Water Quality Policies P5.0 - Indigenous Flora & Fauna & Habitats Policies P8.0 - Landforms Policies P9.0 – Cultural and Historic Heritage P11.0 - Infrastructure & Utilities Services Policies P12.0 - Natural Hazards Policies P15.0 - Amenity Policies

- 7.2.2 The relevant objectives and policies establish certain environmental parameters for the site which are not to be compromised. These include maintenance and enhancement of water quality, preservation of archaeological sites, protection of significant indigenous vegetation and protection of outstanding natural features and amenity values.
- 7.2.3 The Rural A Zone of the Proposed District Plan is a general zone that comprises the rural part of the District. The zone provides for a range of permitted rural activities and buildings, including ancillary activities such as limited clearance or modification of indigenous vegetation, and homestay/farmstays. In addition, the zone provides for 'non-rural activities' and/or activities which have the potential to have an adverse effect on the environment as discretionary activities (eg indoor commercial recreation activities, rural contractors depots, restaurants). The provision of such activities as discretionary allows any application to be assessed against the matters of Section 104 RMA, including matters of national importance under Part II RMA.
- 7.2.4 Proposed Lakes A Zone Variation is in response to an interim Environment Court decision which considered the lakes environment to be '*a precious heritage to be cherished and protected*'. The Court highlighted a number of rules that required building controls and criteria for assessing applications for land use consent. A key issue in relation to buildings was the effect that they have on the visual landscape.
- 7.2.5 The objectives and policies of the Proposed Lakes A Zone Variation focus specifically on the direction given under the RMA in relation to the matters dealt with in Part II (Sections 5, 6, 7 and 8). The objectives and policies seek to strengthen those in the Proposed District Plan with a specific focus on the lakes environment. The rules for the Proposed Lakes A Zone Variation are one method, which seeks to achieve the aims of the objectives and policies by giving a clear direction on the density and form of the built environment considered appropriate in the various landscape sensitive areas.
- 7.2.6 The Sensitive Policy Area and the Tarawera Landscape Policy Area of the Proposed Lakes A Zone Variation, recognise the outstanding nature of the area around this application site with respect to a number of attributes (refer to S5.1.3 and S5.2.5 of Proposed Lakes A Variation).

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### 7.3 Assessment of Effects of the Proposal on the Environment

#### 7.3.1 Landscape/Natural Character/Amenity Values

PROPOSED DISTRICT PLAN	PROPOSED LAKES A ZONE VARIATION	SUBMITTERS TO APPLICATION
OBJECTIVES Part Six – 2.1.2, 2.2.2, 2.3.2 Part Ten - 2.1.2 Part Eleven - 4.2.1.2, 4.2.2.2, 4.2.3.2 Part Sixteen - 2.1.2	OBJECTIVES OB1, OB2, OB5, OB7, OB12, OB 13, OB14e)	Tarawera Lakes Protection Society
POLICIES Part Six - 2.1.3.1, 2.2.3.2, 2.3.3.1 Part Ten - 2.1.3.1 Part Eleven - 4.2.1.3.1, 4.2.2.3.1, 4.2.3.3.1 Part Sixteen - 2.1.3.2, 2.1.3.3, 2.1.3.4, 2.1.3.5, 2.1.3.6	POLICIES P1.1, P1.2, P1.3b), P1.6, P2.5.1, P2.5.2, P2.5.3, P2.5.4, P2.5.5, P2.5.7, P5.1, P5.5, P5.6, P6.6, P6.7	Royal Forest & Bird Protection Society
	ASSESSMENT CRITERIA CR1.0, CR5.3, CR6.1, CR6.2, CR6.5	Lake Tarawera Ratepayers Association Inc

7.3.1.1 The potential adverse effects on the landscape, natural character and amenity values of the area are the primary matters that need to be considered as part of this application. In summary, the objectives and policies of both the Proposed District Plan and Proposed Lakes A Zone Variation seek to manage activities and their associated built development in a manner that recognises the sensitivity of the landscape and the ability of the landscape to absorb the changes.

7.3.1.2 The applicant has sought to address these issues through their assessment contained in Sections 4.2 and 4.4 of the AEE, the Ecological Report (Appendix Five) and the Landscape and Visual Effects Report (Appendix Six). (Refer to **Appendix B**)

7.3.1.3 The Ecological Report provides the following conclusions:

- The regenerating forest on the steeper slopes has a **moderate** conservation value and forms an attractive backdrop;
- Maintained and enhanced indigenous biodiversity and natural character will be achieved if an appropriate selection of plant species is used in the landscaping (preferably derived from local propagating material);
- The current nature of vegetation on the site (exotics, weed pests) hinders the development of ecological corridors, whereas the proposed landscaping associated with the development will assist in creating an ecological corridor; and
- The current nature of the vegetation on the site promotes the movement of exotic weed species into the indigenous vegetation. The proposed landscaping will reduce this effect.

7.3.1.4 The Landscape and Visual Effects Report is a detailed examination of the potential adverse effects on landscape, natural character and amenity values. The assessment contained in the Landscape and Visual Effects Report addresses each of the relevant objectives, policies and assessment criteria as are listed in the table above, and I concur with that assessment. The report provides the following conclusions:

- The development is outside the outstanding Tarawera Lake visual catchment itself and is at the 'low end' of sensitivity in the Lakes A Zone;

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- Any landscape and visual effects are minor and not contrary to the objectives and policies of the District Plans because:
  - The site is not outstanding or particularly sensitive
  - The building is not highly visible as it is set back at the base of the hill and painted in low reflectivity colours
  - The access track and water tanks are not highly visible as the track follows natural contours and is narrow, while the water tanks are behind the hill ridge and are set down into the ground
  - Existing hillside vegetation is retained
  - The access roads, parking areas and building are separated from the road and screened by earth mounds and landscaping.

7.3.1.4 Both the Ecological and Landscape and Visual Effects Reports have been reviewed by Ms Tessa Bunny (Landscape Architect, Rotorua District Council) on behalf of Council. Her full report is attached in **Appendix E**. Ms Bunny concurs with the assessment contained in the two reports and provides a suggested list of consent conditions.

7.3.1.5 The level of compliance with the relevant rules contained in Section 8 of Proposed Lakes A Variation provides a guide to determine the potential for a development to have an adverse on the landscape, natural character and amenity values of the area (refer to the table in Section 6.4.2 of this report). In effect, the permitted activity standards provide the 'environmental bottom line' for acceptable activities. The key rules where non compliance occurs are commented on as follows:

a) Indigenous Vegetation Disturbance (Rule 2)

The building and carpark portion of the development is a permitted activity.

The removal of vegetation for the access track exceeds the standard. However, the extent to which the clearance affects natural character is minor due to the narrow width of the track, its following of natural contours and no skyline vegetation is disturbed.

b) Building Platforms & Buffers (Rules 6 and 25)

The building platform fails to meet the earthworks standard, as well as the 10 metre buffer from the Tarawera Road boundary and the 25 metre building platform set back from the boundary of Tarawera Road.

Potential adverse effects from the location of the building platform and building (at its nearest point 9.9m from Tarawera Road) are mitigated by the bund and proposed landscaping. The proposed bund height of up to 3 metres will not be out of character with the general topography of the surrounding landscape.

c) Hard Surfaces (Rule 11)

The hard surface coverage (parking, access, paths etc) equates to approximately 2% of the site area (cf the permitted activity standard of 0.5%).

The contribution of hard surfaces to the built nature of the Lakes A Zone is mitigated by the proposed visual screening. It is noted that the hard surface at the vehicle entrance to the site cannot be screened, but that this will be seen briefly by passing motorists and is an expected part of a tourist activity.

d) Site Coverage & Gross Floor Area (Rules 17 and 18)

The purpose of the site coverage is to maintain and enhance the dominance of bush coverage and for buildings to be of a domestic scale.



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The bush dominance is maintained and enhanced by the location of the building and the proposed landscaping. The building is not of a domestic scale in terms of its site coverage, but is of a domestic scale with respect to height. The bulk of the building will be visually mitigated by the landscaping, low reflectivity colours, use of eaves and from retained trees on site.

e) Height (Rule 19)

Due to the location of the building below ground level and cut into a steep bank to the rear, the maximum height of 7.5 metres (controlled activity) is not exceeded. However, the 5 metre exterior wall height is exceeded to a minor extent (0.01 metres) at the south eastern corner, and to a greater extent at the frontage of the building.

7.1.3.6 It is noted that compliance with some key permitted activity standards (rules) contained in Proposed Lakes A Zone Variation is met by the proposed development:

- Reflectivity
- Viewpoints
- Skyline
- Spill Light or Stray Light Emissions
- Noise

### 7.3.2 Archaeological

PROPOSED DISTRICT PLAN	PROPOSED LAKES A ZONE VARIATION	SUBMITTERS TO APPLICATION
OBJECTIVES Part Eleven - 4.2.4.2	OBJECTIVES OB14 a) and f)	Alexy Simmons  Historic Places Trust
POLICIES Part Eleven - 4.2.4.3.1, 4.2.4.3.5	POLICIES P1.5, P9.1, P9.2  ASSESSMENT CRITERIA CR12.3	

7.3.2.1 Subsequent to the lodging of submissions, the applicant has provided an Archaeological Survey and Assessment of Effects report, prepared by Ken Phillips (Archaeology BOP Heritage Consultants). This report is included with the application in **Appendix B**.

7.3.2.2 This report concludes that the property was the location of whare, cultivations, fencing and possible ha-ha. Consequently, ground disturbance may encounter subsurface archaeological features (pre 1886 eruption). A number of conditions are recommended to address this issue.

### 7.3.3 Earthworks

PROPOSED DISTRICT PLAN	PROPOSED LAKES A ZONE VARIATION	SUBMITTERS TO APPLICATION
OBJECTIVES Section Ten - 2.3.2	OBJECTIVES OB11	Tarawera Lakes Protection Society
POLICIES Section Ten - 2.3.3.1	POLICIES P3.2, P8.1  ASSESSMENT CRITERIA CR4.0	Royal Forest & Bird Protection Society

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7.3.3.1 This matter has partly been assessed in Section 7.3.1 above. However, it is a matter that requires consideration in its own right, as the volume of earthworks is large. The level of permitted earthworks (refer to Rule 5.0) is set at a minimal level to ensure that Council has the opportunity to be involved in the management of earthworks to protect the lakes from sedimentation and the landforms from scouring. In addition, earthworks have the potential to adversely affect the natural character and landscapes of the zone.

7.3.3.2 With respect to the physical management of the earthworks, the applicant has submitted an Engineering Report, where the manner in which the earthworks is proposed to be undertaken is set out. This report has been reviewed on behalf of Council by Mr Keith Lloyd (Development Engineer, Rotorua District Council). A full copy of Mr Lloyds report is contained in **Appendix E**. He identifies that the construction of the crib wall should be undertaken immediately following excavation, with particular attention being paid to cut-off drains behind the building. A set of conditions is proposed.

7.3.3.3 With respect to natural character and landscape issues, this matter has been addressed in the applicant's Assessment of Landscape and Visual Effects and reviewed by Councils Landscape Architect. In summary, it is considered that the adverse effects on natural character and landscape are minimal and are readily able to be mitigated by a range of actions including:

- Screening by the earth bund and building
- Landscaping of the earth bund
- Low reflectivity value of the timber
- South facing aspect of the crib wall will ensure that fern can be readily established in the crevasses

### 7.3.4 Water Quality/Water Quantity

PROPOSED DISTRICT PLAN	PROPOSED LAKES A ZONE VARIATION	SUBMITTERS TO APPLICATION
OBJECTIVES Part Sixteen - 2.4.2	OBJECTIVES OB3.0	P Smith
POLICIES Part Sixteen - 2.4.3.1	POLICIES P3.1, P3.3	DW Smith Ltd
		DW Smith Family Trust
		Tarawera Lakes Protection Society
		Royal Forest & Bird Protection Society

7.3.4.1 The Engineering Report contained in the application has addressed this matter, which has been reviewed by Mr Keith Lloyd (Development Engineer, Rotorua District Council). Mr Lloyd has identified that prior to construction activities starting on the site, a Construction Management Plan will need to be submitted and approved by Council. The Plan will need to have due regard to stormwater runoff, erosion and sediment control. This matter is of relevance to both the Rotorua District Council and Environment BOP, and a separate resource consent application for earthworks has been lodged with Environment BOP.

7.3.4.2 Submitters have also raised the issue of potential flooding of the Te Wairoa Stream. Mr Lloyd has recommended that:

- an assessment of the downstream effects be undertaken;
- the discharge rate from the site controlled to mitigate any effects;
- an overland flow path for major storm events that does not have adverse effects be identified;

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- a full stormwater disposal assessment, carried out by a suitably qualified and experienced Engineer, be approved by Council prior to the application for Building Consent; and
- an ongoing Management Plan will be required to ensure the continued operation of the soakpits at design capacity.

It is recommended that the applicant specifically addresses this matter at the hearing of the applications.

### 7.3.5 Servicing Infrastructure

PROPOSED DISTRICT PLAN	PROPOSED LAKES A ZONE VARIATION	SUBMITTERS TO APPLICATION
OBJECTIVES Part Sixteen - 2.3.2	OBJECTIVES OB16	P Smith
POLICIES Part Sixteen - 2.3.3.3, 2.3.3.4	POLICIES P11.1, P11.3, P11.5	DW Smith Ltd
	ASSESSMENT CRITERIA CR21, CR22, CR23, CR24	DW Smith Family Trust
		Toi Te Ora Public Health
		Lake Tarawera Ratepayers Assoc Inc
		Royal Forest & Bird Protection Society

7.3.5.1 The assessment of the servicing infrastructure (water, power, telecommunications, sewerage, vehicle access and parking) has been included in the application and reviewed by Council's Development Engineer. In addition, a separate resource consent has been applied for from Environment BOP for the discharge of treated effluent.

7.3.5.2 All servicing infrastructure can be readily provided to the development in accordance with the relevant permitted activity standards (rules) of Proposed Lakes A Zone Variation. Some amendments to the proposed vehicle entrance and sufficient volumes of water for fire fighting requirements are proposed by Council's Development Engineer. These matters are included as recommended conditions. (Refer to **Appendix E**)

### 7.3.6 Noise

PROPOSED DISTRICT PLAN	PROPOSED LAKES A ZONE VARIATION	SUBMITTERS TO APPLICATION
	POLICIES P15.1	Rotorua Model Aircraft Club
		Rotorua Microlight Aircraft Club
		Rotorua Black Powder Club Inc

7.3.6.1 The submitters have raised concerns over possible restrictions on their noisy recreation activities, due to the presence of the proposed development. This is termed 'reverse sensitivity'.

7.3.6.2 The consent status of the various recreation activities has not been determined. It may be that 'existing use rights' apply to them. However, irrespective of this situation the following is noted:

- The recreation activities are already in existence and have operated in a manner that has not lead to complaints being made to the Rotorua District Council;

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- The 'Buried Village' facility is immediately adjacent to the proposed development and operates without restraint due to the recreation activities;
- The proposed development is essentially an 'internal experience', where any noise effects from the recreation activities would not be discernible.

While this is a valid matter to have drawn attention to, in this circumstance it is not likely that the proposed development would create a restraint on either permitted activities or these recreation activities.

**7.3.7 Signage**

PROPOSED DISTRICT PLAN	PROPOSED LAKES A ZONE VARIATION	SUBMITTERS TO APPLICATION
	POLICIES P1.3c)  ASSESSMENT CRITERIA CR13.1, CR13.2, CR13.4, CR13.5	

7.3.7.1 The applicant proposes that a total of four (4) signs be permitted:

- Two (2) standard Transit New Zealand tourist attraction signs 200 – 400 metres to the east and west of the attraction on Tarawera Road; and
- Two (2) on-site signs in the historic style of the McRae's Rotomahana Hotel, with one sign at the road entrance and one at the eastern end of the site.

No detail as to the size, height, wording or exact location of the on-site signs has been provided with the application. Recommended conditions of consent are included in this report. The applicant should address this matter in greater detail at the hearing.

**7.3.8 Summary – Effects of the Proposal on the Environment**

The above assessment of the proposal against the relevant permitted activity standards (rules), assessment criteria, objectives and policies, shows either general compliance or that the mitigation of adverse effects from non compliance have been achieved by the design of the proposed development and/or can be achieved through appropriate conditions of consent.

Refer to Section 9.0 for recommended conditions.

**7.4 Purpose and Principles of the Act**

7.4.1 The purpose of the Act is to promote the sustainable management of natural and physical resources. In determining whether a proposal promotes sustainable management, Part II RMA directs reference to the following specific matters:

- Matters of National Importance (Section 6)
- Other Matters (Section 7)
- Treaty of Waitangi (Section 8)

7.4.2 In *NZ Rail v Marlborough DC (1994) NZRMA 70*, Justice Greig set out two guiding principles which have been followed in subsequent Environment Court decisions:

- a) The application of Section 5 involves an overall broad judgement of whether the proposal will promote the sustainable management of natural and physical resources, taking into account conflicting considerations, the scale or degree of them and their relative significance or proportion.

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- b) The matters of national importance in Section 6 are subordinate to the primary purpose of the promotion of sustainable management. They are not ends or objectives in themselves, but are accessory to the principal purpose. (The same comments apply to the consideration of Sections 7 and 8).

7.4.3 The potential adverse visual, ecological, heritage and cultural effects impinge in various ways on matters in Part II of the Act.

The following specific provisions are considered to be of particular relevance to the applications:

Section 5 : the requirement to avoid, remedy or mitigate any adverse effects of activities on the environment.

Section 6 : the requirement to provide as a matter of national importance for:

- b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development
- c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna;
- e) the relationship of Maori and their culture and traditions with their ancestral lands and waahi tapu.

Section 7 : the requirement to have particular regard to:

- c) the maintenance of amenity values;
- d) intrinsic values of ecosystems;
- e) the recognition and protection of the heritage values of places or areas.

Section 8 : the requirement to take into account the principles of the Treaty of Waitangi.

7.4.4 The recognition and provision for such matters of national importance (s6) and other matters (s7) are closely interrelated and should be reflected in the way the use and development of the site is managed and the way in which the natural and physical resources are protected.

7.4.5 In the opinions of NC & EM Miller (Analytical & Environmental Consultants) and Mr Richard Hart (Isthmus Group), the application site is not significant or outstanding in respect to its natural features, indigenous vegetation or ecosystem values (refer to Appendices Five and Six of the application). Although the area is within a Recommended Area for Protection in the Rotorua Lakes ED Survey carried out by Wildlands Consultant Ltd in 1998 for the Rotorua District Council, the site itself does not possess significant values. The proposed landscaping and rehabilitation of the site with the appropriate landscaping material will actually enhance the visual, vegetation and ecosystem values of the site and adjoining area. As such, the proposed development is not considered to be 'inappropriate' in this context.

7.4.6 The applicant is part of Tuhourangi who were forced to leave the area after the eruption in 1886. The applicant sees this development as symbolizing their return to their ancestral land and exercise of mana whenua. This is considered to give effect to the requirements of Sections 6e) and 8 of the RMA and Objective OB14 b) of the Proposed Lakes A Zone Variation, which states:

*Recognises the relationships of Maori, particularly Tuhourangi, Ngati Rangitahi and Ngati Tarawhai, and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga within the parameters of Objectives 1 to 12.*

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## **8.0 CONCLUSION**

- 8.1 The site has a low degree of natural character and has limited ecological significance. The site does have important heritage and cultural values. The objectives and policies of the Proposed District Plan and Proposed Lakes A Zone Variation, seek to protect and enhance the natural and environmental qualities of the Rotorua Lakes and their environs. The applicant has recognised these objectives and policies, and has taken into account the reasons Council gave for declining to grant consent to the previous application.
- 8.2 Turning to the threshold tests of Section 105(2A) RMA, which must be applied to the proposal being a non complying activity under the Proposed District Plan and Proposed Lakes A Zone Variation, it is concluded that the proposal meets both tests. Accordingly, having regard to the relevant assessment matters under Section 104 RMA, appropriate conditions are recommended to minimise the visual, amenity, landscape, natural character, cultural, heritage and ecological effects of the proposal.

## **9.0 RECOMMENDATIONS**

- 9.1 That pursuant to the provisions of Section 105(2A) of the Resource Management Act 1991, and the Rotorua District Council Transitional and Proposed District Plans and Proposed Lakes A Zone Variation, Council **grants consent** to the application (being Non-Complying Activity P 17367) by the Rotomahana Parekarangi 6J2B3 Trust to develop and operate a visitor attraction centre incorporating audiovisual exhibitions, active visitor experiences, static displays, café, administration area, retail shops, toilets and parking, and associated activities including the widening of Tarawera Road and vehicle access to the site, earthworks, landscaping, signage and servicing (eg stormwater, water supply tanks), located at Tarawera Road, Te Wairoa.

### **9.2 Conditions of Consent**

Pursuant to the provisions of Sections 108 of the Resource Management Act 1991, the consent is subject to the following conditions:

#### ***General***

1. The development be carried out in general accordance with the plans and information submitted in the application and at the hearing of 15 February 2002, but as amended by the conditions set out below.

#### ***Landscape***

2. A Landscape Management Plan showing a detailed planting plan with plant schedule, using plants appropriate to the Tarawera area, plant positions and plant grades/sizes, monitoring, weed control and maintenance of plants is to be provided and approved by Council's Landscape Architect.
3. Plants are to be planted at a reasonable grade.
4. Indigenous vegetation is to be retained where shown on the landscape concept plan. The Landscape Management Plan shall show these and include details of how the vegetation is to be protected during construction.
5. The Landscape Management Plan shall specifically identify how the area of the site on the south eastern corner is to be planted to reduce the visual effects of the building in this part of the site, when viewed from the adjoining reserve and from the Tarawera Road/Buried Village. Under-planting is to be undertaken in a manner which fits the overall planting plan.

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6. The Landscape Management Plan shall include details on the manner in which the cut slopes behind the building are to be finished to facilitate natural regeneration of indigenous species, as well as planting and/or seeded in native plants.
7. The services access track is to be out of site from Tarawera Road and a minimal size, location and width to be approved by Council's Landscape Architect and Development Engineer.

***Engineering - General***

8. That all engineering works shall be carried out in accordance with Council's Engineering Code of Practice and the District Plan.
9. That Engineering Plans and specifications for the road widening, road marking, bunding/screening, pedestrian access, vehicle entry, car and bus park, stormwater disposal and sewer pumping station in accordance with Council's Engineering Code of Practice and the District Plan, shall be submitted to the Council's District Engineer and approval obtained prior to any works being done. Such works shall be carried out to the satisfaction of the Council's District Engineer.

***Vehicle Access and Parking***

10. That the vehicle crossing to serve the proposed development shall be formed, drained, constructed and sealed (to modified RD23 standards with additional road widening) in accordance with Council's Engineering Code of Practice and the District Plan.
11. That the area of road encroachment be vested as road in the Rotorua District Council.
12. That peak traffic movements to and from the development shall be measured on an annual basis and the results supplied to Council.
13. That additional on-site parking shall be provided to comply with the requirements of the District Plan if increased usage demonstrates this is necessary.

***Stormwater***

14. That a stormwater assessment shall be carried out by a suitably experienced Engineer to address on-site soakage and detention, off-site discharge rates and effects, and ongoing operational management of soakholes.
15. That a secondary stormwater flowpath for a 50 year return period event be defined and protected in accordance with Council's Engineering Code of Practice and the District Plan.

***Sewerage***

16. That the private sewage pump station be designed, maintained and operated in a satisfactory condition at all times to prevent any overflows or risk to public health and safety. An operation manual for the sewage and disposal system shall be supplied to Council.

***General***

17. The matters set out in Conditions 13 and 16 shall be registered on the Certificate of Title.

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***Earthworks/Construction***

18. That the proposed earthworks, excavation and filling be supervised and certified in terms of foundation suitability by an Engineer specialising in soil mechanics in accordance with Council's Engineering Code of Practice and the District Plan.
19. That in carrying out the proposed works, no runoff, silt, sediment, or other material shall be permitted to discharge off-site that could damage or disturb neighbouring properties, public roads or drains by installing and maintaining appropriate erosion and sediment controls, prior to and during the works and until stabilised.
20. That bunds, cut-off drains or other appropriate measures shall be constructed and maintained so that the stormwater runoff from the area of works is controlled and discharged in a manner that avoids any scour, erosion or siltation.
21. That the construction of any retaining wall is to take place immediately after excavation has been carried out, or suitable protection installed to contain any material from the steep slopes above the site.
22. That the works shall generally be in accordance with the information supplied in the plans and application submitted.
23. That dust from the site shall be controlled at all times by application of water or ceasing the use of any machinery causing dust to carry beyond the site.
24. That a temporary vehicle crossing shall be formed, metalled and drained with an all-weather surface for use as the approved access point during construction if a permanent vehicle crossing has not been installed.
25. A Traffic Management and Construction Plan, an appropriate Health and Safety Plan, and confirmation that the contractor carrying out the works has adequate public liability insurance, shall be submitted to Council prior to any work commencing.
26. That "as built" plans of any filling in accordance with the requirements of Council's Engineering Code of Practice be submitted to the Council's Resource Engineer at completion of the works.
27. That an Engineering Inspection Fee shall be paid in accordance with Council's Engineering Code of Practice and the District Plan.

***Water Supply***

28. That it shall be demonstrated that the water supply can and shall meet on an ongoing basis the requirements of the Ministry of Health's "Drinking Water Standards for New Zealand 2000".

***Archaeological***

29. That an authority to modify, damage or destroy archaeological sites within the boundaries of the proposed development be sought under Section 11 of the Historic Places Act 1993, and obtained prior to any ground disturbance.
30. That further archaeological inspection and sub-surface testing be carried out immediately following the removal of vegetation.
31. That investigations carried out under a Historic Places Trust authority should include test trenching involving the mechanical removal of the overlying Tarawera ash mantle in order to determine the nature and extent of the buried archaeological resource.



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32. That archaeological features identified beneath the Tarawera ash mantel are investigated using accepted archaeological methodology.
33. Tangata whenua be consulted regarding possible existence of sites of value to Maori and be informed of the conditions of consent.

**Signs**

34. The two signs to be erected on the site be designed, located and maintained to the satisfaction of Councils Planning Manager. The location of the signs is to be incorporated into the Landscape Management Plan.

**Bond**

35. A bond be prepared, agreed and implemented prior to the commencement of works on the site to cover the costs of implementing the landscaping. The costs of preparing the bond are to be borne by the applicant and are to be to the satisfaction of Council's Planning Manager.

**Review**

36. The Rotorua District Council may give notice pursuant to Section 128(1) of the Resource Management Act 1991 of its intention to review the conditions of this resource consent at any time for the following purposes:
  - To review the effectiveness of this resource consent in avoiding, remedying or mitigating any adverse effects on the environment, particularly with respect to traffic, number of carparks and landscaping and it necessary to avoid, remedy or mitigate such effects by way of further amended conditions;
  - To address any adverse effect on the environment which has arisen as a result of the exercise of this consent; or
  - If necessary and appropriate, to require the holder of this resource consent to adopt the best practical option to remove or reduce adverse effects on the surrounding environment due to the activity.

**9.3 Reasons for the Decision**

Pursuant to the provisions of Section 113 of the Resource Management Act, this decision is made for the following reasons:

- a) Subject to compliance with the above conditions, the proposed development is not contrary to the relevant objectives and policies of the Proposed District Plan and Proposed Lakes A Zone Variation.
- b) The potential adverse effects of the activity are mitigated by compliance with the conditions of the consent. The review condition provides the opportunity to check that the conditions are meeting their intended outcome.
- c) Landscaping is a critical matter to comply with in respect of the proposed development. Accordingly, the imposition of the bond is required in this regard.

# ROTOMAHANA PAREKARANGI 6J2B3 BLOCK DEVELOPMENT

## TARAWERA ROAD, ROTORUA

### ENGINEERING INFRASTRUCTURE REPORT

Prepared For:

APR CONSULTANTS LTD

By: Romeo Dela Cruz

Date: February 2023



**MCKENZIE & CO.**

## DOCUMENT CONTROL RECORD

**Project:** Tarawera Road Development

**Project Ref#:** 2645

**Client:** APR CONSULTANTS LTD

**Location:** P17367 - 7426/61 - TARAWERA ROAD - TARAWERA, RD 5 -  
ROTOMAHANA PAREKARANGI 6J2B3 BLOCK (ML 14972)

<b>Revision</b>	<b>Date</b>	<b>Originator</b>	<b>Checker</b>	<b>Approver</b>	<b>Description</b>
A	Feb 23	RC	LH	JD	ISSUE

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## APPENDICES\*

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\*Attached separately

## 1.0 INTRODUCTION

### 1.1 The Application

McKenzie and Co Consultants Ltd (MCCL) have been engaged by APR Consultants Limited to undertake an Engineering Infrastructure and Servicing Assessment for the proposed development at Tarawera Road, Rotorua, herein referred to as the 'site.'

### 1.2 Objective

The aim of this report is to identify the various necessary infrastructure provisions to adequately service the future development proposal to the satisfaction of the Rotorua Lake Council (RLC).

The report will provide information in support of the Resource Consent application and is based on publicly available information which includes information available on RLC GIS mapping services, Infrastructure Development Code (IDC) engineering standards, BeforeUDig, and 3<sup>rd</sup> party information retrieved from onsite investigations (e.g., topographical survey, geotechnical investigations, etc.).

This Report provides comment pertaining to the existing and future infrastructure relevant to the site and identifies any potential issues that may need to be addressed during the further stages of investigation, design, and planning of the redevelopment, specifically:

- Bulk earthworks associated with creating and forming building platforms, private driveways, and car parking.
- Environmental Management (i.e., Erosion & Sediment Controls) associated with the earthworks and construction operations.
- Common accessway, right-of-way, driveway, carparking, vehicle crossing, and traffic movement in and out of the site.
- Stormwater management and disposal.
- Wastewater collection and disposal.
- Potable and fire-fighting water supply.
- Utilities

These reports should be read in conjunction with the consent application's drawings, calculations, and other supporting documents referred to in this report.

## 2.0 SITE INFORMATION

### 2.1 Site Identification and Description

The site is in Tarawera Road, Rotorua. It is part of the parcel legally known as Rotomahana Parekarangi 6J2B3 Block (P17367 - 7426/61 - TARAWEA ROAD - TARAWEA, RD 5 - ROTOMAHANA PAREKARANGI 6J2B3 BLOCK (ML 14972). The proposed development is in front of the above-mentioned parcel, in between 6J2B4 Block and 6J2B1 Block.

The subject site is one of the land blocks that contained the historical Te Wairoa Village. It is located between Lake Rotokakahi (Green Lake) and Lake Tarawera.

The property is zoned as Sensitive Rural under Part 11 - Lakes A and is located within the Lake Tarawera Settlement Policy Area. The adjoining sites are also zoned as Lakes A – Sensitive Rural with the majority of these covered in dense indigenous vegetation. See **Figure 1**.

The site is within the jurisdiction of Rotorua Lake Council (RLC) and Bay of Plenty Regional Council (BOPRC).



*Figure 1: Site Location (Source: RLC GIS)*

## 2.2 Existing Site Features and Infrastructure

The site is covered by vegetations and trees. The site can be accessed from Tarawera Road. There is an area to the north of the site zoned as 'fault avoidance extent.' There is an existing 375Ø culvert onsite crossing Tarawera Road. An underground power lines also runs along the front boundary. See Figure 2.

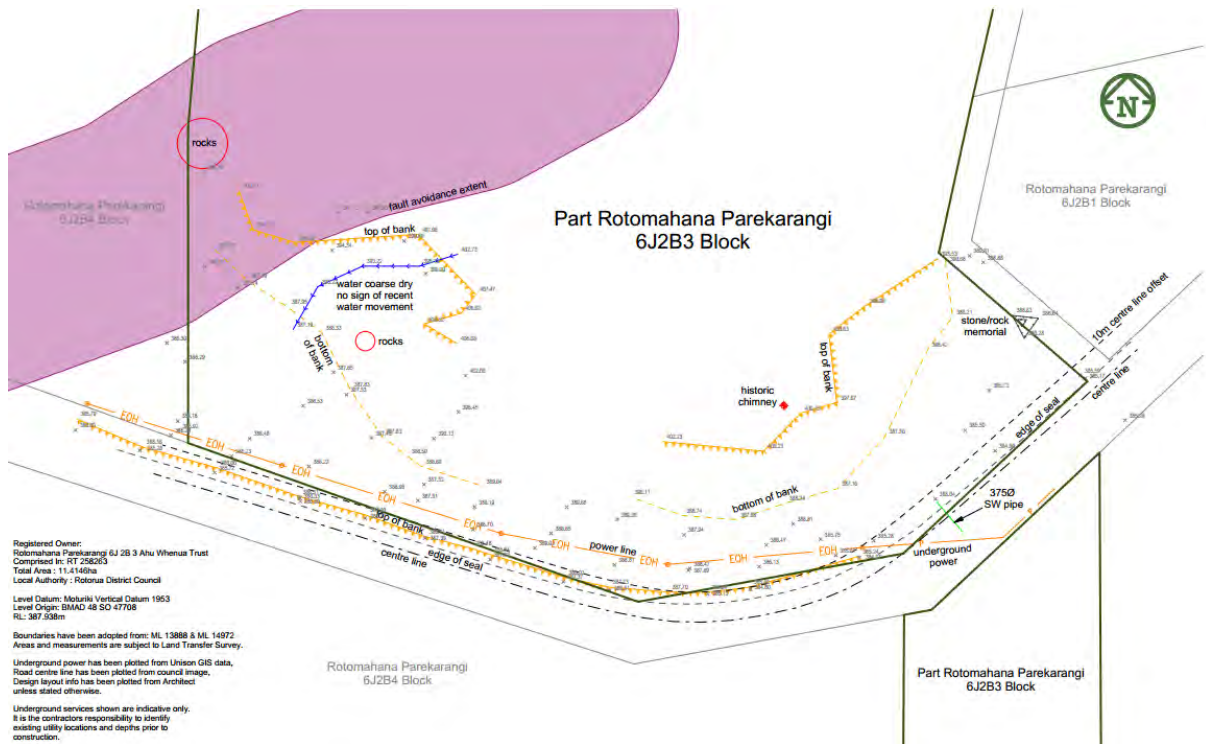


Figure 2: Topographical Survey

### 3.0 THE DEVELOPMENT PROPOSAL

#### 3.1 Development Overview.

The development consists of papakainga, a marae, and a cultural centre. A resource consent is sought for the integrated development of the site. See **Figure 3** for a high-level overview of the location of development onsite.



*Figure 3: Topographical Survey*



## 4.0 EARTHWORKS

### 4.1 Bulk Earthworks

Bulk earthworks are required to form the building platforms, site levels and roading. The proposed earthworks consist of a cut to fill operation from the existing material at the site. This will require the removal of topsoil and any unsuitable materials, and placement of suitable fill material from site where required. Any unsuitable or cut to waste materials will be transported off-site. The earthworks volumes for the proposed bulk earthworks are based on a compaction factor of 1:1. Refer **MCCL Drawing 2645-1-200 series**.

The sediment control and erosion measures and devices will be kept in place until the earthworked area is fully stabilised. The roads and pavements adjoining the site are to be always kept free of mud and soil. All sediment and erosion control measures are to be operational prior to any other works commencing on site. All sediment control shall comply with **Environment Bay of Plenty Guideline 2010/01 (Erosion and Sediment Control Guidelines for Land Disturbing Activities)**. The earthworks contractor shall be required to maintain the stability of the land and property at the boundary of the site, Control measures required are to be maintained and monitored daily. Where possible, stockpiles of soil are to be located away from boundaries and overland flow path.

Appropriate water sprays shall be used where required suppressing dust arising from the earthworks and cartage operations to ensure that the amount of dust and fine particles carried beyond the site boundaries shall not exceed a rate of 130 milligrams per square meter per 24-hour period. The contractor will be required to have water carts available during dry conditions to mitigate against dust.

A pre-construction has already been held with a field officer of the Local authority, the civil works contractor, client, and the consultant to confirm the methodology for the earthworks and to ensure that all works will be carried out in accordance with **Guideline 2010/01**.

The status and condition of the sediment control devices will be monitored throughout the earthworks phase. Removal of the sediment control devices will only be done once the earthwork sites have been properly stabilised.

On completion of the earthworks, a final inspection will be held with an Local Authority, the contractor, client, and consultant to confirm that all works were carried out in accordance with **Guideline 2010/01**.

## EARTHWORKS SUMMARY

Extent of Bulk Earthworks	• 1.20ha
Cut Volume (Solid Measure)	• 2600m <sup>3</sup>
Fill Volume (Solid Measure)	• 3400m <sup>3</sup>
Fill to be imported	• 800m <sup>3</sup>

We note the assessment of the earthworks volumes for the development proposal is a direct comparison to the Existing Ground Surface (3d) information and the proposed Finished Ground Surface (3d) and does not allow for any topsoil volumes, unsuitable material, or any hardfill/concrete.

### 4.2 Erosion & Sediment Control

The erosion and sediment control measures proposed for the construction operation phase is shown on **MCCL Drawing 2645-1-200 series**. All sediment and erosion control measures will adopt **Bay of Plenty Regional Council – “Erosion and Sediment Control Guidelines for Soil Disturbing Activities.”** Implementing these controls will aid to minimise the risk of any adverse effects from sediment laden runoff entering the receiving environment during the construction period.

Mitigation measures for the site are as follows:

- Silt fences as required to form a barrier to the sheet flow where there is the possibility of sediment-laden surface runoff to leave the site.
- Establishment of a stabilised entrance
- Clean water diversion lines will be constructed to divert and collect upstream catchment runoffs away from the earthwork sites.
- Construct sediment control ponds to settle out particulate matter and decant clean water prior to discharging into the adjacent stream. PAC flocculating chemicals may be used to assist in the settling of particles.
- Monitor the site after any inclement weather events and repair and mitigation devices, as necessary. Regular maintenance of the devices will also be necessary to ensure their effectiveness during bulk earthworks operations.
- Adopt Bay of Plenty Regional Council guideline document – “*Erosion and Sediment Control Guidelines for Soil Disturbing Activities.*” as the minimum standard for all devices and sediment control measures.

- Clear the existing vegetation within the earthwork's areas.
- Strip topsoil and stockpile on site.
- Cut and fill earthworks as required.
- Re-spread topsoil to completed earthworks areas.
- Seed newly spread topsoil with grass seed and where necessary spread hay mulch.
- Conduct daily inspections to ensure sediment control measures are operating in accordance with the designs.
- Once the earthwork sites have been stabilised, the erosion and sediment control measures will be removed.

## 5.0 COMMON VEHICLE ACCESS

### 5.1 Existing Access

The site can be accessed from Tarawera Road.

### 5.2 Future Access and Parking

A new vehicle crossing for the private accessway off Tarawera Road will be applied from Traffic Department of Rotorua Lake Council. The vehicle crossing, carparking area and accessway have all been designed and will be constructed to RLC RITS standards.

Refer to traffic specialist assessment on a separate report.

## 6.0 STORMWATER

### 6.1 Existing Stormwater Infrastructure

There is an existing 375Ø culvert onsite crossing Tarawera Road. This will be maintained to service the site. See **Figure 2**.

### 6.2 Proposed Stormwater Management Plan

The proposed stormwater management approach for the development is shown on **MCCL Drawings 2645-1-400 series**.

The primary drainage that has been designed for the proposed development, are combinations of pipe network, soakage system and open channel, in accordance with the Regional Infrastructure Technical Specifications (RITS).

The carpark and roof runoff will be accommodated by the soak pits. The cesspit sumps will provide sediment trap, where it collects and settles sediments before draining into the soak pits.

### 6.3 Existing OLFP

An existing OLFP will be maintained that runs through the site via a new swale and will be piped under the access way. This swale will be sized to accommodate the 1% AEP and will discharge onto Tarawera road. This is an existing flow path with no additional flows being put into it.

Other existing flows that come off the hill will be directed into small swales and then piped under either the car park or down beside the cultural centre. These will be sized for the 10% AEP. The reason for doing this is to ensure that the car park soak pits don't get overloaded with stormwater from outside their catchment and existing flows are maintained onto Tarawera road and through the existing 375mmØ which ultimately feeds the downstream stream ensuring flows into this are maintained.

## 7.0 WASTEWATER

### 7.1 Existing Wastewater Infrastructure

There is no existing wastewater infrastructure onsite.

### 7.2 Proposed Wastewater Infrastructure

An assessment of the future wastewater demand and servicing requirements have been carried out in accordance with the Regional Infrastructure Technical Specifications (RITS). The proposed future wastewater layout to service the development is shown on **MCCL Drawing 2645-1-500 series**.

A wastewater pipe network has been designed to gravity feed into the onsite wastewater tank system. This system has been designed to future proof the discharge into the future rising main along the road.

The pipe network and tank system has been sized to accommodate the wastewater peak flow from the proposed development.

## 8.0 WATER SUPPLY

### 8.1 Existing Water Supply Infrastructure

There is no water reticulation in proximity of the site.

## 8.2 Proposed Potable and Firefighting Water Supply

A bore providing potable drinking water is proposed. This bore will be located behind the cultural centre and will then be pumped throughout the development to provide drinking water.

Firefighting tanks will be filled from the new bore and tanks will be sized and located to comply with relevant standards. Final sizing of fire fighting tanks will be completed as part for building consent after the buildings have been fully designed to ensure correct sizing is applied.

## 9.0 UTILITIES

### 9.1 Existing Utilities

The existing utility infrastructure are available for the future development of the site.

### 9.2 Proposed Utilities

We envisage that suitable connection to both power and telecommunication network can be made to service the proposed development. The detailed design and installation will be undertaken in accordance with the utility provider.

All utilities reticulation will be designed in accordance with RLC engineering and utilities standard requirements

At this stage the Utility operators have not commenced any detailed design of the local reticulation. However, it is anticipated that all utility providers will be able to provide the required infrastructure to meet the development requirements

Once consent has been granted detailed design of the utilities will commence. We have shown on the road cross sections the proposed lay positions of the various utilities to ensure there is sufficient room to accommodate them within the road corridors.

## 10.0 CONCLUSION

With the appropriate engineering design for infrastructure as discussed in this report, the future development proposal can proceed with less than minor effects to the environment and surrounding properties. The proposed development has been designed to provide required infrastructure necessary for use and enjoyment of the developed site that meets the District Rules, regional Rules, and RLC and BOPRC engineering guidelines. The design has taken into consideration the possible impact of the proposed development and employs accepted engineering practices for the implementation and servicing of the development.

## APPENDIX A – ARCHITECTURAL PLAN

Bound separately

## APPENDIX B – ENGINEERING DRAWINGS

Bound separately



**From:** Daryn d & debbie a Bean  
**Sent:** Tuesday, 18 July 2023 12:36 PM  
**To:** s7(2)(a)  
**Subject:** RE: FW: Scan Data from FF-1C7D224DB0D2[1/2]

Kia ora Deryck,

See below - can you pass on to Rebecca.

Ngā mihi

Daryn

On 18/07/2023 11:30 NZST Corey Ruha s7(2)(a) wrote:

Kia ora Daryn,

TTA will show a supporting role in these types of processes for what the people aspire for with their whenua across Tūhourangi whānui. I will approve this consent on behalf of TTA as the statutory body.

Keen to see how this develops over time.

Ngā mihi,

**Corey Ruha**

Taiao Whakahaere | Environmental Coordinator

Tūhourangi Tribal Authority

s7(2)(a)

PO Box 6161, Whakarewarewa, Rotorua

99 Sala Street, Whakarewarewa, Rotorua



[tuhourangi.iwi.nz](http://tuhourangi.iwi.nz)

**From:** Daryn d & debbie a Bean s7(2)(a)  
**Sent:** 17 July 2023 20:30  
**To:** Kirikowhai Mikaere s7(2)(a); Corey Ruha s7(2)(a)  
**Subject:** Fwd: FW: Scan Data from FF-1C7D224DB0D2[1/2]

Kia ora Kirikowhai/ Corey,

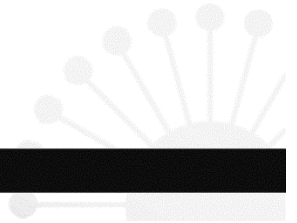
I've attached a draft copy of the summary report for our resource consent application to RLC.

I'm seeking TIA support as part of the RLC process. Tony Wihapi and Matetu Mihinui completed our cultural impact assessment report, which is not attached but is included with a suite of documents to support the application to RLC.

I'm not 100% sure if the process but happy to take any questions. I am back in Rotorua on Friday if you wish to discuss.

Ngā mihi

Daryn



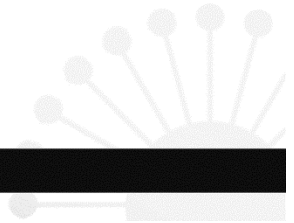
# Archaeological Assessment

## ROTOMAHANA PAREKARANGI 6J2B3 Application for Resource Consent



## Te Hokinga Mai Ki Te Wairoa – The return of Tuhourangi to Te Wairoa

Prepared by Brigid Gallagher and Raysan Al-Kubaisi  
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## 1 Introduction

Mishmish Heritage (Productions Limited) has been engaged by Deryck Shaw of APR Consultants Ltd. on behalf of the Te Wairoa Trust to produce an archaeological report to describe and inform of the archaeological risks associated with a proposed development at Nga Kaitiaki o Te Whenua – Rotomahana Parekarangi 6J2B3, on which a portion of the historic village, Te Wairoa, was positioned, and effectively covered and destroyed by the ash fall associated with the Mount Tarawera eruption on July 10<sup>th</sup> 1886.

The Trust landowners plan to re-establish a Marae to guide and support whanau of Tuhourangi spread across the whenua, a papakainga, an education centre, and an under-road access tunnel to reconnect the space with the physical remains on display in The Buried Village.

This report will accompany any resource consent being applied for by the Trust, and can also be used to form the basis of an application to Heritage New Zealand Pouhere Taonga (HNZPT) for an archaeological authority, should this be required due to the established pre-1900AD date of Te Wairoa Village.

*Te Wairoa village is considered a nationally, regionally and locally significant place, as one of the first joint Māori and European villages in New Zealand that pioneered Aotearoa New Zealand tourism. Many visitors would come to Te Wairoa on their journey to the infamous Pink and White Terraces, and also visit the wharenui, Hinemihi, who resided next to the development area. The abandonment of the village occurred as a result of the 1886 eruption of Mount Tarawera resulting in the burial of the township, its buildings and displacement of Tuhourangi from the area.*

There are presently only two recorded archaeological sites associated with Te Wairoa village, a mill and a stone pataka, neither of which will be affected by the proposed works; however the whole of the area once covered by Te Wairoa, is assessed to be a significant archaeological landscape, though the preservation of tangible elements of the village are not fully determined due to burial by volcanic ash.

Where development is planned, historic imagery shows expansive gardens of cultivated crops, and the extant remains of the Tuhourangi Rangitira, Wi Keepa Te Rangipuawhe's house, as well as several other properties within the land block and warrant acknowledgement and protection, or archaeological investigation and recording, as appropriate to development plans.

No other Heritage Listings have been identified for the area known as Rotomahana Parekarangi 6J2B3 Block. The ArchSite database, the Heritage New Zealand Heritage list and local council District Plan have been searched. The property is zoned as Sensitive Rural under Part 11 - Lakes A and is located within the Lake Tarawera Settlement Policy Area.

The overriding aim of archaeological recording and investigation is to gather information pertaining to New Zealand's past which will then provide greater knowledge and understanding of the past to the nation and associated iwi/hapu groups. Archaeology is considered a finite and non-renewable resource, which should be valued. The recommendations made in this assessment reflect this.

The conclusion of this report is that a known pre-1900AD settlement is likely to be encountered as a result of earthworks and ground disturbance. It is the recommendation of this report that on that basis;

*A General Archaeological Authority should be obtained from Heritage New Zealand Pouhere Taonga prior to ground works commencing.*

This consent will enable the modification and destruction of archaeology within area to be affected by development, including earthworks, building and infrastructure for a Marae, Papakainga, Education and Cultural Centre, with conditions, under the Heritage New Zealand Pouhere Taonga Act 2014 (HNZPTA) (allow 6-8 weeks until this consent becomes active from time of lodgement).

It is also recommended that this authority include provisions for;

- The clearing away of vegetation and soils above Rangatira Wi Keepa's whare in order to record and protect it in perpetuity. The scope of works should be underpinned by a Conservation and Management Plan (CMP) enables sustainable care of the whare and educational signage as appropriate in partnership with The Trust and appropriate heritage professionals.
- Ground works within Rotomahana Parekarangi 6J2B3, the Road Corridor and The Buried Village (owned by the Smith family) to support earthworks required to construct entry/exit to the Buried Village via under road tunnel, and required works to stabilise and make the road and public thoroughfare.

The listed activities are not considered exhaustive and should be considered on a project-by-project basis, which may include a staged development schedule.

Standard archaeological provisions that should also be put in place and lodged with any archaeological authority application include;

- Completion of a Site Management plan to guide archaeological works in relation to the planned development including works before bulk earthworks for the purpose of archaeological investigation and monitoring areas considered to have high archaeological risk
- A prestart meeting to inform all ground workers of their legal archaeological requirements.
- Ongoing consultation with HNZPT and tangata whenua throughout the development and construction stage.

As well as fulfilling the requirements of the HNZPTA, this report has been commissioned in order to fulfil the requirements of a Resource Consent application to the Rotorua Lakes District Council.

This report is an assessment of archaeological and historic values and risk – the assessment does not address cultural or Māori values, as only tangata whenua have the knowledge and ability to do this.

This assessment does not attempt to re-document information from previous archaeological assessments and reports, and the reference section is an indication of the reports, articles and books that were consulted during the compilation of this assessment.

## 2 Purpose and Scope

The Te Wairoa Trust (hereafter referred to as The Trust) are proposing to undertake one of the most intensive and complex projects to ever be undertaken by Tuhourangi. This is a mana whenua driven project sited at – Nga Kaitiaki o Te Whenua – Rotomahana Parekarangi 6J2B3 with the majority of the shareholders direct descendants of Te Keepa Te Rangipuwahē.

The development will involve the establishment of a Tuhourangi Tribal Marae Complex, a Papakainga Housing scheme and a Visitors Learning Centre involving;

1. He Whare Whakairo - a full carved house sufficient for 100 people
2. He Whare kai - A Dining Hall sufficient to host 350 people
3. He Whare paku - An Ablutions Block mo te whanau
4. He Whare Whakaruruhau – Mo Te Pae Tapu
5. He Waharoa – Gateway - Mo te manuhiri
6. A Tuhourangi ki Te Wairoa Visitors Centre – He wahi akona
7. He Papakainga kia whakamahana te Marae - 11 – 13 homes

(Scope obtained from “A Cultural Impact Assessment Report On “Te Whakahokinga Mai O Tuhourangi Ki Te Wairoa” (Te Wairoa Trust, 2022)).

This document is an assessment of the archaeological values of the development land and the effects of the proposed works associated with the project on those values. The assessment has focussed on a review of archaeological sites within, and immediately surrounding the project area. This assessment is required to accompany any necessary resource consents and can also form the basis of an application to Heritage New Zealand Pouhere Taonga (HNZPT) for an archaeological authority, and protection areas to ensure long term care and maintenance of significant features in the landscape.

## 3 Location and Legal Description of the whenua

Location: Tarawera Road, Lake Tarawera, Rotorua

Legal Description: Rotomahana Parekarangi 6J2B3 Block

Landowner: Rotomahana Parekarangi 6J2B3 Trust

District Council: Rotorua Lakes District Council, and Bay of Plenty Regional Council (BOPRC)

Land Area: 11.4 ha

The site is located to the west of Lake Tarawera, and east of Lake Rotokakahi, approx. 8.5 km South-east of Rotorua in the central North Island. The block is mainly on the north side of the road at the base of the slope, sited opposite the Buried Village tourism site (BVTs), with a small section located

within the Buried Village presently leased to the BVTs as a part of their experience. See Figures 1 & 2.

The property is zoned as Sensitive Rural under Part 11 - Lakes A and is located within the Lake Tarawera Settlement Policy Area. The adjoining sites are also zoned as Lakes A – Sensitive Rural with the majority of these covered in dense indigenous vegetation.

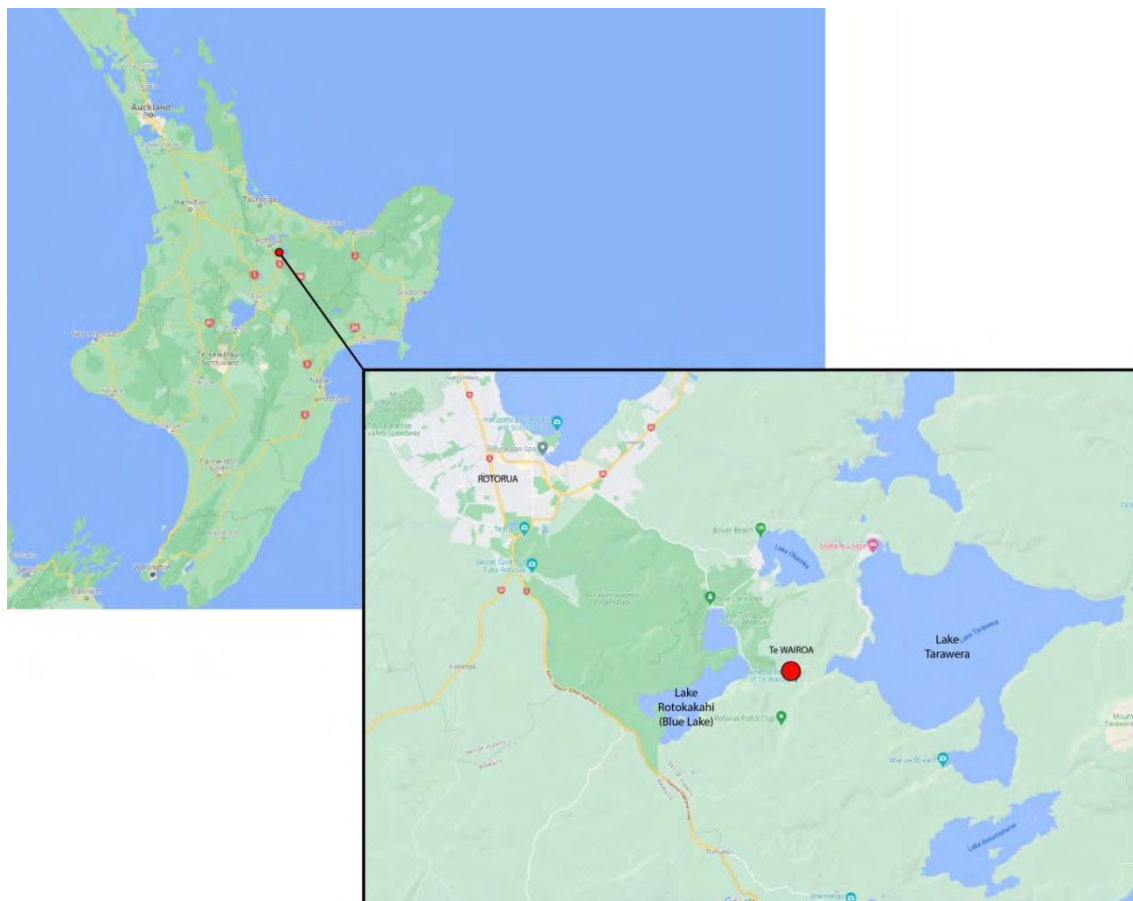


Figure 1; Location plan of Te Wairoa Village, in relation to the North Island and Rotorua in the inset. Source: GoogleMaps.



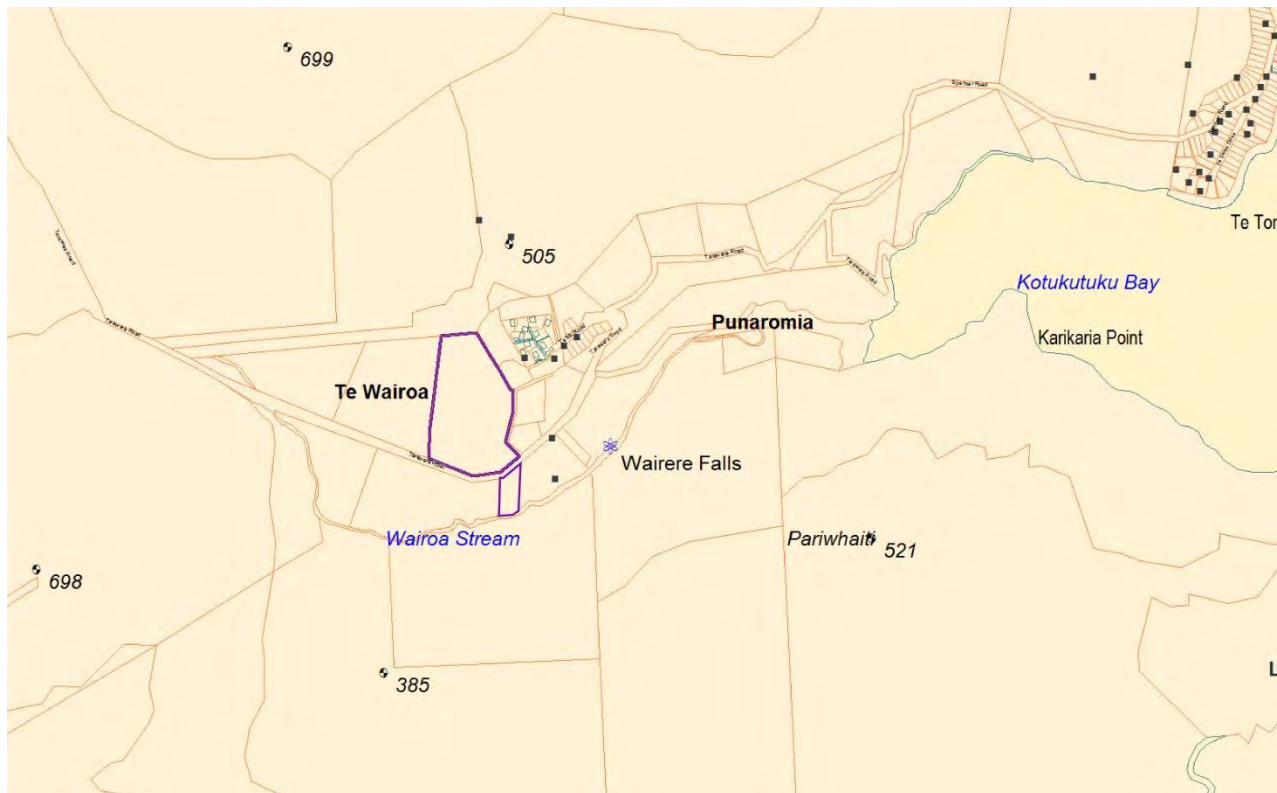


Figure 2; Location of site on Tarawera Road highlighted in purple. Source, QuickMaps.

## 4 Statutory Requirements

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

It is a legal obligation that the physical evidence of pre-1900AD New Zealand be investigated, analysed and recorded to standard professional practise prior to modification or destruction, and the archaeological authority will allow for this, with conditions. The authority holder is responsible for all costs related to archaeological investigation, including fulfilling the conditions included in the archaeological authority/consent granted by Heritage New Zealand Pouhere Taonga.

### 4.1 HERITAGE NZ POUHERE TAONGA ACT 2014

The purpose of the HNZPTA is to promote the identification, protection, preservation, and conservation of the historical and cultural heritage of New Zealand (HNZPTA section 3). Emphasis is placed on avoiding effects on heritage.

The HNZPTA provides blanket protection to all archaeological sites meeting the definition in the Act, whether they are recorded or not. Protection and management of sites is managed by the archaeological authority process, administered by Heritage New Zealand Pouhere Taonga (HNZPT). It is illegal to destroy, or modify archaeological sites without an authority to do so from HNZPT.

The HNZPTA 2014 (s6) defines an archaeological site as:

- (a) Any place in New Zealand including any building or structure (or part of a building or structure) that: (i) was associated with human activity that occurred before 1900 or is the site of the wreck of any vessel where that wreck occurred before 1900; and
- (ii) provides, or may provide through investigation by archaeological methods, evidence relating to the history of New Zealand; and
- (b) Includes a site for which a declaration is made under Section 43(1) of the Act.

Such declarations usually pertain to important post-1900 remains with archaeological values.

Any person who intends carrying out work that may modify or destroy an archaeological site, or to investigate an archaeological site using invasive archaeological techniques, must first obtain an authority from HNZPT. The process applies to sites on land of all tenure including private, public and designated land. The HNZPTA contains penalties for unauthorised site damage.

The archaeological authority process applies to all archaeological sites that fit the HNZPTA definition regardless of whether the site is recorded in the NZAA Site Recording Scheme or registered with HNZPT; or if the site only becomes known about as a result of ground disturbance; and/or the activity is permitted under a district or regional plan, or a resource or building consent has been granted, or the ground is subject to a designation.

The HNZPTA replaced the *Historic Places Act 1993* (HPA) in May 2014.

HNZPT also maintains the New Zealand Heritage List/Rārangī Kōrero (The List). The List can include archaeological sites. The purpose of The List is to inform members of the public about such places, and to assist with their protection under the RMA. No features or sites are present within The List in Rotomahana Parekarangi 6J2B3 Block. The closest site identified on The List and as being Wahi Tupuna/Tipuna (ref. 9807) is the wharenuī, Te Tūranga ā Hinemihi, on the opposite side of the road from this development.

## 4.2 THE RESOURCE MANAGEMENT ACT 1991

The *Resource Management Act 1991* (RMA) requires City, District and Regional Councils to manage the use, development, and protection of natural and physical resources in a way that provides for the wellbeing of today's communities while sustaining the potential of natural and physical resources for future generations. The protection of historic heritage from inappropriate subdivision, use, and development is identified as a matter of national importance (section 6f).

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

Historic heritage includes:

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

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

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

### 4.3 OPERATIVE DISTRICT PLAN

The Rotorua Lakes Operative District Plan contains objectives and policies relating to built heritage, and sites of archaeological, historic and cultural significance. Lake A Zone Map 272 was consulted and District Planning Map 538, neither of which identified areas of archaeological or historic sensitivity or requiring protection in the area of proposed works.

## 5 Methodology

The New Zealand Archaeological Association's (NZAA) site record database (ArchSite), Rotorua Lakes District Plan and the Heritage New Zealand (Heritage NZ) Heritage List were searched to determine whether any archaeological or other historic heritage sites had been recorded on or in the immediate vicinity of the proposed development area.

*Heritage Listing Ref. 9807 refers to Te Tūranga ā Hinemihi, part of Part Rotomahana Parekārangi 6J2B4 Block and Part Rotomahana Parekārangi 6J2B4 Block (RT258265, NZ Gazette No. 92, 27 August 2015), South Auckland Land District is listed on the opposite side of Tarawera Road. Although different land blocks site on either side of Tarawera Road, they should be acknowledged as being part of the same pre-1900AD archaeological landscape, and Te Wairoa village.*

Literature and archaeological reports relevant to the area were consulted (see Bibliography). Early plans held at Land Information New Zealand (LINZ) were checked for information relating to past use of the property. Retrolens, the historic aerial imagery database, was also consulted.

Historic imagery directly after and before the 1886 eruption have been invaluable, particularly to locate areas of high archaeological potential within the development area.

The ground surface was examined for evidence of former occupation. Exposed and disturbed soils were examined where encountered for evidence of earlier modification, and an understanding of the local stratigraphy. Particular attention was paid to topographical features where archaeological sites are often found to be located. Photographs were taken to record the topography and features of the areas and their immediate surrounds.

On-site hui with representatives of Rotomahana Parekarangi 6J2B3 Block has occurred.

## 6 Scope of Works

**The Proposed Development envisages and will encompass the following four critical components**

<b>Component 1 - The Tuhourangi ki Te Wairoa Marae &amp; Tribal Complex – Cultural Impacts</b>	
Brief Outline: The development includes the establishment and construction of a full marae tribal complex including:	
<ol style="list-style-type: none"> <li>1. He Tupuna Whare Whakairo</li> <li>2. He Whare Oranga Tangata – He Whare Kai</li> <li>3. He Whare Paku – He Whare Horoi Tinana</li> <li>4. He Whare Whakaruruhau koeke</li> <li>5. He Waharoa – Entry Gateway</li> </ol>	
Area involved:	1.5 - 2 ha
Area identified:	Proposed Marae Reservation – YTB excised
Buildings:	5 Buildings (as above)
Purpose:	Marae & Tribal Meeting Place
Activities:	Tangihanga Hui Whenua Hui Whanau Wananga

<b>Component 2 - The Marae Housing Papakainga Project – Social Impacts – Maori Housing Apprenticeships &amp; Employment Impacts</b>	
Brief Outline: The development includes the establishment and construction of a Marae associated Papakainga comprising 11 – 13 Home units with varying rights of occupancy including	
<ol style="list-style-type: none"> <li>1. Outright purchase of Land and House (3)</li> <li>2. Rent to own (3)</li> <li>3. Rental Tenancy (3)</li> <li>4. BnB (2)</li> </ol>	
Area involved:	2.5 ha
Area identified:	as per Papakainga Housing Development Plan
Buildings:	11 – 13 Standalone Houses
Purpose:	Residences
Activities:	Living & Accommodation

<b>Component 3 - The Tarawera Visitors Centre – Economic &amp; Educational Impacts</b>	
Brief Outline: The development includes the establishment and construction of a Visitors to cater for Manuhiri awaiting Karanga and other Tourists and interested parties. This will be the reception area containing whare paku and café facilities. It will also house a teaching facility for Whakapapa and wananga and for teaching harakeke and other cultural activities.	
Area involved:	0.5 ha
Area identified:	as per Visitors Centre Development plan -
Buildings:	1 Building encompassing Reception facilities
Purpose:	Reception and Cafe
Activities:	Entertainment Learning Exhibition Centre

<b>Component 4 - And all associated Infrastructure including</b>	
Brief Outline	

The Development involves the excavation and development of the land flora and fauna to such an extent that will enable the construction of each of these 5 components of the project. The infrastructure plan covers all building and facilities and includes relevant earthworks.

It is understood that the disturbance to existing flora and fauna will be to minimal standard and that cultural values will be taken into account during the excavation process and building processes.

The Development will cover all infrastructure relating to associated land development insofar as it affects.

1. The Marae Complex
2. The Marae Papakainga
3. The Tarawera Visitors Centre
4. The Under road Tunnel to Southern severance & neighbouring Hinemihi Block

The development of these components will consist of three distinct stages, being the development of papakainga, a marae and lastly a cultural centre. Because of the comprehensive and integrated nature of the site development, it has been assessed as the preferred approach to seek resource consent for all three elements of the project now, as opposed to separately seeking consent later as this enables the full integrated nature of the development to be considered holistically. The attached plan provides a high level overview of the location of development onsite. An overview of each stage is provided below.

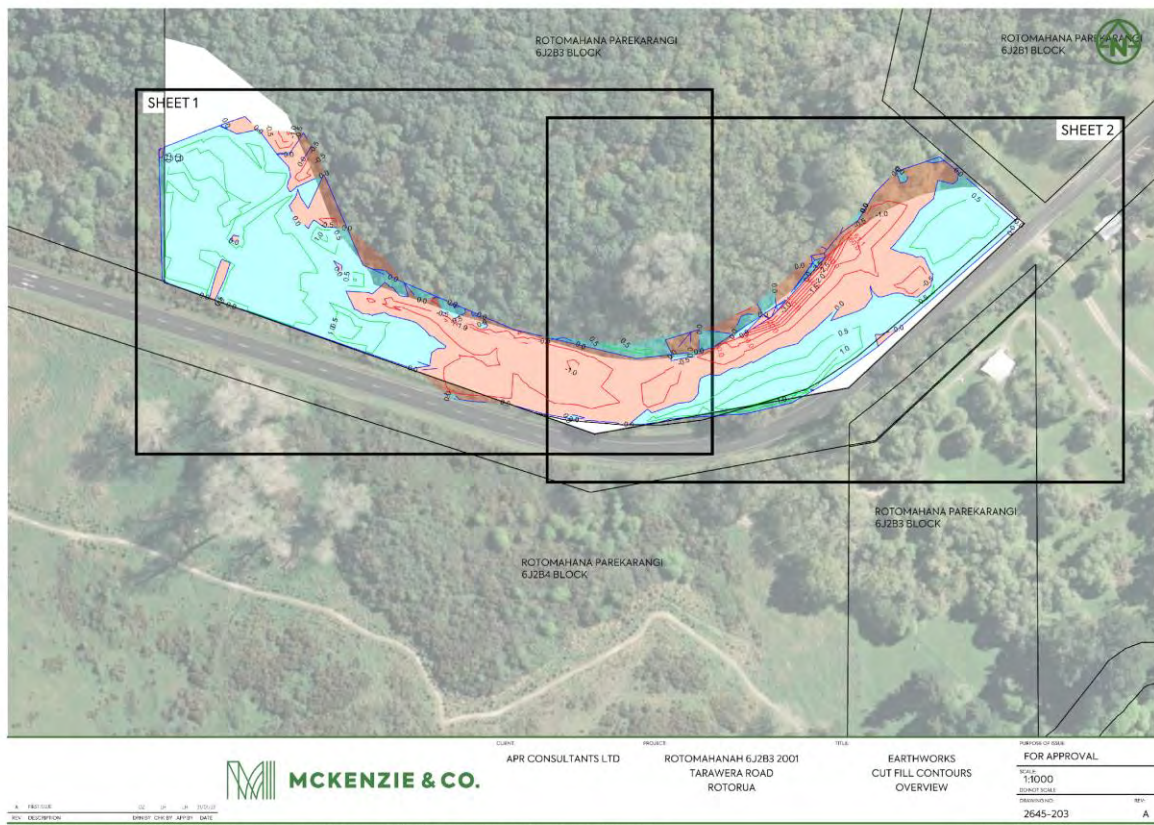


Figure 3: Proposed cut and fill earthworks plan overview, pending approval. Source, McKenzie and Co.

### a) Stage 1: Planning & Earthworks

This stage involves the preparation and stabilisation of sites for all further future stages. This will involve the following actions, refer to McKenzie & Co. document Rotomahana 6JB3 2001 Cultural Centre Development:

- Earthworks & Sediment control installation
- Vegetation clearance
- Establishment of an earth embankment berm and vegetation barrier along road frontage.
- Creation of a preliminary site entry from Tarawera Road.
- Install infrastructure channels, and internal roading

#### **b) Stage 2: Papakainga**

The establishment of papakainga onsite is intended to commence in year one of the development.

In total 11-13 dwellings are proposed to be constructed within the south-eastern corner of the site. Four of these are fully detached dwellings while the other six will be in three semi-detached dwellings. The units will be three-bedroom houses with an ability to accommodate a total of three to five persons per dwelling this resulting in between 30 and 50 people living permanently on site.

Each papakainga is provided with its own onsite park, within an internal garage.

#### **c) Stage 3: Establishment of a Marae**

The establishment of a Marae for the Trust landowners and Tuhourangi is intended to commence in year two of the development. Within the marae complex there will be the following elements:

- The establishment of a Wharenui to accommodate 100 - 120 people with appropriate storage facilities.
- The provision of a Wharekai to accommodate 100 - 120 people with appropriate cooking, dining, and storage facilities.
- The provision of facilities accessory to the Marae operations such as a Wharepaku, Wharemate and Paepae will also be provided in association with the Marae.
- The development of an onsite carpark, this accommodating approximately 50 cars. With one to two people per car, this will provide for a range of between 50 and 100 vehicles to be safely accommodated on site, plus with bus parking this will easily cater for the 100 to 120 people in the wharenui and wharekai. Bus parking will also be provided within the neighbouring Buried Village.
- Associated infrastructure to service and support the above listed facilities.

#### **d) Stage 4: Cultural Centre**

The establishment of the cultural centre is intended to commence one to two years after the completion of the Marae. The centre provides the opportunity for Tuhourangi to tell their stories around the settlement of Te Wairoa and the journey pre- and post-eruption.

A further element is also proposed this being an under-road tunnel to Te Wairoa: The Buried Village which will provide a link to the adjacent Buried Village allowing pedestrians to access both the cultural centre and Buried Village safely. The entry to the tunnel from the Buried Village is accessed from the existing carpark, within land owned by the Trust. The tunnel is also considered a safe location by the Trust for Iwi, residents and staff to use in the event of another eruption. The

construction of the tunnel will require earthworks to a depth of approximately 2.0-2.5m below the road level to allow for ramps to be constructed to enable wheelchair accessibility, and approximately 2.5m wide.



Figure 4: High level overview of the location of the development onsite. Source, McKenzie and Co.

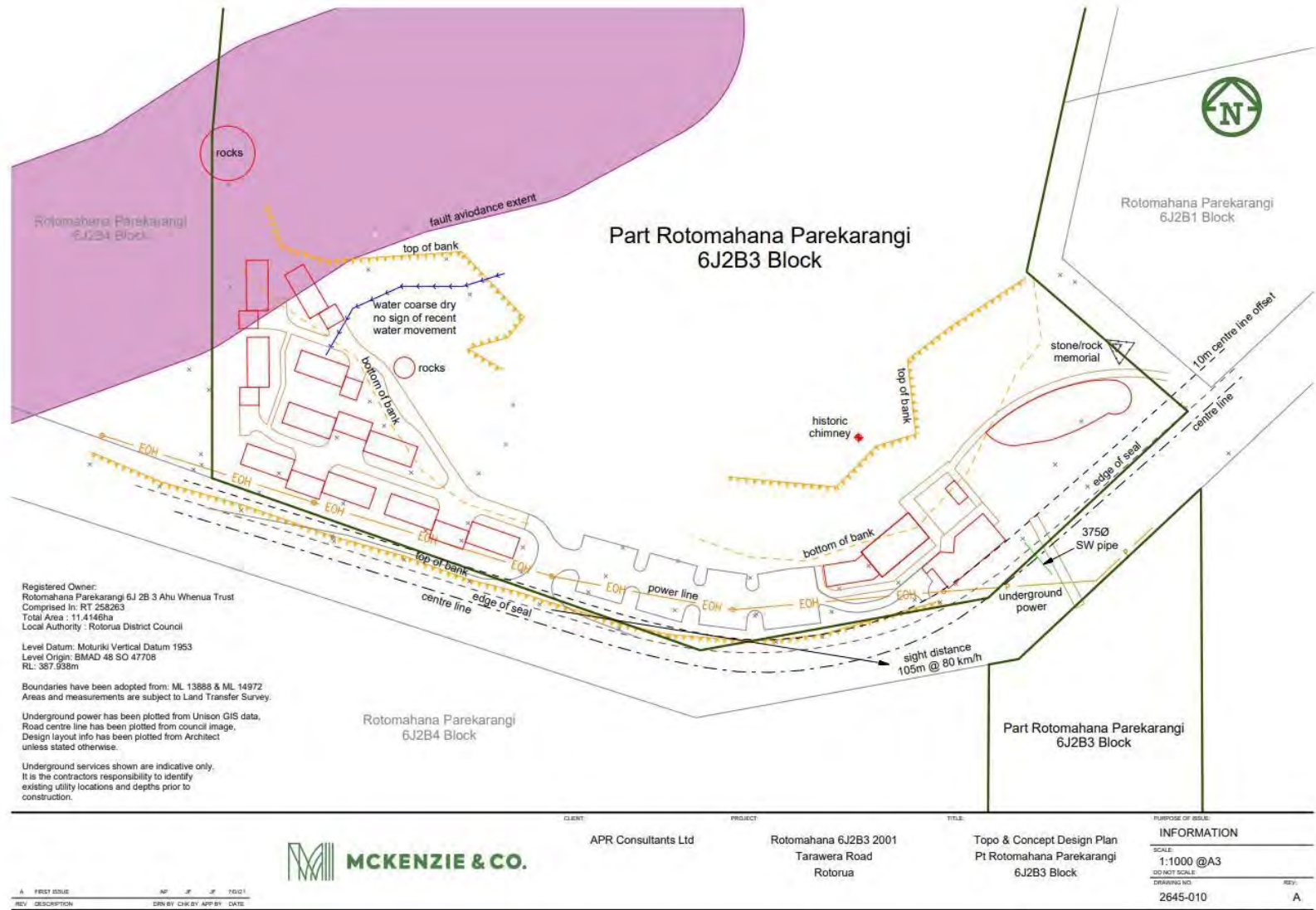


Figure 5; Proposed plan of Concept Design for Pt. Rotomahana Parekarangu 6J2B3 Block. Source, McKenzie & Co.



## 7 Physical Environment and Setting

The geology of the general area is typified by Haparangi rhyolite basal rock, which can be seen in exposed areas on steep slopes to the north, with airfall tephras overlaying – e.g. Taupo and Kaharoa ash. The pre-1886 eruption agricultural economy of the village was established on these primarily yellow-brown pumice soils derived from the Taupo ash and Kaharoa ash. Small areas of undifferentiated alluvium exist along the valley. (Morgan, 1987)

The overlying soils are derived from Rotomahana mud, spread during the eruption of Mount Tarawera from the bed of Lake Rotomahana. Okareka steepland soils occur on the steep slopes to the north and in an isolated zone around the Te Mu block, with Rotomahana hill soils over the majority of the main block. Rotomahana sandy loams are recorded in the eastern and Wairoa valleys. (Morgan, 1987)

The landscape within the block is covered in the main by established native bush and scrub, and with evidence of regenerating bush and disturbance by activities such as power lines and other utilities in the road corridor.

## 8 Historical Background

The history of Te Wairoa has been covered extensively in previous reports and publications, this report does not attempt to rewrite this information. In summary:

Te Wairoa, part of which is now known as The Buried Village, was once a thriving community which came to an end with the Mt Tarawera eruption of June 10th 1886. The town was destroyed as a result of volcanic fallout, displacing its inhabitants, and causing loss of life. The village sites near the eastern edge of Lake Tarawera, was one of the main stopping points on the journey to see the famed pink and white terraces, a geological landmark, also buried in the eruption. According to oral traditions the earliest settlements along the shores of Lake Tarawera date back to the end of 15<sup>th</sup> Century<sup>1</sup> when the Arawa people settled at Otamatea, and at Moura, Ohorongu, Te Puwha, and Rua-o-Umukaria in the 16<sup>th</sup> Century<sup>2</sup>. No archaeological evidence has been found to date from this period. The area became strongly associated with Ngati Rangitahi and Tuhourangi, until a dispute in the 1850's over rights to Lake Rotomahana resulted in a series of battles which culminated in Tuhourangi gaining undisputed control of the growing tourism trade based around the Pink and White Terraces on Lake Rotomahana. Sited along the fertile Wairoa valley, Te Wairoa became the centre for guiding, accommodating and ferrying visitors to the terraces. In 1853 the Rev. Spencer built a mission station at Te Mu overlooking the village to the south, and stayed there through the difficult years of the New Zealand Wars until 1870 when he and his family for safety settled in Maketu. Te Wairoa prospered from the tourist trade until the eruption in 1886, when the whare, hotels, flour mill and mission buildings were destroyed and the terraces lost.

The area on which this report focuses is opposite the established Buried Village tourism attraction and is part of the larger village of Te Wairoa, near the site of 1860's quarry and with Wi Keepa's house amongst the sites known to be within the block along with several unreferenced whare type structures, see figures 6 to 8. The land shows evidence of cultivation and division into paddocks, defined by fences,

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<sup>1</sup> Rakeiao, son of Rangitahi (fourth generation after the landing of the Arawa canoe c.1350, settled at Otamatea, Lake Tarawera. (Morgan, 1987)

<sup>2</sup> The villages are referenced in the story of the raids of Tutaneke, great-grandson of Rangitahi, against rge Nagti Pikiario who had settled recently at Rotkakahi and Tarawera. (Morgan, 1987)

ha-ha and sod wall. A surveyor's field books<sup>3</sup> of c.1899 recorded the ruins of at least 5 whare within the proposed development area.

Wi Keepa Te Rangipuawhe, was a distinguished leader of the Tuhourangi people, was the rangatira guardian of the Pink and White Terraces, Te Tarata and Otukapuarangi. He lived with his family in Te Wairoa overlooking the site of the Buried Village. From here he maintained control over the ever-increasing tourist demand to see the terraces on Lake Rotomahana. Aporo Te Wharekaniwha, the chief of Ngati Hinemihi, was a man known not only for his status as rangatira, but also his astute business mind.<sup>4</sup> In 1854 Te Keepa was invited to establish the village by the Rev. Spencer along the lines of an English village.

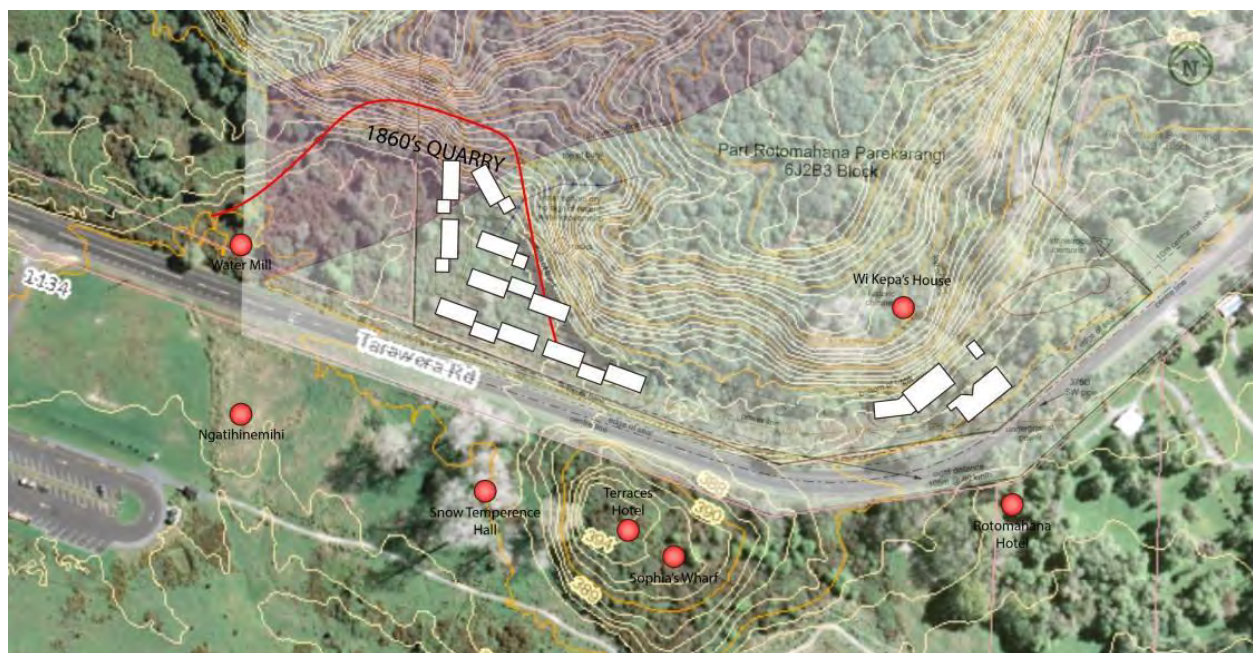


Figure 6; Aerial with overlay of the proposed development in white and known pre-1886 eruption features in red. Source, MMH

<sup>3</sup> Fieldbooks 1232 and 1265

<sup>4</sup> Steven Oliver. 'Te Rangi-pūawhe, Te Keepa', Dictionary of New Zealand Biography, first published in 1990. Te Ara - the Encyclopedia of New Zealand, <https://teara.govt.nz/en/biographies/1t68/te-rangi-puawhe-te-keepa> (accessed 22 November 2021)

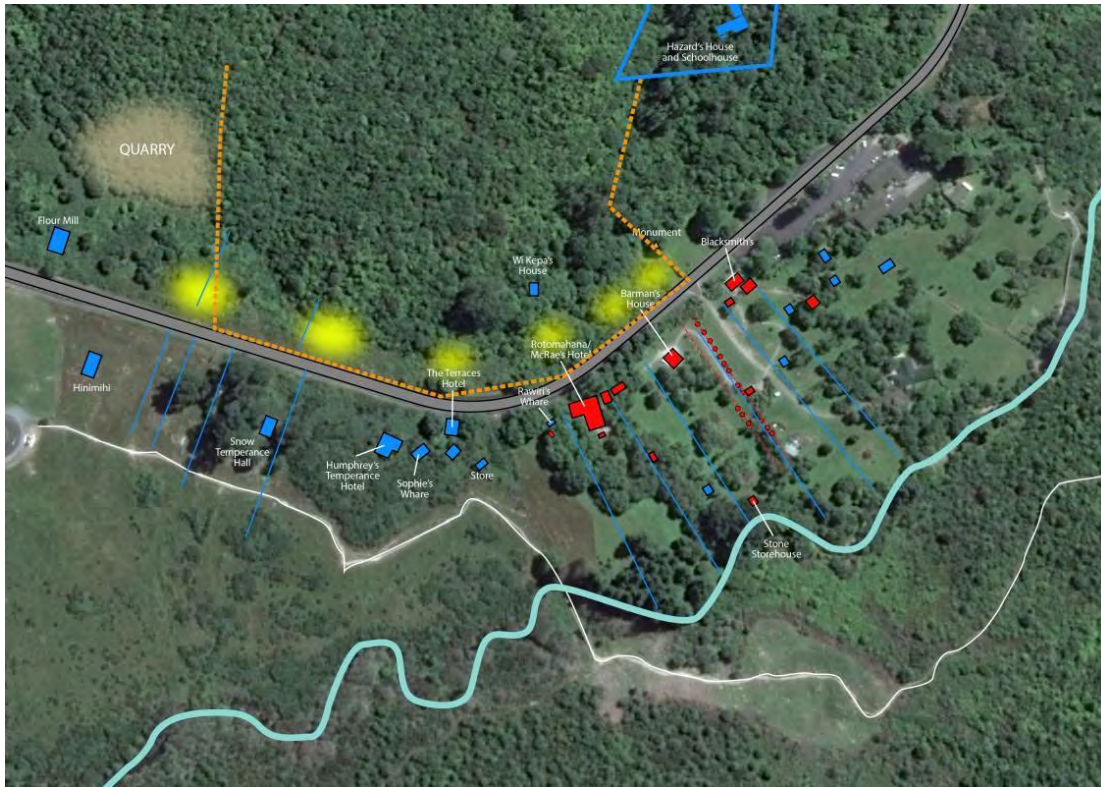


Figure 7; Plan of Te Wairoa based on photographic records. The Red buildings are excavated structures within The Buried Village; blue indicates known locations of buildings and yellow are approximate areas of pre 1886 structures that appear in the 6J2B3 Block in the 1885 photo below – which is highlighted with a dashed orange line. Source, MMH 2021.



Figure 8; Josiah Martin Photograph late 1885. Pre-eruption photograph of Te Wairoa village. the area under proposal is highlighted with dashed red line includes multiple small structures, part of the 1860's quarry and the house of Wi Kepe on the hill on the middle ground.

Supporting documentary evidence from photographs and survey plans of the period are surprisingly limited, what exists shows that cultivation areas and building structures existed pre-eruption to the north of Tarawera Road in the block in question at the base of the slope, see figure 11.

Post 1886 the damage caused by the eruption is recorded in several photographs, with two views to the west showing the remains of Wi Keepa's house on the hill and several buried structures at the base of the slope near the road, see figures 12 & 14. An alternate view of Wi Keepa's shows the damage in greater detail, with the chimney still recognisable today but the remaining wooden structure removed over time, see figure 13.



*Figure 9; Post 1886 landscape of Te Wairoa, multiple structures are visible beneath the ash fall from the eruption of Mount Tarawera. Wi Kēpa's house on the hill to the right with its double gable is immediately recognisable.*



Figure 10; Wi Keepa's House post 1886, extensive damage from the eruption. The chimney is still recognisable.



Figure 11; 1886 Post-eruption, showing the buried landscape of Te Wairoa, with Wi Keepa's house to the right on the high ground and the roofs of buried whare visible to the north of the road.

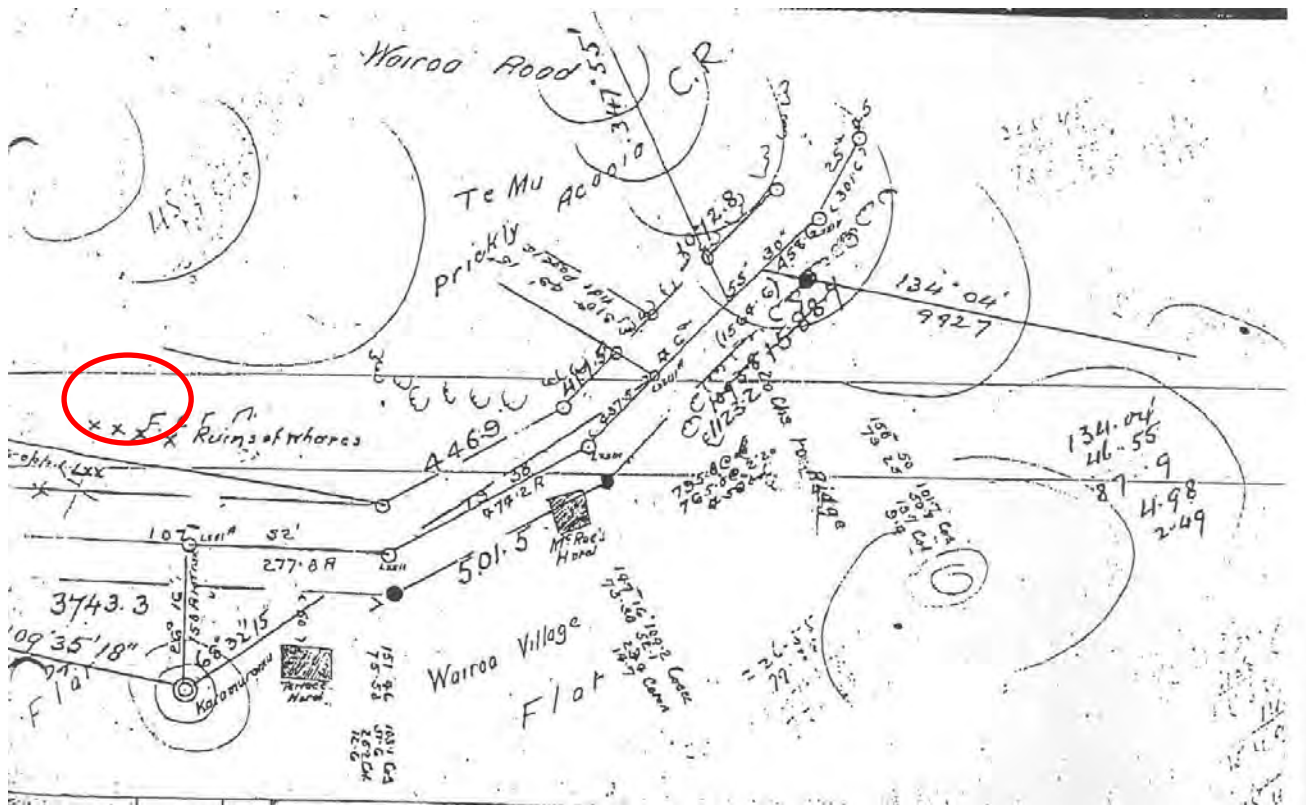


Figure 12; Field Book 1232 c.1900, with location of whare ruins indicated with X's within the development area.

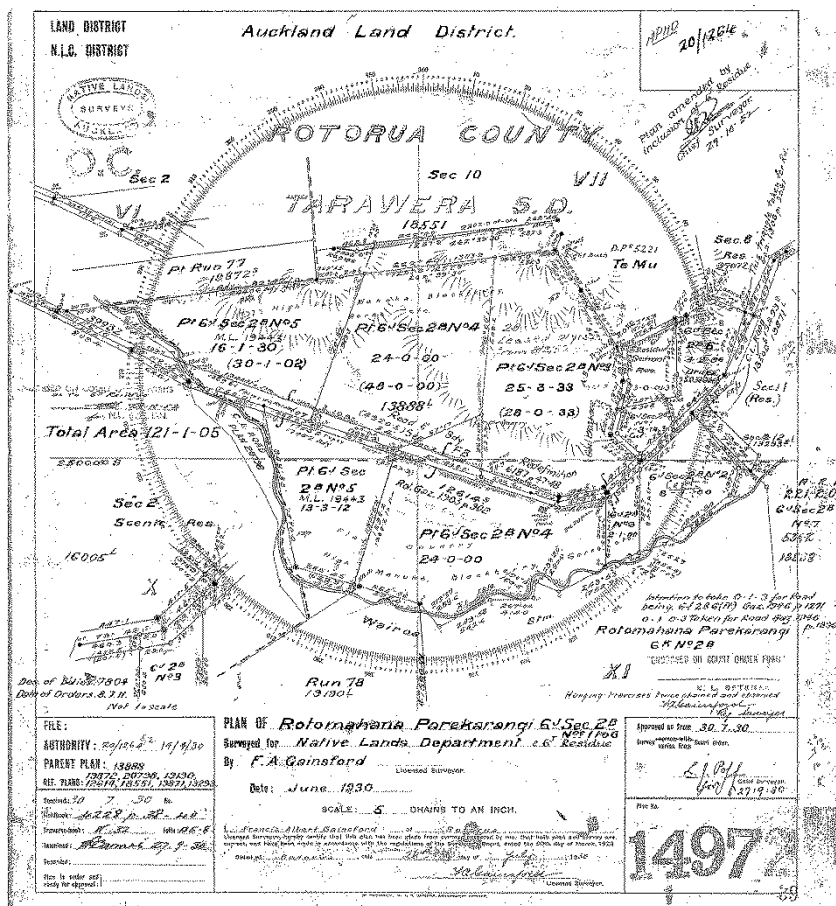


Figure 13; Survey plan ML 14972, dated July 1930. The site of Te Wairoa is totally undefined. Source, QuickMaps

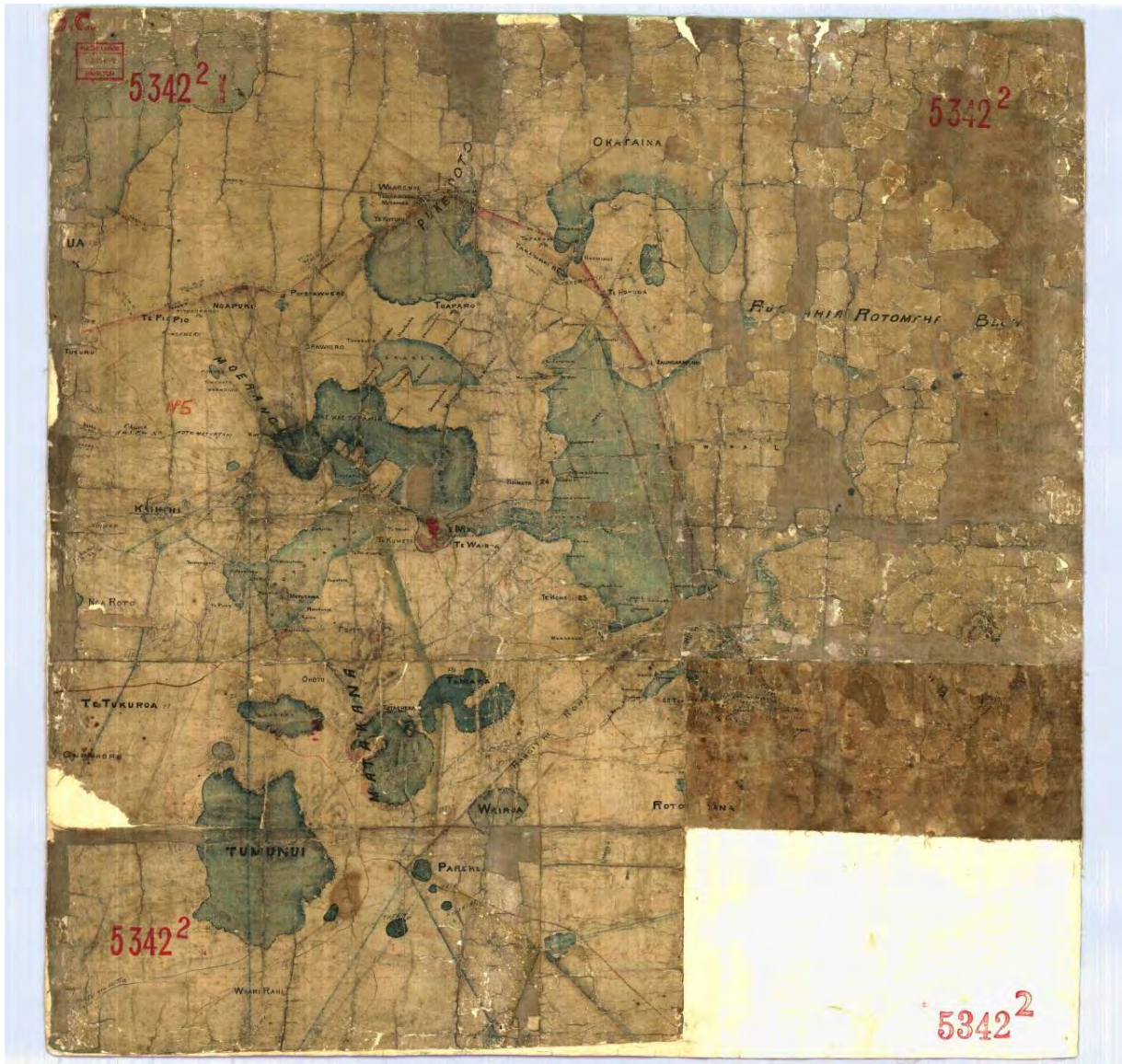


Figure 14; Survey plan ML5342-2 shows the site of Te Wairoa. Date unknown. Source , QuickMaps

## 9 Timeline of Development at Te Wairoa

This section is not intended as a full and complete precise of the history of Te Wairoa, rather highlights key dates changes, and changes within the village. All information has been sourced from published sources, but may not reflect the thoughts, attitudes or korero of Tuhourangi.

**1840's** First Europeans see the pink and white terraces.

The Tuhourangi tribe was the keeper of the legendary pink and white terraces, Otukapuarangi and Te Tarata. According to Te Awekotuku, *"such awesome loveliness was used by the local Maori as a leprosy colony, a place of the diseased and the scourged, a place to die."* (Te Awekotuku, Ngahuia "The Sociocultural impact of Tourism on the Te Arawa People of Rotorua, New Zealand" University of Waikato 1981, unpublished thesis, pp36 - 37.)

**1844-49** Rev. Seymour Mills suspended from the CMS.

*"Seymour Mills Spencer was suspended from the CMS between 1844 and 1849 for alledgedly establishing an improper relationship with a Maori woman at the Ruakareo mission station at*

*Tarawera.*" Entanglements of Empire: Missionaries, Maori, and the Question of the Body. By Tony Ballantyne. 2014. Duke University Press.

#### **1847** Confusion between Ruakareo and Te Wairoa

Historical recollections of European visitors to the area give an interesting insight into the development of Te Wairoa as a tourist location. However some confusion exists in the understanding of Ruakareo and Te Wairoa being one and the same place or two defined separate places. In Dr. John Johnson account of his travels in 1847 to the central lakes region he states;

*After his stay at Ohinemutu Johnson travelled to Rotomahana, first visiting Okareka. The party was ferried by canoe to a village situated on a "rocky knoll terminating a long point that projects into the lake". Here Johnston found "a cluster of neat wares and a good deal of careful cultivation in rich soil at the base of the hill". He was now in Tuhourangi territory. At Okareka the group was hosted by a Tuhourangi chieftainess, "a handsome interesting-looking woman, but stone blind, notwithstanding which she seemed to be treated with marked kindness and attention by the tribe". They travelled on to Lake Tarawera, which Johnson thought particularly beautiful: it reminded him of a Swiss lake. They reached the village known as Ruakareo {Te Wairoa}, and came to the home of Mr Spencer and "his amiable wife". Johnson was impressed with Spencer's "metamorphosing a New Zealand pa into a place much resembling an English village". The church was then being constructed: "when completed, it will be a building of which both the architects and the workmen may be justly proud".*

The confusion is in the date, as Te Wairoa was established in the 1850's, and the largely held belief is that the Spencer Family were still in Kariri (Galilee) at the time Dr. Johnson's account was published.

#### **1850** Plans to move mission to Te Mu, Te Wairoa

Lieutenant-Colonel A.H. Russell of the 58th Regiment visited Te Ngae, Ohinemutu and Rotomahana. He recorded his experiences in a journal, a typescript of which is held by the Auckland Public Library. This reinforces the belief that Dr Johnson's account relates to the mission station at Tarawera not Te Wairoa.

After visiting Whakarewarewa Russell travelled on via Okareka to Lake Tarawera, and stayed with the Spencers who were based at that time at Kariri (Galilee). Plans were being made at the time to move the mission to what was to become Te Wairoa.

#### **1853** European settlers deterred from the area

Those few early travellers who ventured to the region left with marvellous tales of this "scenic wonderland". As word spread, so too did European attempts to purchase land and exploit Rotomahana. In 1853, Abraham Warbrick, an English flax trader who married the daughter of the chief of Ngati Rangitahi, moved his whole family from coastal Matata to Rotomahana. Tuhourangi, infuriated by Warbrick's "trespass," attempted to evict him from the area and destroyed his house.

#### **1858** Te Wairoa set out formally like an English Village

Percy Smith, chief surveyor and later doyen of the Polynesian Society, travelled to the region in a party of six Europeans with Maori guides. The party travelled on by canoe to Te Mu (Te Wairoa), and like many visitors were much struck by its orderly and "English" appearance:



*We then ascended a rocky path, and on the top, to our great surprise, came upon a broad cart-road, with trenches cut on each side, & c. but we were more surprised, a little further on, when, upon turning a corner we beheld a regular village laid out in European style, instead of being huddled up together in a heap, as most Maories live. We were met by a number of Maories, who shook hands all round, and guided us to the chief's house, which seems to be used by travellers. The chief's name is Kemp, and he seems to be a nice, straightforward, honest man, dressed entirely in English costume. There was an Englishman named H. Sampson located here to impart instruction to the natives. J.M. had a letter to Mr Spencer, which he went to deliver, and was kindly invited to stop at the mission house till we left Tarawera, which we expected to do in a day or two. The Maoris have a mill here, and we brought from them 40 lbs. of flour at 2d. per pound.*

The next day Smith went on a visit to Rotokakahi (Green Lake). He passed the flour mill, -

*"a very nice, strongly-built little place: the stonework was done by the Maoris, and speaks volumes for their mechanical skill"*

and crossed the Wairoa by a substantial bridge, this latter being,

*"made entirely by the Maories as a surprise for Mr. Spence when he returned from a journey once"*

#### **1860** Local economy being led by tourism

Lieutenant Henry Stratton Bates, of the 65th Regiment, and Alex St Clair Inglis visited the region. This journey happens to be very well documented. Lieutenant Bates' diary of this trip was published in The Auckland-Waikato Historical Societies Journal in 1969. Travelling the usual route via Rotokakahi Inglis and his companion reached Te Wairoa on 23 March. By this time the local economy is already showing signs of adapting to tourism:

*In about an hour came in sight of Te Wairoa a large missionary settlement laid in the form of a town, with streets the houses having chimneys and little gardens and a very good road through the settlement along which we managed to spur our jaded steeds into a canter. At the side of the road near a Flour Mill a large board [is] erected with the different rates of fares for Tourists to the lakes.*

#### **c.1860-1870** Inter-tribal conflict

Te Wairoa abandoned

#### **1870's** Tuhourangi resistant to the influence and influx of Europeans/Pakeha.

It would seem that the tribe neither wanted nor encouraged a pakeha presence. Apart from the missionaries, the only European residing in Tuhourangi's rohe in the early 1870's was Pierre Fangerrand, a Frenchman married to a Maori woman. He ran a hostel for those few early European travellers, and even he faced hostility and attempts to drive him away.

In the early 1870s, then, facilities at Te Wairoa, the base for the Terrace visits, were rather basic. Awekotuku suggests that *"visitors were catered to by Tuhourangi themselves on a casual basis."* A local Maori, Waretini, established an accommodation house at the village, advertising that visitors could be assured of *"good accommodation at reasonable charges."* Waretini evidently did not meet pakeha standards, though, as guide books of the time were critical at what they saw as *"the want of proper accommodation"*. The same guide book explained,

*"The reason of this discomfort is that the Natives [Tuhourangi] object to a proper European hotel being built."* Langbridge and Edgumbe's 'Handbook', 1875, p 13, 'The Don Stafford Collection,' Rotorua Public Library; DB vol IV, p251

Perhaps Tuhourangi, having learnt the economic value of the Terraces, wished to keep its development to themselves. However, Te Awekotuku notes another factor as to why Tuhourangi remained firmly opposed to European development:

*"... they were feeling ambivalent about what was happening around them. They enjoyed the cash, gifts and tobacco; they probably even enjoyed the strangers presence in their kainga, but they also sensed impending change."*

### **1872** Written account of Te Wairoa Village – in decay after the Waikato wars

*" There was a church, a clergyman's house, a corn-mill and a considerable extent of cleared land lying amid the beautifully broken ground. The church was empty, and deserted. The clergyman's house was falling into decay, and was occupied by a Maori woman and a Frenchman. The corn-mill was choked up and in ruins. On the Land there was no sign of crop, or of preparation for crops .... everything was going back to the savageness of the wilderness ... There were Maoris in plenty -- a village full of Maoris."* Trollope, Anthony New Zealand London, 1874 p144 'The Don Stafford Collection' Rotorua Public Library; DB vol IV, p245

*"On the border of Lake Tarawera, the home of Tuhourangi, formerly considered the picked tribe of Te Arawa. This place now presents a sad picture. as one can see nothing the remnants of former Labour - this people having forsaken their habits of industry are now dwelling among ruins, Living a hand to mouth Life, being actually too Lazy to grow sufficient potatoes to keep themselves from starving."* Langbridge and Edgumbe's 'Handbook' 1875 p13 'The Don Stafford Collection' Rotorua Public Library; DB vol IV, p251

### **1873** Te Wairoa and Tuhourangi's slide from temperance

At a meeting with the Native Minister at Te Wairoa, Hoani Te Whati, on behalf of Ngatitama asked that the sale of spirits should be stopped. H. T. Clarke, appointed kaitiaki by the Native Minister, agreed that the sale of spirits should be stopped, and bemoaned Tuhourangi's slide from temperance

### **1873** Fledgling Tourism industry

The Rev. John William Bishop visited Ohinemutu and Rotomahana. By this time it was possible to travel to the region by coach from Tauranga. Bishop travelled on to Rotomahana via Te Wairoa, which he describes as follows (once again illustrating the development of a fledgling tourist industry which was soon to rapidly consolidate itself):

*In about an hour reached our destination on the banks of the Wairoa where it runs into Roto Tarawera. Here "Peter the Frenchman" kept a small hut which acted as an hotel, and wanted to know what he could do for us, but we had no time to stay with him, and so purchased some bread and bacon from him to take with us, and left our horses in his charge; then calling the natives together we began the higgling business for a canoe and crew to take us across the lake and up into the river to Roto Mahana; they had two canoes, and at about 2.15 we started in the lightest one paddled by four Maoris.*

**1875** The stresses caused by tourism which seems to have expanded rapidly from 1873 onwards are starting to become apparent by 1875. Charles Blomfield was a painter who made his reputation by his well-known paintings of the Pink and White Terraces, Mount Tarawera and so on.

He wrote: *Fri Dec 31st 1875: We left our camping place soon after sun rise. The fem was very wet. We went round the lake [Rotokakahi] to the settlement on the other side and were directed the right path to Wairoa, a station [i.e. a mission] on the north end of Tarawera. A creek connects the lakes Kakahi and Tarawera. It is shaded with bush and very pretty. Wairoa is a large settlement. The natives get their living by [] people over to Rotomahana in canoes. They are very jealous of anyone finding the way by themselves. We had our dinner at the Frenchmans who keeps a lodging house here in a whare. He has every convenience, good beds and is a good cook. He showed us the track but warned us the Maoris would not let us go without some bother.*

**1876** By 1876, pakeha settlers were frustrated that speculators, "willing and anxious" to acquire lands in the region, with tens of thousands of pounds available, could not purchase because of want of a secure title. They complained of living on their small tenures of land in sufferance, liable to be turfed out at any time and demanded a settlement to "this sickening land question". In 1878, even the lease of a single acre of land was the subject of vigorous dispute.

**1877** Tuhourangi opposed to re-licensing of the Cascade Hotel, which they said had been run in a disgusting manner.

The Bay of Plenty Times wrote that the "*disgraceful scenes*" at Te Wairoa stemmed from the Government's choice of "men who are either holders of licenses or owners of hotels, or slygrogsellers" as policemen. Notably, the Cascade's license was renewed that month, against Tuhourangi's wishes, by Commissioner Herbert Brabant, who much later decided their customary interests to the Rotomahana-Parekarangi block.

**1881** Hinimihī meeting house constructed.

#### NOTES FROM THE LAKE COUNTRY.

Bay of Plenty Times, Volume X, Issue 1025, 9 April 1881

*Ngati hinimihī have just completed a large whare for use as a public hall at Te Wairoa. They have called the house after their great ancestor, Hinimihī. Several of the carved figures have half-sovereigns for eye 3. Perhaps one of the best carvings is that of a ngarara or monster lizard called kataori, which is supposed to represent the celebrated Taniwha, of the Blue Lake legend. Altogether -the building reflects great credit on the builders, and is well worth a visit. The Rotomahana Hotel, kept by Mr McRae, still keeps up its prestige as a first-class country hotel, and, with the recent additions, offers accommodation for a large number of visitors.*

**1880-6** Henry M. Morton left a journal of a visit to the region, a copy of which is held by the Auckland public library . The manuscript is undated, but as it clearly predates the Tarawera eruption of 1886 and refers to sittings of the Land Court relating to Rotomahana it should be dated from sometime between 1880 and 1886.

*There is a very pretty little island at one end of Rotokakahi called Motutawa, and in a very sheltered spot in the comer of the lake a native settlement called Kaiteriria. Soon afterwards we come in sight of the native settlement of Wairoa, consisting of two hotels for the accomodation of tourists and also to assist the natives is spending what money they can make in acting as guides and boatsmen to tourists at Rotomahana and the Terraces, and the many ways by which alone a Maori knows how to obtain money.*

*One hotel also combines the business of general store in the settlement, the other is at present closed up. All goods are of course very dear here, the cost of 2d. for carriage from Tauranga being a heavy increase on first cost. There is a small flour mill driven by a race from the Wairoa, but it appears to be little used now. The chief Te Keepa has a very fair weather-board house, and the school and teacher's house is a very respectable building, which has been much enlarged recently. It is surrounded by a very nice garden and paddock. Overlooking this, and quite hid in the acacia bush which surrounds it, is the old mission house, called "The Mu" though none of the natives know the origin of the name. Close by, but more in the foreground, is the native church, a very respectable structure in Gothic style.*

**1883** Rotomahana Hotel burgled

SCINTILLATIONS.

Auckland Star, Volume XX, Issue 4043, 3 July 1883

*Maoris have made a nocturnal descent on the Rotomahana Hotel, and, carrying off the most of the liquor, are having a royal carouse.*

**1884** McRae extends the Rotomahana Hotel

THE Bay of Plenty Times AND THAMES VALLEY WARDEN.

Bay of Plenty Times, Volume XIII, Issue 1731, 30 August 1884

*Mr J. McRae of the Rotomahana Hotel, Wairoa, informs us, that finding the tourist traffic having so much increased last season, he is now effecting extensive additions to his already large Hotel. Such as a new drawing room, 17ft x 16ft ; an addition to the dining room, 31 feet; and 5 more bedrooms. We wish Mr J. McRae every success in his enterprise.*

**1884** Visitor's report

NAPIER TO TAURANGA AND THE THAMES ON FOOT.

Hawkes Bay Herald, Volume XXI, Issue 7022, 26 November 1884

*Wairoa is a rather straggling native village, and contains, besides two hotels, the old mission station, where a Captain Way now resides. There is also one of those monuments of the folly of Government and the indolence of the Maori (a native flourmill) which has long since gone to wreck and ruin. These mills were provided by the Government in years gone by at enormous cost in many native districts for the benefit of the Maoris, but I believe in nearly every case the result has been the same— they have been scarcely used and are now falling to decay. I found excellent accommodation at McRae's hotel, and spent the afternoon inspecting the village, carved house, and strolling down to Lake Tarawera at the starting- place from the terraces, and gathering ferns which can be found here in great variety. I was surprised to see the number of boats employed by the natives in conveying visitors to Rotomahana, there being no fewer than five large whaleboats. The place of embarkation is a very convenient one, being at the head of a long narrow inlet of the lake, at the point where the Wairoa stream enters it.*

**1885** McRae applies for a Publican's license.

*Notice of Application for a Publican's License.*

Bay of Plenty Times, Volume XIV, Issue 1848, 28 May 1885

*I JOSEPH McRAE, of Wairoa, do hereby give notice that I desire to obtain, and will at the next Licensing Meeting to be holden at the Courthouse in the town of Rotorua on the 1st day of June next, apply for a*

*certificate authorising the issue of a Publican's License for a house situated 'at Wairoa, and known as the Rotomahana Hotel, containing twenty-five rooms exclusive of those required for the use of the family.*

Dated the 15th day of May, 1885.

JOSEPH McRAE.

**1886** Rotomahana Hotel - 21 rooms

*Notices. ROTOMAHANA HOTEL WAIROA, LAKE TARAWERA.*

Waikato Times, Volume XXVI, Issue 2171, 8 June 1886

*THIS HOTEL, which is splendidly situated, contains 21 rooms, and affords every comfort required as a home for tourists visiting the Terraces.*

*Wines and Spirits are noted to be of the very best brands, and not to be surpassed in the Lake District. Tents and other requisites for camping at the Terraces can be supplied to tourists. Maori Curiosities can be purchased.*

J. McRAE, Proprietor.

**1886** Post-Eruption statement

STATEMENTS BY THE SURVIVORS OF THE HAZARD FAMILY.

Otago Daily Times, Issue 7588, 14 June 1886

*MR McRAE'S STATEMENT. (Per United Press Association.)*

*McRae, the hotelkeeper, states:—"About 12.30 p.m. the place began to shake, and shook continuously for an hour before the eruption broke out. When this was first seen it was just like a small cloud on the mountain, with flashes of lightning of great brilliancy. All got out of bed and went up to the old mission station to ascertain the cause of the occurrence. We saw a sight that no man who saw it can ever forget. Apparently the mountain had three craters, and the flames were shooting up fully 1000 ft high. There appeared to be a continuous shower of balls of fire for miles around. As a storm appeared to be coming on we returned to the hotel, and shortly afterwards what seemed to be heavy hailstones came pouring on the roof, which continued about every quarter of an hour. This was succeeded by a heavy fall of stones, fire-balls, and mud, the lava falling after the manner of rain. The weight of these substances upon the roof soon began to tell upon it. The first portion that gave way was the detached kitchen and pantry, and then we all collected in the smoking-room. Those present were Mr and Mrs Humphries, Mr Minnett (of the Terrace Hotel), Mr Stubbs (a gentleman staying at the Terrace Hotel), Mr Bainbridge (a young tourist), Mr Fallon (the storekeeper), George Baker (my cook), Mary Kean and Mary Bridan, John and William Bird (my brothers-in-law), one of whom had arrived the previous night from Rotorua with a waggon load of goods for my store. There were also some Maoris in the house. The roof of the hotel gave way at about half-past 4 a.m. with a loud smash, and the whole of the upper storey collapsed, the debris falling into the rooms below. We left the smoking-room and went into the drawing-room, which, as it was the newest part of the house, we thought would stand the longest; but it was with the greatest difficulty that we got there, going through falling stones and mud, which impeded us. When we went outside everybody, without exception, was cool and self - possessed. The back part of the house, in which was the dining-room, gave way next, and all of a sudden we heard a fearful crash and roar, as if thousands of tons of stuff were falling, and we heard the balcony come down. The danger of our position was now fearfully apparent.*

**1886** June 10th 1886 – the Eruption of Mt Tarawera

## 10 Archaeological Sites and Previous Investigation

One recorded archaeological site is recorded within The Buried Village, the stone store house or pataka, ArchSite reference U16/23. It sits beside the stream, and is considered a rare example. A second recorded archaeological site is to the west and is the site of the mill U16/22.

The entire village should be classified as an archaeological site/landscape due to the sealing of the village in 1886 by volcanic fall out layers, but as seen in Figure 15, only the two archaeological sites are recorded in this valley, and the archaeology has the potential to site at depth below the currently ground surface due to remaining eruption deposits.

Previous archaeological investigations by Alexy Simmons in the 1990s of the Rotomahana Hotel and Rawiri's whare revealed buried buildings still containing artefacts and personal possessions in good condition, now on display in the museum. The brick work on the Hotel and stores withstood the impact of the eruption however many of the timber structures did not. Excavations by the Smith family within The Buried Village in the 20<sup>th</sup> century have also revealed archaeological structures or impressions of structures. Historic artefacts have also been recovered and put on display around this tourist attraction and reflect life in about 1886. Artefacts associated with Falloona's store, the drinks cellar and perhaps a blacksmith and iron works have also been recovered.

No archaeological evidence, excepting the remains of Wi Keepa's house have been identified in the area of works, and as stated previously that much of the area of interest for this development appears to relate to large scale crop cultivation with episodic whare placement. It is expected that excavations are likely to reveal material culture associated both with working the land and domestic life.

It is suggested that all of the Te Wairoa Buried Village complex is part of recorded site U16/23 and its nature and extent within the NZAA ArchSite database should be changed to reflect this.



archaeological features were observed on visual assessment from the effect of these works but cannot be discounted.

In general the development area is considered featureless, except for the spur on which Wi Keepa's chimney remains, and is masked by a blanket of ash, under which archaeology should remain preserved.



Figure 16 left right and below; The Chimney of Wi Keepa's house is still intact in the landscape. Source, MMH 2021







Figure 17 above left and right; View towards Wi Keepa's House site from near road. Dense vegetation obscures the slope. Source, MMH 2021.



Figure 18; above left and right: Looking west and east along the edge of 6J2B3 block, with Tarawera Road to the left, where powerlines and poles have been installed. Source, MMH 2021



Figure 19; above left, looking west along Tarawera Road with the 6J2B3 Block to the right and Buried Village on the left. Right, the block is obscured by dense growth, but a slight cut from the road construction is visible on the right hand side of the road. Source, MMH 2021.

## 11.1 Summary and Conclusions

The documentary evidence coupled with the site visit demonstrate the lack of understanding currently regarding the nature of land use and preservation of the historic village in this location.

Documents consulted compound the idea that the main body of the village and built structures was on the opposite of Tarawera Road, however the location of the proposal retained a rural environment prior 1886, albeit through crop cultivations and the wooden bay villa in which Rangatira Wi Keepa lived and whose chimney remains upstanding in the regenerated bush. Wi Keepa's house maintains a high level of cultural significance and as such is a focal point to Tuhourangi iwi, ideally the chimney and footprint requires some delineation and protection to preserve its integrity within the scope of the development.

Maps and survey do suggest the location of some structures, however the angles of post 1886 eruption images fail to identify these and ground truthing through excavation would be the best way to establish their presence and nature, if any.

The location of the proposed underpass will possibly have more effect on the main body of the village and its final position will need careful consideration to avoid known structures of archaeological significance on the southern side of Tarawera Road

## 12 Constraints and Limitations

This report is an assessment of the impacts of the proposed project to build a complex of buildings associated with the Journey Home for Tuhourangi on archaeological values.

There are no statements on the cultural significance of the project area nor are the views of tangata whenua represented in this report.

Statements are made as to the location and nature of recorded archaeological sites and their archaeological values. The archaeological information is derived from both published material including the HNZPT Digital Archaeological Report Library and NZAA ArchSite Database as well as information from archaeologists who have undertaken research and HNZPT authority work in this area.

Archaeological site location data should be regarded as a guide only as the locational accuracy of archaeological sites recorded in ArchSite is variable. Accuracy for some recorded sites is only to 100 m grid squares and many of these have been recalculated from earlier 100 yard coordinates which can increase the location error. Those sites that have not been recorded accurately are indicated on the ArchSite maps with a square and are only accurate to within, at best, 100 m of the actual site location. Archaeological sites that have been visited since the advent of GPS may have more accurate recorded locations.

The full extent of recorded sites is often not known and the single point coordinate provided by ArchSite is often based on only the visible surface archaeological remains. This does not necessarily represent the true subsurface extent of archaeological sites as defined in the *Heritage New Zealand Pouhere Taonga Act 2014* (HNZPTA), as most archaeological remains lie below the ground surface.

The nature of the volcanic ash fall over the location has made it difficult to establish the original ground surface and geotechnical information would be required to understand this further.

### 13 Assessment of Effects

Works to establish the papakainga, marae, cultural centre and so on are confined to a zone of land facing onto Tarawera Road as shown on Figure 21 below. This is where the land is most level and where archaeological deposits are likely to be modified and destroyed, although design works are aiming at minimal impacts. Where the land slopes upwards and is bush covered, no development works are planned. An exception will be the low spur on which Rangatira Wii Keepa’s house is positioned, and it is recommended that sympathetic ground disturbance occur to ensure minimal ground disturbance.

Where the tunnel is planned below the road to link with The Buried Village, ground disturbance will occur on a linear band, as shown on Figures 5 and 6 above. and to make safe this built feature. the alignment of the tunnel has been chosen to avoid disturbance of the Rotomahana Hotel and nearby structures as shown in Figure 20 below. Whilst the development has been designed to reduce the scale of impact on known recorded structures within the historic Te Wairoa Village, it is noted that this Village was occupied, and consisted of high levels of residential and tourism history. Therefore it remains likely that the underpass will uncover unknown archeological remnants or structures.



Figure 20; Location of underpass overlaid with known structures within the Buried Village.

The Trust are aware of the potential impact the development may have on the archaeological remnants of the Te Wairoa Village.

## 13.1 Archaeological Effects and Other Values

Regardless of the presence, or lack, of recorded archaeological sites and other features listed in ArchSite or the Rotorua district plan, the area of works is undoubtedly within the Te Wairoa village limits. Based on this works will be undertaken within a known pre 1900 archaeological landscape which has been affected by the 1886 volcanic ash fall. Whilst the ash fall makes assessment of the condition of any archaeological site difficult to impossible at present, hence why historic documentary evidence has been relied upon.

Based on the known narratives of the site including; its place as a home to Tuhourangi, the original home of Ngai Hinemihi, as the place where New Zealand tourism was pioneered through visitor access and guiding to the pink and white terraces and buildings associated with significant tupuna, including the whare of Guide Sophia, the archaeological values present in this location cannot be downplayed and are considered high, if present.

### **Condition**

The condition of the property is largely unknown but previous excavations by A. Simmons at the Buried Village have demonstrated high levels of preservation remain beneath the volcanic fallout. The House site of Wi Keepa has obviously been cleared of displaced building materials with the exception of the chimney, but a site inspection suggests that the floor level may be in part intact and there would be value in revealing this, and preserving the upstanding chimney and hearth in perpetuity based on its good condition.

### **Rarity**

The site has the potential to offer a rare example of Māori living preserved at a specific point in time by the eruption of Mount Tarawera in 1886. It offers a limited timeline of European influences on Māori lifestyle, and the ash fall has the potential to have preserved seed and crops being grown at the time of the 1886 eruption, which would be high value if recovered.

### **Contextual Value**

The contextual landscape of Te Wairoa has been explored in a limited fashion by the work done in the Buried Village Tourism site, where the majority of the work was undertaken by an amateur enthusiast with the loss of contextual information. The subsequent rebuilding of whare has diminished the contextual knowledge further by the inaccurate interpretation of buildings.

The contextual value offered by any excavation within the proposed block, particularly where whare are suggested in historic survey plans, is high in understanding both whare architecture at the time, and potentially the European influence on traditional Māori living.

The location of Wi Keepa's whare, currently within bush, would with responsible vegetation pruning have the potential to reconnect the whare site with the rest of the village and the new development by re-establishing sightlines. Excavation around the whare is considered to have low to moderate value due to past salvaging and possible fossicking, however may result in significant taonga and information being gathered through archaeological methods.

### **Information Potential**

As stated above there is potential for high value information to be obtained from the recovery of plant species through soils analysis in the development Lot, and information potential is high in exploring a slice in time in village life: June 10<sup>th</sup> 1886. Changes or preferences in farming methodology and living

structure could be further understood, especially through the lens that this community was once a place of high technological achievement and the effects of this on Māori living may be revealed.

Due to the known date of village establishment and destruction, analytical techniques such as radiocarbon dating are not required.

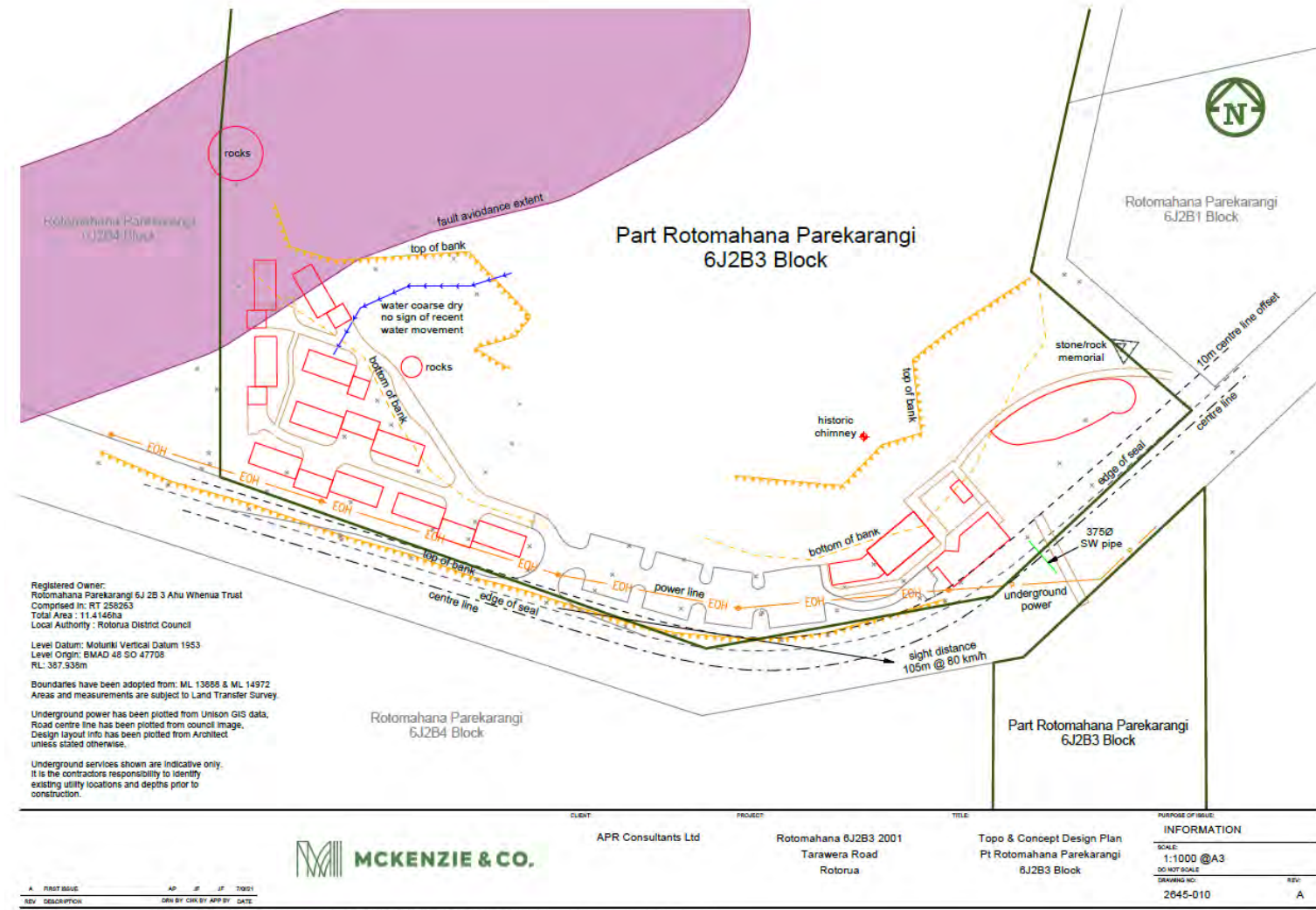
**Amenity Value**

As a development to re-establish Tuhourangi in the area, there is high amenity value, and also in light of the upstanding historic remains, such as Wi Keeps whare, and the Rotomahana Hotel in the Buried Village.

**Cultural Value**

The site is of particular value to Tuhourangi who became dislocated from the land by the 1886 eruption of Mount Tarawera. The proposed project is about Tuhourangi returning to the land of their ancestors and the re-association with their history.

Figure 20: Building locations.



## 14 Conclusions and Recommendations

This assessment is intended to:

- identify archaeological values within project area
- assess the effects on those values by the current proposal
- support an application for Resource Consent and,
- support a General Authority Application to HNZPT for an archaeological authority (if required).

It has been determined that:

- The landscape of the pre 1886 eruption village of Te Wairoa is highly likely to have been preserved in the subsurface to some extent, Alexy Simmons excavations on the site of the Buried Village demonstrated high levels of preservation remain. From an archaeological perspective it offers a rare opportunity to explore life from this period within a site that was abandoned as opposed to vacated with the potential to see aspects of domestic life in situ. The 'English Village' model for Maori living is an unusual precedent and to explore the implications of this effect on Maori life and the ramifications to native architecture and construction methodology with regard to European influences is uncommon.
- It is considered that all aspects of this project come with inherent archaeological risk, and in particular the road underpass which is planned to enter the Buried Village around the point of the Rotomahana Hotel.
- There are no recorded archaeological sites recorded within the property boundary on the NZAA database, however it is accepted that the entirety of the Te Wairoa landscape is a pre-1900 archaeological environment, where it is possible archaeological evidence associated with the village may be encountered, if the covering volcanic ash fall is penetrated.
- There are significant known archaeological features within the landscape which relate to Tuhourangi in the neighbouring land blocks. Any new archaeology encountered during this development should be considered in relation to these.
- Historic documents appear to demonstrate the area of planned development is mainly an area of cultivation with episodic whare and provisions put in place for the recovery of heritage plant species through pollen and microfossil analysis, should buried cultivation soils be encountered.
- Whare shown close to Tarawera Road in historic survey would provide the opportunity to understand architectural practise in the c. 1880s, and the influence of European methods on traditional practises. Focussed archaeological trenching, in areas colour yellow in Figure 19 could be employed to reveal these buildings and investigative excavation be employed to recover this information. Should the whare be in an appropriate place, it could become an educational and display aspect of the development.
- Rangitira Wi Keepa's house is present in the lot and in fairly poor condition except for the chimney and hearth. For the condition and preservation to be realised archaeological exploration and excavation is recommended.

- This structure should be recorded as an archaeological site and a Conservation and Management Plan should be compiled to guide future care and maintenance of the remaining building. This Plan should be informed by the principles of the ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value the charter that underpins the management of heritage places in New Zealand and New Zealand Conservators of Cultural Materials codes of ethics and practise.

It is recommended that;

*A General archaeological authority pursuant to Section 48 of the Heritage New Zealand Pouhere Taonga is applied for and granted before ground works commence as a mitigation tool to reduce the archaeological risk associated with the earthworks and development proposed. This authority will allow for the modification and destruction of archaeology within the development footprint, with conditions. Conditions may include provisions from limited archaeological excavation of known structures and features, and monitoring during earthworks to record and sample archaeological deposits as they are revealed. Please allow 6-8 weeks for it to be active.*

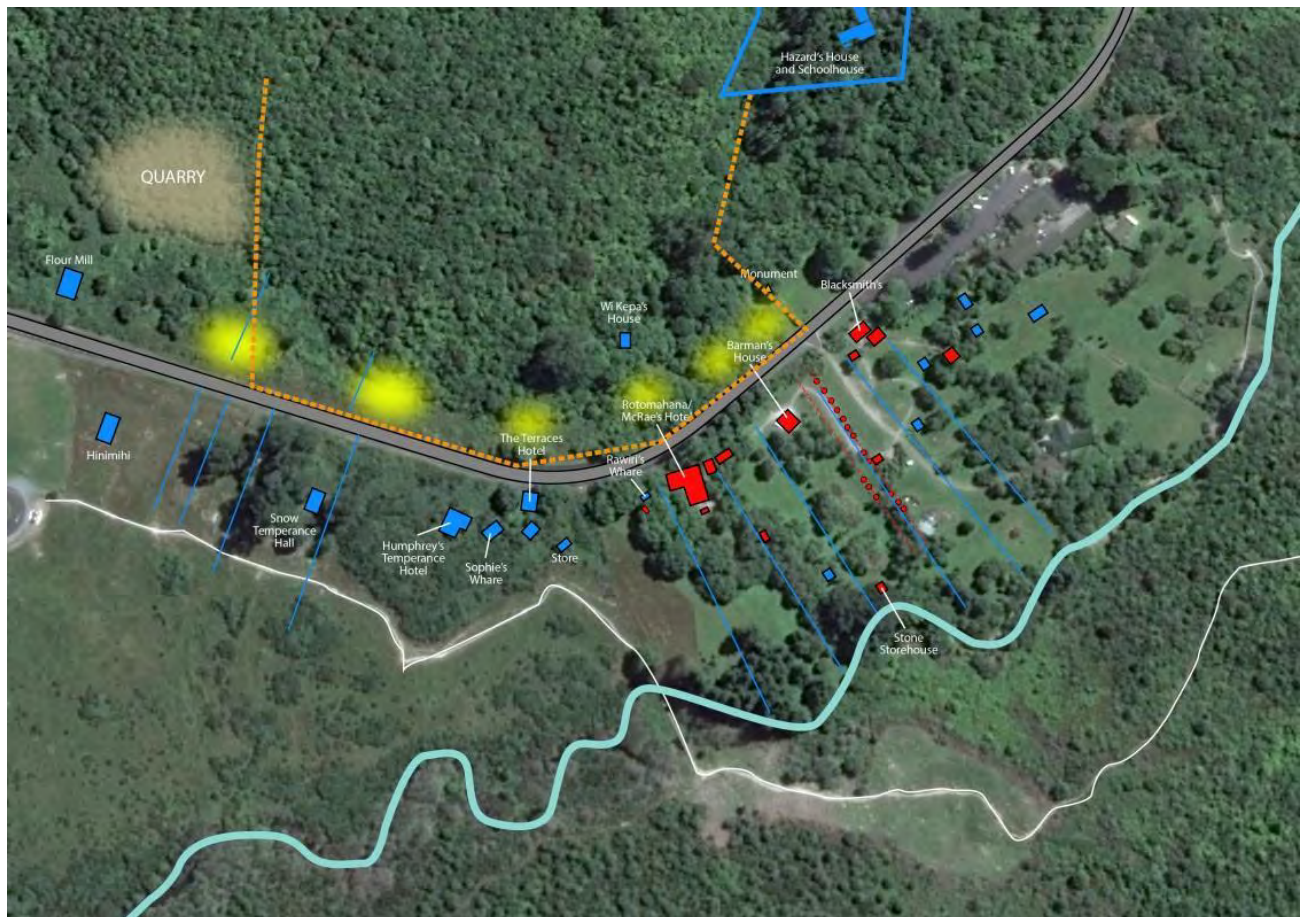


Figure 21: above in yellow, position so extant buildings seen in photographs from 1885. Source, MMH.



## 15 References

### Articles

STATEMENTS BY THE SURVIVORS OF THE HAZARD FAMILY. *Otago Daily Times*, Issue 7588, 14 June 1886

*Page 395 Advertisements Column 2, Observer, Volume 2, Issue 37, 28 May 1881*

LATEST. *Wanganui Chronicle*, Volume XXIX, Issue 11216, 14 June 1886

NEWS IN BRIEF. *New Zealand Herald*, Volume XXI, Issue 7115, 5 September 1884

HONOUR TO WHOM HONOUR IS DUE. *Bay of Plenty Times*, Volume IX, Issue 937, 14 September 1880

*Page 1 Advertisements Column 3. Bay Of Plenty Times, Volume XIV, Issue 1823, 9 April 1885*

*London, April 19. Waikato Times, Volume XXVI, Issue 2151, 22 April 1886*

SCINTILLATIONS. *Auckland Star*, Volume XX, Issue 4043, 3 July 1883

*A Scene of Desolation. Nelson Evening Mail, Volume XX, Issue 144, 18 June 1886*

MAKETU LICENSING COURT. *Bay of Plenty Times*, Volume IX, Issue 898, 15 June 1880

VERY LATEST. *North Otago Times*, Volume XXXI, Issue 6065, 11 June 1886

THE VOLCANIC ERUPTIONS AT MOUNT TARAWERA. *Tuapeka Times*, Volume XIX, Issue 1257, 16 June 1886

*Woodville. Daily Telegraph, 21 June 1886*

A CANTERBURY GENTLEMAN'S ACCOUNT. *Nelson Evening Mail*, Volume XX, Issue 143, 17 June 1886

VOLCANIC ERUPTIONS AT ROTORUA. *Taranaki Herald*, Volume XXXV, Issue 7089, 11 June 1886

MR. CHARLES STUBBS' STATEMENT. *New Zealand Herald*, Volume XXIII, Issue 7665, 16 June 1886

ON HORSEBACK to the LAKES. [BY ONE OF A PARTY.] IV. WAIROA. *Waikato Times*, Volume XX, Issue 1688, 1 May 1883

OTHER ACCOUNTS. *New Zealand Herald*, Volume XXIII, Issue 7661, 11 June 1886

INQUEST ON THE HAZARD FAMILY. *Auckland Star*, Volume XVII, Issue 137, 14 June 1886

THE HOT LAKES. *Observer*, Volume 3, Issue 66, 17 December 1881

THE LAND OF THE GOLDEN FLEECE. *New Zealand Herald*, Volume XXIII, Issue 7555, 6 February 1886, Supplement

THE *Bay of Plenty Times* AND THAMES VALLEY WARDEN. *Bay of Plenty Times*, Volume XIII, Issue 1731, 30 August 1884

GRAPHIC DESCRIPTIONS BY SURVIVOUS. *New Zealand Herald*, Volume XXIII, Issue 7669, 21 June 1886

STATEMENTS BY THE SURVIVORS OF THE HAZARD FAMILY. *Otago Daily Times*, Issue 7588, 14 June 1886

*Evening Post. MONDAY, MAY 8, 1876. Evening Post, Volume XIII, Issue 108, 8 May 1876*

*A TRIP TO THE HOT SPRINGS OF THE NORTH ISLAND. Press, Volume XX, Issue 2954, 21 October 1872*

*TAUPO AND THE HOT SPRINGS. Wanganui Herald, Volume VII, Issue 2103, 26 February 1874*

*OVERLAND FROM TAURANGA TO NAPIER, VIA HOT LAKES AND TAUPO. Wellington Independent, Volume XXIX, Issue 4050, 11 March 1874*

*RAMBLES ON THE EAST COAST. Daily Southern Cross, Volume XXX, Issue 5283, 30 July 1874, Supplement  
New Zealand Times. New Zealand Times, Volume XXX, Issue 4399, 26 April 1875*

*New Zealand Herald. New Zealand Herald, Volume XIII, Issue 4545, 8 June 1876*

*NOTES FROM INLAND. Bay of Plenty Times, Volume V, Issue 477, 11 April 1877*

*GENERAL NEWS. New Zealand Times, Volume XXXII, Issue 5027, 4 May 1877*

*Local and General. Bay of Plenty Times, Volume V, Issue 487, 16 May 1877*

*NAPIER TO TAURANGA AND THE THAMES ON FOOT. Hawkes Bay Herald, Volume XXI, Issue 7022, 26  
November 1884*

#### Journals and Books

*The Journal of the Polynesian Society. Notice of a Stone Pataka, Rotokakahi. Volume 78 1969 > Volume  
78, No. 4 > Notice of a stone Pataka, Rotokakahi, by C. Watt, p 534 – 535*

*BLAIN BIOGRAPHICAL DIRECTORY of Anglican clergy in the South Pacific ordained before 1931. 2017  
Update.*

*Alienation of Rotomahana Parekarangi Lands within the Whakearewarewa State Forest. Moore, D. and  
Quinn, S. - 2nd February 1993*

*The Hot Lakes. Maori use and management of geothermal areas from the evidence of European Visitors.  
Boast, R.P. - December 1992*

*Constructing, Contesting and Consuming New Zealand's Tourism Landscape: A History of Te Wairoa.  
Bremner, H. – 2004*

*Mana Whenua, Mana Moana: Tuhourangi and Lake Rotokakahi. Faires, N.S. – 2013*

*The Pink and White Terraces of New Zealand. Transactions of the Annual Meeting of the Kansas  
Academy of Science, Vol. 11 (1887-1888) pp. 26-30. Savage, J.*

*Andrews, Philip: Ko Mata: The life of Anne Chapman missionary at the Bay of Islands, Rotorua and  
Maketu, 1830-1655, Rotorua and District Historical Society, 1991.*

*Bates, William: "Lieutenant Bates rides to Taupo", Auckland-Waikato Historical Societies Journal, No 14,  
April 1969.*

*Beckwith, Martha: Hawaiian Mythology, Yale University Press 1940, reprint University of Hawaii Press,  
Honolulu, 1970.*

*Bidwell, John C: Rambles in New Zealand, W.S. Orr & Co., London, 1841, Capper Press reprint, Caxton  
Press, Christchurch, 1974.*



Hutton, F.W., "On the occurrence of Native Mercury, near Pakaraka, Bay of Islands", *Transactions of the New Zealand Institute*, 1870, Art. XL VI

Inglis, Alex St Clair: *Diary titled "Bubbles from the Boiling Springs of Taupo"*, MS 3784, A TL.

Kerry-Nicholls, J.H., *The King Country, or Explorations in New Zealand*, London, 1884 (Copper Press reprint 1974)

Langbridge and Edgecumbe's 'Handbook', 1875, p 13, 'The Don Stafford Collection,' Rotorua Public Library; DB vol IV, p251

Law Reform Commission (Australia), *Report No 31, The Recognition of Aboriginal Customary Laws*, AGPS, Canberra, 1986

Locke, E: *A Canoe in the Mist*.

Lowrie, R.H.: *Primitive Society*, Routledge and Kegan Paul, 1929.

Maddock, K: *The Australian Aborigines*, 2nd ed., Penguin Australia, Ringwood.

Makereti, (Papakura, Maggie): *The Old-Time Maori*, New Women's Press, Auckland, 1986. (1st ed Victor Gollancz Ltd, London, 1938).

Matheson, A: *Wharekahu C.M.S. Mission Station, Maketu. The Spencers, 1870-1883*. 2009

Maxwell, Paora: *The Maori Use of Geothermal Energy, Report for the Waitangi Tribunal, April 1990*.

McGibbon, Ian: "Tiffen, Henry Stokes", *New Zealand Dictionary of Biography*, vol i, 1990, 539.

McLean, Denis: "Dieffenbach, Johann Karl Ernst", *Dictionary of New Zealand Biography*, 1990, 107.

Meade, Herbert: *A Ride through the Disturbed Districts of New Zealand, together with some account of the South Sea Islands*, John Murray, London, 1870.

Morgan leatherby, 1987. *Tarawera Development. Archaeological and Historical Assessment*. Unpublished report.

Morton, Henry M: *Notes of a visit to the lake District*, NZ MSS 683, APL.

Phillips, K.J.S, 2001. *Preliminary Archaeological Survey and Assessment of Effects. Proposed Tarawera Visitors Attraction. Te Wairoa*.

Roche, M.M *Forest Policy in New Zealand: An Historical Geography 1840 - 1918*, Palmerston North, Dunmore Press, 1987, p62; DB vol IV, p194.

Rockel, Ian: *Taking the Waters: Early Spas in New Zealand*, GP Books, Wellington, 1986.

Rogers, L.M. (ed), *Early Journals of Henry Williams 1826-40*, Pegasus Press, Christchurch, 1961.

Russell, Lieut.Col. A.H.: *Expedition from Auckland to the Hot Lakes, Pink Terraces and Lake Taupo*, Typescript, APL MS 847.

Sack, P. *Land between Two Laws*, ANU Press, Canberra, 1973.

*Schrempf, Gregory: Magical Arrows: The Maori, the Greeks and the Folklore of the Universe, University of Wisconsin Press, Madison, 1992, 110-111.*

*Smith, S. Percy: The Lore of the Whare-Wananga.*

*Stafford, Don; M: Te Arawa: A History of the Arawa People, Reed Books, Auckland, 1967.*

- *The Founding Years in Rotorua, Ray Richards and Rotorua District Council, 1986.*

*Steele, Roger: "Tourism" in Don Stafford, Roger Steele, Joan Boyd (eds), Rotorua: 1880-1980, Rotorua and District Historical Society Inc., 1980.*

*Stokes, Dr Evelyn Mary: "Public Policy and Geothermal Energy Development: the Competitive Process on Maori Lands". Unpublished paper presented to Symposium on New Zealand and the Pacific: Structural Change and Societal responses, School of Social Sciences, University of Waikato, 19-20 June 1987.*

- *"Rotokawa Geothermal Field". Submission to Waikato Valley Authority from Ngati Tahu Tribal Trust. March 1987.*

- *"Maori Issues at Orakei Korako". A Report Compiled by Evelyn Stokes for Ngati Tahu Tribal Trust and Tutukau East Z Trust November 1988.*

- *Statement of Evidence to the Planning Tribunal in Geotherm Energy Ltd. v The Waikato Regional Council (Appeals 714 and 968/89) on behalf of Ngati Tahu Tribal Trust. 1991.*

- *Taupo Sewage Disposal Options: Maori Perspectives, February 1991. Wairakei Geothermal Area: Some Historical Perspectives., University of Waikato, Hamilton, 1991.*

*J. Stone, The Province and Function of Law, Maitland Publications, Sydney, 1961.*

- *Legal Systems and Lawyers' Reasoning, Maitland Publications, Sydney, 1968.*

*Taylor, Rev. Richard: Journals, Typescript, AIML.*

- *Te Ika a Maui, or New Zealand and its inhabitants, Wertheim and Macintosh, London, 1855.*

*Taylor, Nancy M. (ed), Early Travellers in New Zealand, Oxford University Press, 1959.*

*Te Awekotuku, Ngahuia: "The Sociocultural Impact of Tourism on the Te Arawa People of Rotorua", Ph.D. Thesis, University of Hawaii, 1981.*

- *"Introduction" to Makereti, The Old-Time Maori, New Women's Press, Auckland, 1986.*
- *"Remembering Makereti", in Mana Wahine Maori, New Women's Press, Auckland, 1991, 143-154*
- *liTe Hu 0 Tarawera", in Mana Wahine Maori, 155-162.*

*Te Awekotuku, Ngahuia: "The City of Rotorua and its Meaning to Ngati Whakaue. August 1976.*

*Waaka, Peter: "Whakarewarewa" in Stafford et al, Rotorua 1880-1980, Rotorua and District Historical Society, 1980.*

- *"Whakarewarewa: the growth of a Maori village", MA Thesis, University of Auckland, 1982.*

- "Tarawera - 100 Years before the Eruption", in Tarawera Eruption Centennial Exhibition 1886-1986, Rotorua District Council, Rotorua, 1986.

Wade, W.R: Journey in the Northern Island of New Zealand, Hobart, 1842, Capper Press reprint, Christchurch, 1977.

Wakefield, Edward J: Adventure in New Zealand, John Murray, London,1845,

Ward, Alan:A Show of Justice, Auckland University Press/Oxford University Press, 1974,256

- "McLean, Donald", Dictionary of New Zealand Biography, vol. 1, 1990, 255-8.

Watt, Cecil:Te Motutapu a Tinirau: the Sacred Isle, Whakatane and District Historical Society, 1969.

Westervelt, William D: Hawaiian Legends of Volcanoes, Charles E. Tuttle & Co, Rutland, Vermont and Tokyo, 1963.

# ECOLOGICAL ASSESSMENT FOR TE HOKINGA MAI KI TE WAIROA – THE RETURN OF TŪHOURANGI TO TE WAIROA

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# ECOLOGICAL ASSESSMENT FOR TE HOKINGA MAI KI TE WAIROA – THE RETURN OF TŪHOURANGI TO TE WAIROA

**Contract Report No. 6157a**

March 2023

**Project Team:**

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## 1. INTRODUCTION

Rotomahana Parekarangi 6J2B3 Trust are embarking on a project known as Te Hokinga Mai Ki Te Wairoa - The return of Tūhourangi to Te Wairoa. As part of this project the trustees have a proposal to undertake a development on one of the Tūhourangi land blocks that contained the historic Te Wairoa Village, on the southwestern side of Lake Tarawera, Rotorua. The proposed development will include preliminary development, then the development of papakāinga, a marae, and a cultural centre.

Te Wairoa village was one of the first joint Māori and European Villages in Aotearoa New Zealand and was a popular place for tourists to visit during their journey to the Pink and White Terraces. Unfortunately, this settlement was destroyed in the Tarawera eruption on 10 June 1886, resulting in the displacement of Tūhourangi from the area.

On behalf of the Rotomahana Parekarangi 6J2B3 Trust, APR Consultants commissioned Wildland Consultants to provide an ecological assessment to support the resource consent applications the proposed development. The location of the proposed development is shown in Figure 1.

This assessment of ecological effects provides a description of the vegetation and habitat types present within the proposed development location at Rotomahana Parekarangi 6J2B3 Trust Block on Tarawera Road. It also evaluates the ecological values of the property and provides an assessment of potential ecological effects of the proposed development. Measures to avoid, minimise, or mitigate for potential ecological effects are addressed.

## 2. METHODS

### 2.1 Field assessment

Site visits were undertaken on 27 July and 26 November 2021. Following the first site visit, interim advice was provided on the character of the vegetation and habitats on the site. During the second site visit, vegetation and habitat types present at Rotomahana Parekarangi 6J2B3 Trust Block were surveyed and described following the structural classes outlined by Atkinson (1985). Vegetation types were mapped using aerial photographs, at a scale of 1:4,000. Indigenous and exotic plants within the property were recorded. A list of vascular plants was compiled during the field survey and all avifauna observed were also recorded. The relative value of habitats at the site for avifauna were assessed, including for species not recorded during the field survey. Other potential fauna values were assessed. A selection of photographs were taken of the site, including ecological values present.

### 2.2 Evaluation

Assessments of vegetation and habitats were undertaken. Potential ecological effects on vegetation and habitats were identified, along with options to avoid, minimise, or mitigate potential adverse effects. Potential opportunities to enhance ecological values of the site were addressed.

This report provides an update to the previous version (March 2022), based on updated plans provided by the client.

### 3. ECOLOGICAL CONTEXT

#### 3.1 Overview

The site is located on the southwestern side of Lake Tarawera, to the west of Kōtukutuku Bay, on hillslopes above Tarawera Road. The following information on ecological context is adapted from Wildland Consultants (1998).

#### 3.2 Location and landforms

Lake Tarawera and the surrounding landscape lie within Rotorua Lakes Ecological District. Rotorua Lakes Ecological District covers approximately 139,000 hectares from the base of the Rotomā hills in the east, along the northern catchment boundaries of Lakes Rotorua, Rotoehu, and Rotomā, to the Mamaku Plateau in the west, and south to Maungakakamea (Rainbow Mountain). Altitude ranges from *c.*20 metres above sea level (asl) near Kawerau to 1,111 metres asl at the summit of Mount Tarawera. Most of the landforms in Rotorua Lakes Ecological District are over 280 metres asl.

Major lakes within Rotorua Lakes Ecological District - Rotorua, Rotoiti, Rotoehu, Rotomā, Tarawera, Ōkātina, Ōkāreka, Tikitapu (Blue Lake), and Rotokākahi (Green Lake) - occupy depressions within the calderas of the Rotorua Volcanic Centre and Ōkātina Volcanic Centre. These calderas, along with the associated lakes, geothermal systems, and distinctively-shaped rhyolite domes, are distinctive landform features of this Ecological District.

Lake Tarawera formed around 5,000 years ago and is one of the three biggest lakes in Rotorua Lakes Ecological District. Lake Tarawera has a surface area of 4,130 hectares, and a total catchment area of 14,520 hectares. It occupies a large part of the southwestern floor of Haroharo Caldera. Average lake depth is 50 metres and the deepest point is 87 metres. The water level is held to 298 metres asl by coalescing lava flows from the Haroharo and Tarawera volcanic complexes, through which the outlet flows at the eastern end of the lake.

#### 3.3 Climate

Rotorua Lakes Ecological District has a temperate climate. It is one of the least windy districts in New Zealand because of the shelter created by the higher landforms which are present on three sides. Mean annual rainfall and temperatures are relatively variable across the District.

#### 3.4 Vegetation

Vegetation history has been studied in detail and is summarised below from Wildland Consultants (1998). Hardy shrubs, herbs and grasses would have been the main vegetation cover over much of Rotorua Lakes Ecological District during the harsh, cold and windy climate that prevailed toward the close of the Pleistocene era, *c.*15,000-

20,000 years before present (BP). Forest may have occupied some relatively mild, well-sheltered sites, below 300 metres above sea level, such as in the lower parts of the Tarawera River valley. As the climate warmed, forest cover would have returned to higher sites. Analysis of plant pollens in peat/tephra beds near the eastern shore of Lake Rotorua implies that rimu (*Dacrydium cupressinum*)-dominant podocarp-broadleaved forest was the main vegetation class occurring in Rotorua Lakes Ecological District about 3,500 years ago. From the time of the Rotorua Tephra eruption (c.14,000 years BP) until c.800 years ago, five major dome building lava flows and accompanying violent pyroclastic eruptions occurred within the Ōkātina Volcanic Centre, at average intervals of 2,000 years, undoubtedly obliterating or severely damaging vegetation covers. However, recovery of vegetation was likely to have been well-advanced within a few decades after each event.

Around the time of the arrival of Māori in the Bay of Plenty and Rotorua Lakes district - thought to have been after the Tarawera eruption, c.1314 AD - vegetation south of Lake Tarawera and along the Tarawera River valley was dominated by mānuka (*Leptospermum scoparium*) and other hardy shrubs on drier ground, and there were freshwater wetlands on the broad valley floors. Pōhutukawa (*Metrosideros excelsa*) forest (including pōhutukawa-northern rata (*Metrosideros robusta*) hybrids) extended from the outlet of Lake Tarawera, some distance down the Tarawera River. Podocarp-rich forest covered the southern and eastern flanks of Mt Tarawera. Submontane Hall's tōtara (*Podocarpus laetus*)-kāmahi (*Weinmannia racemosa*) forest covered the summits of Mt Tarawera, Makatiti Dome, and Haroharo. Rimu-tawa (*Beilschmiedia tawa*) forest with scattered northern rata covered the lower slopes of Makatiti Dome and Haroharo, and Maungawhākamana, as well as the surrounding hills.

The Tarawera-Rotomahana volcanic eruption in June 1886 had a drastic effect on vegetation for some distance around, and would have largely obliterated vegetation along the western shoreline of Lake Tarawera including vegetation at the subject site, some 10-11 kilometres distant from the eruption vents. Vegetation on the flanks of Mt Tarawera, more scrub than forest, was obliterated. Further than a few kilometres beyond the craters, the rain of ash and lapilli caused only transitory damage. Large tracts of scrub, up to 15 kilometres distance from the source, were completely buried by the weighty Rotomahana Mud. Within 10 years of the eruption, however, forest in the surrounding area was almost wholly recovered and scrub was re-clothing the rest of the mud-plastered landscape (Nicholls 1959, 1963).

Over the course of the 20<sup>th</sup> century the western shoreline of Lake Tarawera has been modified by rural development and the growth of the residential community along Spencer Road. However, in recent years, the land cover appears to have been relatively stable. Large scale vegetation clearance was not observed during monitoring of change in the Lake Tarawera area between 2006 and 2011 (Wildland Consultants 2012).

Existing land cover within Rotorua Lakes Ecological District comprises lakes (16% of total area), pasture-based farmland (27%), exotic plantation forest (21%), and indigenous forest (mainly tawa-dominant) and scrub (30%). Wetland vegetation comprises less than 0.1% of the land cover (Landcover Database Version 3).

## 4. DISTRICT PLAN CONTEXT

The subject property - Rotomahana Parekarangi 6J2B3 Block - is within the Sensitive Rural Management Area of the Lakes A Zone in the Rotorua District Plan and is located within the Tarawera Policy Area. The adjoining properties are also within the Lakes A Zone - Sensitive Rural, with most of these covered in dense indigenous vegetation.

The property is part of the Recommended Area for Protection 74 (RAP 74) - Lake Ōkāreka Scenic Reserve Extension) as identified in Beadel, Shaw, and Nicholls (1998). Recommended Areas for Protection (RAPs) are identified in the District Plan for the Lakes A Zone to assist in the retention of indigenous biodiversity in the Rotorua District.

## 5. VEGETATION AND HABITATS

Three broad vegetation and habitat types were identified within the property. Each of these types are listed in Table 1, described below, and mapped in Figure 1. Photographs of each vegetation and habitat type are presented in Appendix 1.

Table 1: Vegetation and habitat types present within Rotomahana Parekarangi 6J2B3 Trust Block.

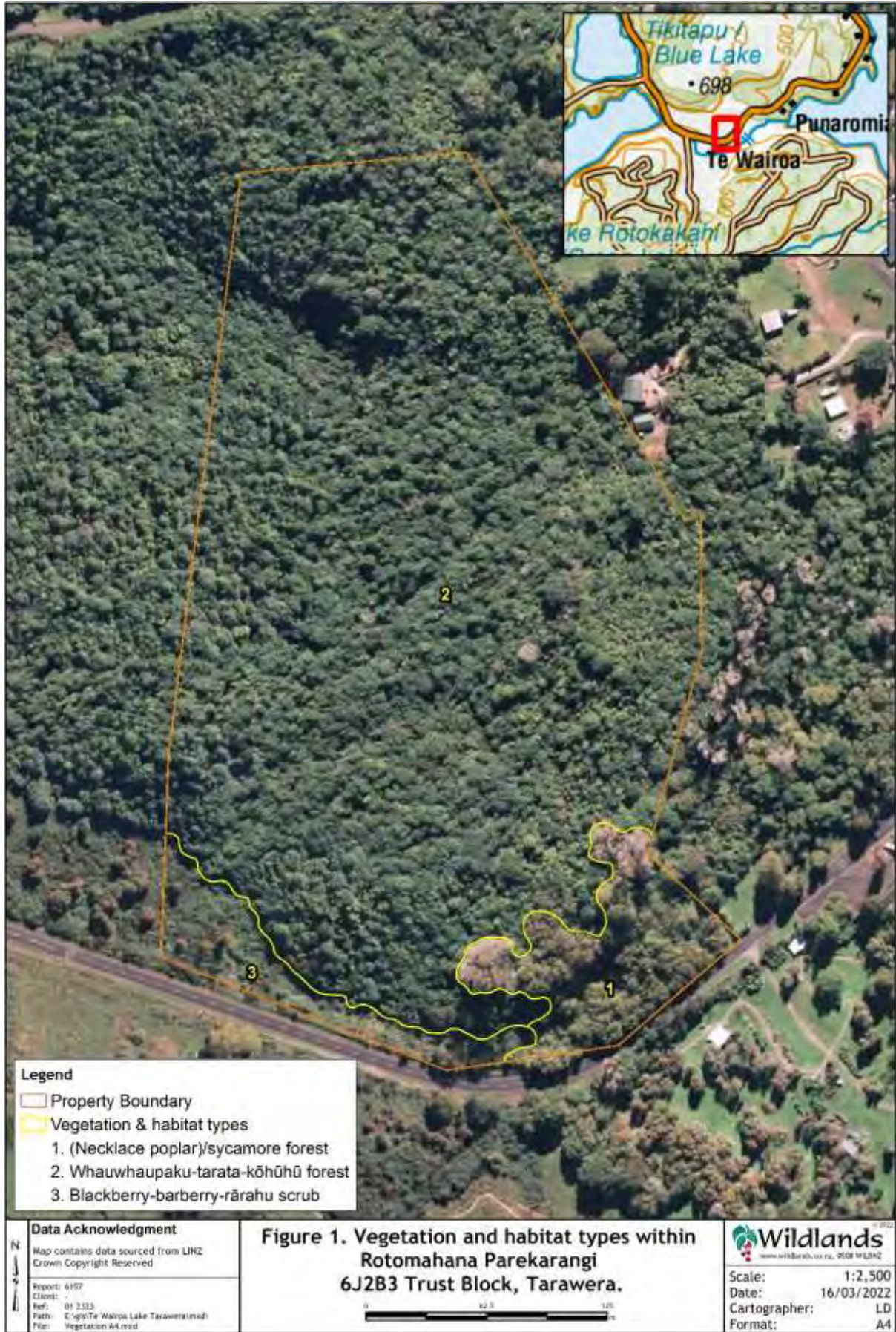
Vegetation and Habitat Type	Area (ha)
1. (Necklace poplar)/sycamore forest	0.8
2. Whauwhaupaku-tarata-kōhūhū forest	9.2
3. Blackberry-barberry-rārahu scrub	0.5
<b>Total</b>	<b>10.5</b>

### 1. (Necklace poplar)/sycamore forest (0.8 hectares)

Flat land in the southeastern part of the site has a cover of exotic forest dominated by sycamore (*c.*15 metres tall) with a few scattered emergent necklace poplar (*Populus deltoides*) and Lombardy poplar (*Populus nigra* 'Italica'). The understorey is dense with abundant saplings of sycamore and false acacia (*Robinia pseudoacacia*) (both to about five metres tall) and thick carpets of ivy (*Hedera helix*) on the ground and climbing up trees. There are small trees of whauwhaupaku (*Pseudopanax arboreus*), kōtukutuku (*Fuchsia excorticata*), and whekī-ponga (*Dicksonia fibrosa*) scattered throughout. Very low numbers of tawa seedlings and saplings, and indigenous groundcover ferns are present. Shrubs of Chinese privet (*Ligustrum sinense*) and karamū (*Coprosma robusta*) are also common.

There is a small area of mown exotic grassland on the eastern margin of the property which enables walking access to a memorial site for Te Wairoa.





## 2. Whauwhaupaku-tarata-kōhūhū forest (9.2 hectares)

Hillslopes and upper parts of the site have a variable cover of indigenous forest (about five metres tall) that has regenerated following the devastating 1886 Rotomahana eruption and the associated mudfall. Whauwhaupaku is abundant throughout, intermixed with tarata (*Pittosporum eugenioides*) and kōhūhū (*Pittosporum tenuifolium*). There are occasional kāmahi and makomako (wineberry; *Aristotelia serrata*) and scattered mamaku (*Cyathea medullaris*). Mangeao (*Litsea calicaris*) are occasionally present, slightly emergent from the canopy (to about eight metres tall).

## 3. Blackberry-barberry-rārahu scrub (0.5 hectares)

The area of flat land in the southwestern part of the site has a cover of dense scrub, dominated by blackberry (*Rubus fruticosus* agg.) with scattered barberry (to c.6 metres tall) and rārahu/bracken (*Pteridium esculentum*). There are local patches of gorse (about three metres tall), occasional kōhūhū (c.6 metres tall), and a few large necklace poplar trees (c.15 metres tall). Where there are shrubs and trees of barberry, ivy occurs as a dense ground cover, and ivy and puka (*Muehlenbeckia australis*) are present climbing into the canopy. There are local dense patches of the following pest plant vines: jasmine (*Jasminum polyanthum*), hops (*Humulus lupulus*), old man's beard (*Clematis vitalba*). A shallow indentation in the ground level was observed in this area which is likely to be an ephemeral water flow path from the shallow gully on the hillslope above.

At the time of the site visit there was a recently-formed four-wheel drive access track that had been used to replace the power poles along the roadside margin. The surface of this track was dominated by rank exotic grasses and herbs. Other species present occasionally in this area include toetoe (*Austroderia fulvida*), koromiko (*Veronica stricta* var. *stricta*), and Himalayan honeysuckle (*Leycesteria formosa*).

## 6. FLORA

Twenty-four indigenous plant species and twenty-five exotic plant species were recorded during the site visit (refer to Appendix 2). All of the species recorded are common, typical of the vegetation and habitat types present, and none of the indigenous species are classified as nationally Threatened or At Risk, as per de Lange *et al.* (2018).

## 7. FAUNA

### 7.1 Avifauna

The typical suite of terrestrial indigenous and exotic bird species that are common in the local area are present at the site, or use the site on at least an occasional basis. A list of avifauna recorded at or likely to occur within the site is presented in Tables 1 and 2. A total of 19 indigenous and 16 exotic bird species were recorded or are likely to be present at the site. No indigenous bird species that are classified as Threatened or At

Risk in the current threat rankings for New Zealand's indigenous birds (Robertson *et al.* 2021) are likely to utilise the site.

Kārearea/New Zealand falcon (Threatened - Nationally Increasing) occur in this part of the Rotorua Lakes Ecological District and are likely to fly over the site, at least occasionally. Kārearea range widely across the district and will not be affected by the proposed development.

The habitats present on the property, in their current condition, are of low importance for the conservation of indigenous birdlife, and much more important habitats are present elsewhere around Lake Tarawera and the wider Rotorua Lakes Ecological District.

Table 1: Indigenous bird species recorded at or likely to utilise habitats at Rotomahana Parekarangi 6J2B3 Trust Block, Tarawera. Threat status is given for indigenous species (as per Robertson *et al.* 2021).

Common Name	Scientific Name	Threat Status	Notes
Australasian harrier (kāhu)	<i>Circus approximans</i>	Not Threatened	Likely to fly over site or roost on occasion.
Bellbird (korimako, makomako)	<i>Anthornis melanura</i>	Not Threatened	Likely to utilise habitats throughout the site.
Black-backed gull	<i>Larus dominicanus</i>	Not Threatened	Likely to fly over site.
Black-billed gull (tarāpuka)	<i>Larus bulleri</i>	At Risk-Declining	Likely to fly over site.
Grey warbler (riroriro)	<i>Gerygone igata</i>	Not Threatened	Likely to utilise habitats throughout the site.
Morepork (ruru)	<i>Ninox novaeseelandiae</i>	Not Threatened	Likely to utilise habitats throughout the site.
New Zealand falcon (kārearea)	<i>Falco novaeseelandiae</i>	Threatened - Nationally Increasing	Likely to fly over site or roost on occasion.
New Zealand pigeon (kererū)	<i>Hemiphaga novaeseelandiae</i>	Not Threatened	Likely to be present occasionally.
North Island fantail (pīwakawaka)	<i>Rhipidura fuliginosa placabilis</i>	Not Threatened	Likely to utilise habitats throughout the site.
Pūkeko	<i>Porphyrio porphyrio</i>	Not Threatened	Likely to utilise habitats on the roadside margin.
Sacred kingfisher (kōtare)	<i>Todiramphus sanctus</i>	Not Threatened	Likely to utilise habitats throughout the site.
Shining cuckoo (pīpīwharauoa)	<i>Chrysococcyx lucidus</i>	Not Threatened	Likely to utilise habitats throughout the site during summer.
Silvereye (tauhou)	<i>Zosterops lateralis</i>	Not Threatened	Likely to utilise habitats throughout the site.
Spur-winged plover	<i>Vanellus miles</i>	Not Threatened	Likely to utilise habitats on the roadside margin.
Tūī	<i>Prosthemadera novaeseelandiae</i>	Not Threatened	Likely to utilise habitats throughout the site.
Welcome swallow	<i>Hirundo tahitica</i>	Not Threatened	Likely to utilise habitats throughout the site.
Whitehead (pōpokatea)	<i>Mohoua albicilla</i>	Not Threatened	Likely to utilise habitats throughout the site.

Table 2: Exotic bird species recorded at or likely to utilise habitats at Rotomahana Parekarangi 6J2B3 Trust Block, Tarawera.

Common Name	Scientific Name	Notes
Australian magpie	<i>Gymnorhina tibicen</i>	Likely to utilise habitats on the roadside margin.
Blackbird	<i>Turdus merula</i>	Likely to utilise habitats throughout the site.
California quail	<i>Callipepla californica</i>	Likely to utilise habitats on the roadside margin.
Chaffinch	<i>Fringilla coelebs</i>	Likely to utilise habitats throughout the site.
Dunnock	<i>Prunella modularis</i>	Likely to utilise habitats throughout the site.
Eastern rosella	<i>Platycercus eximius</i>	Likely to occasionally utilise habitats throughout the site.
Goldfinch	<i>Carduelis carduelis</i>	Likely to utilise habitats on the roadside margin.
Greenfinch	<i>Carduelis chloris</i>	Likely to utilise habitats on the roadside margin.
House sparrow	<i>Passer domesticus</i>	Likely to utilise habitats on the roadside margin.
Indian myna	<i>Acridotheres tristis</i>	Likely to utilise habitats on the roadside margin.
Redpoll	<i>Carduelis flammea</i>	Likely to utilise habitats on the roadside margin.
Rock pigeon	<i>Columba livia</i>	Likely to utilise habitats on the roadside margin.
Skylark	<i>Alauda arvensis</i>	Likely to utilise habitats on the roadside margin.
Song thrush	<i>Turdus philomelos</i>	Likely to utilise habitats throughout the site.
Starling	<i>Sturnus vulgaris</i>	Likely to utilise habitats on the roadside margin.
Yellowhammer	<i>Emberiza citrinella</i>	Likely to utilise habitats on the roadside margin.

## 7.2 Potential for use of the site by pekapeka/bats

Pekapeka-tou-roa/long-tailed bats (*Chalinolobus tuberculatus* North Island; Threatened-Nationally Critical, as per O'Donnell *et al.* 2017) may potentially utilise habitats within the Rotomahana Parekarangi 6J2B3 Trust Block, at least occasionally. Pekapeka are widespread throughout the North Island (O'Donnell 2005) and have reasonably large home ranges, of up to 19 kilometres (O'Donnell 2001). Pekapeka have been recorded nearby at Whakarewarewa Forest and in Rotorua City (Wildland Consultants 2019). They are aerial insectivores that commute and forage for insects at night, particularly at dusk along forest margins and in riparian habitats. Based on these nearby and recent records, as well as the forest habitats present at Rotomahana Parekarangi 6J2B3 Trust Block, pekapeka are likely to commute through and forage at this site. Trees (particularly trees with a trunk diameter at breast height (dbh) of >15 centimetres) containing cavities or flaky bark within the site may also provide suitable sites for bats to roost. Further survey effort would be required to confirm whether pekapeka utilise habitats at the site.

## 7.3 Lizards

Aotearoa New Zealand's indigenous lizard fauna is highly cryptic, and the known distribution data is therefore likely to be incomplete. There is little information on the current status and distribution of indigenous lizard (mokomoko) species in the vicinity of Lake Tarawera. However, there are records of three lizard species near Lake Tarawera: forest gecko (*Mokopirirakau granulatus*, record from Tarawera Maunga in 2011; At Risk-Declining as per Hitchmough *et al.* 2021), elegant gecko (*Naultinus elegans*, record from Rerewhakaaitu in 1997; At Risk-Declining), and crenulate skink (*Oligosoma robinsoni*, record from Lake Ōkāreka in 1997; At Risk-Declining) (Bioweb Herpetofauna database, Department of Conservation, accessed January 2019). Other species, including skinks (particularly copper skink (*Oligosoma aenuem*), ornate skink (*Oligosoma ornatum*) and striped skink (*Oligosoma striatum*) – all At Risk-Declining) and raukawa gecko (*Woodworthia maculata*; Not Threatened), could also potentially be present around Tarawera.

One or more of these species may be present at the Rotomahana Parekarangi 6J2B3 Trust Block, although this is unlikely given the scale of site destruction in 1886.

Any lizard species present would have had to re-establish at the Rotomahana Parekarangi 6J2B3 Trust Block following the 1886 eruption. Due to predation pressure, which is probably relatively high at this site, any lizard species which are potentially present will probably have extremely low population densities. Indigenous lizards are highly cryptic and can be difficult to find when in low numbers. Given the above, it is unlikely that lizards are present.

## 8. ECOLOGICAL VALUES

Hillslopes with regenerating indigenous forest in the Rotomahana Parekarangi 6J2B3 Trust Block are of moderate to high ecological value. This area is part of an ecological corridor of indigenous vegetation between Lake Tikitapu Scenic Reserve and Lake Tarawera Scenic Reserve, and the three lakes Ōkāreka, Tikitapu, Rotokākahi, and Tarawera. This area provides suitable habitat for a range of indigenous birds that are typical of the Rotorua Lakes Ecological District.

As noted in Section 4 above, the entire subject site is within RAP 74 which is recognised in the Rotorua Lakes District Plan. However, the area within the proposed development footprint on the southern margin of the property is of very limited ecological value. This area comprises exotic forest vegetation, including an abundance of pest plant species, such as ivy, Chinese privet, blackberry, and hops. Despite this, it is possible that the large exotic trees present may provide, suitable sites for indigenous long-tailed bats to roost, at least on occasion. It is also possible that indigenous lizards are present, although this is unlikely given the site history.

## 9. OVERVIEW OF THE PROPOSED DEVELOPMENT

The proposed development at Rotomahana Parekarangi 6J2B3 Trust Block will include preliminary development, then the development of papakāinga, a marae, and a cultural centre. Because of the comprehensive and integrated nature of the site development, the preferred approach is to seek resource consent for all elements of the project now, rather than separately seeking consent later as this will enable the full integrated nature of the development to be considered holistically. The plan in Appendix 3 provides a high-level overview of the proposed layout of the development.

The total footprint of the development will be situated between Tarawera Road and a bank at the base of the hillslope (in areas ranging from c.385-388 metres asl). The papakāinga have been positioned to be outside of a fault line avoidance zone and a dry overland flow path.

Each stage of the proposed development is described below.

### Preliminary Stage: Planning and Earthworks

This stage involves the preparation and stabilisation of sites for all further future stages:

- Earthworks and sediment control installation.
- Vegetation clearance.
- Creation of a preliminary site entry from Tarawera Road.
- Installation of infrastructure channels, and internal roading.

### Stage 1: Papakāinga

The establishment of papakāinga is planned to commence in Year 1 of the development. A total of 10 dwellings are to be constructed within the southeastern corner of the site. Four of these will be fully detached dwellings while the other six will comprise three semi-detached dwellings. The units will be three-bedroom houses with an ability to accommodate a total of three to five persons per dwelling, resulting in 30 to 50 people living permanently on-site.

Each papakāinga dwelling will have its own on-site parking, as an internal garage. A fence or acoustic wall, and screen plantings will be established on the roadside and on the western margin of the site.

### Stage 2: Establishment of a Marae

Establishment of a marae for the Trust landowners and Tūhourangi is intended to commence in Year 2 of the development. Within the marae complex there will be the following elements:

- A wharenui to accommodate 100-120 people, with appropriate storage facilities.
- A wharekai to accommodate 100-120 people, with appropriate cooking, dining, and storage facilities.
- Provision of facilities accessory to the marae operation such as a wharepaku, wharemate, and paepae.
- Development of an on-site carpark, accommodating *c.*50 cars. With one to two people per car, this will provide for between 50 and 100 people to be accommodated on-site. Along with bus parking this will easily cater for 100 to 120 people in the wharenui and wharekai. Bus parking will also be provided at the neighbouring Buried Village.
- Associated infrastructure to service and support the above facilities.

### Stage 3: Cultural Centre

Establishment of the cultural centre is intended to commence one to two years after the completion of the marae. The centre will provide the opportunity for Tūhourangi to tell their stories around the settlement of Te Wairoa and their journey pre- and post-eruption.

## 10. POTENTIAL ECOLOGICAL EFFECTS

### 10.1 Overview

Potential ecological effects of the proposed development are set out below, including:

- Vegetation and habitat clearance, and associated effects on indigenous fauna.
- Effects of and ongoing human activities relating to the papakāinga dwellings, marae, and cultural centre; including noise and artificial lighting, pest plants and pest animals.
- Effects of earthworks and stormwater.

These matters are discussed further below.

### 10.2 Vegetation clearance

The proposed footprint of the development is restricted to the flat land below the hillside bank within habitats that are dominated by exotic vegetation ((necklace poplar)/sycamore forest – Vegetation and Habitat Type 1 and blackberry-barberry-rārahu scrub – Vegetation and Habitat Type 3). Clearance of this vegetation will have less than minor adverse ecological effects because it is of very limited ecological value, provided no populations of indigenous lizards or bats are present. Nevertheless, there will be localised loss of indigenous ferns, saplings and small trees that are currently present in the understorey.

The intention is to retain all existing indigenous vegetation on the hillslopes above the flat development site (there would be major adverse ecological effects if the regenerating indigenous forest on the hillslope was to be cleared).

### 10.3 Effects of habitat clearance on indigenous fauna

Effects on indigenous birds due to the removal of vegetation or habitats are likely to be less than minor. The indigenous bird species that are potentially subject to disturbance are common in the local area and will be able to deal with localised disturbance.

Effects on indigenous lizards due to the removal of vegetation or habitats during construction are likely to be less than minor as they are unlikely to be present due to the site history.

As no bat survey has been undertaken at the site, it is not known whether or not long-tailed bats/pekapeka utilise habitats within the proposed development footprint. However, based on recent nearby records of bats, pekapeka/long-tailed bats could potentially utilise the site. If pekapeka/long-tailed bats are present and roosting in trees within the proposed development footprint at the time of vegetation clearance there is potential for the death and/or injury of bats, and loss of bat roosting habitat as a result of tree felling and vegetation clearance.

## 10.4 Effects of earthworks and stormwater

Although there are no notable waterways within the property, the proposed development footprint will likely receive considerable overland flow of water during rain events from the hillslopes above it. Earthworks, during construction of the development have the potential to cause sediment to be washed off the site during rain events and be deposited in the nearby Wairoa Stream. This stream is a particularly important trout spawning tributary of Lake Tarawera. Following construction, stormwater from the development could potentially affect the water quality of the Wairoa Stream. Stormwater in residential areas carries contaminants from cars, such as hydrocarbons, which are harmful to fish. The increased extent of hard surfaces could lead to changes in the direction and volume of surface runoff that require suitable management.

The papakāinga dwellings have been positioned to be outside of a dry overland flow path which will help to reduce any effects from the development on the flow of water, including during any heavy rain events.

If not managed appropriately, there could be adverse ecological effects resulting from earthworks and stormwater as part of the proposed development at this property.

## 10.5 Effects of papakāinga dwellings, marae, and cultural centre

### 10.5.1 Pest plants

If not appropriately managed, there is potential for some exotic plant species that are planted in residential and amenity gardens to spread (vegetatively or by seed) or be dumped (as garden waste) into the adjacent areas of indigenous vegetation. As such, gardens can act as a major source of invasive exotic pest plants that spread into natural areas (Hulme 2020). There could be moderate adverse ecological effects if pest plants from gardens were to establish and spread within the wider property.

### 10.5.2 Pest animals

Pest animals can have a range of adverse effects on indigenous plants and fauna. A typical complement of small pest mammals will already be present within the site and adjoining area, including domestic and feral cats. However, the abundance of pest animals is likely to increase following development of the papakāinga, marae, and cultural centre because pests - such as rodents, cats, and hedgehogs - often thrive around human habitation. Uncontrolled domestic dogs and cats can disturb and/or kill birds and other indigenous fauna.

### 10.5.3 Noise and artificial lighting

There is potential for residential activities and the increased human activity in the area as a result of the development to create noise or artificial lighting that may disturb fauna within the adjoining indigenous forest on the adjacent hillslope and nearby protected natural areas, although these effects are likely to be less than minor. Indigenous birds such as ruru/morepork (*Ninox novaeseelandiae*) (Morgan 2012) and kererū (*Hemiphaga novaeseelandiae*) are well known to utilise urban areas that include larger trees. Long-



tailed bats have also been recorded within residential urban areas, e.g. at Sanatorium Reserve in Rotorua City (Wildland Consultants 2019) and in Hamilton City (Le Roux and Le Roux 2012).

## 11. OPPORTUNITIES TO AVOID OR MINIMISE POTENTIAL ECOLOGICAL EFFECTS

### 11.1 Effects of vegetation and habitat clearance

#### Vegetation

All existing indigenous vegetation on the hillslope, within Vegetation and Habitat Type 2, should be retained.

#### Bats

An acoustic survey should be undertaken to better understand if bats are using the site or not. Bats are fully protected under the Wildlife Act (1953) and it is illegal to hunt, kill, disturb, or remove bats without a Wildlife Act authority issued by the Department of Conservation. If the presence of bats is confirmed, a Bat Management Framework for sites where the presence of bats is confirmed must be followed before any large trees that may provide roost habitat are felled<sup>1</sup>, based on the best-practise methods available at the time of construction. This Framework should be prepared by a qualified and approved bat ecologist, endorsed by the Department of Conservation, and could include 1) pre-felling visual inspections of the tree(s) for any evidence of bats<sup>2</sup>, or 2) pre-felling acoustic monitoring of potential roost trees, and 3) options for the management of any bats that are killed or injured. Acoustic monitoring and tree felling should only take place between 1 October and 30 April, when weather conditions are appropriate.

#### Lizards

Indigenous lizards are also fully protected under the Wildlife Act (1953) and it is illegal to hunt, kill, disturb or remove indigenous lizards without a Wildlife Act authority issued by the Department of Conservation. The low number of indigenous lizards likely present at this site mean that a targeted lizard salvage operation is not suggested. Instead, a Lizard Discovery Protocol should be implemented if any lizards are discovered prior to, or during vegetation clearance and construction works.

### 11.2 Effects of earthworks and stormwater

A plan for the management of earthworks and stormwater during and following construction, should be prepared in order to avoid potential adverse effects. The plan could include strategies such as the use of silt fences, bunds, drains, and stormwater attenuation ponds.

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<sup>1</sup> Note: These protocols must also be followed if no bat survey is undertaken.

<sup>2</sup> This survey is not dependent on bat activity and can be undertaken at any time of the year.

## 12. MITIGATION AND ENHANCEMENT OF ECOLOGICAL AND CULTURAL VALUES

### 12.1 Overview

Overall, the potential adverse ecological effects of the proposed development will be minor if the abovementioned actions to avoid and minimise effects are implemented. Additionally, however, the ecological values of the Rotomahana Parekarangi 6J2B3 Trust Block could be enhanced through the proposed development. The use of ecologically-appropriate indigenous species in amenity and rehabilitation planting, along with control of pest plants and pest animals, could improve the ecological condition of the site.

### 12.2 Amenity plantings

Amenity plantings should be included in scattered locations throughout the development and should include only indigenous plant species. Potential benefits associated with the establishment of indigenous plantings around the papakāinga, marae, and cultural centre include:

- An aesthetically pleasing transition from the natural vegetation on the surrounding hillsides to the developed area.
- Indigenous plant species will provide a source of food for indigenous birds, which will allow for more interaction of whānau and manuhiri (residents and visitors) with the natural values of the Te Wairoa location.
- Plantings of indigenous species will help to create a sense of connection to the natural environment of Te Wairoa and Tarawera for whānau and manuhiri.
- Some amenity plantings of indigenous species could have a dual use as traditional materials for activities such as weaving, arts, and crafts.
- Maintenance requirements should be lessened through the use of indigenous species compared to exotic species such as deciduous trees.

A list of indigenous plant species that are suitable for planting within the proposed development is provided in Appendix 4, with guidance on plant numbers and low-stature species. Use of these species will ensure that the plantings are consistent with the character of the local environment.

Prior to planting, a landscape planting plan should be developed that identifies final plant species selections and numbers of plants to be planted in each location within the proposed development. Lower-stature herbs and shrubs could be planted in scattered positions along the proposed fence on the margin of Tarawera Road, whilst maintaining visual sight lines from accessways. Low-stature species should also be used throughout the development to provide a pleasing aesthetic that softens the presence of the built structures. Larger trees can be planted where there is more space available. Further guidance on indigenous planting in the Lakes A Zone is provided in Wildland Consultants (2003).

Maintenance of indigenous plantings including pest plant control should be ongoing, and will be necessary for at least 2-3 years following planting, to increase the likelihood of plant survival and planting success.

### 12.3 Pest plant and pest animal control

This development could provide an opportunity to establish regular ongoing control of pest plants and pest animals within the indigenous forest on the remainder of the Rotomahana Parekarangi 6J2B3 Trust Block. Key infestations of pest plants could be identified by a walk-through survey. Depending on the species present and extent, it may be possible for the owners to undertake control of any key pest plant issues (e.g. old man's beard, *Clematis vitalba*) that pose a significant risk to the long-term viability of the indigenous forest. Control of pest plants would need to be ongoing, as pest plants will continue to invade from surrounding areas.

Similarly, a pest animal control network could be established. A network of traps or bait stations could be established around the base of the hillslope and in several lines on the hillside to reduce the abundance of possums (*Trichosurus vulpecula*), rats (*Rattus* sp.) and mustelids (stoats - *Mustela erminea*, ferrets - *M. furo*, weasels - *M. nivalis vulgaris*). Regular pest animal control would improve the abundance of birdlife and increase the suitability of habitat for indigenous fauna within the property by reducing browse damage and predation.

There are currently various other reasonably large-scale restoration and conservation projects that are being undertaken within the Lake Tarawera catchment. For example, Tarawera Landcare 2115 undertake rat control along Spencer Road and the residents of Te Mu Road have a pest animal control programme. The proposed development could benefit from forming linkages with these existing projects.

## 13. CONCLUSIONS

Potential ecological effects of the proposed Te Hokinga Mai Ki Te Wairoa - The return of Tūhourangi to Te Wairoa project to develop papakāinga dwellings, a marae, and cultural centre on Tarawera Road can be reduced to minor, if actions to avoid and minimise effects are implemented. This is primarily because the proposed development footprint is located within exotic vegetation that is of very limited ecological value. A precautionary approach should be used to avoid potential adverse effects on bats and indigenous lizards, including an acoustic bat survey (and subsequent Bat Management Framework if the presence of bats is confirmed<sup>1</sup>) and a Lizard Discovery Protocol. Care should be taken to ensure that there is no clearance of, or damage to, the regenerating indigenous forest on the upper slopes of this property. Potential loss of sediment from the site can be managed using good practice techniques. The ecological values of Rotomahana Parekarangi 6J2B3 Trust Block could be enhanced greatly through landscape planting of ecologically-appropriate indigenous species throughout the development layout, along with control of pest plants and pest animals.

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<sup>1</sup> Note: These protocols must also be followed if no bat survey is undertaken.

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## REFERENCES

- Atkinson I.A.E. 1985: Derivation of vegetation mapping units for an ecological survey of Tongariro National Park, North Island, New Zealand. *New Zealand Journal of Botany* 23: 361-378.
- de Lange P.J., Rolfe J.R., Barkla J.W., Courtney S.P., Champion P.D., Perrie L.R., Beadel S.M., Ford K.A., Breitwieser I., Schönberger I., Hindmarsh-Walls R., Heenan P.B., and Ladley K. 2018: Conservation status of New Zealand indigenous vascular plants 2017. *New Zealand Threat Classification Series* 22: 82 pp.
- Hitchmough R., Barr B., Knox C., Lettink M., Monks J.M., Patterson G.B., Reardon J., van Winkel D., Rolfe J. and Michel P. 2021: Conservation status of New Zealand reptiles, 2021. *New Zealand Threat Classification Series* 35. Department of Conservation, Wellington. 15 pp.
- Hulme P.E. 2020: Plant invasions in New Zealand: Global lessons in prevention, eradication and control. *Biological Invasions* 22: 1539-1562.
- Le Roux D. and Le Roux N. 2012: Hamilton City Bat Survey. Unpublished report prepared for Project Echo by Kessels & Associates, Hamilton. 22 pp.
- Morgan D.K.J. and Styche A. 2012: Results of a community-based acoustic survey of ruru (moreporks) in Hamilton city. *Notornis* 3&4: 123-129.
- Nicholls J.L. 1959: The volcanic eruptions of Mt Tarawera and Lake Rotomahana and effects on surrounding forests. *New Zealand Journal of Forestry* 8(1): 133-142.
- Nicholls J.L. 1963: Vulcanicity and indigenous vegetation in the Rotorua district. *Proceedings of the Ecological Society of New Zealand* 10: 58-65.
- O'Donnell C.F.J. 2001: Home range and use of space by *Chalinolobus tuberculatus*, a temperate rainforest bat from New Zealand. *Journal of Zoology (London)* 253: 253-264.
- O'Donnell C.F.J. 2005: Long-tailed bat. In King, C.M. (ed) 2005: The Handbook of New Zealand Mammals. Oxford University Press, Melbourne.
- O'Donnell C.F.J., Borkin K.M., Christie J.E., Lloyd B., Parsons S., and Hitchmough R.A. 2018: Conservation status of New Zealand bats, 2017. *New Zealand Threat Classification Series* 21. Department of Conservation, Wellington. 4 pp.

- Robertson H.A., Baird K.A., Elliott G.P., Hitchmough R.A., McArthur N.J., Makan T., Miskelly C.M., O'Donnell C.J., Sagar P.M., Scofield R.P., Taylor G.A., and Michel P. 2021: Conservation status of birds in Aotearoa New Zealand, 2021. *New Zealand Threat Classification Series 36*. Department of Conservation, Wellington. 43 pp.
- Wildland Consultants 1998: Rotorua Lakes Ecological District natural area survey. *Wildland Consultants Ltd Contract Report No. 175*. Prepared for Rotorua District Council and Environment Bay of Plenty. 551 pp.
- Wildland Consultants (undated): Recommended areas for protection in the Lakes A Zone. *Wildland Consultants Ltd Contract Report No. 391*. 11 pp.
- Wildland Consultants 2003: Indigenous planting in the Lakes A Zone, Rotorua District. *Wildland Consultants Ltd Contract Report No. 686* (In draft). Prepared for Rotorua District Council. 7 pp.
- Wildland Consultants 2012: Aerial photography analysis of indigenous vegetation and land use in the Lakes A Zone 2012. *Wildland Consultants Ltd Contract Report No. 2776*. Prepared for Rotorua District Council. 34 pp.
- Wildland Consultants 2019: Bat survey at Sanatorium Reserve, Rotorua. *Wildland Consultants Ltd Contract Report No. 4235d*. Prepared for Rotorua Lakes Council. 6 pp.

APPENDIX 1





Plate 1: (Necklace poplar)/sycamore forest (Vegetation and Habitat Type 1) at the eastern end of the site. Viewed from the Buried Village carpark. 26 November 2021.



Plate 2: (Necklace poplar)/sycamore forest (Vegetation and Habitat Type 1). 26 November 2021.



Plate 3: Dense understorey of sycamore and ivy in the (necklace poplar)/ sycamore forest (Vegetation and Habitat Type 1) at the eastern end of the site. 26 November 2021.



Plate 4: Whauwhaupaku-tarata-kōhūhū forest (Vegetation and Habitat Type 2) on the hillslope. 26 November 2021.





Plate 5: Blackberry-barberry-rārahu scrub (Vegetation and Habitat Type 3) with occasional emergent necklace poplar on flat land in the western part of the site. 26 November 2021.



Plate 6: Dense groundcover of ivy beneath barberry in blackberry-barberry-rārahu scrub (Vegetation and Habitat Type 3). 26 November 2021.



Plate 7: A recently-cleared access track along the power lines beside Tarawera Road. 26 November 2021.

PLANT SPECIES RECORDED AT ROTOMAHANA PAREKARANGI  
6J2B3 TRUST BLOCK, 26 NOVEMBER 2021

**INDIGENOUS SPECIES**

Gymnosperms

*Podocarpus totara* var. *totara* tōtara

Dicot. trees and shrubs

*Aristotelia serrata* makomako, wineberry  
*Beilschmiedia tawa* tawa  
*Coprosma robusta* karamū, kāramuramu  
*Fuchsia excorticata* kōtukutuku, kōnini  
*Litsea calicaris* mangeao  
*Pittosporum eugenioides* tarata; lemonwood  
*Pittosporum tenuifolium* kōhūhū, rautāhiri, rautāwhiri  
*Pseudopanax arboreus* whauwhaupaku, puahou, five finger  
*Schefflera digitata* patē  
*Veronica stricta* var. *stricta* koromiko, kōkōmuka  
*Weinmannia racemosa* kāmahi

Dicot. lianes

*Muehlenbeckia australis* puka

Ferns

*Asplenium flaccidum* makawe, ngā makawe o Raukatauri  
*Blechnum novae-zelandiae* kiokio  
*Cyathea medullaris* mamaku  
*Dicksonia fibrosa* whekī-ponga, kurīpākā  
*Polystichum vestitum* pūniu, prickly shield fern  
*Pteridium esculentum* rārahu, bracken  
*Pyrrosia elaeagnifolia* leather-leaf fern

Grasses

*Austroderia fulvida* toetoe

Sedges

*Carex solandri*  
*Carex uncinata* kamu matau a Maui, kamu

Monocot. herbs (other than orchids, grasses, sedges, and rushes)

*Phormium tenax* harakeke, flax (including garden cultivars)

**NATURALISED AND EXOTIC SPECIES**

Dicot. trees and shrubs

*Acer pseudoplatanus* sycamore maple  
*Berberis glaucocarpa* barberry  
*Crataegus monogyna* hawthorn  
*Leycesteria formosa* Himalayan honeysuckle  
*Ligustrum sinense* Chinese privet  
*Lupinus arboreus* lupin  
*Populus deltoides* necklace poplar  
*Populus nigra* 'Italica' Lombardy poplar  
*Robinia pseudoacacia* false acacia, black locust, robinia  
*Rubus* sp. (*R. fruticosus* agg.) blackberry  
*Teline monspessulana* Montpellier broom  
*Ulex europaeus* gorse

Dicot. lianes

*Clematis vitalba* old man's beard  
*Hedera helix* ivy  
*Humulus lupulus* hops  
*Jasminum polyanthum* jasmine

Ferns

*Dryopteris filix-mas* male fern

Grasses

*Dactylis glomerata* cocksfoot  
*Holcus lanatus* Yorkshire fog

Sedges

*Carex divulsa* grey sedge

Rushes

*Juncus tenuis* var. *tenuis* track rush

Monocot. herbs (other than orchids, grasses, sedges, and rushes)

*Crocasmia* × *crocosmiiflora* montbretia

Dicot. herbs (other than composites)

*Digitalis purpurea*

*Prunella vulgaris*

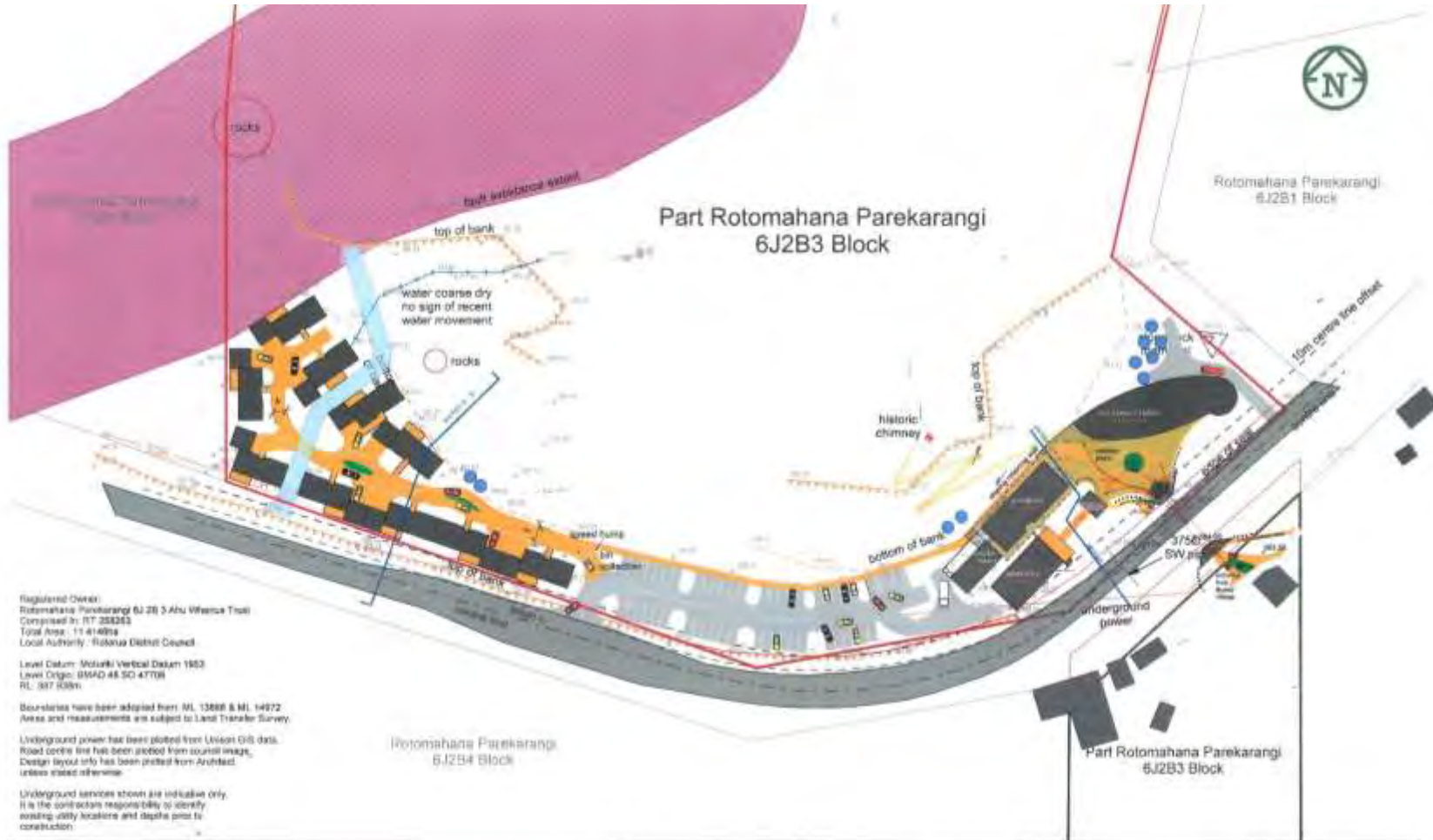
*Ranunculus repens*

foxglove

selfheal

creeping buttercup

DRAFT SITE PLAN FOR  
DEVELOPMENT OF  
ROTOMAHANA PAREKARANGI  
6J2B3 TRUST BLOCK



Registered Owner:  
 Rotomahana Parekarangi 6J2B3 S.Ahu Whenua Trust  
 Comprised in: RT 258243  
 Total Area: 11.4149ha  
 Local Authority: Rotorua District Council

Level Datum: Motuiki Vertical Datum 1983  
 Level Origin: BMAD 48.50.47708  
 RL: 387.808m

Boundaries have been adopted from: ML 13886 & ML 14972.  
 Areas and measurements are subject to Land Transfer Survey.

Underground power has been plotted from Union G-8 data.  
 Road centre line has been plotted from council maps.  
 Design layout only has been plotted from AutoCAD,  
 unless stated otherwise.

Underground services shown are indicative only.  
 It is the contractor's responsibility to identify  
 existing utility locations and depths prior to  
 construction.

	APR Consultants Ltd	Rotomahana 6J2B3 2001 Tarawera Road Rotorua	Topographical Survey of Pt Rotomahana Parekarangi 6J2B3 Block	INFORMATION SCALE: 1:1000 @A3 DATE: 2645-001
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REVISED SITE PLAN 20 January 2023 ↑ SPECTRUM ARCHITECTS

## INDIGENOUS SPECIES SUITABLE FOR PLANTING AT ROTOMAHANA PAREKARANGI 6J2B3 TRUST BLOCK

### Key

1. These species are suitable to form the bulk of the plantings.
2. These species are suitable to be used in low numbers.
3. Only plant these species once shelter has been established.

Species <sup>1</sup>	Abundance	Low Stature?
<i>Alectryon excelsus</i> subsp. <i>excelsus</i> (tītoki)	2	
<i>Austroderia fulvida</i> (toetoe)	2	✓
<i>Aristolelia serrata</i> (makomako; wineberry)	2	
<i>Beilschmiedia tawa</i> (tawa)	2	
<i>Carpodetus serratus</i> (putaputawētā)	2	
<i>Coprosma robusta</i> (karamū)	1	✓
<i>Cordyline australis</i> (tī kōuka; cabbage tree)	2	
<i>Dacrydium cupressinum</i> (rimu)	2	
<i>Dianella nigra</i> (tūrutu)	1	✓
<i>Dicksonia squarrosa</i> (whekī)	2	
<i>Elaeocarpus dentata</i> (hīnau)	2	
<i>Fuchsia excorticata</i> (kōtukutuku)	2	
<i>Kunzea robusta</i> (kānuka)	1	
<i>Knightia excelsa</i> (rewarewa)	2	
<i>Leptospermum scoparium</i> agg. (mānuka)	1	✓
<i>Litsea calicaris</i> (mangeao)	2	
<i>Melicytus ramiflorus</i> (māhoe)	2	
<i>Metrosideros excelsa</i> (pōhutukawa)	2	
<i>Metrosideros robusta</i> (northern rātā)	2	
<i>Myrsine australis</i> (māpou)	1	
<i>Pectinopitys ferruginea</i> (miro)	2	
<i>Phormium tenax</i> (harakeke; flax)	1	✓
<i>Pittosporum eugenioides</i> (tarata; lemonwood)	2	
<i>Pittosporum tenuifolium</i> (kōhūhū)	2	
<i>Podocarpus totara</i> (tōtara)	2	
<i>Prumnopitys taxifolia</i> (mataī)	2	
<i>Pseudopanax arboreus</i> (whauwhaupaku; fivefinger)	2	
<i>Pseudopanax crassifolius</i> (horoeka; lancewood)	2	
<i>Schefflera digitata</i> (patē)	3	
<i>Sophora microphylla</i> (kōwhai)	2	
<i>Veronica stricta</i> var. <i>stricta</i> (koromiko)	1	✓

<sup>1</sup> Selection of final plant species and numbers of plants to be determined and planned prior to planting.





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# TE HOKINGA MAI KI TE WAIROA: THE RETURN OF TŪHOURANGI TO TE WAIROA - ASSESSMENT OF LANDSCAPE AND VISUAL EFFECTS

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**TE HOKINGA MAI KI TE WAIROA:  
THE RETURN OF TŪHOURANGI TO  
TE WAIROA - ASSESSMENT OF  
LANDSCAPE AND VISUAL EFFECTS**

DRAFT

**Contract Report No. 6157b**

March 2023

**Project Team:**

Richard Hart – Site evaluation and report author  
William Shaw – Peer review

**Prepared for:**

Rotomahana Parekarangi Trust  
C/- APR  
P.O. Box 1715  
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**Reviewed and approved for release by:**



W.B. Shaw  
Director/Lead Principal Ecologist  
Wildland Consultants Ltd

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## 1. INTRODUCTION

Rotomahana Parekarangi 6J2B3 Trust are embarking on a project known as Te Hokinga Mai Ki Te Wairoa - The return of Tūhourangi to Te Wairoa. As part of this project the trustees have a proposal to undertake a development on one of the Tūhourangi land blocks that contained the historic Te Wairoa Village, on the southwestern side of Lake Tarawera, Rotorua. An assessment of landscape and visual effects<sup>1</sup> is required to evaluate the subject site in the context of the Rotorua District Plan (Lakes A Zone, Lake Tarawera Policy Area) with regard to:

- The visual nature of the proposed development from Tarawera Road and the wider Tarawera catchment.
- Proposed landscape mitigation methods (for effects deemed to be more than minor).

Site description:

- Location: Tarawera Road, Lake Tarawera, Rotorua.
- Legal Description: Rotomahana Parekarangi 6J2B3 Block.
- Landowner: Rotomahana Parekarangi 6J2B3 Trust.

The subject site is one of the land blocks that contained the historical Te Wairoa Village (see Plates 1 and 2). This village was one of the first joint Māori and European villages in Aotearoa New Zealand and was a popular place for tourists to visit during their journey to the Pink and White Terraces. Unfortunately, the Te Wairoa Village was destroyed in the Tarawera eruption of 10 June 1886, resulting in the displacement of Tūhourangi from the area.



Plate 1: Te Wairoa village prior to the eruption of Tarawera Maunga in 1886.

<sup>1</sup> Described as a visual assessment in the brief.



Plate 2: McRae's Hotel at Te Wairoa prior to the eruption of Tarawera maunga in 1886.

The subject property is within the Sensitive Rural Management Area - Lakes A Zone in the Rotorua District Plan and is located within the Tarawera Policy Area. The adjoining properties are also within the Lakes A Zone - Sensitive Rural with the majority of these covered in dense indigenous (and exotic) vegetation.

This report provides an update to the previous version (April 2022), based on updated plans provided by the client.

## 2. OVERVIEW OF THE PROPOSED DEVELOPMENT

The proposed development at Rotomahana Parekarangi 6J2B3 Trust Block will include preliminary development, then the development of papakāinga, a marae, and a cultural centre. Because of the comprehensive and integrated nature of the site development, the preferred approach is to seek resource consent for all elements of the project now, rather than separately seeking consent later as this will enable the full integrated nature of the development to be considered holistically.

The total footprint of the development will be situated between Tarawera Road and a bank at the base of the hillslope (in places varying from c.385-388 metres above sea level). The papakāinga has been positioned to be outside of a fault line avoidance zone and a dry overland flow path.

Each stage of the proposed development is described below.

### Preliminary Stage: Planning and Earthworks

This stage involves the preparation and stabilisation of sites for all further future stages:

- Earthworks and sediment control installation.
- Vegetation clearance.
- Creation of a preliminary site entry from Tarawera Road.
- Installation of infrastructure channels, and internal roading.

### Stage 1: Papakāinga

The establishment of a papakāinga is planned to commence in Year 1 of the development. A total of 10 dwellings are to be constructed within the southeastern corner of the site. Four of these will be fully detached dwellings while the other six will comprise three semi-detached dwellings. The units will be three-bedroom houses with an ability to accommodate a total of three to five persons per dwelling, resulting in 30 to 50 people living permanently on-site.

Each papakāinga dwelling will have its own on-site parking, as an internal garage. A fence or acoustic wall, and screen plantings will be established on the roadside and on the western margin of the site.

### Stage 2: Establishment of a Marae

Establishment of a marae for the Trust landowners and Tūhourangi is intended to commence in Year 2 of the development. Within the marae complex there will be the following elements:

- A wharenui to accommodate 100-120 people, with appropriate storage facilities.
- A wharekai to accommodate 100-120 people, with appropriate cooking, dining, and storage facilities.
- Provision of facilities accessory to the marae operation such as a wharepaku, wharemate, and paepae.
- Development of an on-site carpark, accommodating *c.*50 cars. With one to two people per car, this will provide for between 50 and 100 people to be accommodated on-site. Along with bus parking this will easily cater for 100 to 120 people in the wharenui and wharekai. Bus parking will also be provided at the neighbouring Buried Village.
- Associated infrastructure to service and support the above facilities.

### Stage 3: Cultural Centre

Establishment of the cultural centre is intended to commence one to two years after the completion of the marae. The centre will provide the opportunity for Tūhourangi to tell their stories around the settlement of Te Wairoa and their journey pre- and post-eruption.



Sample designs and indicative elevations of the proposed buildings have been drawn by Spectrum Architects for papakāinga, marae and cultural centre, and comprise part of the application. With the survey and associated layout, these form the basis of the Landscaping Plan (Appendix 1).

This assessment has been prepared in accordance with NZILA Best Practice Note Landscape Assessment And Sustainable Management 10.1, 2010.

As tangata whenua are the applicant, it has been assumed that the proposal is culturally appropriate.

### 3. LANDSCAPE CHARACTERISATION

#### 3.1 Topography

The site is within the Wairoa Stream valley, which connects Lakes Rotokākahi and Tarawera (see Figure 1). The valley floor is 400 metres above sea level and six metres above Rotokākahi (Green Lake). Wairoa Stream flows into Lake Tarawera at Punaromia Beach (“the Landing”).

On the northern side of the valley, there is an unnamed hill that rises to high points of 505 and 698 metres. South of Tarawera Road, near the southeastern end of the valley, there is an unnamed hill (698 metres). The high point, Pariwhaiti (521 metres) lies to the south of Punaromia Beach and Kōtukutuku Bay.



Figure 1: Location of Rotomahana Parekarangi 6J2B3 Block, Tarawera. The site is at the centre of the red circle, Topo 50 map.

### 3.2 Hydrology

The site is within the Wairoa Stream valley, which drains Rotokākahi (Green Lake) into Lake Tarawera.

*“Lake Rotokākahi or Green Lake, is one of four small lakes lying between Lake Rotorua and Lake Tarawera in the Bay of Plenty region of New Zealand's North Island. The others are Lake Tikitapu (Blue Lake), Lake Okareka, and Lake Ōkātina. All lie within the Ōkātina caldera, along its western edge.*

*Named for its abundance of kākahi (freshwater mussels), the lake flows to Lake Tarawera via the Te Wairoa waterfalls. From the air the lake looks emerald green due to its shallow, sandy bottom. The lake is 394 metres above sea level and 24 metres below the level of the neighbouring Lake Tikitapu. Surface area is 4.5 sq.km. The lake remains under the authority of Te Arawa iwi, Tūhourangi, and remains largely undisturbed as it is considered to be tapu (sacred).<sup>1</sup>”*

*“Lake Tarawera is the largest of a series of lakes which surround the volcano Mount Tarawera in the North Island of New Zealand. Like the mountain, it lies within the Ōkātina caldera. It is located 18 kilometres to the east of Rotorua, and beneath the peaks of the Tarawera massif i.e. Wahanga, Ruawahia, Tarawera and Koa. The lake's surface area is 39 square kilometres, and the surface elevation 298 metres.”*

The Wairoa Stream meanders through the valley on the southern side of Tarawera Road, descending 96 metres to Lake Tarawera. A 30 metre waterfall, Wairere Falls, east of the site is accessed via a trail within the Buried Village.

### 3.3 Vegetation

Refer to the “Ecological Assessment for Te Hokinga Mai ki Te Wairoa – the Return of Tūhourangi to Te Wairoa” (Wildland Consultants 2022) for a full description of vegetation and habitats at the site.

In summary, the site has a mixed cover of regenerating indigenous vegetation on the upper slopes (generally above 390 metres), and exotic trees and woody weeds within the proposed development footprint.

### 3.4 Land use

The surrounding area is predominantly rural (see Figure 2). Farmland is present locally on the valley floor, with extensive areas of exotic plantation pine forest to the south. Indigenous vegetation is the dominant land cover along the lower Wairoa Stream and to the north and west of the valley (see Plate 3).

---

<sup>1</sup> From Wikipedia – edited.



Figure 2: Aerial image of Rotomahana Parekarangi 6J2B3 Block, and surrounding area, at Tarawera. The site is at the centre of the red circle.



Plate 3: View eastwards along Tarawera Road towards the site on the left. Note rural farmland to right, regenerating indigenous vegetation on volcanic hillslopes and exotic plantation forest to far right on skyline. Left side is exotic woody weeds and trees.

The area has a long history of tourism. Currently the main tourism attraction in the area is the Buried Village, which is located about 200 metres east of the site. The lakes and viewpoints of Mount Tarawera are also frequently visited by both domestic and international tourists. A popular walking track, The Tarawera Trail, starts at a carpark approximately 100 metres to the southwest of the site, and traverses alongside Lake Tarawera to Te Rātā Bay (Hot Water Beach).

The subject site is currently undeveloped, although several historic features from Te Wairoa village are present.

### 3.5 Built and historical development

Te Wairoa is the site of one of the earliest tourism ventures in Aotearoa New Zealand. A hotel, purpose-built marae and cultural experiences were all part of the experience in the late 19th and early 20th centuries, but were all destroyed in the Tarawera eruption in 1886.

#### Buried Village

*“Te Wairoa was a village, also known as the Buried Village, close to the shore of Lake Tarawera in New Zealand's North Island (see Plates 4-6). It was a Māori and European settlement founded in 1848 by the Revd Seymour Mills Spencer where visitors would stay on their way to visit the Pink and White Terraces. The village was destroyed by the eruption of the volcano Mount Tarawera on June 10, 1886. 120 people died in the eruption, many of them in other villages closer to the volcano. The site of one of these villages (Kokotaia) was instrumental in the recent rediscovery of the Pink and White Terrace locations.*



Plate 4: Heritage Postcard of Sophia's whare at Te Wairoa. Sophia was a well-known guide and kuia.



Plate 5: Heritage postcard of Lake Tarawera, to the east of the site.



Plate 6: Heritage postcard of Lake Tarawera, a couple of kilometres to the east of the site.

*A Māori meeting house named Hinemihi which provided shelter to the people of Te Wairoa village during the eruption was relocated in 1892 to Clendon Park in England as an ornamental garden building and a souvenir of William Onslow, 4th Earl of Onslow. Arrangements are currently being made for the original carvings from Hinemihi to be returned to New Zealand.*

*The Buried Village is open to the public and shows the excavated ruins of the village, recovered relics on display in a museum and the history of the eruption. It is located 14 kilometres southeast of Rotorua on Tarawera Road.*

### Tarawera Trail

The 15 kilometre-long Tarawera Trail starts at a carpark at Te Wairoa - opposite the site – and traverses to the Hot Water Beach campsite at Te Rātā Bay. Users either return the same way or catch a water taxi.

*“The trail begins at Te Wairoa car park, off Tarawera Road, with opening views of beautiful Lake Tarawera. The trail follows the lake margin with key features including pōhutukawa forest alongside Kōtukutuku Bay, a few lake access points, and a picnic area at Hawaiki Bay.*

*From here, the trail includes intermittent climbs, through lakeside bushland into Te Hīnau Bay, and passes over Twin Streams cold springs.*

*After an uphill climb to reach the Rotomahana lookout point, the trail descends into Te Rātā Bay, where users can enjoy a soak at Hot Water Beach, being careful as localised patches of sand can be very hot.<sup>1</sup>”*

### Other Existing Developments

There are a number of residential and holiday home properties to the north of the site, accessed from Te Mu Road.

Tarawera Road runs through the Wairoa Stream Valley linking Lakes Rotokākahi and Tarawera.

Power lines run through the site, along the road frontage.

## 3.6 Natural character

An assessment of the natural character of the site is presented in Table 1.

Natural character is best described using the regional criteria as follows:

Overall, the locality has moderate to high natural character, although the actual development site has low natural character.

---

<sup>1</sup> <https://www.doc.govt.nz/parks-and-recreation/places-to-go/bay-of-plenty/places/lake-tarawera-scenic-reserve/things-to-do/tarawera-trail/>

Table 1: Natural character assessment using the regional criteria set.

Criteria (from RPS <sup>1</sup> , Appendix F)	Seven Point Scale and Comment(s)
<b>Natural systems expressed</b> 1.1 The qualities and patterns of the landscape express integrated physical processes and ecological systems and promote and support the healthy functioning of the natural environment.	<b>High.</b> Surrounding valley and surrounding hills plus Wairoa Stream. Naturally regenerating indigenous vegetation.  <b>Low.</b> Rural farmland and exotic weeds. Human modifications including farming, tourism and infrastructure.
<b>Landform</b> 1.2 Landform retains its natural form and qualities.	<b>High.</b> Surrounding indigenous-covered hills and Wairoa Stream.
<b>Land cover</b> 1.3 Land cover is unmodified from its natural state or is regenerating and contributes to a high degree of naturalness or, where managed, retains the qualities of naturalness.	Refer to ecological report. Mix of regenerating indigenous and exotic weeds.
<b>Waterscape</b> 1.4 Seascapes, harbours, estuaries, wetlands, geothermal surface features, lake or river water bodies are natural without obvious human structures or intervention.	Not applicable.
<b>Fauna</b> 1.5 Habitat for fauna is natural and functions without compromise by human influence or modification.	Refer to ecological report.

### 3.7 Natural features and landscapes

The locality comprises rural farmland, and the tourist attractions of the Buried Village and Tarawera Trail (car park entry opposite). This rural character differs from the indigenous forest to the west (Rotokākahi) and east (Tarawera), and the undeveloped hills to the north and south, and is much less significant.

Overall, the site is part of the greater Rotorua Lakes A Zone landscape, which includes Lakes Tarawera, Rotokākahi, Tikitapu, and Ōkāreka. These comprise a nationally special nature-dominated landscape with lakes and forest. Within this broad characterisation, the site and immediate surroundings are part of modified areas on the valley floor with historical built and archaeological tourism features.

Natural Feature(s) and Landscape(s) within and surrounding the site have been assessed in Table 2 using the RPS criteria.

Table 2: Assessment of natural features and landscapes using the RPS criteria set.

Criteria from RPS, Appendix F	Seven Point Scale and Comment(s)
<b>Natural Science Factors</b> <b>Representativeness</b> 2.1 Natural features and landscapes are clearly and recognisably characteristic of the area, district or region. The key components of the landscape will be present in a way that more	<b>Very High.</b> Lakes Tarawera and Rotokākahi, Wairoa Stream and waterfall, volcanic hill landforms and associated indigenous vegetation.

<sup>1</sup> Operative Bay of Plenty Regional Policy Statement, <https://atlas.boprc.govt.nz/api/v1/edms/document/A3890642/content>.

Criteria from RPS, Appendix F	Seven Point Scale and Comment(s)
<p>generally defines the character of the place, but which distils this character in essence.</p> <p>2.2 Natural features in a good state of preservation are representative and characteristic of the natural geological processes and diversity of the region.</p>	<p><b>Medium.</b> The modified valley farmland and historical tourist sites are much less significant. The immediate locality and development site, while vegetated, comprises mainly exotic weeds, as described in the ecological report.</p>
<p><b>Research and Education</b></p> <p>2.3 Natural features and landscapes are exceptionally valued for the contribution they make to research and education.</p>	<p>Not applicable.</p>
<p><b>Rarity</b></p> <p>2.4 Natural features are unique or rare in the region or nationally, and few comparable examples exist.</p>	<p><b>Low.</b> The development site is not unique or rare. Highly modified.</p>
<p><b>Aesthetic Values</b></p> <p><b>Coherence</b></p> <p>2.5 The patterns of land cover and land use are largely in harmony with the underlying natural pattern of the landform of the area and there are no significant discordant elements of land cover or land use.</p>	<p><b>High.</b> Lakes Tarawera and Rotokākahi, Wairoa Stream and waterfall, volcanic hill landforms and associated indigenous vegetation.</p> <p><b>Low.</b> Modified farmland and weeds.</p>
<p><b>Vividness</b></p> <p>2.6 Natural features and landscapes are widely recognised across the community and beyond the local area and remain clearly in the memory; striking landscapes are symbolic of an area due to their recognisable and memorable qualities.</p>	<p><b>Very High.</b> Lakes Rotokākahi and Tarawera are widely recognised, striking and symbolic. As are the volcanic hills and Wairoa Stream.</p> <p><b>Low.</b> The development site itself with exotic weeds, road and power lines.</p>
<p><b>Naturalness</b></p> <p>2.7 Natural features and landscapes appear largely uncompromised by modification and appear to comprise of natural systems that are functional and healthy.</p>	<p><b>Very High.</b> Lakes Tarawera and Rotokākahi, the Wairoa Stream, the volcanic hills and associated indigenous vegetation have high naturalness as described in the natural character section.</p> <p><b>Low.</b> The development site, weeds, and infrastructure have low naturalness.</p>
<p><b>Intactness</b></p> <p>2.8 Natural systems are intact and aesthetically coherent and do not display significant visual signs of human modification, intervention or manipulation; visually intact and highly aesthetic natural landscapes.</p>	<p><b>Very High.</b> Lakes, stream and hills.</p> <p><b>Low.</b> The development site is highly modified and was once the site of built development and associated curtilages (e.g. mill, watercourses).</p>
<p><b>Expressiveness (Legibility)</b></p> <p>2.9 Natural features and landscapes clearly demonstrate the natural processes that formed them. Exceptional examples of natural processes in landscape exemplify the particular processes that formed that landscape.</p>	<p><b>Very High.</b> Lakes Tarawera and Rotokākahi, the Wairoa Stream, the volcanic hills and associated indigenous vegetation are highly expressive.</p> <p><b>Low.</b> The development site, weeds, and infrastructure have low naturalness.</p>
<p><b>Transient Values</b></p> <p>2.10 The consistent occurrence of transient features (for example the seasonal flowering of pōhutukawa) contributes to the character, qualities and values of the landscape; landscapes are widely recognised for their transient features and the contribution these make to the landscape.</p>	<p><b>Medium.</b> Refer to ecological report for fauna and flora. Sky, seasons and climate influences are present.</p>
<p><b>Shared and Recognised Values</b></p> <p>2.11 Natural features and landscapes are widely known and valued by the immediate and wider community for their contribution to a sense of place leading to a strong community association with or high public esteem for the place.</p>	<p><b>Very High.</b> Landscape highly valued by Māori with a long history of occupation. Also, part of famous tourist route to the Pink and White Terraces.</p>



Criteria from RPS, Appendix F	Seven Point Scale and Comment(s)
<p><b>Māori Values</b></p> <p>2.12 Natural features and landscapes are clearly special or widely known and influenced by their connection to the Māori values inherent in the place. (Refer also to Set 4 - Māori Culture and Traditions criteria).</p>	<p><b>Low.</b> Te Wairoa Village was destroyed in the Tarawera eruption in 1886 and has been unoccupied for 136 years.</p>
<p><b>Historical Associations</b></p> <p>2.13 Natural features and landscapes are clearly and widely known and influenced by their connection to the historical values inherent in the place. (Refer also to set 5 - Historic heritage criteria).</p>	<p><b>Very High.</b> Landscape highly valued by Māori with long history of occupation.</p> <p><b>Very High.</b> Very early tourism, both cultural and geothermal. Part of the “round trip” of Pink and White Terrace fame.</p>

#### 4. VISUAL CATCHMENT AND VIEWING AUDIENCE

The visual catchment is the Wairoa Stream valley, up to the surrounding ridges.

The potential viewing audience is mainly travellers on Tarawera Road, for a short distance while passing the site. The viewing audience also potentially includes users of the Buried Village, which is located slightly east of the site and across the road. Tarawera Trail users will also be aware of the site with the main carpark entry being on the southern side of Tarawera Road, slightly west of the site within Rotomahana Trust lands. There are no residential neighbours within view of the site.

The site can be seen from the air (see Plates 7 and 8).



Plate 7: Aerial oblique. Site in foreground (cleared vegetation near Tarawera Road indicates proposed development area). Buried Village and Tarawera Trail above.



Plate 8: Aerial oblique view towards the site. Buried Village in foreground and Tarawera Trail carpark is at top centre.

View shafts are mapped in the planning maps, specifically the “Lakes A Zone, View Points” map. The site is outside all views shown, including Views 8, 13, and 15. View 8 is the Rotokākahi Carpark lookout, View 13 is Tarawera Road Lookout towards Lake Tarawera and Mount Tarawera, View 14 is from the jetty at “The Landing” on the shore of Lake Tarawera, towards the lake and Mt Tarawera.

## 5. LANDSCAPE PLANNING FRAMEWORK

The site is within the Sensitive Rural Management Area (Rotorua District Plan, Lakes A Zone, Map 272) (Figure 3).

There is an extensive list of criteria in the Lakes A Zone section of the District Plan: “*Section 9 Assessment Criteria*”. These criteria are addressed in the assessment of effects section of this report. Criteria include:

- CR 1.0 Indigenous vegetation Disturbance<sup>1</sup>
- CR 2.0 Exotic vegetation Disturbance in Riparian Areas
- CR 3.0 Special Vegetation Disturbance and Establishment
- CR 4.0 Earthworks
- CR 5.0 Building Platforms
- CR 6.0 Buildings
- CR 7.0 Second Hand Buildings
- CR 8.0 Structures
- CR 9.0 Lake Structures
- CR 10.0 Hard surfaces

<sup>1</sup> Refer to the ecological report (Wildland Consultants 2022) for vegetation clearance and disturbance criteria and interpretation.

- CR 11.0 Recreational Opportunities
- CR 12.0 Heritage Features
- CR 13.0 Signs
- CR 14.0 Outdoor storage
- CR 19.0 On-Site Carparking and Manoeuvring

Tarawera Road is not located within the legal road corridor and extends partially into the subject property title.

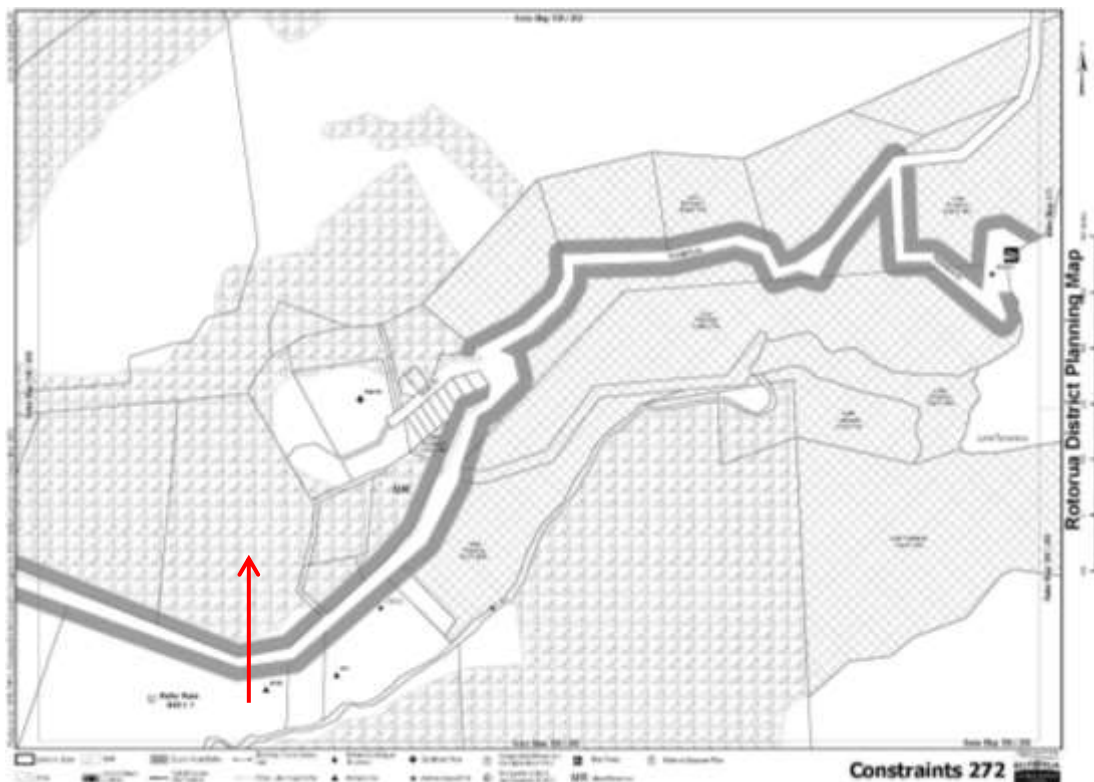


Figure 3: Lakes A Zone, Rotorua District Plan Map 272. Red arrow indicates the subject property. The proposed development footprint is near the roadside within this property.

## 6. ASSESSMENT OF EFFECTS (INCLUDING LAKES A ZONE CRITERIA)

### 6.1 Overview

Potential landscape and visual effects of the proposed development include:

- Effects on natural character.
- Effects on Natural Feature(s) and Landscape(s) including Lakes A Zone.
- Visual effects.

Each of these potential effects are addressed below.

## 6.2 Effects on natural character

Table 3 provides an assessment of potential effects on natural character.

Table 3: Assessment of potential effects on natural character.

Criteria (from RPS, Appendix F)	Seven Point Scale and Comment(s)	Magnitude of Effect and Comment(s)
<b>Natural systems expressed</b> 1.1 The qualities and patterns of the landscape express integrated physical processes and ecological systems and promote and support the healthy functioning of the natural environment.	<b>High.</b> Surrounding indigenous covered hills and Wairoa Stream.  <b>Low.</b> Rural farmland and weeds.	<b>Low.</b> Development is located along the road edge where weeds and power lines currently dominate.  <b>Low.</b> Removal of weeds and minor seedlings.
<b>Landform</b> 1.2 Landform retains its natural form and qualities.	<b>High .</b> Surrounding indigenous covered hills and Wairoa Stream.	<b>Low.</b> Skyline, upper slopes, and stream will not be affected.
<b>Land cover</b> 1.3 Land cover is unmodified from its natural state or is regenerating and contributes to a high degree of naturalness or, where managed, retains the qualities of naturalness.	Refer to ecological report. Mix of regenerating indigenous and exotic weeds.	<b>Low.</b> Area within the proposed development footprint is are covered in exotic weeds and exotic trees.
<b>Waterscape</b> 1.4 Seascapes, harbours, estuaries, wetlands, geothermal surface features, lake or river water bodies are natural without obvious human structures or intervention.	Not applicable.	Not applicable.
<b>Fauna</b> 1.5 Habitat for fauna is natural and functions without compromise by human influence or modification.	Refer ecological report	Not applicable.

With the mitigation suggested, as shown on the Landscaping Plan (Appendix 1), the overall effects of the proposed development on natural character will be low. Further enhancement of vegetation plus building design controls are proposed, as follows:

- Protect upper slopes and enhance indigenous vegetation present by undertaking weed management.
- Papakāinga dwellings to be visually recessive.
- Papakāinga dwellings to be compliant with height requirements. Generally single level (duplex or similar).
- Papakāinga dwellings to be of low reflectivity colours (compliant with Lakes A Zone reflectivity guidance).
- Roadside landscape strip will soften and partially screen the development from Tarawera Road. This will include representative indigenous plantings along with managed natural regeneration.
- Marae complex to be designed to add positive cultural interest in the landscape, with associated artworks.

- Carpark to be softened with extensive planting and management of indigenous forest on the hillslopes behind the development.

Assessment criteria for the Lakes A Zone that apply to natural character include:

- CR 1.0 Indigenous vegetation Disturbance.
- CR 2.0 Exotic vegetation Disturbance in Riparian Areas.
- CR 3.0 Special Vegetation Disturbance and Establishment.
- CR 4.0 Earthworks.
- CR 5.0 Building Platforms.

Refer to the ecological report (Wildland Consultants 2022) for detailed information on the effects of clearance and/or disturbance of indigenous and/or exotic vegetation (CR 1.0, CR 2.0 and CR 3.0). Vegetation removal will generally be limited to exotic trees and weeds (see Plates 9 and 10). Natural character (and landscape) effects related to vegetation clearance are acceptable, provided that vegetation management and planting occurs as shown on the Landscaping Plan (Appendix 1) and suitable conditions are included in the consents.

Earthworks (CR 4.0) are required for construction of vehicle access, car parking, building platforms and acoustic screening. Overall, the effects of earthworks on natural character are acceptable and will probably be inconsequential once landscaping has been completed. Building development including formation of building platforms (CR 5.0), has been designed to use flatter parts of the site along Tarawera Road as shown on the drawings. This will minimise the amount of earthworks required, and allow buildings to be positioned to allow for sunlight penetration. The overall landform and topography will remain largely unchanged.



Plate 9: Westward view beneath power lines on the site. Vegetation is predominantly blackberry, false acacia, and sycamore (refer to ecological report).



Plate 10: View eastwards along Tarawera Road, towards the site. Vegetation is predominantly exotic woody weeds and poplar.

### 6.3 Effects on natural features and landscapes

Overall, the effects of the proposed development on natural features and landscapes within the Lakes A Zone are acceptable given the suggested mitigation as shown on the Landscaping Plan (Appendix 1).

Table 4 provides an assessment of potential effects on natural features and landscapes (using the RPS criteria).

Table 4: Potential effects on natural features and landscapes.

Criteria (from RPS, Appendix F)	DAL (District Amenity Landscape)	
	Seven Point Scale and Comment(s)	Magnitude of Effect and Comment(s)
<b>Natural Science Factors</b>		
<b>Representativeness</b>		
2.1 Natural features and landscapes are clearly and recognisably characteristic of the area, district or region. The key components of the landscape will be present in a way that more generally defines the character of the place, but which distils this character in essence.	<b>Very High.</b> Lakes Tarawera and Rotokākahi, Wairoa Stream and waterfall, volcanic hill landforms and associated indigenous vegetation.	<b>Low.</b> The lakes, Wairoa stream and volcanic landforms will be unaffected.
2.2 Natural features in a good state of preservation are representative and characteristic of the natural geological processes and diversity of the region.	<b>Medium.</b> The modified valley farmland and historical tourist sites are much less significant. The immediate locality and development site while vegetated, comprises mainly exotic weeds, as described in the ecological report.	<b>Low .</b> Vegetation to be removed is almost entirely exotic and weedy.  The proposed vegetation management and pest control will enhance representativeness over time, a positive benefit.

Criteria (from RPS, Appendix F)	DAL (District Amenity Landscape)	
	Seven Point Scale and Comment(s)	Magnitude of Effect and Comment(s)
<b>Research and Education</b> 2.3 Natural features and landscapes are exceptionally valued for the contribution they make to research and education.	Not applicable.	Not applicable.
<b>Rarity</b> 2.4 Natural features are unique or rare in the region or nationally, and few comparable examples exist.	<b>Low.</b> The development site is not unique or rare. Highly modified.	<b>Low.</b> Reintroduction of a marae and papakāinga to the area returns the locality closer to pre-eruption land uses and allows for future engagement.
<b>Aesthetic Values</b>		
<b>Coherence</b>		
2.5 The patterns of land cover and land use are largely in harmony with the underlying natural pattern of the landform of the area and there are no significant discordant elements of land cover or land use.	<b>High.</b> Lakes Tarawera and Rotokākahi, Wairoa Stream and waterfall, volcanic hill landforms and associated indigenous vegetation. <b>Low.</b> Modified farmland and weeds.	<b>Low.</b> While vegetation removal will be apparent this will be almost entirely weeds. Returning a marae to the area will increase the coherence of the area and its tourism focused history.
<b>Vividness</b>		
2.6 Natural features and landscapes are widely recognised across the community and beyond the local area and remain clearly in the memory; striking landscapes are symbolic of an area due to their recognisable and memorable qualities.	<b>Very High.</b> The Lakes Rotokākahi and Tarawera are widely recognised, striking and symbolic. As are the volcanic hills and Wairoa Stream. <b>Low.</b> The development site itself with exotic weeds, road and power lines.	<b>Low.</b> The landscape will remain dominant with development nestled near the road. Papakāinga is largely screened. The marae, cultural centre and associated cultural artworks will provide interest along this section of Tarawera Road and align with the presence of the buried village tourist attraction.
<b>Naturalness</b>		
2.7 Natural features and landscapes appear largely uncompromised by modification and appear to comprise of natural systems that are functional and healthy.	<b>Very High.</b> The lakes Tarawera and Rotokākahi, the Wairoa Stream, the volcanic hills and associated indigenous vegetation have high naturalness as described in the natural character section. <b>Low.</b> The development site, weeds, and infrastructure have low naturalness.	<b>Low.</b> The lakes, hill landforms and stream will be unaffected. Naturalness will improve over time with vegetation management and pest control.
<b>Intactness</b>		
2.8 Natural systems are intact and aesthetically coherent and do not display significant visual signs of human modification, intervention or manipulation; visually intact and highly aesthetic natural landscapes.	<b>Very High.</b> Lakes, stream and hills. <b>Low.</b> The development site is highly modified and was once the site of built development and associated curtilages (e.g. mill, watercourses).	<b>Low.</b> The lakes, stream and hills will be unaffected. Marae development is historically associated with this locality and will aid intactness.
<b>Expressiveness (Legibility)</b>		
2.9 Natural features and landscapes clearly demonstrate the natural processes that formed them. Exceptional examples of natural processes in landscape exemplify the particular processes that formed that landscape.	<b>Very High.</b> The lakes Tarawera and Rotokākahi, the Wairoa Stream, the volcanic hills and associated indigenous vegetation are highly expressive. <b>L.</b> The development site, weeds, and infrastructure have low naturalness.	<b>Low.</b> The lakes, stream and hills will be unaffected. The vegetation management and pest control will improve the legibility of the site over time, especially the ongoing regeneration of the surrounding hillslopes to indigenous forest.
<b>Transient Values</b>		
2.10 The consistent occurrence of transient features (for	<b>Medium.</b> Refer ecological report for fauna and flora. Sky, seasons	<b>Low.</b> Removal of weeds is positive, and vegetation

Criteria (from RPS, Appendix F)	DAL (District Amenity Landscape)	
	Seven Point Scale and Comment(s)	Magnitude of Effect and Comment(s)
example the seasonal flowering of pōhutukawa) contributes to the character, qualities and values of the landscape; landscapes are widely recognised for their transient features and the contribution these make to the landscape.	and climate influences are present.	management will allow for the suitability of indigenous fauna habitats to improve over time. Seasons and climate influences unchanged.
<b>Shared and Recognised Values</b> 2.11 Natural features and landscapes are widely known and valued by the immediate and wider community for their contribution to a sense of place leading to a strong community association with or high public esteem for the place.	<b>Very High.</b> Highly valued landscape by Māori with long history of occupation. Also, part of famous tourist route to the Pink and White Terraces.  <b>Low .</b> Site was destroyed in the Tarawera eruption 1886 and has been unoccupied for 136 years.	<b>Medium.</b> The development is wholly appropriate and the intention is that marae and cultural components are proudly in view. The intention is for these to stand out positively.  <b>Low .</b> Papakāinga housing and car parking is partially screened, with an indigenous forest backdrop and indigenous planting enhancing the natural character over time.
<b>Māori Values</b> 2.12 Natural features and landscapes are clearly special or widely known and influenced by their connection to the Māori values inherent in the place. (Refer also to Set 4 - Māori Culture and Traditions criteria).	<b>Very High.</b> Highly valued landscape by Māori with long history of occupation.	<b>Low .</b> Tangata whenua are the applicant and cultural effects are dealt with through the proposed design.
<b>Historical Associations</b> 2.13 Natural features and landscapes are clearly and widely known and influenced by their connection to the historical values inherent in the place. (Refer also to set 5 - Historic heritage criteria).	<b>Very High.</b> Very early tourism both cultural and geothermal – part of the “round trip” of Pink and White Terrace fame.	<b>Low .</b> Tangata whenua are the applicant and cultural effects are dealt with through the proposed design.  Marae, papakāinga and cultural centre have ancestral connections to this site and the surrounding area.

Effects on natural features and landscape will be no more than minor and, with the proposed design and landscaping, should contribute positively to the landscape overall.

Relevant remaining assessment criteria for the Lakes A Zone that were not already addressed under the natural character assessment above include:

- CR 6.0 Buildings
- CR 7.0 Second Hand Buildings (not applicable)
- CR 8.0 Structures
- CR 9.0 Lake Structures (not applicable)
- CR 10.0 Hard surfaces
- CR 11.0 Recreational Opportunities (see application and planning commentary)
- CR 12.0 Heritage Features (historical use supports)
- CR 13.0 Signs
- CR 14.0 Outdoor storage (not applicable)
- CR 19.0 On-Site Carparking and Manoeuvring





Plate 11: Vegetation present is predominantly exotic trees, and woody weeds. Note that ivy is very abundant and is scrambling up the sycamore trees.



Plate 12: Southeastward view from reserve near the corner of the site across Tarawera Road towards the Buried Village entrance.



Plate 13: Buried Village entrance.



Plate 14: View from Tarawera Trail carpark access road, towards the site. Note rural paddock and bush clad volcanic hill beyond. The Wairoa Stream is 'hidden' in the valley floor.



Plate 15: Pou, waharoa, wharepaku, and signage at the Tarawera Trail carpark.



Plate 16: Tarawera Trail carpark. Note the rounded volcanic hills. Lake Rotokākahi is hidden at top right, in front of the distant hills.

The building (CR 6.0) layout and design is shown on the drawings. Building design controls are proposed as conditions to ensure the papakāinga is softened and screened including; single level, low reflectivity colours, screen fences and planting.

Hard surfaces (CR 10.0) include vehicle crossing, vehicle access, car parks, trails and paving. These are proposed as shown on the drawings. These hard surfaces will make up a small part of the overall site. Alongside the associated earthworks, landscape effects of hard surfaces will be inconsequential.

Recreational (CR 11.0) and heritage features (CR 12.0) are addressed in the application by planning and archaeological experts. The site includes an old water race, and other potential pre-eruption (1886) artefacts. Refer to earlier historic photographs (e.g. Plates 1 and 2) and archaeological report. Note also that the applicant is tangata whenua and they have an intimate knowledge of the history of the site. Archaeological sites are respected and featured.

Signage (CR 13.0) will be included within the proposed development, for the purposes of way finding, and public information. The marae and cultural centre may include tourism components with associated signage. The landscape effects of signage at this location are unlikely to be of any consequence.

Plans for carparking and manoeuvring (CR 19.0) are as shown on the drawings. Access, parking and pathways are required to and within the development for functional use. Effects are as for earthworks and hard surfaces above, and are of little consequence.

Overall, landscape effects will be acceptable and following implementation of the proposed conditions, effects will at most be minor, for the following reasons:

- Marae (eastern cluster of buildings) are part of the historic and cultural history of this locality (Hinemihi) and are an appropriate land use. Such buildings do not need to be hidden away as they contribute to the character of the locality.
- Marae buildings - whare tūpuna, wharekai, kohanga, office – will be prominent with strong cultural design elements. These are overtly exposed, not hidden and recessive, and will contribute to the cultural character and history of the area. Marae buildings may or may not meet reflectivity requirements.
- The surroundings are to be managed to improve the natural character (indigenous vegetation) over time mainly through weed control and nurturing natural regeneration. This will also ensure that there is good penetration of sunlight to buildings.
- Papakāinga dwellings (western cluster of buildings) will be single storey units, generally in pairs with attached garaging between.
- Papakāinga buildings will be of low reflectivity colours and design will meet the Lakes A Zone guidelines.
- Ornamental plantings around the papakāinga should include only indigenous species.
- Acoustic wall and screen plantings will be established on the roadside and on the western margin of the site. This will provide noise mitigation for residents and mitigate visual effects for travellers.
- Papakāinga will not be readily visible from Tarawera Road once plantings mature.
- Visitor carpark will be softened with trees and other plantings, with views through the buildings to the indigenous forest beyond and north of the development.
- Possible entry feature – Pou or other cultural feature/ artwork and signage – with associated planting.

- A pedestrian underpass link to the Buried Village is proposed.
- Power lines to are to be buried or relocated.

#### 6.4 Visual effects

The visual catchment is the Wairoa Stream valley, which is limited by surrounding high hills, and topography. Neither Lake Tarawera nor Rotokākahi (Green Lake) are visible from the site and, consequently, the site is not visible from these iconic Rotorua lakes.

The viewing audience is people using Tarawera Road to pass the site, including visitors to the Buried Village and Tarawera Trail. The site is also visible from the air. No residential neighbours will be adversely affected.

The proposal is to remove weedy exotic vegetation, carry out earthworks and building development as shown in the application, and to landscape the site to integrate it with the surrounding landscape. Locally representative indigenous plants are to be used, and the regenerating indigenous forest is to become virtually free of weeds over time. The overall effect will be an improvement in quality and appearance of indigenous vegetation present over time.

The completed development will be in several parts: Papakāinga dwellings to the western side will be low rise single storey duplex or similar, in recessive colours and softened/screened from Tarawera Road. The carpark and entry features are to be landscaped to enable views through to the regenerating hillsides of indigenous forest behind, and complementary areas of indigenous plantings around the development. The marae, wharekai, and cultural centre are designed to be culturally interesting and will be intentionally exposed to views where appropriate, as shown in the design. Linking of the underpass/pathways and plantings will coordinate the site with the nearby reserves, Tarawera Trail, and the Buried Village.



Plate 17: Hinemihi meeting house at Te Wairoa, half-buried after Mt Tarawera erupted in 1886. Over 100 people were killed, and the misery of the local people was compounded by the adverse effects on the tourist industry. Ironically, Te Wairoa is now a tourist attraction known as the Buried Village. Alexander Turnbull Library.



Plate 18: Hinemihi and Māori, cultural tourism – early postcard by Burton Bros image. The proposed reintroduction of marae to this landscape is historically and culturally appropriate.



Plate 19: The site is potentially only visible from the adjacent section of Tarawera Road. Traveling west from Lake Tarawera the site is obscured around the corner shown here. Traveling east existing vegetation will largely screen the proposed development.

As indicated earlier, view shafts are mapped in the planning maps, specifically the “Lakes A Zone, View Points” map. The site is outside all of the views shown, including Views 8, 13, and 15 (View 8 is the Rotokākahi Carpark lookout, View 13 is Tarawera Road Lookout towards Lake and Mount Tarawera, View 14 is from the jetty at “The Landing” on the shore of Lake Tarawera).

Naturalness of all such views will be unaltered by the proposed development.

Overall visual effects will at most be minor, and with the proposed landscaping effects will be inconsequential and potentially positive. Effects are of little consequence because:

- Overall character will remain substantially unchanged.
- Public lookouts, and lake views will be unaffected.
- Development is to be grouped in a papakāinga group and marae group on flat land near the road.
- Most of the site will be unaffected, including upper hillslopes of regenerating indigenous forest (above 390 metres).
- The development is consistent with the Tarawera Trail and Buried Village land uses.
- Building design controls will ensure that the papakāinga is visually recessive.
- Planting and pest management will ensure that the natural values are retained and enhanced.
- The marae and visitor centre will add interest and is historically and culturally appropriate.

The ecological assessment concludes as follows (emphasis added in bold):

*“Potential ecological effects of the proposed Te Hokinga Mai Ki Te Wairoa - The return of Tūhourangi to Te Wairoa project to develop papakāinga dwellings, a marae, and cultural centre on Tarawera Road can be reduced to minor, if actions to avoid and minimise effects are implemented. This is primarily because the proposed development footprint is located within exotic vegetation that is of very limited ecological value. ... Care should be taken to ensure that there is no clearance or damage of the **regenerating indigenous forest on the upper slopes of this property**. Potential loss of sediment from the site can be managed using good practice techniques. The **ecological values of Rotomahana Parekarangi 6J2B3 Trust Block could be enhanced greatly through Landscaping Planting of ecologically-appropriate indigenous species throughout the development layout, along with control of pest plants and pest animals.**”*

## 7. CONCLUSIONS

The site of the proposed development is within the Lakes A Zone of Rotorua Lakes District and is subject to stringent landscape planning rules. However, the development proposed will ensure that the natural features of the area are retained and enhanced and that the papakāinga development is recessive. The marae and associated cultural centre will become a destination and feature for tangata whenua and potential visitors.

Effects on natural character will be low (at worst minor) if the Landscaping Plan (Appendix 1) is implemented. Enhancement of indigenous vegetation, plus building design controls are proposed as follows:

- Indigenous forest on the hillslopes behind the proposed development<sup>1</sup> will be enhanced.
- Carparks and accessways will be softened with extensive indigenous planting.
- Papakāinga buildings are to be visually recessive.
- Papakāinga dwellings are to be compliant with height requirements. Generally single level duplex or similar.
- Papakāinga dwellings are to be of low reflectivity colours, compliant with Lakes A Zone reflectivity guidance.
- A roadside landscaping strip will soften, and partially screen the papakainga and includes significant areas of representative indigenous plantings with managed natural regeneration.
- The marae complex has been designed to add positive cultural interest in the landscape, with associated artworks.

Effects on landscape features and views are acceptable (at worst minor) because:

- The proposed development is outside of views from Lakes Tarawera and Rotokākahi, and their surroundings.
- The proposed development is outside of identified viewshafts. Public lookouts will not be affected.
- Development will be limited to the already modified parts of the property near the road.
- Natural character will be enhanced through pest control, planting, and managed natural regeneration.
- The site is not pristine. Land use in the locality includes farmland, the Buried Village, the Tarawera Trail carpark, and associated activities.
- Historical development (pre-1886) here included Te Wairoa Village, farming, the Rotomahana Hotel, Hinemihi Marae, and associated structures. As such, built development is not inappropriate here.
- Archaeological sites are to be respected, and featured within the design.
- Tangata whenua are supportive (being the applicant).
- Site works involve the clearance of weeds and exotic vegetation, not indigenous forest.
- Site earthworks are modest in scale and located on naturally flatter ground.

Further, potential visual effects can be managed through proposed conditions, as follows:

- Building design controls via conditions of consent for papakāinga; single level, compliant colour reflectivity.
- Earthworks, landscaping, and planting, to soften and screen papakāinga housing.
- Softening of accessways and car parking with grass, indigenous plantings, and natural managing natural regrowth.
- The marae and cultural centre development will add interest to the area and showcase the history of the local area.

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<sup>1</sup> Generally above 390 metre contour.



**DRAFT**

Overall, built development will be mitigated through design and landscaping. Subject to the suggested Landscaping Plan being implemented and vegetation being managed with weed control, the proposed development of Rotomahana Parekarangi 6J2B3 Trust Block will enhance the area.

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**DRAFT**

APPENDIX 1







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**ROTOMAHANA PAREKARANGI 6J2B3**  
**Application for Resource Consent**

**A CULTURAL IMPACT ASSESSMENT REPORT ON**  
**“TE WHAKAHOKINGA MAI O TUHOURANGI KI TE WAIROA”**

comprising an Assessment of identified Impacts – Maori Cultural, Te Taiao Maori Environmental, Maori Whakamana tangata - Social, Maori Matauranga Educational & Employment, Maori Pakihi - Economic & Business – and how each of these identified impacts will affect or be affected by the proposed Development at Te Wairoa

**“The Birthplace of Maori Tourism in Aotearoa NZ”**

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## Part 2 Introduction

### 2.1 What is a Cultural Impact Assessment

A *Cultural Impact Assessment (CIA)* documents:

*“Maori cultural values, interests and associations with an area or a resource and which assesses potential impacts of the proposed activity on these values, and which will be used to facilitate meaningful effective and proactive participation of Maori in impact assessment analysis.”*

There is no statutory requirement under the RMA for a CIA to be prepared but should be considered where any proposed activity is on, adjacent to, or likely to impact upon the following;

- Any site considered to be of historical or cultural significance to tangata whenua such as urupa wahi tapu known archaeological sites or other nohoanga tawhito sites.
- Any flora and fauna of cultural significance to tangata whenua such as a waahi mahinga kai resources or species used for other cultural practices such as weaving or traditional Rongoa.
- Any areas of historical and spiritual importance to tangata whenua.
- Any areas with significant landscape values to tangata whenua.
- Any Waterways or Wetlands of importance to tangata whenua.

A CIA can also be useful where:

- Resource consent applications are for large intensive and complex projects.
- There is not enough information included in the resource consent application to assess the effects of the activity on tangata whenua.
- An assessment of potential impacts on cultural values and association would take a lot of time for tangata whenua to complete.
- The cultural values associated with the site or in relation to the proposal are not easily assessed or are unknown to tangata whenua and new or additional research required to identify the effects of the activity.
- The proposed activity may be precedent setting.

The CIA is a valuable tool for assessing the potential impacts of a project on tangata whenua. When assessing the effects of any Cultural Impact regard must be had to:

- The relationship of Māori with the area proposed for development,
- Any relevant cultural values and
- Any details of who the kaitiaki are for those values and
- Any landscapes – Cultural, Historical, Environmental.

This report provides a detailed overview of the subject site, its history and the cultural values associated with the property and wider environment. It then assesses the proposed development and identifies how the cultural values may be either adversely affected or enhanced.

Where there is the potential for the cultural values to be adversely affected suggestions will be made on how on these s might be avoided remedied or mitigated.

## Part 3 The Site and Environment

### 3.1 Location

The block is Part of Rotomāhana Parekarangi Block which is understood to be Tuhourangi associated and related. Rotomāhana Parekarangi Block itself consists of blocks that surround Lake Tarawera, Lake Rotokakahi, Lake Rotomāhana Lake Rerewhakaaitu to Maunga Karamea – Rainbow Mountain. This block identifies the rohe potae of Tuhourangi and its subtribes.

The surrounding area is full of significant natural landscapes that have cultural values.

- Lake Tarawera
- Tarawera Maunga.
- Te Wairoa stream
- Te Wairoa Waterfall
- Punaromia
- Rotokakahi

Rotokakahi is a nearby lake that is part of the Tuhourangi tribal estate. It feeds Te Wairoa Stream. Both lakes fall within the domain and dominion of Tuhourangi and its composite hapu. Lake Rotokakahi is the lake to the south of Rotomāhana Parekarangi 6J2B3. It is associated to Tuhourangi ki te Wairoa through Motutawa the traditional tribal base of Tuhourangi. Motutawa is now a cemetery reserve and was the principal reason it was excluded from the Te Arawa Lakes Trust Settlement.

### 3.2 Historical & Cultural Values of the Environment

#### 3.2.1 The Subject Site

The site of the proposed development It is an extremely important historical site to Tuhourangi being the residence of Te Keepa Te Rangipuawhe; Paramount Chief of the Tuhourangi and Magistrate and Custodian of the Pink and White Terraces – Otukupuarangi and Te Tarata, these reputed to be one of the “Eight Wonders of the World.”

It is not clear where his principal Tuhourangi marae was situated prior to 1854 but it is understood to have been the island of Motutawa on the sacred Lake Rotokakahi – The Green Lake - where it is recorded that his father – Te Rangipuawhe II is buried.

The development site is not a “mai ra ano” Marae site. There was no marae on this site previously but was the residence of Te Keepa who had an English cottage built with his chimney being the only remnant post eruption.

#### 3.2.2 Wider Environment

##### *i) Te Wairoa Village*

In 1854 History records that Te Keepa was invited to establish a village by the Reverend Seymour Spencer like an English village. He had already established a School, a Church, and his own Cottage in the vicinity. History records the village concept was not a success.

However, the site and its environs undoubtedly are now considered to be places of immense historical and cultural significance to the whole of Tuhourangi and its constituent hapu.

As a direct consequence of the Tarawera Eruption the tribe was forced to relocate for its own survival. The following are the locations where the Iwi resettled post eruption Hapu



by Hapu

- Tuhourangi ki Ngapuna – Ngati Hinemihi
- Tuhourangi ki Te Whakarewarewa – Ngati Wahiao
- Tuhourangi ki Te Puke – Ngati Uruhina
- Tuhourangi ki Hauraki

Other Tangata Whenua Associations with Te Wairoa include:

- Pre-eruption Settlement - Tuhourangi me ona Hapu Karangarangatanga ng
- Tuhourangi Ngati Uruhina – Otukawa Te Puke
- Tuhourangi Ngati Hinemihi – Ngapuna Rotorua
- Tuhourangi Ngati Taoi - Tarawera
- Tuhourangi Ngati Wahiao – Whakarewarewa Rotorua
- Tuhourangi Ngati Moko – Waitangi Te Puke
- Tuhourangi Ngati Tuohonoa – Rainbow Mountain

*ii) Hinemihi Tupuna whare*

Rotomāhana Parekarangi 6J2B3 is next to Rotomahana Parekarangi 6J2B4 on which was Hinemihi Tupuna whare which housed and protected the survivors of the 1886 Eruption. This Whare Tupuna was eventually sold to then Governor General Onslow who took the Tupuna Whare back to England where it was originally used as a Boatshed then much later restored by the British National Trust and re sited in the grounds of Clandon Park Guilford Surrey England and stands as Hinemihi.

*iii) The Buried Village*

An archaeological centre showcasing stories and displays of the Pink and White Terraces, the 1886 Eruption of Mt Tarawera, and the resulting devastation of Te Wairoa - The Buried Village.

*iv) Te Mu – Te Kura Tawhito me te Whare Karakia – The School & Church site*

This was the site of a Church and School. This is a culturally significance site as it was where the tribal tamariki were taught. This site is to the northwest, left of the development.

*v) Kariri Urupa - The Spencer Mausoleum – Whanau Burial Plot*

This is a burial site above ground and with glass coffins containing the bodies of the Chapman whanau. Kariri is some way to the north of the site and is another culturally significant site as it contains the remains of the Reverend Spencer and his family who played an important part in Tuhourangi Tribal affairs of the time.

*vi) The Waterfed Flour Mill – now demolished*

### 3.4 Flora and Fauna

Post eruption the area was made desolate, and all vegetation was totally destroyed. Any flora and fauna present have revegetated post eruption and has been principally self-generated. It was considered a disaster area by the government at the time.

The area is not known for any flora or fauna of any cultural significance to Tuhourangi however the area has been designated a special Green Zone by the bylaws and District Plan of the Rotorua Lakes District Council.

## Part 4 The Development Proposal – Te Whakahokinga mai o Tuhourangi ki Te Wairoa – The Returning

This development is one of the most intensive and complex projects to ever be undertaken by Tuhourangi. The prime movers are the manawhenua of the whenua on which the project will be sited – Nga Kaitiaki o Te Whenua – Rotomāhana Parekarangi 6J2B3. There are 7 Trustees who equitably reflect the beneficial ownership. The majority of shares in the block are held by the direct descendants of Te Keepa Te Rangipuawhe. The proposed development will take place on a site of approximately four hectares out of a total size block of 11 Hectares.

As previously stated, the development project will involve the establishment of a Tuhourangi Tribal Marae Complex, a Papakainga Housing scheme and a Visitors Learning Centre. The proposed development envisages and will encompass the following critical components:

### Component 1 - The Tuhourangi ki Te Wairoa Marae & Tribal Complex

Brief Outline:

The development includes the establishment and construction of a full marae tribal complex including;

1. He Tupuna Whare Whakairo- a full carved house sufficient for 100 persons
2. He Whare Oranga Tangata – He Whare Kai; - A Dining Hall sufficient to host 350.
3. He Whare Paku – He Whare Horoi Tinana - An Ablutions Block mo te whanau
4. He Whare Whakaruruhau koeke - Mo Te Pae Tapu
5. He Waharoa – Entry Gateway; Mo te manuhiri

Area involved	1.5 - 2 ha.
Area identified	as per attached site plan.
Buildings:	5 Buildings (as above)
Purpose	Marae & Tribal Meeting Place
Activities	Tangihanga Hui Whenua Hui Whanau Wananga

A separate set of Trustees will be appointed for the Marae representing the various hapu of Tuhourangi to ensure that the marae is Tuhourangi inclusive and not just for the beneficiaries of the block.

The NZ MACI will be commissioned to commence the full carvings for the Tupuna whare including the interior and exterior of the whare, embellishments of Te Whare Whakaruruhau, Te Waharoa me nga Whare paku. They will also be commissioned to complete the palisades and the embellishments of the Tarawera visitor's centre.

The carvings will reflect the full history and mana of Tuhourangi Tupuna me ona whakatipuranga – descendants, the important battles that took place nga tino Rangatira, nga pakanga, nga tatau pounama nga pakiwaitara. These will all be recorded in the carvings of the Tupuna whare me te marae.

### Component 2 - The Marae Housing Papakainga Project

Brief Outline:

The development includes the establishment and construction of a Marae associated Papakainga comprising 11 – 13 Home units with varying rights of occupancy including;

- (1) Outright purchase of Land and House (3)
- (2) Rent to own (3)
- (3) Rental Tenancy (3)
- (4) BnB (2)

Area involved:	Approx 2.5 ha.
Area identified:	As per attached site plan.
Buildings:	11 – 13 Standalone Houses
Purpose:	Residences
Activities:	Living & Accommodation

### **Component 3 - The Tarawera Visitors Centre**

#### **Brief Outline:**

The development includes the establishment and construction of a Visitors to cater for Manuhiri awaiting Karanga and other Tourists and interested parties. This will be the reception area containing wharepaku and café facilities. It will also house a teaching facility for Whakapapa and wananga and for teaching harakeke and other cultural activities.

Area involved:	Approx 0.5 ha.
Area identified:	as per attached site plan.
Buildings:	1 Building encompassing Reception facilities
Purpose:	Reception and Cafe
Activities:	Entertainment Learning Exhibition Centre.

The development envisages a Tarawera Visitors Centre as an important and critical component. This Visitors Centre is an Economic Unit within the whole development. Its aim is to run the Tribal Complex in an economic and profitable manner – post covid.

It is proposed to establish a reception facility for visitors to the marae complex and place to relax during the Karanga. There will be café facilities and Restrooms for visitors.

The Visitors Centre will also be a Whare Kura Akonga mo te Pa Harakeke – a training school for Whariki – Mat Weaving and Kete. The visitors centre will be organised for educational display purposes and for Hui Wananga.

It is proposed to open the Marae complex to visitors both nationally and internationally. It is important that the Marae is run and maintained in a sustainable manner and therefore this is seen as an important funding stream.

There is a Memorandum of Understanding with the owners of the Buried Village who currently provide the Trust will minimal Income per year for the use of the southern severance of the Block. The Buried Village visitors will be expected indeed encouraged to extend their visit to the Tuhourangi Tribal Village Complex.

### **Component 4 - Associated Infrastructure**

#### **Brief Outline:**

The development involves the excavation and development of the land flora and fauna to such an extent that will enable the construction of each of these components of the project. The infrastructure plan covers all buildings and facilities and includes relevant earthworks.

The development will cover all infrastructure relating to associated land development as far as it affects;

- (1) The Marae Complex
- (2) The Marae Papakainga
- (3) The Tarawera Visitors Centre
- (4) The Urupa
- (5) The Underground Tunnel to Southern severance & neighboring Hinemihi Block

#### **Component 5; Rangatahi Employment & Apprenticeship Training**

The development envisages the use where practical of Tuhourangi Rangatahi to be employed in the building aspects of the development. The project allows for carpentry apprenticeships as well as Electrical Plumbing Plastering and Painting apprenticeships during the erection of the Marae Complex, Marae Papakainga and Tarawera Visitors Centre. Discussions are being held with preferred providers to work out what relationships could be developed looking at the use and employment of our Tuhourangi workforce to assist in the building and construction phases of the development.

## **Part 5 Cultural Impact Assessment**

### **5.1 Methodology adopted in the preparation of this CIA.**

#### **5.1.1 Korero kanohi ki te kanohi o nga kuia koroua o Tuhourangi ki Te Wairoa kua wehe**

This CIA report has been 25 years in the making. From the time of Ngawhare Maika and his son Rangi Maika the re-establishment of Tuhourangi ki Te Wairoa was a dream – He moemoea. Other Kaumatua o Tuhourangi who supported the proposal included Mrs Marion Mariaio Wihapi (nee Renati), Mrs Ruahuihui Macpherson (nee Renati) and Mrs Merita Rapana – all now deceased.

Their descendants are now represented on the board of Trustees. Other Kaumatua included Bubbles Mihinui (Guide Bubbles) and included Kapiti Hamiora. However, Kaumatua Te Autiti Wikiriwhi had reservations based on the lack of urupa being formally identified.

Re-establishment was not in the mind of Tuhourangi whanui tonu as the possibility of returning to Te Wairoa was not thought to be a real possibility due to the area being considered He wahi parekura. However, after 1986 times have changed.

Now due to the complexity of the resource consent process Manawhenua have adopted a conservative approach in preferring not to promote the project tribally until resource consent is obtained and ideally until funding is properly in place.

For these reasons, the manawhenua and the Trustees of Rotomahana Parekarangi 6J2B3 have maintained a cautious and conservative approach bearing in mind the size significance and complexity of the project and the development of other proposals in the vicinity.

#### **5.1.2 Hui a Whanau over the last 25 years**

There have been a number of hui whanau over the last 25 years. These were reporting hui on progress. This culminated in another development proposal being pursued on the same block and in the same place. This project was more touristic orientated.

That earlier project obtained resource consent but failed for want of a funder. That project did not include a marae. This delayed this project by 15 years, however matters covered in this earlier consent proceeding and the investigations conducted were of value and assistance in the preparation of this latest resource consent application.

#### 5.1.3 Annual General Meetings Reports – over the last 7 years

All Annual General Meetings over the last 5 – 7 years have regularly reported on progress in respect of this project. The Trustees have been open and transparent with the manawhenua in this regard and the Manawhenua have left the development in the hands of the Trustees appreciative of the reports that have been presented. The outcomes of those AGMs have been incorporated in this CIA.

#### 5.1.4 Manawhenua Marae Papakainga Housing Survey & Visitors Centre Survey – Report

Last year the Trustees commissioned a Marae Papakainga Housing and Visitors Centre Survey encompassing a wananga a whanau to consider their views on what they thought of the Marae proposal, the Papakainga Housing proposal and the visitors centre.

The Report on the survey and the outcomes of the survey were reported on to the AGM and the recommendations were adopted. The survey included the types of housing although the types of housing were not fully covered.

The Trustees have proposed three principal house purchase options;

1. Outright sale of sections only
2. Sale of House and section fully built
3. Rental of House only - tenancy
4. Rent to buy – deferred ultimate ownership.

#### 5.1.5 Specific Interviews – Kanohi ki te kanohi – Kaumatua Koeke o inaianei

Specific Interviews were carried out with Pare Hakaraia, Huru Maika, Tony Wihapi Rangipuawhe Maika. Anaru Rangiheuea was also consulted but was unable to support due to another project he was proposing for Upper Tarawera Road.

#### 5.1.6 Various Onsite inspections – Environmental, Flora, Fauna

There have been various on-site inspections carried out by Trustees and special advisors to the Trust. The reports of the special advisors are attached in support of the resource consent application.

#### 5.1.7 Historical Research – Tarawera Eruption – Te Waiata moteatea - Te ra te Auahi

The Trustees commissioned historical research on Tarawera and the 1886 eruption and asked for that historical research cover the pre-European 1840 period, the pre-eruption period 1840 – 1886 – when international tourism was in its prime, and post 1886 – early 20<sup>th</sup> century and 21<sup>st</sup> century to date. This is a work in progress.

#### 5.1.8 Whakapapa Research of Manawhenua

The Trustees have also commissioned research into the manawhenua of Rotomahana Parekarangi 6J2B3 and the whanau links to this block and what families of Tuhourangi are represented in Rotomahana Parekarangi 6J2B3 and the connection of the manawhenua to Tuhourangi me ona hapu karangarangatanga.

#### 5.1.9 Conclusion

This cultural impact assessment has been based upon these various forms of kanohi ki te kanohi korero and consultation with Kaumatua Koeke many of whom have now deceased and with current Koeke Kaumatua and Whanau of the Matua Tupuna.

We are comfortable that the methodology adopted was practical, realistic, and robust and that this Report adequately reflects the integrity of the methodology adopted.

### 5.2 Identification of Cultural Impacts

#### 5.2.1 Positive Cultural Impacts

As assessment of the above-described development has identified the following positive cultural impacts and outcomes for the Trust and Tuhourangi.

##### **1. *Strengthening the relationship of Tangata Whenua to their whenua***

It is our view that the development will strengthen the relationship of Tangata Whenua to their whenua. The specific land block belongs principally to the whanau of Te Keepa Te Rangipuawhe.

It is proposed that a primary component of the development is the establishment of a Tuhourangi marae for the use and benefit of all Tuhourangi and its constituent hapu.

It is intended that a specific area be set aside and gazetted as a Tuhourangi Marae for the benefit of all nga hapu o Tuhourangi and for whanau who through circumstances may need a marae for their use as a place of tangihanga, hui wananga holiday venue and other celebratory occasions.

##### **2. *Reconnecting Tangata whenua to wahi tapu and places of significance***

The development is intended to reconnect Tuhourangi whanui tonu unto itself. Tuhourangi descendants live all over the country and abroad including Australia, United Kingdom, United States of America, and Asia. Many of them have lost their association to their own whanau and hapu subtribal marae and this will provide them with a sense of identity.

This marae is intended for all the whanau – without in any way diminishing the existing marae to which they may already connect. This will be a Tuhourangi inclusive marae.

##### **3. *Reinforcing tribal whakapapa to the whenua***

The development is based totally upon Tuhourangi whakapapa. The primary whakapapa relates to that of Te Keepa Te Rangipuawhe however the marae will be based upon Tuhourangi and his connections to other tribes.

The development envisages He Whare Whakairo which will reflect the full history whakapapa exploits and pakiwaitara of Tuhourangi and his sons – Taketakehikuroa and

Uenukukopako.

It is proposed that the NZ Maori Arts and Crafts Institute will be commissioned to complete the carving history of Tuhourangi from demigod Puhāorangi and Kuraimonoa to Atua Matua Tamatekapua Rangitahi and Kawatapuāurangi and Tuhourangi to Taketakehikuroa to Wahiao and to Uenukukopako to Whakaue Kaipapa and Tawakeheimoa and Rangiwewehi. This is a full Te Arawa whakapapa which will be reflected in Te Whare Whakairo.

Furthermore, the development will connect Tuhourangi to other tribes including to Tapuika through Rakeitahaenui and Ngati Kahungunu through Rongomaipapa and through Waikato Tainui through Tumunui with Tuhourangi acknowledged as Te Whare Tangata o Te Kiingitanga. Ngati Pikiāo being Te Ure Tarewa o Te Kiingitanga.

The Whakapapa will be totally reinforced through this development project and specifically through the whakairo of the Whare.

**4. *Reconnecting Tangata whenua to their waahi tapu and mahinga kai***

The development is all about reconnection. There has been no significant association with the land over the last 100 years. It has been treated as a place of commemoration and mourning.

The waahi tapu that surrounds Lake Tarawera have already been identified. The wahi mahinga kai includes the blocks next door that belong to Ngati Hinemihi – Rotomahana Parekarangi 6J2B4 – the former site of Hinemihi.

The development has identified sites suitable for Pa Harakeke and Rongoa Maori plantings. These are not “mai ra no” wahi mahi harakeke and Rongoa but will be cultivated to provide raw material for the mahinga whariki.

Prior to the eruption Te Wairoa boasted a working Flour mill fed by Te Wairoa Stream. It is not envisaged to re-open the Flour mill however the development will lead to a re connection with Te Wairoa Stream and Te Wairoa Waterfall which runs alongside the property.

Te Wairoa stream runs along Rotomahana Parekarangi 6J2B3 and gives us access to a water supply to enable a Pa Harakeke to be established to grow and supply Harakeke to the Training School to be run from the visitors centre.

**5. *Assist in the development of a strong tribal identity and rangatiratanga.***

The development is totally about the restoration and re-establishment of the cultural identity of Tuhourangi as a tribal entity within Te Arawa. There is an existing Tupuna whare named Tuhourangi in Otukawa Te Puke to the south of the Rangiora Freezing Works. The underlying manawhenua is Tapuika.

However, post Eruption a hapu of Tuhourangi – Ngati Uruhina – who resided around Te Wairoa at the time of the Eruption moved to Te Puke to be closer to their Tapuika kin – Ngati Moko of Tapuika. The inter-marriage led to the creation of a specific tribal group - Ngati Moko Tuhourangi.

Te Keepa conceded to the request of Rangawhenua Kerei to build and name the Meeting

House Tuhourangi at Otukawa in Te Puke. The concession was granted with reservation – that at some time in the future people will pass the marae and ask what Tuhourangi is doing there – in Tapuika.

The development will require a formal tono to Tuhourangi ki Otukawa for the transfer of the Tupuna name back to TE Wairoa. This Tupuna has just been subject to being rebuilt but is not yet finished with such date not yet determined.

At the appropriate time namely after all resource consents have been obtained and after appropriate Tribal Consultation then approaches will be made seeking transfer of the name and replacing Tuhourangi with Taketakehikuroa who is the son of Tuhourangi Tapuika - that wife being Rakeitahaenui.

The development is totally about the re-establishment of Tuhourangi mana pride and prestige in the heartland of Tuhourangi – Te Wairoa and within the broader Rotomahana Parekarangi Block.

The primary purpose of the development is to establish a unified tribal base for the Tuhourangi tribe. It is currently made up of a number of hapu and marae situated in various parts of Rotorua – Whakarewarewa Ngapuna Peka Block Kapenga M Block and Tumunui Block and Te Puke.

#### Te Whanau o Te Whenua – Rotomahana Parekarangi 6J2B3

The beneficial owners of the whenua are also very conscious of their responsibilities to their papa Tupuna to provide a base for them re uniting those ancestors with the whenua which they left post Eruption in 1886.

The reconnection of these tupuna to the whenua through reinterment will reinforce the reconnection of Tuhourangi the tribe through this marae complex and papakainga development.

#### **6. *Tuhourangi Whakawhanaungatanga reinforced***

The gazettal of the Marae as a Tuhourangi Marae for the benefit of the whole of Tuhourangi me ona hapu karangarangatanga is important to the re-establishment of Tuhourangi whakawhanaungatanga.

The Marae Trustees will be appointed by the various hapu that currently make up Tuhourangi and who will comprise Te pae tapu o Tuhourangi whanui tonu.

The beneficial owners of the block are sincere in their desire to ensure that the Marae is for the benefit of all Tuhourangi, and their gifting of their land is made free of condition or encumbrance. They will retain some Trustees on the Marae Trust.

The Papakainga component of the development is intended to strengthen Whakawhanaungatanga. The Trustees are aware that the allocation of the housing sites and homes will not necessarily be just to beneficial ownership but will be available to any Tuhourangi who might be able to afford to purchase.

The provision of homes is seen as a step towards Whakawhanaungatanga. The support and promotion of the Marae Tribal complex will be an important expectation of those who obtain residences. They will be the important ahi kaa.



**7. Reinforce tribal bonds and kinship – honohonotanga, whakapapa**

Te Tupuna Whare is intended to be fully carved reflecting the rich tribal history of Tuhourangi and his connections to his other waka and whanaungatanga. Tuhourangi Whakapapa will be reinforced and the whakairo will complement the verbal and oral histories of the tribe currently recorded. It is proposed that Tuhourangi tribal wananga will be held in this whare wananga, whare whakairo, whare runanga.

A large number of Tuhourangi now reside in the principal cities of Auckland, Hamilton and Wellington. A large number of Tuhourangi now reside in Australia having left their sub-tribal hapu and Marae some years ago. A large number of Tuhourangi whanau reside in England and the United States of America as well as Asia.

This complex will reinforce the Tuhourangi whakapapa for generations to come and give those whanau a place of refuge and place of belonging and a sense of Tuhourangi tribal identity.

**8. Assist in developing Whanau & Rangatahi connection to their whenua**

The Papakainga component of the development is significant as it will provide whanau who will keep the marae alive and living and warm. They will be the kaitiaki – te ahi kaa – whose role will be to inhabit the whenua and keep the Marae and tupuna whare ready and available and welcoming to the whanau of Tuhourangi whanui tonu and Manuhiri tuarangi.

The Papakainga will also strengthen the whakapapa and tribal identity as the Papakainga will be available to Tuhourangi whanui tonu who wish to reside there however priority will be given to the beneficial owners and their descendants.

The Papakainga will provide the basis of Manaakitanga. He roopu kapahaka will be established to entertain and keep the marae as a welcoming venue. The whanau of the Papakainga will be expected to assist in the receiving of manuhiri mai te motu mai te ao at appropriate remuneration.

**9. Assist with the identification and development of significant sites**

The development itself will assist in the identification and restoration of the original Cottage of Te Keepa. This is the principal significant historical site. To the best of our knowledge there are no specific wahi tapu. All victims of the eruption were located, and their bodies were taken to Tamatekapua for tangihanga.

The block has remained untouched and undeveloped except for the severance on the eastern side of Tarawera Road which has been used by the Buried Village as part of its tourism experience. It has been leased by the Manawhenua to the Buried Village and has provided a minimal income to the kaitiaki and beneficial owners throughout the years.

The former site of Hinemihi Tupuna whare is next to the eastern severance on Rotomahana Parekarangi 6J2B4 which belongs to Ngati Hinemihi.

**10. Assist in the development of tribal Mana Maori Motuhake**

*Ko Atua Matua ka puta ko Houmaitawhiti  
Mai Houmaitawhiti ko Tamatekapu  
Mai Tamatekapua ko Kahumatamomoe  
Mai Kahumatamomoe ko Tawakemoetahanga*

*Mai Tawakemoetahanga ko Uenukumairarotonga  
Mai Uenukumairarotonga ko Rangitihī  
Whakahirakira itakaia tona upoko ki te Akatea (Rangitihī the Chief who wrapped his head  
wounds with branches from the Akatea tree)  
Ka moe a Rangitihī ki a Papawharanui - tona puna tuawha ka puta  
Ko Tuhourangi – Te Tamaiti Te Whakapaakanga*

Tuhourangi has a number of existing hapu the principals being;

- Ngati Hinemihi was established around Ngapuna and its environs.
- Ngati Wahiao established around Whakarewarewa and its environs,
- Ngati Taoi, established around Tarawera.
- Ngati Uruhina established around Waitangi Otukawa Te Puke

There are many other hapu known but without physical existence Ngati Tuohonoa, Ngati Tumatawera. This Development will only enhance Te Mana Whakapapa o Tuhourangi me ona hapu karangaratanga and will lead to a strengthening of the tribe as a whole and as a functioning and significant Iwi within the Te Arawa Confederation.

This development is important to the enhancement of Tuhourangi Tribal Mana Motuhake. Tuhourangi was seen as the favored son of Rangitihī whakahirahira – the progenitor o nga pumanawa e waru o Te Arawa and he is believed to have been chosen his youngest son - Tuhourangi - to take over his leadership responsibilities.

Tuhourangi is at the peak of Te Arawa tribal whakapapa and is one of the most significant and eponymous ancestors of Te Arawa waka. His uri are Taketakehikuroa Tuteamutu Uenukukopako, Whakaue Kaipapa, Tawakeheimoa, Ngararanui Tuteiti Tutanekai Rangiwewehi just to name a few.

In our view this development will undoubtedly enhance Tuhourangi Tribal Mana Maori Motuhake – both as a Tupuna Matua and as a living and proactive Te Arawa Tribal entity.

## **11. Economic and social implications**

Te Wairoa is taken as the birthplace of Maori Tourism in Aotearoa NZ. Its place as one of the leading tourist attractions in the Aotearoa NZ was destroyed on the night of June 10, 1886. Tuhourangi is now wishing to reconnect with its roots of 135 years ago and it is this development that will facilitate this return.

This return and reconnection are also based upon tribal sustainability with the marae and the Buried Village providing economic support through the Visitors Centre and Marae, Hinemihi Tupuna, the Tarawera Walkway, Hot Water Beach and various other recreational activities providing some economic return to the beneficial owners and to Tuhourangi tribe.

This is the vision – Ko tenei te moemoea o oku Koroua Whaea Kuia – Kia tu tika ano a Tuhourangi I roto I tona ake mana Rangatira kia mau kai u Kia eke. This was the dream of our Tuhourangi pakeke that Tuhourangi should one day stand in its own Mana Rangiratanga – Stand Strong, Stand Firm and Succeed.

## **12. Integrate and align with other Associated Projects and Interests in the vicinity**

### **a) Hinemihi ki Ingarangi – Cultural & Historical perspective**

**Brief Outline:**

This aspect is not part of the development however with the imminent return of Hinemihi Tupuna Whare then the development would work in well with the return of that whare to its original site on Rotomahana Parekarangi 6J2B4.

However, this matter relates to the neighboring block - Ngati Hinemihi and Rotomahana Parekarangi 6J2B4. What is of note however is that Hinemihi Tupuna whakairo are currently in the course of being re-patriated to Aotearoa NZ.

However, Ngati Hinemihi ki Rotorua has not yet determined where they will be returned to. The timing is most significant and re connecting this Tupuna Whare with her original home base would in our view be not only momentous but would be appropriate. The return of Tuhourangi and Hinemihi contemporaneously would be incredible.

**b) Tarawera Walkway Trail – An Economic & Recreational perspective**

**Brief Outline:**

The development would work very well with the existing Tarawera Walkway Trail. It could provide the commencement of the Trail and could lead to The Walkway covering Te Wairoa Stream and Te Wairoa Waterfall enroute to Punaromia on Lake Tarawera.

Area involved	None
Buildings:	None although a Walkway maybe involved
Purpose	Recreational – Tribal and Non-Tribal
Current Activities:	Walkway & Boating activities
Photos	YTB Attached

It is envisaged that the Tarawera Walkway experience will commence at the Tribal Complex leading to Lake Rotomahana and around Lake Tarawera. The Trust will work in with existing Taxi Operators and Kayak hirers to support the Walkway and provide and additional income source.

**c) Hot Water Beach – at Base of Tarawera – An Economic & Recreational perspective**

**Brief Outline:**

Hot water Beach is currently an unexploited gem to be utilized by the Trust by way of water excursions to the Beach to the North of Lake Tarawera. This tour would take in other sites of cultural significance including Moura point where Memorial Cairns were erected in 1986 in memory of those who died in the Tarawera Eruption. This will be an additional Income source for the Trust.

Hot Water Beach is at the base of Tarawera track. It is a real gem unutilised but most used by Tarawera lake boat owners and families.

Incorporating a service to Hot Water Beach would be a good economic activity and the development would do well to complement this unidentified and unutilized asset.

Area involved	None
Buildings:	None but boats may be required
Purpose	Economic & Recreational use
Current Activities:	Boating Kayaking and Recreational

### 5.1.2 Potential Adverse Cultural Effects

#### 1. **Earthworks**

The impact of the development upon the physical landscape we have been advised to be minimal.

#### 2. **Disturbance of Urupa or Waahi Tapu**

The activities will have no significant impact upon any waahi tapu or urupa as we believe there are none in the area proposed to be developed.

#### 3. **Adverse effects on cultural values**

As outlined above in 5.1 the proposed development will help to restore and enhance the values associated with the area by strengthening the relationship of tangata whenua to their whenua, reconnecting tangata whenua to wahi tapu and places of significance and assisting in the development of a strong tribal identity and rangatiratanga.

Is it considered that the development reflects and aligns with the former uses of the site prior to the eruption and will be completed in a manner that respects the historic events that occurred onsite. We believe that there will be no adverse effects on cultural values, only positive.

## PART 6 Planning Framework from a Cultural Perspective

### 6.1 National

#### 6.1.1 The Resource Management Act 1991

This CIA Report relies upon Part 2 of the RMA and specifically;

##### 1. **Section 6 - Matter of National Importance**

Te Wairoa can be taken to be the birthplace of Maori Tourism is Aotearoa NZ. This development is a matter of national importance in our view.

The role that Te Wairoa played prior to the eruption of Tarawera and the destruction of the Pink and White Terraces was pivotal in the development of International Tourism for which Aotearoa NZ can be proud.

The Geothermal experience and the Maori Cultural experience were combined to produce and experience unequalled in the world, and which is now encapsulated in the Te Puia Experience.

This development seeks to reestablish Tuhourangi as a leader in the field of International manaakitanga and the development seeks to showcase Tuhourangi in its own environment with its own history.

##### 2. **Section 8 – Treaty of Waitangi**

The development relies upon Part 2 Section 8 of the RMA in that it asks the Regional and Local Authority to take into account the Principles of the Treaty of Waitangi when determining the Resource Consent Application to which this CIA Report is supporting.

#### 6.1.2 The Treaty of Waitangi - Te Tiriti o Waitangi – Nga Matapono e toru

This CIA Report relies upon the Principles of Te Tiriti.

- **Wahanga Tuatahi – Kawanatanga**  
The development reflects the intention of Tuhourangi to reestablish a level of its own tribal kawanatanga not seen since the Eruption or the early 1900s.
- **Wahanga Tuarua – Rangatiratanga**  
The development reflects the desire of Tuhourangi to promote its own identity by strengthening the tribal whakapapa by way of He Marae mo te katoa o Tuhourangi. This is an exercise of Tuhourangi Tino Rangatiratanga.
- **Wahanga Tuatoru - Oritetanga**  
The development seeks to utilize to the fullest the Crown services and agencies that are available to Te Motu both Maori and Pakeha and seeks to use those resources to reestablish Te Wairoa as an important Tourist Icon for Rotorua and Te Arawa.

### 6.1.3 Local Government Act 2002

This CIA Report relies upon Part 8 of the LGA 2002 and the authority it confers upon Local Authorities to make bylaws.

Section 145	Power of Territorial Authorities
Section 149	Power of Regional Councils

## 6.2 Regional

### 6.2.1 Bay of Plenty Regional Council

This CIA Report acknowledges the Bay of Plenty Regional Council as the appropriate Regional Authority and reference is made to the following critical document.

#### 6.2.2 *BOP Regional Policy Statement Document.*

Reference only is made to the following Policy Statements  
Policy 1W1B Enabling the development of multiple owned Maori Land  
Policy 1W2B Recognising matters of significance to Maori.  
Policy 1W 3B Recognising the Treaty in the exercise of functions and powers.  
Policy 1W 4B Taking into account Iwi and hapu resource management plans.  
Policy 1W 5B Adverse effects on matters of significance to Maori  
Policy 1W 6B Encouraging Tangata whenua to identify measure to avoid remedy or mitigate adverse cultural effects  
Policy MN 1B – Matters of National Importance  
Policy MN 3B Criteria to assess values and relationships in respect of Section 6 RMA

#### 6.2.3 *Tuhourangi Iwi Management Plan October 2010*

Plan is in progress only. This plan is a work in progress and has not yet been adopted by the Regional Council.

## 6.3 Local Territorial Authority – Rotorua Lakes Council

This CIA Report acknowledges the Rotorua Lakes Council as the relevant territorial authority and reference is made to the following;

### 6.3.1 *Rotorua District Plan – Te Mahere Matua o Te Kaunihera o Rotorua*

General Provisions  
Part 2 – Historical & Cultural Values  
Part 2 - Natural Environment Values

6.3.2 *Part 5 - Lakes A Zone – Sensitive Rural Management Area*

The Special Rules applying in respect to developments within this zone.

6.4 Other Relevant Issues

6.4.1 *Crown Compulsory Land Acquisition - post Eruption*

Post eruption the area was declared a disaster area and much of the Rotomahana Parekarangi block the land was acquired by the Crown under statutory authority.

The Crown's treatment of Tuhourangi post eruption leaves much to be desired however the tautoko and support of Te Arawa Iwi including Ngati Whakaue, Ngati Rangiwewehi, Tuwharetoa and Ngati Tamatera Ngati Maru of Tainui and Ngati Porou can only be described as incredible.

The concept promoted post Eruption was that the Eruption was divine retribution by God upon the Tuhourangi who had become consumed with commercialism and exploitation of the English visitors and that the Eruption was somehow richly deserved.

6.4.2 *Post Eruption re habitation of area by European*

It is noted however that European habitation in and around Te Wairoa and Lake Tarawera commenced circa early 1900s and the value of the residences in the vicinity are in the range of \$1.25 million to \$1.8million plus.

It is extremely pertinent to note that European Pakeha returned to Te Wairoa and Tarawera decades before Tuhourangi. The idyllic lakeside location and natural environment obviously provides and adds to the value.

The process by which the lands became sub divided and sold to European was caused by the Surveyors of the time who in the past had required of Maori to transfer valuable parts of the block to the surveyors in settlement of survey costs.

In this instance re habitation and re occupation of these residential sites along Te Mu Road would have been dictated by the Crown with the cooperation and consent of the local authority of the time further emphasizing the relationship between the Crown and Local Authority to the detriment of Tuhourangi. Tuhourangi Lands were converted (in both senses) and lost.

This development seeks to redress this serious inequity.

6.4.3 *150 years on Tuhourangi Commemoration – 2036 – Te Whakahokingamai o Tuhourangi ki Te Wairoa*

Tuhourangi has survived. It has a future. That future is incorporated in the proper and strategic development of Te Wairoa which includes a Marae including He Whare Tupuna Whakairo, He Papakainga mo nga whanau I whakapapa ki Tuhourangi and a Visitors Educational Recreational Centre for Manuhiri Tuarangi and waewae tapu.

This development will allow Tuhourangi to advance its own cultural interests

its mana rangatiratanga and whakapapa tikanga and Kawa and other responsibilities and it will also provide opportunity to advance its own economic interests in the post covid environment.

## Part 7 Cultural Monitoring Protocols for the Development

### 7.1 Cultural Monitors

This report calls for the appointment of Cultural Monitors from the Manawhenua to be appointed to ensure proper compliance with the Maori Cultural protocols referred to in this report.

They will be present at all significant points in the development of each stage of the developed described above in Part 4 and ensure strict compliance with Tikanga and Kawa throughout the building project until completion and opening.

### 7.2 Cultural Health Indices

These indices will ensure compliance with existing Health Monitoring criteria and standards to ensure proper monitoring throughout the course of the overall development and in respect of the following:

#### 7.2.1 Any Waahi Tupuna

Site and locations specifically identified on any relevant plan.  
Sites to be appropriately protected and monitored.  
Sites to be acknowledged in the development plan.  
Adequate evidence of compliance

#### 7.2.2 Any Waahi Tapu Waahi nunui

Site and locations specifically identified on any relevant plan.  
Sites to be appropriately protected and monitored.  
Sites to be acknowledged in the development plan.  
Adequate evidence of compliance

#### 7.2.3 Any special Native Flora Fauna & Reserves

Site and locations specifically identified on any relevant plan.  
Sites to be appropriately protected and monitored.  
Sites to be acknowledged in the development plan as such.  
Adequate evidence of compliance.

#### 7.2.4 Any Waahi Mahinga Kai Waahi Pa Harakeke

Site and locations specifically identified on any relevant plan.  
Sites to be appropriately protected and monitored.  
Sites to be acknowledged in the development plan as such.  
Adequate evidence of compliance.

#### 7.2.5 Te Wai Maori – Tarawera Stream & Falls

Site and locations specifically identified on any relevant plan.  
Sites to be appropriately protected and monitored.  
Sites to be acknowledged in the development plan as such.  
Adequate evidence of compliance.

#### 7.2.6 Safe Access Roads – off Tarawera Road

Site and locations specifically identified on any relevant plan.  
Sites to be appropriately protected and monitored.  
Sites to be acknowledged in the development plan as such.  
Adequate evidence of compliance.

#### **7.2.7 Stormwater Sewage & Effluent Discharge – Onsite/Offsite**

Site and locations specifically identified on any relevant plan.  
Sites to be appropriately protected and monitored.  
Sites to be acknowledged in the development plan as such.  
Adequate evidence of compliance.

#### **7.2.8 Utilities & Services Connections**

Site and locations specifically identified on any relevant plan.  
Sites to be appropriately protected and monitored.  
Sites to be acknowledged in the development plan.  
Adequate evidence of compliance

### **7.3 Special Tikanga and Kawa**

Special Tikanga and Kawa shall be adopted in the following situations;

1. Karakia in respect of Commencement of any and all buildings
2. Karakia Hiki tapu when and if appropriate or necessary
3. Karakia Whakanoa when and if appropriate of necessary
4. Cultural Monitors to be on site when appropriate or necessary
5. In the event of death or accident on site appropriate karakia

## **8.0 Conclusion**

It is our view that this Cultural Impact Assessment Report has brought a wider and broader cultural perspective to this development. This is one of the most significant comprehensive and complex projects undertaken by Tuhourangi in the last 100 years. We believe that the Cultural Impact Assessment has adequately explained the effects of this project on the Manawhenua and on Tuhourangi as a whole.

We take the view that the decision makers should be made aware of the significance of this project from a Manawhenua Tuhourangi whanui and Te Arawa wide perspective.

It is very rare that a tribe is given the opportunity to develop itself in a way and manner as proposed in the development. It is an opportunity that cannot be taken for granted and cannot be missed. It has been 25 years in the making.

The Cultural Impact Assessment is broader than the immediate effects upon the whenua Waahi Tapu Waahi mahinga kai Urupa and Waahi taonga ki te tangata ki te hapu ranei. The implications of this project go well beyond the immediate physical environment and the immediate locality of Te Wairoa at Tarawera.

It is the hope that the Cultural Impact Assessment has conveyed the broader ramifications and implications and that those ramifications have been adequately conveyed in a clear unequivocal and dispassionate manner to the decision makers.



# Hynds Box Underpass

Technical Guide R4.5

Hynds precast concrete box culvert units simplify the construction process, providing a fast and cost-effective solution that is often more economical than the in-situ construction option.



03.15 | RUPAL | R4.5 HYNDS BOX CULVERT UNDERPASS SYSTEM

## Applications

Stock underpass for rural highway crossings

Pedestrian tunnels

Stormwater culverts

Vertical chambers

## Product Attributes

Large range of strengths and opening sizes

Customisable for special conditions or shapes

Simplifies preparation of site plans for council approval

Design options available for high-water table installation issues

Fast and cost effective installation method

## Approvals/Standards

Traffic loading is to HN-HO-72 NZTA load criteria

## Quality

ISO 9001:2008 Quality Management Standard

*We are the supply partner of choice for New Zealand's rural industry, specialising in water and infrastructure based solutions.*



Hynds precast concrete box culvert units simplify the construction process, providing a fast and cost-effective solution that is often more economical than the in-situ construction option.

### Design Specifications

- Hynds precast reinforced box culverts are made to order.
- A variety of opening sizes are available which suit most farm types and stock quantities.
- Stock underpasses for rural crossings: The size of stock underpasses is normally determined by the size of the herd that will use the underpass or the machinery that will be moved through the underpass.
- Stormwater culverts: Opening width and height is determined by the hydraulic requirements of the specific site. Hydraulic calculations can be performed by referring to the CPAA "Hydraulics of Precast Concrete Conduits Manual".
- Pedestrian tunnels: Opening size is to be determined by the tunnel space desired. For Pedestrian Tunnels, this is usually dependant on the NZ Building Code.

**TABLE 1 Underpass Sizes**

Width (mm)	Height (mm)		
	2000	2500	3000
2000	✓	✓	✓
2500	✓	✓	✓
3000	✓*	✓*	✓
3500	✓*	✓*	✓
4000	✓*	✓*	✓

**Note: Standard unit length is 1550 mm**  
 \*Common installed sizes. Refer to Technical Guide D8.1 Box Culverts for full range.

### Wingwall Options

- Hynds supply wingwall panels with fixing holes, and bolt sets so that the panels can be fixed to the box culvert.
- These wingwall panels have reinforcing starter bars protruding out the bottom of the front face so they can be cast into a reinforced concrete apron that is poured on site by installing contractor.

### Headwall Options

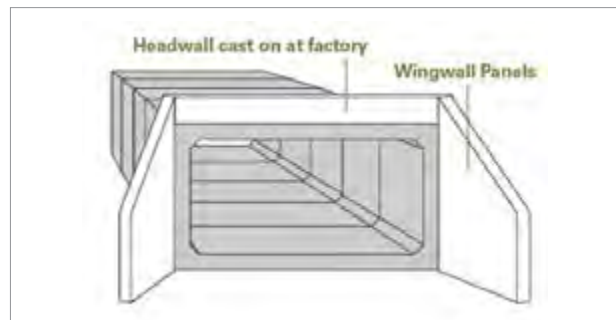
- Hynds will supply the end units of the underpass structure with suitable headwalls as part of the box culvert unit if requested to do so.

### Culvert Strength

- Culvert strength is dependent on earth loads, highway loads and cover to the finished culvert.
- Hynds Technical Services Department will design the precast concrete box culverts to suit the specified highway loading and cover.

### Concrete Surface Finishes

- Hynds Box Culverts are generally manufactured to F3/ F4 finish as detailed in NZS3114:1987 – Specification for Concrete Surface Finishes. This finish is typical of structures which will not be seen or are only going to be observed from a distance.
- Higher classes of finish may be required in elements subject to frequent observation (F4), subject to frequent close scrutiny (F5) or elements with painted surfaces. In these instances the finish required must be advised at time of quotation.
- Units are designed to corrosion protection exposure classification B2 (refer to NZS:3101).
- Consult engineer where exposure classification C or U is required (seawater tidal/splash zone or similar aggressive environment).



**FIG. 1** Standard Culvert or Rural Stock Underpass

### Installation

As per NZ Building Code, please check with your local council for building resource consent requirements. Culvert and wingwall units are delivered to site by our trucks. Off-loading can be arranged if required. Culvert installation should be done by an experienced contractor who understands the necessity of jointing, bedding and backfilling the structure properly as well as the highway safety requirements applicable to such an installation.

## Handling

- Box culvert units are normally supplied with swiftlift anchors cast into the top of each unit. Appropriately rated chains and lifting beam must be used when handling the units.
- Lifting anchor positioning and lifting equipment specifications can be supplied upon request.
- All Hynds Box Underpass units incorporate Swiftlift lifting anchors for safe lifting and must be used with the correct lifting clutch.
- Hynds Pipe Systems has designed and manufactured Box Underpass units with a minimum dynamic factor of 1.2. This dynamic factor requires that all the following conditions are observed when lifting, moving or placing the units:
  - a. Lifting with mobile plant (such as an excavator or similar) where equipment is specifically exempt from the requirements of the PECPR Regulations 1999, subject to the conditions outlined in the New Zealand Gazette, No. 104, September 2015 and
  - b. Lifting, travelling and placing over rough or uneven ground where anchor failure is not anticipated to cause harm or injury, by adopting procedures such as:
    - I. Transporting the element as close as practical to ground level (300mm recommended)
    - II. Establishing and maintaining exclusion zones
    - III. Transporting only precast concrete elements that are unlikely to topple if they were to hit the ground
    - IV. Inspecting lifting anchors both after transportation and before final lifting into place

Refer to "Safe work with precast concrete - Handling, transportation and erection of precast concrete elements" published by Worksafe New Zealand (October 2018)

Shock loads resulting from travelling with suspended Box Underpass units over rough terrain and uneven ground may exceed design, dynamic and safety factors of the lifting systems. It is essential that care is taken during lifting and transporting as additional stresses could result in anchor failure.

## Basic Bedding Preparation

- Sufficient foundation support and backfill compaction is required to prevent settlement of the imported layers conduit after installation.
- The bedding must be able to support the full load of the installed culvert, its contents, and the loads above the culvert. For this reason the box culvert should be laid on compacted granular hardfill to the specified line and gradient.
- Bedding design for a box culvert conduit should be undertaken by a local consulting engineer as local knowledge of ground conditions is important to ensure a successful installation.

- As a general guide, the compacted thickness of a basic bedding over the full width of the trench can vary between 150 to 250 mm (depending on culvert bearing loads) with compacted layers not exceeding 150 mm thick.
- Trench width for most installations should be equal to the external width of the culvert plus 600 mm.
- Local soft spots in the trench must be excavated and the voids filled with well compacted hardfill to provide uniform support under the entire structure. This must provide a bearing capacity of a minimum of 100kPa. Failure to do so could result in settlement of the units at a later stage.

## Jointing

- Hynds Box Culverts are manufactured with the quatro joint which together with the dog bone connector locates and locks adjacent units together.
- Joint gaps will vary from 5 to 20 mm and in most cases can be left open.
- Joint sealing can be formed with the use of butyl mastic sealing strips, epoxy, sand-mortar mix, or silicone sealant. Contact your local Hynds Sales Branch for these products.

## Laying

- A box culvert line is usually laid from the downstream end with the sockets facing upstream to receive the next culvert to be laid.
- The box culvert units should be inspected before laying to ensure that the jointing surfaces are clean.
- The unit is then lowered carefully onto the prepared base, aligning the spigot with the socket of the unit already laid.
- Loose surface bedding material must not enter the joint space between the units – particularly along the bottom – during positioning of the unit.
- If any adjustment of level is necessary, remove the box culvert, adjust the surface layer of the bedding and place again. Do not use local packers to adjust the level.
- Hynds Box Culverts are manufactured with our exclusive Dog Bone Connector System. The units can then be tied together on site by a specialist contractor once the units have been installed. Recommended practise is as follow:
  - Place first box culvert into required position.
  - Using the crane, position the second culvert as close as possible to the previously installed culvert, and whilst being supported by the crane pull the culverts together with come-alongs attached to the internal swiftlifts.

**Note:** DO NOT use the dog-bone connectors to pull the culverts together.

  - Line up two half dog-bone connector recesses.
  - Place threaded rod connecting set in groove.
  - Tighten nuts equally at each end using a socket wrench and an  $\phi$  16 set to a maximum torque of 100Nm (standard use).
  - Fill recess with Sikagrout 212 or equivalent.
  - See Figures 1-4 for visual steps.

- Alternatively Hynds Box Culverts can be manufactured with a duct in each corner. The units can then be bolted together or post-tensioned on site. Recommended practise is to insert the tie rods as the first unit is placed and push through subsequent units as they are installed.

### Dog Bone Connector Jointing System:

Hynds Box Culverts are manufactured with our exclusive Dog Bone Connector System, the ideal solution for tying together culvert sections. This system combined with the preformed Quatro joint allows a fast and accurate lock of adjacent units.

### Backfilling

- Backfilling should commence as soon as possible after the box culverts have been laid.
- Fill the trench to the level of the top of the culvert working evenly on each side.
- Use selected backfill material well compacted in layers not exceeding 200 mm thickness.
- Do not use heavy vibratory equipment.
- Continue to fill the culvert conduit in well compacted layers
- Do not run heavy rollers or construction equipment over the culvert conduit without checking beforehand that the units are designed to withstand these loads.

### Also see

Technical Guide D8.1 Hynds Precast Box Culvert for additional information.

## Installation:



**FIG. 5** Place first culvert into required position



**FIG. 6** Place the next culvert as close as possible to desired position and then pull into correct position with a come-along, connected to the swiftlifts in the culvert. Line up two half dog-bone connector recesses.



**FIG. 7** Place threaded rod connecting set in groove. Tighten nuts equally at each end, using a socket wrench to a maximum torque of:  
 Ø16 set: 100 Nm; Ø20 set: 125 Nm; Ø24 set: 150 Nm



**FIG. 8** Fill recess with Sikagrout 212 or equivalent.

**Branches Nationwide** Support Office & Technical Services 09 274 0316

**Disclaimer:** While every effort has been made to ensure that the information in this document is correct and accurate, users of Hynds product or information within this document must make their own assessment of suitability for their particular application. Product dimensions are nominal only, and should be verified if critical to a particular installation. No warranty is either expressed, implied, or statutory made by Hynds unless expressly stated in any sale and purchase agreement entered into between Hynds and the user.



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



  
R.W. Muir  
Registrar-General  
of Land

**Identifier** **258263**  
**Land Registration District** **South Auckland**  
**Date Issued** 29 November 2005

**Prior References**  
SAPR271/84

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**Estate** Fee Simple  
**Area** 11.4146 hectares more or less  
**Legal Description** Part Rotomahana Parekarangi 6J2B3 Block  
and Part Rotomahana Parekarangi 6J2B3  
Block

**Registered Owners**  
Maori Trustee

---

**Interests**  
6669179.1 Status Order determining the status of the within land to be Maori Freehold Land - 29.11.2005 at 9:00 am

Identifier

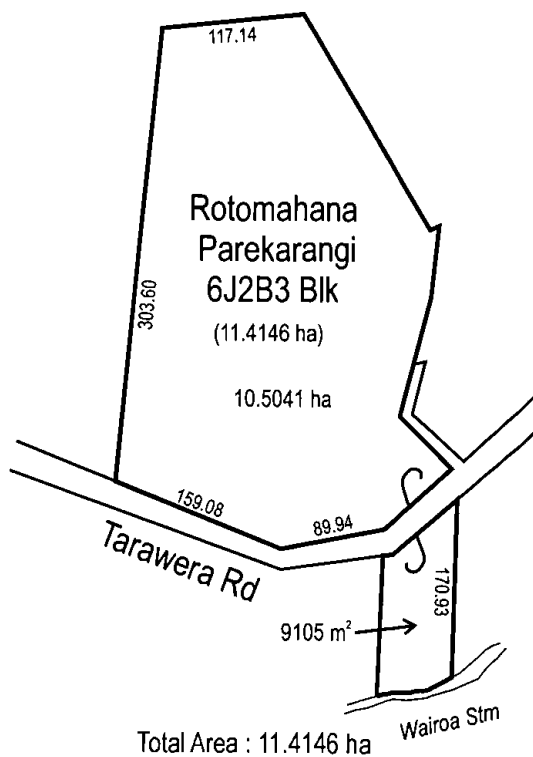
258263

Title Diagram 258263

Cpy - 01/01, Pgs - 001, 06/12/06, 13:16



DocID: 312239312



Total Area : 11.4146 ha

Identifier

258263



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



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**Record(s) of Title**

258263

Identified as potentially Maori Freehold Land

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

**From:** "Rebecca Burton" s7(2)(a)  
**Sent:** Tue, 1 Aug 2023 14:06:56 +1200  
**To:** "RLC Planning Services" <Planning.Inbox@rotorualc.nz>  
**Subject:** Resource consent application - Tarawera Road  
**Categories:** Hannah

Kia ora

Attached is a link for a resource consent application, due to size of the documents I have attached a dropbox link to allow this to be sent. Could you please let me know if this is an acceptable method of lodging an application and confirm that you have been able to access the documents?

<https://www.dropbox.com/t/bfwnbExzlwfcqHkd>

The application is a non-complying activity for the establishment of a Marae, Papakainga and a Cultural Centre on Tarawera Road, across from the Buried Village, within the Lakes A Zone.

The application intends to enable the return of the trust members, and wider Tuhourangi to their whenua. Due to the high cultural and local significance of the site, and the project itself to the Trust it is requested that the application is assessed locally and not transferred to a consultant. The Trust is concerned that this significance will not be a well understood and appreciated from a consultant who is not local to the area.

The Trust would like the opportunity to meet with Council to discuss this application and will be in touch in due course.

Nga mihi

**Rebecca Burton**  
*Planning Consultant*  
**BURTON CONSULTING LTD**

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s7(2)(a)