THOMSON SURVEY LIMITED

SURVEYORS AND RESOURCE PLANNERS

Our Reference: 10479.1 (FNDC)

21 March 2025

Resource Consents Department
Far North District Council
JB Centre
KERIKERI

Dear Sir/Madam

RE: Proposed residential development at 116 & 118 Marsden Road, Paihia – L & T Henwood

I am pleased to submit application on behalf of L & T Henwood, for a proposed residential development on land at 116 & 118 Marsden Road, zoned Commercial. The activity is a discretionary activity.

The application fee of $2,558 has been paid separately via direct credit.

Regards

Lynley Newport
Senior Planner
THOMSON SURVEY LTD

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

Office Use Only
Application Number:

Application for resource consent or fast-track resource consent

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

1. Pre-Lodgement Meeting

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

2. Type of Consent being applied for

(more than one circle can be ticked):

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

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

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

✓ **Yes** ◯ **No**

4. Consultation

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

If yes, which groups have you consulted with?	
Who else have you consulted with?	NZTA and NZ Fire and Emergency

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

5. Applicant Details

Name/s: T&L L&T Henwood Family Trust

Email: [redacted]

Phone number:

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

6. Address for Correspondence

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

Name/s: Lynley Newport

Email: [redacted]

Phone number:

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

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

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

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

Name/s: L & T Henwood

Property Address/ Location: 116 & 118 Marsden Road
Paihia
Postcode 0200

8. Application Site Details

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

Name/s: L & T Henwood

Site Address/ Location: 116 & 118 Marsden Road
PAIHIA

Postcode 0200

Legal Description: Lots 1 & 2 DP 39526 **Val Number:**

Certificate of title: NA1075/129 & NA1159/99

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

Site visit requirements:

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

Is there a dog on the property? ◯ **Yes** ✓ **No**

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

9. Description of the Proposal:

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

To construct 3 x 3 level residential apartments on land zoned Commercial, breaching indigenous vegetation clearance and fire risk to residential unit rules.

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

10. Would you like to request Public Notification?

◯ **Yes** ✓ **No**

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

(more than one circle can be ticked):

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

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

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

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

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

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

13. Assessment of Environmental Effects:

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

Your AEE is attached to this application (✓) **Yes**

13. Draft Conditions:

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

If yes, do you agree to extend the processing timeframe pursuant to Section 37 of the Resource Management Act by 5 working days? (✓) **Yes** ( ) **No**

14. Billing Details:

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

Name/s: (please write in full) Terri & Lesa Henwood

Email: [redacted]

Phone number:

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

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

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

Name: (please write in full) Lesa Henwood

Signature: [redacted]
(signature of bill payer)

Date 20/3/25

MANDATORY

15. Important Information:

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

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

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

15. Important information continued...

Declaration

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

Name: (please write in full) [redacted]

Signature: [redacted] Date 20/3/25

...de by electronic means

Checklist (please tick if information is provided)

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

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

L & T Henwood

PROPOSED THREE RESIDENTIAL UNITS

116 & 118 Marsden Road (SH 11), Paihia

PLANNER'S REPORT & ASSESSMENT OF ENVIRONMENTAL EFFECTS

Thomson Survey Ltd
Kerikeri

1.0 THE PROPOSAL

The applicant proposes to develop land at 116 & 118 Marsden Road (SH 11), Paihia to construct a 3 unit residential development at the northern (lower) end of the 'site'. The proposed design sees ground level garaging for each unit, with two levels of living area above. The units are to be physically connected, with separation by firewalls. The proposal will utilise two existing crossings to Marsden Road, one for entry and the other for exit. The vast majority of the site will be left in existing vegetation cover, only clearing what is absolutely necessary for construction and associated retaining structures.

The units will be designed to achieve the required noise attenuation for residential units in a Commercial Zone.

The application is supported by a full set of plans; an acoustic report; geotechnical report; civil engineering report; coastal hazard report; earthworks report; and results of consultation with the NZ Fire and Emergency Services . Refer to appendices. The proposal is described in more detail in section 5.0 of this planning report.

2.0 SCOPE OF THIS REPORT

This assessment and report accompanies the Resource Consent Application made by the applicant, and is provided in accordance with Section 88 and Schedule 4 of the Resource Management Act 1991. The application seeks land use consent to utilise commercially zoned land for residential use. **The activity is a discretionary activity.** The information provided in this assessment and report is considered commensurate with the scale and intensity of the activity for which consent is being sought. Applicant details are contained within the Application Form 9.

3.0 PROPERTY DETAILS

Location:	116 & 118 Marsden Road (State Highway 11), Paihia. Location Map is attached in Appendix 2.
Legal description & Titles:	Lots 1 & 2 DP 39526; with a combined area of 2388m^2; held in Records of Title NA1075/129 & NA1159/99, held together under the Building Act such that they cannot be sold separately – therefore being regarded as the "site" (combined area) for the purposes of this application. A copy of the titles is attached in Appendix 3 along with relevant legal interests.

4.0 SITE DESCRIPTION

4.1 Physical characteristics

The site has previously accommodated activities (house, unit and small motel) and more recently some temporary structures. It is currently vacant. The area adjacent to Marsden Road is level and in gravel, with two existing formed crossings to the road. The site then rises upwards to its top/rear boundary (southern). The sloped area supports mixed species vegetation.

The adjacent site immediately to the west has recently been consented for residential development, with that development now completed. The next site further west is also now under development, with retaining structures currently being established (at time of site visit in early November).

Across the road is off street parking, footpath, public reserve space leading down to Ti Beach at the base of the slope.

The site is serviced by connections to Council reticulated water supply and to the local stormwater network. As to the septic system, the application site (116/118) along with the adjacent #'s 120, 122/124, have all contributed to, and installed a system to meet the requirements of the land use consent issued to # 120. Total Plumbing (the installer) have confirmed this system would be sufficient for the application site's 3 apartments. In addition, the Civil Suitability Report, attached in Appendix x, confirms connection to the Council sewer scheme is proposed via the low-pressure connection that discharges to the manhole on David Crescent. More detail is provided in section 8 of this report.

A description of rock type and geology is contained in Geotechnical Report supporting the application.

Mapped Features:

The site is zoned Commercial in the Operative District Plan (ODP), with a Paihia Commercial Sub-zone of A4. It is zoned Mixed Use in the Proposed District Plan (PDP), with Coastal Environment overlay. The site is mapped as being partially within the Coastal Erosion Hazard Zones CHEZ 2 & 3) and is mapped by the NRC on-line maps as containing land that is erosion prone.

The site is not mapped as containing any areas of significant indigenous habitat; nor any biodiversity wetland; heritage sites; notable trees; archaeological sites or Sites of Significance to Maori (Sources: Far North Maps (including PDP) and NRC On-line Maps). The site's southern (back) and eastern boundaries are with the Nihonui Scenic Reserve, zoned Conservation in the ODP. That adjacent scenic reserve and the sloping portion of the application site, is mapped in the PDP as 'high natural character'.

4.2 Legal Interests on Titles

The only interests on the titles relevant to the proposal is the Certificate pursuant to Section 77 of the Building Act, holding them together such they cannot be sold separately. The proposed apartment structure will cross the title boundary, but because of the s77 notice, this is acceptable.

4.3 Consent History

The site formed part of the development consented by RC 2120234-RMALUC, issued in 2012. This consent was to extend the Paihia Beach Resort facilities to include 85 accommodation units, conference facilities, new restaurant and bar, and associated parking. The consent was not ever fully given effect to, and 116/118 Marsden Road was subsequently 'dis-associated' with any resort related development.

A small 60m^2 office structure was consented by BC-2008-1140 in 2007 – since removed. Prior to that BP120085, issued in 1982, consented the conversion of a basement into a self contained single unit; and BP413 consented the plumbing and drainage for same.

5.0 SCHEDULE 4 – INFORMATION REQUIRED IN AN APPLICATION

Clauses 2 & 3: Information required in all applications

(1) An application for a resource consent for an activity must include the following:	
(a) a description of the activity: *.*	Refer Sections 1 above and 6 of this Planning Report.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Section 8 of this Planning Report.
(b) a description of the site at which the activity is to occur:	Refer to Section 4 of this Planning Report.
(c) the full name and address of each owner or occupier of the site:	This information is contained in the Form 9 attached to the application.
(d) a description of any other activities that are part of the proposal to which the application relates:	The site is vacant. Application is being lodged for land use consent.
(e) a description of any other resource consents required for the proposal to which the application relates:	No other resource consents are required.
(f) an assessment of the activity against the matters set out in Part 2:	Refer to Section 9 of this Planning Report.
(g) an assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b), including matters in Clause (2): *(a) any relevant objectives, policies, or rules in a document; and* *(b) any relevant requirements, conditions, or permissions in any rules in a document; and* *(c) any other relevant requirements in a document (for example, in a national environmental standard or other regulations).*	Refer to Sections 8 & 9 of this Planning Report.
(3) An application must also include any of the following that apply:	
(a) if any permitted activity is part of the	No existing permitted activities exist – the site is vacant land.

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

Clause 6: Information required in assessment of environmental effects

(1) An assessment of the activity's effects on the environment must include the following information:	
(a) if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:	Refer to Section 8 of this planning report. The activity will not result in any significant adverse effect on the environment, noting the site's Commercial Zone. No other possible alternative locations were considered.
(b) an assessment of the actual or potential effect on the environment of the activity:	Refer to Section 8 of this planning report.
(c) if the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use:	Not applicable as the application does not involve hazardous installations.
(d) if the activity includes the discharge of any contaminant, a description of— *(i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and*	The proposal does not involve any discharge of contaminant.

(ii) any possible alternative methods of discharge, including discharge into any other receiving environment:	
(e) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:	Refer to Section 8 of this planning report.
(f) identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted:	Refer to Section 10 of this planning report. No affected persons have been identified.
g) if the scale and significance of the activity's effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved:	No monitoring is required as the scale and significance of the effects do not warrant it.
(h) if the activity will, or is likely to, have adverse effects that are more than minor on the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).	No protected customary right is affected.

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

(1) An assessment of the activity's effects on the environment must address the following matters:	
(a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:	Refer to Sections 8 and 10 of this planning report and also to the assessment of objectives and policies in Section 9.
(b) any physical effect on the locality, including any landscape and visual effects:	Refer to Section 8. The site has no outstanding landscape or natural character values, but a portion of the site, notably the vegetation covered slope, is mapped in the PDP as having 'high' natural character. Although coastal, insofar as proximity to water, the site is zoned Commercial, therefore with an expectation of built environment.
(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:	Refer to Section 8. The proposal will have only minimal, if any, effects on ecosystems or habitat.
(d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other	Refer to Section 8. The site has no aesthetic, scientific, historical, spiritual or cultural values that will be adversely affected by the proposal. The site has previously accommodated built development.

special value, for present or future generations:	
(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:	The proposal will not result in the discharge of contaminants, nor any unreasonable emission of noise.
(f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.	Refer to Section 6.0. The site's very bottom south western corner is shown as potentially being susceptible to a 100 year coastal hazard. No built development is proposed in this location. The site is not subject to a 10 year coastal erosion hazard. The proposal does not involve hazardous installations.

6.0 PROPOSAL IN DETAIL

Refer to plans in Appendix 1. The proposal is for 3 x three level apartments, joined together, with ground level garaging, living and master bedroom areas on the first floor, and office space and additional bedrooms on the second (top) floor. The proposal includes pitched roof structure. The ground level garage has smaller footprint than the first and second floors due to the building being 'stepped' back into the slope.

The Paihia Sub Zone A4 imposes a 3.5m building height for the first 6m from road boundary. The proposed apartment block is set further than 6m back from the road boundary so that the 3.5m height restriction does not apply. The building is designed to be no more than 10m high using the ODP's "mean ground level" method of calculating height.

Setback from road boundary	see above
Setback from side and rear boundaries	1.36m shortest setback – on eastern boundary
Building footprint (roof area)(m2)	413m^2
Impermeable coverage (m2)	413m^2 (additional) – to be attenuated
Excavation/filling volumes (m3)	760m^3 cut, with only minor fill. Cuts are expected to be in the order of 4.7m in height, being suitably retained. There is no excavation/filling rule in the Commercial Zone.
Excavation/filling area (m2)	The area of bulk excavation (the two bulk cut areas shown on the Earthworks plan) is 293m^2. The rest of the area between that edge and the road boundary as "area of ground disturbance outside of bulk excavation area" is 368m^2. There is no earthworks area rule in the ODP.

Entry and exit will be via the two existing crossings. Each apartment will have its own garage. Manouevring areas can be accommodated on site.

Vegetation clearance is being kept to the absolute minimum necessary to provide for a building platform and 3m buffer of cleared space at the rear. There are two reasons for

retaining vegetation, the first being to minimise any potential for ground slippage, and the second being to minimise any impact on habitat and visual character.

An Acoustic Report has been commissioned to show compliance with the ODP's Noise Mitigation for Residential Units in a Commercial Zone.

7.0 COMPLIANCE ASSESSMENT

7.1 Operative District Plan (ODP)

The site is zoned Commercial, with a Paihia A4 Sub Zone.

Rule	**Assessment**
Operative District Plan	
Zone Rules	
Permitted Activities	
7.7.5.1.1 BUILDING HEIGHT (a) The maximum height of any building in the following Commercial Zones shall be 10m: (ix) Paihia Area A4 except for a distance of 6.0m from the road boundary where the maximum height shall be 3.5m provided no more than 60% of the road boundary is occupied by a building (Map 91)	Permitted. The building is outside of the 6m from road boundary area, thereby allowing the 10m height limit to apply. "Mean ground level" is the method used for calculating maximum height and the building complies with the 10m height restriction.
7.7.5.1.2 SUNLIGHT No part of any building shall project beyond a 45 degree recession plane as measured inwards from any point 2m vertically above ground level on the nearest site boundary which adjoins a Residential, Coastal Residential, Russell Township, Rural Living or Coastal Living zones (refer to definition of Recession Plane in Chapter 3 - Definitions), except where a site boundary adjoins a legally established entrance strip, private way, access lot, or access way serving a rear site, the measurement shall be taken from the farthest boundary of the entrance strip, private way, access lot, or access way.	N/A as the site does not share a boundary with any of the listed zones.
7.7.5.1.3 VISUAL AMENITY AND ENVIRONMENTAL PROTECTION (a) Along boundaries adjoining any zone other than the Commercial or Industrial Zone, outdoor areas providing for activities such as	Will comply, where relevant. Part (a) applies to the eastern and southern boundaries because of the adjacent Conservation zone. However,

parking, loading, outdoor storage and other outdoor activities associated with non-residential activities on the site shall be screened from adjoining sites by landscaping, wall/s, close boarded fence/s or trellis/es or a combination thereof. They shall be of a height sufficient to wholly or substantially separate these areas from the view of neighbouring properties. Structures shall be at least 1.8m in height, but no higher than 2.0m, along the length of the outdoor area. Where such screening is by way of landscaping it shall be a strip of vegetation which has or will attain a minimum height of 1.8m for a minimum depth of 2m. (b) At least 50% of that part of the site between the road boundary and a parallel line 3m therefrom, which is not occupied by buildings or driveways, shall be landscaped. (c) Any landscaping required by these rules shall remain on the site for the duration of the activity and be maintained, and, if such landscaping dies or becomes diseased or damaged, shall be replaced.	the remainder of part (a) applies to non-residential activities and therefore does not apply to this proposed activity. The required landscaping will be provided, and maintained as required by (c).
7.7.5.1.4 SETBACK FROM BOUNDARIES (a) Where the road frontage of a site is identified as a `Pedestrian Frontage' on the Zone Maps .... (b) The setbacks from the road boundary within the Commercial Zone in Paihia as shown on Map 91 shall be as follows: (iv) Area A4: 0m provided no more than 60% of the road boundary is occupied by a building;	Complies. Part (a) N/A as the site is not mapped as having a "Pedestrian Frontage". Part (b) (iv) can be complied with.
7.7.5.1.5 NOISE MITIGATION FOR RESIDENTIAL ACTIVITIES Any new residential activity involving permanent or non-permanent accommodation shall be developed in such a way that the attenuation of noise between any boundary and living room is no less than 20 dB, and between any boundary and any room used for sleeping is no less than 30 dB. In the absence of forced ventilation or air-conditioning, these reductions shall be achieved with any exterior windows open. The Council will require an acoustic design report prepared by a suitably qualified and experienced person demonstrating compliance with this requirement prior to	Complies. An Acoustic Design Report has been commissioned showing compliance with the attenuation requirements.

issuing any Certificate of Compliance under s139 of the Act.	
7.7.5.1.7 KEEPING OF ANIMALS No site shall be used for factory farming, a boarding or breeding kennel or a cattery	N/A
7.7.5.1.8 NOISE (a) All activities within the zone shall be conducted so that noise measured at any point within any other site in the zone shall not exceed: 0700 to 2200 hours 65 dBA L10 2200 to 0700 hours 55 dBA L10 and 80 dBA Lmax (b) All activities within the zone shall be conducted so as to ensure that noise measured at any point within any site in the Residential, Coastal Residential or Russell Township Zones or at or within the notional boundary of any other dwelling in any other rural or coastal zone shall not exceed: 0700 to 2200 hours 55 dBA L10 2200 to 0700 hours 45 dBA L10 and 70 dBA Lmax	Highly unlikely that a residential activity will exceed any of the permitted thresholds.
7.7.5.1.10 ROOF PITCH For Area A5 on Map 91,	N/A
7.7.5.1.11 STORMWATER The disposal of collected stormwater from the roof of all new buildings and new impervious surfaces provided that the activity is within an existing consented urban stormwater management plan or discharge consent.	Complies. Advice received from the Council's Development Engineer is that the site is within an existing consented urban stormwater management area.
7.7.5.1.12 HELICOPTER LANDING AREA	N/A
District Wide Rules	
Chapter 12.1 Landscape & Natural Features	N/A as the site does not contain any mapped landscape or natural features to which rules in Chapter 12.1 applies.
Chapter 12.2 Indigenous Flora & Fauna 12.2.6.1.1 INDIGENOUS VEGETATION CLEARANCE PERMITTED THROUGHOUT THE DISTRICT	I have not identified any 'permitted clearance' that might apply. Rule 12.2.6.1.4 applies. See below.

12.2.6.1.4 INDIGENOUS VEGETATION CLEARANCE IN OTHER ZONES The clearance of indigenous vegetation is a permitted activity if the site meets the definition of an "urban environment" site as specified in Rule 12.2.6.1.1(p) of the ODP. On all other sites in other zones, the clearance of indigenous vegetation is a permitted activity, provided that the clearance does not increase the total area of cleared land on the site above 500m^2.	The site does not meet the definition of "urban environment" because of the absence of any building. Whilst the level (and front) portion of the site is already cleared, further clearance will be required to accommodate the building, plus retaining structure, plus a cleared buffer area at the rear. The building footprint is a little over 400m^2 and the already cleared portion of the site measures more than 100m^2. Whilst there is some overlap, i.e. building overlaps already cleared area and vegetated areas, the total area of clearance on the 'site' will be more than 500m^2 once the clearance is completed. **Cannot comply.** **Restricted Discretionary activity status pursuant to Rule 12.2.6.2.2 below.**
12.2.6.2.2 INDIGENOUS VEGETATION CLEARANCE IN OTHER ZONES In all zones other than Rural Production, Minerals and General Coastal, the felling, injuring or removal of indigenous vegetation is a restricted discretionary activity if it does not comply with Rules 12.2.6.1.1 or 12.2.6.1.4.	**Consent required as a restricted discretionary activity.**
Chapter 12.3 Soils & Minerals	There is no excavation/filling rule applying to the Commercial Zone. An Earthworks Permit will be required at time of Building Consent.
Chapter 12.4 Natural Hazards 12.4.6.1.1 COASTAL HAZARD 2 AREAS & 12.4.6.3.1 COASTAL HAZARD 1 AREAS (discretionary activity rule)	Whilst we know the property is mapped within what is now called CEHZ 2 and 3 areas in the PDP, these hazards are not mapped within the Operative District Plan and therefore 12.4.6.1.1 & 12.4.6.3.1 do not apply.
12.4.6.1.2 FIRE RISK TO RESIDENTIAL UNITS (a) Residential units shall be located at least 20m away from the drip line of any trees in a naturally occurring or deliberately planted area of scrub or shrubland, woodlot or forest;	There will be less than 20m between the rear of the residential apartments and the dripline of vegetation on the slope above. There will also be less than 20m separation distance to the indigenous vegetation

	within the Scenic Reserve to the east of the site. **Cannot comply.** **Discretionary activity status results.**
Chapter 12.5 Heritage & 12.5A Heritage Precincts	Site contains no Notable Trees; no Historic Sites, Buildings and Objects; no Registered Archaeological Sites; no Sites of Cultural Significance to Maori. No rules in 12.5 are applicable. The property is not within a Heritage Precinct so 12.5A does not apply.
Chapter 12.7 Lakes, Rivers, Wetlands and the Coastline 12.7.6.1.1 SETBACK FROM LAKES, RIVERS AND THE COASTAL MARINE AREA Any building and any impermeable surface must be set back from the boundary of ..... the coastal marine area. The setback shall be: (c) a minimum of 20m in the Commercial and Industrial Zones;	Marsden Road (20m) separates site from coastal marine area and therefore the minimum setback does not apply. Complies.
15.1 Traffic, Parking & Access	
15.1.6A.2.1 TRAFFIC INTENSITY The Traffic Intensity threshold value for a site shall be determined for each zone by Table 15.1.6A.1 above. The Traffic Intensity Factor for a proposed activity (subject to the exemptions identified below) shall be determined by reference to Appendix 3A in Part 4.	Complies. A residential unit is 'deemed' to generate 10 daily one way traffic movements. However, the first residential unit on a site is exempt. Therefore assume two residential apartments, which would be deemed to generate 20 daily one way traffic movements. The permitted threshold for the zone is 200 daily one way traffic movements.
15.1.6B.1.1 ON-SITE CAR PARKING SPACES Where: (i) an activity establishes; or (ii) the nature of an activity changes; or (iii) buildings are altered to increase the number of persons provided for on the site; the minimum number of on-site car parking spaces to be provided for the users of an activity shall be determined by reference to Appendix 3C.	Appendix 3C specifies a requirement for 2 car parking spaces per residential unit or home unit or town house. Stacked parking is allowed. The proposal requires 6 carpark spaces. There will be ground level garage parking for each apartment, with sufficient space

	for two vehicles apiece. Complies.
15.1.6B.1.5 CAR PARKING SPACE STANDARDS (a) The required size of off-street car parking spaces, the manoeuvring space between, and the vehicle circulation routes providing access to them, shall be as set out in Appendix 3D. (b) Stacked parking will be permitted for one of two spaces associated with a specific residential unit. In determining the extent of area required for manoeuvring space, the Council will be guided by the Tracking Curve diagrams as shown in Appendix 3E. (c) All parking, loading, access drives and manoeuvring areas shall be formed and provided with an all weather surface, drained, marked out and maintained to the satisfaction of the Council, and shall be kept free and available for the uses intended. Where a parking area provides four or more car parking spaces is adjacent to a road, a kerb or a barrier shall be provided to prevent direct access except at the designated vehicle access point	Parking space dimensions will comply. Vehicles can complete the required manoeuvring from garage parking to enable frontwards exit from the site. Rigid trucks, which will seldom be on site, can utilise the entry / exit separate crossings without the need for on site manoeuvring to turn around and use the same crossing they entered on. Stacked parking is permitted for a residential unit. The requirements of part (c) will be complied with.
15.1.6C.1.1 PRIVATE ACCESSWAY IN ALL ZONES (a) The construction of private accessway, in addition to the specifics also covered within this rule, is to be undertaken in accordance with Appendix 3B-1 in Part 4 of this Plan. (b) Minimum access widths and maximum centreline gradients, are set out in the Appendix 3B-1 table except that the grade shall be no steeper than 1:8 adjacent o the road boundary for at least 5m. (c) A private accessway may serve a maximum of 8 household equivalents. (d) Where a subdivision serves 9 or more sites, access shall be by public road. (e) Access shall not be permitted: (i) onto a State Highway or a Limited Access Road; (ii) onto an arterial or collector road within 90m of its intersection with an arterial road or a collector road; (iii) onto an arterial or collector road within 30m of its intersection with a local road; (iv) onto a local road within 30m of its intersection with an arterial or collector road;	Complies or will comply, where relevant. Access is existing (two single width crossings already in place), and can be upgraded (if required) to comply with ODP requirements. There is no internal private accessway as such, only a common area at the front of the apartment block, able to be accessed by all three apartments for entry/exit and manouevring. Insofar as part (b) applies to crossing points, the land is flat – complies. Parts (c) and part (b) are not applicable. Part (e)(i) is applicable to any <u>new</u> crossing. In this instance, however, the crossings are already in existence, one for #116 and one for #118. NZTA is being consulted. This section of state highway is not Limited Access Road and the crossings have been legally established in support of activities generating more traffic movements than the proposed activity will.

15.1.6C.1.2 PRIVATE ACCESSWAYS IN URBAN ZONES (a) Private accessways in all urban zones, excluding the Commercial and Industrial Zones, shall comply with the following: (b) Private accessways in the Commercial and Industrial Zones shall comply with the following: (i) One-way operation, excluding service stations: The private accessway from the road to any parking or loading space shall: • not less than 3m or more than 4m in width; and • have a minimum overhead clearance of 4.2m. (ii) Two-way operation, excluding service stations. The private accessway from the road to any parking or loading space shall: • not be less than 6m or more than 7m in width; and • have a minimum overhead clearance of 4.2m.	Part (a) does not apply. The requirements of part (b) will be complied with.
15.1.6C.1.3 PASSING BAYS ON PRIVATE ACCESSWAYS IN ALL ZONES	N/A
15.1.6C.1.4 ACCESS OVER FOOTPATHS The following restrictions shall apply to vehicle access over footpaths: (a) no more than two crossings per site; and (b) the maximum width of a crossing shall be 6m.	There is a footpath in this location, along part of the frontage, but not all. It is not utilised given that it stops prior to the bluff and there is continuous footpath on the beach side of Marsden Road. Notwithstanding this, the proposal complies with (a) and (b).
15.1.6C.1.5 VEHICLE CROSSING STANDARDS IN RURAL AND COASTAL ZONES	N/A
15.1.6C.1.6 VEHICLE CROSSING STANDARDS IN URBAN ZONES (a) Private access off streets in the urban zones the vehicle crossing is to be constructed in accordance with Council's "Engineering Standards and Guidelines" (June 2004 – Revised 2009). (b) Where the vehicle crossing serves two or more properties the vehicle crossing is to be widened to provide a double width vehicle crossing.	Any necessary upgrading can be carried out in order to meet part (a). It is proposed to have an entry and exit separate crossings, meaning both need only be one way. Complies.
15.1.6C.1.7 GENERAL ACCESS STANDARDS (a) Provision shall be made such that there is no need for vehicles to reverse off a site except where there are less than 4 parking spaces gaining access from a local road. (b) All bends and corners on the private accessway are to be constructed to allow for	Part (a) can be complied with. (b) N/A

the passage of a Heavy Rigid Vehicle. (c) Any access where legal width exceeds formation requirements shall have surplus areas (where legal width is wider than the formation) grassed. (d) Runoff from impermeable surfaces shall, wherever practicable, be directed to grass swales and/or shall be managed in such a way as will reduce the volume and rate of stormwater runoff and contaminant loads.	(c) N/A (d) will be complied with when designing stormwater management.
No other rules in Chapter 15.1.6C are applicable.	

7.2 Proposed District Plan

The FNDC publicly notified its PDP on 27th July 2022. Whilst the majority of rules in the PDP will not have legal effect until such time as the FNDC publicly notifies its decisions on submissions, there are certain rules that have been identified in the PDP as having immediate legal effect and that may therefore need to be addressed in this application and may affect the category of activity under the Act. These include:

Rules HS-R2, R5, R6 and R9 in regard to hazardous substances on scheduled sites or areas of significance to Maori, significant natural areas or a scheduled heritage resource. As the application site and proposal does not involve hazardous substances, these rules are not relevant to the proposal.

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

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

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

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

Ecosystems and Indigenous Biodiversity – Rules IB-R1 to R5 inclusive
Rule IB-R1 provides for certain indigenous vegetation clearance as a permitted activity, including for the first residential unit on a site. Given that there are three residential apartments proposed, that exemption cannot be applied and I have not identified any other exemption.

Rule IB-R3 Indigenous vegetation clearance and associated land disturbance for specified activities within a Significant Natural Area has the following permitted standard:
PER-1 It does not exceed 100m2 per site in any calendar year

The indigenous vegetation within the site has not been assessed as to whether or not it meets the criteria for being 'Significant Natural Area' or not. The default position must be that it is not, given that the capitalisation of the term 'Significant Natural Area' means it refers to areas that have already been confirmed as such and are scheduled and mapped in the PDP as such – which is not the case in this instance. I do not believe, therefore that IB-R3 applies to the proposal.

Instead IB-R4 must apply.

IB-R4 Indigenous vegetation clearance and associated land disturbance for specified activities outside a Significant Natural Area

PER-1 A report has been obtained from a suitably qualified and experienced ecologist confirming that the indigenous vegetation does not meet the criteria for a Significant Natural Area and it is submitted to Council 14 days in advance of the clearance being undertaken;

PER-2 It does not exceed 500m2 per site in any calendar year

The amount of clearance anticipated is 210-220m^2 so compliance with PER-2 is achieved. However, in order for the threshold in PER-2 to even apply, PER-1 must have been met. Given the small area of clearance compared with the total vegetated cover on the site and on the adjacent site, it is not considered that an ecological assessment is warranted. Clearance is being kept to the absolute minimum necessary, however, due to not technically complying with IB-R4 PER-1, **consent is sought for a breach of that rule in the PDP**.

Subdivision (specific parts) – the proposal is not a subdivision.

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

Earthworks – Only some rules and standards have legal effect. These are Rules EW-R12 and R13 and related standards EW-S3 and ES-S5 respectively. EW-R12 and associated EW-S3 relate to the requirement to abide by Accidental Discovery Protocol if carrying out earthworks and artefacts are discovered. The site works will involve excavation and filling. Such works can be subject to the ADP. EW-13 and associated EW-S5 relate to ensuring Erosion and Sediment Control measures are in place during earthworks. They cite compliance with GD05. Any earthworks will need to ensure (and can be conditioned to ensure) appropriate Erosion and Sediment Control measures are in place during works.

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

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

There are no Mixed Use zone rules in the PDP with immediate legal effect that affect the proposal's activity status.

7.3 District Plan Compliance Summary

Consent is required for breaches of the following ODP rules:
12.2.6.1.4 Indigenous Vegetation Clearance in Other Zones (defaulting to restricted discretionary activity status); and
12.4.6.1.2 Fire Risk to Residential Units (defaulting to discretionary activity status);
And for a breach of the following PDP rule:
IB-R4 PER-1 (also defaulting to discretionary activity status).

The breaches result in **discretionary activity** consent being required.

7.4 Regional Plan for Northland

The Regional Plan contains rules controlling and managing earthworks. The volume of excavation and filling is estimated to be 760m^3 cut volume, with filling expected to be no more than minor. Cuts are expected to be in the order of 4.7m in height, being suitably retained. The earthworks (bulk cut and ground disturbance) will be over an estimated area of less than 600m^2. Table 15 in C.8.3.1 Earthworks – permitted activity, sets the thresholds for volume and area.

On erosion prone land, the earthworks threshold is no more than 2,500m^2 of exposed earth at any time. A part of the construction area is within land mapped as erosion-prone. The area of exposed earth will not exceed 2,500m^2. There are no other specific restrictions affecting the construction site. Other requirements include the use of erosion and sediment control measures equivalent to those in GD05; stabilisation measures in place; earth and debris not to enter the CMA; not to exacerbate coastal hazard risk to any other property; and not to create or contribute to the instability or subsidence of land on other property. Other property would include Road Reserve. Construction earthworks will need to comply with these requirements.

8.0 ASSESSMENT OF ENVIRONMENTAL EFFECTS

When considering an application for a discretionary activity consent, the consent authority must have regard to any actual and potential effects on the environment of allowing the activity (s104). The consent authority's discretion is not restricted to specified matters, however, cognisance must be had to permitted baseline considerations when assessing effects. For example where consent is required specific to two rule breaches, as this proposal is – indigenous vegetation clearance and fire risk to residential development – then the assessment of effects of traffic movements is not a relevant consideration given the proposal is well within permitted baseline parameters for traffic movements.

The assessment of environmental effects that follows takes this into account in identifying actual and potential effects on the environment of allowing the proposed activity.

8.1 Fire Risk to Residential Units

The site has access to Council reticulated water supply, with a hydrant located at the front boundary's western corner. The Paihia Fire Station is within 5 minutes driving time. These are two major mitigating factors in regard to a breach of the fire risk to residential unit rule.

Vegetation clearance can occur around the sides of the buildings, but only within the site's boundaries. Adjacent sites contain vegetation. Clearance at the rear of the building is being kept to a minimum to:

(a) assist in retaining ground stability upslope of the development;
(b) assist in mitigating the visual impact of a building;
(c) minimise impact on flora and fauna.

In order to achieve the above 'positive' outcomes, a breach of the fire risk to residential unit results. Council has recently consented the adjacent site to the west for residential living and that site, like the application site, backs onto the reserve land. Consultation has been carried out with NZ Fire and Emergency, the results of which are contained in Appendix 4.

The Fire Service has no issues given the proximity of a hydrant and ability to connect to Council supply. The email response makes the following points:

- a reticulated main is within 135m as per the code of practice requirements SNZ PAS 4509;
- additional water could be obtained from the sea adjacent the development;
- a swimming pool from the nearby hotel could also be utilised if required;
- a copy of the fire report would be beneficial to ensure the design has adequate fire separation, and protection requirements are met (c1-c6) for the 3 residences.

In regard the last point, the Fire Report for the proposed development has since been sent to the NZ Fire and Emergency Services.

In summary all practicable mitigation measures in regard to fire risk from nearby vegetation, will be taken.

8.2 Effects of indigenous vegetation clearance on natural character values

Rule 12.2.6.2.2 – Indigenous Vegetation Clearance in Other Zones (restricted discretionary rule), lists several assessment criteria relevant to vegetation clearance on the site.

(a) the significance of the area assessed using the criteria listed in Method 12.2.5.6; and

(b) the extent to which adverse effects on areas of significant indigenous vegetation and significant habitats of indigenous fauna are avoided, remedied or mitigated; and

(c) the extent to which any proposed measures will result in the protection and enhancement of the ecological values of the area; and

(d) the extent to which the activity may adversely impact on visual and amenity values; and

(e) the extent to which the activity may restrict the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, other taonga and the exercise of kaitiakitanga over these.

As can be seen from the above photograph, the site is level at the road side (parked vehicles are on the application site's western side), before rising reasonably steeply to the south. Council has recently consented development on the adjacent site – brown double storey building – as well on the next site over where the construction of a rear retaining wall is currently under way. The intent is to excavate back into the bank (to left of parked vehicles). Clearance of vegetation is estimated to be about 215m^2, not all of which is indigenous, noting several exotic and weed species dominating the lower portion of the slope. The proposed clearance will provide a 3m separation distance from the back of any structures, upslope.

No assessment has been made of the indigenous vegetation within the site. Its main 'value' is in providing connectivity with the vegetation within the scenic reserve adjoining the southern and eastern boundaries of the site. By keeping clearance to a minimum this connectivity will remain.

The area being cleared represents less than 10% of total vegetative cover within the site, not all of which is indigenous and not all of which is mapped as high natural character – which excludes the fringe vegetation immediately upslope from the level area on the site and likely recognises historical clearance (activities since dis-established on the site) and resultant exotic and weed species re-vegetation. In short, the impact of the small amount of clearance proposed is minimal with the majority of the site remaining in vegetative cover.

By retaining the upslope vegetation, the visual impact of buildings (which do not breach any bulk/location or visual amenity rules) is minimised, the vegetation providing a visual backdrop to built environment.

I am not aware of any of the vegetation within the site having any special cultural value, albeit the significance of the Nihonui Scenic Reserve on the adjacent headland is acknowledged as having historical and ecological significance. The bluff headland is a feature of Marsden Road as it traverses along the three 'bays' making up Paihia. The

application site is the last private property before the reserve so it is with certainty that it can be stated there will be no further development to the east of the site on and round the Bluff, nor on the bush clad slope and ridgeline about the application site.

However, the development of the application site is an expected outcome given its urban zoning.

Fauna

I am not aware of any threatened species present within the vegetated habitat on the site. The property is urban zoned, for urban use. It is not considered necessary to impose any restriction on the keeping of pets.

8.3 Amenity & urban character effects associated with establishing residential use in a Commercial Zone (including noise attenuation)

It is proposed that the buildings be used for residential purposes, with an upper floor layout enabling home office use. Although zoned Commercial in the ODP, residential use in this location is a logical progression to the already developed sites to the west – dominated by residential or accommodation use as opposed to retail or commercial offices.

A Sound Insulation Certificate has been prepared in support of the application. This outlines the requirements of Rule 7.7.5.1.5 Noise Mitigation for Residential Activities and recommends construction materials and methodology (including air conditioning) that will enable the units to meet the requirements of that rule.

An attenuation of 20dB between any boundary and living room can be achieved, as can an attenuation of 30dB between any boundary and any room used for sleeping. With this level of noise attenuation able to be achieved, the amenity for residents is maintained.

The amenity values of the site and immediate area are not adversely affected by residential use within a building that meets the zone's bulk and location requirements and where the vast majority of the site's vegetation is to be retained. In addition, those parts of the road frontage not utilised for crossings, will be landscaped (whilst ensuring sight lines are not restricted).

The proposed development is in keeping with the character of the immediate area.

8.4 Natural Character of the Coastal Environment

The site is within the Coastal Environment, however, zoned Commercial in the ODP and Mixed Use in the PDP. It is clear that the Council intends development to an urban scale on the site. As with any site(s) within the coastal environment within an existing built up area, natural character values have already been somewhat compromised by the presence of built development. In this instance the actual building being proposed is compliant in terms of its size, shape and height. It is to be constructed on the last site zoned for urban use before the bluff, with the Scenic Reserve on adjacent land zoned Conservation under the ODP.

The vast majority of vegetation within the site and mapped as having high natural character (because of proximity and similarity to the reserve land), is to be retained, with only limited clearance on the margins of the high natural character area and down onto the flat area on the site.

Whilst the site is currently vacant, it would be fanciful to assume a site zoned for urban use would remain so. The site has historically supported built environment (residential and motel), was consented previously as part of an expansive accommodation and conference complex, and now the owners simply wish to re-develop the site with what I believe is a sensible and well located activity.

In summary I do not believe the proposal has an adverse impact on the natural character of the coastal environment.

8.5 Natural Hazards (other than fire risk)

The site is mapped as containing two hazards. The first is Coastal Erosion Hazard, Zones 2 & 3 which represent a 100 year scenario (low risk). The site is landward of the high risk 50 year Coastal Erosion Zone 1, with a State Highway between the site and the coast. The other hazard is not mapped in either the ODP or PDP maps, but is mapped on the NRC's on-line maps. The upper slopes of the site are mapped as erosion prone. The area mapped as being erosion prone barely intrudes into the building envelope or construction area, however notwithstanding this, a Geotechnical Report has been commissioned by the applicants – refer Appendix 7. The report makes Design Recommendations in its Section 5.

In addition, a Coastal Erosion Hazard Assessment has been carried out by RSEngineering – refer Appendix 9. This concludes that, subject to the recommendations of that report, in terms of Section 71-72 of the Building Act 2004;

(a) the building work to which an application for a building consent relates, will not accelerate, worsen, or result in coastal erosion on the land on which the building work is to be carried out or any other property; and
(b) the land is neither subject to, nor likely to be subject to, coastal erosion.

8.6 Earthworks & Stormwater Management

The application is accompanied by a Civil Suitability Report – refer Appendix 8. This addresses stormwater management in its sections 5.3 and 5.4. It is proposed to collect roof runoff into two 5,000l slimline tanks, between the building and boundaries (both sides). The report recommends that stormwater overflow from the attenuation tanks be piped to teh existing kerb connection west of the existing crossing.

The application is also accompanied by an Earthworks Management Plan – refer Appendix 10. An estimated 760m^3 of cut, and minor fill, is proposed for the development. Given the site's topography, cuts are expected to be in the order of 4.7m in height, with engineer designed retaining. The report lays out general requirements during earthworks, hours of operation for the works, and general erosion and sediment control measures. It also outlines maintenance and monitoring procedures.

In summary, stormwater can be appropriate managed (noting also there is no breach of the Stormwater Management rule applying to the zone). Earthworks can be carried out subject to appropriate mitigation such that adverse effects will be less than minor (again also noting that there is no excavation/filling rule applying in the zone).

8.7 Traffic, parking & access

The site has two existing legally established crossings, one for each parcel. These parcels of land have historically been developed with residential and motel use. It is intended to continue using both. Marsden Road is also State Highway 11, albeit not Limited Access Road. Consultation with NZTA is in progress with details of the proposal sent to NZTA on 19th March 2025.

Each apartment can provide basement garage parking for two vehicles. It is proposed that an entry and exit system operate for the two crossings – one way in, and one way out. There is sufficient manoeuvring space within the site to enable residents' vehicles to enter and leave the site in a frontwards direction. The separate entry and exit enables larger vehicles to negotiate entry and exit to and from the site safely. Given the residential use, larger vehicles will be the exception rather than the norm.

In summary:

- the site is zoned Commercial, with a permitted traffic intensity of 200, and the proposal (3 x residential units) is deemed to generate only 30;
- the site has two legally established crossings – historically providing access to residential and motel accommodation on two separate titles (which are now held together);
- sight lines are excellent in both directions and the road has a posted restricted speed limit of 40kph;
- utilising an entry and exit system negates the need for extensive on-site manoeuvring.

I believe the proposal can provide safe and efficient parking and access.

8.8 Heritage resources

Heritage/Cultural

There are no listed or mapped Sites of Significance to Maori on the application site. Notwithstanding this, the proximity to the coastal marine area is acknowledged. It is essential that appropriate erosion and sediment control measures be in place prior to any site works to ensure no adverse effect on the bay's water quality. The site is or will be serviced, and will connect to existing Council water supply and stormwater infrastructure which has capacity for the level of development proposed. I believe the development proposed in this application can occur without adverse impact on cultural values associated with the site's coastal location.

The site contains no recorded or registered archaeological sites as mapped on Far North Maps and ArchSite. The site is well outside any part of Paihia that is already, or intended to

be, a Heritage Precinct or Heritage Area. Adherence to the Accidental Discovery Protocol can be ensured via conditions of consent.

8.10 Site Servicing

The Civil Suitability Report in Appendix 8 contains a '3 waters assessment' in its Section 5. It is proposed to connect to the Council sewer scheme via a low-pressure connection, discharging to the manhole on Davis Crescent. It is proposed to have a single pump per unit, with minimum storage of 825L per unit and therefore having 24 hours of storage available. The client advises that there is an existing 40mm rising main installed for the property.

Water and fire-fighting water supply will be via the council water supply scheme, with a fire hydrant within road reserve, located within 135m of the development.

Stormwater management has been discussed earlier in the report.

8.11 Cumulative Effects

The density level is the equivalent of what is provided for in the ODP, and is an expected level of development for the site. As such, I do not consider there to be any adverse cumulative effects.

8.12 Precedent Effects

Precedent effects are not amongst those effects to be considered when determining the level of effects on the wider environment for the purposes of assessing whether notification is required. They are instead a matter for consideration when a consent authority is considering whether or not to grant a consent.

A consideration of precedent effects is generally restricted to non complying activities, which this is not. The use of sites in a Commercial Zone for mixed use is not unusual in the Far North District, and is clearly envisaged as acceptable, and indeed promoted, in the PDP by way of the Mixed Use Zone proposed for the site. The area in the immediate vicinity of the application site is already in residential/accommodation land uses. In short, the proposal does not set any adverse precedent.

9.0 STATUTORY ASSESSMENT

9.1 Operative District Plan Objectives and Policies

Objectives and policies relevant to this proposal are considered to be primarily those listed in Chapters 7.7 (Commercial Zone); 12.2 (Indigenous Vegetation) & 12.4 (Natural Hazards).

<u>Urban Environment Objectives and Policies</u>

Objectives:

7.3.1 To ensure that urban activities do not cause adverse environmental effects on the natural and physical resources of the District.

7.3.2 To enable the continuing use of buildings and infrastructure in urban areas, particularly where these are under-utilised.

7.3.3 To avoid, remedy or mitigate the adverse effects of activities on the amenity values of existing urban environments.

7.3.4 To enable urban activities to establish in areas where their potential effects will not adversely affect the character and amenity of those areas.

7.3.5 To achieve the development of community services as an integral and complementary component of urban development.

7.3.6 To ensure that sufficient water storage is available to meet the needs of the community all year round

The proposal will not result in adverse environmental effects of a more than minor nature and will not adversely affect amenity values of the existing urban environment. The lots will connect to Council's reticulated water supply.

Policies:

7.4.1 That amenity values of existing and newly developed areas be maintained or enhanced.

7.4.3 That adverse effects on publicly-provided facilities and services be avoided or remedied by new development, through the provision of additional services.

7.4.4 That stormwater systems for urban development be designed to minimise adverse effects on the environment.

7.4.5 That new urban development avoid:

a) adversely affecting the natural character of the coastal environment, lakes, rivers, wetlands or their margins;
b) adversely affecting areas of significant indigenous vegetation or significant habitats of indigenous fauna;
(c) adversely affecting outstanding natural features, landscapes and heritage resources;
(d) adversely affecting the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga;
(e) areas where natural hazards could adversely affect the physical resources of urban development or pose risk to people's health and safety;
(f) areas containing finite resources which can reasonably be expected to be valuable for future generations, where urban development would adversely affect their availability;
g) adversely affecting the safety and efficiency of the roading network;
(h) the loss or permanent removal of highly productive and versatile soils from primary production due to subdivision and development for urban purposes.

7.4.6 That the natural and historic heritage of urban settlements in the District be protected (refer to Chapter 12).

7.4.7 That urban areas with distinctive characteristics be managed to maintain and enhance the level of amenity derived from those characteristics.

7.4.8 That infrastructure for urban areas be designed and operated in a way which:

(a) avoids remedies or mitigates adverse effects on the environment;
(b) provides adequately for the reasonably foreseeable needs of future generations; and
(c) safeguards the life-supporting capacity of air, water, soil and ecosystems.

7.4.9 That the need for community services in urban areas is recognised and provided for.

The physical design of buildings and the proposed density level (3 units) are consistent with permitted activity thresholds in the ODP. Existing amenity levels within the area will be maintained and the proposal is in keeping with the local character. The development can be appropriate serviced and crossings to the road network already exist.

Whilst within the coastal environment, the site is within an existing urban area and zoned for urban use. Natural character is already compromised due to the urban nature of the site and surrounding area. The site has not been assessed in terms of the significance of the indigenous vegetation, but regardless of this it is proposed to keep clearance to the absolute minimum necessary, including ensuring a 3m clear space upslope behind the building to reduce the risk of fire hazard. The proposal is not believed to adversely impact on the relationship of Maori and their culture. Natural hazards have been adequately taken into account.

The site is not within any historic heritage area, nor an area where there are distinctive characteristics.

Commercial Zone Objectives and Policies

Objective:

7.7.3.1 To achieve the development of commercial areas in the District accommodating a wide range of activities that avoid, remedy or mitigate the adverse effects of activities on other activities within the Commercial Zone and on the natural and physical resources of the District.

The proposal allows for residential activity within a Commercial Zone with little or no adverse effects on other activities in the zone given the site's location and land uses established on adjacent sites. The proposal will not have adverse effects on the natural and physical resources of the District that cannot be avoided, remedied or mitigated.

Policies

7.7.4.1 That the Commercial Zone be applied to areas which are traditional commercial centres, and also to areas where the provision of commercial activity would not have adverse environmental effects, and would contribute to the needs and well being of the community.

7.7.4.2 That the range of activities provided for in the Commercial Zone be limited only by the needs for the effects generated by the particular activity to be consistent with other activities in the zone.

7.7.4.3 That standards be applied that protect visual and environmental amenity within the Commercial Zone, and the amenity of adjacent zones.

7.7.4.4 That stormwater disposal systems do not result in suspended solids, industrial by-products, oil, or other contaminated substance or waste entering the stormwater collection system in concentrations that are likely to pose an immediate or long term hazard to human health or the environment.

Policy 7.7.4.1 is aimed primarily at Council and/or any party promoting a zone change. I consider the proposal will allow for land uses in keeping with the surrounding area (7.7.4.2). Where rules require boundary treatment for visual and environmental amenity, this will be provided for – in this case limited to the road frontage (7.7.4.3). The lots will discharge stormwater to roadside as currently occurs with the application site and adjacent sites (7.7.4.4).

In summary, I believe the proposal to be more consistent than not with the stated intent of the objectives and policies as cited above.

Objectives in 12.2.3 relating to indigenous vegetation include the maintenance and enhancement of the life supporting capacity of ecosystems and the extent and representation of biodiversity (12.2.3.1). The amount of clearance proposed is very small and consistent with this objective.

The significance of the vegetation has not been assessed (12.2.3.2). It is proposed to limit clearance to as little as possible to accommodate site works and the completed structures. The vast majority of indigenous vegetation on the site will be retained (12.2.3.3 and 12.2.3.4).

The scale, intensity, type and location of the proposed development will have little, if any, adverse impact on indigenous vegetation (Policy 12.2.4.3(b)); and vegetation disturbance will be minimised to as to give effect to relevant parts of 12.2.4.3(c). The clearance is a restricted discretionary activity and will be limited in area (12.2.4.4).

The site is urban and zoned for urban use. The site is not in a kiwi present or high density kiwi area (12.2.4.10).

There is a single objective and a single policy in Chapter 12.4 relating to fire risk:

12.4.3.7 To avoid fire risk arising from the location of residential units in close proximity to trees, or in areas not near fire fighting services.

12.4.4.7 That the risk to adjoining vegetation and properties arising from fires be avoided.

It is not possible to 'avoid' fire risk given the proximity of vegetation outside of the site's boundaries. Nor is that a realistic expectation in a town with the physical characteristics of Paihia – a multitude of residential homes exist in proximity to bush. However, the buildings on the site will be near a fire hydrant and the Paihia Fire Station is located in close proximity. A 3m clear space will be retained at the immediate rear of the proposed building. NZ Fire and Emergency have been consulted and expressed no concerns in regard to fire risk.

9.2 Proposed District Plan Objectives and Policies

The PDP zones the site Mixed Use with a Coastal Environment overlay. The area of the site covered in vegetation is mapped as "high natural character". The building site is landward of the Coastal Erosion (Zone 1:50 Year Scenario), i.e. the higher risk scenario; but within both

the Zone 2 & 3 Coastal Erosion Zones (1:100 year scenario with and without rapid sea level rise added). This is the lower risk scenario, falling outside the PDP's definition of "high risk" coastal hazard.

Relevant objectives and policies in the PDP are those related to the matters outlined above.

Mixed Use Zone Objectives:

MUZ-O1 *The Mixed Use zone is the focal point for the District's commercial, community and civic activities, and* *provides for residential development where it complements and is not incompatible with these activities.*	The proposal is consistent with this objective in that it provides for residential development in a way that complements and is not incompatible with activities on adjacent sites.
MUZ-O2 *Development in the Mixed Use zone is of a form, scale, density and design quality that contributes positively* *to the vibrancy, safety and amenity of the zone.*	The level and type of development proposed will contribute positively to the vibrancy, safety and amenity of the zone.
MUZ-O3 *Enable land use and subdivision in the Light Industrial zone where there is adequacy and capacity of* *available or programmed development infrastructure to support it.*	It is assumed this is a typo and should read Mixed Use zone rather than Light Industrial Zone. The sites are able to connect to Council infrastructure.
MUZ-O4 *The adverse environmental effects generated by activities within the zone are managed, in particular at zone boundaries.*	Potential adverse effects can be managed, particularly where the site adjoins a zone other than Mixed Use.
MUZ-O5 *Residential activity in the Mixed Use zone is located above commercial activities to ensure active street* *frontages, except where the interface is with the Open Space zone.*	The proposal does not intend the kind of mix of residential and commercial that this objective refers to. Instead it proposes residential use only, albeit the floor plans show generous 'office space' on the upper level, providing for some on-site office activity by the occupant. The site is not within an 'active street frontage'.

Mixed Use Zone Policies:

MUZ-P1 *Enable a range of commercial, community, civic and residential activities in the Mixed Use zone where:* *a.it supports the function, role, sense of place and amenity of the existing environment; and* *b.there is:* *i.existing infrastructure to support development and intensification, or* *ii.additional infrastructure capacity can be provided to service the development and intensification.*	The proposal is for residential use. I believe the proposal supports the function, role, sense of place and amenity of the existing environment. The site can connect to Council infrastructure or adequate provide for onsite servicing.

MUZ-P2 *Require all subdivision in the Mixed Use zone to provide the following reticulated services to the boundary of each lot:* *a.telecommunications:* *i.fibre where it is available;* *ii.copper where fibre is not available;* *iii.copper where the area is identified for future fibre deployment.* *b. local electricity distribution network; and* *c.wastewater, potable water supply and stormwater where it is available.*	The site is able to connect to power, telecoms, reticulated water supply and stormwater. The apartments can be serviced by a wastewater system.
MUZ-P3 *Require development in the Mixed Use zone to contribute positively to:* *a. high quality streetscapes;* *b. pedestrian amenity;* *c. safe movement of people of all ages and abilities;* *d. community well-being, health and safety; and* *e. traffic, parking and access needs.*	The state highway frontage will be landscaped where not occupied by crossings or footpath. Whilst there is a footpath along part of the frontage this is not used, given that (a) it culminates part way along the frontage, and (b) there is a higher quality and amenity of footpath on the other side of the road. The building is set well back from the road boundary. Traffic, parking and access needs are addressed.
MUZ-P4 *Require development in the Mixed Use zone that adjacent to Residential and Open Space zones to maintain the amenity values of those areas, having specific regard to:* *a. visual dominance;* *b. privacy;* *c. shadowing;* *d. ambient noise; and* *e. light spill.*	The built structure proposed only occupies a small portion of the overall site, having little impact on the adjacent scenic reserve. It will accommodate residential use, compatible with the accommodation premises now established on the adjacent sites to the west. Whilst 10m in height, the visual / dominance effect is reduced by means of setting the structure into the sloping ground. It is proposed to install the required noise attenuation for residential development in the commercial zone.
MUZ-P5 *Restrict activities that are likely to have an adverse effect on the function, role, sense of place and amenity of the Mixed Use zone, including:* *a.residential activity, retirement facilities and visitor accommodation on the ground floor of buildings, except where a site adjoins an Open Space zone;* *b. light or heavy industrial activity;* *c.storage and warehousing;* *d.large format retail activity over 400 m²; and* *e. waste management activity.*	The proposal is for a residential activity, where the ground floor is garaging and not commercial. This may seem contrary to P5, however the area within which the site is located does not support office or retail activities, instead providing for accommodation uses. The proposal does not therefore have an adverse effect on the function, role, sense of lace of amenity of this part of the Mixed use Zone in Paihia.
MUZ-P6 *Promote energy efficient design and the use of renewable electricity generation in the construction of mixed use development.*	The building faces north.
MUZ-P7 *Consider the following effects when assessing applications to establish residential, early childhood, retirement and education facilities:* *a. the level of ambient noise;* *b. reduced privacy;* *c.shadowing and visual domination; and* *d. light spill.*	Noise effects have been considered. The building is compliant with bulk and location requirements in terms of the adjacent property boundaries, two of which are with Scenic Reserve unable to ever support development. As far as I am aware there are no walking tracks within the Scenic Reserve close to the building site. The site to the west is

	consented for short term holiday accommodation. The building complies with bulk and location rules, including height. There is unlikely to be any significant light spill. In summary, I believe a proposed residential use in this location will have less than minor effects in terms of those matters raised in MUZ-P7.
MUZ-P8 *Manage land use and subdivision to address the effects of the activity requiring resource consent, including(but not limited to) consideration of the following matters where relevant to the application:* *a. consistency with the scale, density, design, amenity and character of the mixed use environment;* *b.the location, scale and design of buildings or structures, outdoor storage areas, parking and internal roading;* *c. at zone interfaces:* *i.any setbacks, fencing, screening or landscaping required to address potential conflicts;* *ii.any adverse effects on the character and amenity of adjacent zones;* *d.the adequacy and capacity of available or programmed development infrastructure to accommodate the proposed activity; including:* *i. opportunities for low impact design principles;* *ii.management of three waters infrastructure and trade waste;* *e. managing natural hazards;* *f.the adequacy of roading infrastructure to service the proposed activity;* *g.any adverse effects on historic heritage and cultural values, natural features and landscapes or indigenous biodiversity, and* *h.any historical, spiritual, or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.*	The proposal will result in development consistent with the scale, density, design and character of the environment and purpose of the zone. The site can accommodate the proposed building and can connect to Council infrastructure. No activity involving trade waste is envisaged. The risk from fire hazard is mitigated through proximity to fire hydrant supply and proximity of fire station, and retention of clear space at the rear of the building (3m width). Whilst there is a zone interface on two boundaries, this is with a Scenic Reserve where the proposed residential development will not adversely impact on that reserve. The site contains no historic heritage sites or cultural values, and no natural features or landscapes. There is indigenous vegetation on the site, the clearance of which will be kept to the absolute minimum to accommodate the structure (less than 220m^2 of clearance envisaged where not all the vegetation is indigenous). Part of the site is mapped as having high natural character, linked to the indigenous vegetation cover, but not including the vegetation adjacent to the level portion of the site. I am not aware of any historical, spiritual or cultural association with regard to matters set out in Policy TW-P6, and do not believe the proposal adversely effects the relationship of tangata whenua with their ancestral lands, water, sites, wahi tapu or other taonga

Coastal Environment Objectives:

CE-O1 *The natural character of the coastal environment is identified and managed to ensure its long-term preservation and protection for current and future generations.*	The site is zoned for mixed urban use and within an existing coastal settlement. As such development of the site itself is an anticipated outcome. The presence of the scenic reserve on adjacent land affords some degree of natural character, and this is not adversely affected by the proposal in a minor or more than minor way.
CE-O2 *Land use and subdivision in the coastal environment:* *a.preserves the characteristics and qualities of the natural character of the coastal environment;* *b. is consistent with the surrounding land use;* *c. does not result in urban sprawl occurring outside*	The development readily complies with bulk and location rules – building size, height, coverage. It will be a development consistent with the surrounding land use. It does not result in urban sprawl. Whilst a very limited amount of vegetation clearance is required, this does not adversely

of urban zones; *d. promotes restoration and enhancement of the natural character of the coastal environment; and* *e. recognises tangata whenua needs for ancestral use of whenua Māori.*	impact on natural character or tangata whenua needs for ancestral use of whenua Maori.
CE-O3 *Land use and subdivision in the coastal environment within urban zones is of a scale that is consistent with existing built development.*	The proposal is of a scale consistent with existing built development in the area.

Coastal Environment Policies:

CE-P1 *Identify the extent of the coastal environment as well as areas of high and outstanding natural character* *using the assessment criteria in APP1Mapping methods and criteria.*	The extent of the coastal environment is mapped within the PDP, based on the mapping in the Regional Policy Statement for Northland. Similarly areas of high and outstanding natural character are identified. The site contains a high natural character area, however the proposed building is on the very fringes of this area and will have minimal impact.
CE-P2 *Avoid adverse effects of land use and subdivision on the characteristics and qualities of the coastal environment identified as:* *a. outstanding natural character;* *b. ONL;* *c. ONF.*	The site contains no area of outstanding natural character, ONL or ONF.
CE-P3 *Avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of land use and* *subdivision on the characteristics and qualities of the coastal environment not identified as:* *a. outstanding natural character;* *b. ONL;* *c. ONF*	I believe the proposal will not result in any significant adverse effects. Other effects can be appropriately avoided, remedied or mitigated.
CE-P4 *Preserve the visual qualities, character and integrity of the coastal environment by:* *a.consolidating land use and subdivision around existing urban centres and rural settlements; and* *b.avoiding sprawl or sporadic patterns of development.*	The proposal consolidates development within an existing urban area and avoids sprawl or sporadic patterns of development.
CE-P5 *Enable land use and subdivision in urban zones within the coastal environment where:* *a. there is adequacy and capacity of available or programmed development infrastructure; and* *b.the use is consistent with, and does not compromise the characteristics and qualities.*	There is adequate capacity available to service the proposed lots. The proposal does not, in my opinion, compromise the characteristics and qualities of the area.
CE-P6 *Enable farming activities within the coastal environment where:* *a.the use forms part of the values that established natural character of the coastal environment; or*	Not relevant as farming activities are not proposed.

b.the use is consistent with, and does not compromise the characteristics and qualities.	
CE-P7 *Provide for the use of Māori Purpose zoned land and Treaty Settlement land in the coastal environment where:* *a.the use is consistent with the ancestral use of thatland; and* *b.* *the use does not compromise any identified chara cteristics and qualities*	Not relevant as the land is not zoned Maori Purpose and is not Treaty Settlement land.
CE-P8 *Encourage the restoration and enhancement of the natural character of the coastal environment.*	Not practical or warranted in an urban zoned site within an urban settlement.
CE-P9 *Prohibit land use and subdivision that would result in any loss and/or destruction of the characteristics and* *qualities in outstanding natural character areas.*	The site is not identified as an outstanding natural character area.
CE-P10 *Manage land use and subdivision to preserve and protect the natural character of the coastal environment,* *and to address the effects of the activity requiring resource consent, including (but not limited to) consideration of the following matters where relevant to the application:* *a. the presence or absence of buildings, structures or infrastructure;* *b. the temporary or permanent nature of any adverse effects;* *c. the location, scale and design of any proposed development;* *d. any means of integrating the building, structure or activity;* *e.the ability of the environment to absorb change;* *f. the need for and location of earthworks or vegetation clearance;* *g.the operational or functional need of any regionally significant infrastructure to be sited in the particular location;* *h.any viable alternative locations for the activity or development;* *i.any historical, spiritual or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6;* *j.the likelihood of the activity exacerbating natural hazards;* *k.the opportunity to enhance public access and recreation;* *l.the ability to improve the overall quality of coastal waters; and* *m.any positive contribution the development has on the characteristics and qualities.*	These matters are repetitious of those listed in other sections of the PDP. The site is currently vacant and the scale of development proposed is well within the expected site coverage and bulk and location thresholds of Mixed Use zoned sites. The site has previously supported built development and is proposed to do so again. Minimal vegetation clearance is required and earthworks will be subject to erosion and sediment control measures and monitoring. Risk from hazard can be adequately mitigated. No additional public access is required.

Ecosystems & Indigenous Biodiversity Objectives and Policies:

IB-O1	

Areas of significant indigenous vegetation and significant habitats of indigenous fauna (Significant Natural Areas) are identified and protected for current an d future generations.	No assessment of the indigenous vegetation within the site has been carried out. It is not considered necessary or warranted given the urban zoning of the site and the retention of the vast majority of the vegetation.
IB-O2 *Indigenous biodiversity is managed to maintain its extent and diversity in a way that provides for the social,economic and cultural well-being of people and communities.*	Refer to above comment. Clearance is minor.
IB-O3 *The relationship between tangata whenua and indigenous biodiversity, including taonga species and habitats, is recognised and provided for.*	The proposal does not affect the relationship between tangata whenua and indigenous biodiversity.
IB-O4 *The role of tangata whenua as kaitiaki and landowners as stewards in protecting and restoring significant natural areas and indigenous biodiversity is provided for.*	The significance of the vegetation has not been assessed. The proposal involves only minimal clearance (intentionally) in order to continue to protect indigenous biodiversity.
IB-O5 *Restoration and enhancement of indigenous biodiversity is promoted and enabled.*	Vegetation will be retained on the slope behind the building. Noting the urban zoning of the site I do not believe restoration or enhancement of indigenous biodiversity is warranted/required.
IB-P1 *Identify Significant Natural Areas by:...*	*Not relevant as it is not proposed to identify a Significant Natural Area.*
IB-P2 *Within the coastal environment: a.avoid adverse effects of land use and subdivision on Significant Natural Areas; and b. avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of land use and subdivision on areas of important and vulnerable indigenous vegetation, habitats and ecosystems*	There is no Significant Natural Area. Adverse effects are minimal given the small amount of clearance and intention to retain the vast majority of vegetation.
IB-P3 *Outside the coastal environment.....*	Not relevant as the property is in the coastal environment.
IB-P4 *If adverse effects on indigenous species, habitats and ecosystems located outside of the coastal environment.....*	Not relevant as the property is in the coastal environment.
IB-P5 *Ensure that the management of land use and subdivision to protect Significant Natural Areas and maintain indigenous biodiversity is done in a way that: a. does not impose unreasonable restrictions on existing primary production activities, particularly on highly versatile soils; b.recognises the operational need and functional need of some activities, including regionally significant infrastructure, to be located within Significant*	The site is not an SNA as defined or identified in the PDP. It contains some indigenous vegetation. Part (a) is not relevant as no primary production activity is proposed. Parts (b) & (c) are not relevant. Part (d) is not relevant in that the land is not Maori land.

Natural Areas in some circumstances; *c.allows for maintenance, use and operation of existing structures, including infrastructure; and* *d.enables Māori land to be used and developed to support the social, economic and cultural well-being of* *tangata whenua, including the provision of papakāinga, marae and associated residential units and infrastructure*	
IB-P6 *Encourage the protection, maintenance and restoration of indigenous biodiversity, with priority given to Significant Natural Areas, through non-regulatory methods .....*	Not relevant in this case.
IB-P7 *Encourage and support active management of pest plants and pest animals.*	Not a relevant consideration in this case, where development is proposed in an urban zone.
IB-P8 *Promote the protection of species that are endemic to Northland by eco-sourcing plants from within the ecological district.*	Not a relevant consideration where no re-vegetation or restorative planting is proposed.
IB-P9 *Require landowners to manage pets and pest species, including dogs, cats, possums, rats and mustelids,* *to avoid risks to threatened indigenous species, including avoiding the introduction of pets and pest species into kiwi present or* *high-density kiwi areas.*	It is not considered warranted or necessary to restrict the keeping of pets on a site that is urban and proposed for urban use.
IB-P10 *Manage land use and subdivision to address the effects of the activity requiring resource consent for indigenous vegetation clearance and associated land disturbance, including (but not limited to)* *consideration of the following matters where relevant to the application:* *a. the temporary or permanent nature of any adverse effects;* *b.cumulative effects of activities that may result in loss or degradation of habitats, species populations and ecosystems;* *c.the extent of any vegetation removal and associated land disturbance;* *d.the effects of fragmentation;* *e.linkages between indigenous ecosystems and habitats of indigenous species;* *f. the potential for increased threats from pest plants and animals;* *g.any downstream adverse effects on waterbodies and the coastal marine area;* *h.where the area has been mapped or assessed as a Significant Natural Areas: .....* *i.the location, scale and design of any proposed development;* *j.the extent of indigenous vegetation cover on the site and whether it is practicable to avoid or*	There will temporary disturbance of the site during construction, but less than minor permanent adverse effects. There are no adverse cumulative effects resulting from a development of this type and scale. The vegetation clearance is over a small area. Lands disturbance will create temporary effects and will be carefully carried out subject to erosion and sediment control measures. Linkages between indigenous vegetation within the site and the adjacent Scenic Reserve will remain. The proposed development does not increase the threat from pest plants and animals. With appropriate erosion and sediment control, and stormwater management, there will be no adverse effects on the coastal marine area. The development is compliant with bulk and location permitted rules and standards. Indigenous vegetation clearance is being kept to

reduce the extent of indigenous vegetation clearance; *k. the functional or operational needs of regionally significant infrastructure;* *l. any positive contribution any proposed biodiversity offsets or environmental biodiversity compensation will have on indigenous biodiversity; and* *m.any historical, spiritual or cultural association held by tangata whenua, with regard to the matters set out in Policy TW-P6.*	the absolute minimum required. The site is not identified as having special historical, spiritual or cultural values. The adjacent Nihonui Reserve will not be adversely affected by the proposal which is to re-develop a site that has previously been developed for residential and accommodation use.

Objectives and Policies relevant to 'high natural character':

No objectives and policies in the PDP relating to high natural character appear relevant. They all refer solely to the natural character of wetland, lake and river margins, none of which exist on or near the site.

Natural Hazard Objectives and Policies

NH-O1 *The risks from natural hazards to people, infrastructure and property are managed, including taking into account the likely long-term effects of climate change, to ensure the health, safety and resilience of communities.*	The supporting reports conclude there is minimal risk from natural hazards.
NH-O2 *Land use and subdivision does not increase the risk from natural hazards or risks are mitigated, and existing risks are reduced where there are practicable opportunities to do so.*	The supporting reports conclude the development can occur without increasing the risk from natural hazards.
NH-O3 *New infrastructure is located outside of identified natural hazard areas unless:* *a.it has a functional or operational need to be located in that area;* *b.it is designed to maintain its integrity and function, as far as practicable during a natural hazard event and* *c.adverse effects resulting from that location on other people, property and the environment are mitigated.*	N/A – applies to service providers.
NH-O4 *Natural defences, such as natural systems and features, and existing structural mitigation assets are protected to maintain their functionality and integrity and used in preference to new structural mitigation assets to manage natural hazard risk.*	Not relevant – no new defences against natural hazard risk are proposed or necessary.
NH-P1 *Map or define areas that are known to be subject to the following natural hazards, taking into*	Not an individual landowner's responsibility. The PDP's maps show the areas potentially subject to

account *accepted estimates of climate change and sea level rise:* *a. flooding;* *b. coastal erosion;* *c. coastal inundation; and* *d. land instability.*	coastal erosion, based on NRC work.
NH-P2 *Manage land use and subdivision so that natural hazard risk is not increased or is mitigated, giving consideration to the following:* *a. the nature, frequency and scale of the natural hazard;* *b. not increasing natural hazard risk to other people, property, infrastructure and the environment beyond the site;* *c. the location of building platforms and vehicle access;* *d. the use of the site, including by vulnerable activities;* *e. the location and types of buildings or structures, their design to mitigate the effects and risks of natural hazards, and the ability to adapt to long term changes in natural hazards;* *f. earthworks, including excavation and fill;* *g. location and design of infrastructure;* *h. activities that involve the use and storage of hazardous substances;* *i. aligning with emergency management approaches and requirements;* *j. whether mitigation results in transference of natural hazard risk to other locations or exacerbates the natural hazard; and* *k. reduction of risk relating to existing activities.*	Refer to Coastal Hazard Assessment and Geotech reports accompanying the application. I consider the proposal to be appropriate for the site and one that has adequately taken into account hazard risks.
NH-P3 *Take a precautionary approach to the management of natural hazard risk associated with land use and subdivision.*	See above.
NH-P4 *Manage land use and subdivision so that the functionality and long-term integrity of existing structural mitigation assets are not compromised or degraded.*	To my knowledge there are no existing structural mitigation assets in the area (relating to natural hazard).
NH-P5 *Require an assessment of risk prior to land use and subdivision in areas that are subject to identified natural hazards, including consideration of the*	Refer to Coastal Hazard risk assessment accompanying application.

following: *a. the nature, frequency and scale of the natural hazard;* *b. the temporary or permanent nature of any adverse effect;* *c. the type of activity being undertaken and its vulnerability to an event, including the effects of climate change;* *d. the consequences of a natural hazard event in relation to the activity;* *e. any potential to increase existing risk or creation of a new risk to people, property, infrastructure and the environment within and beyond the site and how this will be mitigated;* *f. the design, location and construction of buildings, structures and infrastructure to manage and mitigate* *the effects and risk of natural hazards including the ability to respond and adapt to changing hazards;* *g.the subdivision/site layout and management, including ability to access and exit the site during a natural hazard event; and* *h.the use of natural features and natural buffers to manage adverse effects.*	
NH-P7 – Coastal Hazard *Manage new land use and subdivision in coastal hazard areas so that:* *a.new subdivision .....avoids* *locating building platforms within High Risk Coastal Hazard areas and building platforms should be located outside other coastal hazard areas where alternative locations are available and it is practicable to do so;* *b.new buildings containing vulnerable activities are not located within High Risk Coastal Hazard areas unless:* *i.there is no other suitable location available on the existing site;* *ii.hazard risks can be mitigated without the need for hard protection structures.* *c. where a building or building platform is located with a coastal hazard area, it should be designed and constructed such that:* *i.the building platform will not be subject to inundation and / or material damage (including erosion) over a 100-year timeframe; and either* *ii.the finished floor level of any building accommodating a vulnerable activity must be at least 500mm above the maximum water level in a 1 percent AEP flood event plus 1m sea level rise; or* *iii.the finished floor level of any other building must be at least 300mm above the maximum water level in a 1 percent AEP flood event plus 1m sea level rise.*	The proposal is not a subdivision and the site is not subject to a High Risk Coastal Hazard area notation – this is defined as CEHZ1, which the site is not. Part (a) is therefore not relevant. The development is not within a High Risk Coastal Hazard area (part (b). The building will be outside of any area subject to inundation over a 100-year timeframe (part (c)). Refer to Coastal Hazard assessment.

d.hazard risk is not transferred to, or increased on, other properties; *e.buildings, building platforms, access and services are located and designed to minimise the need for hard protection structures;* *f.safe vehicle access within the site is provided; and* *g.services are located and designed to minimise the risk of natural hazards.*	
Land Instability ***NH-P8*** *Locate and design subdivision and land use to avoid land susceptible to land instability, or if this is not practicable, mitigate risks and effects to people, buildings, structures, property and the environment.*	A small part of the development area is mapped as erosion prone. A Geotechnical Report accompanies the application and states that, provided recommendations within that report are followed, the building will not be at risk from land instability hazard.
Wildfire ***NH-P9*** *Manage land use and subdivision that may be susceptible to wildfire risk by requiring:* *a. setbacks from any contiguous scrub or shrubland, woodlot or forestry;* *b. access for emergency vehicles; and* *c. sufficient accessible water supply for firefighting purposes.*	The site is serviced by Council reticulated water and there is a hydrant at the site's road frontage. Access for emergency vehicles is readily available. It is not possible to achieve a full 20m clear space given bush on adjacent land and building envelope location, however as much as can be achieved, will be. NZ Fire and Emergency have been consulted and have not identified any issues.

In summary, I believe the proposal is more consistent than not with the relevant objectives and policies in the Proposed District Plan.

9.3 Part 2 Matters

5 Purpose

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

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

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

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

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

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

6 Matters of national importance

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

(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:

(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

(f) the protection of historic heritage from inappropriate subdivision, use, and development:

(g) the protection of protected customary rights:

(h) the management of significant risks from natural hazards.

The application site is zoned for urban use and is within an existing urban area. As such natural character values have been somewhat compromised already by the built development one expects in an urban zone. Some natural character is retained by virtue of the Nihonui Scenic Reserve on the hill and headland above and adjacent to the site, and this will remain, unaffected by the proposal given the site's zoning and expectation of built development. The site does not contain any outstanding landscape or natural feature. Whilst there is indigenous vegetation on the site, its significance has not been assessed and the vast majority of the indigenous vegetation is being retained. There is no impact on public access to the coastal marine area, nor on the relationship of Maori and their culture and traditions. There are no protected customary rights impacted by the development. The site contains to historic heritage buildings or sites. Whilst the site is mapped as being within the Zone 2 & 3 Coastal Erosion areas, this is not a 'significant' risk (not defined as even a 'high risk' coastal hazard). Fire risk has been assessed and satisfactorily mitigated so as not be a 'significant' risk.

7 Other matters

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

(a) kaitiakitanga:

(aa) the ethic of stewardship:

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

Regard has been had to any relevant parts of Section 7 of the RMA, "Other Matters". These include 7(b), (c), (d) and (f). The proposed development can be carried out while ensuring the maintenance of amenity values and the quality of the environment. The proposal has had regard to the values of ecosystems.

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

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

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

9.4 National Environmental Standards

The National Environmental Standard for Freshwater Management (NES-FM) is not relevant as the site contains no natural wetlands or freshwater bodies.

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health is not relevant in that the site is not being used, and as far as I am aware has not historically been used, for a HAIL activity. The site is not listed on either the NRC's Selected Land Use maps, or FNDC's HAIL site maps as a site containing contaminated soil or a HAIL activity.

9.5 National Coastal Policy Statement

The New Zealand Coastal Policy Statement 2010 contains policies to achieve the purpose of the Act in relation to the coastal environment of New Zealand. It contains seven objectives and 29 policies. The objectives are listed below

Review of Objectives of NZCPS 2010

1. To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including marine and intertidal areas, estuaries, dunes and land, by:
• maintaining or enhancing natural biological and physical processes in the coastal environment and recognising their dynamic, complex and interdependent nature;
• protecting representative or significant natural ecosystems and sites of biological importance and maintaining the diversity of New Zealand's indigenous coastal flora and fauna; and
• maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition, with significant adverse effects on ecology and habitat, because of discharges associated with human activity.

2. To preserve the natural character of the coastal environment and protect natural features and landscape values through:
• recognising the characteristics and qualities that contribute to natural character, natural features and landscape values and their location and distribution;
• identifying those areas where various forms of subdivision, use and development would be inappropriate and protecting them from such activities; and
• encouraging restoration of the coastal environment.

3. To take account of the principles of the Treaty of Waitangi, recognise the role of tangata whenua as kaitiaki and provide for tangata whenua involvement in management of the coastal environment by:
• recognising the ongoing and enduring relationship of tangata whenua over their lands, rohe and resources;
• promoting meaningful relationships and interactions between tangata whenua and persons exercising functions and powers under the Act;
• incorporating mātauranga Māori into sustainable management practices; and
• recognising and protecting characteristics of the coastal environment that are of special value to tangata whenua.

4. To maintain and enhance the public open space qualities and recreation opportunities of the coastal environment by:

• recognising that the coastal marine area is an extensive area of public space for the public to use and enjoy;
• maintaining and enhancing public walking access to and along the coastal marine area without charge, and where there are exceptional reasons that mean this is not practicable providing alternative linking access close to the coastal marine area; and
• recognising the potential for coastal processes, including those likely to be affected by climate change, to restrict access to the coastal environment and the need to ensure that public access is maintained even when the coastal marine area advances inland.

5. To ensure that coastal hazard risks taking account of climate change, are managed by:
• locating new development away from areas prone to such risks;
• considering responses, including managed retreat, for existing development in this situation; and
• protecting or restoring natural defences to coastal hazards.

6. To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development, recognising that:
• the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits;
• some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities;
• functionally some uses and developments can only be located on the coast or in the coastal marine area;
• the coastal environment contains renewable energy resources of significant value;

• the protection of habitats of living marine resources contributes to the social, economic and cultural wellbeing of people and communities;
• the potential to protect, use, and develop natural and physical resources in the coastal marine area should not be compromised by activities on land;
• the proportion of the coastal marine area under any formal protection is small and therefore management under the Act is an important means by which the natural resources of the coastal marine area can be protected;
• historic heritage in the coastal environment is extensive but not fully known, and vulnerable to loss or damage from inappropriate subdivision, use, and development.

7. To ensure that management of the coastal environment recognises and provides for New Zealand's international obligations regarding the coastal environment, including the coastal marine area.

The proposal is within the existing urban settlement of Paihia. The proposal represents infill development within that urban settlement thereby avoiding sprawl and sporadic development. This is consistent with the NZCPS. The site has historically supported residential and accommodation use and it is now proposed to do so again.

The risk from coastal hazard has been discussed earlier in this report. The site is not within a high risk coastal erosion area and given its elevation above sea level, is not at risk from coastal inundation or sea level rise. This is consistent with the NZCPS.

The site has no outstanding natural character or landscape values. The proposal does not involve any substantive indigenous vegetation clearance, although some is required to accommodate the building area. The vast majority of vegetation on the site is to be retained. Earthworks will be required for the construction of the proposed road and building platforms. Such works will be subject to Accidental Discovery Protocol and Erosion and Sediment Control measures. The works will likely also be subject to adherence to a Council approved Construction Management Plan.

The site can be serviced in terms of 3 waters and power.

In summary, I believe the proposal to be generally consistent with the objectives and policies of the NZCPS. The proposal does not adversely impact on the integrity, form, functioning or resilience of the coastal environment. There will be minimal, if any, effect on coastal processes, biota, water quality or recreational use of the CMA.

9.6 Regional Policy Statement for Northland

In preparing this application, the Regional Policy Statement for Northland has been considered. This addresses the use, development and protection of natural and physical resources, particularly air, land, water and the coastal marine area where regional councils have specific functional responsibilities.

Relevant objectives and policies include:

Objective 3.5 - Enabling economic wellbeing
Northland's natural and physical resources are sustainably managed in a way that is attractive for business and investment that will improve the economic wellbeing of Northland and its communities.

Objective 3.14 - Natural character, outstanding natural features, outstanding natural landscapes and historic heritage
Identify and protect from inappropriate subdivision, use and development;
(a) The qualities and characteristics that make up the natural character of the coastal environment, and the natural character of freshwater bodies and their margins;
(b) The qualities and characteristics that make up outstanding natural features and outstanding natural landscapes;
(c) The integrity of historic heritage.

Policy 4.6.1 – Managing effects on natural character, features / landscapes and heritage
*(**1) In the coastal environment**:*
a) Avoid adverse effects of subdivision use, and development on the characteristics and qualities which make up the outstanding values of areas of outstanding natural character, outstanding natural features and outstanding natural landscapes.
***b) Where (a) does not apply**, avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of subdivision, use and development on natural character, natural features and natural landscapes. Methods which may achieve this include:*
(i) Ensuring the location, intensity, scale and form of
subdivision and built development is appropriate having regard to natural elements, landforms and processes, including vegetation patterns, ridgelines, headlands, peninsulas, dune systems, reefs and freshwater bodies and their margins; and
(ii) In areas of high natural character, minimising to the extent practicable indigenous vegetation clearance and modification (including earthworks / disturbance, structures, discharges and extraction of water) to natural wetlands, the beds of lakes, rivers and the coastal marine area and their margins; and
***(iii) Encouraging any new subdivision and built development to consolidate within and around existing settlements or where natural character and landscape has already been compromised**.*
(2) Outside the coastal environment ....
(3) When considering whether there are any adverse effects on the characteristics and qualities of the natural character, natural features and landscape values in terms of (1)(a), ...

The site is in the coastal environment and NOT identified as having any outstanding natural character or landscape values. The proposal is consistent with the bolded clause above in that it is redevelopment of a site previously developed for a similar land use, consolidated within and around an existing settlement and where natural character and landscape has already been compromised to some degree.

The site does contain indigenous vegetation, the bulk of which will be retained.

The activity encourages economic well being and growth. The proposal is not considered to be 'inappropriate' and is regarded as being in keeping with the character of the area.

The site is mapped as being within the Zone 2 & 3 coastal erosion hazard area, not defined as a "high risk" coastal hazard area. The application is accompanied by a Coastal Hazard Assessment which concludes that the development can adequately mitigate risk and not increase risk.

7.1.3 Policy – New subdivision, use and development within areas potentially affected by coastal hazards (including high risk coastal hazard areas)
Within areas potentially affected by coastal hazards over the next 100 years (including high risk coastal hazard areas), the hazard risk associated with new use and development will be managed so that:
(a) Redevelopment or changes in land use that reduce the risk of adverse effects from coastal hazards are encouraged;

(b) Subdivision plans are able to identify that building platforms are located outside high risk coastal hazard areas and these building platforms will not be subject to inundation and / or material damage (including erosion) over a 100-year timeframe;
(c) Coastal hazard risk to vehicular access routes for proposed new lots is assessed;
(d) Any use or development does not increase the risk of social, environmental or economic harm (from coastal hazards);
(e) Infrastructure should be located away from areas of coastal hazard risk but if located within these areas, it should be designed to maintain its integrity and function during a hazard event; ....

The site is not subject to 'high risk' coastal hazard, and therefore can provide a building platform outside a high risk coastal hazard area. Safe vehicular access can be provided. The development will not increase the risk of harm from hazard. In ground infrastructural reticulated services are existing. I do not consider there to be any significant risk from coastal hazard.

In summary the proposal is consistent with the relevant objectives and policies in the Regional Policy Statement for Northland.

10.0 S 95A-E & CONSULTATION

10.1 S95A Public Notification Assessment

A consent authority must follow the steps set out in s95A to determine whether to publicly notify an application for a resource consent. Step 1 specifies when public notification is mandatory in certain circumstances. None of those circumstances exist. Step 2 of s95A specifies the circumstances that preclude public notification. No such circumstances exist and therefore Step 3 of s95A must be considered. This specifies that public notification is required in certain circumstances. The application is not subject to a rule or national environmental standard that requires public notification. This report and AEE concludes that the activity will not have, nor is it likely to have, adverse effects on the environment that are more than minor. In summary public notification is not required pursuant to Step 3 of s95A.

Step 4 of s95A states that the consent authority is to determine if there are any special circumstances under which public notification may be warranted. I do not consider any such circumstances exist.

10.2 S95B Limited Notification Assessment

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

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

(8) In the case of any other activity, determine whether a person is an affected person in accordance with section 95E.

The application is not for a boundary activity. The s95E assessment below concludes that there are no affected persons. This is not to say that no consultation has been carried out. The application has been discussed with NZTA and with NZ Fire and Emergency given that (a) access is off Marsden Road which is State Highway 11; and (b) consent is required for a breach of the Fire Risk to Residential Unit rule.

Step 4 of s95B states that the consent authority is to determine if there are any special circumstances. I do not consider any such circumstances exist.

10.3 S95D Level of Adverse Effects

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

10.4 S95E Affected Persons

A person is an 'affected person' if the consent authority decides that the activity's adverse effects on the person are minor or more than minor (but are not less than minor). A person is not an affected person if they have provided written approval for the proposed activity. Both NZTA and NZ Fire and Emergency have been consulted. NZTA is being consulted. NZ Fire and Emergency have raised no concerns given the availability of a fire fighting water supply.

The proposed development is for residential use of a site previously utilised for residential living. It is zoned for Commercial use. The proposed development will not adversely impact on the adjacent Nihonui Scenic reserve given that it simply seeks to re-establish historic land use of the site. The site to the west has recently been consented residential type use, with a part of what was consented already constructed, with more development to come. The proposed development does not breach any boundary rule. It is within the permitted height limit. Earthworks will be carried out subject to Earthworks Permit and in compliance with Erosion and Sediment Control measures. I have not identified any affected persons in regard to adjacent sites.

11.0 CONCLUSION

The site is considered suitable for the proposed development. Effects on the wider environment are, I believe, capable of remedy and mitigation through conditions of consent, such that they will be no more than minor. The proposal is not considered contrary to the relevant objectives and policies of the Operative or Proposed District Plan, or with relevant objectives and policies of the National and Regional Policy Statements, and Part 2 of the Resource Management Act have been had regard to.

There is no District Plan rule or national environmental standard that requires the proposal to be publicly notified. No affected persons have been identified.

It is requested that the Council give favourable consideration to this application and grant consent.

Signed Dated 21st March 2025
Lynley Newport,
Senior Planner
Thomson Survey Ltd

12.0 LIST OF APPENDICES

Appendix 1 Plans of Development

Appendix 2 Location Plan

Appendix 3 Records of Title & Relevant Instruments

Appendix 4 Consultation with NZ Fire and Emergency

Appendix 5 Consultation with NZTA

Appendix 6 Acoustic Assessment / Certificate

Appendix 7 Geotechnical Report

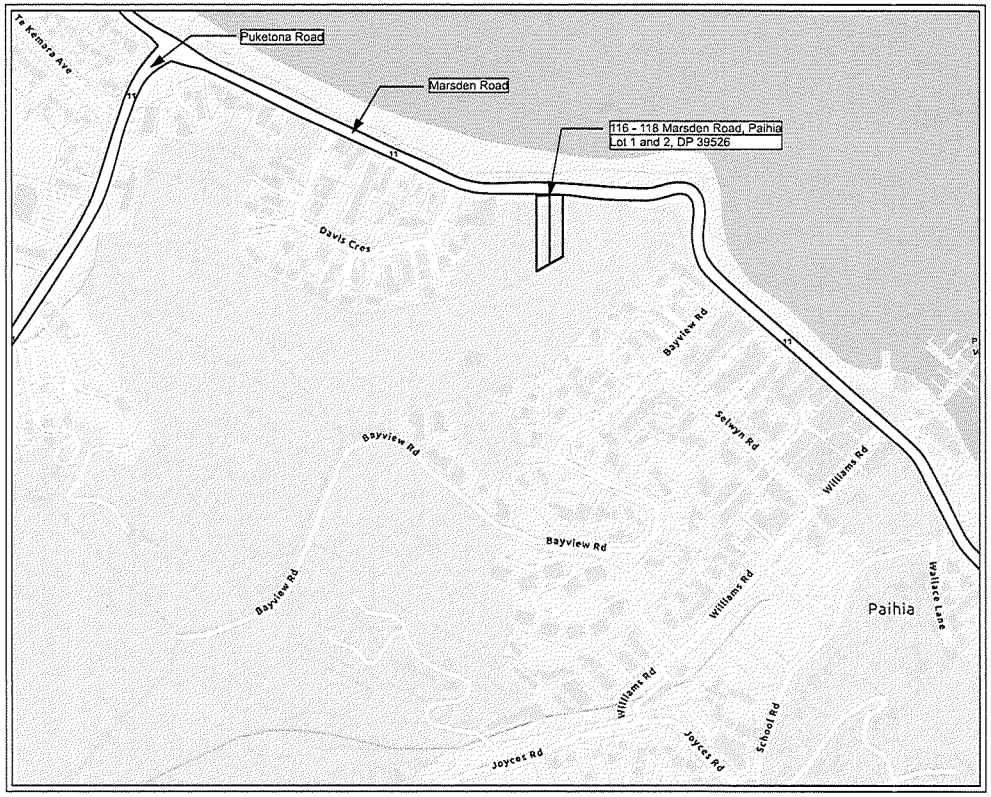
Appendix 8 Civil Site Suitability Report

Appendix 9 Coastal Erosion Hazard Assessment

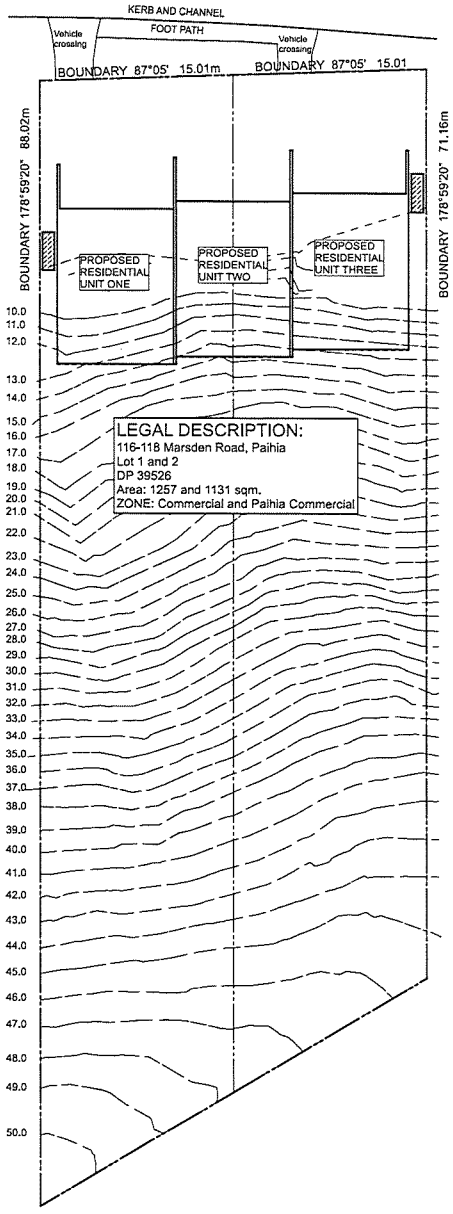
Appendix 10 Earthworks Management Plan

Appendix 1

Plans of Development



LOCALITY PLAN
SCALE: NTS



OVERALL SITE PLAN
SCALE: 1:200

Do not scale from drawings.
The Contractor must check and verify all dimensions on site prior to commencing any work.

All work to be in accordance with
The Building Act 2004,
The New Zealand Building Code, NZS 3604 and
Any additional Territorial Authority requirements.
Refer Specification for references to other
New Zealand / Australian Standards to be complied with as they apply to this project.

WIND ZONE: HIGH
EXPOSURE ZONE: D

N

A RESOURCE CONSENT 19-03-25

REVISIONS

DRAWING
LOCALITY PLAN /
OVERALL SITE PLAN

JOB
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SCALE	SHEET No.
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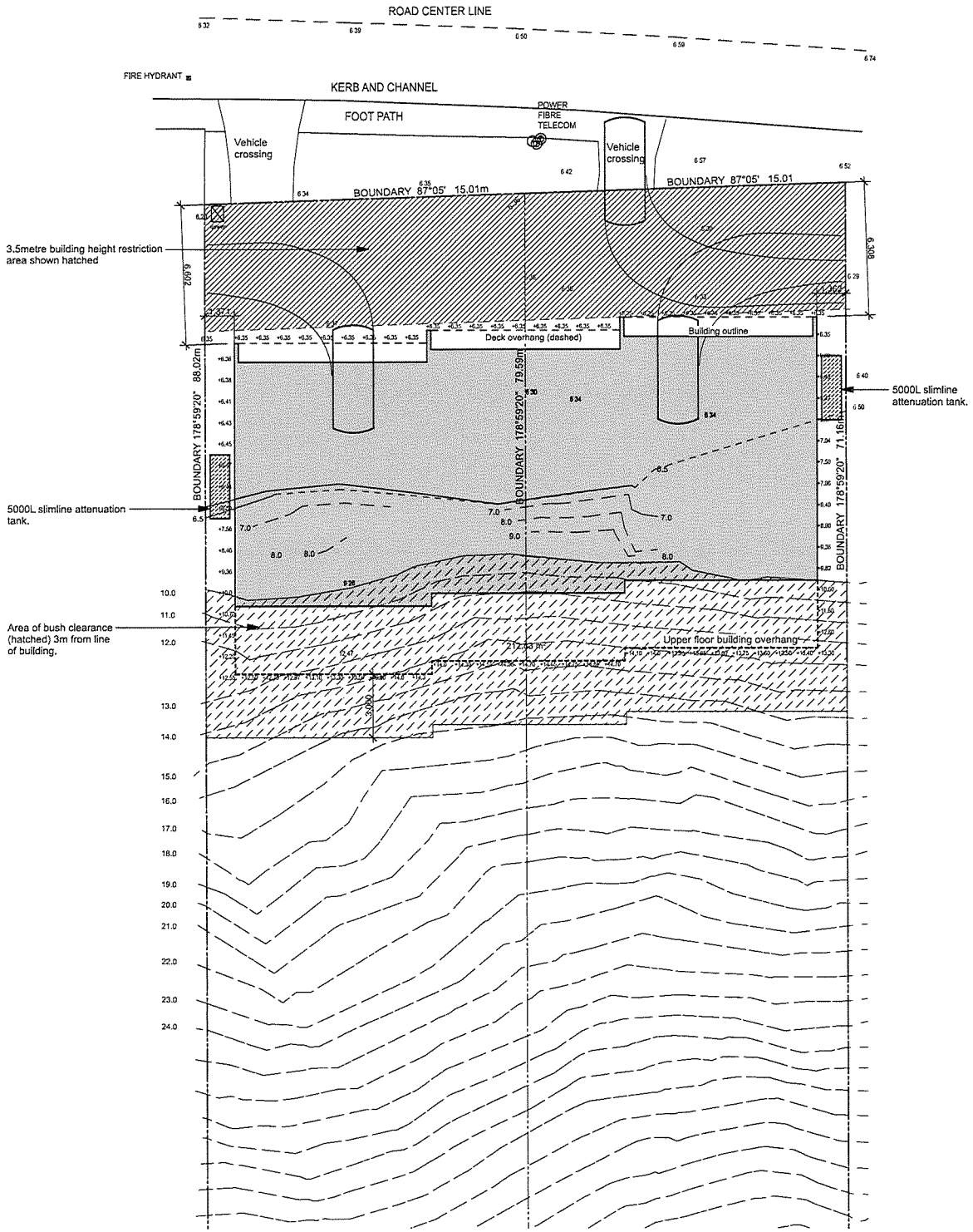

LEGAL DESCRIPTION:

116-118 Marsden Road, Paihia
Lot 1 and 2
DP 39526
Area: 1257 and 1131 sqm.
ZONE: Commercial and Paihia Commercial

Earth works in the comercial Zone are not provided for in the operative district plan.
Therefore we assume all earth works are permitted.

7.7.5.1.1 BUILDING HEIGHT

(a) The maximum height of any building in the following Commercial Zones shall be 10m:

(ix) Paihia Area A4 except for a distance of 6.0m from the road boundary where the maximum height shall be 3.5m provided no more than 60% of the road boundary is occupied by a building (Map 91);

Maximum Height Calculation

Using mean ground level method
Average of spot ground heights taken at 1 metre intervals around thew perimeter of the building.
87 Spot heights totalling 813.82
Average Ground level = 9.35
10 Metre maximum height = RL 19.35

7.7.5.1.3 VISUAL AMENITY AND ENVIRONMENTAL PROTECTION

(b) At least 50% of that part of the site between the road boundary and a parallel line 3m therefrom, which is not occupied by buildings or driveways, shall be landscaped.

7.7.5.1.4 SETBACK FROM BOUNDARIES

(b) The setbacks from the road boundary within the Commercial Zone in Paihia as shown on Map 91 shall be as follows:

(iv) Area A4: 0m provided no more than 60% of the road boundary is occupied by a building;

7.7.5.1.5 NOISE MITIGATION FOR RESIDENTIAL ACTIVITIES

Any new residential activity involving permanent or non-permanent accommodation shall be developed in such a way that the attenuation of noise between any boundary and living room is no less than 20 dB, and between any boundary and any room used for sleeping is no less than 30 dB. In the absence of forced ventilation or air-conditioning, these reductions shall be achieved with any exterior windows open.
The Council will require an acoustic design report prepared by a suitably qualified and experienced person demonstrating compliance with this requirement prior to issuing any Certificate of Compliance under s139 of the Act.

7.7.5.1.11 STORMWATER

The disposal of collected stormwater from the roof of all new buildings and new impervious surfaces provided that the activity is within an existing consented urban stormwater management plan or discharge consent.

12.4.6.1.2 FIRE RISK TO RESIDENTIAL UNITS

(a) Residential units shall be located at least 20m away from the drip line of any trees in a naturally occurring or deliberately planted area of scrub or shrubland, woodlot or forest;
(b) Any trees in a deliberately planted woodlot or forest shall be planted at least 20m away from any urban environment zone, Russell Township or Coastal Residential Zone boundary, excluding the replanting of plantation forests existing at July 2003.

12.7.6.1.2 SETBACK FROM SMALLER LAKES, RIVERS AND WETLANDS

Any building and any impermeable surface must be set back from the boundary of any lake (where a lake bed has an area of 8ha or more), river (where the average width of the riverbed is 3m or more) or the boundary of the coastal marine area, except that this rule does not apply to man-made private water bodies other than the Maruwai and Waingaro Reservoirs.
The setback shall be:

(c) a minimum of 20m in the Commercial and Industrial Zones.
Provided that these setbacks do not apply:

(vii) where there is a legally formed and maintained road between the property and the coastal marine area, lake or river;

NOTE:

In the regional council
100year Coastal Erosion Hazard Zone,
and Rapid Sea Level Rise.
Also in the proposed district plan as High Natural Character

Under the proposed district plan a resource consent will be needed if the earthworks are more than 200m³ and if the retained height exceeds 3metre.

FLOOR AREAS:

UNIT ONE GROSS FLOOR AREA:
Ground Floor - 105.01m2
Level One - 112.15m2
Level Two - 112.15m2
Total Gross Floor Area: 329.31
Level One Deck Area (additional to above GFA): 29.91

UNIT TWO GROSS FLOOR AREA:
Ground Floor - 104.01m2
Level One - 110.87m2
Level Two - 110.87m2
Total Gross Floor Area: 325.75
Level One Deck Area (additional to above GFA): 29.92

UNIT THREE GROSS FLOOR AREA:
Ground Floor - 104.95m2
Level One - 112.07m2
Level Two - 112.07m2
Total Gross Floor Area: 329.09
Level One Deck Area (additional to above GFA): 29.91

Do not scale from drawings.
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Any additional Territorial Authority requirements.
Refer Specification for references to other New Zealand / Australian Standards to be complied with as they apply to this project.

WIND ZONE: HIGH
EXPOSURE ZONE: D

N

A RESOURCE CONSENT 19-03-25

REVISIONS

DRAWING
SITE PLAN

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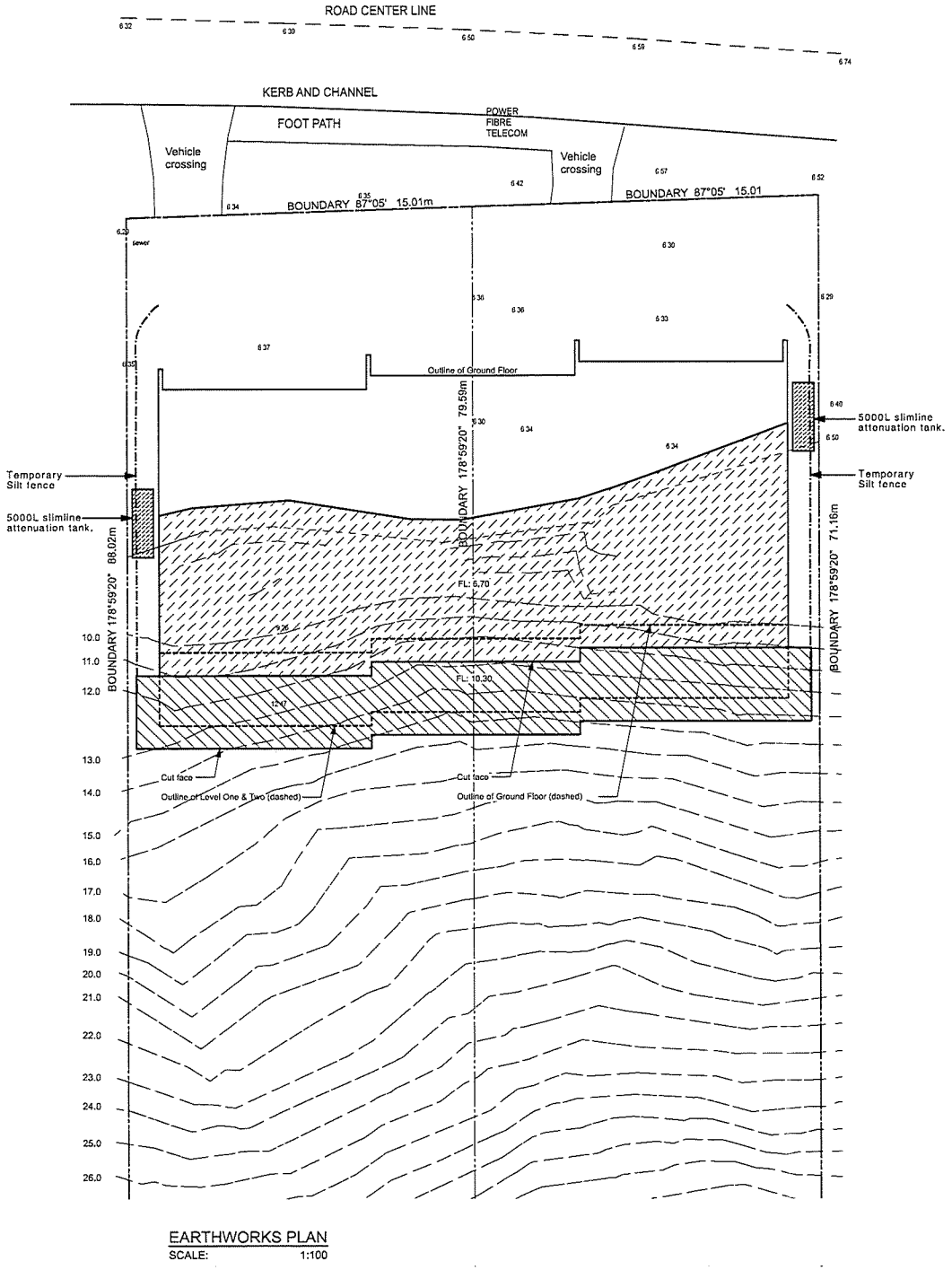


EARTHWORKS PLAN
SCALE: 1:100

SITEWORKS NOTES:

VOLUME OF BULK CUT = 759m3 approx of original ground.
MAXIMUM CUT DEPTH = 4.65m (supported by masonry block wall)
TOTAL AREA OF EARTHWORKS = 293m2

Remove all excavated material from site as excavation progresses.

Only expose enough ground at any one time as required to complete the siteworks.
Building platform and driveway to be covered immediately after exposure of ground with granular material to stabilise and prevent drying out.
Cover cut faces with polythene sheet material until retaining structures have been completed and ready for backfilling.

Install temporary filter cloth to any existing drains.
Maintain during construction, including regular cleaning.

Stormwater downpipes and drains to be connected to drainage systems as soon as practical after roof is installed.
Provide temporary deflection of roof water away from building platform to grassed area for the period between installation of spoutings, and connection of downpipes to rain water collection / disposal system.

Monitor and review erosion & sediment control measures constantly throughout the period that earth remains uncovered.

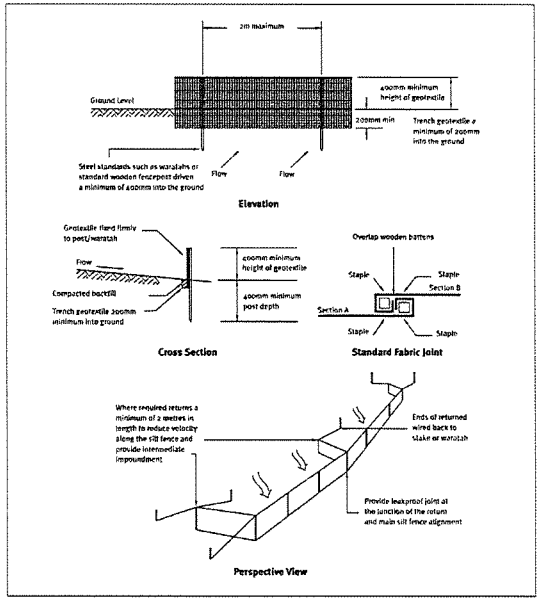
Maintain existing surrounding vegetated or grassed areas where possible to filter any overland flow runoff from rain events.

Indicates temporary silt fence to Far North District Council requirements.

Provide hardstand area as washout bay for trucks.

INDICATES BULK CUT AREA to RL 6.40.

INDICATES BULK CUT AREA to RL 9.60.



SILT FENCE
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WIND ZONE: HIGH
EXPOSURE ZONE: D

N

A RESOURCE CONSENT 19-03-25

REVISIONS

DRAWING
EARTHWORKS PLAN

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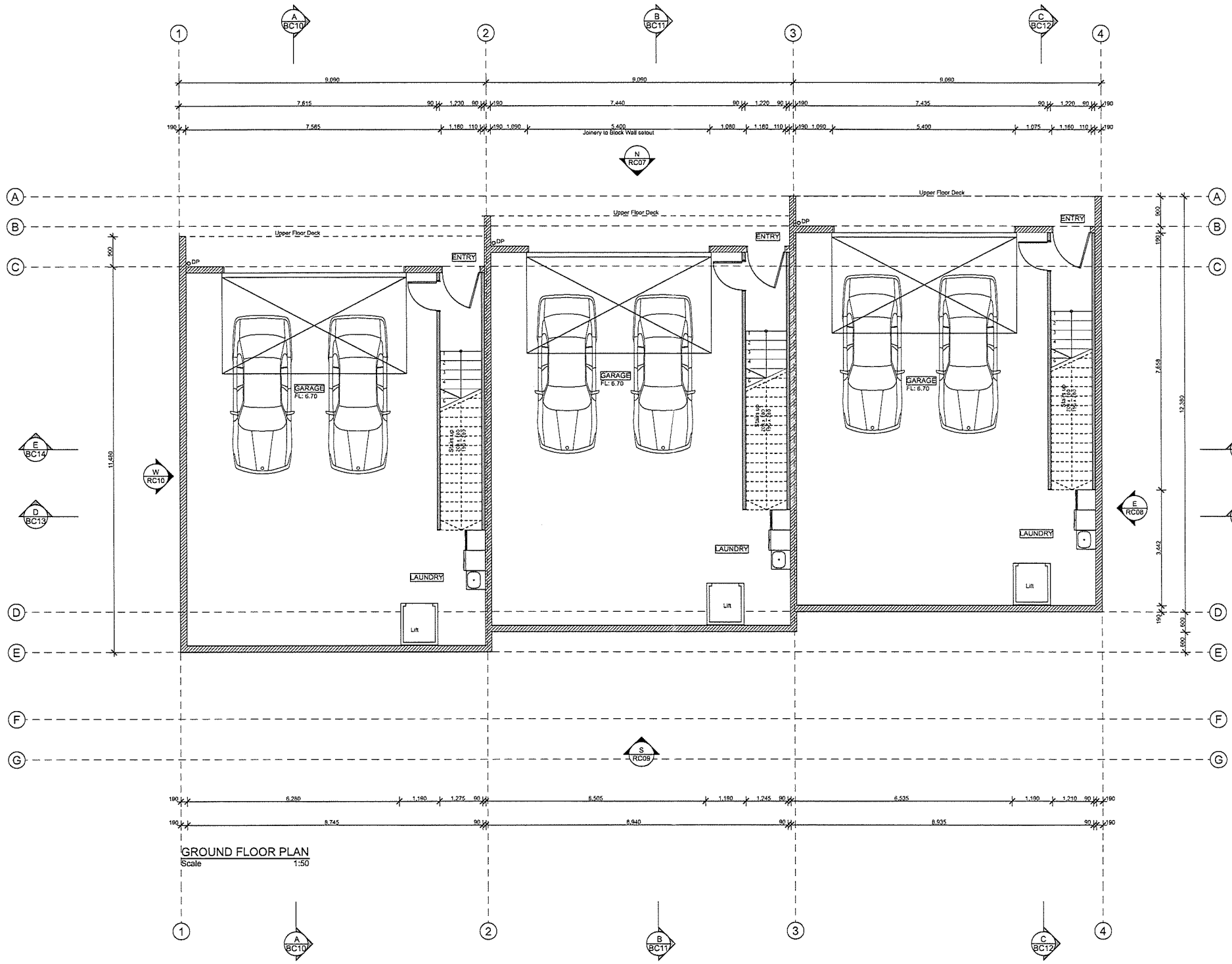

GROUND FLOOR PLAN
Scale 1:50

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The New Zealand Building Code, NZS 3604 and
Any additional Territorial Authority requirements.
Refer Specification for references to other New Zealand / Australian Standards to be complied with as they apply to this project.

WIND ZONE: HIGH
EXPOSURE ZONE: D

A RESOURCE CONSENT 19-03-25

REVISIONS

DRAWING
GROUND FLOOR PLAN

JOB
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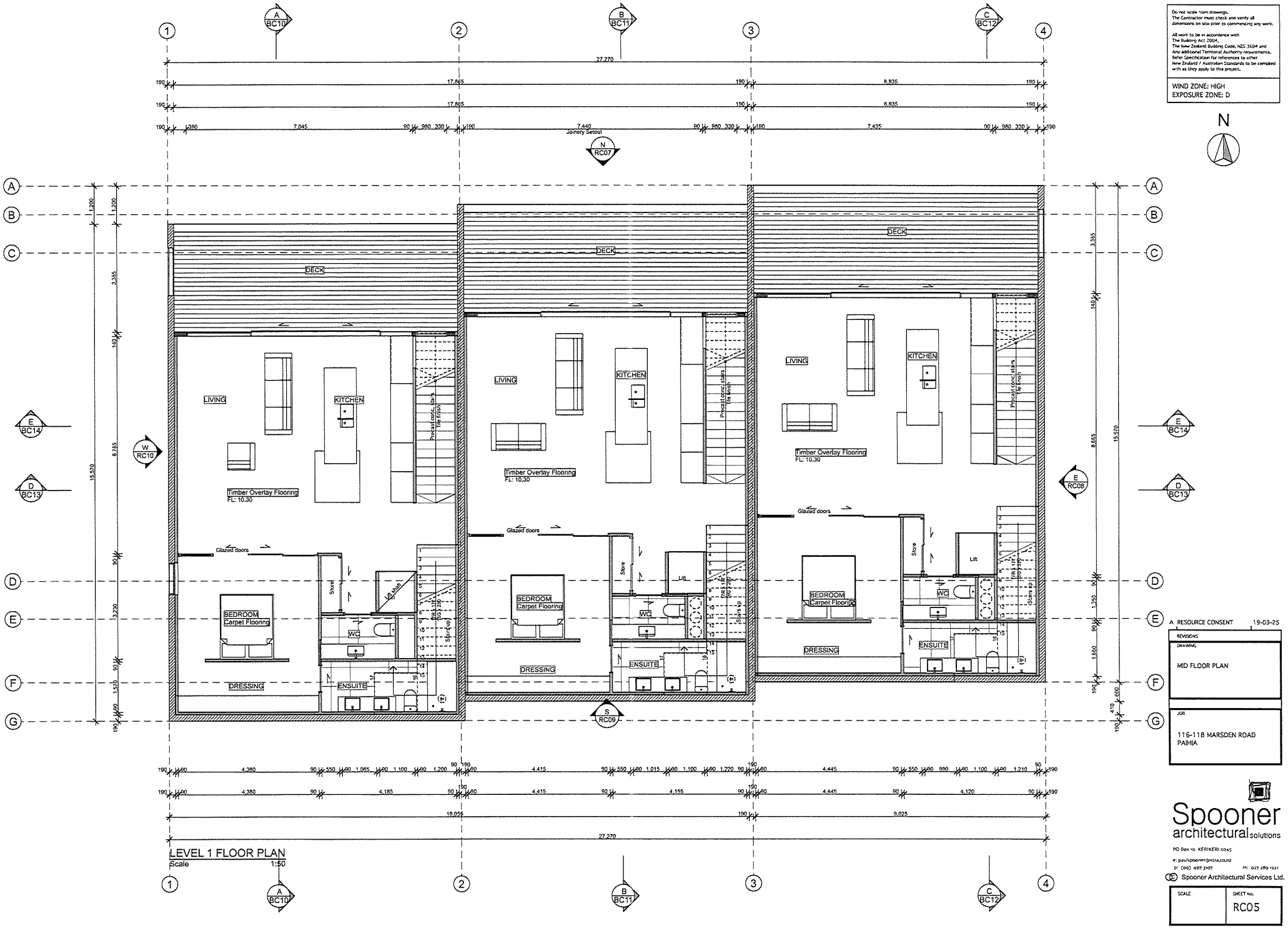

Do not scale from drawings.
The Contractor must check and verify all dimensions on site prior to commencing any work.

All work to be in accordance with
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The New Zealand Building Code, NZS 3604 and
Any additional Territorial Authority requirements.
Refer Specification for references to other
New Zealand / Australian Standards to be complied with as they apply to this project.

WIND ZONE: HIGH
EXPOSURE ZONE: D

N

A RESOURCE CONSENT 19-03-25

REVISIONS

DRAWING
MID FLOOR PLAN

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PAIHIA

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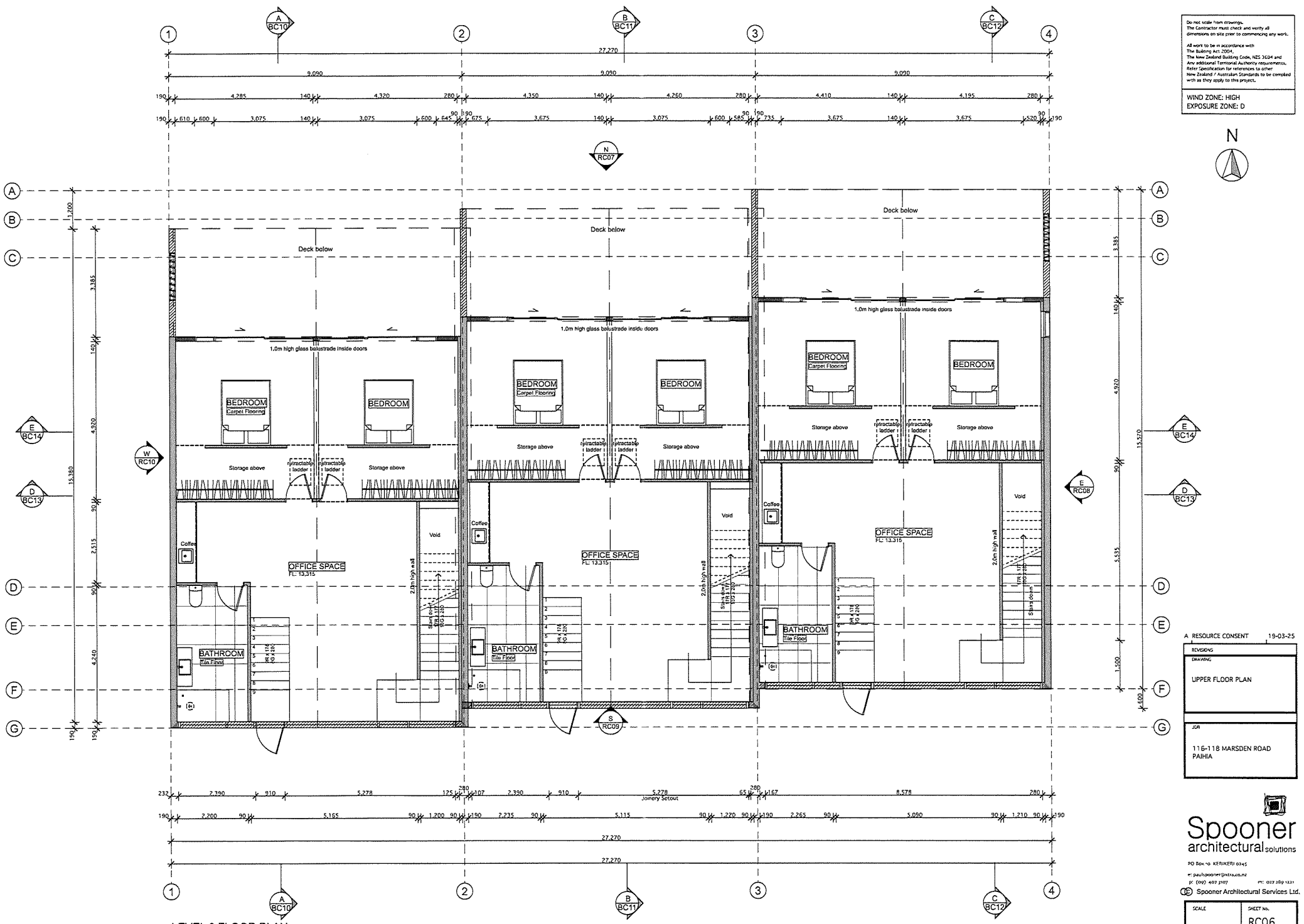
SCALE

SHEET No.
RC05



Do not scale from drawings.
The Contractor must check and verify all dimensions on site prior to commencing any work.

All work to be in accordance with
The Building Act 2004,
The New Zealand Building Code, NZS 3604 and
Any additional Territorial Authority requirements.
Refer Specification for references to other
New Zealand / Australian Standards to be complied with as they apply to this project.

WIND ZONE: HIGH
EXPOSURE ZONE: D

N

A RESOURCE CONSENT 19-03-25

REVISIONS

DRAWING
UPPER FLOOR PLAN

JOB
116-118 MARSDEN ROAD
PAIHIA

Spooner
architectural solutions
PO Box 40 KERIKERI 0345
e: paulspooner@xtra.co.nz
p: (09) 407 3107 m: 027 289 1331
Spooner Architectural Services Ltd.

SCALE

SHEET No.
RC06

Do not scale from drawings.
The Contractor must check and verify all dimensions on site prior to commencing any work.

All work to be in accordance with
The Building Act 2004.
The New Zealand Building Code, NZS 3604 and
Any additional Territorial Authority requirements.
Refer Specification for references to other
New Zealand / Australian Standards to be complied with as they apply to this project.

WIND ZONE: HIGH
EXPOSURE ZONE: D

UNIT THREE

UNIT TWO

UNIT ONE

J Joinery

J-01	Garage Doors	Flush panel Yellow Cedar clad garage doors

RS Roof Structure

RS-03	Trusses	Prolam exposed trusses supporting purlins @ 900. Size to be confirmed.

WC Wall Claddings

WC-02	Cedar Cladding	Hormpac CP1739 (ex 150x22) yellow cedar cladding on 20mm cavity battens.
WC-03	Tile Cladding	Selected tiles on Mapolistic Smart on masonry block walls

NORTH ELEVATION
SCALE: 1:50 @ A1

A RESOURCE CONSENT 19-03-25

REVISIONS

DRAWING
NORTH ELEVATION

JOB
116-118 MARSDEN ROAD
PAIHIA

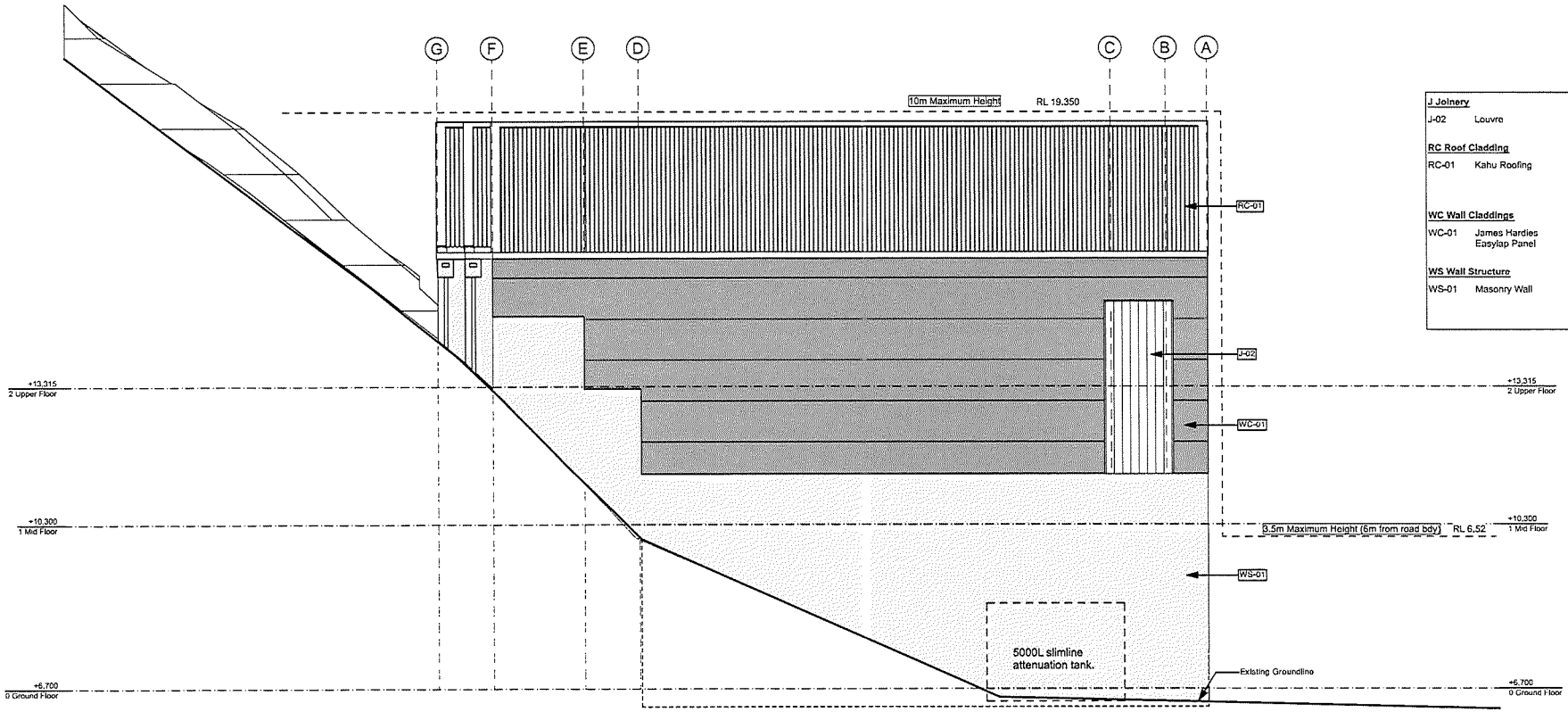
Spooner architectural solutions
PO Box 90 KERIKERI 0245
e: paulspooner@xtra.co.nz
p: (09) 407 3107 m: 027 280 1221
Spooner Architectural Services Ltd.

SCALE	SHEET No.
1:50 @ A1	RC07

Do not scale from drawings.
The Contractor must check and verify all dimensions on site prior to commencing any work.

All work to be in accordance with
The Building Act 2004,
The New Zealand Building Code, NZS 3604 and
Any additional Territorial Authority requirements.
Refer Specification for references to other New Zealand / Australian Standards to be complied with as they apply to this project.

WIND ZONE: HIGH
EXPOSURE ZONE: D



J Joinery

J-02	Louvre	Vertical opening louvre screen

RC Roof Cladding

RC-01	Kahu Roofing	0.55BMT Colorsteel Maxum or Colorcote Magnaflow Kahu profile roofing on Covertek 405 underlay

WC Wall Claddings

WC-01	James Hardies Easylap Panel	8.5mm JH Easylap Panel cladding on 45x45mm H3.1 structural cavity battens.

WS Wall Structure

WS-01	Masonry Wall	20 Series (190mm) concrete masonry wall with 90mm timber frame strapping to inside face.

EAST ELEVATION
SCALE: 1:50 @ A1

A RESOURCE CONSENT 19-03-25

REVISIONS

DRAWING
EAST ELEVATION

JOB
116-118 MARSDEN ROAD
PAIHIA

Spooner architectural solutions
PO Box 40 KERIKERI 0345
e: paulspooner@xtra.co.nz
p: (09) 407 3107 m: 027 280 1221
Spooner Architectural Services Ltd.

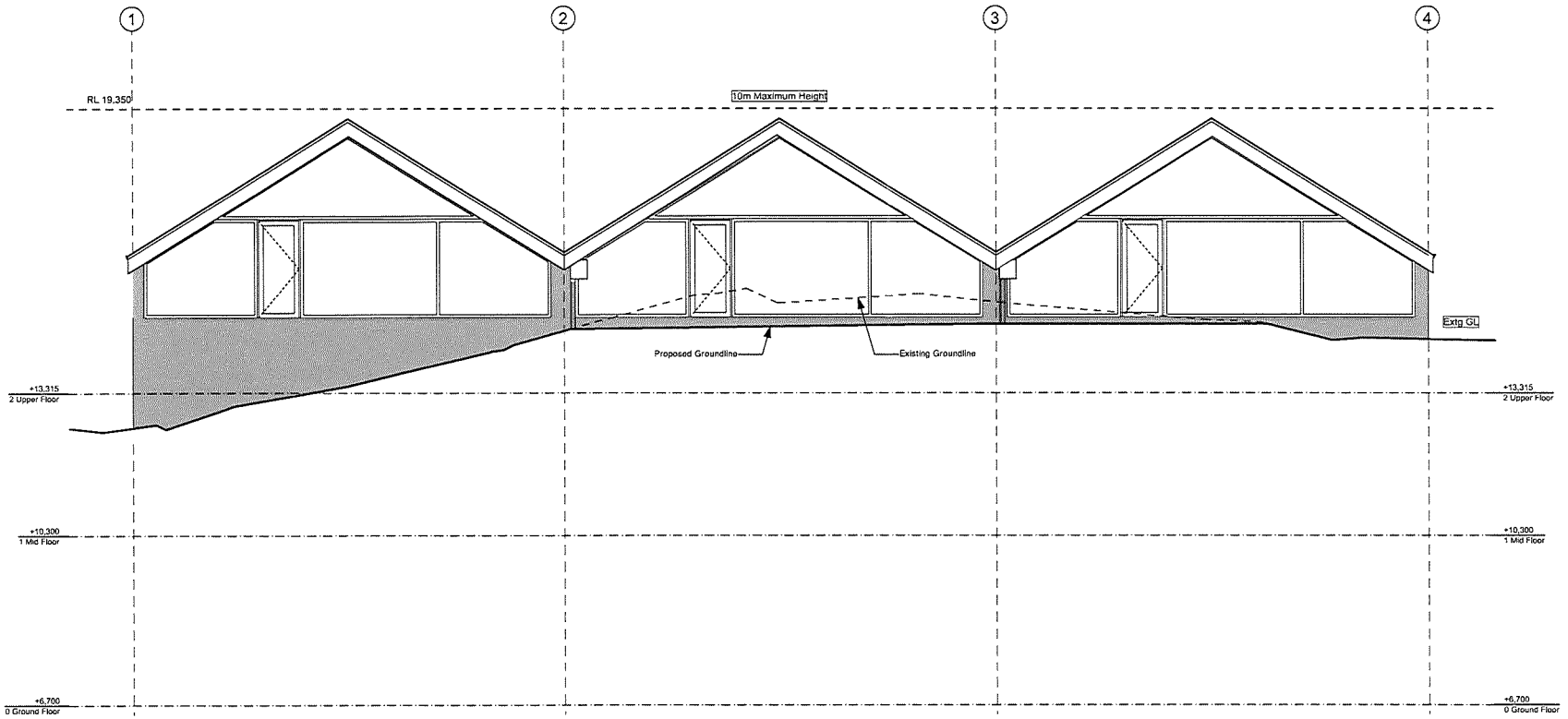
SCALE

SHEET No.
RC08

Do not scale from drawings.
The Contractor must check and verify all dimensions on site prior to commencing any work.

All work to be in accordance with
The Building Act 2004,
The New Zealand Building Code, NZS 3604 and
Any additional Territorial Authority requirements.
Refer Specification for references to other
New Zealand / Australian Standards to be complied with as they apply to this project.

WIND ZONE: HIGH
EXPOSURE ZONE: D



SOUTH ELEVATION
SCALE: 1:50 @ A1

A RESOURCE CONSENT 19-03-25

REVISIONS

DRAWING
SOUTH ELEVATION

JOB
116-118 MARSDEN ROAD
PAIHIA

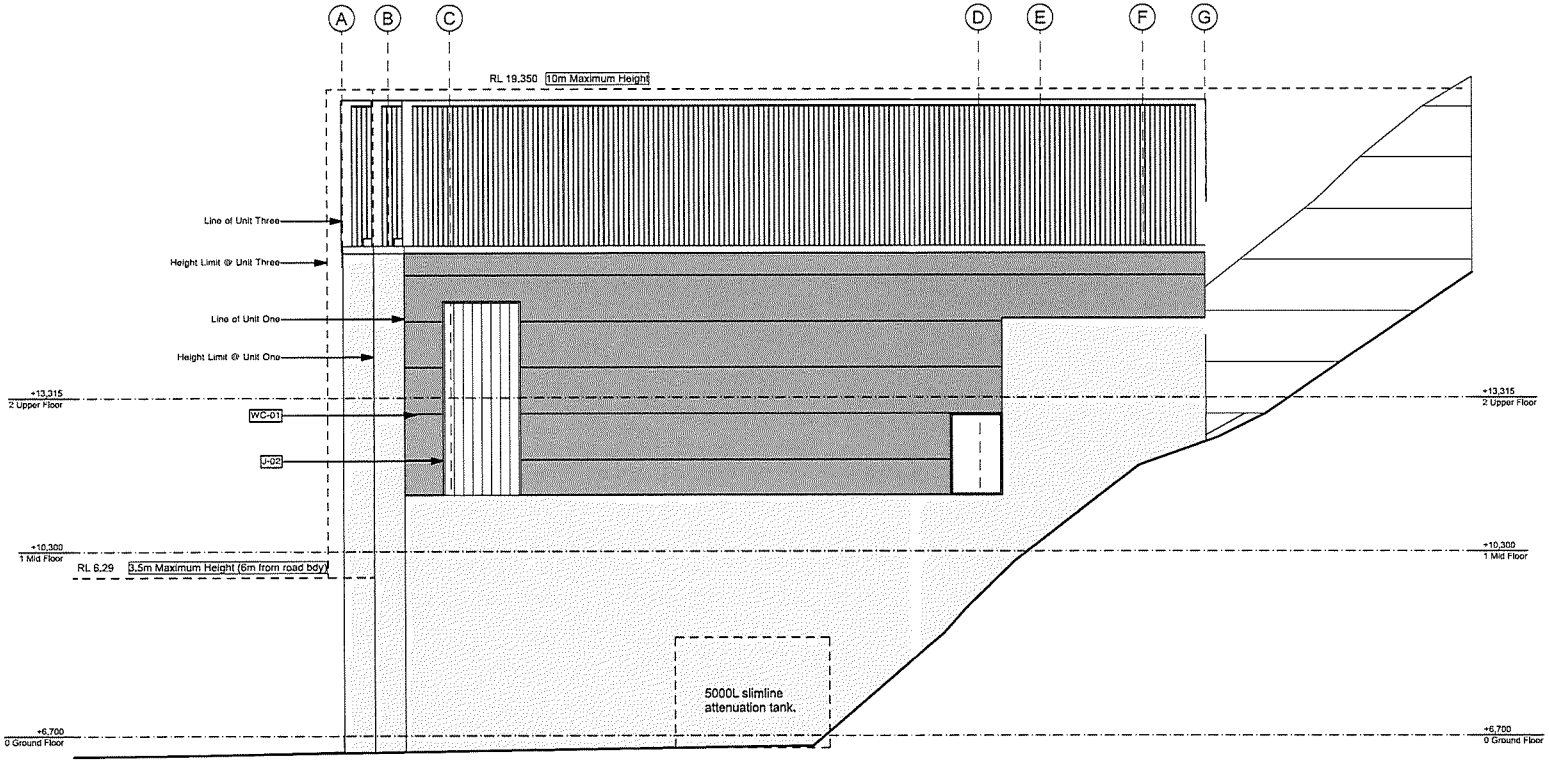
Spooner
architectural solutions
PO Box 90 KERIKERI 0345
e: paulspoonerjnz.co.nz
p: (09) 407 3107 m: 027 289 1321
Spooner Architectural Services Ltd.

SCALE	SHEET No.
1:50 @ A1	RC09

Do not scale from drawings.
The Contractor must check and verify all dimensions on site prior to commencing any work.

All work to be in accordance with
The Building Act 2004,
The New Zealand Building Code, NZS 3604 and
Any additional Territorial Authority requirements.
Refer Specification for references to other
New Zealand / Australian Standards to be complied with as they apply to this project.

WIND ZONE: HIGH
EXPOSURE ZONE: D



J Joinery

J-02	Louvre	Vertical opening louvre screen

WC Wall Claddings

WC-01	James Hardies Easylap Panel	8.5mm JH Easylap Panel cladding on 45x45mm H3.1 structural cavity battens.

WEST ELEVATION
SCALE: 1:50 @ A1

A RESOURCE CONSENT 19-03-25

REVISIONS

DRAWING
WEST ELEVATION

JOB
116-118 MARSDEN ROAD
PAIHIA

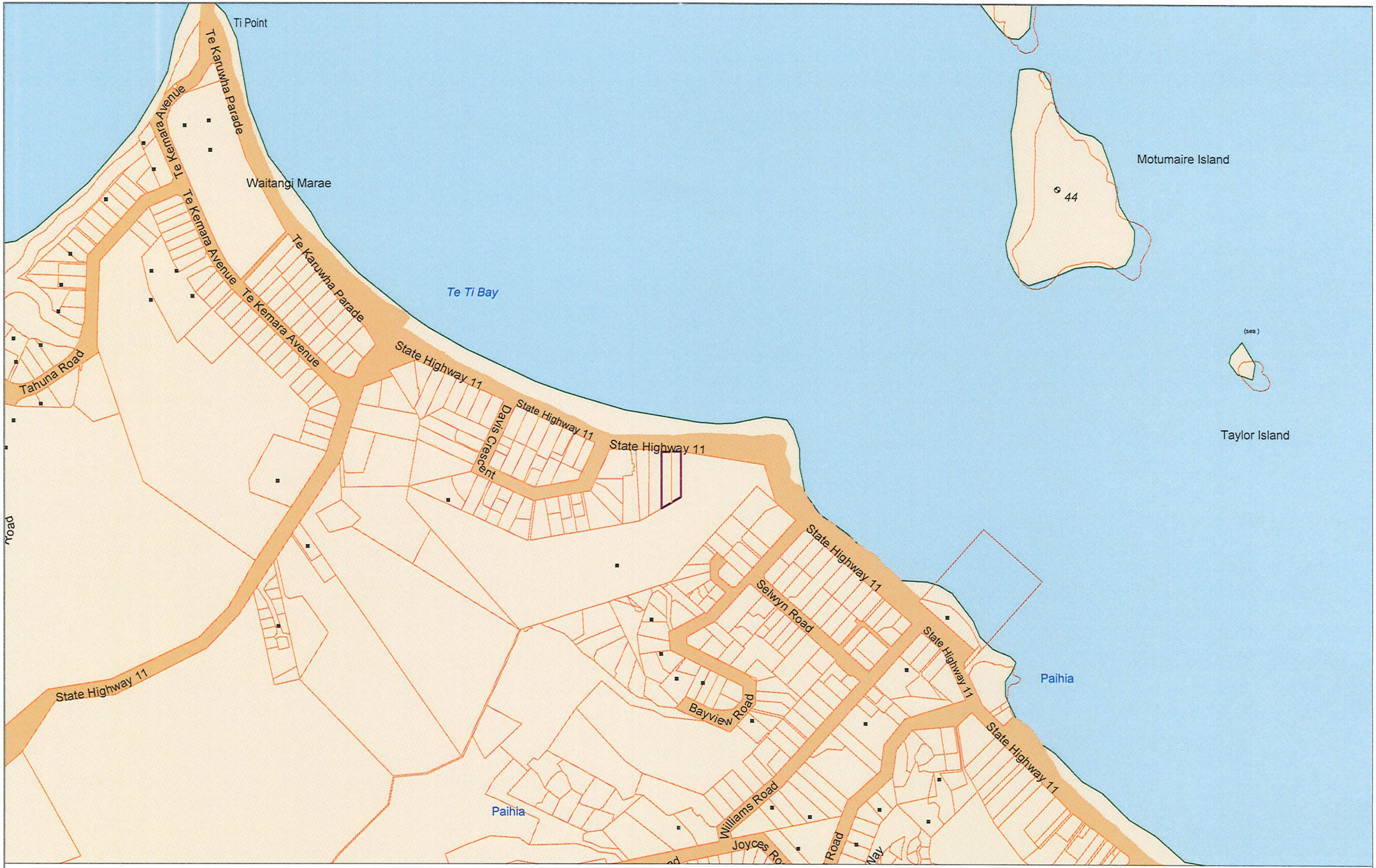
Spooner
architectural solutions
PO Box 10 KERIKERI 0245
e: paulspooner@xtra.co.nz
p: (09) 407 3107 m: 027 389 1231
Spooner Architectural Services Ltd.

SCALE

SHEET No.
RC10

Appendix 2

Location Plan



QuickMap
Custom Software Ltd

Any person wishing to rely on the information shown on this map must independently verify the information

Scale 1:7500 Topographical and Cadastral map derived from LINZ data. Printed: 20-Mar-2025 12:53.

Appendix 3

Records of Title &

Relevant Instruments

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA1075/129**
Land Registration District	**North Auckland**
Date Issued	26 June 1953

Prior References
NA689/278

Estate	Fee Simple
Area	1257 square metres more or less
Legal Description	Lot 1 Deposited Plan 39526

Registered Owners
Terry Wayne Henwood, Leisa Anne Henwood and Clifford Seymour Whitelaw

Interests

Fencing Agreement in Transfer 286953

Fencing Agreement in Transfer 526010 - 26.6.1953

C624474.1 CERTIFICATE PURSUANT TO SECTION 37 (2) BUILDING ACT 1991 (AFFECTS CTS NA1159/99, NA425/151, NA 623/171, NA 678/192, NA484/229) - 11.7.1994 AT 12.03 PM

7735697.1 CERTIFICATE PURSUANT TO SECTION 77 BUILDING ACT 2004 THAT THIS COMPUTER REGISTER IS SUBJECT TO THE CONDITION IMPOSED UNDER SECTION 75(2) (ALSO AFFECTS NA1159/99) - 4.3.2008 at 9:00 am

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**NA1159/99**
Land Registration District	**North Auckland**
Date Issued	14 September 1955

Prior References
NA689/278

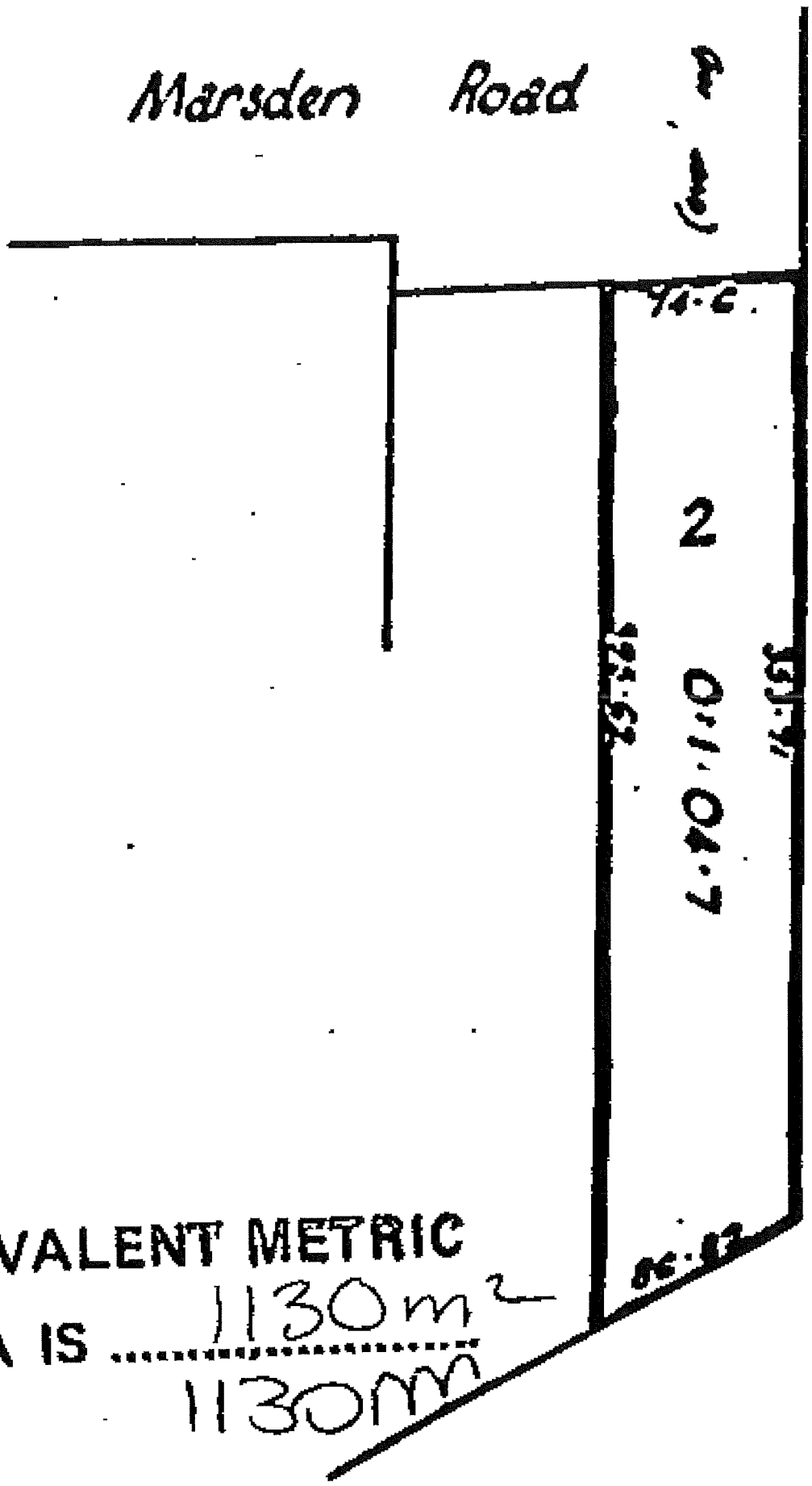
Estate	Fee Simple
Area	1131 square metres more or less
Legal Description	Lot 2 Deposited Plan 39526

Registered Owners
Terry Wayne Henwood, Leisa Anne Henwood and Clifford Seymour Whitelaw

Interests

Fencing Agreement in Transfer 286953

7735697.1 CERTIFICATE PURSUANT TO SECTION 77 BUILDING ACT 2004 THAT THIS COMPUTER REGISTER IS SUBJECT TO THE CONDITION IMPOSED UNDER SECTION 75(2) (ALSO AFFECTS NA1075/129) - 4.3.2008 at 9:00 am



EQUIVALENT METRIC
AREA IS 1130m²
1130M

C77 7735697.1 Buildin
Cpy – 01/03, Pgs – 002, 03/03/08, 11:00
DocID: 212149211

Far North District Council

Private Bag 752, Memorial Ave
Kaikohe 0400, New Zealand
Freephone: 0800 920 029
Phone: (09) 405 2750
Fax: (09) 401 2137
Email: ask.us@fndc.govt.nz
Website: www.fndc.govt.nz

To: **General Registrar of Land**
Auckland Land Registry

CERTIFICATE ISSUED UNDER SECTION 77 OF THE BUILDING ACT 2004

CERTIFICATE(S) OF TITLE: No(s): NA-1075/129, NA-1159/99

The **Far North District Council** hereby gives notice that the Council has granted a building consent to the land described in the above certificate(s) of title and listed in the schedule below. The building consent was granted pursuant to the provisions of Section 75(2) of the Building Act 2004, on condition that any one of the allotments shall not be transferred or leased except in conjunction with the other allotment(s).

Schedule

Legal Description:	LOT 1 DP 39526, LOT 2 DP 39526
Address:	116 & 118 Marsden Road, Paihia 0200
Name of owner:	Waterfront Land Trustee Company Ltd
Date building consent granted:	
Building Consent Number	BC-2008-1140

Date: 2/10/07

Paul Cook
PROCESSING MANAGER

X
Signature of Owners: **Date:** 2/10/2007

(As Agent)

AUTHENTICATED by the **FAR NORTH DISTRICT COUNCIL** by its Chief Executive Officer:

Date: 15/10/07

Clive A Manley
CHIEF EXECUTIVE

PLAN LODGEMENT - SURVEY FIRM

SURVEYOR :

ACCREDITED YES / NO

REF:

Internal Uplifting Box Number:

Firm Code: farndcka

Herewith:

Survey Plan: (#) | Title Plan: (#)

Traverse Sheets: (#) | Field Notes: (#)

Survey Report: | Other: (state)

DOCUMENT LODGEMENT - FIRM

Far North District Council
Private Bag 752
KAIKOHE

REFERENCE:

Firm Code:

Internal Uplifting Box Number:

PRINCIPAL FIRM:

REFERENCE:

Firm Code:

Internal Uplifting Box Number:

Herewith:

CT's:

Documents: Building Consent 2008-1140

PRODUCTION DETAILS

No.

DOC/CT REF:

MATCH UP WITH ABSTRACT/ PLAN No.

PLAN No. ALLOCATED (plans) or PLAN No. FOR DEPOSIT (docs)

NA

THIS SPACE FOR OFFICIAL USE ONLY

C77 7735697.1 Buildin
Cpy – 02/03, Pgs – 002,03/03/08,11:00
Copies
(inc. original)
DocID: 212149211

PRIORITY ORDER	CERTIFICATE OF TITLE REFERENCE(S)	TYPE OF INSTRUMENT	NAMES OF PARTIES/CLIENT	REGN 5411	MULTI 5412	TRAN 5413	PROD 5414	NOTICES 5415	ADVT 5416	NEW TITLES 5417	OTHER REGN 5419	FLATS	LT	DEPOSIT	SO/ MINING	UNIT	ML	PRINTS	STAT CERT	FEES $ GST INCLUSIVE
1	NA1075/129 & NA1159/99	Sec 77	Waterfront Land Trustee Company Ltd			Re-submission														31 —
																			CHEQUE	31.00
2																CHCH	A 0R6717			
3																				
4																				

PAID

LAND INFORMATION NEW ZEALAND LODGEMENT ABSTRACT
FEES RECEIPT AND TAX INVOICE
GST Reg. No. 17-022-895

ADDITIONAL RECORDS REQUIRED

1 L/F

PREVIOUSLY REJECTED	CATEGORY

TOTAL FEES $

LESS FEES PAID ON ABSTRACT $

TOTAL FEES PAYABLE $ 31 —

LINZ 1

Appendix 4

Consultation with NZ Fire and Emergency

Lynley Newport

From: Goffin, Jason [Jason.Goffin@fireandemergency.nz]
Sent: Thursday, 13 February 2025 9:34 AM
To: Lynley Newport
Subject: RE: 116-118 Marsden Road residentail development - Commercial Zone

Hi Lynley,

- A reticulated main is within 135m as per the code of practice requirements SNZ PAS 4509
- Additional water could be obtained from the sea adjacent the development.
- A swimming pool from the nearby hotel could also be utilised if required.
- A copy of the fire report would be beneficial to ensure the design has adequate fire separation, and protection requirements are met c1-c6 for the 3 residences.

Kind Regards

Jason Goffin
Advisor Risk Reduction – Kaitohutohu Matua Whakaheke Moorea
Specialist Fire Investigator – Kaititiro Ahi Maatanga
Te Tai Tokerau
Te Hiku Region 1
9 Homestead Road Kerikeri

Mobile: 027 7066467
Email: jason.goffin@fireandemergency.nz
Fire Fact "A House Fire Can Become Fatal within 5 Minutes"

From: Lynley Newport <lynley@tsurvey.co.nz>
Sent: Wednesday, February 12, 2025 10:36 AM
To: Goffin, Jason <Jason.Goffin@fireandemergency.nz>
Subject: 116-118 Marsden Road residentail development - Commercial Zone

Hi Jason,
Please see attached information in regard to a proposed residential development at Paihia. Look forward to receiving comment.

Lynley Newport
Senior Planner
315 Kerikeri Road, Kerikeri 0230
PO Box 372 Kerikeri 0245
p. 09 4077360 | e. lynley@tsurvey.co.nz

Appendix 5

Consultation with NZTA

THOMSON SURVEY LIMITED

SURVEYORS AND RESOURCE PLANNERS

Our Reference: 10479.1 (NZTA)

19 March 2025

Environmental Planning (Auckland/Northland)
Poutiaki Taiao | System Design
Waka Kotahi New Zealand Transport Agency

Auckland, Level 5, AON Centre, 29 Customs Street West
Private Bag 106602, Auckland 1143, New Zealand

Email: Vonnie.Veen-Grimes@nzta.govt.nz

Dear Vonnie

RE: Proposed Residential Apartments at 116 & 118 Marsden Road, Paihia – L & T Henwood

I will shortly be lodging a land use consent application to the Far North District Council's for the above referenced activity, on behalf of the Henwoods. The site is zoned Commercial in the Operative District Plan. It has historically accommodated residential living and motel accommodation and is currently vacant. The site next door, at 120 Marsden Road is developed for residential use.

The application site consists of two parcels of land side by side and each has an existing crossing to Marsden Road (SH 11, but not Limited Access Road SH). There is good visibility in both directions from both crossings, and Marsden Road in this location has a posted 50/kph speed limit.

The development consists of three 3-level residential apartments in a single structure (joined), with ground floor/basement garage for each apartment. The development intends to utilise both existing crossings, most likely utilising an entry and exit system to maximise on-site manoeuvring space.

This correspondence attaches the following:

- Latest architectural plans (Spooner Architectural Solutions);
- Acoustic Report (Marshall Day);
- Civil Engineering, Hazard Assessment, Earthworks Management Plan (all by RSEngineering).

It is intended to connect to Council's reticulated 3 waters, as indicated in the RSEngineering Civil Report. Erosion and sediment control forms part of the RSEngineering Earthworks Management Plan attached.

The attached Acoustic Report was written to address the rule in the Operative District Plan about noise attenuation for residential units in the Commercial Zone. It does not specifically address traffic noise.

The purpose of this correspondence is to seek NZTA feedback/comment on the proposal.

Regards

Lynley Newport
Senior Planner
THOMSON SURVEY LTD

Lynley Newport

From: Environmental Planning [EnvironmentalPlanning@nzta.govt.nz]
Sent: Wednesday, 19 March 2025 4:01 PM
To: Lynley Newport
Subject: Waka Kotahi NZ Transport Agency - A new Council application has been logged - Case Ref # - Council-2025-0357 CRM:0093181078

Dear Leisa & Terry Henwood,

Thank you for your application. Your reference number is: 116-118 Marsden Road, SH11 Paihia.

Your Council application has been assigned to an Environmental Planning Team planner for review. If you have any further queries or concerns on this matter, please do not hesitate to contact us via email quoting case ref: Council-2025-0357 or visit our website.

Kind Regards,

Environmental Planning Team / Poutiaki Taiao
System Design
E environmentalplanning@nzta.govt.nz / **w** http://www.nzta.govt.nz

Appendix 6

Acoustic Assessment / Certificate

MARSHALL DAY Acoustics

116 - 118 MARSDEN ROAD PAIHIA
SOUND INSULATION CERTIFICATE

Rp 001 20230262 | 8 May 2023

MARSHALL DAY Acoustics

84 Symonds Street
PO Box 5811 Wellesley Street
Auckland 1141 New Zealand
T: +64 9 379 7822 F: +64 9 309 3540
www.marshallday.com

Project: **116 - 118 MARSDEN ROAD PAIHIA**

SOUND INSULATION CERTIFICATE

Prepared for: **Henwood Construction Ltd**
1263A State Highway 10
RD3
Kerikeri 0230

Attention: **Leisa Henwood**

Report No.: **Rp 001 20230262**

Document Control

Status:	Rev:	Comments	Date:	Author:	Reviewer:
Approved	-	-	8 May 2023	George Edgar	Peter Ibbotson

Cover Photo: TEH

TABLE OF CONTENTS

1.0 INTRODUCTION

Henwood Construction Ltd has requested that Marshall Day Acoustics provide an assessment of sound insulation in accordance with Rule 7.7.5.1.5 of the Far North District Plan for the proposed new apartments at 116 - 118 Marsden Road, Paihia.

2.0 PROPOSED WORKS

Henwood Construction propose to construct three 3-storey apartments. The apartments would be side-by-side at 116 - 118 Marsden Road, Paihia.

We have reviewed the following documents as part of this project:

- Architectural drawing set by Spooner Architectural Solutions Ltd dated 23/03/2023

3.0 DISTRICT PLAN REQUIREMENTS

The site is located at 116 - 118 Marsden Road, Paihia which is zoned *Commercial.* Rule 7.7.5.1.5 of the Far North District Plan requires permanent and non-permanent accommodation to comply with the following clause:

7.7.5.1.5 NOISE MITIGATION FOR RESIDENTIAL ACTIVITIES

> *"Any new residential activity involving permanent and non-permanent accommodation shall be developed in such a way that the attenuation of noise between any boundary and living room is no less than 20 dB, and between any boundary and any room used for sleeping is no less than 30 dB. In the absence of forced ventilation or air-conditioning, these reductions shall be achieved with any exterior windows open.*
>
> *The Council will require an acoustic design report prepared by a suitably qualified and experienced person demonstrating compliance with this requirement prior to issuing any Certificate of Compliance under s139 of the Act."*

As the above rules applies *"...between any boundary and any room used for sleeping..."* the attenuation between the site boundary and the dwelling location should be taken into account. This would mean that a dwelling located close to a boundary would generally require a greater amount of sound insulation than a dwelling located some distance from a boundary. However, the Plan rule does not state where the noise source should be assumed to be located with respect to the boundary which makes the calculation of this attenuation difficult. For this reason, the attenuation between the boundary and the building façade has not been taken into account; rather a conservative method has been used whereby the noise level difference between the level near the façade and the internal reverberant level has been considered.

4.0 PROPOSED CONSTRUCTION

The following table summarises the proposed construction of the units. Where there are differences in wall areas between units, we have listed the largest of the three because this is what we used in our calculations.

Table 1: Proposed Dwelling Construction

Building Element	Construction
Windows	Sliding and fixed glazing. Number of panes and thickness not specified **Level 1 Kitchen/Living** Sliding doors: 12.2 m^2 **Level 2 Bedroom** Sliding doors: 7.4 m^2 Fixed windows (upper): 4.9 m^2 **Level 2 Office** Fixed windows (upper): 10.3 m^2
Walls	**Concrete walls (tilt slab on external east and west façades and inter-tenancy walls):** 190 mm concrete. We have assumed it will be strapped and lined with plasterboard (with insulation in cavity).[1] **Lightweight (infill between tilt slab):** 20 mm Adobo timber or 16 mm James Hardie Linea cladding, or aluminium weatherboards on 140 mm timber frame with batts in cavity, 13 mm standard plasterboard wall linings **Level 1 Kitchen/Living** Concrete: 23 m^2 (southern unit) Lightweight: 2 m^2 (above window) **Level 1 Bedroom** Concrete: 27 m^2 **Level 2 Bedrooms** Concrete: 11 m^2 Lightweight: 6 m^2 **Level 2 Office** Concrete: 15 m^2 (Southern unit)
Roof / Ceiling	Steel profiled roofing (pitched), 350 mm steel purlins with batts in cavity, plasterboard linings on battens **Level 2 Bedrooms:** 22 m^2 **Level 2 Office:** 48 m^2

[1] We have assumed the concrete walls will be strapped and lined. However, the slab would provide enough sound insulation on its own.

5.0 RECOMMENDED CONSTRUCTION

To achieve the District Plan requirement the following building construction modifications are required:

Level 1 Kitchen / Living:

- **Window glazing and entry door glazing:**
  - **Single glazed solution (if permitted):** a minimum of 4mm thick monolithic glazing in well-sealed aluminium frames.
  - **Double glazed solution:** a minimum of 4mm/6mm/4mm double glazed unit.
- **Entry doors:** a solid or hollow core door with effective weather seals will be sufficient. See above for entry glazed panel glazing thickness recommendation.

Level 1 Bedroom:

- No modifications required[2].

Level 2 Bedrooms:

- **Glazing:** fixed or hinged windows and sliding door to consist of:
  - **Single glazed solution (if permitted):** a minimum 8 mm glazing or thicker.
  - **Double glazed solution:** 8mm/12mm/6mm double glazed unit **or** 8mm/12mm/4mm double glazed unit
- **Roof ceiling:** ceilings to consist of 13mm thick dense plasterboard (e.g. 13mm thick Gib Noiseline or thicker). Substitutions must have the same or heavier overall plasterboard mass.

Level 2 Office:

- No modifications required. Glazing can be:
  - **Single glazed solution (if permitted):** a minimum of 4mm thick monolithic glazing in well-sealed aluminium frames.
  - **Double glazed solution:** a minimum of 4mm/6mm/4mm double glazed unit.

Note: *glazing or thermal break thickness can be increased for safety and wind requirements in this area. The specification given is the minimum acoustic requirement.*

General:

- **Aluminium joinery and framing** must include compressible seals that provide a complete perimeter seal to doors and windows. This is required to glazing in all areas.
- **Mechanical ventilation** shall be as per the rule that states:

  ...In the absence of forced ventilation or air-conditioning, these reductions shall be achieved with any exterior windows open...

  Mechanical ventilation or air-conditioning is required for this project as the criteria cannot be achieved unless windows are closed.

---

[2] No external windows are shown in the tilt slab walls. Light is provided via the glazed clears to the lounge. The glazed clears and the external living façade will provide the necessary sound reduction when the glazed clears are closed provided there is some form of seal between the glazed panes.

It is noted that the rule states forced ventilation ***or*** air-conditioning is required, suggesting that ***either*** can be used to fulfil the criteria. In our view the rule would be fulfilled by any solution that is in accordance with the NZBC ventilation requirements irrespective of whether air-conditioning is provided, however we note that ventilation solutions alone may not necessarily ensure that the temperature of the apartments can be maintained in summer to avoid windows needing to be open for passive cooling[3].

We expect that the provision of highwall air-conditioning systems would allow windows to be closed while maintaining a suitable temperature for sleeping / living, however these are not typically connected to ventilation systems. Windows may therefore need to be open at times to ventilate the units with fresh air and to reduce condensation[4].

Both above solutions may comply with the way the FNDC rule is drafted. However, we consider a superior solution would be to provide ventilation and air-conditioning.

It is recommended that noise from any ventilation and air-conditioning is designed to achieve noise levels that would not cause sleep disturbance. A level of NC 25 to 30 is normally recommended in bedrooms.

6.0 CONCLUSION

Marshall Day Acoustics has been engaged to provide an opinion on the sound insulation of the proposed dwellings at 116 – 118 Marsden Road, Paihia in accordance with 7.7.5.1.5 of the Far North District Council District Plan.

Calculations have shown that the building can achieve compliance with the District Plan rule subject to the recommendations contained in Section 5.0 of this report.

[3] This may require the consideration of a mechanical engineer specialising in HVAC.

[4] This also may require the consideration of a mechanical engineer specialising in HVAC

Appendix 7

Geotechnical Report

Northland Geotechnical Specialists

GEOTECHNICAL REPORT FOR NEW APARTMENT BUILDINGS

Location	116 & 118 Marsden Road, Paihia
Client	T&L Henwood Family Trust
NGS Ref	0281
Date	10 March 2023

Report prepared by	Rebekah Buxton / David Buxton
Authorised for NGS by	David Buxton

Northland Geotechnical Specialists Limited
W: www.northlandgeotech.co.nz E: info@northlandgeotech.co.nz P: +64 226981129/ +64 223041171

TABLE OF CONTENTS

1. Introduction

Northland Geotechnical Specialists Ltd (NGS) was engaged by T&L Henwood Family Trust to undertake soil investigations and provide a geotechnical report suitable for detailed structural design at 116 & 118 Marsden Road, Paihia. This report is suitable to support Building Consent application to Far North District Council (FNDC).

2. Proposed Development

We understand[1] that three terraced dwellings, each with a ground level garage and two residential levels above (three storeys total), are proposed for the site. Each dwelling has a footprint of approximately 142m^2. Construction will comprise cutting back into the slope and integrating the southern wall of the development as retention.

3. Site Description

The site is legally described as Lots 1 and 2 DP 39526 and covers a combined area of approximately 2,388m^2. The site is trapezoidal in shape being rectangular at the northern end with sides measuring 30m E-W and 71m N-S and extending to a point at the southwestern corner an additional 17m to the south.

The site is bound by Marsden Road to the north, undeveloped sites to the west and council owned conservation land to both the east and south. To the north of the roadway is the foreshore and coast.

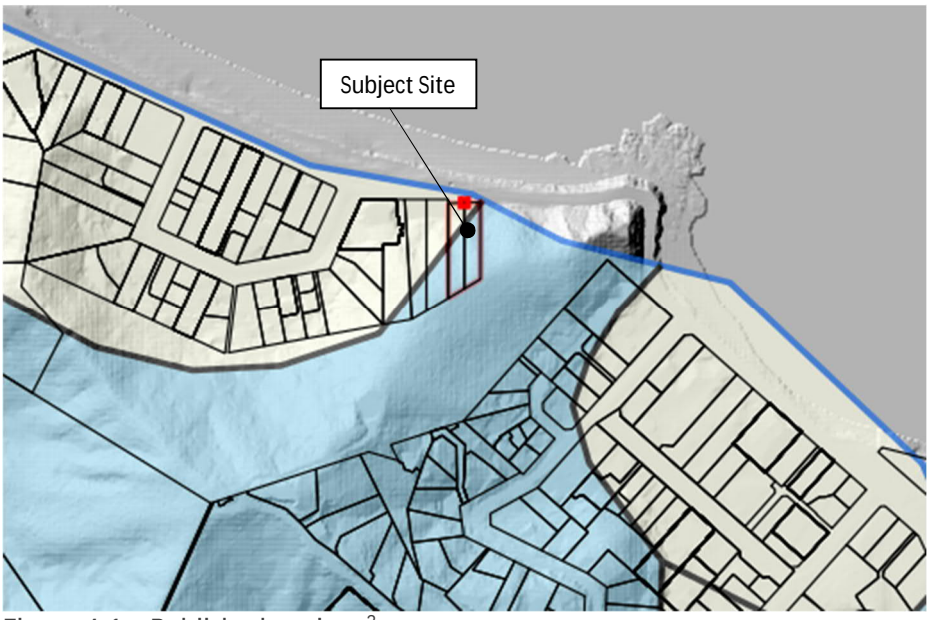
The northern portion of the site, approximately 15m width, is near level (<2˚) and is surfaced in metal. Beyond this area a vegetated slope rises to the south at typically 35˚. The southern boundary coincides with a spur ridgeline at an elevation rise above the toe of the slope of 40m to 45m.

The Northland Regional Council Natural Hazards Maps[2] indicate the site is mapped as not flood susceptible. The NRC maps indicate the northern portion of the site is within mapped Coastal Erosion Hazard Zones 2 (100 years) & 3 (100 years with rapid sea level rise).

[1] Spooner Architectural Solutions, 116-118 Marsden Point Road, Paihia, Sheet No. SK01-SK04, 01-12-22, Revision A Concept.
[2] https://nrcgis.maps.arcgis.com/apps/webappviewer/index.html?id=81b958563a2c40ec89f2f60efc99b13b, accessed 24/01/2023.

4. Geological Conditions

4.1. Published Geology



Legend

Blue	Waipapa Group (Greywacke)
White	Holocene Ocean Beach Deposits

Figure 4-1 – Published geology[3]

The published geology[3] indicates that the subject property is underlain at the northern end by Holocene aged Ocean Beach Deposits typically comprising loose sand, gravel and shell underlying beaches and forming beach ridges and shell banks. At the central and southern end the property is underlain by Waipapa Group Sandstone and Siltstone. This typically comprises massive- to thin-bedded, lithic volcaniclastic metasandstone and argillite with tectonically enclosed basalt, chert and siliceous argillite. The Waipapa Group is considered to be basement terrane and the main rock type is likely to be greywacke. The contact between the two lithologies is likely to be at the base of the slope with the greywacke continuing below the Holocene deposits.

4.2. Aerial Photograph Review

Review of aerial photographs dated between 1951 and present day[4] indicates the following:

- The 1951 images have been viewed in red/blue stereo pairs. In 1951 the site is undeveloped and the ridgeline and northern side slope (southern end of the site) are in bush. Marsden Point Road has been formed. The properties to the west of the site have been developed along the road frontage with residential dwellings. There is a slip above the road cutting at the eastern end of the northern slope of the side spur. See Photo 1 below.
- By 1968 there has been repair of the road slip. There are dwellings on each of the properties at the northern most extent of the lots. There has been planting along the boundary with the foreshore.

[3] Edbrooke, S.W.; Brook, F.J. (compilers) 2009: Geology of the Whangarei area. Institute of Geological & Nuclear Sciences 1:250,000 geological map 2. 1 sheet + 68 p. Lower Hutt, New Zealand. GNS Science.

[4] Historical Photographs sourced from Retrolens.nz, photographs dated 1951, 1968, 1971, 1972, 1979, 1980, 1981 and 1984. Google Earth Pro aerial photography dating between 2001 and 2021.

- In 1971 a track has been formed from the crest to the spur ridgeline approximately 110m to the southwest and upslope of the subject properties. A water reservoir has been constructed on a cut platform. There is otherwise little change between the 1968 and 1984 images. See Photo 2 below.
- By 2004 the dwellings along the front of Marsden Point Road have been removed. There is a large hotel and accessway on the corner of Marsden Point Road and David Crescent to the west of the subject property. A small structure is present on number 118 Marsden Point Road nestled into the base of the slope.
- In 2011 the accessway to the hotel has been extended to now include numbers 116-126 as surfaced car parking. A structure is still present on number 118 Marsden Point Road.
- By 2018 the structure has been removed from number 118.
- In 2020 a container, visible onsite today is placed on the far eastern side of number 116 at the base of the slope.
- In 2022 the northern boundary along 116-126 Marsden Point Road has been opened up to the road in its present-day format.

The photos indicate the landform on site is largely unmodified. Previous development onsite has comprised two dwellings (one on each lot) at the northern end of the properties that were removed prior to 2004, and construction of minor structures on the flats at the base of the slope.

Photo 1 – 1951 aerial photo approximately georeferenced with LINZ property boundary overlay. Sourced from retrolens.nz Crown_209_545_52 CC BY 4.0.

Photo 2 – 1972 aerial photo approximately georeferenced with LINZ property boundary overlay. Sourced from retrolens.nz Crown_3406_4482_24 CC BY 4.0.

4.3. Site Investigations

Site investigations comprised:

i. Seven Cone Penetrometer Tests (CPT01 – CPT07) put down by Underground Investigation on 23 November 2022. The CPTs terminated at effective refusal (cone tip resistance >20MPa) at depths of between 3.1m and 6.3m; and
ii. 2no. hand augered boreholes (HA1 – HA2) undertaken by a geotechnical engineer from NGS on 16 February 2023. The hand augered boreholes were put down to depths of between 1.8m and 1.9m and were terminatead on refusal to the auger. In-situ strength testing was undertaken using a handheld shear vane at regular intervals in cohesive soils.
iii. Four machine augered boreholes (MA1 – MA4) logged by a geotechnical engineer from NGS on 16 February 2023. MA4 terminated at 3.5m on refusal to the auger. MA1 - MA3 were put down to the maximum reach of the auger (approximately 3.5m) then a pit was formed and augering continued from the base of the pit to a depth of between 4.7m – 4.8m. MA2 and MA3 terminated at refusal on inferred rock. MA1 terminated at maximum depth.

Investigation locations are shown on Figure 1 – Site Plan and the borehole and CPT logs are attached with this report.

4.4. Subsoil Conditions

To the south the site comprises a steep slope, HA1 and HA2 indicated the slope has a 2m thick soil profile over inferred hard rock (likely highly to slightly weathered). The soils comprised very stiff silts and clays with a variable but significant gravel content.

The northern flat portion of the site is underlain by a profile of colluvial deposits from the slope above, coastal sand deposits and a buried coastal wave cut rock platform. The majority of this profile

comprised beach/coast deposits of orange silty sand with trace clay with layers having inclusions of shells and gravels. There were lessor layers of colluvial deposits of clayey silt with some gravel overlying the sand deposits (0.7m to 1.7m in MA1, 0.3 to 1.3m in MA2). In some locations there are surface deposits of black sand with an organic content (up to 1.3m deep in MA3). A 0.3m to 1.3m thick very stiff clayey silt layer underlay the sand at MA1 and MA3. The buried wave cut rock platform was encountered at depths of 3m to 5.2m depth, being deeper to the north and shallower near the slope base to the south. The buried wave cut rock platform is expected to be similar to that exposed in the foreshore 110m ENE of the site and shown in Photo 3 below:

Photo 3 – Foreshore 110m ENE of the site showing a wave cut rock platform partially covered by beach sands.

The transition from the steep slope to the flat area appears to have some variability over the width of the site. In the centre of the site moderately to slightly weathered greywacke rock is visible where the slope toe has been cut into with limited or no soil cover as shown in Photo 4 below. To the sides of the site CPT6 and CPT7 indicated a 4.5m to 5.5m very stiff to hard soil profile overlying inferred rock at refusal.

Photo 4 – Moderately to slightly weathered greywacke rock visible in a cutting in the centre of the site at the slope base.

Groundwater was typically perched above the rock platform or clayey layers on the lower portion of the site but is likely at depth under the steeply sloping ground. The groundwater may be influenced by tides on the lower flat portion of the site. Measured groundwater levels are given in Table 4-1 below.

Table 4-1: Measured depth to groundwater

ID	Elevation at ground surface (mRL)	Depth to groundwater (mBGL)[1]
CPT01	6.3	4.4
CPT02	6.3	4.1
CPT03	6.3	3.9
CPT04	6.5	1.8
CPT05	6.3	3.2
CPT06	8.7	4.5
CPT07	9.8	5.6
MA1	6.3	4.7 (soils wet at 3.3m)
MA2	6.3	3.6 (soils wet at 3.0m)
MA3	6.3	3.2m (soils wet at 2.5m)
MA4	6.3	1.9m (soils wet & inflow at 1.4m)
HA1	19.0	Dry at 1.9m
HA2	14.7	Dry at 1.8m
Notes 1	Measured on completion of each CPT on 23/11/2022 consecutively between 0845 and 1430. High Tides at 0742 and 1949[5]. Machine Augers completed on 16/02/23 between 0850 and 1150. High tides at 0413 and 1625[5].	

[5] Northland Regional Council, Tide Tables 2022-2023, ISSN 2253-5047.

5. Design Recommendations

5.1. General

The nature and continuity of the subsoil conditions onsite have been inferred from seven CPTs, four augered boreholes and two hand augered boreholes. It must be appreciated that actual subsoil conditions could differ from those inferred. If the subsoil condition differs in any way from those described in this report it is essential that we be contacted.

5.2. Stability

The northern near flat area of site is set back approximately 30m from the 2m to 3m high slope down to the beach and is accordingly considered stable.

The development will cut back into the slope toe. Adequate stability of the slope toe is to be maintained by suitable retention formed by the back wall of the proposed development. As this slope toe is currently over steepened this retention will likely improve stability at the slope toe.

The slope to the south of the development is approximately 35m high beyond the proposed upslope/back wall and slopes at typically 30° to 40°. Given the steepness of this slope there is a risk of typically shallow (<2m) instability above the development that may result in debris running out down the slope. This risk is not considered likely, and a similar level of risk has been widely accepted during development of the wider area. To ensure protection of life under an extreme (but unlikely) occurrence of debris impacting the upslope wall of the development we recommend the back (upslope) wall comprise concrete with the ability to retain to a minimum of 2m above ground level with no windows within 1m of the ground level and windows no taller than 300mm within 2m of ground level (or similar alternative protective measures).

With respect to Section 71 of the Building Act, and subject to the recommendations in this report which include specific recommendations for retention and design of the back (upslope wall), we consider that:

1. The land on which the building work is to be carried out (Ref Figure 1 – Site Plan) is not subject to, or likely to be subject to slippage; and
2. The building work is not likely to accelerate, worsen of result in slippage on the site or any other property.

5.3. Foundations

The majority of the units are located over mixed alluvial and colluvial soils that predominately comprise loose to medium dense sands. Within the sand there are variable layers of gravelly clayey silt (colluvium) that may not be well consolidated. There are also layers with organic inclusions at depths of up to 1.3m depth. The rear (upslope) of the units are likely to be partially founded on reasonably competent rock. We consider that pile foundations are most appropriate given the proposed three level concrete structures. Shallow foundations will likely be appropriate to the rear/upslope portion of the structure where in-situ highly to slightly weathered rock may be encountered.

Pile Foundations

The site is best suited to driven piles as the saturated alluvial sands will have poor stability in the sides of bored pile shafts. The sharp transition to the buried rock platform would also create difficult drilling conditions for the embedment of bored piles. The sharp transition from soils to inferred competent rock is also poorly suited to screw piles and their suitability for use would need to be confirmed with a specialist installation contractor.

Driven piles could comprise either timber poles or steel UC sections.

The maximum capacity of driven timber or steel UC piles founding on the underlying rock platform will likely be limited by the driving capacity of the pile[6] (i.e. the capacity to which the pile can be driven without damaging the pile itself). Pile founding depths to top of the rock are expected to vary from typically 3m to 5.5m. Timber piles are not expected to achieve any rock penetration. Steel UC piles may achieve some limited rock penetration, especially if heavier sections are adopted, however no cored boreholes have been put down to assess this in more detail. The depth of rock is indicated on Figure 3 – Section A-A

The maximum capacity to which timber and steel piles can typically be driven is given in Table 5-1 below. We note that the piles will likely found on strong rock with short (<6m) pile lengths and possible strong rock founding conditions. Care is needed that pile toes are not damaged during driving and we recommend only 75% of the capacities below is adopted to limit the damage risk[7].

Table 5-1: Typical Maximum Driven Pile Capacity

Pile Size/Type	Capacity to which pile may be driven (R_{drive}) – See footnote 7	Approximate driving energy required to install pile (tonne-metres)
200SED Timber	300	0.7
250SED Timber	450	1.0
300SED Timber	700	1.6
350SED Timber	900	2.0
150UC30	720	1.4
150UC37	890	1.8
200UC46	1,100	2.2
200UC52	1,250	2.5
200UC60	1,440	2.9
250UC73	1,750	3.5
250UC89	2,140	4.3
310UC97	2,330	4.7
310UC118	2,830	5.7

The driven pile capacity shall be confirmed onsite using a pile driving equation (e.g. Hiley) and measured pile sets or by PDA testing. A strength reduction factor of $\phi_g = 0.5$ shall be adopted where set measurement is adopted. An increased ϕ_g of up to 0.75 maybe adopted with PDA testing but requires specific assessment depending on the number of piles tested, based on AS2159.

Pile design on this site does not need to consider any negative skin friction loads.

[6] A sufficiently larger driving hammer is also required to achieve the pile capacity with Table 5-1 providing general guidance. The hammer also typically needs to be at least 50% of the pile weight. Use of a small pile hammer with a large drop height increases the risk of pile damage during driving.

[7] It may be possible to achieve 100% of the pile capacity with careful driving and a hammer of sufficient height with lower drop heights. This could be confirmed from a trial or careful observation of the first production piles.

Shallow Foundations

Shallow foundations may be adopted on the rear/upslope side of the development where greywacke rock is likely to be encountered. We note that rock is likely to be encountered within the central portion of the site (where it is visible onsite – see Photo 4) but may only be encountered within limited zones to the east and west (as indicated by CPT6 and CPT7).

Shallow foundations on slightly to moderately weathered rock may adopt a geotechnical bearing capacity of 600kPa. A strength reduction factor of 0.5 should be applied for comparison with ULS loads.

We note that shallow bored piles would likely comprise a suitable contingency if rock levels are deeper than anticipated for upslope/rear foundations.

Founding on residual (clay) soils is not recommended given the stiffness contrast from pile foundations.

Slightly to moderately weathered rock is not considered to be reactive/expansive.

5.4. Retention/Lateral Pile Design

The upslope/rear of the structure will retain the base of the significant slope to the south. Within the centre of the site much of the retained height is likely to comprise weathered rock however CPT6 to the west and CPT7 to the east indicate up to 5.5m of soil and highly weathered rock that will need to be retained. Lateral capacity of piles may also need to be assessed and parameters for the alluvial/colluvial deposits are also given. Design of retention and lateral pile design may adopt the values given in Table 5-2 below.

Table 5-2: Retention Parameters

Design Parameter	Stiff-very stiff residual/colluvial soils	Very stiff to hard residual soils	Hard soils to highly weathered rock	Highly weathered greywacke	Alluvium/ colluvium, sand with clay layers
Typical Depth	0.0 – 2.0m	2.0 – 3.5m	3.5m – 5.5m	>5.5m	up to 5.2m
Density, γ'	18 kN/m^3	18 kN/m^3	19kN/m^3	20 kN/m^3	17 kN/m^3
Effective friction, ϕ'	30°	30°	32°	34°	32°
Drained cohesion, c'	0 kPa	3 kPa	5 kPa	15 kPa	0 kPa
Active earth pressure coefficient, K_a	0.28	0.28	0.26	0.24	0.26
Passive earth pressure coefficient, K_p	3.9	3.9	4.4	5.0	4.4
At-rest earth pressure coefficient, K_0	0.50	0.5	0.47	0.44	0.47

Notes
1) Earth pressure coefficient are for flat ground with wall friction angle of ⅔ϕ on the active side and ⅓ ϕ on the passive side. The coefficients shall be adjusted for sloping ground and surcharges.
2) 2) Typical depths of residual soil/rock are based upon CPT6 and CPT7 and are intended to be appropriate for design of the upslope retention. Depths to these layers through the centre of the site, where weathered rock is visible, is likely to be less than given.

Adequate drainage of the upslope retaining shall be provided and a clay/low permeability soil cap shall be provided over any drainage backfill to ensure surface water cannot infiltrate behind retention.

We note that the slope angle to the south of the site exceeds the friction angles given above. This indicates the values we have provided are suitably conservative but solutions to active earth pressures values adjusted for sloping ground will not be possible. We recommend the values for flat ground are used with the slope above modelled as a variable surcharge load applied above the retention.

5.5. Subgrade preparation

If ground bearing floor slabs are proposed they will require careful detailing with the piled structure. Organic containing soils would also need to be undercut and replaced under any ground bearing floor slabs.

5.6. Site seismic subsoil category

Seismic accelerations to be resisted by a structure are dependent upon the stiffness of the underlying soil/rock. The site seismic category has been assessed based on shear wave and density correlations from the CPT results. In accordance with NZS 1170.5: 2004[8] the subsoil category for seismic design actions shall be taken as Class C – shallow soil site for the proposed development.

5.7. Liquefaction

5.7.1. General

Loose saturated sand deposits in seismically active regions are prone to liquefaction and settlements during strong ground motion. Ground surface disruption including surface cracking, dislocation, ground distortion, slumping and permanent deformations such as large settlements and lateral spreads are commonly observed at liquefied sites.

New Zealand is a high earthquake hazard region and earthquake considerations are integral for geotechnical assessment. Fortunately, seismic risk in Northland is low. Since written records of earthquakes have been kept in New Zealand (from about 1840) no large earthquakes are known to have been centred in the region. All recorded earthquakes have been small with magnitudes of less than M5. No active faults are known within the region and the whole of Northland is generally regarded as tectonically stable however large earthquakes centred elsewhere are occasionally felt in Northland (e.g. the 1986 Inangahua and 1971 Hawkes Bay earthquakes).

5.7.2. Liquefaction Assessment

The sloping ground to the south of the site (CPT6, CPT7, HA01 & HA02) comprises residual soils and greywacke rock that are not prone to liquefaction.

The flat land to the north of the site is underlain by sands that are susceptible to liquefaction where saturated and a liquefaction assessment has been completed for CPT1 to CPT5.

[8] Standards New Zealand, 2004. Structural Design Actions Part 5: Earthquake Actions. NZS 1170.5:2004

A liquefaction assessment has been completed in general accordance with NZGS/MBIE Earthquake Geotechnical Engineering Practice – Module 3: Identification, assessment and mitigation of liquefaction hazards, November 2021. In particular ground motion parameters from Module 1[9] and the Boulanger and Idriss (2014) triggering method have been adopted. The liquefaction assessment was completed using the software programme CLiq.

The CPT Soil Behaviour Type Index (I_c) allows assessment if a soil type is potentially liquefiable. An I_c value less than 2.6 indicates soil is potentially liquefiable and a value greater than 2.6 indicates the soil is not susceptible to liquefaction. In CPT1 to CPT5 most of the profiles have an I_c value less than 2.6 indicating most of the soil profile comprises soil types susceptible to liquefaction.

Ground motion inputs from Table A1 of the NZGS/MBIE Earthquake Geotechnical Engineering Practice Guidance Module 1 have been adopted and are summarised in Table 5-3.

Table 5-3: Liquefaction Assessment Summary

Design Level	Design Life	Annual Probability of Exceedance	Peak Ground Acceleration (PGA)	Earthquake Magnitude (M_w)
SLS	50 years	1 in 25 years	0.03g	5.8
ULS	50 years	1 in 500 years	0.13g	5.8
Minimum Seismicity[1]	50 years	Less than 1 in 500 years	0.19g	6.5

Note 1: Minimum level of seismicity for design is recommended in areas of low seismicity and comprises a magnitude 6.5 earthquake at 20km distance.

Analysis summaries and results are presented in Appendix C.

Serviceability Limit State

NZS1170.5[10] and MBIE Module 4[11] specify the following service criteria for SLS earthquake shaking:

SLS design actions and combinations of actions are considered likely to occur during a 50-year lifetime of the building. At the SLS level, structural system members and parts of structures shall not experience deformations that result in damage that would prevent the structure from being used as originally intended without repair.

The assessment indicated that no liquefaction would occur for the SLS design with the factor of safety (FoS) against liquefaction exceeding 2 (by a reasonable margin) for the full CPT trace depths. The specified service level for SLS loading is achieved.

Ultimate Limit State and Minimum Seismicity

NZS1170.5 and MBIE Module 4 specify the following service criteria for ULS earthquake shaking:

ULS design actions and combinations of actions are considered much less likely to occur during the lifetime of the building but are required to be resisted with a very low risk of structural collapse or failure of parts relevant to life safety.

The assessment did not indicate any consequential liquefaction for the ULS case and ULS requirements are met without any specific design being required.

[9] NZGS/MBIE Earthquake Geotechnical Engineering Practice – Module 1: Overview of the guidelines, November 2021
[10] Standards New Zealand, Structural design actions; Part 5: Earthquake action – New Zealand. NZS 1170.5:2004
[11] NZGS/MBIE Earthquake Geotechnical Engineer Practice – Module 4: Earthquake resistant foundation design, November 2021

Under the minimum seismicity case liquefaction may occur in thin isolated layers and portions of the profile have a FoS less than 1.25. Estimated vertical settlements are less than 15mm. Design to meet usual requirements is considered sufficiently robust and no liquefaction specific design measures are recommended.

5.7.3. Lateral Spreading

Liquefied soils lose the majority of their strength and can flow (spread) laterally towards drains, streams and coastlines. Lateral spreading can be highly damaging to building structures. The site is not considered to be at risk of consequential lateral spreading due to the low risk of a continuous zone of liquefaction occurring.

5.8. Safety in Design

The proposed development is likely to require a significant temporary cut to allow construction. The design of the upslope retention system must allow safe construction onsite. In no instances is it appropriate to access between a steep upslope unretained cut face and a downslope wall, for example to install water proofing or drainage.

Options to allow safe construction include:

1) Battering of the temporary cut to a suitably stable angle with contingencies to improve temporary cut batter stability if required (i.e. contingencies to install temporary retaining walls or ground anchors).
2) Top down construction methods (ground anchors/soil nails or bore piles installed from ground level with subsequent dig out below).
3) Construction methodologies that do not require access to the upslope face of the retention system during construction.

Safe construction is also likely to require measures including inspection of all temporary cut batters by a CPEng Geotechnical Engineer or PEng Geologist and stand downs during wet weather.

6. Applicability

This report has been prepared solely for the benefit of our client, T&L Henwood Family Trust and the Far North District Council with respect to the Building Consent application for which it has been prepared and on the terms and conditions agreed with our client. It may not be used or relied on (in whole or part) by anyone else, or for any other purpose or in any other contexts, without prior written agreement.

The nature and continuity of the subsoil conditions onsite have been inferred from visual observations, two hand augered boreholes, four machine auger holes and seven CPT tests. It must be appreciated that actual subsoil conditions could differ from those inferred. If the subsoil conditions differ in any way from those described in this report it is essential that Northland Geotechnical Specialists Ltd be contacted.

Authorised for Northland Geotechnical Specialists Limited by:

David Buxton

Geotechnical Engineer, BE Civil (Hons), CPEng, CMEngNZ

Attached:	Figure 1 – Site Plan	1 x A3 page
	Figure 2 – Site Setting	1 x A3 page
	Figure 3 – Cross Section A-A	1 x A3 page
	Machine Auger Logs (MA1 – MA4)	4 x A4 pages
	Hand Auger Borehole Logs (HA1 – HA2)	2 x A4 pages
	CPT test Output Summary (CPT1 to CPT7)	28 x A4 pages
	Liquefaction Analysis Output	30 x A4 pages

ngs georpt_116marsdenpointrd-jan2023

Northland Geotechnical Specialists

www.northlandgeotech.co.nz

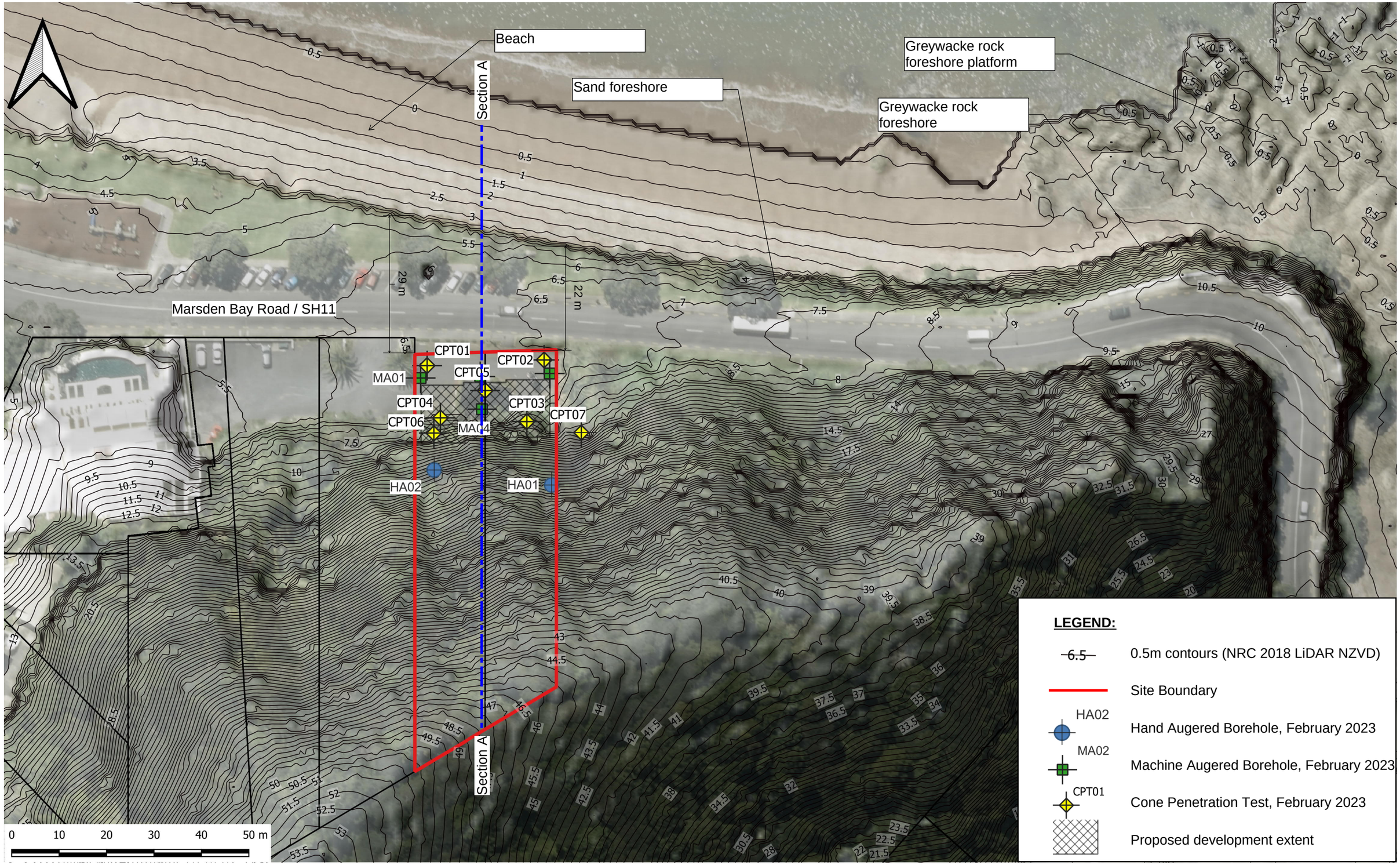
NOTES:
Aerial Image - LINZ Basemaps
Terrain shading from NRC 2018 LiDAR shown
Contours - NRC 2018 LiDAR, 0.5m contour intervals show (NZVD Datum).
Boundaries from LINZ

This figure is not for construction unless signed as approved
Approved: Date:

CLIENT **T & L Henwood Family Trust**
PROJECT **Geotechnical Assessment**
LOCATION **116 & 118 Marsden Road**
TITLE **Site Plan**

Scale 1:750 @ A3

Project No. 0281
Date 08/03/23
By DSB
Figure No. 1
Revision 0



NGS
Northland Geotechnical Specialists
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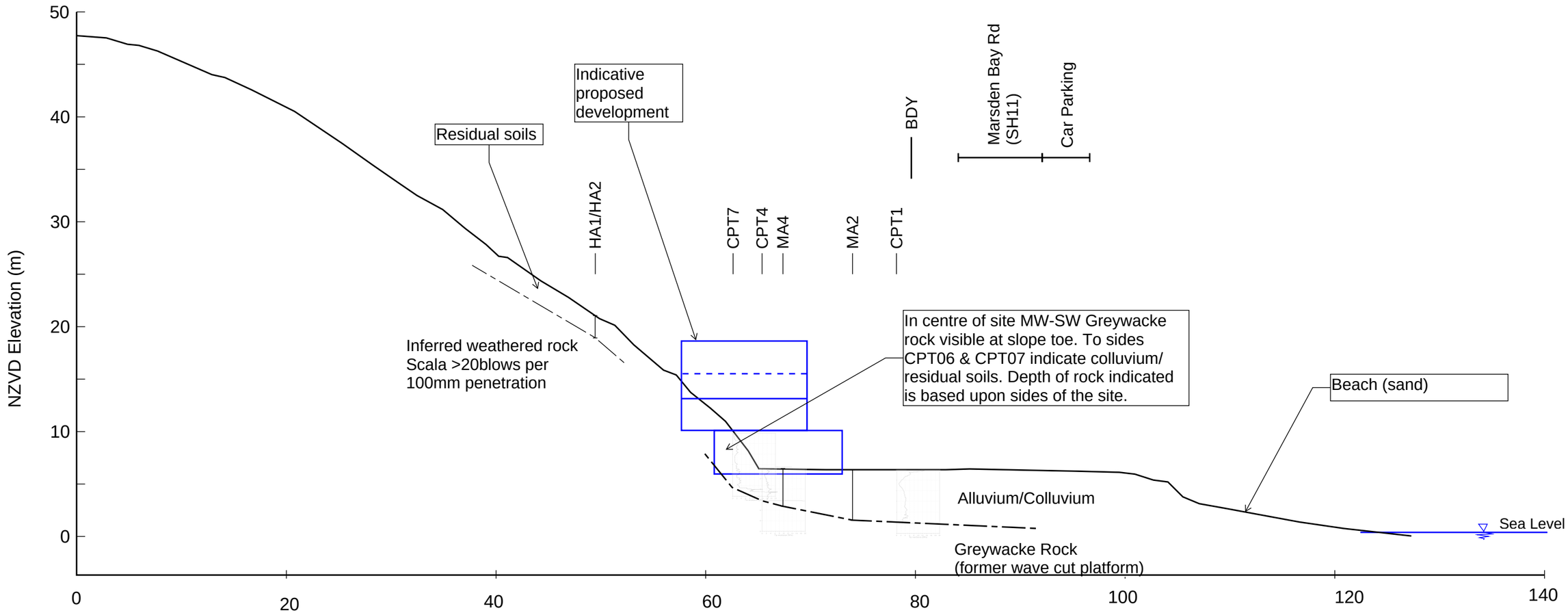
NOTES:
Aerial Image - LINZ Basemaps
Terrain shading from NRC 2018 LiDAR shown
Contours - NRC 2018 LiDAR, 0.5m contour intervals show (NZVD Datum).
Boundaries from LINZ

This figure is not for construction unless signed as approved
Approved: Date:

CLIENT **T & L Henwood Family Trust**
PROJECT **Geotechnical Assessment**
LOCATION **116 & 118 Marsden Road**
TITLE **Site Setting**

Scale 1:750 @ A3

Project No. 0281
Date 08/03/23
By DSB
Figure No. 2
Revision 0



Cross-Section A-A
Scale 1:400 @ A3
Refer Figure 2 for Location

Notes:
1 - Ground elevation based 2018 LiDAR DEM NZVD

Project No. 0281	Date Mar 2023	**Cross Section A-A** **T & L Henwood Family Trust** **116 & 118 Marsden Road**	NOT FOR CONSTRUCTION This drawing is not to be used for construction unless signed as approved	NGS Northland Geotechnical Specialists Ph: +64 226981129 E: info@northlandgeotech.co.nz
Figure No. 3	Revision 0		Signed / Date	

ROTARY MACHINE AUGER LOG

NGS Northland Geotechnical Specialists

HOLE NO.: MA1
JOB NO.: 0281

CLIENT: T&L Henwood Family Trust
PROJECT: Geotechnical assessment for new development

SITE LOCATION: 116 & 118 Marsden Road, Paihia
CO-ORDINATES: 1698904mE, 6095474mN
ELEVATION: 6.3m
START DATE: 16/02/2023
END DATE: 16/02/2023
LOGGED BY: DB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane: NGS Vane 2 - 19mm	Values	WATER
	GAP40, Blue.		0.0–0.05					
	Shelly SAND; dark brown.		0.05–0.7					
	Clayey SILT, with some gravel; orange and grey. Very stiff to hard, moist, high plasticity; gravel, highly weathered, Greywacke; (Fill or Colluvium).		0.7–1.7				222 / - / 222 / - / 206 / 35	
	Silty SAND, with some gravel (fine, rounded), with trace greywacke gravel (medium, angular) and shells; orange. Moist. Sand, fine to coarse. 3.3m: Wet.		1.7–4.4					
	Clayey SILT; orange and grey. Very stiff, moist, high plasticity.		4.4–4.7					▼ 16/02/2023
	Target depth. EOH: 4.70m							

REMARKS

250mm dia augered hole. Upper 1.5m dug as pit to enable increased auger depth.

WATER

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

INVESTIGATION TYPE

- ☐ Hand Auger
- ☐ Test Pit

ROTARY MACHINE AUGER LOG

NGS
Northland Geotechnical Specialists

HOLE NO.: MA2

JOB NO.: 0281

CLIENT: T&L Henwood Family Trust

PROJECT: Geotechnical assessment for new development

SITE LOCATION: 116 & 118 Marsden Road, Paihia

CO-ORDINATES: 1698917mE, 6095474mN

ELEVATION: 6.3m

START DATE: 16/02/2023

END DATE: 16/02/2023

LOGGED BY: DB

Depth (m)	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)
0.0 – 0.1	GAP 40, Blue.
0.1 – 0.3	Silty CLAY; orange. Very stiff to hard, moist, high plasticity; (Colluvium/Fill).
0.3 – 1.3	Clayey SILT, with some gravel; orange and grey. Very stiff to hard, moist, high plasticity; gravel, greywacke; (fill or colluvium).
1.3 – 4.8	Silty SAND, with trace clay; orange. Moist; sand, medium to coarse, rounded. 3.0m: Wet. 4.6m: With some gravel. Gravel, medium, rounded.
4.8	Refusal to auger. Inferred rock. EOH: 4.80m

Columns: UNIT | MATERIAL DESCRIPTION | SAMPLES | DEPTH (m) | LEGEND | SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18 | VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values | WATER

Water: Standing water level at approx. 3.6m, 16/02/2023

REMARKS

250mm dia augered hole. Upper 1.5m dug as pit to enable increased auger depth.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- ☐ Hand Auger
- ☐ Test Pit

ROTARY MACHINE AUGER LOG

Northland Geotechnical Specialists

HOLE NO.: MA3

JOB NO.: 0281

CLIENT: T&L Henwood Family Trust

PROJECT: Geotechnical assessment for new development

SITE LOCATION: 116 & 118 Marsden Road, Paihia

CO-ORDINATES: 1698931mE, 6095475mN

ELEVATION: 6.3m

START DATE: 16/02/2023

END DATE: 16/02/2023

LOGGED BY: DB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm)	VANE SHEAR STRENGTH (kPa) Vane:	WATER
	Silty SAND, with trace organics (common rootlets); brown. Moist.		0.0 – 1.3				
	Silty SAND, with trace clay; orange. Moist; sand, medium to coarse, rounded. 2.5m: Wet.		1.3 – 3.3				Standing water level 16/02/2023 (3.2 m)
	Clayey SILT; orange and grey. Very stiff, moist, high plasticity.		3.3 – 4.7				Out flow (3.6 m)
	Refusal on inferred rock. EOH: 4.70m		4.7				

Depth scale: 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.2, 4.4, 4.6, 4.8, 5.0

Scala penetrometer scale: 2, 4, 6, 8, 10, 12, 14, 16, 18

Vane shear scale: 50, 100, 150, 200; Values

REMARKS

250mm dia augered hole. Upper 1.5m dug as pit to enable increased auger depth.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- ☐ Hand Auger
- ☐ Test Pit

ROTARY MACHINE AUGER LOG

HOLE NO.: MA4

JOB NO.: 0281

NGS Northland Geotechnical Specialists

CLIENT: T&L Henwood Family Trust

PROJECT: Geotechnical assessment for new development

SITE LOCATION: 116 & 118 Marsden Road, Paihia

CO-ORDINATES: 1698917mE, 6095467mN

ELEVATION: 6.3m

START DATE: 16/02/2023

END DATE: 16/02/2023

LOGGED BY: DB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 0mm) 2 4 6 8 10 12 14 16 18	VANE SHEAR STRENGTH (kPa) Vane: 50 100 150 200 Values	WATER
	GAP40, Blue.		0.0 – 0.1				
	Silty gravelly CLAY. Very stiff, moist, high plasticity; gravel, angular, moderately weathered to unweathered.		0.1 – 1.4				Out flow at 1.4
	GRAVEL, with some silt. Saturated; gravel, medium, angular, slightly weathered, greywacke.		1.4 – 3.5				Standing water level 16/02/2023 at ~1.9
	Refusal to auger on inferred MW-SW Greywacke rock shelf. EOH: 3.50m						

Depth scale: 0.2, 0.4, 0.6, 0.8, 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.4, 3.6, 3.8, 4.0, 4.2, 4.4, 4.6, 4.8, 5.0

REMARKS

250mm dia augered hole.

WATER

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

INVESTIGATION TYPE

- ☐ Hand Auger
- ☐ Test Pit

HAND AUGER LOG

NGS Northland Geotechnical Specialists

HOLE NO.: HA1

CLIENT: T&L Henwood Family Trust

PROJECT: Geotechnical assessment for new development

JOB NO.: 0281

SITE LOCATION: 116 & 118 Marsden Road, Paihia

CO-ORDINATES: 1698932mE, 6095451mN

ELEVATION: 19m

START DATE: 16/02/2023

END DATE: 16/02/2023

LOGGED BY: DB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)	LEGEND	SCALA PENETROMETER (Blows / 100mm)	VANE SHEAR STRENGTH (kPa) Vane: NGS Vane 2 - 19mm	WATER
	Organic SILT; black. Topsoil/Humus.		0.0	TS			
	Clayey GRAVEL; orange and grey. Gravel, medium to fine, subangular, moderately weathered, greywacke.		0.2			131	
			0.4			48	
			0.6			UTP	
			0.8			-	
			1.0			220	
			1.2			5	
	1.8m: Grey.		1.4				
			1.6				
			1.8				
	Refusal to auger. Dry on completion. EOH: 1.90m		2.0		10		
			2.2		9		
			2.4		27 >>		

Values

Groundwater Not Encountered

REMARKS

Ground conditions typically no suitable for shear vane testing due to gravels. Results at 0.9m and 1.2m affected by gravels.

WATER

- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

- [x] Hand Auger
- [ ] Test Pit

HAND AUGER LOG

NGS Northland Geotechnical Specialists

HOLE NO.: HA2

CLIENT: T&L Henwood Family Trust

PROJECT: Geotechnical assessment for new development

JOB NO.: 0281

SITE LOCATION: 116 & 118 Marsden Road, Paihia

START DATE: 16/02/2023

CO-ORDINATES: 1698907mE, 6095454mN

ELEVATION: 14.7m

END DATE: 16/02/2023

LOGGED BY: DB

UNIT	MATERIAL DESCRIPTION (See Classification & Symbology sheet for details)	SAMPLES	DEPTH (m)
	Clayey SILT, with some organics; dark brown. Stiff, moist, high plasticity; Topsoil.		0.0
	Clayey SILT, with some gravel; orange. Very stiff, moist, high plasticity; gravel, fine to medium, angular, highly weathered, greywacke.		0.2 – 0.6
	Clayey GRAVEL; orange. Gravel, fine to medium, angular, highly weathered to moderately weathered, greywacke.		0.6 – 1.8
	Refusal to auger. Dry on completion. EOH: 1.80m		1.8

LEGEND

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

VANE SHEAR STRENGTH (kPa) Vane: NGS Vane 2 - 19mm: 50, 100, 150, 200

Values
124
16
170
23
105
25
216
14
206
9
UTP
-

WATER: Groundwater Not Encountered

REMARKS

Scala testing not completed - location too difficult to access.

WATER

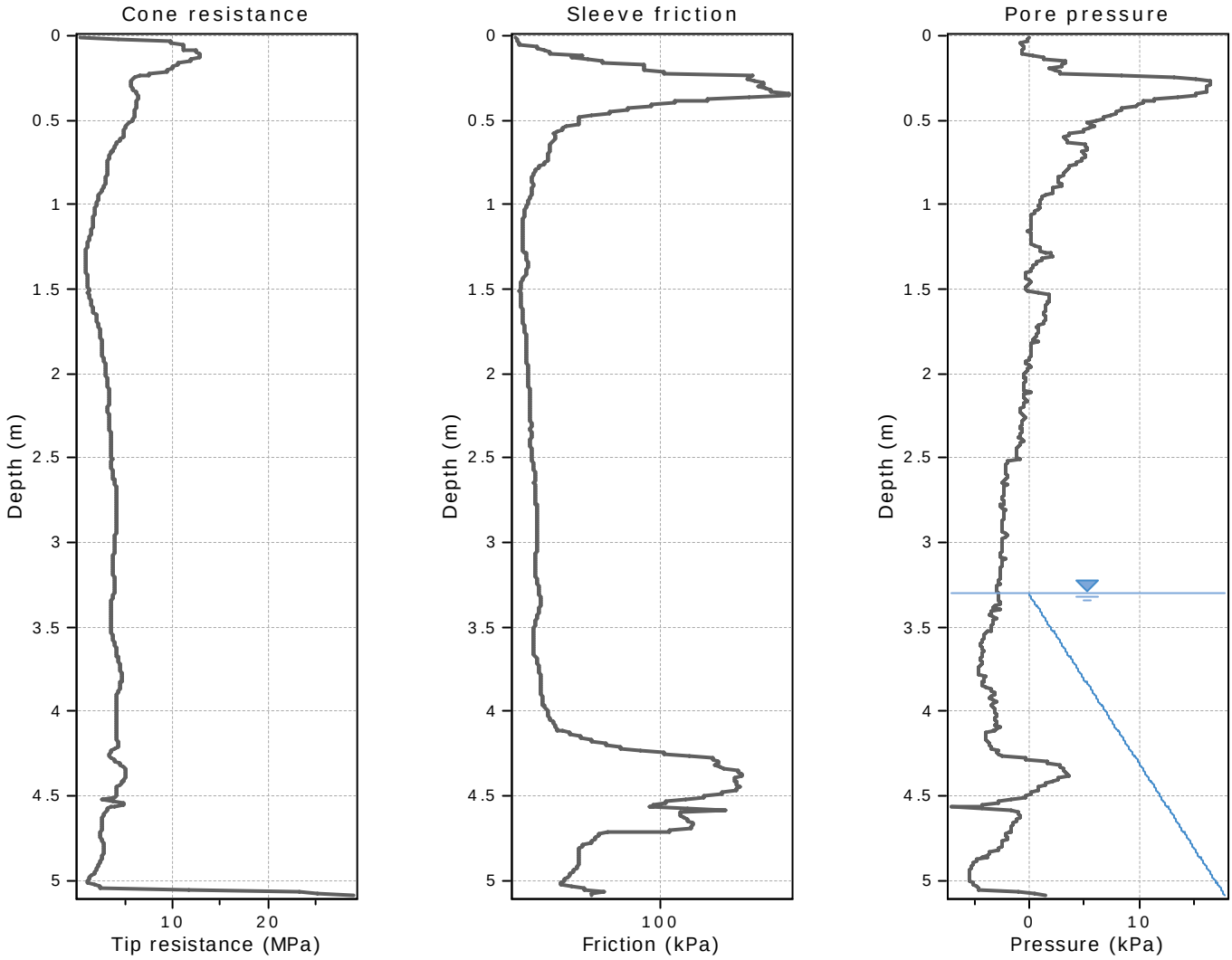
- Standing Water Level
- Out flow
- In flow

INVESTIGATION TYPE

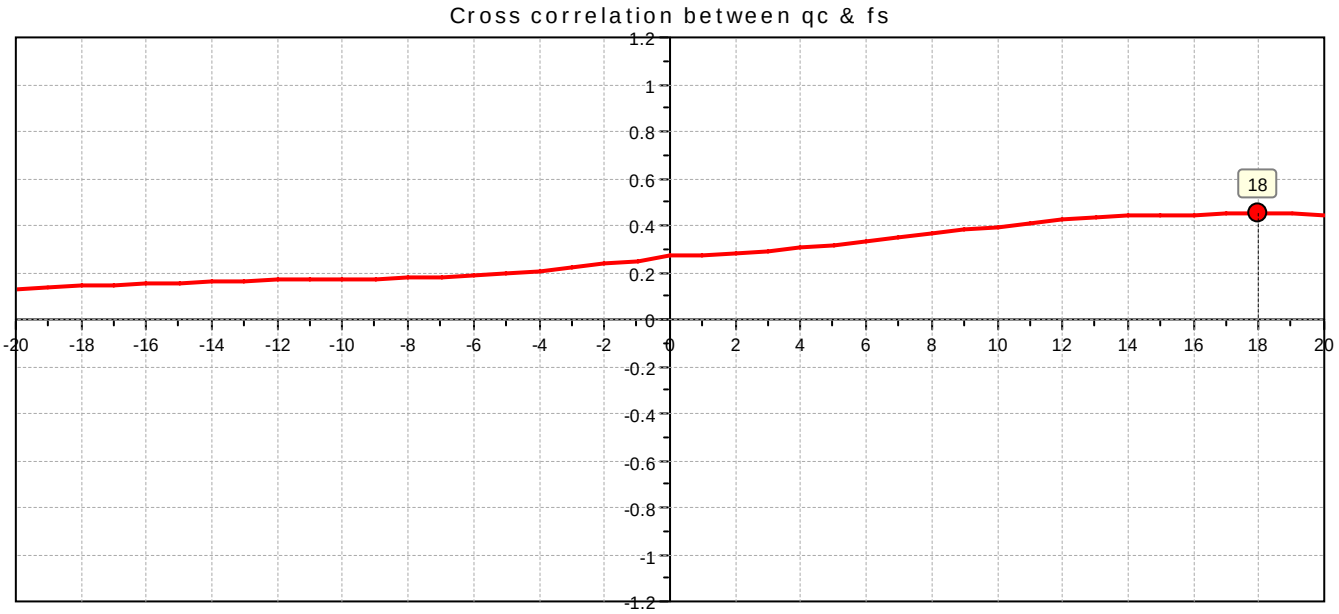
- [x] Hand Auger
- [ ] Test Pit

CPT: CPT01
Total depth: 5.09 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698905.19, Y:6095476.44
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road

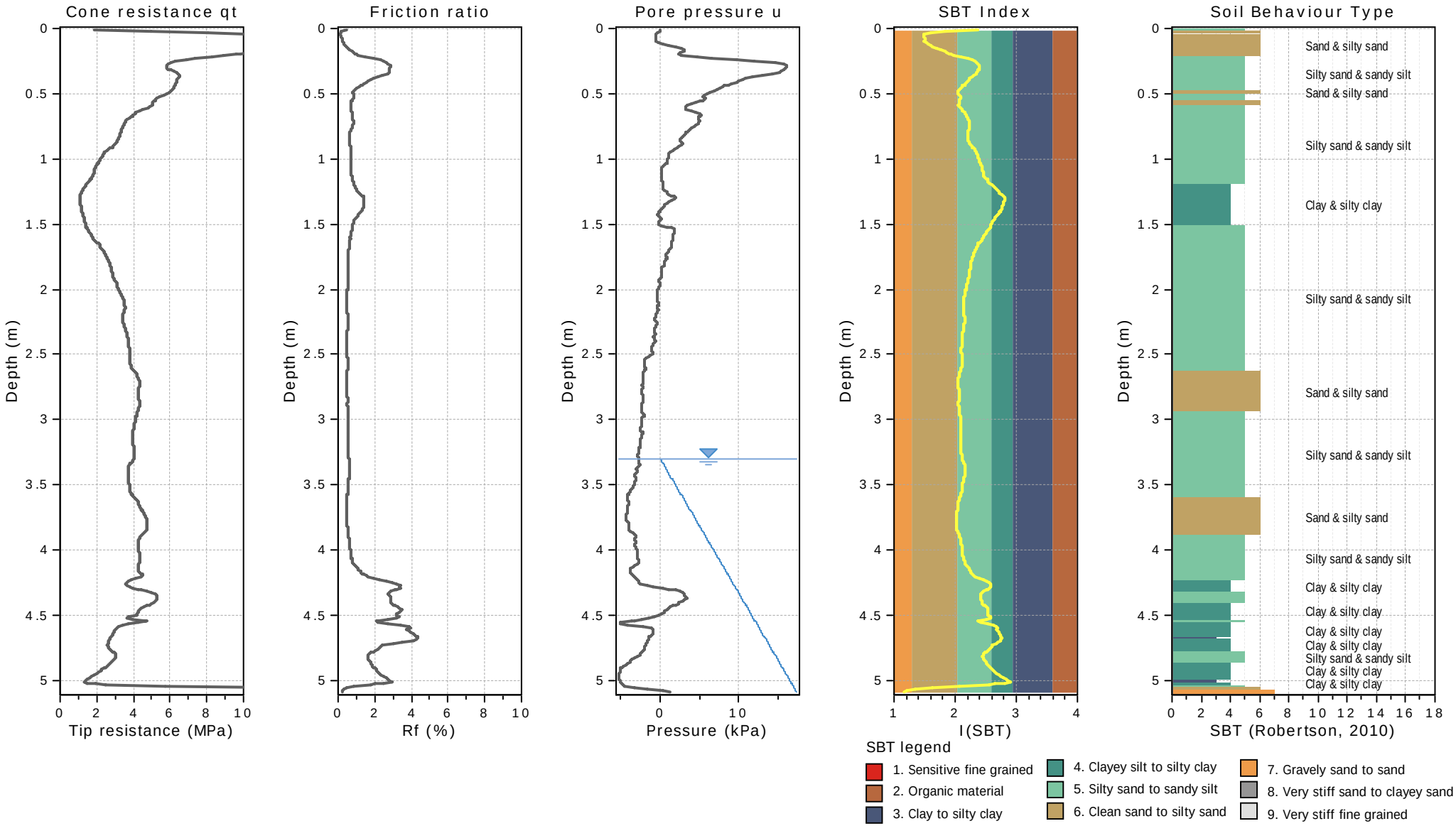


The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



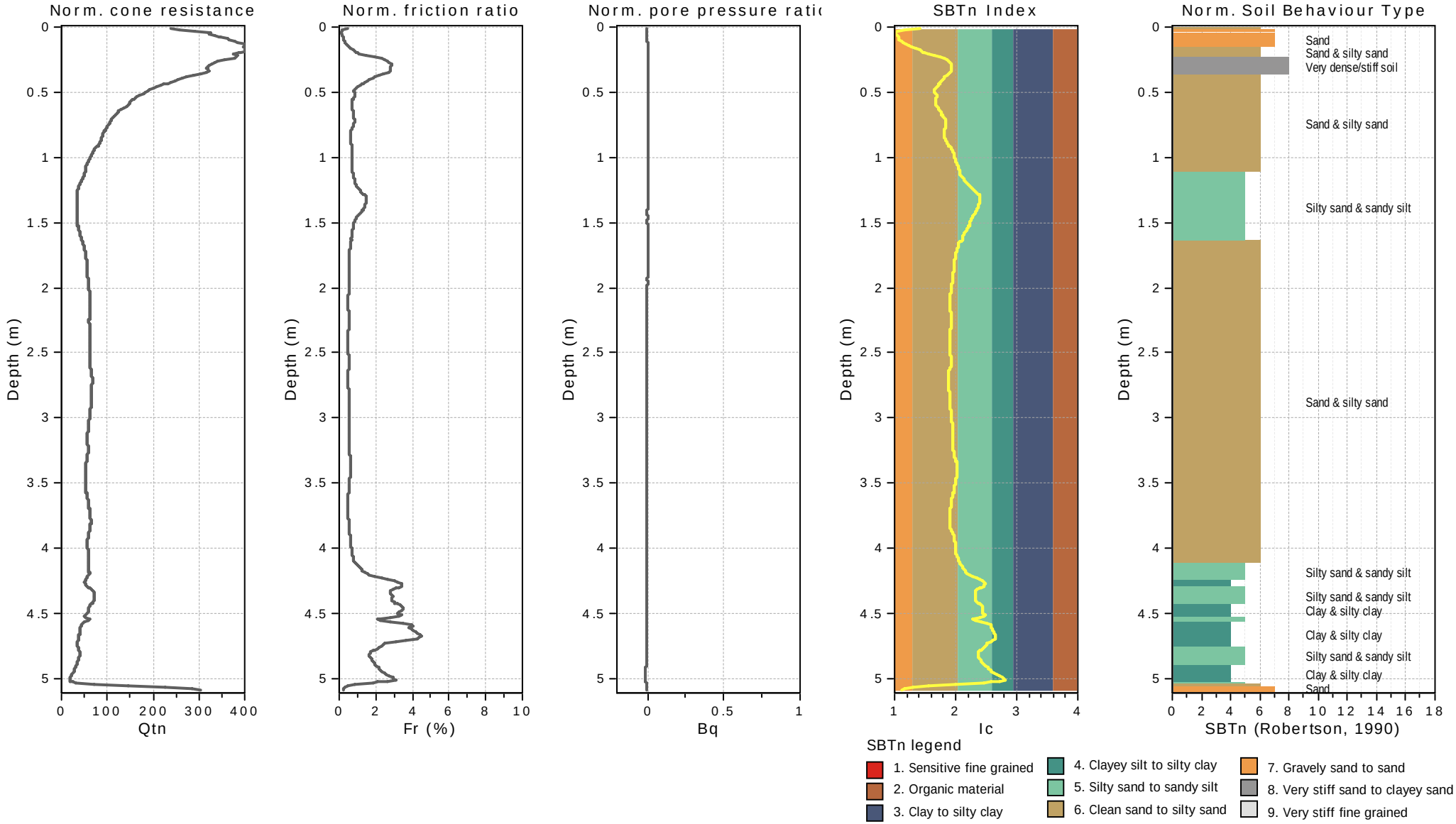
CPT: CPT01
Total depth: 5.09 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698905.19, Y:6095476.44
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



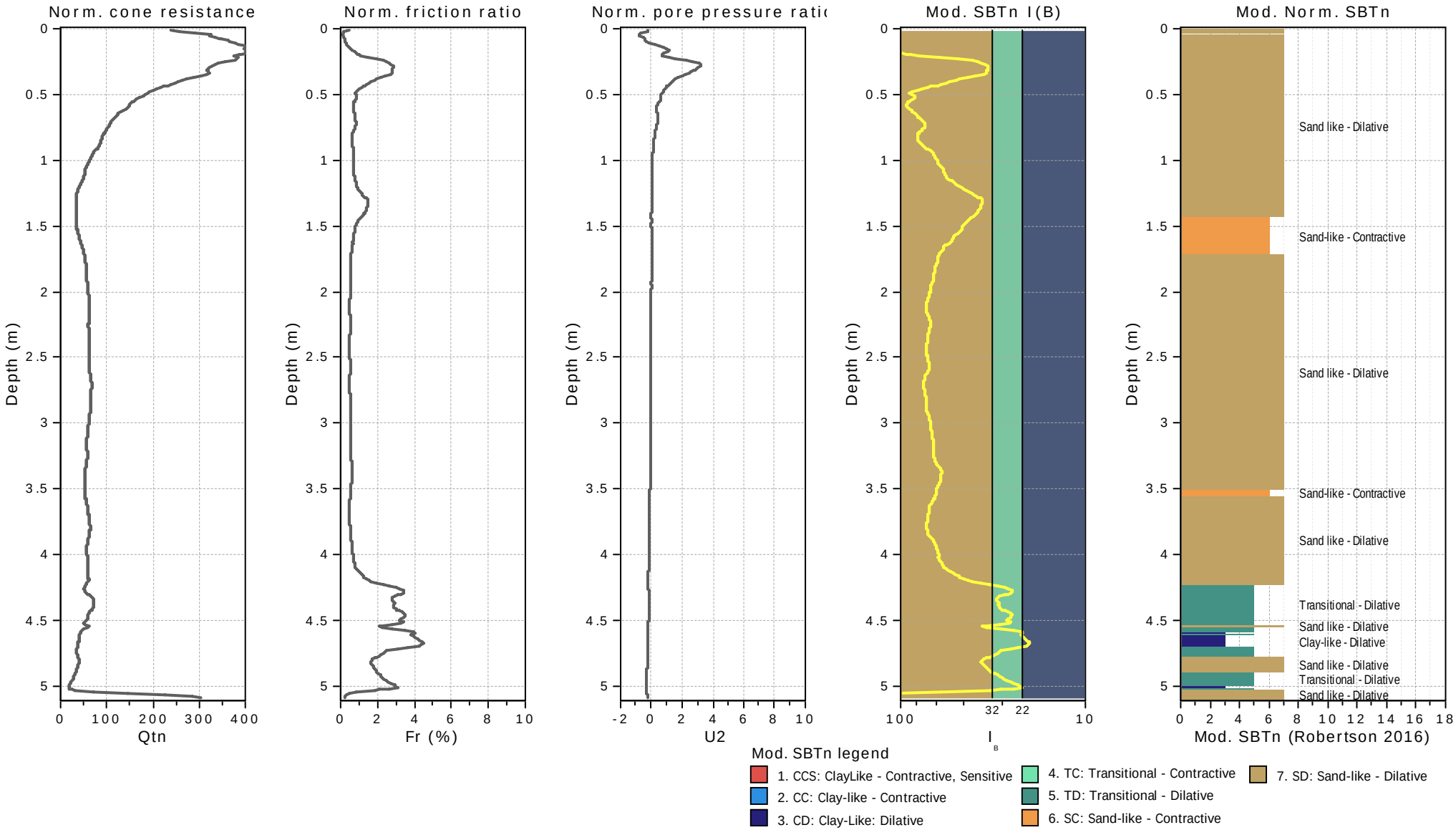
CPT: CPT01
Total depth: 5.09 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698905.19, Y:6095476.44
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



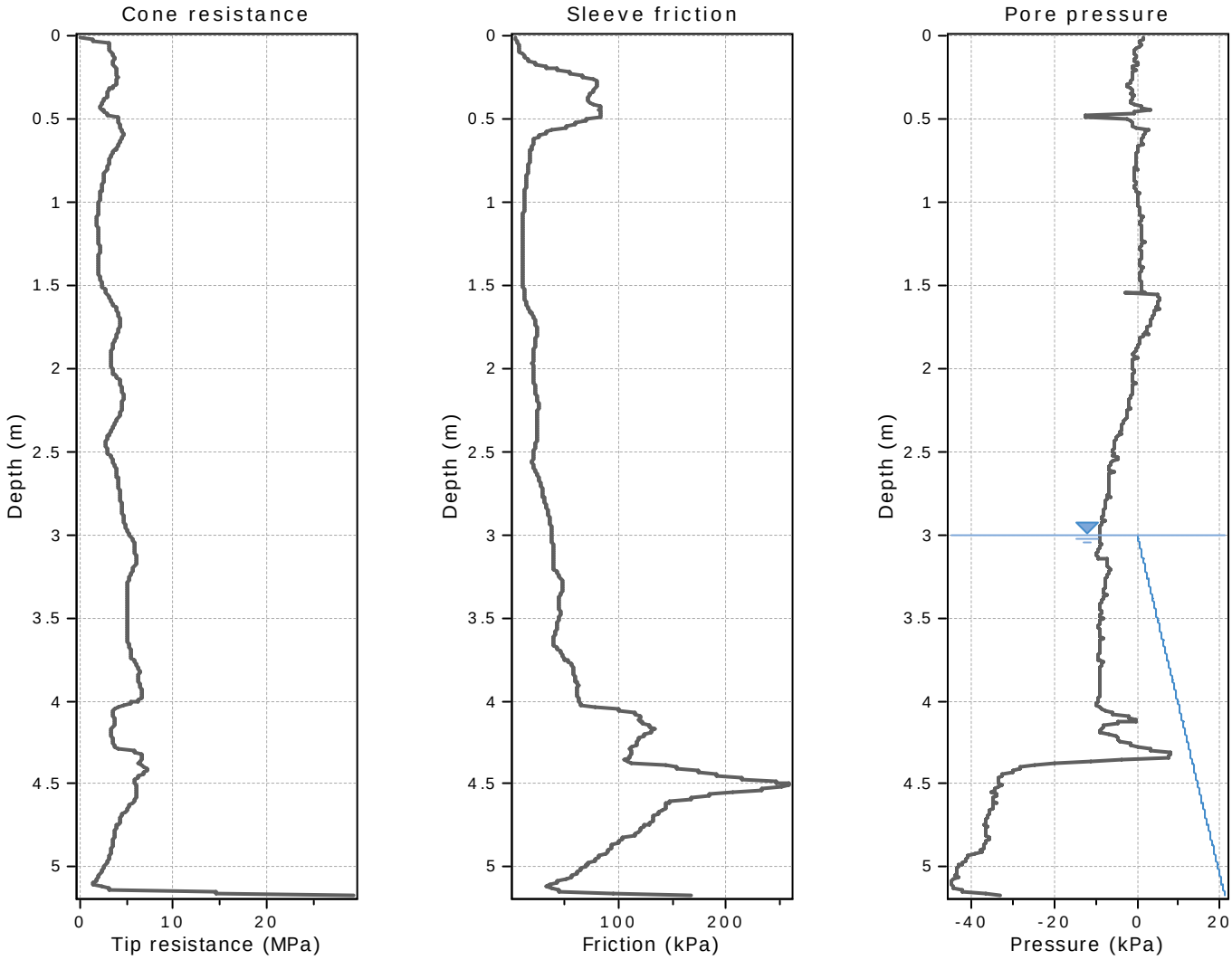
CPT: CPT01
Total depth: 5.09 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698905.19, Y:6095476.44
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road

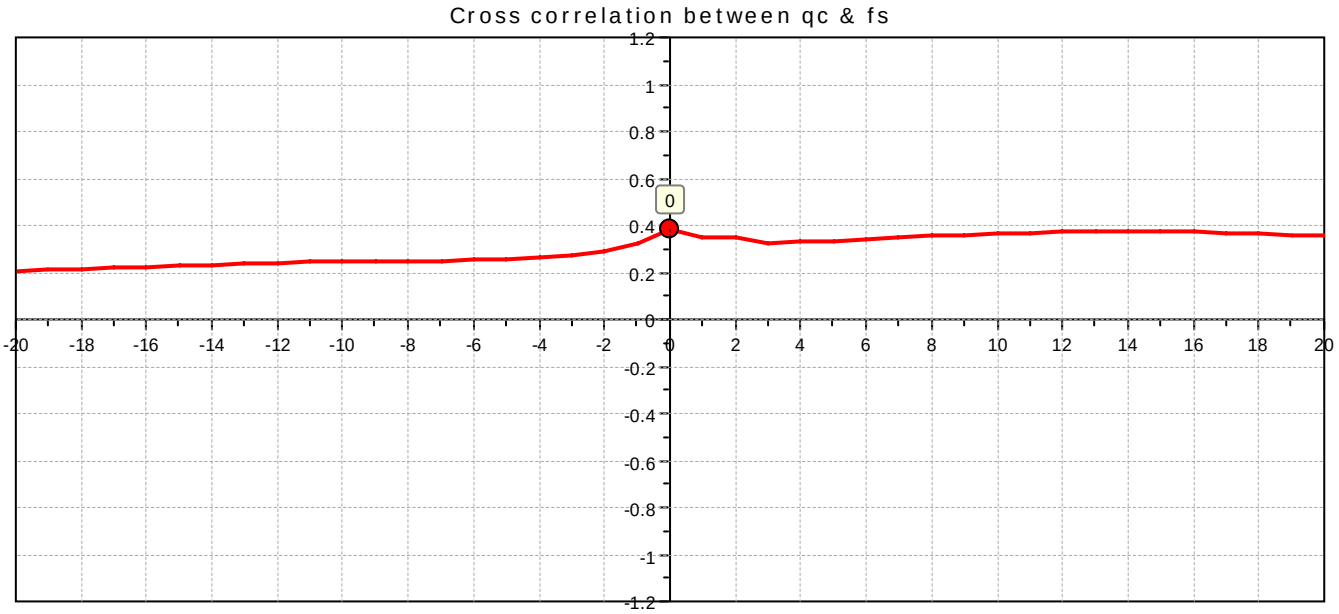


CPT: CPT02
Total depth: 5.17 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698929.98, Y:6095477.63
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road

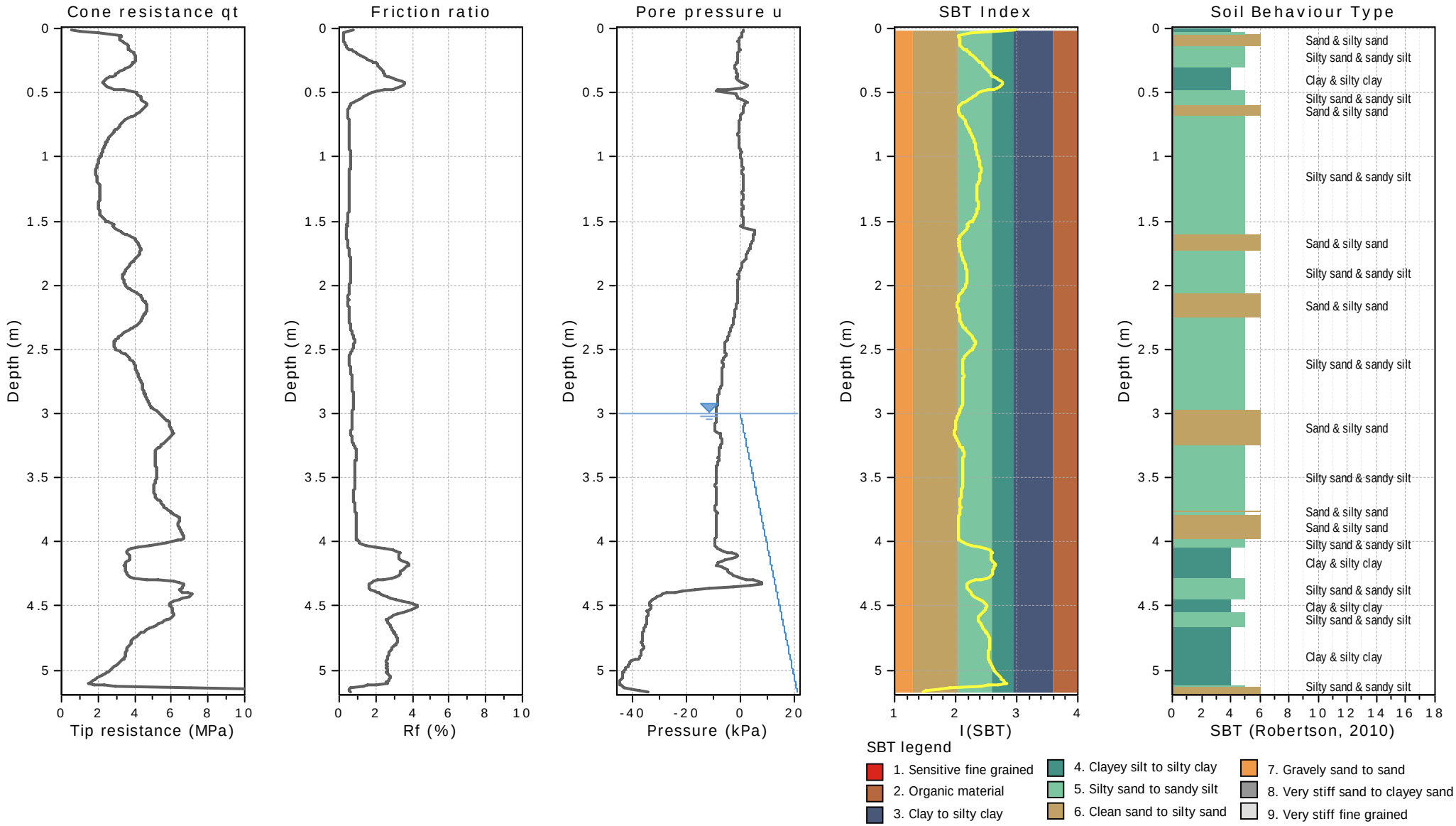


The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



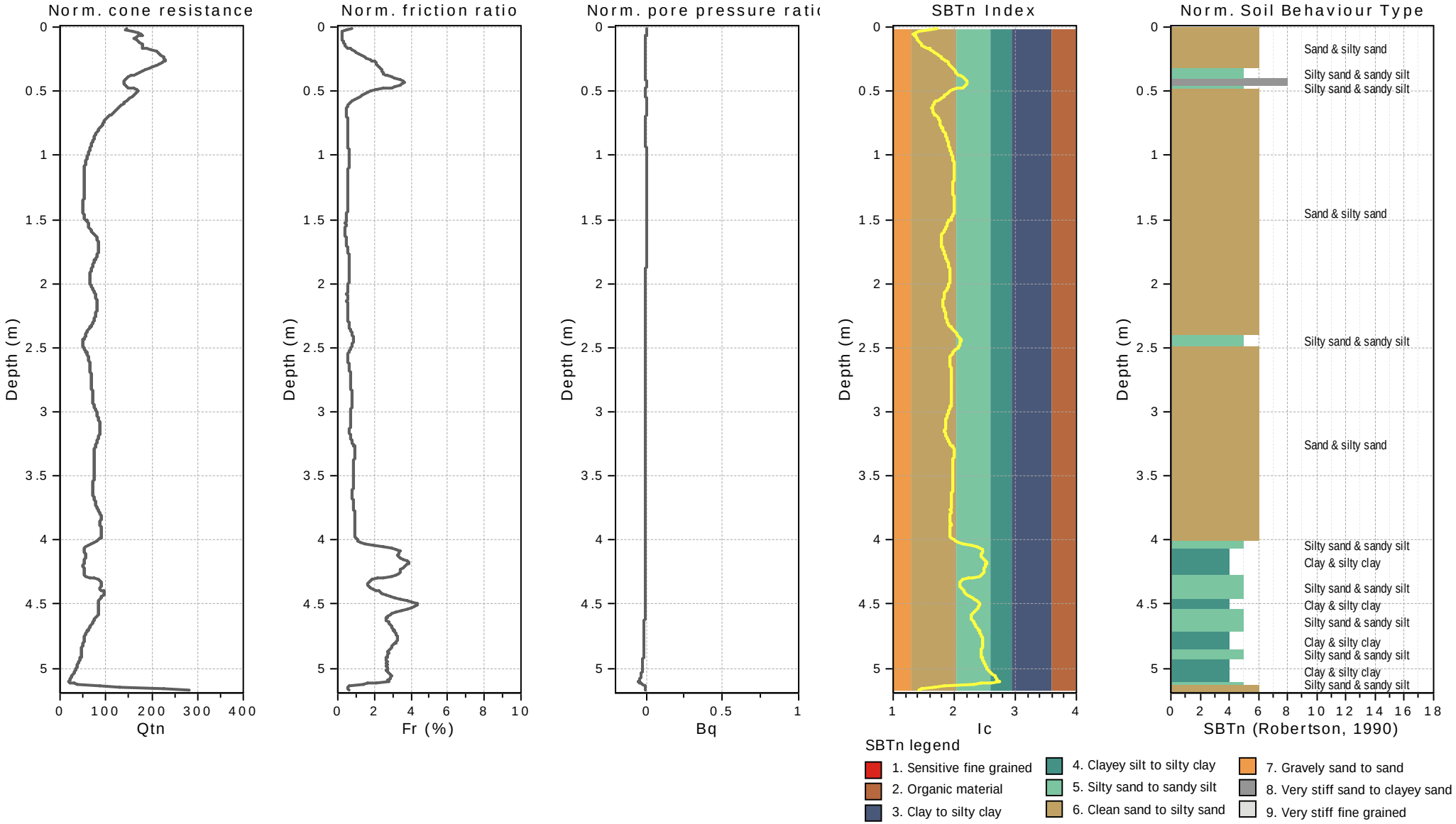
CPT: CPT02
Total depth: 5.17 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698929.98, Y:6095477.63
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



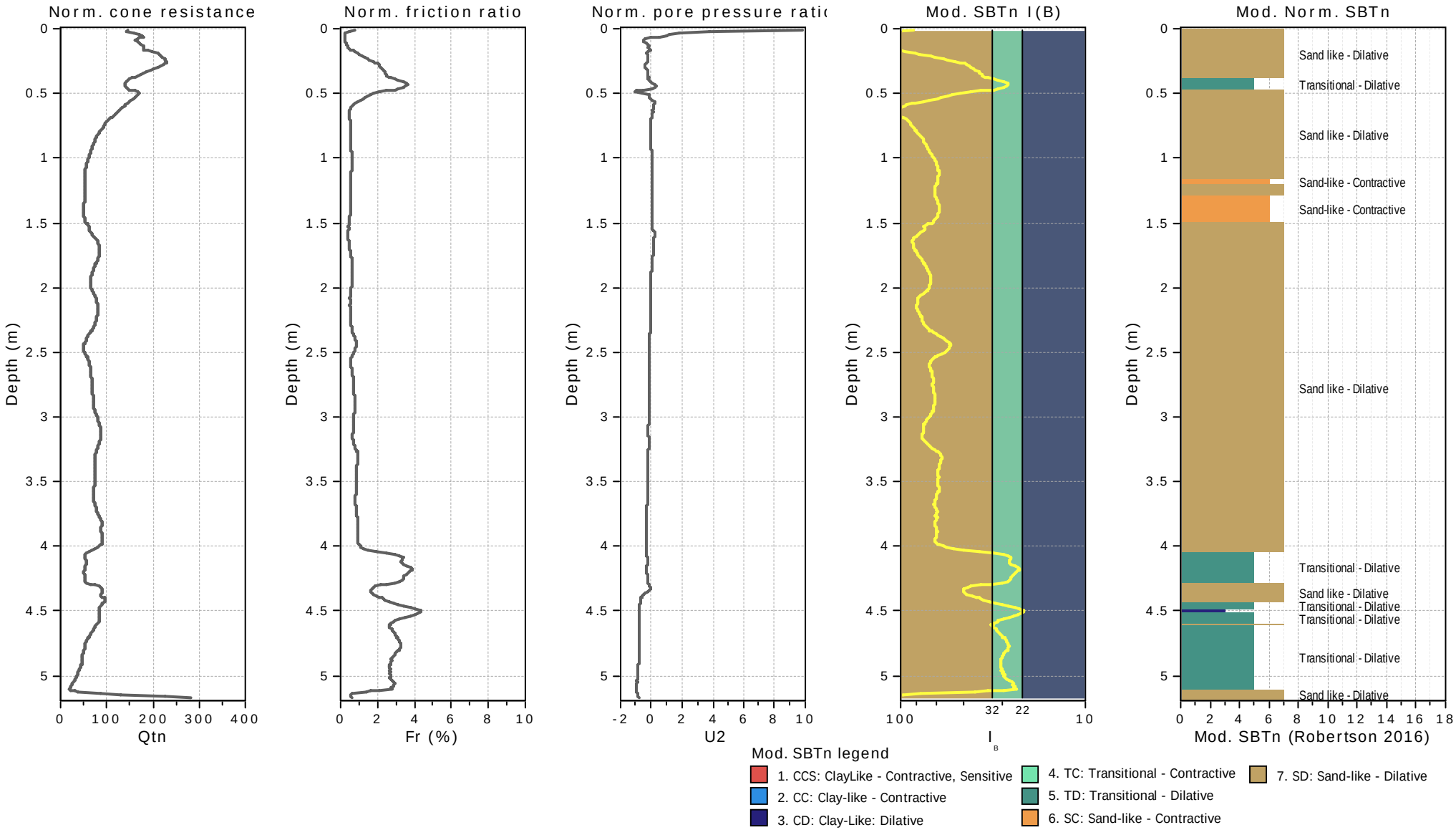
CPT: CPT02
Total depth: 5.17 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698929.98, Y:6095477.63
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



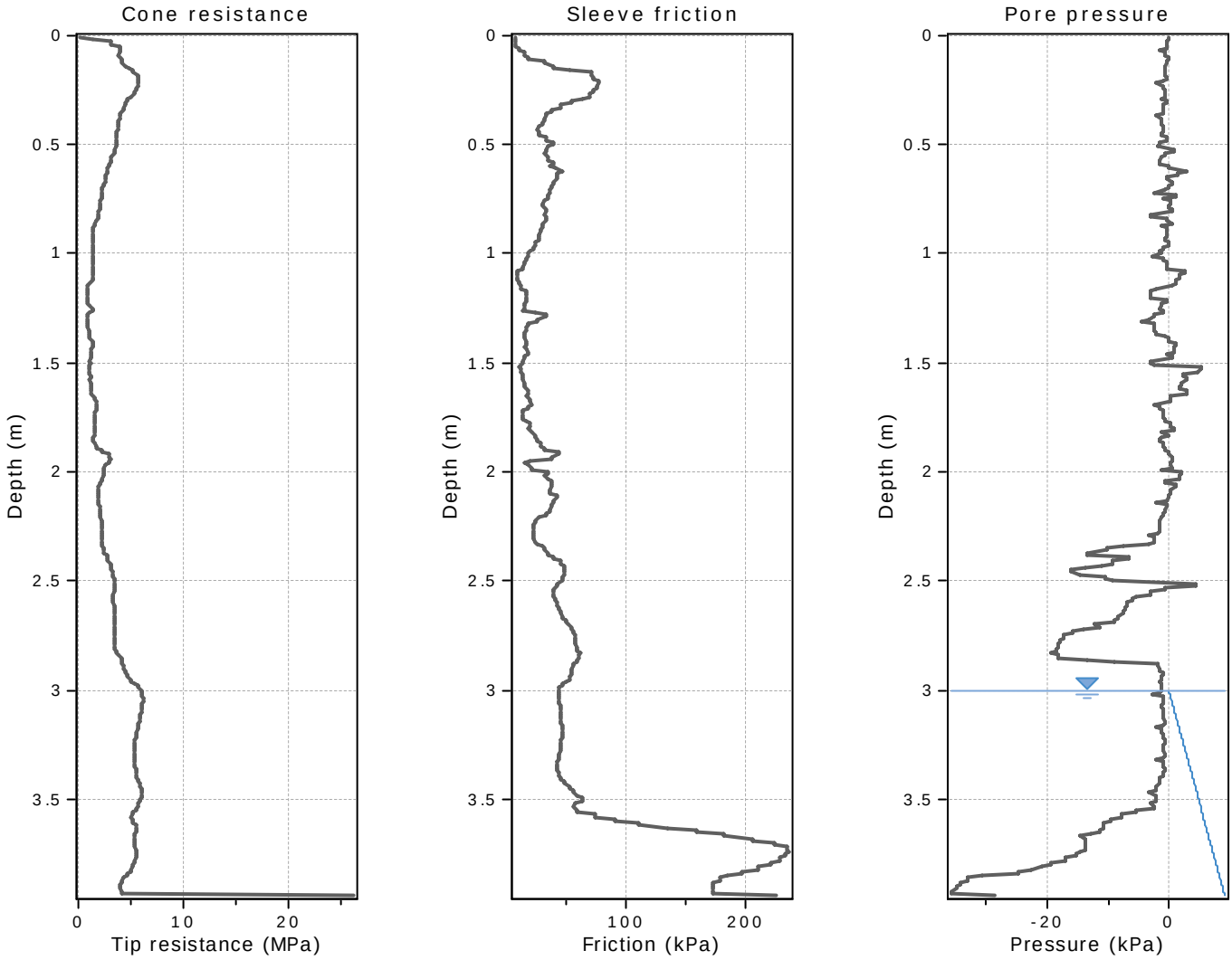
CPT: CPT02
Total depth: 5.17 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698929.98, Y:6095477.63
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road

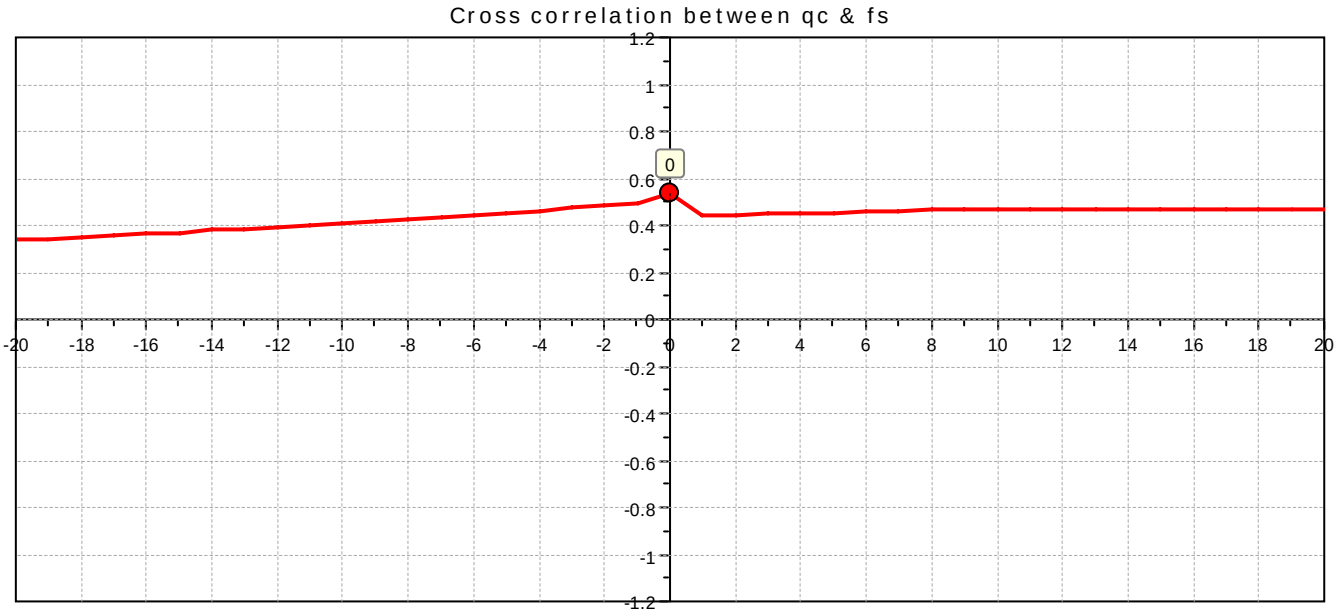


CPT: CPT03
Total depth: 3.94 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698926.35, Y:6095464.64
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road

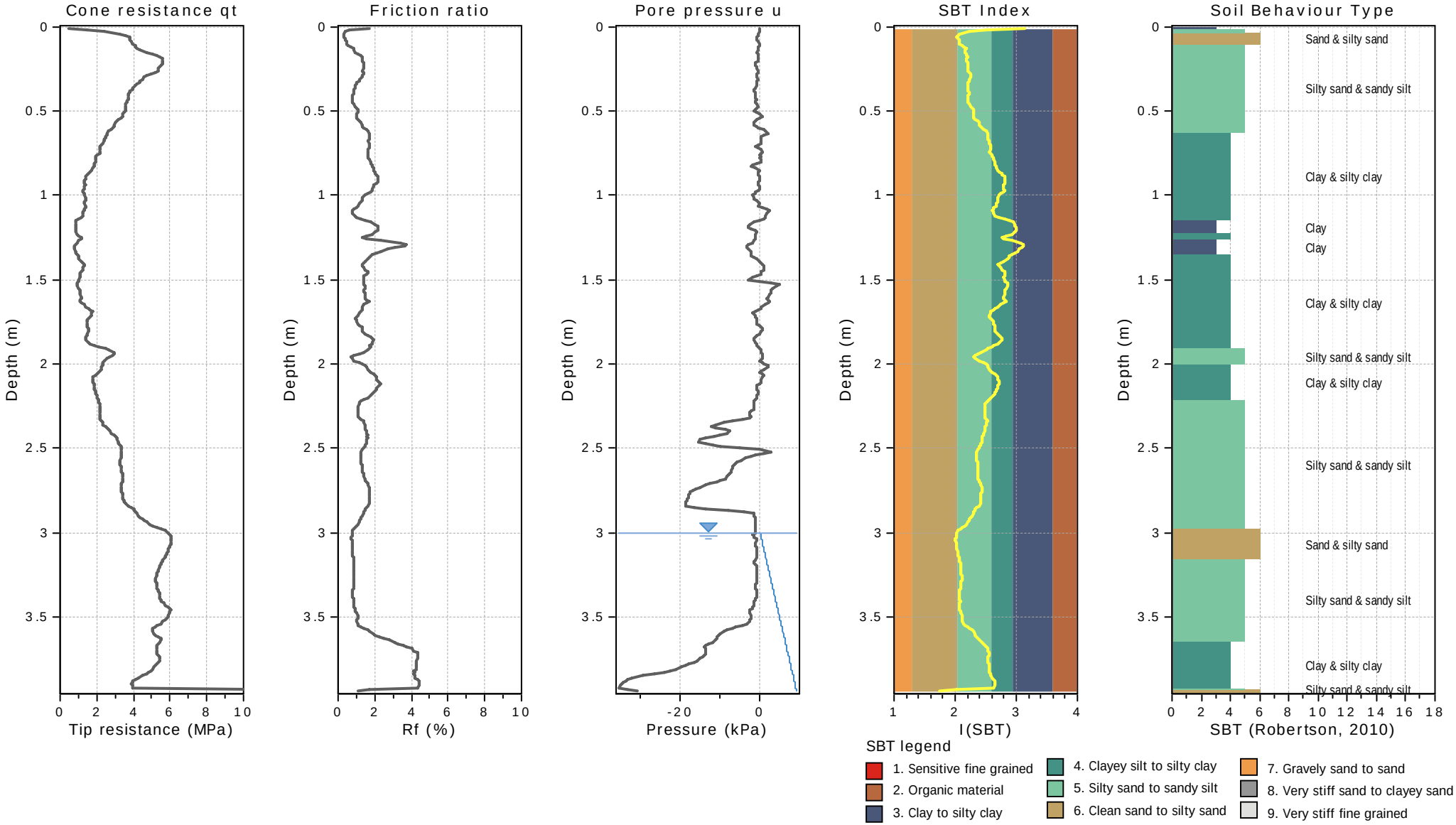


The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



CPT: CPT03
Total depth: 3.94 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698926.35, Y:6095464.64
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



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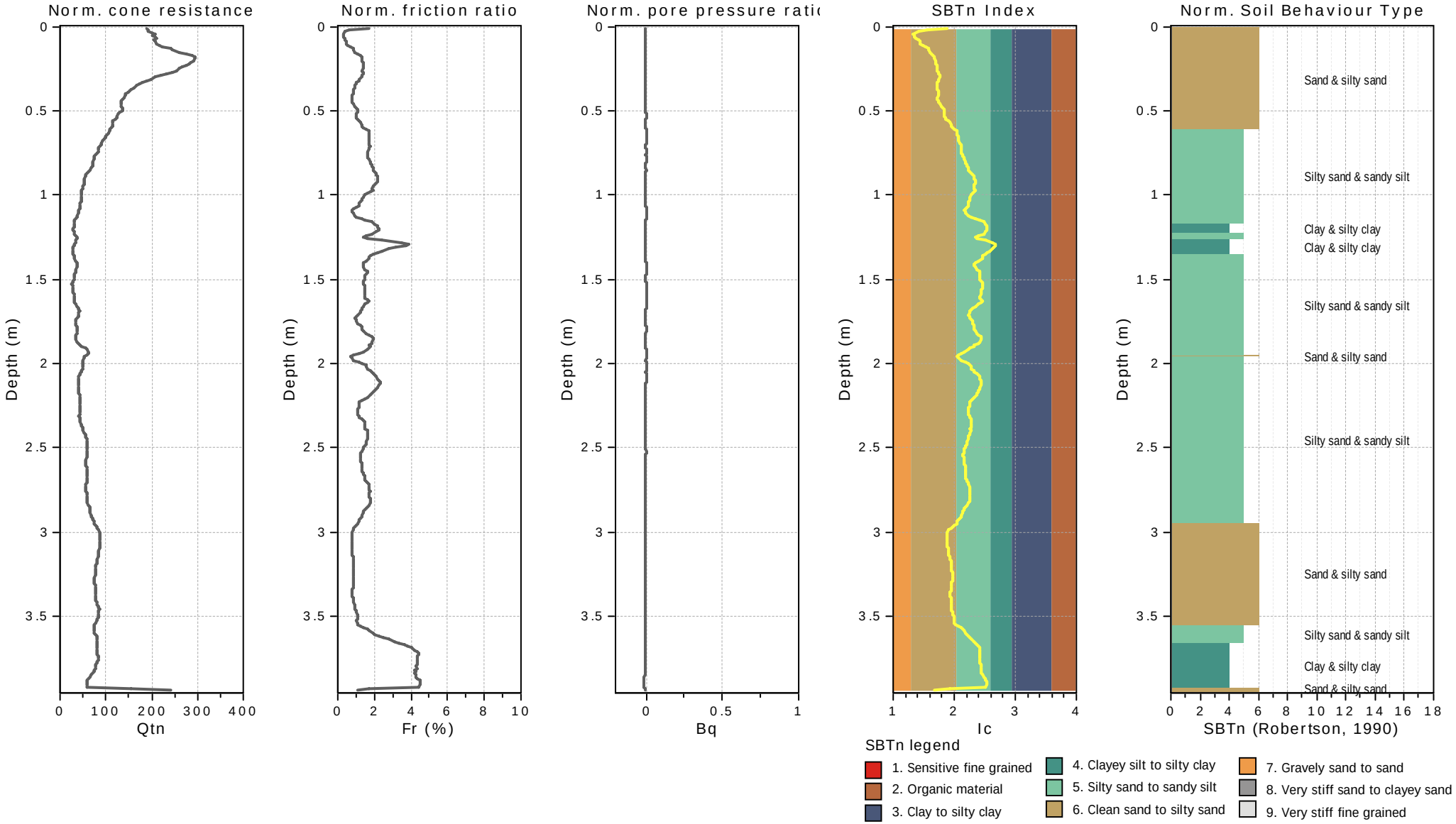
Surface Elevation: 6.30 m
Coords: X:1698926.35, Y:6095464.64
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



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Surface Elevation: 6.30 m
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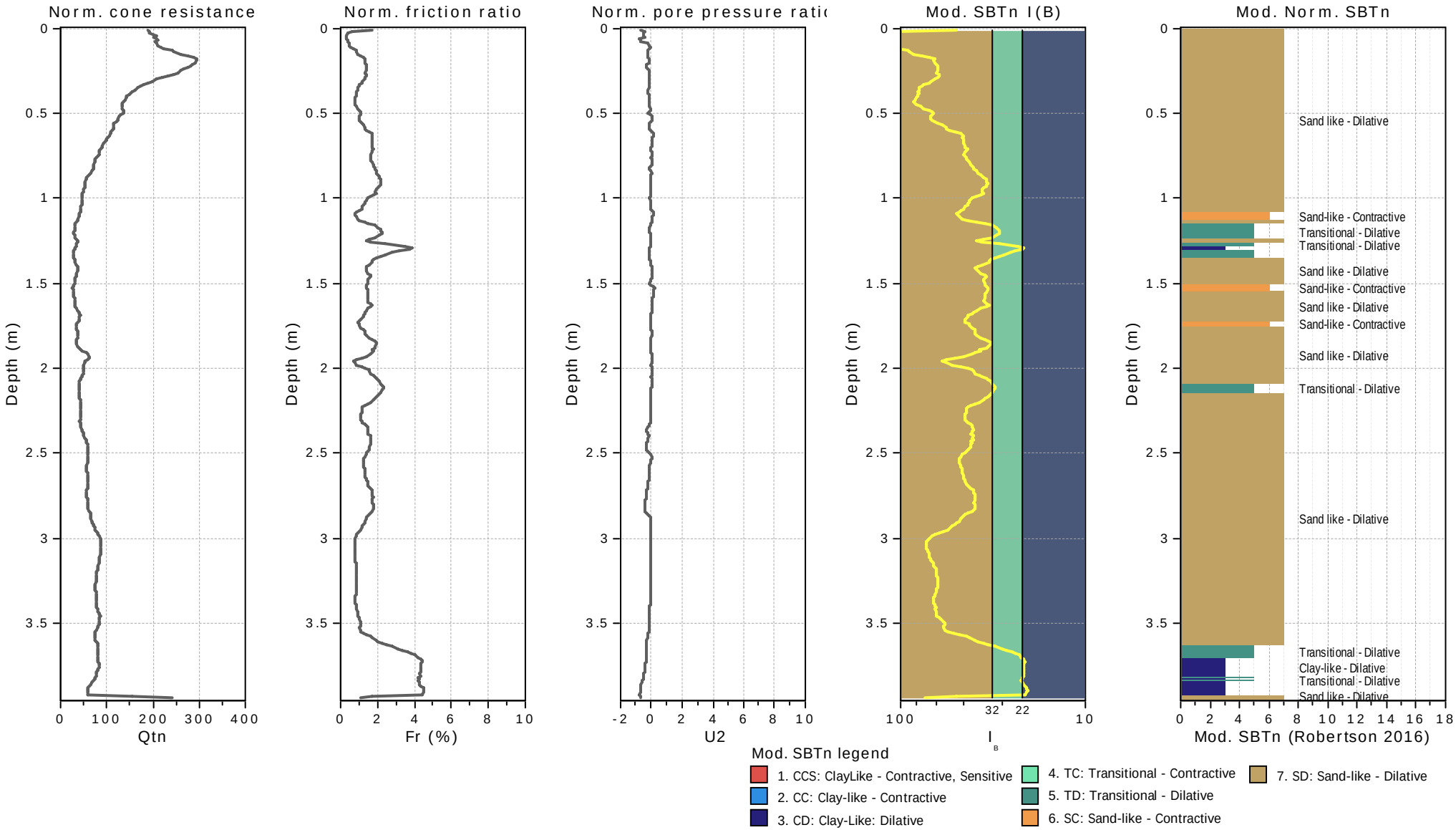
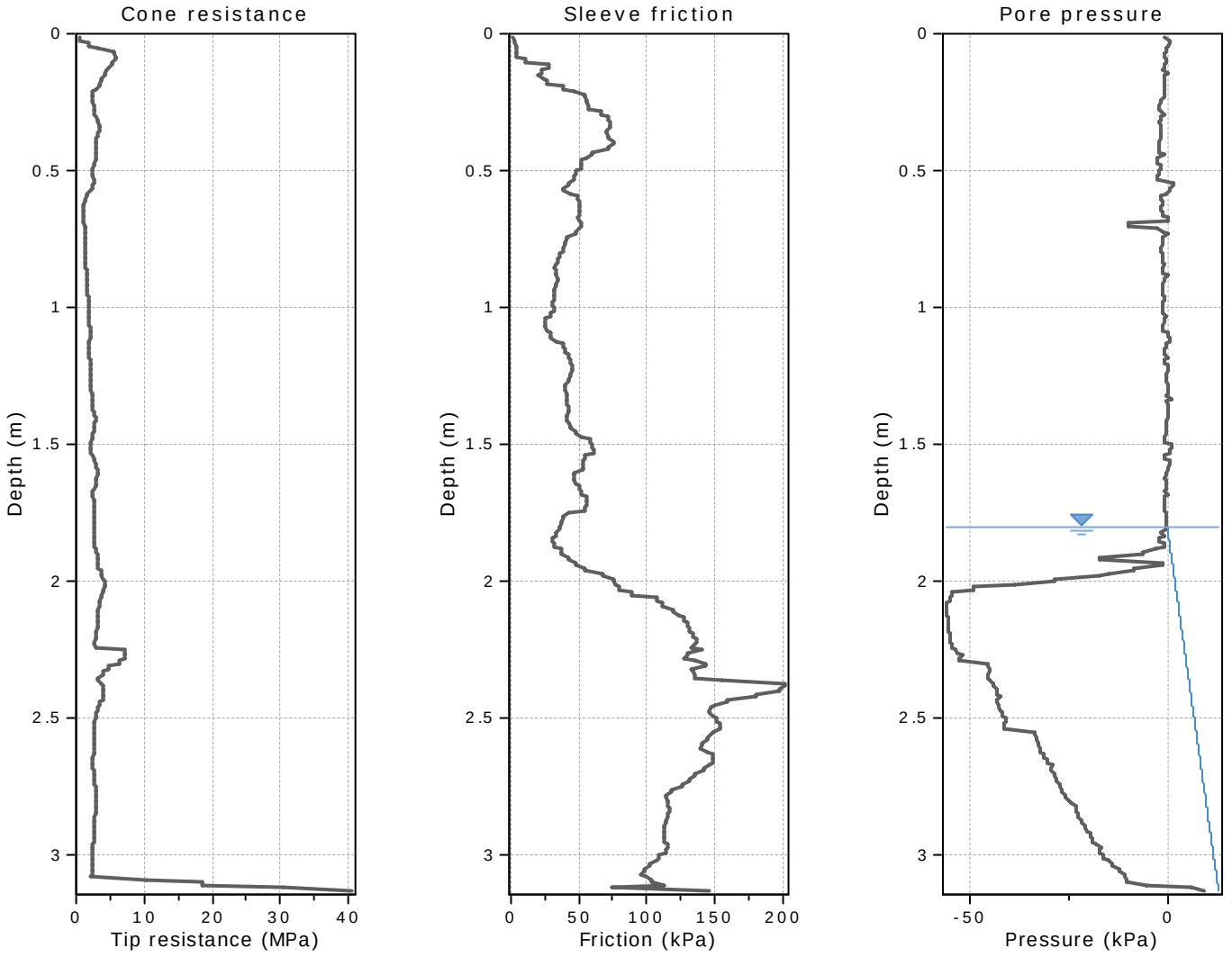
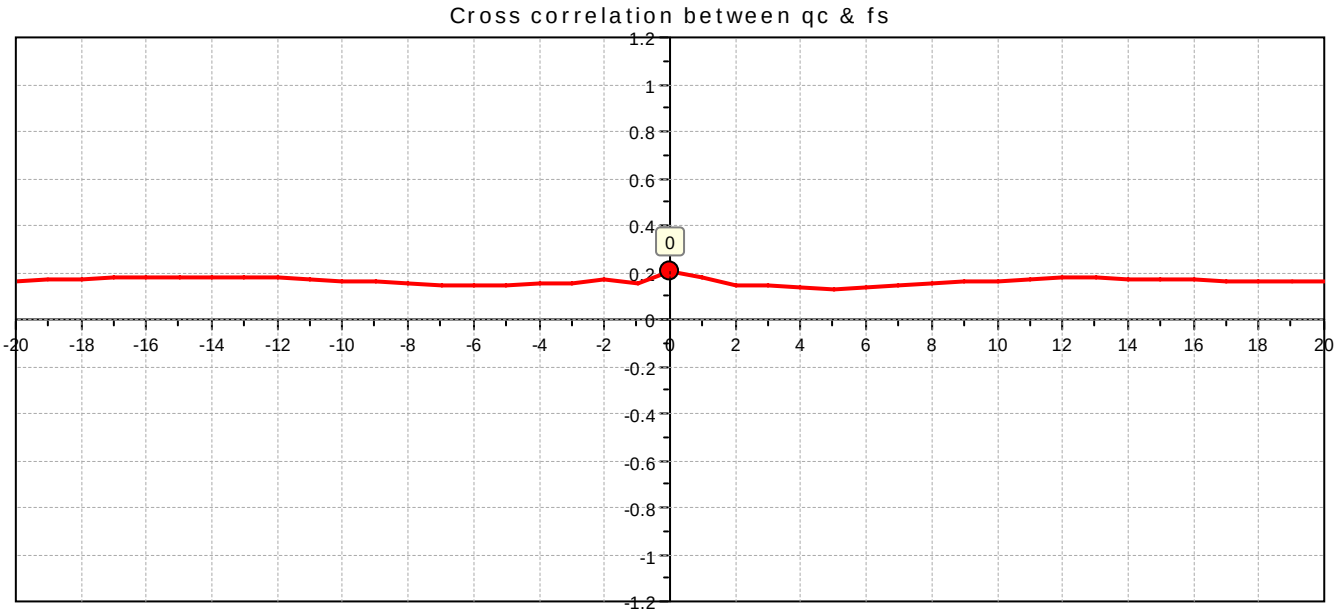
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



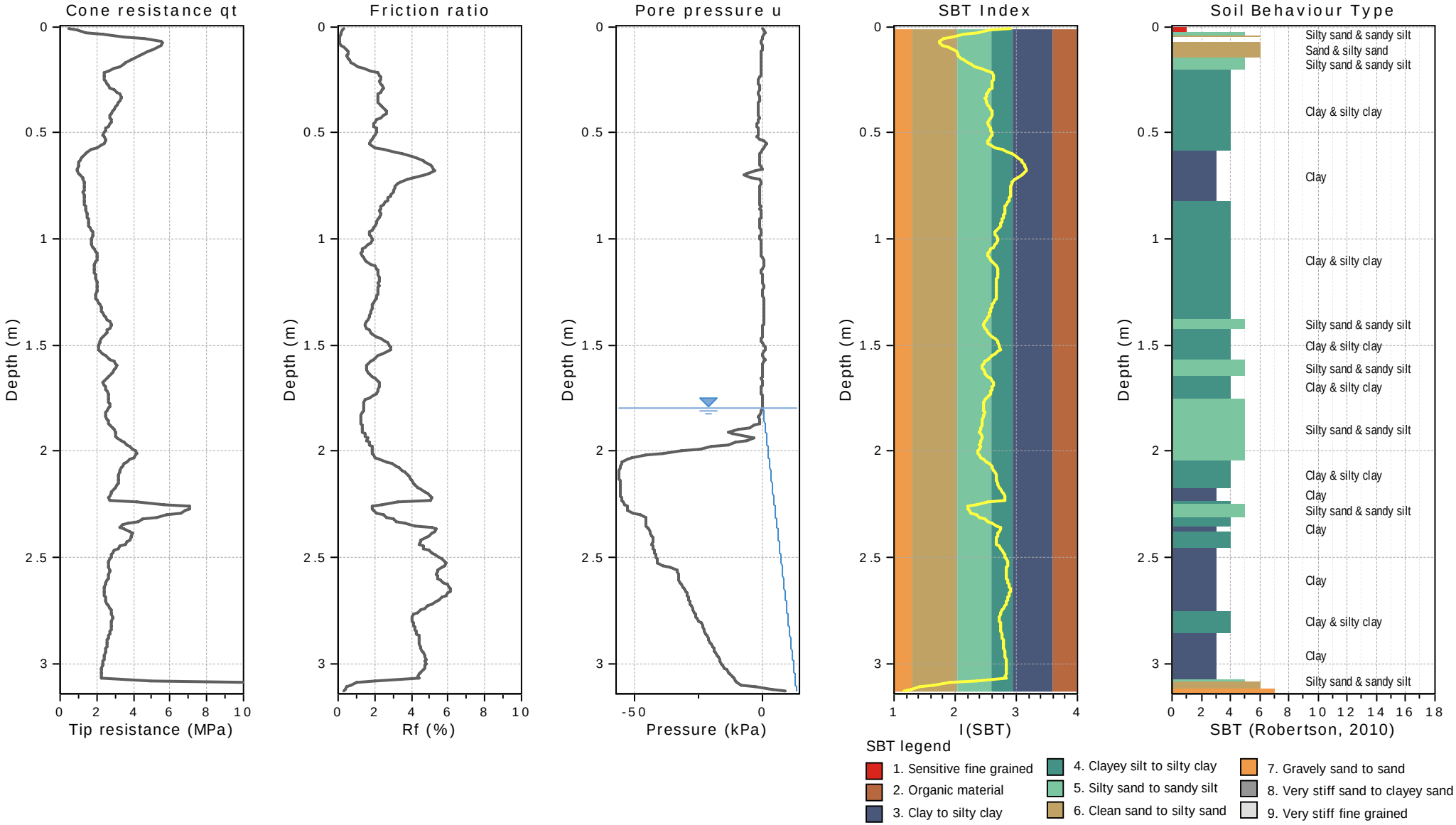


The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



CPT: CPT04
Total depth: 3.13 m, Date: 23/11/2022
Surface Elevation: 6.50 m
Coords: X:1698907.99, Y:6095465.44
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



CPT: CPT04
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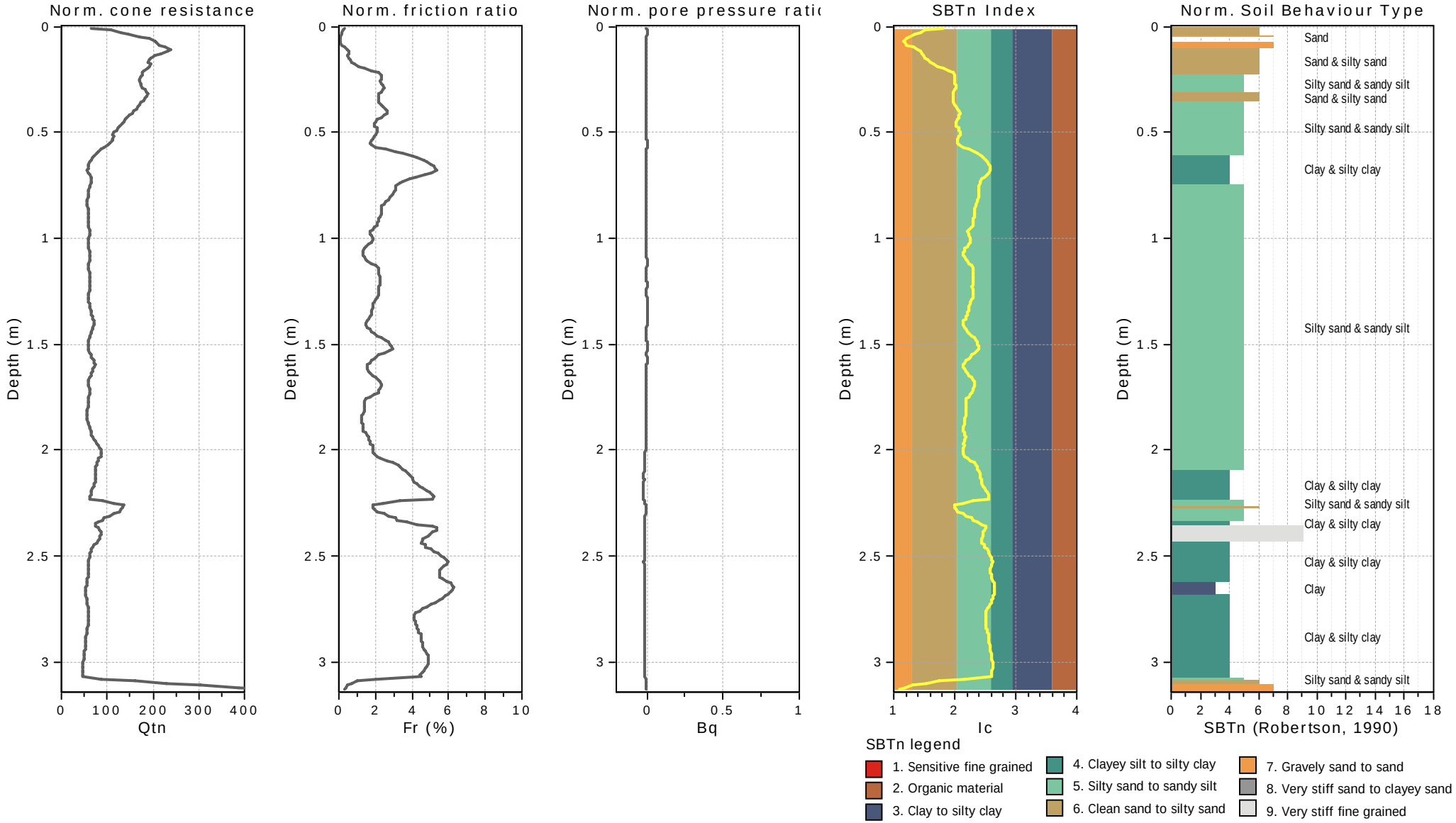
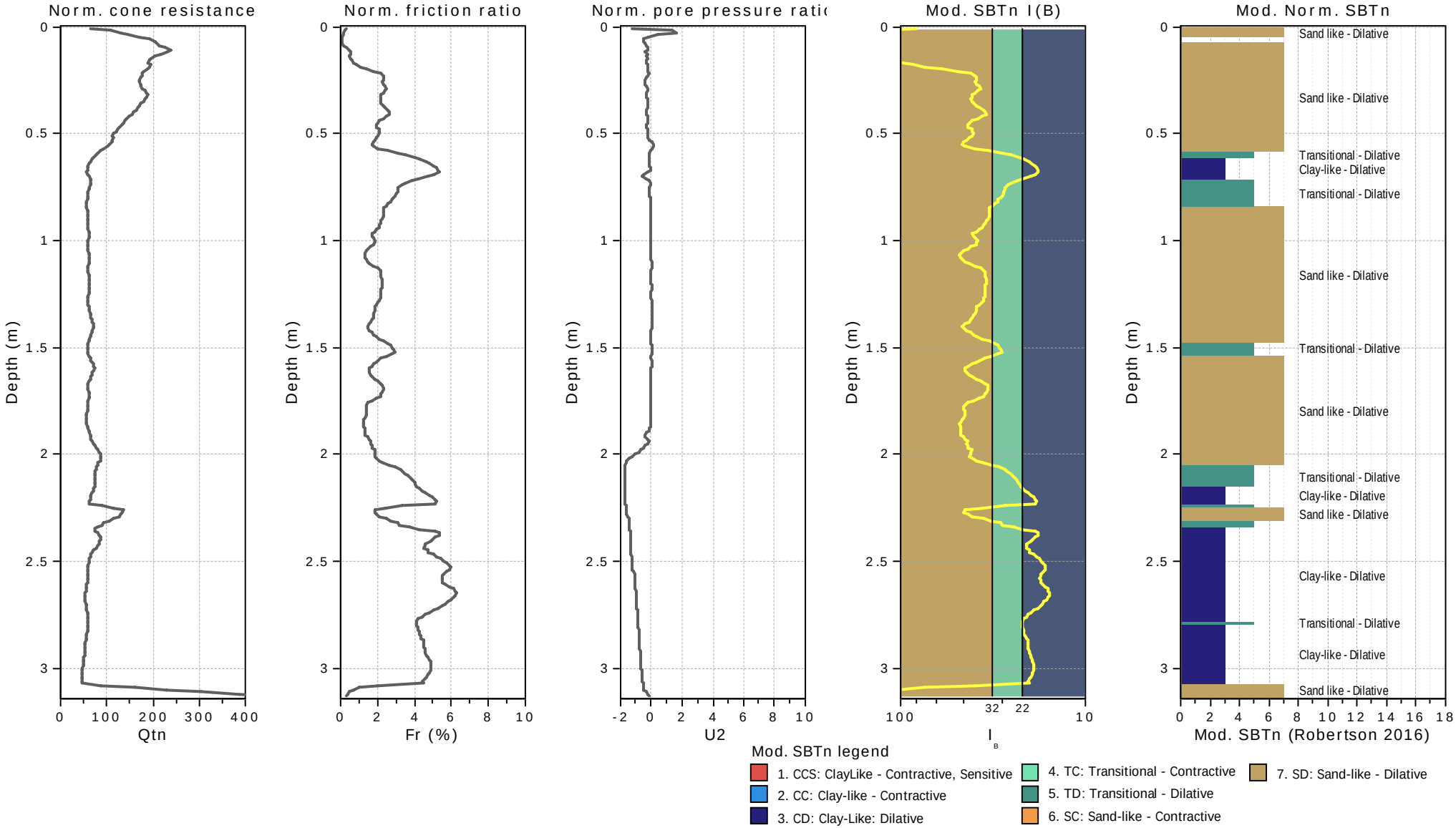
Surface Elevation: 6.50 m
Coords: X:1698907.99, Y:6095465.44
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



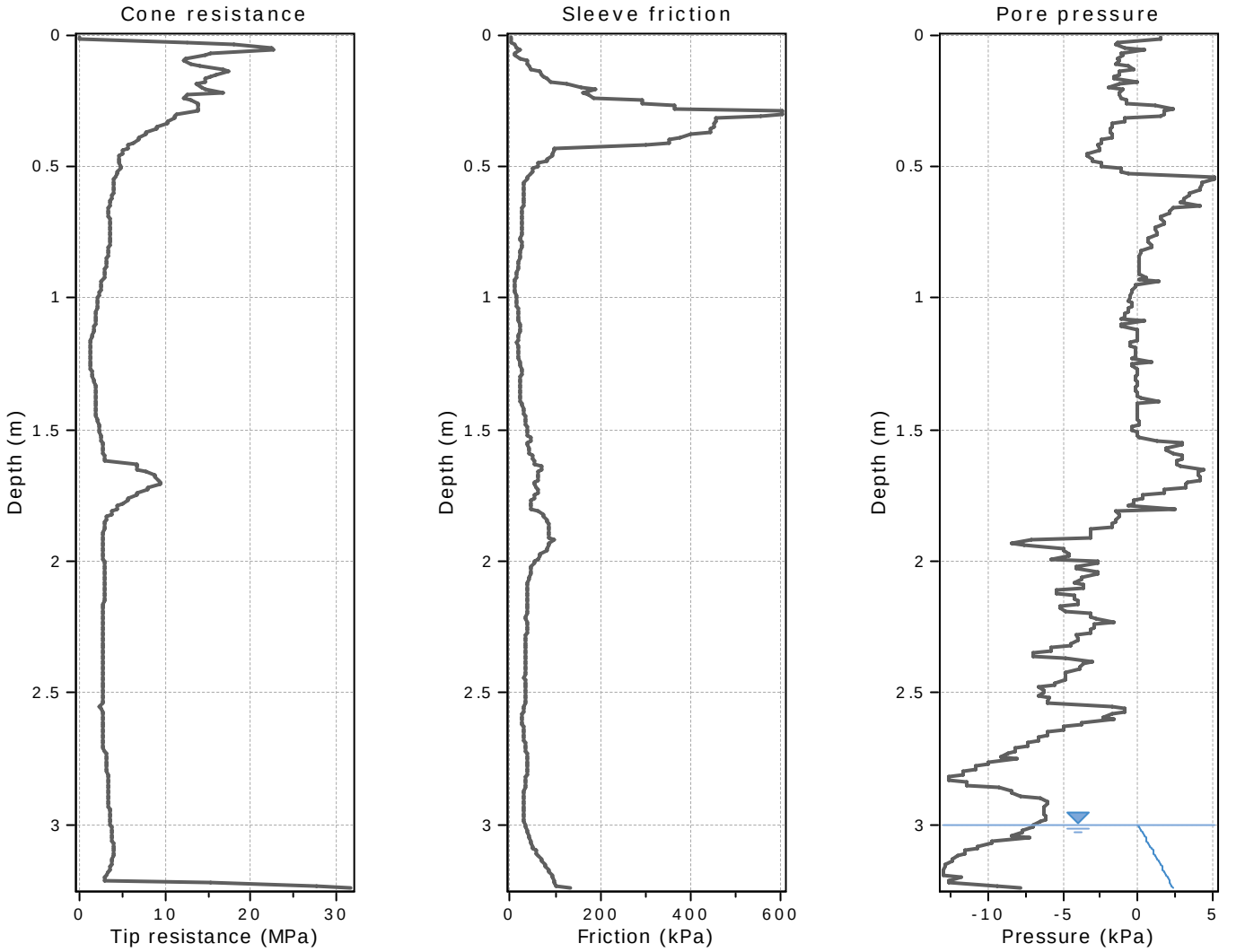
CPT: CPT04
Total depth: 3.13 m, Date: 23/11/2022
Surface Elevation: 6.50 m
Coords: X:1698907.99, Y:6095465.44
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



CPT: CPT05
Total depth: 3.24 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698917.56, Y:6095471.18
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



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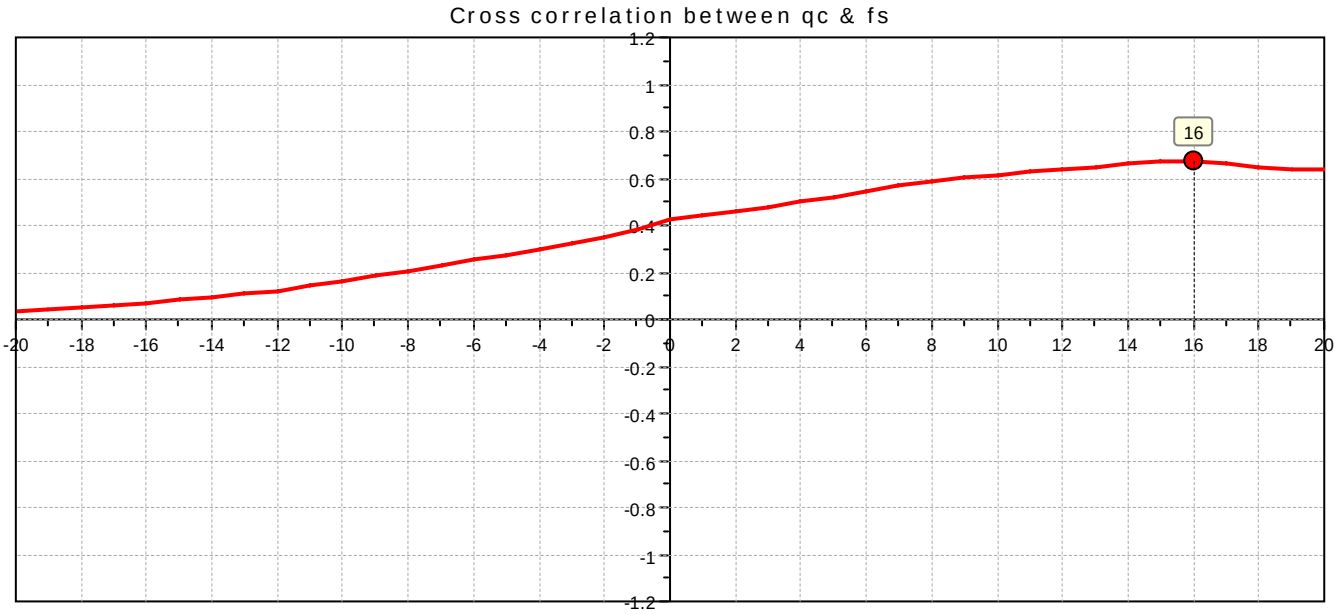
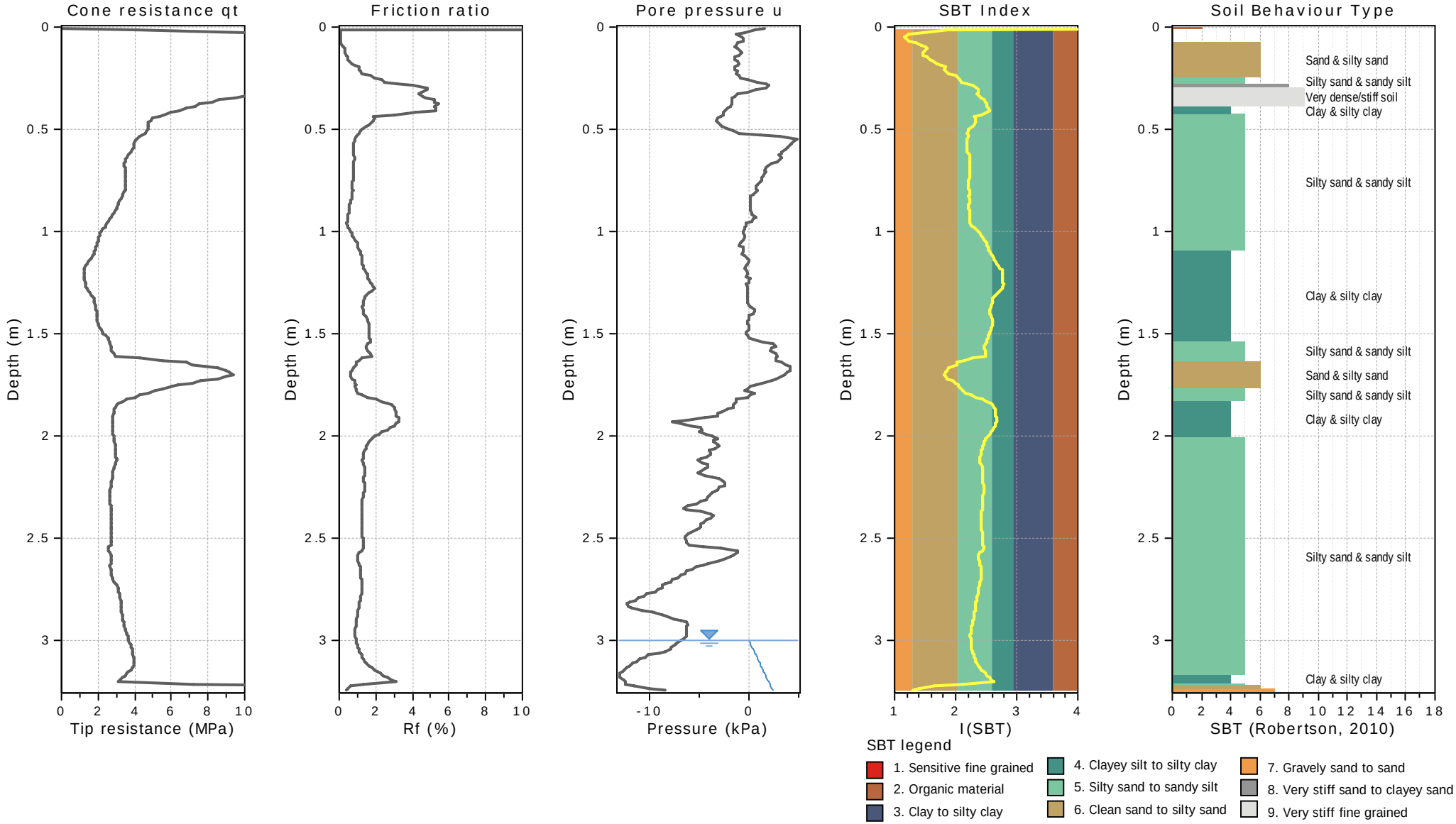


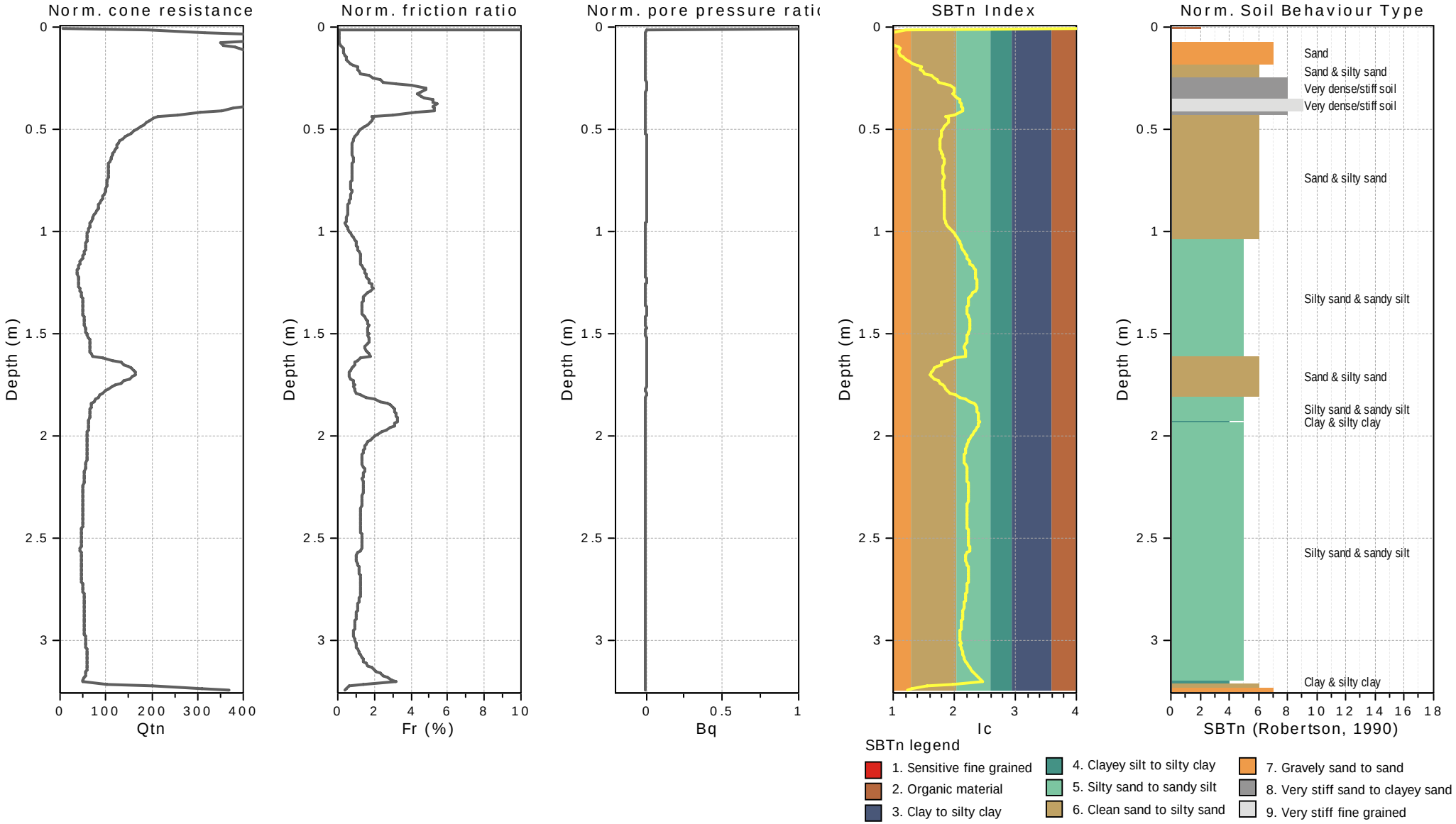
CPT: CPT05
Total depth: 3.24 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698917.56, Y:6095471.18
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



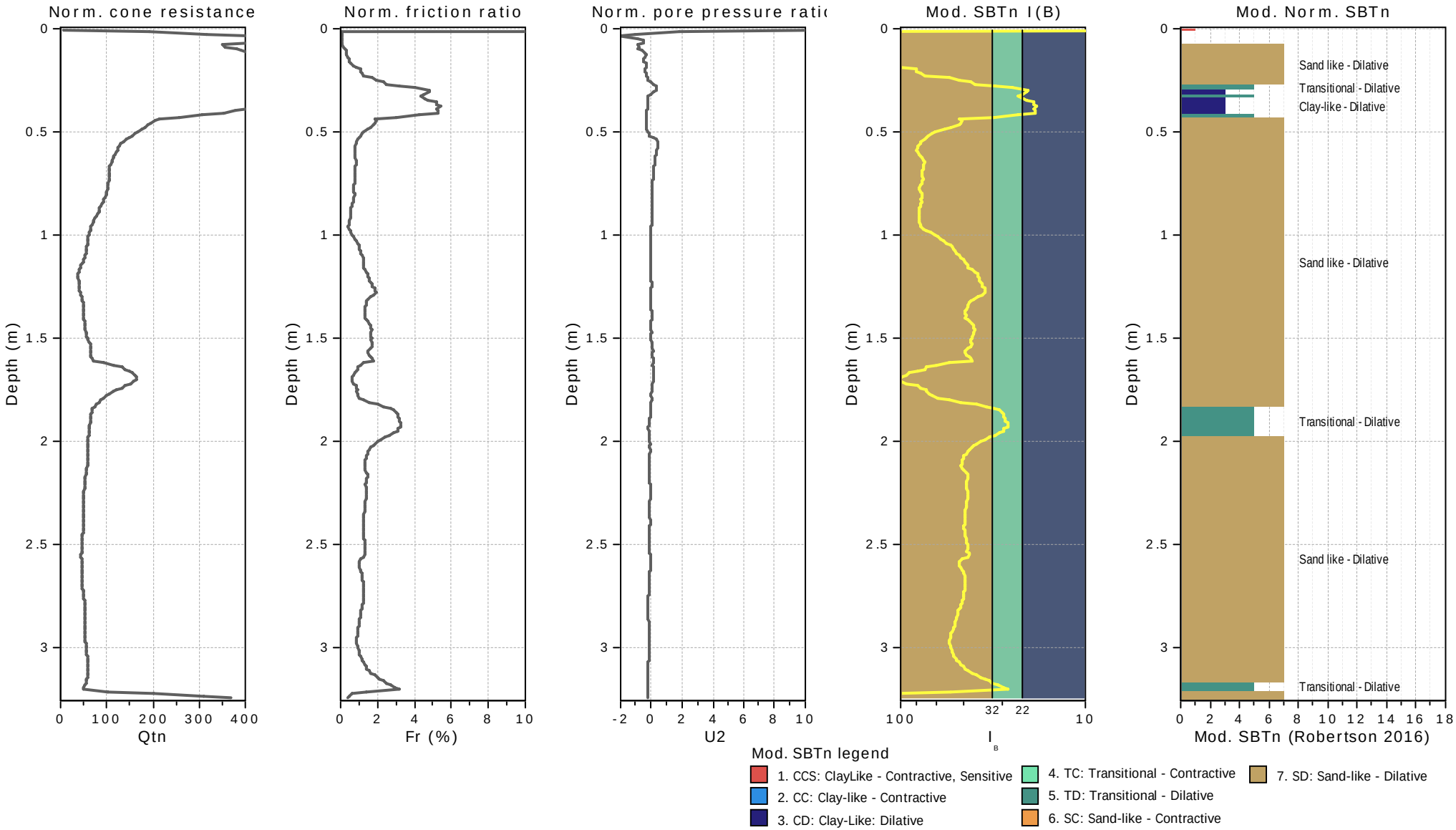
CPT: CPT05
Total depth: 3.24 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698917.56, Y:6095471.18
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



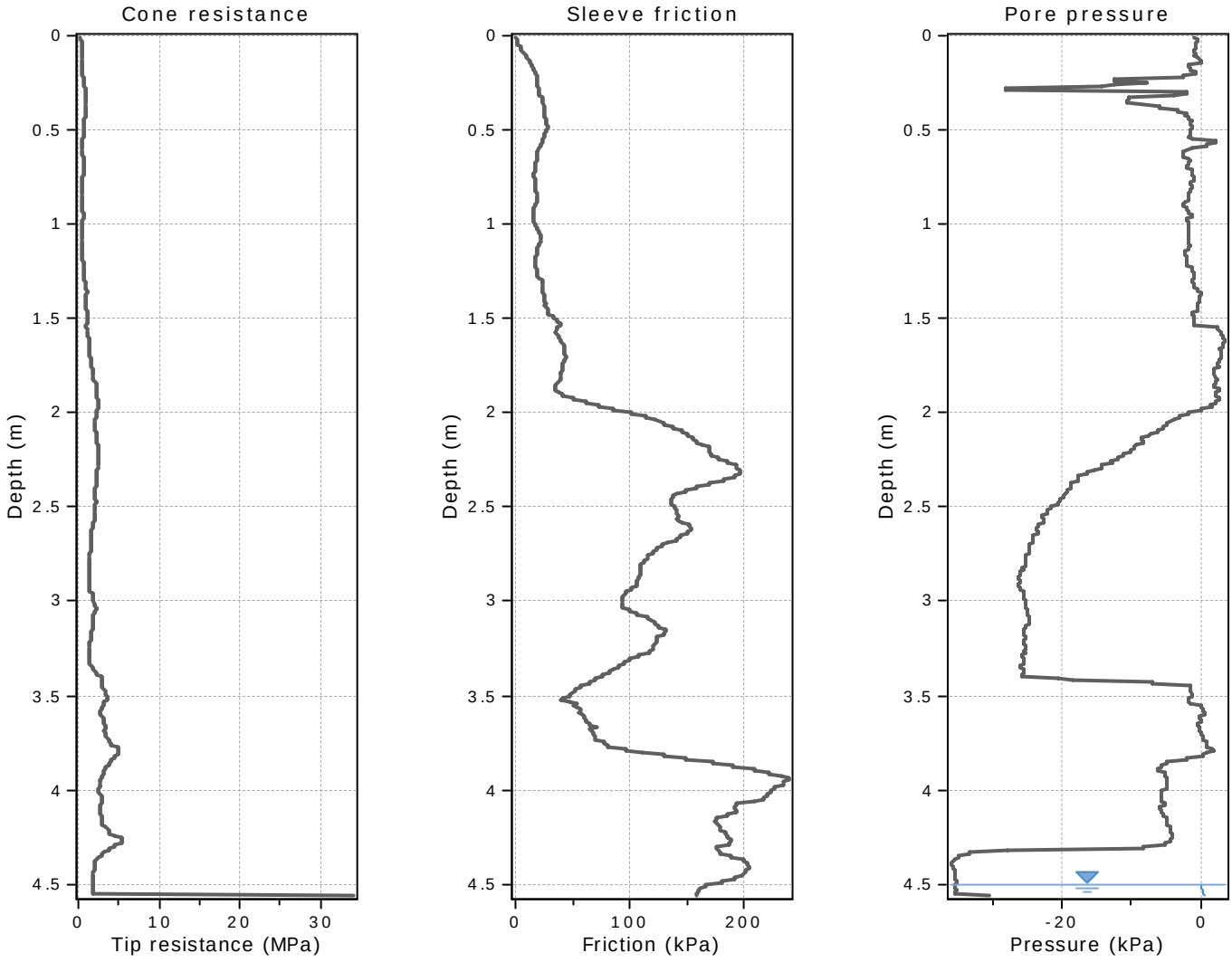
CPT: CPT05
Total depth: 3.24 m, Date: 23/11/2022
Surface Elevation: 6.30 m
Coords: X:1698917.56, Y:6095471.18
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road

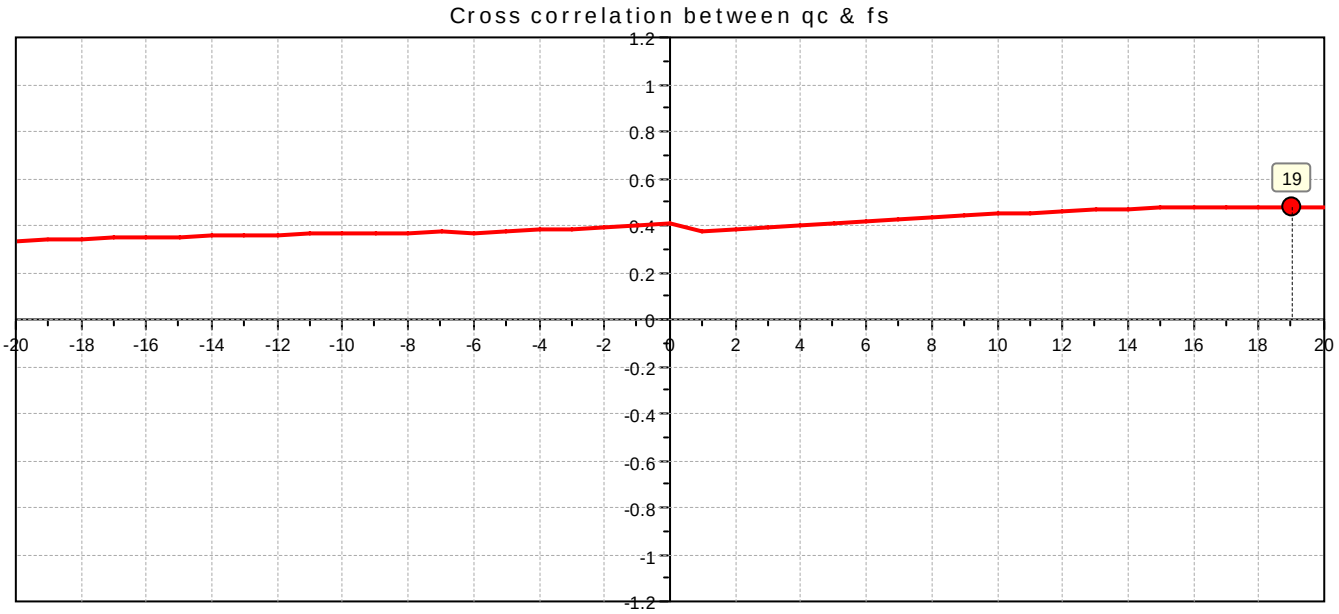


CPT: CPT06
Total depth: 4.56 m, Date: 23/11/2022
Surface Elevation: 8.70 m
Coords: X:1698906.62, Y:6095462.10
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road

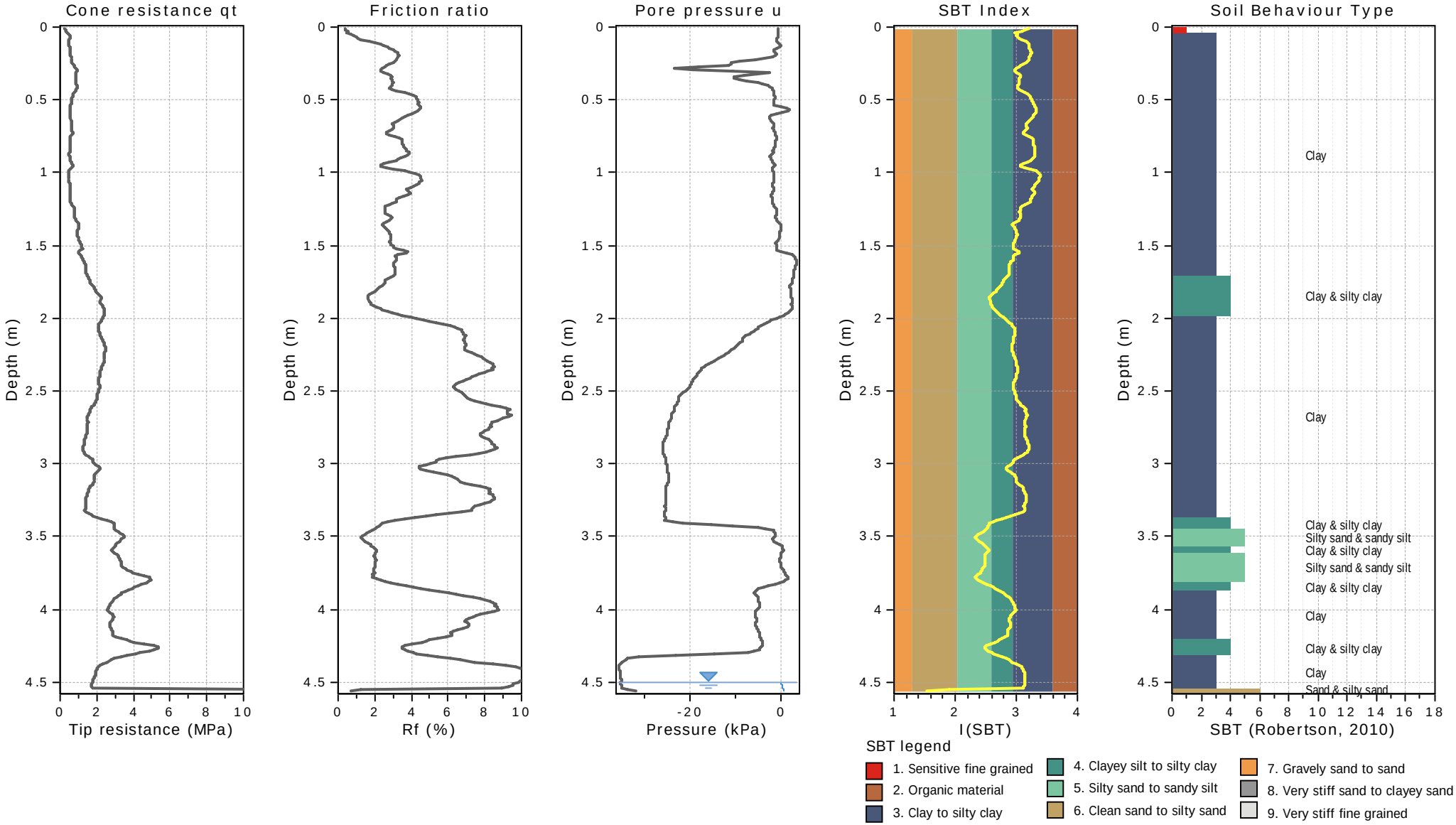


The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



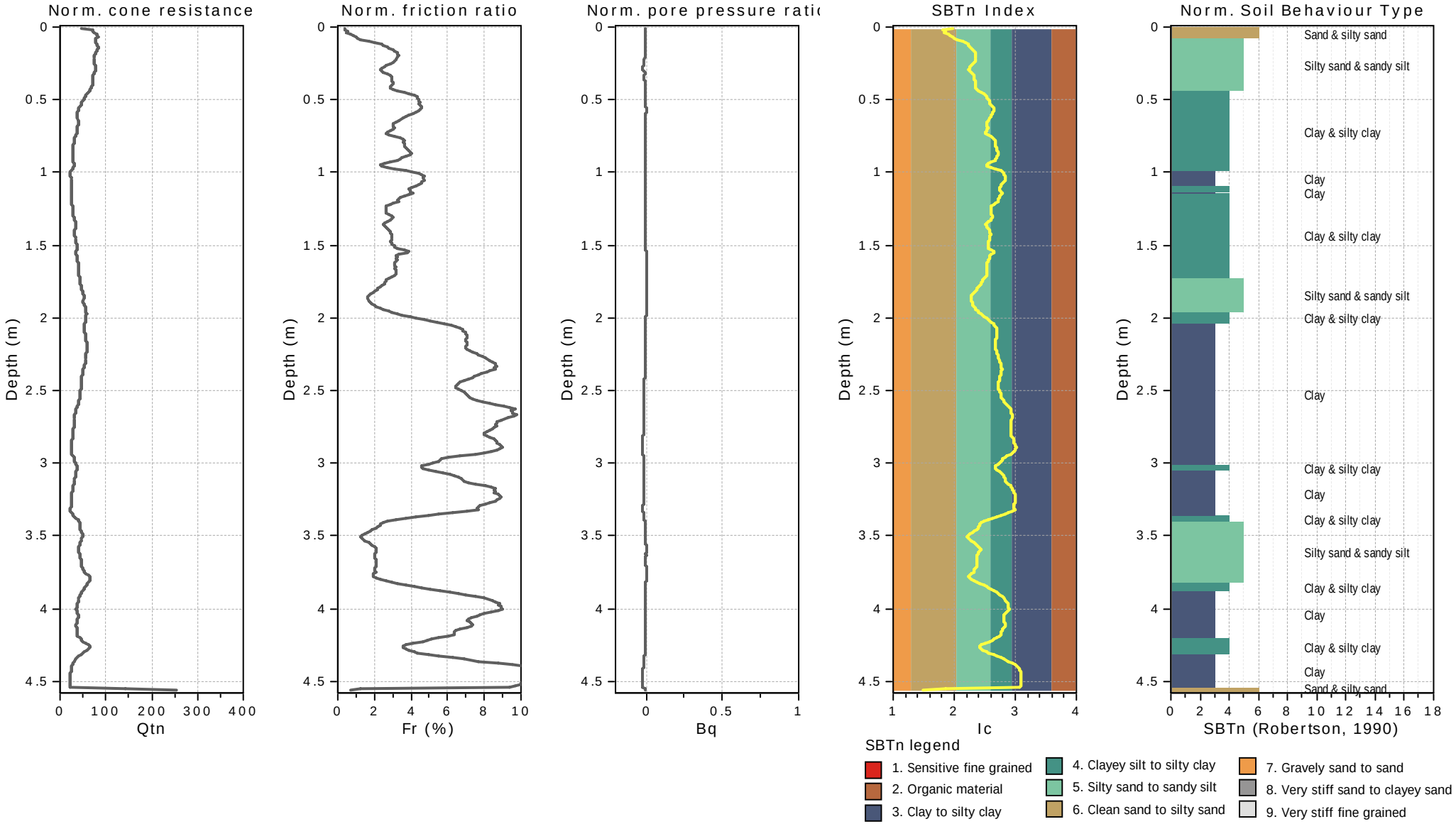
CPT: CPT06
Total depth: 4.56 m, Date: 23/11/2022
Surface Elevation: 8.70 m
Coords: X:1698906.62, Y:6095462.10
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



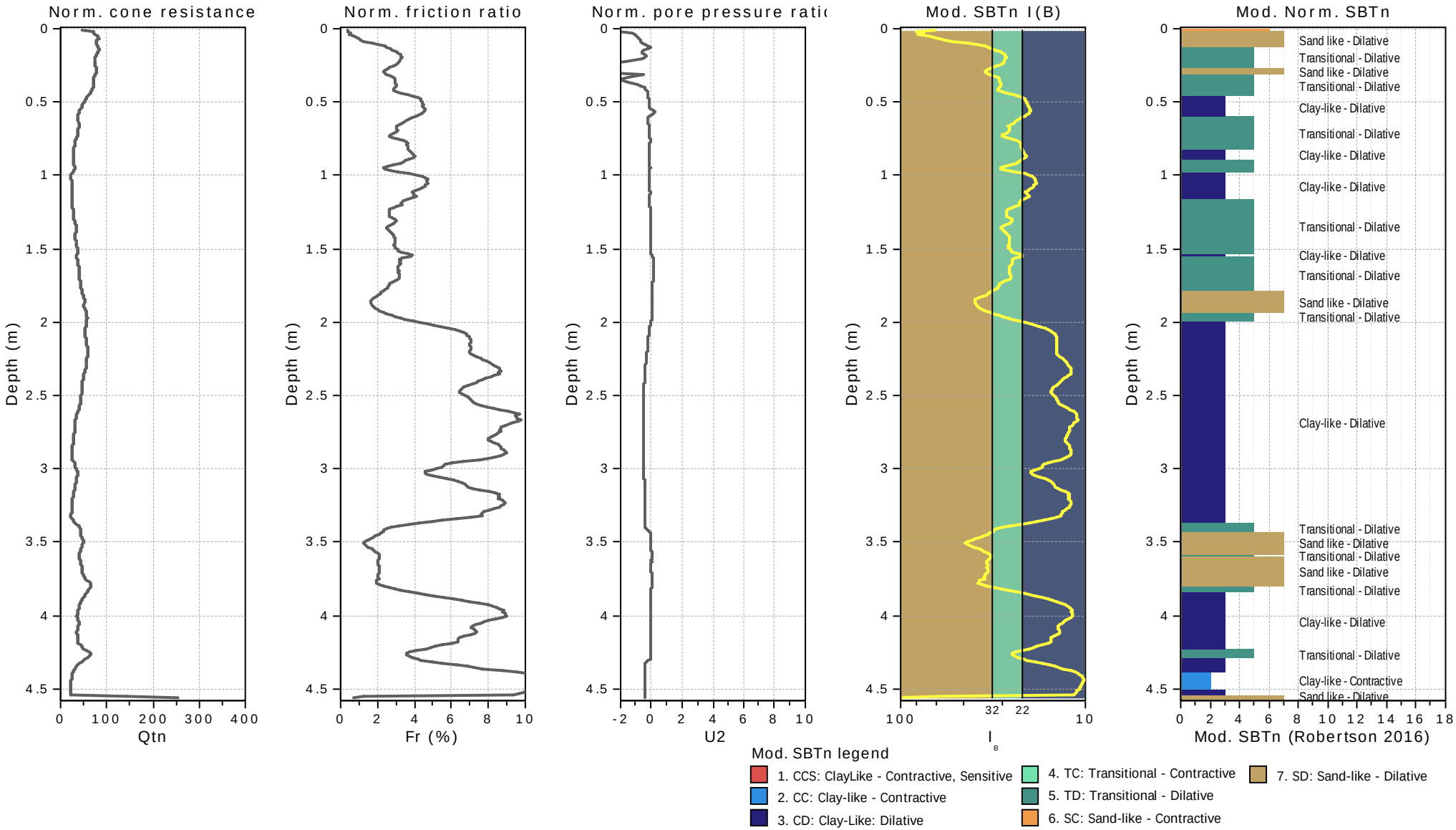
CPT: CPT06
Total depth: 4.56 m, Date: 23/11/2022
Surface Elevation: 8.70 m
Coords: X:1698906.62, Y:6095462.10
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



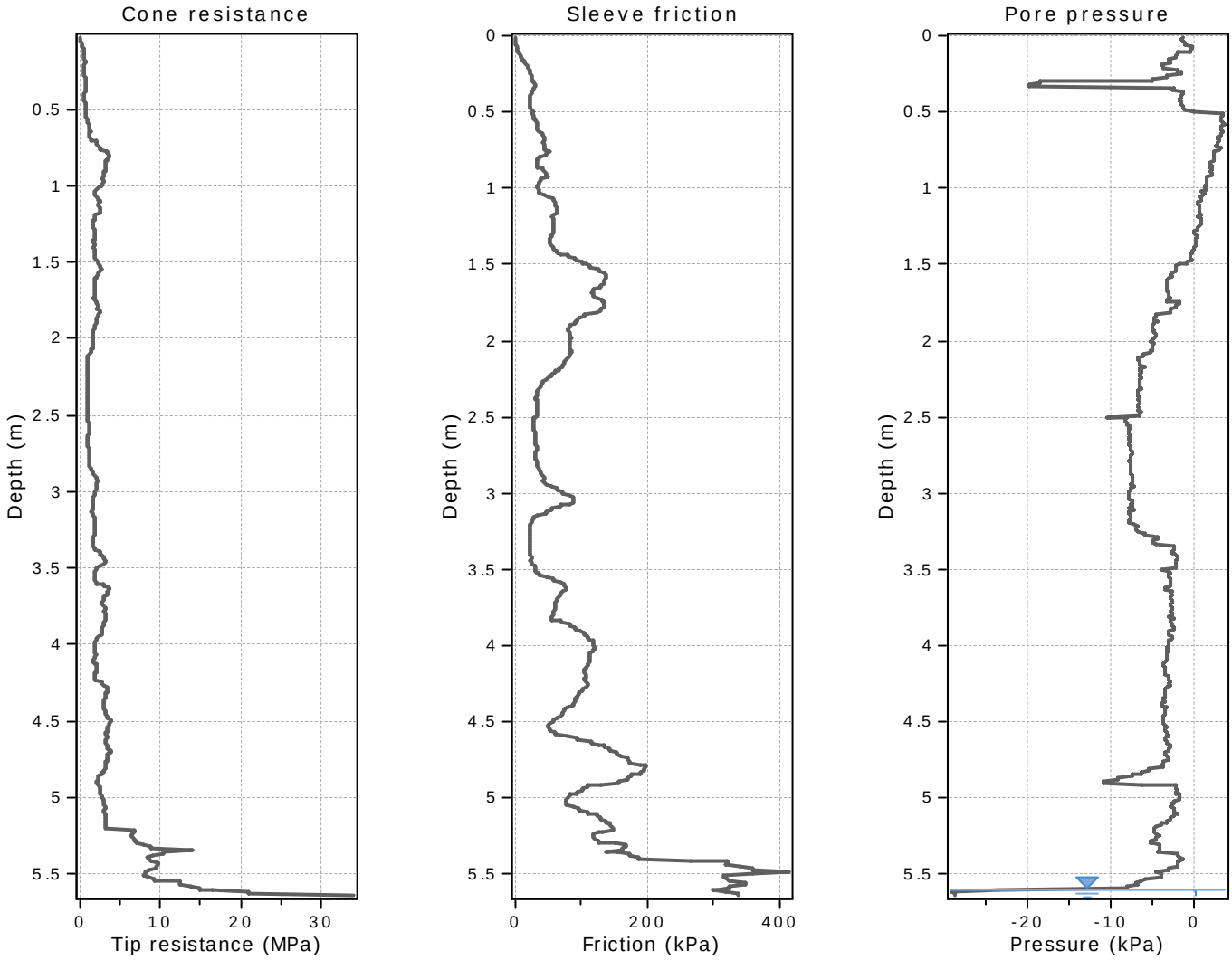
CPT: CPT06
Total depth: 4.56 m, Date: 23/11/2022
Surface Elevation: 8.70 m
Coords: X:1698906.62, Y:6095462.10
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road

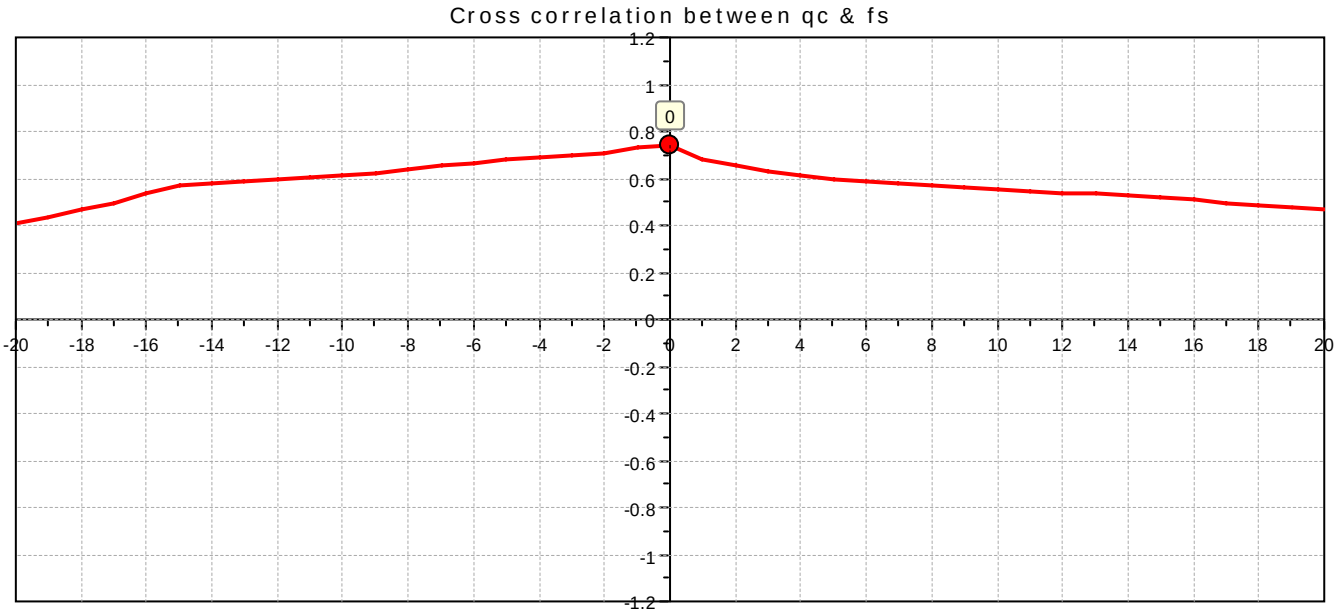


CPT: CPT07
Total depth: 5.64 m, Date: 23/11/2022
Surface Elevation: 9.80 m
Coords: X:1698937.84, Y:6095462.25
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road

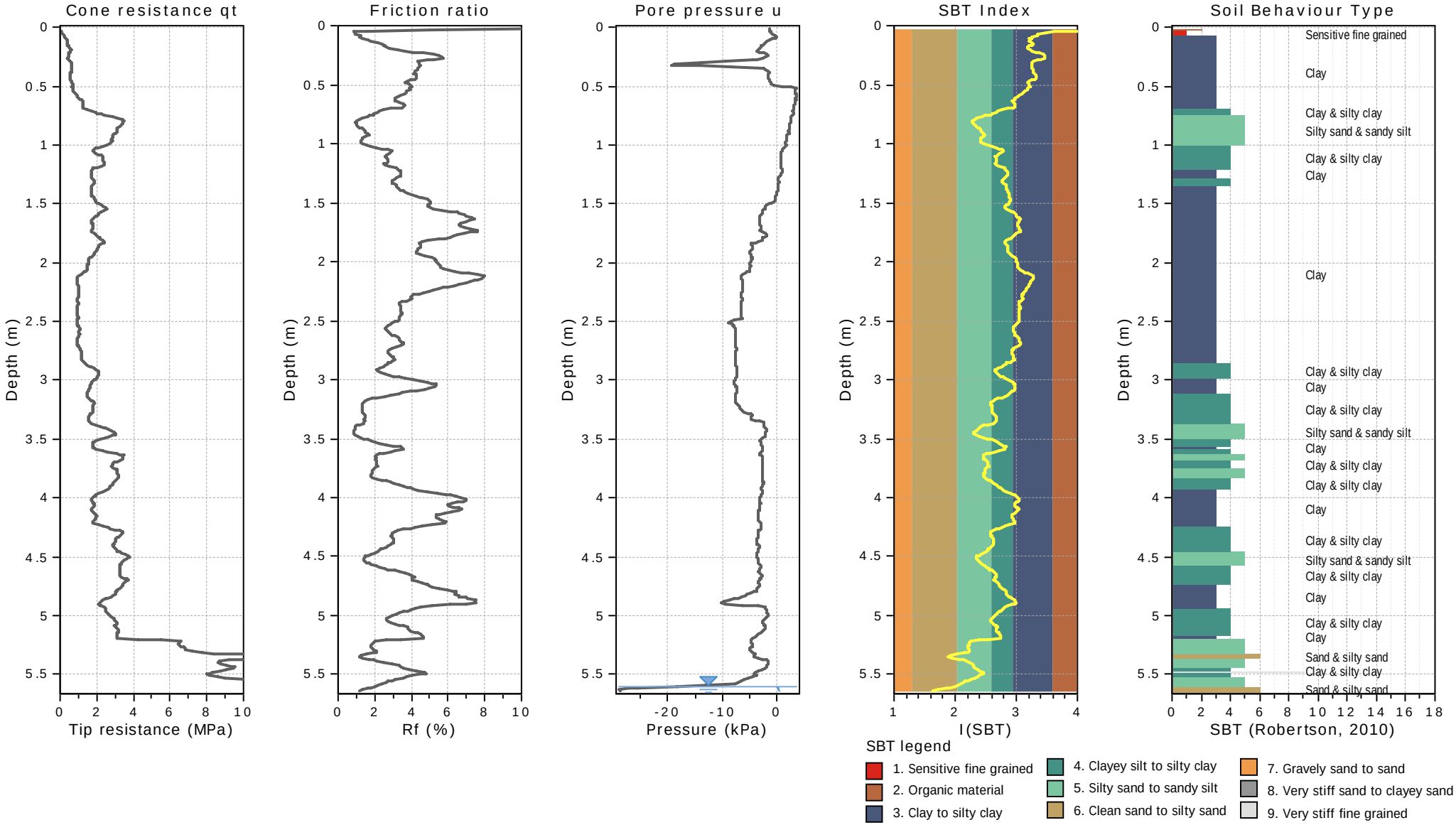


The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



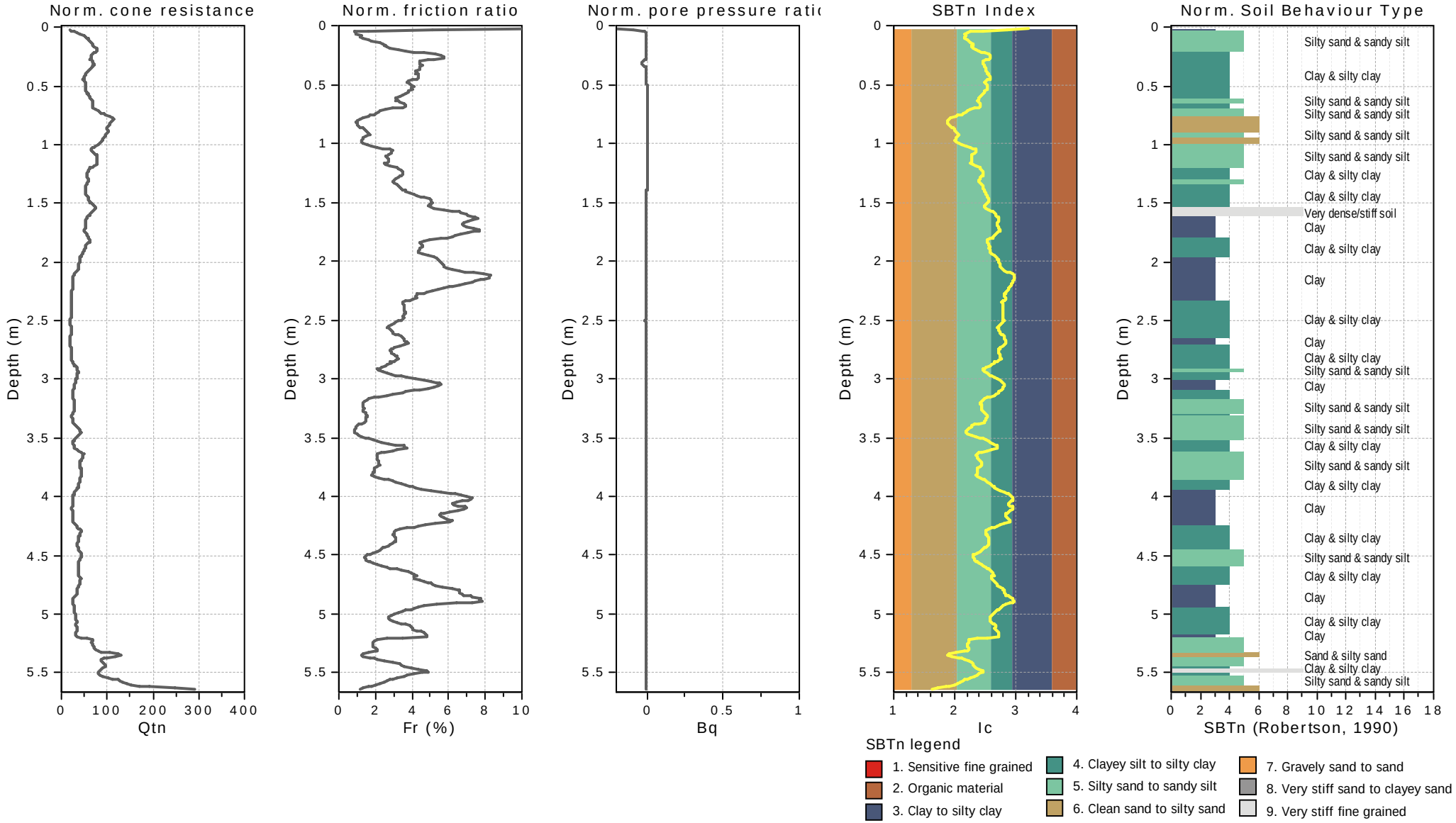
CPT: CPT07
Total depth: 5.64 m, Date: 23/11/2022
Surface Elevation: 9.80 m
Coords: X:1698937.84, Y:6095462.25
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



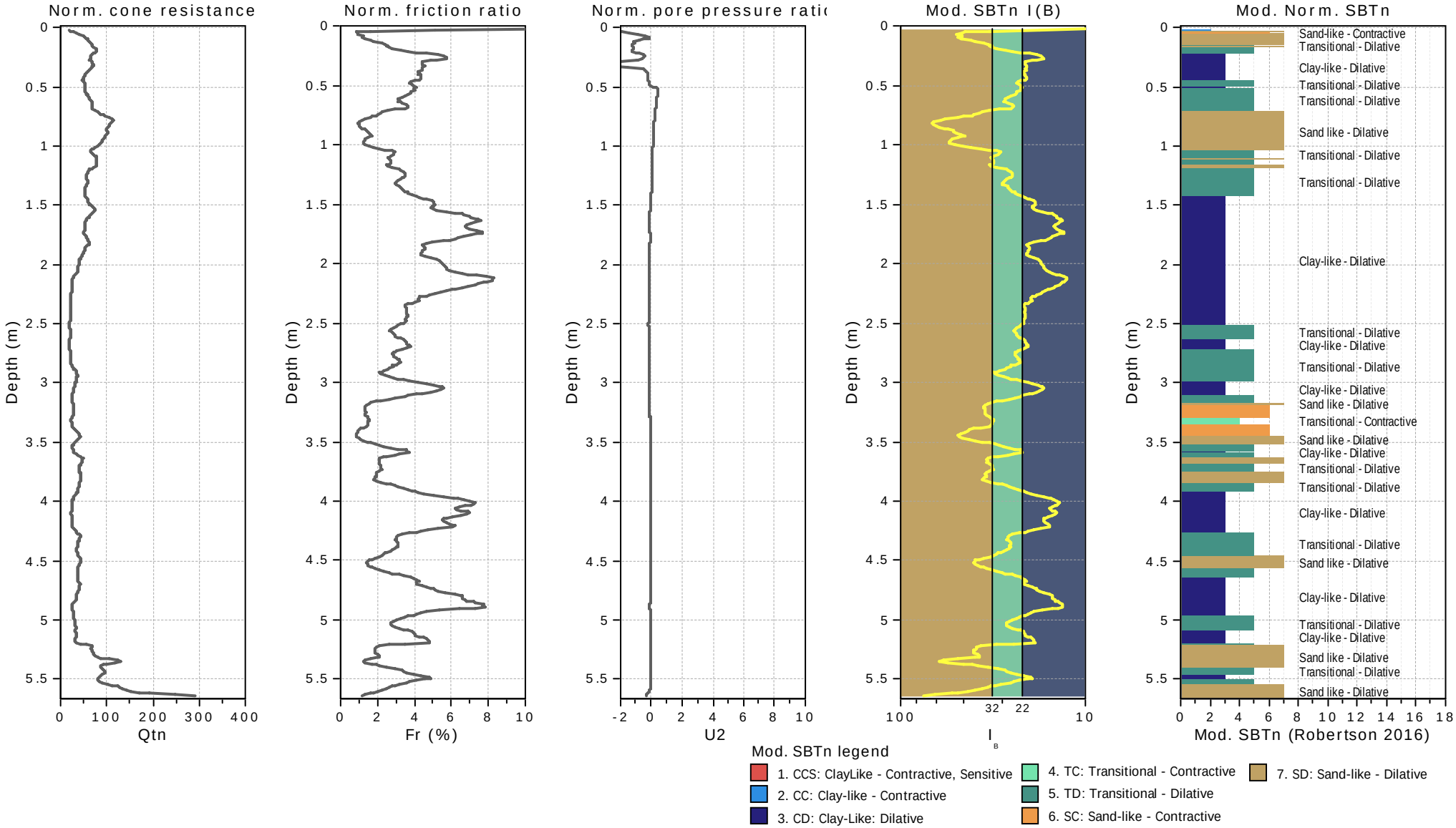
CPT: CPT07
Total depth: 5.64 m, Date: 23/11/2022
Surface Elevation: 9.80 m
Coords: X:1698937.84, Y:6095462.25
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



CPT: CPT07
Total depth: 5.64 m, Date: 23/11/2022
Surface Elevation: 9.80 m
Coords: X:1698937.84, Y:6095462.25
Cone Type: Nova Cone 100MPa
Cone Operator: Craig - Underground Investigation

Project: T&L Henwood Family Trust
Location: 116-118 Marsden Road



LIQUEFACTION ANALYSIS REPORT

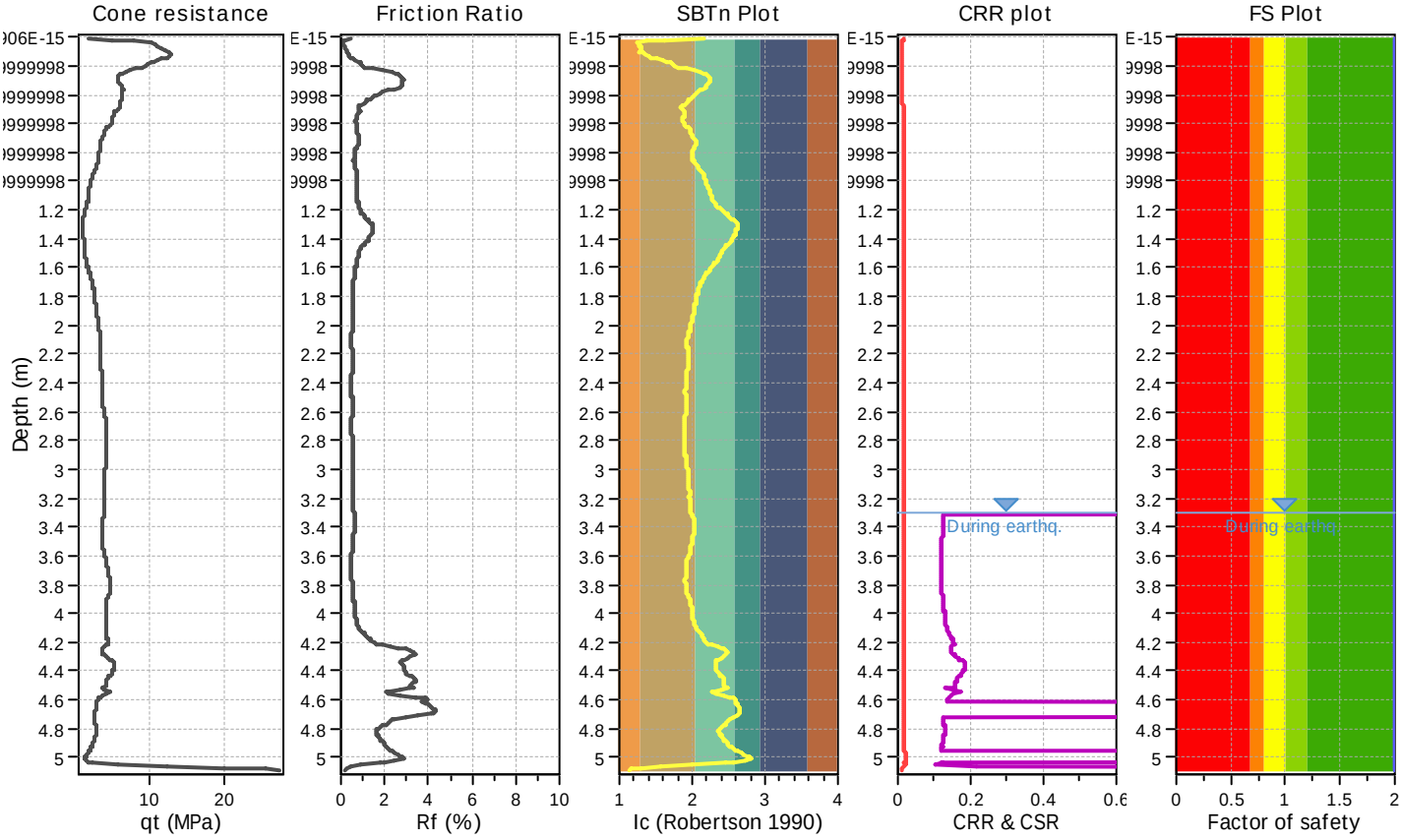
Project title : T&L Henwood Family Trust

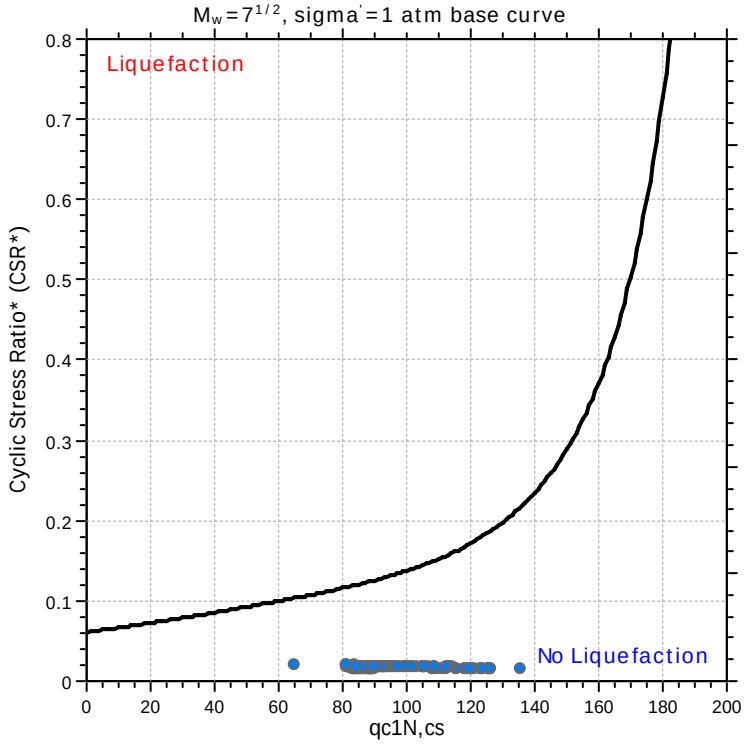
Location : 116-118 Marsden Road

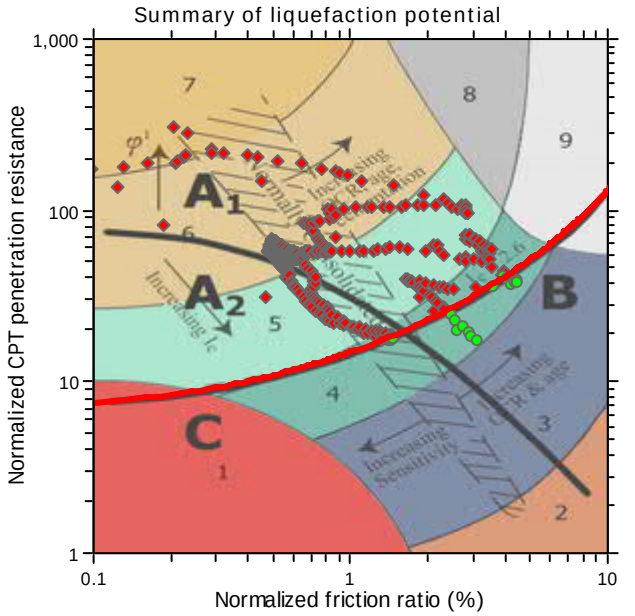
CPT file : CPT01

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.30 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.30 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.03	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

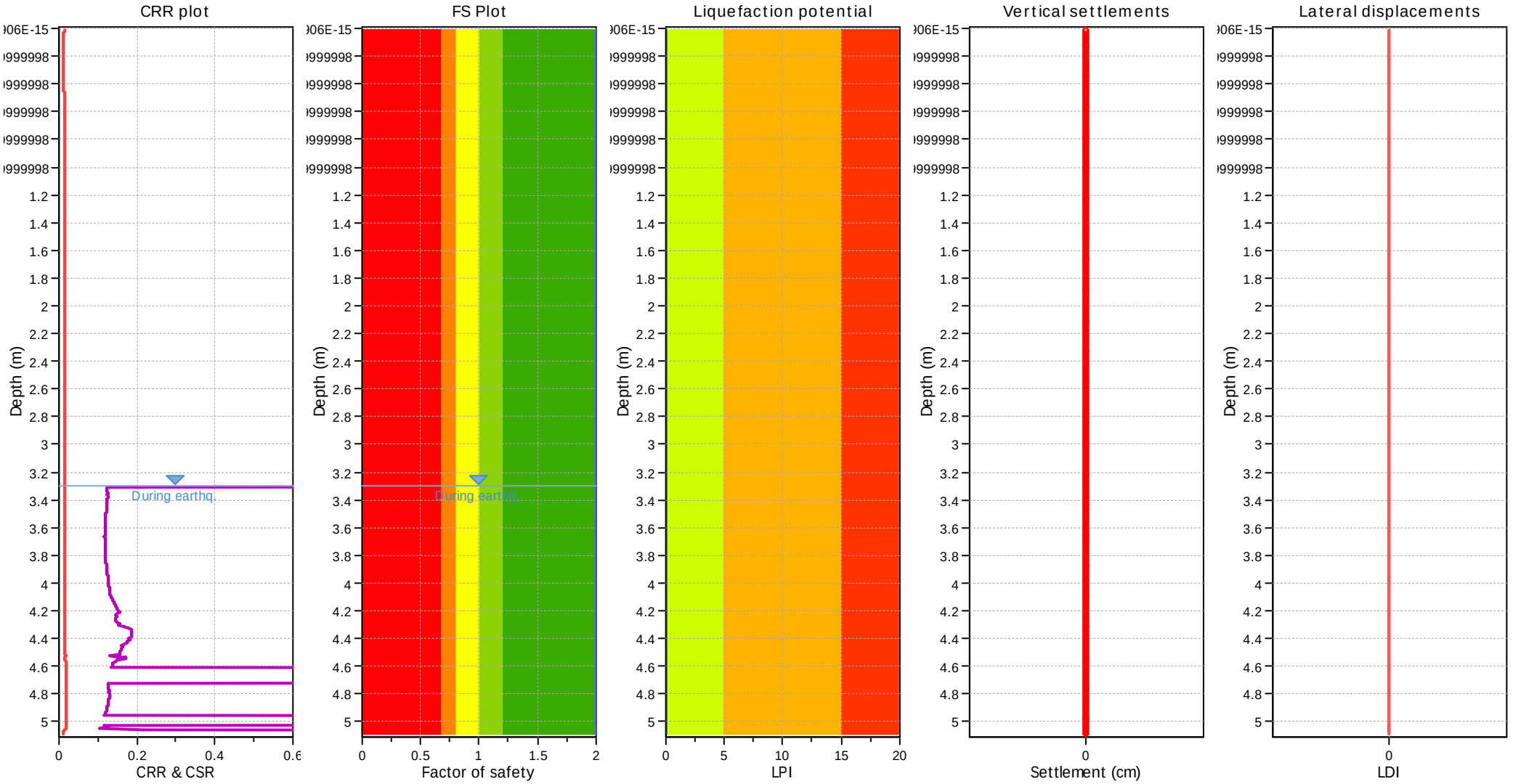






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 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_σ applied:	Yes
Earthquake magnitude M_w:	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.03	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.30 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

LIQUEFACTION ANALYSIS REPORT

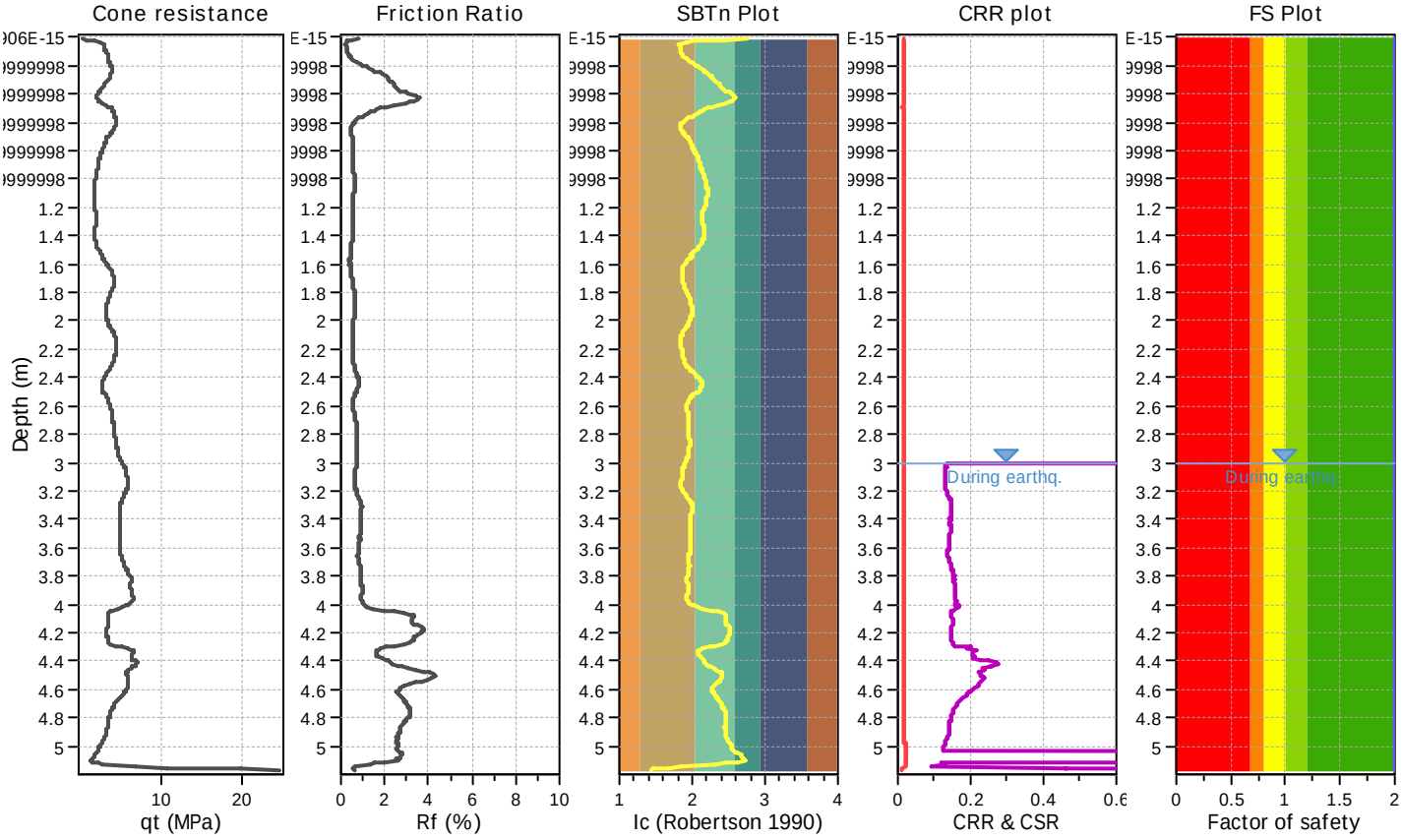
Project title : T&L Henwood Family Trust

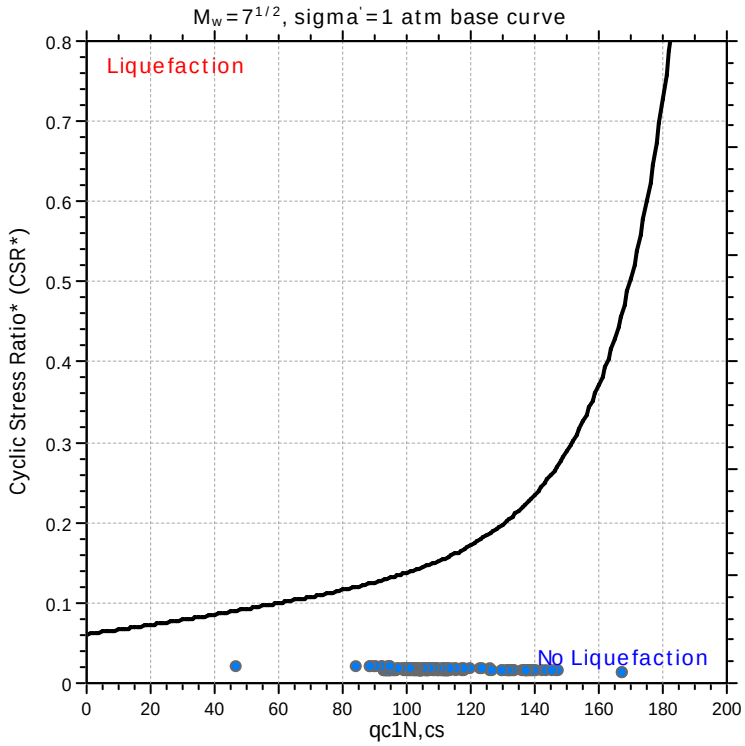
Location : 116-118 Marsden Road

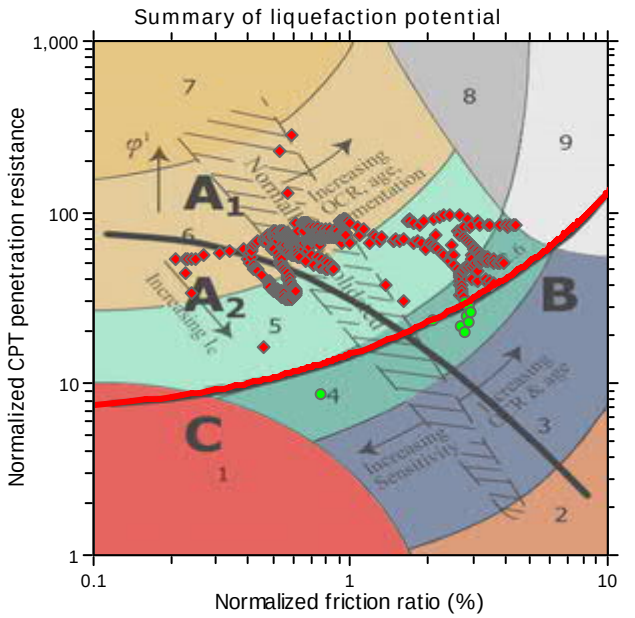
CPT file : CPT02

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.03	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

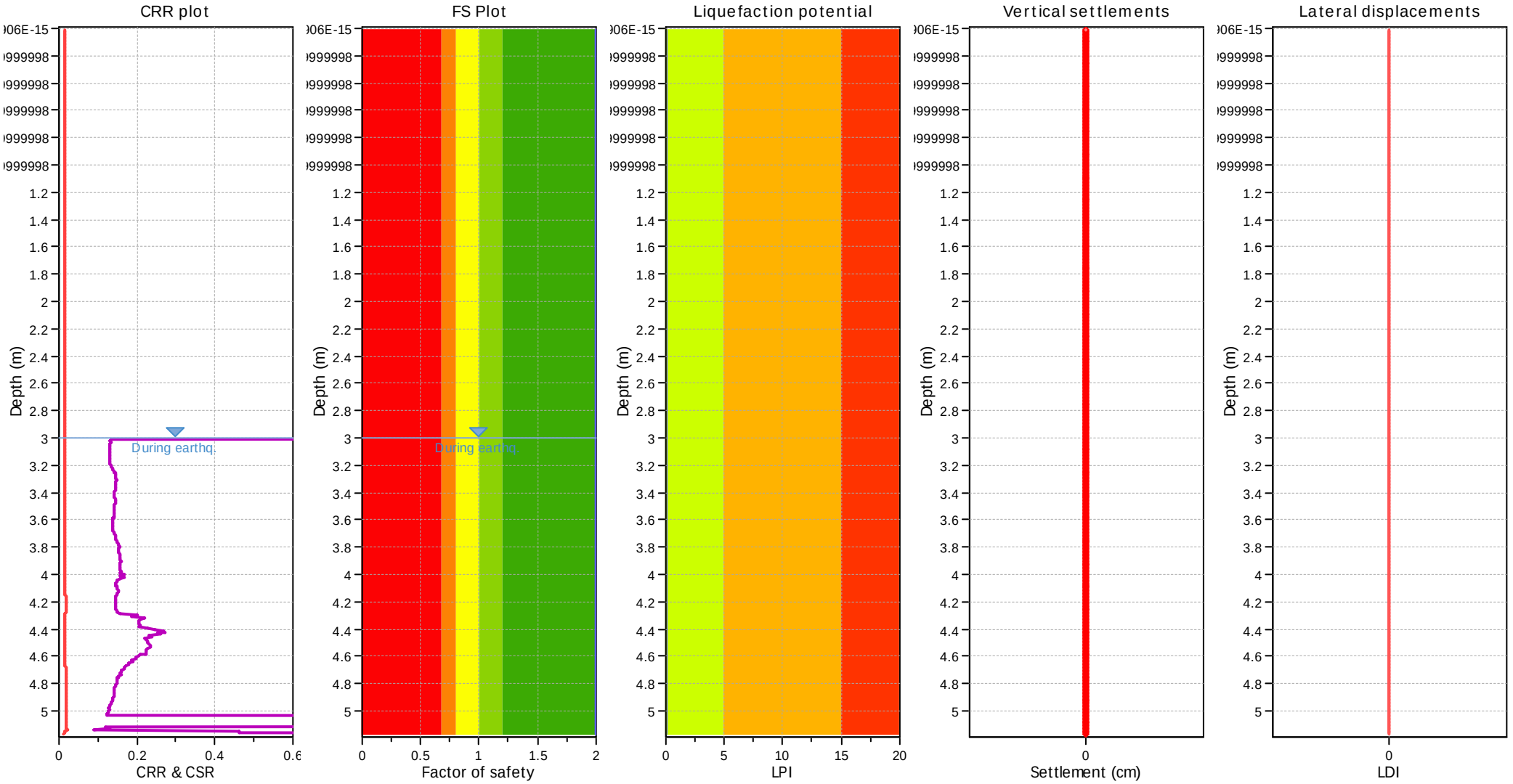






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 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_σ applied:	Yes
Earthquake magnitude M_w:	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.03	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 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

LIQUEFACTION ANALYSIS REPORT

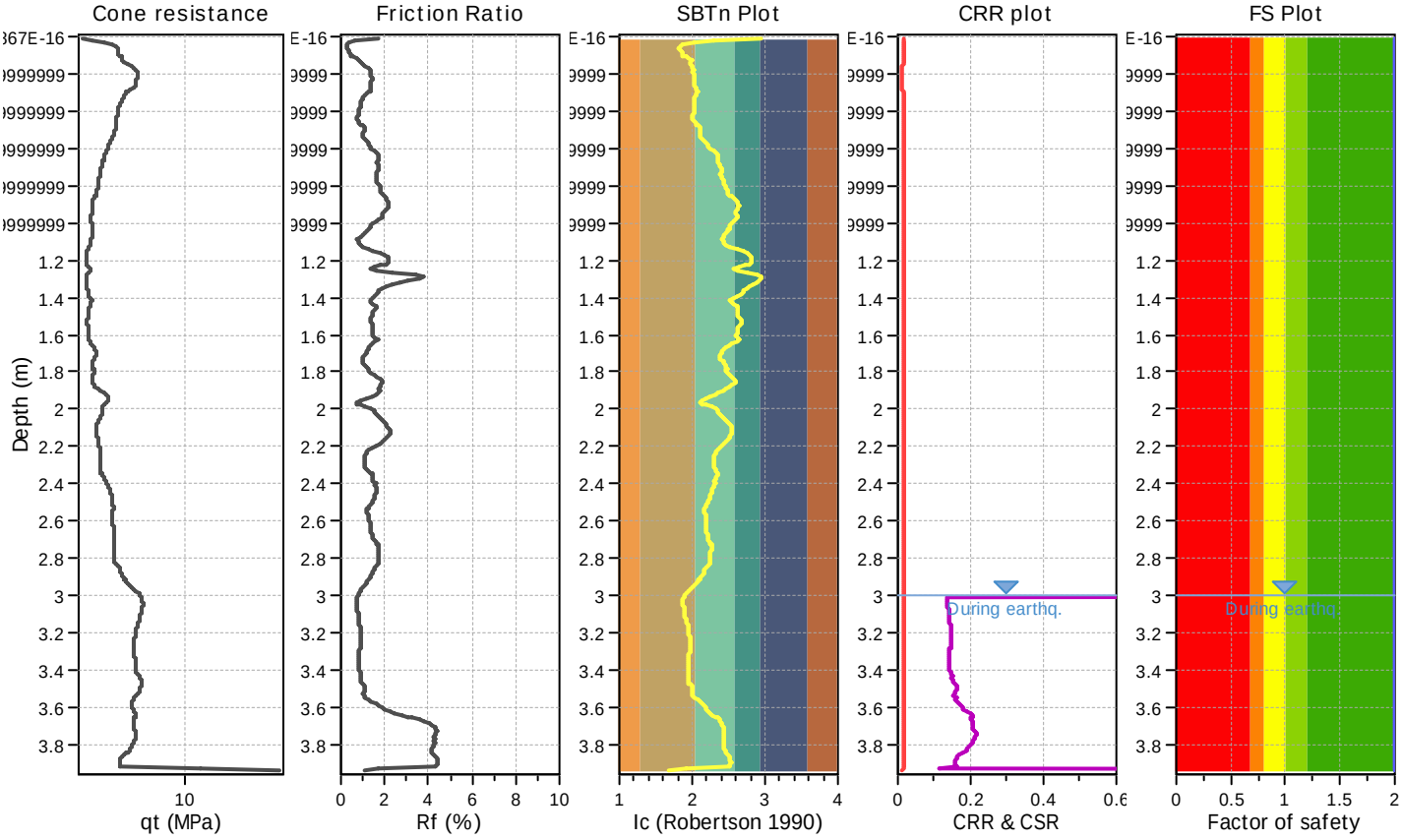
Project title : T&L Henwood Family Trust

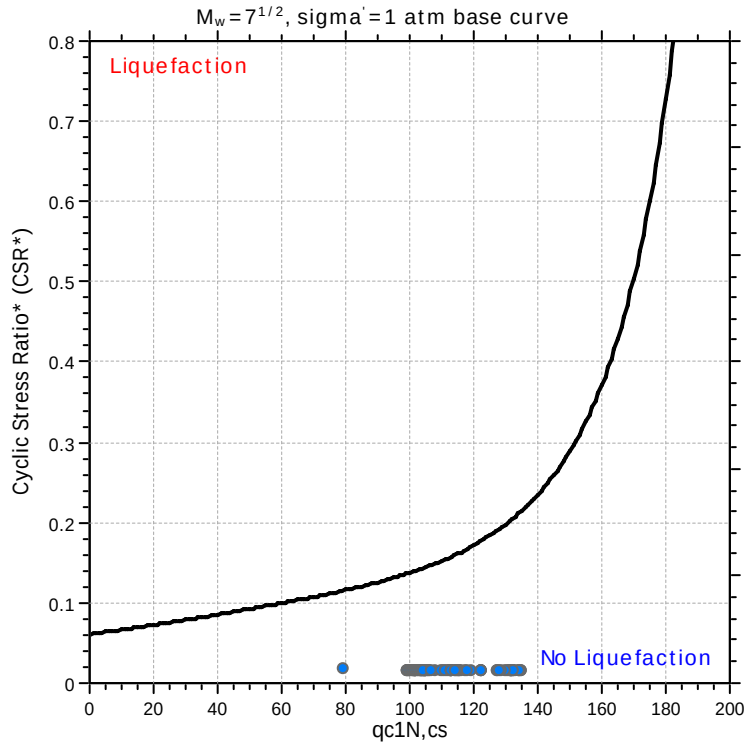
Location : 116-118 Marsden Road

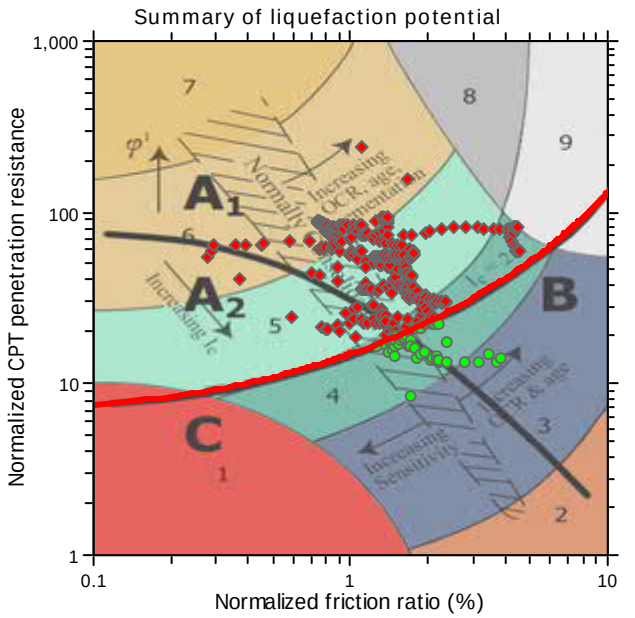
CPT file : CPT03

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.03	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

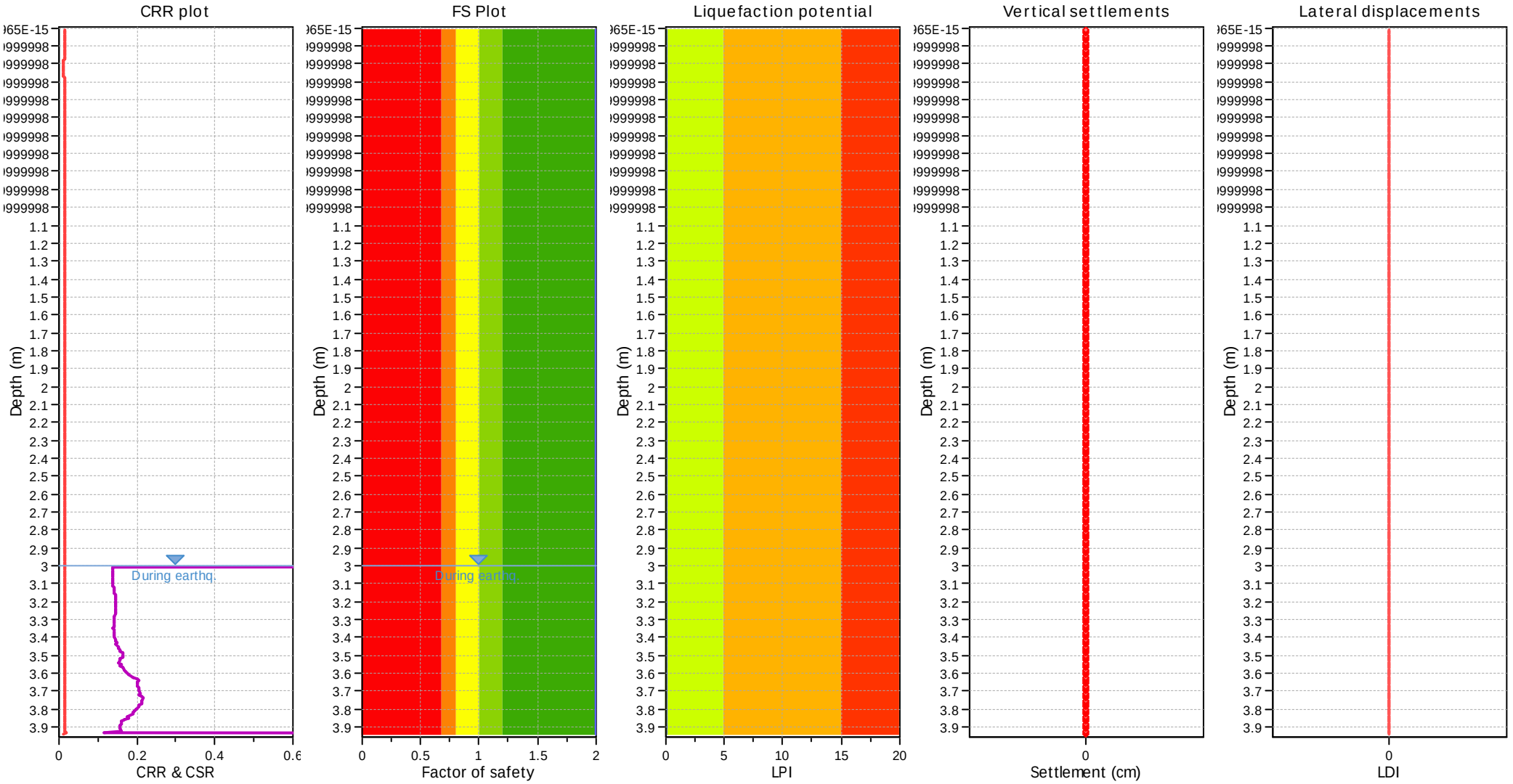






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 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_σ applied:	Yes
Earthquake magnitude M_w:	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.03	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 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

LIQUEFACTION ANALYSIS REPORT

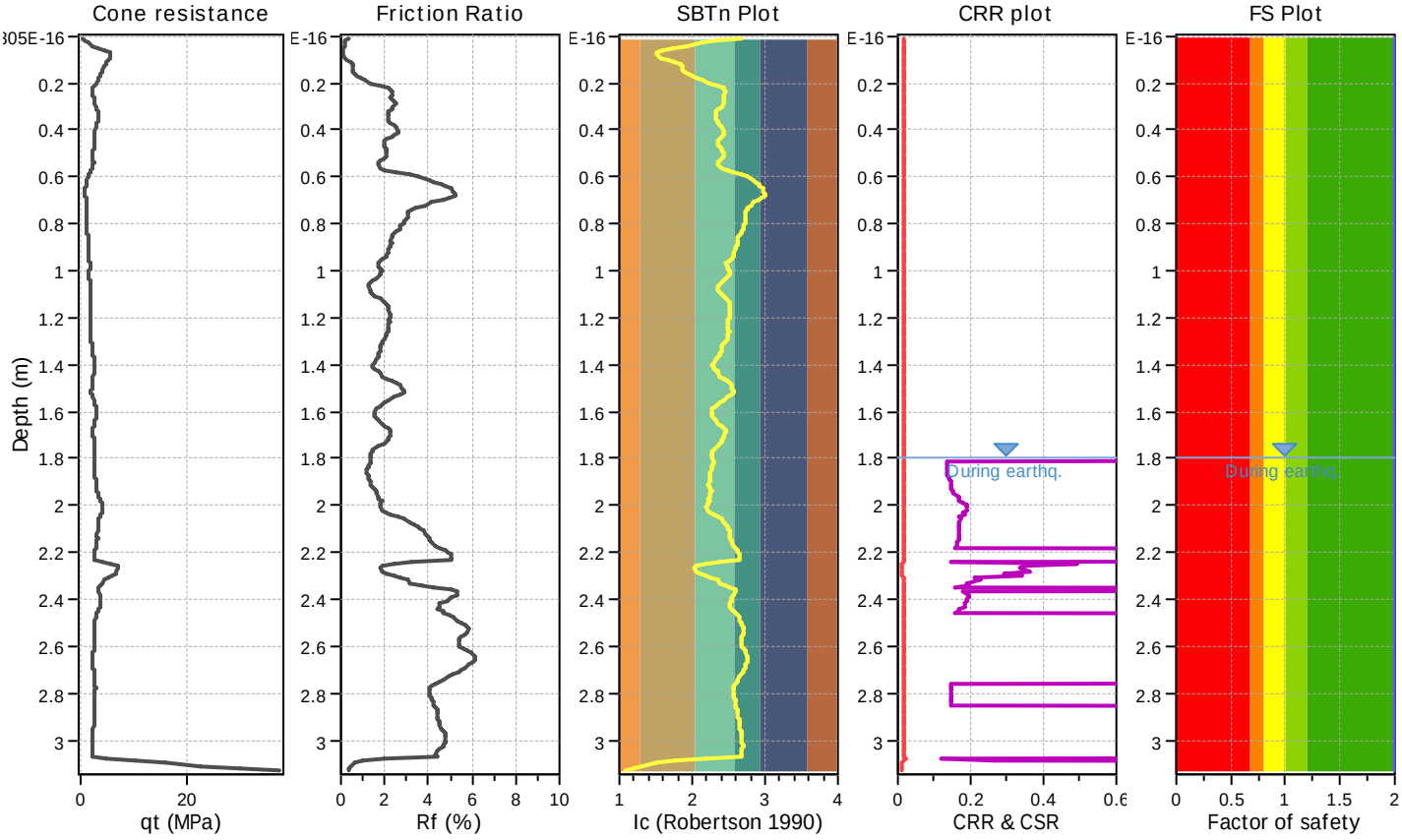
Project title : T&L Henwood Family Trust

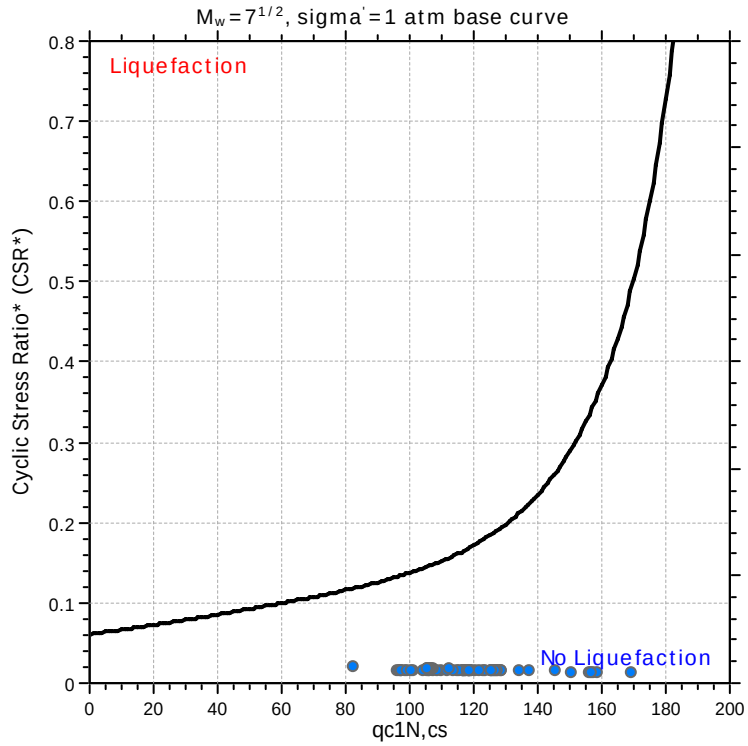
Location : 116-118 Marsden Road

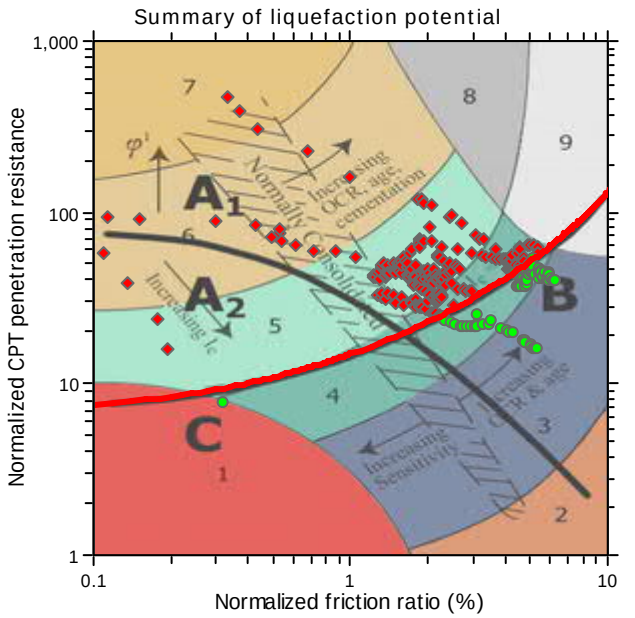
CPT file : CPT04

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.80 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.80 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.03	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

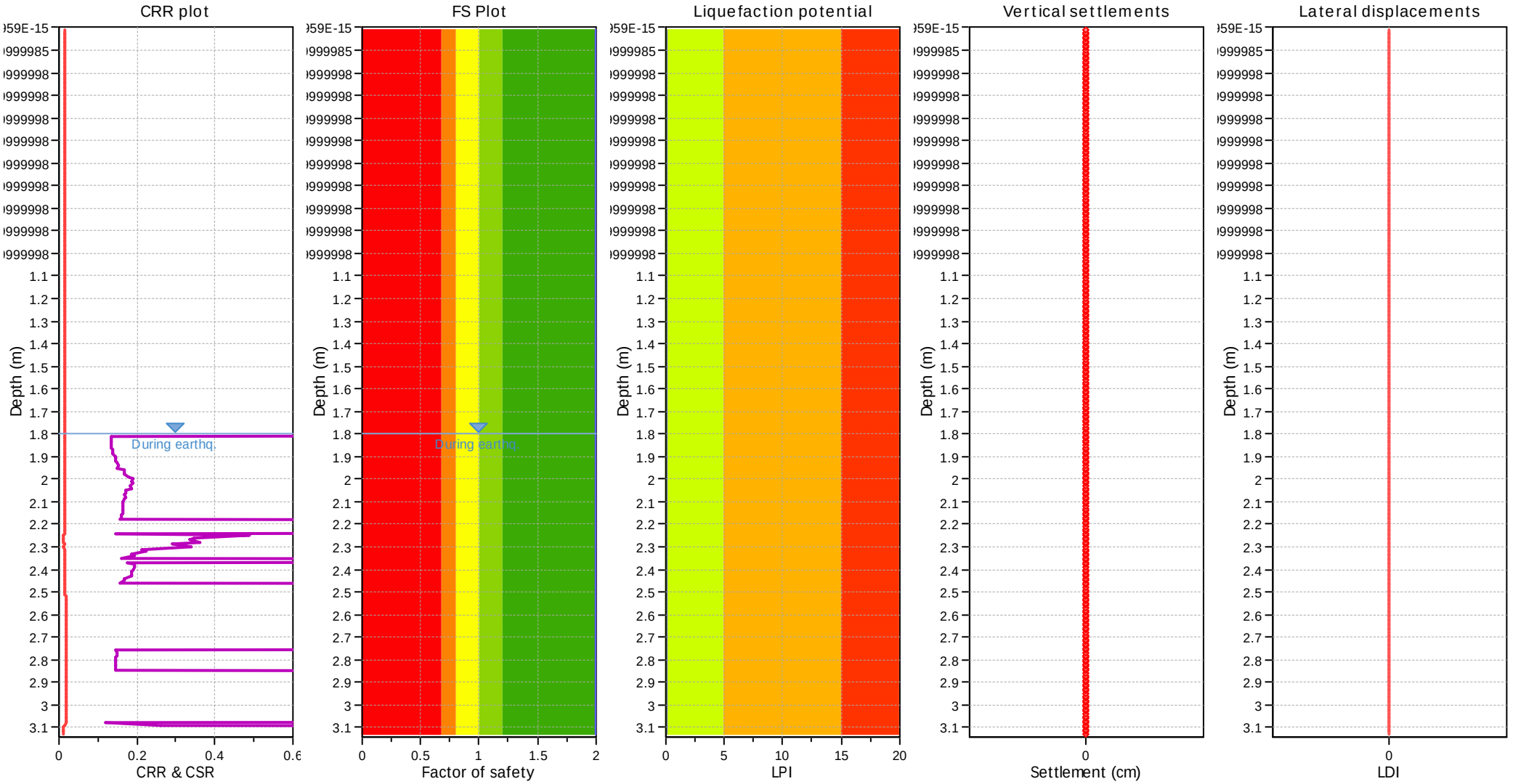






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.80 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_σ applied:	Yes
Earthquake magnitude M_w:	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.03	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.80 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

LIQUEFACTION ANALYSIS REPORT

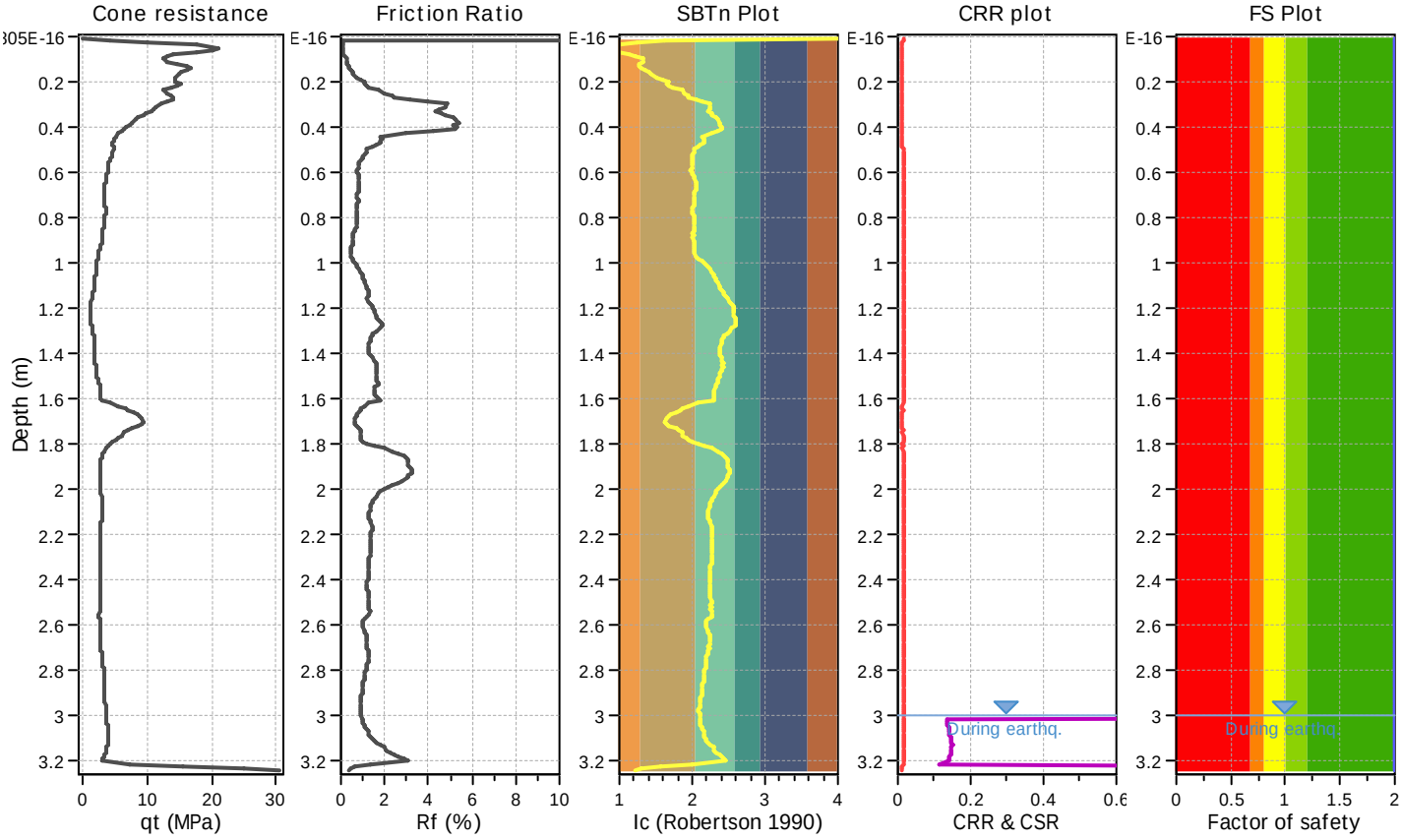
Project title : T&L Henwood Family Trust

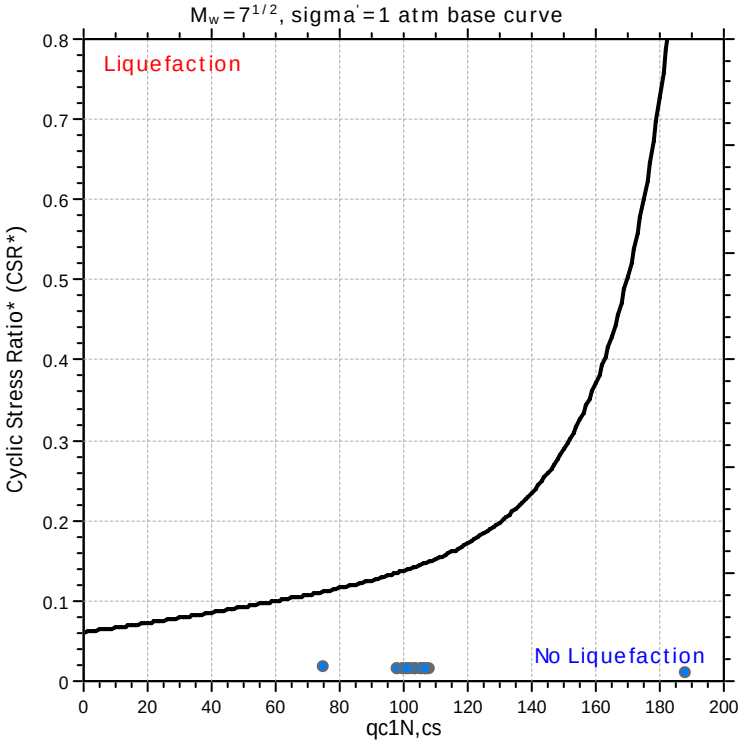
Location : 116-118 Marsden Road

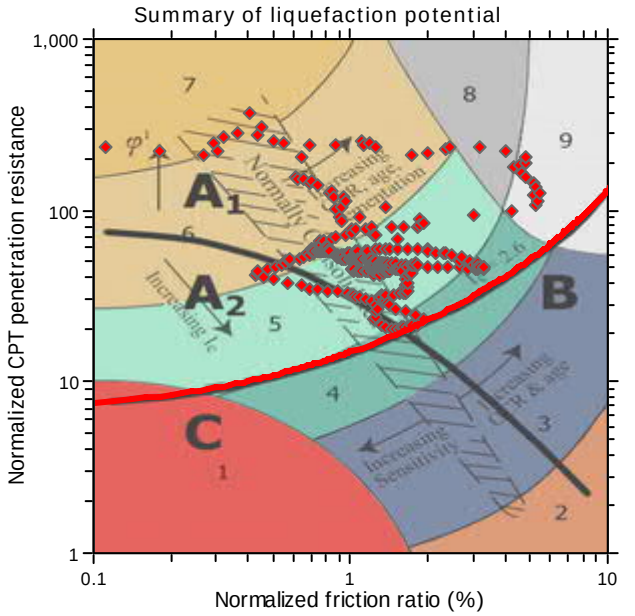
CPT file : CPT05

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.03	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

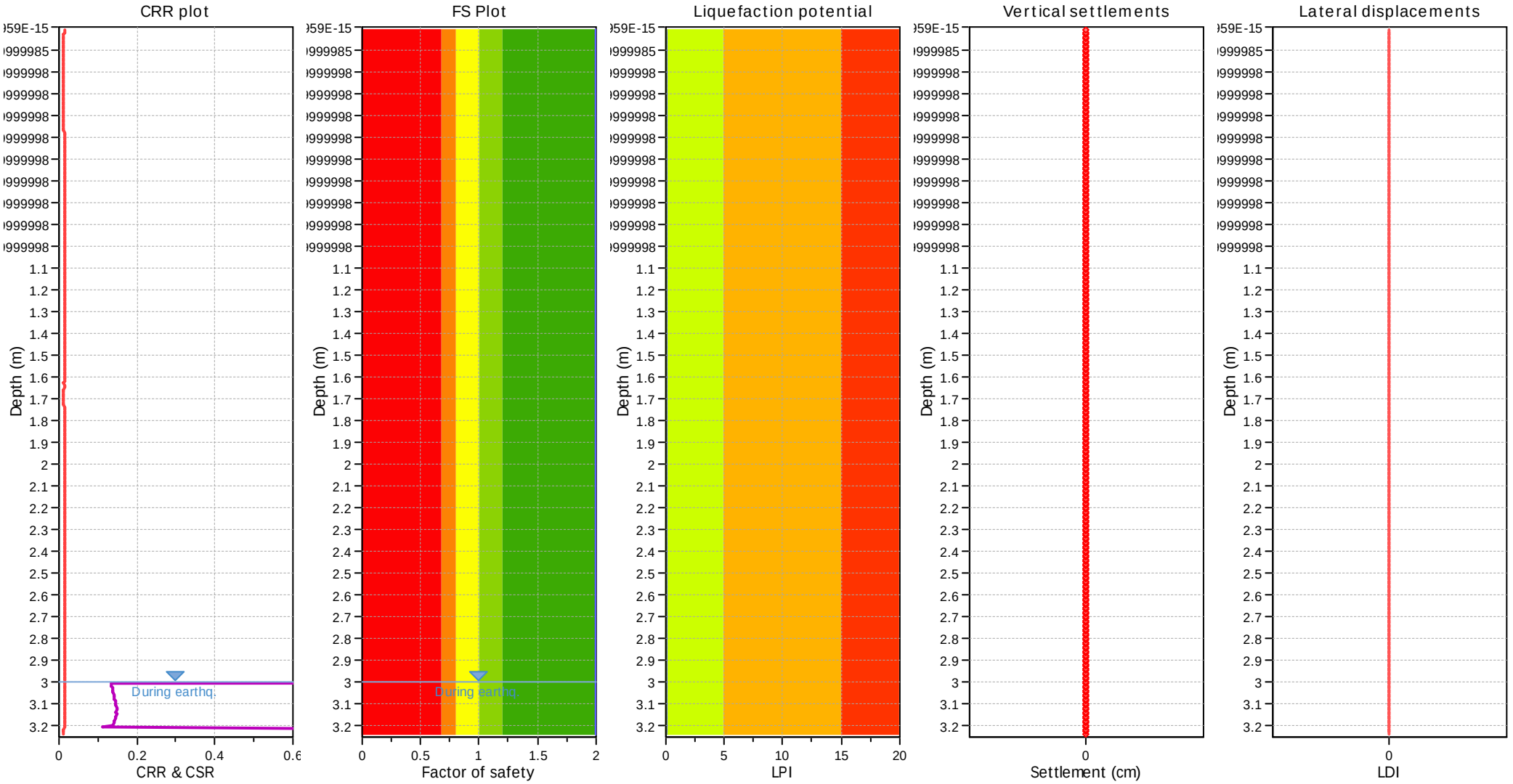






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 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_σ applied:	Yes
Earthquake magnitude M_w:	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.03	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 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

LIQUEFACTION ANALYSIS REPORT

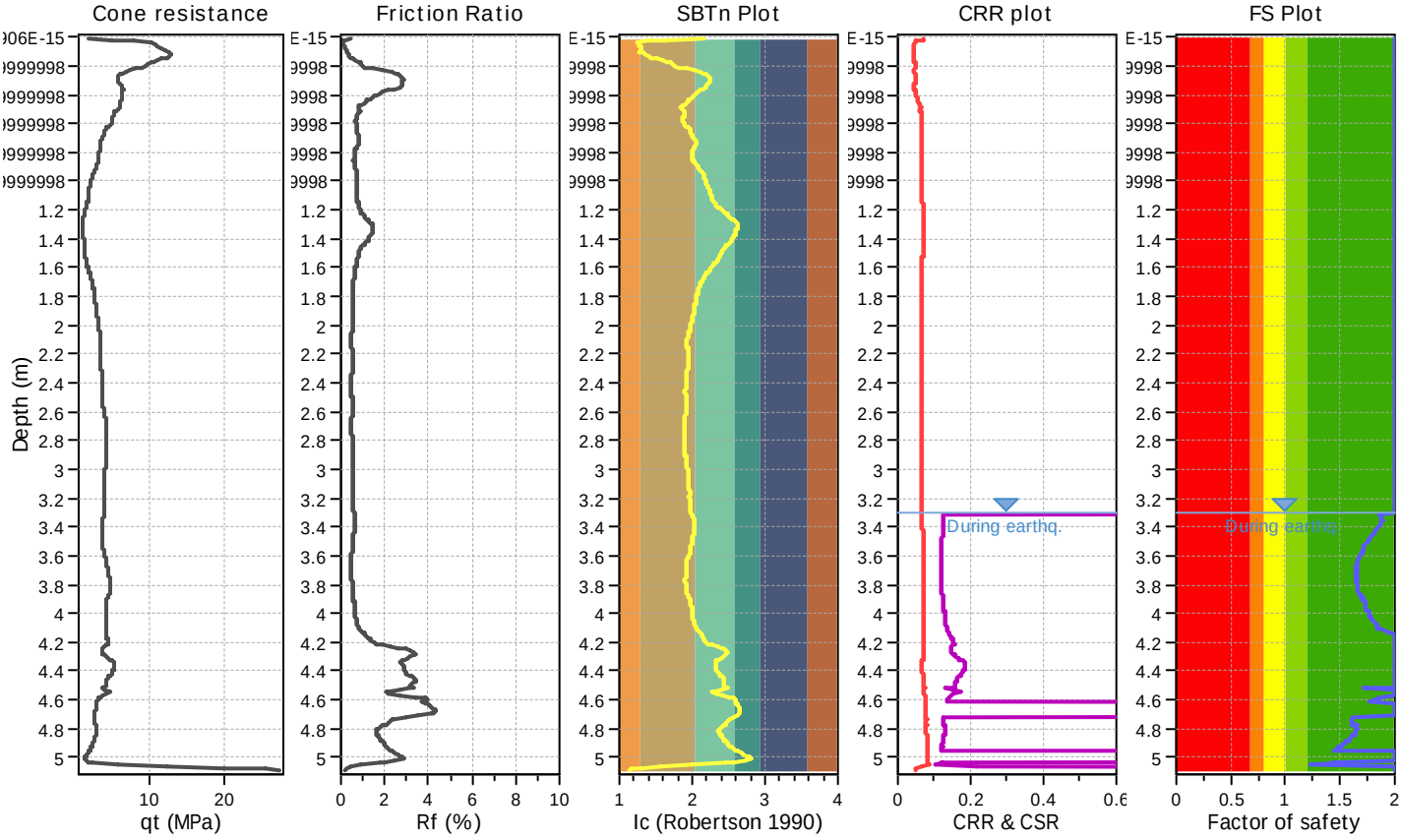
Project title : T&L Henwood Family Trust

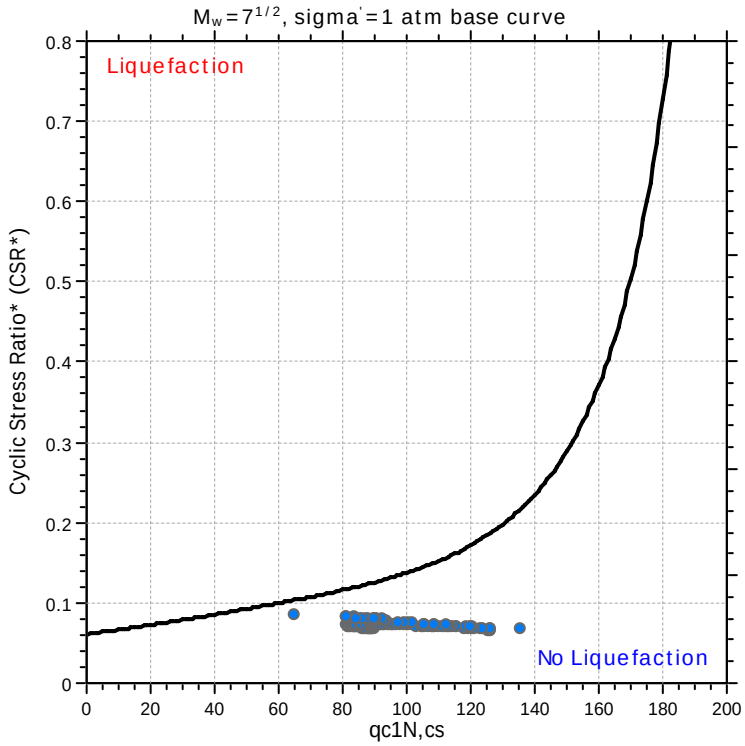
Location : 116-118 Marsden Road

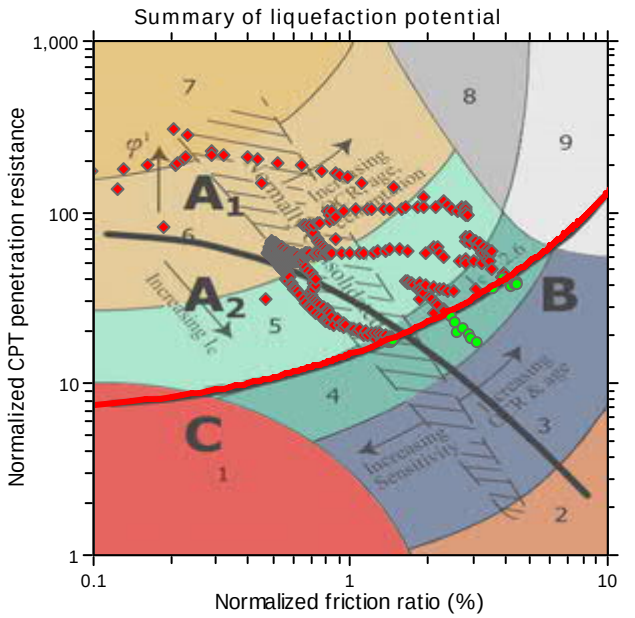
CPT file : CPT01

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.30 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.30 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.13	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

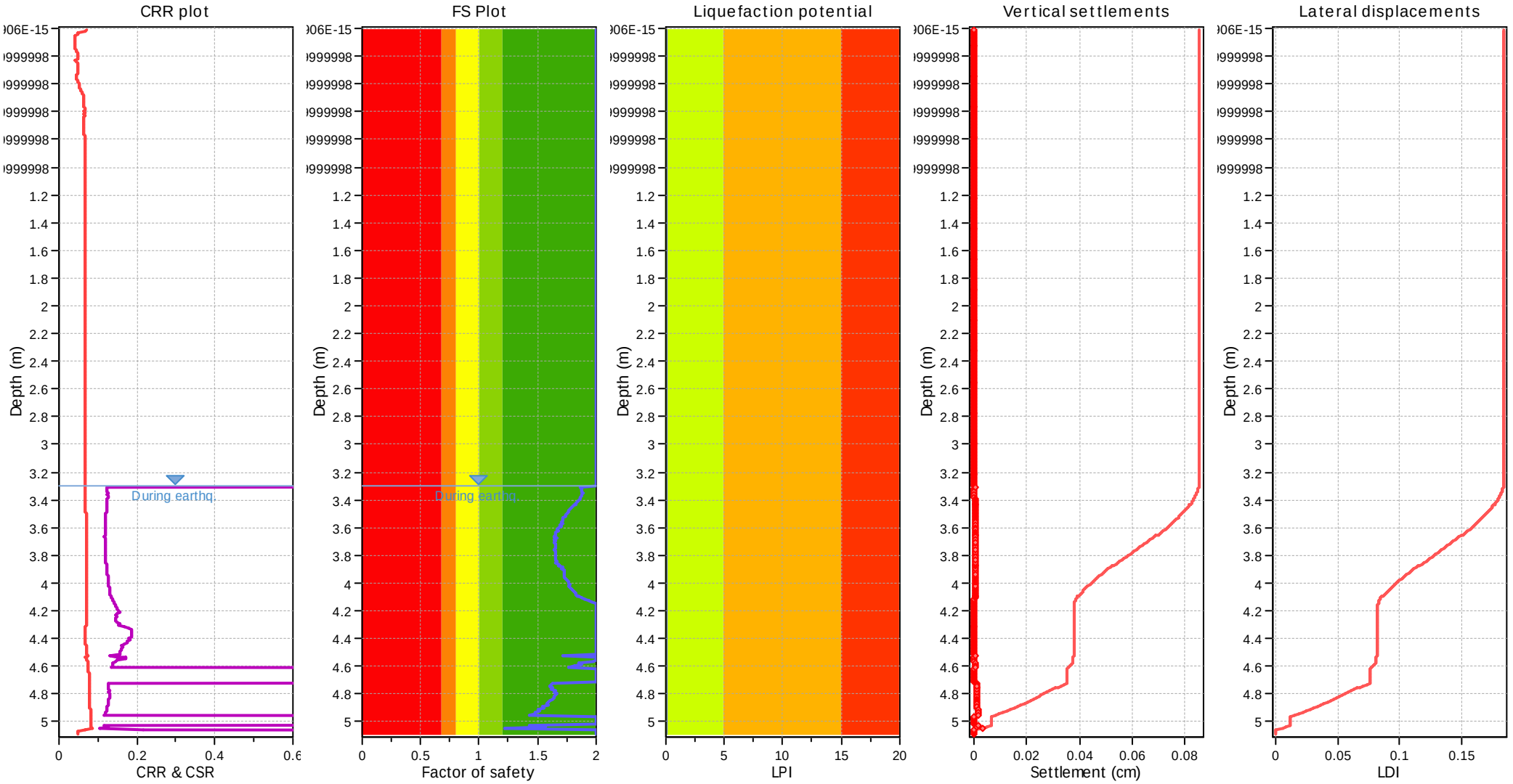






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 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_σ applied:	Yes
Earthquake magnitude M_w:	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.30 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

LIQUEFACTION ANALYSIS REPORT

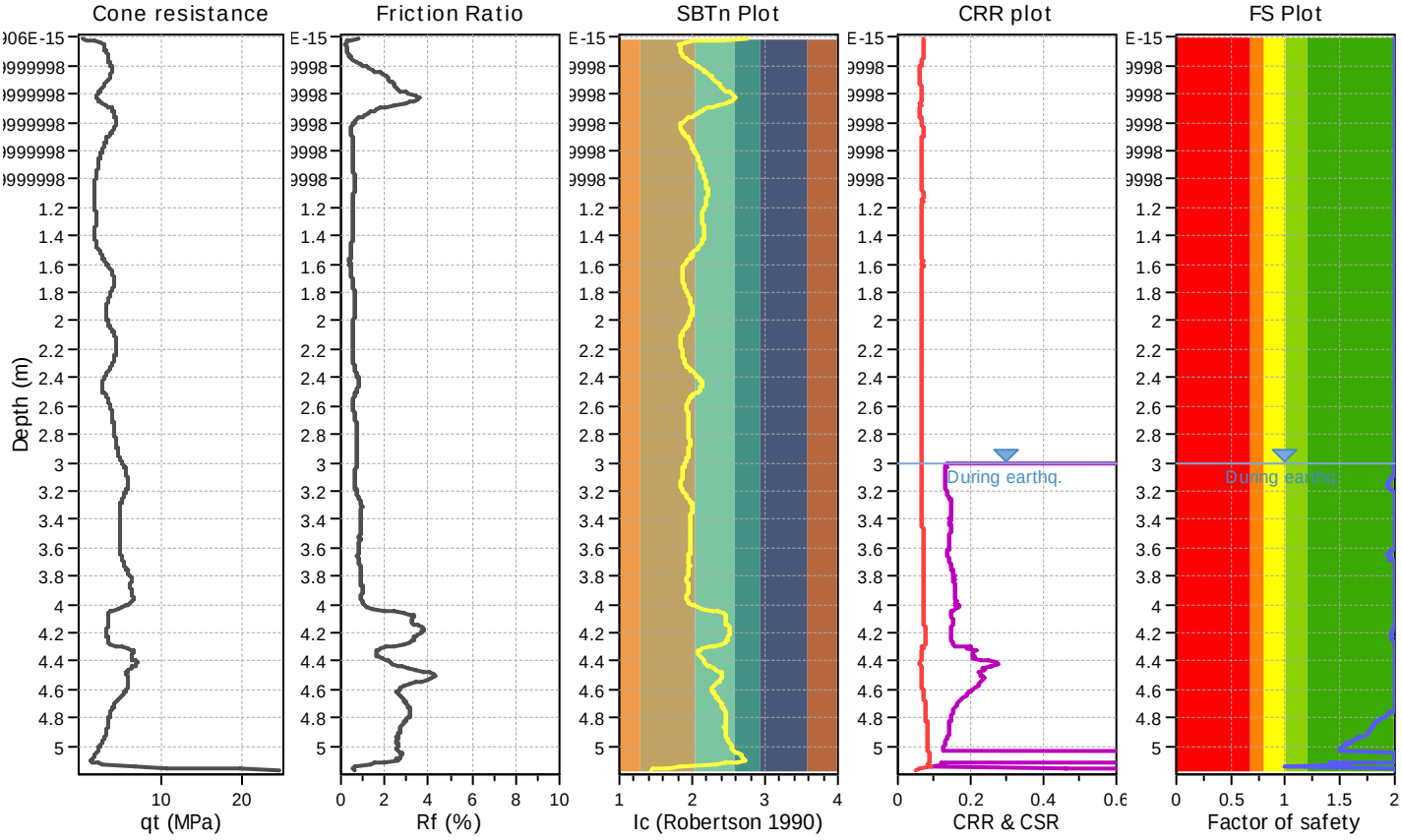
Project title : T&L Henwood Family Trust

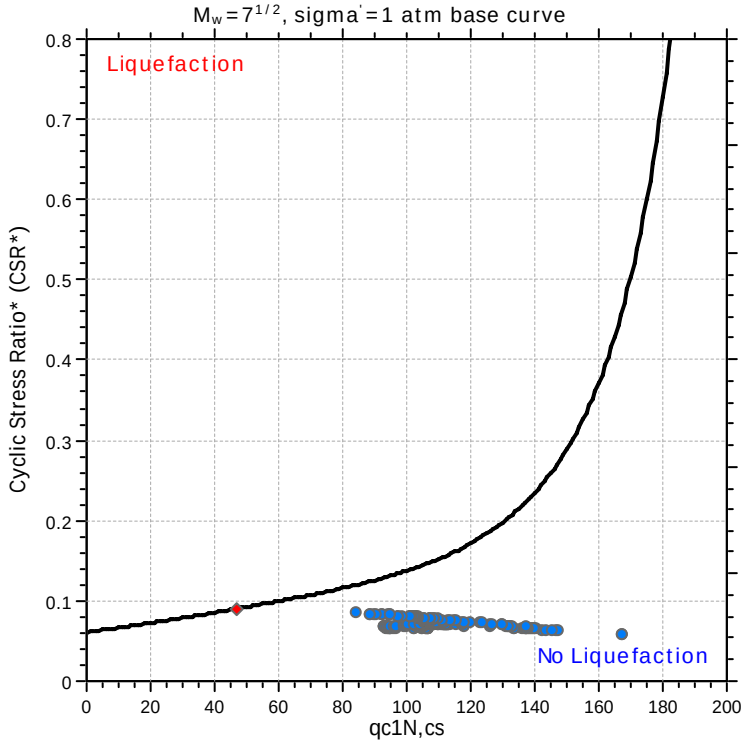
Location : 116-118 Marsden Road

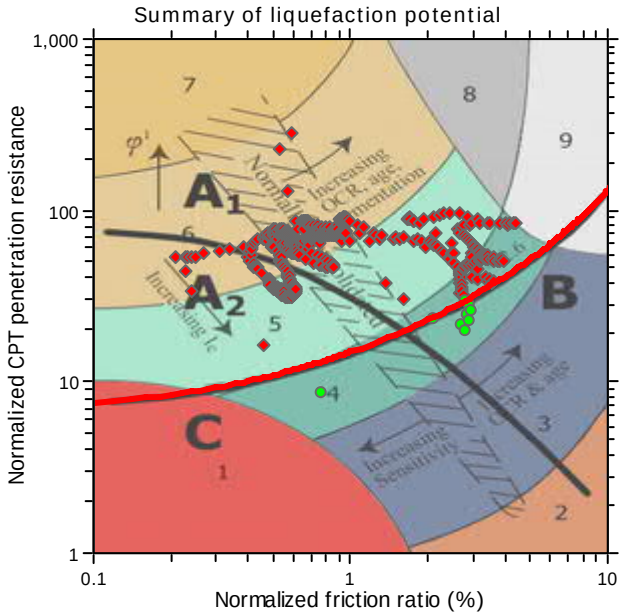
CPT file : CPT02

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.13	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

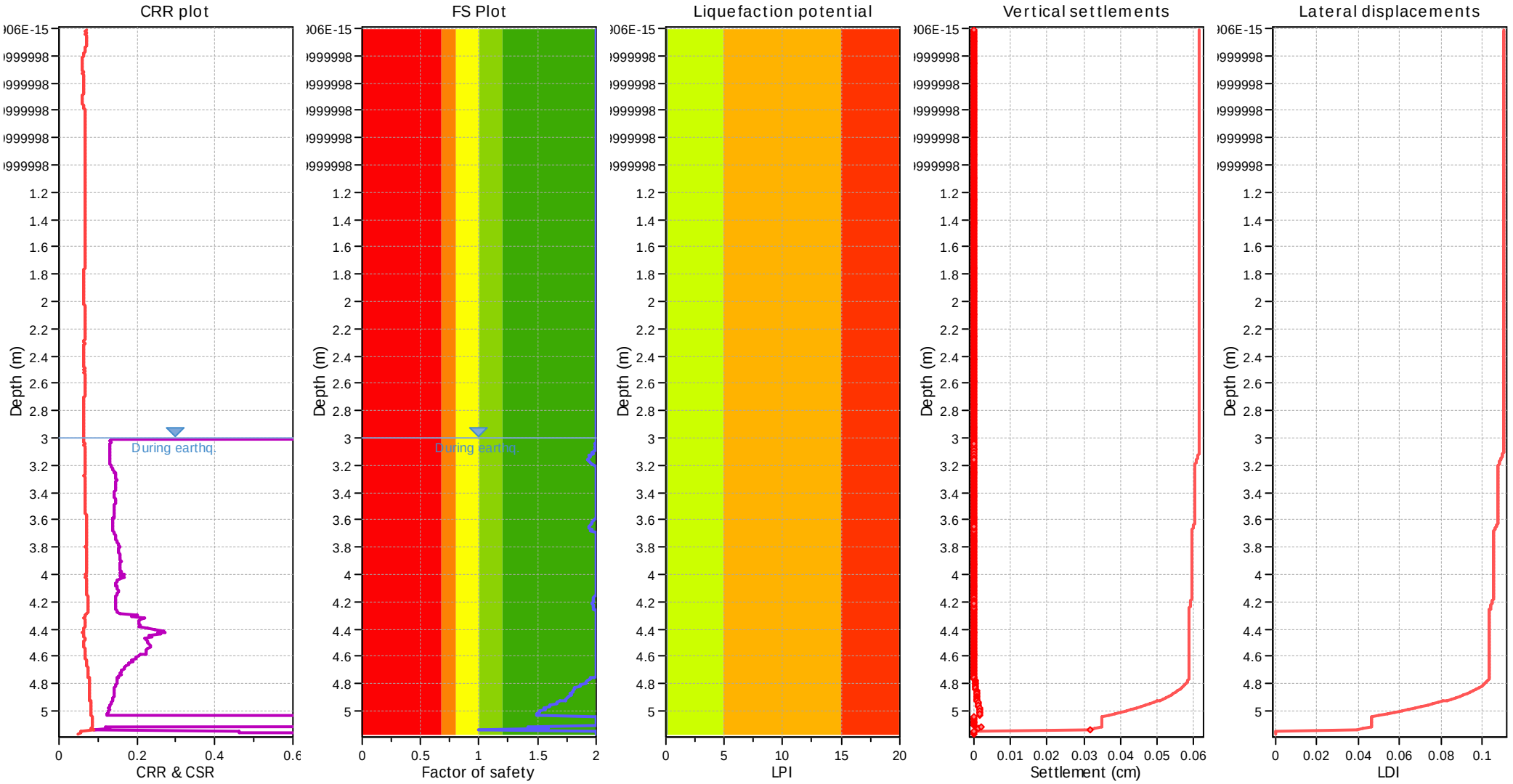






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 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_σ applied:	Yes
Earthquake magnitude M_w:	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 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

LIQUEFACTION ANALYSIS REPORT

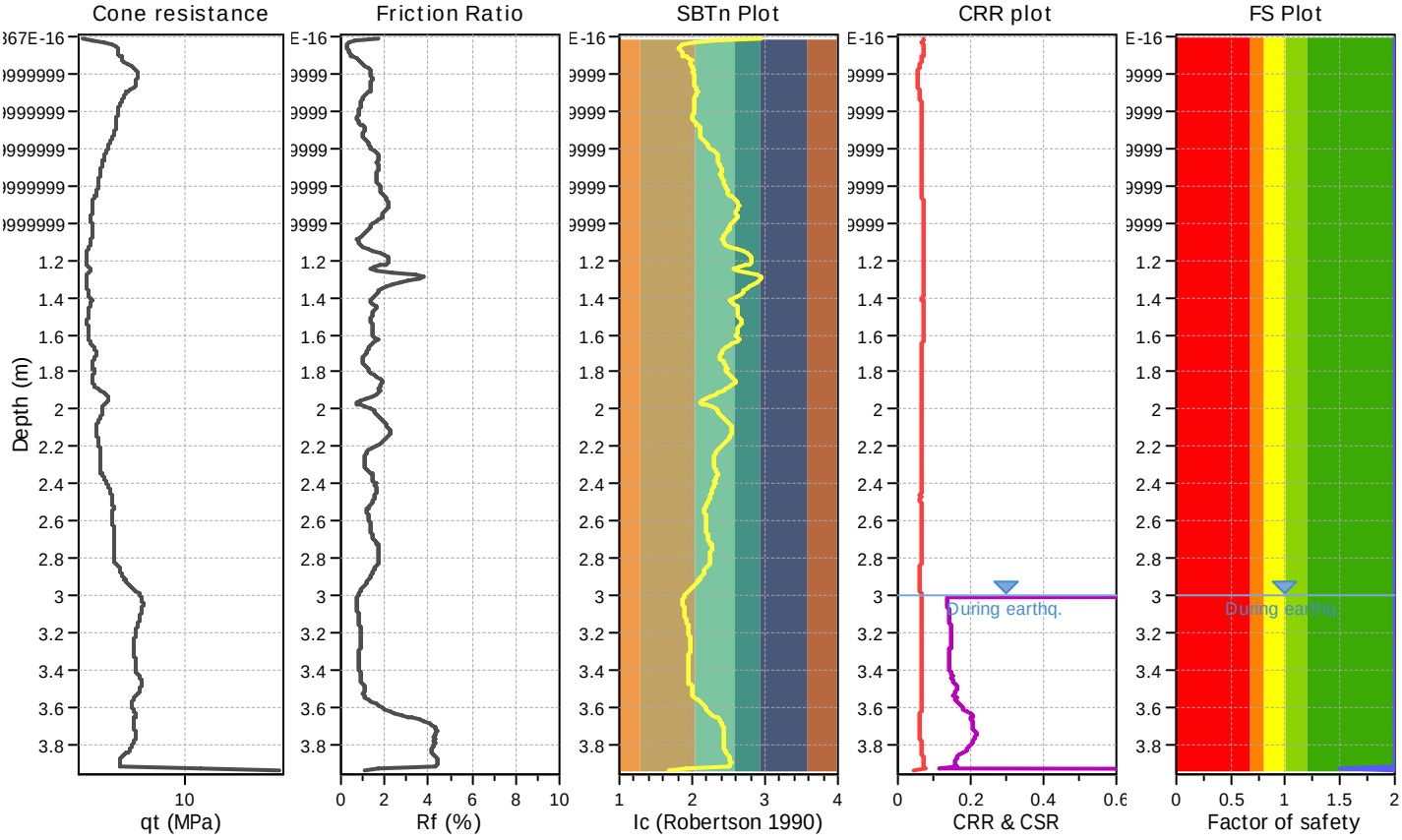
Project title : T&L Henwood Family Trust

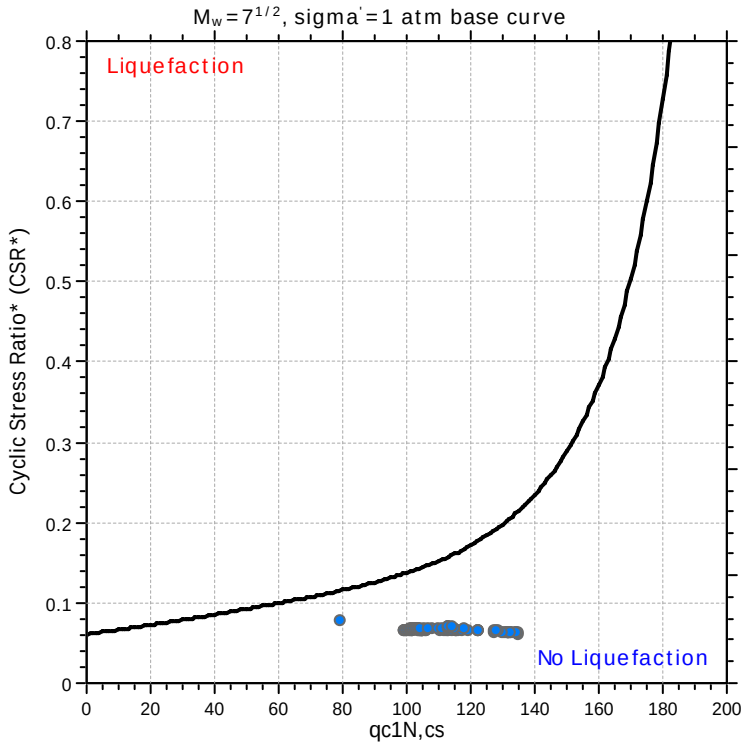
Location : 116-118 Marsden Road

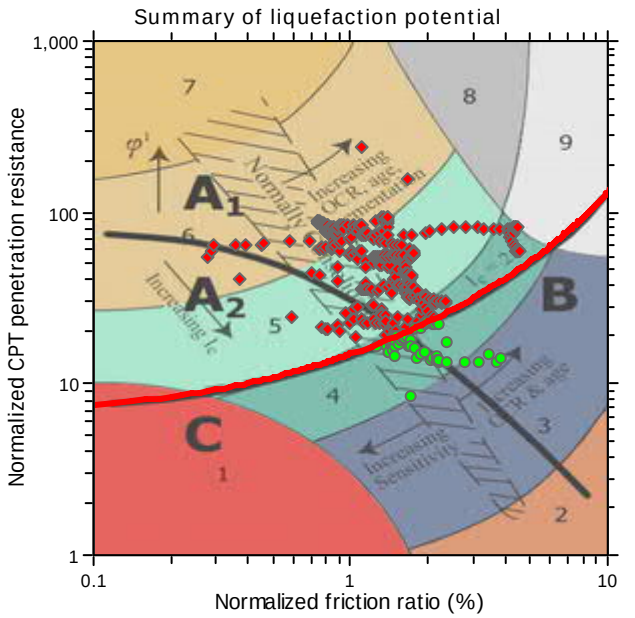
CPT file : CPT03

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.13	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

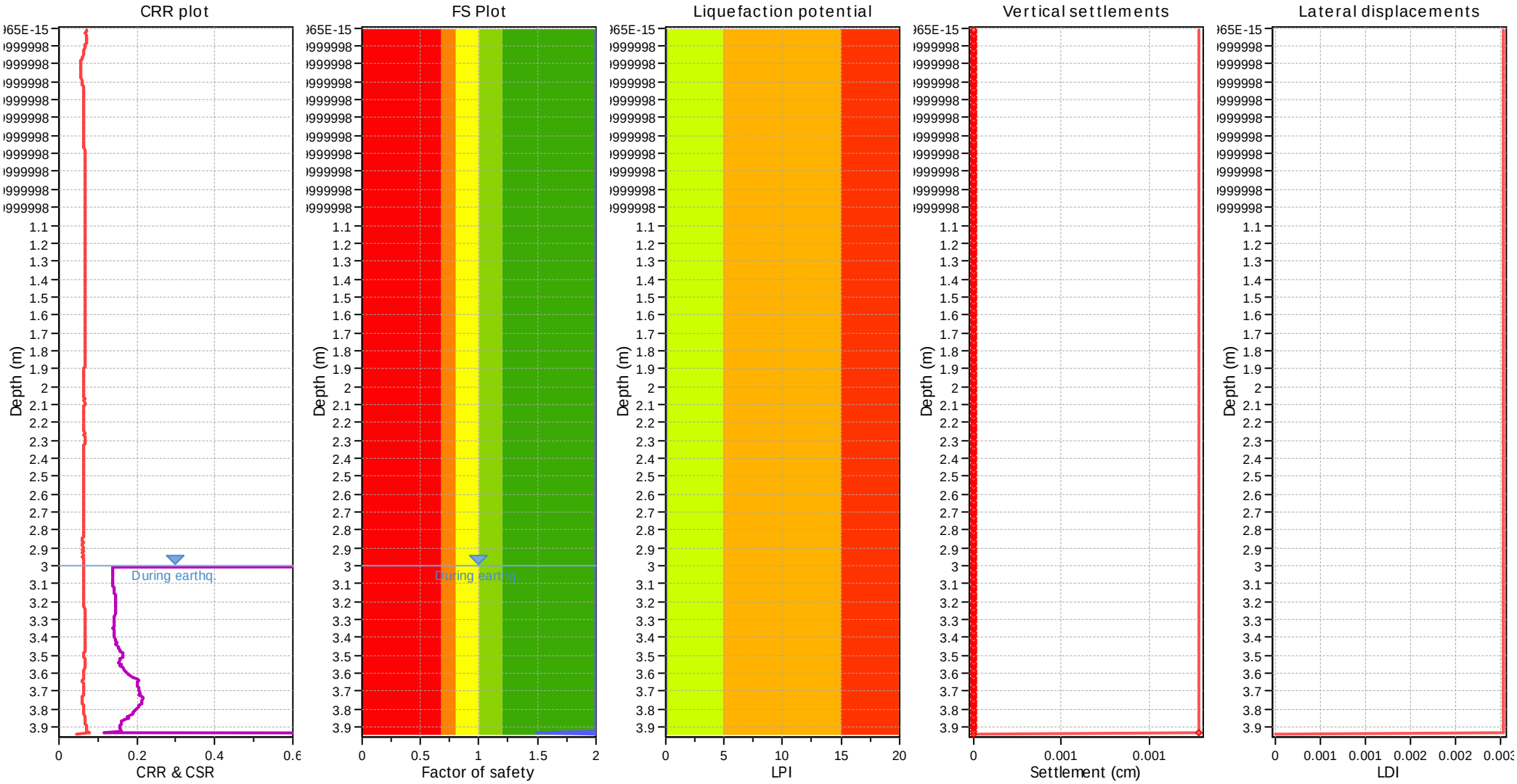






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 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_σ applied:	Yes
Earthquake magnitude M_w:	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 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

LIQUEFACTION ANALYSIS REPORT

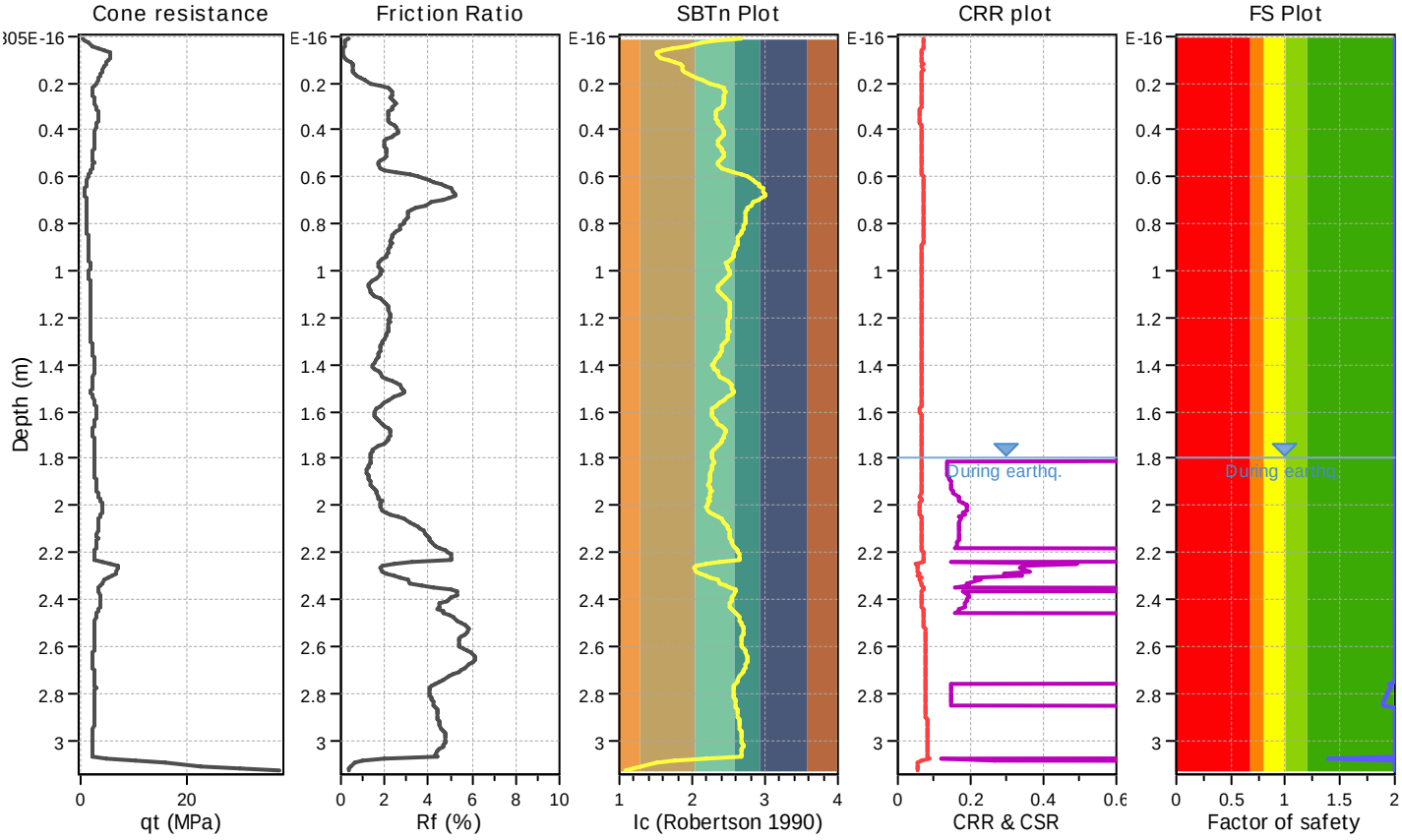
Project title : T&L Henwood Family Trust

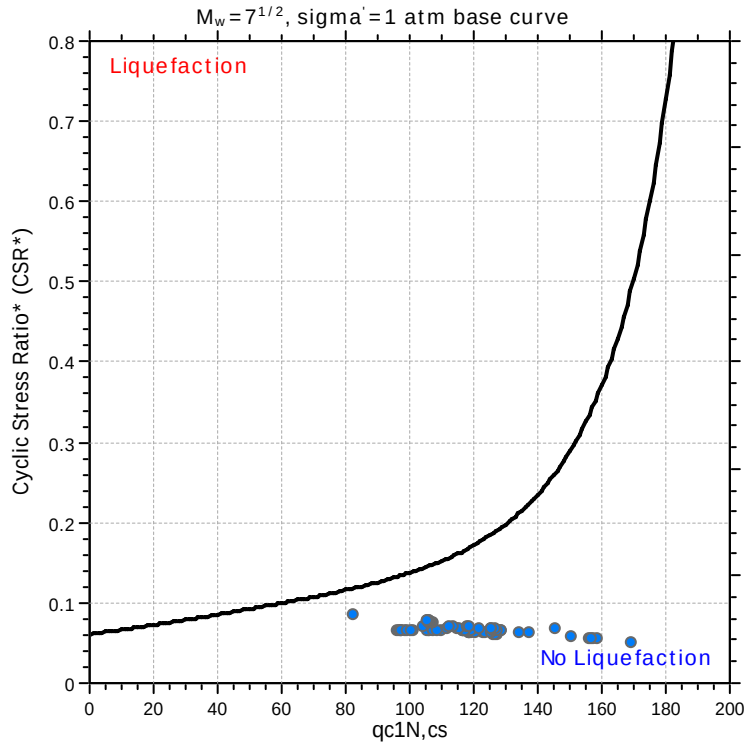
Location : 116-118 Marsden Road

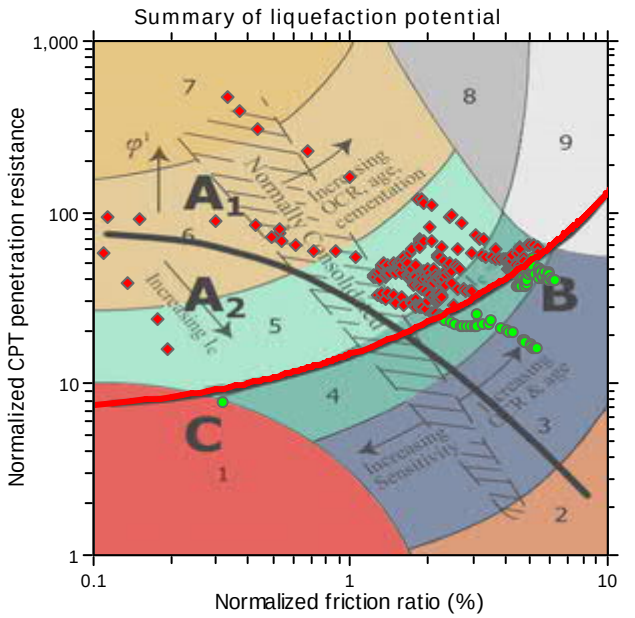
CPT file : CPT04

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.80 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.80 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.13	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

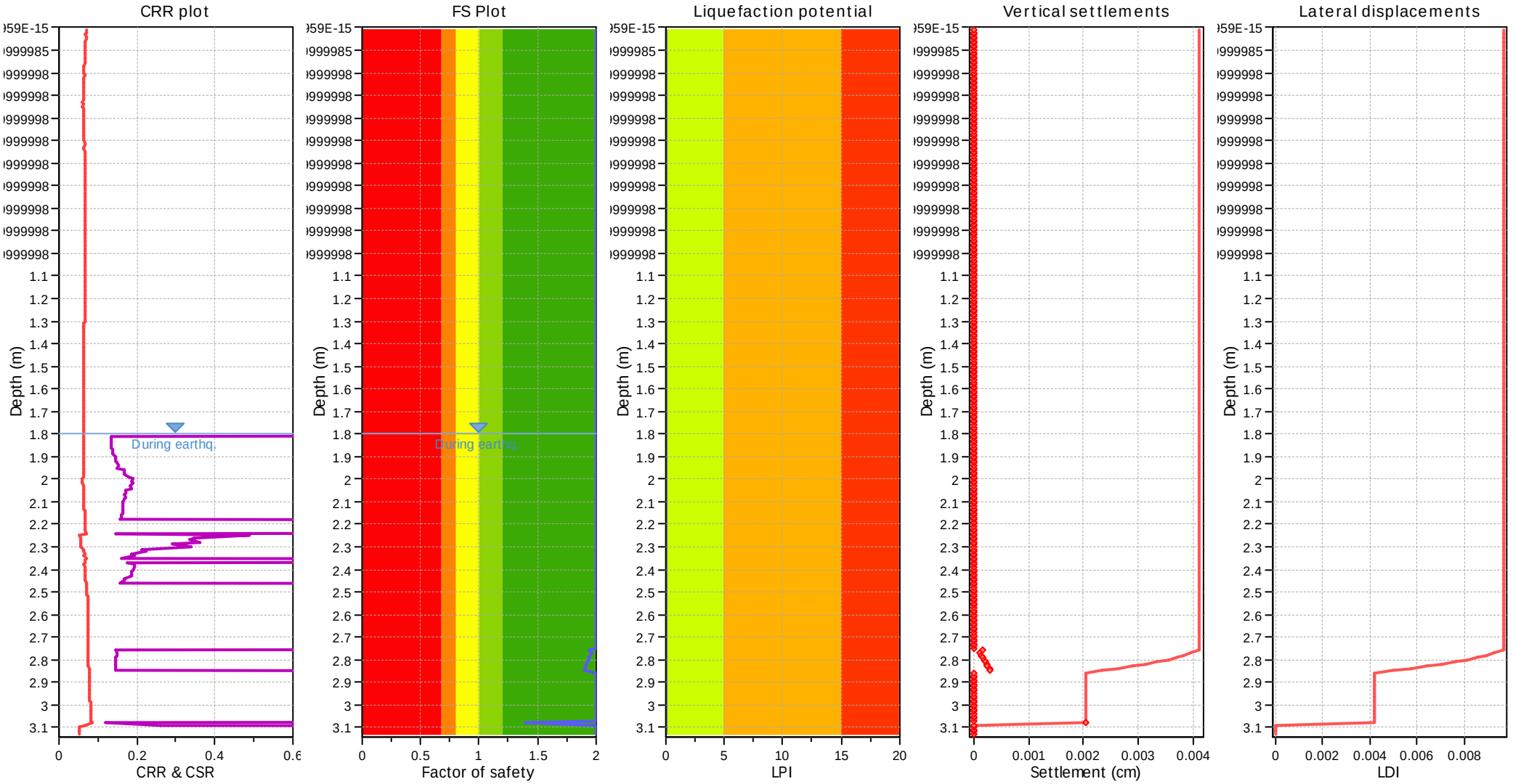






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.80 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_σ applied:	Yes
Earthquake magnitude M_w:	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.80 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

LIQUEFACTION ANALYSIS REPORT

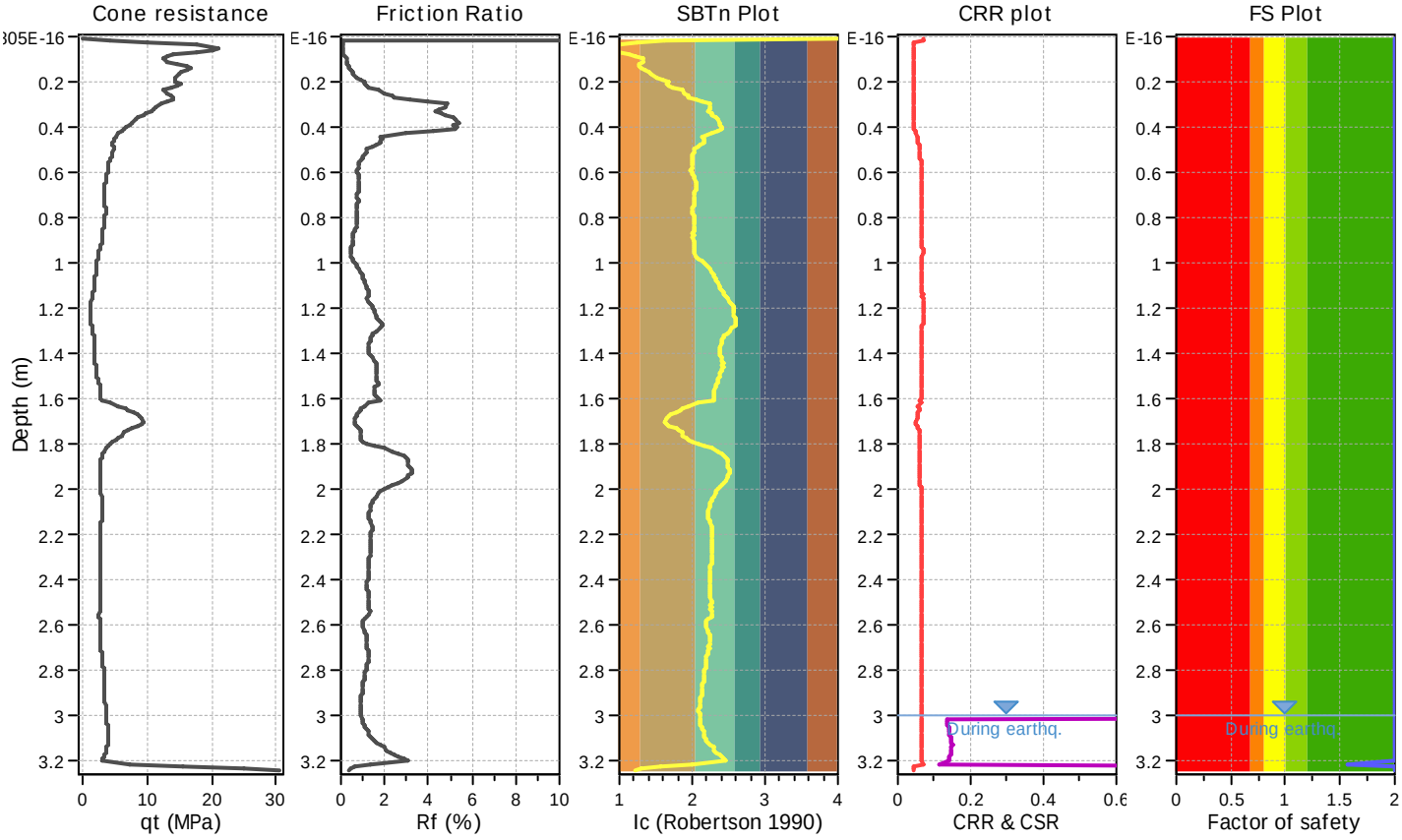
Project title : T&L Henwood Family Trust

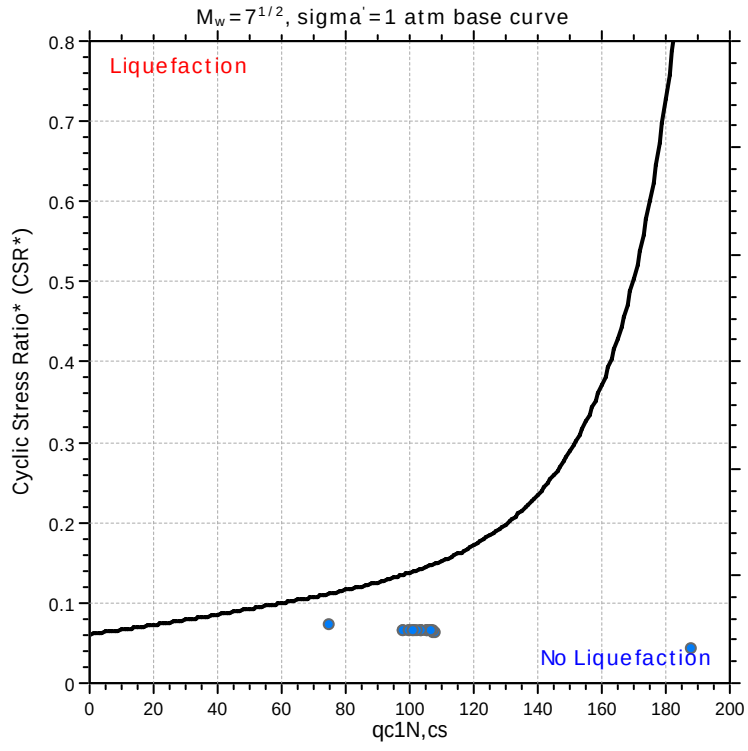
Location : 116-118 Marsden Road

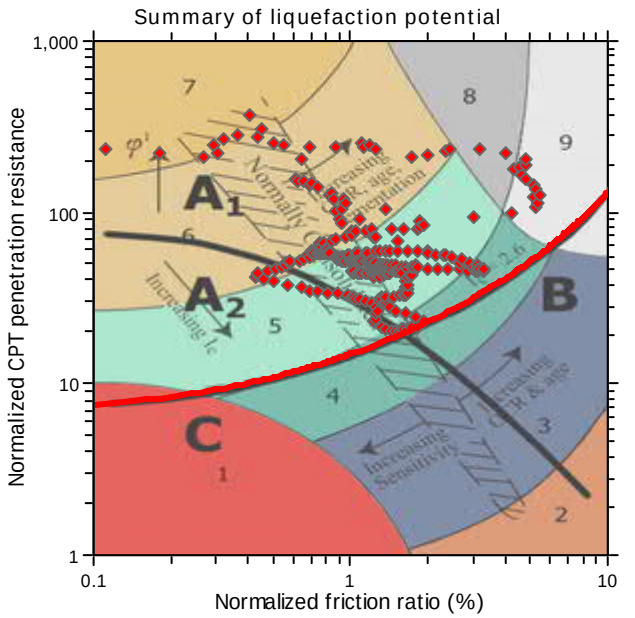
CPT file : CPT05

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.13	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

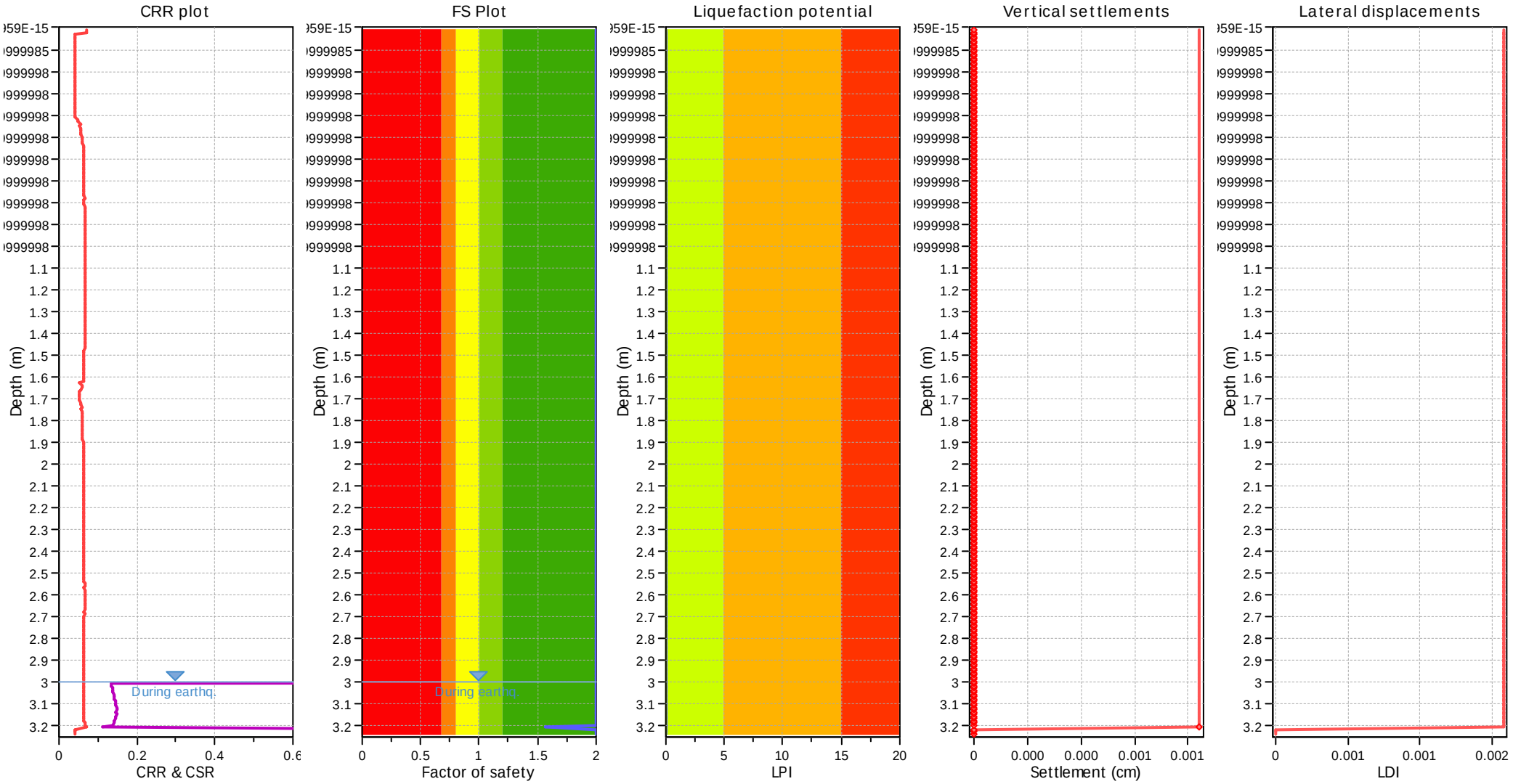






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 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_σ applied:	Yes
Earthquake magnitude M_w:	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.13	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 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

LIQUEFACTION ANALYSIS REPORT

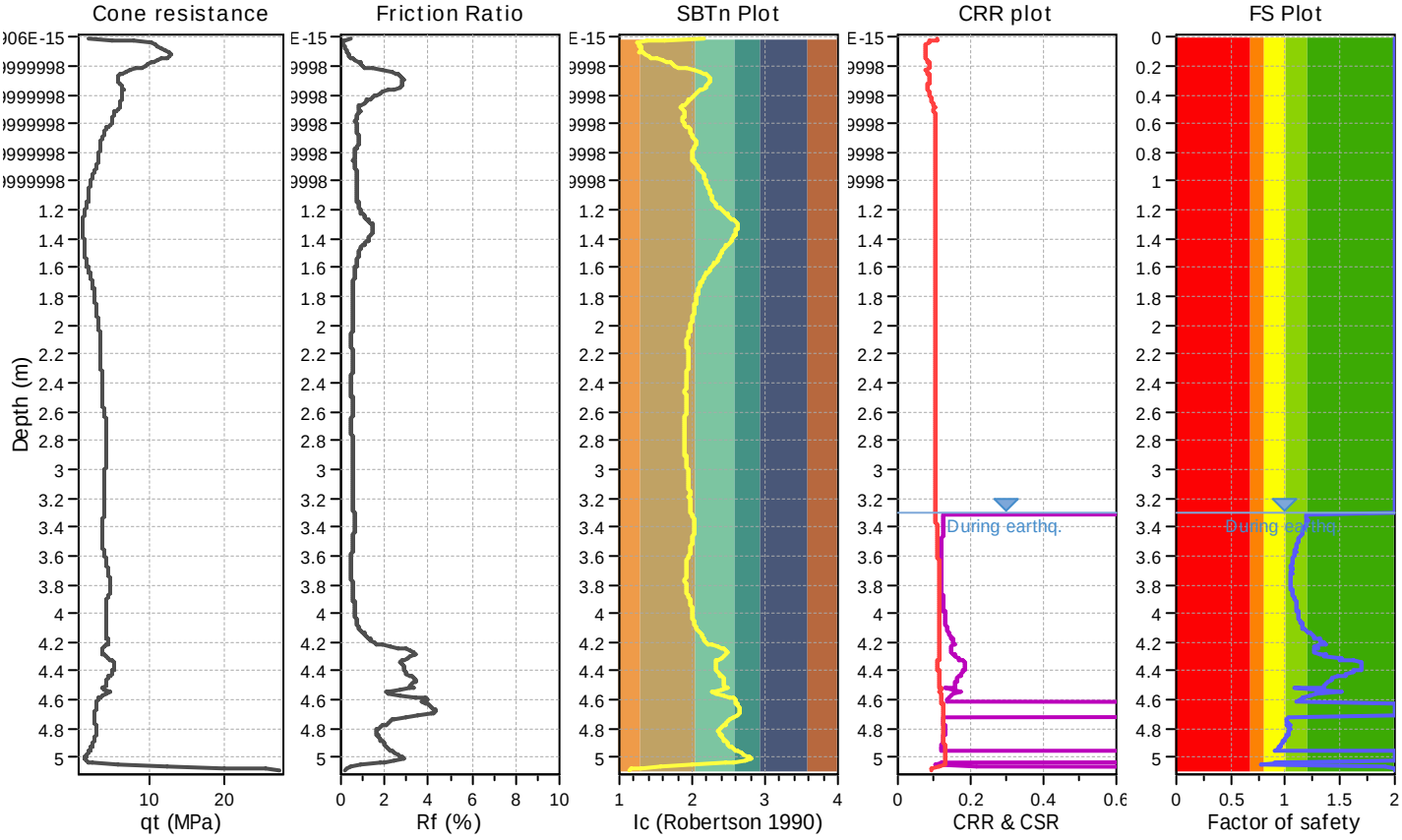
Project title : T&L Henwood Family Trust

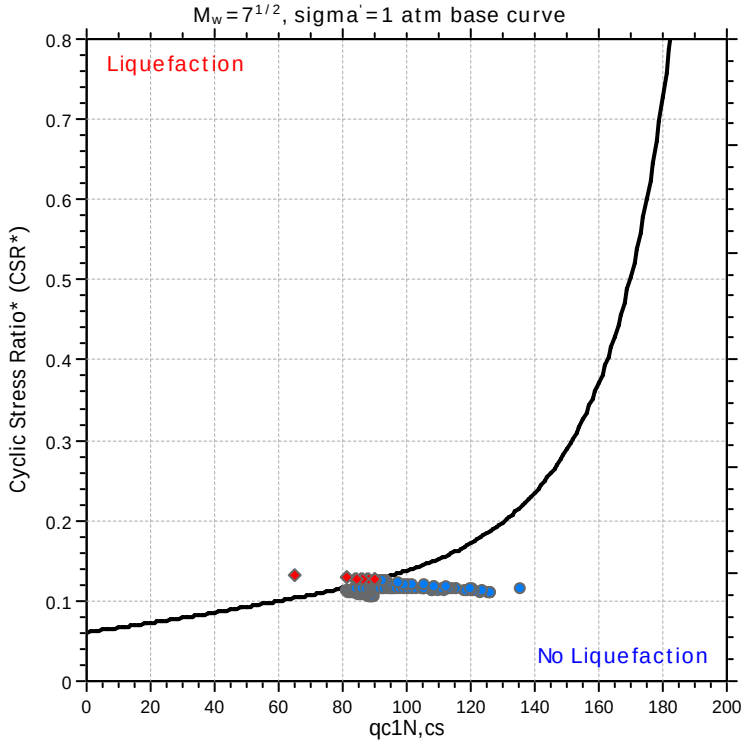
Location : 116-118 Marsden Road

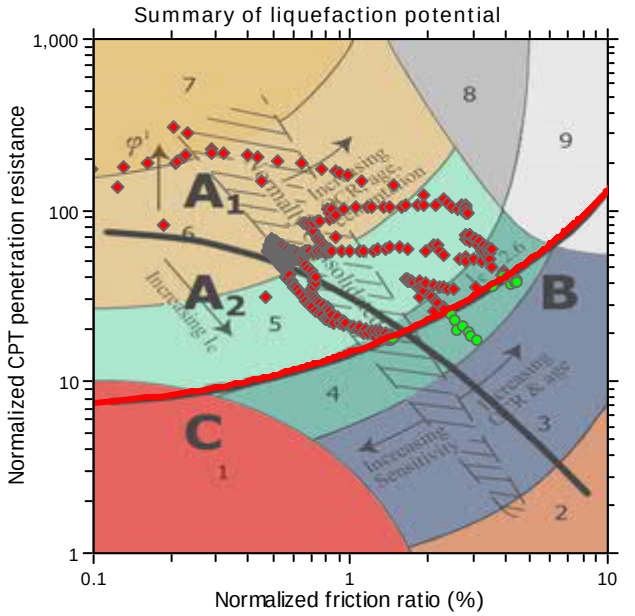
CPT file : CPT01

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.30 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.30 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
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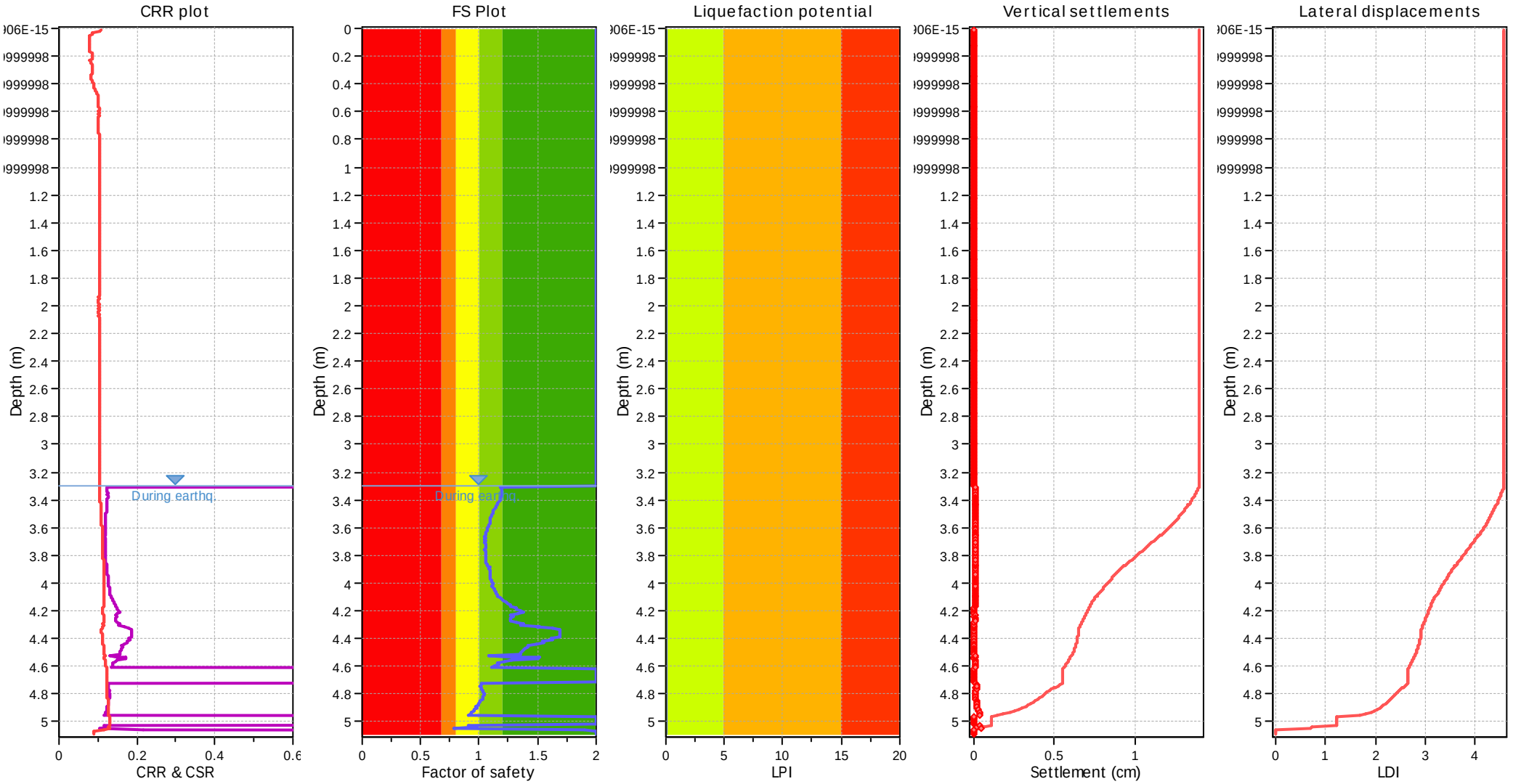
Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.30 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_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.30 m	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

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LPI color scheme

- Very high risk
- High risk
- Low risk

LIQUEFACTION ANALYSIS REPORT

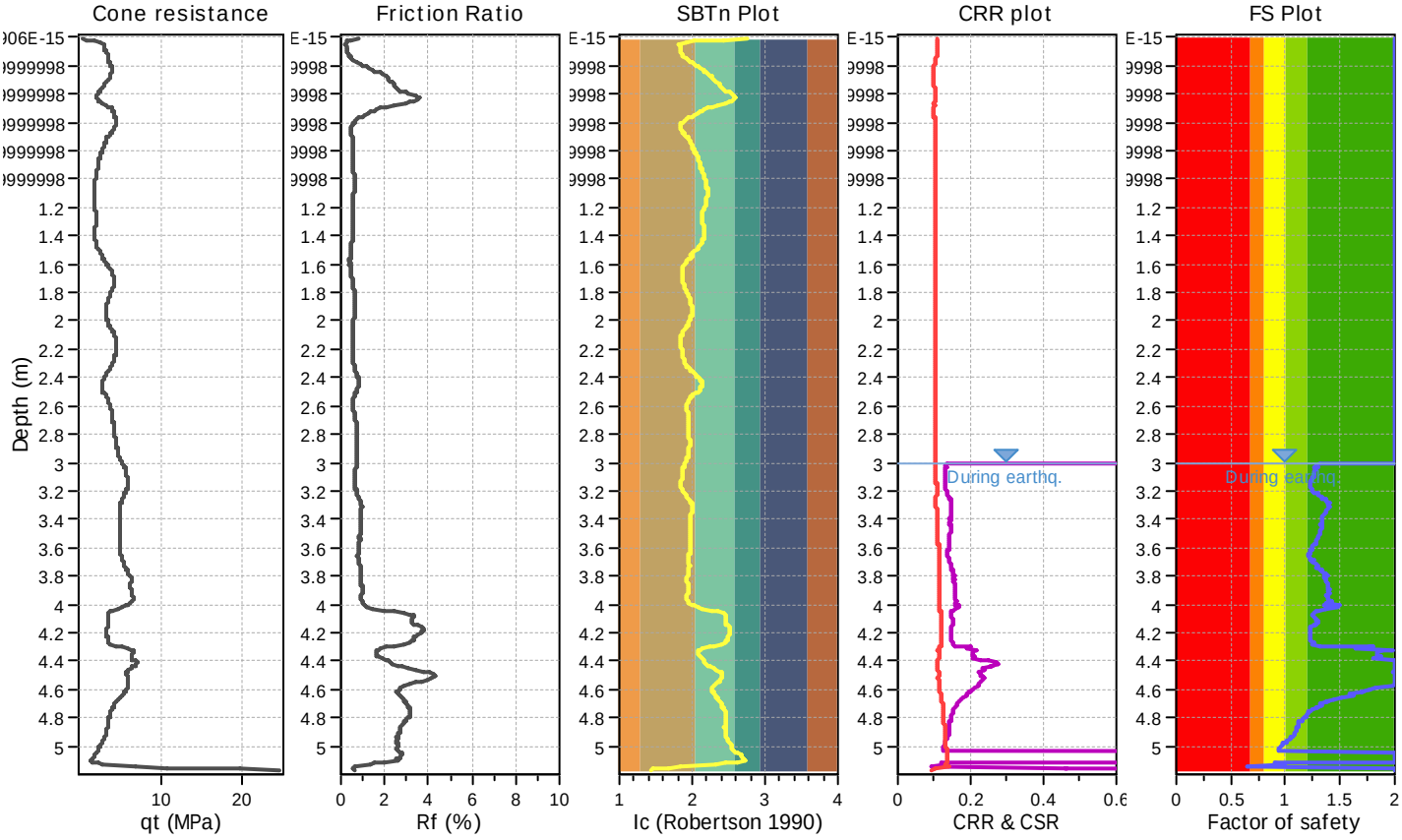
Project title : T&L Henwood Family Trust

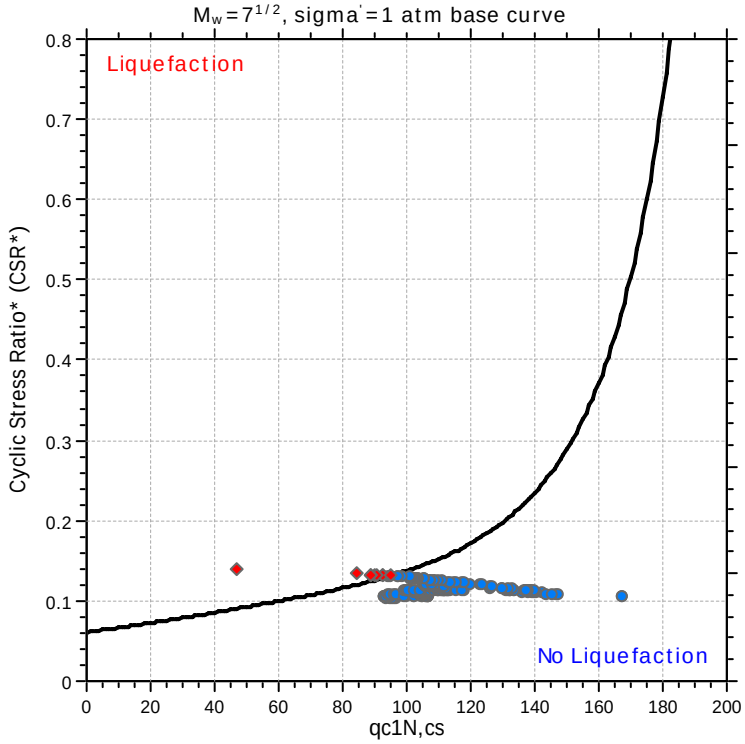
Location : 116-118 Marsden Road

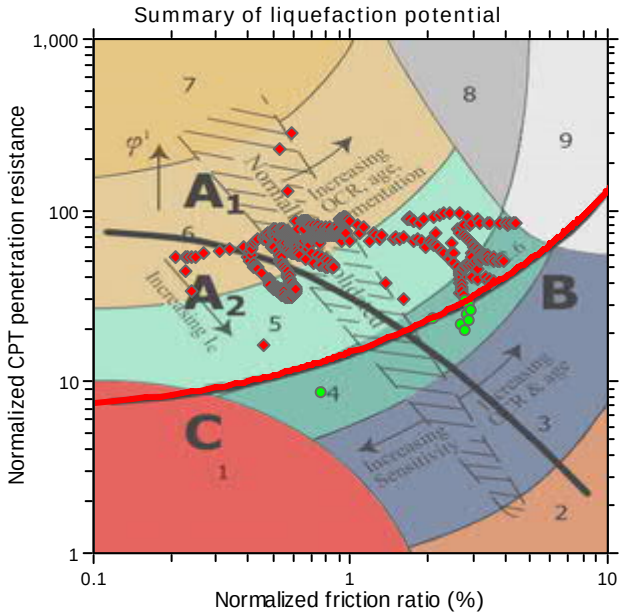
CPT file : CPT02

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
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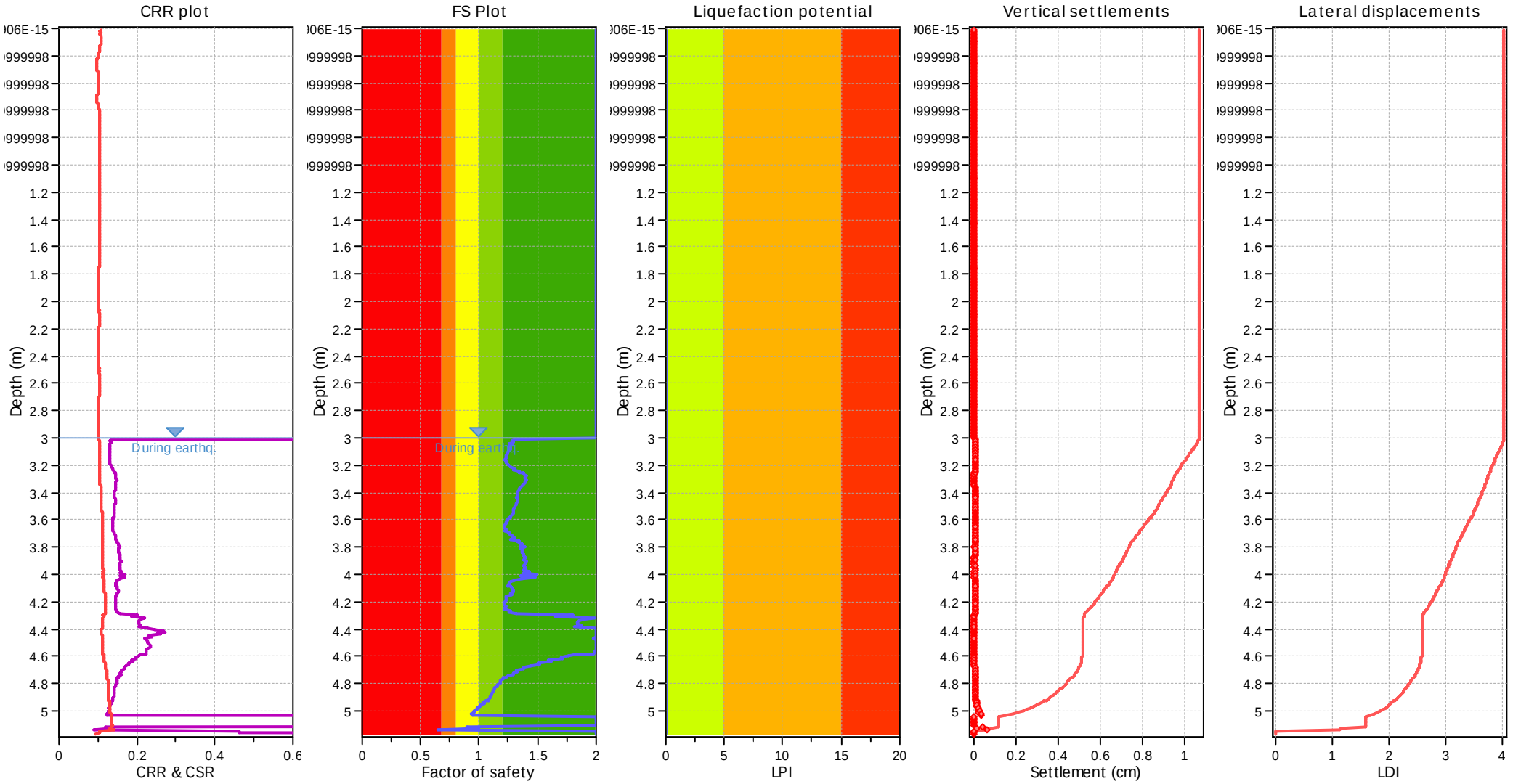
Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 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_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 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
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LPI color scheme

- Very high risk
- High risk
- Low risk

LIQUEFACTION ANALYSIS REPORT

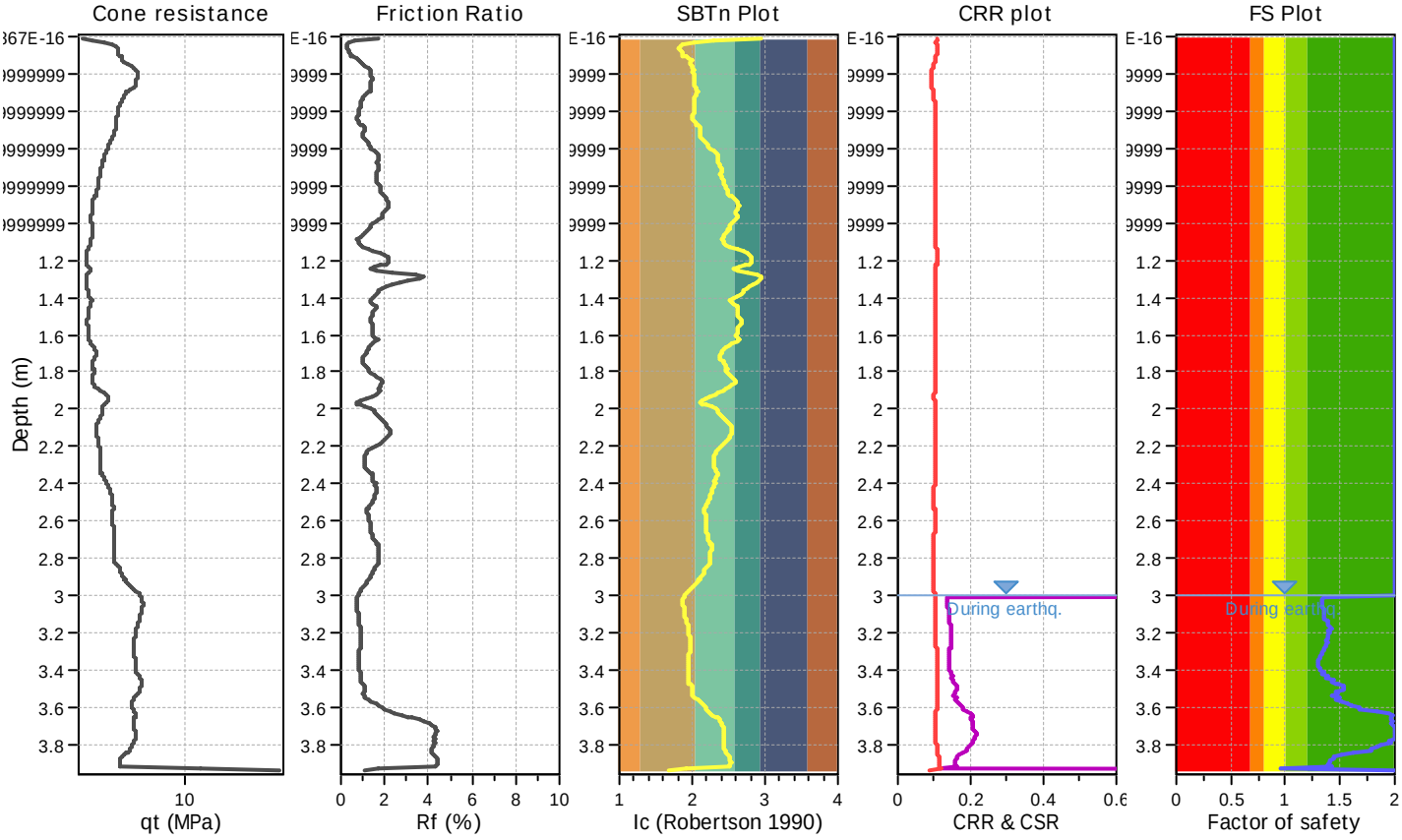
Project title : T&L Henwood Family Trust

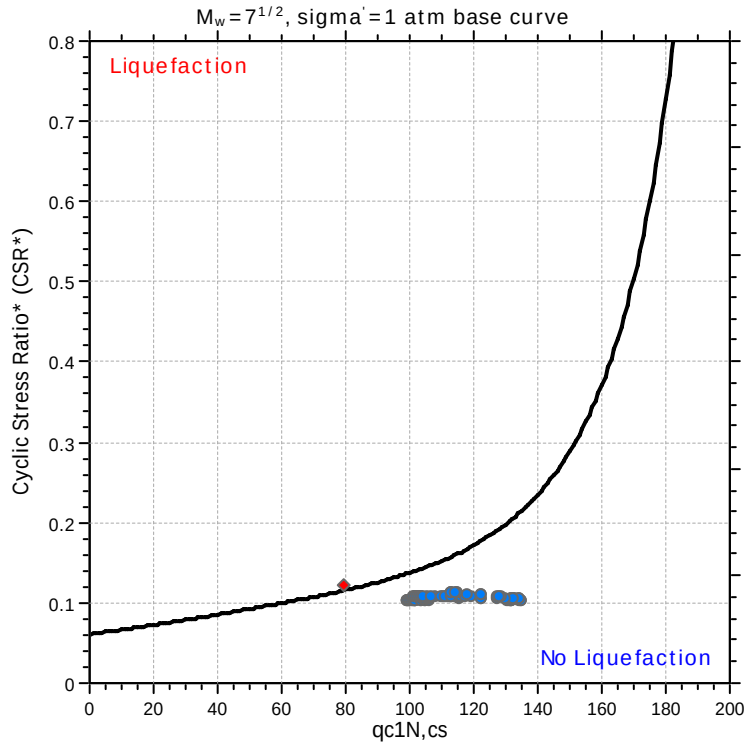
Location : 116-118 Marsden Road

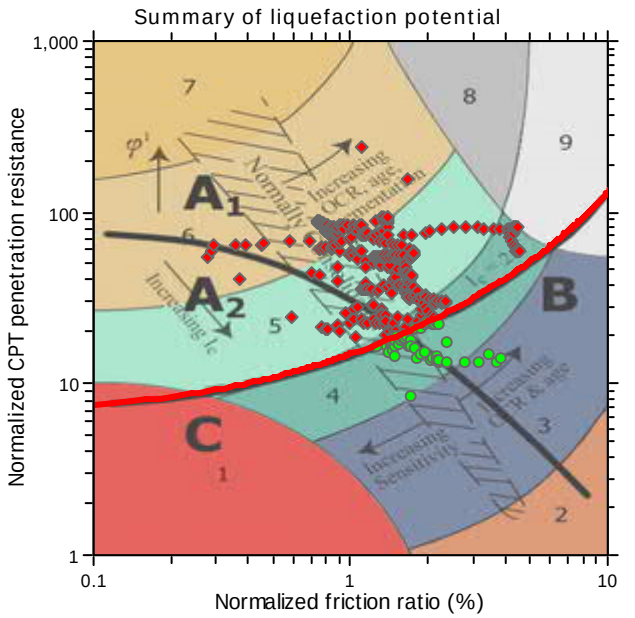
CPT file : CPT03

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

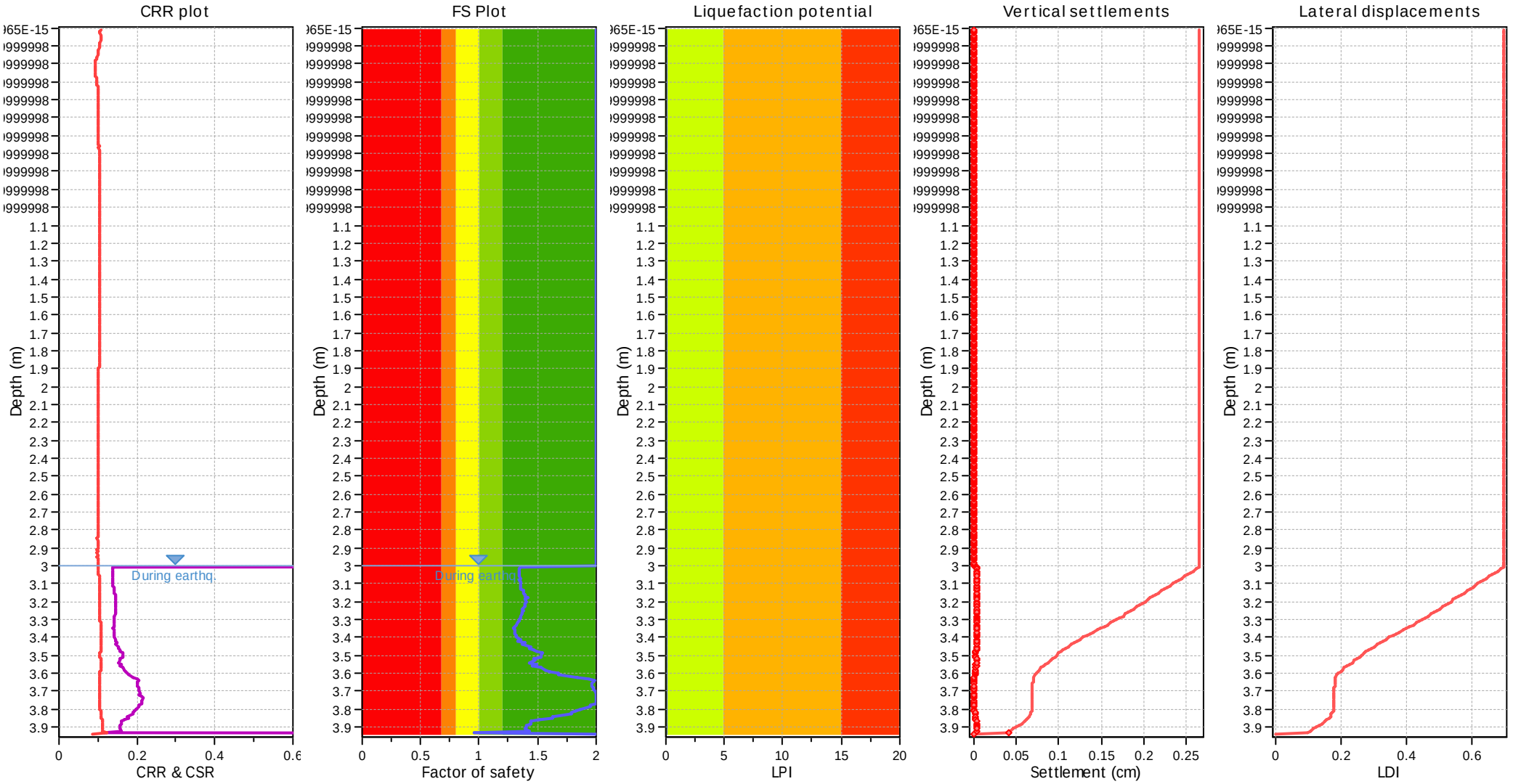






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 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_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 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

LIQUEFACTION ANALYSIS REPORT

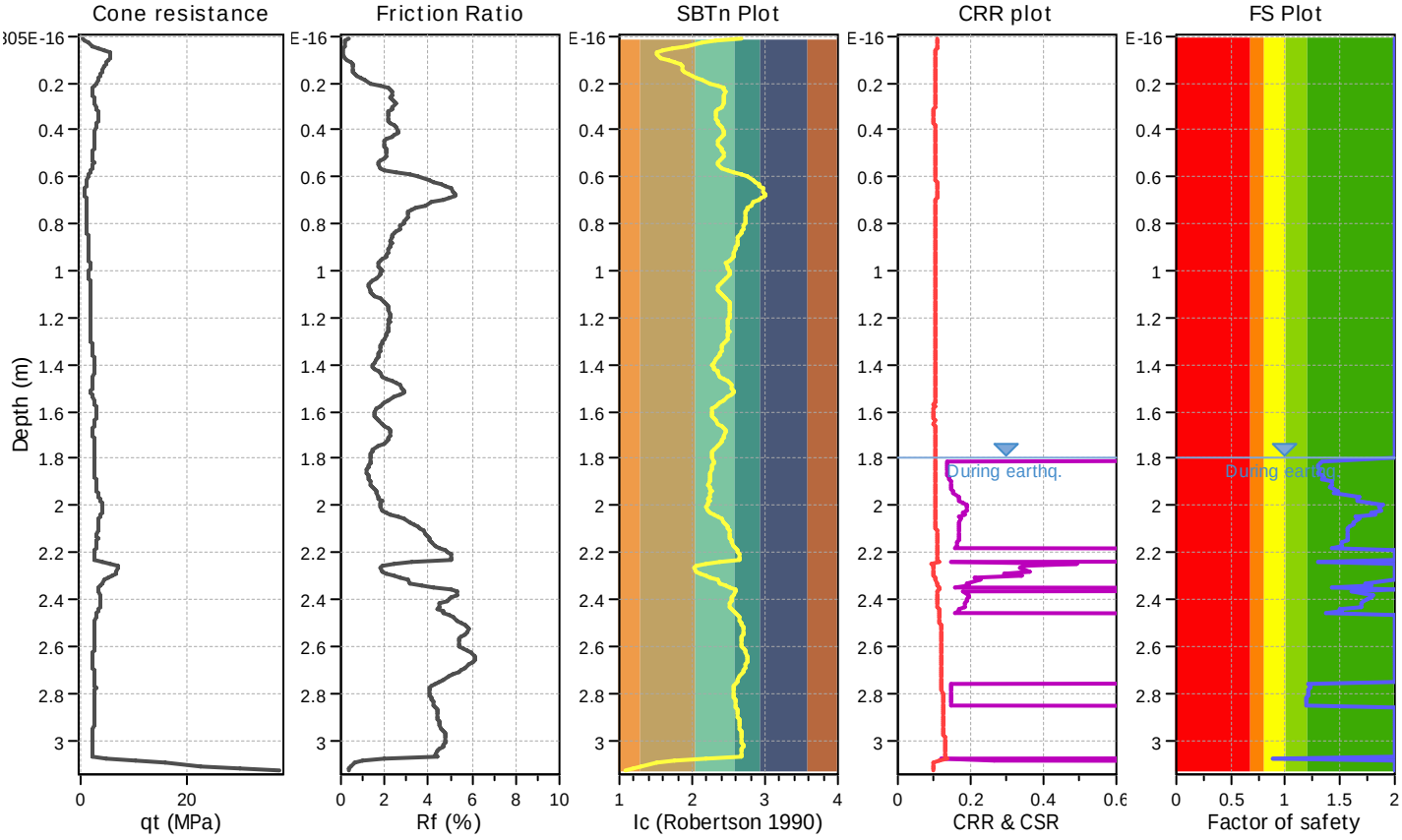
Project title : T&L Henwood Family Trust

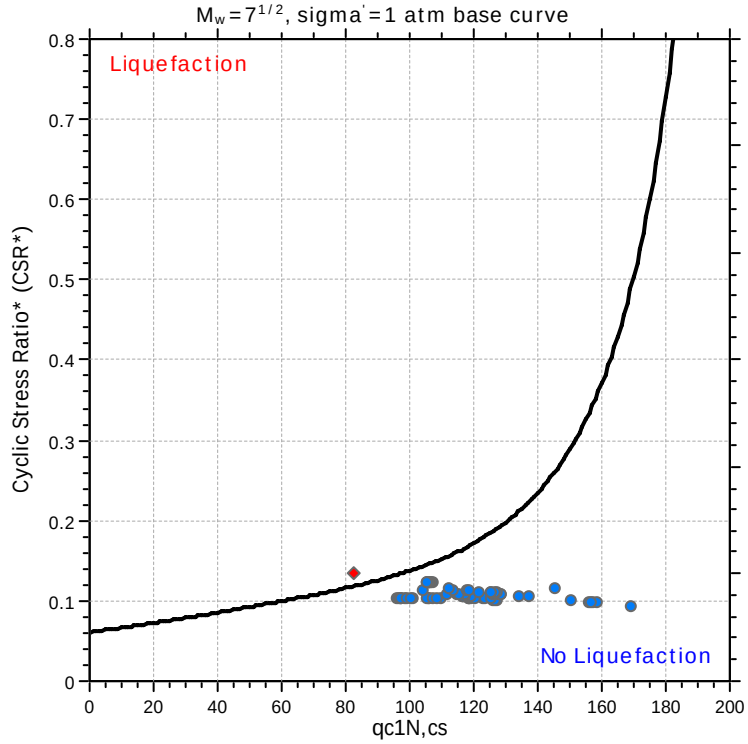
Location : 116-118 Marsden Road

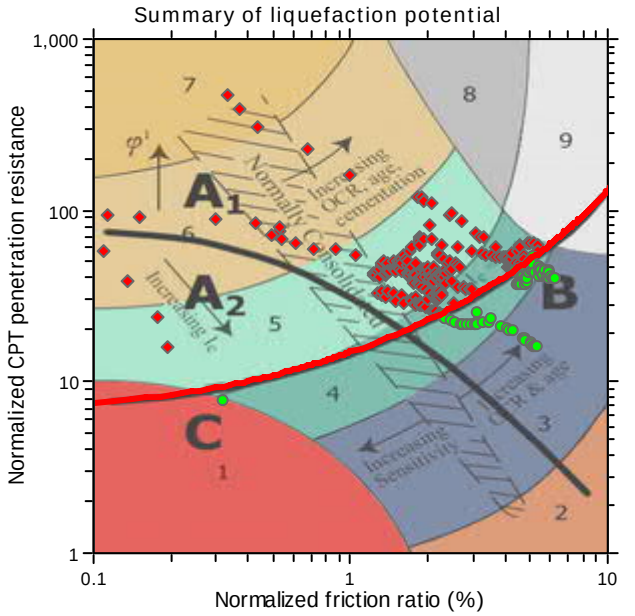
CPT file : CPT04

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.80 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.80 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

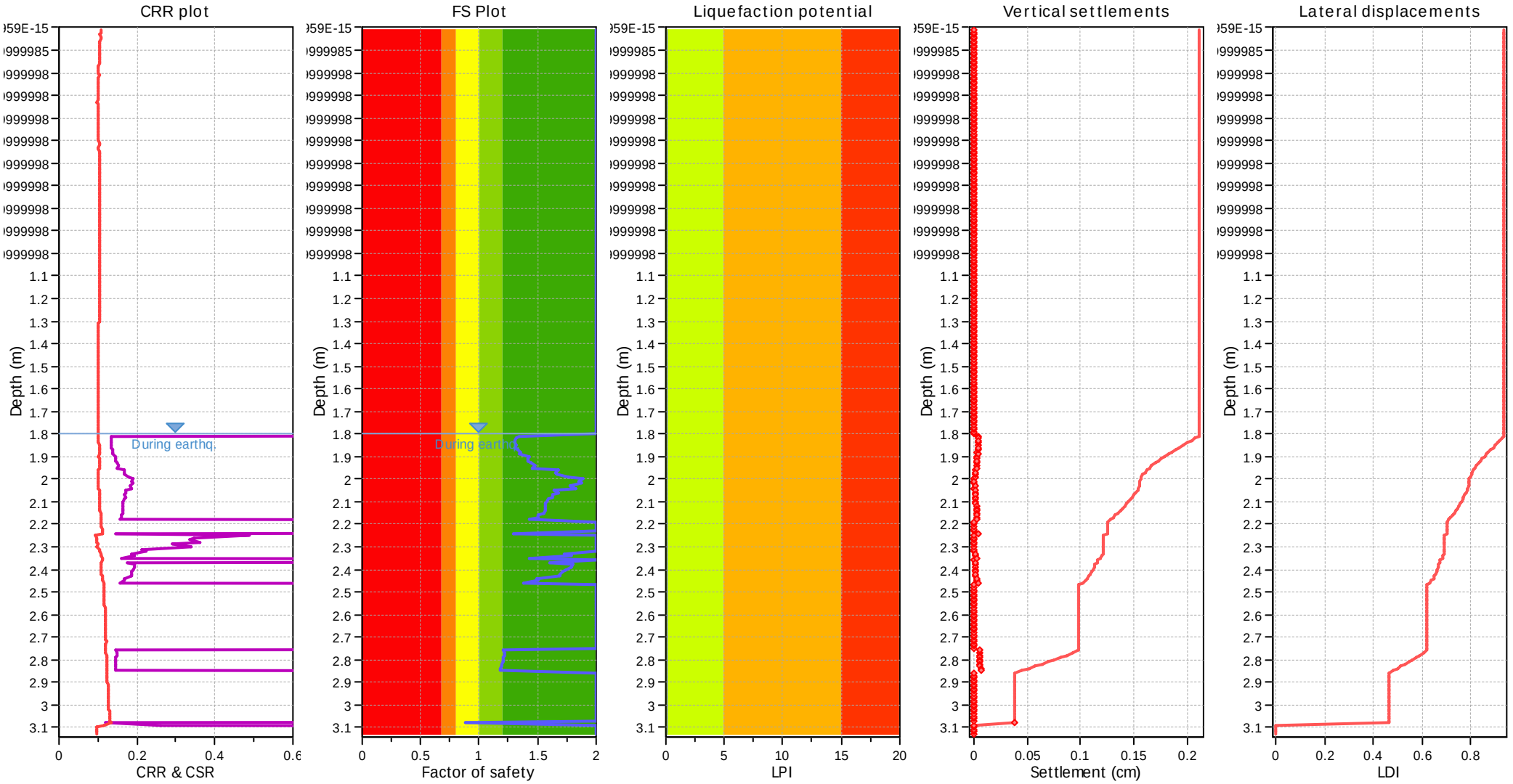






Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
Zone A_2: Cyclic liquefaction and strength loss likely depending on loading and ground geometry
Zone B: Liquefaction and post-earthquake strength loss unlikely, check cyclic softening
Zone C: Cyclic liquefaction and strength loss possible depending on soil plasticity, brittleness/sensitivity, strain to peak undrained strength and ground geometry

Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	1.80 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_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.80 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

LIQUEFACTION ANALYSIS REPORT

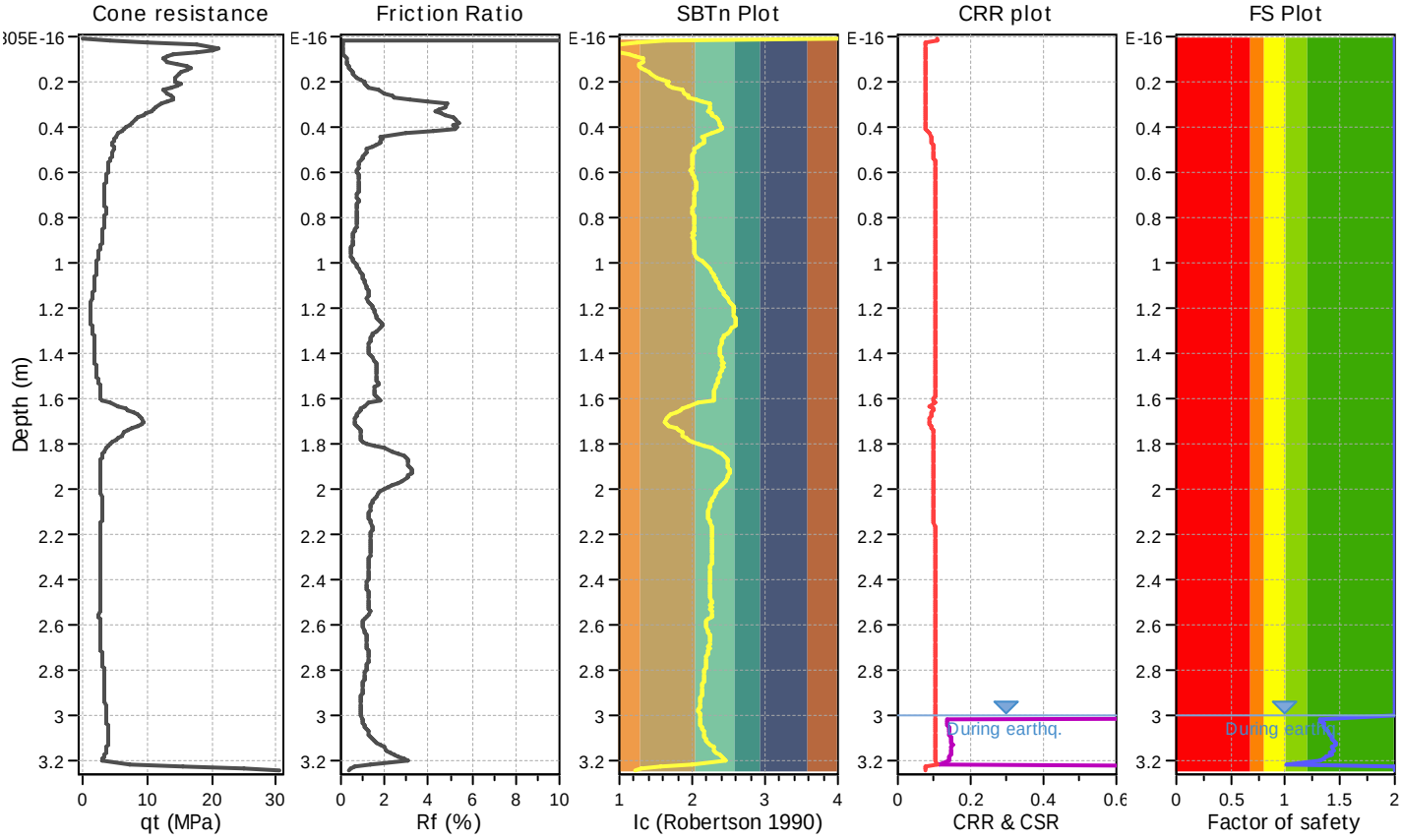
Project title : T&L Henwood Family Trust

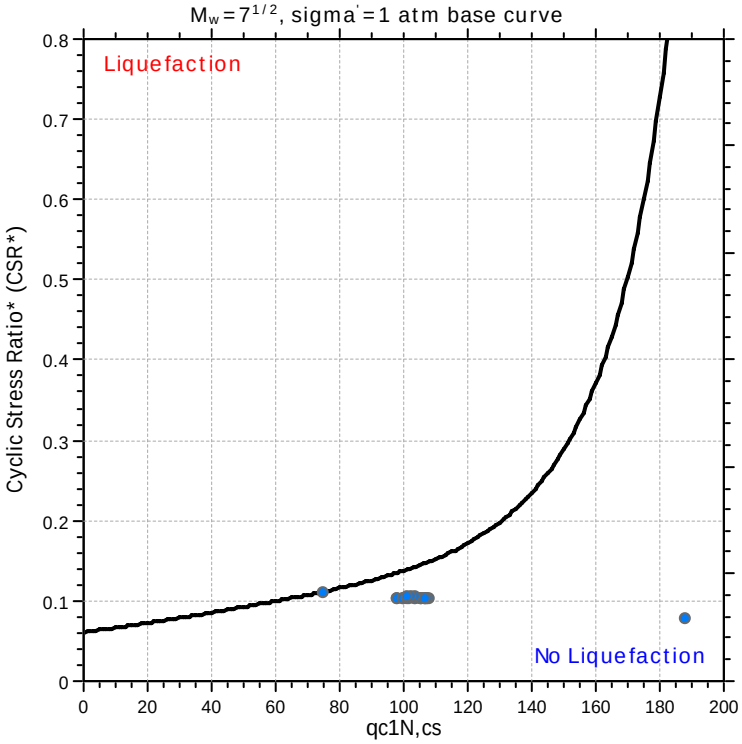
Location : 116-118 Marsden Road

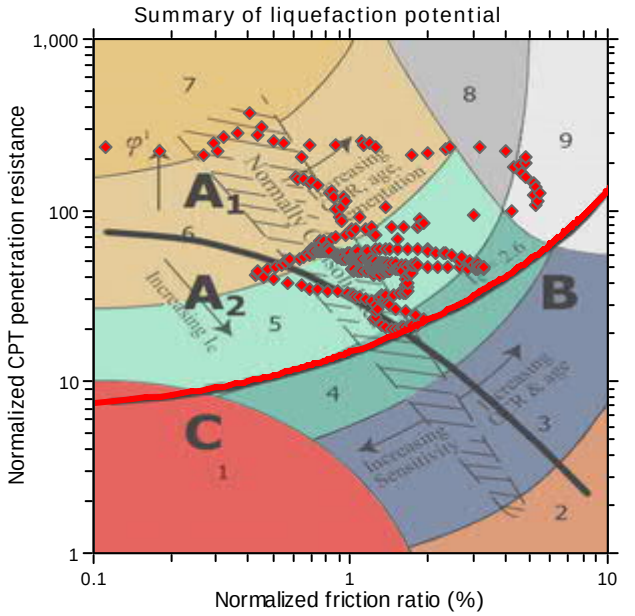
CPT file : CPT05

Input parameters and analysis data

Analysis method:	B&I (2014)	G.W.T. (in-situ):	3.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	3.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.50	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method
Peak ground acceleration:	0.19	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		







Zone A_1: Cyclic liquefaction likely depending on size and duration of cyclic loading
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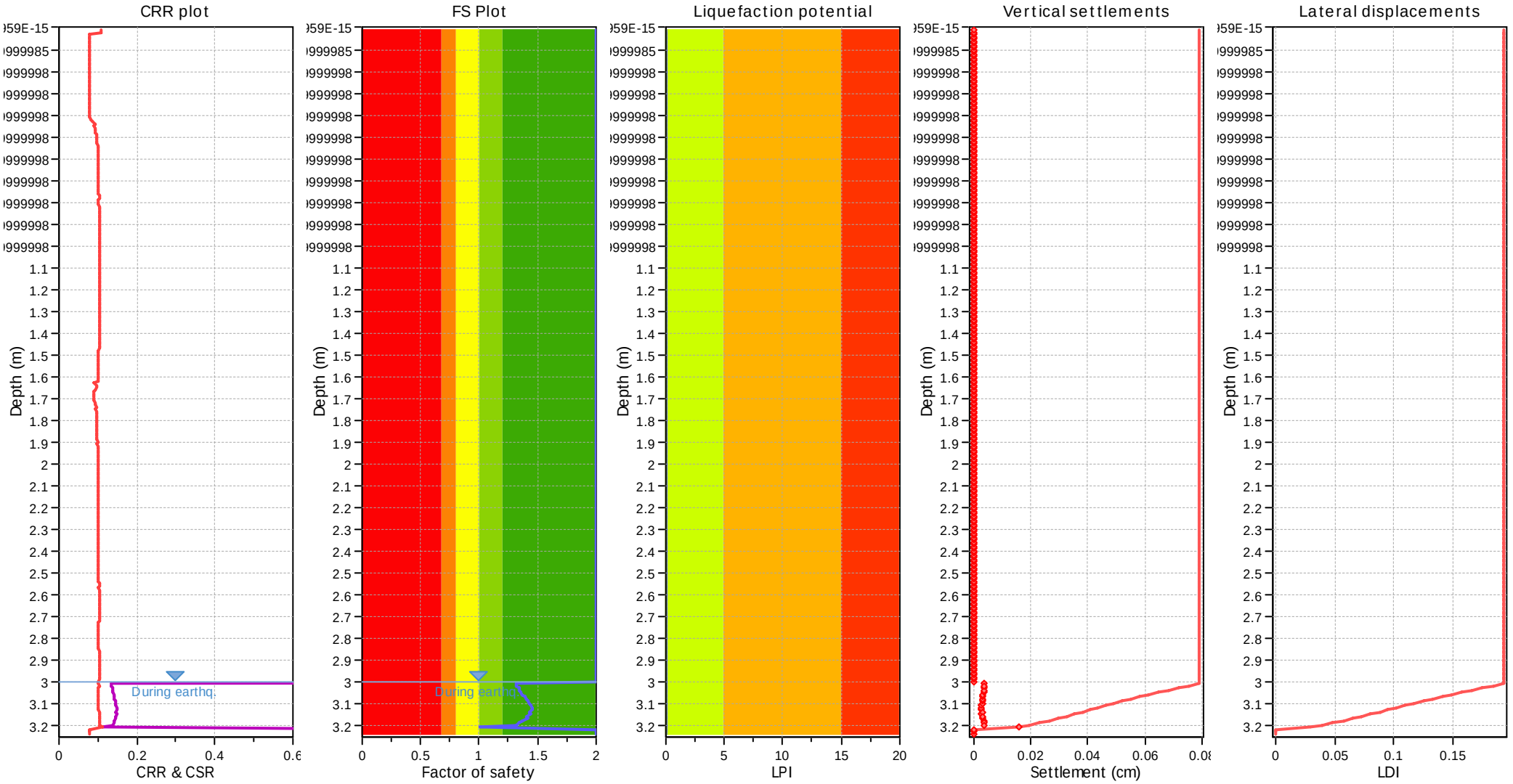
Liquefaction analysis overall plots



Input parameters and analysis data

Analysis method:	B&I (2014)	Depth to GWT (erthq.):	3.00 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_σ applied:	Yes
Earthquake magnitude M_w:	6.50	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.19	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	3.00 m	Fill height:	N/A	Limit depth:	N/A

F.S. color scheme

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LPI color scheme

- Very high risk
- High risk
- Low risk

Appendix 8

Civil Site Suitability Report

CIVIL SUITABILITY REPORT

116 & 118 Marsden Road,

Paihia

(Lots 1 & 2 DP 39526)

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

CIVIL SUITABILITY REPORT

116 & 118 Marsden Road,

Paihia

(Lots 1 & 2 DP 39526)

Report prepared for: Terry and Leisa Henwood

Report reference: 19451

Date: 13 March 2025

Revision: 1

Document Control

Date	Revision	Description	Prepared by:	Reviewed by:	Authorised by:
13/03/2025	1	Building and Resource Consent Issue	S Scott Compton	C Hay	M Jacobson

Contents

Appendices

File: 19451
13 March 2025
Revision: 1

CIVIL SUITABILITY REPORT

116 & 118 Marsden Road, Paihia

(Lots 1 & 2 DP 39526)

1.0 Introduction

RS Eng Ltd (RS Eng) has been engaged by Terry and Leisa Henwood to investigate the suitability of their properties (Lots 1 & 2 DP 39526) for residential construction. The purpose of this report is to assess the civil suitability of the building site assessing three waters management and undertaking detail the design of a stormwater attenuation system.

The client proposes to construct three, three-storey apartments containing basement garages, covered decking.

2.0 Site Description

The 1130m^2 and 1260m^2 properties are situated south of Marsden Road where the beachfront along this area contains a playground, roadside parking and approximately 10-15m of grassed reserve. The buildings are located at the base of a steep, northern facing slope.

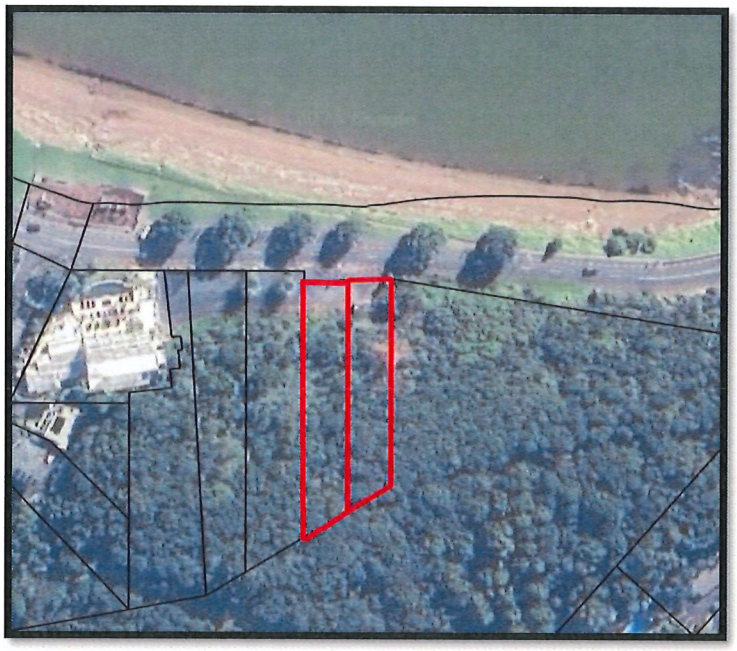


Figure 1: Lot 2 DP 39526, Lot 1 DP 39526

3.0 Desk Study

3.1 Referenced/Reviewed Documents

The following documents have been referenced in this report:

- GNS – Geology Of The Kaitaia Area – Isaac – 1996.
- Northland Geotechnical Specialists – 116 & 118 Marsden Road Paihia – 10 March 2023.

4.0 Vehicle Crossings

The two existing vehicle crossings have been created for these properties. The crossings have assessed minimum sight distances of 100m, being in accordance with FNDC ES for posted speed limit of 40km/hr. The crossings shall be maintained to the FNDC ES as part of the proposed development.

5.0 Three Waters Assessment

5.1 Wastewater

It is proposed to construct three, three-bedroom units. Connection to the Council sewer scheme is proposed via a low-pressure connection that discharges to the manhole on Davis Crescent. It is proposed to have a single pump per unit, each accommodating a minimum storage of 825L per unit and therefore having 24-hours of storage available as per the FNDC ES. The client has advised that an existing 40mm rising main discharging to the council manhole has been installed for this property. This line has adequate capacity for the proposed pump systems.

5.2 Water Supply/ Fire-fighting Supply

Water and fire-fighting supply shall be via the council water supply scheme. An existing fire hydrant is located outside the property within the road reserve being located within 135m of the development.

5.3 Stormwater Attenuation

The roof of the units is proposed to have an area of 413m^2, and a driveway has also been proposed in place of an existing metalled car park and a portion of driveway. Newly formed impervious surfaces of 413m^2 are therefore proposed to be attenuated. It is proposed to collect the roof runoff into two, 5,000L slimline tanks, refer to Table 1 below.

The Far North District Council (FNDC) Engineering Standards (ES) requires attenuation of stormwater runoff from any increase in impervious areas so that post-development peak flows are less than 80% of pre-development. The FNDC ES specifies that the flows be attenuated for the 50% and 20% Annual Exceedance Probability (AEP) events where stormwater discharge to a downstream catchment with ample capacity, for this site being coastal.

The pre-development and post-development runoff flows were modelled using HydroCAD. The United States Department of Agriculture Technical Release 55 (TR55) Type 1A method was adopted for calculating the run-off flow, using rainfall depths from HIRDS 4 (High Intensity Rainfall Design System, NIWA) including an additional 20% rainfall depth to account for climate change. The subsoils have been assessed as Heavy Clays, designated as Group D soils with good grass cover. Table 1 includes a summary of the stormwater attenuation modelling.

Table 1: Stormwater Attenuation Design Summary

	Pre-development		**Post-development**	
Permeable Area (m^2) Grassed	413		0	
Impervious Area (m^2) Roof	0		413	
Peak flow l/s	50% AEP	20% AEP	50% AEP +20%	20% AEP +20%
From surfaces	1.73	2.61	3.43	4.56
80% (design flows reqd.)	**1.38**	**2.09**		
Total attenuated flows			**1.29**	**2.08**
Tank storage required			8.0m^3	10.8m^3
Attenuation Tank Summary				
Tank	X2 5,000L Slimline Tanks			
Tank Dimensions	0.915mW x 3.0mL x 2.15mH			
Individual Slimline Tank Requirements				
	Diameter		**Depth from overflow**	
Primary Orifice	16mm		2.0m	
Secondary Orifice	14mm		0.5m	

5.4 Stormwater Disposal

Uncontrolled and concentrated stormwater discharges can result in erosion and slope instability. RS Eng recommends that stormwater overflow from the attenuation tanks be piped to the existing kerb connection west of the existing crossing.

6.0 Limitations

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

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

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

Prepared by:

Sarah Scott Compton
Senior Technician
NZDE(Civil)

Reviewed by:

Codie Hay
Senior Technician
NZDE(Civil)

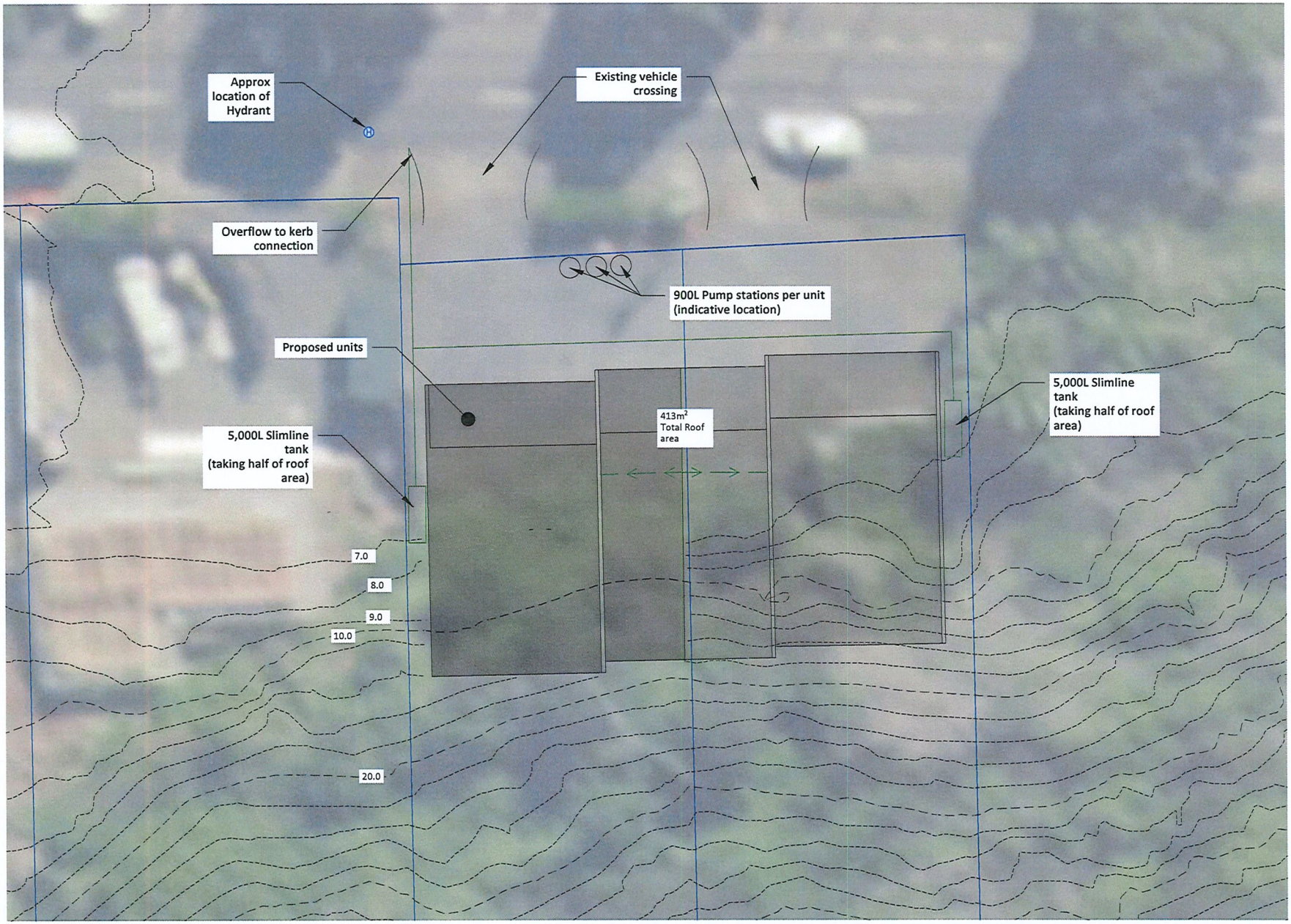
Approved by:

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

RS Eng Ltd

Appendix A

Drawings



NOTES:

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

N

LEGEND

— SW — Stormwater Pipe

Contour Interval: 1.0m
Vertical Datum: OTP64
Survey Data Source: LiDAR (2018)

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

CIVIL PLAN
SITE PLAN

Client: Leisa Henwood
Location: 116 & 118 Marsden Road, Paihia

Date	Rev	Notes
20/12/2024	A	Original Issue

Drawn by: AST | Reviewed by: SS | Approved by: MJ

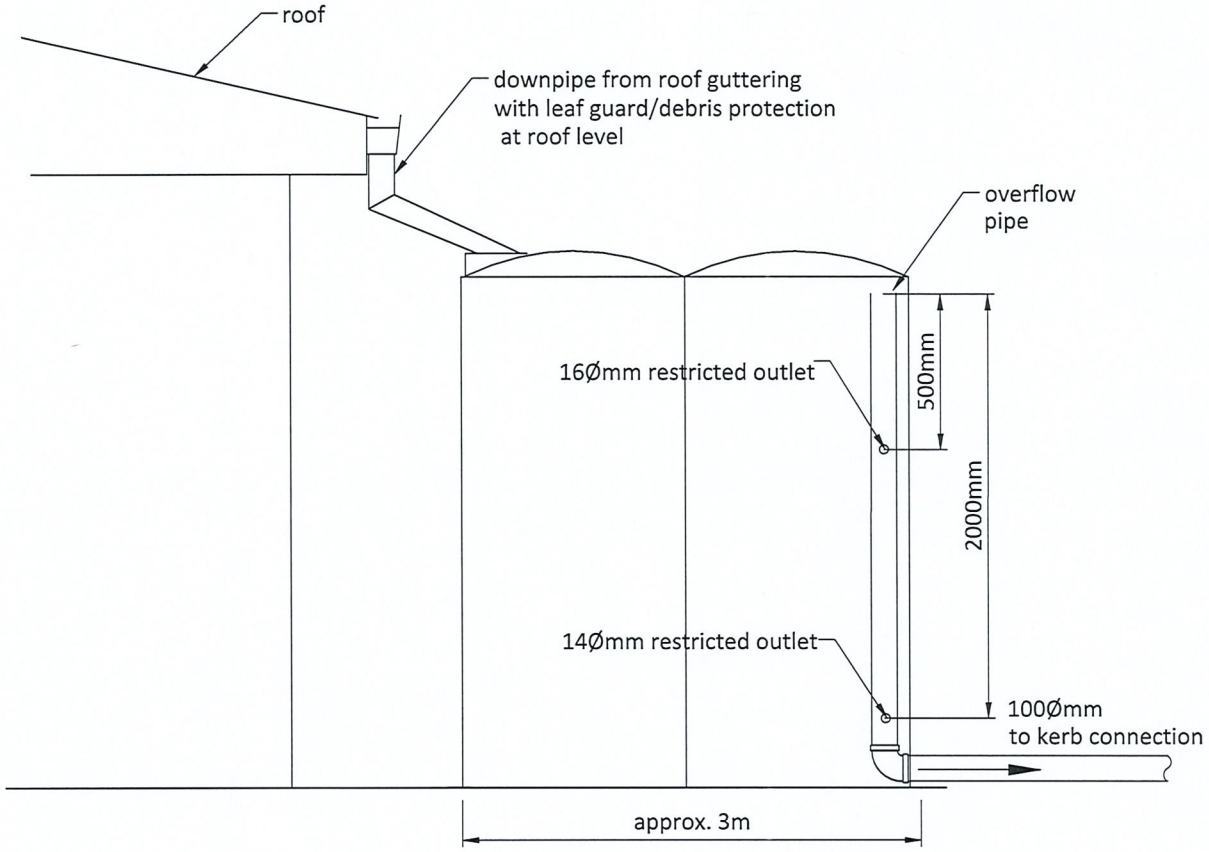
Scale: 1:200
Original: A3
Job No.: 19451
Rev No.: A
Sheet No.: C01

Appendix B

Stormwater Attenuation Design and Details

NOTES:

- All services should be located on-site prior to commencement of works.
- All works to comply with all relevant local authority by-laws and council regulations where applicable.
- Contractors to confirm all dimensions on site prior to commencing any work.
- Do not scale off drawings.
- These drawings are to be read in conjunction with specifications - plans take precedence.
- If any part of these documents are unclear, please contact RSEng Ltd.
- This plan is copyright to RSEng Ltd and should not be reproduced without prior permission.



STORMWATER ATTENUATION 2X 5000L SLIMLINE TANKS

NTS

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

Title
STORMWATER ATTENUATION
SLIMLINE TANKS DETAIL

Client
T & L HENWOOD

Location
116 & 118 MARSDEN ROAD
PAIHIA

Date	Rev	Notes
15/01/2025	A	Original Issue

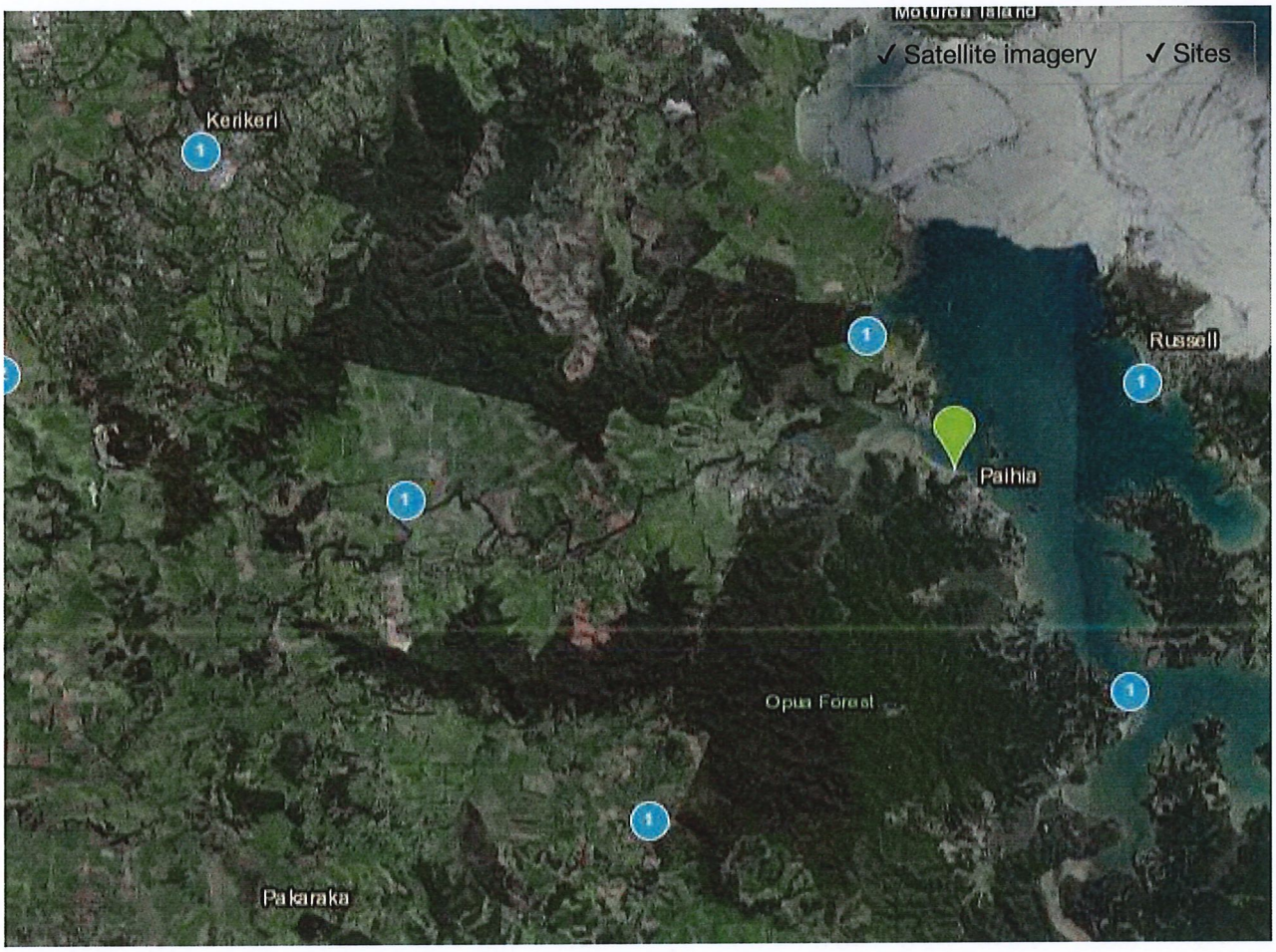
Scale	Original	Rev
NTS	A3	A

Drawn	Approved	File #	Sheet
SS	MJ	19451	1

High Intensity Rainfall Design System V4 (/)

Location

Address search	124, Marsden Road, Paihia, Bay of Islands-Whangaroa Community, Far North Dist



Site Information

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

Latitude	-35.2789818
Longitude	174.0872025

Site Name	Custom Location

Site Id	

Output Table Format

- (●) Depth - Duration - Frequency
- ( ) Intensity - Duration - Frequency

Generate Report

Results

Spreadsheet Download

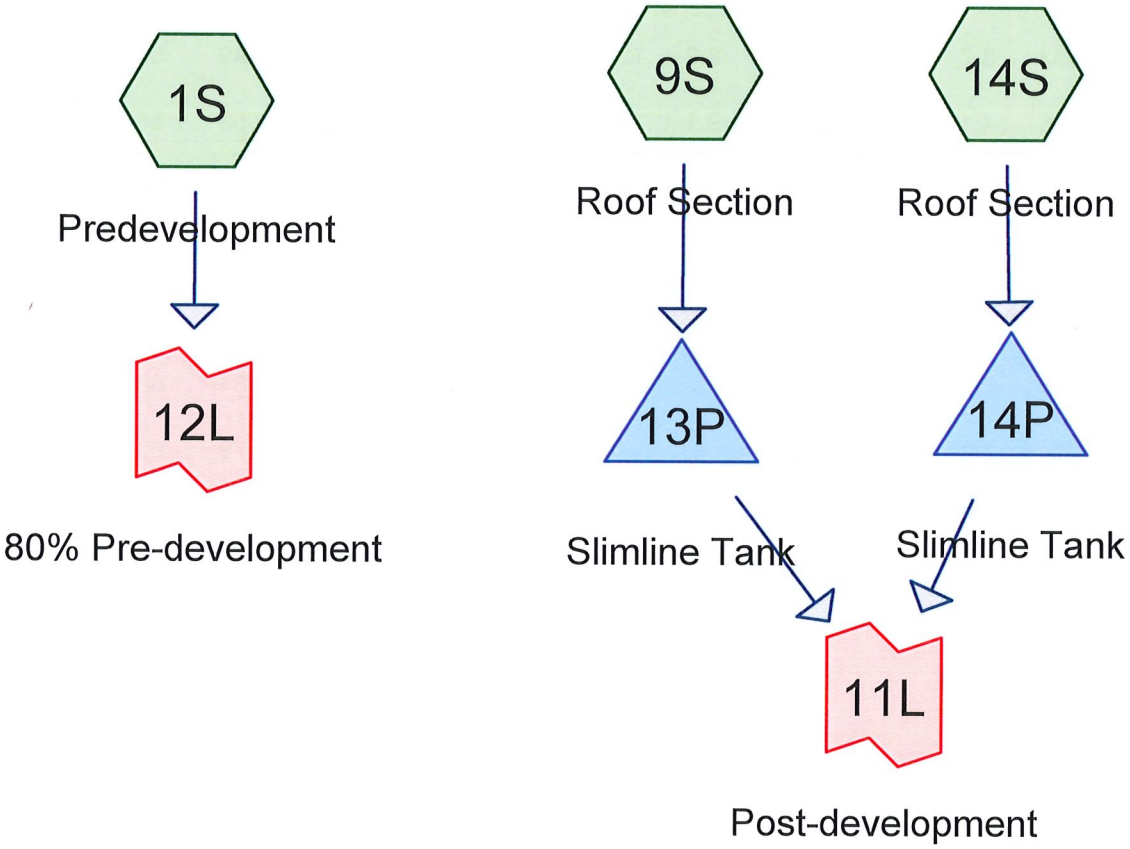
Site Details | Historical Data | RCP2.6 Scenario | RCP4.5 Scenario | RCP6.0 Scenario | RCP8.5 Scenario

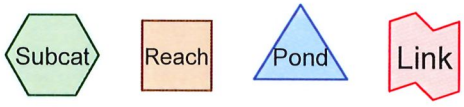
Rainfall depths (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	11.0	15.8	19.4	27.4	38.0	60.6	78.1	96.8	115	123	129	132
2	0.500	12.1	17.3	21.3	30.0	41.7	66.6	85.8	106	126	136	142	145
5	0.200	15.7	22.5	27.7	39.1	54.4	87.1	113	140	166	179	187	192
10	0.100	18.3	26.3	32.4	45.8	63.8	102	132	165	195	211	220	226
20	0.050	21.0	30.2	37.2	52.7	73.3	118	153	190	226	244	255	262
30	0.033	22.6	32.5	40.0	56.7	79.0	127	165	205	244	264	276	283
40	0.025	23.7	34.1	42.0	59.6	83.1	134	173	216	257	278	291	299
50	0.020	24.6	35.4	43.6	61.9	86.3	139	180	225	267	289	302	311
60	0.017	25.3	36.4	44.9	63.7	88.9	143	186	232	276	298	312	321
80	0.013	26.4	38.0	46.9	66.6	93.0	150	195	243	289	313	327	336
100	0.010	27.3	39.3	48.5	68.9	96.1	155	201	251	299	324	339	348
250	0.004	30.7	44.3	54.8	77.9	109	176	229	286	341	370	387	398

Depth standard error (mm) :: Historical Data

ARI	AEP	10m	20m	30m	1h	2h	6h	12h	24h	48h	72h	96h	120h
1.58	0.633	1.3	1.7	1.9	2.7	3.6	6.8	9.4	15	18	21	22	23
2	0.500	1.4	1.8	2.1	2.9	4.0	7.4	10	16	20	23	25	26
5	0.200	2.0	2.6	3.1	4.1	5.6	10	14	22	27	32	34	34
10	0.100	2.5	3.5	4.1	5.3	7.3	13	18	27	33	38	40	41
20	0.050	3.2	4.6	5.4	6.9	9.7	17	23	32	39	44	47	48
30	0.033	3.7	5.3	6.3	8.2	12	20	27	35	43	49	52	53
40	0.025	4.1	6.0	7.0	9.1	13	22	30	37	45	52	55	57
50	0.020	4.5	6.5	7.6	10	14	25	33	39	48	55	58	60
60	0.017	4.8	7.0	8.1	11	15	26	35	41	50	57	60	62
80	0.013	5.3	7.8	9.0	12	17	30	39	44	53	61	64	66
100	0.010	5.7	8.5	9.8	13	19	33	43	46	56	64	68	70
250	0.004	7.9	12	13	18	27	47	60	57	69	79	83	86





Routing Diagram for 19451 Stormwater Design v2
Prepared by {enter your company name here}, Printed 21/02/2025

Summary for Subcatchment 1S: Predevelopment

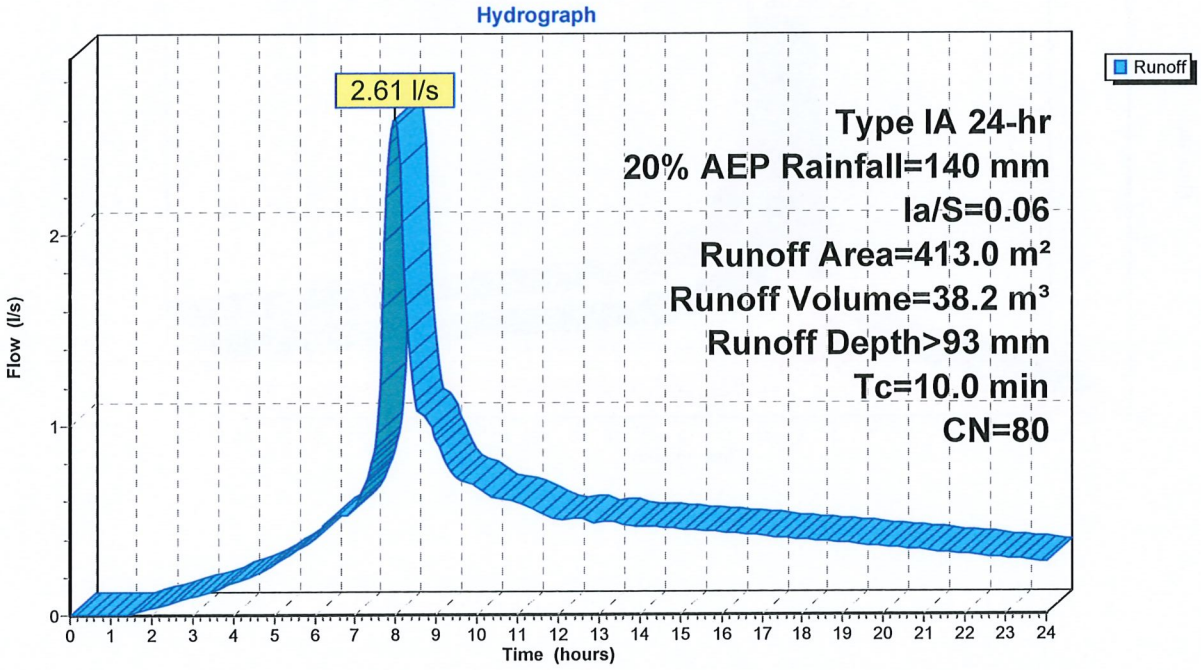
Runoff = 2.61 l/s @ 7.98 hrs, Volume= 38.2 m³, Depth> 93 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 20% AEP Rainfall=140 mm, Ia/S=0.06

Area (m²)	CN	Description
413.0	80	>75% Grass cover, Good, HSG D
413.0		100.00% Pervious Area

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

Subcatchment 1S: Predevelopment

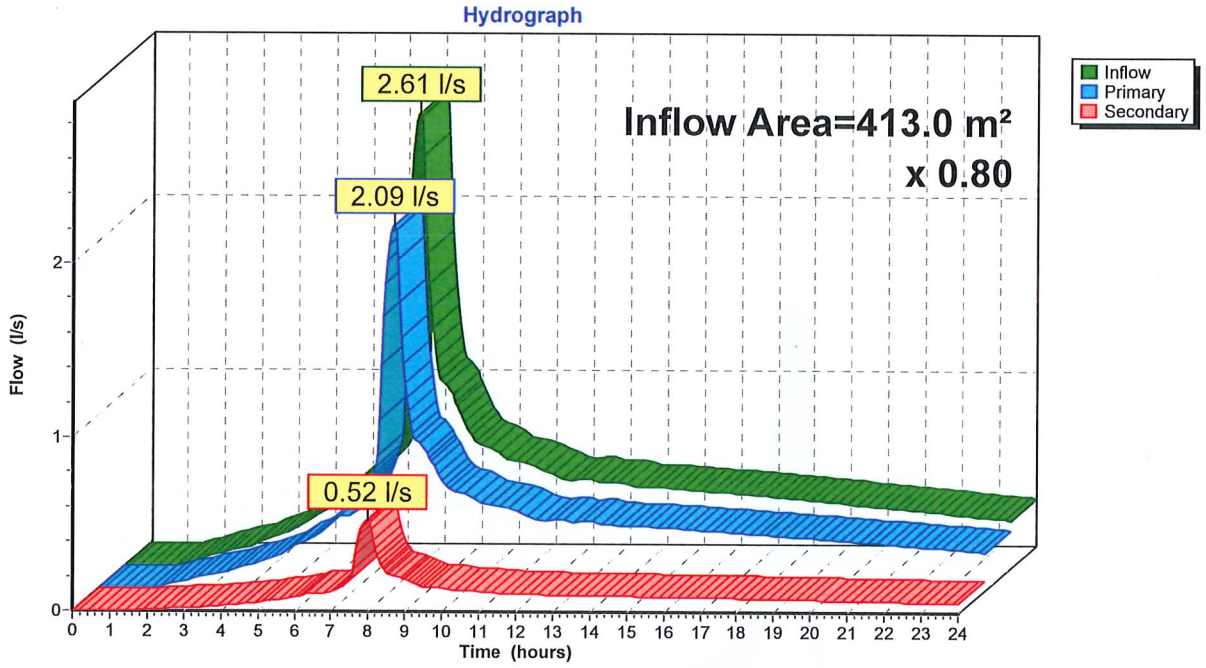


Summary for Link 12L: 80% Pre-development

Inflow Area =	413.0 m²,	0.00% Impervious,	Inflow Depth >	93 mm	for 20% AEP event
Inflow =	2.61 l/s @	7.98 hrs, Volume=	38.2 m³		
Primary =	2.09 l/s @	7.98 hrs, Volume=	30.6 m³,	Atten= 20%,	Lag= 0.0 min
Secondary =	0.52 l/s @	7.98 hrs, Volume=	7.6 m³		

Primary outflow = Inflow x 0.80, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 12L: 80% Pre-development



Summary for Subcatchment 1S: Predevelopment

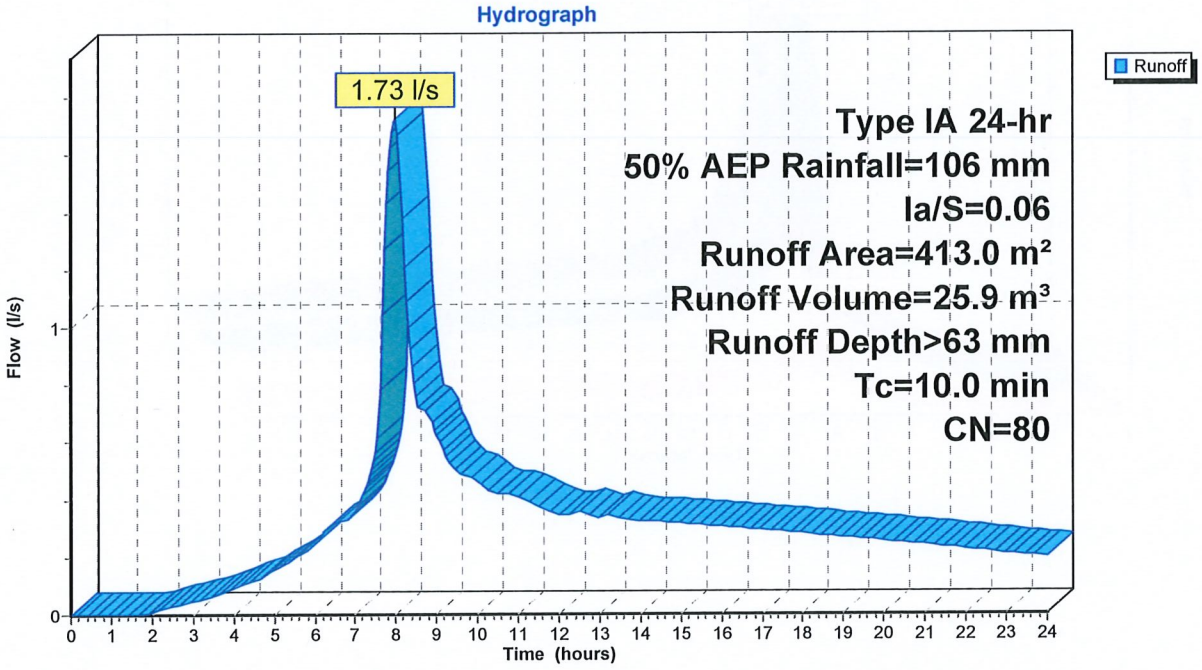
Runoff = 1.73 l/s @ 7.99 hrs, Volume= 25.9 m³, Depth> 63 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50% AEP Rainfall=106 mm, Ia/S=0.06

Area (m²)	CN	Description
413.0	80	>75% Grass cover, Good, HSG D
413.0		100.00% Pervious Area

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

Subcatchment 1S: Predevelopment

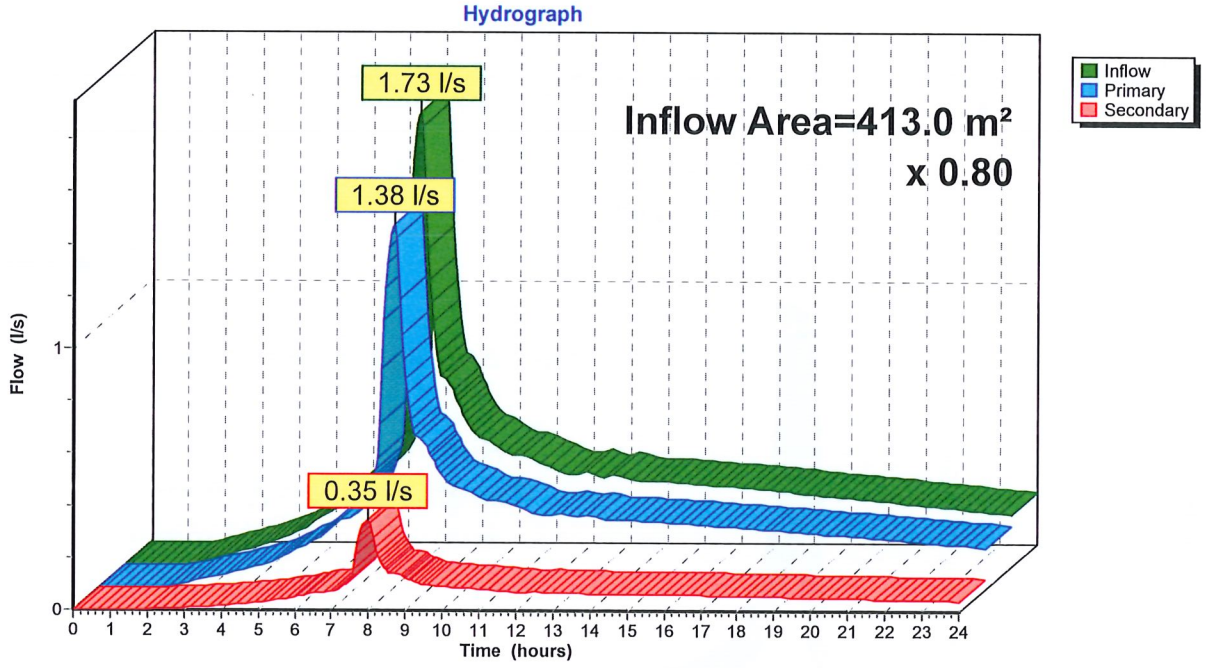


Summary for Link 12L: 80% Pre-development

Inflow Area =	413.0 m²,	0.00% Impervious,	Inflow Depth >	63 mm	for 50% AEP event
Inflow =	1.73 l/s @	7.99 hrs, Volume=	25.9 m³		
Primary =	1.38 l/s @	7.99 hrs, Volume=	20.8 m³,	Atten= 20%,	Lag= 0.0 min
Secondary =	0.35 l/s @	7.99 hrs, Volume=	5.2 m³		

Primary outflow = Inflow x 0.80, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 12L: 80% Pre-development



Summary for Subcatchment 9S: Roof Section

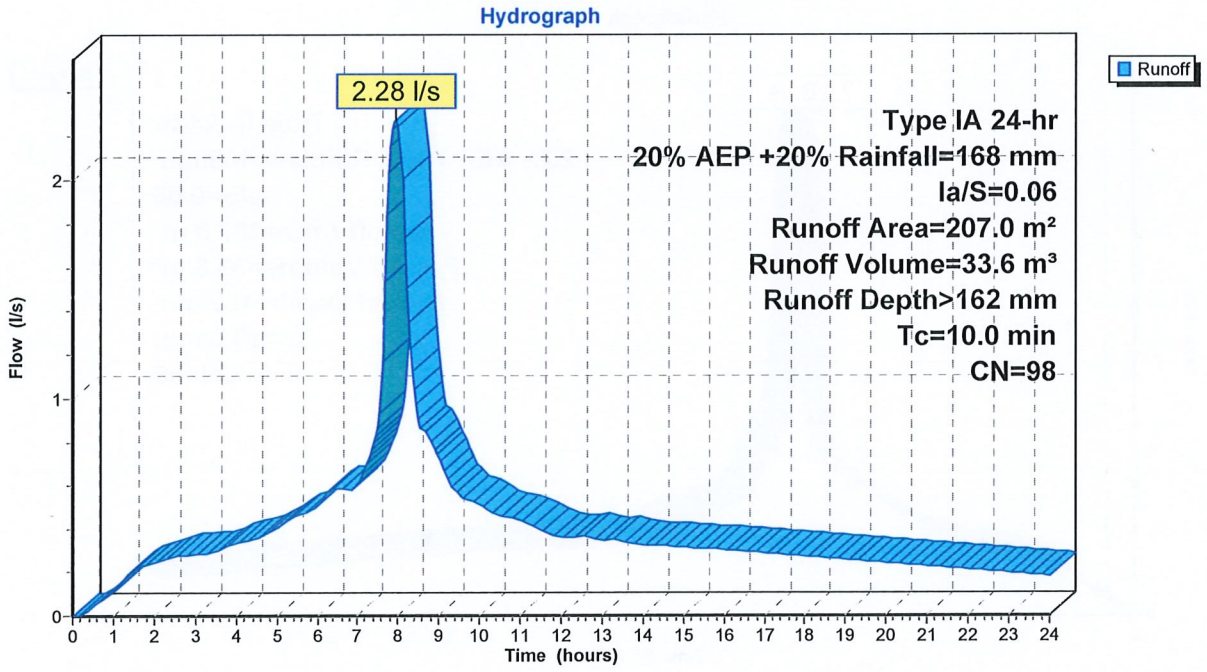
Runoff = 2.28 l/s @ 7.94 hrs, Volume= 33.6 m³, Depth> 162 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 20% AEP +20% Rainfall=168 mm, Ia/S=0.06

Area (m²)	CN	Description
207.0	98	Roofs, HSG D
207.0		100.00% Impervious Area

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

Subcatchment 9S: Roof Section



Summary for Subcatchment 14S: Roof Section

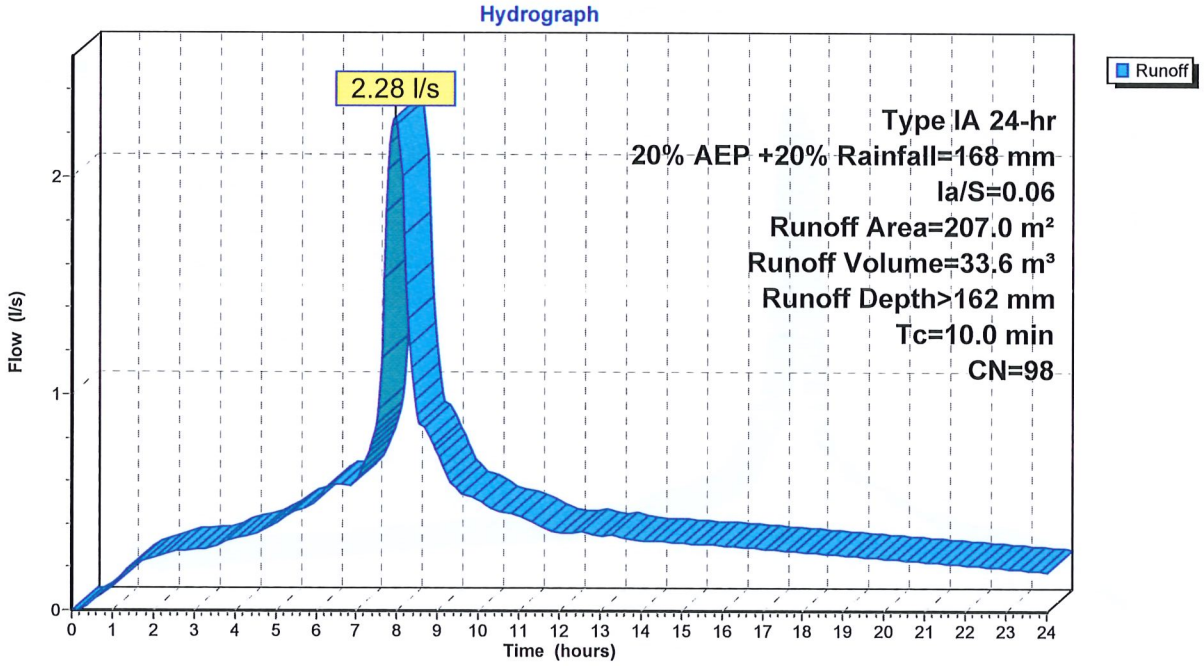
Runoff = 2.28 l/s @ 7.94 hrs, Volume= 33.6 m³, Depth> 162 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 20% AEP +20% Rainfall=168 mm, Ia/S=0.06

Area (m²)	CN	Description
207.0	98	Roofs, HSG D
207.0		100.00% Impervious Area

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

Subcatchment 14S: Roof Section



Summary for Pond 13P: Slimline Tank

Inflow Area = 207.0 m²,100.00% Impervious, Inflow Depth > 162 mm for 20% AEP +20% event
Inflow = 2.28 l/s @ 7.94 hrs, Volume= 33.6 m³
Outflow = 1.04 l/s @ 8.41 hrs, Volume= 33.2 m³, Atten= 55%, Lag= 28.0 min
Primary = 1.04 l/s @ 8.41 hrs, Volume= 33.2 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.995 m @ 8.41 hrs Surf.Area= 2.7 m² Storage= 5.4 m³

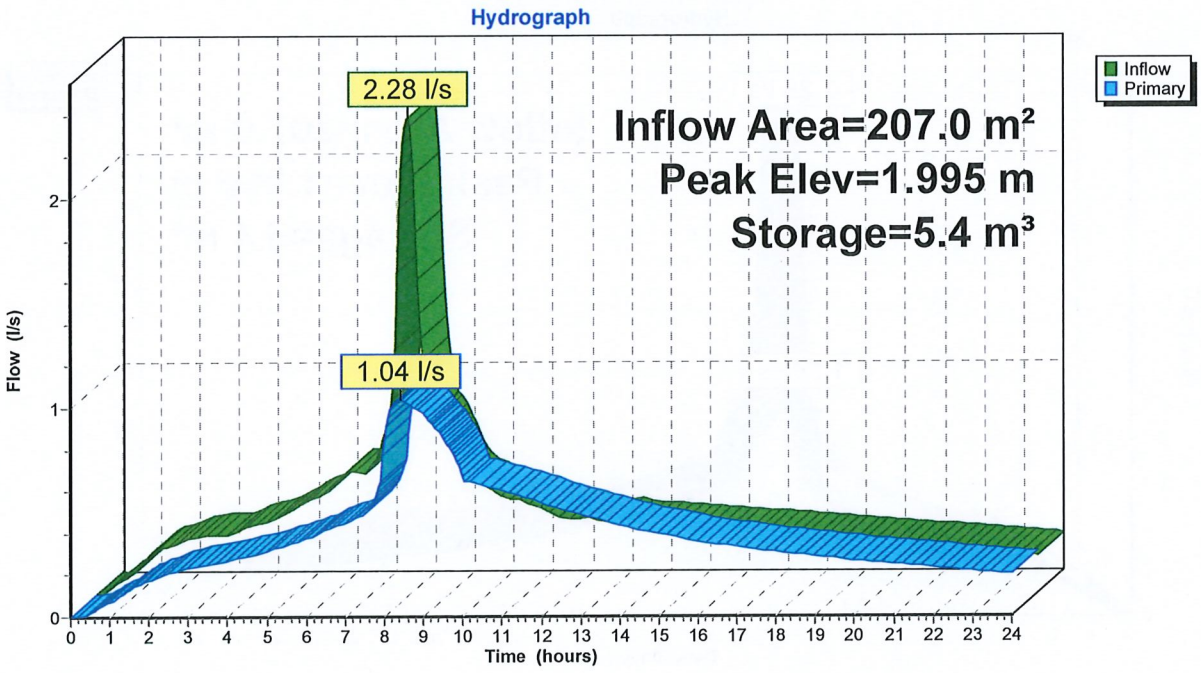
Plug-Flow detention time= 69.0 min calculated for 33.2 m³ (99% of inflow)
Center-of-Mass det. time= 59.5 min (708.6 - 649.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	5.9 m³	**0.91 mW x 3.00 mL x 2.15 mH Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**16 mm Vert. Orifice/Grate** C= 0.600
#2	Primary	1.500 m	**14 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.04 l/s @ 8.41 hrs HW=1.995 m (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.75 l/s @ 3.75 m/s)
└—**2=Orifice/Grate** (Orifice Controls 0.29 l/s @ 1.86 m/s)

Pond 13P: Slimline Tank



Summary for Pond 14P: Slimline Tank

Inflow Area = 207.0 m²,100.00% Impervious, Inflow Depth > 162 mm for 20% AEP +20% event
Inflow = 2.28 l/s @ 7.94 hrs, Volume= 33.6 m³
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Primary = 1.04 l/s @ 8.41 hrs, Volume= 33.2 m³

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Peak Elev= 1.995 m @ 8.41 hrs Surf.Area= 2.7 m² Storage= 5.4 m³

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Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	5.9 m³	**0.91 mW x 3.00 mL x 2.15 mH Prismatoid**

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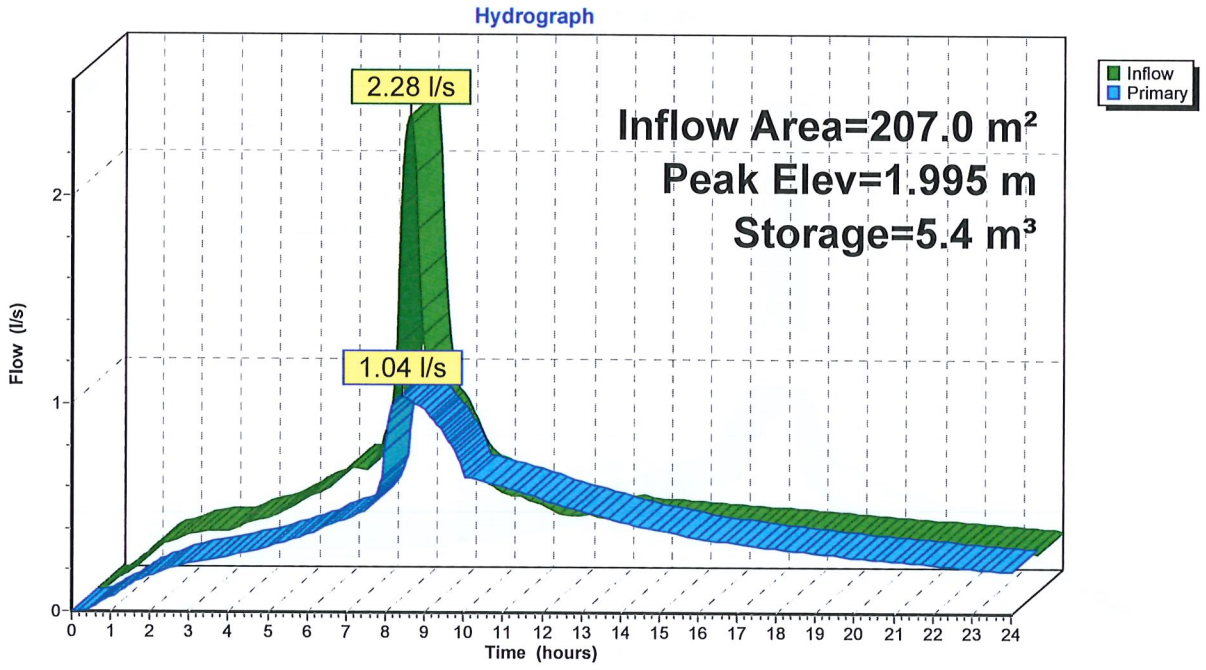
#2	Primary	1.500 m	**14 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.04 l/s @ 8.41 hrs HW=1.995 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.75 l/s @ 3.75 m/s)
└**2=Orifice/Grate** (Orifice Controls 0.29 l/s @ 1.86 m/s)

Pond 14P: Slimline Tank

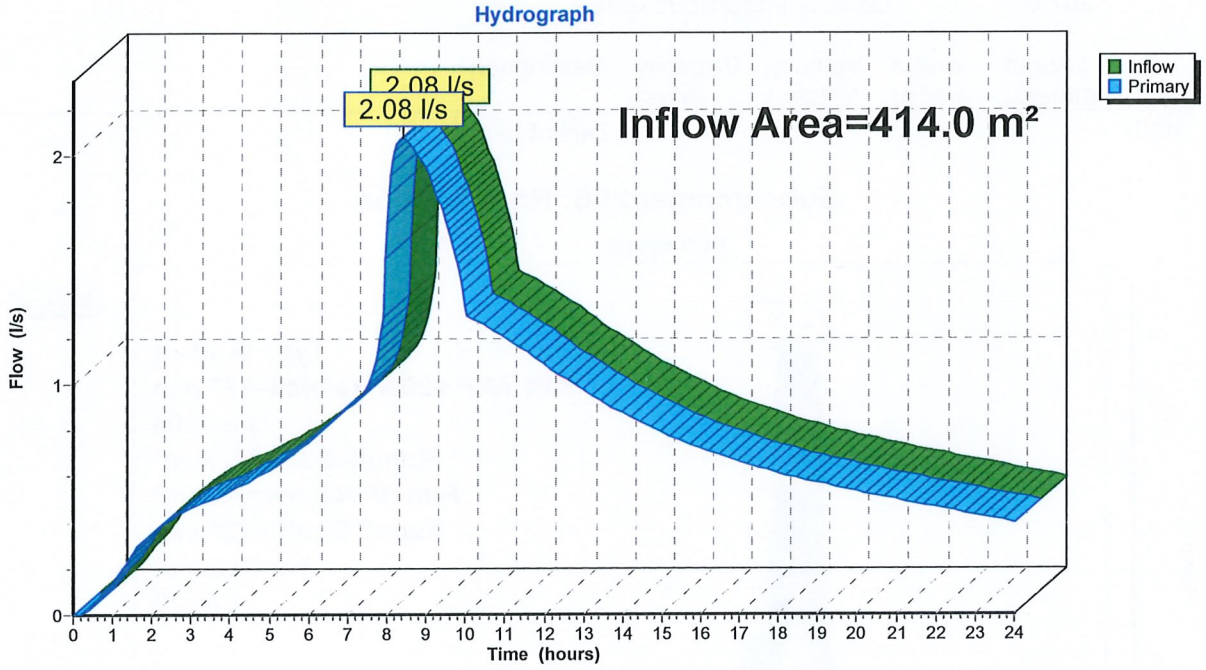


Summary for Link 11L: Post-development

Inflow Area = 414.0 m²,100.00% Impervious, Inflow Depth > 160 mm for 20% AEP +20% event
Inflow = 2.08 l/s @ 8.41 hrs, Volume= 66.4 m³
Primary = 2.08 l/s @ 8.41 hrs, Volume= 66.4 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 11L: Post-development



Summary for Subcatchment 9S: Roof Section

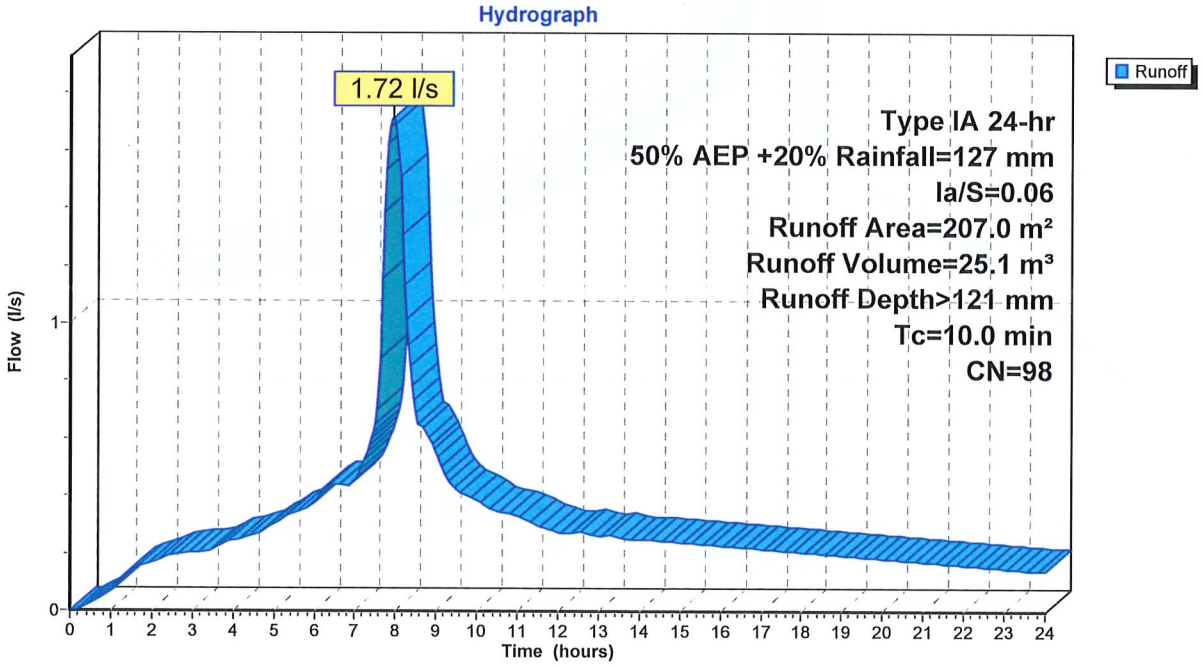
Runoff = 1.72 l/s @ 7.94 hrs, Volume= 25.1 m³, Depth> 121 mm

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50% AEP +20% Rainfall=127 mm, Ia/S=0.06

Area (m²)	CN	Description
207.0	98	Roofs, HSG D
207.0		100.00% Impervious Area

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

Subcatchment 9S: Roof Section



Summary for Subcatchment 14S: Roof Section

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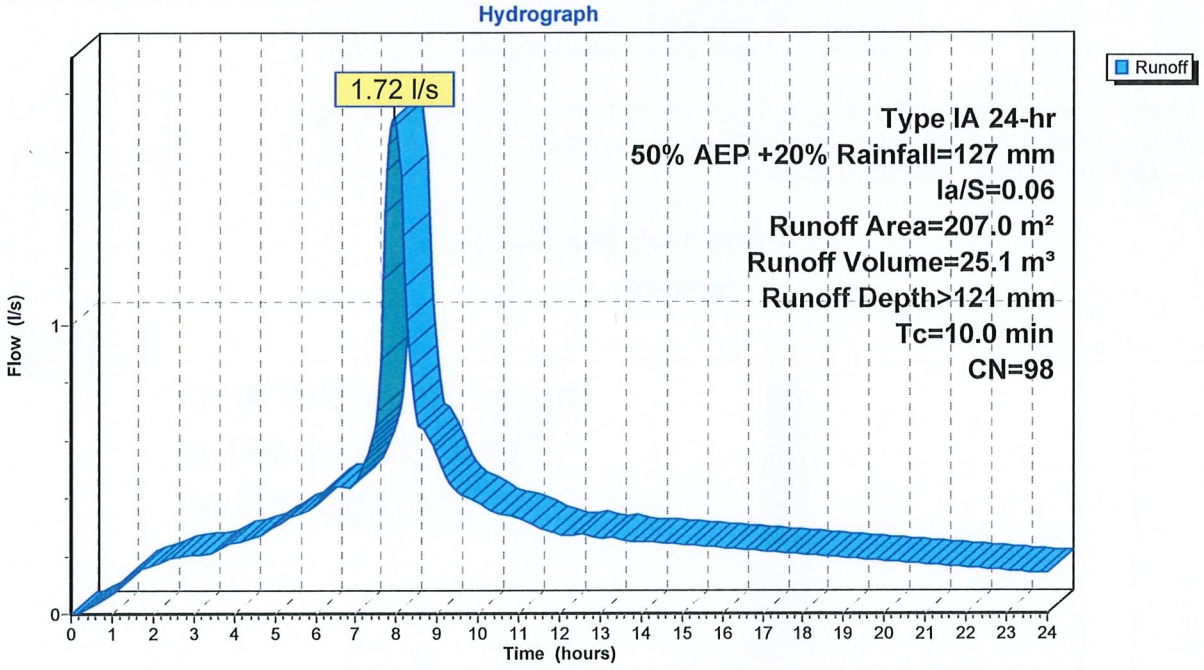
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type IA 24-hr 50% AEP +20% Rainfall=127 mm, Ia/S=0.06

Area (m²)	CN	Description
207.0	98	Roofs, HSG D
207.0		100.00% Impervious Area

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

Subcatchment 14S: Roof Section



Summary for Pond 13P: Slimline Tank

Inflow Area = 207.0 m²,100.00% Impervious, Inflow Depth > 121 mm for 50% AEP +20% event
Inflow = 1.72 l/s @ 7.94 hrs, Volume= 25.1 m³
Outflow = 0.65 l/s @ 8.57 hrs, Volume= 24.9 m³, Atten= 62%, Lag= 38.0 min
Primary = 0.65 l/s @ 8.57 hrs, Volume= 24.9 m³

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 1.467 m @ 8.57 hrs Surf.Area= 2.7 m² Storage= 4.0 m³

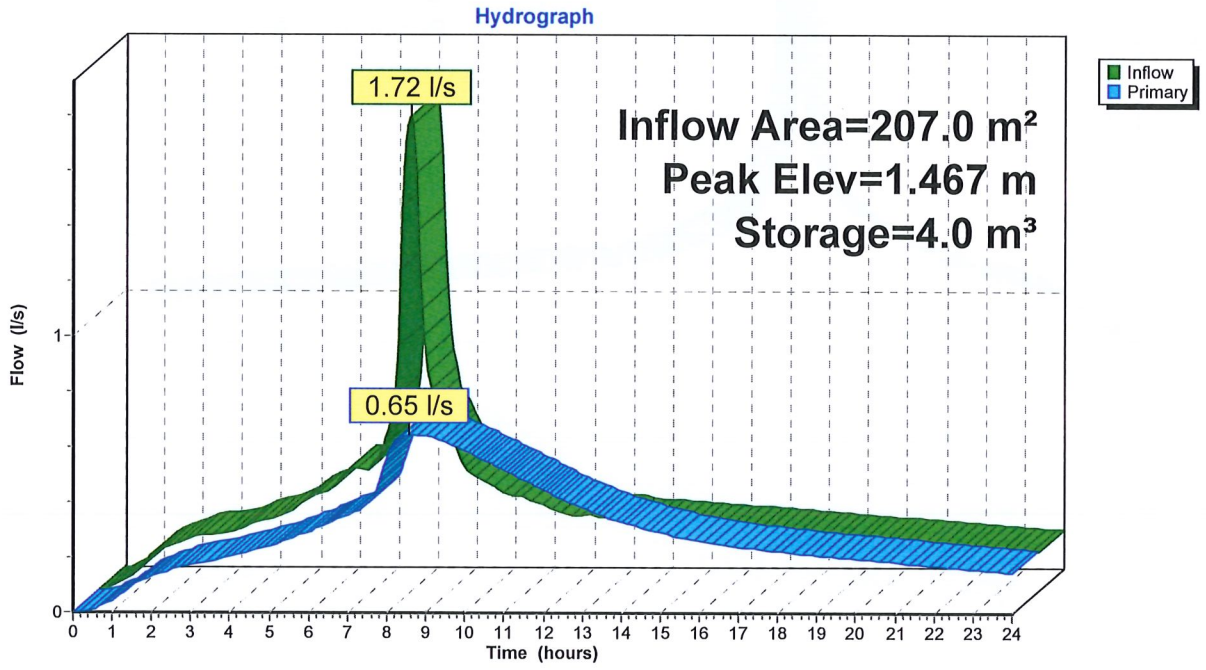
Plug-Flow detention time= 60.9 min calculated for 24.8 m³ (99% of inflow)
Center-of-Mass det. time= 53.6 min (707.0 - 653.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	5.9 m³	**0.91 mW x 3.00 mL x 2.15 mH Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**16 mm Vert. Orifice/Grate** C= 0.600
#2	Primary	1.500 m	**14 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.65 l/s @ 8.57 hrs HW=1.467 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.65 l/s @ 3.21 m/s)
└**2=Orifice/Grate** (Controls 0.00 l/s)

Pond 13P: Slimline Tank



Summary for Pond 14P: Slimline Tank

Inflow Area = 207.0 m²,100.00% Impervious, Inflow Depth > 121 mm for 50% AEP +20% event
Inflow = 1.72 l/s @ 7.94 hrs, Volume= 25.1 m³
Outflow = 0.65 l/s @ 8.57 hrs, Volume= 24.9 m³, Atten= 62%, Lag= 38.0 min
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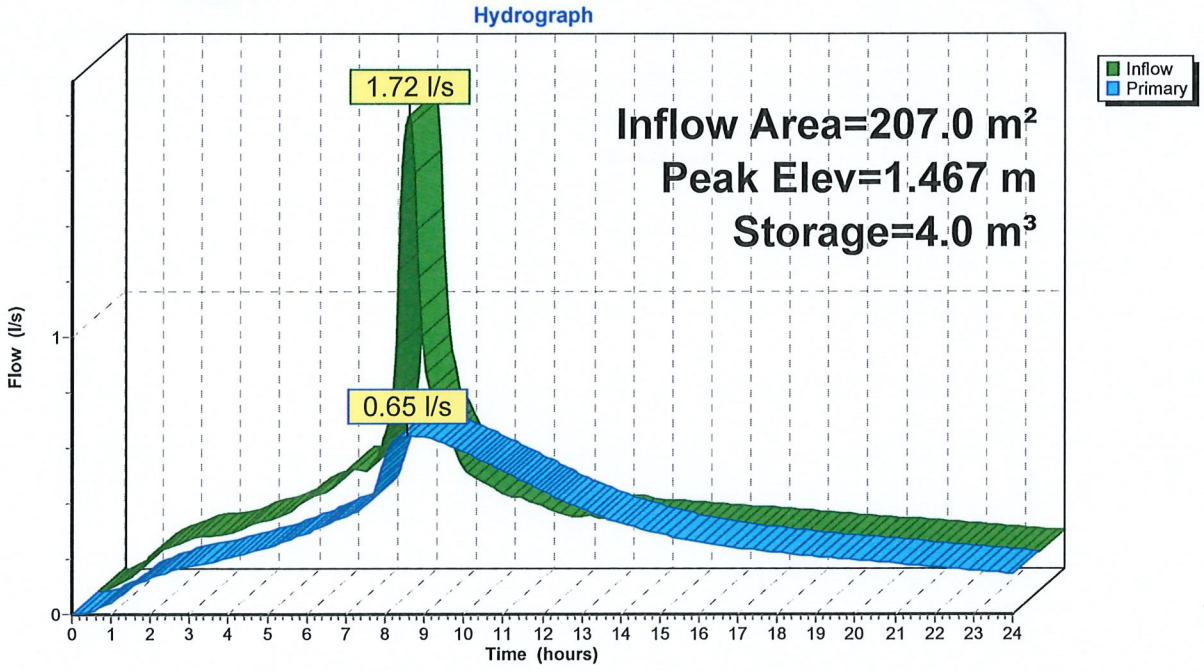
Volume	Invert	Avail.Storage	Storage Description
#1	0.000 m	5.9 m³	**0.91 mW x 3.00 mL x 2.15 mH Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.000 m	**16 mm Vert. Orifice/Grate** C= 0.600
#2	Primary	1.500 m	**14 mm Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.65 l/s @ 8.57 hrs HW=1.467 m (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.65 l/s @ 3.21 m/s)
└**2=Orifice/Grate** (Controls 0.00 l/s)

Pond 14P: Slimline Tank

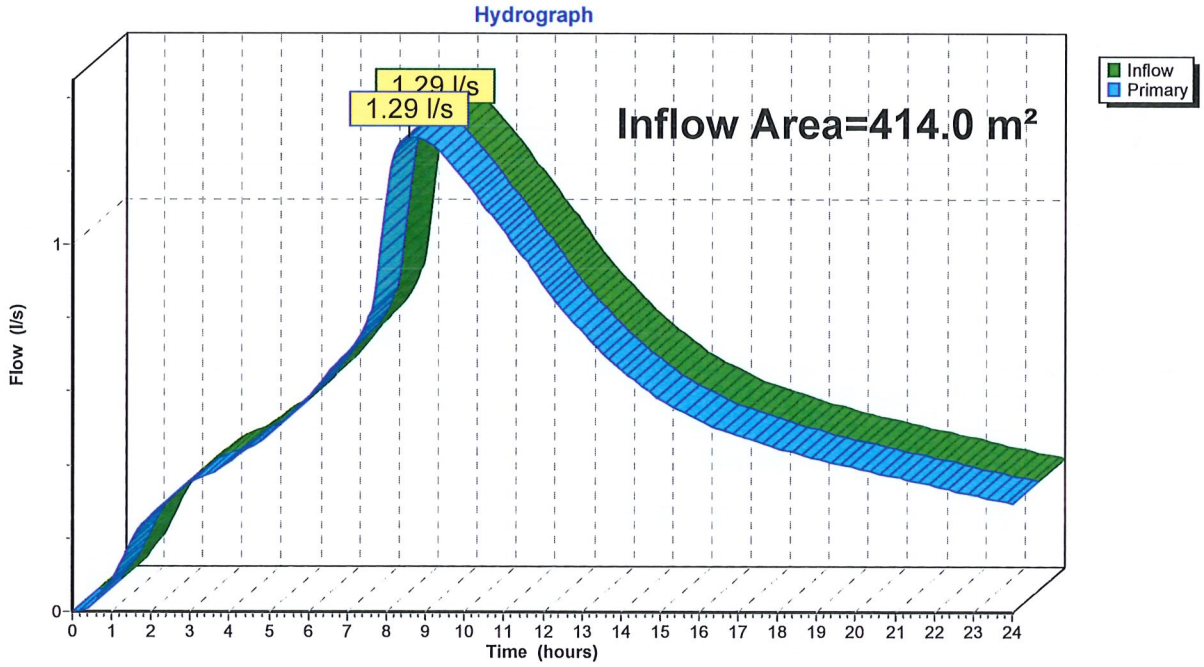


Summary for Link 11L: Post-development

Inflow Area = 414.0 m²,100.00% Impervious, Inflow Depth > 120 mm for 50% AEP +20% event
Inflow = 1.29 l/s @ 8.57 hrs, Volume= 49.8 m³
Primary = 1.29 l/s @ 8.57 hrs, Volume= 49.8 m³, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Link 11L: Post-development



Appendix 9

Coastal Erosion Hazard Assessment

File: 19451
13 March 2025
Issue: 1

COASTAL EROSION HAZARD ASSESSMENT

116 & 118 Marsden Road, Paihia

(Lots 1 & 2 DP 39526)

1.0 Introduction

RS Eng Ltd (RS Eng) has been engaged by Leisa Henwood assess the coastal erosion hazard at the properties Lots 1 and 2 DP 39526 for residential construction.

The client proposes to construct three units being three-storeys containing basement garages and covered decking.

2.0 Coastal Erosion Hazard

These 1130m^2 and 1260m^2 properties are situated south of Marsden Road where the beachfront along this area contains a playground, roadside parking and approximately 10m of grassed reserve. The buildings are located at the base of a steep north facing slope.

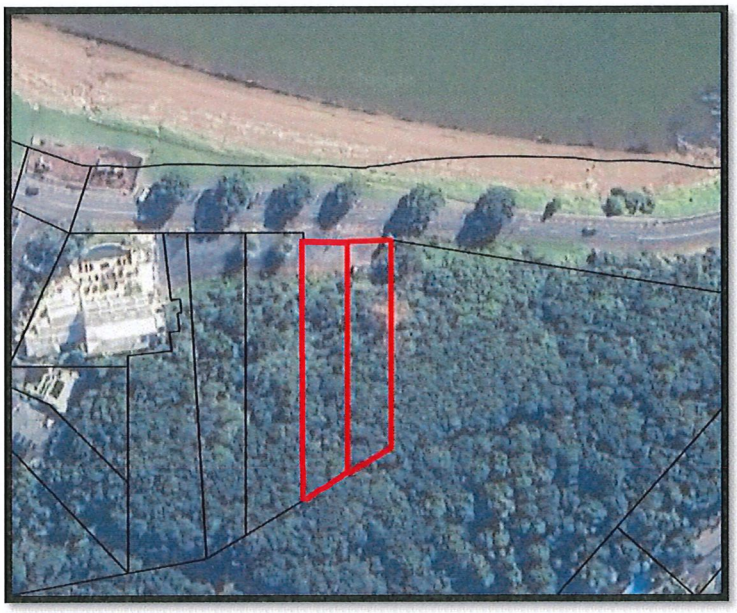


Figure 1: Lot 2 DP 39526, Lot 1 DP 39526

The Northland Regional Council coastal hazard zones are based on the Tonkin & Taylor October 2020 Report "*Coastal Erosion Hazard Zone Assessment for Selected Northland Sites*" where:

- CEHZ1 (orange) is a zone likely to be subject to coastal erosion within a 50 year period.
- CEHZ2 (yellow) is a zone potential to be subject to erosion within a 100 year period.
- CEHZ3 (green) is a zone potential to be subject to erosion within a 100 year period including rapid sea level rise scenario.

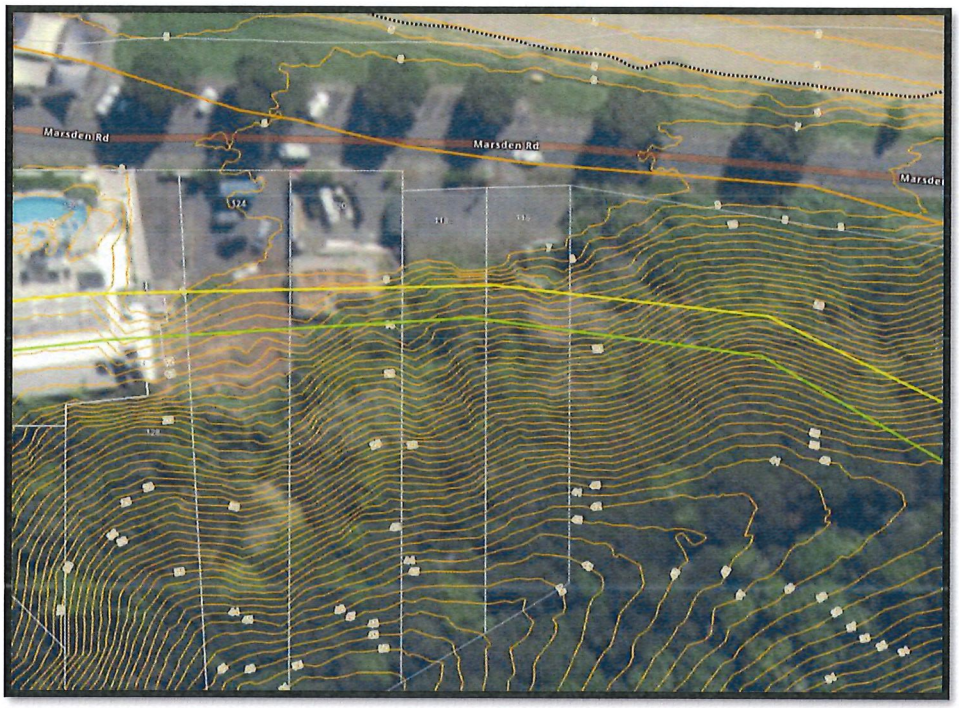


Figure 2: Coastal Erosion Mapping NRC

Table 1: Tonkin & Taylor October 2020 Report CEHZ summary

	Timeframe	Probability of exceedance	RCP scenario	Sea level rise[1]
CEHZ1	2080	66% *(likely)*	8.5M	0.33
CEHZ2	2130	5% *(potential)*	8.5M	0.85
CEHZ3	2130	5% *(potential)*	8.5H+	1.17

The Tonkin and Taylor Coastal Erosion Report which includes this site *"Te Ti Bay (Waitangi)"* shows the property within cell E. Table 19-1 shows that T+T assessed this cell to have a long term erosion rate of up to 0.05m/year from historic aerial images, see attached. Aerial imagery from 1951, 1971 and 1981 has been reviewed, see 1951 imagery below. Reviewing these images, it was noted that the grassed reserve north of Marsden Road has remained unchanged since 1971 imagery and since 1951 imagery to present day the reserve appears to have accreted with increase in vegetation and trees.

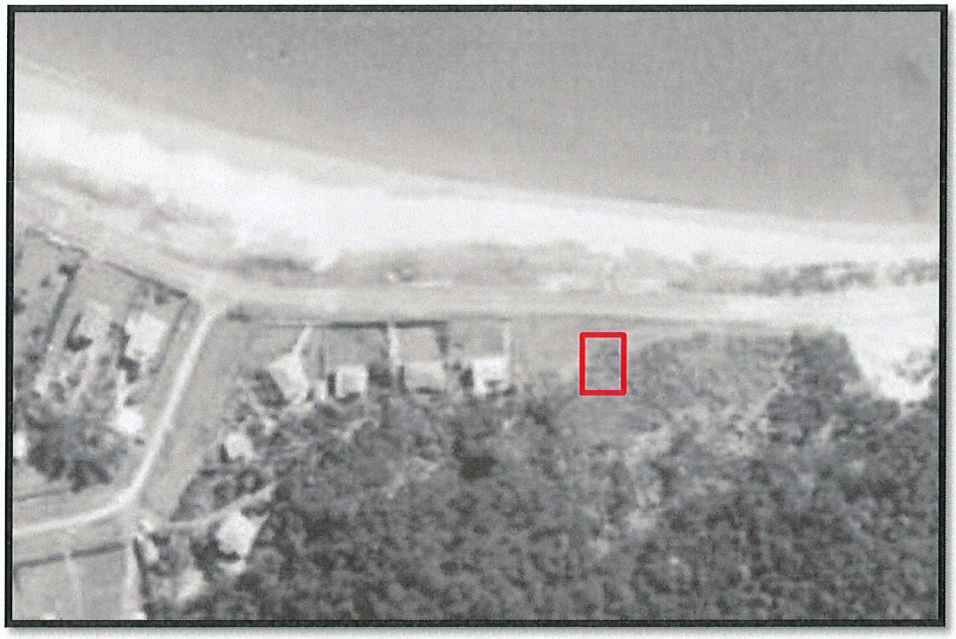


Figure 3: 1951 Imagery (Source:Retrolens) (Red box of site)

To demine the Coastal Erosion Hazard, Tonkin and Taylor assessed a range of probabilities, with 66% being *likely.* Table 199-4 (attached) shows the projections and probability for 100 years of Coastal Erosion for each cell. For a period to 2130, the likely (66% probability) scenario RCP8.5 gives a coastal erosion width of 25m. The given Tonkin and Taylor CEHZ2 (100yrs) is based on a 5% (potential) probability. Section 71-72 of the Building Act refers to the land as being likely subject to a Natural Hazard. Refer Figure 4 below, the likely 100yr coastal erosion width is indicated in pink.

Table 2: Summary of Assessed Projected Coastal Erosion

Likely Erosion Projected (yr)	Erosion Width Projection (m)
2130	25

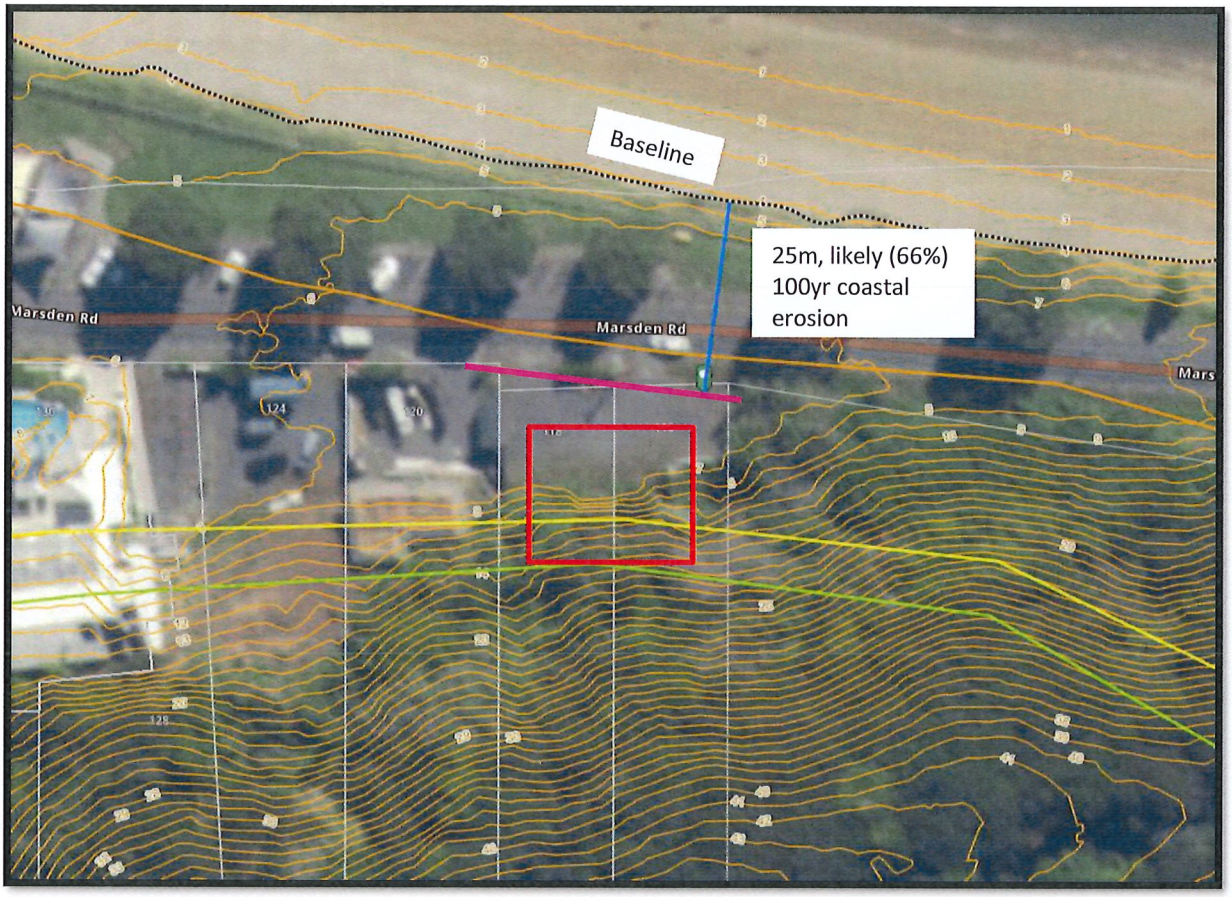


Figure 4: NRC Coastal Erosion Mapping (pink Line 100yr projection, 25m)

Given the lack of coastal erosion occurring in this area over the last 70 years, the existing road being a State Highway and the primary access to the community and that the land intimately connected to the work is remote from the assessed coastal erosion (likely 100 year coastal erosion zone), based on the above assessment, RS Eng considers the land on which the building works are not subject to the natural hazard coastal erosion.

3.0 Conclusion

RS Eng Ltd also concludes that subject to the recommendations of this report, in terms of Section 71-72 of the Building Act 2004;

(a) the building work to which an application for a building consent relates will not accelerate, worsen, or result in coastal erosion on the land on which the building work is to be carried out or any other property; and

(b) the land is neither subject to nor likely to be subject to coastal erosion.

4.0 Limitations

This report has been prepared solely for the benefit of our client. The purpose is to comment on the Coastal Erosion Hazard in relation to the proposed development. The reliance by other parties on the information or opinions contained therein shall, without our prior review and agreement in writing, do so at their own risk. Recommendations and opinions in this report are based on data obtained as previously detailed.

Prepared by:

Sarah Scott Compton
Engineering Technician
NZDE(Civil)
RS Eng Ltd

Reviewed by:

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

Table 19-1 Component values for Erosion Hazard Assessment

Site		19. Waitangi				
Cell		19A[1]	19B	19C[2]	19D	19E
Cell centre (NZTM)	E	1698138	1698197	1698343	1698711	1698953
	N	6096076	6096202	6095856	6095592	6095522
Chainage, m (from N/W)		0-410	410-520	520-1180	1180-1470	1470-1680
Morphology		Estuary Bank	Estuary Bank	Dune	Dune	Greywacke
Short-term (m)	Min	2	2	4	4	0
	Mode	4	4	6	6	0
	Max	6	6	10	10	0
Dune/Cliff elevation (m above toe or scarp)	Min	1.3	2.8	2.8	3.6	4.5
	Mode	2.0	2.9	3.7	4.3	6.8
	Max	2.6	3.0	5.7	5.3	9.2
Stable angle (deg)	Min	26.6	26.6	30	30	26.6
	Mode	30.2	30.2	32	32	30.2
	Max	33.7	33.7	34	34	33.7
Long-term (m) -ve erosion +ve accretion	Min	-0.02	-0.02	0.075	0.2	-0.05
	Mode	-0.05	-0.05	0	0.1	-0.1
	Max	-0.1	-0.1	-0.075	0	-0.15
Closure slope (beaches)	Min	0.75	0.75	0.024	0.024	0.75
	Mode	0.5	0.5	0.009	0.009	0.5
	Max	0.25	0.25	0.008	0.008	0.25
SLR 2080 (m)	RCP 2.6	0.16	0.16	0.16	0.16	0.16
	RCP 4.5	0.21	0.21	0.21	0.21	0.21
	RCP 8.5M	0.33	0.33	0.33	0.33	0.33
	RCP 8.5H+	0.51	0.51	0.51	0.51	0.51
SLR 2130 (m)	RCP 2.6	0.28	0.28	0.28	0.28	0.28
	RCP 4.5	0.42	0.42	0.42	0.42	0.42
	RCP 8.5M	0.85	0.85	0.85	0.85	0.85
	RCP 8.5H+	1.17	1.17	1.17	1.17	1.17

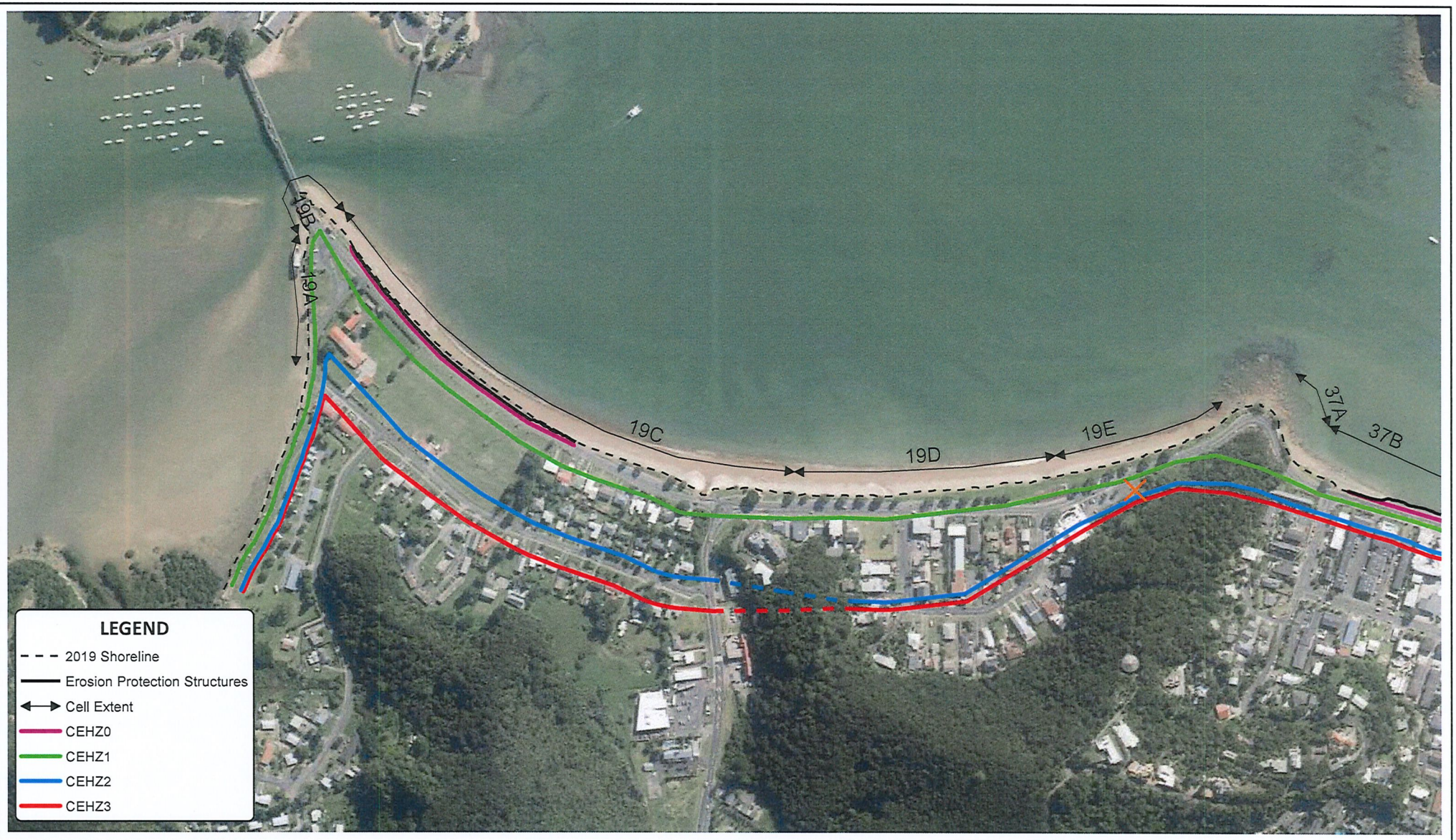
[1] Cliff projection method has been used, so distance to future cliff toe position has been tabulated. Actual CEHZ width will be greater depending on cliff height and stable slope angle.

[2]CEHZ0 included behind coastal protection structure.

Table 199-4 Coastal Erosion Hazard Zone Widths Projected for 2130

Site		19. Waitangi																			
Cell		19A				19B				19C				19D				19E			
RCP scenario		2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+	2.6	4.6	8.5	8.5+
Probability of CEHZ (m) Exceedance	Min	-3	-3	-4	-4	-7	-7	-8	-9	-13	-20	-38	-52	-1	-7	-26	-40	-15	-15	-16	-17
	99%	-3	-4	-5	-6	-8	-9	-10	-10	-18	-25	-45	-60	-6	-13	-34	-49	-17	-18	-19	-19
	95%	-4	-5	-6	-7	-9	-10	-11	-12	-21	-29	-50	-66	-9	-17	-39	-55	-19	-19	-21	-21
	90%	-5	-5	-7	-8	-10	-10	-12	-13	-23	-31	-54	-71	-12	-20	-43	-60	-20	-21	-22	-23
	80%	-5	-6	-8	-9	-10	-11	-13	-14	-26	-34	-60	-78	-15	-23	-49	-67	-21	-22	-24	-24
	70%	-6	-7	-9	-11	-11	-12	-14	-16	-28	-37	-65	-85	-17	-26	-54	-74	-22	-23	-25	-25
	66%	-6	-7	-10	-11	-11	-12	-15	-16	-29	-38	-67	-88	-18	-27	-56	-77	-22	-23	-25	-26
	60%	-7	-8	-10	-12	-12	-13	-15	-17	-30	-40	-70	-92	-19	-29	-59	-81	-23	-24	-26	-27
	50%	-7	-8	-11	-13	-12	-13	-16	-18	-32	-42	-75	-100	-21	-32	-64	-89	-24	-25	-27	-28
	40%	-8	-9	-12	-14	-13	-14	-17	-19	-33	-45	-81	-107	-23	-34	-70	-97	-24	-25	-28	-29
	33%	-8	-10	-13	-15	-13	-15	-18	-20	-35	-47	-85	-113	-24	-37	-75	-103	-25	-26	-28	-29
	30%	-8	-10	-13	-15	-13	-15	-18	-20	-35	-48	-87	-116	-25	-37	-76	-105	-25	-26	-29	-30
	20%	-9	-11	-14	-16	-14	-16	-19	-21	-38	-51	-93	-125	-28	-41	-83	-115	-26	-27	-30	-31
	10%	-10	-12	-16	-18	-15	-17	-21	-23	-41	-56	-101	-135	-31	-45	-91	-125	-28	-29	-31	-33
	5%	-11	-13	-17	-20	-16	-18	-23	-25	-43	-59	-106	-142	-34	-49	-96	-131	-29	-30	-33	-34
	1%	-12	-14	-19	-22	-17	-19	-25	-28	-47	-63	-113	-151	-38	-53	-102	-140	-31	-32	-35	-37
	Max	-13	-16	-22	-26	-18	-21	-27	-31	-53	-71	-123	-162	-43	-60	-112	-151	-33	-35	-39	-41
	CEHZ2	-17*				-23				-106				-96				-33			
	CEHZ3	-20*				-25				-142				-131				-34			

*Cliff projection method has been used, so distance to future cliff toe position has been tabulated. Actual CEHZ width will be greater depending on cliff height and stable slope angle.



Notes: Dashed CEHZ indicates greater uncertainty around stream mouths and backshore topography.
Northland 0.4m Rural Aerial Photos (2014-2016).

A4 SCALE 1:6,000

0 0.1 0.2 0.3 (km)

Tonkin+Taylor
105 Carlton Gore Rd, Newmarket, Auckland
www.tonkintaylor.co.nz

DRAWN	JJOU	May.20
CHECKED		
APPROVED		
ARCFILE	1012360_CEHZ001_v2.mxd	
SCALE (AT A4 SIZE)	1:6,000	
PROJECT No.	1012360	

NORTHLAND REGIONAL COUNCIL

Coastal Erosion Hazard Assessment
Te Ti Bay (Waitangi)
Site: 19

FIGURE No. Figure 19-6

Rev. 1

Path: P:\1012360\WorkingMaterial\GIS\CEHZ maps\1012360_CEHZ001_v2.mxd Date: 29/05/2020 Time: 5:17:11 PM

Appendix 10

Earthworks Management Plan

EARTHWORKS MANAGEMENT PLAN

116 & 118 Marsden Road, Paihia

(Lots 1 & 2 DP 39526)

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

EARTHWORKS MANAGEMENT PLAN

116 & 118 Marsden Road, Paihia

(Lots 1 & 2 DP 39526)

Report prepared for: Leisa Henwood

Report reference: 19451

Date: 13 March 2025

Revision: 1

Document Control

Date	Revision	Description	Prepared by:	Reviewed/Authorised by:
13/03/2025	1	First Issue	S Scott Compton	M Jacobson

Contents

Appendices

File: 19451
13 March 2025
Revision: 1

EARTHWORKS MANAGEMENT PLAN

116 & 118 Marsden Road, Paihia

(Lots 1 & 2 DP 39526)

1.0 Introduction

RS Eng Ltd has been engaged by Leisa Henwood to provide a management plan relating to the earthworks required for the proposed development at 116 & 118 Marsden Road, Paihia.

The client proposes to construct three units being three-storeys containing masonry block walls, basement garages and covered decking.

A Geotechnical Report has been completed by NGS Ltd dated 10 March 2023.

2.0 Site Description

The 1131m^2 and 1257m^2 properties are situated south of Marsden Road where the beachfront along this area contains a playground, roadside parking and approximately 10-15m of grassed reserve. The buildings are located at the base of a steep, northern facing slope partly across near level ground.

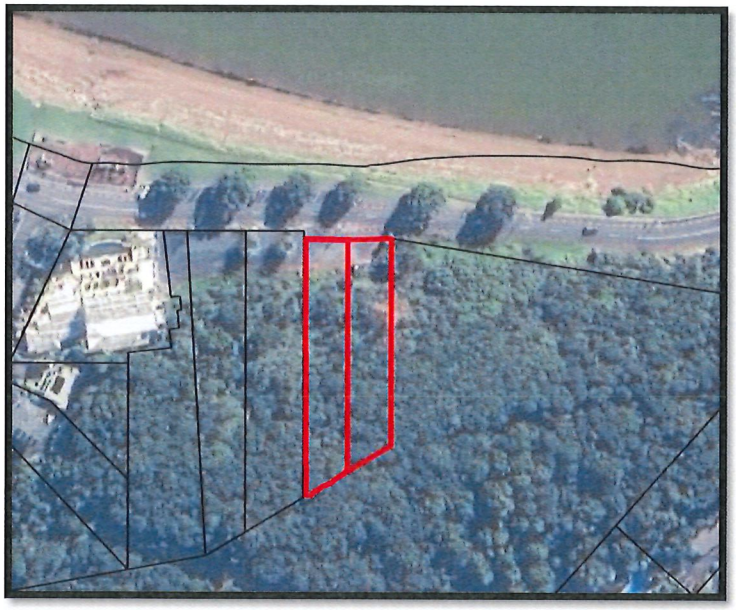


Figure 1: Lot 2 DP 39526, Lot 1 DP 39526

3.0 Description of Works

3.1 Proposal

It is proposed to undertake cut and minor fill operations for the proposed three units being three-storeys containing masonry block walls, timber retaining walls, basement garages and covered decking.

3.2 Proposed Earthworks

The approximate cut volume is 760m^3, with filling expected to be no more than minor. Cuts are expected to be in the order of 4.7m in height being suitably retained.

3.3 General Requirements

- Contractors shall check the site conditions before commencing.
- The contractor shall verify the floor levels above datum before commencing operations.
- Check position of existing services, adjacent to and on site before commencing work.
- Remove all rubbish, strip vegetation and topsoil over the building area and any areas of proposed filling, carry out all necessary bulk excavation and excavate as required for foundations.
- Temporary stockpiling of cut material shall be the responsibility of the contractor. Any such temporary stockpiling shall be located and constructed to uphold the stability of the stockpiled material and underlying ground.
- Do not place, spread, or compact fill material during or immediately following wet weather.
- The earthworks operation shall comply with the project specific requirements of the project documentation, including the project specific geotechnical or suitability report, building consent drawings and specification.
- Temporary and unsupported excavation shall be reviewed and monitored by a suitably experienced Chartered Professional Engineer.

3.4 Machinery

Excavation, placement and site levelling will be undertaken with various equipment and is dependent on the contractor selected.

3.5 Hours of Operation

Operations will be limited to normal work hours, generally expected to be as follows:

- Monday to Friday - 7am to 6pm
- Saturday - 8am to 4pm

The exception to the above hours being that any emergency remedial works required for example, concerning slips or general safety issues on the site or adjoining sites relative to the proposed

earthworks or silt control installations, including repair after heavy rainfall, will not be subject to these restrictions.

3.6 General Health and Safety Provisions

The contractor shall comply with all relevant health and safety regulations and adopt best practice guidelines for activities occurring on and off site which are directly related to the nature of works required.

These measures shall include the provision of appropriate signage and fencing where necessary to ensure public safety during the period of works.

4.0 General Erosion and Sediment Control Measures

4.1 Heavy Rainfall Contingency Measures

If heavy rain is forecast or can be reasonably foreseen, measures shall be taken on-site to reduce the potential for erosion or discharge of sediment laden water. These steps shall be especially prudent where the heavy rainfall event is due to be greater than a 20yr (5% AEP). All stockpiles shall be covered in straw mulch (or similar approved method) or geotextile fabric where it can be sourced in sufficient time. All earthwork areas shall be compacted and surfaced roughened to the extent that is practicable taking into account the slopes, stage of earthworks, equipment available and time prior to the occurrence of the rainfall event. All control devices shall be checked to ensure they will be operating effectively during the rainfall event. Additional decanting grit traps shall be placed if practicable to reduce the loading on the permanent sediment controls.

4.2 Specific Erosion and Sediment Control

The following proposed measures are indicative of the locations and types of measures required for this site. The project engineer or NRC may request that these measures be moved, altered, or removed to ensure sediment runoff from the site is kept to an absolute minimum, without unduly affecting the surrounding environment.

4.4 Decanting Earth Bunds

Sediment retention bunds and silt fences shall be used during the earthworks to control sediment runoff from the earthwork areas, shown on the sediment control plan attached. All devices shall be sized in accordance with GD05.

The contractor is also responsible for ensuring that the sediment retention ponds are fit for purpose from a health and safety perspective. All ponds are to be fenced off and signboards erected to deter unauthorised access into the ponds.

4.5 Silt Fence

Silt fences and super silt fences provide control around pond areas and small areas where runoff channels cannot capture sediment laden runoff, shown on the draft sediment control plan attached.

4.6 Clear Water Diversion Channels / Bunds

To isolate the earthworks areas from up slope runoff diversion channels and bunds are/or required, shown on the sediment control plan attached.

4.7 Runoff Diversion Channels / Bunds

To direct runoff to the sediment control ponds diversion channels and/or bunds are required, shown on the sediment control plan attached.

5.0 Maintenance and Monitoring

5.1 Certification

Upon completion of sediment and erosion control measures they shall be inspected by the project engineer to ensure compliance with the design and GD05.

5.2 Maintenance

All maintenance shall be in accordance with GD05, specifically:

- Check discharge points for signs of scouring and remediate / stabilise if required.
- Maintain the stabilised entrance in a condition to prevent sediment from leaving the site.
- Any material being tracked on to Marsden Road shall be cleaned immediately.
- Weekly inspections by the project supervisor.
- Silt fences and Diversion Channels / Bunds to be inspected weekly.
- Additional checks shall be undertaken prior to and post heavy rainfall events. Any issue shall be addressed immediately.

5.3 Dust Control

The soils present are silts and clays, however to ensure adequate compaction of fills, optimum moisture content will be maintained, hence dust nuisance will be unlikely. However, water will be available during construction to suppress dust if required.

5.4 Noise Control

Noise will be managed in accordance with the District Plan, and any particular conditions of consent. It is not expected noise will exceed a permitted level on neighbouring sites.

5.5 Refuelling of Plant and Machinery

Machinery shall be refuelled off-site where practical. No fuel shall be stored on-site overnight. Any refuelling on-site will be by portable refuelling trailers or small containers. Spill kits will be carried on-site by the contractor. Any spills shall be attended to immediately, being contained and rectified in accordance with best industry practice.

6.0 Completion

Upon completion of works, all surfaces shall be stabilised and reinstated with revegetation completed. Provided revegetation has satisfactorily taken, sediment control measures can be removed from site.

7.0 Limitations

This report has been prepared solely for the benefit of our client. The reliance by other parties on the information or opinions contained therein shall, without our prior review and agreement in writing, do so at their own risk.

Prepared by:

Sarah Scott Compton
NZDE(Civil)
Senior Technician

Approved by:

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

RS Eng Ltd

Appendix A

Drawings

NOTES:

- If any part of these documents are unclear, please contact RSEng Ltd.
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N

LEGEND

- Silt Fence
- Clean Water Diversion
- Dirty Water Diversion
- Surface Water Cut Off Drain

Contour Interval: 1.0m
Vertical Datum: OTP64
Survey Data Source: LiDAR (2018)

SECTION 0 1.0 2.0 1:100
PLAN 0 5 10 1:500

RS Eng Ltd
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2 Seaview Road,
Whangarei 0110

SEDIMENT EROSION CONTROL PLAN
SITE PLAN

Client: Leisa Henwood

Location: 116 & 118 Marsden Road, Paihia

Date	Rev	Notes
20/12/2024	A	Original Issue

Drawn by: AST | Reviewed by: SS | Approved by: MJ

Scale: 1:200
Original: A3
Job No.: 19451
Rev No.: A
Sheet No.: C01

NOTES:

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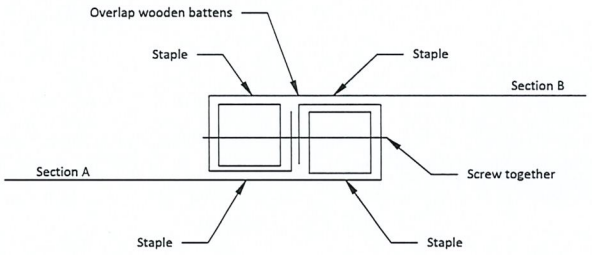
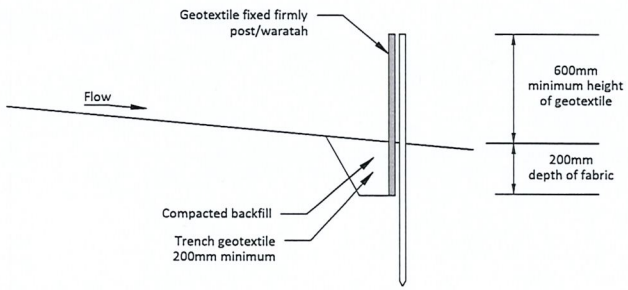
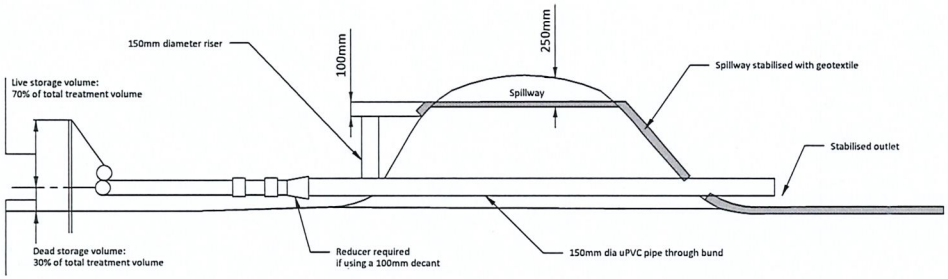


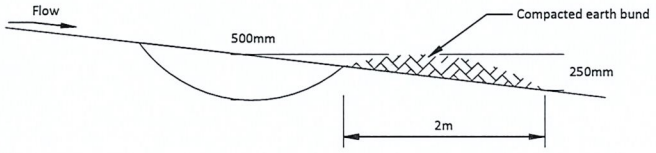
STANDARD FABRIC JOINT



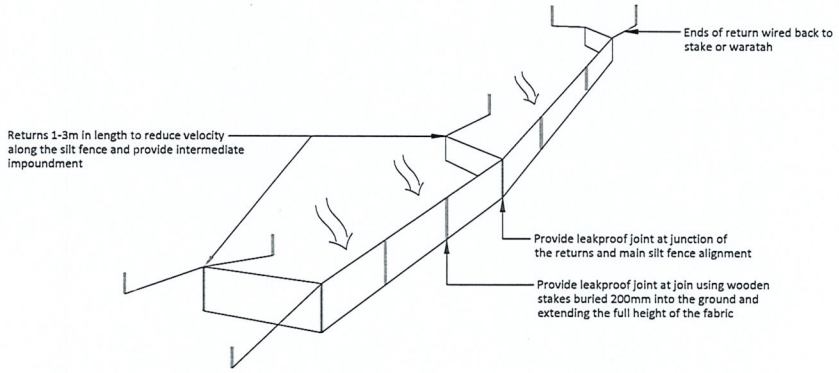
SILT FENCE - TYP DETAIL



DECANTING EARTH BUND - TYP CROSS SECTION



SURFACE WATER CUTOFF DRAIN - TYP DETAIL



SILT FENCE WITH RETURNS AND SUPPORT WIRE

Contour Interval: 1.0m
Vertical Datum: OTP64
Survey Data Source: LiDAR (2018)

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Whangarei 0110

SEDIMENT EROSION CONTROL PLAN
TYPICAL DETAILS

Client: Leisa Henwood
Location: 116 & 118 Marsden Road, Paihia

Date	Rev	Notes
20/12/2024	A	Original Issue

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

Scale: NTS
Original: A3
Job No.: 19451
Rev No.: A
Sheet No.: C01