

Tauranga City Council

Private Bag 12022, Tauranga 3143

info@tauranga.govt.nz

(07) 577 7000

BC191200

Alpha ID: 191200

Application Type: Building Consent

Site Address: 1 TE WHARO DRIVE, PAPAMOA, TAURANGA Lots 439-444

Project Description: Construction of a 1.8 m (maximum height) timber pole retaining wall along the northern boundary of Stage 3D of the Terrace Views Subdivision for Lots 439-444

Project Status: Code Compliance Certificate Issued

Please note: attachments have been excluded from Emails/Correspondence and lodged Application Form/s since the approved versions are incorporated into the issued documents.

Creation Date: 10 March 2023

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Date Submitted: Friday, 07 June 2019

Form 2
Application for project information memorandum and/or building consent

Section 33 or section 45, Building Act 2004

The building

Street address of building:	1 Te Wharo Drive Papamoa New Zealand Papamoa Tauranga 3118
Legal description of land where building is located:	Lot 439 DP 530967 Lot 440 DP 530967 Lot 441 DP 530967 Lot 442 DP 530967 Lot 443 DP 530967 Lot 444 DP 530967
Building name:	Main Building
Location of building within site/block number:	1 Te Wharo Drive Papamoa New Zealand Papamoa Tauranga 3118
Number of levels:	No information provided
Level/unit number:	No information provided
Area:	Total: Not provided, Change: Not provided
Current, lawfully established, use:	2.0 Housing: 2.0.2 Detached Dwelling
Year first constructed:	2019

The owner

Name of owner:	Zariba Properties Limited
Contact person:	Dwayne Roper
Mailing address:	715 Cameron Road Tauranga South Tauranga 3112
Street address/registered office:	No information provided
Phone number:	Landline: 075779949 Mobile: N/A
Daytime:	Landline: 075779949 Mobile: N/A

After hours:	Landline: 075779949 Mobile: N/A
Facsimile number:	No information provided
Email address:	dwayne@zariba.co.nz
Website:	No information provided

The following evidence of ownership is attached to this application:

No files attached

Agent

Name of agent:	AURECON NEW ZEALAND LIMITED
Contact person:	Chris Jones
Mailing address:	Po Box 2585 Seventh Avenue Tauranga 3140 Tauranga 3140
Street address/registered office:	Po Box 2585 Seventh Avenue Tauranga 3140 Tauranga
Phone number:	Landline: 5775127 Mobile: N/A
Daytime:	Landline: 5775127 Mobile: N/A
After hours:	Landline: 5775127 Mobile: N/A
Facsimile number:	No information provided
Email address:	chris.jones@aurecongroup.com
Website:	No information provided
Relationship to owner:	Application made on owners behalf

First point of contact for communications with the council/building consent authority:

Full name:	AURECON NEW ZEALAND LIMITED
Mailing address:	Po Box 2585 Seventh Avenue Tauranga 3140 Tauranga Tauranga 3140
Phone number(s):	5775127
Facsimile number(s):	N/A
Email address(es):	chris.jones@aurecongroup.com

Application

I request that you issue a building consent for the building work described in this application.

Signature of agent on behalf of and with the authority of the owner:

MILES BUOB

Date: 7 Jun 2019

space for council use

Application Type	Building Consent only
Reference Key:	43324108HM
Name:	Chris Jones
Application Role:	Agent
Pre-application reference number:	N/A

The project

Description of the building work:

Construction of a 1.8 m (maximum height) timber pole retaining wall along the northern boundary of Stage 3D of the Terrace Views Subdivision.

Will the building work result in a change of use of the building?	No
Intended life of the building if less than 50 years:	50 years
List building consents previously issued for this project (if any):	No information provided
Estimated value of the building work on which the building levy will be calculated (including goods and services tax):	$48,000

Restricted building work

Will the building work include any restricted building work?	No

Building consent

The following plans and specifications are attached to this application:

No files attached

The building work will comply with the building code as follows:

Main Building

B1 - Structure	AS1
Waiver / Modification Required:	N/A

Compliance schedule

There are no specified systems associated with this project.

Attachments

The following documents are attached to this application:

No attachments

Tauranga City

Building Consent Application: 43324108HM

Date Submitted: Friday, 07 June 2019

FORM PLG 1

National Environmental Standard (NES) for Assessing and Managing Contaminants in Soil to Protect Human Health

For assistance in answering these questions please refer to (PLG 1A)

Please note that any inaccuracies may result in the applicant being in breach of the Resource Management Act 1991 and/or exposed to liability if the site is subsequently found to be contaminated, including being liable for remedial works.

Is the building work and all associated activities:

Changing the use of the land? **NO**

(Please note that "changing the use of the land" includes erecting a dwelling on an area of land which previously had no dwelling erected upon it.)

Disturbing soil? **YES**

(more than 25m3 per 500m2 of land) or removing soil? (more than 5m3 per 500m2 of land) (e.g.: foundations, on-site effluent treatment and disposal systems, wells or bores)

Is the land currently being used, has been used in the past, or is likely to have been used for an activity described on the HAIL?

NO

For more information on this process please contact the Duty Planner on 07 577 7000 or go the Ministry for the Environment website: http://www.mfe.govt.nz/laws/standards/contaminants-in-soil/

Signature

The name below as AGENT has the authority for the application to proceed to processing and accept the associated charges.

Signed By:

Miles Buob

7 Jun 2019

The Agent will be the first point of contact for communications with the Council/Building Consent authority regarding this application / building work and will receive all correspondence including all invoices.

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**866644**
Land Registration District	**South Auckland**
Date Issued	20 March 2019

Prior References
854978

Estate	Fee Simple
Area	277 square metres more or less
Legal Description	Lot 441 Deposited Plan 530967

Registered Owners
Zariba Properties Limited

Interests

11333786.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 20.3.2019 at 12:31 pm

Land Covenant in Covenant Instrument 11333786.5 - 20.3.2019 at 12:31 pm (Limited as to duration)

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**866647**
Land Registration District	**South Auckland**
Date Issued	20 March 2019

Prior References
854978

Estate	Fee Simple
Area	347 square metres more or less
Legal Description	Lot 444 Deposited Plan 530967

Registered Owners
Zariba Properties Limited

Interests

11333786.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 20.3.2019 at 12:31 pm

Land Covenant in Covenant Instrument 11333786.5 - 20.3.2019 at 12:31 pm (Limited as to duration)

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**866642**
Land Registration District	**South Auckland**
Date Issued	20 March 2019

Prior References
854978

Estate	Fee Simple
Area	303 square metres more or less
Legal Description	Lot 439 Deposited Plan 530967

Registered Owners
Zariba Properties Limited

Interests

11333786.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 20.3.2019 at 12:31 pm

Land Covenant in Covenant Instrument 11333786.5 - 20.3.2019 at 12:31 pm (Limited as to duration)

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**866645**
Land Registration District	**South Auckland**
Date Issued	20 March 2019

Prior References
854978

Estate	Fee Simple
Area	278 square metres more or less
Legal Description	Lot 442 Deposited Plan 530967

Registered Owners
Zariba Properties Limited

Interests

11333786.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 20.3.2019 at 12:31 pm

Land Covenant in Covenant Instrument 11333786.5 - 20.3.2019 at 12:31 pm (Limited as to duration)

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**866646**
Land Registration District	**South Auckland**
Date Issued	20 March 2019

Prior References
854978

Estate	Fee Simple
Area	279 square metres more or less
Legal Description	Lot 443 Deposited Plan 530967

Registered Owners
Zariba Properties Limited

Interests

11333786.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 20.3.2019 at 12:31 pm

Land Covenant in Covenant Instrument 11333786.5 - 20.3.2019 at 12:31 pm (Limited as to duration)

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**866643**
Land Registration District	**South Auckland**
Date Issued	20 March 2019

Prior References
854978

Estate	Fee Simple
Area	276 square metres more or less
Legal Description	Lot 440 Deposited Plan 530967

Registered Owners
Zariba Properties Limited

Interests

11333786.2 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 20.3.2019 at 12:31 pm

Land Covenant in Covenant Instrument 11333786.5 - 20.3.2019 at 12:31 pm (Limited as to duration)

Dear Zariba Properties Limited,

Section 45 request for further information on Building Consent only

Reference Number: BC191200
Project Location: 1 TE WHARO DRIVE, PAPAMOA, TAURANGA
Project Description: Construction of a 1.8 m (maximum height) timber pole retaining wall along the northern boundary of Stage 3D of the Terrace Views Subdivision.

This communication is to advise that your application has been checked for compliance with section 45 of the Building Act and does not contain sufficient information to enable building consent processing to begin.

Please attach and return the information requested below to this email.

We will advise you when we are in receipt of a complying section 45 application and start the building consent process and statutory time tracking in accordance with section 48 of of the Act.

Should further information be required during processing we will communicate via email. An email request for further information will stop the statutory time clock until sufficient information is provided to enable processing to be completed.

Site Plans
Site Plans do not provide sufficient information to enable a compliance decision. Please provide the following additional details:
a. Legal and notional boundaries
b. Location of new structures - dimensions to the boundary
c. Ground levels
d. Location of vehicle access as the application has been included within this BC application.

Evidence of Ownership / Owner's Permission
Please provide as part of the Certificate of title the legal location of the lots and the Consent notices to Section 221 of the Resource Management Act.

Specifications
Please provide supporting information to demonstrate how compliance with NZBC F4 will be achieved. Such as SED for the balustrade post connections and manufacturers documentation if a proprietary product is proposed.

All information is to be supplied within 10 days (or the application may be rejected). Please keep us informed if additional time is required. My apologies if any of the above matters are already covered by the documents but have been overlooked.

Should you have any queries regarding this letter, please phone our building advisory team on Phone (07) 577 7000.

Yours sincerely,

Paul O'Hara
Building Officer - (07) 5777200 ext 7252
On behalf of: Tauranga City Council

Dear Zariba Properties Limited,

Section 45 request for further information on Building Consent only

Reference Number: BC191200
Project Location: 1 TE WHARO DRIVE, PAPAMOA, TAURANGA
Project Description: Construction of a 1.8 m (maximum height) timber pole retaining wall along the northern boundary of Stage 3D of the Terrace Views Subdivision.

This communication is to advise that your application has been checked for compliance with section 45 of the Building Act and does not contain sufficient information to enable building consent processing to begin.

Please attach and return the information requested below to this email.

We will advise you when we are in receipt of a complying section 45 application and start the building consent process and statutory time tracking in accordance with section 48 of of the Act.

Should further information be required during processing we will communicate via email. An email request for further information will stop the statutory time clock until sufficient information is provided to enable processing to be completed.

Evidence of Ownership / Owner's Permission
Please provide as part of the Record of title the plan showing the legal location of the lots, you have only provide the plan for the Land Information but not for the record of title.

All information is to be supplied within 10 days (or the application may be rejected). Please keep us informed if additional time is required. My apologies if any of the above matters are already covered by the documents but have been overlooked.

Should you have any queries regarding this letter, please phone our building advisory team on Phone (07) 577 7000.

Yours sincerely,

Paul O'Hara
Building Officer - (07) 5777200 ext 7252

On behalf of: Tauranga City Council

Form 5
Building consent - BC191200

Section 51, Building Act 2004

The building

Street address of building:	1 TE WHARO DRIVE, PAPAMOA, TAURANGA Lots 439-444
Legal description of land where building is located:	LOT 444 DP 530967
Building name:	
Location of building within site/block number:	1 Te Wharo Drive, Papamoa, New Zealand Papamoa Bay of Plenty Tauranga 3118
Level/unit number:	0

The owner

Name of owner:	Zariba Properties Limited
Customer number:	504247
Contact person:	Dwayne Roper
Mailing address:	715 Cameron Road Tauranga South Bay Of Plenty Tauranga 3112
Street address/registered office:	
Phone number:	Landline: 075779949 Mobile:
Daytime:	No information provided
After hours:	No information provided
Facsimile number:	No information provided
Email address:	dwayne@zariba.co.nz
Website:	No information provided

First point of contact for communications with the building consent authority:
Chris Jones (AURECON NEW ZEALAND LIMITED); Mailing Address: Po Box 2585 Seventh Avenue
Tauranga 3140
Tauranga
Tauranga 3140; Phone: 5775152; Email: chris.jones@aurecongroup.com

Building work

The following building work is authorised by this building consent:
Construction of a 1.8 m (maximum height) timber pole retaining wall along the northern boundary of Stage 3D of the Terrace Views Subdivision for Lots 439-444

This building consent is issued under section 51 of the Building Act 2004. This building consent does not relieve the owner of the building (or proposed building) of any duty or responsibility under any other Act relating to or affecting the building (or proposed building). This building consent also does not permit the construction, alteration, demolition, or removal of the building (or proposed building) if that construction, alteration, demolition, or removal would be in breach of any other Act.

This building consent is subject to the following conditions:

Section 90 - Inspections by Building Consent Authorities: (1) Every building consent is subject to the condition that agents authorised by the building consent authority for the purposes of this section are entitled, at all times during normal working hours or while building work is being done, to inspect-
(a) land on which building work is being or is proposed to be carried out; and
(b) building work that has been or is being carried out on or off the building site; and
(c) any building.

(2) The provisions (if any) that are endorsed on a building consent in relation to inspection during the carrying out of building work must be taken to include the provisions of this section.

(3) In this section, inspection means the taking of all reasonable steps to ensure that building work is being carried out in accordance with a building consent.

Construction monitoring requirements
Please contact the following consultants directly to arrange the construction monitoring identified which they have been engaged to carry out.

CPEng structural Engineer PS4
Construction Monitoring - PS4 required for the following.

1. To establish that Construction is in accordance with PS1 design and
building consent.

Compliance schedule
A compliance schedule is not required for the building.

Inspections
The following inspections are required:
- Retaining wall

Documents required

Retaining wall

- B1: Retaining wall - Construction monitoring records (PS3 / PS4)

Copies of all site reports/records must be provided to the Building Consent Authority as work proceeds for their records, please upload these to your consent.

Attachments

Copies of the following documents are attached to this building consent:

- Advice notes / Endorsements

Signature: Paul O'Hara
Position: Building Officer - (07) 5777200 ext 7252
On behalf of: Tauranga City Council
Issue Date: 09 August 2019

Advice notes / Endorsements

Design Engineer - Council reserves the right to call on the project design engineer, at any time to inspect the fabrication and construction of the structure, referenced on the design drawings, to verify that the structure meets the relevant regulatory performance requirements and publicised standards. The design engineer will, following satisfactory inspection (including remedial actions and re-inspection), provide copies of the site inspection / instruction(s) and verify that the works have been completed / installed correctly.

Site Safety - Please ensure all appropriate site safety measures are provided throughout the contract works to comply with NZ Building Code Clause F5 and all occupational safety and health requirements.

Balustrade: A PS3 is required for installation in accordance with manufacturer's specifications.

Ground Bearing - Confirmation of suitability of ground bearing conditions to support imposed loads will be required at time of inspection and before commencement of pouring of any concrete.

Construction Monitoring - PS4 producer statement be provided confirming that the retaining walls have been constructed in accordance with AureconÃ¢â‚¬â„¢s design.
Under section 92 (2A) of the Building Act 2004, If applicable, the owner must include with the application for Code Compliance Certificate, any records of work provided by licensed building practitioners under section 88(1).

Tauranga City



Asset Protection Bond Information Sheet

Why Is An Asset Protection Bond Required?

The bond protects Council assets by covering potential damage to:

- Underground pipework.
- Footpaths.
- Kerb and channel.
- Service boxes/covers.
- Street trees and planted areas etc.

The bond also covers:

- Damage caused during the course of building works (including the reinstatement of the grassed berm).
- The correct installation of water, wastewater, stormwater service connections and vehicle crossings to Council's Infrastructure Development Code standards.
- The supply of as-built information/certification for all approved service connections.
- The correct installation of water supply backflow prevention measures to meet the Health (Drinking Water) Amendment Act 2007.

Additional Costs relating to Asset Protection Bonds

If the cost of remedial works exceeds the value of the Asset Protection Bond, Council shall invoice the Applicant for the balance outstanding.

Should Council incur additional costs such as extra inspections and extra processing time due to non-compliance by the Applicant, Council will charge for inspections at an hourly rate (1hr minimum) plus time related costs.

**See TCC Annual Plan for fees and charges.*

Applying For A Bond Refund

When works are completed to the required standard, the Applicant can phone Council at (07) 5777 000 to arrange for a final inspection.

The Asset Protection Bond monies will be refunded when:

a) The bonded works have been completed and a final inspection has occurred.
b) Council inspection confirms that no damage has occurred to Council assets.

Note: The Asset Protection Bond monies will be refunded to the receipt holder only i.e. the person/party whose name appears on the bond receipt.

** Allow 4-6 weeks for the final inspection and the refund of bond monies.*

Before any work commences, visit Tauranga City Council's website for further detailed information about Asset Protection Bonds (including all fees and charges).

Aurecon New Zealand Limited
Ground Level 247 Cameron Road
Tauranga 3110

PO Box 2292
Tauranga 3140
New Zealand

T +64 7 578 6183
F +64 7 578 6143
E tauranga@aurecongroup.com
W aurecongroup.com

7 June 2019

Dwayne Roper
Director
Zariba Holdings Limited
715 Cameron Road
Tauranga South
Tauranga 3112

Dear Dwayne

Re: Timber pole retaining wall design and Specific requirements for building on Lots 439-444, Stage 3D, Terrace Views Subdivision, Papamoa, Tauranga

1 Introduction

Zariba Holdings Limited have commissioned Aurecon NZ Ltd. to design a continuous timber pole retaining wall to support residential development on Lots 439 to 444 (herein referred to as 'the site') within Stage 3D of the Terrace Views subdivision, Papamoa, Tauranga. The design detailed within this report is for 'Wall 1' which retains the northern area of development within Lots 439 to 444 (inclusive), and ranges in retained height from 0.5m to 1.8m. The total proposed length of the wall is 78m.

A report titled. "Parton Road Residential Subdivision – Geotechnical review of landform design and suitability for residential subdivision"[1], dated 29 January 2016, was originally prepared by Aurecon, providing information on the original geotechnical investigation completed and subsequent assessment of suitability for proposed residential development.

Aurecon's subsequent Geotechnical Completion Report (G2) for Stage 3D-E[2], dated 7 March 2019, documents the earthworks completed and certification to inform the development of buildings at the site. Due to space limitations, Lots 439-444 (inclusive) were designated as specific design. This was due to the buildings needing to extend over the crest of the existing 1V:3H slope and therefore requiring the construction of retaining walls, which may impact the stability of the slope. Consideration was also needed given the potential risk of future earthworks on the adjacent property undermining future walls within the lots.

This report describes the design of a timber pole retaining wall and specific requirements for building on Lots 439 to 444. Attached to this report are the following:

- Safety in Design Summary;
- Aurecon drawings:
  - Timber pole retaining wall design (247593-0009-DRG-G-0020-A);
- Lysaght drawings:
  - Sketch Retaining Wall Plan (Lysaght ref: 152870-SKT-090);
  - Boundary Interface Cross Sections Lots 439-444 (Lysaght ref: 152870-LOTS 439-444, rev 2)
- Geotechnics Lot by Lot Hand Auger logs (Lots 439-444);

[1] Aurecon, 247593 – Parton Road Residential Subdivision – Geotechnical review of landform design and suitability for residential subdivision, rev 1 dated 29 January 2016
[2] Aurecon, 247593 – 320 - Stage 3D-E Geotechnical Completion Report, rev 3. Dated 7 March 2019

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- Perry Geotech Cone Penetration Tests (conducted during the Suitability for Subdivision and Stage 3C GCR reporting)
- Design Calculations;
- PS1 Designer Producer Statement.

Our PS1 Designer Producer Statement does not reference Clause B2 of the Building Code, Structural Durability. We are not able to provide this because there is not an effective verification method for B2 contained within the Building Code. However, we can confirm that the structural timber elements shown in our documentation have treatment selected in accordance with B2/AS1 and NZS3602:2003[3].

This report will also provide foundation recommendations for buildings constructed above these retaining walls. We also understand that the dwellings will consist of single storey light-weight timber structures designed in accordance with NZS:3604 (2011)[4]

2 Design Assumptions

The following design assumptions have been made for Wall 1:

2.1 Ground Conditions

Three Cone Penetration Tests (CPT) have been conducted near the site during the suitability for subdivision phase, prior to construction. An additional two CPTs has been conducted adjacent to Lot 439 during the post-construction verification of Stage 3C earthworks as part of the Stage 3C GCR[5]. Six hand auger borings and 12 Dynamic Cone Penetration (DCP) tests were conducted during the lot by lot testing across the six lots (Lots 439-444) during the Stage 3D-E GCR. All reference geotechnical testing can be found attached.

The retained soils will comprise of engineered fill (pumice sands) and in-situ dune sands (starting at an elevation of 2.7 m RL). The foundation soils are expected to consist of medium dense to dense insitu dune sands. The proposed wall is to be built two metres away from peat within the adjacent property. Though we have designed this wall such that the peat deposits are not relied upon for passive support, it is our understanding this material may be undercut in the future during the development of the adjacent property. It is the responsibility of the developer of the adjacent land to ensure the design timber pole walls within this report are not undermined. The walls have been designed with the soil parameters outlined in Table 1.

Table 1: Design Soil Parameters

Soil Type	Unit Weight (kN/m^3)	Friction Angle (°)	Cohesion (kPa)	Su (kPa)	τ/σ Ratio	Min Strength (kPa)
Engineered Pumice Sand Fill	15	33	5	--	--	--
In-situ Dune Sands	17	32	0	--	0.1	7.2
Peat	11	23	5	15	--	--

[3] NZS3602:2003 (2003) Timber and Wood-based Products for Use in Building. New Zealand
[4] NZS3604:2011 Timber Framed Buildings
[5] Aurecon, 247593 – 316 Stage 3C Geotechnical Completion Report, rev 0. Dated 14 November 2018

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2.2 Groundwater Conditions

This design does not consider groundwater pressures acting within the active wedge of the wall. However, the foundation poles will be found below the groundwater level (2.7mRL). The wall has been designed to account for hydrostatic porewater pressures within the foundation. This design also relies on effective operation of installed wall drainage to ensure porewater pressure does not build up within the retained material. If groundwater is encountered higher than anticipated (2.7mRL), Aurecon should be notified to adjust the design accordingly.

2.3 Surcharge

Wall 1 is designed for a nominal 5 kPa surcharge at the proposed position of any residential development to simulate a one-storey residential building which is proposed to be at least 2m away from the edge of the lagging. The wall is designed using active earth pressures and thus might deflect by 2% of the wall height in the long-term life of the wall.

2.4 Wall Geometry

The ground above the wall is flat-lying to accommodate a building platform for residential development within each of the six lots (Lots 439-444). The ground below the wall is sloping downwards with a maximum slope angle of 18.5°(1V:3H). Passive support of the wall has been excluded for any material above the toe of the downslope side. All levels at the base of the wall have been surveyed and provided by Lysaght Consultants, shown on Lysaght drawing ref: 152870-LOTS 439-444. For more details on the overall design of the wall, refer to drawing 247593-0009-DRG-G-0020-A for the wall cross section design drawing.

2.5 Wall Type

The wall consists of cantilevered timber poles, with timber laggings. Pole borings will be augered through the engineered fill to provide pilot holes for subsequent vibratory driving of the timber piles into the dune sand to the target founding depth. As the pilot holes will be no greater than the SED of the timber poles, voids are not expected, however where any void space is observed this will be filled with pourable cement grout.

2.6 Load and Resistance Factors

The following design factors have been applied:

- Load factor for lateral active earth pressure = 1.6;
- Strength reduction factor on soil capacity: = 0.5.

2.7 Timber Strengths

The following timber strengths have been adopted in accordance with NZS 3603:1993 (Standards New Zealand 2003):

- Pole bending strength = 38.0 MPa (Normal density round softwood timber in green condition);
- Pole shear strength = 3.1 MPa (Normal density round softwood timber in green condition);
- Lagging flexural strength = 11.7 MPa (SG8 timber in green condition).

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3 Load and Resistance Factored Design Calculations

3.1 Timber Pole Sizing

Retaining wall design sizes have been calculated to address the proposed range of retained heights and design assumptions. The design calculations were prepared using an Aurecon-developed MathCAD spreadsheet, based upon the New Zealand Building Code and Broms equations[6]. The design calculations can be referenced within the attachments. The designed wall heights and timber specifications are outlined in Table 2. In the case that timber poles are not available in a size as shown in Table 2, the next larger size should be adopted.

Table 2: Summary of Timber Pole Retaining Wall Design

Max Retained Height (mm)	Pole Small End Diameter (mm)	Pole Spacing (mm)	Pilot Hole Diameter (mm)	Embedment Depth (mm)	Lagging Thickness (mm)
1000	200	1000	100	2000	150 x 50
1800	325	1000	200	3500	150x100 (double lagged) (150x50 for upper 1.0m)

3.2 Slope Stability Analysis

A limit equilibrium slope stability analysis was conducted on the designed wall through the cross-section of Lot 442. The cases analysed, and results of the analysis are outlined in Table 3. The results of each case modelled is attached to this report attachments.

Table 3: A summary of the limit equilibrium slope stability analysis undertaken at Lot 442.

Slope Stability Case	Required Factor of Safety	Achieved Factor of Safety
Static	1.5	1.82
Static with high groundwater level	1.2	1.85
ULS Seismic	1.0	1.23

4 Construction Drawings

Drawings of the wall layout, wall elevation, design section (including construction specification), and landform of the lot are attached.

5 Wall Drainage

The wall drainage is shown on drawing 247593-0009-DRG-G-0020-A. It will comprise of 300mm of approved drainage metal wrapped with a BIDIM A19 (or similar approved) Geotextile behind the wall. The base of the wall will contain 40mm diameter weep holes spaced at intervals of 1.0m at the centre of the first row of exposed lagging between piles. The weep holes will drain into an existing drainage gulley at the property boundary as per Lysaght's long-section drawing (Lysaght ref: 152870-SKT-090.

[6] Ministry of Business Innovation and Employment (2018) B1 Structure. New Zealand

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6 Excavation Restriction

Excavation deeper than 300 mm should not occur within 500 mm of the edge of the lagging in order to prevent any damage to the drainage metal.

7 Peat Undermining

It is understood the adjacent Blokarts land will likely be developed after the construction of the foundation walls. This development may require the undercut and removal of peat and replacement with engineered fill to raise the land to minimum development levels. The future developer of this land will have a duty of care to minimise risk of instability to the Terrace Views embankment and retaining structures.

To minimise any risk associated with undermining, the maximum founding levels of the retaining wall footing were determined based upon the walls inability to surcharge nor rely on the peat in the adjacent property for any support.

8 Fall Protection Barriers

It is recommended that a permanent fall protection barrier be consented and constructed as part of the residential development after the completion of construction of the proposed retaining wall. The design of this permanent fall protection barrier lies outside of the scope of this report. Until a permanent barrier is constructed, a temporary barrier will be constructed and in place.

9 Construction Considerations

9.1 Construction Method

We have assumed construction staging will follow the steps outlined:

- Auger drilling of the pilot holes and driving of timber poles through the dune sand to the design specification
- Placement of lagging and free draining backfill placed down to the existing ground surface;
- Backfilling with engineered fill and compaction to the design specifications.
- Construction of a fall protection barrier to accommodate temporary works during residential development.

9.2 Compaction Specifications and monitoring

The engineered fill material assumed in the design consists of pumice sands fill material, source from the same quarry as the rest of the Terrace Views Subdivision. This material needs to be engineered in accordance with the fill specifications outlined on drawing 247593-0009-DRG-G-0020-A. This specification outlines subgrade preparation including benching, fill placement, and compaction testing. It is noted a temporary fall protection barrier will be required during construction of the retaining wall.

9.3 Construction Monitoring

Construction monitoring by a geotechnical engineer from Aurecon is required during construction of all retaining walls. The engineer shall be notified at each of the following construction hold points to allow inspection before construction may progress:

- Timber inspection and trial of pilot holes and timber pole driving to confirm methodology;
- Inspection of lagging and drainage metal;
- Inspection of fill earthworks:

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- strip topsoil;
- observe placement of fill;
- receive and certify QA testing provided by contractor.

- Final inspection, fill certification, and testing of building platform prior to construction demobilisation.

Note: the construction contractor should notify Aurecon if there are any changes to ground conditions or wall requirements assumed within the design. The installation and certification of the fall protection barriers shall be undertaken by others.

9.4 Post Construction

A PS4 producer statement will be issued by Aurecon following the completed construction of the retaining wall and upon receipt of the contractor's PS3 producer statement. These certificates will be supplied to Tauranga City Council as part of the code of compliance certification under the building consent.

10 Specific Requirements for Building - Lots 439 to 444

The suitability of Lots 439 to 444 for building is contingent on the following specific requirements being included in the planning, design and construction of dwellings and any other structure requiring a building consent under the Building Act 2004.

MBIE Guidelines 'TC2' building foundations

Building platforms for the proposed dwellings on Lots 439 to 444 are expected to be positioned over engineered fill either already placed and certified as part of the original Stage 3D-E earthworks completion or placed as part of the proposed retaining wall construction within these lots. Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011.

In accordance with Table 5.1 within Module 3 of the MBIE guidelines the site effects from excess pore water pressure and liquefaction is assessed to be 'L3 - High' under ULS conditions. The ULS liquefaction induced settlements are predicted to range up to 205mm.

In accordance with Module 4 of the MBIE guidelines[7], for cases where the predicted effects are deemed to be intolerable (L3 or higher), it is necessary to consider options for either ground improvement or the use of robust raft foundations, or deep foundations. We consider that the most practicable solution for this site is to specify robust raft foundations.

We have assessed the type of raft foundation system using the general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes[8]. In consideration of the predicted liquefaction settlement and thickness of the non-liquefiable crust, we classify the site as Technical Category 2 (TC2) in accordance with this guideline.

Specific engineered design of a MBIE 'TC2' foundation is required for all residential buildings constructed on the subject lots with Stage 3D and 3E. Section 5.5.1 provides further discussions of TC2 foundation options/types.

[7] New Zealand Geotechnical Society (NZGS) and Ministry of Business Innovation & Employment (MBIE), Earthquake geotechnical engineering practice; Module 4; Earthquake resistant foundation design; Revision 0 November 2016

[8] MBIE, Repairing and rebuilding houses affected by the Canterbury earthquakes; Version 3, December 2012

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Foundation Bearing Capacity

An ultimate bearing capacity of 300 kPa may be adopted for design of shallow foundations in accordance with NZ3604:2011[9]. This bearing capacity should be confirmed by a TCC Category 1 Geo-professional as part of the proposed retaining wall and earthworks, and shall be multiplied by the following reduction factors:

- SLS loading: 0.33
- ULS loading: 0.5
- Earthquake Loading: 0.7

Foundation requirements and inspections

Buildings will need to be flexible to withstand up to 25mm of differential settlement over a 6m length, as indicated by Appendix B section B1 of the NZ Building Code Handbook and Approved Documents.

As the site is not considered “good ground” as specified under NZS3604, the foundation formation is to be inspected by a suitably qualified and experienced geotechnical engineer prior to pouring the concrete. Foundations may need to be deepened or broadened or both should low strength soils be encountered during excavation. All topsoil shall be removed from beneath building foundations and floor slabs prior to building.

Building Foundation Offsets from Retaining Walls (all lots)

The retaining walls have been designed to accommodate a building surcharge from a lightweight, single storey timber framed dwelling as specified under NZS3604. A minimum setback of 2 metres from the edge of lagging is recommended for future dwellings.

Minimum building platform and finished floor levels (all lots)

The minimum building platform level for any structure requiring a building consent in accordance with RC26514 is set at +5.1mRL (Moturiki Datum). The finished ground level (which equates to the building platform level) on all subject lots varies between +5.10mRL and +6.0 mRL based on the as-built finished landform survey provided by Lysaght.

Where topsoil is encountered during construction, undercut and replacement with engineered fill will be required to achieve the minimum finished floor level. Please refer to Section 6.2 of the Stage 3D-E GCR for details on floor levels required to mitigate flood hazard.

On-site disposal of stormwater

The stormwater collected on all subject lots (Lots 439 to 444 inclusive) is to be disposed of via in-ground soakage.

The ground comprises predominantly pumice sand, fine to medium grained dune site-won sand fill, and natural cut sands. Stormwater disposed of via in-ground soakage will be reticulated within the natural dune sand material. Soakage testing was carried out by Aurecon for Stage 3D and 3E to determine the permeability of the ground to derive recommended design soakage rates.

The soakage test assessment report prepared by Aurecon is included with the Civil Asset Completion Report prepared by Lysaghts. Specific requirements for the design and construction of the soakage system are provided by Lysaght in the Terrace Views Subdivision Stage 3D-3E Civil Asset Completion Report.

[9] NZ3604:2011 Timber Framed Buildings

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The distance of foundation construction to the soak hole rings or ATLANTIS® FLO-TANK® crate system is dependent on the depth of the soak holes. The following formula should be used to determine the building foundation offset distance:

Offset distance = $D \div \sqrt{3}$, where D is the depth to base of the soakage measured from ground level.

Effluent disposal

Effluent disposal from all lots is to be piped via the established reticulation system provided at the boundary of each lot. On-site disposal of effluent is not permitted.

General Recommendations for building and Advisory Notes

The reader is referred to the Stage 3D-E GCR for general recommendations and advisory notes for building.

11 Safety In Design

Safety in Design is a standard that integrates hazard identification and risk assessment early on within the design process. The application within this project is based on a risk management approach that defines control measures during construction, operations, maintenance, and demolition.

The safe design process is intended to increase the likelihood of project safety and to document the safe design work undertaken and record associated outcomes. We welcome any Client or Contractor comments on the anticipated risk or with the Safety in Design process. A Safety in Design register with anticipated control measures and actions is enclosed. The key construction issues that were identified as the having the highest risk and their control measure are as follows:

- Earthworks on a slope. Contractor should establish physical barrier for earthworks and limit vehicles and other plant on slopes to limit the possibility of a vehicle rolling down the hill, or a plant-induced slope failure.
- Open Augered Holes. The contractor should provide a physical barrier around augered holes that do not have a pole installed to prevent people from falling in the hole;
- Improper Manual Handling of Construction Materials. The contractor needs to ensure suitable and safe construction methodology is obeyed by workers;
- Collapse of wall or batter. The contractor vehicles/plant/machinery shall not be placed within 2m (the active wedge) of the wall during construction unless advised otherwise by an Aurecon geotechnical engineer. Plant shall also work at a safe distance behind the batter;
- Working with Plant. All people on site shall maintain eye contact with operator, wear PPE, maintain distance from machines. Contractor shall also provide proper signage and barriers where applicable.

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12 Limitations

This report has been prepared in accordance with the design assumptions herein. The contents of the report are for the sole use of the client. No responsibility or liability will be accepted to any third party. Data or opinions contained within the report shall not be used in other contexts or for any other purposes without prior written agreement of Aurecon New Zealand Limited.

The design covered in this report is based on data collected at specific locations and by using appropriate investigation methods within the limits of specific site constraints. Only a finite amount of information has been collected to meet the specific financial and technical requirements of the client's brief and this report does not purport to completely describe all the site characteristics and properties. The nature and continuity of the ground between test locations has been inferred using experience and judgement and it must be appreciated that actual conditions could vary from the assumed model.

Subsurface conditions relevant to construction works should be assessed by contractors who can make their own interpretation of the factual data provided. The contractors should perform any additional tests as necessary for their own purposes.

Subsurface conditions, such as groundwater levels, can change over time. This should be borne in mind, particularly if the report is used after a protracted delay. This report is not to be reproduced either wholly or in part without prior written permission from Aurecon New Zealand Limited.

Yours faithfully



Miles Buob
Geotechnical Engineer



Kushant Kishore
Senior Geotechnical Engineer



Benjamin O'Loughlin
TCC Category 1 Geo-professional

Enclosed:

- Wall 1 Safety in Design register
- Wall 1 Drawings
- Hand Auger Borehole Logs
- Cone Penetration Testing Logs
- Wall 1 Design Calculations
- PS1 Producer Statement

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Safe Design Risk Register – Terrace Views Retaining Wall Stage 3D

Client	Zariba	**Workshop Date**	24-May-19
Stakeholders	Aurecon, Zariba, Contractors, Tauranga City Council.	**Revision No.**	Rev A
Meeting Attendees	Miles Buob, Kushant Kishore, Ben O Loughlin.	**Project No.**	247593
		Project Leader	BOL

Risk Rating Matrix

Most Likely Consequence	Likelihood of occurrence: 5 - Very likely	4 - Good chance	3 - Likely	2 - Unlikely	1 - Very unlikely
A - Disastrous	Extreme	Extreme	Extreme	Extreme	High
B - Critical	Extreme	Extreme	Extreme	High	High
C - Serious	Extreme	High	High	Moderate	Moderate
D - Significant	High	High	Moderate	Low	Low
E - Minor	Moderate	Moderate	Low	Low	Low

Notes:

1. This risk register has been prepared to document hazards and risk treatments associated with project elements designed by Aurecon, including subconsultants where applicable.
2. The full life cycle of the project has been considered including design, construction (and commissioning), operation, maintenance, modification and demolition phases.
3. The risk register is focussed on hazards resulting from atypical features specific to the design. It is expected that risks associated with generic hazards (working at heights, excavations, etc) will be addressed by other stakeholders using appropriate risk management techniques during subsequent phases of the project.
4. Residual risks which cannot reasonably be actioned by Aurecon during the design phase have been identified and require action by other stakeholders during subsequent phases of the project (e.g. construction, operations, maintenance, modification or demolition).
5. This risk register does not replace the need for other stakeholders to complete their own hazard identification and risk assessment for the project (including the development of safe work procedures for specific activities) in due course.

IDENTIFY HAZARD				ASSESS RISK				IMPLEMENT RISK TREATMENT					
ID	**Risk Source (Hazard)**	**Event / Cause / Consequence**	**Persons Affected**	**Control Measure (Risk Treatment)**	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Owner**	**Implement Control - Y/N?**	**Action / Comment (or justification if no action)**	**Action Owner(s)**	**Timing / Date**	**Status (Open / Closed)**
Design Phase (Pre-construction)													
1.01	Stability of the wall	Insufficient wall sizing resulting in injuries or casualties from wall failure.	Designer, Project team	Adopt conservative design aligned with B1/VM4 and the NZTA BM.	2 - Unlikely	B - Critical	**High**	Project Team	Yes	Design to be undertaken and verified by competent staff.	Aurecon	During the design stage	Closed
Construction and Commissioning Phase													
2.01	Earthworks	Working on or near slopes leading to person and plant falling from one level to another, possibly causing injuries especially during wet days.	Contractor	Construction barrier to be notably established and earthworks methodology to be proven suitable and safe.	3 - Likely	C - Serious	**High**	Contractor	Yes	Contractor to establish physical barrier for earthworks.	Contractor	Prior to and during construction	Open
2.02	Unexpected ground conditions	Weaker foundation soils encountered than those designed for due to incomplete ground investigation. Results in insufficient wall sizing design.	Designer, Contractor	Design in accordance with site investigation. Piles are likely to be driven, should pile driving find unexpected results designer is to be notified and pile lengthened. Note this is unlikely based on the site investigation.	2 - Unlikely	C - Serious	**Moderate**	Contractor	Yes	Contractor to follow standard earthworks and piling practise.	Contractor	Prior to and during construction	Open
2.03	Manual handling	Manual efforts during wall construction resulting in injury. E.g. handling of reinforcing steel, pouring of concrete.	Contractor	Contractor to ensure suitable and safe construction methodology well understood by the workers.	3 - Likely	C - Serious	**High**	Contractor	Yes	Appropriate PPE to be worn and smooth interaction of workers.	Contractor	Construction Phase	Open
2.04	Contaminated ground - OHS hazard	Exposure of contaminated ground during construction, disturbance of contaminated ground causing illness.	Contractor	Contaminated ground awareness training to be undertaken for identification of contaminated ground.	2 - Unlikely	D - Significant	Low	Contractor	Yes	If contractor identifies potential contamination, he shall alert the Engineer immediately.	Contractor	Construction Phase	Open
2.05	Above and below ground services	Clashes and/or damage due to poorly identified services leading to injury or death. Protection of utilities required during construction.	Contractor	Undertake service locate and physically identify services on site if necessary. Gas line relocation to take place prior to wall construction works. De-energise services if necessary.	2 - Unlikely	C - Serious	**Moderate**	Contractor	Yes	Contractor to validate all service information on site and ensure work methods recognise and account for on site services.	Contractor	Prior to and during construction	Open
2.06	Working from height	Workers building retaining walls and engineers inspecting wall construction, falling from one level to another resulting in serious injuries.	Contractor, inspectors	Contractor to provide risk register for all staff onsite.	2 - Unlikely	D - Significant	Low	Contractor	Yes	Contractor to consider installing temporary safety fencing on top of wall during construction.	Contractor	Construction Phase	Open
2.07	Collapse of wall or batter	Collapse of wall or unretained batter prior to wall completion from surcharge e.g. machinery. Shall not surcharge the walls or unretained batter during or before construction. Shall not surcharge the walls post-construction above the design surcharge.	Contractor	Contractor vehicles/plant/machinery to not be placed within the active wedge of the wall during construction unless advised otherwise by a geotechnical engineer. Plant such as cranes, concrete trucks, excavators shall work below the retaining wall or a safe distance behind the batter.	2 - Unlikely	B - Critical	**High**	Contractor	Yes	Contractor to provide work plan prior to construction showing how plant will work around the wall during construction.	Contractor	Construction Phase	Open
2.08	Working with plant	Unprotected personnel struck by moving plant resulting in serious accident.	Contractor, inspectors	Maintain contact with operator. Wear PPE. Maintain distance from machines where possible. Signage, barriers.	2 - Unlikely	B - Critical	**High**	Contractor	Yes	Experienced plant operator to be aware of unprotected personnel. People on foot to sign in to site and notify operators of their presence.	Contractor	Construction Phase	Open
Operations and Maintenance Phase													
3.01	Security Fence	Condition of security fence above wall degrades due to damage/weathering such that they do not provide sufficient fall restraint to pedestrians.	Stakeholders	Permanent barriers should be periodically inspected for condition. Barriers to be installed in accordance with NZ Building Code-F4.	2 - Unlikely	D - Significant	Low	Wall owner	Yes	Owner to do regular inspections.	Wall owner	Maintenance	Open
3.02	Drainage	Blockage or failure of drainage.	Stakeholders	Drainage design including: filter fabric.	2 - Unlikely	D - Significant	Low	Wall owner	Yes	Drainage outlets shall be regularly maintained by wall owner.	Wall owner	Maintenance	Open

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Safe Design Risk Register – Terrace Views Retaining Wall Stage 3D

Client	Zariba	**Workshop Date**	24-May-19
Stakeholders	Aurecon, Zariba, Contractors, Tauranga City Council.	**Revision No.**	Rev A
Meeting Attendees	Miles Buob, Kushant Kishore, Ben O Loughlin.	**Project No.**	247593
		Project Leader	BOL

Risk Rating Matrix

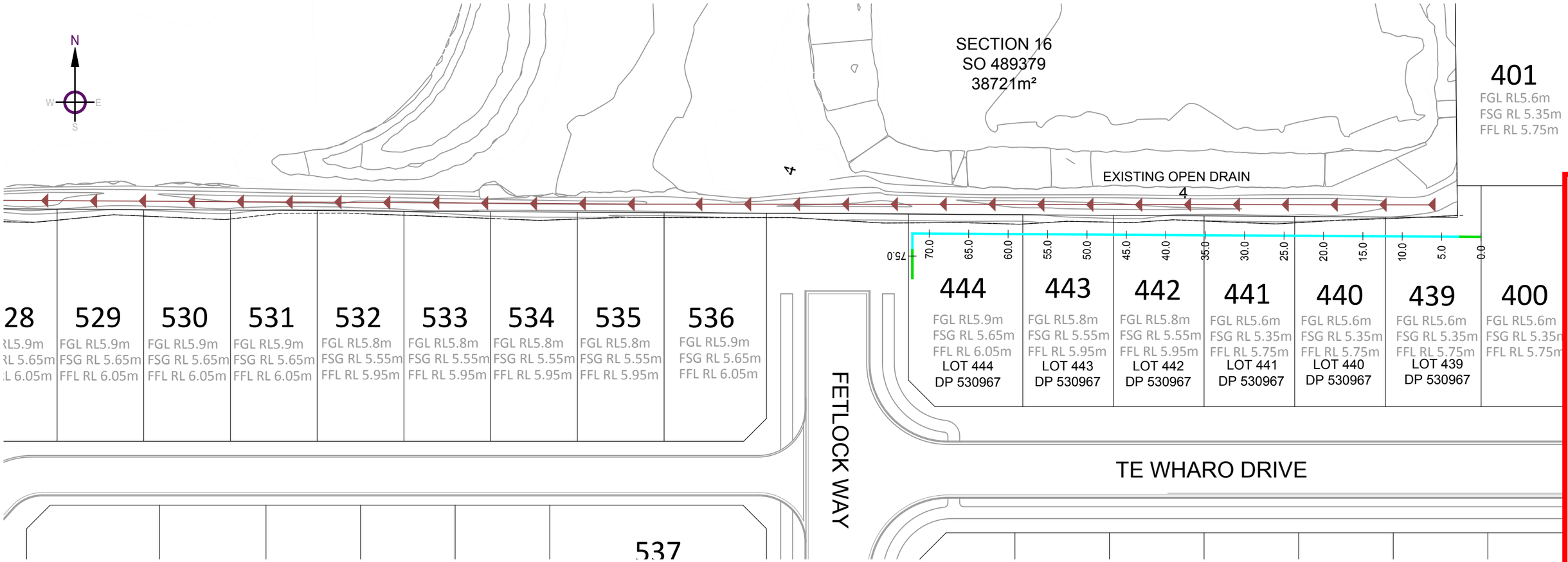
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A - Disastrous	Extreme	Extreme	Extreme	Extreme	High
B - Critical	Extreme	Extreme	Extreme	High	High
C - Serious	Extreme	High	High	Moderate	Moderate
D - Significant	High	High	Moderate	Low	Low
E - Minor	Moderate	Moderate	Low	Low	Low

Notes:

1. This risk register has been prepared to document hazards and risk treatments associated with project elements designed by Aurecon, including subconsultants where applicable.
2. The full life cycle of the project has been considered including design, construction (and commissioning), operation, maintenance, modification and demolition phases.
3. The risk register is focussed on hazards resulting from atypical features specific to the design. It is expected that risks associated with generic hazards (working at heights, excavations, etc) will be addressed by other stakeholders using appropriate risk management techniques during subsequent phases of the project.
4. Residual risks which cannot reasonably be actioned by Aurecon during the design phase have been identified and require action by other stakeholders during subsequent phases of the project (e.g. construction, operations, maintenance, modification or demolition).
5. This risk register does not replace the need for other stakeholders to complete their own hazard identification and risk assessment for the project (including the development of safe work procedures for specific activities) in due course.

IDENTIFY HAZARD				ASSESS RISK				IMPLEMENT RISK TREATMENT					
ID	**Risk Source (Hazard)**	**Event / Cause / Consequence**	**Persons Affected**	**Control Measure (Risk Treatment)**	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Owner**	**Implement Control - Y/N?**	**Action / Comment (or justification if no action)**	**Action Owner(s)**	**Timing / Date**	**Status (Open / Closed)**
3.03	Durability	Condition of wall materials degrading due to weathering and/or less than sufficient materials and/or construction quality. The risk is potential for having to repair wall.	Stakeholders	Concrete and steel reinforcement quality have been specified in accordance with NZS 3104 and NZS 4671 respectively	2 - Unlikely	D - Significant	Low	Wall owner	Yes	Engineer and contractor to pay attention to quality of construction materials during inspections.	Wall owner	Maintenance	Open
Modification, Demolition and Dismantling Phases													
4.01	Modification, Demolition and Dismantling	Works may be difficult and may affect SUP above due to close proximity. E.g. might be difficult to remove wall and maintain temporary support to SUP during or post works.	Stakeholders	Adopt a recognised design for modification, demolotion or dismantling when or if required.	3 - Likely	D - Significant	Moderate	Wall owner	Yes	Wall height is 2m or less, which limits impacts of modification, demolition and dismantling.	Wall owner	Maintenance	Open

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PLAN OF RETAINING WALL

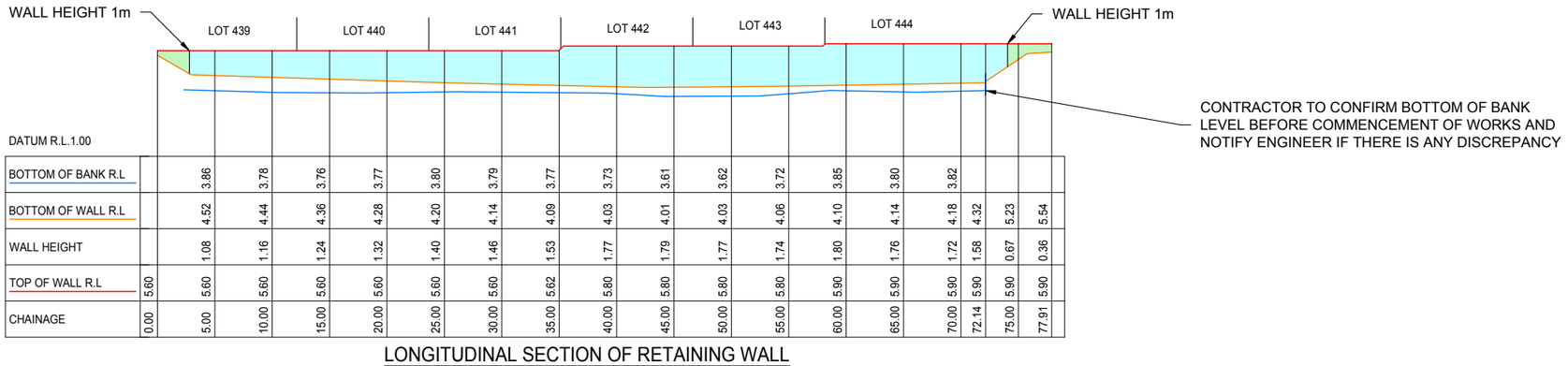
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NOTES:

1. ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH TAURANGA CITY COUNCIL'S INFRASTRUCTURE DEVELOPMENT CODE, THE NEW ZEALAND BUILDING CODE, AND BAY OF PLENTY REGIONAL COUNCIL'S EROSION AND SEDIMENT CONTROL GUIDELINES.
2. ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE
3. LEVELS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953.
4. BOUNDARIES AND AREAS ARE APPROXIMATE ONLY AND ARE SUBJECT TO CHANGE. FINAL BOUNDARIES WILL BE IN ACCORDANCE WITH CITY PLAN AND LINZ REQUIREMENTS.
5. BOUNDARIES NOT FOR BUILDING DESIGN PURPOSES.
6. RETAINING WALL POLE SIZES AND EXTENTS ARE APPROXIMATE AND BASED ON THE LYSAGHT SURVEY. THE POLE SIZE AND SET OUTS NEED TO BE CONFIRMED ON SITE BY THE CONTRACTOR AND MEET THE REQUIREMENTS OF AURECON DRAWING 247593-0009-DRG-G-0020.

LEGEND:

- BOTTOM OF BANK
- EXISITNG OPEN DRAIN
- APPROXIMATE LENGTH / AREA WHERE A 200mm DIA POLE IS APPLICABLE, REFER TO AURECON 247593-0009-DRG-G-0020-A, MAX RETAINED HEIGHT <1000mm. REFER NOTE 6.
- APPROXIMATE LENGTH / AREA WHERE A 325mm DIA POLE IS APPLICABLE, REFER TO AURECON 247593-0009-DRG-G-0020-A, MAX RETAINED HEIGHT <1800mm. REFER NOTE 6.



BOTTOM OF BANK R.L		3.86	3.78	3.76	3.77	3.80	3.79	3.77	3.73	3.61	3.62	3.72	3.85	3.80	3.82							
BOTTOM OF WALL R.L		4.52	4.44	4.36	4.28	4.20	4.14	4.09	4.03	4.01	4.03	4.06	4.10	4.14	4.18	4.32	5.23	5.54				
WALL HEIGHT		1.08	1.16	1.24	1.32	1.40	1.46	1.53	1.77	1.79	1.77	1.74	1.80	1.76	1.72	1.58	0.67	0.36				
TOP OF WALL R.L	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.62	5.80	5.80	5.80	5.80	5.90	5.90	5.90	5.90	5.90	5.90				
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	72.14	75.00	77.91				

LONGITUDINAL SECTION OF RETAINING WALL

HOR. SCALE 1:500
VER SCALE 1:250

FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
-	17/05/19	FOR INFORMATION	RD		

Drawn	RD	Signed	Date 17/05/19
Designed	AV	Signed	Date 17/05/19
Verified	PM	Signed	Date 17/05/19
Approved	PM	Signed	Date 17/05/19

LYSAGHT

SURVEYING, ENGINEERING & LAND DEVELOPMENT
19 Totara St, Mount Maunganui 3116 Ph 07 578 8798 www.lysaght.net.nz

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

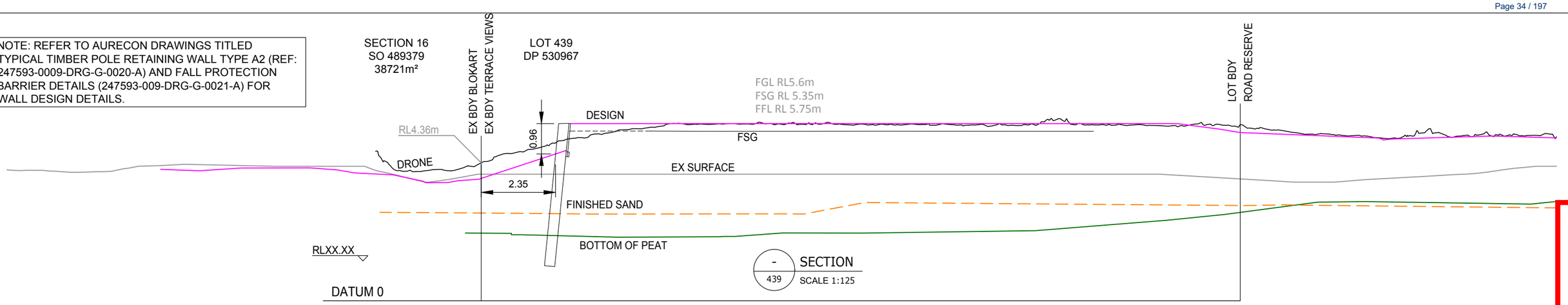
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PLAN & LONGSECTION
LOTS 439-444

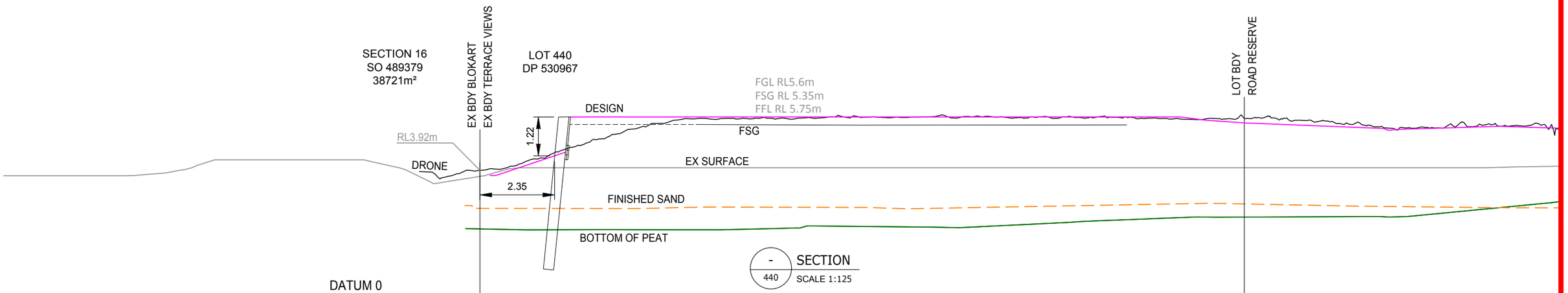
Project No. 152870
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Drawing No. 152870-200-RW439-444
Rev. 1

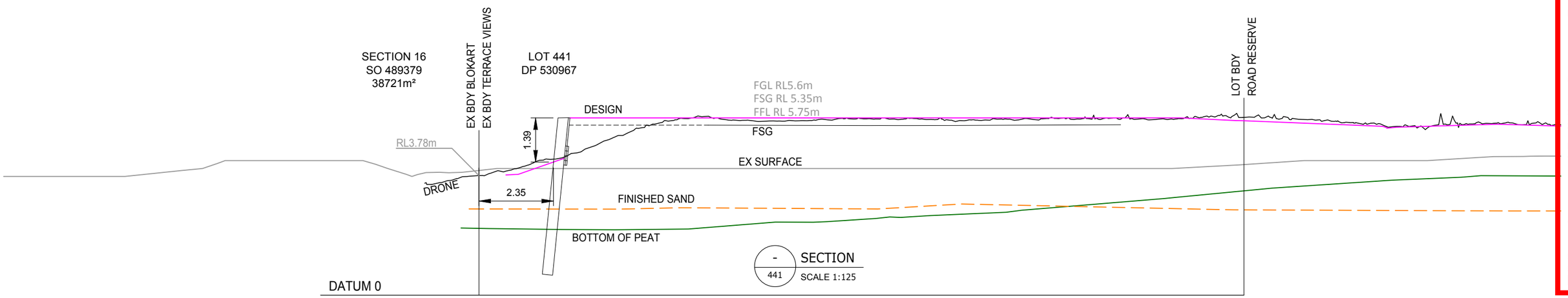
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TCC - Approved Building Consent Document - BC191200 - Pg 12 of 91 - 24/07/2019 - poha

NOTE: REFER TO AURECON DRAWINGS TITLED TYPICAL TIMBER POLE RETAINING WALL TYPE A2 (REF: 247593-0009-DRG-G-0020-A) AND FALL PROTECTION BARRIER DETAILS (247593-009-DRG-G-0021-A) FOR WALL DESIGN DETAILS.







FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
3	19/06/19	SECTIONS UPDATED	AV		
2	6/06/19	BRL REMOVED	AV		
1	21/01/19	FOR INFORMATION	AV		

Drawn	Signed	Date 21/01/19
Designed AV	Signed	Date 21/01/19
Verified	Signed	Date
Approved	Signed	Date

LYSAGHT

SURVEYING, ENGINEERING & LAND DEVELOPMENT
19 Totara St, Mount Maunganui 3116 Ph 07 578 8798 www.lysaght.net.nz

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NO LIABILITY SHALL BE ACCEPTED FOR THE UNAUTHORISED USE OF THIS DRAWING
DO NOT SCALE DRAWING

Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

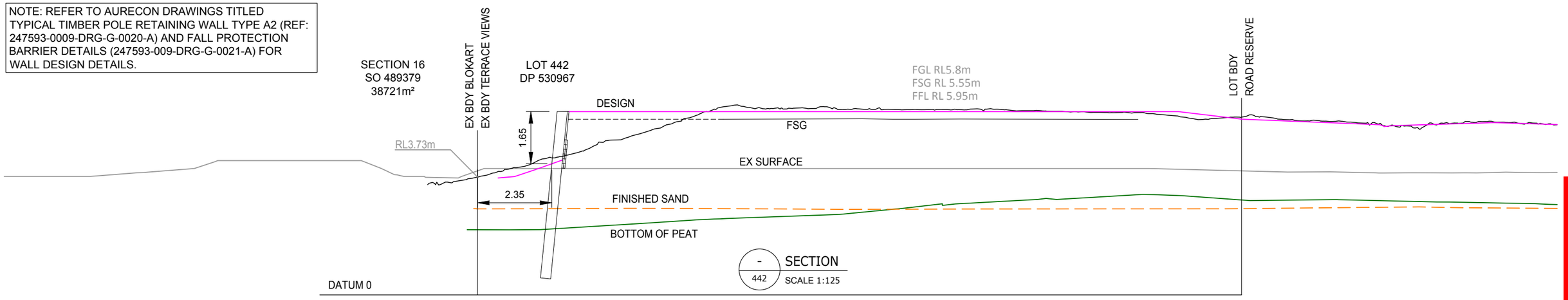
Drawing Title:
RETAINING WALL
BOUNDARY INTERFACE CROSS SECTIONS
LOTS 439 - 444
SHEET 1

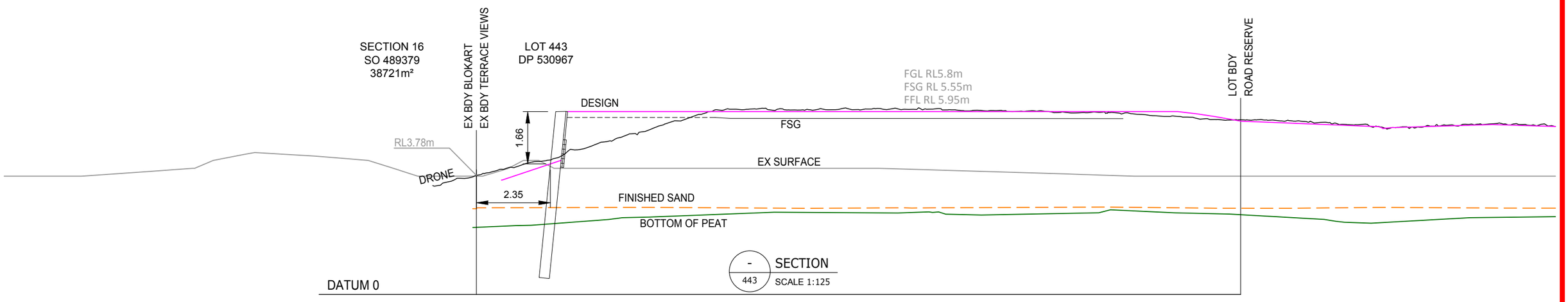
Project No. 152870
Scale (A3) AS SHOWN
Drawing No. 152870-210-RW439-444
Rev. 3

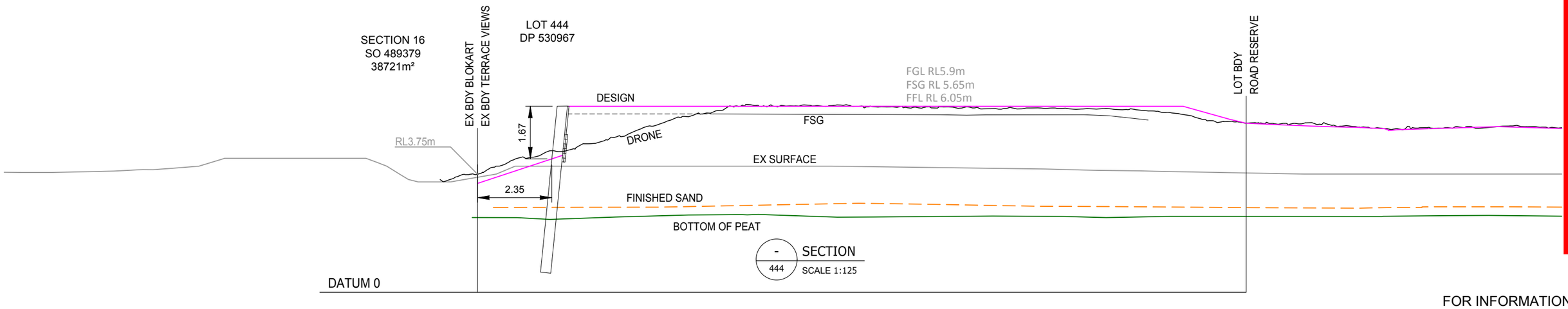
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TCC - Approved Building Consent Document - BC191200 - Pg 13 of 91 - 24/07/2019 - poha

NOTE: REFER TO AURECON DRAWINGS TITLED TYPICAL TIMBER POLE RETAINING WALL TYPE A2 (REF: 247593-0009-DRG-G-0020-A) AND FALL PROTECTION BARRIER DETAILS (247593-009-DRG-G-0021-A) FOR WALL DESIGN DETAILS.







FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
3	19/06/19	SECTIONS UPDATED	AV		
2	6/06/19	BRL REMOVED	AV		
1	21/01/19	FOR INFORMATION	AV		

Drawn	AV	Signed	Date 21/01/19
Designed	AV	Signed	Date 21/01/19
Verified		Signed	Date
Approved		Signed	Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
RETAINING WALL
BOUNDARY INTERFACE CROSS SECTIONS
LOTS 439 - 444
SHEET 2

Project No. 152870

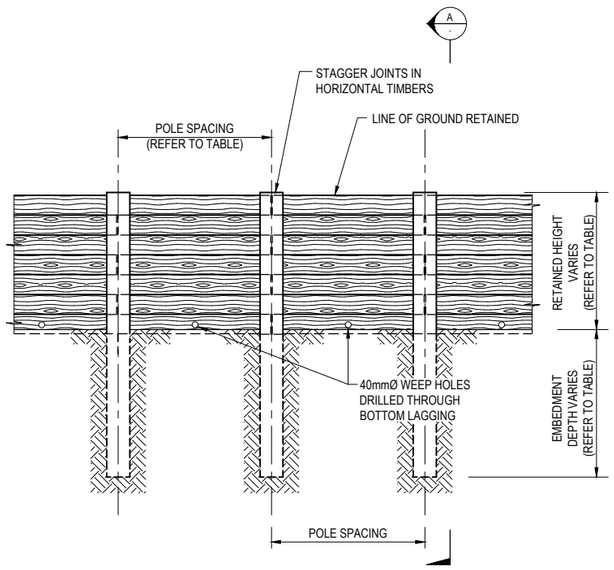
Scale (A3) AS SHOWN

Drawing No. 152870-211-RW439-444

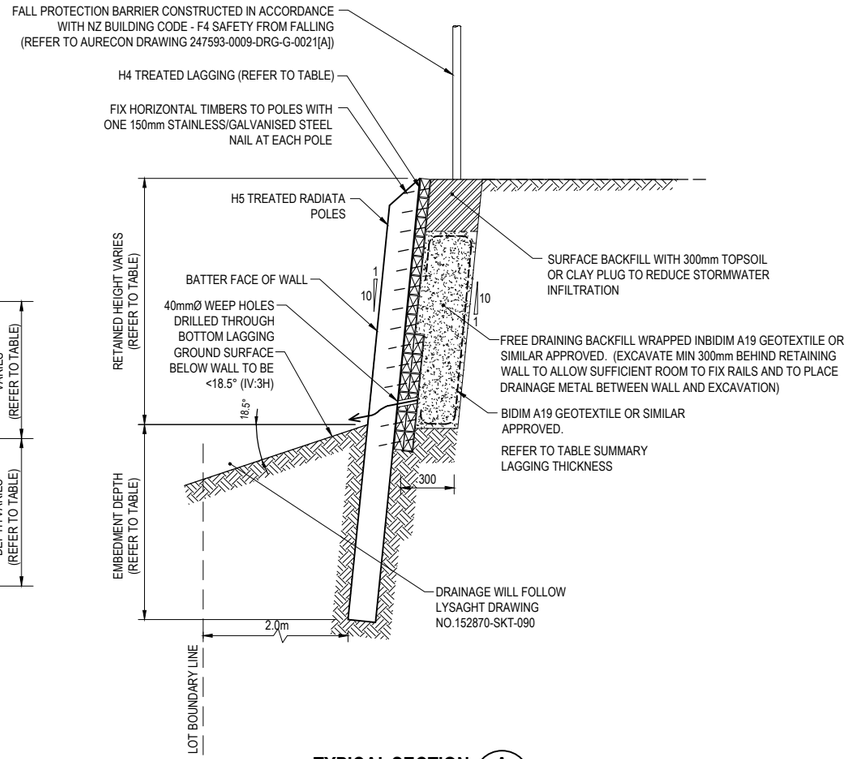
Rev. 3

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TYPICAL FRONT ELEVATION OF WALL
NTS



TYPICAL SECTION A
NTS

RETAINING WALLS

DRIVEN TIMBER POLE RETAINING WALL SCHEDULE					
MAX RETAINED HEIGHT (mm)	SMALL END DIAMETER (mm)	POLE SPACING (mm)	PILOT HOLE DIAMETER (mm)	EMBEDMENT DEPTH (mm)	LAGGING DIMENSIONS (mm)
1000	200	1000	100	2000	150 x 50
1800	325	1000	200	3500	150 X 100 (DOUBLE LAGGED) (150x50 FOR UPPER 1.0m)
NOTE: REFER TO SKETCH RETAINING WALL PLAN LOTS 439-444 (DRAWING No 152870-SKT-90) AND RETAINING WALL BOUNDARY INTERFACE CROSS SECTIONS LOTS 439-444 (DRAWING No 152870-210-RW439-444) BY LYSAGHT FOR POLE POSITION AND BOUNDARY OFFSET.					

1. CAUTION:

DEEP EXCAVATIONS UNSUPPORTED DURING CONSTRUCTION MAY BE HAZARDOUS PARTICULARLY WHEN WORKING IN CONFINED SPACES.
WORKSAFE NEW ZEALAND EXCAVATION SAFETY GOOD PRACTICE GUIDELINES (JULY 2016) GIVES RECOMMENDED SAFETY PROCEDURES FOR SUCH SITUATIONS. TEMPORARY EXCAVATIONS ARE THE RESPONSIBILITY OF CONTRACTORS, CONTRACTORS ARE REQUIRED TO TAKE DUE CARE AND MEASURES TO PROTECT THEIR WORKS FROM ANY SLIPS.

2. MATERIALS:

TIMBER:

TIMBER POLES SHALL BE PEELED RADIATA PINE LOGS COMPLYING WITH THE REQUIREMENT OF NZS 3605:2001 'LOAD BEARING ROUND TIMBER PILES AND POLES' TREATED TO NZS 3602:2003 SPECIFICATION H5.

DIMENSIONS OF POLES ARE SPECIFIED AS MINIMUM SMALL END DIAMETERS. ACTUAL DIAMETERS WILL BE GREATER DUE TO TAPER AND TIMBER GRADING.

LAGGING SHALL BE SG 8 GRADE TIMBER COMPLYING WITH THE REQUIREMENT OF NZS 3622:2004 'VERIFICATION OF TIMBER PROPERTIES' AND GRADED IN ACCORDANCE WITH THE PROVISIONS OF NZS 3631. LAGGING SHALL BE TREATED TO NZS 3602:2003 SPECIFICATION H4.

LAGGING TO EXTEND A MINIMUM OF 100mm BELOW EXISTING GROUND LEVEL. ALL TIMBER SHALL HAVE TPA IDENTIFICATION BRANDS VISIBLE WHEN DELIVERED TO THE SITE, AND SHALL BE PROTECTED AGAINST DAMAGE DURING STORAGE AND HANDLING.

FIXING OF HORIZONTAL TIMBERS TO POLES SHALL UTILISE STAINLESS / GALVANISED STEEL NAILS AS DETAILED.

3. EXCAVATION AND INSTALLATION:

EXCAVATION IN STAGES TO ALLOW FOR TEMPORARY SUPPORT DURING CONSTRUCTION IS REQUIRED. NO MORE THAN 3m OF UNSUPPORTED SLOPE SHALL EXIST AT ANY ONE TIME.

TIMBER PILING SHALL BE DRIVEN WITH A GRAVITY HAMMER OR POWER HAMMER IN BORED PILOT HOLES. WHEN THE NATURE OF THE DRIVING IS SUCH AS TO UNDULY INJURE THE HEADS, TIMBER PILING SHALL BE PROTECTED BY CAPS OF APPROVED DESIGN PREFERABLY HAVING A ROPE OR OTHER SUITABLE CUSHION NEXT TO THE PILE HEAD AND FITTING INTO A CASTING WHICH IN TURN SUPPORTS A TIMBER SHOCK BLOCK. WHEN THE AREA OF THE HEAD OF THE PILE IS GREATER THAN THAT OF THE FACE OF THE HAMMER, A SUITABLE CAP SHALL BE PROVIDED TO DISTRIBUTE THE BLOW OF THE HAMMER THROUGHOUT THE CROSS SECTION OF THE PILE AND THUS AVOID, AS FAR AS POSSIBLE, THE TENDENCY TO SPLIT OR SHATTER THE PILE. COLLARS OR BANDS TO PROTECT THE PILING AGAINST SPLITTING AND BROOMING SHALL BE PROVIDED.

PILE DRIVER LEADS SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO AFFORD FREEDOM OF MOVEMENT TO THE HAMMER, AND SHALL BE HELD IN POSITION BY GUYS OR STIFF BRACES TO INSURE SUPPORT TO THE PILE DURING DRIVING. EXCEPT WHERE PILINGS ARE DRIVEN THROUGH WATER, THE LEADS SHALL BE OF SUFFICIENT LENGTH THAT THE USE OF A FOLLOWER WILL NOT BE NECESSARY.

CONTRACTOR SHALL PROVIDE PILOT HOLES TO MINIMIZE RISK OF DAMAGE TO PILING AND FOR THE PURPOSE OF MAINTAINING ALIGNMENT. THE MAXIMUM DEPTH OF THE PILOT HOLE SHALL BE 1.5M AND THE MAXIMUM DIAMETER SHALL BE NO GREATER THAN THE DIAMETER OF THE PILE TIP. INCREASE THE DIAMETER OR DEPTH OF THE PILOT HOLE ONLY AFTER PRIOR APPROVAL BY THE ENGINEER.

THE PILING SHALL BE DRIVEN APPROXIMATELY TO THE DEPTH SHOWN ON THE PLANS TO SECURE THE BEARING RESISTANCE. BEARING RESISTANCE SHALL BE DETERMINED BY THE SPECIFIED FORMULA AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

CONTRACTOR SHALL POINT OR SQUARE-CUT PILING AS REQUIRED BY SOIL CONDITIONS. WHERE NECESSARY, PILE SHALL BE SHOED WITH METAL SHOES. PILING POINTS SHALL BE SHAPED TO SECURE EVEN AND UNIFORM BEARING ON SHOES.

AFTER DRIVING, SAW THE PILING OFF AT A TRUE PLANE AS INDICATED ON THE PLANS. THE FINAL PLAN ELEVATIONS ARE TO BE WITHIN THE ESTABLISHED ELEVATION.

IF CUTTING IS NECESSARY THE EXPOSED SURFACES SHALL BE FLOODED WITH A COPPER NAPTHENATE TYPE OF WOOD PRESERVATIVE.

4. GALVANISING:

COMPONENTS SPECIFIED ON THE DRAWINGS AS BEING GALVANISED ARE TO BE HOT-DIP GALVANISED IN ACCORDANCE WITH AS/NZS 4680, AS/NZS 4791 OR AS/NZS 4792 AS APPROPRIATE.

IN ADDITION TO THE REQUIREMENTS OF THESE CODES, THE FOLLOWING SHALL BE COMPLIED WITH.

THE MATERIAL USED FOR HOT-DIP GALVANISING SHALL BE ZINC METAL SPECIFICALLY MADE FOR THIS PURPOSE AND SHALL BE 99.5% PURE.

THE AVERAGE WEIGHT OF ZINC COATING SHALL BE NOT LESS THAN 380 gm/sq.m FOR BOLTS AND WASHERS AND NOT LESS THAN 700 gm/sq.m FOR OTHER STRUCTURAL STEELWORK.

ALL BOLTS AND NUTS SHALL BE GALVANISED AFTER SCREW CUTTING AND TOLERANCES USED IN SCREW CUTTING SHALL MAKE ALLOWANCE FOR THIS.

DAMAGED SURFACES OR WELDED AREAS SHALL BE MADE GOOD WITH INTEZINC 352 OR EQUIVALENT APPLIED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

5. DRAINAGE

APPROVED DRAINAGE MATERIAL BACKFILLED BEHIND LAGGING WRAPPED IN GEOTEXTILE (BIDIM A19 OR SIMILAR APPROVED) AND 40mm DIAMETER WEEP HOLES TO BE DRILLED IN CENTRE OF FIRST ROW OF EXPOSED LAGGING BETWEEN EACH POLE AS SHOWN IN THE TYPICAL WALL DETAILS.

6. SETOUT/OFFSET DISTANCE

LYSAGHT CONSULTANTS LTD WILL BE PROVIDING THE SETOUT FOR THE ALIGNMENT OF THE RETAINING WALL. THIS IS TO BE CONFIRMED BY THE CONTRACTOR AND ENGINEER ON SITE AND MUST MEET THE REQUIREMENTS OF THIS DRAWING.

WARNING
THIS WALL DESIGN IS SUITABLE FOUNDING WITHIN IN-SITU DENSE SAND WITH A MINIMUM FRICTION ANGLE OF 33 DEGREES. IT HAS BEEN DESIGN FOR A SURCHARGE OF 5kPa (SINGLE STOREY TIMBER DWELLING).

HOLD POINTS FOR INSPECTIONS BY A GEOTECHNICAL ENGINEER IS AS FOLLOWS:
- PILOT HOLE, TIMBER POLE INSPECTION
- PLACEMENT OF GEOTEXTILE WRAP AND LAGGING PRIOR TO DRAINAGE METAL AND BACKFILL
- FINAL INSPECTION PRIOR TO SITE DEMOBILISATION

TCC - Approved Building Consent Document - BC191200 - Pg 15 of 91 - 24/07/2019 - pdha

Plot Date: 21/02/19 4:46:35 PM Office: NZTRG Filename: P:\PROJECTS\247593 - ZARIBA HASHA PARTON ROAD PAPAMOKA\CAD\DRGS\CIV\247593-0009-DRG-G-0020.DWG

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CLIENT
ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
A	29.05.19	CONSENT ISSUE	B.O'Loughlin
B	20.06.19	ANNOTATION UPDATED	B.O'Loughlin

SCALE	SIZE
NTS	A1

DRAWN: L.O'Sullivan
DESIGNED: M.Buob
CHECKED: K.Kishore

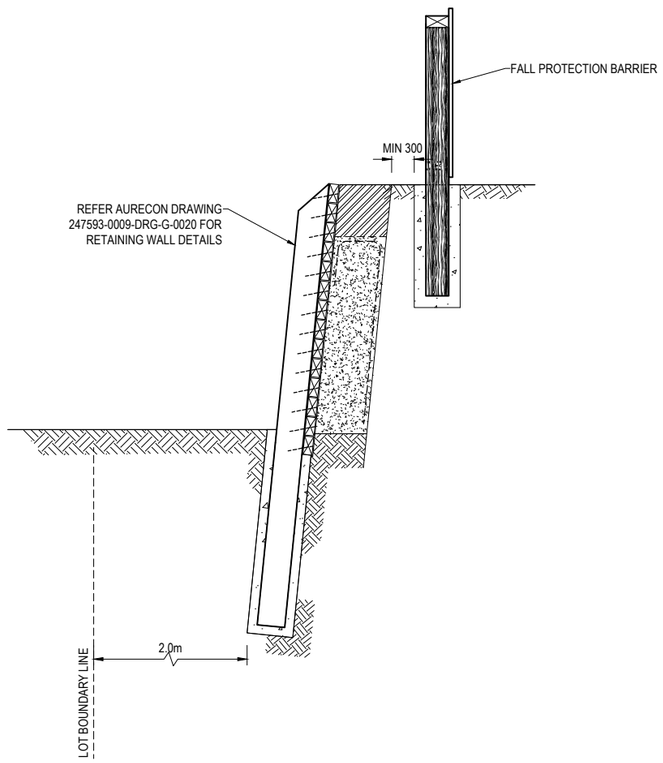
CONSENT
NOT FOR CONSTRUCTION

APPROVED
DATE 29.05.19
B.O'Loughlin
B.O'Loughlin

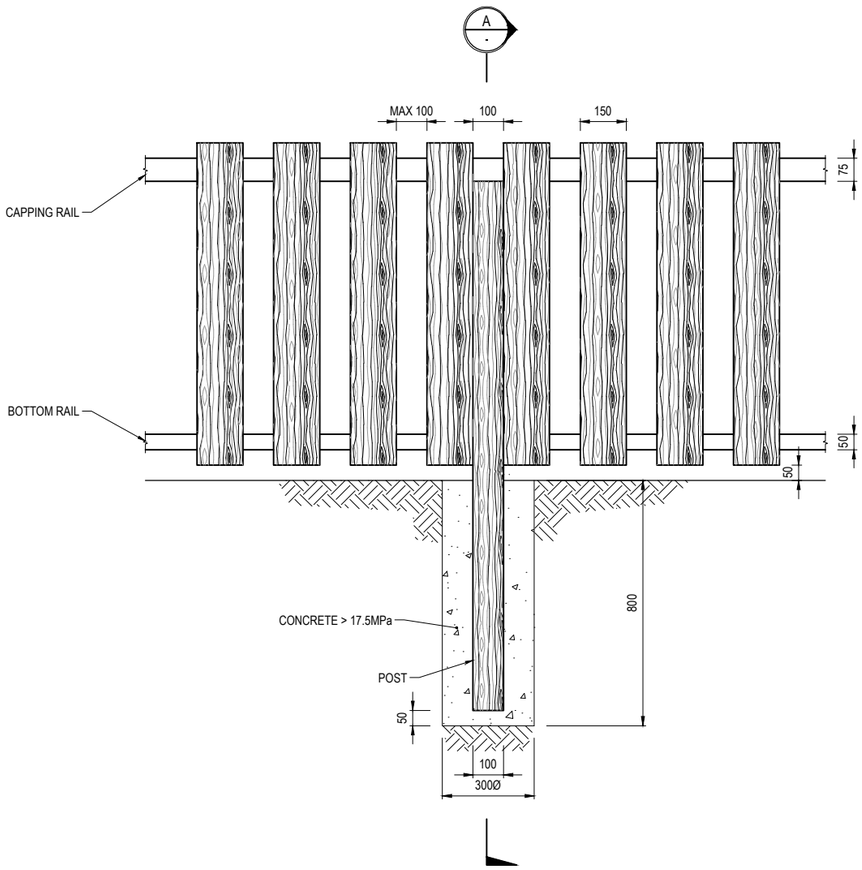
PROJECT: TERRACE VIEWS SUBDIVISION
PARTON ROAD, TAURANGA

TITLE: TYPICAL TIMBER POLE RETAINING WALL - TYPE A2

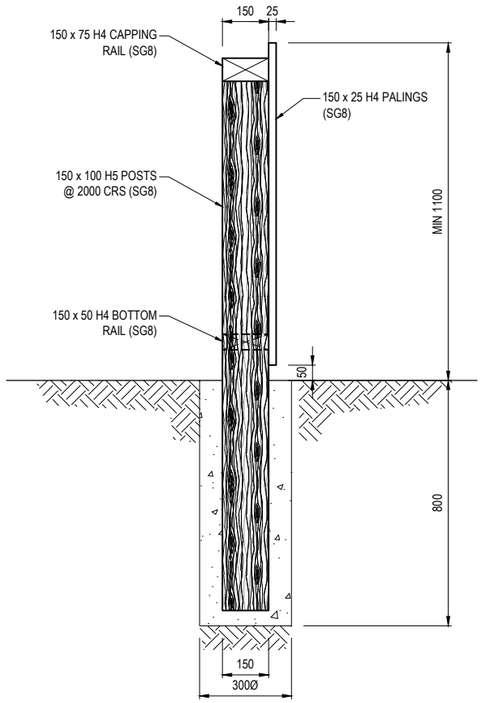
DRAWING No.	PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
	247593	0009	DRG	G	0020	B



TYPICAL DETAIL
1:20



ELEVATION
1:10



SECTION A
1:10

NOTES:

1. POSTS SPACING AT 2000mm CENTRES.
2. POST TO RAIL FIXINGS TO BE 4 / 100mm x 3.75mm FLATHEAD STAINLESS STEEL NAILS.
3. PALING FIXINGS TO BE 3 / 60mm x 3.15mm FLATHEAD STAINLESS STEEL NAILS.
4. ALL TIMBER SHALL BE SG 8 GRADE TIMBER COMPLYING WITH THE REQUIREMENT OF NZS 3622 'VERIFICATION OF TIMBER PROPERTIES' AND GRADED IN ACCORDANCE WITH THE PROVISIONS OF NZS 3631. LAGGING SHALL BE TREATED TO NZS 3602 SPECIFICATION H4 AND H5 AS NOTED.
5. BARRIER DETAILS TO BE IN ACCORDANCE WITH NZ BUILDING CODE SECTION F4.
6. DESIGN BASED ON B1 BUILDING CODE - GUIDANCE ON BARRIER DESIGN (MARCH 2012) AND TIMBER PROPERTIES FROM NZS3603 AMENDMENT NO. 4.
7. FALL PROTECTION BARRIERS TO BE CONSTRUCTED ABOVE ALL WALLS WITH FALL HEIGHTS OVER 1m.

100 0 200 400mm SCALE 1:10

200 0 400 800mm SCALE 1:20

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Plot Date: 21/6/2019 4:46:38 PM Office: NZTRG Filename: P:\PROJECTS\247593 - ZARIBA HASHA PARTON ROAD PAPAMOA\CAD\DRGS\CIVIL\247593-0009-DRG-G-0021.DWG

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CLIENT: ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
A	21.06.19	CONSENT ISSUE	B.O'Loughlin

SCALE	SIZE
AS SHOWN	A1

DRAWN: L.O'Sullivan
DESIGNED: M.Buob
CHECKED: K.Kishore

CONSENT
NOT FOR CONSTRUCTION

APPROVED
DATE 21.06.19
B.O'Loughlin
B.O'Loughlin

PROJECT: TERRACE VIEWS SUBDIVISION
PARTON ROAD, TAURANGA

TITLE: FALL PROTECTION BARRIER DETAILS

DRAWING No.	PROJECT No.	WBS	TYPE	DISC	NUMBER	REV
	247593	0009	DRG	G	0021	A

HOLE Id: **Lot 439**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 10/12/2018

HOLE FINISHED: 01/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				0.5, 0.5, 1, 2, 6, 7, 8, 8, 7, 7, 10, 9, 14 >>, 16 >>				0.5	TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse.
	DRY 13/12/2018	100	HA					1.0		W	D VD		Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous. 0.5m: Changes to very dense. 1.0m: Changes to wet.
								1.5		M			1.5m: Changes to moist.
								2.0					End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC191200 - Pg 17 of 91 - 24/07/2019 - poha

HandAugerLog - 11/02/2019 5:11:58 p.m. - Produced with Core-GS by GeRoc

GEOTECHNICS
15C Amber Crescent
Judea
Tauranga 3110
New Zealand
p. +64 7 571 0280

Page 1 of 1

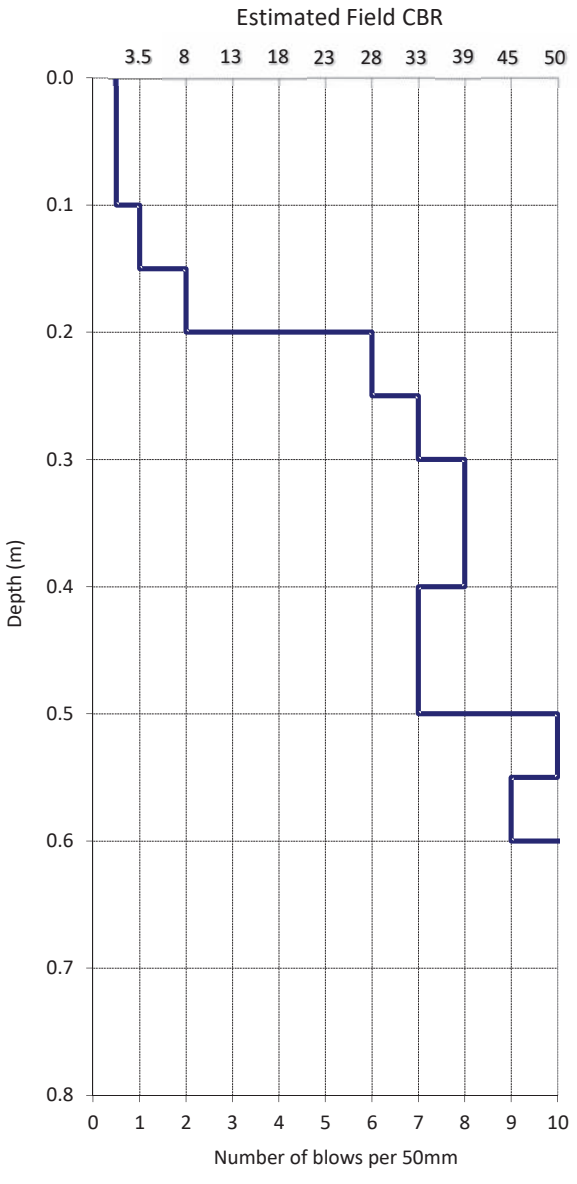
Lab Ref/URN
016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 439 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 439 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	
100	100	0.5	1100	1100	
150	150	1	1150	1150	
200	200	2	1200	1200	
250	250	6	1250	1250	
300	300	7	1300	1300	
350	350	8	1350	1350	
400	400	8	1400	1400	
450	450	7	1450	1450	
500	500	7	1500	1500	
550	550	10	1550	1550	
600	600	9	1600	1600	
650	650	14	1650	1650	
700	700	16	1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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Page 1 of 1

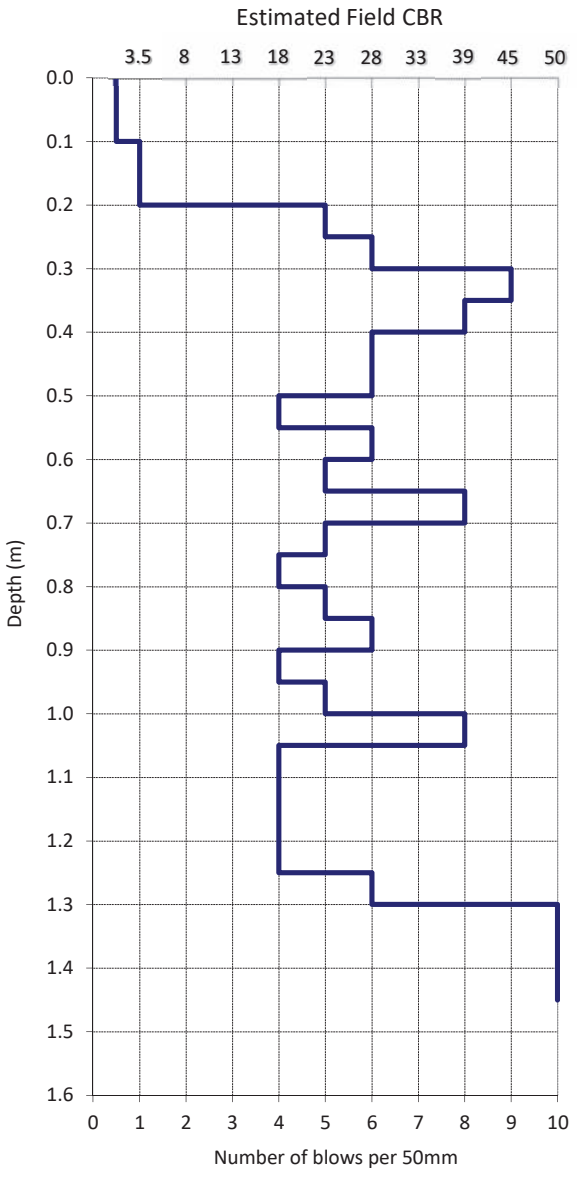
Lab Ref/URN
016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 439 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 439 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0.5	1050	1050	8
100	100	0.5	1100	1100	4
150	150	1	1150	1150	4
200	200	1	1200	1200	4
250	250	5	1250	1250	4
300	300	6	1300	1300	6
350	350	9	1350	1350	10
400	400	8	1400	1400	10
450	450	6	1450	1450	10
500	500	6	1500	1500	
550	550	4	1550	1550	
600	600	6	1600	1600	
650	650	5	1650	1650	
700	700	8	1700	1700	
750	750	5	1750	1750	
800	800	4	1800	1800	
850	850	5	1850	1850	
900	900	6	1900	1900	
950	950	4	1950	1950	
1000	1000	5	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC191200 - Pg 19 of 91 - 24/07/2019 - poha

HOLE Id: **Lot 440**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 10/12/2018

HOLE FINISHED: 01/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				1 1 2 1 3 6 7 7 6 6 6 6 9 8 7 11 >> 11 >> 12 >>				0.5 1.0 1.5 2.0	TS TS TS	M	St		Organic SILT, with some sand; dark brownish black. Stiff, moist, low plasticity; sand, fine to coarse.
	DRY 13/12/2018	100	HA								D		Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded, pumiceous.
											VD		0.75m: Changes to very dense.
										M-W			0.8m: Changes to moist to wet.
										M			1.1m: Changes to moist
													1.85m: Changes to light yellowish brown.
													End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC191200 - Pg 20 of 91 - 24/07/2019 - poha

HandAugerLog - 11/02/2019 5:12:00 p.m. - Produced with Core-GS by GeRoc

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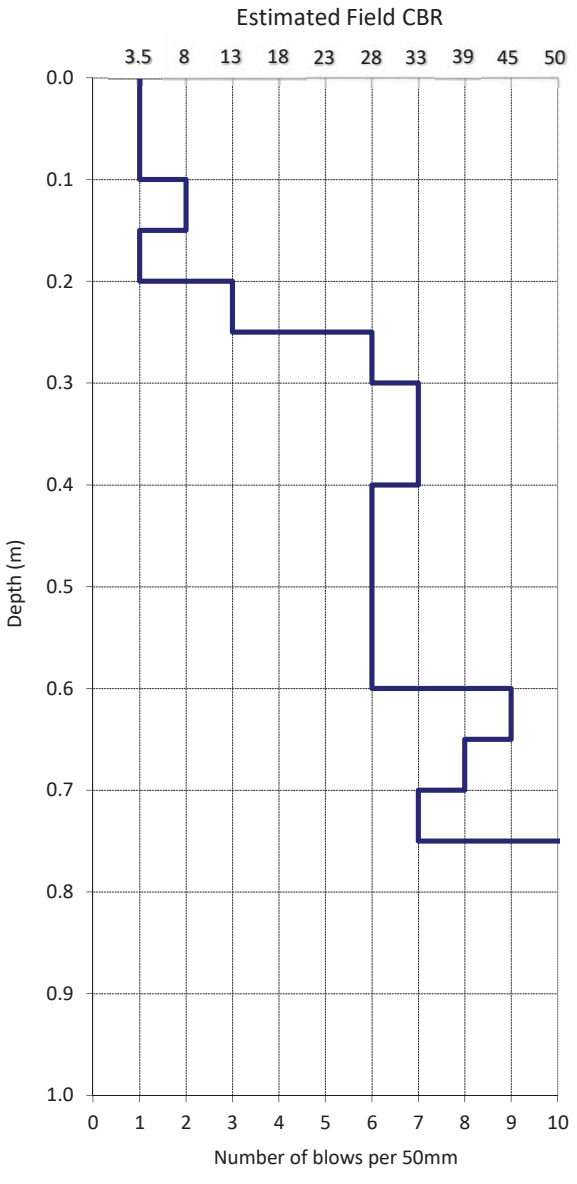
Lab Ref/URN
016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 440 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 440 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	2	1150	1150	
200	200	1	1200	1200	
250	250	3	1250	1250	
300	300	6	1300	1300	
350	350	7	1350	1350	
400	400	7	1400	1400	
450	450	6	1450	1450	
500	500	6	1500	1500	
550	550	6	1550	1550	
600	600	6	1600	1600	
650	650	9	1650	1650	
700	700	8	1700	1700	
750	750	7	1750	1750	
800	800	11	1800	1800	
850	850	11	1850	1850	
900	900	12	1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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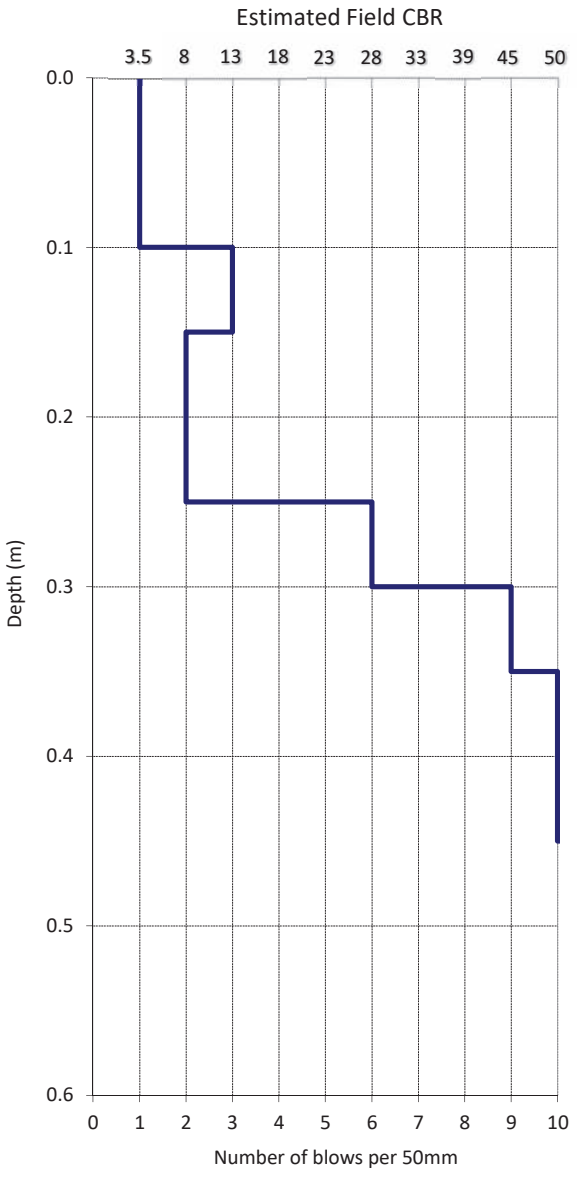
Lab Ref/URN
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 440 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 440 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	
100	100	1	1100	1100	
150	150	3	1150	1150	
200	200	2	1200	1200	
250	250	2	1250	1250	
300	300	6	1300	1300	
350	350	9	1350	1350	
400	400	10	1400	1400	
450	450	10	1450	1450	
500	500	11	1500	1500	
550	550		1550	1550	
600	600		1600	1600	
650	650		1650	1650	
700	700		1700	1700	
750	750		1750	1750	
800	800		1800	1800	
850	850		1850	1850	
900	900		1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 441**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: Window Sampler

DRILL METHOD: PR

HOLE STARTED: 10/12/2018

HOLE FINISHED: 01/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: TURI CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION / WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
	DRY 13/12/2018	100	HA	1 1 1 1 5 8 7 6 7 7 8 6 4 4 4 3 5 4 4 4 4 4 4 4 5 13 >> 14 >> 13 >>				0.5 1.0 1.5 2.0	TS TS TS	M W	St D VD	10 20 50 100 200	Organic SILT, with some sand; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse. Fine to coarse SAND, with trace silt and gravel; light orange brown. Dense, moist, well graded; gravel, fine to medium, subangular to subrounded; pumiceous. 1.25m: Changes to very dense. 1.3m: Changes to wet. End of borehole at 2.00mbgl. No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC191200 - Pg 23 of 91 - 24/07/2019 - poha

HandAugerLog - 11/02/2019 5:12:03 p.m. - Produced with Core-GS by GeRoc

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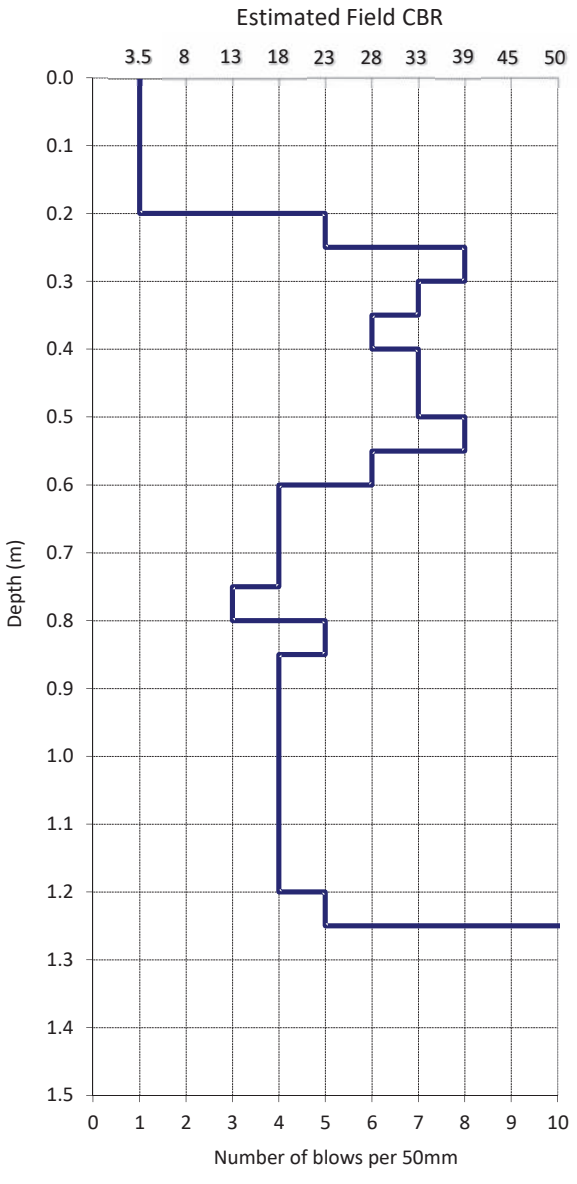
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016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 441 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 441 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	4
100	100	1	1100	1100	4
150	150	1	1150	1150	4
200	200	1	1200	1200	4
250	250	5	1250	1250	5
300	300	8	1300	1300	13
350	350	7	1350	1350	14
400	400	6	1400	1400	13
450	450	7	1450	1450	
500	500	7	1500	1500	
550	550	8	1550	1550	
600	600	6	1600	1600	
650	650	4	1650	1650	
700	700	4	1700	1700	
750	750	4	1750	1750	
800	800	3	1800	1800	
850	850	5	1850	1850	
900	900	4	1900	1900	
950	950	4	1950	1950	
1000	1000	4	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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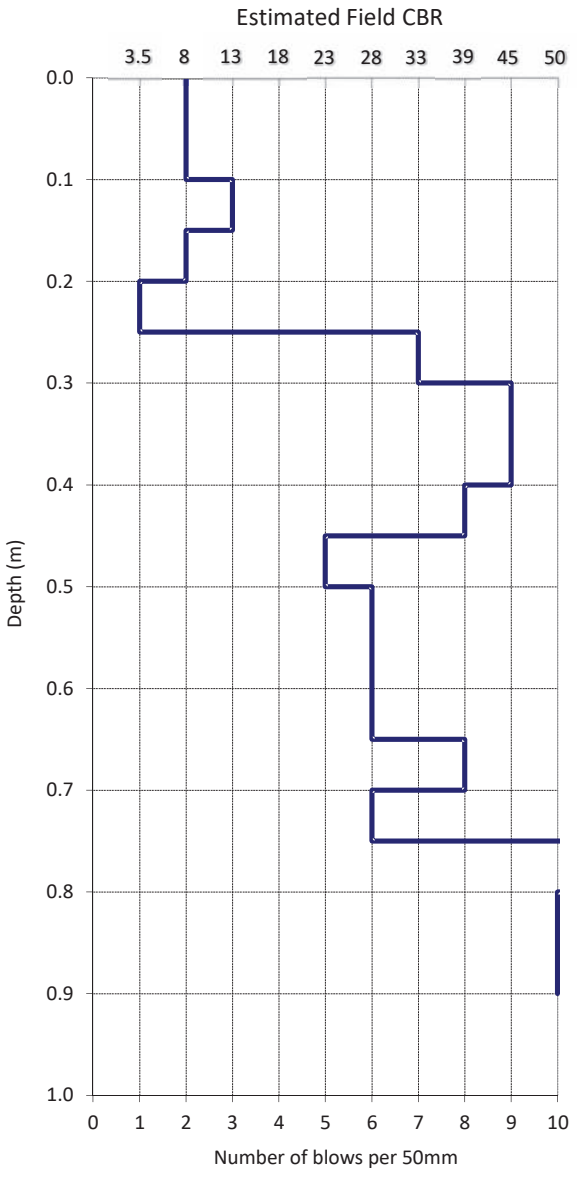
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 441 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 441 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	
100	100	2	1100	1100	
150	150	3	1150	1150	
200	200	2	1200	1200	
250	250	1	1250	1250	
300	300	7	1300	1300	
350	350	9	1350	1350	
400	400	9	1400	1400	
450	450	8	1450	1450	
500	500	5	1500	1500	
550	550	6	1550	1550	
600	600	6	1600	1600	
650	650	6	1650	1650	
700	700	8	1700	1700	
750	750	6	1750	1750	
800	800	13	1800	1800	
850	850	10	1850	1850	
900	900	10	1900	1900	
950	950		1950	1950	
1000	1000		2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS

HAND AUGER LOG

HOLE Id: **Lot 442**

Hole Location: See Location Plan

SHEET: 1 OF 1

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
		100	HA	2, 2, 3, 7, 7, 7, 7, 8, 7, 6, 7, 3, 4, 5, 4, 2, 5, 3, 3, 4, 5, 7, 6, 6, 6, 6, 7, 6, 7, 5, 6, 8, 14 >>, 14 >>, 10				0.5	TS	M-W	St		Organic SILT, with some sand; dark brownish black. stiff, moist to wet, non-plastic; sand, fine to medium.
										M	D		Fine to coarse SAND, with minor gravel, trace silt, light yellowish brown. Dense, moist, well graded; gravel, fine, subrounded to subangular, pumiceous.
											MD		0.55m: Changes to medium dense.
								1.0			D		1.0m: Changes to dense.
										W			1.4m: Changes to brown; wet; gravel, fine to medium.
								1.5			VD		1.6m: Changes to very dense.
								2.0					End of borehole at 2.00 mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

TCC - Approved Building Consent Document - BC191200 - Pg 26 of 91 - 24/07/2019 - poha

HandAugerLog - 11/02/2019 3:55:31 p.m. - Produced with Core-GS by GeRoc

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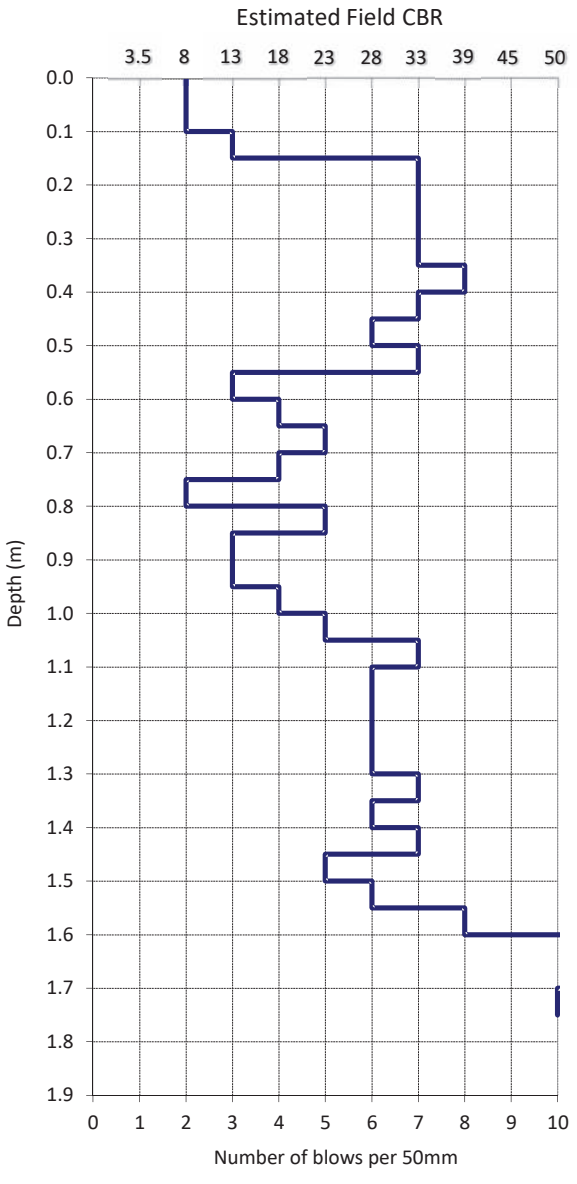
Lab Ref/URN: 016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 442 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 442 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	2	1050	1050	5
100	100	2	1100	1100	7
150	150	3	1150	1150	6
200	200	7	1200	1200	6
250	250	7	1250	1250	6
300	300	7	1300	1300	6
350	350	7	1350	1350	7
400	400	8	1400	1400	6
450	450	7	1450	1450	7
500	500	6	1500	1500	5
550	550	7	1550	1550	6
600	600	3	1600	1600	8
650	650	4	1650	1650	14
700	700	5	1700	1700	14
750	750	4	1750	1750	10
800	800	2	1800	1800	
850	850	5	1850	1850	
900	900	3	1900	1900	
950	950	3	1950	1950	
1000	1000	4	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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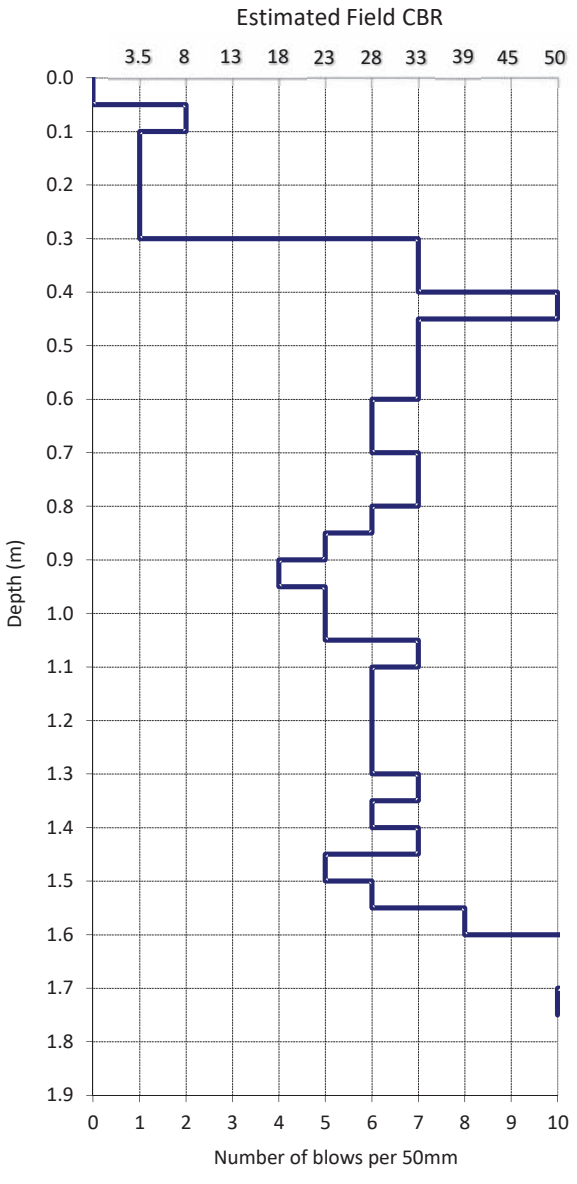
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 442 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 442 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	0	1050	1050	5
100	100	2	1100	1100	7
150	150	1	1150	1150	6
200	200	1	1200	1200	6
250	250	1	1250	1250	6
300	300	1	1300	1300	6
350	350	7	1350	1350	7
400	400	7	1400	1400	6
450	450	10	1450	1450	7
500	500	7	1500	1500	5
550	550	7	1550	1550	6
600	600	7	1600	1600	8
650	650	6	1650	1650	14
700	700	6	1700	1700	14
750	750	7	1750	1750	10
800	800	7	1800	1800	
850	850	6	1850	1850	
900	900	5	1900	1900	
950	950	4	1950	1950	
1000	1000	5	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

TCC - Approved Building Consent Document - BC191200 - Pg 28 of 91 - 24/07/2019 - poha

HOLE Id: **Lot 443**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: PIFA CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				1 1 2 5 10 9 7 6 8 6 7 5 5 4 4 4 4 4 3 4 6 6 5 4 4 5 4 6 6 5 4 16 >>				0.0	TS TS	M-W	St		Organic SILT, with some sand; dark brownish black. Stiff, moist to wet, non-plastic; sand, fine to medium.
								0.5		M	D		Fine to coarse SAND, with minor silt and gravel light greyish brown. Dense, moist, well graded; gravel, fine, subrounded to subangular, pumiceous.
								1.0					
								1.4		W			1.4m: Changes to dark greyish brown; wet.
								1.5			VD		1.55m: Changes to very dense.
								2.0					1.95m: Changes to pinkish brown.
													End of borehole at 2.0 mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

HandAugerLog - 11/02/2019 3:55:34 p.m. - Produced with Core-GS by GeRoc

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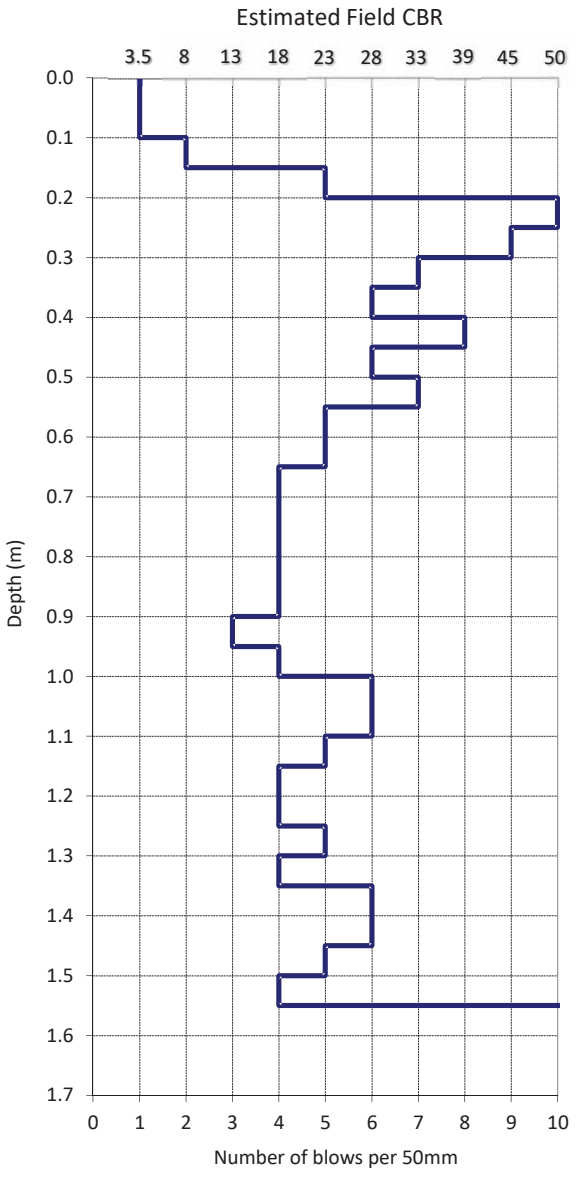
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016/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 443 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 443 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	6
100	100	1	1100	1100	6
150	150	2	1150	1150	5
200	200	5	1200	1200	4
250	250	10	1250	1250	4
300	300	9	1300	1300	5
350	350	7	1350	1350	4
400	400	6	1400	1400	6
450	450	8	1450	1450	6
500	500	6	1500	1500	5
550	550	7	1550	1550	4
600	600	5	1600	1600	16
650	650	5	1650	1650	
700	700	4	1700	1700	
750	750	4	1750	1750	
800	800	4	1800	1800	
850	850	4	1850	1850	
900	900	4	1900	1900	
950	950	3	1950	1950	
1000	1000	4	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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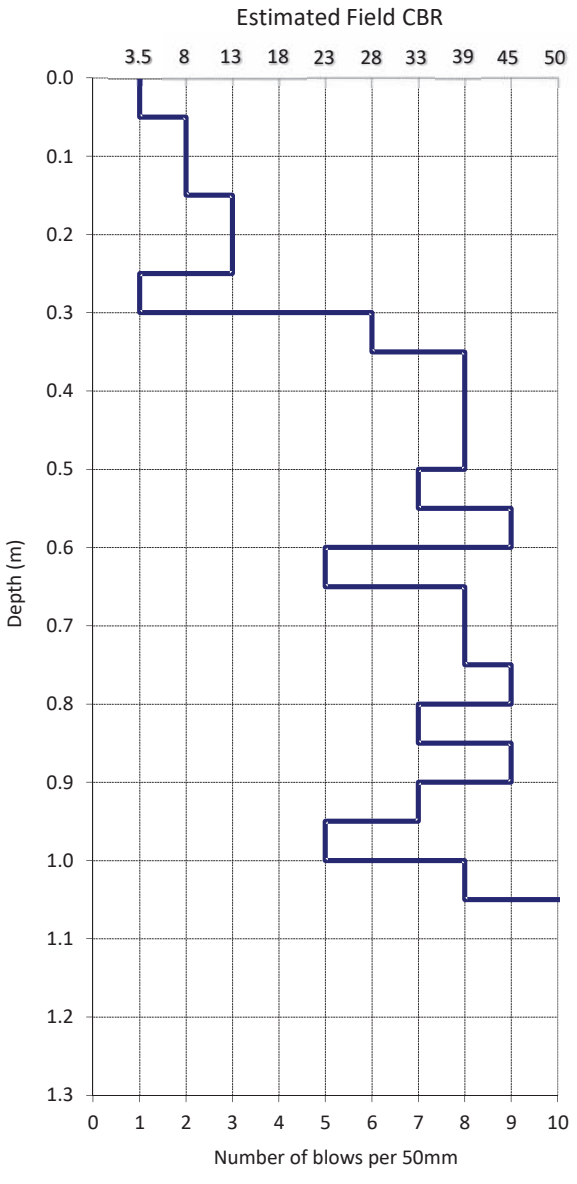
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NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 443 borehole log.	Test Series	Terrace Views/010219/SC391-400,439-443,4[illegible]3-487
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 443 B

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	8
100	100	2	1100	1100	11
150	150	2	1150	1150	18
200	200	3	1200	1200	
250	250	3	1250	1250	
300	300	1	1300	1300	
350	350	6	1350	1350	
400	400	8	1400	1400	
450	450	8	1450	1450	
500	500	8	1500	1500	
550	550	7	1550	1550	
600	600	9	1600	1600	
650	650	5	1650	1650	
700	700	8	1700	1700	
750	750	8	1750	1750	
800	800	9	1800	1800	
850	850	7	1850	1850	
900	900	9	1900	1900	
950	950	7	1950	1950	
1000	1000	5	2000	2000	



Test Remarks

Tested By	PIFA	Date	1/02/2019
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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HOLE Id: **Lot 444**

Hole Location: See Location Plan

SHEET: 1 OF 1

GEOTECHNICS

HAND AUGER LOG

PROJECT: GTG AURECON TERRACE VIEWS STG 3 D&E - SI | LOCATION: Terrace View, Papamoa | JOB No.: 1009168.0000

CO-ORDINATES: (NZTM2000)

R.L.:

DATUM:

DRILL TYPE: 50mm Hand Auger

DRILL METHOD: HA

HOLE STARTED: 08/01/2019

HOLE FINISHED: 08/01/2019

DRILLED BY: GEOTECHNICS

LOGGED BY: DBRU CHECKED: RWM

GEOLOGICAL | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT, GENERIC NAME, ORIGIN, MATERIAL COMPOSITION.	WATER	CORE RECOVERY (%)	METHOD	SCALA PENETROMETER (Blows/50mm)	TESTS	SAMPLES	RL (m)	DEPTH (m)	GRAPHIC LOG	MOISTURE CONDITION \ WEATHERING	STRENGTH/DENSITY CLASSIFICATION	SHEAR STRENGTH (kPa)	Description and Additional Observations
				1 2 3 4 5 6 7 8 9				0	TS TS	M	St	10 25 50 100 200	Sandy SILT, with trace gravel; dark brownish black. Stiff, moist, non-plastic; sand, fine to coarse; gravel, fine, subangular to subrounded, pumiceous.
				1							D		Fine to coarse SAND, with trace silt and gravel; light yellowish brown. Dense, moist, poorly graded; gravel, fine, subangular to subrounded, pumiceous.
				2				0.5					
				1									
				6									
				8									
				5									
				6									
				5									
				7									
				8									
				7									
				7									
				6									
				6									
				4							MD		0.7m: Changes to medium dense.
				4									
				4									
				3									
				3									
				4				1.0					
				4									
				3									1.1m: Changes to light brown.
				3									
				4									
				4									
				3									
				3									
				3									
				4							D		1.45m: Changes to dense.
				5									
				6				1.5					
				4									
				5									
				6									
				6									
				5						M-W			1.75m: Changes to minor silt; moist to wet
				11 >>							VD		1.8m: Changes to brown; very dense.
				12 >>									
	DRY 08/01/2019			8				2.0					End of borehole at 2.00 mbgl.
													No standing groundwater encountered.

COMMENTS:

Hole Depth 2m

Scale 1:13

Rev.: A

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HandAugerLog - 11/02/2019 3:55:36 p.m. - Produced with Core-GS by GeRoc

GEOTECHNICS
15C Amber Crescent
Judea
Tauranga 3110
New Zealand
p. +64 7 571 0280

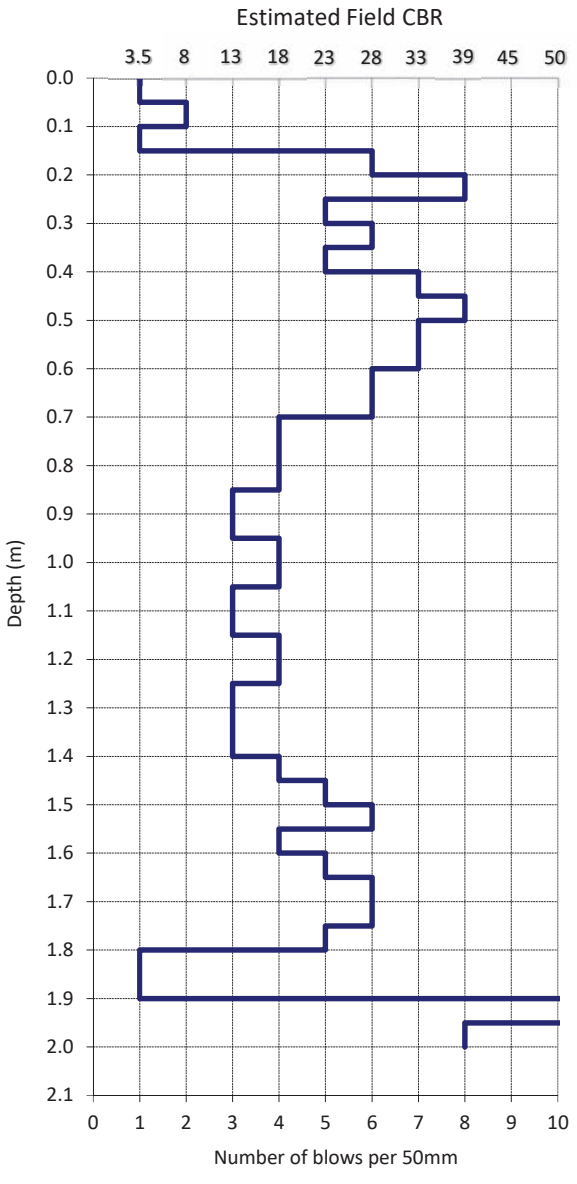
Lab Ref/URN: 022/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 444 borehole log.	Test Series	Terrace Views/091218/SC444-446
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 444 A

Chainage	Offset	Lane

Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	4
100	100	2	1100	1100	3
150	150	1	1150	1150	3
200	200	6	1200	1200	4
250	250	8	1250	1250	4
300	300	5	1300	1300	3
350	350	6	1350	1350	3
400	400	5	1400	1400	3
450	450	7	1450	1450	4
500	500	8	1500	1500	5
550	550	7	1550	1550	6
600	600	7	1600	1600	4
650	650	6	1650	1650	5
700	700	6	1700	1700	6
750	750	4	1750	1750	6
800	800	4	1800	1800	5
850	850	4	1850	1850	1
900	900	3	1900	1900	1
950	950	3	1950	1950	12
1000	1000	4	2000	2000	8



Test Remarks

Tested By	PIFA	Date	9/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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GEOTECHNICS
15C Amber Crescent
Judea
Tauranga 3110
New Zealand
p. +64 7 571 0280

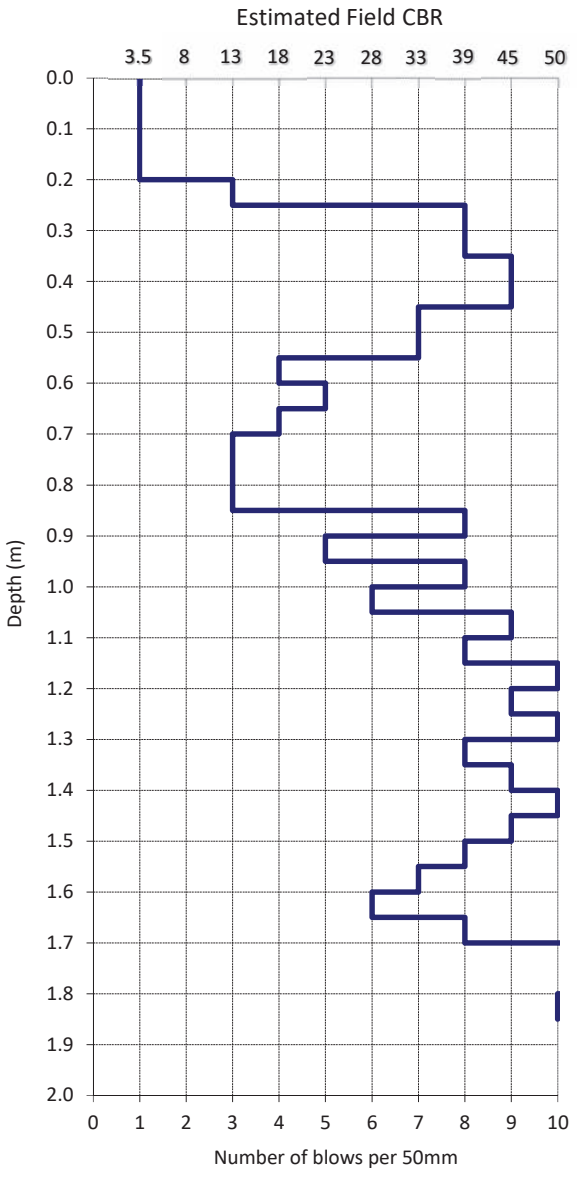
Lab Ref/URN: 022/19

NZS 4402: 1998 Test 6.5.2 Dynamic Cone Penetrometer - Scala

Project Name	TERRACE VIEWS STAGE 3 D & E - SITE INVESTIGATION	Project ID	1009168.0.0.0
Customer Project ID	Terrace Views Stage 3 D & E	Equipment ID	TG0851
Site Location	Papamoa	Material Source	Unknown
Material Description	See Lot 444 borehole log.	Test Series	Terrace Views/091218/SC444-446
Depth from ground surface to commencement of penetration (m)	0.0	Test Number	Lot 444 B

Chainage	Offset	Lane

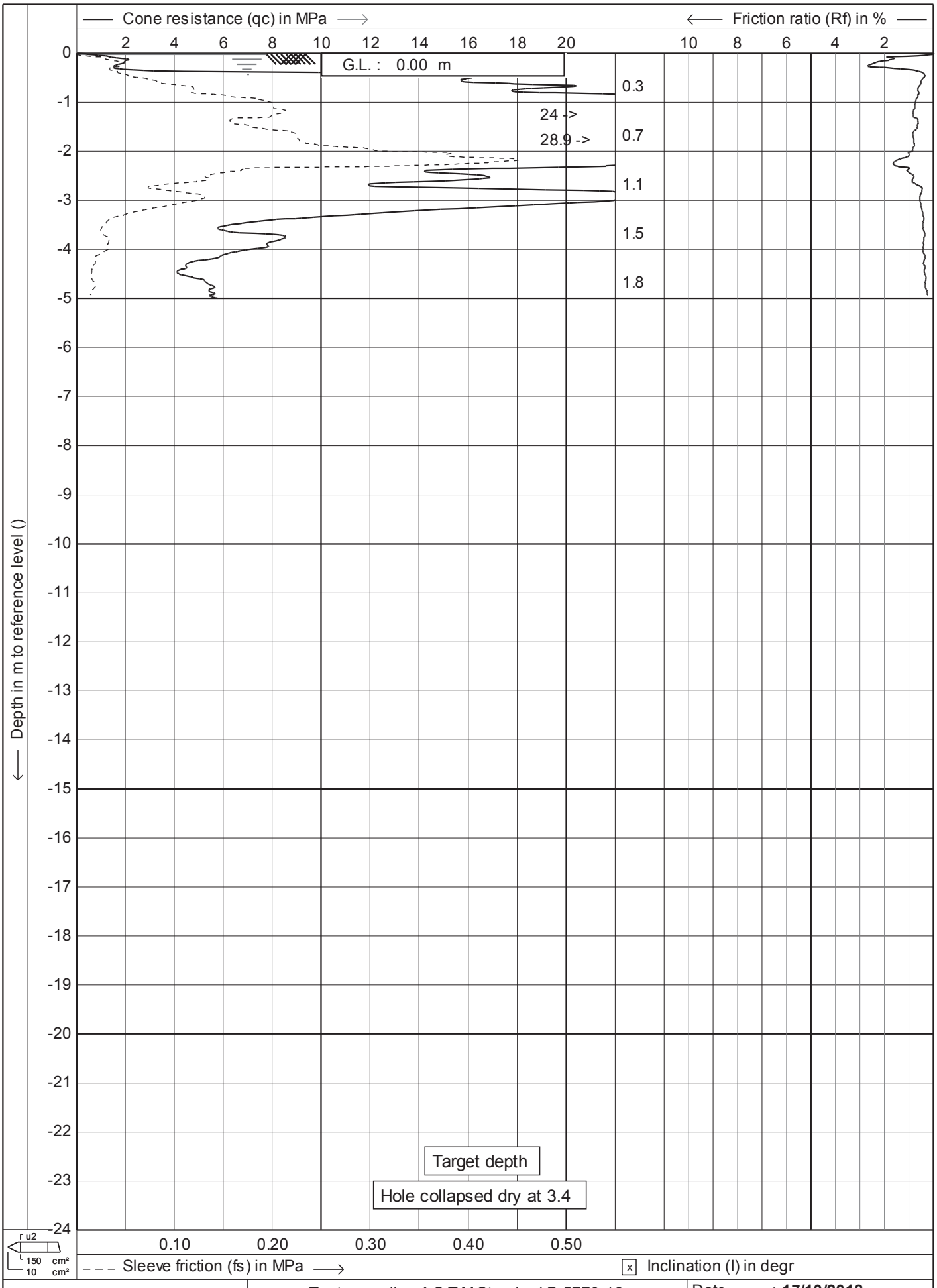
Vertical distance driven (mm)	Depth (mm)	Number of blows	Vertical distance driven (mm)	Depth (mm)	Number of blows
50	50	1	1050	1050	6
100	100	1	1100	1100	9
150	150	1	1150	1150	8
200	200	1	1200	1200	10
250	250	3	1250	1250	9
300	300	8	1300	1300	10
350	350	8	1350	1350	8
400	400	9	1400	1400	9
450	450	9	1450	1450	10
500	500	7	1500	1500	9
550	550	7	1550	1550	8
600	600	4	1600	1600	7
650	650	5	1650	1650	6
700	700	4	1700	1700	8
750	750	3	1750	1750	11
800	800	3	1800	1800	12
850	850	3	1850	1850	10
900	900	8	1900	1900	
950	950	5	1950	1950	
1000	1000	8	2000	2000	



Test Remarks

Tested By	PIFA	Date	9/12/2018
Data Entry By	TASR	Date	1/02/2019
Checked By	RWM	Date	7/02/2019

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

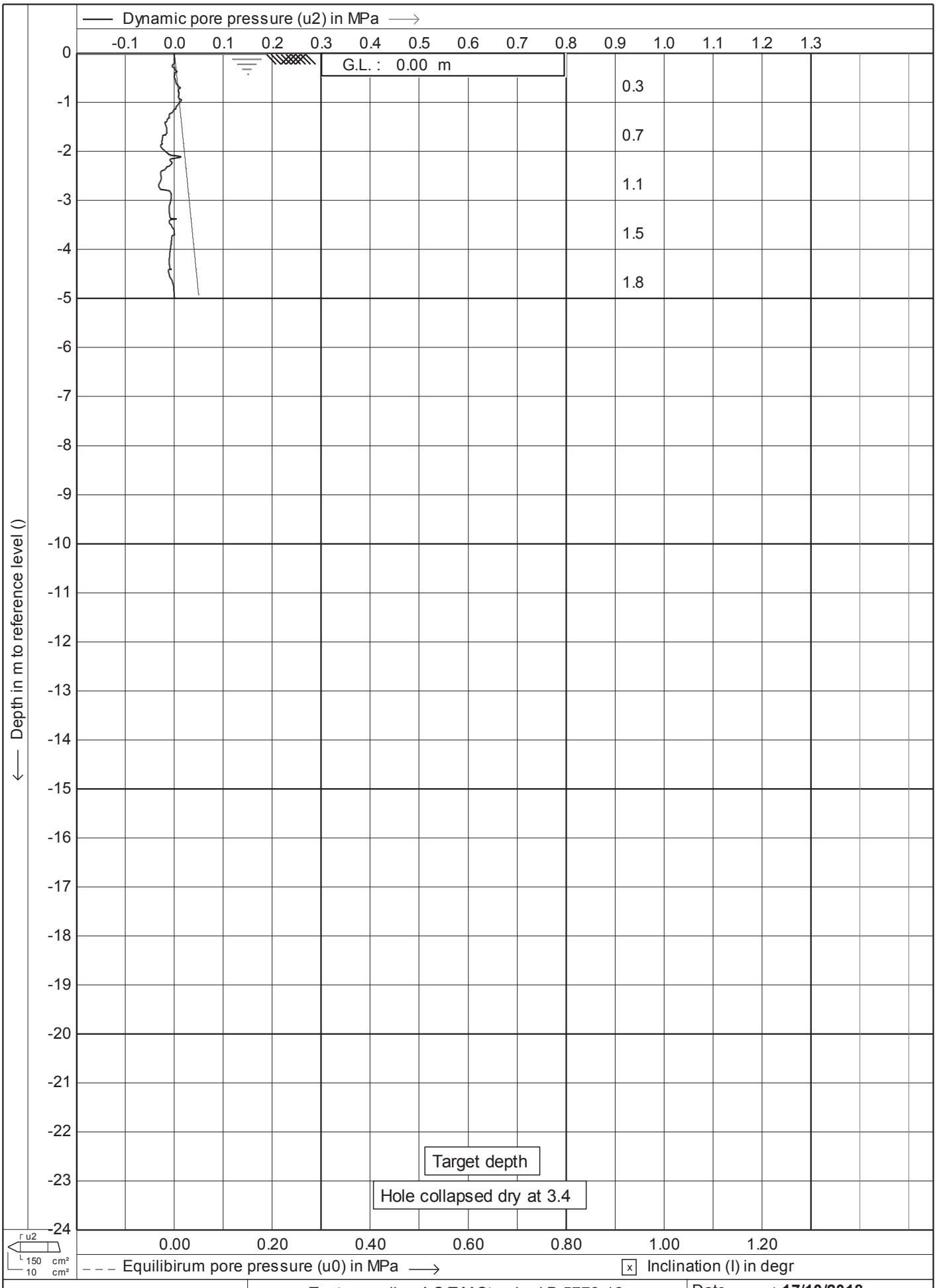
Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date	: **17/10/2018**
Cone no.	: **C10CFIIP.C14433**
Project no.	: **05AU2**
CPT no.	: **AU18-103** 1/14

1.47

TCC - Approved Building Consent Document - BC191200 - Pg 35 of 91 - 24/07/2019 - poha



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

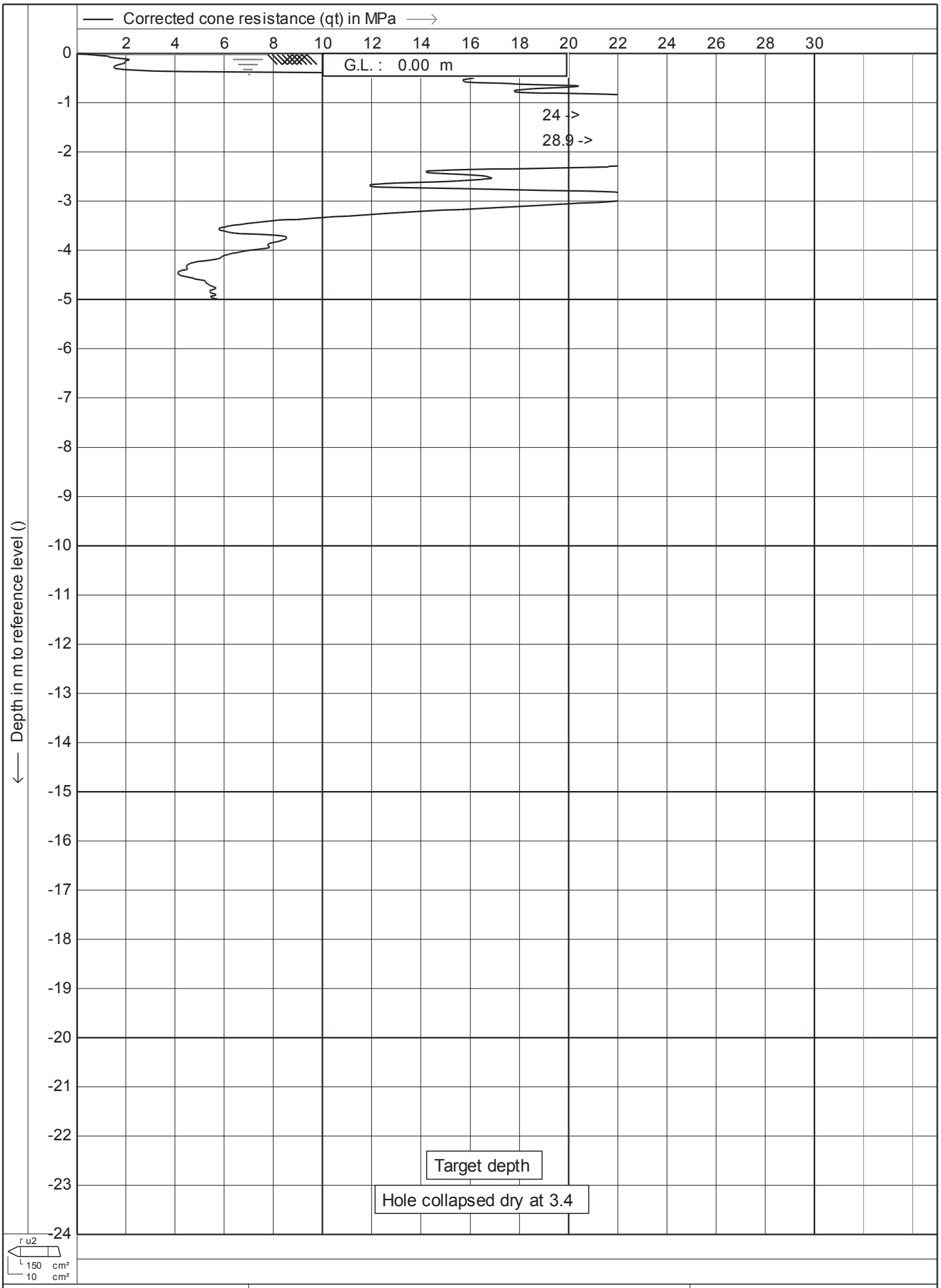
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **2/14**

1.47

TCC - Approved Building Consent Document - BC191200 - Pg 36 of 91 - 24/07/2019 - poha



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

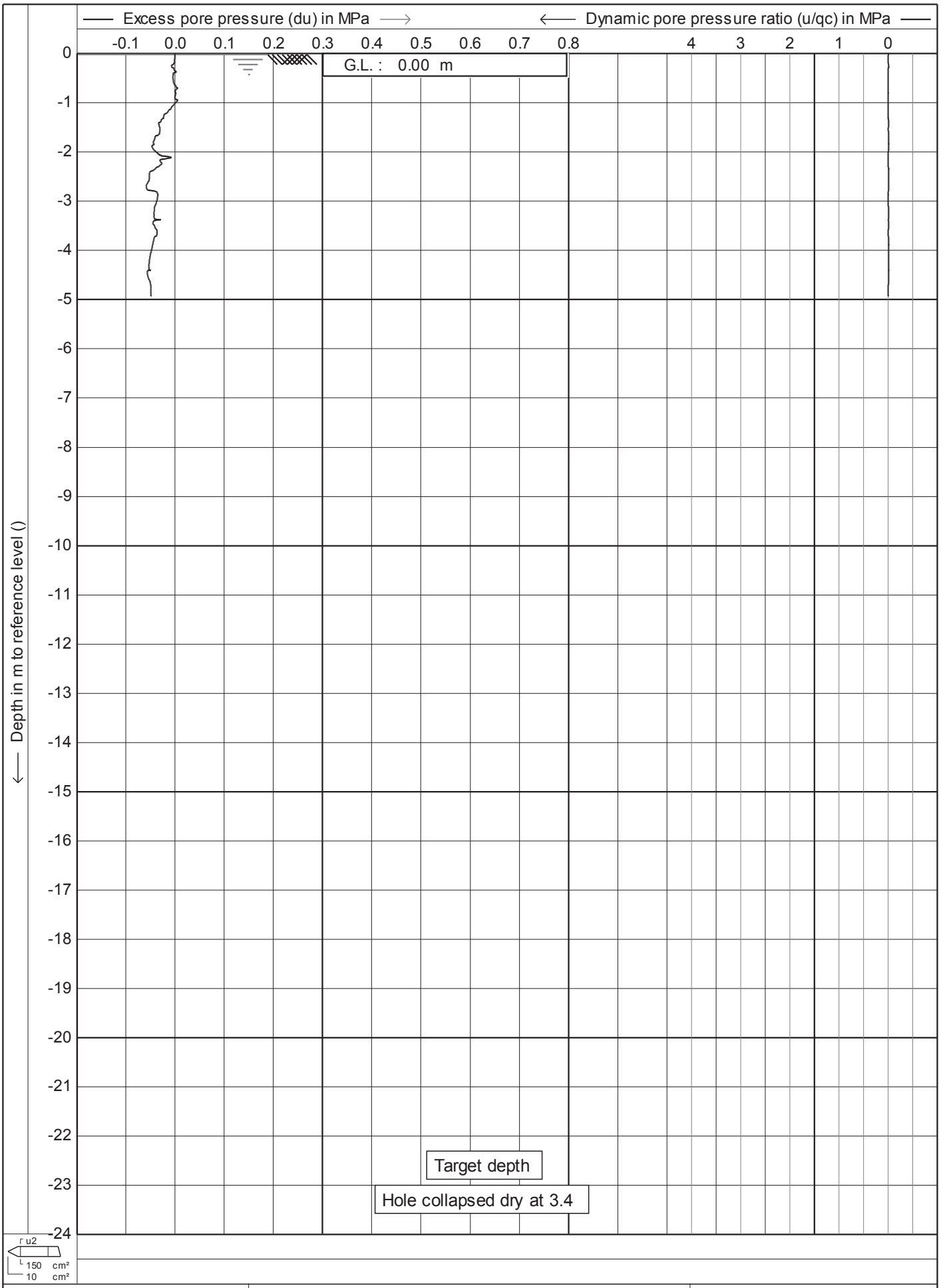
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **3/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

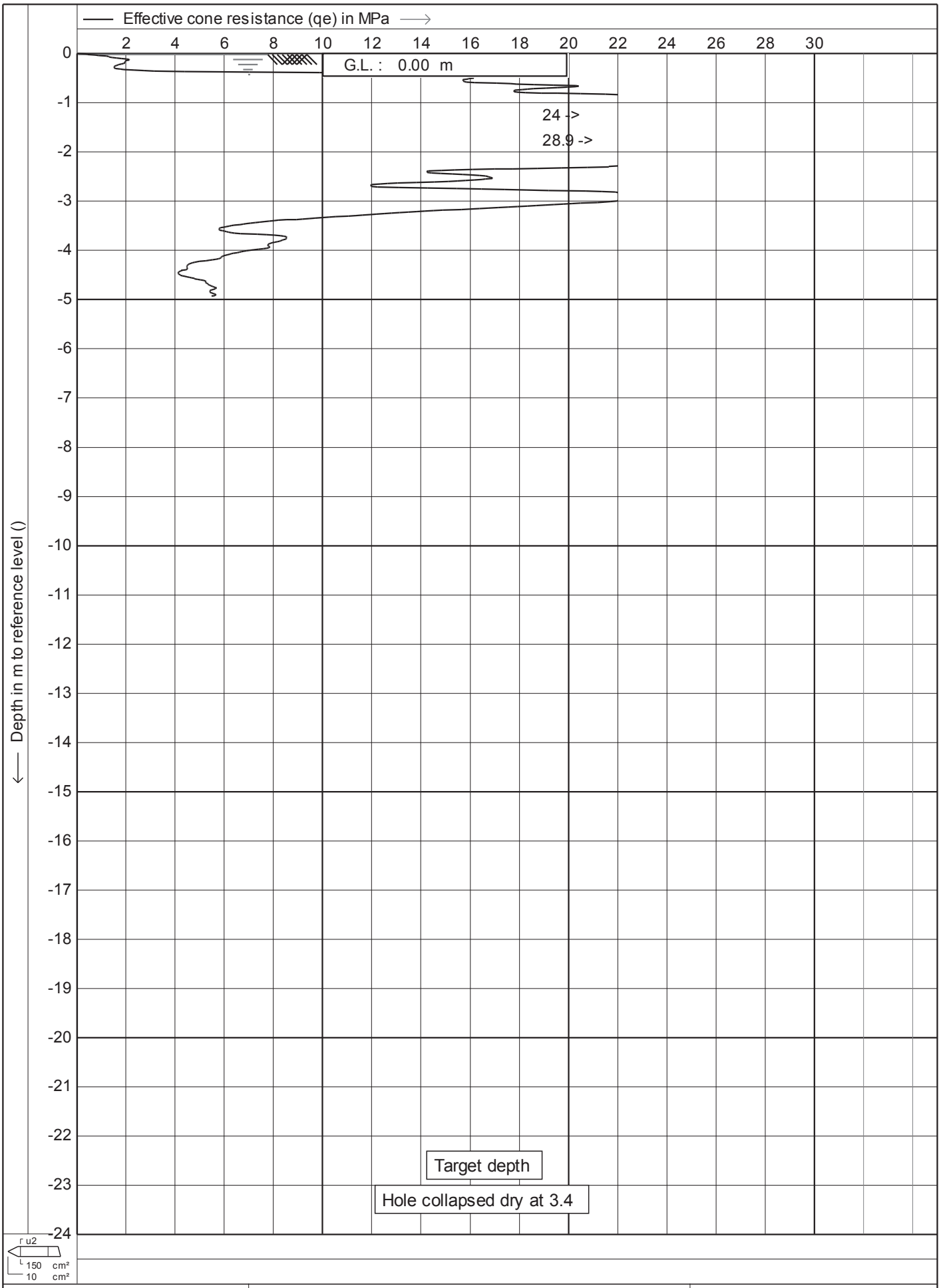
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **4/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

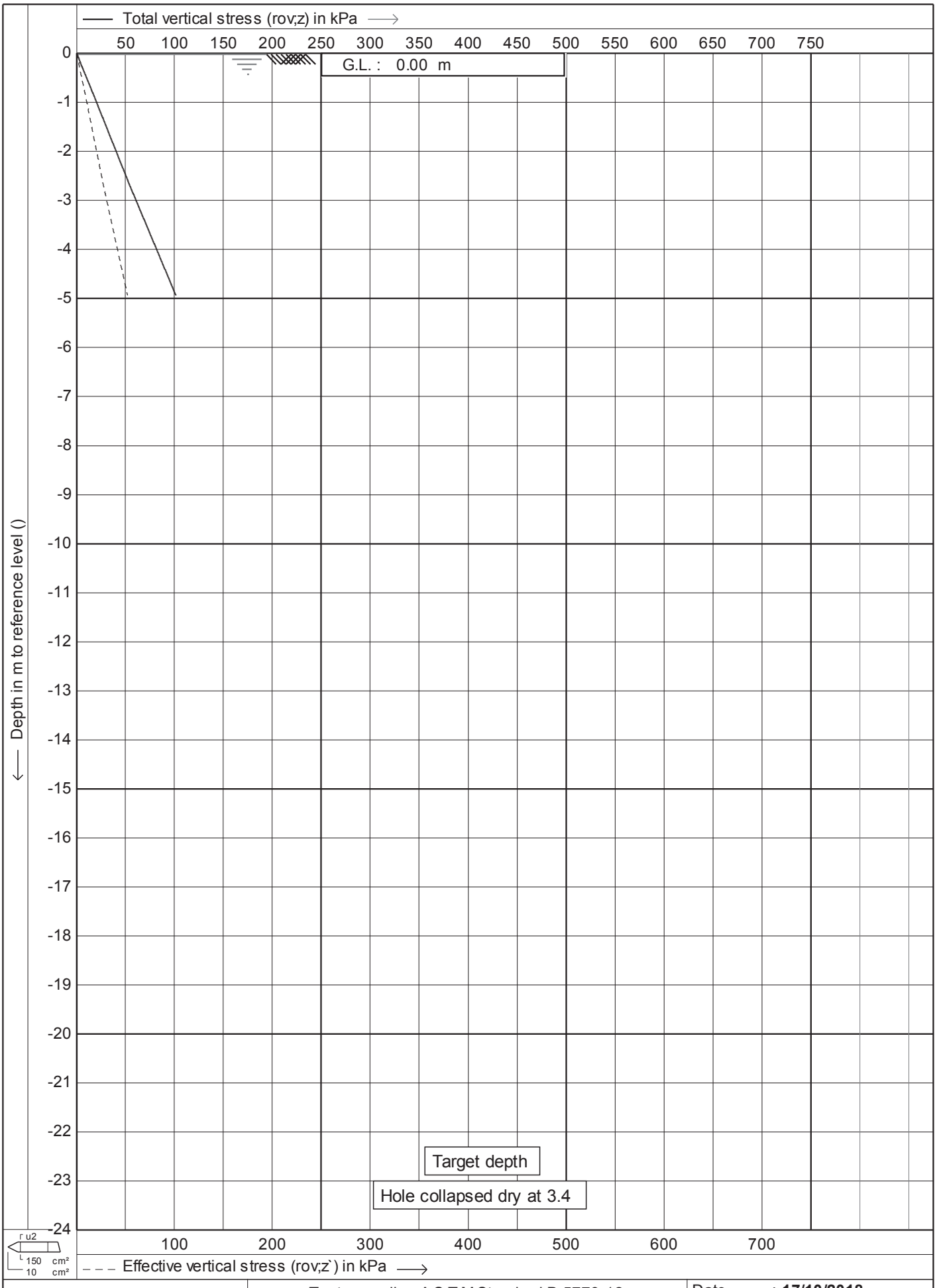
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **5/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

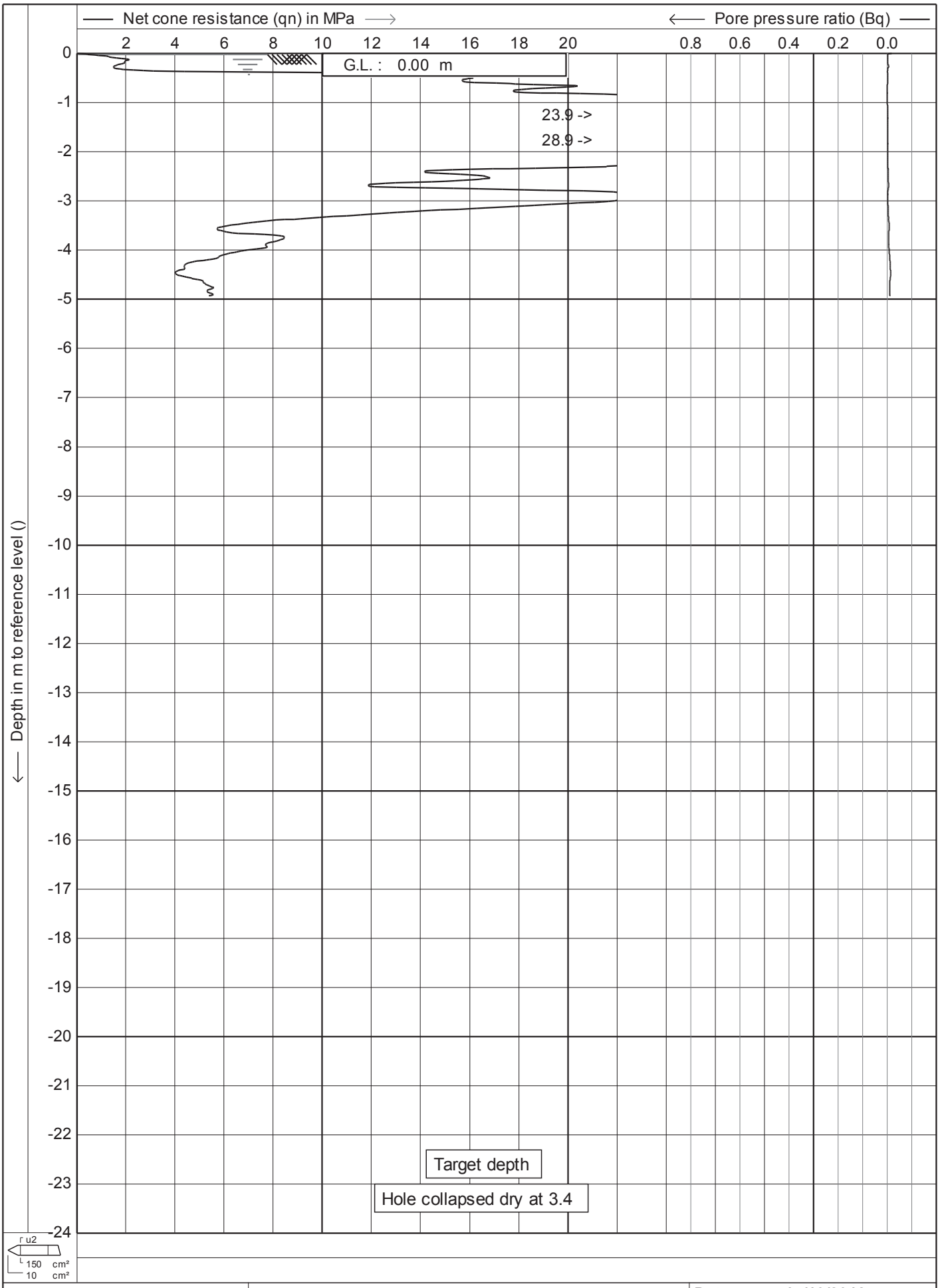
Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date	: **17/10/2018**
Cone no.	: **C10CFIIP.C14433**
Project no.	: **05AU2**
CPT no.	: **AU18-103** 6/14

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

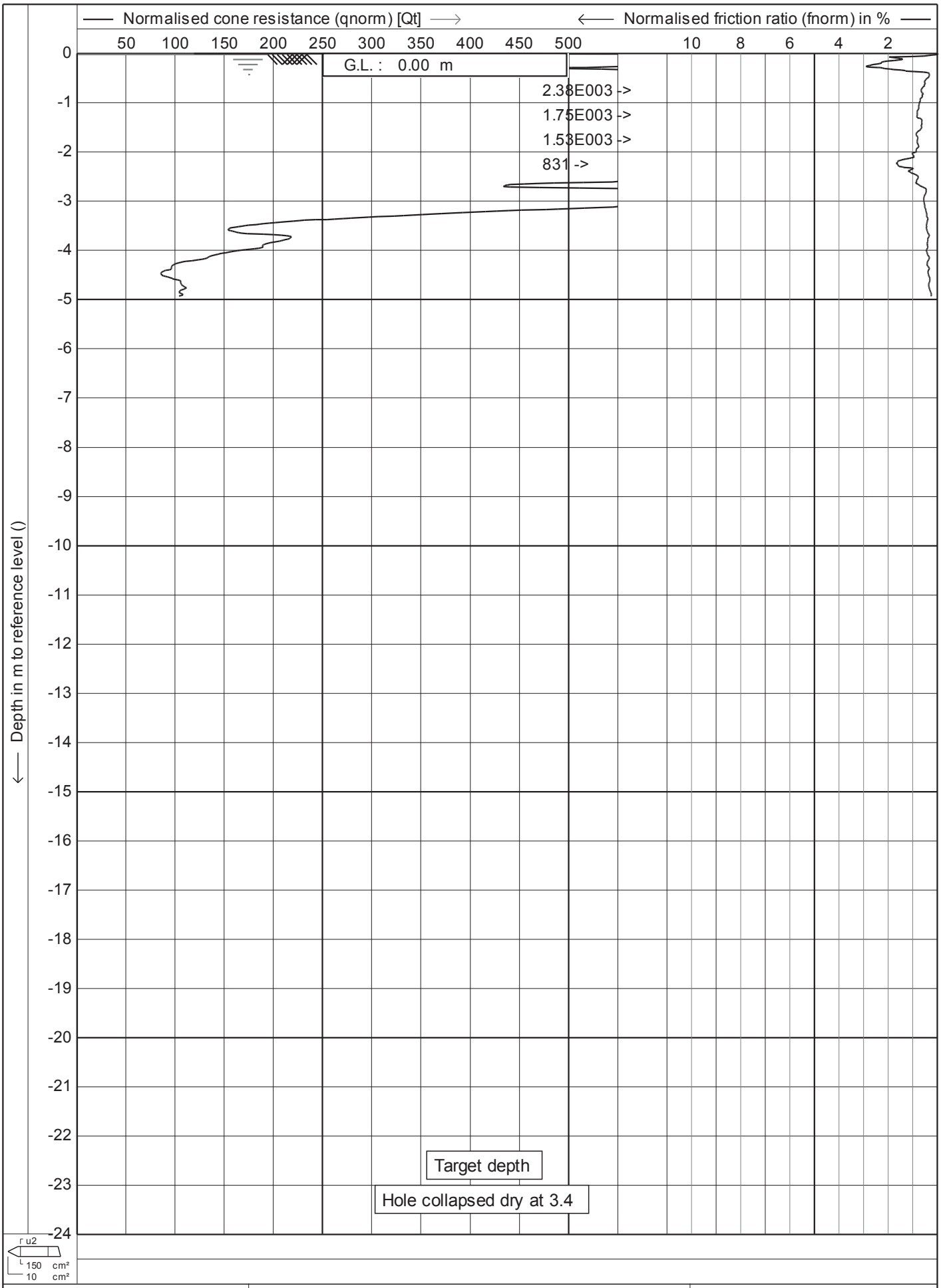
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **7/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

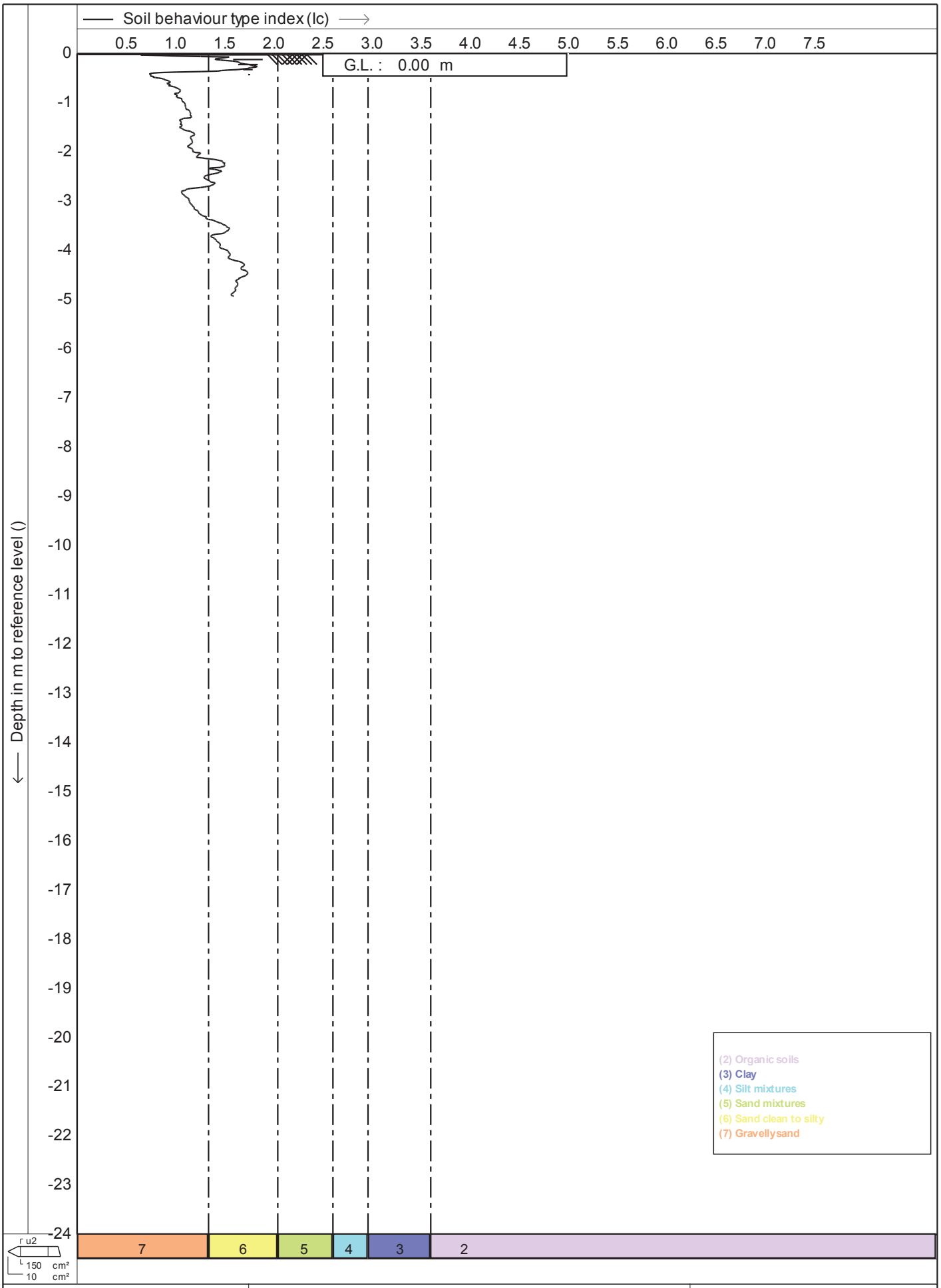
Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date	: **17/10/2018**
Cone no.	: **C10CFIIP.C14433**
Project no.	: **05AU2**
CPT no.	: **AU18-103** 8/14

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

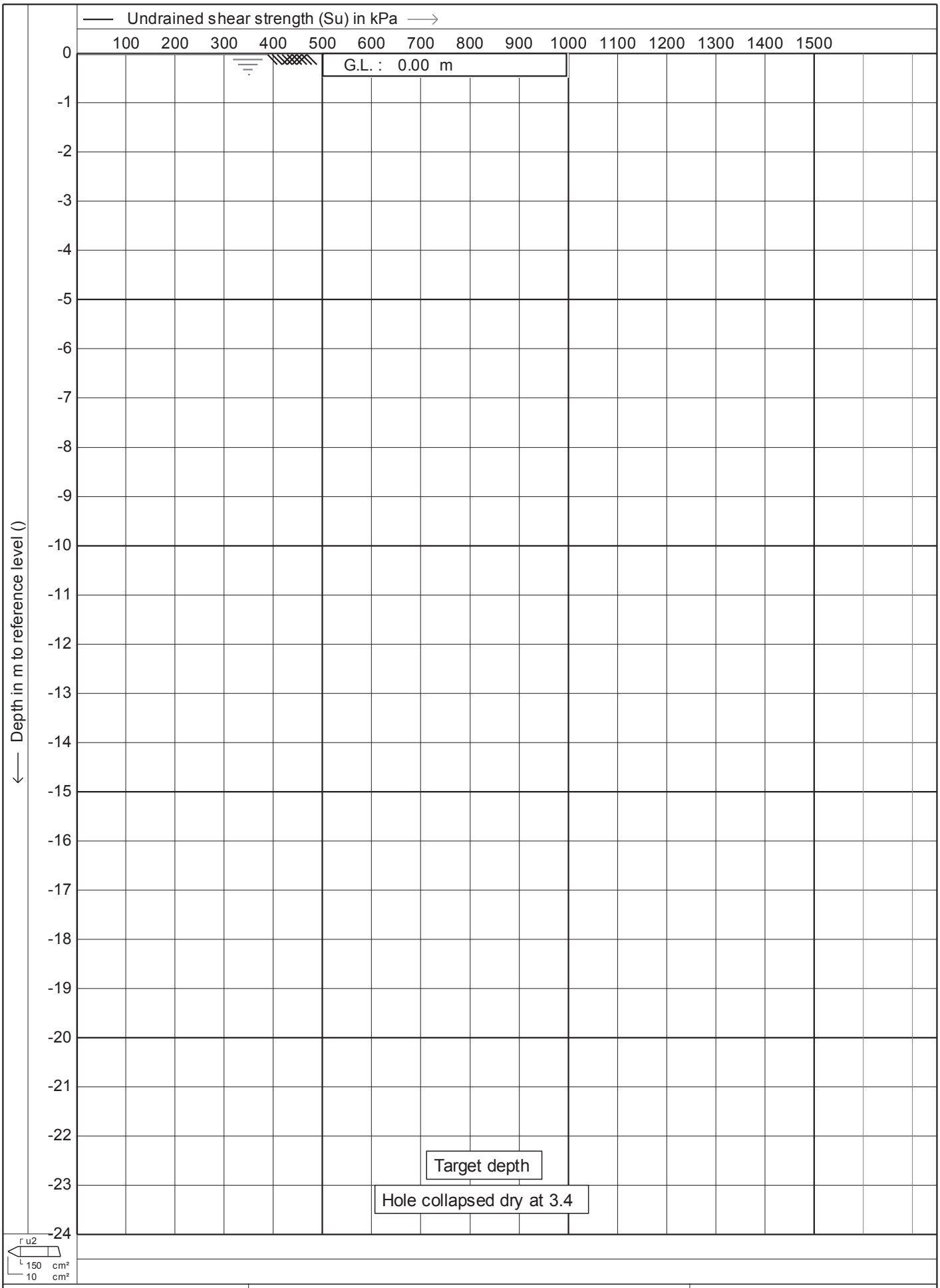
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **9/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

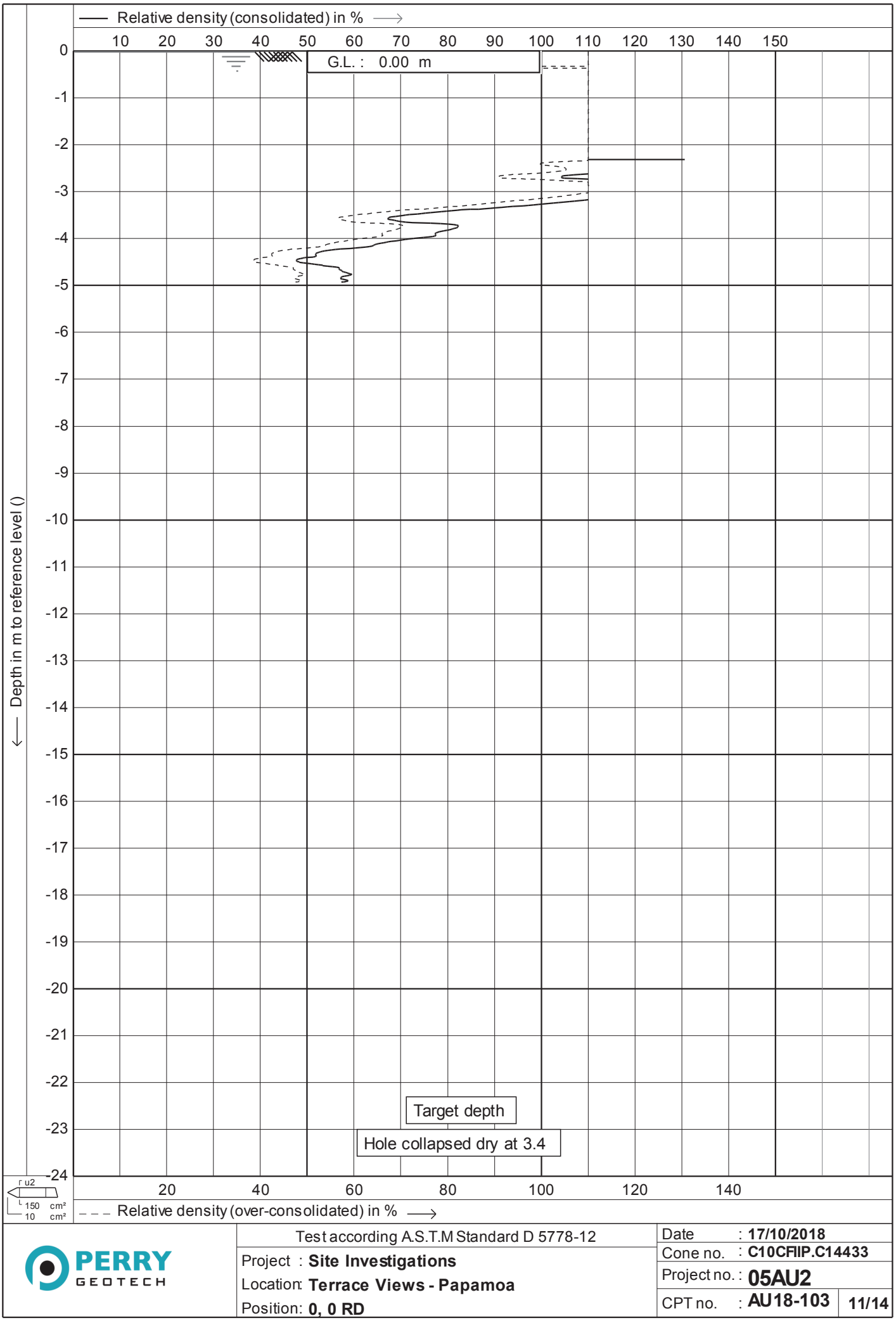
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **10/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

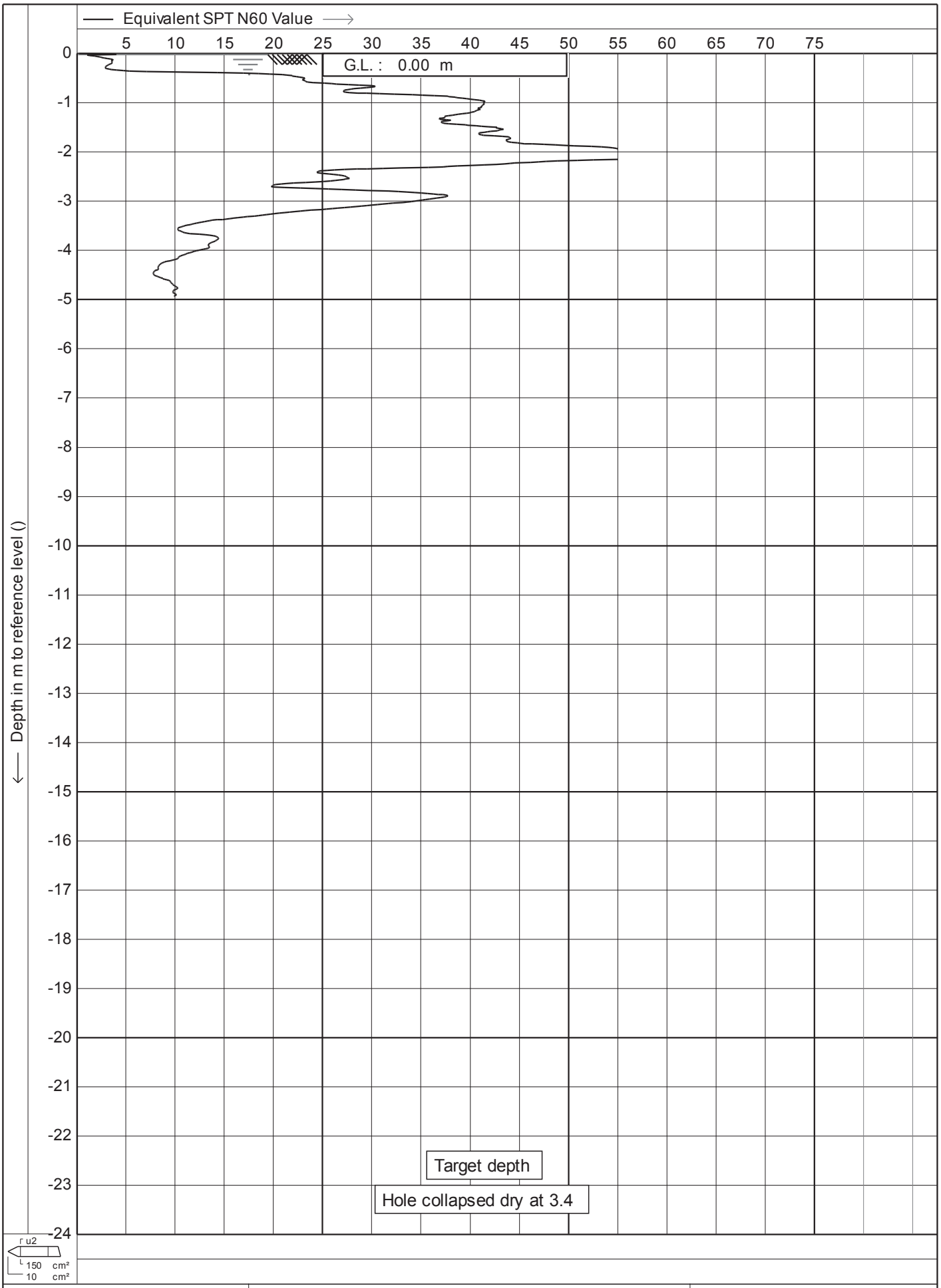
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **11/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

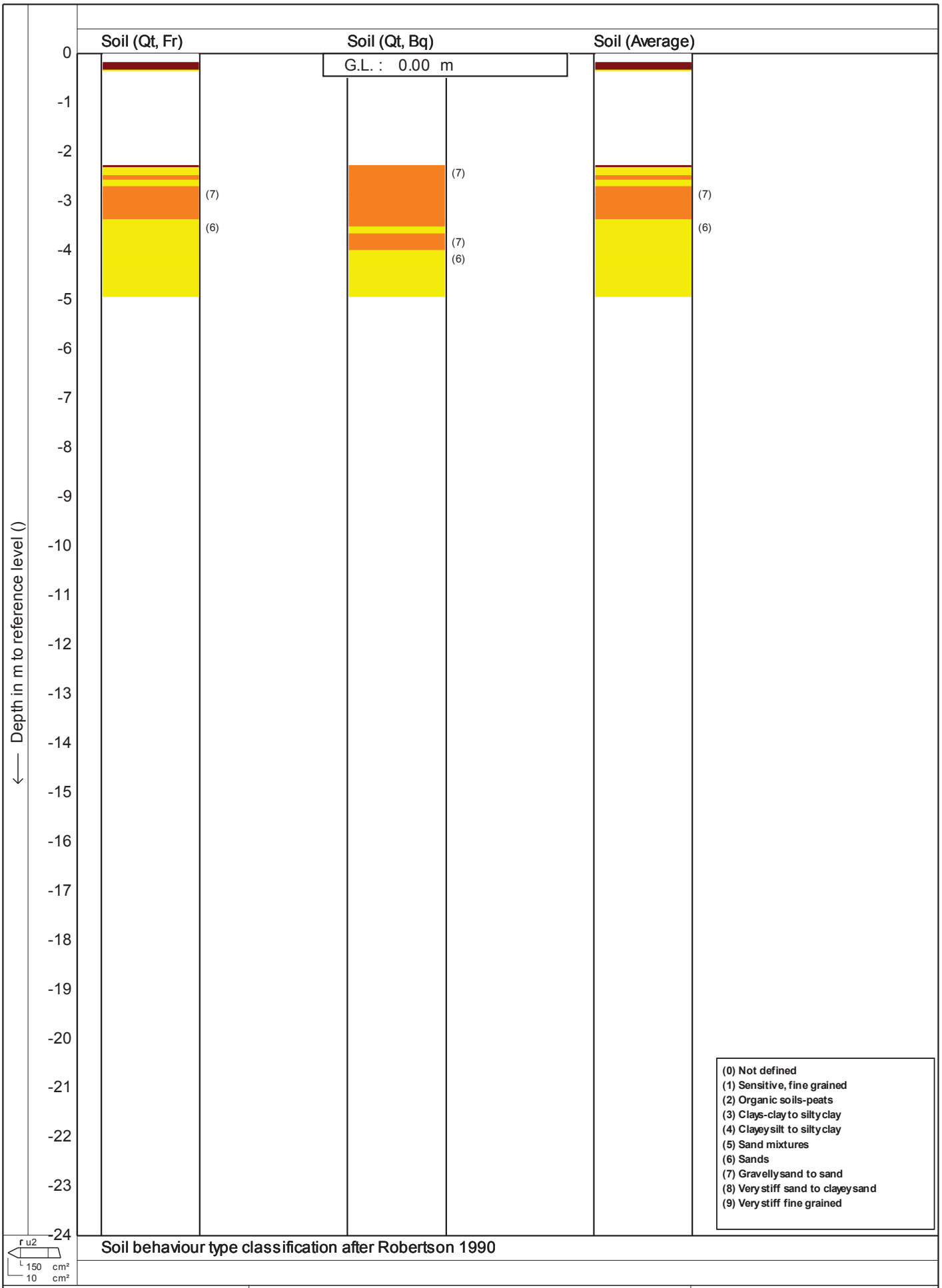
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **12/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

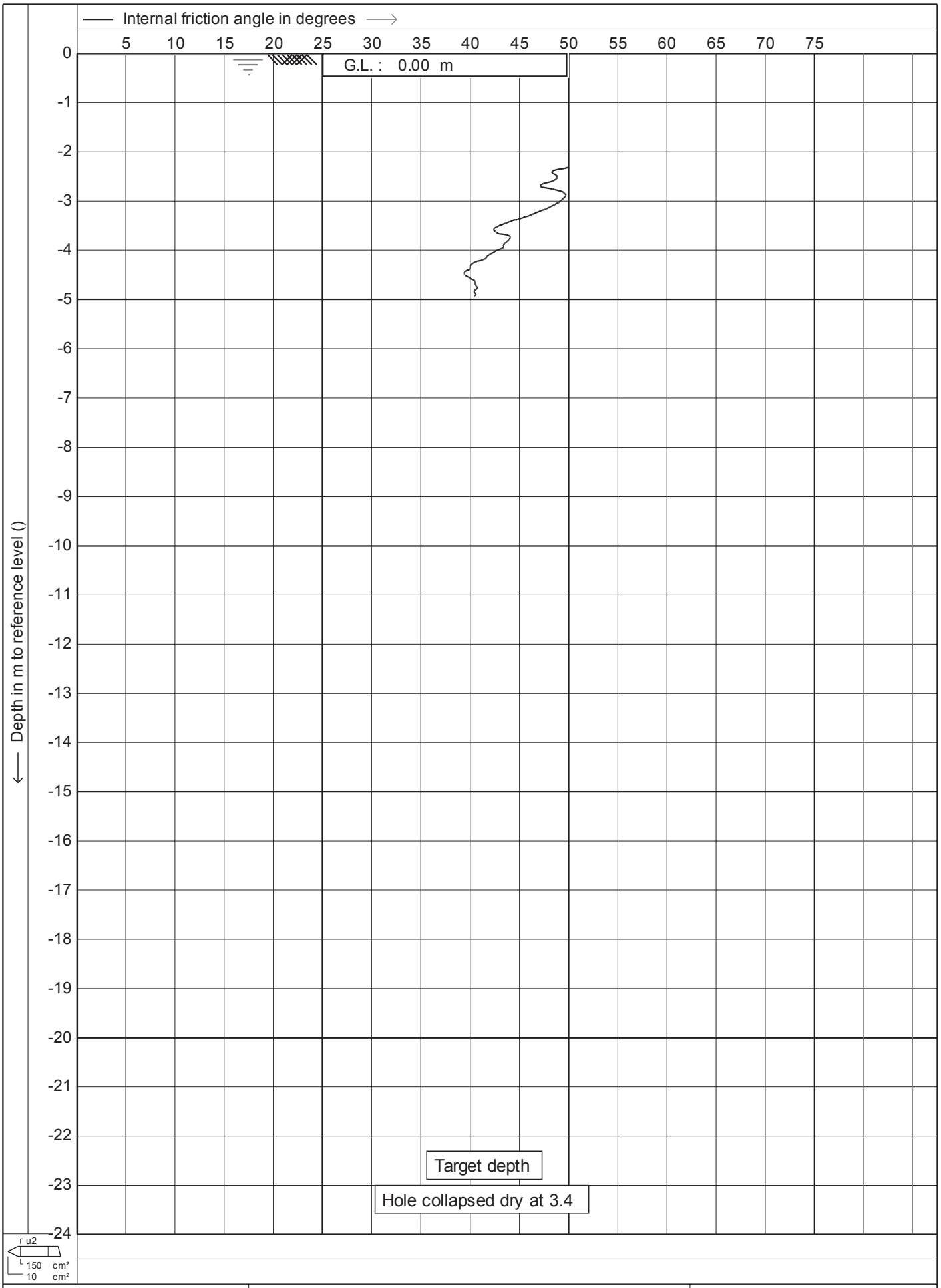
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **13/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

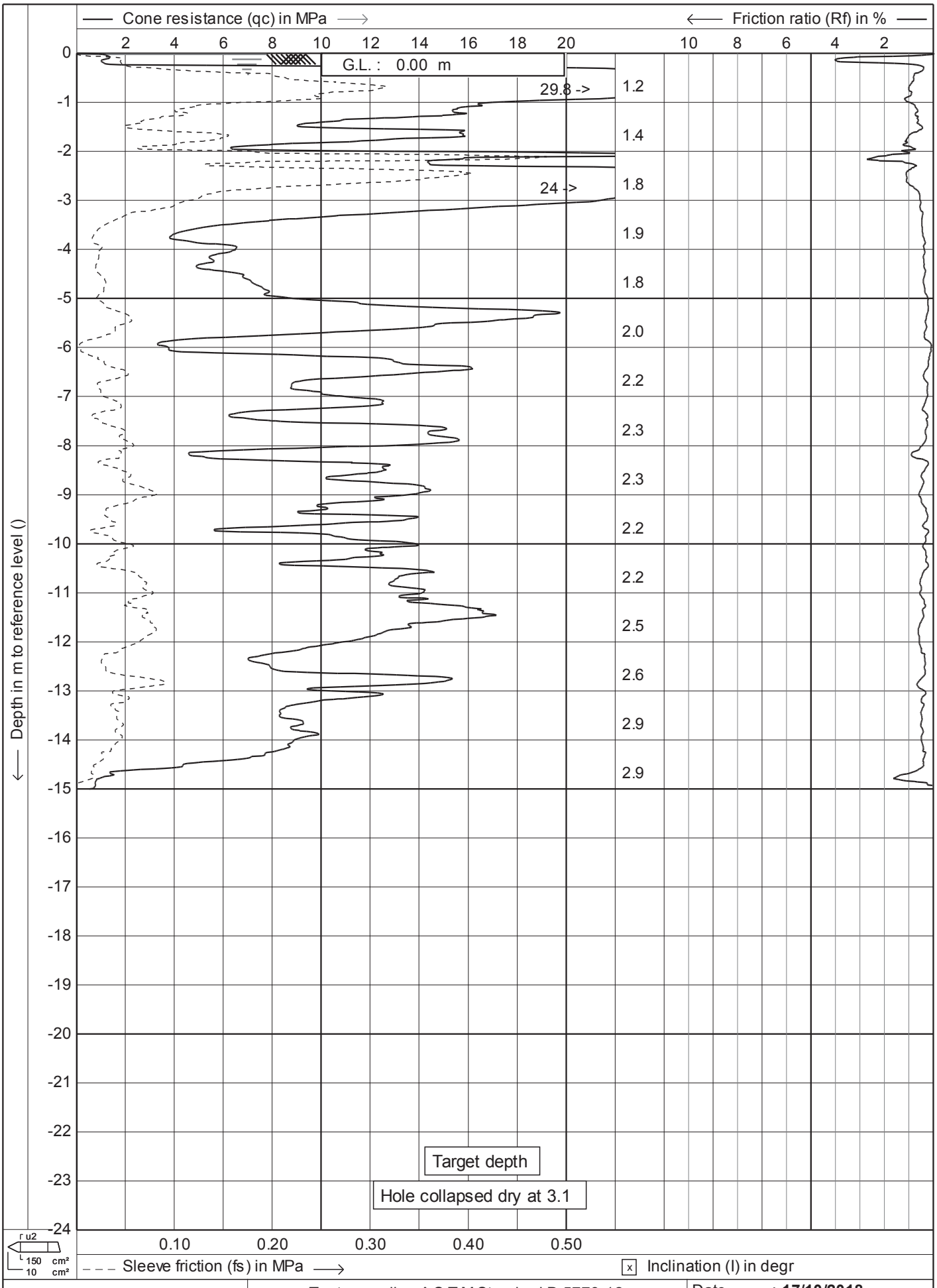
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-103** **14/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

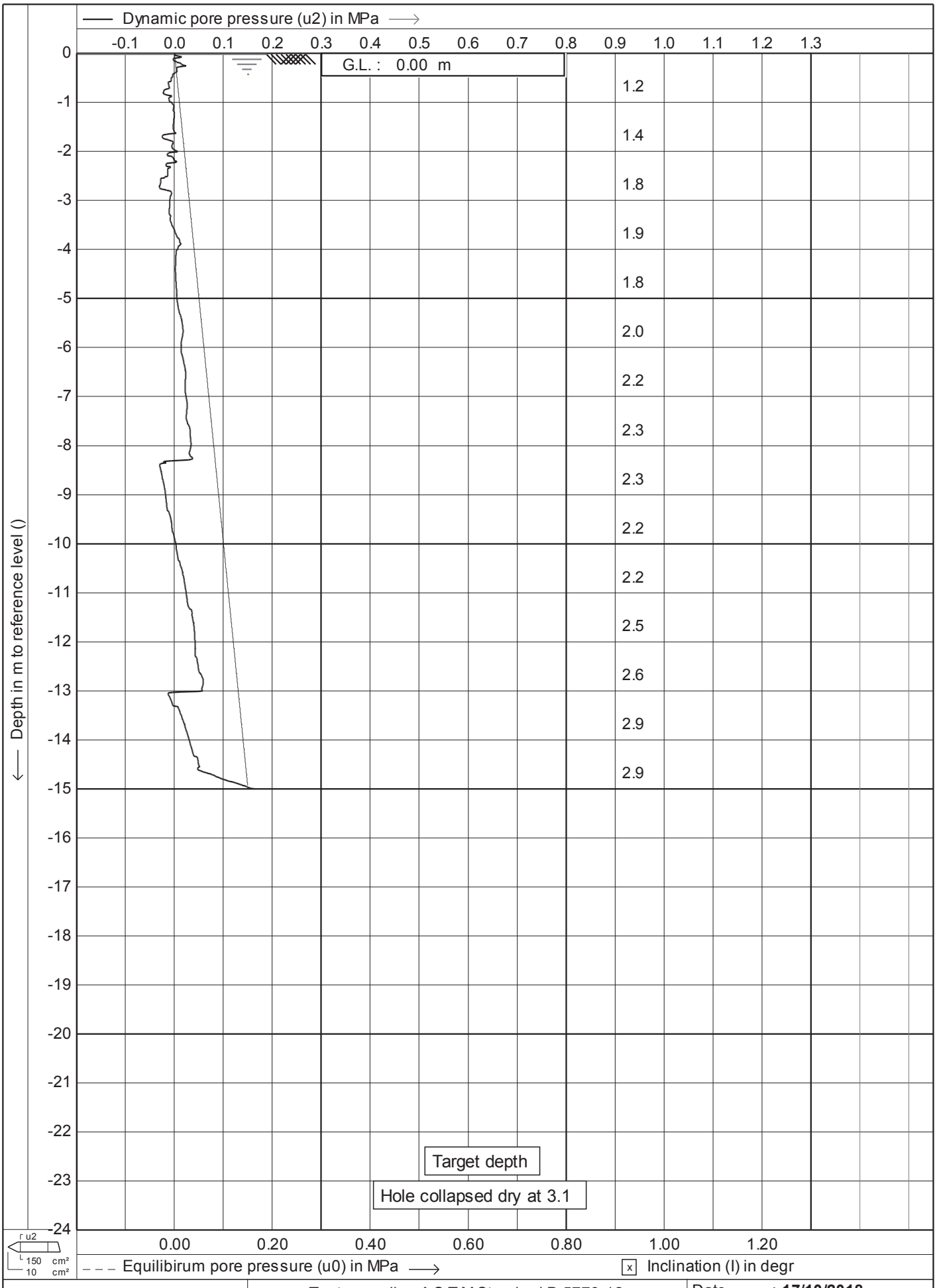
Date : **17/10/2018**

Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-107** **1/14**

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

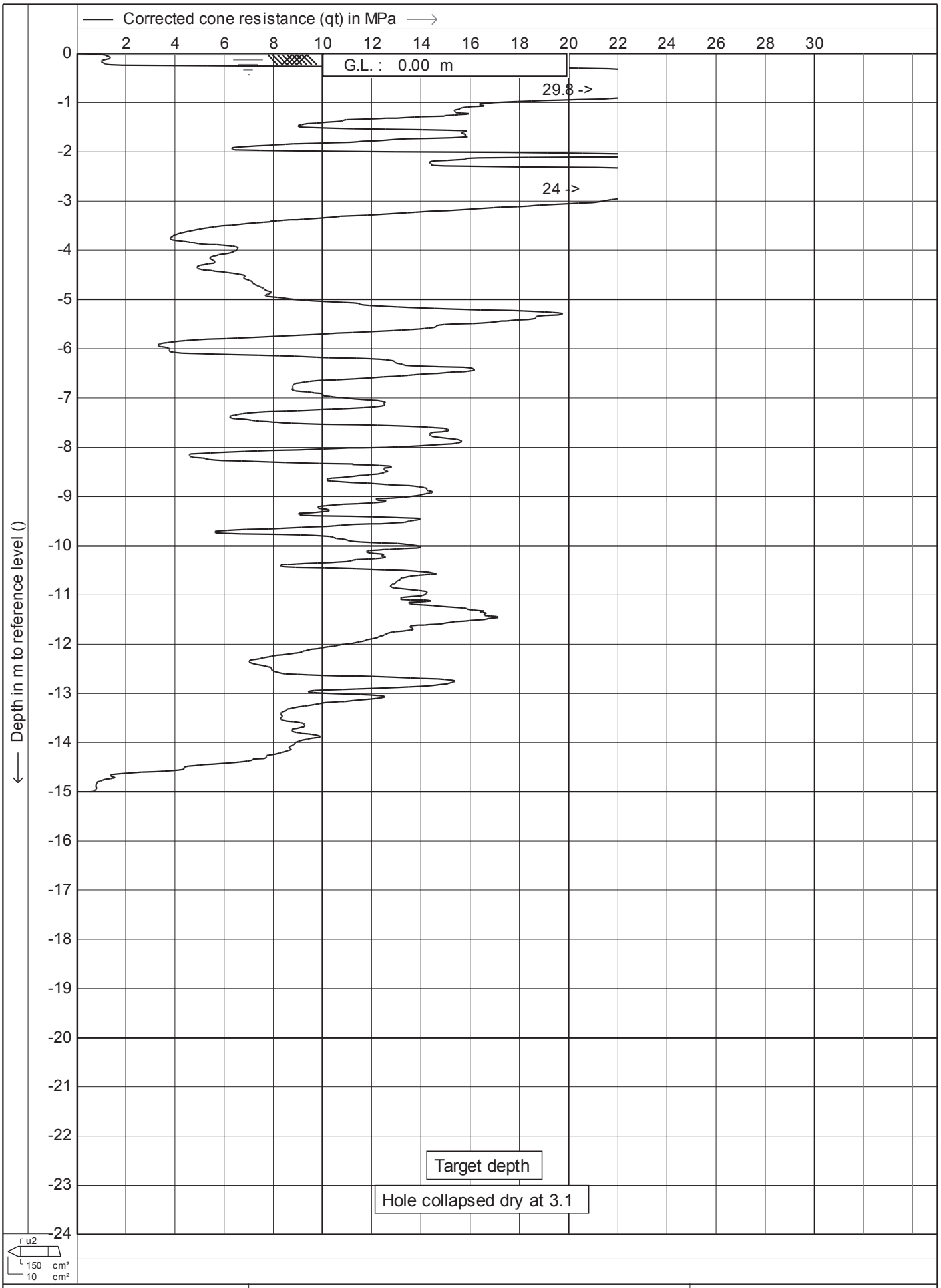
Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date	: **17/10/2018**
Cone no.	: **C10CFIIP.C14433**
Project no.	: **05AU2**
CPT no.	: **AU18-107** 2/14

1.47

TCC - Approved Building Consent Document - BC191200 - Pg 50 of 91 - 24/07/2019 - poha



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

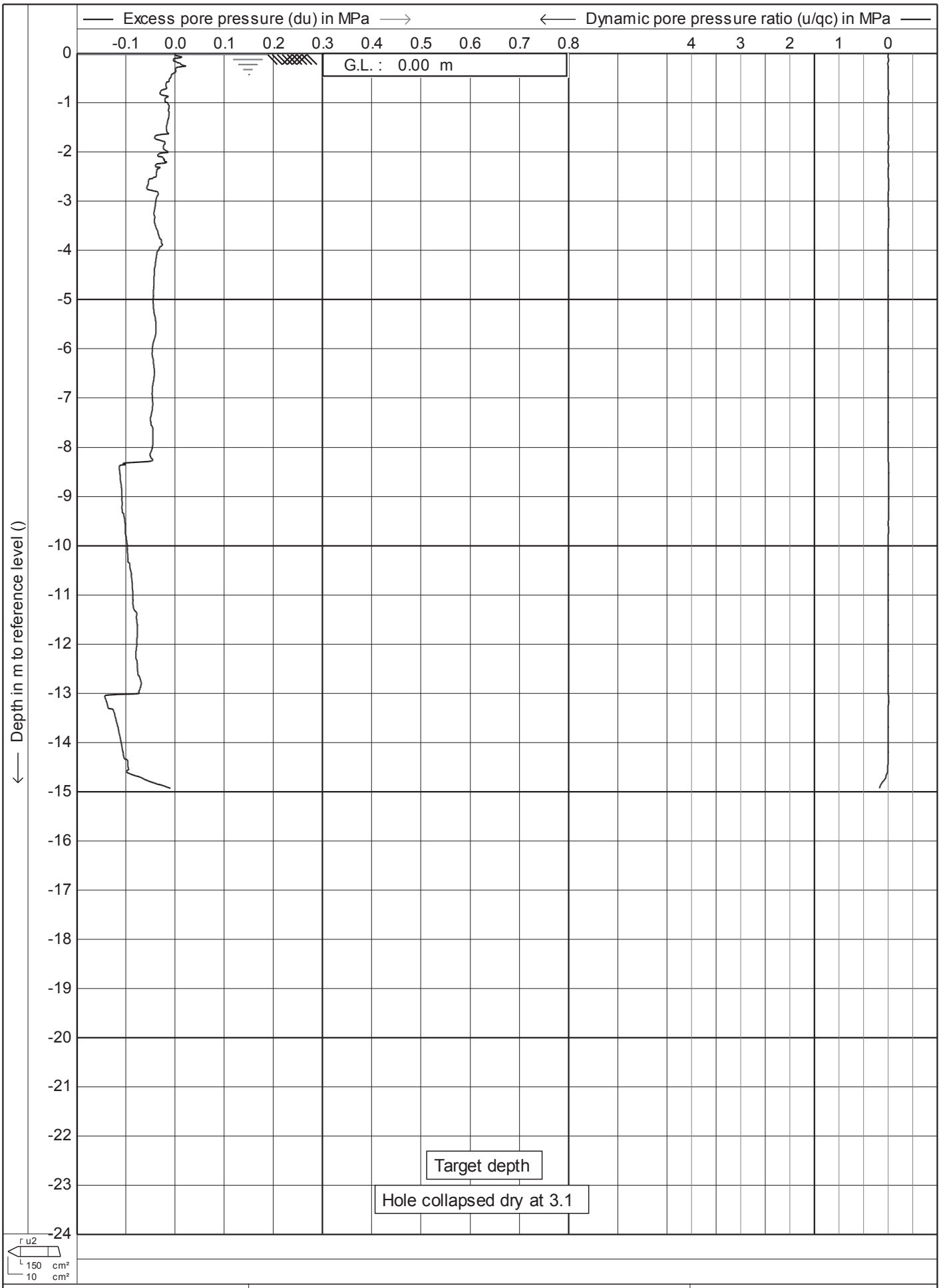
Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date	: **17/10/2018**
Cone no.	: **C10CFIIP.C14433**
Project no.	: **05AU2**
CPT no.	: **AU18-107** 3/14

1.47

TCC - Approved Building Consent Document - BC191200 - Pg 51 of 91 - 24/07/2019 - poha



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

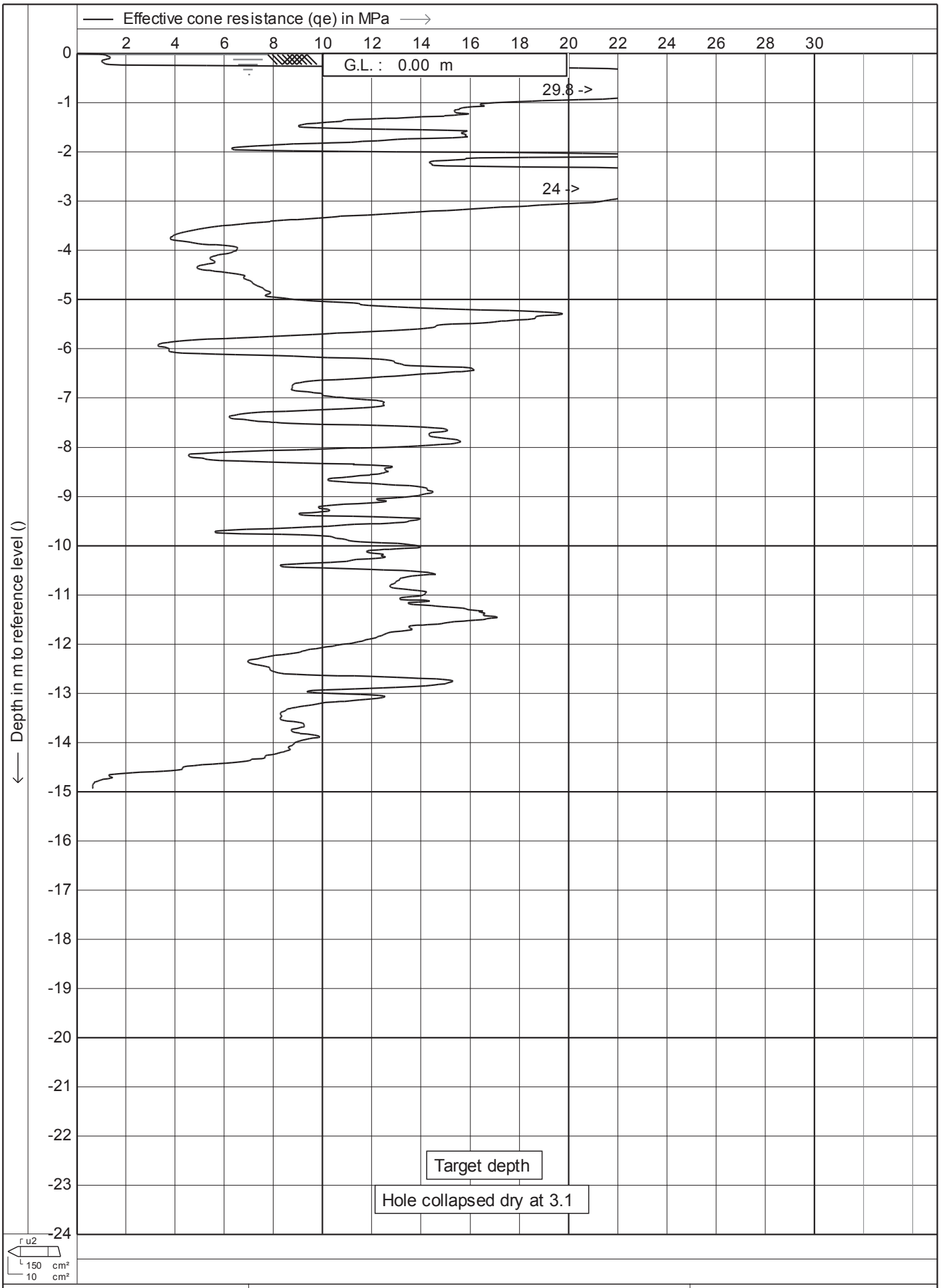
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-107** **4/14**

1.47

TCC - Approved Building Consent Document - BC191200 - Pg 52 of 91 - 24/07/2019 - poha



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

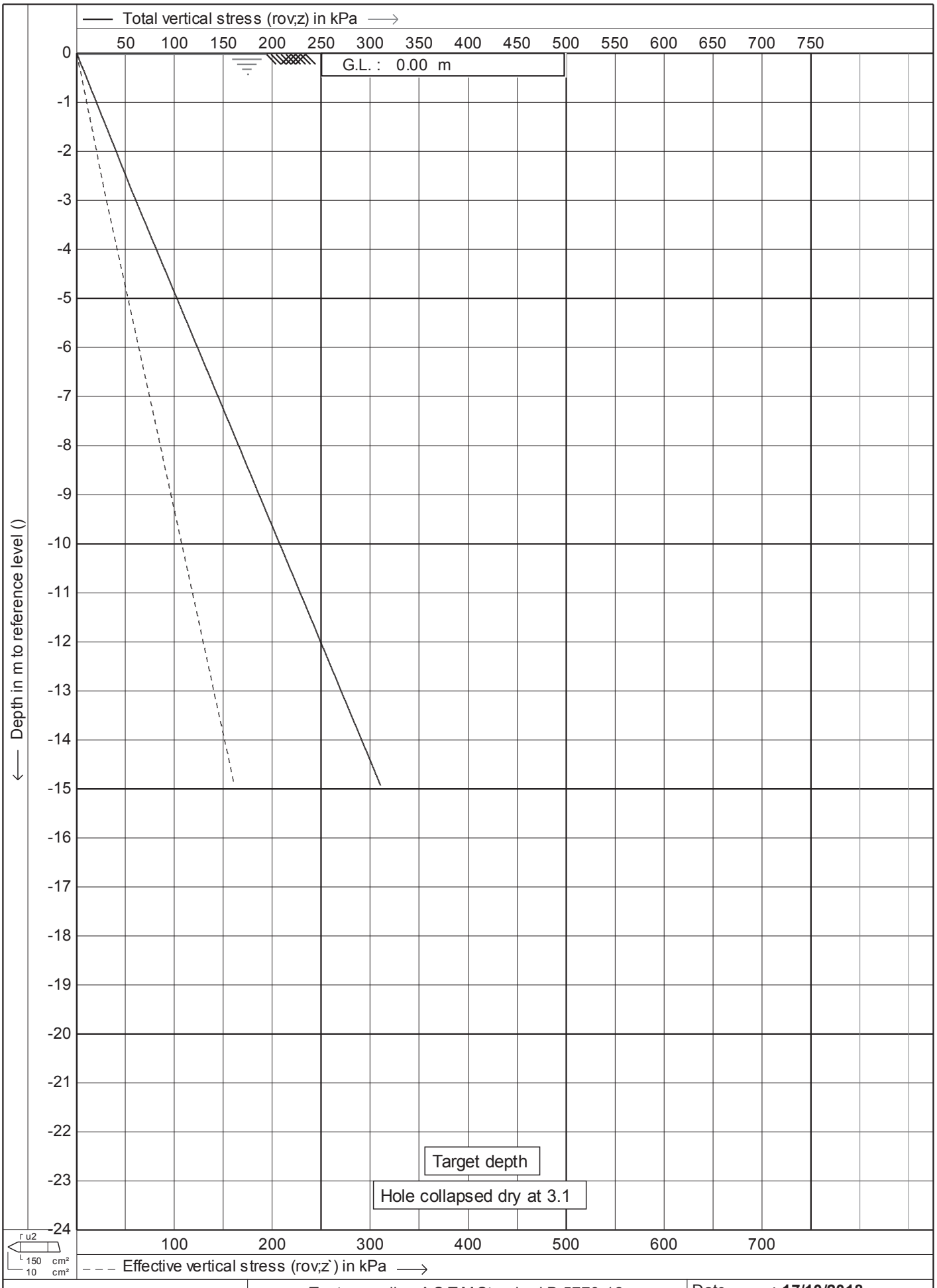
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-107** **5/14**

1.47

TCC - Approved Building Consent Document - BC191200 - Pg 53 of 91 - 24/07/2019 - poha



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

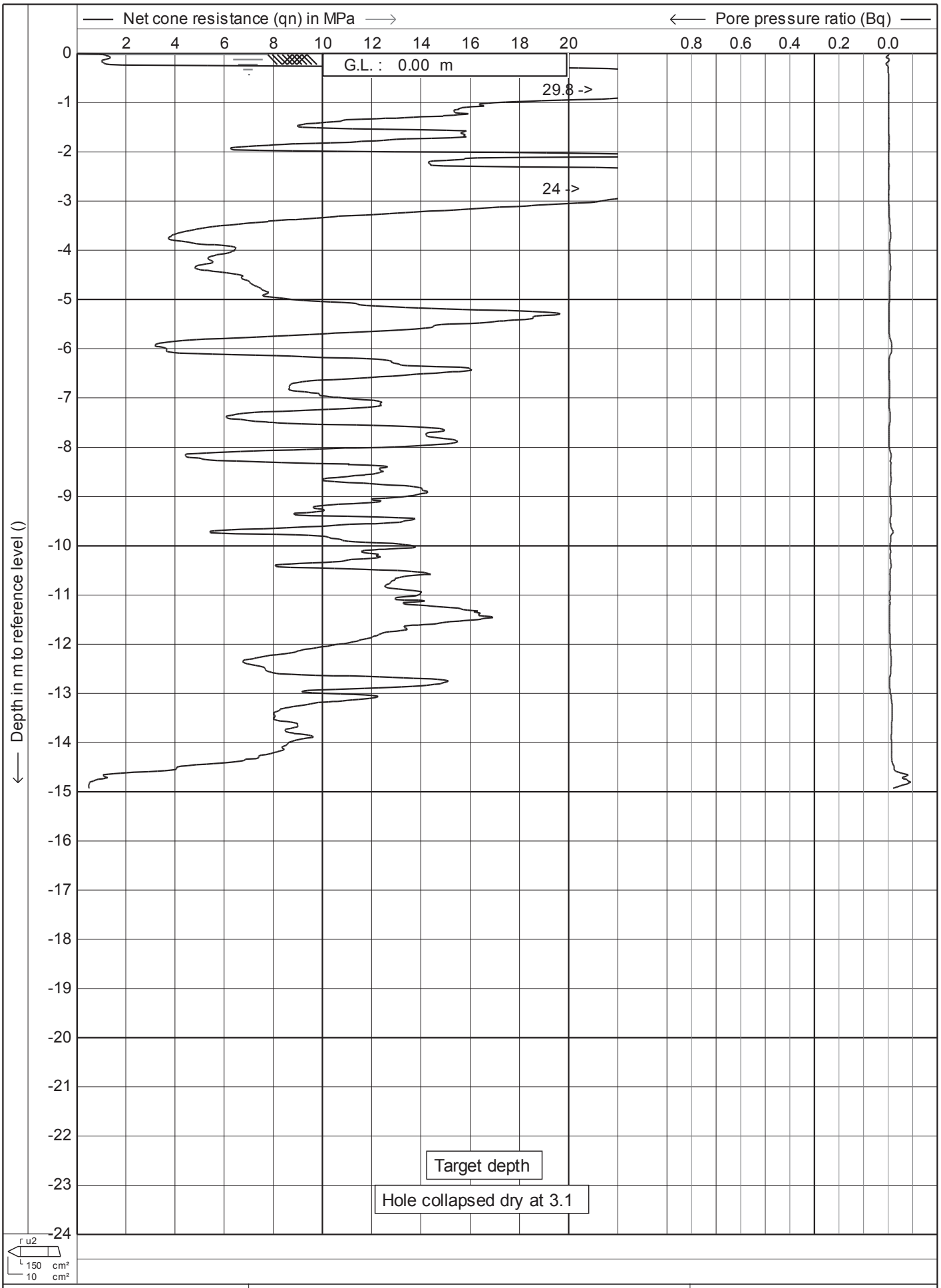
Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date	: **17/10/2018**
Cone no.	: **C10CFIIP.C14433**
Project no.	: **05AU2**
CPT no.	: **AU18-107** **6/14**

1.47

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

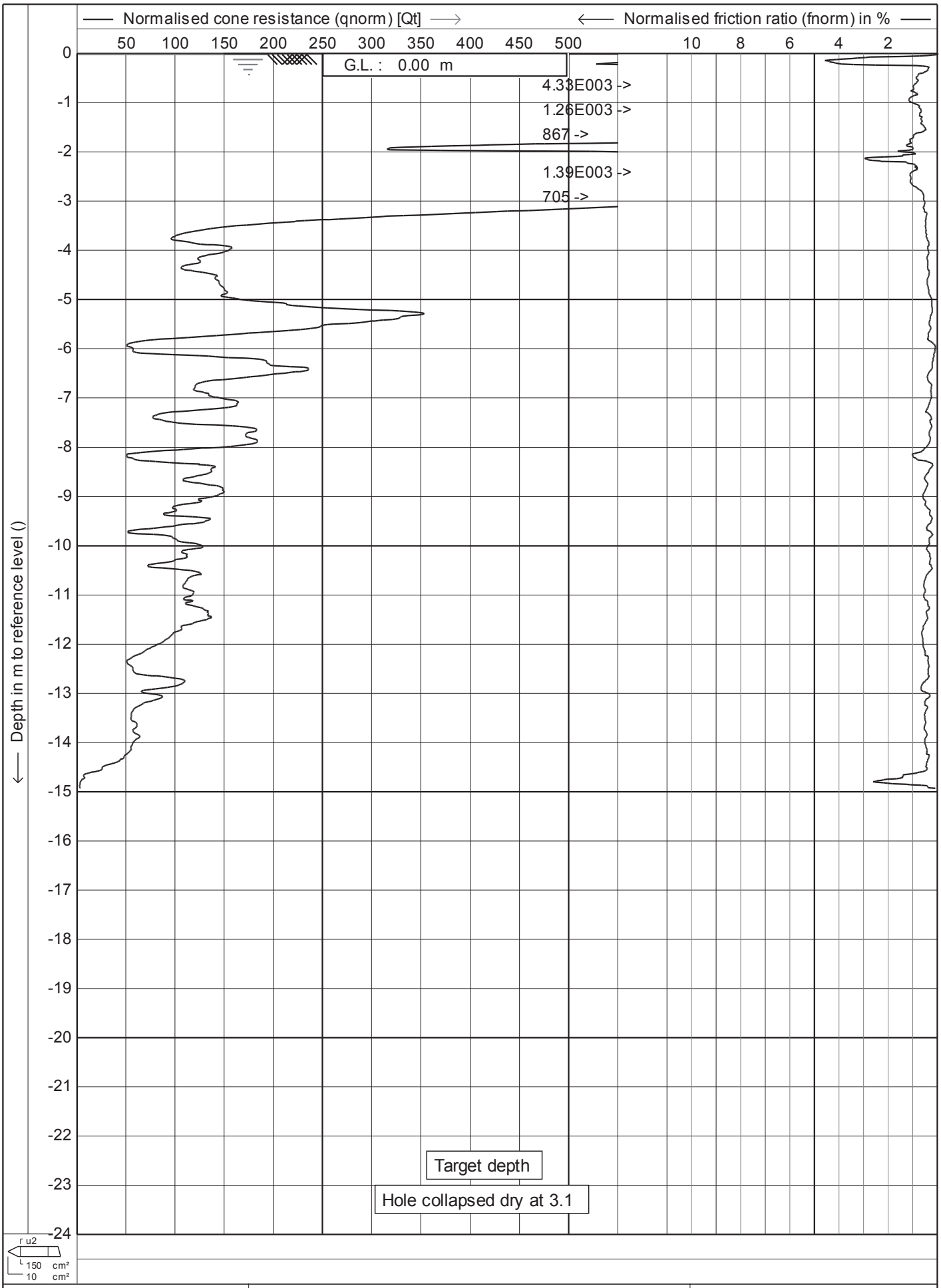
Date : **17/10/2018**

Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-107** **7/14**

1.47



PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

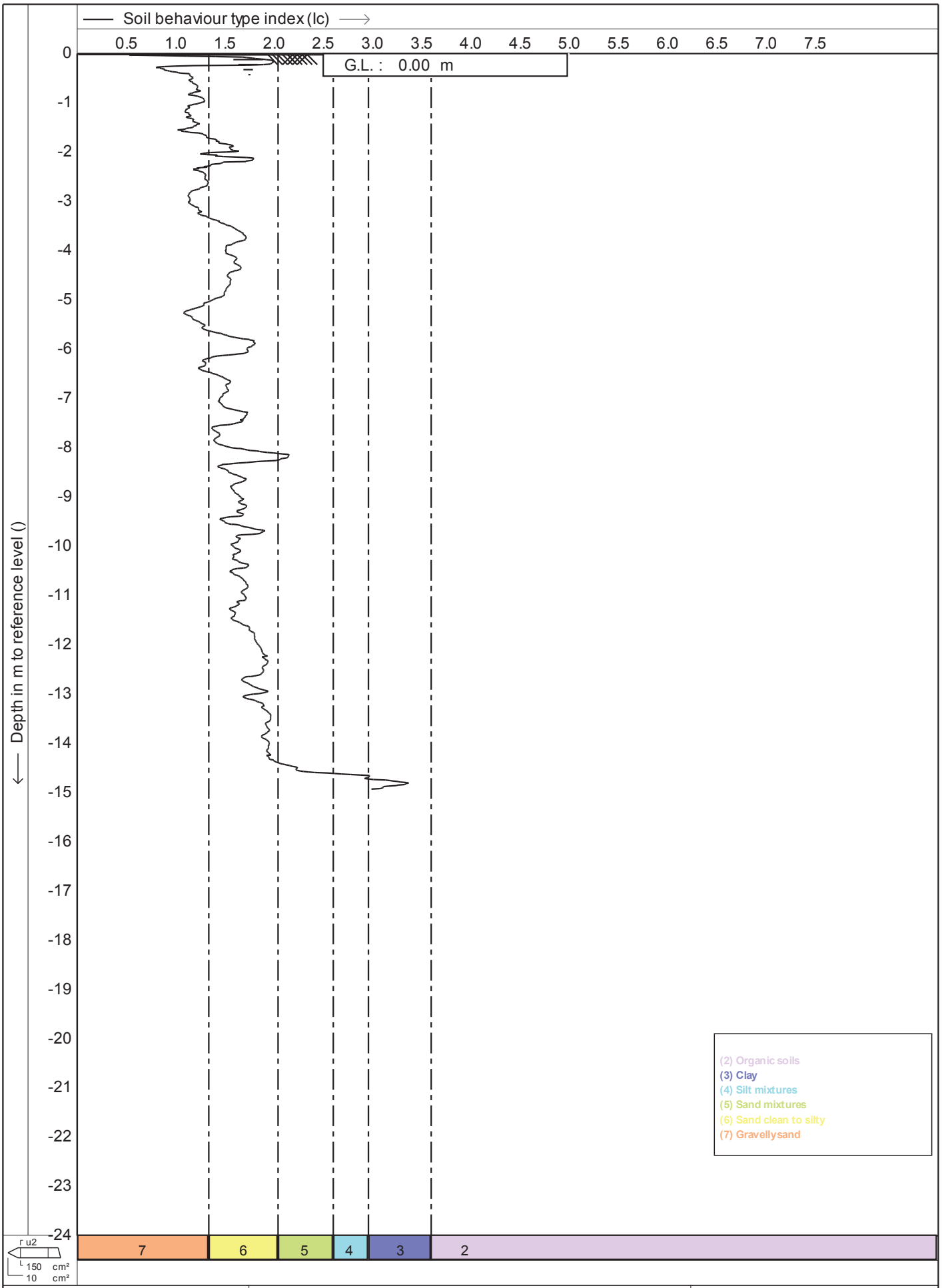
Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date	: **17/10/2018**
Cone no.	: **C10CFIIP.C14433**
Project no.	: **05AU2**
CPT no.	: **AU18-107** 8/14

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

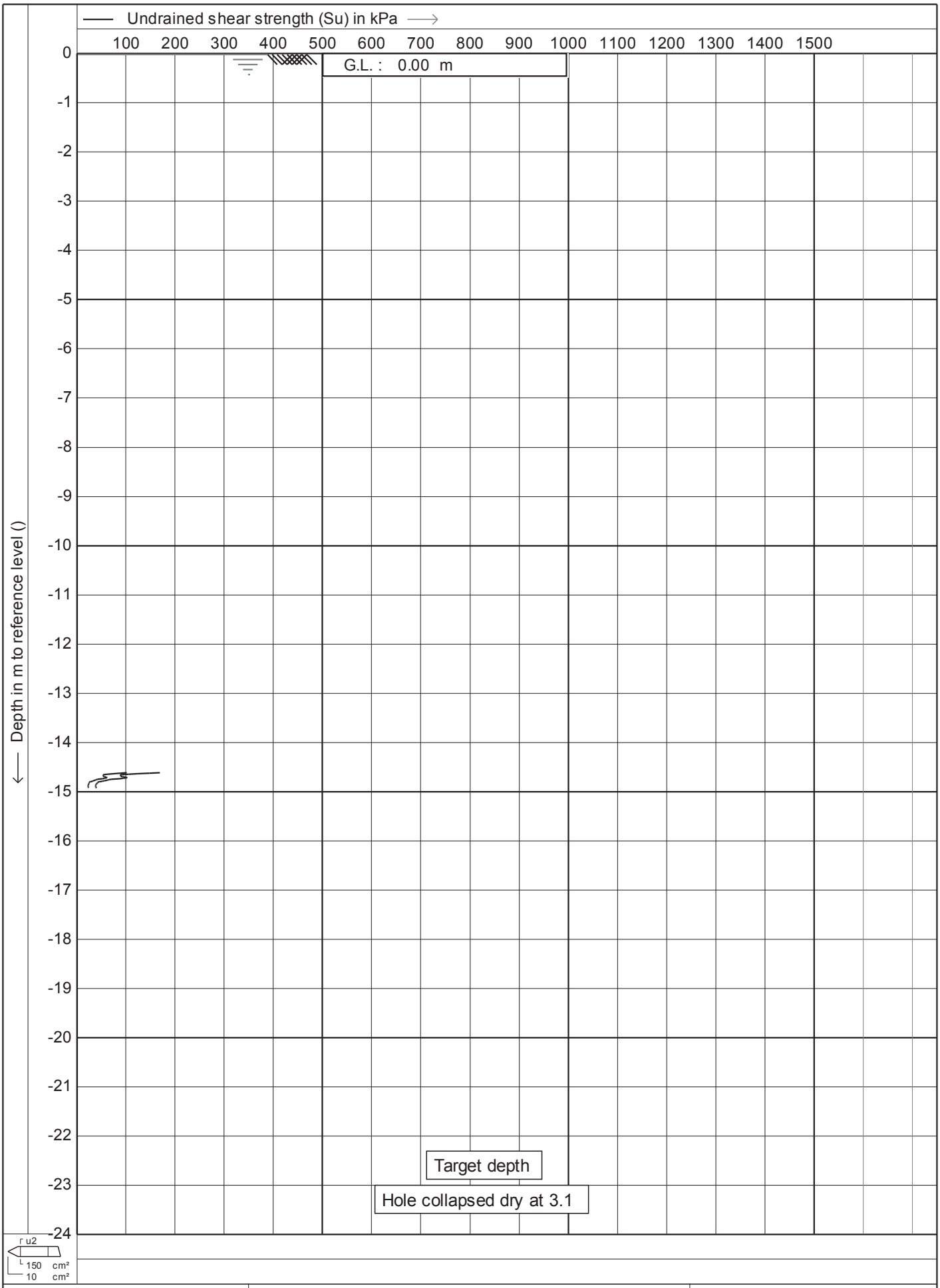
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-107** **9/14**

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

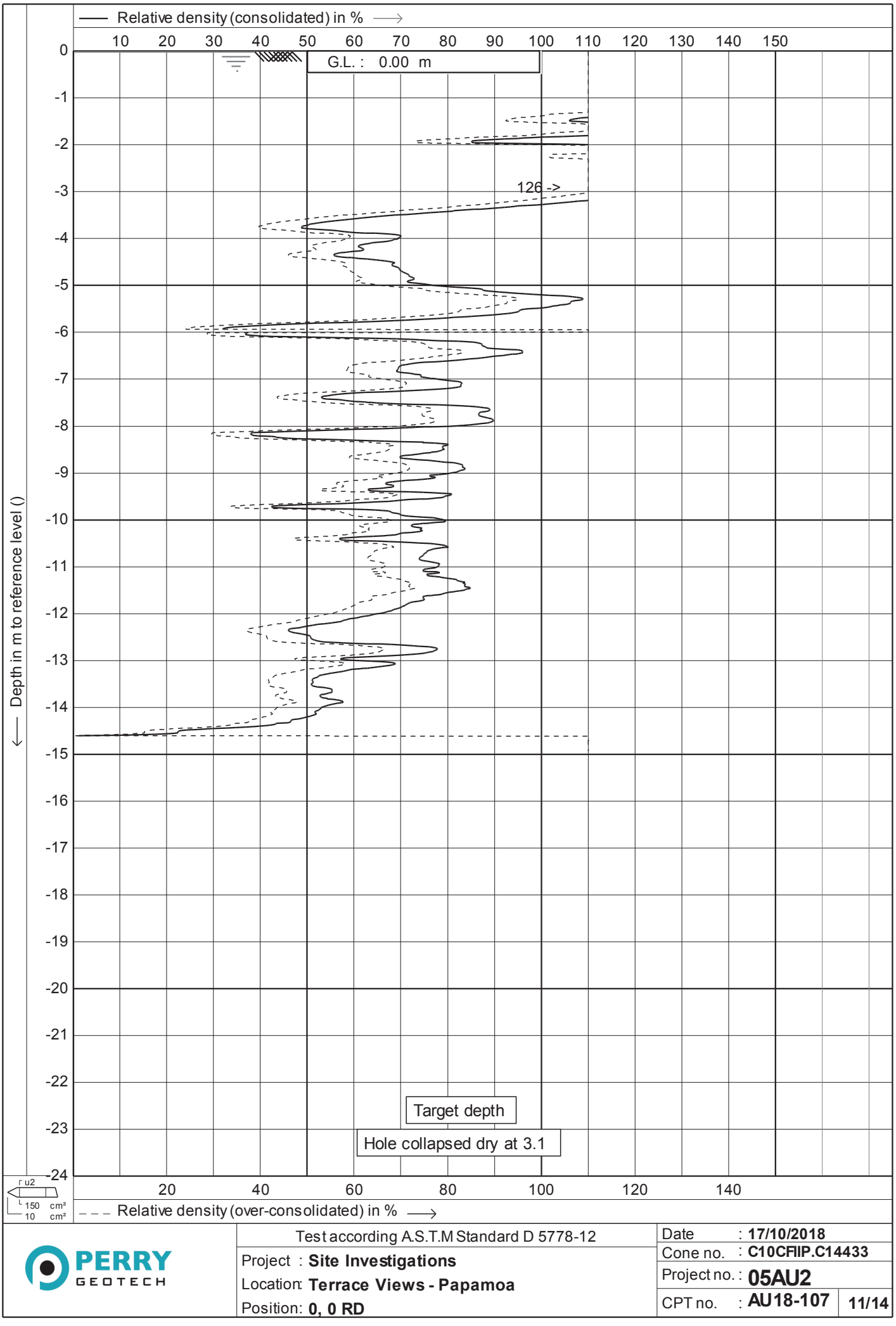
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-107** **10/14**

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

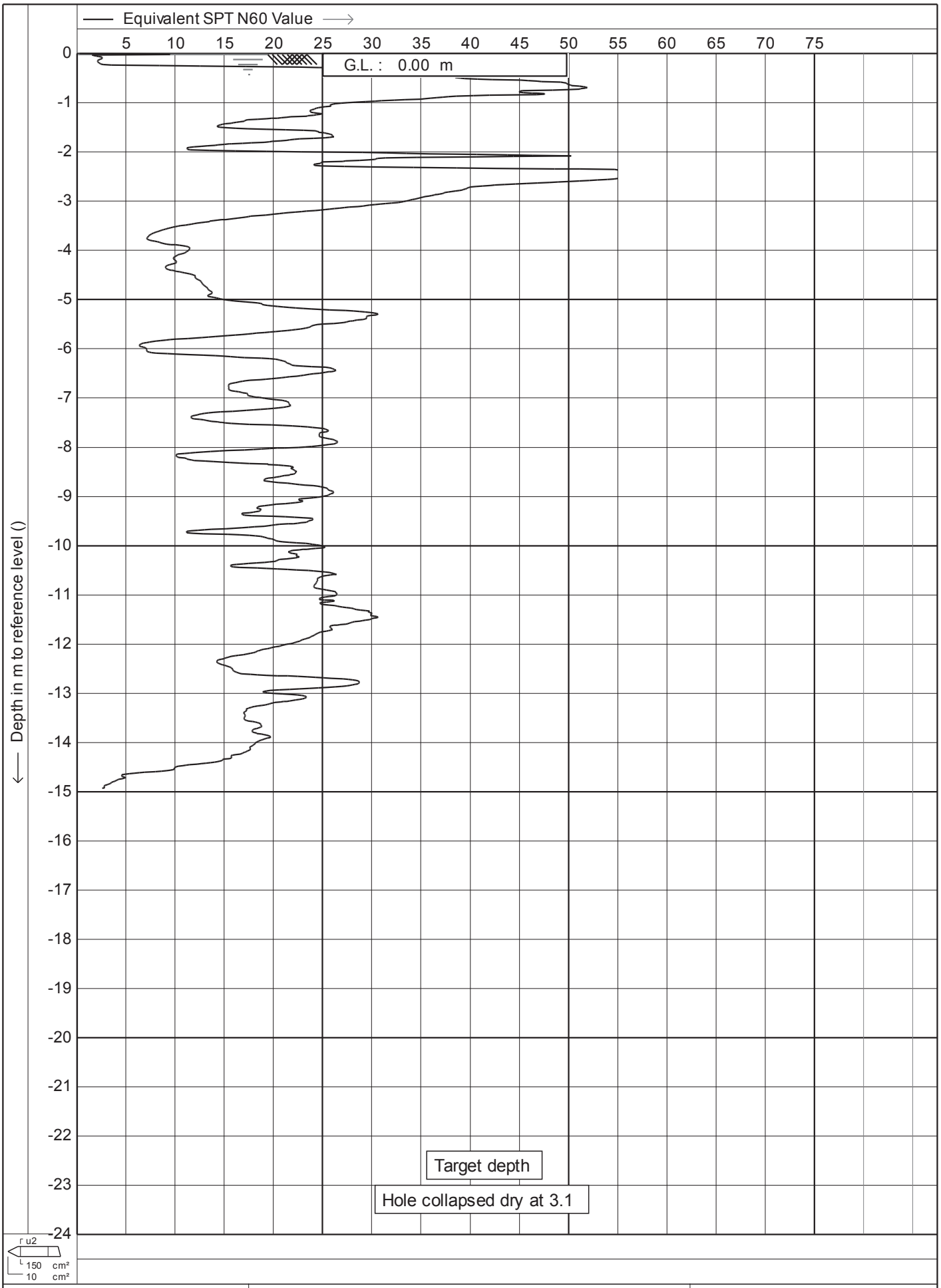
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-107** 11/14

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

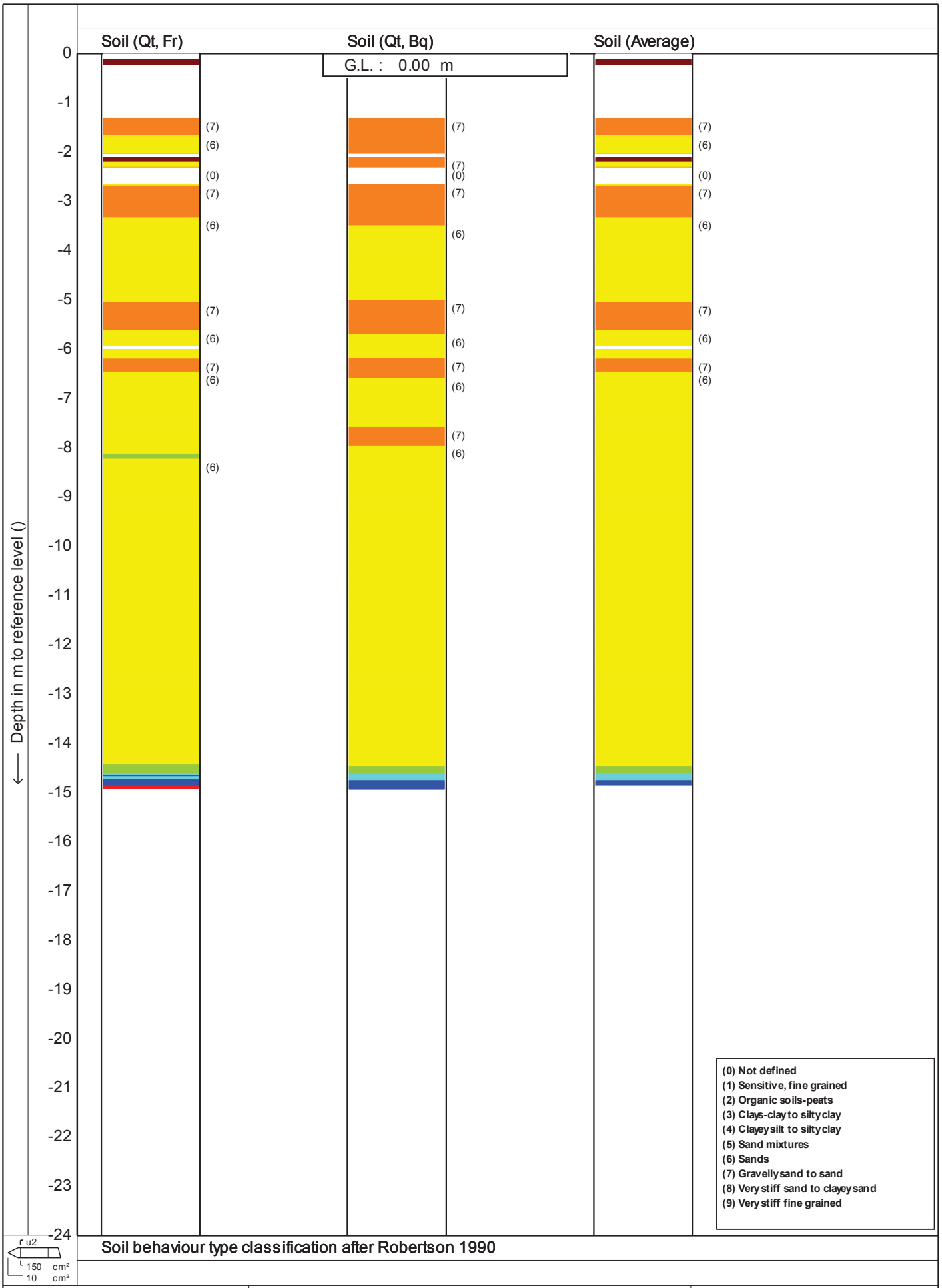
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-107** **12/14**

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

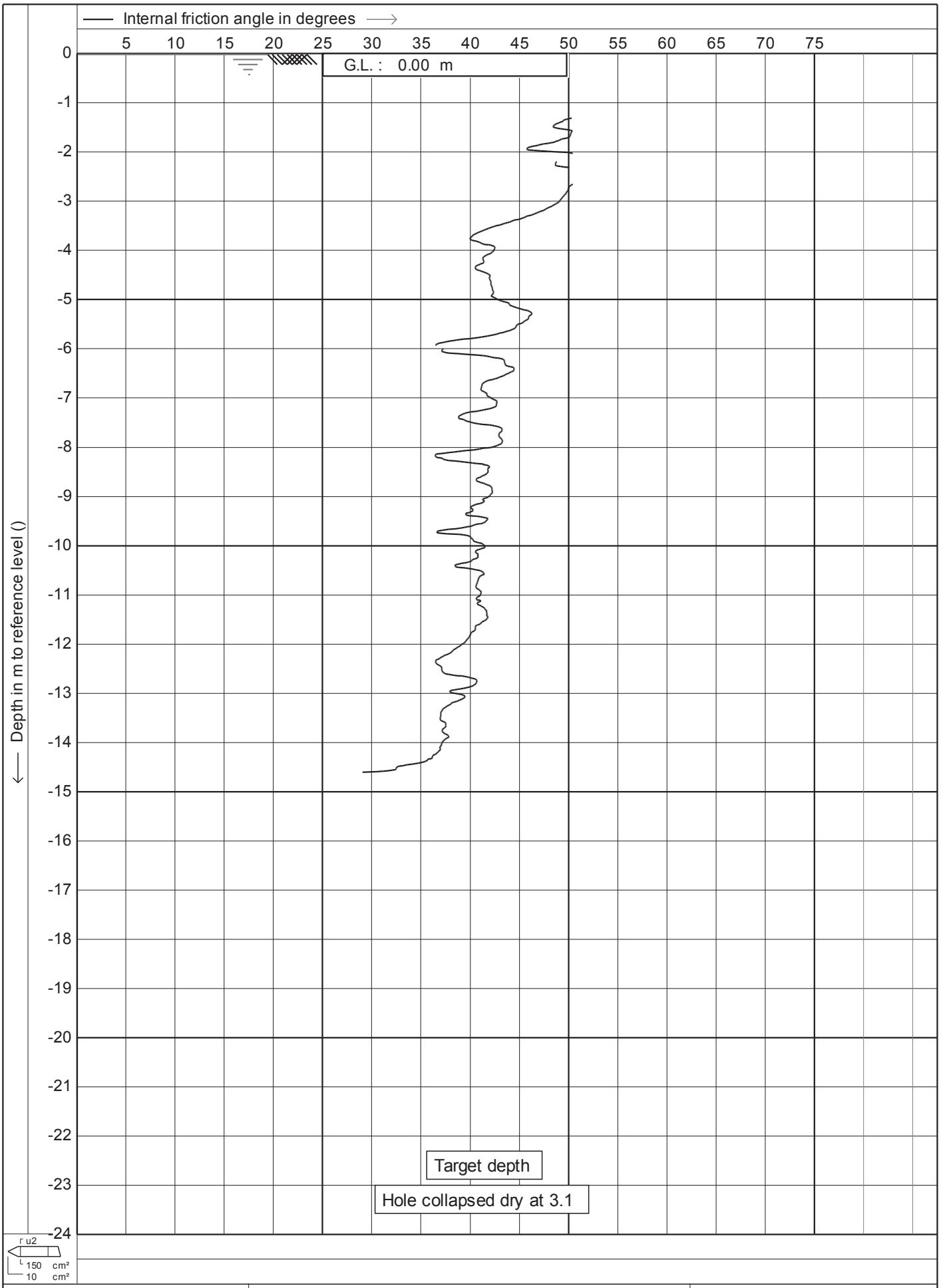
Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-107** **13/14**

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PERRY GEOTECH

Test according A.S.T.M Standard D 5778-12

Project : **Site Investigations**

Location: **Terrace Views - Papamoa**

Position: **0, 0 RD**

Date : **17/10/2018**

Cone no. : **C10CFIIP.C14433**

Project no. : **05AU2**

CPT no. : **AU18-107** **14/14**

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This Mathcad sheet is for cantilever timber pole walls in cohesionless soils. It is based on the NZ Building Code Handbook

Written by Ian McPherson Wellington Office. See Ian for any changes. Revised 27 July 2004 for Broms factors
1. Edited 24 September 2018 by Miles Buob for passive earth coefficient on sloping ground

JOB DESCRIPTION

Job Name: Terrace Views Stage 3D Retaining Walls Job No: 247593 Engineer: KK

UNIT DEFINITIONS

$kPa := 1000\frac{N}{m^2}$ $kN := 1000N$ $MPa := 1000 \cdot kPa$ $kNm := 1000 \cdot N \cdot m$ $degrad := \frac{\pi}{180}$

INPUT PARAMETERS (input highlighted values)

Soil properties

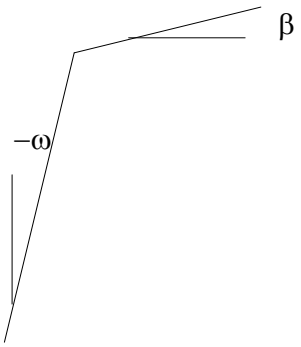
$\phi := 33deg$ Backfill angle of friction

$\phi_w := 22deg$ Angle of wall friction

$\beta := 0deg$ Inclination of backfill surface

$\phi_f := 33deg$ Foundation angle of friction

$\omega := 0deg$ Inclination of back of wall, see diagram for orientation



$\gamma_b := 15\frac{kN}{m^3}$ Unit weight of backfill (kN/m3) $Qs := 5kPa$ Surcharge load

$\gamma_f := 10\frac{kN}{m^3}$ Unit weight of foundation soils (allow for submerged weight as appropriate)

$\alpha := 0deg$ Slope angle from horizontal below retaining wall for passive earth pressure calculation (Should be negative if downsloping away from retaining wall)

$$K_a := \frac{(\cos(\phi - \omega))^2}{\left[(\cos(\omega))^2 \cdot \cos(\phi_w + \omega) \cdot \left(1 + \sqrt{\frac{\sin(\phi_w + \phi) \cdot \sin(\phi - \beta)}{\cos(\phi_w + \omega) \cdot \cos(\beta - \omega)}}\right)^2\right]}$$

$K_a = 0.26$

$$K_p := \frac{\cos(\phi)^2}{\left[1 - \left(\sin(\phi)^2 + \sin(\phi) \cdot \cos(\phi) \cdot \tan(\alpha)\right)^{0.5}\right]^2}$$

$K_p = 3.39$

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Wall and Pole Dimensions

$H_{retained} := 1.0m$ Wall height. Should include any wedge of ground in front of the poles considered to give no lateral support

$D_{pole} := 0.2m$ Pole short end diameter

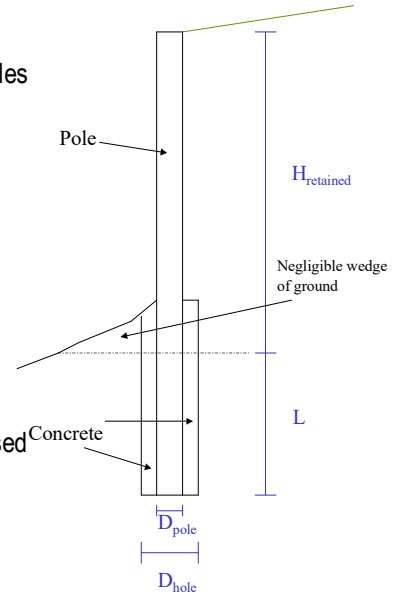
$D_{hole} := 0.2m$ Normally hole diameter = Dpole+150mm for timber poles

$Pole_Spacing := 1.0m$ Pole spacing

$L := 2.0m$ Depth of pile embedment

$f := H_{retained} \cdot 0.333$ Point of application of active thrust above ground

$f = 0.33\,m$



Pole spacing must be at least 4 times the diameter of the hole for the full capacity to be realised

$$Broms := \min\left(\frac{0.33 \cdot Pole_Spacing}{D_{hole}}, 1\right) \quad Broms = 1.00$$

Soil Ultimate Limit State Factors

$LF_{ep} := 1.6$ Load factor for lateral earth pressure

$\Phi := 0.5$ Strength reduction factor on soil capacity

Pole Properties

$\Phi_{pole} := 0.8$ For timber pole

$k_{20b} := .9$ Peeling or shaving factor bending

$k_{21b} := 0.85$ Steaming factor for bending

$k_{20s} := 1.00$ Peeling or shaving factor in shear

$k_{21s} := 0.9$ Steaming factor for shear

$k_1 := 0.6$ Load duration factor (0.6 = permanent, 0.8 = med eg snow/live/vehicle, 1.0 = wind/EQ)

$k_4 := 1.0$ Load factor in shear

$f_b := 38MPa$ Allowable bending stress (38MPa normal poles, 52MPa high strength poles, 14.8MPa sawn)

$f_s := 3.1MPa$ Allowable shear stress (3.1MPa normal poles, 3.5MPa high strength poles, 2.4MPa sawn)

CALCULATIONS

Pole Capacities

$$I(A) := \pi \cdot \frac{(D_{pole})^4}{64}$$ Second moment of area of pole (m4) $I(A) = 7.85 \times 10^{-5}\,m^{4.00}$

Note this value is slightly conservative because it disregards the taper which can be taken as 1.5mm per metre length of pile

$$My(A) := f_b \cdot k_1 \cdot k_{20b} \cdot k_{21b} \cdot \Phi_{pole} \cdot \left(\frac{I(A)}{0.5 \cdot D_{pole}}\right)$$ Pole ultimate factored moment capac $My(A) = 10.96 \cdot kNm$

$$V := f_s \cdot k_1 \cdot k_4 \cdot k_{20s} \cdot k_{21s} \cdot \Phi_{pole} \cdot \frac{0.72 \cdot \pi (D_{pole})^2}{4}$$ Pole ultimate factored shear capacity $V = 30.29 \cdot kN$

Note 0.72 shear area factor based on 0.9 for a circle from old ETABS manual factored by 0.8. The 0.8 factor comes from ETABS manual factor of 5/6 for beams and NZ timber code value of 2/3 ie (2/3)/(5/6) = 0.8.

Wall Loads

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$Pa := 0.5 \cdot K_a \cdot \gamma_b \cdot H_{retained}^2 \cdot LF_{ep} \cdot Pole_Spacing$ $Pa = 3.17 \cdot kN$ Active thrust per pole

$Ps := Qs \cdot K_a \cdot H_{retained} \cdot LF_{ep} \cdot Pole_Spacing$ $Ps = 2.12 \cdot kN$ Surcharge load per pole

$H_{ultmat_required} := (Pa + Ps)$ $H_{ultmat_required} = 5.29 \cdot kN$ Required pole capacity for material strength (long pole case)

$H_{ultsoil_required} := \frac{(Pa + Ps)}{\Phi}$ $H_{ultsoil_required} = 10.58 \cdot kN$ Required pole capacity for soil strength (short pole case)

$M := Pa \cdot \frac{H_{retained}}{3} + Ps \cdot \frac{H_{retained}}{2}$ $M = 2.12 \cdot kNm$ Pole moment at ground level

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Capacity of Isolated Piles in Sand

Short Pile Equations (ie ground capacity critical - pile is assumed to be infinitely strong)

$$H_{u_short} := Broms \cdot K_p \cdot D_{hole} \cdot L^3 \cdot \frac{\gamma_f}{2 \cdot (f + L)} \qquad H_{u_short} = 11.63 \cdot kN \quad \text{per pole}$$

$$M_{max} := H_{u_short} \cdot \left(\frac{2}{3} \cdot \sqrt{2 \cdot \frac{H_{u_short}}{3 \cdot Broms \cdot K_p \cdot D_{hole} \cdot \gamma_f}} + f \right) \qquad M_{max} = 12.16 \cdot kNm$$

$$g_c := \sqrt{\frac{2 \cdot H_{u_short}}{3 \cdot Broms \cdot K_p \cdot \gamma_f \cdot D_{hole}}} \quad \text{height below ground level of maximum moment} \qquad g_c = 1.069\,m \qquad L = 2.00\,m$$

Long Pole Equations (ie timber capacity critical - Hu derived from pile bending cap My)

$$H_{u_long} := root\left[H_{u_short} \cdot \left(\frac{2}{3} \cdot \sqrt{\frac{2 \cdot H_{u_short}}{3 \cdot Broms \cdot K_p \cdot D_{hole} \cdot \gamma_f}} + f \right) - My(A), H_{u_short} \right] \qquad H_{u_long} = 10.76 \cdot kN \quad \text{per pole}$$

$$g_{c_long} := \sqrt{\frac{2 \cdot H_{u_long}}{3 \cdot Broms \cdot K_p \cdot \gamma_f \cdot D_{hole}}} \qquad g_{c_long} = 1.03\,m$$

OUTPUT VALUES

Checking failure of the pole in shear

$H_{ultmat_required} = 5.29 \cdot kN$ per pole — Required timber capacity

$V = 30.29 \cdot kN$ per pole — Shear capacity of timber

$$Status := \begin{cases} \text{"NG"} & \text{if } V < H_{ultmat_required} \\ \text{"OK"} & \text{otherwise} \end{cases} \qquad Status = \text{"OK"}$$

Checking failure of the pole in flexure

$My(A) = 10.96 \cdot kNm$ — Bending Capacity of Pole

$M = 2.12 \cdot kNm$ — Bending moment at ground surface

$$Status = \begin{cases} \text{"NG"} & \text{if } My(A) < M \\ \text{"OK"} & \text{otherwise} \end{cases} \qquad Status = \text{"OK"}$$

Checking failure of the soil

$H_{ultsoil_required} = 10.58 \cdot kN$ per pole — Required soil capacity with capacity reduction factor included

$H_{u_short} = 11.63 \cdot kN$ per pole — Available soil capacity

$$Status := \begin{cases} \text{"NG"} & \text{if } H_{u_short} < H_{ultsoil_required} \\ \text{"OK"} & \text{otherwise} \end{cases} \qquad Status = \text{"OK"}$$

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Note that in cantilever retaining walls, the maximum moment in the pole is below the surface. This is only important for driven piles, wl not have a ring of concrete below the ground strengthening them. For driven piles, the following case need also be checked:

Checking failure of the pole in flexure below the surface

$H_{ultmat_required} = 5.29 \cdot kN$ per pole Required timber capacity

$H_{u_long} = 10.76 \cdot kN$ per pole Available timber pole capacity before pole fails in bending

$$Status := \begin{cases} \text{"Not App"} & \text{if } D_{hole} > D_{pole} \\ \text{"NG"} & \text{if } H_{u_long} < H_{ultmat_required} \wedge D_{hole} = D_{pole} \\ \text{"OK"} & \text{otherwise} \end{cases}$$

Status = "OK"

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aurecon

Design of Lagging

This spreadsheet is for design of timber lagging for pole walls. Written by Alan Wightman. Maintained by Wellington Office

Revisions
1) November 2006 for lower allowable timber bending stresses.
2) Feb 07 to correct error in ϕM_n by IDM.
3) Feb 08 to allow for adjusting pressure on lagging for pole spacing
4) May 08 by Ian McPherson to include deflections

Job Name: Lot 242 Kennedy Ridge Development Job No 503901 Engineer: MB

Assume lagging lies across a single span

$kN := 1000 \cdot N$ $kPa := 1000 \cdot \frac{N}{m^2}$ $MPa := 1000 \cdot kPa$

Enter input parameters

$K_a := 0.295$ Soil Active pressure

$\gamma := 15 \frac{kN}{m^3}$ Backfill unit weight

$E := 5.5GPa$ Lagging stiffness

$H_{ret} := 1.0m$ Depth of lagging. May be different from wall height

$L := 1.20m$ (Pole spacing)

$B := 150mm$ Lagging width (not too important 150mm normally OK)

$sur := 2kPa$ (surcharge)

$S_f := 0.8$ Active pressure reduction factor to allow arching between the poles. Use say 0.6 for poles up to 1m spacing and something less as poles spacing decreases. Justify choice of Sf in calcs

$L_f := 1.6$ Load factor. Normally 1.6 static (G + Surcharge) and 1.0 earthquake (G + EQ)

$Pressure := L_f\left(K_a \cdot \gamma \cdot H_{ret} + K_a \cdot sur\right) \cdot S_f$ $Pressure = 6.419 \cdot kPa$

convert pressure to UDL on plank $\omega := Pressure \cdot B$ $\omega = 0.963 \cdot \frac{kN}{m}$

Maximum moment in the plank $Mstar := \omega \cdot \frac{L^2}{8}$ $Mstar = 173 \cdot N \cdot m$

Nominal Lagging thickness $t_{nom} := 50 \cdot mm$

Actual Lagging thickness

$$t := \begin{cases} 46 \cdot mm & \text{if } t_{nom} = 50 \cdot mm \\ 67 \cdot mm & \text{if } t_{nom} = 75 \cdot mm \\ 92 \cdot mm & \text{if } t_{nom} = 100 \cdot mm \end{cases} \qquad t = 46 \cdot mm$$

timber factors $\phi := 0.8$ $k_1 := 0.6$ $k_4 := 1$ $k_8 := .98$

timber flexural strength $f_b := 11.7 \cdot MPa$ Note this stress is for VSG8, VSG10, or G8 timber at 25% water content as per latest timber Code amendments. Use 7.5MPa for No.1 Framing grade timber

$\phi M_n := \phi \cdot k_1 \cdot k_4 \cdot k_8 \cdot f_b \, t^2 \cdot B \cdot \frac{1}{6}$ $\phi M_n = 291.1\,N \cdot m$

$$Status := \begin{cases} \text{"OK"} & \text{if } \phi M_n > Mstar \\ \text{"NG"} & \text{if } \phi M_n \le Mstar \end{cases}$$

$Status = \text{"OK"}$

$I := B \cdot \frac{t^3}{12}$ $I = 1.217 \times 10^{-6}\,m^4$

$Deflection := 5 \cdot \frac{\omega}{L_f} \cdot \frac{L^4}{384 \cdot E \cdot I}$ $Deflection = 2 \cdot mm$

Note L.f included to get back to unfactored loads for calculating settlement.

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aurecon

This Mathcad sheet is for cantilever timber pole walls in cohesionless soils. It is based on the NZ Building Code Handbook

Written by Ian McPherson Wellington Office. See Ian for any changes. Revised 27 July 2004 for Broms factors
1. Edited 24 September 2018 by Miles Buob for passive earth coefficient on sloping ground

JOB DESCRIPTION

Job Name: Terrace Views Stage 3D Retaining Walls Job No: 247593 Engineer: KK / AF / MB

UNIT DEFINITIONS

$kPa := 1000\frac{N}{m^2}$ $kN := 1000N$ $MPa := 1000 \cdot kPa$ $kNm := 1000 \cdot N \cdot m$ $degrad := \frac{\pi}{180}$

INPUT PARAMETERS (input highlighted values)

Soil properties

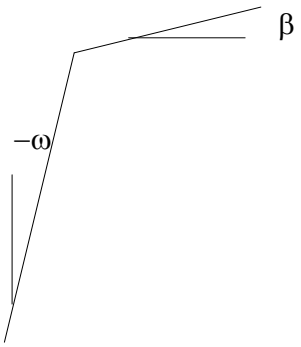
$\phi := 33deg$ Backfill angle of friction

$\phi_w := 22deg$ Angle of wall friction

$\beta := 0deg$ Inclination of backfill surface

$\phi_f := 33deg$ Foundation angle of friction

$\omega := 0deg$ Inclination of back of wall, see diagram for orientation



$\gamma_b := 15\frac{kN}{m^3}$ Unit weight of backfill (kN/m3) $Qs := 5kPa$ Surcharge load

$\gamma_f := 10\frac{kN}{m^3}$ Unit weight of foundation soils (allow for submerged weight as appropriate)

$\alpha := 0deg$ Slope angle from horizontal below retaining wall for passive earth pressure calculation (Should be negative if downsloping away from retaining wall)

$$K_a := \frac{(\cos(\phi - \omega))^2}{\left[(\cos(\omega))^2 \cdot \cos(\phi_w + \omega) \cdot \left(1 + \sqrt{\frac{\sin(\phi_w + \phi) \cdot \sin(\phi - \beta)}{\cos(\phi_w + \omega) \cdot \cos(\beta - \omega)}}\right)^2\right]}$$

$K_a = 0.26$

$$K_p := \frac{\cos(\phi)^2}{\left[1 - \left(\sin(\phi)^2 + \sin(\phi) \cdot \cos(\phi) \cdot \tan(\alpha)\right)^{0.5}\right]^2}$$

$K_p = 3.39$

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Wall and Pole Dimensions

$H_{retained} := 2.2m$ Wall height. Should include any wedge of ground in front of the poles considered to give no lateral support

$D_{pole} := 0.325m$ Pole short end diameter

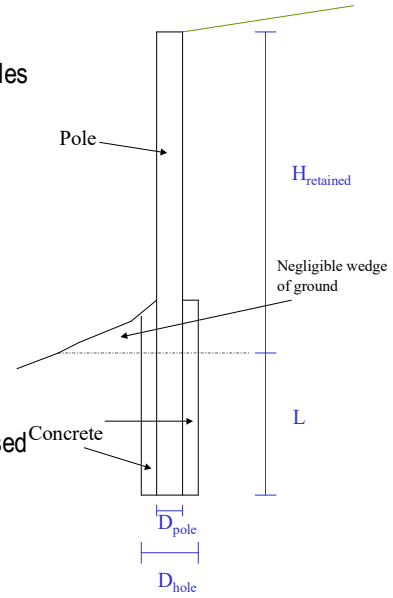
$D_{hole} := 0.325m$ Normally hole diameter = Dpole+150mm for timber poles

$Pole_Spacing := 1.0m$ Pole spacing

$L := 3.1m$ Depth of pile embedment

$f := H_{retained} \cdot 0.333$ Point of application of active thrust above ground

$f = 0.73\,m$



Pole spacing must be at least 4 times the diameter of the hole for the full capacity to be realised

$$Broms := \min\left(\frac{0.33 \cdot Pole_Spacing}{D_{hole}}, 1\right) \quad Broms = 1.00$$

Soil Ultimate Limit State Factors

$LF_{ep} := 1.6$ Load factor for lateral earth pressure

$\Phi := 0.5$ Strength reduction factor on soil capacity

Pole Properties

$\Phi_{pole} := 0.8$ For timber pole

$k_{20b} := .9$ Peeling or shaving factor bending

$k_{21b} := 0.85$ Steaming factor for bending

$k_{20s} := 1.00$ Peeling or shaving factor in shear

$k_{21s} := 0.9$ Steaming factor for shear

$k_1 := 0.6$ Load duration factor (0.6 = permanent, 0.8 = med eg snow/live/vehicle, 1.0 = wind/EQ)

$k_4 := 1.0$ Load factor in shear

$f_b := 38MPa$ Allowable bending stress (38MPa normal poles, 52MPa high strength poles, 14.8MPa sawn)

$f_s := 3.1MPa$ Allowable shear stress (3.1MPa normal poles, 3.5MPa high strength poles, 2.4MPa sawn)

CALCULATIONS

Pole Capacities

$$I(A) := \pi \cdot \frac{(D_{pole})^4}{64}$$ Second moment of area of pole (m4) $I(A) = 5.48 \times 10^{-4}\,m^4$ 4.00

Note this value is slightly conservative because it disregards the taper which can be taken as 1.5mm per metre length of pile

$$My(A) := f_b \cdot k_1 \cdot k_{20b} \cdot k_{21b} \cdot \Phi_{pole} \cdot \left(\frac{I(A)}{0.5 \cdot D_{pole}}\right)$$ Pole ultimate factored moment capac $My(A) = 47.03 \cdot kNm$

$$V := f_s \cdot k_1 \cdot k_4 \cdot k_{20s} \cdot k_{21s} \cdot \Phi_{pole} \cdot \frac{0.72 \cdot \pi (D_{pole})^2}{4}$$ Pole ultimate factored shear capacity $V = 79.99 \cdot kN$

Note 0.72 shear area factor based on 0.9 for a circle from old ETABS manual factored by 0.8. The 0.8 factor comes from ETABS manual factor of 5/6 for beams and NZ timber code value of 2/3 ie (2/3)/(5/6) = 0.8.

Wall Loads

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$Pa := 0.5 \cdot K_a \cdot \gamma_b \cdot H_{retained}^{2} \cdot LF_{ep} \cdot Pole_Spacing$ $Pa = 15.36 \cdot kN$ Active thrust per pole

$Ps := Qs \cdot K_a \cdot H_{retained} \cdot LF_{ep} \cdot Pole_Spacing$ $Ps = 4.65 \cdot kN$ Surcharge load per pole

$H_{ultmat_required} := (Pa + Ps)$ $H_{ultmat_required} = 20.01 \cdot kN$ Required pole capacity for material strength (long pole case)

$H_{ultsoil_required} := \frac{(Pa + Ps)}{\Phi}$ $H_{ultsoil_required} = 40.03 \cdot kN$ Required pole capacity for soil strength (short pole case)

$M := Pa \cdot \frac{H_{retained}}{3} + Ps \cdot \frac{H_{retained}}{2}$ $M = 16.38 \cdot kNm$ Pole moment at ground level

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Capacity of Isolated Piles in Sand

Short Pile Equations (ie ground capacity critical - pile is assumed to be infinitely strong)

$$H_{u_short} := Broms \cdot K_p \cdot D_{hole} \cdot L^3 \cdot \frac{\gamma_f}{2 \cdot (f + L)} \qquad H_{u_short} = 42.85 \cdot kN \quad \text{per pole}$$

$$M_{max} := H_{u_short} \cdot \left(\frac{2}{3} \cdot \sqrt{2 \cdot \frac{H_{u_short}}{3 \cdot Broms \cdot K_p \cdot D_{hole} \cdot \gamma_f}} + f \right) \qquad M_{max} = 77.37 \cdot kNm$$

$$g_c := \sqrt{\frac{2 \cdot H_{u_short}}{3 \cdot Broms \cdot K_p \cdot \gamma_f \cdot D_{hole}}} \quad \text{height below ground level of maximum moment} \qquad g_c = 1.610\,m \qquad L = 3.10\,m$$

Long Pole Equations (ie timber capacity critical - Hu derived from pile bending cap My)

$$H_{u_long} := root\left[H_{u_short} \cdot \left(\frac{2}{3} \cdot \sqrt{\frac{2 \cdot H_{u_short}}{3 \cdot Broms \cdot K_p \cdot D_{hole} \cdot \gamma_f}} + f \right) - My(A), H_{u_short} \right] \qquad H_{u_long} = 29.09 \cdot kN \quad \text{per pole}$$

$$g_{c_long} := \sqrt{\frac{2 \cdot H_{u_long}}{3 \cdot Broms \cdot K_p \cdot \gamma_f \cdot D_{hole}}} \qquad g_{c_long} = 1.33\,m$$

OUTPUT VALUES

Checking failure of the pole in shear

$H_{ultmat_required} = 20.01 \cdot kN$ per pole — Required timber capacity

$V = 79.99 \cdot kN$ per pole — Shear capacity of timber

$$Status := \begin{cases} \text{"NG"} & \text{if } V < H_{ultmat_required} \\ \text{"OK"} & \text{otherwise} \end{cases} \qquad Status = \text{"OK"}$$

Checking failure of the pole in flexure

$My(A) = 47.03 \cdot kNm$ — Bending Capacity of Pole

$M = 16.38 \cdot kNm$ — Bending moment at ground surface

$$Status = \begin{cases} \text{"NG"} & \text{if } My(A) < M \\ \text{"OK"} & \text{otherwise} \end{cases} \qquad Status = \text{"OK"}$$

Checking failure of the soil

$H_{ultsoil_required} = 40.03 \cdot kN$ per pole — Required soil capacity with capacity reduction factor included

$H_{u_short} = 42.85 \cdot kN$ per pole — Available soil capacity

$$Status := \begin{cases} \text{"NG"} & \text{if } H_{u_short} < H_{ultsoil_required} \\ \text{"OK"} & \text{otherwise} \end{cases} \qquad Status = \text{"OK"}$$

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Note that in cantilever retaining walls, the maximum moment in the pole is below the surface. This is only important for driven piles, wh not have a ring of concrete below the ground strengthening them. For driven piles, the following case need also be checked:

Checking failure of the pole in flexure below the surface

$H_{ultmat_required} = 20.01 \cdot kN$ per pole Required timber capacity

$H_{u_long} = 29.09 \cdot kN$ per pole Available timber pole capacity before pole fails in bending

$$Status := \begin{cases} \text{"Not App"} & \text{if } D_{hole} > D_{pole} \\ \text{"NG"} & \text{if } H_{u_long} < H_{ultmat_required} \wedge D_{hole} = D_{pole} \\ \text{"OK"} & \text{otherwise} \end{cases}$$

Status = "OK"

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Design of Lagging

This spreadsheet is for design of timber lagging for pole walls. Written by Alan Wightman. Maintained by Wellington Office

Revisions
1) November 2006 for lower allowable timber bending stresses.
2) Feb 07 to correct error in ϕM_n by IDM.
3) Feb 08 to allow for adjusting pressure on lagging for pole spacing
4) May 08 by Ian McPherson to include deflections

Job Name: Lot 242 Kennedy Ridge Development Job No 503901 Engineer: MB

Assume lagging lies across a single span $kN := 1000 \cdot N$ $kPa := 1000 \cdot \frac{N}{m^2}$ $MPa := 1000 \cdot kPa$

Enter input parameters

$K_a := 0.295$ Soil Active pressure $\gamma := 15 \frac{kN}{m^3}$ Backfill unit weight $E := 5.5GPa$ Lagging stiffness

$H_{ret} := 2.0m$ Depth of lagging. May be different from wall height $L := 1.20m$ (Pole spacing)

$B := 150mm$ Lagging width (not too important 150mm normally OK) $sur := 2kPa$ (surcharge)

$S_f := 0.8$ Active pressure reduction factor to allow arching between the poles. Use say 0.6 for poles up to 1m spacing and something less as poles spacing decreases. Justify choice of Sf in calcs

$L_f := 1.6$ Load factor. Normally 1.6 static (G + Surcharge) and 1.0 earthquake (G + EQ)

$Pressure := L_f\left(K_a \cdot \gamma \cdot H_{ret} + K_a \cdot sur\right) \cdot S_f$ $Pressure = 12.083 \cdot kPa$

convert pressure to UDL on plank $\omega := Pressure \cdot B$ $\omega = 1.812 \cdot \frac{kN}{m}$

Maximum moment in the plank $Mstar := \omega \cdot \frac{L^2}{8}$ $Mstar = 326 \cdot N \cdot m$

Nominal Lagging thickness $t_{nom} := 100 \cdot mm$

Actual Lagging thickness

$$t := \begin{cases} 46 \cdot mm & \text{if } t_{nom} = 50 \cdot mm \\ 67 \cdot mm & \text{if } t_{nom} = 75 \cdot mm \\ 92 \cdot mm & \text{if } t_{nom} = 100 \cdot mm \end{cases} \qquad t = 92 \cdot mm$$

timber factors $\phi := 0.8$ $k_1 := 0.6$ $k_4 := 1$ $k_8 := .98$

timber flexural strength $f_b := 11.7 \cdot MPa$ Note this stress is for VSG8, VSG10, or G8 timber at 25% water content as per latest timber Code amendments. Use 7.5MPa for No.1 Framing grade timber

$\phi M_n := \phi \cdot k_1 \cdot k_4 \cdot k_8 \cdot f_b \, t^2 \cdot B \cdot \frac{1}{6}$ $\phi M_n = 1164.6 \, N \cdot m$

$$Status := \begin{cases} \text{"OK"} & \text{if } \phi M_n > Mstar \\ \text{"NG"} & \text{if } \phi M_n \le Mstar \end{cases}$$

$Status = \text{"OK"}$

$I := B \cdot \frac{t^3}{12}$ $I = 9.734 \times 10^{-6} \, m^4$

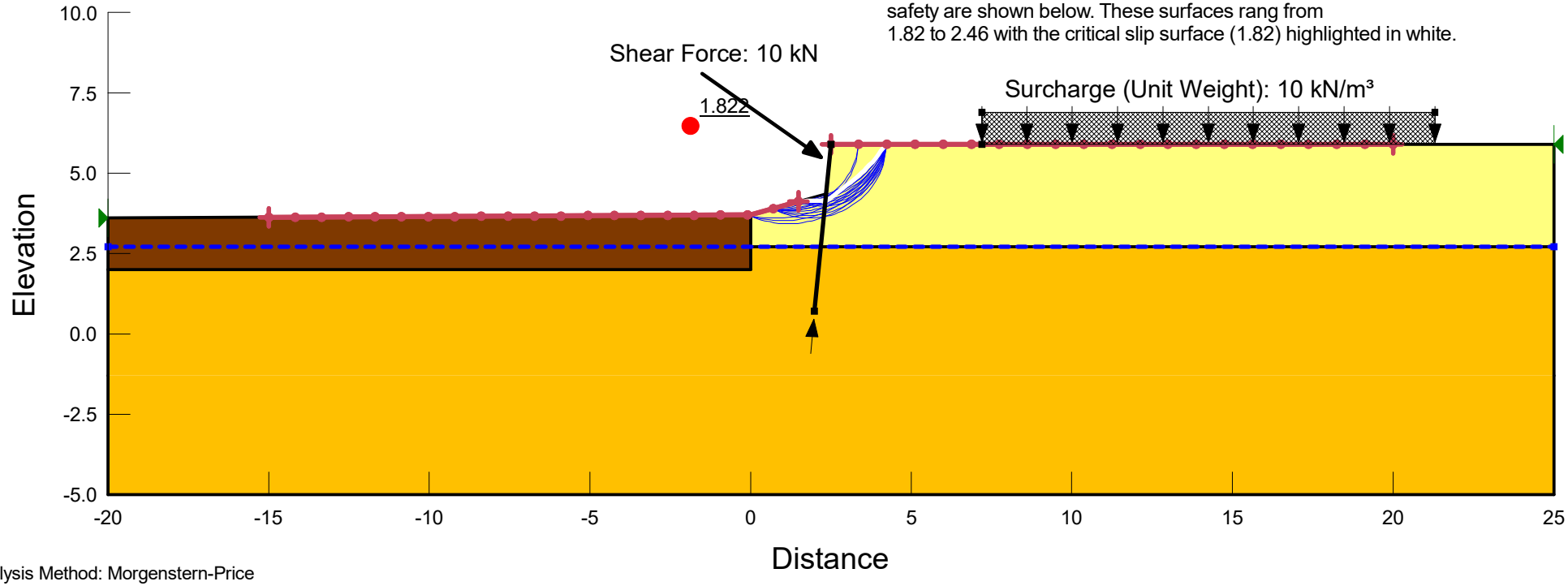
$Deflection := 5 \cdot \frac{\omega}{L_f} \cdot \frac{L^4}{384 \cdot E \cdot I}$ $Deflection = 1 \cdot mm$

Note L.f included to get back to unfactored loads for calculating settlement.

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Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)	Piezometric Line
	Dune Sand	Mohr-Coulomb	17	0	32	0	1
	Engineered Fill (Pumice Sand)	Mohr-Coulomb	15	5	33	0	1
	Peat (Drained)	Mohr-Coulomb	11	5	23	0	1

The 20 slip surfaces with the lowest factors of safety are shown below. These surfaces rang from 1.82 to 2.46 with the critical slip surface (1.82) highlighted in white.



Analysis Method: Morgenstern-Price

PGA(h) = PGA(v) =

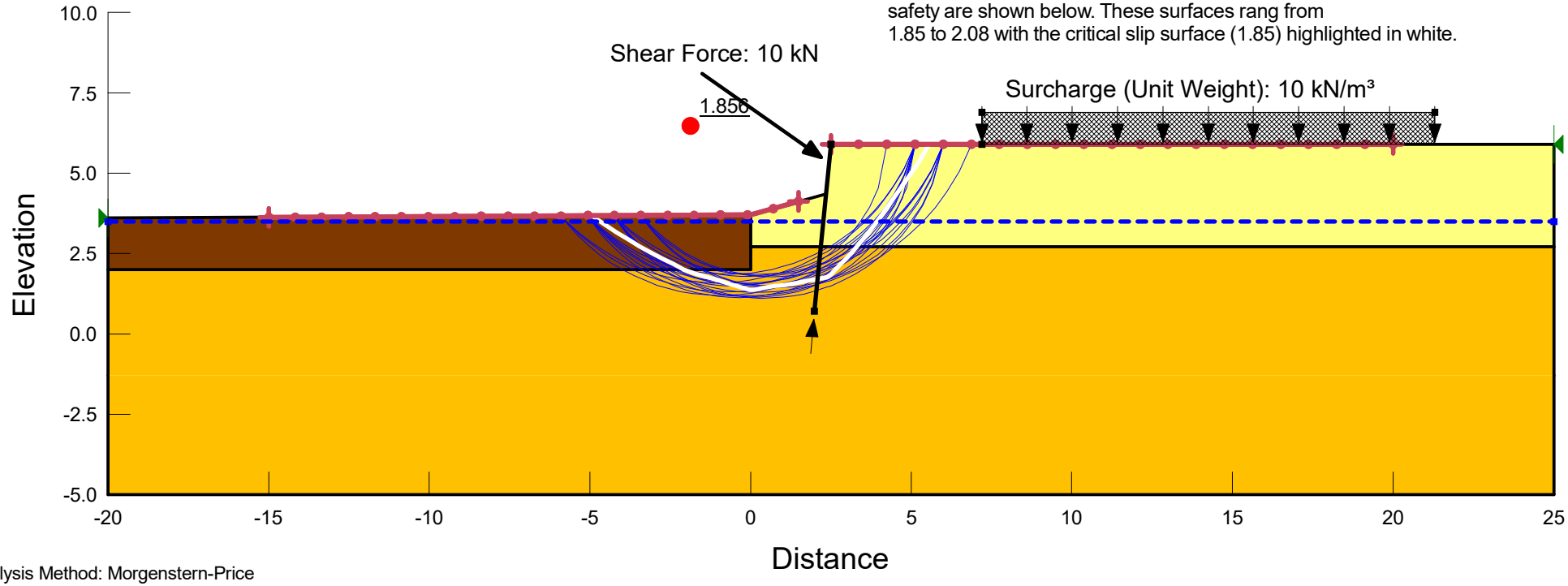
aurecon	PROJECT: TERRACE VIEWS STAGE 3D TIMBER POLE RETAINING WALL		
	CLIENT: ZARIBA HOLDINGS LTD	ASSESSMENT: 1. Static (Drained)	
	PROJECT NUMBER: 247593-009	ENGINEER: Miles Buob 14/05/2019	1:191.01953

Directory: P:\Projects\247593 - Zariba HASHA Parton Road Papamoa\009 - Geotechnical\Geotechnical Assessment\Stage 3D Timber Pole Retaining Wall\02 Analysis\01 SSA\Lot 442

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Color	Name	Model	Unit Weight (kN/m³)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)	Piezometric Line
	Dune Sand	Mohr-Coulomb	17	0	32	0	1
	Engineered Fill (Pumice Sand)	Mohr-Coulomb	15	5	33	0	1
	Peat (Drained)	Mohr-Coulomb	11	5	23	0	1

The 20 slip surfaces with the lowest factors of safety are shown below. These surfaces rang from 1.85 to 2.08 with the critical slip surface (1.85) highlighted in white.



Analysis Method: Morgenstern-Price

PGA(h) = PGA(v) =

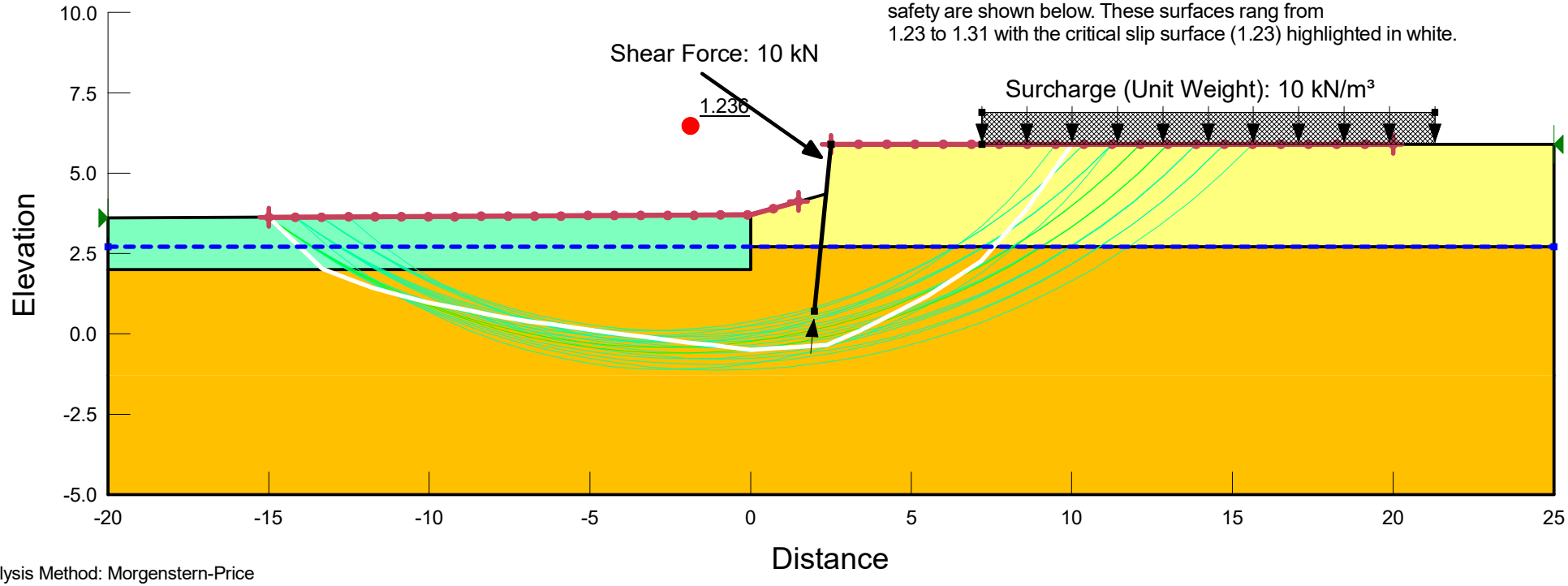
aurecon	PROJECT: TERRACE VIEWS STAGE 3D TIMBER POLE RETAINING WALL		
	CLIENT: ZARIBA HOLDINGS LTD	ASSESSMENT: 2. Static w/ High GWL	
	PROJECT NUMBER: 247593-009	ENGINEER: Miles Buob 14/05/2019	1:191.01953

Directory: P:\Projects\247593 - Zariba HASHA Parton Road Papamoa\009 - Geotechnical\Geotechnical Assessment\Stage 3D Timber Pole Retaining Wall\02 Analysis\01 SSA\Lot 442

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Color	Name	Model	Unit Weight (kN/m³)	Cohesion (kPa)	Cohesion' (kPa)	Phi' (°)	Phi-B (°)	Piezometric Line
	Dune Sand	Mohr-Coulomb	17		0	32	0	1
	Engineered Fill (Pumice Sand)	Mohr-Coulomb	15		5	33	0	1
	Peat (undrained)	Undrained (Phi=0)	11	15				1

The 20 slip surfaces with the lowest factors of safety are shown below. These surfaces rang from 1.23 to 1.31 with the critical slip surface (1.23) highlighted in white.



Analysis Method: Morgenstern-Price

PGA(h) = 0.26 PGA(v) =

aurecon	PROJECT: TERRACE VIEWS STAGE 3D TIMBER POLE RETAINING WALL			
	CLIENT: ZARIBA HOLDINGS LTD	ASSESSMENT: 4. ULS Seismic Case		
	PROJECT NUMBER: 247593-009	ENGINEER: Miles Buob	14/05/2019	1:191.01953

Directory: P:\Projects\247593 - Zariba HASHA Parton Road Papamoa\009 - Geotechnical\Geotechnical Assessment\Stage 3D Timber Pole Retaining Wall\02 Analysis\01 SSA\Lot 442

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engineering new zealand

New Zealand Institute of Architects Incorporated

ACENZ

Building Code Clause(s) B1

PRODUCER STATEMENT – PS1 – DESIGN

(Guidance on use of Producer Statements (formerly page 2) is available at www.engineeringnz.org)

ISSUED BY: AURECON NEW ZEALAND LIMITED
(Design Firm)

TO: ZARIBA HOLDINGS LIMITED
(Owner/Developer)

TO BE SUPPLIED TO: TAURANGA CITY COUNCIL
(Building Consent Authority)

IN RESPECT OF: CANTILEVER TIMBER POLE RETAINING WALL DESIGN
(Description of Building Work)

AT: TERRACE VIEWS SUBDIVISION - PARTON ROAD, TAURANGA
(Address)

Town/City: TAURANGA **LOT** 439-444 **DP** ..... **SO** .....
(Address)

We have been engaged by the owner/developer referred to above to provide:

RETAINING WALL DESIGN AND CONSTRUCTION OBSERVATIONS

(Extent of Engagement)

services in respect of the requirements of Clause(s) B1 of the Building Code for:

☐ All or ■ Part only (as specified in the attachment to this statement), of the proposed building work.

The design carried out by us has been prepared in accordance with:

■ Compliance Documents issued by the Ministry of Business, Innovation & Employment. B1/VM4 or
(verification method/acceptable solution)

☐ Alternative solution as per the attached schedule.....

The proposed building work covered by this producer statement is described on the drawings titled:

Terrace Views Subdivision Timber Pole Retaining Wall Design and numbered 247593-0009-DRG-G-0020;
together with the specification, and other documents set out in the schedule attached to this statement.

On behalf of the Design Firm, and subject to:
(i) Site verification of the following design assumptions Ground Conditions, Auger Holes, Positions and Drainage
(ii) All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that a) the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the attached schedule, will comply with the relevant provisions of the Building Code and that b), the persons who have undertaken the design have the necessary competency to do so. I also recommend the following level of construction monitoring/observation:

☐ CM1 ☐ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ■ as per agreement with owner/developer (Architectural)

I, ZHEN FANG am: ■ CPEng 1150135 # ☐ Reg Arch ..... #
(Name of Design Professional)

I am a member of: ■ Engineering New Zealand ☐ NZIA and hold the following qualifications: BSC, MSC, PHD, CPENG
The Design Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.
The Design Firm is a member of ACENZ: ■

SIGNED BY ZHEN FANG (Signature) Anderson Fang
(Name of Design Professional)

ON BEHALF OF AURECON NEW ZEALAND LIMITED Date 28/05/2019
(Design Firm)

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

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, ENGINEERING NEW ZEALAND AND NZIA

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GUIDANCE ON USE OF PRODUCER STATEMENTS

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects, Institution of Professional engineers New Zealand, Association of Consulting Engineers New Zealand in consultation with the Building Officials Institute of New Zealand. The original suit of producer statements has been revised at the date of this form as a result of enactment of the Building Act (2004) by these organisations to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with reasonable grounds for the issue of a Building Consent or a Code Compliance Certificate, without having to duplicate design or construction checking undertaken by others.

PS1 Design Intended for use by a suitably qualified independent design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 Design Review Intended for use by a suitably qualified independent design professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 Construction Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011[2]

PS4 Construction Review Intended for use by a suitably qualified independent design professional who undertakes construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACENZ, IPENZ and NZIA to interpret the Producer Statement.

Competence of Design Professional

This statement is made by a Design Firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its designers.

A competent design professional will have a professional qualification and proven current competence through registration on a national competence based register, either as a Chartered Professional Engineer (CPEng) or a Registered Architect.

Membership of a professional body, such as the Institution of Professional Engineers New Zealand (IPENZ) or the New Zealand Institute of Architects (NZIA), provides additional assurance of the designer's standing within the profession. If the design firm is a member of the Association of Consulting Engineers New Zealand (ACENZ), this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent design professional".

*Professional Indemnity Insurance

As part of membership requirements, ACENZ requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard, small projects. If the parties deem this inappropriate for large projects the minimum may be up to $500,000.

Professional Services during Construction Phase

There are several levels of service which a Design Firm may provide during the construction phase of a project (CM1-CM5 for Engineers[3]). The Building Consent Authority is encouraged to require that the service to be provided by the Design Firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design firm's engagement.

Attached Particulars

Attached particulars referred to in this producer statement refer to supplementary information appended to the producer statement.

Refer Also:

1 Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013

2 NZIA Standard Conditions of Contract SCC 2011

3 Guideline on the Briefing & Engagement for Consulting Engineering Services (ACENZ/IPENZ 2004)

4 PN Guidelines on Producer Statements

www.acenz.org.nz
www.ipenz.org.nz
www.nzia.co.nz

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LAKES COAST CLUSTER GROUP | WHAKATĀNE District Council | South Waikato District Council | ROTORUA LAKES COUNCIL | GREAT LAKE TAUPŌ Taupō District Council | Opotiki District Council Strong Community Strong Future | Taonga o te Whenua KAWERAU TREASURE OF THE LAND DISTRICT COUNCIL | Western Bay of Plenty District Council | Tauranga City

Form 2

Application No/BC: _____
Property ID #: _____

SIMPLE

APPLICATION FOR BUILDING CONSENT Section 33 or 45, Building Act 2004

Garage/Carport ☐	Decks ☐	Retaining ✕	Farm Buildings ☐	Temp Structure ☐

1. THE BUILDING [if item is not applicable put N/A in the space]

Street address of building(s): 1 Te Wharo Drive , Papamoa, 3 Te Wharo Drive, Papamoa, 5A Te Wharo Drive , Papamoa, 5B Te Wharo Drive , Papamoa, 7A Te Wharo Drive , Papamoa, 7B Te Wharo Drive , Papamoa

[If no street address – details of nearest intersection]: _____

Legal description of land where building(s) is located: Lot 439-444 (inclusive) Deposited Plan 530967, Title 866642-866647 (inclusive)

Site area: N/A

Block N/A

Building name: Terrace Views Subdivision Valuation No: N/A

Location of building within site/block number: [*Include nearest street access*] Northern boundary of subdivision on Te Wharo Drive

Number of levels: *[Above & below ground] Wall will support building platforms for future residential lots (1 storey)* _____

_____

Level/Unit No: __N/A_____ Floor area: N/A *[Indicate area affected by the building work]*

Current, lawfully established, use: Residential subdivision_____ Year First Constructed: Residential subdivision

[Add no. of occupants per level and per use if more than 1] N/A

2. OWNER

Name of Owner: Zariba Properties Limited

Contact person: Dwayne Roper

Mailing address: PO Box 2585 Tauranga

Street address/registered office: 715 Cameron Road Tauranga

_____

Phone No: Landline: 07 577 9949

Mobile: Daytime: _____

After hours:_____ Facsimile:_____

Email:dwayne@zariba.co.nz

Website _____

THE FOLLOWING EVIDENCE OF OWNERSHIP IS ATTACHED:

✕ Certificate of Title ☐ Lease Agreement

☐ Agreement for Sale and Purchase ☐ Other document

3. AGENT [Only required if application is being made on behalf of the owne

Name of Agent: Aurecon NZ Limited

Contact person: Ben O'Loughlin

Mailing address: PO Box 2292 Tauranga 3140

Street address/registered office: Level 1, 247 Cameron Road Tauranga

Phone No: Landline: 07 5775130 ____

Mobile: 021 402523 _____ Daytime: _____

After hours:_____ Facsimile: _____

Email: ben.oloughlin@aurecongroup.com _____

Website_____

Relationship to owner: *[State details of the authorisation from the owner to make the application on the owner's behalf]*

Engineering Geologist (TCC Category 1 Geo-professional)

FIRST POINT OF CONTACT *[Mark boxes as appropriate]*

Further information ✕ Agent ☐ Owner Invoicing: ☐ Agent ✕ Owner

Correspondence ✕ Agent ☐ Owner Additional copy of Code Compliance Certificate ☐

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4. APPLICATION [Tick if applicable]

I, *[name]* Miles Buob request that you issue one of the following *[for the building work described in this application]*.

Signature:  Date: 05/06/2019

The signature is that of the ☐ Owner OR the ✕ Agent on behalf of and with the approval of the Owner.

☐ Project Information Memorandum (PIM) & Building Consent ☐ Project Information Memorandum (PIM)

✕ Building Consent Existing PIM No *[if applicable]* is: _____

☐ Staged Consent

Restricted Building Work applicable? ☐ Yes ✕ No

Cultural or Heritage Significance? ☐ Yes ✕ No

National Multiple Use Approval? ☐ Yes ✕ No If yes, NUA number: _____

To be completed in lieu of Authorisation Letter:

I, Dwayne Roper of Zariba Properties Limited as the owner of the property, authorise Aurecon NZ Limited to act as my agent.

Signature:  Date: 06/06/19

5. PRIVACY INFORMATION

The information you have provided on this form is required so that your building consent application can be processed under the Building Act 2004. The Council collates statistics relating to issued building consents and has a statutory obligation to forward these regularly to Statistics New Zealand. The Council stores the information on a public register, which must be supplied (as previously determined by the Ombudsman) to whoever requests the information. Under the Privacy Act 1993 you have the right to see and correct personal information the Council holds about you.

6. THE PROJECT

Description of Building Work: *[Provide sufficient information below to enable scope of work to be fully understood]*

Construction of a 1.8 m (maximum height) timber pole retaining wall along the northern boundary of Stage 3D of the Terrace Views Subdivision.

Will the building work result in a change of use of the building? ☐ Yes ✕ No If Yes, provide details of the new use of the building: _____

Intended life of the building if less than 50 years: 50 *[Years]*

List Building Consents previously issued for this project (if any): _____

Estimated value of the building work on which the building levy will be calculated *[including goods and services tax]:*

$ 48,000 *[State estimated value as defined in section 7 of the Building Act 2004]*

7. RESTRICTED BUILDING WORK

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Will the building work include any restricted building work? ☐ **Yes** ☒ **No**

If Yes, please provide the following details of all licensed building practitioners who will be involved in carrying out or supervising the restricted building work [*If these details are unknown at the time of the application, they must be supplied before the building work begins*]. *Complete in contacts section below.*

8. CONTACTS [Provide all details where relevant]

Please provide the following details of all practitioners who will be involved in carrying out or supervising the building work regardless of whether it is restricted building work.

DESIGNER: Name: _____ Address: _____ Email: _____ Telephone: _____ LBP No: _____ License Class: DESIGN	ENGINEER: Name: **Neill Raynor** _____ Address: **247 Cameron Road Tauranga** _____ Email: **Neill.Raynor@aurecongroup.com** _____ Telephone: **075786183** ____ Reg No: **137020** _____ License Class: **DESIGN**
BUILDER: Name: _____ Address: _____ Email: _____ Telephone: _____ LBP No: _____ License Class: CARPENTRY	BRICK / BLOCK LAYER: Name: _____ Address: _____ Email: _____ Telephone: _____ Reg No: _____ License Class: BLOCKLAYING
ROOFER: Name: _____ Address: _____ Email: _____ Telephone: _____ Reg No: _____ License Class: ROOFING or CARPENTRY (delete one)	EXTERNAL PLASTERER: Name: _____ Address: _____ Email: _____ Telephone: _____ Reg No: _____ License Class: EXTERNAL PLASTERING
FOUNDATIONS / FLOORS: Name: _____ Address: _____ Email: _____ Telephone: _____ Reg No: _____ License Class: FOUNDATIONS or CARPENTRY (delete one)	GAS FITTER: Name: _____ Address: _____ Email: _____ Telephone: _____ Reg No: _____
PLUMBER: Name: _____ Address: _____ Email: _____ Telephone: _____ Reg No: _____	DRAIN LAYER: Name: _____ Address: _____ Email: _____ Telephone: _____ Reg No: _____

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LICENSED BUILDNG PRACTITIONER:	OTHER KEY PERSONNEL: **Geotechnical Engineer**
Name:_____	Name**: Miles Buob** _____
Address: _____	Address: **247 Cameron Road Tauranga**
Email: _____	Email: **miles.buob@aurecongroup.com** _____
Telephone: _____ Reg No: _____	Telephone: **027 450 7176** __ Reg No: _____
License Class: _____	License Class: _____

9. PROJECT INFORMATION MEMORANDUM [Do not fill in this section if the application is for a building consent only]

The following matters are involved in the project: *[Tick the matters relevant to the project]*

- ☒ Subdivision
- ☐ Alterations to land contours *[e.g. digging out the site for a building platform]*
- ☐ New or altered connections to public utilities *[e.g. Council sewer, storm water or water mains]*
- ☐ New or altered locations and/or external dimensions of buildings
- ☐ New or altered access for vehicles
- ☐ Building work over or adjacent to any road or public place
- ☐ Disposal of storm water and wastewater
- ☐ Building work over any existing drains or sewers or in close proximity to wells or water mains
- ☐ Other matters known to the applicant that may require authorisations from the Territorial Authority: *[Specify]*

The following plans and specifications are attached to this application:

- Retaining Wall Plan and Long Section– 152870-SKT-090 dated 17/05/2019
- Retaining Wall Sections – 152870-LOTS 439-444 dated 21/01/2019
- Retaining Wall Construction Detail – 247593-0009-DRG-G-0020 [A]
- Design Report – 247593-0000-REP-GG-0001[1]-Stage 3D Timber Pole Retaining Wall dated 05/06/2019

Building Code Clause *Tick relevant clauses*	**Acceptable Solution & NZS 4121 Accessible Design**	**Verification Method**	**Alternative Solution** [Supporting documents listed below]	**Waiver/ Modification** [Supporting documents listed below]	**Proposed Inspections**
☒ B1 Structure	☐ AS1NZS1170 ☒ B1/AS1 ☒ NZS3604 ☐ NZS4229 ☐ Other	☒ B1/VM1 ☐ Other	☐	☐	☐ Council ☒ Engineer ☐ Other (*Specify*): _____
☐ B2 Durability	☐ B2/AS1	☐ B2/VM1	☐	☐	☐ Council ☐ Engineer ☐ Other (*Specify*): _____
☐ C1-6 Protection from Fire	☐ C/AS1 ☐ C/AS2	☐ C/VM1 ☐ C/VM2	☐	☐	☐ Council ☐ Engineer ☐ Other (*Specify*): _____
☐ D1 Access routes	☐ D1/AS1 ☐ NZS 4121		☐	☐	☐ Council ☐ Engineer ☐ Other (*Specify*): _____
☐ E1 Surface water	☐ E1/AS1 ☐ AS3500	☐ E1/VM1	☐	☐	☐ Council ☐ Other (*Specify*): _____

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☐ E2 External moisture	☐ E2/AS1 ☐ E2/AS2 ☐ SED ☐ E2/AS3	☐ E2/VM1	☐	☐	☐ Council ☐ Other (*Specify*): _____
☐ F1 Hazardous agents on site	☐ F1/AS1	☐ F1/VM1	☐	☐	☐ Council ☐ Other (*Specify*): _____
☐ F2 Hazardous building materials	☐ F2/AS1		☐	☐	☐ Council ☐ Other (*Specify*): _____
☐ F4 Safety from falling	☐ F4/AS1		☐	☐	☐ Council ☐ Other (*Specify*): _____
☐ F5 Construction and demolition hazards	☐ F5/AS1		☐	☐	☐ Council ☐ Other (*Specify*): _____
Building Code Clause ***Tick relevant clauses***	**Acceptable Solution & NZS 4121 Accessible Design**	**Verification Method**	**Alternative Solution** [Supporting documents listed below]	**Waiver/ Modification** [Supporting documents listed below]	**Proposed Inspections**
☐ F7 Warning systems	☐ F7/AS1		☐	☐	☐ Council ☐ Engineer ☐ Other (*Specify*): _____
☐ G4 Ventilation	☐ G4/AS1	☐ G4/VM1	☐	☐	☐ Council ☐ Other (*Specify*): _____
☐ G7 Natural light	☐ G7/AS1	☐ G7/VM1	☐	☐	☐ Council ☐ Other (*Specify*): _____
☐ G9 Electricity	☐ G9/AS1	☐ G9/VM1	☐	☐	By certification only

10. WAIVER/MODIFICATION TO NZ BUILDING CODE REQUIRED FOR FOLLOWING PARTS OF CODE:

Supporting documentation attached as follows [please list]:

_____

_____

11. COMPLIANCE SCHEDULE:

The specified systems for the building are as follows: [specified systems are defined in regulations]

There are no specified systems in the building ✕

Applicant to complete

Any system installed from below to be accompanied by procedures for inspection and routine maintenance. [***Council to vet and verify in first column.***]	**COUNCIL**	Existing	New	Altered	Added	Removed	Inspection performance standards	Maintenance performance standards	Reporting frequency
Specified Systems Prescribed by Building Act 2004 Compliance Schedule Handbook 25 May 2007 (List Systems)									
	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐	☐	☐	☐	☐

12. ATTACHMENTS

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The following documents are attached to this application: [Tick as applicable]

✕ Plans and specifications (list)_____

- Retaining Wall Plan and Long Section– 152870-SKT-090 dated 17/05/2019
- Retaining Wall Sections – 152870-LOTS 439-444 dated 21/01/2019
- Retaining Wall Construction Detail – 247593-0009-DRG-G-0020 [A]
- Design Report – 247593-0000-REP-GG-0001[1]-Stage 3D Timber Pole Retaining Wall dated 05/06/2019

☐ Memoranda from licensed building practitioner(s) who carried out or supervised any design work that is restricted building work

☐ Project Information Memorandum

☐ Development contribution notice

☐ Certificate attached to Project Information Memorandum

☐ National Environmental Standard Checklist

✕ Other information relevant to this application: [Please specify]: 247593-0000-REP-GG-0001[1]-Stage 3D Timber Pole Retaining Wall dated 05/06/2019_____

COUNCIL USE ONLY

ESTIMATED TOTAL VALUE OF WORK

$ _____ GST inclusive Project floor area _____ m²

FEE PAYABLE

Project Information Memorandum	$_____
Building Administration	$_____
Technical Processing fee	$_____
Inspection fee	$_____
Certificate of Title	$_____
Other	$_____
LODGEMENT FEE	**$_____**
Technical Processing fee	$_____
Inspection fee	$_____
Industry Levy (DBH)	$_____
Industry Levy (BRANZ)	$_____
BCA Levy	$_____
Rural ID #	$_____
Compliance Schedule	$_____
Specified Systems	$_____
Vehicle Crossing	$_____
Street Damage	$_____
Water Connection	$_____
Sewer Connection	$_____
Peer Review	$_____
N Z F S	$_____

Granted by _____

Signature _____

Date _____

Issued by_____

Signature _____

Date _____

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Development Contribution	$_____
_____	$_____
_____	$_____
TOTAL BALANCE PAYABLE	**$_____**
Lodgement deposit	$_____
Date paid	_____
Receipt No.	_____
Consent fee balance	$_____
Date paid	_____
Receipt No.	_____

Please complete

Forward any refunds or further invoices to:

_____

_____

_____

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LAKES COAST CLUSTER GROUP | WHAKATĀNE District Council | South Waikato District Council | ROTORUA LAKES COUNCIL | GREAT LAKE TAUPŌ | Opotiki District Council Strong Community Strong Future | Taonga o te Whenua KAWERAU TREASURE OF THE LAND DISTRICT COUNCIL | Western Bay of Plenty District Council | Tauranga City

Building Consent Application Checklist

SIMPLE BUILDING CONSENTS

☐ Garage/Carport	☐ Decks	☒ Retaining	☐ Farm Buildings	☐ Temp Structure

Address: _____ **Date Vetted:** _____

How to use this checklist

Use this checklist when finalising your building drawings plans to assist you to lodge a complete application and to avoid delays in processing. Your application will be accepted based on this checklist to ensure that it has sufficient information to commence processing. All items on this checklist must be circled to show that they are either provided or are not applicable to your project (N/A).

Later additional information may be requested during the processing of your building consent to confirm compliance with the Building Act, Building Code, District/City Plan and any other relevant legislation. Processing time will be suspended until information is received.

Your application will only be accepted if the information in this checklist is provided and the checklist completed.

Customer Use Circle as appropriate		Doc ref./ page #	**General Documentation Required (All)**	**Council Use**		
Yes	N/A		Application form completed in full and signed	Yes	No	N/A
Yes	N/A		Lodgment fee (refer to Schedule of Fees and Charges for amount)	Yes	No	N/A
Yes	N/A		Two (2) complete sets of drawings/report/specification/plans and other relevant documents are required	Yes	No	N/A
Yes	N/A		All drawings must meet the minimum requirements of the technical drawings standard AS/NZS1100. Index provided for plans and specifications	Yes	No	N/A
Yes	N/A		All documents including photocopies must be legible	Yes	No	N/A
Yes	N/A		All plans are to be titled and dated (or version number)	Yes	No	N/A
			Legal Documentation Required (All)			
(Yes)	N/A		Full, current (less than three months old) Certificate of Title	Yes	No	N/A
Yes	(N/A)		Sale and purchase agreement with settlement date provided (if applicable)	Yes	No	N/A

Comments – Council Use Only

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Customer Use Circle as appropriate		Doc ref./ page #	Specifications and other Documentation	Council Use		
☐ Section NA				☐ Section Accepted		
Yes	N/A		Technical specifications for proprietary systems/products e.g. foundation/structural design	Yes	No	N/A
Yes	N/A		Natural hazard assessment report where applicable (erosion, falling debris, subsidence, inundation, slippage)	Yes	No	N/A
☐ Section NA			**Specific Design Engineering (Complete for all types of applications)**	☐ Section Accepted		
Yes	N/A		Engineering calculations and scope of works	Yes	No	N/A
Yes	N/A		Producer statements fully completed, signed and dated	Yes	No	N/A
Yes	N/A		Engineered plans or Architectural plans with engineer's details to be signed, dated and stamped	Yes	No	N/A
Yes	N/A		Proposed inspections regime	Yes	No	N/A
☐ Section NA			**Site/Location Plan (Complete for all types of applications)**	☐ Section Accepted		
Yes	N/A		North Point	Yes	No	N/A
Yes	N/A		Road frontage indicated and street named	Yes	No	N/A
Yes	N/A		Location of all existing and proposed buildings	Yes	No	N/A
Yes	N/A		Distance of buildings to boundaries and distance between existing and proposed buildings including eaves and gutters	Yes	No	N/A
Yes	N/A		Site levels and finished floor levels relative to Moturiki Datum survey point (if applicable)	Yes	No	N/A
Yes	N/A		Existing contours (proposed cut or fill also to be shown)	Yes	No	N/A
Yes	N/A		Building line restrictions and easements	Yes	No	N/A
Yes	N/A		Site boundaries/exclusive area boundaries for cross lease properties and common areas clearly shown	Yes	No	N/A
Yes	N/A		Show calculations and percentage of net site coverage	Yes	No	N/A
Yes	N/A		Labelled points on boundaries where overshadowing is taken from	Yes	No	N/A
Yes	N/A		Existing and proposed crossings/driveways also showing berms and footpaths. Crossings are to be clear of Council storm water sumps *(Note: normally one crossing per site)*	Yes	No	N/A
Yes	N/A		Sediment control plan	Yes	No	N/A
Yes	N/A		If building under or near transmission and or power lines, please show transmission plan area or location of power lines	Yes	No	N/A
☒ Section NA			**Drainage/ Services (Complete for all types of applications)**	☐ Section Accepted		
Yes	N/A		All existing SEWERS, sewer connections and sewer drain locations and depth shown including Territorial Authority services	Yes	No	N/A
Yes	N/A		Storm Water – soak holes (sizes and depths), Council drains (if applicable) disposal	Yes	No	N/A
Yes	N/A		Design for any proposed drainage including that installed behind retaining walls	Yes	No	N/A
Comments – Council Use Only						

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Customer Use Circle as appropriate		Doc ref./ page #	Garages / Farm Sheds / Decks	Council Use		
☒ Section NA				☐ Section Accepted		
☐ Section NA			**Floor Plan**	☐ Section Accepted		
Yes	N/A		Plan of all floors describing the function of each room	Yes	No	N/A
Yes	N/A		Dimensions of proposed building work	Yes	No	N/A
Yes	N/A		Construction joints to control concrete shrinkage	Yes	No	N/A
Yes	N/A		Finished floor levels/datum, daylight angles	Yes	No	N/A
☐ Section NA			**Foundation Plan**	☐ Section Accepted		
Yes	N/A		Foundation details and concrete strength, post foundations (must provide resistance to uplift)	Yes	No	N/A
☐ Section NA			**Structure**	☐ Section Accepted		
Yes	N/A		Framing, connections, bracing layout, details and calculations	Yes	No	N/A
Yes	N/A		Fixing details including wind fixings and structure to floor/foundation	Yes	No	N/A
☐ Section NA			**Elevations**	☐ Section Accepted		
Yes	N/A		Claddings, openings, clearly indicated and their locations	Yes	No	N/A
Yes	N/A		Daylighting (relevant to nearest boundary, if applicable)	Yes	No	N/A
☐ Section NA			**Cross Section**	☐ Section Accepted		
Yes	N/A		Drawings showing constructional details of foundations, floor systems, wall, ceiling, stud heights and stud sizes, roof construction, balustrades and barriers.	Yes	No	N/A
☐ Section NA			**Details**	☐ Section Accepted		
Yes	N/A		Flashing details for openings, change of cladding, internal/external corners	Yes	No	N/A
Yes	N/A		Roof barge, ridge, apron, valley flashing details	Yes	No	N/A
☐ Section NA			**Fire Wall (consider distance from boundary)**	☐ Section Accepted		
Yes	N/A		Details provided for fire walls	Yes	No	N/A

☐ Section NA			**Relocatable Buildings**	☐ Section Accepted		
Yes	N/A		Is the structure being relocated in more than one part? If so, please provide detail of how the building will be reconnected showing compliance with NZBC including B1 & E2.	Yes	No	N/A

Comments – Council Use Only

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Customer Use Circle as appropriate		Doc ref./ page #	Retaining Wall	Council Use		
☐ Section NA				☐ Section Accepted		
Yes	N/A		Site Plan indicating position and height of retaining walls, other buildings and drainage points to an approved outfall	Yes	No	N/A
Yes	N/A		Elevations showing original ground level, cut and fill	Yes	No	N/A
Yes	N/A		Engineering design information where required	Yes	No	N/A
Yes	N/A		Has safety from falling and loadings from barrier been considered?	Yes	No	N/A
Yes	N/A		Cross sections/details (cut, fill, height of retained ground, waterproof membrane and drainage) and height of wall indicated	Yes	No	N/A
Yes	N/A		Show cuts battered to a safe angle	Yes	No	N/A

☐ Section NA			Marquee (complete supplementary form to identify specific requirements) / Temporary Structures	☐ Section Accepted		
Yes	N/A		Floor plan, size of marquee, and proposed fixture layout	Yes	No	N/A
Yes	N/A		Supplementary “Marquee Fire Safety and Hygiene Requirement” form completed	Yes	No	N/A
Yes	N/A		Specific engineering design for temporary structures provided	Yes	No	N/A
Yes	N/A		Number and location of exits including signage	Yes	No	N/A
Yes	N/A		Specific design and flammability testing documentation provided.	Yes	No	N/A
Yes	N/A		Fire safety systems identified including emergency lighting for night time use	Yes	No	N/A
Yes	N/A		Personal hygiene provisions	Yes	No	N/A
Yes	N/A		Accessibility provisions for those with a disability	Yes	No	N/A
Yes	-		Certificate for Public Use and Code Compliance Certificate application form completed	Yes	No	N/A
Comments – Council Use Only						

Council Specific Requirements – Please complete for your related Council

☐ Section NA			Tauranga City Council	☐ Section Accepted		
Yes	N/A		Land undergoing subdivision – If the title has not yet been issued, the council may or may not accept your application. Refer to the Land Undergoing Subdivision Checklist form AC-6	Yes	No	N/A
Yes	N/A		50m² continuous outdoor living area incorporating a 4x3m outdoor living court minimum dimension	Yes	No	N/A
☐ Section NA			Rotorua Lakes Council	☐ Section Accepted		
Yes	N/A		Soil investigation that has a conclusion readily identifiable in accordance with chapter 3 RCEIS	Yes	No	N/A
Yes	N/A		Any geothermal activity on or near site, distances to proposed building work (SED where <50m to a bore or geothermal feature)	Yes	No	N/A
Yes	N/A		Relocatable Buildings – Please provide re-site report	Yes	No	N/A
☐ Section NA			Whakatane District Council	☐ Section Accepted		
Yes	N/A		Peer review required Structural ☐ Geotech ☐	Yes	No	N/A
Yes	N/A		Comments required by Council 3 Water Engineers	Yes	No	N/A
☐ Section NA			Opotiki District Council	☐ Section Accepted		

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☐ Section NA			South Waikato District Council	☐ Section Accepted		
☐ Section NA			Kawerau District Council	☐ Section Accepted		
☐ Section NA			Western Bay of Plenty District Council	☐ Section Accepted		
☐ Section NA			Taupo District Council	☐ Section Accepted		
Yes	N/A		Any geothermal activity on or near site, distances to proposed building work	Yes	No	N/A
Yes	N/A		Electronic plans/documentation provided	Yes	No	N/A
Yes	N/A		Any geothermal activity on or near site, distances to proposed building work	Yes	No	N/A
Yes	N/A		**Relocatable Buildings: -** Please provide current photos for all elevations	Yes	No	N/A
			Please specify how you would like to receive your approved documents: *(select one option)* ☐ USB ($10.00) ☐ Paper copy - Plans only printed to a **maximum size of A3**. *Due to this the scale of plans may be affected.* ($35.00 minimum fee)			

ADDITIONAL FEES

Please be aware that additional fees may be applied after lodgment deposit is paid, for inspections, processing, certificates, government levies and the like.

Person completing checklist

Name of person signing: _____ Date: _____

Signature: _____ ☐ Agent ☐ Owner ☐ Other: _____

Name to be on invoice: _____

Payment Details: _____

COUNCIL USE ONLY

Outcome of decisions – Council Use Only	Officer	Date	Time
☐ This application was not accepted for lodgement because documentation was incomplete			
☐ This application needs to be re-vetted			
☐ Documentation is now complete and the application is accepted for lodgement			
☐ Application will now proceed for compliance checking			

Project Type

RBW	Yes ☐ No ☐	Type	PIM ☐ PIM/BC ☐ BC ☐	Category	R1 ☐ R2 ☐ R3 ☐ C1 ☐ C2 ☐ C3 ☐

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20 January 2020

Zariba Properties Limited
715 Cameron Road
Tauranga South
Bay Of Plenty
Tauranga 3112

Dear Sir or Madam,

Building Consent Number: BC191200
Project Location: 1 Te Wharo Drive, Papamoa, New Zealand
Papamoa
Bay of Plenty
Tauranga
3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Construction of a 1.8 m (maximum height) timber pole retaining wall along the northern boundary of Stage 3D of the Terrace Views Subdivision for Lots 439-444
IR Number: 1

Inspection Results:
RETAINING WALL - 20 Jan 2020 @ 09:04 by Gary Cosford

Inspection Outcome: **PASS** - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

Inspection Summary: The retaining wall consented works have been inspected and approved.

Your next inspection will be: **No further inspection required**

Outstanding Required Documents for this Building

History

Inspection Name	**Summary**
Retaining wall	**PASS** - 20 Jan 2020

If you'd like to email us about this inspection report, please address it to 191200@tauranga.abcs.co.nz.

Please Note:
This job may have been migrated into AlphaOne from our previous system, therefore this Inspection Report may not be a true reflection of the project to date.

Your inspections are now being completed in our online consenting system. You can upload Code Compliance documentation at any time via the Customer Portal here:
https://buildingconsents.tauranga.govt.nz/
Once online, if you are unable to access your consent details, please contact the Building Support Team on 577-7000 to arrange access.
Please **do not** email your Code Compliance documentation to ccc@tauranga.govt.nz as it will no longer be accepted. Thank you.

Yours Sincerely,

Gary Cosford
Inspector
On behalf of: Tauranga City Council

Notes: Retaining wall.



Notes: Post detail.



09 March 2023

Zariba Properties Limited
715 Cameron Road
Tauranga South
Bay Of Plenty
Tauranga 3112

Dear Sir or Madam,

Building Consent Number: BC191200
Project Location: 1 Te Wharo Drive, Papamoa, New Zealand

Papamoa

Bay of Plenty

Tauranga

3118
Legal description of land where building is located: LOT 444 DP 530967
Project Description: Construction of a 1.8 m (maximum height) timber pole retaining wall along the northern boundary of Stage 3D of the Terrace Views Subdivision for Lots 439-444
IR Number: 3

Inspection Results:
RETAINING WALL - 09 Mar 2023 @ 13:16 by Bex Rogers

Inspection Outcome: PASS - The BCA is satisfied, on reasonable grounds, that the aspects of building work pertaining to this inspection demonstrate compliance with the building consent.

Inspection Summary:
Retaining wall barrier in place & is now deemed safe & complies with the functional requirement F4.2
Barrier fence offset from the retaining wall
Ok to issue CCC

Your next inspection will be: **No further inspection required**

Outstanding Required Documents for this Building

History

Inspection Name	**Summary**
Retaining wall	**PASS** - 09 Mar 2023

If you'd like to email us about this inspection report, please address it to 191200@tauranga.abcs.co.nz.

Please Note:
This job may have been migrated into AlphaOne from our previous system, therefore this Inspection Report may not be a true reflection of the project to date.

Your inspections are now being completed in our online consenting system. You can upload Code Compliance documentation at any time via the Customer Portal here:
https://buildingconsents.tauranga.govt.nz/
Once online, if you are unable to access your consent details, please contact the Building Support Team on 577-7000 to arrange access.

Yours Sincerely,

R. Rogers

Bex Rogers
BCO - Inspections
On behalf of: Tauranga City Council

Notes: Retaining wall - barrier in place 09/03/23



Notes: Retaining wall - barrier in place - fixings secured 09/03/23



Notes: Retaining wall - barrier in place 09/03/23



Inspection Photos Record on Project 191200

Building: Main Building
Inspection: Retaining wall
Question: Has the correct building complexity been allocated to this project and is it within the scope of your assessed competence?
Inspector: Gary Cosford
Timestamp: 2020-01-20 08:50:45
Comment: Retaining wall.



Building: Main Building
Inspection: Retaining wall
Question: Has the correct building complexity been allocated to this project and is it within the scope of your assessed competence?
Inspector: Gary Cosford
Timestamp: 2020-01-20 08:50:45
Comment: Post detail.



Building: Main Building
Inspection: Retaining wall
Question: Are all Building Act legislative requirements satisfied:
Inspector: Bex Rogers
Timestamp: 2023-03-09 13:16:59
Comment: Retaining wall - barrier in place 09/03/23



Inspection Photos Record on Project 191200

Building: Main Building
Inspection: Retaining wall
Question: Are all Building Act legislative requirements satisfied:
Inspector: Bex Rogers
Timestamp: 2023-03-09 13:16:59
Comment: Retaining wall - barrier in place - fixings secured 09/03/23



Building: Main Building
Inspection: Retaining wall
Question: Are all Building Act legislative requirements satisfied:
Inspector: Bex Rogers
Timestamp: 2023-03-09 13:16:59
Comment: Retaining wall - barrier in place 09/03/23



Aurecon New Zealand Limited
Ground Level 247 Cameron Road
Tauranga 3110

PO Box 2292
Tauranga 3140
New Zealand

T +64 7 578 6183
F +64 7 578 6143
E tauranga@aurecongroup.com
W aurecongroup.com

22 November 2019

Dwayne Roper
Director
Zariba Holdings Limited
715 Cameron Road
Tauranga South
Tauranga 3112

Dear Dwayne

RE: Timber pole retaining wall construction certification at Stage 3D, Terrace Views Subdivision, Papamoa (BC #191200)

1 Retaining Wall Construction Certification

Zariba Holdings Limited (the 'Client') commissioned Aurecon New Zealand Limited (Aurecon) to undertake construction inspections of a timber pole retaining wall constructed to support residential development within Lots 439 – 444 (herein referred to as 'the site') of the Terrace Views subdivision, Pyes Pa, Tauranga. Inspections were undertaken in the weeks between 7 August 2019 and 27 September 2019 following the survey and set-out undertaken by Lysaght Consultants and NZ Structures. Photos from these inspections are attached. The wall was designed by Aurecon (BC #191200) and this report is intended to support the application for Code of Compliance. The wall ranges in height from 0.36 to 1.80m and was constructed by NZ Structures.

Aurecon undertook inspections of the following wall components during construction:

- Timber pole materials inspected prior to pile driving
- Augered predrilling immediately followed by vibratory pile driving
- Lagging installation and inspection
- Remedial works to undertake drop-hammer pile driving
- Drainage placement and installation
- Earthworks filling
- Final as-built inspection

The first inspection on 7 August confirmed the timber poles met the specification laid out within the Aurecon design report: "*Timber pole retaining wall design and specific requirements for building on Lots 439-444, Stage 3D, Terrace Views Subdivision, Papamoa, Tauranga*" (dated 7 June 2019, File 245883). A trial of the proposed installation methodology using pre-drilling and vibratory pile driving was undertaken during the initial inspection. Results of the trial showed slow, but successful installation methodology. Several inspections of the installation methodology were undertaken. A full schedule of the retaining wall inspection can be found attached.

It was noted on 15 August 2019 that the installation methodology deviated from the original design. The pilot hole was being drilled to 2.5-3.0 metres with a 300mm diameter auger (instead of a 1.5 metre pilot hole with a 200mm diameter auger). Survey monitoring of the poles installed has been undertaken by Lysaght Consultants Limited during construction to ensure lateral movement of the pile

would not occur during earthworks filling. Lysaght has confirmed the wall has not undergone any lateral movement following earthworks filling.

On 8 August, NZ Structures requested to reduce the minimum timber pole size from 325mm small end diameter (SED) poles to 320mm SED. Upon checking the capacity of this pole reduction, it was deemed an acceptable design alteration.

On 27 August, NZ Structures noted the refusal of two timber poles using the vibratory pile driving methodology. Larger equipment was not available to NZ Structures at the time of installation and an alternative installation methodology was proposed. A 700kg drop-hammer was proposed to drive the poles to the design depth. This was accepted by Aurecon with an engineer on site during the pile driving process.

On 29 August, NZ Structures requested the use of Armourflow Drainage instead of the original drainage design. Although a deviation from the original drainage design, this was deemed acceptable by Aurecon. A full sketch of the as-built drainage (from NZ Structures) can be found attached. A full design deviation register can be found attached to this report.

Earthworks backfilling of the wall was undertaken between 29 August and 27 September 2019 using a remote-controlled vibratory sheepsfoot roller. Compliance testing of the engineered fill along the wall can be found attached.

The results of the lagging and drainage inspection showed that the lagging met the SG8 and sizing requirements and placement met the requirements of our design.

Based on our construction observations, we consider that the wall construction has been completed in general accordance with our design.

2 Foundation recommendation and foundation fill review

The GCR for Stage 3D-3E of the Terrace Views Subdivision (Ref. 247593-320-0000-GCR-Rev0, 8 March 2019) recommended a specific engineered foundation design due to sloping ground within Lots 439-444. The report also notes the following:

- Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of ‘good ground’ in accordance with NZS3604:2011.
- The specific foundation should consider Table 5.1 within Module 3 of the MBIE guidelines for site effects from excess pore water pressure and liquefaction.
- The specific foundation should be assessed against general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes.
- Shallow or deep foundations should consider the finished landform and implications of the proposed building development in context to the proximity to the western boundary slope and the associated risk of instability under both static and seismic conditions.

As outlined above we have designed and now certified the construction of a timber pole retaining wall which accommodates a level building platform extending over the pre-existing sloping ground. The ground conditions beneath the building platform consist of engineered pumice sand fill. The compaction of the engineered fill has been verified as having met the earthworks specification requirements. Refer to the attached earthworks certification testing conducted along the wall alignment.

Based on the results of the earthworks compaction testing and previous lot by lot testing included in the GCR, Lots 439 to 444 (inclusive) are considered suitable to construct residential dwellings that comply with the characteristics defined by NZS3604:2011 *Timber framed buildings.* This conclusion is subject to the following specific requirements:

MBIE Guidelines 'TC2' building foundations

Due to the liquefaction induced settlements predicted to occur within these lots, it is considered that the soils do not meet the definition of 'good ground' in accordance with NZS3604:2011.

In accordance with Table 5.1 within Module 3 of the MBIE guidelines the site effects from excess pore water pressure and liquefaction is assessed to be 'L3 - High' under ULS conditions. The ULS liquefaction induced settlements are predicted to range up to 205mm.

In accordance with Module 4 of the MBIE guidelines, for cases where the predicted effects are deemed to be intolerable (L3 or higher), it is necessary to consider options for either ground improvement or the use of robust raft foundations, or deep foundations. We consider that the most practicable solution for this site is to specify robust raft foundations.

We have assessed the type of raft foundation system using the general guidance provided in the MBIE guidelines for repairing and rebuilding houses affected by the Canterbury earthquakes. In consideration of the predicted liquefaction settlement and thickness of the non-liquefiable crust, we classify the site as Technical Category 2 (TC2) in accordance with this guideline.

Specific engineered design of a MBIE 'TC2' foundation is required for all residential buildings constructed on the subject lots with Stage 3D and 3E. Section 5.5.1 of the Stage 3D-E Geotechnical Completion Report provides further discussions of TC2 foundation options/types.

Foundation bearing capacity

An ultimate bearing capacity of 300 kPa may be adopted for the design of shallow foundations on the subject lots. The following capacity reduction factors should be applied:

- ULS: 0.5;
- SLS: 0.33; and
- Earthquake loading: 0.7

Building Setback from Retaining Walls

All future buildings developed within these lots shall not extend closer than two metres from the top of the retaining wall (measured as a minimum horizontal distance from the back of timber lagging to the edge of the proposed building foundations). Any development proposed to be constructed closer than two metres to the retaining wall will be subject to the current Stage 3D-GE Geotechnical Completion Report specific requirements (i.e specific engineered design).

Foundation flexibility

Buildings will need to be flexible to withstand up to 25 mm of differential settlement over a six metre length, as indicated by Appendix B Section B1 of the NZ Building Code Handbook and Approved Documents. Provided that the foundation subgrades are suitably prepared (e.g. free of loose or softened soils and water) prior to pouring concrete, settlements are estimated to be less than 25 mm under the loads imposed by a dwelling constructed in accordance with NZS3604:2011.

Subgrade Preparation

Prior to foundation construction, the contractor should ensure that the subgrade surface is well compacted by rolling with a non-vibrating smooth drum roller or plate compactor. All foundation subgrades should be free of any loosened surficial soils and ponded water prior to concrete pour. Any subgrade that has been loosened should be re-compacted or removed and replaced with either site concrete or granular fill compacted in accordance with NZS4431:1989.

Yours faithfully,



Miles Buob Geotechnical Engineer	Kushant Kishore Senior Geotechnical Engineer	Benjamin O'Loughlin TCC Cat 1 Geo-professional Technical Director, Infrastructure

Attachments
Wall inspection summary table
Selected photographs
Design drawings (by Aurecon NZ Ltd)
As-built retaining wall drawings (by NZ Structures)
Design deviation register
Material delivery dockets
Engineered fill compliance testing
PS3 – Construction (by NZ Structures)
PS4 – Construction Review (by Aurecon NZ Ltd)

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W aurecongroup.com

Terrace Views Stage 3D-E Timber Pole Wall Inspection register

Inspection Reference	Date	Component Inspected
1	7/08/2019	Timber Pole Installation Methodology
2	14/08/2019	Lagging material and Timber pole installation
3	15/08/2019	Lagging material and Timber pole installation
4	20/08/2019	Timber Pole Installation Methodology
5	21/08/2019	Timber Pole Installation Methodology
6	29/08/2019	Drainage and lagging material
7	2/9/2019	Drainage and Lagging material
8	10/09/2019	Timber Pole Installation
9	11/09/2019	Drainage placement and filling
10	12/09/2019	Drainage placement and filling
11	17/09/2019	Fill Placement
12	23/09/2019	Fill Placement
13	1/10/2019	Final Wall Inspection

Selected site photographs



Figure 1 **A typical timber pole tag showing the H5 325mm SED poles. (dated 7 August 2019)**



Figure 2 **Timber poles being vibro-driven into engineered fill. (dated 15 August 2019)**



Figure 3 **A measurement of the diameter of the timber pole meets design requirements. (dated 15 August 2019)**



Figure 4 **The length of a typical timber pole to ensure proper embedment depth. (dated 15 August 2019)**



Figure 5 **A photo of the SG8 lagging showing the width meets design requirements (dated 15 August 2019)**



Figure 6 **A photo of the SG8 lagging showing the length meets design requirements (dated 15 August 2019)**



Figure 7: Lagging placement and the beginning of drainage and fill earthworks. (dated 29 August 2019)



Figure 8: The placement of wrapped drainage metal with Armourflow drainage at the back of lagging. (dated 2 September 2019)



Figure 9: Driving poles using a drop-hammer and anvil following vibratory pile driving refusal. (dated 10 September 2019)



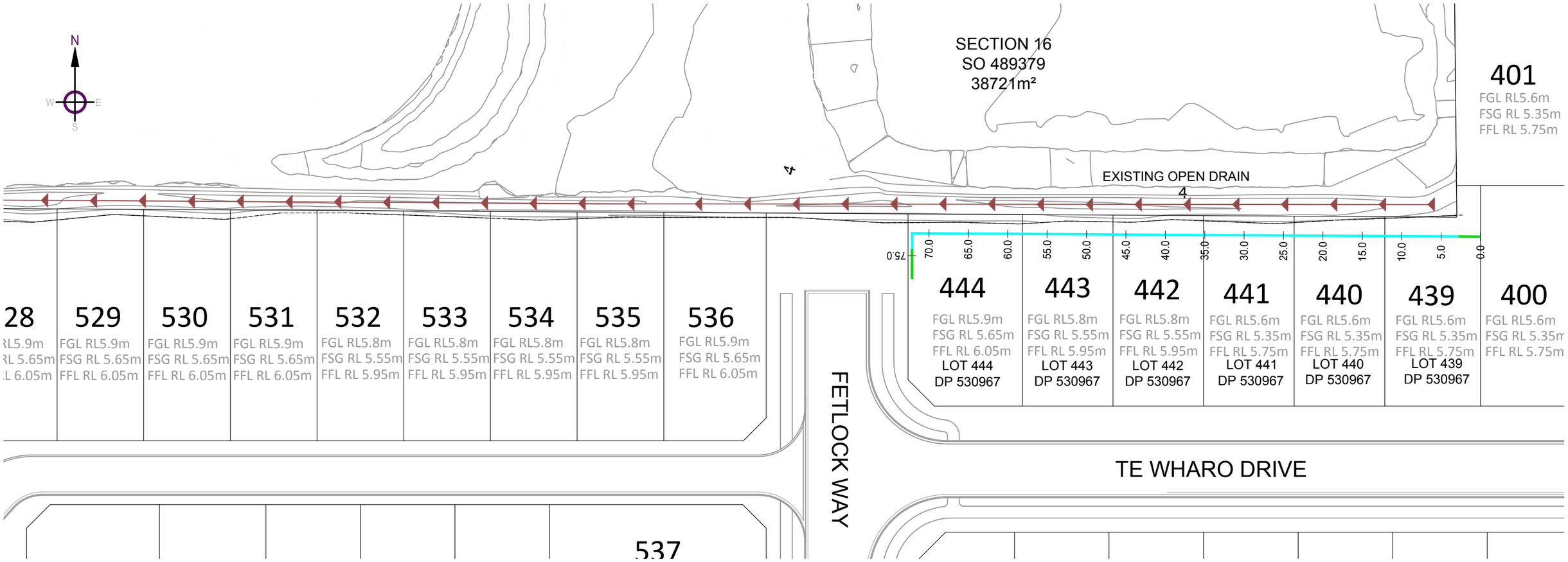
Figure 10: The wall with piles completely driven. (dated 17 September 2019)



Figure 11: The finished wall prior to placement of topsoil (dated 1 October 2019)



Figure 12: The finished retaining wall showing the completed grassed retaining wall. (dated 4 November 2019)



PLAN OF RETAINING WALL

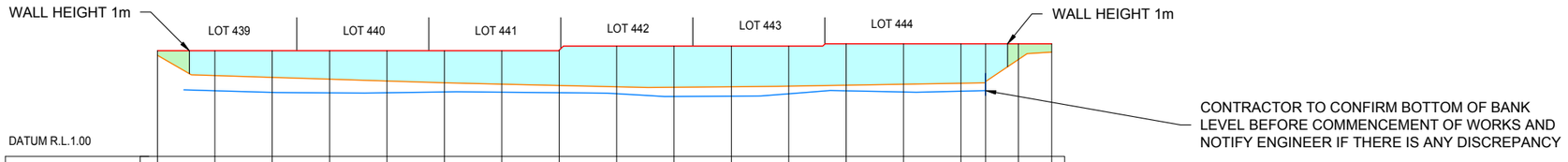
SCALE 1:500

NOTES:

1. ALL WORKS ARE TO BE CARRIED OUT IN ACCORDANCE WITH TAURANGA CITY COUNCIL'S INFRASTRUCTURE DEVELOPMENT CODE, THE NEW ZEALAND BUILDING CODE, AND BAY OF PLENTY REGIONAL COUNCIL'S EROSION AND SEDIMENT CONTROL GUIDELINES.
2. ALL DIMENSIONS IN METRES UNLESS NOTED OTHERWISE
3. LEVELS ARE IN TERMS OF MOTURIKI VERTICAL DATUM 1953.
4. BOUNDARIES AND AREAS ARE APPROXIMATE ONLY AND ARE SUBJECT TO CHANGE. FINAL BOUNDARIES WILL BE IN ACCORDANCE WITH CITY PLAN AND LINZ REQUIREMENTS.
5. BOUNDARIES NOT FOR BUILDING DESIGN PURPOSES.
6. RETAINING WALL POLE SIZES AND EXTENTS ARE APPROXIMATE AND BASED ON THE LYSAGHT SURVEY. THE POLE SIZE AND SET OUTS NEED TO BE CONFIRMED ON SITE BY THE CONTRACTOR AND MEET THE REQUIREMENTS OF AURECON DRAWING 247593-0009-DRG-G-0020.

LEGEND:

- BOTTOM OF BANK
- EXISITNG OPEN DRAIN
- APPROXIMATE LENGTH / AREA WHERE A 200mm DIA POLE IS APPLICABLE, REFER TO AURECON 247593-0009-DRG-G-0020-A, MAX RETAINED HEIGHT <1000mm. REFER NOTE 6.
- APPROXIMATE LENGTH / AREA WHERE A 325mm DIA POLE IS APPLICABLE, REFER TO AURECON 247593-0009-DRG-G-0020-A, MAX RETAINED HEIGHT <1800mm. REFER NOTE 6.



BOTTOM OF BANK R.L		3.86	3.78	3.76	3.77	3.80	3.79	3.77	3.73	3.61	3.62	3.72	3.85	3.80	3.82									
BOTTOM OF WALL R.L		4.52	4.44	4.36	4.28	4.20	4.14	4.09	4.03	4.01	4.03	4.06	4.10	4.14	4.18	4.32	5.23	5.54						
WALL HEIGHT		1.08	1.16	1.24	1.32	1.40	1.46	1.53	1.77	1.79	1.77	1.74	1.80	1.76	1.72	1.58	0.67	0.36						
TOP OF WALL R.L	5.60	5.60	5.60	5.60	5.60	5.60	5.60	5.62	5.80	5.80	5.80	5.80	5.90	5.90	5.90	5.90	5.90	5.90						
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	72.14	75.00	77.91						

LONGITUDINAL SECTION OF RETAINING WALL

HOR. SCALE 1:500
VER SCALE 1:250

FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
-	17/05/19	FOR INFORMATION	RD		

Drawn	RD	Signed	Date 17/05/19
Designed	AV	Signed	Date 17/05/19
Verified	PM	Signed	Date 17/05/19
Approved	PM	Signed	Date 17/05/19

LYSAGHT

SURVEYING, ENGINEERING & LAND DEVELOPMENT
19 Totara St, Mount Maunganui 3116 Ph 07 578 8798 www.lysaght.net.nz

THIS DRAWING REMAINS THE PROPERTY OF LYSAGHT CONSULTANTS LTD.

NO LIABILITY SHALL BE ACCEPTED FOR THE UNAUTHORISED USE OF THIS DRAWING

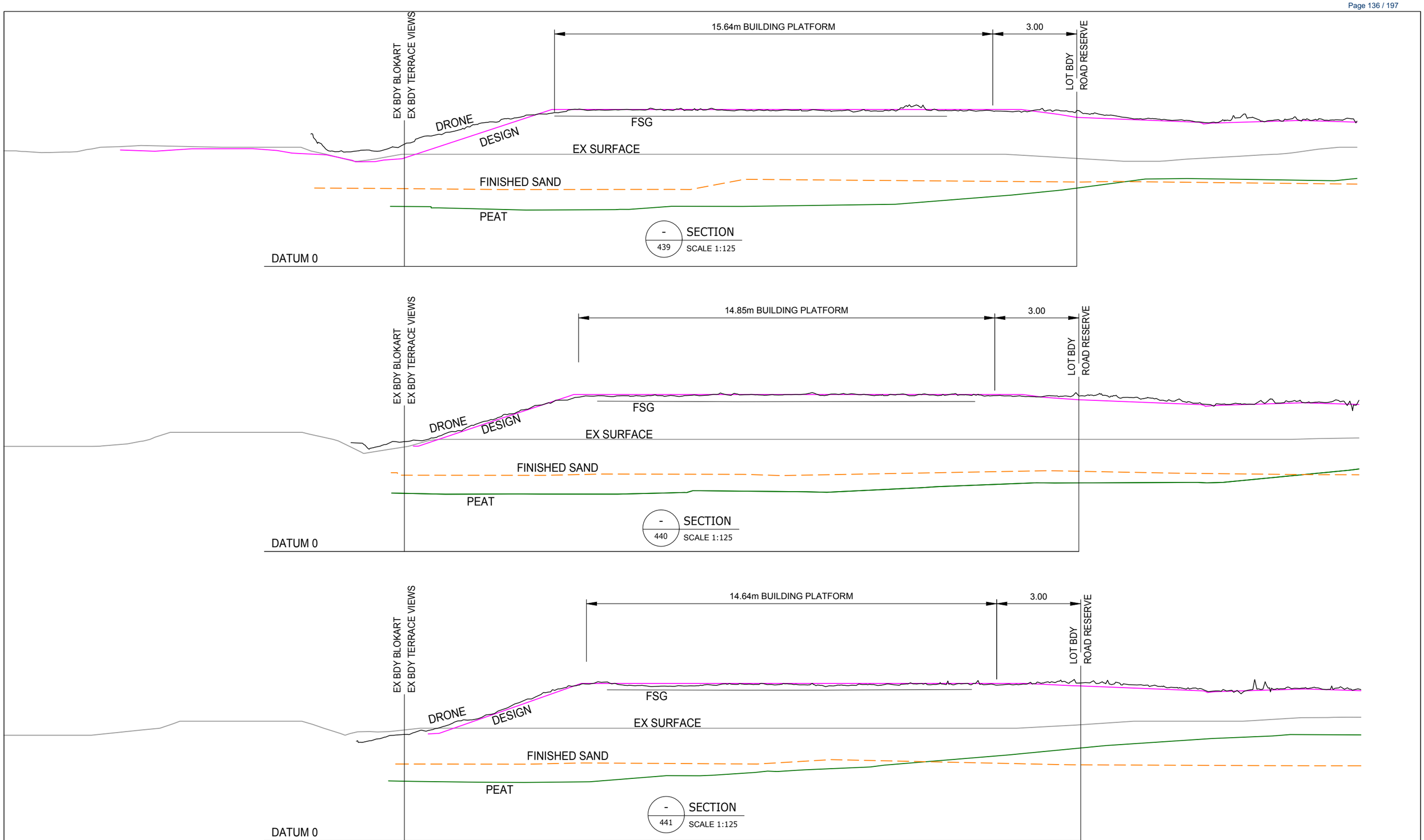
DO NOT SCALE DRAWING

Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
RETAINING WALL
PLAN & LONGSECTION
LOTS 439-444

Project No. 152870
Scale (A3) 1:500
Drawing No. 152870-200-RW439-444
Rev. 1

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FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
2	6/06/19	BRL REMOVED	AV		
1	21/01/19	FOR INFORMATION	AV		

Drawn	AV	Signed	Date 21/01/19
Designed	AV	Signed	Date 21/01/19
Verified		Signed	Date
Approved		Signed	Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
EARTHWORKS - STAGE 2
BOUNDARY INTERFACE CROSS SECTIONS
LOTS 439 - 444
SHEET 1

Project No. 152870
Scale (A3) AS SHOWN
Drawing No. 152870-LOTS 439-444
Rev. 2

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FOR INFORMATION

No.	Date	Revision Details	By	Ver.	App.
2	6/06/19	BRL REMOVED	AV		
1	21/01/19	FOR INFORMATION	AV		

Drawn	Signed	Date 21/01/19
AV		
Designed	Signed	Date 21/01/19
AV		
Verified	Signed	Date
Approved	Signed	Date

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Project:
TERRACE VIEWS
PROPOSED RESIDENTIAL SUBDIVISION
TE OKUROA DRIVE
PAPAMOA

Drawing Title:
EARTHWORKS - STAGE 2
BOUNDARY INTERFACE CROSS SECTIONS
LOTS 439 - 444
SHEET 2

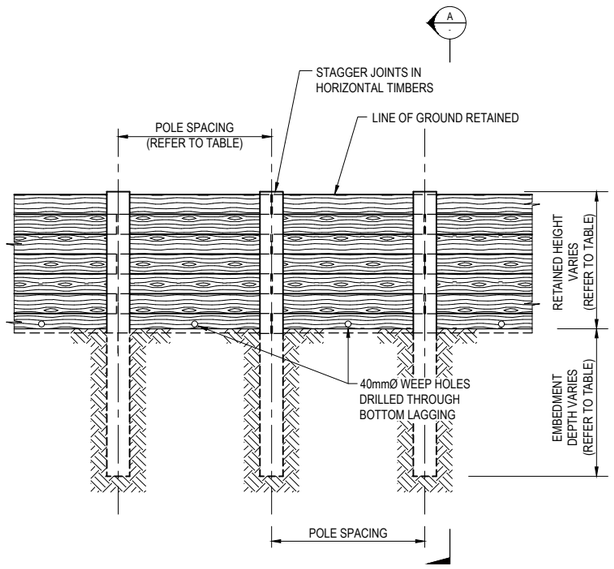
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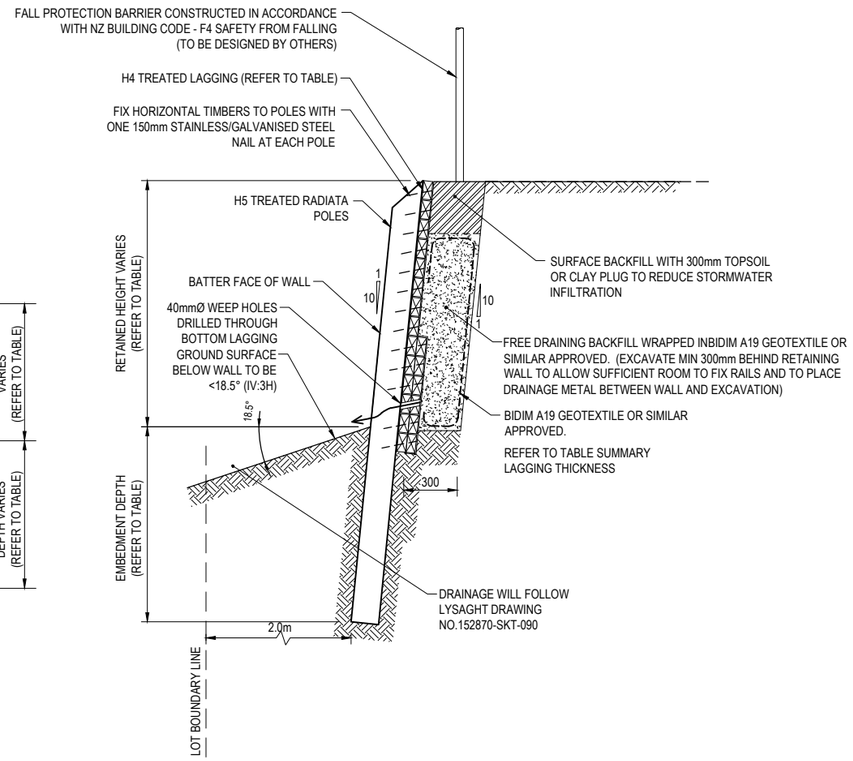
Drawing No. 152870-LOTS 439-444

Rev. 2

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TYPICAL FRONT ELEVATION OF WALL
NTS



TYPICAL SECTION A
NTS

FOR RETAINING WALLS 3 & 4

DRIVEN TIMBER POLE RETAINING WALL SCHEDULE					
MAX RETAINED HEIGHT (mm)	SMALL END DIAMETER (mm)	POLE SPACING (mm)	PILOT HOLE DIAMETER (mm)	EMBEDMENT DEPTH (mm)	LAGGING DIMENSIONS (mm)
1000	200	1000	100	2000	150 x 50
1800	325	1000	200	3500	150 X 100 (DOUBLE LAGGED) (150x50 FOR UPPER 1.0m)
NOTE: REFER TO SKETCH RETAINING WALL PLAN LOTS 439-444 BY LYSAGHT (DRAWING No 152870-SKT-90) FOR LOCATION AND THE RETAINING WALL LONG SECTION.					

1. CAUTION:

DEEP EXCAVATIONS UNSUPPORTED DURING CONSTRUCTION MAY BE HAZARDOUS PARTICULARLY WHEN WORKING IN CONFINED SPACES.
WORKSAFE NEW ZEALAND EXCAVATION SAFETY GOOD PRACTICE GUIDELINES (JULY 2016) GIVES RECOMMENDED SAFETY PROCEDURES FOR SUCH SITUATIONS. TEMPORARY EXCAVATIONS ARE THE RESPONSIBILITY OF CONTRACTORS, CONTRACTORS ARE REQUIRED TO TAKE DUE CARE AND MEASURES TO PROTECT THEIR WORKS FROM ANY SLIPS.

2. MATERIALS:

TIMBER:

TIMBER POLES SHALL BE PEELED RADIATA PINE LOGS COMPLYING WITH THE REQUIREMENT OF NZS 3605:2001 'LOAD BEARING ROUND TIMBER PILES AND POLES' TREATED TO NZS 3602:2003 SPECIFICATION H5.

DIMENSIONS OF POLES ARE SPECIFIED AS MINIMUM SMALL END DIAMETERS. ACTUAL DIAMETERS WILL BE GREATER DUE TO TAPER AND TIMBER GRADING.

LAGGING SHALL BE SG 8 GRADE TIMBER COMPLYING WITH THE REQUIREMENT OF NZS 3622:2004 'VERIFICATION OF TIMBER PROPERTIES' AND GRADED IN ACCORDANCE WITH THE PROVISIONS OF NZS 3631. LAGGING SHALL BE TREATED TO NZS 3602:2003 SPECIFICATION H4.

LAGGING TO EXTEND A MINIMUM OF 100mm BELOW EXISTING GROUND LEVEL. ALL TIMBER SHALL HAVE TPA IDENTIFICATION BRANDS VISIBLE WHEN DELIVERED TO THE SITE, AND SHALL BE PROTECTED AGAINST DAMAGE DURING STORAGE AND HANDLING.

FIXING OF HORIZONTAL TIMBERS TO POLES SHALL UTILISE STAINLESS / GALVANISED STEEL NAILS AS DETAILED.

3. EXCAVATION AND INSTALLATION:

EXCAVATION IN STAGES TO ALLOW FOR TEMPORARY SUPPORT DURING CONSTRUCTION IS REQUIRED. NO MORE THAN 3m OF UNSUPPORTED SLOPE SHALL EXIST AT ANY ONE TIME.

TIMBER PILING SHALL BE DRIVEN WITH A GRAVITY HAMMER OR POWER HAMMER IN BORED PILOT HOLES. WHEN THE NATURE OF THE DRIVING IS SUCH AS TO UNDULY INJURE THE HEADS, TIMBER PILING SHALL BE PROTECTED BY CAPS OF APPROVED DESIGN PREFERABLY HAVING A ROPE OR OTHER SUITABLE CUSHION NEXT TO THE PILE HEAD AND FITTING INTO A CASTING WHICH IN TURN SUPPORTS A TIMBER SHOCK BLOCK. WHEN THE AREA OF THE HEAD OF THE PILE IS GREATER THAN THAT OF THE FACE OF THE HAMMER, A SUITABLE CAP SHALL BE PROVIDED TO DISTRIBUTE THE BLOW OF THE HAMMER THROUGHOUT THE CROSS SECTION OF THE PILE AND THUS AVOID, AS FAR AS POSSIBLE, THE TENDENCY TO SPLIT OR SHATTER THE PILE. COLLARS OR BANDS TO PROTECT THE PILING AGAINST SPLITTING AND BROOMING SHALL BE PROVIDED.

PILE DRIVER LEADS SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO AFFORD FREEDOM OF MOVEMENT TO THE HAMMER, AND SHALL BE HELD IN POSITION BY GUYS OR STIFF BRACES TO INSURE SUPPORT TO THE PILE DURING DRIVING. EXCEPT WHERE PILINGS ARE DRIVEN THROUGH WATER, THE LEADS SHALL BE OF SUFFICIENT LENGTH THAT THE USE OF A FOLLOWER WILL NOT BE NECESSARY.

CONTRACTOR SHALL PROVIDE PILOT HOLES TO MINIMIZE RISK OF DAMAGE TO PILING AND FOR THE PURPOSE OF MAINTAINING ALIGNMENT. THE MAXIMUM DEPTH OF THE PILOT HOLE SHALL BE 1.5M AND THE MAXIMUM DIAMETER SHALL BE NO GREATER THAN THE DIAMETER OF THE PILE TIP. INCREASE THE DIAMETER OR DEPTH OF THE PILOT HOLE ONLY AFTER PRIOR APPROVAL BY THE ENGINEER.

THE PILING SHALL BE DRIVEN APPROXIMATELY TO THE DEPTH SHOWN ON THE PLANS TO SECURE THE BEARING RESISTANCE. BEARING RESISTANCE SHALL BE DETERMINED BY THE SPECIFIED FORMULA AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

CONTRACTOR SHALL POINT OR SQUARE-CUT PILING AS REQUIRED BY SOIL CONDITIONS. WHERE NECESSARY, PILE SHALL BE SHOED WITH METAL SHOES. PILING POINTS SHALL BE SHAPED TO SECURE EVEN AND UNIFORM BEARING ON SHOES.

AFTER DRIVING, SAW THE PILING OFF AT A TRUE PLANE AS INDICATED ON THE PLANS. THE FINAL PLAN ELEVATIONS ARE TO BE WITHIN THE ESTABLISHED ELEVATION.

IF CUTTING IS NECESSARY THE EXPOSED SURFACES SHALL BE FLOODED WITH A COPPER NAPTHENATE TYPE OF WOOD PRESERVATIVE.

4. GALVANISING:

COMPONENTS SPECIFIED ON THE DRAWINGS AS BEING GALVANISED ARE TO BE HOT-DIP GALVANISED IN ACCORDANCE WITH AS/NZS 4680, AS/NZS 4791 OR AS/NZS 4792 AS APPROPRIATE.

IN ADDITION TO THE REQUIREMENTS OF THESE CODES, THE FOLLOWING SHALL BE COMPLIED WITH.

THE MATERIAL USED FOR HOT-DIP GALVANISING SHALL BE ZINC METAL SPECIFICALLY MADE FOR THIS PURPOSE AND SHALL BE 99.5% PURE.

THE AVERAGE WEIGHT OF ZINC COATING SHALL BE NOT LESS THAN 380 gm/sq.m FOR BOLTS AND WASHERS AND NOT LESS THAN 700 gm/sq.m FOR OTHER STRUCTURAL STEELWORK.

ALL BOLTS AND NUTS SHALL BE GALVANISED AFTER SCREW CUTTING AND TOLERANCES USED IN SCREW CUTTING SHALL MAKE ALLOWANCE FOR THIS.

DAMAGED SURFACES OR WELDED AREAS SHALL BE MADE GOOD WITH INTEZINC 352 OR EQUIVALENT APPLIED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

5. DRAINAGE

APPROVED DRAINAGE MATERIAL BACKFILLED BEHIND LAGGING WRAPPED IN GEOTEXTILE (BIDIM A19 OR SIMILAR APPROVED) AND 40mm DIAMETER WEEP HOLES TO BE DRILLED IN CENTRE OF FIRST ROW OF EXPOSED LAGGING BETWEEN EACH POLE AS SHOWN IN THE TYPICAL WALL DETAILS.

6. SETOUT/OFFSET DISTANCE

LYSAGHT CONSULTANTS LTD WILL BE PROVIDING THE SETOUT FOR THE ALIGNMENT OF THE RETAINING WALL. THE FRONT OF THE RETAINING WALL SHALL BE OFFSET A MINIMUM OF 2.35 METRES FROM THE BOUNDARY AT THE LOWEST POINT TO ENSURE A MINIMUM OF 2.0 METRES IS COVERED AT THE BASE OF THE TIMBER POLES.

WARNING
THIS WALL DESIGN IS SUITABLE FOUNDING WITHIN IN-SITU DENSE SAND WITH A MINIMUM FRICTION ANGLE OF 33 DEGREES. IT HAS BEEN DESIGN FOR A SURCHARGE OF 5kPa (SINGLE STOREY TIMBER DWELLING).

HOLD POINTS FOR INSPECTIONS BY A GEOTECHNICAL ENGINEER IS AS FOLLOWS:
- PILOT HOLE, TIMBER POLE INSPECTION
- PLACEMENT OF GEOTEXTILE WRAP AND LAGGING PRIOR TO DRAINAGE METAL AND BACKFILL
- FINAL INSPECTION PRIOR TO SITE DEMOBILISATION

Plot Date: 29/5/2019 12:18:11 PM Office: NZTRG Filename: P:\PROJECTS\247593 - ZARIBA HASHA PARTON ROAD PAPAMOA\CAD\DURSCH\247593-0009-DRG-G0020.DWG

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www.aurecongroup.com

CLIENT
ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
A	29.05.19	CONSENT ISSUE	B.O'Loughlin

SCALE	SIZE
NTS	A1

DRAWN: L.O'Sullivan
DESIGNED: M.Buob
CHECKED: K.Kishore

CONSENT
NOT FOR CONSTRUCTION

APPROVED
DATE 29.05.19
B.O'Loughlin
B.O'Loughlin

PROJECT: TERRACE VIEWS SUBDIVISION PARTON ROAD, TAURANGA

TITLE: TYPICAL TIMBER POLE RETAINING WALL - TYPE A2

DRAWING No. 247593 – 0009 – DRG – G – 0020 – A
(PROJECT No. | WBS | TYPE | DISC | NUMBER | REV)

COMPLIANCE TEST			
Point #	Northing	Easting	Elevation
1	804715.1300	386226.4300	4.440
2	804715.1400	386248.2500	4.580
3	804715.1100	386269.0200	4.600
4	804714.7100	386225.7900	5.360
5	804714.4100	386247.6500	5.270
6	804714.2500	386268.1400	5.160
7	804717.1000	386226.7400	4.070
8	804717.0300	386247.7700	3.990
9	804716.8200	386267.9300	4.160

LEGEND

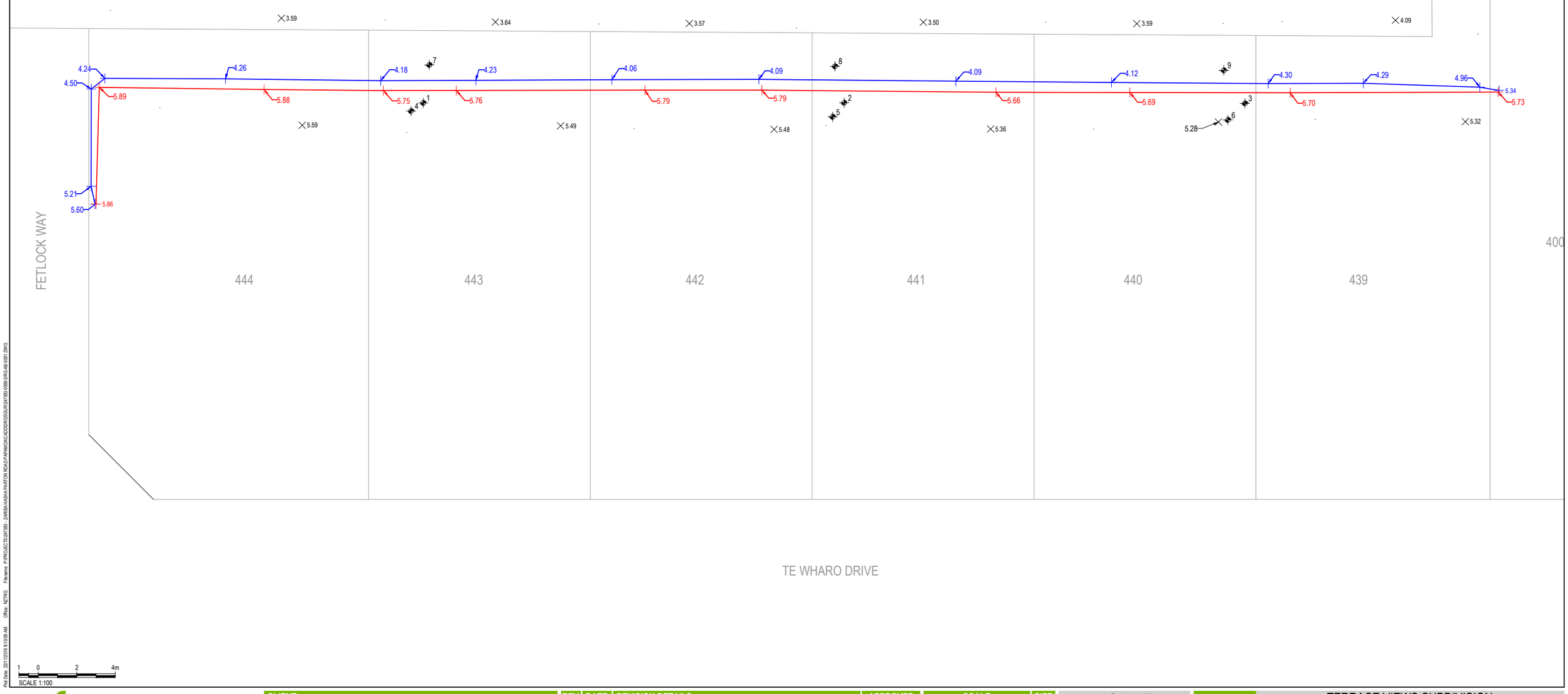
7.20 / 5.03 — TOP OF RETAINING WALL LEVEL (mRL) / BOTTOM OF RETAINING WALL LEVEL (mRL)

× — GROUND LEVEL SPOT HEIGHT

1 — COMPLIANCE TEST

NOTES:

1. SURVEY DATA SUPPLIED BY LYSAGHT CONSULTANTS LTD.
2. LEVELS IN TERMS OF MOTURIKI DATUM 1953.
3. COORDINATES IN TERMS OF GD2000, BOP CIRCUIT.
4. REFER AURECON DRAWING 247593-0009-DRG-G-0020 FOR TYPICAL RETAINING WALL DETAILS.
5. REFER TO AURECON DRAWING 247593-0320-DRG-G-0003 FOR LANDFORM/LOT ARRANGEMENT.



1 0 2 4m
SCALE 1:100

Plot Date: 22/11/2019 9:10:09 AM Office: NZTRG Filename: P:\PROJECTS\247593 - ZARIBA HASHA PARTON ROAD PAPAMOA\CAD\DRGS\GIS\R\247593-0009-DRG-AB-0001.DWG

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CLIENT: ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
1	21.11.19	AS BUILT	B.O'LOUGHLIN

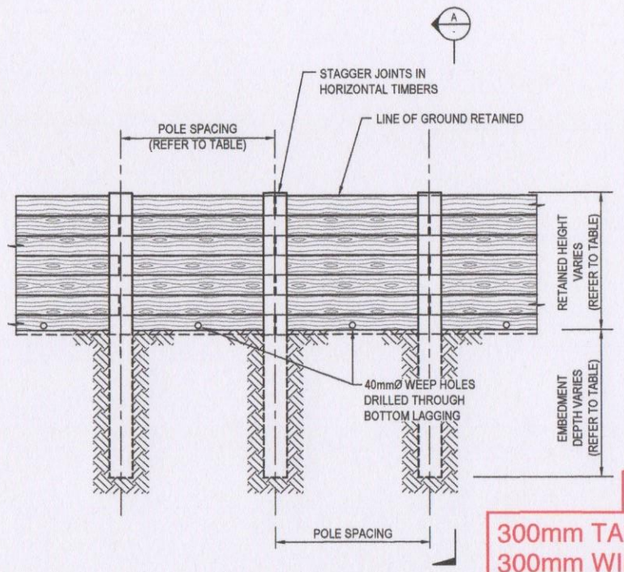
SCALE	1:100
SIZE	A1
DRAWN	L.O'SULLIVAN
DESIGNED	M.BUOB
CHECKED	K.KISHORE

AS BUILT

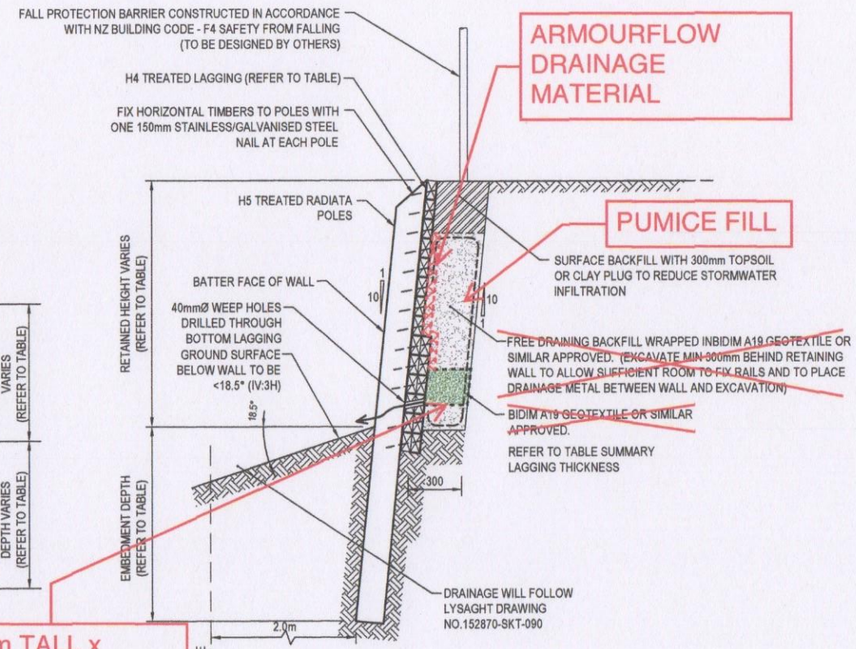
APPROVED
DATE 21.11.19
B.O'LOUGHLIN
B.O'LOUGHLIN

PROJECT	TERRACE VIEWS SUBDIVISION PARTON ROAD, PAPAMOA, TAURANGA
TITLE	RETAINING WALL AS BUILT PLAN

DRAWING No.: PROJECT No. 247593 – WBS 0009 – TYPE DRG – DISC AB – NUMBER 0001 – REV 1



TYPICAL FRONT ELEVATION OF WALL
NTS

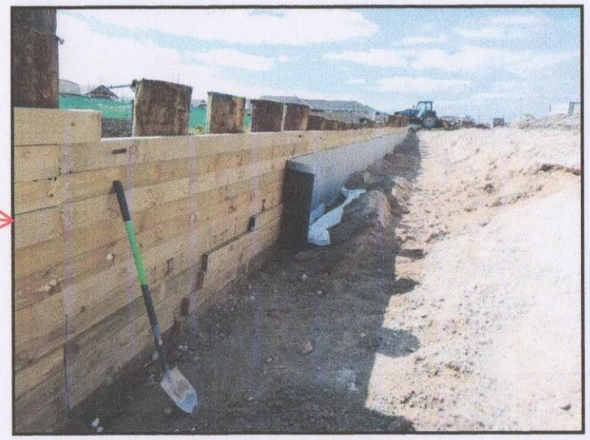


300mm TALL x 300mm WIDE OF FREE DRAINING BACKFILL WRAPPED IN BIDIM A19 GEOTEXTILE

TYPICAL SECTION A
NTS

FOR RETAINING WALLS 3 & 4

A PHOTO SHOWING INSPECTION OF DRAINAGE MATERIAL



DRIVEN TIMBER POLE RETAINING WALL SCHEDULE					
MAX RETAINED HEIGHT (mm)	SMALL END DIAMETER (mm)	POLE SPACING (mm)	PILOT HOLE DIAMETER (mm)	EMBEDMENT DEPTH (mm)	LAGGING DIMENSIONS (mm)
1000	200	1000	100	2000	150 x 50
1800	325	1000	200	3500	150 X 100 (DOUBLE LAGGED) (150x50 FOR UPPER 1.0m)
NOTE: REFER TO SKETCH RETAINING WALL PLAN LOTS 439-444 BY LYSAGHT (DRAWING No 152870-SKT-90) FOR LOCATION AND THE RETAINING WALL LONG SECTION.					

1. CAUTION:

DEEP EXCAVATIONS UNSUPPORTED DURING CONSTRUCTION MAY BE HAZARDOUS PARTICULARLY WHEN WORKING IN CONFINED SPACES.
WORKSAFE NEW ZEALAND EXCAVATION SAFETY GOOD PRACTICE GUIDELINES (JULY 2016) GIVES RECOMMENDED SAFETY PROCEDURES FOR SUCH SITUATIONS. TEMPORARY EXCAVATIONS ARE THE RESPONSIBILITY OF CONTRACTORS, CONTRACTORS ARE REQUIRED TO TAKE DUE CARE AND MEASURES TO PROTECT THEIR WORKS FROM ANY SLIPS.

2. MATERIALS:

TIMBER:

TIMBER POLES SHALL BE PEELED RADIATA PINE LOGS COMPLYING WITH THE REQUIREMENT OF NZS 3605:2001 'LOAD BEARING ROUND TIMBER PILES AND POLES' TREATED TO NZS 3602:2003 SPECIFICATION H5.

DIMENSIONS OF POLES ARE SPECIFIED AS MINIMUM SMALL END DIAMETERS. ACTUAL DIAMETERS WILL BE GREATER DUE TO TAPER AND TIMBER GRADING.

LAGGING SHALL BE SG 8 GRADE TIMBER COMPLYING WITH THE REQUIREMENT OF NZS 3622:2004 'VERIFICATION OF TIMBER PROPERTIES' AND GRADED IN ACCORDANCE WITH THE PROVISIONS OF NZS 3631. LAGGING SHALL BE TREATED TO NZS 3602:2003 SPECIFICATION H4.

LAGGING TO EXTEND A MINIMUM OF 100mm BELOW EXISTING GROUND LEVEL. ALL TIMBER SHALL HAVE TPA IDENTIFICATION BRANDS VISIBLE WHEN DELIVERED TO THE SITE, AND SHALL BE PROTECTED AGAINST DAMAGE DURING STORAGE AND HANDLING.

FIXING OF HORIZONTAL TIMBERS TO POLES SHALL UTILISE STAINLESS / GALVANISED STEEL NAILS AS DETAILED.

3. EXCAVATION AND INSTALLATION:

EXCAVATION IN STAGES TO ALLOW FOR TEMPORARY SUPPORT DURING CONSTRUCTION IS REQUIRED. NO MORE THAN 3m OF UNSUPPORTED SLOPE SHALL EXIST AT ANY ONE TIME.

TIMBER PILING SHALL BE DRIVEN WITH A GRAVITY HAMMER OR POWER HAMMER IN BORED PILOT HOLES. WHEN THE NATURE OF THE DRIVING IS SUCH AS TO UNDULY INJURE THE HEADS, TIMBER PILING SHALL BE PROTECTED BY CAPS OF APPROVED DESIGN PREFERABLY HAVING A ROPE OR OTHER SUITABLE CUSHION NEXT TO THE PILE HEAD AND FITTING INTO A CASTING WHICH IN TURN SUPPORTS A TIMBER SHOCK BLOCK. WHEN THE AREA OF THE HEAD OF THE PILE IS GREATER THAN THAT OF THE FACE OF THE HAMMER, A SUITABLE CAP SHALL BE PROVIDED TO DISTRIBUTE THE BLOW OF THE HAMMER THROUGHOUT THE CROSS SECTION OF THE PILE AND THUS AVOID, AS FAR AS POSSIBLE, THE TENDENCY TO SPLIT OR SHATTER THE PILE. COLLARS OR BANDS TO PROTECT THE PILING AGAINST SPLITTING AND BROOMING SHALL BE PROVIDED.

PILE DRIVER LEADS SHALL BE CONSTRUCTED IN SUCH A MANNER AS TO AFFORD FREEDOM OF MOVEMENT TO THE HAMMER, AND SHALL BE HELD IN POSITION BY GUYS OR STIFF BRACES TO INSURE SUPPORT TO THE PILE DURING DRIVING. EXCEPT WHERE PILINGS ARE DRIVEN THROUGH WATER, THE LEADS SHALL BE OF SUFFICIENT LENGTH THAT THE USE OF A FOLLOWER WILL NOT BE NECESSARY.

CONTRACTOR SHALL PROVIDE PILOT HOLES TO MINIMIZE RISK OF DAMAGE TO PILING AND FOR THE PURPOSE OF MAINTAINING ALIGNMENT. THE MAXIMUM DEPTH OF THE PILOT HOLE SHALL BE 1.5M AND THE MAXIMUM DIAMETER SHALL BE NO GREATER THAN THE DIAMETER OF THE PILE TIP. INCREASE THE DIAMETER OR DEPTH OF THE PILOT HOLE ONLY AFTER PRIOR APPROVAL BY THE ENGINEER.

THE PILING SHALL BE DRIVEN APPROXIMATELY TO THE DEPTH SHOWN ON THE PLANS TO SECURE THE BEARING RESISTANCE. BEARING RESISTANCE SHALL BE DETERMINED BY THE SPECIFIED FORMULA AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

CONTRACTOR SHALL POINT OR SQUARE-CUT PILING AS REQUIRED BY SOIL CONDITIONS. WHERE NECESSARY, PILE SHALL BE SHOED WITH METAL SHOES. PILING POINTS SHALL BE SHAPED TO SECURE EVEN AND UNIFORM BEARING ON SHOES.

AFTER DRIVING, SAW THE PILING OFF AT A TRUE PLANE AS INDICATED ON THE PLANS. THE FINAL PLAN ELEVATIONS ARE TO BE WITHIN THE ESTABLISHED ELEVATION.

IF CUTTING IS NECESSARY THE EXPOSED SURFACES SHALL BE FLOODED WITH A COPPER NAPTHENATE TYPE OF WOOD PRESERVATIVE.

4. GALVANISING:

COMPONENTS SPECIFIED ON THE DRAWINGS AS BEING GALVANISED ARE TO BE HOT-DIP GALVANISED IN ACCORDANCE WITH AS/NZS 4680, AS/NZS 4791 OR AS/NZS 4792 AS APPROPRIATE.

IN ADDITION TO THE REQUIREMENTS OF THESE CODES, THE FOLLOWING SHALL BE COMPLIED WITH.

THE MATERIAL USED FOR HOT-DIP GALVANISING SHALL BE ZINC METAL SPECIFICALLY MADE FOR THIS PURPOSE AND SHALL BE 99.5% PURE.

THE AVERAGE WEIGHT OF ZINC COATING SHALL BE NOT LESS THAN 380 gm/sq.m FOR BOLTS AND WASHERS AND NOT LESS THAN 700 gm/sq.m FOR OTHER STRUCTURAL STEELWORK.

ALL BOLTS AND NUTS SHALL BE GALVANISED AFTER SCREW CUTTING AND TOLERANCES USED IN SCREW CUTTING SHALL MAKE ALLOWANCE FOR THIS.

DAMAGED SURFACES OR WELDED AREAS SHALL BE MADE GOOD WITH INTEZINC 352 OR EQUIVALENT APPLIED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

5. DRAINAGE

APPROVED DRAINAGE MATERIAL BACKFILLED BEHIND LAGGING WRAPPED IN GEOTEXTILE (BIDIM A19 OR SIMILAR APPROVED) AND 40mm DIAMETER WEEP HOLES TO BE DRILLED IN CENTRE OF FIRST ROW OF EXPOSED LAGGING BETWEEN EACH POLE AS SHOWN IN THE TYPICAL WALL DETAILS.

6. SETOUT/OFFSET DISTANCE

LYSAGHT CONSULTANTS LTD WILL BE PROVIDING THE SETOUT FOR THE ALIGNMENT OF THE RETAINING WALL. THE FRONT OF THE RETAINING WALL SHALL BE OFFSET A MINIMUM OF 2.35 METRES FROM THE BOUNDARY AT THE LOWEST POINT TO ENSURE A MINIMUM OF 2.0 METRES IS COVERED AT THE BASE OF THE TIMBER POLES.

WARNING
THIS WALL DESIGN IS SUITABLE FOUNDING WITHIN IN-SITU DENSE SAND WITH A MINIMUM FRICTION ANGLE OF 33 DEGREES. IT HAS BEEN DESIGN FOR A SURCHARGE OF 5kPa (SINGLE STOREY TIMBER DWELLING).

HOLD POINTS FOR INSPECTIONS BY A GEOTECHNICAL ENGINEER IS AS FOLLOWS:
- PILOT HOLE, TIMBER POLE INSPECTION
- PLACEMENT OF GEOTEXTILE WRAP AND LAGGING PRIOR TO DRAINAGE METAL AND BACKFILL
- FINAL INSPECTION PRIOR TO SITE DEMOBILISATION

19/11/19

Plot Date: 29/05/19 12:19:11 PM Office: NZTRG Filename: P:\PROJECTS\247593 - ZARIBA HASHA PARTON ROAD PAPAMOA\CAD\DRG\DWG\247593-0009-DRG-G-0020.DWG

aurecon
www.aurecongroup.com

CLIENT: ZARIBA PROPERTIES LIMITED

REV	DATE	REVISION DETAILS	APPROVED
A	29.05.19	CONSENT ISSUE	B.O'Loughlin

SCALE	SIZE
NTS	A1

DRAWN: L.O'Sullivan
DESIGNED: M.Buob
CHECKED: K.Kishore

CONSENT
NOT FOR CONSTRUCTION
APPROVED
DATE 29.05.19
B.O'Loughlin
B.O'Loughlin

PROJECT: TERRACE VIEWS SUBDIVISION PARTON ROAD, TAURANGA

TITLE: TYPICAL TIMBER POLE RETAINING WALL - TYPE A2

DRAWING No. 247593 - 0009 - DRG - G - 0020 - A
(PROJECT No. | WBS | TYPE | DISC | NUMBER | REV)

Aurecon New Zealand Limited
Ground Level 247 Cameron Road
Tauranga 3110

PO Box 2292
Tauranga 3140
New Zealand

T +64 7 578 6183
F +64 7 578 6143
E tauranga@aurecongroup.com
W aurecongroup.com

Terrace Views Stage 3D-E Timber Pole Wall Design Deviation Register

Deviation Reference	Date	Component	Comments
1	8/08/2019	Timber Pole Sizing	Timber poles were reduced to 320mm SED from 325mm SED for a selection of timber poles along the wall alignment.
2	27/08/2019	Timber Pole Installation Method	Two poles refused using the vibratory pile driving methodology. A 700 kg drop-hammer was used to drive the remaining poles to design depth
3	29/08/2019	Drainage Methodology	NZ Structures requested the use of Armourflo instead of drainage metal with wickdrains. This was approved and used with 300mm of drainage metal at the base of the wall.

Charge To:

Carters - Tauranga
Private Bag 94027
Manukau City
Manukau
Auckland 2241

Deliver To:

NZ STRUCTURES
TE WHARO DRIVE & FETLOCK WAY
PAPAMOA
PH NEIL 021 222 7310
SEND ALL WE HAVE ASAP - BAL TO FOLLOV

Delivery Note

Delivery Date: 18/07/2019
Delivery No: 320603
Page: 1
GST Number: 087-752-062

Job Number: 104106

FCANZ Fencing Contractors Association NZ
Gold Partner

Customer: CARTGA

Quantity Definitions
M3 = Cubic Metres
LM = Lineal Metres
EA = Each
PC = Pieces

PERMAPINE LTD
33 White Road
RD1
REPOROA 3081
Phone: 07 333 8523 Fax: 07 333 8766

Description	Packet or Bundle Nbr	Freight	Quantity	
Your Order Ref: TGN02844 Sales Rep: Donna MacDonell				
P036B04 3.6m Pole SED 200-225 - [B04] H5		1.617	11 PC	
P054B09 5.4m Pole SED 325-350- [B09] H5		8.040	15 PC	
	Timber Freight	9.657	M3	

CONDITIONS OF SALE:
All goods are sold subject to the Company's Terms and Conditions of Sale.

ACKNOWLEDGEMENT OF RECEIVING GOODS

Print Name:_____ Date: _____ Signature: _____

Charge To:
Carters - Tauranga
Private Bag 94027
Manukau City
Manukau
Auckland 2241

Deliver To:
Carters - Tauranga
Birch Ave
Judea
Tauranga

Delivery Note

Delivery Date: 24/07/2019
Delivery No: 320870
Page: 1
GST Number: 087-752-062

Job Number: 104338

FCANZ
Fencing Contractors Association NZ
Gold Partner

Customer: CARTGA

Quantity Definitions
M3 = Cubic Metres
LM = Lineal Metres
EA = Each
PC = Pieces

PERMAPINE LTD
33 White Road
RD1
REPOROA 3081
Phone: 07 333 8523 Fax: 07 333 8766

Description	Packet or Bundle Nbr	Freight	Quantity
Your Order Ref: TGN02960 Sales Rep: Donna MacDonell			
P027B02 2.7m Pole SED 150-174 - [B02] H5		1.430	22 PC
P036B03 3.6m Pole SED 175-200 - [B03] H5		1.287	11 PC
2 BLDS OF 30			
1 " OF 12			
72			
1 BLD OF 11 @ 3.6.			
PB			
Timber Freight		2.717	M3

24.7.19
TG08S4750
Sibbe

ACKNOWLEDGEMENT OF RECEIVING GOODS

Print Name:_____ Date:_____ Signature: _____

CONDITIONS OF SALE:
All goods are sold subject to the Company's Terms and Conditions of Sale. A summary of some important provisions of these terms appears on the back of this document.

ArmourFlow™

TECHNICAL DATA SHEET	TDS G 001 032
ISSUE NUMBER	02
DATE	APRIL 2019

DIMENSIONS	
Geospacer width	1,1 m
Geotextile width	1,30m
Length	25 m

CHARACTERISTICS	Standard	Nominal value	Unit	Tolerance
GEOSPACER : NO SENSITIVE TO WATER				
Polymer		HDPE		
Structure		Alveolar, thermoformed, isotropic and symmetric		
Thickness under 2 kPa	EN ISO 9863-1 ASTM D-5199	12	mm	±10%
Crush resistance	EN ISO 25619-2	275	kPa	-10%
	ASTM D-6364	5743	psf	-10%
Compressive creep under 100 kPa / 10 Years	EN ISO 25619-1	-9 % of the thickness under stress		
GEOTEXTILE : NO SENSITIVE TO WATER				
Product reference		D100		
Certificate ASQUAL		Uncertified		
Polymer		Polypropylene		
Manufacturing process		Nonwoven thermally bonded		
Position of the geotextile on the geospacer		A geotextile on a face		
Thickness under 2 kPa	EN ISO 9863-1 ASTM D-5199	0,41	mm	±0,08
Mass per unit area	EN ISO 9864 ASTM D-5161	100	g/m²	±10
Opening Size O90 w	EN ISO 12956	150	µm	±30
Water Permeability VH50	EN ISO 11058	0,08	m/s	-0,015
GEOCOMPOSITE				
Dynamic Perforation Resistance	EN ISO 13433	40	mm	+7
Water flow capacity in the plane / Transmissivity	EN ISO 12958 ASTM D4716	Foam/ Obturate i=1 ; 20 kPa ; 11,2x10-4	m²/s	-2,3 x10-4
Tensile strength	EN ISO 10319 ASTM D-4595	MD : 18 CMD : 18	kN/m	-2,34 -2,34
Durability in accordance with Annex B		To be covered within 2 weeks after installation. Predicted to be durable for more than 50 years in all natural soils with temperatures < 25 °C on the basis of a durability assessment (Typargeo Report 070)		
ADDITIONAL DATA ON THE GEOCOMPOSITE				
Mass per unit area	EN ISO 9864 ASTM D-5161	1051	g/m²	± 10%

DISCLAIMER: All information provided in this publication is correct to the best knowledge of the company and is given out in good faith. The information presented herein is intended only as a general guide to the use of such products and no liability is accepted by Cirtex Industries Ltd for any loss or damage however arising, which results either directly or indirectly from the use of such information. Cirtex Industries Ltd have a policy of continuous development so information and product specifications may change without notice.

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Registration number: C41186

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0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP19W1002
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not endorsed. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 13/09/2019

Testing Details

Site Tested:	Retaining Wall
Tested By:	Jed Morris
Date Tested:	3/09/2019
Time Tested:	10:49
Material:	Pumice Sand
Material Source:	Marball - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, Plateau Test

Compaction Target Details

Material Sample ID:	External
MDD Method:	Plateau Test*
Max. Dry Density:	1.29 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
1	17.5	1.67	1.42	110
2	21.1	1.64	1.35	105
3	22.3	1.56	1.28	99

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD target from FH plateau report reference BOP18W1355.

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0800 LABORATORY

Penetration Resistance

Report No: PR:BOP19S-02709
Issue No: 1

Client:	Jason Mather JMC Limited PO Box 16070 Bethlehem Tauranga 3147 NZ
Project:	Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 1/10/2019

Test Details

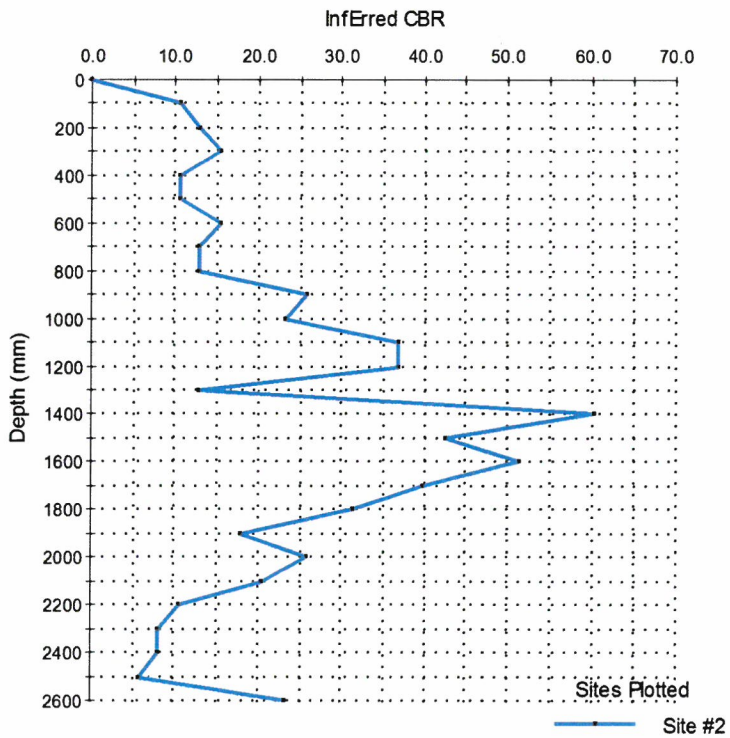
Sample ID:	BOP19S-02709	**Location:**	Retaining wall - Test 2 RT
Tested By:	Jed Morris	**Date Tested:**	23/09/2019
Material:	Pumice Sand	**Specification:**	Contract Specification

Test Results

NZS 4402:1988 Test 6.5.2

Depth of Excavation to surface (mm): 0 **Depth at the Commencement (mm):** 0

Penetration vs Inferred CBR



InfErred CBR values are based on Austroads Pavement Design:
Guide to the Structural Design of Road Pavements Section 5.5.2 & Fig 5.2

Comments

The inferred CBR calculation is not accredited, and is excluded from the endorsement of this test report.
Results for depths beyond 1.4 metres are not accredited, and are excluded from the endorsement of this test report.

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0800 LABORATORY

Penetration Resistance

Report No: PR:BOP19S-02709
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

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IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 1/10/2019

Penetration Resistance Test Results

Site	Blows	Depth (mm)	Inferred CBR
2	5	100	10.5
2	6	200	12.9
2	7	300	15.4
2	5	400	10.5
2	5	500	10.5
2	7	600	15.4
2	6	700	12.9
2	6	800	12.9
2	11	900	25.9
2	10	1000	23.2
2	15	1100	36.9
2	15	1200	36.9
2	6	1300	12.9
2	23	1400	60.3
2	17	1500	42.6
2	20	1600	51.3
2	16	1700	39.8
2	13	1800	31.3
2	8	1900	18.0
2	11	2000	25.9
2	9	2100	20.6
2	5	2200	10.5
2	4	2300	8.1
2	4	2400	8.1
2	3	2500	5.8
2	10	2600	23.2

Comments

The inferred CBR calculation is not accredited, and is excluded from the endorsement of this test report.
Results for depths beyond 1.4 metres are not accredited, and are excluded from the endorsement of this test report.

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Nuclear Density Report

Report No: ND:BOP19W1039
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not endorsed. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 23/09/2019

Testing Details

Site Tested:	Retaining Wall - Layer 2
Tested By:	Jed Morris
Date Tested:	16/09/2019
Time Tested:	10:00
Material:	Pumice Sand
Material Source:	Marball - Maniatutu Rd
Specification:	Contract Specification
Field Methods:	NZS 4407:2015 Test 4.2
Lab Methods:	NZS 4402:1986 Test 2.1, Plateau Test

Compaction Target Details

Material Sample ID:	External
MDD Method:	Plateau Test*
Max. Dry Density:	1.29 t/m³ @ 25 %
Min. Dry Density (t/m³):	
Solid Density Type:	Assumed

Test Results

Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
4	26.6	1.67	1.32	102
5	26.0	1.77	1.40	109
6	26.3	1.67	1.32	102

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration.
MDD target from FH Plateau report reference BOP18W1355.

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Penetration Resistance

Report No: PR:BOP19S-02677
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 23/09/2019

Test Details

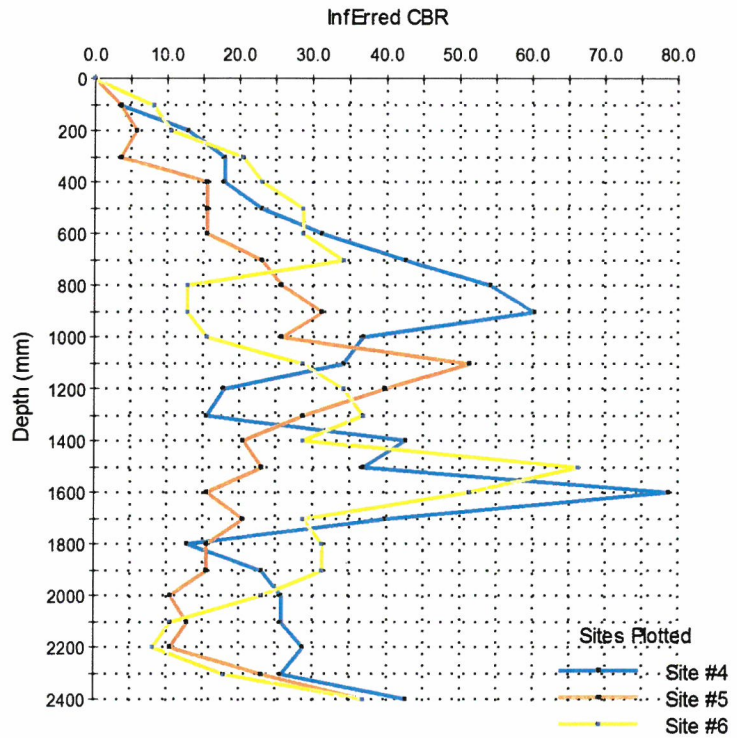
Sample ID: BOP19S-02677
Tested By: Jed Morris
Material: Pumice Sand
Location: Retaining Wall - Layer 2
Date Tested: 16/09/2019
Specification: Contract Specification

Test Results

NZS 4402:1988 Test 6.5.2

Depth of Excavation to surface (mm): 0
Depth at the Commencement (mm): 0

Penetration vs Inferred CBR



InfErred CBR values are based on Austroads Pavement Design:
Guide to the Structural Design of Road Pavements Section 5.5.2 & Fig 5.2

Comments

Results for depths beyond 1.4 metres are not accredited, and are excluded from the endorsement of this test report.

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Report No: PR:BOP19S-02677
Issue No: 1

Penetration Resistance

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 23/09/2019

Penetration Resistance Test Results

Site	Blows	Depth (mm)	Inferred CBR	Site	Blows	Depth (mm)	Inferred CBR
4	2	100	3.7	5	7	1600	15.4
4	6	200	12.9	5	9	1700	20.6
4	8	300	18.0	5	7	1800	15.4
4	8	400	18.0	5	7	1900	15.4
4	10	500	23.2	5	5	2000	10.5
4	13	600	31.3	5	6	2100	12.9
4	17	700	42.6	5	5	2200	10.5
4	21	800	54.3	5	10	2300	23.2
4	23	900	60.3	5	15	2400	36.9
4	15	1000	36.9	6	4	100	8.1
4	14	1100	34.1	6	5	200	10.5
4	8	1200	18.0	6	9	300	20.6
4	7	1300	15.4	6	10	400	23.2
4	17	1400	42.6	6	12	500	28.6
4	15	1500	36.9	6	12	600	28.6
4	29	1600	78.6	6	14	700	34.1
4	16	1700	39.8	6	6	800	12.9
4	6	1800	12.9	6	6	900	12.9
4	10	1900	23.2	6	7	1000	15.4
4	11	2000	25.9	6	12	1100	28.6
4	11	2100	25.9	6	14	1200	34.1
4	12	2200	28.6	6	15	1300	36.9
4	11	2300	25.9	6	12	1400	28.6
4	17	2400	42.6	6	25	1500	66.3
5	2	100	3.7	6	20	1600	51.3
5	3	200	5.8	6	12	1700	28.6
5	2	300	3.7	6	13	1800	31.3
5	7	400	15.4	6	13	1900	31.3
5	7	500	15.4	6	10	2000	23.2
5	7	600	15.4	6	5	2100	10.5
5	10	700	23.2	6	4	2200	8.1
5	11	800	25.9	6	8	2300	18.0
5	13	900	31.3	6	15	2400	36.9
5	11	1000	25.9				
5	20	1100	51.3				
5	16	1200	39.8				
5	12	1300	28.6				
5	9	1400	20.6				
5	10	1500	23.2				

Comments

Results for depths beyond 1.4 metres are not accredited, and are excluded from the endorsement of this test report.

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Bay of Plenty Laboratory

Poplar Lane, Te Puke
Private Bag 12016, Tauranga 3143
Telephone: +64 7 542 9672
Facsimile: +64 7 542 2245
www.fultonhogan.com
0800 LABORATORY

Nuclear Density Report

Report No: ND:BOP19W1110
Issue No: 1

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The test results reported herein are not endorsed. Contact the laboratory for further information. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

Approved Signatory: Rob Ermens
(Lab Manager)

Date of Issue: 10/10/2019

Testing Details

Site Tested: Retaining Wall
Tested By: Jed Morris
Date Tested: 2/10/2019
Time Tested: 12:00
Material: Pumice Sand
Material Source: Marball - Maniatutu Rd
Specification: Contract Specification
Field Methods: NZS 4407:2015 Test 4.2
Lab Methods: NZS 4402:1986 Test 2.1, Plateau Test

Compaction Target Details

Material Sample ID: External
MDD Method: Plateau Test*
Max. Dry Density: 1.29 t/m³ @ 25 %
Min. Dry Density (t/m³):
Solid Density Type: Assumed

Test Results

Site No	Northing	Easting	Elevation (m)	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Relative Compaction (%)
7	804717.1	386226.74	4.070	25.3	1.69	1.35	105
8	804717.03	386247.77	3.990	26.5	1.64	1.29	100
9	804716.82	386267.93	4.160	32.1	1.69	1.28	99

Comments

* Test was conducted externally and is not accredited by this laboratory.
Report not IANZ endorsed due to density measurements being outside of NDM range of calibration
MDD target from FH Plateau report reference BOP18W1355
Moisture(%) results are oven corrected.

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www.fultonhogan.com
0800 LABORATORY

Penetration Resistance

Report No: PR:BOP19S-02852
Issue No: 2
This report replaces all previous issues of report no 'PR:BOP19S-02852'.

Client: Jason Mather
JMC Limited
PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

The tests reported herein (unless otherwise indicated) have been performed in accordance with the laboratory's scope of accreditation. Samples are tested as received, in natural condition, unless stated otherwise in the comments. This report may only be reproduced in full.

IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 14/11/2019

Test Details

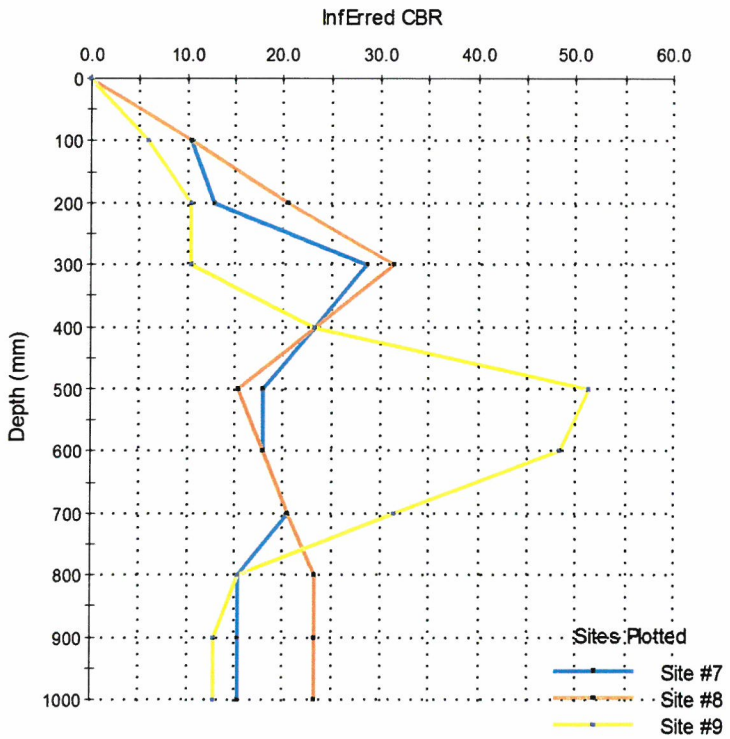
Sample ID: BOP19S-02852
Tested By: Jed Morris
Material: Pumice Sand
Location: Retaining Wall
Date Tested: 2/10/2019
Specification: Contract Specification

Test Results

NZS 4402:1988 Test 6.5.2

Depth of Excavation to surface (mm): 0
Depth at the Commencement (mm): 0

Penetration vs Inferred CBR



InfErred CBR values are based on Austroads Pavement Design:
Guide to the Structural Design of Road Pavements Section 5.5.2 & Fig 5.2

Comments

The inferred CBR calculation is not accredited, and is excluded from the endorsement of this test report.
Test 4 - N:804717.1 E:386226.74 Elevation:4.070; Test 5 - N:804717.03 E:386247.77 Elevation:3.990
Test 6 - N:804716.82 E:386267.93 Elevation:4.160
Insitu sand layer at 300mm depth. Report re-issued with corrected Site numbers.

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Penetration Resistance

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This report replaces all previous issues of report no 'PR:BOP19S-02852'.

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PO Box 16070
Bethlehem

Tauranga 3147
NZ

Project: Zariba

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IANZ ACCREDITED LABORATORY

Approved Signatory: Rob Ermens
(Lab Manager)
IANZ Accreditation No:749
Date of Issue: 14/11/2019

Penetration Resistance Test Results

Site	Blows	Depth (mm)	Inferred CBR
7	5	100	10.5
7	6	200	12.9
7	12	300	28.6
7	10	400	23.2
7	8	500	18.0
7	8	600	18.0
7	9	700	20.6
7	7	800	15.4
7	7	900	15.4
7	7	1000	15.4
8	5	100	10.5
8	9	200	20.6
8	13	300	31.3
8	10	400	23.2
8	7	500	15.4
8	8	600	18.0
8	9	700	20.6
8	10	800	23.2
8	10	900	23.2
8	10	1000	23.2
9	3	100	5.8
9	5	200	10.5
9	5	300	10.5
9	10	400	23.2
9	20	500	51.3
9	19	600	48.4
9	13	700	31.3
9	7	800	15.4
9	6	900	12.9
9	6	1000	12.9

Comments

The inferred CBR calculation is not accredited, and is excluded from the endorsement of this test report.
Test 4 - N:804717.1 E:386226.74 Elevation:4.070; Test 5 - N:804717.03 E:386247.77 Elevation:3.990
Test 6 - N:804716.82 E:386267.93 Elevation:4.160
Insitu sand layer at 300mm depth. Report re-issued with corrected Site numbers.

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FORM OF PRODUCER STATEMENT PS3 – CONSTRUCTION
At project completion, this form shall be completed by the building contractor and supplied to the Engineer.

ISSUED BY: NZ Structures Ltd.
(Building Contractor)

TO: Zaiba Properties
(Owner/Principal)

IN RESPECT OF: Terrace Views Retaining Wall Lots 439-444
(Description of Contract Works)

AT:.....
(Address)

T/A:..... **BUILDING CONSENT No:**.....
(Territorial Authority / Building Consent Authority)

The above Building Contractor has contracted to the above Owner/Principal to carry out and complete certain building works in accordance with the contract, titled

Retaining wall at Terrace Views Lots 439-444 ("the contract")
(Title of building contract)

I Neil Petterson a duly authorised representative of the
(Builder's Authorised Agent)

above building contractor, believe on reasonable grounds that the above building contractor has carried out and completed

☑All ☐Part only as specified in the attached particulars

of the building works in accordance with the contract.

.....
(Signature of Authorised Agent on behalf of the Building Contractor)

17/10/19.
(Date)

97A Smiths Rd
Manua.
(Address)

This producer statement is confirmation by the builder(s) that they have carried out the building work in accordance with the drawings, specifications (and site amendments) that are part of the contract / building consent documents.

Work covered by this statement should have been supervised and checked by suitably qualified trades-persons.

The Engineer requires this producer statement and a copy of the T/A's building consent conditions, to confirm that items of the contract that he has not personally examined, have in fact been built according to the documents, so that the Engineer may issue appropriate documents to the T/A for it to release the Code Compliance Certificate.

20393-1

Building Code Clause(s). B1

PRODUCER STATEMENT – PS4 – CONSTRUCTION REVIEW

(Guidance on use of Producer Statements (formerly page 2) is available at www.ipenz.nz)

ISSUED BY: Aurecon New Zealand Limited
(Construction Review Firm)

TO: Zariba Holdings Limited
(Owner/Developer)

TO BE SUPPLIED TO: Tauranga City Council
(Building Consent Authority)

IN RESPECT OF: Timber Pole Retaining Wall (Lots 439 to 444)
(Description of Building Work)

AT: 1 Te Wharo Drive, Papamoa
(Address)

Town/City: Tauranga **LOT** 439 - 444 **DP** 444 **SO** 530967
(Address)

We Aurecon New Zealand Limited have been engaged by Zariba Holdings Limited
(Construction Review Firm)

To provide ☐ CM1 ☐ CM2 ☐ CM3 ☐ CM4 ☐ CM5 (Engineering Categories) or ■ observation as per agreement with owner/developer. Zariba Holdings Limited

or ☐ other .....services
(Extent of Engagement)

in respect of clause(s) B1 of the Building Code for the building work described in documents relating to Building Consent No. 191200 and those relating to Building Consent Amendment(s) Nos. issued during the course of the works. We have sighted these Building Consents and the conditions of attached to them.

Authorised instructions/variations(s) No (copies attached) or by the attached Schedule ☒ have been issued during the course of the works.

On the basis of ☐ this review ■ these review(s) and information supplied by the contractor during the course of the works and **on behalf of the firm** undertaking this Construction Review, **I believe on reasonable grounds** that ☐ All or ■ Part only of the building works have been completed in accordance with the relevant requirements of the Building Consent and Building Consent Amendments identified above, with respect to Clause(s). B1 of the Building Code. I also believe on reasonable grounds that the persons who have undertaken this construction review have the necessary competency to do so.

I DR JAN KUPEC am: ☑ CPEng 1008597 # ☐ Reg Arch #
(Name of Construction Review Professional)

I am a Member of: ☒ IPENZ ☐ NZIA and hold the following qualifications: PhD MSc (GEOTECHNICAL)

The Construction Review Firm issuing this statement holds a current policy of Professional Indemnity Insurance no less than $200,000*.

The Construction Review Firm is a member of ACENZ: ☒

SIGNED BY DR JAN KUPEC (Signature)
(Name of Construction Review Professional)

ON BEHALF OF Aurecon New Zealand Limited .Date 20/6/19
(Construction Review Firm)

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

This form is to accompany **Forms 6 or 8 of the Building (Form) Regulations 2004** for the issue of a Code Compliance Certificate.

THIS FORM AND ITS CONDITIONS ARE COPYRIGHT TO ACENZ, IPENZ AND NZIA

Date Submitted: Friday, 10 January 2020

Form 6
Application for code compliance certificate

Section 92, Building Act 2004

The building consent

Building consent number:	BC191200
Issued by:	Tauranga City Council

Agent

Name of agent:	AURECON NEW ZEALAND LIMITED
Contact person:	Chris Jones
Mailing address:	Po Box 2585 Seventh Avenue Tauranga 3140 Tauranga 3140
Street address/registered office:	Po Box 2585 Seventh Avenue Tauranga 3140 Tauranga
Phone number:	Landline: 5775152 Mobile: 5775152
Daytime:	Landline: 5775152 Mobile: 5775152
After hours:	Landline: 5775152 Mobile: 5775152
Facsimile number:	No information provided
Email address:	chris.jones@aurecongroup.com
Website:	No information provided
Relationship to owner:	Application made on owners behalf

First point of contact for communications with the building consent authority:

Full name:	AURECON NEW ZEALAND LIMITED
Mailing address:	Po Box 2585 Seventh Avenue Tauranga 3140 Tauranga Tauranga 3140
Phone number(s):	5775152
Facsimile number(s):	N/A
Email address(es):	chris.jones@aurecongroup.com

Application

All building work to be carried out under the building consent specified on this form was completed on:
22 November 2019

The licensed building practitioner(s) who carried out or supervised the restricted building work is/are as follows:

No Licensed Building Practitioners have been provided.

The personnel who carried out building work other than restricted building work are as follows:

Name	Neill Emerson Raynor
Address	Seventh Avenue, Tauranga
Phone number	075786183
Registration number	137020
Licensed building practitioner number	N/A

The following specified systems are contained on the compliance schedule for the building and, in the opinion of the personnel who installed them, are capable of performing to the performance standards set out in the building consent:

There are no specified systems associated with this project.

I request that you issue a code compliance certificate for this work under section 95 of the Building Act 2004.
The code compliance certificate should be sent to:

Agent:	Po Box 2585 Seventh Avenue Tauranga 3140, Tauranga 3140

Signature of agent on behalf of and with the authority of the owner:
MILES BUOB

Name of person signing:	AURECON NEW ZEALAND LIMITED
Date:	10 Jan 2020

Attachments

The following documents are attached to this application:

No attachments

Form 7
Code compliance certificate

Section 95, Building Act 2004

The building

Street address of building:	1 TE WHARO DRIVE, PAPAMOA, TAURANGA, Lots 439-444
Legal description of land where building is located:	LOT 444 DP 530967
Building name:	N/A
Location of building within site/block number:	1 Te Wharo Drive, Papamoa, New Zealand Papamoa Bay of Plenty Tauranga 3118
Level/unit number:	0
Current, lawfully established, use:	8.0.1 Ancillary
Year first constructed:	2019

The owner

Name of owner:	Zariba Properties Limited
Customer number:	504247
Contact person:	Dwayne Roper
Mailing address:	715 Cameron Road, Tauranga South, Bay Of Plenty, Tauranga
Street address/registered office:	N/A
Phone number:	Landline: 075779949 Mobile: N/A
Daytime:	Landline: 075779949 Mobile: N/A
After hours:	Landline: 075779949 Mobile: N/A
Facsimile number:	No information provided
Email address:	dwayne@zariba.co.nz
Website:	No information provided

First point of contact for communications with the council/building consent authority:
Chris Jones (AURECON NEW ZEALAND LIMITED); Mailing Address: Po Box 2585 Seventh Avenue
Tauranga 3140
Tauranga
Tauranga 3140; Phone: 5775152; Email: chris.jones@aurecongroup.com

Building work

Building consent number:	BC191200
Description:	Construction of a 1.8 m (maximum height) timber pole retaining wall along the northern boundary of Stage

3D of the Terrace Views Subdivision for Lots 439-444

Issued by: Tauranga City Council

Code compliance

The building consent authority named below is satisfied, on reasonable grounds, that -
the building work complies with the building consent.

Signature: Steve Pearce
Position: Manager: Building Services
On behalf of: Tauranga City Council
Date: 10 March 2023

Email #54682: BC191200

Project ID: 191200
Date Received: 2019-06-21 17:10:08
Sender: miles.buob@aurecongroup.com
Checked By: Paul O'Hara
Accepted By: Paul O'Hara
Subject:
Information Received Via Email: Response to BC191200.1 Request For Further Information
Message:
Hi Paul,

Thanks for sending through your Request for Further Information. Please find our responses to your queries attached to this email.

I will be on leave next week. Should you have any questions, please contact my colleague, Kushant Kishore (details below).

Kushant Kishore
Senior Geotechnical Engineer, Aurecon
T +64 7 5786183
Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>

Warm Regards,

Miles Buob
Geotechnical Engineer, Aurecon
T +64 7 5775972 M +64 274 507176
Miles.Buob@aurecongroup.com <mailto:Miles.Buob@aurecongroup.com>
Ground Level, 247 Cameron Rd, Tauranga New Zealand 3110
PO Box 2292, Tauranga 3140
aurecongroup.com<http://www.aurecongroup.com/en.aspx?utm_sourceobal-signature&utm_campaignail-signature&utm_mediumail&utm_contentmepage-link>

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- image004.png
- image005.png
- image006.png
- image007.png

ATTACHMENTS:

- 200619-247593-0009-COR-GG-00010.pdf

Email #54773: BC191200

Project ID: 191200
Date Received: 2019-06-24 13:45:03
Sender: kushant.kishore@aurecongroup.com
Checked By: Paul O'Hara
Accepted By: Paul O'Hara
Subject:
Information Received Via Email: RE: Response to BC191200.1 Request For Further Information
Message:
Hi Paul,

Thank you for processing our response.

We were unsure on what was required as part of the Evidence of Ownership/Owners Permission. The RFI referenced the plan showing legal location of the lots, before I formally respond, is Figure 1 what is required? I will formally put this through as a response but before I do that I wanted to confirm this is what you were after.

[cid:image002.jpg@01D52A92.73FADD70]

Figure 1 - Page Excerpt from Page 15 of PDF response to RFI, 21/06/2019
Cheers,

Kushant Kishore
Senior Geotechnical Engineer, Aurecon
T +64 7 5786183
Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>

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From: Miles Buob
Sent: Friday, 21 June 2019 5:05 PM
To: 191200@tauranga.abcs.co.nz
Cc: Chris Jones <Chris.Jones@aurecongroup.com>; Kushant Kishore <Kushant.Kishore@aurecongroup.com>; Benjamin O'loughlin <Ben.OLoughlin@aurecongroup.com>
Subject: Response to BC191200.1 Request For Further Information

Hi Paul,

Thanks for sending through your Request for Further Information. Please find our responses to your queries attached to this email.

I will be on leave next week. Should you have any questions, please contact my colleague, Kushant Kishore (details below).

Kushant Kishore
Senior Geotechnical Engineer, Aurecon
T +64 7 5786183
Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>

Warm Regards,

Miles Buob
Geotechnical Engineer, Aurecon
T +64 7 5775972 M +64 274 507176
Miles.Buob@aurecongroup.com <mailto:Miles.Buob@aurecongroup.com>
Ground Level, 247 Cameron Rd, Tauranga New Zealand 3110
PO Box 2292, Tauranga 3140
aurecongroup.com<http://www.aurecongroup.com/en.aspx?utm_sourceobal-signature&utm_campaignail-signature&utm_mediumail&utm_contentmepage-link>

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- image014.png
- image015.png
- image016.png
- image002.jpg

ATTACHMENTS:

- BC191200.2-190624094708_request-for-further-information-vetting.pdf

Email #54811: BC191200

Project ID: 191200
Date Received: 2019-06-24 16:25:03
Sender: kushant.kishore@aurecongroup.com
Checked By: Paul O'Hara
Accepted By: Paul O'Hara
Subject:
Information Received Via Email: FW: Response to BC191200.1 Request For Further Information
Message:
Hi Paul,

I just received an email saying you may have not received the image in the previous email, I've attached a PDF of Figure 1 as well.

Regards,

Kushant Kishore
Senior Geotechnical Engineer, Aurecon
T +64 7 5786183 M +64 21 149 5537
Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>

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From: Kushant Kishore
Sent: Monday, 24 June 2019 1:41 PM
To: 191200@tauranga.abcs.co.nz
Cc: Miles Buob <Miles.Buob@aurecongroup.com>; Benjamin O'loughlin <Ben.OLoughlin@aurecongroup.com>
Subject: RE: Response to BC191200.1 Request For Further Information

Hi Paul,

Thank you for processing our response.

We were unsure on what was required as part of the Evidence of Ownership/Owners Permission. The RFI referenced the plan showing legal location of the lots, before I formally respond, is Figure 1 what is required? I will formally put this through as a response but before I do that I wanted to confirm this is what you were after.

[cid:image002.jpg@01D52A92.73FADD70]

Figure 1 - Page Excerpt from Page 15 of PDF response to RFI, 21/06/2019
Cheers,

Kushant Kishore
Senior Geotechnical Engineer, Aurecon
T +64 7 5786183
Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>

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Sent: Friday, 21 June 2019 5:05 PM
To: 191200@tauranga.abcs.co.nz<mailto:191200@tauranga.abcs.co.nz>
Cc: Chris Jones <Chris.Jones@aurecongroup.com<mailto:Chris.Jones@aurecongroup.com>>; Kushant Kishore <Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>>; Benjamin O'loughlin <Ben.OLoughlin@aurecongroup.com<mailto:Ben.OLoughlin@aurecongroup.com>>
Subject: Response to BC191200.1 Request For Further Information

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Senior Geotechnical Engineer, Aurecon
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Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>

Warm Regards,

Miles Buob
Geotechnical Engineer, Aurecon
T +64 7 5775972 M +64 274 507176
Miles.Buob@aurecongroup.com <mailto:Miles.Buob@aurecongroup.com>
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- image014.png
- image015.png
- image016.png
- image002.jpg

ATTACHMENTS:

- BC191200.2-190624094708_request-for-further-information-vetting.pdf

- Legal Locations RFI Figure 1.pdf

Email #54970: BC191200

Project ID: 191200
Date Received: 2019-06-26 08:50:04
Sender: kushant.kishore@aurecongroup.com
Checked By: Paul O'Hara
Accepted By: Paul O'Hara
Subject:
Information Received Via Email: RE: BC191200: 1 TE WHARO DRIVE, PAPAMOA, TAURANGA
Message:
Hi Paul,

Record of Title attached for Lots 439 to 444. The survey plan showing legal designation is included in the original RFI response dated 21 June 2019 on page 13 of the PDF (also attached).

We believe the above should be sufficient to close out the RFI.

Cheers,

Kushant Kishore
Senior Geotechnical Engineer, Aurecon
T +64 7 5786183
Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>

DISCLAIMER<http://www.aurecongroup.com/en/footer/electronic-mail-notice.aspx?utm_sourcemprex&utm_campaignail-signature-disclaimer&utm_mediumail&utm_contentsclaimer-link>
From: Tauranga City Council <191200@tauranga.abcs.co.nz>
Sent: Tuesday, 25 June 2019 10:45 AM
To: Kushant Kishore <Kushant.Kishore@aurecongroup.com>
Subject: BC191200: 1 TE WHARO DRIVE, PAPAMOA, TAURANGA

Hi Kushant,

I have spoken with my seniors and yes the survey plans for each lot will need to be provided along with each Lots Record of Title as these are individual. This will be separate to the survey plans originally provided within the application as that was for the subdivision and not for the individual lots as per this application.

Hope this helps.

Paul O'Hara
Building Officer - (07) 5777200 ext 7252
Tauranga City Council

91 Willow Street, Tauranga / Private Bag 12022, Tauranga 3143
P: (07) 577 7000 | E: info@tauranga.govt.nz<mailto:info@tauranga.govt.nz> | W: www.tauranga.govt.nz<http://www.tauranga.govt.nz>

==========

Hi Paul,

I just received an email saying you may have not received the image in the previous email, I've attached a PDF of Figure 1 as well.

Regards,

Kushant Kishore
Senior Geotechnical Engineer, Aurecon
T +64 7 5786183 M +64 21 149 5537
Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>

DISCLAIMER
From: Kushant Kishore
Sent: Monday, 24 June 2019 1:41 PM
To: 191200@tauranga.abcs.co.nz<mailto:191200@tauranga.abcs.co.nz>
Cc: Miles Buob ; Benjamin O'loughlin
Subject: RE: Response to BC191200.1 Request For Further Information

Hi Paul,

Thank you for processing our response.

We were unsure on what was required as part of the Evidence of Ownership/Owners Permission. The RFI referenced the plan showing legal location of the lots, before I formally respond, is Figure 1 what is required? I will formally put this through as a response but before I do that I wanted to confirm this is what you were after.

[cid:image002.jpg@01D52A92.73FADD70]

Figure 1 - Page Excerpt from Page 15 of PDF response to RFI, 21/06/2019
Cheers,

Kushant Kishore
Senior Geotechnical Engineer, Aurecon
T +64 7 5786183
Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>

DISCLAIMER
From: Miles Buob

Sent: Friday, 21 June 2019 5:05 PM
To: 191200@tauranga.abcs.co.nz<mailto:191200@tauranga.abcs.co.nz>
Cc: Chris Jones ; Kushant Kishore ; Benjamin O'loughlin
Subject: Response to BC191200.1 Request For Further Information

Hi Paul,

Thanks for sending through your Request for Further Information. Please find our responses to your queries attached to this email.

I will be on leave next week. Should you have any questions, please contact my colleague, Kushant Kishore (details below).

Kushant Kishore
Senior Geotechnical Engineer, Aurecon
T +64 7 5786183
Kushant.Kishore@aurecongroup.com<mailto:Kushant.Kishore@aurecongroup.com>

Warm Regards,

Miles Buob
Geotechnical Engineer, Aurecon
T +64 7 5775972 M +64 274 507176
Miles.Buob@aurecongroup.com<mailto:Miles.Buob@aurecongroup.com>
Ground Level, 247 Cameron Rd, Tauranga New Zealand 3110
PO Box 2292, Tauranga 3140
aurecongroup.com

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[FB]
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[INSTAGRAM]
[LINKEDIN]
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- image011.jpg

- image012.png
- image013.png
- image014.png
- image015.png
- image016.png
- image002.jpg

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Designated Recipient(s): kushant.kishore@aurecongroup.com<mailto:kushant.kishore@aurecongroup.com>
Sent From: AlphaOne Building Consent System
Sent Date: 25 June 2019 10:45:23 am - Tuesday

ATTACHMENTS:

- RT-Lot 441 DP 530967.pdf
- RT-Lot 439 DP 530967.pdf
- RT-Lot 440 DP 530967.pdf
- RT-Lot 442 DP 530967.pdf
- RT-Lot 443 DP 530967.pdf
- RT-Lot 444 DP 530967.pdf
- 200619-247593-0009-COR-GG-00010.pdf

Email #56057: BC191200

Project ID: 191200
Date Received: 2019-07-10 10:25:02
Sender: miles.buob@aurecongroup.com
Checked By: Paul O'Hara
Accepted By: Bronwyn Woodney
Subject:
Information Received Via Email: BC191200: 1 TE WHARO DRIVE, PAPAMOA, TAURANGA Lots 439-444
Message:
Hi Bronwyn,

Please find attached a signed and complete Section 75 form for building consent application 191200 at Terrace Views.

Please let me know if you have any questions or concerns.

Cheers,

Miles Buob
Geotechnical Engineer, Aurecon
T +64 7 5775972 M +64 274 507176
Miles.Buob@aurecongroup.com <mailto:Miles.Buob@aurecongroup.com>
Ground Level, 247 Cameron Rd, Tauranga New Zealand 3110
PO Box 2292, Tauranga 3140
aurecongroup.com<http://www.aurecongroup.com/en.aspx?utm_sourceobal-signature&utm_campaignail-signature&utm_mediumail&utm_contentmepage-link>

[cid:image001.png@01D53709.1B3F1510]<http://www.aurecongroup.com/en.aspx?utm_sourceobal-signature&utm_campaignail-signature&utm_mediumail&utm_contentrecon-logo>
[cid:image002.png@01D53709.1B3F1510]<https://twitter.com/Aurecon>
[cid:image003.png@01D53709.1B3F1510]<https://www.facebook.com/Aurecon/?fref>
[cid:image004.png@01D53709.1B3F1510]<https://www.youtube.com/user/AureconGroup>
[cid:image005.png@01D53709.1B3F1510]<https://instagram.com/aurecon>
[cid:image006.png@01D53709.1B3F1510]<https://www.linkedin.com/company/aurecon>
[cid:image007.png@01D53709.1B3F1510]<http://www.slideshare.net/aurecon>

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- image003.png
- image004.png
- image005.png
- image006.png
- image007.png

ATTACHMENTS:

- BC191200 ZPL s75 ApplnForm 9July19.pdf

Email #56556: BC191200

Project ID: 191200
Date Received: 2019-07-15 13:35:08
Sender: miles.buob@aurecongroup.com
Checked By: Bronwyn Woodney
Accepted By: Paul O'Hara
Subject:
Information Received Via Email: Encumbrance on BC191200
Message:
Hi Paul,

After discussion with our client, they have decided to put an encumbrance on the lots that the retaining wall is proposed to be built on. With this in mind, we would like to withdrawn the s75 certificate, submitted last week.

Regards,

Miles Buob
Geotechnical Engineer, Aurecon
T +64 7 5775972 M +64 274 507176
Miles.Buob@aurecongroup.com <mailto:Miles.Buob@aurecongroup.com>
Ground Level, 247 Cameron Rd, Tauranga New Zealand 3110
PO Box 2292, Tauranga 3140
aurecongroup.com<http://www.aurecongroup.com/en.aspx?utm_sourceobal-signature&utm_campaignail-signature&utm_mediumail&utm_contentmepage-link>

[cid:image001.png@01D53B11.7E8FBE10]<http://www.aurecongroup.com/en.aspx?utm_sourceobal-signature&utm_campaignail-signature&utm_mediumail&utm_contentrecon-logo>
[cid:image002.png@01D53B11.7E8FBE10]<https://twitter.com/Aurecon>
[cid:image003.png@01D53B11.7E8FBE10]<https://www.facebook.com/Aurecon/?fref>
[cid:image004.png@01D53B11.7E8FBE10]<https://www.youtube.com/user/AureconGroup>
[cid:image005.png@01D53B11.7E8FBE10]<https://instagram.com/aurecon>
[cid:image006.png@01D53B11.7E8FBE10]<https://www.linkedin.com/company/aurecon>
[cid:image007.png@01D53B11.7E8FBE10]<http://www.slideshare.net/aurecon>

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- image005.png
- image006.png
- image007.png

ATTACHMENTS:

- BC191200 Lots439-444 EncumbInstrument Sig.pdf

Email #57299: BC191200

Project ID: 191200
Date Received: 2019-07-24 17:00:07
Sender: miles.buob@aurecongroup.com
Checked By: Paul O'Hara
Accepted By: Paul O'Hara
Subject:
Information Received Via Email: BC191200 - Follow Up
Message:
Hi Paul,

I am just following up with you following our conversation on Monday. Have you had a chance to review this application any further? Please advise if there is any information you are missing.

If you have any issues, feel free to ring myself or Kushant.

Cheers,

Miles Buob
Geotechnical Engineer, Aurecon
T +64 7 5775972 M +64 274 507176
Miles.Buob@aurecongroup.com <mailto:Miles.Buob@aurecongroup.com>
Ground Level, 247 Cameron Rd, Tauranga New Zealand 3110
PO Box 2292, Tauranga 3140
aurecongroup.com<http://www.aurecongroup.com/en.aspx?utm_sourceobal-signature&utm_campaignail-signature&utm_mediumail&utm_contentmepage-link>

[cid:image001.png@01D54240.781749F0]<http://www.aurecongroup.com/en.aspx?utm_sourceobal-signature&utm_campaignail-signature&utm_mediumail&utm_contentrecon-logo>
[cid:image002.png@01D54240.781749F0]<https://twitter.com/Aurecon>
[cid:image003.png@01D54240.781749F0]<https://www.facebook.com/Aurecon/?fref>
[cid:image004.png@01D54240.781749F0]<https://www.youtube.com/user/AureconGroup>
[cid:image005.png@01D54240.781749F0]<https://instagram.com/aurecon>
[cid:image006.png@01D54240.781749F0]<https://www.linkedin.com/company/aurecon>
[cid:image007.png@01D54240.781749F0]<http://www.slideshare.net/aurecon>

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- image005.png
- image006.png
- image007.png

Email #57629: BC191200

Project ID: 191200
Date Received: 2019-07-29 15:55:08
Sender: angela.chantry@tauranga.govt.nz
Checked By: Angela Chantry
Accepted By: Angela Chantry
Subject:
Information Received Via Email: Encumbrance documents
Message:

From: angela.chantry@tauranga.govt.nz <angela.chantry@tauranga.govt.nz>
Sent: Friday, 26 July 2019 4:02 p.m.
To: Angela Chantry <Angela.Chantry@tauranga.govt.nz>
Subject: Message from C36803640 TCC Tauranga Building

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- SC36803640 19072616010.pdf

Email #57630: BC191200

Project ID: 191200
Date Received: 2019-07-29 15:55:09
Sender: angela.chantry@tauranga.govt.nz
Checked By: Angela Chantry
Accepted By: Angela Chantry
Subject:
Information Received Via Email: FW: Encumbrance Instrument - 1 Te Wharo Drive - BC 191200
Message:

From: Michaela Worsnop <mworsnop@clmlaw.co.nz>
Sent: Monday, 29 July 2019 2:07 p.m.
To: Angela Chantry <Angela.Chantry@tauranga.govt.nz>
Subject: Encumbrance Instrument - 1 Te Wharo Drive - BC 191200

Hi Angela,

The Encumbrance terms have now been approved by the applicant's solicitor.

Accordingly, please find attached the A&I form for execution by Council. Please arrange for the A&I to be executed and returned to us in due course.

We confirm the document is in order for execution by Council.

Kind regards

Michaela Worsnop Senior Legal Assistant
PH 07 578 2099 | FX 07 578 1433 | E mworsnop@clmlaw.co.nz <mailto:mworsnop@clmlaw.co.nz>
ANZ Centre, Level 3, 247 Cameron Road, Tauranga
PO Box 143, Tauranga 3144, New Zealand | DX HP40001
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Email #57962: BC191200

Project ID: 191200
Date Received: 2019-08-01 15:25:08
Sender: angela.chantry@tauranga.govt.nz
Checked By: Angela Chantry
Accepted By: Angela Chantry
Subject:
Information Received Via Email: FW: A&I Form - Zariba Properties Ltd - 1 Te Wharo Drive
Message:

From: Karen Cowan
Sent: Thursday, 1 August 2019 3:10 p.m.
To: Louella Axon <LAxon@clmlaw.co.nz>
Cc: Angela Chantry <Angela.Chantry@tauranga.govt.nz>
Subject: A&I Form - Zariba Properties Ltd - 1 Te Wharo Drive

Hi Louella

Please see attached. The original will follow in the post.

Regards
Karen

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- SC36803644 19080115130.pdf

Email #58567: BC191200

Project ID: 191200
Date Received: 2019-08-09 14:30:10
Sender: angela.chantry@tauranga.govt.nz
Checked By: Ally Cresswell
Accepted By: Paul O'Hara
Subject:
Information Received Via Email: FW: Encumbrance Instrument - 1 Te Wharo Drive - BC 191200
Message:

From: Caryn Van Veen <CVanVeen@clmlaw.co.nz>
Sent: Friday, 9 August 2019 2:18 p.m.
To: Angela Chantry <Angela.Chantry@tauranga.govt.nz>
Cc: Tyler Buckley <TBuckley@clmlaw.co.nz>
Subject: RE: Encumbrance Instrument - 1 Te Wharo Drive - BC 191200

Hello Angela,

We confirm that the Memorandum of Encumbrance for this consent has been finalised and lodged with LINZ. We confirm that we have received from the applicant's solicitor an undertaking to meet our costs.

The applicant's solicitor has asked whether the building consent can be uplifted now, rather than waiting until the Encumbrance is registered. LINZ has provided estimate that the Encumbrance will be registered within a couple of weeks, but our experience is that it would take less time (a few working days to a week).

The risks of releasing the BC early in this case are relatively low, particularly as we have progressed this far and have secured an undertaking as to costs. The risk would be LINZ finding something within the documents that needed to be adjusted and a requisition would follow. The applicant's solicitor has advised that his client would be prepared to meet any costs arising out of a requisition.

Are you happy for us to advise that the BC can be released early, on the basis that the applicant will meet any costs arising out of a requisition?

Kind Regards

Caryn Van Veen Senior Legal Assistant
PH 07 578 2099 | FX 07 578 1433 | E cvanveen@clmlaw.co.nz <mailto:cvanveen@clmlaw.co.nz>
ANZ Centre, Level 3, 247 Cameron Road, Tauranga
PO Box 143, Tauranga 3144, New Zealand | DX HP40001
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Email #59154: BC191200

Project ID: 191200
Date Received: 2019-08-16 13:50:02
Sender: bc@tauranga.govt.nz
Checked By: Angela Chantry
Accepted By: Ally Cresswell
Subject:
Information Received Via Email: FW: Encumbrance Instrument - 1 Te Wharo Drive - BC 191200
Message:
FYI

From: Caryn Van Veen [mailto:CVanVeen@clmlaw.co.nz]
Sent: Friday, 16 August 2019 10:53 a.m.
To: Angela Chantry <Angela.Chantry@tauranga.govt.nz>
Cc: Building Consents <bc@tauranga.govt.nz>
Subject: RE: Encumbrance Instrument - 1 Te Wharo Drive - BC 191200

Hi Angela

We confirm that the Encumbrance has now been registered.

We attach a copy of the registered Encumbrance Instrument with post-registration search copies of Record of Titles 866642-866647 by way of confirmation.

Accordingly, as far as the Encumbrance requirements are concerned, you may release the building consent for this property (if it hasn't already been released).

Kind Regards

Caryn Van Veen Senior Legal Assistant
PH 07 578 2099 | FX 07 578 1433 | E cvanveen@clmlaw.co.nz<mailto:cvanveen@clmlaw.co.nz>
ANZ Centre, Level 3, 247 Cameron Road, Tauranga
PO Box 143, Tauranga 3140, New Zealand | DX HP40001
www.cooneyleesmorgan.co.nz<http://www.cooneyleesmorgan.co.nz/>
[CLM_Logo Blue]
[Centenary Logo Email signature]

From: Caryn Van Veen
Sent: Friday, 9 August 2019 2:18 p.m.
To: 'Angela Chantry'
Cc: Tyler Buckley

Subject: RE: Encumbrance Instrument - 1 Te Wharo Drive - BC 191200

Hello Angela,

We confirm that the Memorandum of Encumbrance for this consent has been finalised and lodged with LINZ. We confirm that we have received from the applicant's solicitor an undertaking to meet our costs.

The applicant's solicitor has asked whether the building consent can be uplifted now, rather than waiting until the Encumbrance is registered. LINZ has provided estimate that the Encumbrance will be registered within a couple of weeks, but our experience is that it would take less time (a few working days to a week).

The risks of releasing the BC early in this case are relatively low, particularly as we have progressed this far and have secured an undertaking as to costs. The risk would be LINZ finding something within the documents that needed to be adjusted and a requisition would follow. The applicant's solicitor has advised that his client would be prepared to meet any costs arising out of a requisition.

Are you happy for us to advise that the BC can be released early, on the basis that the applicant will meet any costs arising out of a requisition?

Kind Regards

Caryn Van Veen Senior Legal Assistant
PH 07 578 2099 | FX 07 578 1433 | E cvanveen@clmlaw.co.nz <mailto:cvanveen@clmlaw.co.nz>
ANZ Centre, Level 3, 247 Cameron Road, Tauranga
PO Box 143, Tauranga 3144, New Zealand | DX HP40001
www.cooneyleesmorgan.co.nz<http://www.cooneyleesmorgan.co.nz>.
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- image003.jpg
- image004.jpg
- 866642.tif
- 866643.tif
- 866644.tif
- 866645.tif
- 866646.tif
- 866647.tif
- 11507442.1.tif

Email #59364: BC191200

Project ID: 191200
Date Received: 2019-08-20 09:30:11
Sender: angela.chantry@tauranga.govt.nz
Checked By: Angela Chantry
Accepted By: Angela Chantry
Subject:

Information Received Via Email: Updated CTs with encumbrance showing

Message:

Encumbrance documents

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ATTACHMENTS:

- SC36803640 19082009240.pdf

Email #70861: BC191200

Project ID: 191200
Date Received: 2020-01-16 15:05:04
Sender: caitlin.begley@aurecongroup.com
Checked By: Davinia Miller
Accepted By: Davinia Miller
Subject:
Information Received Via Email: Code Compliance Certificate Application
Message:
Hi there

I uploaded the pdf last Friday and upon looking it is still awaiting review (see attached). Would you like me to re upload it?

Kind regards,

Caitlin Begley
Administrative Assistant, Aurecon
T +64 7 577 5151
Caitlin.Begley@aurecongroup.com <mailto:Caitlin.Begley@aurecongroup.com>
Ground Level, 247 Cameron Rd, Tauranga New Zealand 3110
PO Box 2292, Tauranga 3140
aurecongroup.com<http://www.aurecongroup.com/en.aspx?utm_sourceobal-signature&utm_campaignail-signature&utm_mediumail&utm_contentmepage-link>

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ATTACHMENTS:

- BC191200.JPG.pdf

Email #70870: BC191200

Project ID: 191200
Date Received: 2020-01-16 15:45:09
Sender: miles.buob@aurecongroup.com
Checked By: Davinia Miller
Accepted By: Davinia Miller
Subject:
Information Received Via Email: BC191200 COC Application follow up
Message:
Hi Kelly,

Thank you for your call this afternoon regarding Building Inspections for the retaining wall code of compliance application under BC191200.

I am just confirming you have seen the Construction Monitoring records (first attachment within the construction certification report (Aurecon Report Ref: 247593-0000-REP-GG-0002(0))). This section details the building inspections undertaken by our geotechnical engineer on site at various points throughout the wall construction, with photos included.

We have also supplied a PS4 by a chartered professional engineering stating the wall has been construction as per the requirements of section B1 of the building code and the building consent (BC191200).

We have also provided a document signed by a TCC Category 1 geo-professional certifying the foundation requirements for buildings constructed above the retaining wall. This process has been our standard practice for many retaining walls undertaken to date.

In terms of missing building inspections, please advise what aspect of the building inspection is missing from our code of compliance application.

Cheers,

Miles Buob
Geotechnical Engineer, Aurecon
T +64 7 5775972 M +64 274 507176
Miles.Buob@aurecongroup.com <mailto:Miles.Buob@aurecongroup.com>
Ground Level, 247 Cameron Rd, Tauranga New Zealand 3110
PO Box 2292, Tauranga 3140
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Email #72247: BC191200

Project ID: 191200
Date Received: 2020-02-03 11:10:07
Sender: miles.buob@aurecongroup.com
Checked By: Gary Cosford
Accepted By: Gary Cosford
Subject:
Information Received Via Email: BC191200 - Building Inspection Report
Message:
Hi Gary,

I just called to see how the processing of CCC at 1 Te Wharo Drive was going and was told there are site notes that the Building Inspection for the retaining wall has failed?

From our end it looks that everything has passed (as shown in the attached report), but we have a red mark shown on the TCC website with no additional details. Could you please provide clarification as to the results of the building inspection and where the code of compliance application stands as of today?

If you have any additional questions, please give me a ring.

Cheers

Miles Buob
Geotechnical Engineer, Aurecon
T +64 7 5775972 M +64 274 507176
Miles.Buob@aurecongroup.com <mailto:Miles.Buob@aurecongroup.com>
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[cid:image006.png@01D5DA81.90A3FC00]<https://www.linkedin.com/company/aurecon>
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ATTACHMENTS:

- BC191200.1-200120090411_inspection-report.pdf

Email #165412: BC191200

Project ID: 191200
Date Received: 2023-02-14 10:42:03
Sender: angela.chantry@tauranga.govt.nz
Checked By: Angela Chantry
Accepted By: Angela Chantry
Subject:
Information Received Via Email: FW: BC191200, 1 Te Wharo Drive, Encumbrance
Message:

From: Caryn Van Veen <CVanVeen@clmlaw.co.nz>
Sent: Tuesday, 14 February 2023 10:38 AM
To: Angela Chantry <Angela.Chantry@tauranga.govt.nz>
Subject: RE: BC191200, 1 Te Wharo Drive, Encumbrance

CAUTION:External Email.

Hi Angela

Yes, our fees for this matter have been paid.

Kind Regards

Caryn Van Veen Senior Legal Assistant
PH 07 578 2099 | FX 07 578 1433 | E cvanveen@clmlaw.co.nz <mailto:cvanveen@clmlaw.co.nz>
ANZ Centre, Level 3, 247 Cameron Road, Tauranga
PO Box 143, Tauranga 3144, New Zealand | DX HP40001
www.cooneyleesmorgan.co.nz<http://www.cooneyleesmorgan.co.nz>.
[cid:image002.jpg@01D94060.5F274EF0]
From: Angela Chantry <Angela.Chantry@tauranga.govt.nz<mailto:Angela.Chantry@tauranga.govt.nz>>
Sent: Tuesday, February 14, 2023 10:30 AM
To: Caryn Van Veen <CVanVeen@clmlaw.co.nz<mailto:CVanVeen@clmlaw.co.nz>>
Subject: BC191200, 1 Te Wharo Drive, Encumbrance

Hi Caryn

Can you please tell if your fees have been paid for this one

Thanks

Angela Chantry | Senior Building Support Officer - Building Services
Tauranga City Council | 07 557 9992 | angela.chantry@tauranga.govt.nz<mailto:angela.chantry@tauranga.govt.nz> | www.tauranga.govt.nz<https://aus01.safelinks.protection.outlook.com/?urltp%3A%2F%2Fwww.tauranga.govt.nz%2F&data%7C01%7Ccvanveen%40clmlaw.co.nz%7Cc8e91158dbe5498631b208db0e098d89%7Ccba3f14b21a34ad1815106dbfa89483c%7C0%7C0%7C638119206419201117%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdatadyKEMmcEtiXriNlclceLLYNEstXfNk%2Bbx7YF4goEU%3D&reserved=0>

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