

96 Cameron Road, Tauranga Tauranga Central 3110 New Zealand

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coffey.com

11 July 2018

Our ref: GENZTAUC13086AR-AF

The Lakes (2012) Ltd C/- Harrison Grierson Consultants Ltd Level 1 Harrison Grierson House 141 Cameron Road Tauranga

Attention: Simon Maxwell

Dear Simon

The Lakes Stages 2U – Foley Grove Re-Subdivision Rev1

1. Introduction

As requested, Coffey Services (NZ) Ltd (Coffey) has prepared this report and attached information to assist builders and designers working on Lots 1 to 32, Foley Grove, Tauranga.

This area was previously referred to as Stage 2U of the Lakes Subdivision. Coffey presented a Geotechnical Completion Report (GCR) for Stage 2U in June 2017¹ which included specific design recommendations for the lots in this stage. Since the issue of the GCR the Stage 2U area has been re-subdivided to form a total of 32 new residential lots with associated reserve and road areas. This report presents excerpts from the GCR and updated information relevant to the new lots. It is to be provided to builders and designers working in this area.

The new lot layout is shown on the S&L Consultants Ltd Land Transfer Plan appended as Attachment 1 of this report. The original site plans for the Lakes subdivision are also appended as Attachments 2 to 6. An updated Lot Summary Table is provided as Attachment 7.

¹ Coffey Services (NZ) Ltd, '*The Lakes Stages 2UV – Geotechnical Completion Report*', ref: GENZTAUC13086AR-AD, dated 16 June 2017.

2. Limitation

While this letter presents a summary of the geotechnical conditions for this area it does not provide a complete discussion of geotechnical issues affecting the Lakes Stage 2U area or previous earthworks undertaken on the site. It is therefore recommended that designers working on the new lots are also familiar with the contents of the original Stage 2U GCR¹.

It should be understood that this document does not represent a full geotechnical assessment report of the Foley Grove properties. Coffey has not been provided with, and has not reviewed, plans or details of the specific developments on each lot. It is recommended that a geotechnical professional is contacted if ground or development conditions differ from those described herein.

This report has been prepared for the use of our client, The Lakes (2012) Limited, their professional advisors and designers or builders in relation to the specific project described herein. No liability is accepted in respect of its use for any other purpose or by any other person or entity. All future owners of this property should seek professional geotechnical advice to satisfy themselves as to its ongoing suitability for their intended use.

This document should always be read in its entirety and is not to be split for further distribution.

3. Building Restriction Lines

Three Building Restriction Lines (BRL's) were placed on lots within Stage 2U. The BRL's are shown on Attachment 1 and Attachment 6 and affect the following new lots:

- Lots 1 to 17 These lots are located above an up to 1V:3H batter which was formed around the western and northern boundaries of Stage 2U. This batter partly consists of previous engineered filling and partly of non-engineered landscape fill. The BRL on these lots is located along the crest of the batter and is intended to restrict development on the slope due to the potential for shallow slope movement and/or variable subgrade materials within the batter itself.
- Lot 17 In addition to the BRL along the slope crest mentioned above, an up to 0.7m high
 retaining wall was constructed inside the property's boundary with Takitimu Drive. As this wall
 was not engineered designed, a BRL has been placed on this lot extending 2.0m inside the
 property boundary adjacent to the wall.
- Lots 22 to 26 & 32 The boundaries of these lots with Takitimu Drive and Kennedy Road are supported by an up to 1.3m high retaining wall. This wall was engineer designed but this design did not allow for building loads. A BRL has therefore been located 1.5m inside the property boundary on the affected lots. On lot 32 the setback distance tapers off to 0m where the retaining wall ends.

3.1. Development on Lots with a BRL

The existence of the BRL on a lot does not explicitly preclude development in the restricted area. Any works within the BRL would however be subject to the following requirements:

- The foundations of any building, and or any proposed filling or retaining walls within the BRLs along the crest of the batter on Lots 1 to 17 would need to be assessed by a Tauranga City Council Category 1 Geo-Professional.
- The foundations of any dwelling or any proposed filling within the BRLs along the retaining walls on lots 17, 22 to 26 & 32 must be assessed by a chartered engineer (CPEng) with consideration given to the zone of influence of the adjacent retaining walls.

4. Erosion Protection

The batter to the west and north of Lots 1 to 9 was covered with a layer of 'Grassroots' (registered trademark) synthetic matting provided by Geofabrics Ltd to reduce the risk of erosion or scour of this slope as a result of flooding along the Kopurererua Stream. The Grassroots matting extends up to the 1 in 100 year flood level as shown on Attachment 6.

The Grassroots matting extends approximately 3m to 8m inside the boundaries of Lots 1 to 9. The owners of these lots will need to ensure that continuous grass cover is maintained within this area and that the integrity of the erosion matting is not compromised by future development or landscaping in this area.

5. Minimum Floor Levels

The original lots within Stage 2U were subject to minimum floor level restrictions imposed by Tauranga City Council (TCC) due possible flooding of the nearby Kopurererua Stream. The corresponding minimum levels for the new lots are summarised on Table 1 below. Levels are given in terms of RL (reduced level) to the Moturiki Datum, 1953 and are to be measured to the underside of the floor slab or floor joists per section DS-5.4.5 of the TCC IDC.

The original minimum levels provided by TCC are shown on attachment 8.

Table 1: Minimum Floor Levels

Lot #	Minimum Floor Level (m RL)	Lot #	Minimum Floor Level (m RL)
1	11.0	17	10.75
2	10.75	18	10.75
3	10.75	19	10.75
4	10.75	20	10.75
5	10.75	21	10.75
6	10.75	22	11.0
7	10.5	23	11.0
8	10.5	24	11.0
9	10.25	25	11.0
10	10.25	26	11.0
11	10.25	27	10.75
12	10.5	28	10.75
13	10.5	29	10.75
14	10.5	30	10.75
15	10.5	31	11.0
16	10.75	32	11.0

6. Foundation Design & Bearing Capacity

Soils below the new lots may at least partially liquefy during a strong earthquake leading to possible vertical and horizontal ground movement. The dwellings on these lots should therefore be supported by specifically designed 'enhanced' waffle slab type foundations such as those developed for the 'TC2' zone of the Christchurch rebuild. A geotechnical ultimate bearing capacity of 300kPa may be assumed for these lots as they are entirely underlain by engineered filling.

7. Variable Ground Conditions

It should be understood that due to the volcanic nature of the natural soils on the elevated terraces, it is possible that local soil conditions may vary from those discussed above. It is therefore important that any potentially soft or unsuitable soils encountered in the foundation excavations are brought to the attention of a geotechnical professional.

For and on behalf of Coffey

Rob Telford Associate Engineering Geologist

Letter reviewed by:

David Sullivan, BSc, MBA, CE (Calif.), MIPENZ, CPEng, TCC Category 1 Geotechnical Engineer Principal Geotechnical Engineer CPEng No. 1025183

Attachments Important information about your Coffey report Attachment 1 – S&L Land Transfer Plan Attachments 2 to 6 – Site plans from original Stage 2U GCR Attachment 7 – Updated Lot Summary Table

Attachment 8 – TCC Minimum Floor Levels



Important information about your Coffey Report

As a client of Coffey you should know that site subsurface conditions cause more construction problems than any other factor. These notes have been prepared by Coffey to help you interpret and understand the limitations of your report.

Your report is based on project specific criteria

Your report has been developed on the basis of your unique project specific requirements as understood by Coffey and applies only to the site investigated. Project criteria typically include the general nature of the project; its size and configuration; the location of any structures on the site; other site improvements; the presence of underground utilities; and the additional risk imposed scope-of-service by limitations imposed by the client. Your report should not be used if there are any changes to the project without first asking Coffey to assess how factors that changed subsequent to the date of the report affect the report's recommendations. Coffey cannot accept responsibility for problems that may occur due to changed factors if they are not consulted.

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project.

Interpretation of factual data

Site assessment identifies actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from literature and external data source review, sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, can reveal what is hidden by earth, rock and time.

The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, owners should retain the services of Coffey through the development stage, to identify variances, conduct additional tests if required, and recommend solutions to problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has therefore commenced and vour report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered as the project develops. another party undertakes lf the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. Your report should not be applied to any project other than that originally specified at the time the report was issued.



Important information about your Coffey Report

Interpretation by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other project design professionals who are affected by the report. Have Coffey explain the report implications to design professionals affected by them and then review plans and specifications produced to see how they incorporate the report findings.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way.

Logs, figures, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel) and laboratory evaluation of field samples. These logs etc. should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Geoenvironmental concerns are not at issue

Your report is not likely to relate any findings, conclusions, or recommendations about the potential for hazardous materials existing at the site unless specifically required to do so by the client. Specialist equipment, techniques, and personnel are used to perform a geoenvironmental assessment. Contamination can create major health, safety and environmental risks.

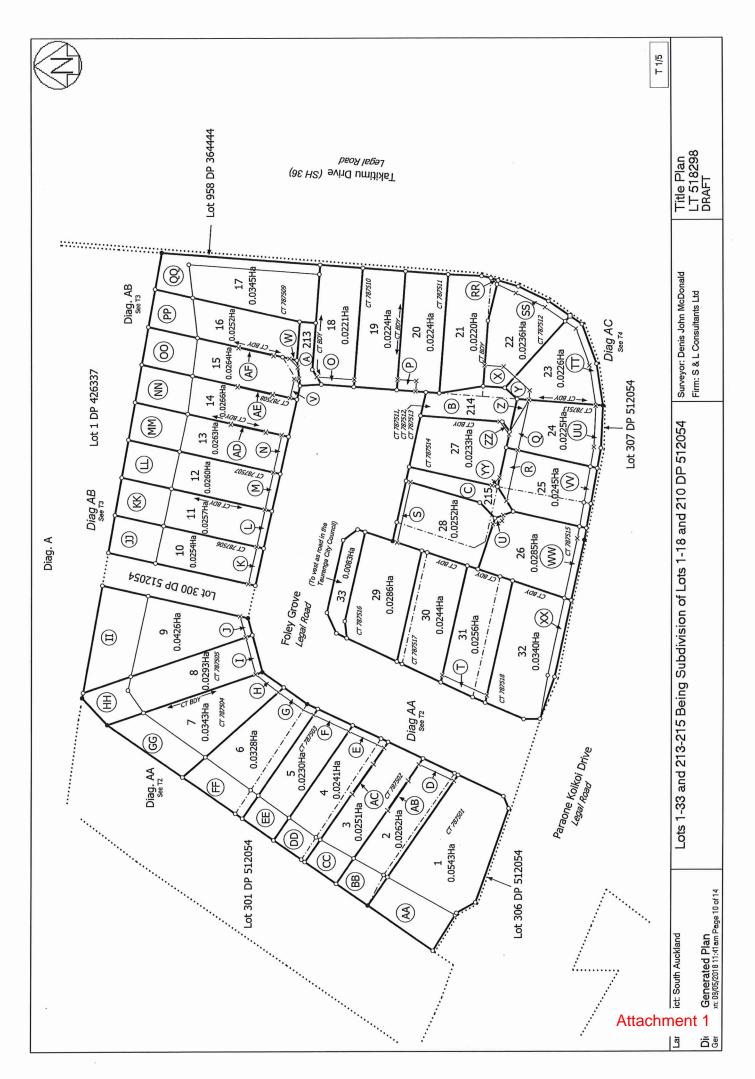
If you have no information about the potential for your site to be contaminated or create an environmental hazard, you are advised to contact Coffey for information relating to geoenvironmental issues.

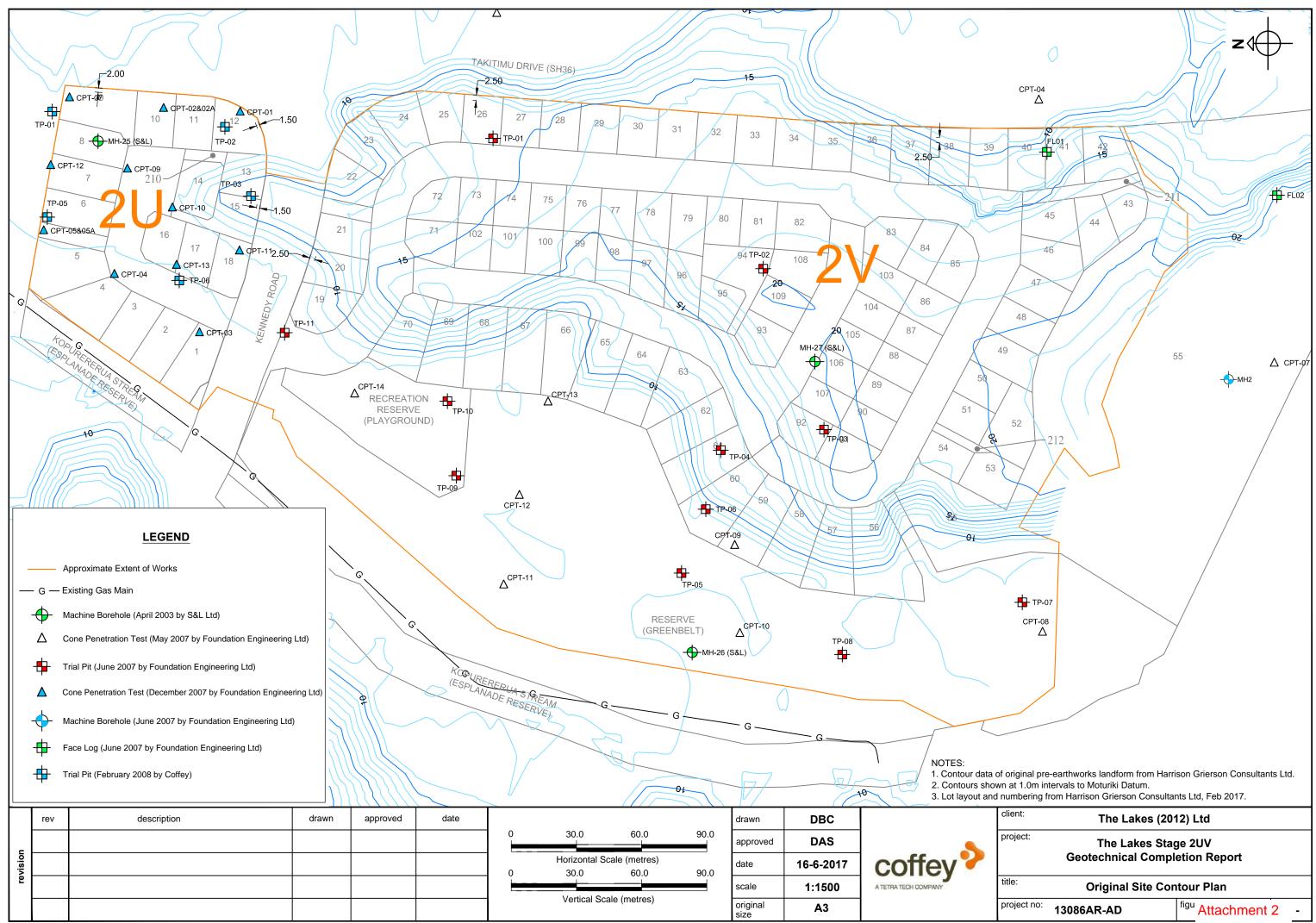
Rely on Coffey for additional assistance

Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to a project, from design to construction. It is common that not all approaches will be necessarily dealt with in your site assessment report due to concepts proposed at that time. As the project progresses through design towards construction, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

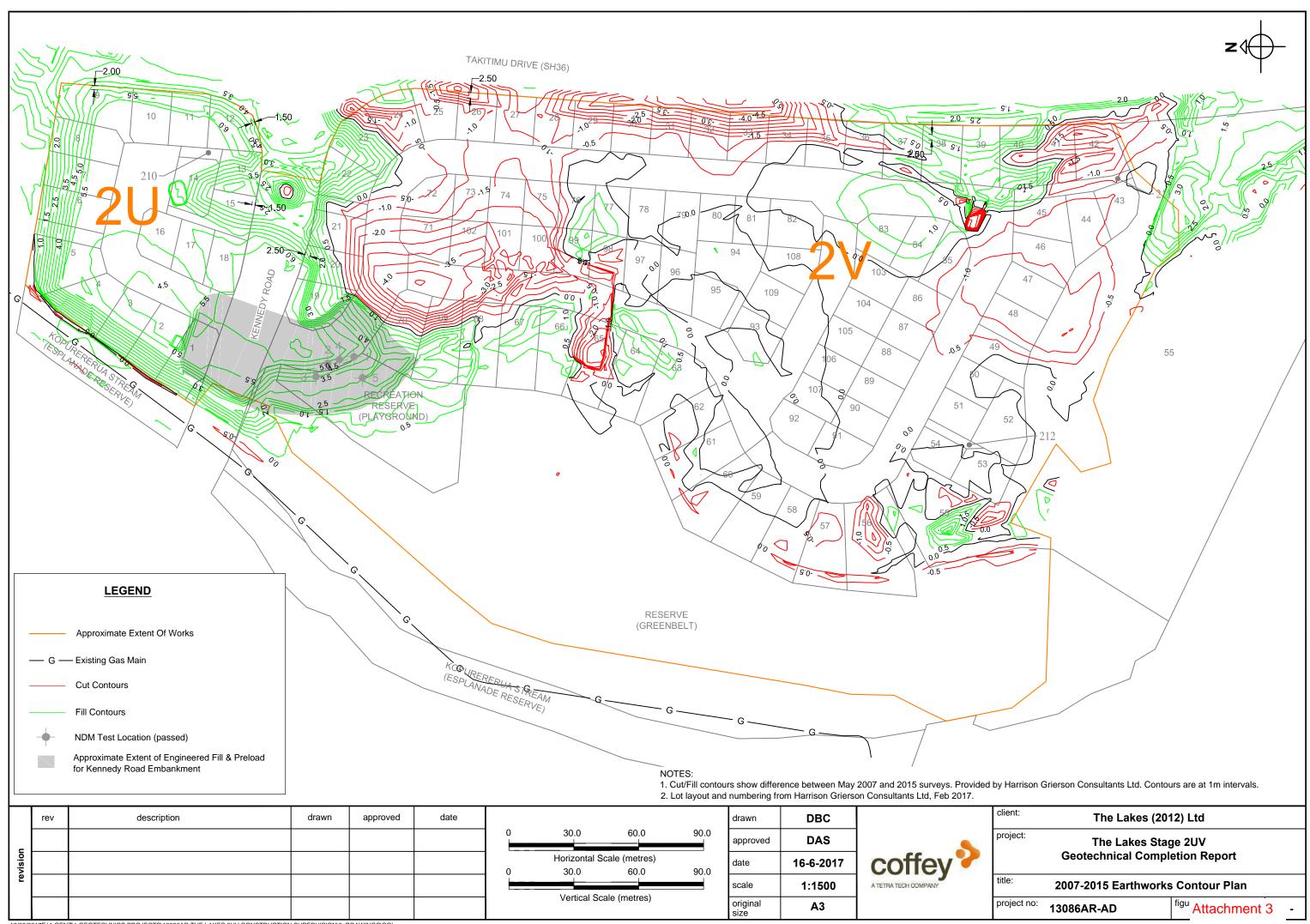
Responsibility

Reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than the design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in and other contracts. reports documents. Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

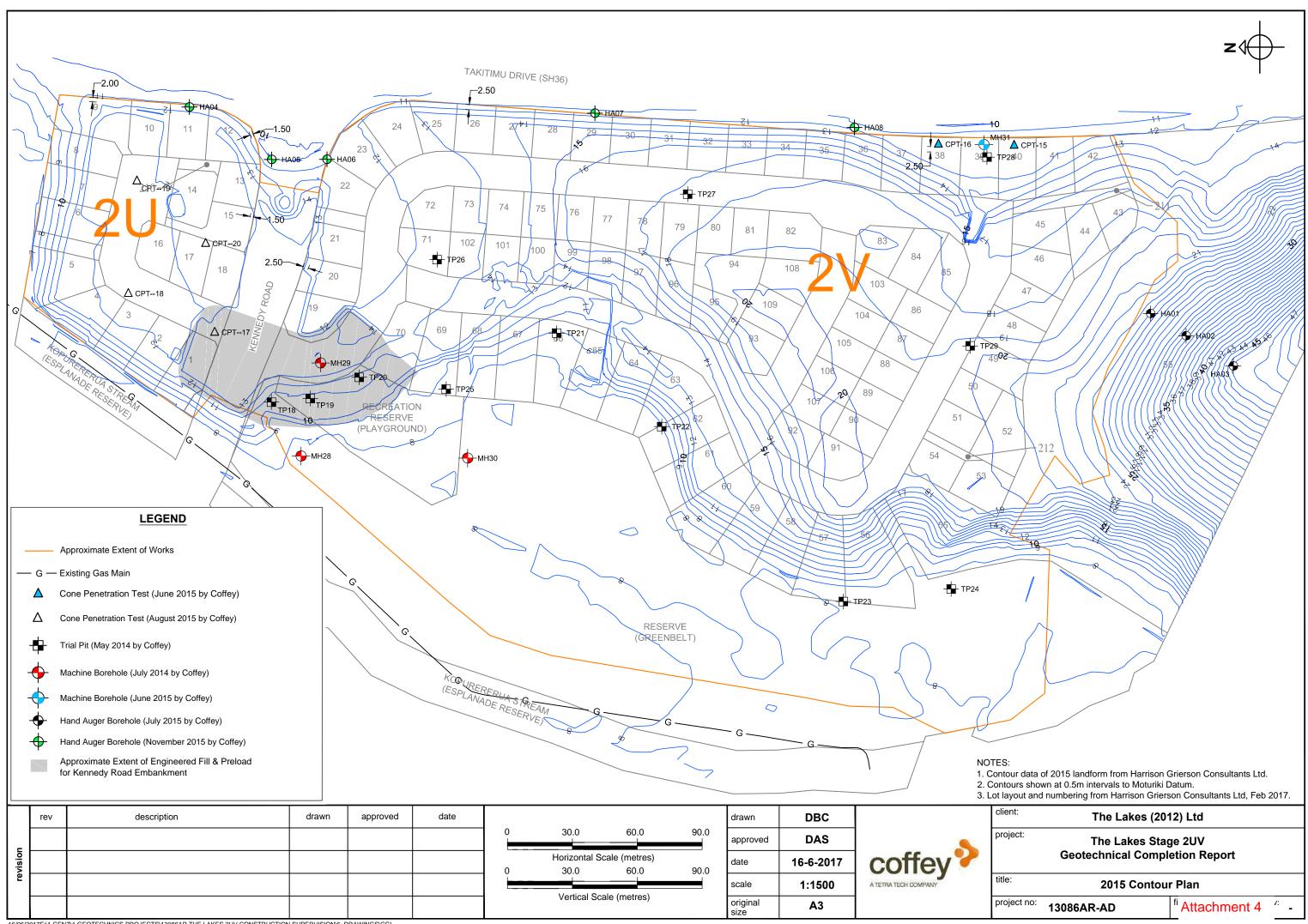




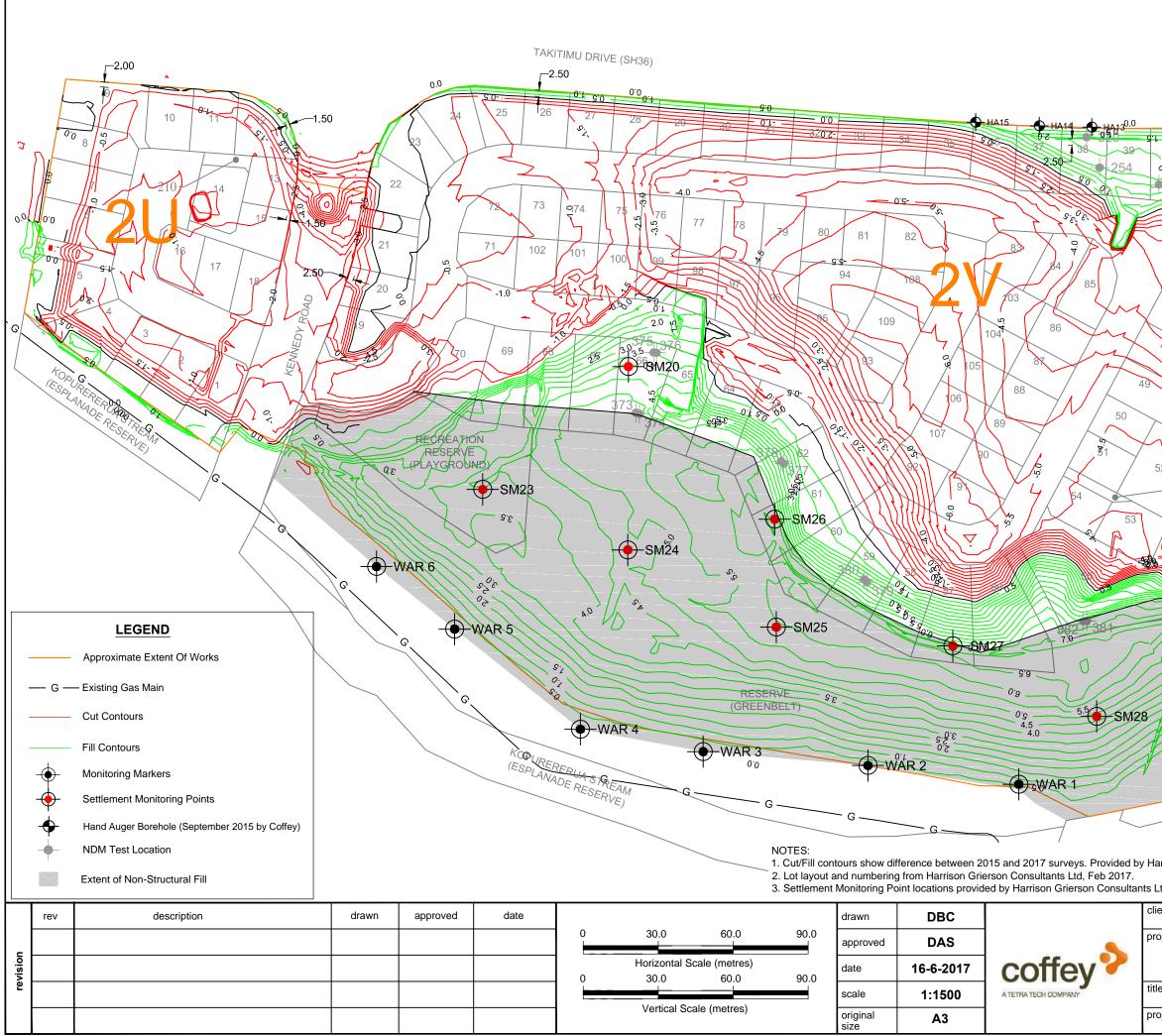
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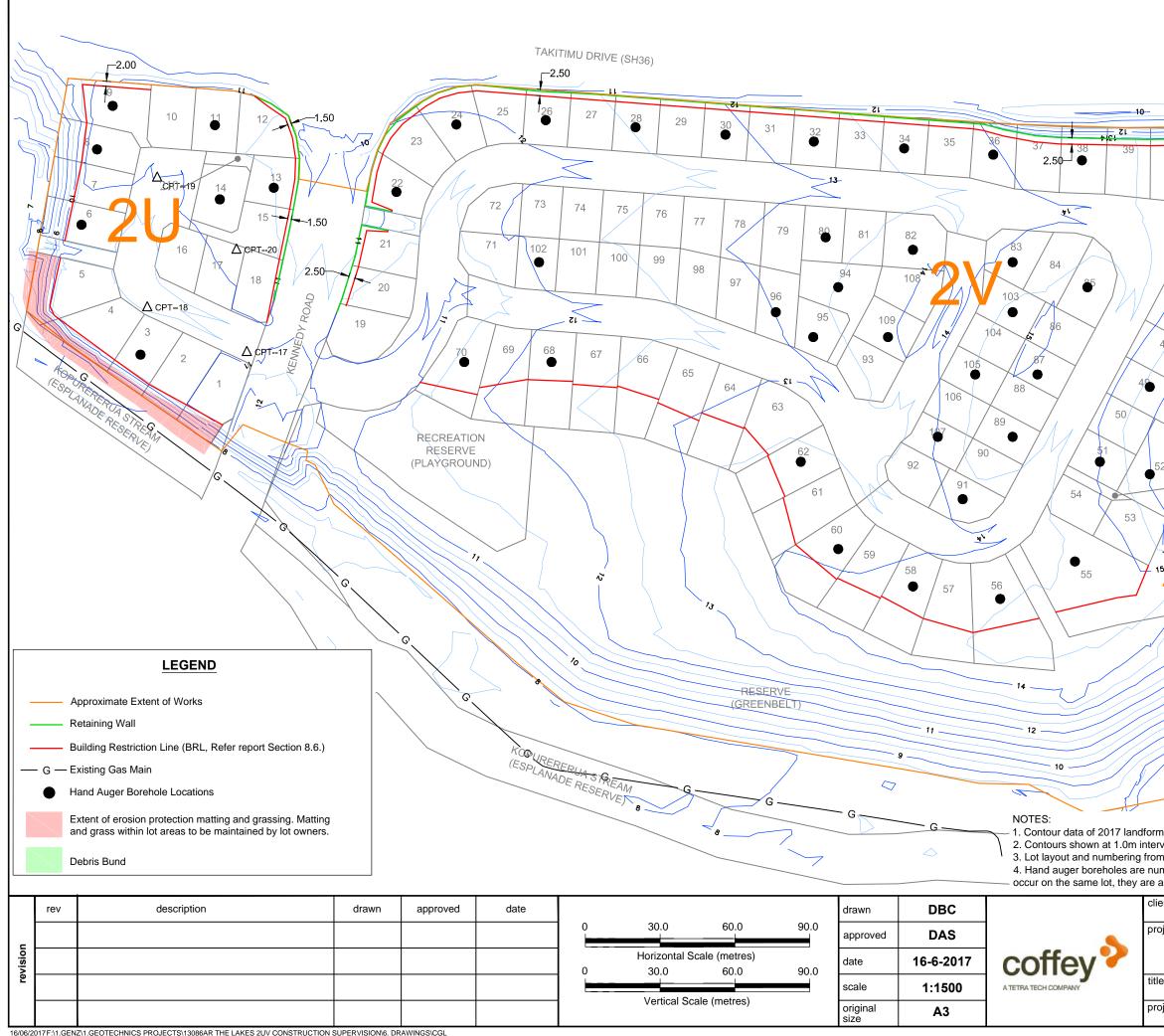


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Property Address Foley Grove, Tauriko, Tauranga

RC No:

LOT NO:	Area (m²)	Shear Strength (kPa)		Subsu division illing	Irface data Natural Topography Unworked	Торо	itural ography worked	bhy Shallow Design ked Foundation to		Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulate	Designated Building Plat	Minimum Building Platform	Compressible Soils	On-Site Effluent Disposal	Consent Notice	For information purposes and to be read in conjunction with 'The Lakes Stages 2UV – Geotechnical Completion Report', ref: GENZTAUC13086AR-AD, dated 16		
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA		5			Platform	orm		-		June 2017. Comments		
1	543	N/T	Y	4	Y	N		N	Y	Y	Ν	N	Y	Ν	Y	Ν	N	Y			
2	262	N/T	Y	4	Y	N		N	Y	Y	Ν	N	Y	Ν	Y	N	N	Y			
3	251	N/T	Y	4	Y	N		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	N	Y			
4	241	>215	Y	3.5	Y	N		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	N	Y	Lots subject to the following geotechnical conditions and limitations:		
5	230	>215	Y	3.5	Y	N		N	Y	Y	Ν	N	Y	Ν	Y	Ν	N	Υ	 Specifically designed 'enhanced' waffle slab foundations. 		
6	328	N/T	Y	3.5	Y	Ν		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	N	Y	Building Restriction LineMinimum floor levels		
7	343	N/T	Y	3.5	Y	N		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	N	Y	Consent notice to ensure lot owners maintain continuous grass cover and erosion protection on slope down to		
8	293	N/T	Y	3.5	Y	Ν		Ν	Y	Y	Ν	Ν	Y	Ν	Y	Ν	N	Y	Kopurererua Stream		
9	426	N/T	Y	3.5	Y	N		Ν	Y	Y	N	N	Y	N	Y	N	N	Y			



INFRASTRUCTURE DEVELOPMENT CODE

SUMMARY OF GOTECHNICAL DATA FOR INDIVIDUAL LOTS

Attachment 7

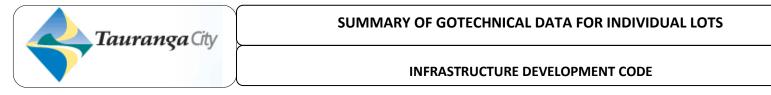
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Property Address Foley Grove, Tauriko, Tauranga

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		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	3604:2011 Y/N/NA	1 Y/N/NA					orm	m.				June 2017. Comments	
10	254	UTP	Y	4	Y	N		N	Y	Y	N	N	Y	N	Y	N	Ν	Y		
11	257	UTP	Y	4	Y	N		N	Y	Y	N	Ν	Y	N	Y	N	Ν	Y		
12	260	N/T	Y	4.5	Y	N		N	Y	Y	N	Ν	Y	Ν	Y	Ν	Ν	Y	-	
13	263	N/T	Y	4.5	Y	Ν		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y		
14	266	UTP	Y	5	Y	Ν		Ν	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Lots subject to the following geotechnical conditions and limitations:	
15	264	UTP	Y	5	Y	Ν		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	 Specifically designed 'enhanced' waffle slab foundations. 	
16	252	UTP	Y	5	Y	Ν		N	Y	Y	N	Ν	Y	N	Y	Ν	Ν	Y	Building Restriction LineMinimum floor levels	
17	345	UTP	Y	5	Y	N		Ν	Y	Y	N	N	Y	N	Y	N	N	Y		



Attachment 7

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Property Address Foley Grove, Tauriko, Tauranga RC No:

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		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth 3604:2011 (m)		Y/N/NA					orm	Ш				June 2017. Comments	
18	221	N/T	Y	4.5	Y	N		N	Y	N	N	Ν	Y	Ν	Y	Ν	Ν	Y	Lots subject to the following geotechnical conditions	
19	224	N/Y	Y	4.5	Y	N		N	Y	N	N	N	Y	N	Y	N	N	Y	and limitations:	
20	224	UTP	Y	4.5	Y	Ν		N	Y	Ν	N	Ν	Y	Ν	Y	Ν	Ν	Y	 Specifically designed 'enhanced' waffle slab foundations. Minimum floor levels 	
21	220	UTP	Y	4.5	Y	Ν		N	Y	N	N	Ν	Υ	Ν	Υ	Ν	Ν	Υ		
22	236	N/T	Y	4.5	Y	Ν		N	Y	Y	N	Ν	Y	Ν	Y	Ν	Ν	Y		
23	226	N/T	Y	4.5	Y	Ν		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y		
24	225	UTP	Y	5	Y	Ν		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Lots subject to the following geotechnical conditions and limitations:	
25	245	UTP	Y	5	Y	Ν		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	 Specifically designed 'enhanced' waffle slab foundations. 	
26	285	N/T	Y	3.5	Y	N		Ν	Y	Y	N	N	Y	N	Y	N	N	Y	 Building Restriction Line Minimum floor levels 	

Tauranga City	SUMMARY OF GOTECHNICAL DATA FOR INDIVIDUAL LOTS	G3
	INFRASTRUCTURE DEVELOPMENT CODE	Attachment 7

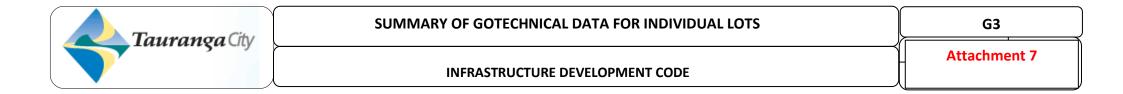
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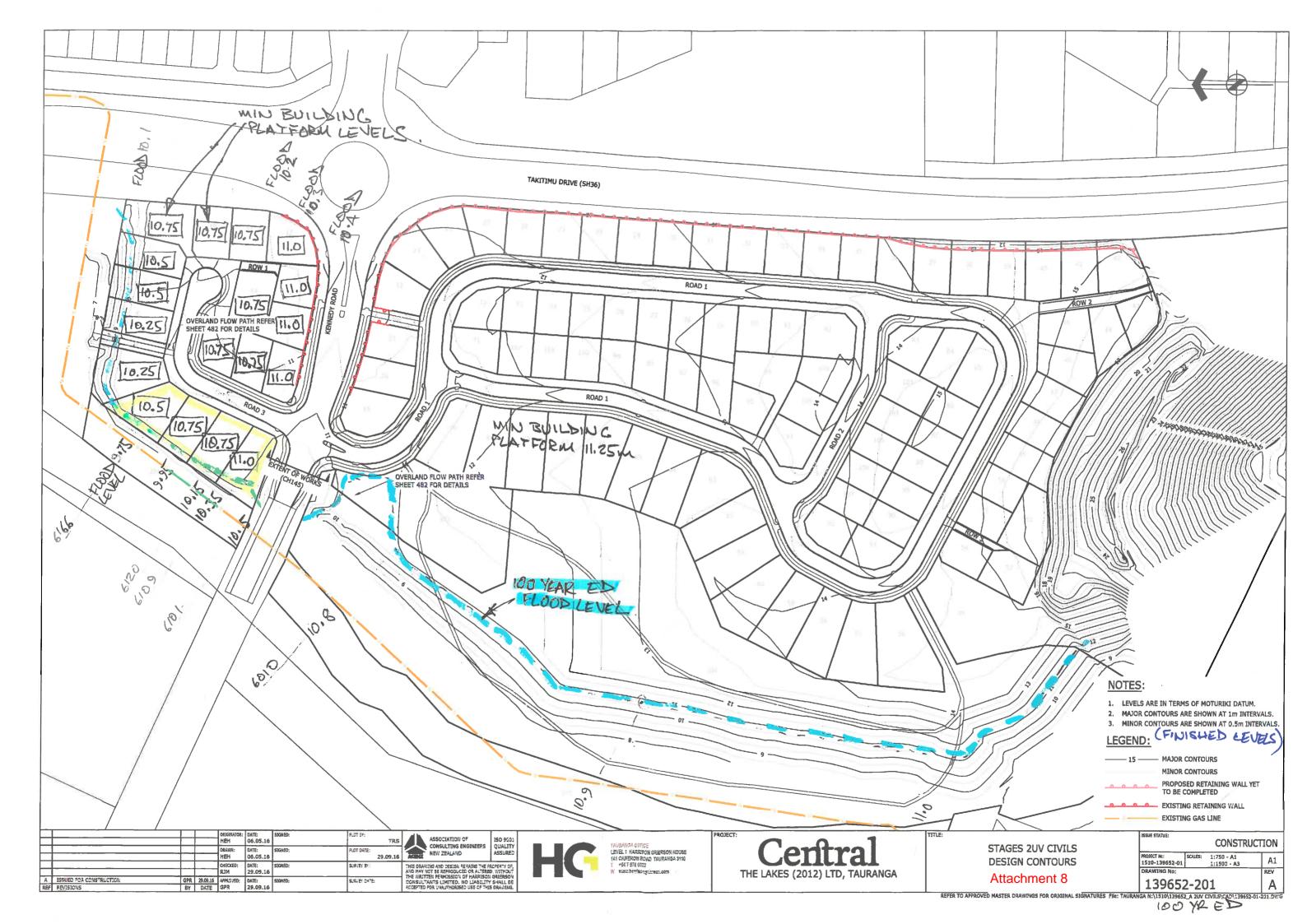
Property Address Foley Grove, Tauriko, Tauranga RC No:

Lot No:	Area (m²)	Shear Strength (kPa) at 0.5m depth		Subsu livision lling Depth (m)	rface data Natural Topography Unworked	Торо	tural graphy worked Depth (m)	Foundati Conventional Shallow Foundation to NZS 3604:2011	ons Specific Design	Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulate	Designated Building Platform	Minimum Building Platform	Compressible Soils	On-Site Effluent Disposal	Consent Notice	For information purposes and to be read in conjunction with 'The Lakes Stages 2UV – Geotechnical Completion Report', ref: GENZTAUC13086AR-AD, dated 16 June 2017.
		ueptii		(111)	Y/N		(111)	Y/N/NA Y/N/NA											Comments
27	233	YTP	Y	3	Y	N		N	Y	N	N	N	Y	N	Y	N	N	Y	
28	252	UTP	Y	3	Y	N		Ν	Y	N	N	N	Y	N	Y	N	N	Y	Lots subject to the following geotechnical conditions and limitations:
29	286	N/T	Y	4	Y	Ν		Ν	Y	Ν	N	Ν	Y	N	Y	Ν	N	Y	 Specifically designed 'enhanced' waffle slab foundations.
30	244	N/T	Y	4	Y	N		Ν	Y	Ν	N	Ν	Y	N	Y	Ν	N	Y	Minimum floor levels
31	256	N/T	Y	4	Y	N		Ν	Y	Ν	N	Ν	Y	N	Y	Ν	N	Y	
32	340	N/T	Y	4	Y	N		Ν	Y	Y	N	N	Y	N	Y	N	N	Y	Lots subject to the following geotechnical conditions and limitations: • Specifically designed 'enhanced' waffle slab foundations. • Building Restriction Line Minimum floor levels
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Key:

DCP = Tested with Dynamic Cone Penetration (Scala); N/T = Not Tested; UTP = Unable To Penetrate





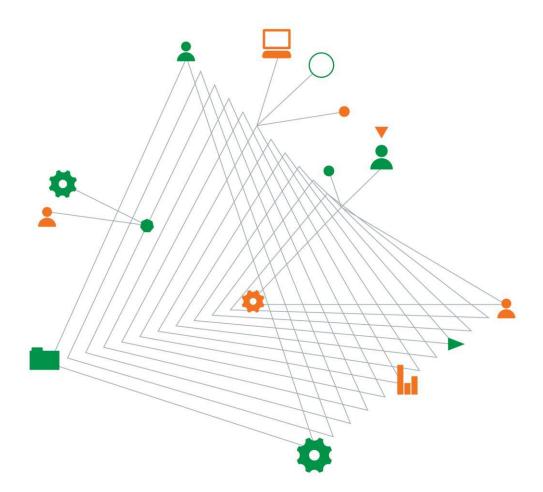


The Lakes (2012) Ltd

The Lakes - Stages 2UV

Geotechnical Completion Report

16 June 2017



Experience comes to life when it is powered by expertise This page has been left intentionally blank

The Lakes - Stages 2UV

Prepared for The Lakes (2012) Ltd C/- Harrison Grierson Consultants Ltd PO Box 13 025 Tauranga 3141 Tauranga

Prepared by Coffey Services (NZ) Ltd 96 Cameron Road, Tauranga Tauranga Central 3110 New Zealand t: +64 7 577 4286

16 June 2017

Document authorisation

Our ref: GENZTAUC13086AR-AD

For and on behalf of Coffey

David Cullen

Engineering Geologist

Quality information

Revision history

Revision	Description	Date	Author	Reviewer	Signatory
V1	Final for Issue	16-6-2017	R Telford	D Sullivan	R Telford

Distribution

Report Status	No. of copies	Format	Distributed to	Date
V1	1	PDF + hardcopy	The Lakes (2012) Ltd	16/6/2017
V1	1	PDF	Harrison Grierson Consultants Ltd	16/6/2017
V1	1	PDF + hardcopy	Tauranga City Council	16/6/2017

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1. INTRODUCTION AND SCOPE

This Geotechnical Completion Report (GCR) has been prepared by Coffey Services (NZ) Ltd (Coffey) for The Lakes (2012) Limited following completion of earthworks for Stages 2U and 2V (collectively known as 2UV) of the Lakes Subdivision and in general accordance with the conditions of Council resource consent number RC25104.

This GCR contains the results of site investigations together with as-built plans derived from Harrison Grierson Consultants Ltd (HGCL) topographical data. It describes bulk earthworks completed during two main phases of work from 2007-2008 and 2015-2017.

The extent of earthworks observed by Coffey is shown on the appended plans (Figures 1 to 5, Appendix A). A Statement of Professional Opinion (Form G2) and Summary of Technical Data (Form G3) for the works described herein are also appended.

2. DESCRIPTION OF SUBDIVISION

Stages 2U and 2V of The Lakes subdivision (collectively known as Stages 2UV) are located between Takitimu Drive (State Highway SH26) and the Kopurererua Stream in Tauriko, Tauranga. Stage 2U is located at the northern end of the site and to the north of Kennedy Road. Stage 2V extends to the south of the Kennedy Road/Takitimu Drive intersection.

The site location and original ground contours are shown on Figure 1 in Appendix A. Before work began the site consisted of farmland and included a steep sided hill that sloped from the southern part of the property. This hillside grading out onto a lower-lying terrace at approximately RL 12m (Moturiki Datum, 1953). The terrace extended northwards through the central and eastern parts of the site and was elevated some 3 to 4 metres above the low-lying floodplain of the Kopurererua Stream to the west.

The original topography was modified by earthworks in 2007-2008 which included excavation of the lower level of the main terrace within Stage 2V and the placement of engineered fill in the vicinity of Kennedy Road. Fill was also placed to the north of Kennedy Road to form a new level terrace within Stage 2U. Although records from this period are incomplete, settlement monitoring data indicate that the fill within Stage 2U was placed in stages between 2008 and June 2012. It is understood that the majority of the fill material came from excavations and the removal of pre-load embankments for the Takitimu Road project.

In 2012 ownership of the Lakes subdivision passed from Grasshopper Farms Ltd to The Lakes (2012) Ltd who have since undertaken additional earthworks on site. These works included the construction and surcharging of a new road embankment leading from the Kennedy Road extension to Stage 2V, the lowering (excavation) of earlier filling within Stage 2U and the placement of structural and non-structural filling along the western margin of the Stage 2V lot area.

A minor amount of structural fill was also placed at the south-eastern corner of Stage 2V where the development abuts Takitumu Drive. This filling is supported by a specifically designed retaining wall. An approximately 2.5m high earth-fill debris bund was also constructed at the foot of the steep slope at the southern end of Stage 2V

Civil infrastructure for these stages of the subdivision was installed in 2016 and 2017.

3. RELATED REPORTS

The following documents were prepared prior to or during the design and development of Stages 2U and 2V:

- 1. 'Pyes Pa West Urbanisation Development, Tauranga Geotechnical Assessment Report', report prepared by S&L Consultants Ltd (Ref: 16944, dated October 2003);
- 'Geotechnical Investigation Report on Proposed High Density Residential Development Grasshopper Farms Area N, Tauriko, Tauranga', report prepared by Coffey (Ref: 13447, dated 4 July 2007);
- 'Geotechnical Investigation Report on Proposed Residential Development Kennedy Road Extension, Grasshopper Farms, Tauranga', report prepared by Coffey (Ref: GEOTTAUC13717, dated 14 February 2008);
- 4. 'Geotechnical Investigation Report for Proposed Subdivision at Kennedy Road, Pyes Pa, Tauranga', report prepared by Coffey (Ref: GENZTAUC13086AL, dated 20 December 2013);
- 'Summary of Prevailing Ground Conditions and Geotechnical Design for Proposed Accessway Embankment at Stage 2UV The Lakes, Pyes Pa', report prepared by Coffey (Ref: GENZTAUC13086AL, dated 31 October 2014);
- 6. 'Geotechnical Investigation and Plan Review Report The Lakes Subdivision Stage 2UV', report prepared by Coffey (Ref: GENZTAUC13086AL-AC, dated 24 July 2015);
- 'The Lakes Stage 2U Additional Geotechnical Assessment', report prepared by Coffey (Ref: GENZTAUC13086AR-AB, dated 20 August 2015);
- 8. 'The Lakes Stage 2UV Retaining Wall Design & Noise Wall Foundations', report prepared by Coffey (Ref: GENZTAUC13086AR-AC, dated 23 December 2015).

3.1. Report Summary

The original geotechnical assessment for the Lakes subdivision was completed by S&L Consultants Ltd and contained an overview of geotechnical conditions for the entire Lakes project. The report concluded that the site was generally adequate for subdivision and residential development, subject to appropriate design and construction.

That report provided broad recommendations relating to general earthworks requirements and earthfill procedures over the low-lying Kopurererua Valley floor throughout the project site but did not go into specific detail for the current study area due to the scale of the previous studies.

Subsequent geotechnical investigation reports by Coffey summarised additional investigations that were completed to specifically assess the Stage 2UV area. These investigations generally confirmed the S&L conclusion that the site was adequate for subdivision. The Coffey reports also highlighted the potential for significant load-induced settlements below any filling on the Kopurererua Stream floodplain and seismic liquefaction below parts of Stage 2U. The subdivision scheme plan was therefore revised to place all the proposed residential lots on the terrace and better ground to the east of the site. The flood plain on the site's western boundary was developed as a reserve area.

4. INVESTIGATIONS COMPLETED

The geotechnical investigations on the site have been conducted three main stages during 2003, 2007-2008 and 2014-2015. The investigations completed are summarised below. Logs of each investigation are included in Appendix C.

2003 Coffey Services (NZ) Ltd GENZTAUC13086AR-AD

16 June 2017

• Machine Boreholes MB25 to MB27 drilled by S&L Ltd in April 2003 to up to 12m depth.

2007-2008

- CPT-01 to CPT-14 completed on 31 May 2007 on the southern hill and low-lying flood plain to depths of up to 20 metres.
- Machine auger borehole MH2 drilled in June 2007 over the elevated hill topography within the southern part of the site to 20m depth.
- Trial pits TP1 to TP11 excavated in June 2007 across the main terrace and flood plain areas to depths of up to 6 metres.
- Logging of exposed excavation faces within and surrounding the general development area (FL01 & FL02).
- CPT-01 to CPT-13 completed on 7 December 2007 and located at the northern end of the site in the vicinity of the Kennedy Road extension.
- Trial pits TP1 to TP6 excavated at the northern end of the site in February 2008.

2014-2015

- TP18 to TP29 excavated in May 2014 and located on the main terrace and at the foot of the escarpment to the low flood plain.
- Machine boreholes MH28 MH30 drilled on the flood plain in July 2014.
- CPT-15 and CPT-16 located at the south-eastern corner of the site adjacent to Takitimu Drive in June 2015.
- Borehole MH31 also located adjacent to Takitimu Drive in June 2015.
- Hand augers HA01 to HA03 drilled on the steep southern slope in July 2015.
- CPT-17 to CPT-20 located within Stage 2U in August 2015.
- Hand augers HA04 to HA08 drilled near the retaining wall alignments in November 2015.

On completion of the bulk earthworks in 2016 and 2017, Coffey drilled a total of 50 hand-auger boreholes to target depths of 2m to 2.5m to confirm finished subgrade conditions within the site. The location of each borehole is shown on Figure 5. Logs of these boreholes are included in Appendix D. Although labels are not shown on the plan, the boreholes are numbered according to the relevant lot number. For example, the hand auger borehole on Lot 100 is referred to as HAL100.

5. OVERVIEW OF GEOLOGICAL CONDITIONS

The elevated topography across the Tauriko region is reported to be underlain by Pleistocene-age Te Ranga Ignimbrite comprising light grey, non-welded, silty sands. However, boreholes located on the southern hill encountered ancient alluvial deposits more consistent with the Matua Subgroup. These variable soils were also encountered in investigations on the main terrace.

The Matua Subgroup deposits on the southern hill and terrace are mantled by a sequence of volcanic ashes including the Hamilton Ash (very stiff clayey silt), Rotoehu Ash (silty sand to sandy silt) and post-Rotoehu Ashes (stiff to very stiff silts). This layer of ashes is approximately 4m thick but has been reduced across most of the site by excavation.

Investigations on the low-lying parts of the site encountered variable alluvial soils including clays, silts, sands and organic or peat horizons. These soils are present below the flood plain in the west of Stage 2V and much of 2U. Alluvial soils were also encountered in borehole MH31 (Lot 39), below approximately 3m to 4m of fill placed during construction of Takitimu Drive.

5.1. Groundwater

Groundwater is observed at shallow depth on the low-lying flood plain and is encountered at approximately RL7m in investigations in this area. Below the main terrace, groundwater was measured in MB27 at 11.5m depth or approximately RL 8m. These groundwater levels appear to be relatively consistent across the site.

6. EARTHWORKS OPERATIONS

6.1. Plant

Earthworks during the 2007-2008 season were completed by Bob Hicks Earthmovers Ltd and A&R Ltd Earthmoving Contractors. The earthworks contractor for the 2014-2017 period was JMC Civil Construction Ltd (JMC) and civil infrastructure was installed by Higgins Group Holdings Ltd (Higgins).

The main items of plant used during each of the bulk earthworks phase comprised Terex motorscrapers and bulldozer or tractor towed 'scoops', hydraulic excavators, bulldozers, articulated allterrain dump trucks (ADT's) and sheep's-foot rollers.

6.2. Construction Programme

As mentioned in Section 2 above, earthworks on this site have been carried out in two main phases in 2007-2013 and 2014-2017. Cut and fill contour plans of these stages of work are shown on Figures 2 and 3 in Appendix A. A more detailed description of the main works carried out in each earthworks season is provided below.

In 2010, work on the Lakes subdivision site ceased under the original developer, Grasshopper Farms Ltd, when that company went into receivership. Records from this time are incomplete until work started again on site under The Lakes (2012) Ltd in 2013.

6.2.1. 2007 – 2012

From photographs and settlement monitoring data provided to Coffey it is understood that work began on the site during the 2007-2008 earthworks season. Excavations were carried out at this time at the southern end of Stage 2V and a fill embankment was constructed along the Kennedy Road extension that passes through the site. From December 2008, filling was also placed within the Stage 2U area. This fill was placed in stages from 2008 to 2012 and it is understood that much of the material came from excavations and the removal of pre-load embankments along Takitimu Drive.

6.2.2. 2014 – 2015 Earthworks Season

During 2014-2015, spoil from excavation on other stages of The Lakes subdivision was temporarily stockpiled within Stage 2U. Structural filling was also placed to construct a new road embankment to provide access to Stage 2V from Kennedy Road. This filling included approximately 2m of surcharge fill to accelerate the settlement of the embankment. The approximate extent of the surcharged area is shown on Figures 2 and 3 in Appendix A.

Work in 2015 also included cleaning out and partial filling of a gully to the south of the access road embankment (in the vicinity of SM20 shown on Figure 4).

6.2.3. 2015 – 2016 Earthworks Season

Works during this period included further excavations and the construction of the earth-fill debris bund at the southern end of Stage 2V as well as additional structural filling on the western and south-

eastern parts of this stage. A significant volume of non-structural filling was placed over the low-lying floodplain to the west of the 2V area. This material largely comprised excess fill and unsuitable soils sourced from earthworks on other stages of the Lakes subdivision.

The ground surface within Stage 2U was lowered at this time with the removal of approximately 1.5m to 2m of the previous filling within the development area.

6.2.4. 2016 – 2017 Earthworks Season

The remaining earthworks were completed to form the current ground surface during the 2016-2017 earthworks season. These included the placement of additional non-structural filling over the floodplain area by JMC and minor amounts of structural filling by Higgins to adjust subgrade levels within specific lots in Stage 2U and at the northern end of 2V. Non-structural filling was also placed by Higgins around the northern and western boundaries of Stage 2U to form a more uniform batter in these areas.

The civil infrastructure was installed by Higgins and their sub-contractors during this time and was supervised by Harrison Grierson Consultants Ltd.

7. QUALITY CONTROL

7.1. Site Preparation Observations

The majority of earthworks on the site between 2008 and 2013 were undertaken during the construction of Takitimu Road. Much of this work was overseen by Coffey and other geotechnical engineers as part of the larger project. However, records and test results from this period are limited within the Lakes site.

From 2013 Coffey undertook regular observations to ensure topsoil, vegetation or unsuitable materials had been removed before filling.

7.2. Fill Control

It is understood the filling undertaken in 2007-2012 was placed to an engineered fill standard. However, Coffey has not been able to locate test records from this period to confirm fill compaction.

The filling placed between 2014 and 2017 was tested using a Nuclear Density Meter (MDM) and undrained shear strength measurements. The tests were carried out by Fulton Hogan Ltd on behalf of JMC. The test locations are shown on Figures 2 and 4. In addition to these laboratory tests, Coffey undertook our own observations using field shear vane measurements at random locations within the filling.

7.3. Compaction Control Criteria

The compaction control criteria for this project were specified using the minimum allowable shear strength and maximum allowable air voids method as defined below:

- Air voids percentage (defined in NZS 4402:1986 and as measured by NDM) targeting an average value less than 10% over any 10 consecutive tests and maximum single value no greater than 12%.
- Undrained shear strength measured by hand held shear vane calibrated using the NZGS 2001 method. A single undrained shear strength 'test' was defined as the average of four individual shear vane readings at each NDM location. The target test values were an average value greater than 150kPa and minimum single value no less than 140kPa.

7.4. Test Results

Nuclear Density Reports showing the results of the laboratory fill tests are included in Appendix E and the locations of the tests are shown on Figures 2 and 4. All trests met or exceeded the compaction control criteria given above. All-NDM test results are IANZ (International Accreditation New Zealand) endorsed and further details are appended. The independent tests by Coffey also indicated the filling observed met or exceeded the required specification.

All rResults above refer to tests taken within structural filling. No tests were conducted in the nonstructural filling placed over the low-lying flood plain, as this area has been designated as a recreational and greenbelt reserve. The area of non-structural filling can be seen in Figures 2 and 4.

8. ENGINEERING EVALUATION AND RECOMMENDATIONS

8.1. Fill Quality

Although test results for the filling within Stage 2U in 2007 to 2013 could not be located for this report, subsequent observations and investigations by Coffey indicate that this fill would meet the requirements of engineered fill as set out in the Tauranga City Council Infrastructure Development Code (TCC IDC) and relevant New Zealand standards. That is, the observed filling is 'clean' (free of organic soils or other unsuitable materials) and has an average undrained shear strength in excess of 150kPa.

Based on the appended earth fill quality control test data and reliance on the diligence of the bulk earthworks contractor at times when engineering staff were not present on site, the NDM results indicate that the structural fills placed by JMC and Higgins between 2014 and 2017 also meet or exceed the required standards. This is supported by the hand-auger boreholes drilled by Coffey within the filling.

Coffey observed the placement of the non-structural filling on the floodplain to the west of Stage 2V in 2014 to 2016 and around the western and northern boundaries of Stage 2U in 2017. While these areas did not require the same level of compaction or testing as the structural filling, it is considered that the non-structural earthworks were also carried out to an acceptable standard and in accordance with our recommendations.

8.2. Static Settlement

8.2.1. Stage 2U

The new residential lots within Stage 2U are located on filling that was placed from 2007 to 2012 over variable alluvial soils and a ridge of in-situ volcanic ash deposits. Settlements below this area were monitored as part of the Takitimu Drive construction works and data provided to Coffey indicates that the filling experienced significant total and differential settlements of between 0.04m and 1.6m. The data show that consolidation settlements below the fill were effectively complete by 2009 to 2013, depending on when the last stage of filling occurred at each location.

From 2012 to 2015, the only works within Stage 2U comprised the temporary stockpiling of spoils from other stages of the Lakes and the placement and removal of the surcharge over Kennedy Road (see Figures 2 & 3). In 2015 the entire Stage 2U development area was lowered by 1.5m to 2m to form the current ground surface. The works in 2015 mean that the building areas within Stage 2U were effectively surcharged by between 10kPa and 30kPa for a period of at least two years.

Based on the above, we consider that future development in the 2U area is unlikely to be affected by significant or excessive residual settlements. We note that we are also recommending that buildings

in this zone are supported on specifically designed 'enhanced' raft type foundations which will further reduce the risk of adverse effects due to settlement.

8.2.2. Stage 2V

The large majority of filling within or adjacent to Stage 2V was non-structural and occurred outside the lot area for this stage. Static settlements below the non-structural filling were monitored at four locations shown as SM23 to 25 and SM28 on Figure 4. The monitoring pins consisted of steel rods attached to plates installed at the base of the filling. Plots of the data for these points are provided in Appendix F and show that the alluvial soils beneath this area have settled between 350mm and 900mm. The data indicate that this area may experience significant long-term creep settlements of up to 100mm to 300mm over the next 50 years.

Static settlements have also been monitored at three locations within the Stage 2V lot areas. SM20 is located in an infilled gully within Lot 66. SM26 and SM27 were installed in late 2016 to monitor settlements within Lots 56 and 60 respectively. The data from these pins are presented graphically in Appendix F and the settlement marker locations are shown on Figure 4. SM20 was seen to settle approximately 320mm as a result of the filling placed in this area. SM26 and SM27 each settled approximately 20mm to 40mm.

The settlement data for SM20, Sm26 and SM27 also show that consolidation settlements within the finished lots is essentially complete at the time of writing. Long-term creep settlements below the lots should be less than 25mm over the next 50 years.

Based on the above discussion, we consider that future 'residual' settlements below the lots within both Stage 2U and 2V should be within the limits recommended by the New Zealand Building Code (Clause B1 and B1/VM4).

8.3. Proximity to Gas Main

The non-structural filling that was placed over the low-lying flood plain is close to the gas main which extends along the site's western boundary. To reduce the risk of damaging this service it was initially recommended that all earthworks be kept at least 30m from the pipe alignment. Monitoring points (steel 'warratahs') were installed approximately 10m from the toe of the batter and 20m from the gas pipe and regularly surveyed in three dimensions to measure any possible displacements due to the filling. The monitoring data showed no discernible horizontal or vertical ground movement as a result of the nearby filling.

Based on the above observation the non-structural filling was advanced to a line approximately 20m from the gas main. Continued monitoring showed no significant ground deformations between the toe of the fill embankment and gas pipe.

8.4. Liquefaction

Initial investigations on site identified possible areas of liquefaction prone soils, these being the alluvial soils below the flood plain in the west of Stage 2V and much of 2U, and also below the existing fill in proposed Lots 37 to 41. Calculations indicated these soils were likely to liquefy during a ULS earthquake. There was a low risk of localised liquefaction during a smaller serviceability limit state or SLS event.

The earthworks design on Lots 37 to 41 was revised following the assessment of possible liquefiable soils at this location. The wall alignment was moved to the west and the wall height was reduced to approximately 1.5m. It is considered that with these modifications the potential for excessive ground movement below these lots as a result of liquefaction in minor.

A specific site investigation and analyses were carried out to assess liquefaction below lots in Stage 2U in 2015. The results of this assessment were presented in the 20 August 2015 Coffey report (reference 7 in Section 3 above). The report concluded that liquefaction is unlikely to occur at this location during a 'Serviceability Limit State' (SLS) event.

The analyses did identify a high likelihood of liquefaction below Stage 2U in an "Ultimate Limit State' (ULS) earthquake. The effects of this liquefaction would be reduced by the 3m to 4m thickness of non-liquefiable filling which underlies the finished lots in this area. We estimate that the finished lots may experience approximately 200mm of free field vertical settlement and up to 0.5m of lateral ground displacement in a ULS event.

Due to the potential for ground movement as a result of liquefaction below Stage 2U, we recommend that the future buildings in this area consist of 'enhanced' waffle-slab foundations such as those designed for the 'TC2' zones of the Christchurch rebuild. Specific foundation design recommendations are given in Section 8.9 below.

Design Earthquakes

A SLS earthquake as defined by New Zealand Standard NZS 1170 for this development would have a return period of 1 in 25 years. A typical dwelling designed to NZ standards may suffer minor damage in such an event but must remain 'serviceable' or habitable until it can be repaired. A ULS earthquake for this development would have a return period of 1 in 500 years. An appropriately designed dwelling may be extensively damaged or written off by such an earthquake but must remain safe for its occupants until they can be evacuated.

8.4.1. Reserve Area

We note that the reserve area formed on the non-structural filling to the west of the site would also be expected to be affected by significant vertical and horizontal ground movement as a result of earthquake induced liquefaction. This area is considered adequate for non-essential infrastructure and playgrounds, etc. However, if more significant structures are to be located in this zone it is recommended that a specific liquefaction risk assessment is carried out.

8.5. Slope Stability

The large majority of the new lots are located on flat or gently sloping ground with a low risk of instability. The exceptions to this are Lot 55 which includes the steep slope at the southern end of Stage 2V and Lots 1 to 9 which are located next to a 1V:3H batter that has been partially formed from non-engineered filling.

Development on Lots 1 to 9 is subject to a Building Restriction Line (BRL) discussed further in Section 8.6. Provided the development on these lots is carried out in accordance with the technical requirements of this line, we consider there is a low risk of instability on these sites.

8.5.1. Lot 55

While there was no obvious evidence of large-scale instability within Lot 55, the existing slope gradient of approximately 28° is likely to be close to the maximum stable gradient of the underlying soils. There was also visible evidence of shallow soil creep on this slope and the topography suggests the presence of colluvial soils at the slope toe. Analyses by Coffey and presented in our July 2015 Geotechnical Investigation and Review Report (reference 6 in Section 3 above) concluded the factors of safety for this slope were less than the minimum values required for residential development by the Tauranga City Council Infrastructure Development Code (TCC IDC) and New Zealand building code.

We therefore consider that the sloping portion of Lot 55 would not be adequately stable for residential development without specific input from a TCC Category 1 Geo-Professional. There is however adequate flat land for residential development at the northern end of the lot.

To protect the other lots at the south of Stage 2V from possible instability an approximately 2.5m high debris bund has been constructed between the slope and the adjacent lots as shown on Figure 5. We

consider this bund has been completed in accordance with our recommendations and design and that the lots below are adequately protected from possible slope debris.

The bund must be maintained at its current height and capacity. In the event of a landslide or significant accumulation of debris behind the bund, the bund will need to be cleared to maintain its current height and capacity. Responsibility for this work will fall on the owner of Lot 55 in which the bund is located. The owner of Lot 55 will also be responsible for maintaining the landscape planting which has been carried out on the bund.

We understand that the slope and hillside within Lot 55 may be incorporated into a future development. In the event that the slope height or gradient is reduced significantly the debris bund may become redundant and may be removed. This should be confirmed by a Tauranga City Council Category 1 Geo-Professional before work proceeds.

8.6. Building Restriction Lines

Five Building Restriction Lines (BRL's) have been placed on lots within Stage 2UV. The BRL's are shown on Figure 5 in Appendix A and affect the following lots:

- Lots 1 to 9 These lots are located above an up to 1V:3H batter which has been formed around the western and northern boundaries of Stage 2U. This batter partly consists of previous engineered filling and partly of non-engineered landscape fill. The BRL on these lots is located along the crest of the batter and is intended to restrict development on the slope due to the potential for shallow slope movement and/or variable subgrade materials within the batter itself.
- Lot 9 In addition to the BRL along the slope crest mentioned above, an up to 0.7m high retaining wall has been constructed inside the property's boundary with Takitimu Drive. As this wall was not engineered designed, a BRL has been placed on this lot extending 2.0m inside the property boundary adjacent to the wall.
- Lots 12, 13, 15 & 18 The boundaries of these lots with Takitimu Drive and Kennedy Road are supported by an up to 1.3m high retaining wall. This wall was engineer designed but this design did not allow for building loads. A BRL has therefore been located 1.5m inside the property boundary on the affected lots. On lot 18 the setback distance tapers off to 0m where the retaining wall ends.
- Lots 20 to 42 The boundaries of these lots with Takitimu Drive and Kennedy Road are also supported by an engineer designed retaining wall up to 1.5m high which was not designed to building loads. The BRL on lots 20 to 22 and 24 to35 is located 2.5m inside the property boundary. Lots 21 and 22 also include tapering BRL setbacks along two short sections of wall on either side of a nearby Council walkway. The BRL on lots 23 and 36 to 42 is located 2.5m inside the toe of the retaining wall where the wall extends inside the property boundary.

This retaining wall also extends a small distance along the boundary of Lot 19. However, the length and height of the wall at this location is such that a BRL is not required on this lot.

 Lots 55 to 70 – these sites lie along the boundary between the structural and non-structural filling and underlying alluvial soils on the western margin of Stage 2V. The BRL on these lots has been positioned to set future development back from the zone of possible long-term differential settlements along this boundary.

8.6.1. Development on Lots with a BRL

It should be understood that the existence of the BRL on a lot does not explicitly preclude development in the restricted area. Any works within the BRL would however be subject to the following requirements:

- The foundations of any building, and or any proposed filling or retaining walls within the BRLs along the crest of the batter on Lots 1 to 9 and on 55 to 70 would need to be assessed by a Tauranga City Council Category 1 Geo-Professional.
- The foundations of any dwelling or any proposed filling within the BRLs along the retaining walls on lots 9, 12, 13, 15, 18 and 20 to 42 must be assessed by a chartered engineer (CPEng) with consideration given to the zone of influence of the adjacent retaining walls.

8.7. Erosion Protection

The batter to the west and north of Lots 1 to 5 in Stage 2U has been covered with a layer of 'Grassroots' (registered trademark) synthetic matting provided by Geofabrics Ltd to reduce the risk of erosion or scour of this slope as a result of flooding along the Kopurererua Stream. The Grassroots matting extends up to the 1 in 100 year flood level as shown on Figure 5.

The Grassroots matting extends approximately 3m to 8m inside the boundaries of Lots 1 to 5. The owners of these lots will need to ensure that continuous grass cover is maintained within this area and that the integrity of the erosion matting is not compromised by future development or landscaping in this area.

8.8. Minimum Floor Levels

Also due to the potential for flooding along the Kopurererua Stream, the lots within Stage 2UV are subject to minimum floor levels defined by the Tauranga City Council. The minimum levels are summarised on Table 1 below. Levels are given in terms of RL (reduced level) to the Moturiki Datum, 1953 and are to be measured to the underside of the floor slab or floor joists per section DS-5.4.5 of the TCC IDC.

Lot #	Minimum Floor Level (m RL)	Lot #	Minimum Floor Level (m RL)
1	11.0m	10	10.75m
2	10.75m	11	10.75m
3	10.75m	12	11.0m
4	10.5m	13	11.0m
5	10.25m	14	10.75m
6	10.25m	15	11.0m
7	10.5m	16	10.75m
8	10.5m	17	10.75m
9	10.75m	18	11.0m
All Lots within 2V (Lots 19 to 109)		11.25m	

Table 1: Stage 2U Minimum Floor Levels

We note that the large majority of lots within Stage 2V are already well above the minimum level and should therefore not be significantly affected.

8.9. Foundation Design & Bearing Capacity

As discussed in Section 8.4, soils below the lots within Stage 2U (i.e. Lots 1 to 18) may at least partially liquefy during a strong earthquake leading to possible vertical and horizontal ground movement. The dwellings within Stage 2U should therefore be supported by specifically designed 'enhanced' waffle slab type foundations such as those developed for the 'TC2' zone of the

Christchurch rebuild. A geotechnical ultimate bearing capacity of 300kPa may be assumed for these lots as they are entirely underlain by engineered filling.

While some lots within Stage 2V (Lots 19 to 109) are also underlain by engineered fill and the potential for liquefaction is lower in this area, most lots are at least partially located over Matua Subgroup materials which may contain relatively weak soils (i.e. peak undrained shear strength measurements as low as 50kPa). We therefore recommend that all dwellings on these lots be supported by specifically designed waffle slab foundations. A geotechnical ultimate bearing capacity of 200kPa should be assumed for this design.

We note that on many lots within Stage 2V the ground conditions may be better than assumed above. It should also therefore be possible to design the future building foundations on these lots using NZS 3604. However, this would require a site specific investigation and assessment by a chartered engineer (CPEng) prior to building consent to confirm ground conditions and bearing capacity.

8.10. Variable Ground Conditions

It should be understood that due to the volcanic nature of the natural soils on the elevated terraces, it is possible that local soil conditions may vary from those discussed above. It is therefore important that any potentially soft or unsuitable soils encountered in the foundation excavations are brought to the attention of a geotechnical professional.

9. CONCLUSION

Based on the observations and investigations presented in this report and with some reliance on the diligence of the earthworks contractors, it is concluded that the earthworks and subdivision of Stages 2U and 2V have been completed in general accordance with our previous recommendations, NZS 4431 and the Tauranga City Council Infrastructure Development Code.

This report presents site-specific recommendations including Building Restriction Lines (BRLs), specifically designed foundations, minimum floor levels and on-going maintenance requirements on some lots. A lot-by-lot summary of the recommendations and development requirements is given in Appendix B.

Provided the recommendations are followed and prudent development practices are adopted, it is considered that the finished lots are at low risk of erosion, falling debris, subsidence, inundation or liquefaction and these sites should therefore be adequate for residential development without the need for Section 72 restrictions under the New Zealand Building Act.

10. LIMITATIONS

This report has been prepared solely for the use of the client, The Lakes (2012) Limited, their professional advisers and the relevant Territorial Authorities in relation to the specific project described herein. No liability is accepted in respect of its use for any other purpose or by any other person or entity. All future owners of this property should seek professional geotechnical advice to satisfy themselves as to its ongoing suitability for their intended use.

The opinions, recommendations and comments given in this report result from the application of normal methods of site investigation. As the post construction factual evidence has been obtained solely from boreholes and test pits, which by their nature only provide information about a relatively small volume of subsoils, there may be special conditions pertaining to this site which have not been disclosed by the investigation and which have not been taken into account in the report.

For and on behalf of Coffey

Report Prepared By:

R TELFORD TCC Category 1 Engineering Geologist

Report Reviewed By:

D SULLIVAN Principal Geotechnical Engineer BSc, MBA, CE (Calif.), MIPENZ, CPEng, TCC Category 1 Geotechnical Engineer CPEng No. 1025183



Important information about your Coffey Report

As a client of Coffey you should know that site subsurface conditions cause more construction problems than any other factor. These notes have been prepared by Coffey to help you interpret and understand the limitations of your report.

Your report is based on project specific criteria

Your report has been developed on the basis of your unique project specific requirements as understood by Coffey and applies only to the site investigated. Project criteria typically include the general nature of the project; its size and configuration; the location of any structures on the site; other site improvements; the presence of underground utilities; and the additional risk imposed by scope-of-service limitations imposed by the client. Your report should not be used if there are any changes to the project without first asking Coffey to assess how factors that changed subsequent to the date of the report affect the report's recommendations. Coffey cannot accept responsibility for problems that may occur due to changed factors if they are not consulted.

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project.

Interpretation of factual data

Site assessment identifies actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from literature and external data source review, sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, can reveal what is hidden by earth, rock and time.

The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, owners should retain the services of Coffey through the development stage, to identify variances, conduct additional tests if required, and recommend solutions to problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has therefore commenced and vour report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered as the project develops. another party undertakes lf the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. Your report should not be applied to any project other than that originally specified at the time the report was issued.



Important information about your Coffey Report

Interpretation by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other project design professionals who are affected by the report. Have Coffey explain the report implications to design professionals affected by them and then review plans and specifications produced to see how they incorporate the report findings.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way.

Logs, figures, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel) and laboratory evaluation of field samples. These logs etc. should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Geoenvironmental concerns are not at issue

Your report is not likely to relate any findings, conclusions, or recommendations about the potential for hazardous materials existing at the site unless specifically required to do so by the client. Specialist equipment, techniques, and personnel are used to perform a geoenvironmental assessment. Contamination can create major health, safety and environmental risks.

If you have no information about the potential for your site to be contaminated or create an environmental hazard, you are advised to contact Coffey for information relating to geoenvironmental issues.

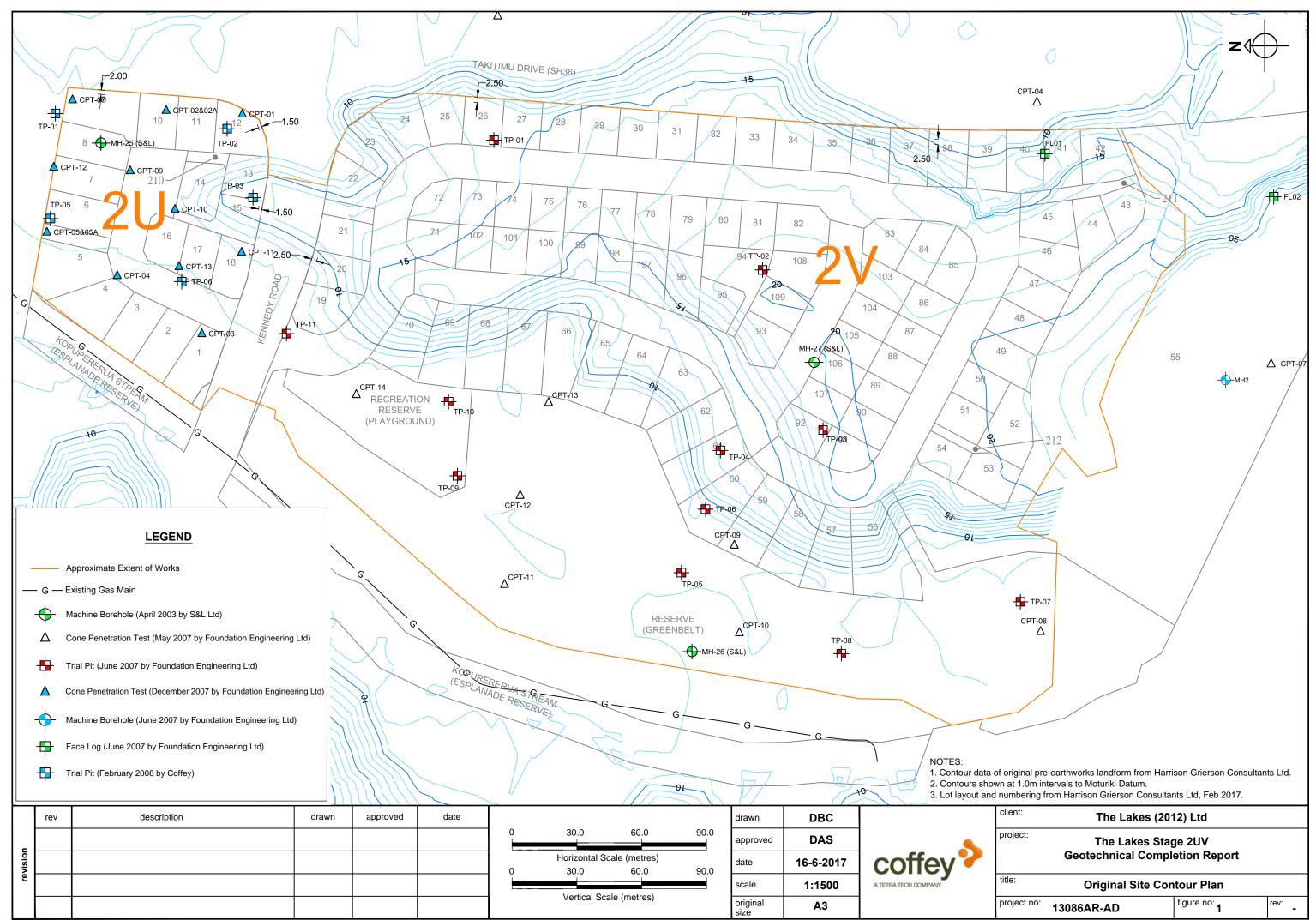
Rely on Coffey for additional assistance

Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to a project, from design to construction. It is common that not all approaches will be necessarily dealt with in your site assessment report due to concepts proposed at that time. As the project progresses through design towards construction, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

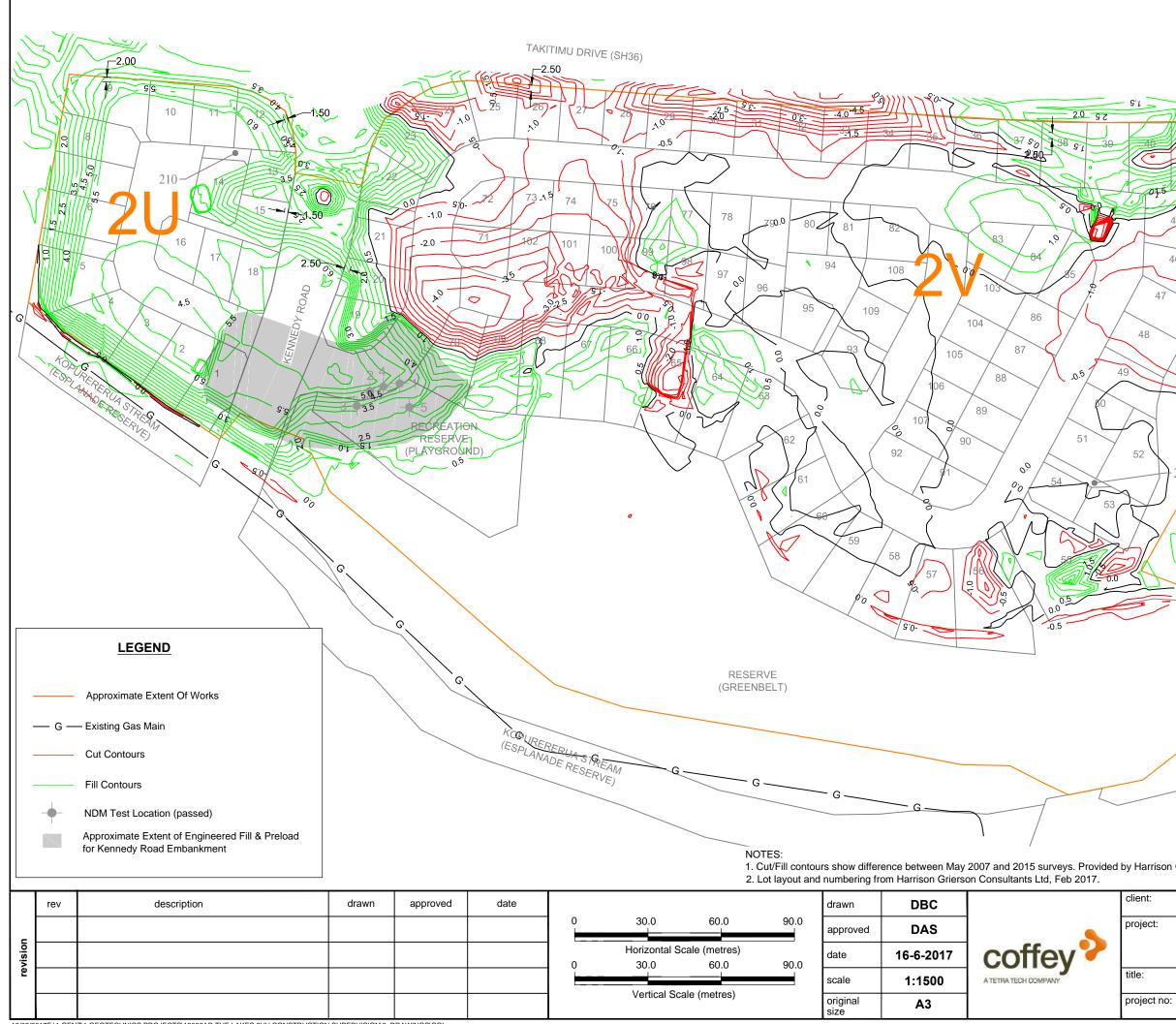
Responsibility

Reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than the design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in and other documents. contracts. reports Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

Appendix A - Figures

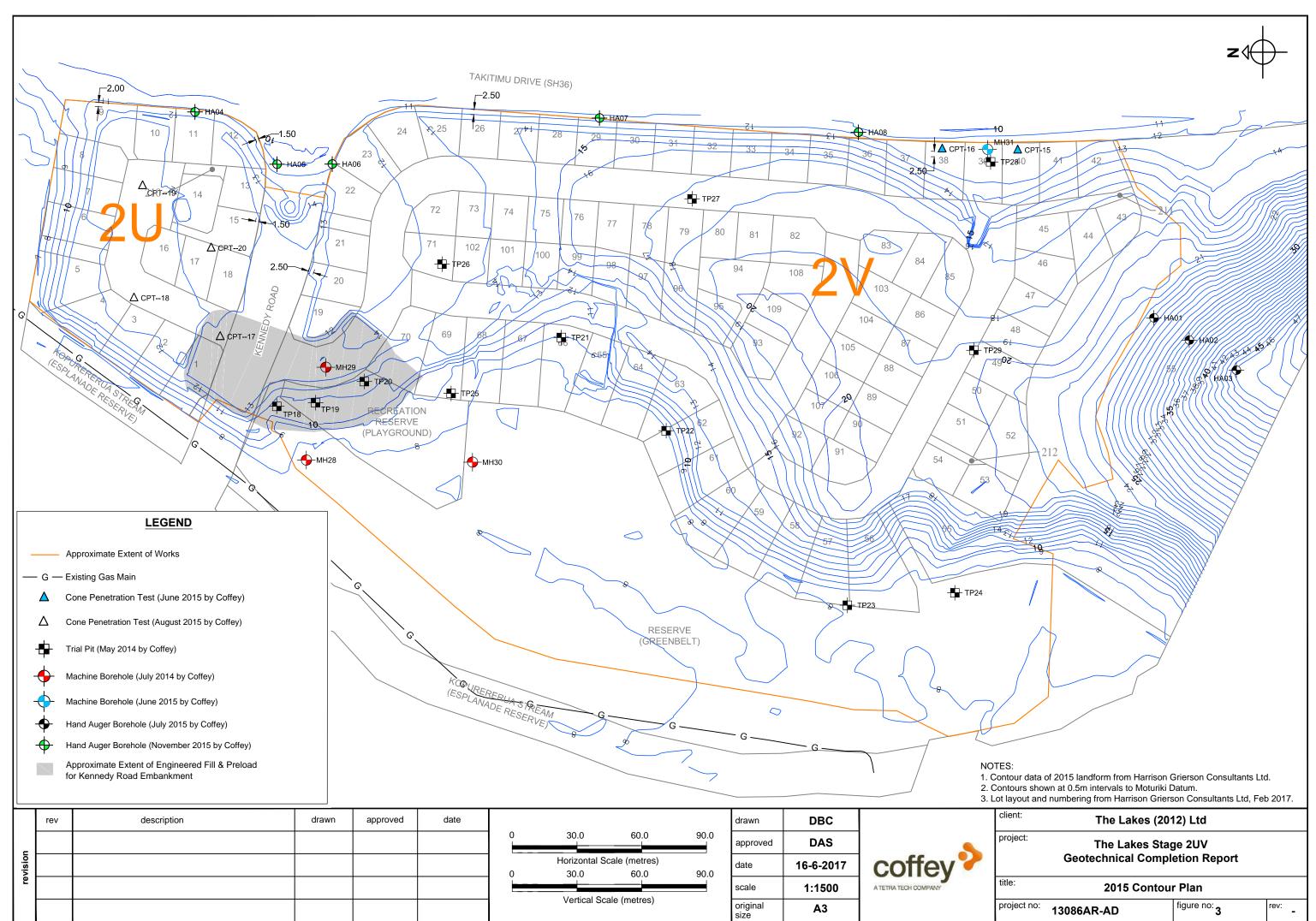


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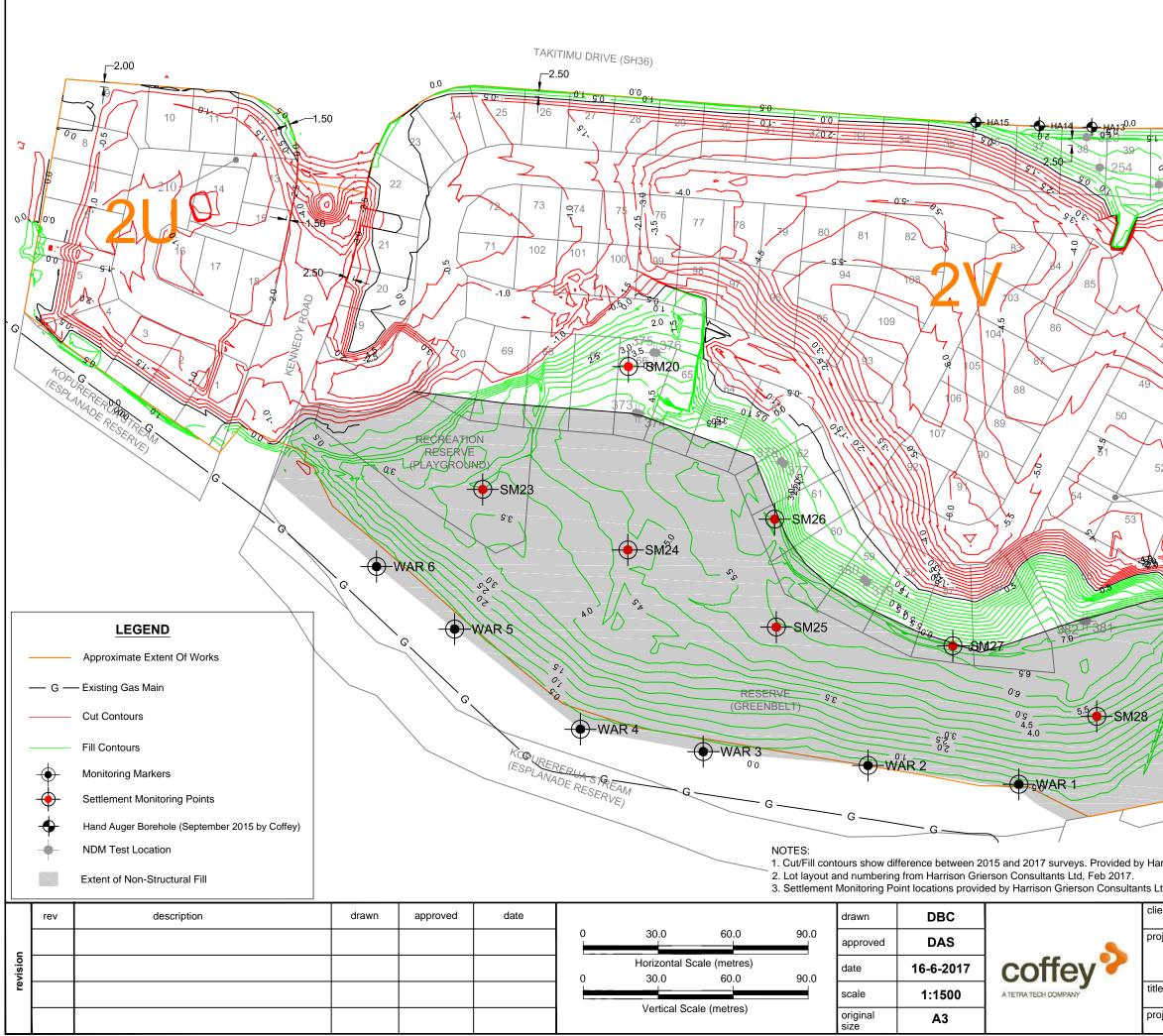


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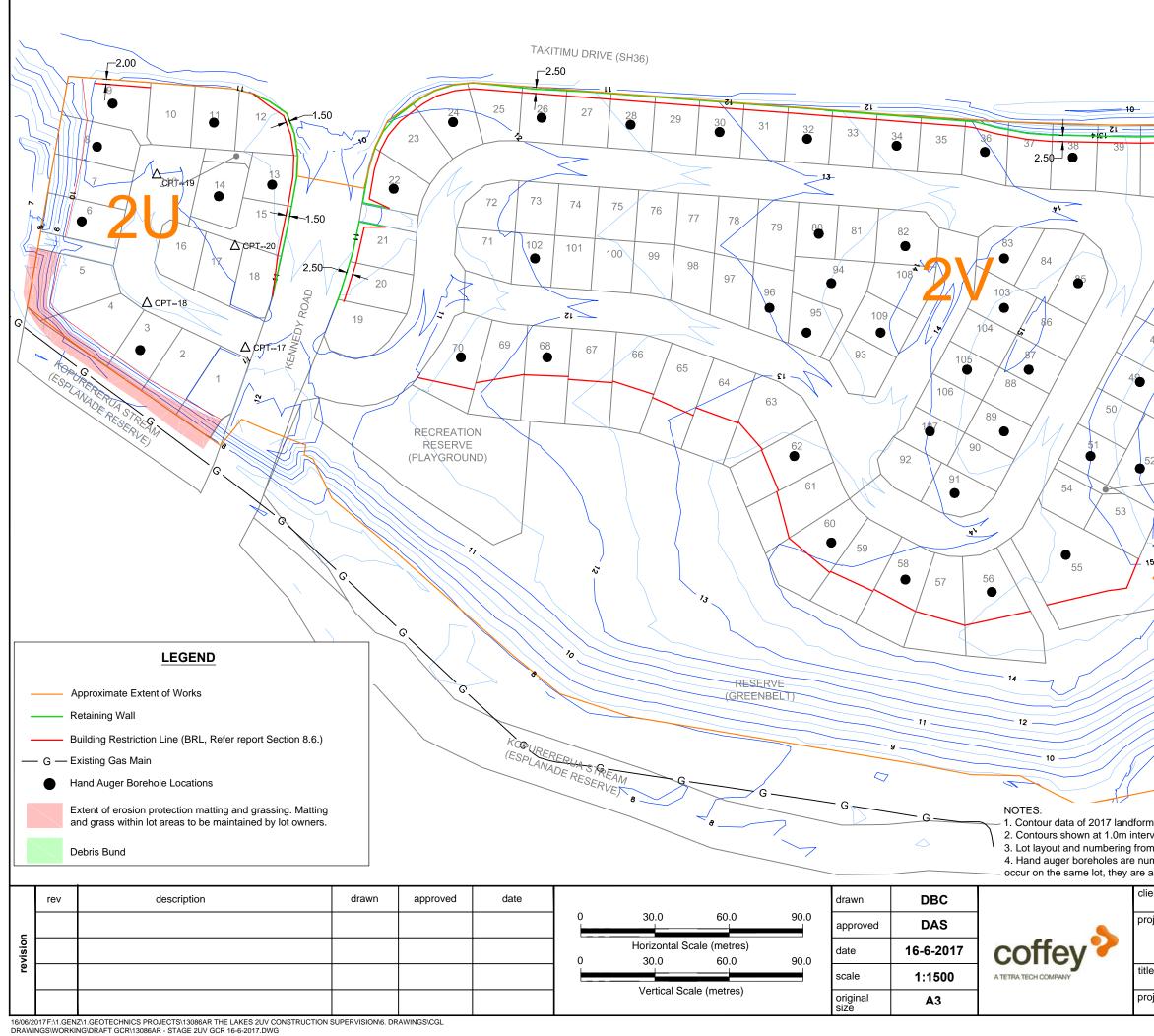


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Appendix B - Geotechnical Suitability Statement & Geotechnical Data Summary Table

	CERTIFICATION	G2
GEOTECHNICAL SUITAB	SSIONAL OPINION AS TO THE ILITY OF LAND FOR BUILDING	
NAME OF SUBDIVISION	The Lakes Store ZUV	/
COUNCIL FILE NUMBER RC No:	25104	
ENGINEER RESPONSIBLE FOR	RI TID I COD C	· · · /AA
	Ko leford coffen y	sviles (
QUALIFICATIONS:	ICC Categoin I Eng-be	elozo-
I	(Name & Address of Firm)	U.
Hereby confirm that; 1. I am a professional person, appropriately qu	alified with experience in geotechnical eng	ineering
to ascertain the suitability of the land for building	development and was retained as the Soils	3
Engineer to the above development.		
2. An appropriate level of site investigation and	construction supervision has been carried	out
under my direction and is described in my develo	pment evaluation report dated:	<u>e.1.7</u>
3. In my professional opinion, not to be constru	led as a guarantee, I consider that;	
a) Every part / the area shown in my report dated	51.6.1.6.1.2.017 of each new allotme	ent is
suitable for the erection thereon of the building ty		provided
that: cfer to bestedurical Cour 773-GENETAUS 13086A		
b) The earth fills shown on the attached Plan No.	. Fig. 2. A. Fig. thave been placed in acco	ordance
with the requirements of the Infrastructure Develo	opment Code.	
c) The completed works give due regard to all la	nd slope and foundation stability considera	tions.
d) The filled ground is suitable for the crection the	ereon of residential buildings not requiring	specific-
design in terms of NZS 3604: 2011 and related d	ocuments provided that	
Ce fer bestechical Con	adition Report	
e) The original ground not affected by filling is a	suitable for the crection thereon of resident	ial
-buildings not requiring specific design in terms of	NZS 3604: 2011 and related documents p	rovided-
that alfor beate domical bru	martion Lups. A.	
4. This professional opinion is furnished to the	Council and the owner for their purpose ale	one, on
the express condition that it will not be relied upor	n by any other person and does not remov	e the
necessity for the normal inspection of foundation	conditions at the time of erection for any de	welling
Signed	Date	2017
	STATEMENT R BUILDING DEVELOPMENT	G2
TaurangaCity INFRASTRUCTURE I		RSION 1 1

DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

F	Ar				rface data			Foundatio	ons	Building Restriction	S/W Specific D	S/W Soakage	S/W Reticulate	Designated Bu	Minimum Building	Compressible	On-Site Efflue	Consent Notice	
Lot No:	Area (m²)	Shear Strength (kPa)		livision lling	Natural Topography Unworked	Торо	tural graphy worked	Conventional Shallow Foundation to	Specific Design	ction Line	Design		Ū	Building Platform	ding Platform	Soils	Effluent Disposal	e	
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA	e				Itform	form		a		Comments
					,			, ,	, ,										
1	557	N/T	Y	4	Y	Ν		Ν	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Specifically designed 'enhanced' waffle slab foundations per Section 8.9 of Coffey GCR ref:
2	540	N/T	Y	4	Y	Ν		Ν	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	GENZTAUC13086AR-AD. Also:
3	492	>215	Y	3.5	Y	Ν		Ν	Y	Y	Ν	Ν	Υ	Ν	Υ	Ν	Ν	Y	 BRL (GCR Section 8.6) Minimum floor levels (GCR Section 8.8)
4	612	N/T	Y	3.5	Y	Ν		Z	Y	Y	Ν	Ν	Υ	Ν	Υ	Ν	Ν	Y	Consent notice required to ensure lot owners maintain continuous grass cover and erosion protection on slope
5	720	N/T	Y	3.5	Y	Ν		Z	Y	Y	Ν	Ν	Υ	Ν	Υ	Ν	Ν	Υ	down to Kopurererua Stream, per GCR Section 8.7.
6	513	UTP	Y	4	Y	Ν		Z	Y	Y	Ν	Ν	Υ	Ν	Y	Ν	Ν	Y	
7	524	N/T	Y	4.5	Y	Ν		Ν	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Specifically designed 'enhanced' waffle slab
8	523	UTP	Y	5	Y	Ν		Ν	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
9	652	UTP	Y	5	Y	Ν		Ν	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Also: • Minimum floor levels (GCR Section 8.8)
10	446	N/T	Y	4.5	Y	Ν		Ν	Y	Ν	Ν	Ν	Υ	Ν	Υ	Ν	Ν	Υ	
11	449	UTP	Y	4.5	Y	Ν		Ν	Y	N	N	Ν	Y	N	Y	Ν	N	Y	



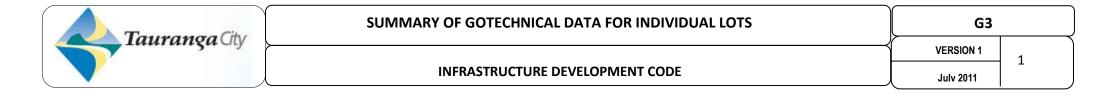
DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

_	A			Subsu	rface data			Foundatio	ons	Building Restriction Line	S/W Specific E	S/W Soakage	S/W Reticulate	Designated Bu	Minimum Buil	Compressible	On-Site Efflue	Consent Notice	
Lot No:	Area (m²)	Shear Strength (kPa) at 0.5m		livision lling Depth	Natural Topography Unworked	Topo Earth	tural graphy worked Depth	Conventional Shallow Foundation to NZS 3604:2011	Specific Design	ction Line	Design		U	Building Platform	Building Platform	Soils	Effluent Disposal	e	
		depth	Y/N	(m)	Y/N	Y/N	(m)	Y/N/NA	Y/N/NA					л					Comments
12	482	N/T	Y	4.5	Y	N		N	Y	Y	N	N	Y	N	Y	N	N	Y	Specifically designed 'enhanced' waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
13	384	UTP	Y	5	Y	N		Ν	Y	Y	N	N	Y	N	Y	N	Ν	Y	Also: BRL (GCR Section 8.6) Minimum floor levels (GCR Section 8.8)
14	475	UTP	Y	3	Y	N		Ν	Y	N	N	N	Y	N	Y	N	Ν	Y	Specifically designed 'enhanced' waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD. Also: • Minimum floor levels (GCR Section 8.8)
15	470	N/T	Y	3.5	Y	N		N	Y	Y	N	N	Y	N	Y	Ν	Ν	Y	Specifically designed 'enhanced' waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD. Also: BRL (GCR Section 8.6) Minimum floor levels (GCR Section 8.8)
16	399	N/T	Y	4	Y	Ν		N	Y	N	N	Ν	Y	N	Y	Ν	Ν	Y	Specifically designed 'enhanced' waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
17	399	N/T	Y	4	Y	Ν		Ν	Y	N	Ν	N	Y	N	Y	Ν	Ν	Y	Also: • Minimum floor levels (GCR Section 8.8)

	SUMMARY OF GOTECHNICAL DATA FOR INDIVIDUAL LOTS	G3	
Tauranga City		VERSION 1	
	INFRASTRUCTURE DEVELOPMENT CODE	Julv 2011	

DP No	D: Lot 852 DF	473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DF	414134				

	А			Subsu	rface data			Foundatio	ons	Building Restriction Line	S/W Specific [S/W Soakage	S/W Reticulate	Designated Bu	Minimum Bui	Compressible	On-Site Effluent	Consent Notice	
Lot No:	Area (m²)	Shear Strength (kPa)		livision Iling	Natural Topography Unworked	Торо	tural graphy worked	Conventional Shallow Foundation to	Specific Design	iction Line	Design		e	Building Platform	Building Platform	Soils	nt Disposal	ĕ	
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA					tform	orm		-		Comments
	1		r	г	,	[1												
18	414	N/T	Y	4	Y	Ν		Ν	Y	Y	N	N	Y	N	Y	N	Ν	Y	Specifically designed 'enhanced' waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD. Also: • BRL (GCR Section 8.6) • Minimum floor levels (GCR Section 8.8)
19	524	N/T	Y	4	Ν	Y	1.5	N	Y	N	N	N	Y	N	Y	N	Ν	Y	Specifically designed waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD. Also: • Minimum floor levels (GCR Section 8.8)
20	441	N/T	Y	4	N	Y	2.5	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
21	423	N/T	Y	1.5	Ν	Y	2.5	N	Y	Y	N	N	Y	N	Y	N	Ν	Y	Specifically designed waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
22	448	194	Y	2.5	Ν	Y	0.5	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Also:
23	530	N/T	Y	4.5	Ν	Y	2	Ν	Y	Y	N	Ν	Y	Ν	Y	Ν	Ν	Y	 BRL (GCR Section 8.6) Minimum floor levels (GCR Section 8.8)
24	510	DCP	Y	2.5	N	Y	2.5	N	Y	Y	N	Ν	Y	Ν	Y	Ν	Ν	Y	



DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

_	A			Subsu	rface data			Foundatio	ons	Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulate	Designated Building Platform	Minimum Building Platform	Compressible Soils	On-Site Effluent Disposal	Consent Notice	
Lot No:	Area (m²)	Shear Strength (kPa)		livision Iling	Natural Topography Unworked	Торо	tural graphy worked	Conventional Shallow Foundation to	Specific Design	iction Line	Design		e	uilding Pla	lding Platf	Soils	nt Dispos	ë	
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA					tform	orm				Comments
25	424	N/T	Y	1	Ν	Y	1.5	N	Y	Y	N	N	Y	N	Y	Ν	Ν	Y	
26	400	153	Y	1	Ν	Y	2	N	Y	Y	N	N	Y	N	Y	Ν	Ν	Y	
27	400	N/T	Y	1	Ν	Y	2.5	N	Y	Y	N	Ν	Y	Ν	Y	Ν	Ν	Y	
28	400	91	Y	1	Ν	Y	3.5	N	Y	Y	Ν	N	Y	Ν	Y	Ν	Ν	Y	
29	400	N/T	Y	1	Ν	Y	3.5	N	Y	Y	N	Ν	Y	Ν	Y	Ν	Ν	Y	Specifically designed waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
30	400	DCP	Y	1	Z	Y	3.5	Ν	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Also:
31	400	N/T	Y	1	Ν	Y	3.5	Ν	Y	Y	Ν	Ν	Y	Ν	Υ	Ν	Ν	Υ	 BRL (GCR Section 8.6) Minimum floor levels (GCR Section 8.8)
32	400	91	Y	1	Ν	Y	4	Ν	Y	Υ	Ν	Ν	Y	Ν	Y	Ν	Ν	Υ	
33	400	N/T	Y	1	Ν	Y	4	N	Y	Υ	Ν	Ν	Υ	Ν	Y	Ν	Ν	Υ	
34	400	96	Y	1	Ν	Y	3.5	Ν	Y	Υ	Ν	Ν	Y	Ν	Υ	Ν	Ν	Υ	
35	400	N/T	Y	1	Ν	Y	3.5	Ν	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	



DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

_	Ar			Subsu	rface data			Foundati	ons	Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulate	Designated Building Platform	Minimum Building Platform	Compressible Soils	On-Site Effluent Disposal	Consent Notice	
Lot No:	Area (m²)	Shear Strength (kPa)		livision Iling	Natural Topography Unworked	Торо	tural graphy worked	Conventional Shallow Foundation to	Specific Design	iction Lin	esign		U	iilding Pla	ding Plat	Soils	nt Dispos	Ø	
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA	ē				atform	form		Sal.		Comments
36	427	79	Y	1.5	N	Y	3.5	N	Y	Y	N	Ν	Y	Ν	Y	Ν	N	Y	
37	470	N/T	Y	4.5	N	Y	3.5	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
38	484	>202	Y	4	N	Y	2	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Υ	Specifically designed waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
39	489	N/T	Y	5.5	Y	Ν		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Υ	Also:
40	494	182	Y	5.5	N	Y	1	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	 BRL (GCR Section 8.6) Minimum floor levels (GCR Section 8.8)
41	472	N/T	Y	4	N	Y	1.5	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
42	520	N/T	Y	2.5	N	Y	2.5	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
43	369	98	Ν		N	Y	2.5	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
44	458	N/T	Ν		Ν	Υ	3	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Υ	Specifically designed waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
45	454	>202	Ν		Ν	Y	2.5	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Υ	Also: • Minimum floor levels (GCR Section 8.8)
46	501	N/T	Ν		N	Y	3.5	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	



SUMMARY OF GOTECHNICAL DATA FOR INDIVIDUAL LOTS

G3

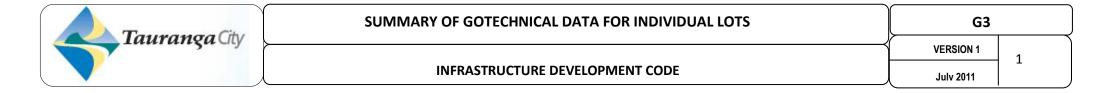
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VERSION 1

Julv 2011

DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

L	Ar			Subsu	rface data			Foundatio	ons	Building Restri	S/W Specific D	S/W Soakage	S/W Reticulate	Designated Bu	Minimum Buil	Compressible	On-Site Efflue	Consent Notice	
Lot No:	Area (m²)	Shear Strength (kPa)		livision lling	Natural Topography Unworked	Торо	tural graphy worked	Conventional Shallow Foundation to NZS	Specific Design	Restriction Line	Design		ιυ	Building Platform	Building Platform	Soils	Effluent Disposal	e	
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA					form	orm				Comments
47	449	>202	Ν		N	Y	4	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
48	449	N/T	Ν		Ν	Y	4.5	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
49	487	153	Ν		N	Y	5	N	Y	Ν	Ν	Ν	Υ	Ν	Υ	Ν	Ν	Υ	
50	367	N/T	Ν		N	Y	4.5	N	Y	Ν	Ν	Ν	Y	Ν	Υ	Ν	Ν	Y	Specifically designed waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
51	367	DCP	Ν		N	Y	4.5	N	Y	Ν	Ν	Ν	Y	Ν	Υ	Ν	Ν	Y	Also:
52	631	93	Ν		N	Y	4.5	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Minimum floor levels (GCR Section 8.8)
53	482	N/T	Ν		N	Y	4.5	N	Y	Ν	Ν	Ν	Υ	Ν	Υ	Ν	Ν	Y	
54	357	N/T	Ν		N	Y	4.5	N	Y	Ν	Ν	Ν	Y	Ν	Υ	Ν	Ν	Y	
55	26922	183	Y	5.5	N	Y	7	N	Y	Y	N	N	Y	N	Y	N	Ν	Y	Specifically designed waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD. Also: BRL (GCR Section 8.6) Minimum floor levels (GCR Section 8.8) Debris bund to be maintained (GCR Section 8.5.1)



DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

	A			Subsu	rface data			Foundati	ons	Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulate	Designated Building Platform	Minimum Building Platform	Compressible Soils	On-Site Effluent Disposal	Consent Notice	
Lot No:	Area (m²)	Shear Strength (kPa)		livision Iling	Natural Topography Unworked	Торо	tural ography worked	Conventional Shallow Foundation to	Specific Design	iction Line	Design		e	uilding Pla	lding Platf	Soils	nt Disposa	ĕ	
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA					tform	orm		<u>n</u>		Comments
50	4007	100	V	7	N	V		N	V	V	N	N	V		V	N	N	V	
56	1087	183	Y	7	N	Y	5.5	N	Y	Y	N	N	Y	N	Y	N	N	Y	
57	726	N/T	Y	7	N	Y	5.5	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
58	724	183	Y	7	Ν	Y	4	Ν	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
59	731	N/T	Y	6.5	N	Y	2	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
60	802	183	Y	6.5	Ν	Υ	0.5	N	Y	Y	Ν	Ν	Y	N	Y	Ν	Ν	Y	Specifically designed waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
61	722	N/T	Y	6.5	N	Y	0.5	N	Y	Y	Ν	Ν	Y	N	Y	Ν	Ν	Y	Also: BRL (GCR Section 8.6)
62	716	183	Y	6	N	Y	0.5	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Minimum floor levels (GCR Section 8.8)
63	700	N/T	Y	5.5	Y	Ν		N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
64	704	N/T	Y	5.5	Y	Ν		N	Y	Y	Ν	Ν	Y	N	Y	Ν	Ν	Y	
65	702	N/T	Y	5.5	Ν	Υ	3	N	Y	Y	Ν	Ν	Y	N	Y	Ν	Ν	Y	
66	698	N/T	Y	5	N	Y	3	N	Y	Y	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
	SUMN						IMMAR	Y OF GOTECH		ΑΤΑ	FOF	RIND		DUAL	. LOT	S			G3



DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

_	A			Subsu	rface data			Foundati	ons	Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulate	Designated Building Platform	Minimum Building Platform	Compressible Soils	On-Site Effluent Disposal	Consent Notice	
Lot No:	Area (m²)	Shear Strength (kPa)		livision Iling	Natural Topography Unworked	Торо	tural graphy worked	Conventional Shallow Foundation to	Specific Design	iction Lin)esign		ſĎ	iilding Pla	ding Plat	Soils	nt Dispos	ē	
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA	D				atform	form		<u><u></u></u>		Comments
67	699	N/T	Y	5	N	Y	1	N	Y	Y	N	N	Y	N	Y	N	N	Y	
68	698	94	Ŷ	5	N	Ŷ	4	N	Y	· Y	N	N	· Y	N	· Y	N	N	· Y	Specifically designed waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
			•							-								-	Also:
69	698	N/T	Y	5	N	Y	5	N	Y	Y	N	N	Y	N	Y	N	N	Y	 BRL (GCR Section 8.6) Minimum floor levels (GCR Section 8.8)
70	709	81	Y	5.5	N	Y	5	N	Y	Y	Ν	Ν	Y	Ν	Y	N	Ν	Y	
71	426	N/T	Ν		N	Y	4.5	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
72	390	>202	Ν		N	Y	2	N	Y	N	N	N	Y	N	Y	N	N	Y	
73	341	N/T	Ν		N	Y	3	N	Y	Ν	Ν	Ν	Y	Ν	Y	N	Ν	Y	Specifically designed waffle slab foundations per
74	341	>202	Ν		N	Y	3	N	Y	N	N	N	Y	Ν	Y	N	N	Y	Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
75	341	N/T	Ν		N	Y	3.5	N	Y	N	Ν	Ν	Y	Ν	Y	N	Ν	Y	Also: Y Minimum floor levels (GCR Section 8.8)
76	341	>202	Ν		N	Y	3.5	N	Y	N	Ν	Ν	Υ	Ν	Y	N	Ν	Y	
77	360	N/T	Ν		N	Y	4	N	Y	N	Ν	Ν	Y	Ν	Y	N	Ν	Y	
			<u> </u>					I	1	I					I	1	I		



DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

_	A			Subsu	rface data			Foundatio	ons	Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulate	Designated Building Platform	Minimum Building Platform	Compressible Soils	On-Site Effluent Disposal	Consent Notice	
Lot No:	Area (m²)	Shear Strength (kPa)		livision Iling	Natural Topography Unworked	Торо	tural graphy worked	Conventional Shallow Foundation to	Specific Design	iction Line	Design		æ	uilding Pla	ding Platf	Soils	nt Disposi	Ö	
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA					tform	orm				Comments
78	398	>202	Ν		Ν	Y	4.5	N	Y	N	N	N	Y	N	Y	N	N	Y	
79	435	N/T	Ν		Ν	Y	5.5	Ν	Y	N	N	Ν	Y	N	Y	N	N	Y	
80	358	142	Ν		Ν	Y	5.5	Ν	Y	Ν	Ν	Ν	Y	N	Y	Ν	N	Y	
81	358	N/T	Ν		Ν	Υ	5.5	Ν	Y	Ν	Ν	Ν	Y	N	Y	Ν	Ν	Y	
82	532	120	Ν		Ν	Υ	5.5	Ν	Y	Ν	Ν	Ν	Y	N	Y	Ν	N	Y	Specifically designed waffle slab foundations per
83	435	58	Ν		Ν	Y	4.5	Ν	Y	Ν	Ν	Ν	Y	N	Y	Ν	N	Y	Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
84	441	N/T	Ν		Ν	Y	4	Ν	Y	N	Ν	Ν	Y	N	Y	Ν	N	Y	Minimum floor levels (GCR Section 8.8)
85	494	153	Ν		Ν	Y	4	Ν	Y	Ν	Ν	Ν	Y	N	Y	Ν	N	Y	
86	386	N/T	Ν		Ν	Y	4	N	Y	N	N	Ν	Y	N	Y	Ν	N	Y	
87	341	85	Ν		Ν	Y	4.5	N	Y	N	N	Ν	Y	N	Y	Ν	N	Y	
88	341	N/T	Ν		Ν	Y	4.5	Ν	Y	Ν	Ν	Ν	Y	N	Y	Ν	Ν	Y	



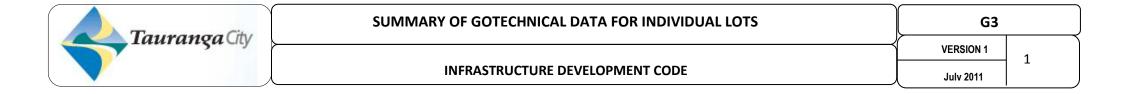
DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

_	Ar			Subsu	rface data			Foundatio	ons	Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulate	Designated Building Platform	Minimum Building Platform	Compressible Soils	On-Site Effluent Disposal	Consent Notic	
Lot No:	Area (m²)	Shear Strength (kPa)		livision lling	Natural Topography Unworked	Торо	tural graphy worked	Conventional Shallow Foundation to	Specific Design	iction Line)esign		CD	iilding Pla	ding Platf	Soils	nt Dispos	ē	
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA					tform	orm				Comments
89	341	183	Ν		Ν	Y	5.5	N	Y	Ν	N	Ν	Y	N	Y	Ν	Ν	Y	
90	341	N/T	Ν		Ν	Y	6	N	Y	N	N	Ν	Y	N	Y	Ν	Ν	Y	
91	391	183	Ν		Ν	Y	6	N	Y	Ν	Ν	Ν	Y	N	Y	Ν	Ν	Y	
92	391	N/T	Ν		Ν	Y	6	Ν	Y	Ν	Ν	Ν	Υ	Ν	Y	Ν	Ν	Y	
93	439	N/T	Ν		N	Y	6	Ν	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Specifically designed waffle slab foundations per
94	641	120	Ν		Ν	Y	6	Ν	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
95	377	151	Ν		N	Y	6	Ν	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y Y Y Y Y Y Y Specifically designed to Section 8.9 of Coffey to Also:	
96	458	151	Ν		Ν	Y	5.5	Ν	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
97	422	N/T	Ν		Ν	Y	4.5	Ν	Y	Ν	Ν	Ν	Υ	N	Υ	Ν	Ν	Y	
98	386	161	Y	1	Ν	Y	3.5	Ν	Y	Ν	Ν	Ν	Υ	N	Y	Ν	Ν	Y	
99	351	N/T	Y	1	Ν	Y	3.5	Ν	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	



DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

L	Art				rface data			Foundati		Building Restriction Line	S/W Specific Design	S/W Soakage	S/W Reticulate	Designated Building Platform	Minimum Build	Compressible S	On-Site Effluent Disposal	Consent Notice	
Lot No:	Area (m²)	Shear Strength (kPa)		livision lling	Natural Topography Unworked	Торо	tural graphy worked	Conventional Shallow Foundation to	Specific Design	ction Line	esign			ilding Plat	Building Platform	Soils	ıt Disposa	10	
		at 0.5m depth	Y/N	Depth (m)	Y/N	Y/N	Depth (m)	NZS 3604:2011 Y/N/NA	Y/N/NA					form	orm		-		Comments
			[[[n			1									
100	341	N/T	Ν		Ν	Y	4	Ν	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
101	341	N/T	Ν		N	Y	5	Ν	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
102	341	183	Ν		N	Y	5	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
103	417	89	Ν		N	Y	5	N	Y	N	N	N	Y	Ν	Y	N	Ν	Y	
104	341	N/T	Ν		N	Y	5.5	N	Y	N	N	N	Y	Ν	Y	N	Ν	Y	Specifically designed waffle slab foundations per Section 8.9 of Coffey GCR ref: GENZTAUC13086AR-AD.
105	340	133	Ν		N	Y	6	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	Also: • Minimum floor levels (GCR Section 8.8)
106	341	N/T	Ν		N	Y	6	N	Y	N	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
107	346	107	Ν		N	Y	6	N	Y	N	N	Ν	Y	Ν	Y	Ν	Ν	Y	
108	423	N/T	Ν		N	Y	6	N	Y	Ν	Ν	Ν	Y	Ν	Y	Ν	Ν	Y	
109	418	94	Ν		N	Y	6	N	Y	N	N	Ν	Y	Ν	Y	Ν	Ν	Y	



DP No:	Lot 852 DP473714	Property Address	Kennedy Road, Tauriko	RC No:	25104
	Lot 853 DP414134				

_	Ar			Subsu	rface data			Foundati	ons	Building Restri	S/W Specific D	S/W Soakage	S/W Reticulate	Designated Bu	Minimum Buil	Compressible	On-Site Efflue	Consent Notice
Lot N	ea (Shear		livision	Natural		tural	Conventional	Specific	ctio	esi		(D	uildir	ilding	Soils	nt Di	ro I
No:	(m²)	Strength	Fi	lling	Topography		graphy	Shallow	Design	on Li	ign			ng P	g Pla	S	ispo	
		(kPa)			Unworked	Earth	worked	Foundation to		ne				Plat	Ĭf		osa	
		at 0.5m depth	Y/N	Depth (m)		Y/N	Depth (m)	NZS 3604:2011						tform	orm		-	
					Y/N			Y/N/NA	Y/N/NA									Comments

Key:

DCP = Tested with Dynamic Cone Penetration (Scala); N/T = Not Tested; UTP = Unable To Penetrate

	SUMMARY OF GOTECHNICAL DATA FOR INDIVIDUAL LOTS	G3	
Tauranga City		VERSION 1	
	INFRASTRUCTURE DEVELOPMENT CODE	Julv 2011	

Appendix C - Investigation Data

						Borehol	e No.	mb 25
Site:	17					Sheet:	I	of: 3
ob No. 16944 Date Excavated: W· 30403 RL 0		:				Logged	By:	MH
Description of Soil	Soil Symbol	_	SpT	EROUNDLATER	CORE RECOVERY	Undrair 50	(kPa	
TOPSOIL SILT: UNY clayey, Slightly cohesive Gream Grown with 5% about Soft SPT 300 NUN Usy clayey, cream Grown RECOVERY Suit with 5% Wood 5-10% Wood, Stringy PMMICITE: Fine grayed Cream Sult, medium Dense, sensitive, Dilatan Organic material S-10% Wood Soft, highly compossed in NO Recovery SPT @ 3.0m.	NON ORANIC XX XX EEE			SULLING A DURING A DURING A DURING	a 0.00 1009 1008			

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	DISINFTON & LIPINSE	· · · · · · · · · · · · · · · · · · ·	an da angan ang ang ang ang ang ang ang ang	Borehol	e No. 🖊	NB 25
Site:	Pyes Pa West Urba	nisation		Sheet:	2	of:3
Job No. 16944		RL Ground:		Logged	ву: М	4
E	Description of Soil	<i>Ne64Nr</i> CS Soil Symbol (Depth (m)		Undrain 50	(kPa)	
ORGANIC SIL	<i>ν</i> Γ		SINKS UNDER		100	
SPT USU SPT SPT SPT USU SPT USU RECOVERY PUMICITE : FU Der SPT USU SPT USU SPT USU SPT USU SPT USU SPT USU SPT USU	1. soft, highly compressib 450 RECOVERY Tightly (\$58) organic Dark brown, slight pearly mell Now organic, soft grey sult Soft grey sult ne grained sult, grey nse, compact Dense grey compact oumicute. fore grained sult grey Dense Pumicute	0RGANIC 0RGANIC NON ORGANIC NON ORGANI 	V = 16 HT $V = 0$			
- - 	100 mm & MACHINE	AUGER	Et HOLI			

	SHEIMPTON & LIPINSKI				•		Boreh				
Site:	Pyes Pa West Urb	<u>anisatio</u>	<u>n</u>								
JOB NO. 16944	Date Excavated: W · 30/4/03	RL Gro	bnuc	: T			Logge	ed By	/: M	<i>Л</i>	
	Description of Soil		Soil Symbol	ф фDepth (m)			Undra	ainec	l Shea (kPa)		
- COT NO R	ECOVERY DENSE			g o —							
21.1					રે						
				9-5	12	N=7			\pm		
- Eng Q 9 9	IM: TARGET DEPTH			-						+	
EUIS (6) + 5											
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	SHRIMPTON & LIPINSKI					l.
Site:	Pyes Pa West Urbanisa	ition				Sheet: C
Job No. 16944		Ground:				Logged By: MH
	' Description of Soil	Soil Symbol	2 b C	GROWMDWATER	care reavery	Undrained Shear S (kPa)
 ССАУ: Vey	sulty, grey, soft - Sulty, grey, loose			E DURING & DRILLING	6001	

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							Boreho	e No.	ШR
Site:	Pyes Pa West Urba	nieati	<u></u>			 	Sheet:	r	Of:
Job No. 16944	Date Excavated: W· 30 4 03			1:			Logged	Ву: ∦	WA
	Description of Soil		Soil Symbol	Depth (m)		CORE RECOVERY	Undrair 50	ed She (kPa	4)
Uery medi SPT	Vey sulty sand, pak grey, Dense Sulty pak grey sand Dense Reddy brown Spongy Wood Gravelly Medium Dens Sand Sulty sand, pak grey in Dense: No Recover in <u>MeDium DEnse</u> DENSE DENSE Y sulty, grey, Dense	NON ORCANIC I DREAMIC NO			a m m 0 a a 4 5	1003 .			

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	S	and the second se					B	orel	nole	No.	MI	в
Site:	Русе	s Pa West Urba	anisation	 -		,	s	hee	t:	3	(Of:
JOD NO. 16944	Date Excavated: (N·30/4/03	RL Gro				L	ogge	∋d B	y: [NH	*
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,											
	Description of Soil			Sail Symbol	duepth (m)				aine	(kF	°a)	
SOT NO RI	ECONERY : DEN			<u>ن</u> ال	ā			$\overline{\top}$	50	10		15
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SIRINGTON A LIFTNIKI							Borel	10. 	MΒ	C		
Site: Pyes Pa West Urbanisation							Sheet:			Of	÷.	
дов No. 16944	Date Excavated: TH-1 \$/03	RL G		1:	1	+		Logge	əd By	: N	Ht.	
	Description of Soil		Soil Symbol	Depth (m)	262	GROUNDWATER	CORE RECOVER	Undra		She (kPa 100)	tre 50
SPT UDMIN REINVERCY SPT 450 RECOVERY SAND: PUMICC SAND: PUMICC TILT: UNY Wange	TUPSoil clayey, moderately cubising yollow, very stiff, si [POST RUTUEHM] ! Very clayey cubeside sult Grown yellow, very stiff Urry clayey moderately (obeside Gown yellow Coarre grained bright Orange, stiff, moist clayey, ball Grown COarve grained, grutty, cubeside Silt, brown gellow Urry clayey, slightly c pale grey, losse clayed, cubeside, brown , stiff, moist y clayey, slightly acheside	allek RSHES YOUNGER ASHES				SEE P3 FOR ENC	1003 1003 1003					

Site: Pves Pa West Urbanisation Sheet: 2 Of Job No. 169(14) Date Excavated: 7H · 1/5/03 RL Ground: Logged By: MUA Description of Soil $\begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 $							Boreh	ole No	·ME	3	
Job No. 169 (44) Date Excavated: TH - 1/5/03 RL Ground: Logged By: MA Description of Soil STLT: Pumiceolos, Dery clayey, slightly coheside, cream, stiff (Medium Dense), sensetive, Dialant SPT 450 mm Receivery & Ursin SPT 450 Fine grained cream Sult RECOVERY slightly coheside, cream Stiff (Medium 2015) sustain Juhrat	Site:	Pyes Pa West Irt	anisati	on			 	Sheet:	2	, C)f:
SPT 450 Fine grained Cream Sult SPT 450 Fine grained Cream Sult Recovery Shiphty chesive, cream Shift (Medium Dense) sensetive, Julintation Sensetive, Cream Shift (Medium Dense) sensetive, Julintation Sensetive, Cream Shift (Medium Dense) sensetive, Julintation Sensetive, Sensetive, Julintation Sensetive, Cream Shift (Medium Dense) sensetive, Julintation Sensetive, Standard Subt Sensetive, Standard Subt Sensetive, Standard Subt Sensetive, Standard Subt Sensetive, Standard Subt Subt Sensetive, Standard Subt Sensetive, Standard Subt Sensetiv	Job No. 16944				:		 	Logge	d By:	MH	
SPT 450 Fine grained cream sult Recovery Shighty chesive, cream Strff (Medium Derse) service, Julintate K 1 2 4=3 X 5-0 X 5-		Description of Soil		Soil Symbol	Depth (m)	SPC			(kl	Pa)	
	Cuhisi SPT 	De, cream, stiff (Medium), sensitive, Diblent 450 mm Recovery & 45 m Fine grained cream sult slightly chesive, cream stiff (Medium Durse) susation, Dila					100 %				

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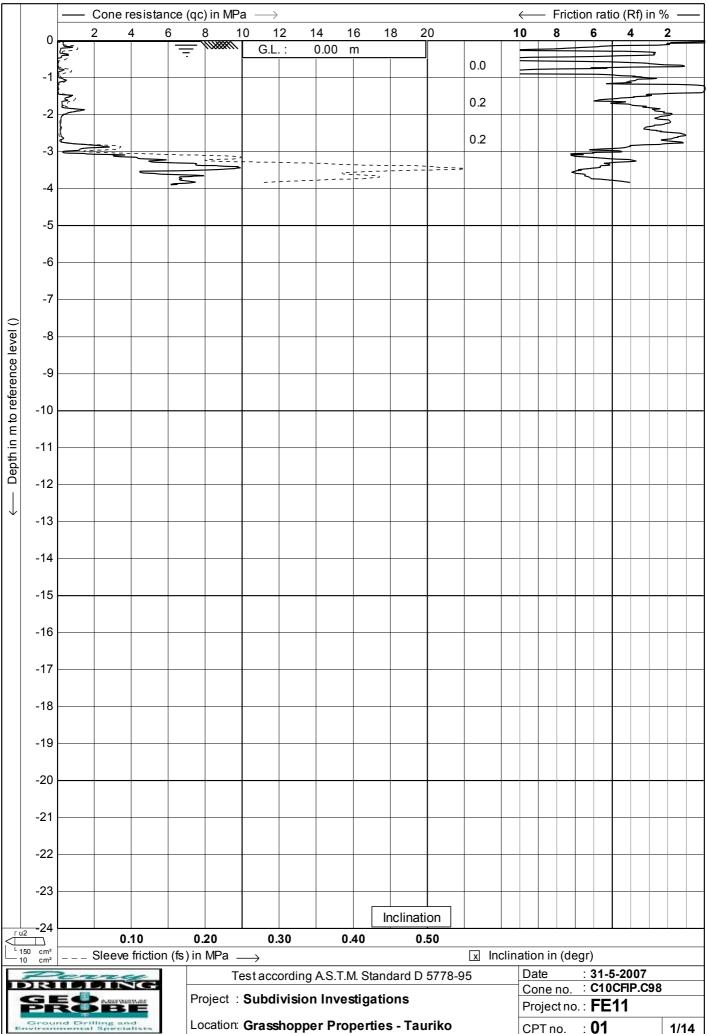
Site: Pyes Pa West Urbanisation							Sheet	t:	3	I	Of;
JOB NO. 16944	Date Excavated: TH ·1/5/03 RL Ground:						Logged By: MH				
	Description of Soil	Soil Symbol	Depth (m)	SPT	GOUNDURTED		Undra	aineo 50	(kł	hear Pa) 00	· Sti 15
	Description of Soil grained cream pumicity, firm um Dense), sensitive, Dilatint In yollow sand, medium Dense htly moist Spongy bown wood pale grey sand lowse, very moist N : TARGET DEPTH				DURING IN DRILLING	3.0m RUN 100 & RECOVERY					

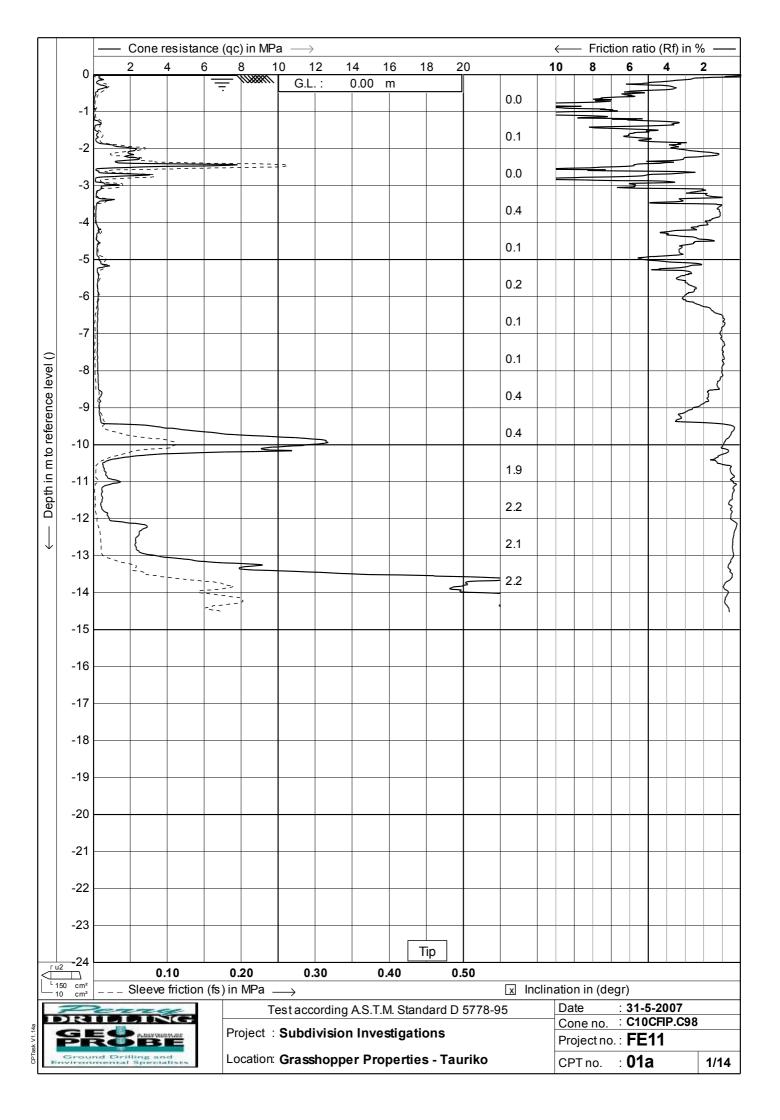
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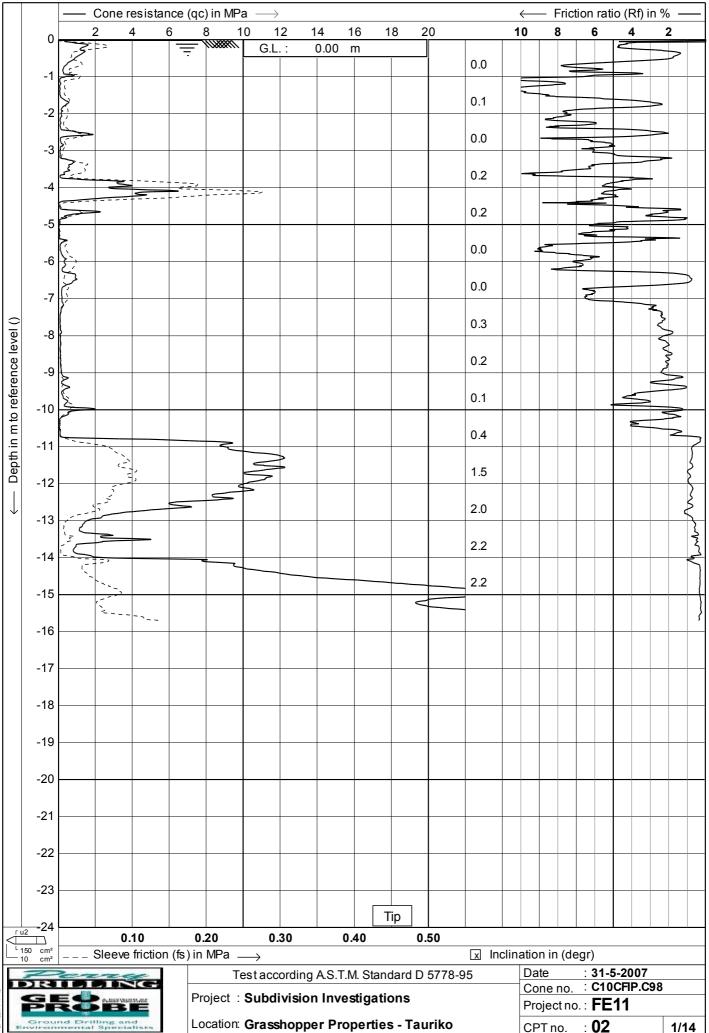
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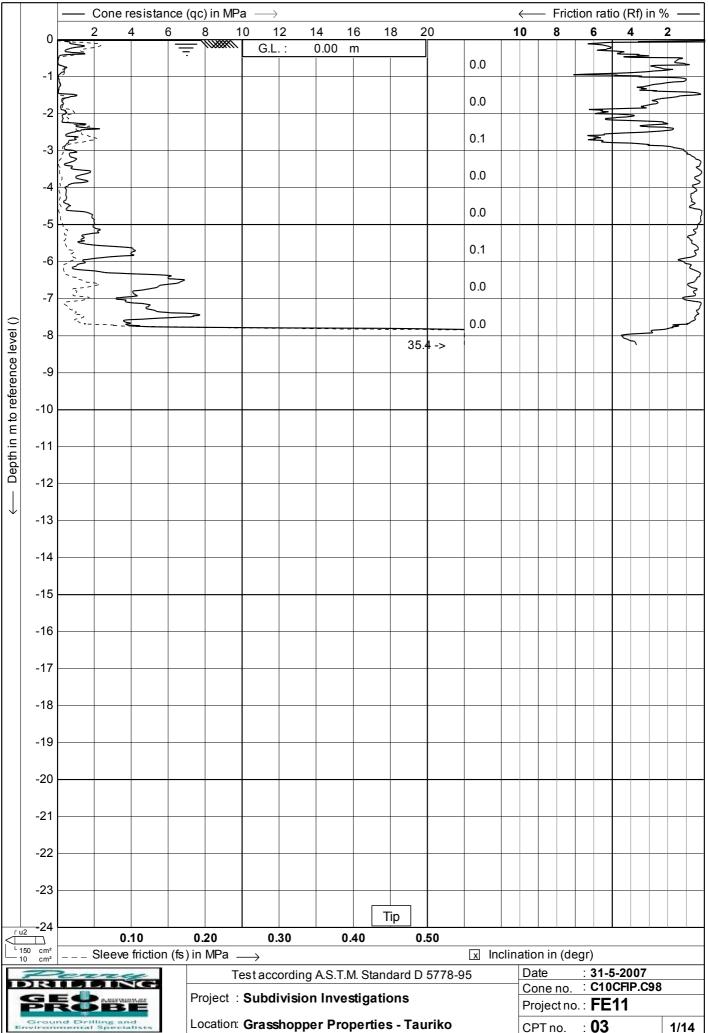
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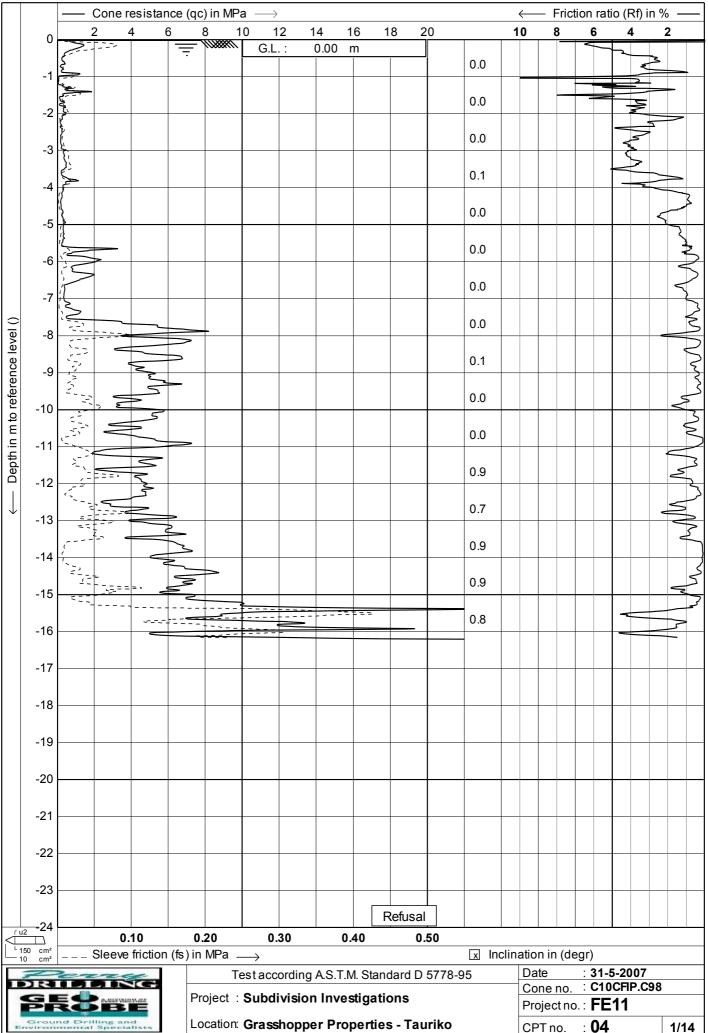


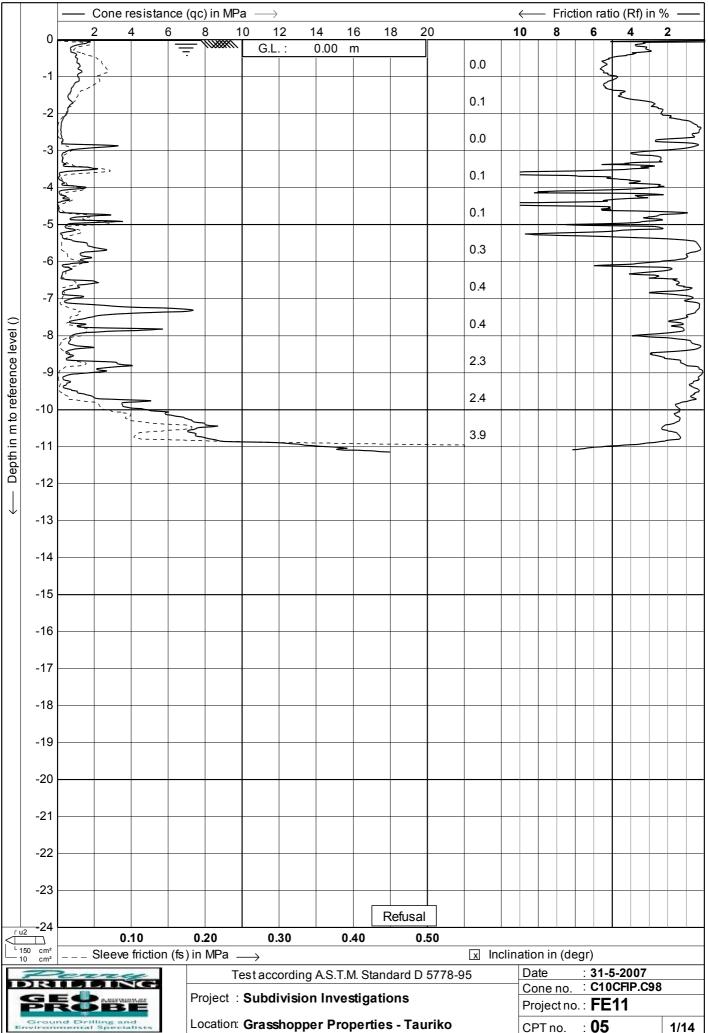


CPTask V1.14a

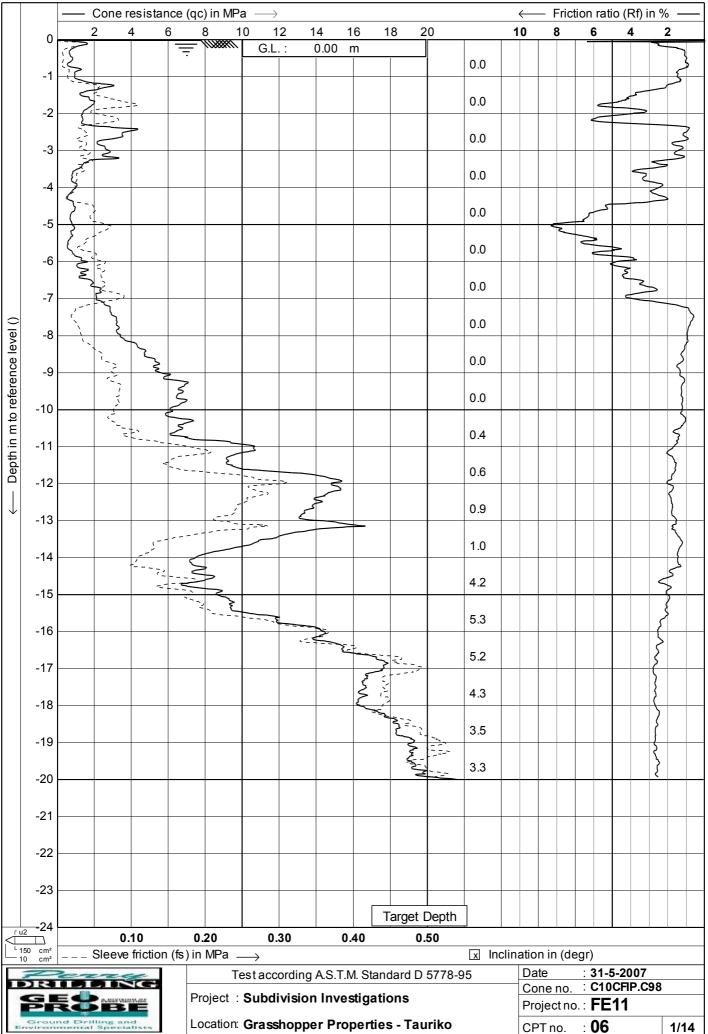


CPTask V1.14

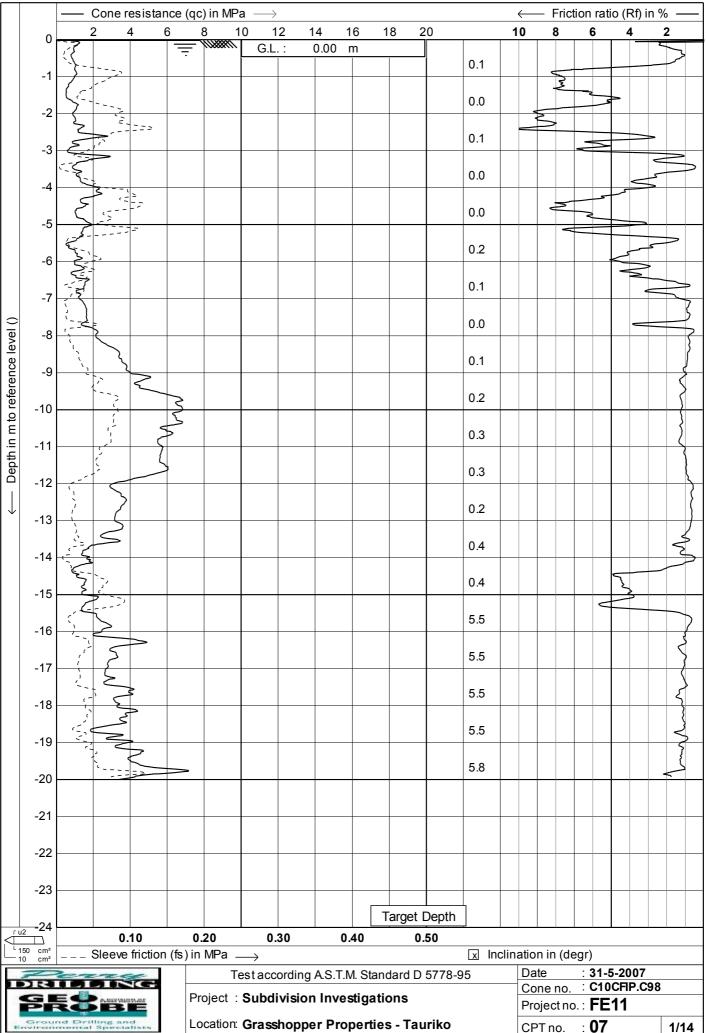




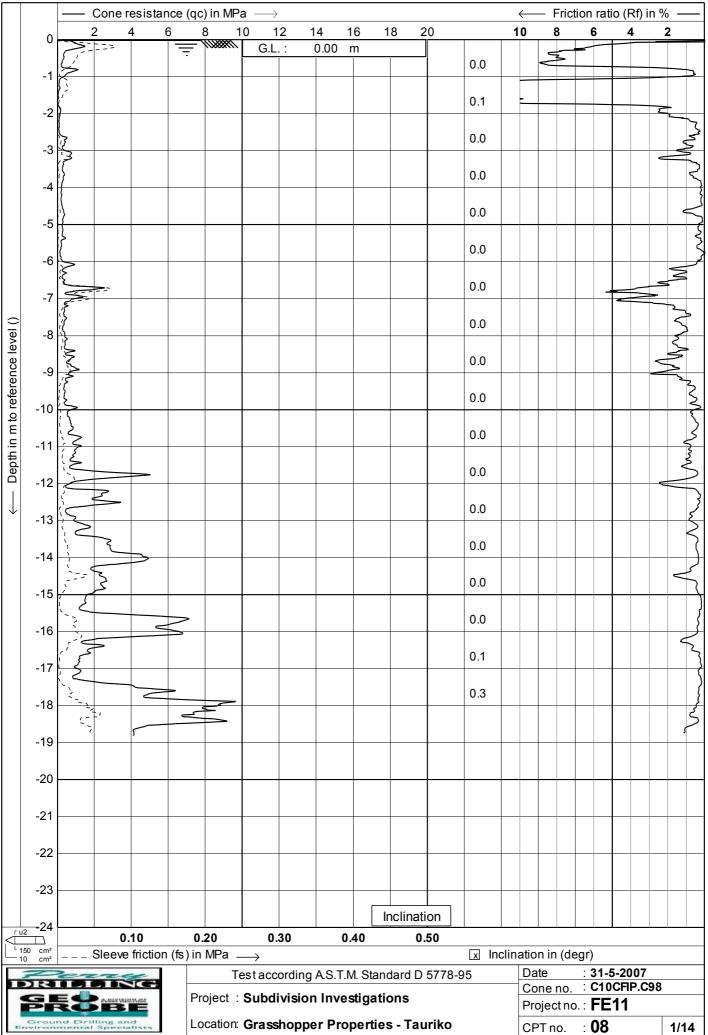
CPTask V1.14

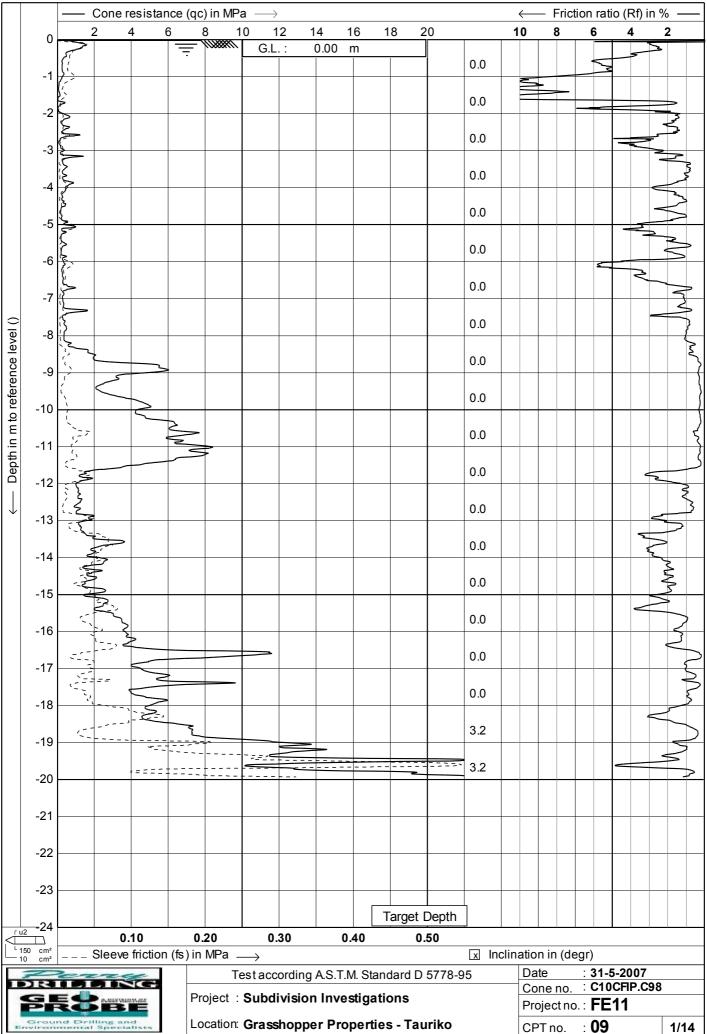


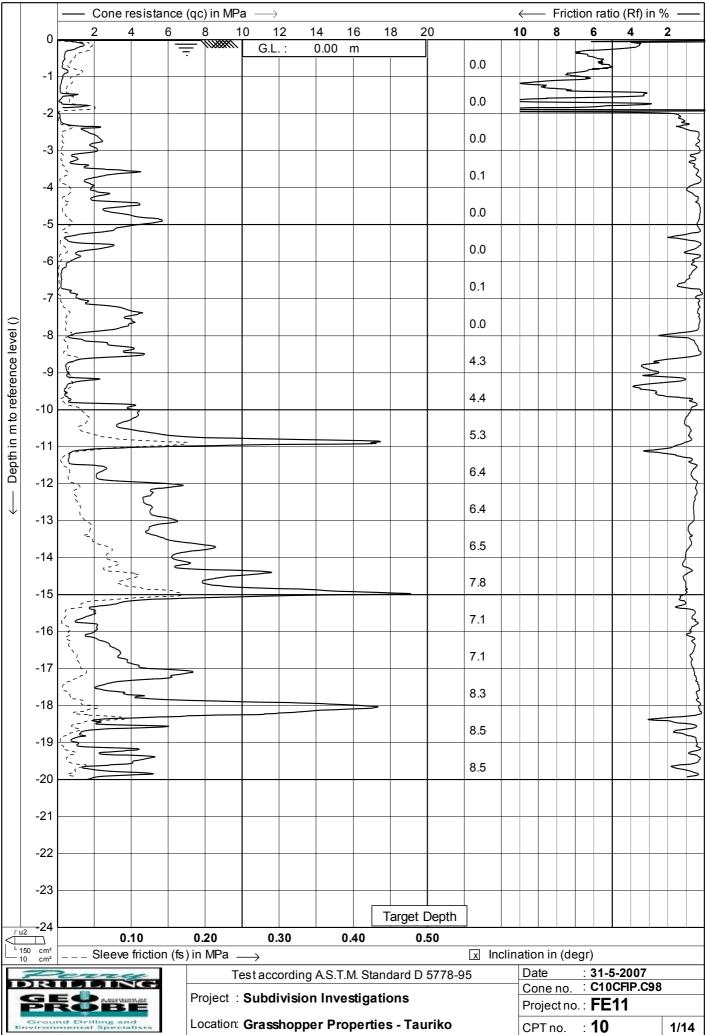
CPTask V1.14

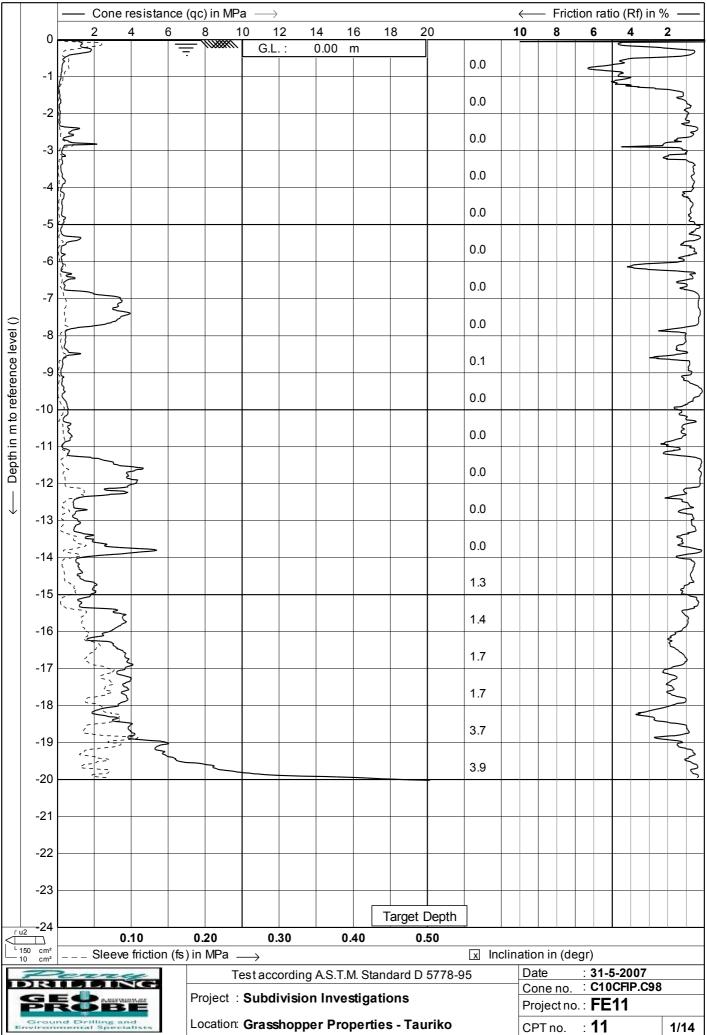


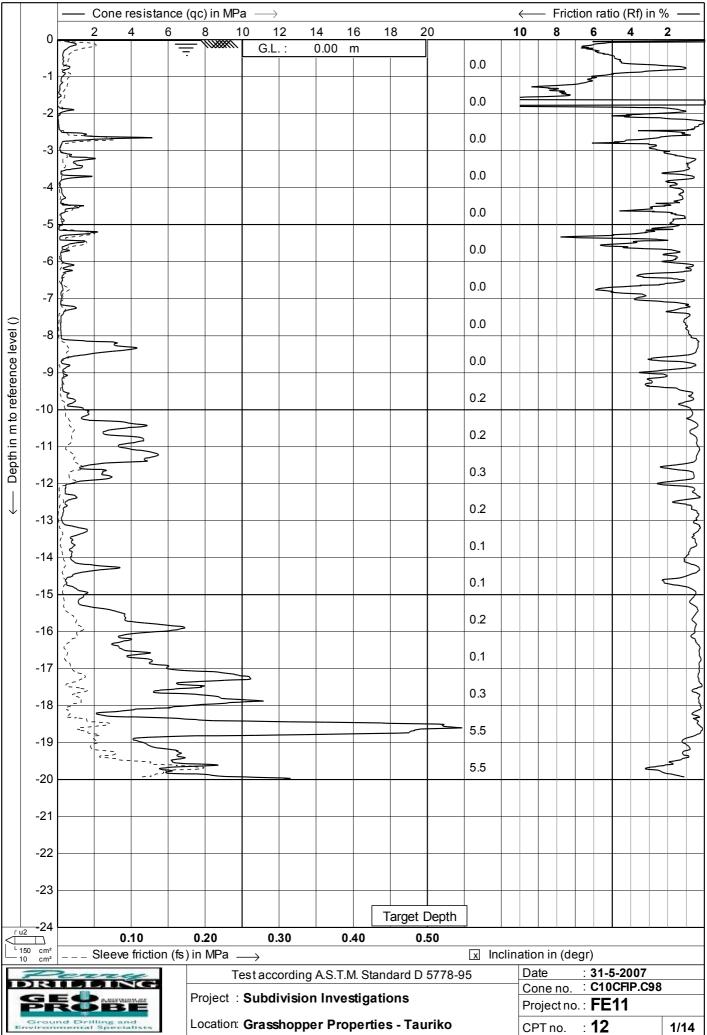
CPTask V1.14i

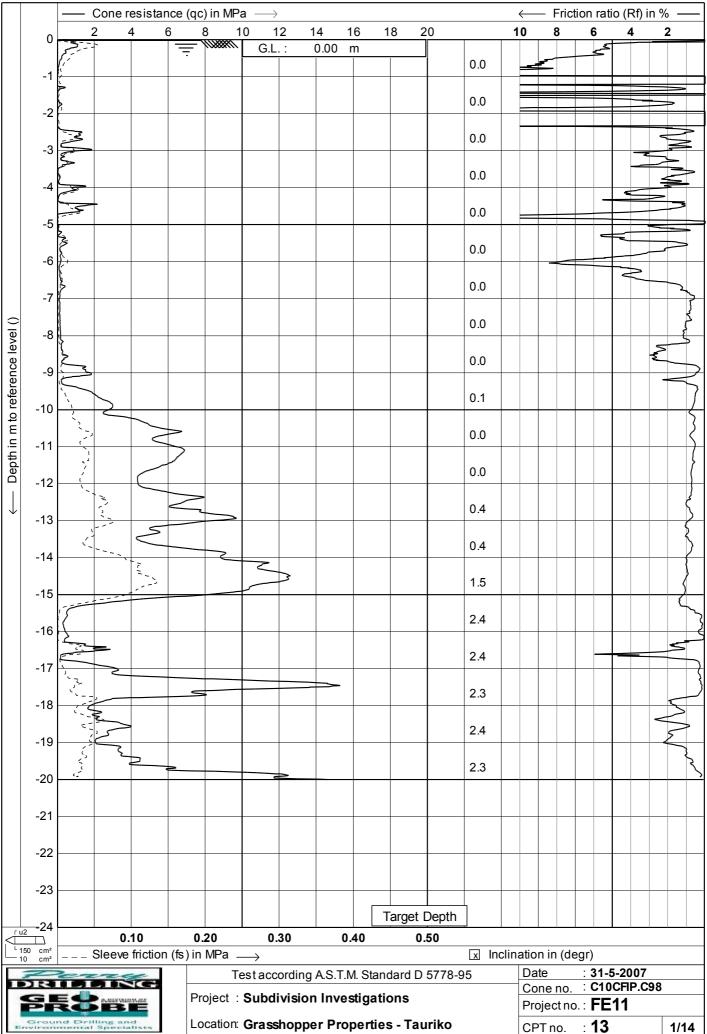


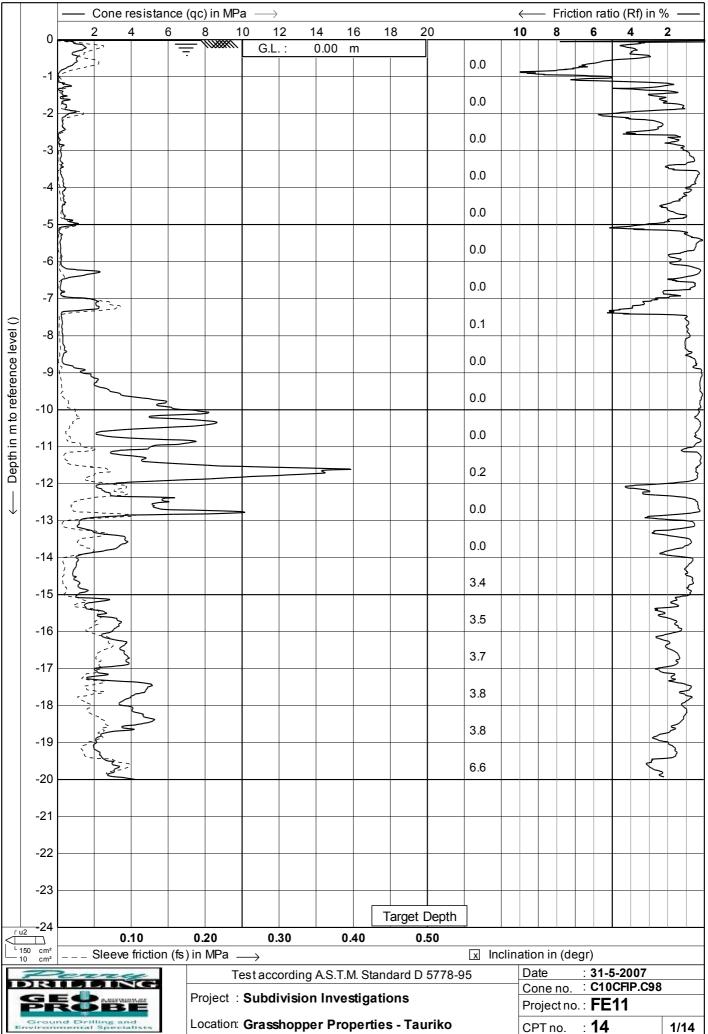












	Client :	FIVE STAR	ESTATE I	IMIT	ED	A Alto A Altonia	A	Ma	achi	ne E	Bore	eho	le l	No. N	1H 1
	Project Locatio	o n : Grasshoppe Tauriko	er Farms										Sh	ieet 1 of	6
	Job Number:	13447						Vane Hea		ged E MJP	3y: Pr	oces: MAF			: 01.06.07 e: 01.06.07
hy	Borehole mN	mE				Ground	R.L.				poul				
Stratigraphy		n: Refer to site plan			_	Orientat	ion:	vertical		Groundwater/ Piezometer	g Met Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	ie Dia e Sh∈ gth (k SPT
Stra	CORE	DESCRIPTION		Legend	Depth (m)		DEFI	ECTS		Grou Piez	Drilling Method & Casing	Reco	RQ	San Lab Test	Vane Dial / Vane Shear Strength (kPa) & SPT
	TOPSOIL				-										
	SILT, yellow-light brown, non-	-plastic, moist													
					- 0.5 -										
_					- 1.0										
Younger Ash															
ounge					- 1.5 -										
Ϋ́															
					- 2.0										
	at 2.2m with minor sand				-										
ч	Silty SAND, black flecked ligh	nt grey			- 2.5										
IN As					_										
Rotoehu Ash					- 3.0										
	Silty CLAY, brown, very plast	ic			-										
Hamilton Ash	at 3.7m becoming very sticky,	. moist			3.5										
lamilt	at 3.9m becoming orange	,			-										
<u> </u>	SILT, with trace clay, slightly	sticky, moderately plastic, da	amp		- 4.0										
	at 4.5m becoming very greasy	w when			-										
	reworked, moist	,			4 .5										
					-										
					- 5.0 -										
					-										
					5.5 -										
ilts															
Alluvial Silts					- 6.0 -										
Allu	Sandy SILT, black flecked light moderate to highly weathered to 5mm)	ht grey and orange, with con d angular pumice inclusions	nmon 1mm		- 6.5										
	to omity				_ 0.5					-					
					- 7.0										
					-										
					7.5										
	at 7.8m with increasing pumic	e sand (becoming less wea	hered)												
	Continued	· · · · · · · · · · · · · · · · · · ·			- 8.0										
		Comments: Adjacent	to CPT 6		Drilling wa	ler 10	psoi		Sand			ands		Pluto	
	FOUNDATION				Chec	Fil			Gravel Drganie		112	iltstor imest		No C	Core
		Driller: Perry Drilling	Rig: Tractor			Sil			Pumice			olcar			

arta farinas	Client :	* mai = 19 40 1 3 #	FIVE S	TAR	ESTATE L	IMIT	ED		·	M	achi	ine l	Bore	eho	le l	No.	MH 1	
	Project	Locatio	n: Grassh	oppe	r Farms										Sh	eet 2 d	f 6	
	Job Nur		Tauriko 13447	1						Vane He		gged I MJP	3y: Pr	oces: MAF		Start Da Finish Da		
	-	mN		mE		· · · ·		Grou	ind R.L.	1			pot					
graph	Borehole - Location:		: Refer to site						ntation:	vertical		idwat omete	Meth asing	ery ('	RQD (%)	ole ar orator Detai	e Dial	r She Ith (kl SPT
Stratigraphy		CORE	DESCRIPTION	N		Legend	Depth (m)		DEF	ECTS		Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQI	Sample and Laboratory Test Details	Vane	Vane Shear Strength (kPa) & SPT
	moderate to w	plack flecked ligh veathered angula	it grey and orange, w ar pumice sand inclus	ith con	imon		-							_				
	(1mm to 5mm)																
							- 8.5											
al Silt							_											
Alluvial Silts							- 9.0 -											
							- 9.5 -											
	Pumiceous SA 8mm diamete	AND, fine, clean r. black flecked (with rare pumice inclorange and light grey	lusions , drv	up to		-10.0											
		.,					Ē											
							- 10.5											
							- 11.0											
							Ē											
							- 11.5											
	at 12.0m hole to hole collaps		ng in, difficult to extra	act aug	er due		- 12.0											
Imice							-12.5											
Alluvial Pumice							E											
Alluv							-13.0											
	at 13.5m becc	oming light grey					- 13.5											
							-14.0											
:																		
							- 14.5											
							E											
							-15.0											
							E											
							-15.5											
							Ē											
μ	Continued		Comments: Adj	igcort -	o CPT 6		Drillin	g Fluid:	Topsoi	T	Sand	<u> </u>	L Ta	Sands	tor	 Д Д р	utonic	
E	FOUN	DATION	Somments. Au	acerii l			1	ater	Fill		Grave	el		Siltsto			o Core	
	ENGIN	IDATION NEERING			r		Che	cked:	Clay		Orgar	nie ^{na} .		_imes	stor			
			Driller: Perry Drillin	ng	Rig: Tractor		1		Silt		Pumic	d		Volca	nid			

(Client :	a da internationalista da anternationalista da anternationalista da anternationalista da anternationalista da a	FIVE S	TAR	ESTATE L	.IMIT	ED	4 maa 2 m 2	\$ ²	M	achi	ine I	Bore	eho	le N	10.	MH 1	
	Project L	ocatio	n: Grassh	oppe	r Farms										Sh	eet 3 o	F 6	
	Job Num		Tauriko 13447							Vane He		gged I MJP	3y: Pr	oces: MAF		Start Dat Finish Da		
T		nN		mE				Grour	nd R.L.	I	I		poq		-			Бај Гај
Stratigraphy			Refer to site	plan					tation:	vertical		Sroundwater Piezometer	g Metl	/ery (RQD (%)	Sample and Laboratory Test Details	e Dia	e She SPT SPT
Strati		CORE D	ESCRIPTION	1		-egend	Depth (m)		DEF	ECTS		Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQ	Sam Lab Test	Van	Vane Shear Strength (kPa) & SPT
			with rare pumice incl range and light grey		up to		-											
Alluvial Pumice	at 18.0m with ran pumice (fine gran	re lithic inclusivel sized)	ons up to 2mm and i	rare any	gular		- 16.5 - 17.0 - 17.0 - 17.5 - 117.5 - 118.0 - 118.5 - 119.0 - 119.5 - 119.5											
	E.O.B at 20 met	res					220.5 21.0 21.5 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.5											
1	A		Comments: Adj	jacent t	o CPT 6			g Fluid: ater	Topsoi Fill		Sand Grave		- 1	<u>Sand</u> Siltsto			utonic o Core	
		DATION EERING					Che	cked:	Clay			ni		Lime			_ 010	
			Driller: Perry Drilli	na	Rig; Tractor		1		Silt		Pumi			Volca	anid			

(Client :		FIVE S	TAR	ESTATE L	IMIT	ED			M	achi	ne l	Bor	eho	le N	No. N	1H 2
		Locatio	n: Grassho		r Farms										Sh	eet 4 of	6
	Job Nu		Tauriko 13447							Vane He		gged I MJP	By: Pi	oces: MAF			01.06.07
		mN		mE			ſ	Grou	nd R.L.				<u>g</u>): 01.06.07
Iraph	Borehole Location:		Refer to site						ntation:	vertical		dwate mete	Meth	ery (°	(%)	rator Detai	Dial Shea Shea SPT
Stratigraphy			DESCRIPTION			Legend	Depth (m)			ECTS		Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	Vane Dial / Vane Shear Strength (kPa) & SPT
	TOPSOIL			•		Le	-					0		ш.			
	SILT, light bi non-plastic,		y, with no apparent fa	abric,													
	,						- 0.5										
							-										
							- - 1.0										
Ash							-										
Younger Ash							- 1.5										
λοί							-										
							2.0										
							-										
							- 2.5										
	Sandy SILT	black flecked lig	ht grey, slightly sticky	/, non-p	lastic		-										
R.A		-					3.0										
£	Silty CLAY,	dark brown, very	plastic, sticky, wet				-										
Hamilton Ash							3.5										
amilto							- -										
T	Clayey SILT	, with trace sand	orange, moderately	plastic	greasy		4.0										
	when rewor	ked															
							4.5										
							-										
							5.0										
	Sandy SILT, wet	with abundant lit	hic inclusions, black i	flecked	orange,												
							5.5										
							ŀ										
Alluvial Silts							6.0										
Nluvia							11								-		
4	at 6.5m bec inclusions	oming orange an	d light grey with black	k flecke	d lithic		6.5										
	at 6.8m with	highly weathere ine gravel sized),	d to completely weath	hered p	umice		-										
		ine graver sized),	molar to wor				7.0										
							-										
							7.5										
	Continued		I				- 8.0	, Eluiai		I							
×	A		Comments: Adj R.A = Rotoehu Ash		to CPT 7			g Fluid: iter	Topsoi Fill		Sand Grave			Sands Siltsto			onic Core
	ENGI	NDATION NEERING					Cheo	cked:	Clay_		Organ	·		Limes		110	
			Driller: Perry Drillin	ng	Rig: Tractor]		Silt		Pumic	e l		Volca	nic		

(Client :		FIVE STAR	ESTATE L	IMIT	ED			M	achi	ne l	Bore	eho	le l	No.	MH2	200 - 1 - 2 - 2
I	Project	Locatio	n: Grasshopp	er Farms										Sh	ieet 5	of 6	
	Job Nu	mber:	Tauriko 13447						Vane He		gged I MJP	By: Pr	ocess MAP			Date: 01 Date: 01	
T		mN	mE				Grou	nd R.L.		1		por	(%			<u>s</u>	a) a
Iraph	Borehole Location:		Refer to site plan					ntation:	vertical		dwat	Meth asing	ery (°	RQD (%)	ole ar rator	Detai	She th (kl
Stratigraphy					Legend	Depth (m)			ECTS		Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQL	Sample and Laboratory	Test Vane	Vane Shear Strength (kPa) & SPT
0	Sandy SILT,	orange and light g	DESCRIPTION grey with black flecked lith	C	Ľé	ā					– ن ا	۵	₩			·	ν, γ
	inclusions, co pumice inclu	ontains highly wea sions, moist to we	athered to completely weat t	hered		-											
						- 8.5											
						- 9.0 -											
						-											
	at 9.5m becc	ming wet				9.5											
						El											
s						- 											
Alluvial Silts																	
lluvia						F											
٩						-10.5 -											
		coming black fleck ery wet to saturate	ked light grey with abundar ed	nt lithic		-11.0 -											
	I																
						-11.5											
						-											
						- 12.0											
						-											
						Ē											
						-											
	Silty SAND, pumice inclu	black flecked light sions (fine gravel	t grey, with rare highly wea sized), wet	athered		-13.0											
						-											
	at 13.5m with metres, non-	n 3 bands of orang	ge silt every 0.5			13.5											
spu						-											
al Sai	at 14.0m wit	h decreasing silt				- 											
Alluvial Sands																	
∢						- 											
						E.						1					
		light grey-light br lastic, saturated	rown, with abundant fine g	rained		15.0							1				
Silts						F											
Alluvial Silts						-15.5											
-						E											
	Continued		Q	4- 0DT 7		- 16.0	g Fluid:	.	I	• ••••••	<u> </u>				·		
ķ	<u>s.</u>		Comments: Adjacent	TO CPT 7			iter	Topsoi Fill		Sand Grave		Т	<u>Sands</u> Siltsto			Plutonic No Core	
	FOU	NDATION NEERING				Cheo	ked:	Clay		Orgar			Limes				
			Driller: Perry Drilling	Rig: Tractor		1		Silt		Pumic			Volca				

(Client :	¥7=	FIVE S	TAR I	ESTATE L	.IMIT	ED	78.60 de 7.8.50		M	achi	ine I	Bore	eho	le N	No. N	1H 2
		Locatio	n : Grassh	oppei												eet 6 of	6
	- Job Nu		Tauriko 13447	¢.						Vane He		gged I MJP	By: Pr	oces: MAF			: 01.06.07
				mE				Grouv	nd R.L.				po				≕ 01.06.07
raph)	Borehole Location:	mN Description:	Refer to site						itation:	vertical		dwate mete	Meth Ising	ery (%	(%)	le an ratoŋ Detail	Dial Shea h (kF SPT
Stratigraphy			ESCRIPTION			egend	Depth (m)			ECTS		Groundwater/ Piezometer	Drilling Method & Casing	Recovery (%)	RQD (%)	Sample and Laboratory Test Details	Vane Dial / Vane Shear Strength (kPa) & SPT
	Sandy SILT,		own, with abundant f		ned	<u> </u>	_							-		· · · · · · · · · · · · · · · · · · ·	
Alluvial Silts		oming light grey, l	less weathered with	a band	of		- - - - 16.5										
Alluvial Pumice	sized), with t	undant pumice (fir vecoming coarser)	ed light grey, (fine to				- 17.0 - 17.5 - 18.0 - 18.5 - 19.0 - 19.5 - 20.0 - 20.5 - 21.0 - 21.0										
							- - - - - -										
							- 23.0 	5									
	 		Comments:				Drillir	ng Fluid:	Topsoi		Sand			Sand	stor	Plu	tonic
6	FOU	NDATION						ater	Fill		Grav	el		Siltst	one	No	Core
	ENG	INEERING			1		Che	cked:	Clay		Orga			Lime			
1			Driller: Perry Drilli	ina	Rig: Tractor		1		Silt		Pumi	ce	1	Volca	anid	1	I

	Client :	••••••••••••••••••••••••••••••••••••••		FIVE STAR ESTA	TE LIN	MITED	- c			- A de la casta	Trial	Pit I	No.	Т	P 1
		Locatio	n :	Grasshopper Farm	າຣ								Sheet	1 of	17
	-			Tauriko				∣⊽	ane H	lead:	Logge	d By:	Process	ior :	Date:
	Job Nu	mber:		13447					48	512	M	JP	MAP	r	07,06.07
hу	Pit	mN		mE	Gro	ound R.L.			.	3	Ê	ater	ear kPa)	jįζ	Tes
igrap	Location:	Description:		Refer to site plan					buene 1	, , ,	Depth (m)	мри	e Sh gth (Soil Sensitívity	etail
Stratigraphy				SOIL DESCRIPT	FION]	Dei	Groundwater	Vane Shear Strength (kPa)	លី	Sample and Laboratory Test Details
	TOPSOI	L		<u></u>		,			$\overline{\mathcal{N}}$	111	↓				
		ellow-light bi n becoming s	-	very stiff, non-plast	ic, fria	able			× ×	×××× ×××× ×××× ×××××××××××××××××××××××	- 0.5 		157	3.1	
Younger Ash								** ** ** ** ** ** ** ** **	××× ×××× ××××× ×××××××××××××××××××××××	× × × × × × × × × × × × × × × × × × ×	- 1.0 		87 87	2.5 2.7	
λαυr	at 2.0n	1 becoming s	slightly	y sandy, moist				~~~~~~	× × × × × × × × × × × × × × × × × ×		- - 2.0 -		98	2.2	
	at 2.4m	n becoming v	very st	uff				<u> </u>	× × × × × × × × × × × × × × × × × ×	××× ××× ××× ××× ×××	- 2.5		105	2.6	
								****	× × × × × × × × × × × ×	× × × × × × × × × × × × × × ×			115	2.6	
	Sandy S	SILT, dark or	ange,	very stiff, non-plas	tic, mo	oist			× × × ↔↔ × × ×	х х х х х х х х х	- 3.5		192	3.3	
ASH	-			ind light grey, moist					<u></u>	×××××× ******			, 94	0.0	
.н. Н.				ed with light grey m nds, horizontally bea						× × × × × × × × × × × × × × × × × × ×	- 4.0		157	4,5	
lts	at 4.7m	becoming f	irm to	stiff				*,*,*,*,*,*,*,*	\$`\$`\$ \$`\$`\$ \$`\$`\$ \$`\$`\$ \$`\$`\$ \$`\$`\$	***** ***** ***** *****			150	5.0	
Alluvial Silts	at 5.2m	becoming s	tiff					**.*.×.×.×.	\$^\$^\$ \$`\$`\$ \$`\$`\$ \$`\$`\$ \$`\$`\$ \$`\$`\$	^ & ^ & ` & ` & ` & ` & ` & ` & ` & ` & ` & `	× - 5.0		50	2.6	
		-						<u>×;x;x;x;x;x;x;x;</u> x;	**** **** ***** ***** ****				68	2.5	
	E.O.B at	t 6.0 metres	. Ma	ximum Reach of Exc	cavato			[×	<u>`````````````````````````````````````</u>	× & × & × &	× 6.0		62	2.3	L
			1	iments:		Excavalor Used:	Topsoli	$\overline{\mathcal{M}}$	S	and		Sandst		the second s	onic ++++
٦,		NDATION		Indwater not encount 3H = Rotoehu Ash	ered.	Hitachi EX 200	FIII	\mathbb{Z}	<u> 4</u> G	ravel		Siltstor		Z Z No	Core
E.	ENG	NDATION INEERING	,	-,, 191001021004		Checked:	Clay	 <		rganic <mark>4</mark> umice 🔇	уффе Стар Стала	Limest		.	
							Sih	kxx: /xx	<u> </u>	unice v	<u> </u>	Volcan	10 マクト	<u> </u>	

Γ	Client :		FIVE STAR EST	ATE LIMITED					Trial	Pit I	No.	T	P 2
	Project	Locatio	n: Grasshopper Fai Tauriko	ms							Sheet	2 of	17
	Job Nu	mber:	13447					Head:	Logge		Process MAP	or :	Date: 07.06.07
\vdash			mE	Cround PI			_	4612					יטט.יט איז מיד
Stratigraphy	Pit Location:	mN Description:		Ground R.I				pua	(H)	Groundwater	Vane Shear Strength (kPa)	Soil Sensitivity	e anu ny Tu ails
atigr		Description.	· ····					Legend	Depth (π)	ouno	rigth	So	Detto
Str				TION						ق 	Stre	0	Sample and Laboratory Test Details
	TOPSO SILT. W		nd, very stiff, yellow-lig	nt brown, friabl	e, non-pla	stic,		\times \times \times \times \times	1				
	moist			•			_ k××	XXXX XXXX	-				
								XXXX XXXX			171	3.4	
							_	XXXX XXXX				0,7	
								XXXX XXXX	F				
								XXXX XXXX	1				
							_ k××	XXXX XXXX	− 1.0		153	3.7	
								: X X X X : X X X X					
ے	at 1.3n	n becoming v	very hard				_ k××	XXXX XXXX					
I As							_ k××	XXXX XXXX	-1.5		206+		
Younger Ash	at 1.7r	n becoming	very stiff				k x x	: X X X X : X X X X	L				
۶							×××	XXXX XXXX	r -				
							_ ķ××	XXXX XXXX	- 2.0		153	4.4	
							k x x	XXXX XXXX	F				
							_ ķ××	XXXX XXXX	:				
		4) 4					< X X	XXXX	- 2.5		142	4.7	
	comple	sill, dark or tely weather	ange, very stiff, with al red pumice inclusions (f	ine to medium	sand sized	i)	: X:X :X:X	× × × × ×	<u>_</u>				
		-	-				k X X K X X	×××××					
		1			a to madi				- 3.0		21	0.7	
ļ		medium, witi (strength inf	h trace silt, black flecke erred)	o orange, loose	e to meair	1111			:E				
÷								· · · · ·	·		1		
Rotoehu Ash									- 3.5		98	1.7	
otoei									: -				
œ									: -				
									-4.0		62	1.6	
	SILT, lig	ht grey, gre	asy when reworked wit. tiff, non-plastic	h rare bands of	light grey	silty	XXXX		, - 4.0 , -			1.0	
	sanu, p	uniiceous, st	IIII HOIPPIASCIC				XXXX		; ,				
ilts							× × × × × ×		×				
Alluvial Silts							×××× ××××		× 4.5		79	1.9	
Alluv							x x x x x						
							x x x x x x						
⊢	E.O.B a	t 5.0 metres	Maxiumum Reach of	Excavator			<u>,,,,,,,,</u>	<u></u>	- 5.0		85	2.1	
									F				
									-				
									- 5.5				
									F			Į	
									F				
			• • • • • • • • • • • • • • • • • • •			n		r	-6.0	Ļ	<u> </u>	l	<u> </u>
	~		Comments:	H	itachi h	Topsoll	>>>>	Sand		Sands	122	7 1	lonic ++++
6		NDATION	Groundwater not encou		X 200	Fill	<u> </u>	Gravel		J			Core
	M EÑĞ	NDATION INEERING		Checke	-	Clay :	 X X X V	Organic Pumice 4		Limes			
						Silt	$\times \times \times \times$	FULKE	<u> </u>	Volca	nic prov	·~·	

	Client :	FIVE STAR ESTATE	LIMITED			Trial	Pit I	No.	Т	РЗ
		n: Grasshopper Farms Tauriko						Sheet	3 of	17
1	Job Number:	13447			Vane Head:	Lagge		Process	ior :	Date:
Stratigraphy	Pit mN Location: Description	mE	Ground R.L.		4612	Depth (m)	Groundwater	Vane Shear Strength (kPa) d	Soil Sensitivity	Sample and Laboratory Test 90 Details
Stratiç	· · · · · · · · · · · · · · · · ·	SOIL DESCRIPTIO	N			Dept	Groun	Vane Strengt	Sens	Samp Laborat De
	SILT, yellow-light b	prown, very stiff, non-plastic,	frìable			- 0.5		150	3.0	
Younger Ash	at 1.0m with a ban at 1.7m becoming	d of orange silts to 1.5 metr	es					108	3,4 2.7	
		orange, sandy silt, moist				- 2.0		90	2.2	
						- 2.5		98	2.0	
Ash	Silty SAND, orange, at 3.3m with trace	, with abundant lithic inclusion silt	าร			- 3.0 - -		206+		
Rotoehu Ash	Sandy SILT, orange	and light grey, stiff, pumiced	ous, non-plastic, m	oist		- 3.5 		93	2.0	
ls	completely weather	ack flecked light grey, with c red pumice inclusions (fine sa dded bands of clean light gre stic, moist	nd to coarse sand	sized)		- 4.0 - -		115	3.3	
Alluvial Sills	at 4.7m becoming s	stiff				- 4.5 - - -		105	4.4	
	E.O.B at 5.0 metre	s. Maximum Reach of Excav		1		- 5.0 		62	2.1	
Ś	FOUNDATION	Comments: Groundwater not encountered	Excavator Used: Hitachi EX 200 Checked:	Fill Clay	Sand Gravel Organic	~~~~~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Sandst Siltstor Limest Vokan	18 2 2 018 2 2 018		

Γ	Client :			FIVE STAR ESTAT	E LIMITED				<u> </u>	Trial	Pit	No.	Т	°P 4
	Project	Locatio	n :	Grasshopper Farms Tauriko	i -							Sheel	4 0	i 17
	Job Nu	mbor		13447				V	ane Head:	Logge		Proces		Date:
L	JUN 100			·····					4612	M	IJP	MAP	1	07.06.07
phy	Pit Location:	mN		mE	Ground R.L.				p	Ê	Groundwater	jear (kPa	vity	and S Tes
Stratigraphy	Location.	Description	:	Refer to site plan					Legend	Depth (m)	Apun	igth St	Soil Sensitivity	Detai
ŝ				SOIL DESCRIPTI	ON					۱ď	g	Vane Shear Strength (kPa)	ര്	Sample and Laboratory Test Detaits
	TOPSO								UUU	+				
L				very stiff, friable, nor orked, moist	Ppiastic, coars		ne that	******************	<pre></pre>	< - 0.5 < - 0.5 < - 1.0 < - 1.0 < - 1.0 < - 1.0 < - 1.0 < - 1.0		196	4.2	
Younger Ash	at 2.0n	1 becoming	sandy	/ silt, moist				***********		< < < < 2.0		108	4.1	
								**********		<pre>2.5 </pre>		108 132	3.4 3.8	
u Ash	Silty SA	ND, orange	, with	trace lithic inclusions				****		- - - - 3.5		115	3.3	
Rotoehu Ash		-		sand with trace lithic				**************************************		-4.0		62	3.3	
Sills	sandy s weather coarse s	ilt and light red to comp sand sized)	grey letely and n	sands horizontally be weathered pumice ir nanganese streaking, niceous silt, mojst	dded, with rare clusions, (fine	e highly sand t	0	× × × × × × ×		-4.5		122 62	3.5 3,0	
				aximum Reach of Exca	vator					- 5.0 - 5.5 - 5.5				
			6		Excavator	Used	^			-6.0				. 1++++
	\sim			nments: undwater not encounter	- Hitad	chi -	Topsoli	\gg	Sand		Sandst		7.7	
2		NDATION NEERING			EX 2 Checked:		Fill		Gravel		Silistor			Core
	ENGI	NEERING			Unecked:	-1	Clay :		- Organic		Limest		54	
							Sill	XXX XXX	Pumice	****	Volcan	10 /22	21	

Shue to 17 Shue to		Client :	141-14-15 () · · · · · · · · · · · · · · · · · ·	FIVE STAR EST	ATE LIMITED		Trial	Pit N	No.	Т	P 5
Job Number: 1347 Value funde Longent funde Longent funde Multiple Multiple<		Project	Locatio	n: Grasshopper Far	ms				Sheet	5 of	17
EVENUE SILT, With trace clay, firm, black mottled brown, with major organic inclusions alginity photic: -0.6 CONSCIL TOPSOL 1.0 1.1 1.1 -0.6 CONSCIL -0.6 Colspan="2">-0.6 Colspan="2">-0.6 Colspan="2">-0.6 Colspan="2">-0.6 Colspan="2">-0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.7 -0.6 -0.7 -0.7 -0.6 -0.6 -0.6 -0.7 -0.7		Job Nu	mber:							юг:	07.06.07
EVENUE SILT, With trace clay, firm, black mottled brown, with major organic inclusions alginity photic: -0.6 CONSCIL TOPSOL 1.0 1.1 1.1 -0.6 CONSCIL -0.6 Colspan="2">-0.6 Colspan="2">-0.6 Colspan="2">-0.6 Colspan="2">-0.6 Colspan="2">-0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.7 -0.6 -0.7 -0.7 -0.6 -0.6 -0.6 -0.7 -0.7	£	Pit	mN	mE	Ground R.L.	п	Ê	ater	Pa)	ţλ	Test
EVENUE SILT, With trace clay, firm, black mottled brown, with major organic inclusions alginity photic: -0.6 CONSCIL TOPSOL 1.0 1.1 1.1 -0.6 CONSCIL -0.6 Colspan="2">-0.6 Colspan="2">-0.6 Colspan="2">-0.6 Colspan="2">-0.6 Colspan="2">-0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.6 -0.7 -0.6 -0.7 -0.7 -0.6 -0.6 -0.6 -0.7 -0.7	grap		Description:	Refer to site plan		ggen (zh (r	mbn	s She pth (k	Sait Isitivi	ple a atory etails
SILT, with trace clay, cream and light grey sit, pronounced bidding, eligibly plastic. -0.5 E2 3.8 Implementation bands of non-plastic, light grey sit, pronounced bidding, eligibly plastic. -0.5 E2 3.8 Implementation of the second status o	Strati			SOIL DESCRIF	TION			Grou	Vane	Ser	Sam Labora D
25:3096 by volume) shundart condentedy decomposed with strong amphoric odour, saturated, water table perched above 2.4m, moderately plastic 10 1.3 10 1.3 10 1.3 2005 2007 68 2.5 2016 2007 68 2.5 2017 2007 68 2.5 2018 2017 68 2.5 2018 2017 2017 68 2.5 2018 2017 2017 68 2.5 2018 2017 2017 68 2.5 2018 2017 2017 68 2.5 2018 2017 2017 2017 2017 2018 2017 2017 2017 2017 2018 2017 2017 2017 2017 2019 2017 2017 2017 2017 2019 2017 2017 2017 2017 2019 2017 2017 2017 2017 2019 2017 2017 2017 2017 2017 2019		SILT, w horizon slightly <u>TOPSO</u> SILT, w	ith trace cla Ital bands of plastic L	non-plastic, light grey s y, firm, black mottled bi	ilt, pronounced bedding,		< - < - < - < - < - < - < - < -				
Bit Trim, with trace day and sand, light grey, slightly plaste, purifecous XXXXXX 2.4 3.0 With rare slightly decomposed to highly decomposed organic inclusions, saturated XXXXXXX 2.4 3.0 XXXXXXX - 3.5 2.4 3.0 XXXXXXX - 3.0 19 1.3 XXXXXXX - 3.0 19 1.3 XXXXXXX - 3.5 35 2.2 XXXXXXX - 4.0 32 1.7 XXXXXXX - 4.0 32 1.7 XXXXXXX - 5.0 50 3.1 E.0.B at 5.0 metres. Major Pit collapse from 2.4 to 5.		logs up strong	to 250mm amphoric od	diameter) slightly to mo	derately decomposed with				10	1.3	
saturated staturated s	Silts						2.0		68	2.5	
at 3.5m becoming black manganese flecked light grey with no visable	Alluvial	with ra	re slightly de				< - 2.5 < - < - < -		24	3.0	
at 3.5m becoming black manganese flecked light grey with no visable						******* ******* **********************	< - - - - -		19	1.9	
E.O.B at 5.0 metres. Major Pit collapse from 2.4 to 5.0 metres 5.0 50 3.1 E.O.B at 5.0 metres. Major Pit collapse from 2.4 to 5.0 metres 5.0 50 3.1 E.O.B at 5.0 metres. Major Pit collapse from 2.4 to 5.0 metres 5.0 50 3.1 E.O.B at 5.0 metres. Major Pit collapse from 2.4 to 5.0 metres 5.0 50 3.1 E.O.B at 5.0 metres. Major Pit collapse from 2.4 to 5.0 metres 5.0 50 3.1 FOUNDATION ENGINEERING Excavator Used: Topsoil Hit collapse from 2.4 to 5.0 metres Sand 5.5 1.1					d light grey with no visable	(XXXXXX) (XXXXXXX) (XXXXXXX) (XXXXXXXX) (XXXXXXXX	< - 3.5 		35	2,2	
E.O.B at 5.0 metres. Major Pit collapse from 2.4 to 5.0 metres E.O.B at 5.0 metres. Major Pit collapse from 2.4 to 5.0 metres							× – × – 4.0 × –		32	1.7	
E.O.B at 5.0 metres. Major Pit collapse from 2.4 to 5.0 metres 50 3.1 E.O.B at 5.0 metres. Major Pit collapse from 2.4 to 5.0 metres 50 3.1 -5.5 -5.5 -5.5 -5.5 -5.5 -6.0 -6.0 -6.0 -6.0 -6.0 FOUNDATION ENGINEERING Comments: Groundwater encountered at 2.0 metres. Excavator Used: Hitachi EX 200 Topsoil Fill Sand Sandstone Plutonic ++++ FOUNDATION ENGINEERING Commetres. Checked: Clay Organic VWWW Limestone						****** ******* ***********************	× – × – 4.5 × – × –		44	2.3	
E.O.B at 5.0 metres. Major Pit collapse from 2.4 to 5.0 metres					2.4. 5.2	(XXXXX)	×-		50	3.1	
FOUNDATION ENGINEERING Comments: Excavator Used: Topsoil Sand Sandstone Plutonic + + + + Hitachi EX 200 Fill Gravel Siltstone Z Z Z Z No Core Checked: Clay Organic Unestone Linestone Linestone		E.O.B a	t 5.0 metre:	s. Major Pit collapse fro	om 2.4 to 5.0 metres						
FOUNDATION ENGINEERING Groundwater encountered at 2.0 metres. Hitachi EX 200 Hitachi EX 200 Hitachi EX 200 Gravel Siltstone Z 2 2 Z Z Z No Core Checked: Clay Organic Userstone Image: Clay				Commente	Excavator Used: +	ail Cand		Sandri			
Checked: Clay Organic Clay Limestone		\land		Groundwater encounter	Hitachi	Gravel	····	Siltsto		21	
	Ę		NDATION INEERING	at 2.0 metres.							
		· · · · ·				<pre></pre>	\$ \$ \$ \$ \$	Volcar		N.	

	Client :		FIVE STAR ESTATE !	LIMITED		Trial	Pit N	No.	Т	P 6
	Project	Location	: Grasshopper Farms Tauriko					Sheet	6 of	17
	•		Tauriko		Vane Head:	Logge	d By:	Process	sor :	Date:
	Job Nu	mber:	13447		4612	М	JP	MAP	1	07.06.07
Ϋ́	Pit	mN	mE (Ground R.L.		Ê	ater	cPa)	ţ	and /Tes
igrat	Location:	Description:	Refer to site plan		Legend	Depth (m)	Groundwater	a Shi	Soil Sensitivity	ator) etail
Stratigraphy			SOIL DESCRIPTIO	N		De	Grot	Vane Shear Strength (kPa)	Ser	Sample and Laboratory Test Details
-	TOPSO					<u></u>				
		tiff, light grey Istic, wet	and cream mottled orange,	, with trace sand,		< - < - 0.5 < - < - < -		62	4.8	
	at 1.0n	n becoming fin	m			< - 1.0 < - < - < - < -		38	2.4	
			clay, black flecked light gre inclusions to 2.5m, saturat		y (XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXX	× = 1.5 × = 4 × = 4		47	3.6	
رم ري						× × 2.0 × -		24	2,4	
Alluvial Silts	at 2.5n	n becoming so	ft			× - 2.5 × - × -		16	1.2	
	SILT, w	ith trace sand,	firm, light grey, non-plasti	C	**************************************	×⊢ ×∟		27	1.7	- - -
						× - × - × - 3.5 × - × - × -		35	1.8	
						× - × - × - × - × -		44	1.6	
			h trace sand, dark orange l vn, stiff, non-plastic, spong			x x x - x x x x		62	3.0	
Υ.Α		-	Major Pit Collapse from 2.			×F ×F		79	2.5	
						- - - - - - -				
						- 6.0				
			Comments:	Excavator Used: Tops	Jil Sand		Sands	tonel * *	Phi	
	~		Comments: Groundwater encountered	Hitachi		- 6.0	Sands Siltsto	177		onic + + + +
	FOU	NDATION		1 10050			Siltsto	ne : 2 2		ionic +++

	Client :	FIVE STAR ESTATE LI	MITED		Trial Pit No. TP 7								
	Project Location	n: Grasshopper Farms Tauriko						Sheet	7 of	17			
	·				Vane Head:	Logge	d By:	Process	or:	Date:			
	Job Number:	13447		8 Ma	4612	M	JP	MAP		07.06.07			
уńс	Pit <u>mN</u>	mE Gr	ound R.L.		- TO	Ê	ater	tear (kPa)	vity	and S Tes			
Stratigraphy	Location: Description:	Refer to site plan			Legend	Depth (m)	Groundwater	dth St	Soil Sensitivity	nple Cetai			
Stra		SOIL DESCRIPTION				De	Groi	Vane Shear Strength (kPa)	പ്പ	Sample and Laboratory Test Details			
Alluvial Slits	orange sand, non-pl Clayey SILT, light g 300mm diameter to	rey-light brown, firm, with rare o 1.7m depth), moderately pla lght grey, saturated	organic inclsuion			- 0.5 - -		47 19 27 13 16 21	2.0 1.5 1.7 1.3 1.6 1.8				
	E.O.B at 4.0 metres.	Unable to Excavate Further	Due to Continuec	l Pit Collap:		- 4.5 - 4.5 - 5.0 - 5.5 - 5.5 							
6	FOUNDATION	Comments: Groundwater encountered at 1.5 metres.	Excavator Used: Hitachi EX 200 Checked:	Topsoil Fill Clay Silt	Sand Gravel	<pre></pre>	Sands Siltsto Limes	ne 22 77		tonic + + + + Core			

	Client : FIVE STAR ESTATE LIMITED		<u></u> Т	rial F	Pit N	lo.	T	P 8
	Project Location : Grasshopper Farms Tauriko					Sheet	8 of	17
	Job Number: 13447	Van		Logged		Processo	or :	Date:
\vdash			4612	MJF	-+			07.06,07
aphy	Pit mN mE Ground R.L.		pu	Ê	Groundwater	Vane Shear Strength (kPa)	l Ivity	Sample and aboratory Test Details
Stratigraphy	Location: Description: Refer to site plan		Legend	Depth (m)	pund	ne S ngth	Sail Sensitivity	Sample a aboratory Detail
ซิ			<u></u>		Ū	Stre Stre	ى م	SS Labr
Silts	TOPSOIL Clayey SILT, stiff, light brown, with rare organic inclusions, m	noderately plastic x x		- - - - - - - - - - - - - - - - - - -		62	2.1	
Alluvia ISilts	Clayey SILT, firm, dark brown, with major organic inclusions (decomposed inclusions to 500mm diameter), moderately pla			- - - - - - - - -		24	1.3	
	SILT, firm, with trace clay, light grey, slightly sticky, slightly	plastic, saturated x × > x × × x × ×	<pre></pre>	- 2.0 - - - - 2.5	V	27 27	2.1	
	Pumiceous GRAVELS, firm, fine to coarse, gravel sized, poor angular, slightly weathered and appears massive (no bedding			- - - - - - - - - - - - - - - - - - -		35	2.2	
Pumice	at 3.5m becoming stiff		***** ****** ****** ****** ******	- 3.5 		71	2.6	
	at 4.0m becoming very stiff, pumice is difficult to excavate			- 4.0		171	3.9	
\vdash	E.O.B at 4.5 metres. Unable to Excavate Further Due to Co	ntinued Pit Collapse		- 4.5		122	3.5	
			-	- 5.0 				
	Comments: Excavator		Sand	1 1 1 1	andsto	ne 🔹 🛊	Pluto	nic ++++
	at 2.6 metres. Adjacent to EX 20	<u>00 Fill</u>	Gravel		Siltstone		No C	ore
	ENGINEERING CPT 10 Checked:		Organic 4	ү.ү.ү 1-	.imesto /olcanic	10000	<u>못</u>	

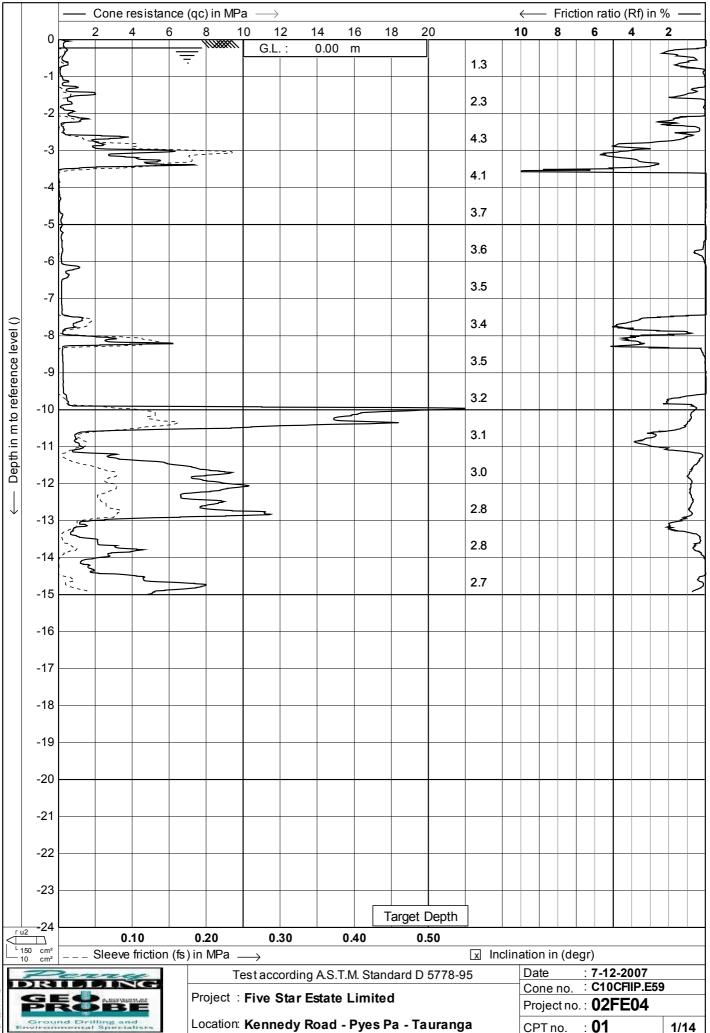
Γ	Client :	105 S.C.	<u></u>	FIVE STAR ESTAT	E LIMITED					Trial	Pit I	Nò.	Т	P9
1		Location	n :	Grasshopper Farm Tauriko	s							Sheet	9 of	17
	-							Van	e Head:	Logge	d By:	Process	sor :	Date:
	Job Nu	mber:		13447					4612	M	JP	MAP	, <u>-</u>	07.06,07
hy	Pit	mN		mE	Ground A.L.				T	_ ۲	ater	Vane Shear Strength (kPa)	ţţ	Sample and Laboratory Test Details
grap	Location:	Description:		Refer to site plan				_	Legend	Depth (m)	мри	She she	Soil Sensitivity	atory etail
Stratigraphy				SOIL DESCRIPT	ION				Ä	Del	Groundwater	Vane trenț	Ser	Sam abor
	TOPSO	L			,			$\overline{\nabla}$	1111			<u> </u>		
Silts	SILT, very stiff, light grey banded light brown-grey, non-plastic, moist						*****	× × × × × × × × × × × × × × × × × × × ×	- - - -		108	2.8		
Alluvial Silts	SILT, firm, with trace clay, grey-brown, with rare slightly decomposed organic inclsuions (roots), slightly plastic						×××× ×××× ××××× ×××××	- 1.0 		32	2.0			
							<pre>x × × × × × × × × × × × × × × × × × × ×</pre>		- 1.5		47	1.7		
		n ground wa			te sand to coa	arse grave	el sized, p	* X X * X X	<pre>X × × × × X × × × × X × × × × X × × × × X × × × ×</pre>	- 2.0		27	2.7	
	Pumiceous GRAVELS, very stiff, light grey, fine sand to coarse gravel sized, sorted, clean, angular, no bedding, appears massive								> > > > > > > > > > > > > > > > > > >	– 2.5		108	5.1	
Pumice									- - 3.0 -		122	3.8		
								- - - 3.5 -		101	3.4			
	E.O.B a	t 4.0 metres	i. Ui	nable to Excavate Fu	rther Due to C	Continued	l Pit collar	se J	***** ****** *****	-4.0		90	1.9	
										- - - -4.5				
										- 5.0				
										- - - - - - -				
										- 				
			Cor	mments:	Excavat	1	Topsoll 🚫	$\overline{//}$	Sand		Sands		• Plu	onic + + + +
ر ا		NRATION		oundwater encountered 2.0 metres.		achi 200 I	FIII		Gravel		Siltsto	18 2 2 18 2 2	Z No	Core
	ENG	NDATION INEERING			Checked	1: L	Clay []-		Organic H	koleska SASASAS	Limes			
I						1	sik ķ÷	$\times \times \times$	Pumice 🔇	<u> </u>	Volcar	10 222	21	

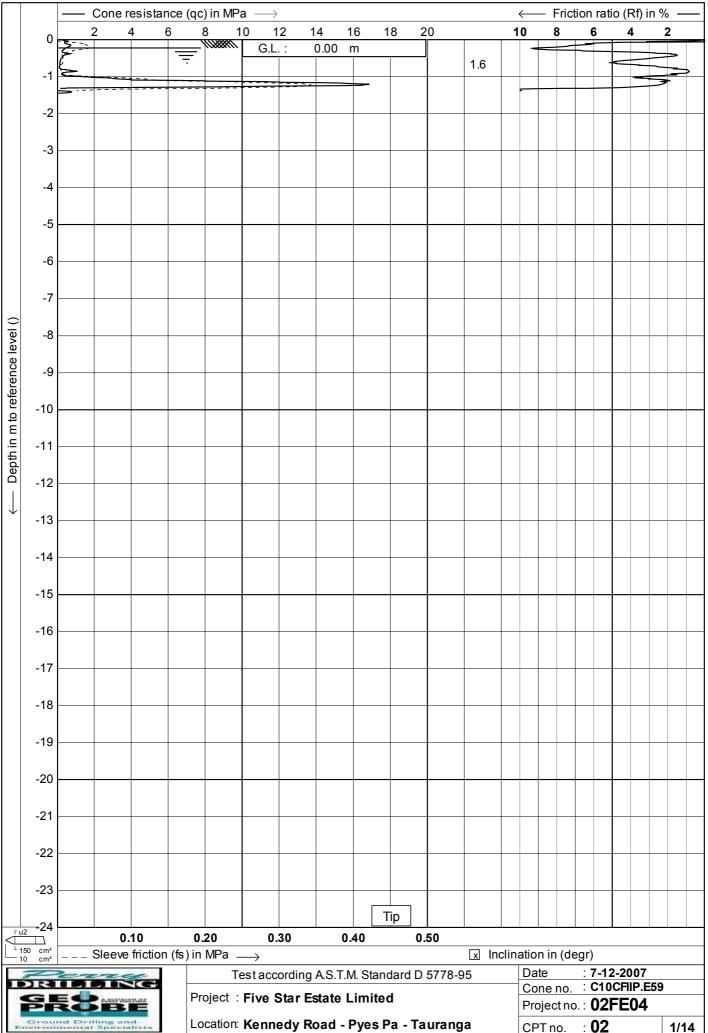
	Client :			FIVE STAR ESTA	TE LIMITED					Trial	Pit N	10.	Т	P 10
		Locatio	n:	Grasshopper Farm Tauriko	S							Sheet	10 ol	17
	- 	··· In						Van	e Head:	Logge		Process	ior :	Dale:
	Job Nu	imper:		13447	- 1.			<u> </u>	4612	M		MAP		07.06.07
phy	Pit	mN		mE	Ground R.L.			4	đ	Ê)	Groundwater	ear KPa)	/ity	v Ter Is
Stratigraphy	Location:	Description:		Refer to site plan				-	Legend	Depth (m)	nndv	le Sh Igth (Soil Sensitivity	mple Detai
Str				SOIL DESCRIPT	ION					ă	9 D	Vane Shear Strength (kPa)	Se	Sample and Laboratory Test Details
Alluvial Silts	SILT, fi	irm, light gre	y bai	nded light brown, nor	n-plastic, moist			********				32	1.2	
	PEAT, s organic	stiff, juvenile inclusions to		ажа ажа ажа ажа ажа	кажаа кажаа кажаа кажаа кажаа кажааа кажааа			62	3.9					
Peat									бата батат батат батат батат батат батат			19	1.9	
	Clayey remoul	Clayey SILT, firm, grey, fine pumiceous silt when dried, soapy when remoulded								- - 2.0		47	2.5	
										– – 2.5 –		62	3,9	
Silts												44	2.1	
Alluvial Silts	at 4.0m becoming stiff								- - - -		68	3.6		
											50	3.9		
										 		56	2,9	
	FORS	t 5 () metro	: M	lajor pit collapse fron	1 1.0 to 5.0 met	res		ŧžŷ	<u> XXXX</u> XXXXX	- 5.0		98	3.6	
	L.U.U 4	, 5.0 meu G	·• 1*(- -				
	<u> </u>		Co	mments:	Excavator	1100	soil 🔪	$\langle n \rangle$	Sand .		Sandst	one + +	+ Plu	unic + + + + +
			Gro	oundwater encountered 1.5 metres.	Hitaci EX 20	hi 🕂			Gravel		Siltstor	177	7 .	Core
	FOU ENG	NDATION INEERING	at 1		Checked:	Clay			Organic 🔐	blefek AAAAA	Limest			
							ķX	XXX XXX	Pumice	òòòò	Volcan	10 LUU	X1 -	

	Client :		FIVE STAR ESTA	TE LIMITED		Trial	Pit N	lo.	Ţ	P 11
		t Locatio	n: Grasshopper Farm	រទ				Sheet	11 of	17
	-		Tauriko		Vane Head:	Logge	d By:	Process	sor :	Date:
	Job Nu	Imber:	13447		4612	м	JP	MAP	F	07.06.07
γh	Pit	mN	mE	Ground R.L.		Ê	ater	Vane Shear Strength (kPa)	îţ	Sample and Laboratory Test Details
Stratigraphy	Location:	Description:	Refer to site plan		Legend	Depth (m)	Groundwater	ath (Soil Sensitivity	etail
Strat			SOIL DESCRIPT	TON	Ĕ	Del	nor Gro	tren t	Sei	San
	TOPSO	1				<u></u>		(1)		<u> </u>
	SILT, s	tiff, light bro rizontal banc				62 76	2.6			
	Clayey SILT, firm, light brown, sticky, with abundant highly decomposed organic inclusions to 4.5m, organic odour, moderately plastic, saturated					<		35	2.2	
Alluvial Silts			2.0		32	2.0				
Allu	SILT, stiff, black flecked light grey, greasy when reworked, non-plastic					<		27	2.1	
			< 3.0 <		65	2.4				
			< -		90	4.3				
			× - × - × - × - × -		59	3.7				
					× – 4.5 × – 4.5 × –		79	2.6		
						×-		62	3.0	
	Ē.O.B 4	at 5.0 metres	5.			 				
	l			Excavator Used:		6.0				
	\bigtriangleup		Comments: Groundwater encountere	Hitachi	i Sand Gravel			- 127	1212	tonic + + + - Care
	<u> Sy</u> e <u>o</u> u	INDATION	at 1.2 metres.	EX 200 111	Graver	х <i>тл</i> л 				
	▼(⁄⁄ ENG	INEEKING		Checked: Clay	KXXX Pumice	باديالجبالجيل	H CILIER	1111	÷ .	
				SIIT	- KANAN LANGE	<u>ననని</u>	U voicar	K PAA	121	l

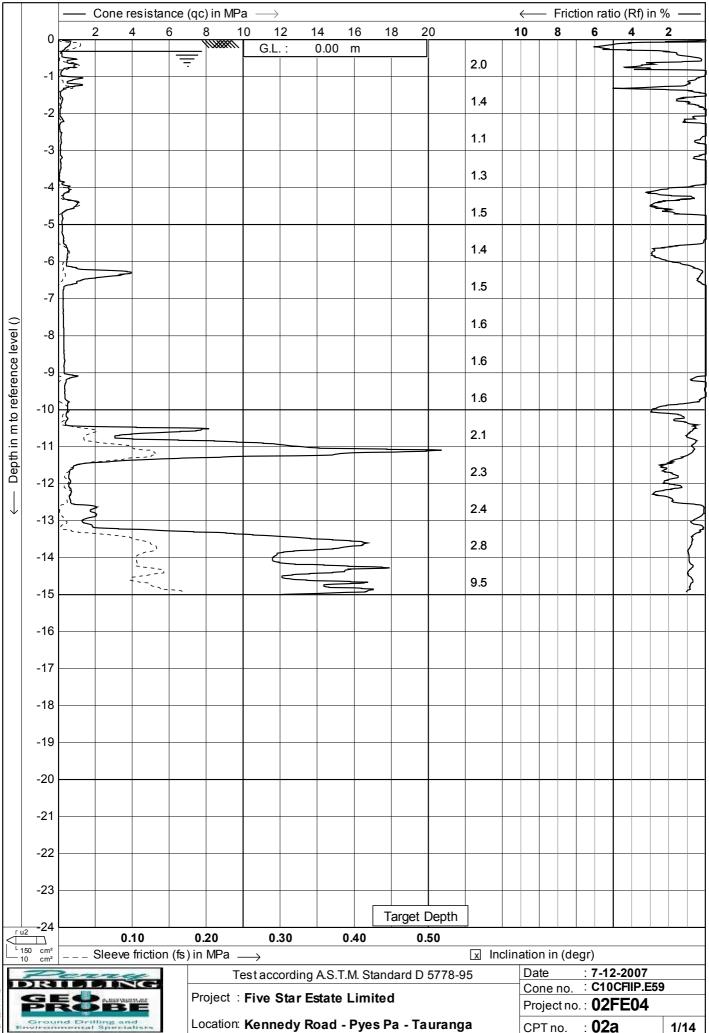
Γ	Client :			FIVE STAR ESTATE	LIMITED	• • • • •			Fac	e Lo	g No.			1
		Locatio		Grasshopper Farms Tauriko						;			Sheet 1	of 2
	Job Nu	mber:		13447			Ī	Vane H	lead:	Logge	id By: MJP	Process	1	
┢	Borehole	mN		r r	Ground R.L				-			MA	<u>u* 0</u>	7.06.07
gy	1			Refer to site plan			Legend	Depth (m)	anding er Lev	: Shea	oil itivity	Scala Per (blows/1	etrometer 00mm)	
Geology			S	OIL DESCRIPTION				Ger	Dep	Standing Water Level	Vane Shear Strength (kPa)	Sensitivity		0 H D
F		llow-light br	'own, n	on-plastic, friable	an a			XXX					2 4 (5 8 10
Younger Ash							************************	\`````````````````````````````````````	- - - - - - - - - - - - - - - - - - -					
A.S	weathere	d pumiceou	us sand	with light grey mediu s, horizontally beeded,	n sanos and com non-plastic, moi	pietely st		\$`\$`\$ \$`\$`\$ \$`\$`\$ \$`\$`\$ \$`\$`\$	- 3.0 					
									- - - - - - - - - - - - - - - - -					
			Comm	ents:	Borehole Diameter	Topsoil		- - - - - - - - - - - - - - - - - - -			Sandston		Plutonic	++++
, A		патіон	Ground	iwater not encountered.	50mm	Fill	\geq	*	avel		Slitstone		No Core	
	ENGIN	DATION	R.A = 1 A.S = 7	og in shed. Fifth elevatior Rotoehu Ash Alluvial Silts	Checked:	Clay			janic 🛱	~~~ ~	Limeston	··· [
	·····		a.a. a			Silt	k××>	Y] Pu	mice 🔌	\$\$\$	Volcanic	6000	1	

	Client :		FIVE STAR ESTAT	E LIMITED			Face	e Log	No.			2
		Locatio								5	Sheet 2	of 2
	Job Nu	mber:	13447			Vane I-	lead:	Logged	i By: IJP	Process MA	1	te: 07.06.07
\vdash		mN	mE	Ground R.L.			-	<u> </u>				
	Borehole Location:	Description:				Legend	Depth (m)	nding er Lev	e She gth (k	Soil Sensitivity	Scala Pe (blows	netrometer /100mm)
Geology		· · · · · · · · · · · · · · · · · · ·	SOIL DESCRIPTIO	DN .		l G	Dep	Standing Water Level	Vane Shear Strength (kPa)	Sens	24	6 8 10
0	SILT, sar	ndy, dark ora	ange, easily disturbed, friat	ble, dry		k x x x k x x x						Ĩ
Colluvium	SII T sar	ndy, dark ora	ange, easily disturbed, friat	ble	UPPER BENCH	<pre> </pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> <</pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>	- 0.5					
Coll			ange, easily disturbed, friat ontal band of light grey sa	LOWER BENCH		- 1.5						
Pumice Alluvium	Pumiceo (some b			- 2.5								
							- 3.5 					
		NDATION	Comments: Groundwater not encounter Face log in shed. Fifth elev	Borehole Diameter: ation 50mm	Topsoil Fill	}~}~}/ ~			Sandstr Siliston			
	ENG	NDATION INEERING	Face by it sped. Fint elev	Checked:	Clay Silt X X		Organic Pumice	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Limest Voican	1	<u> </u>	

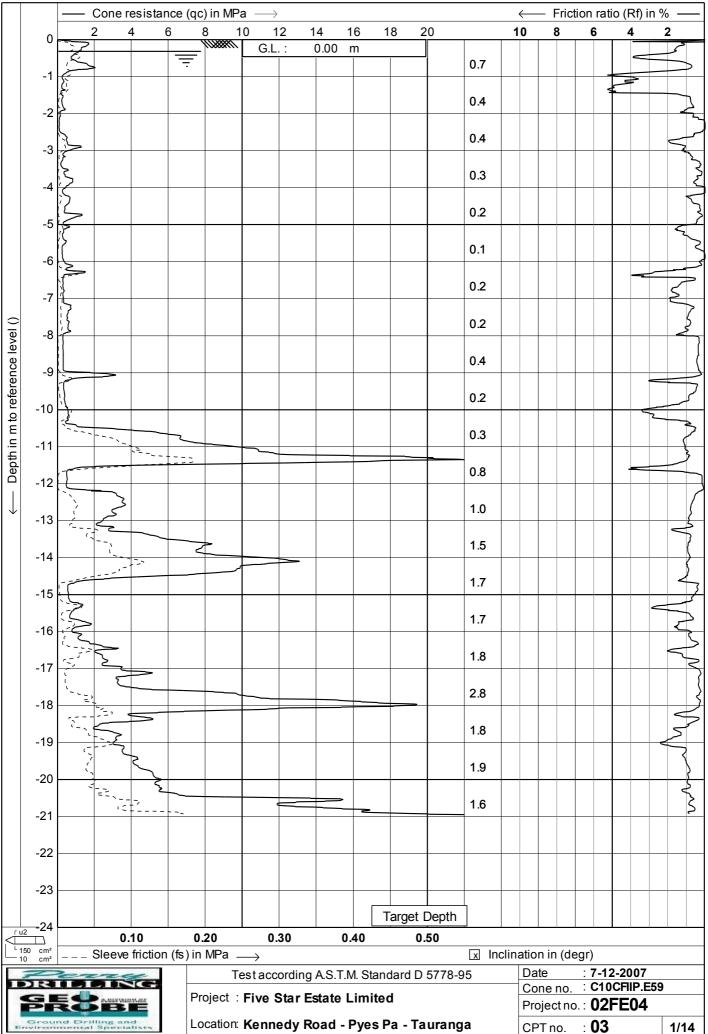




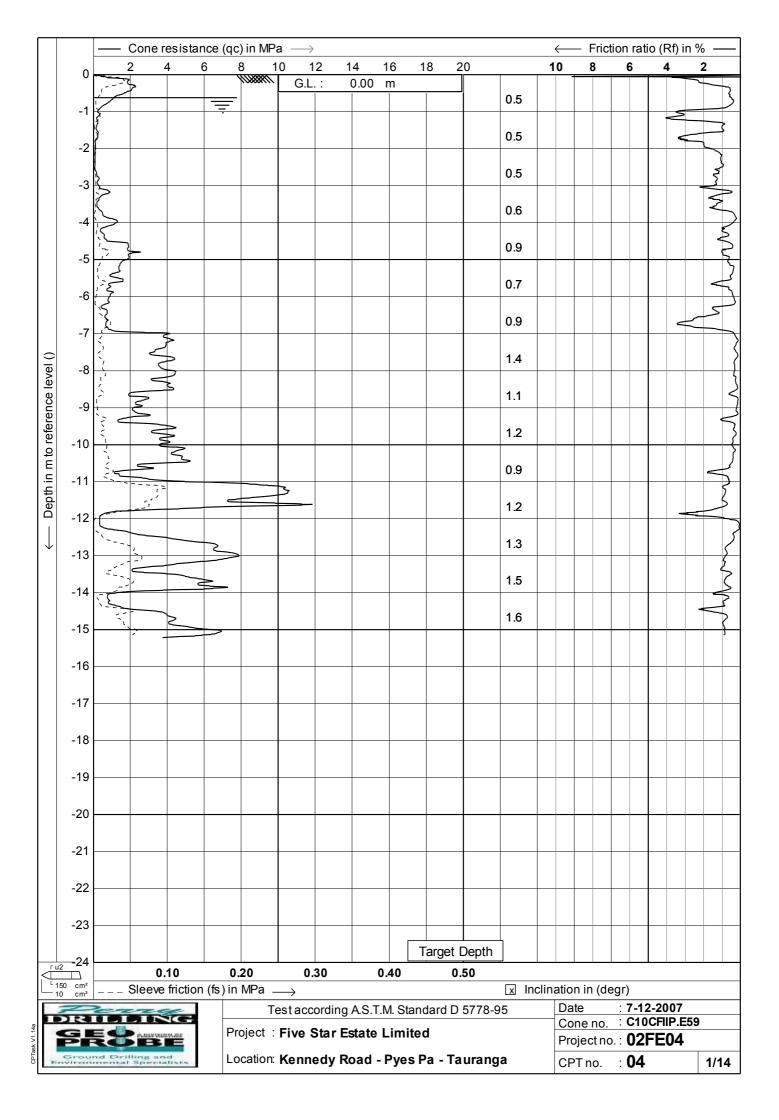
CPTask V1.14i

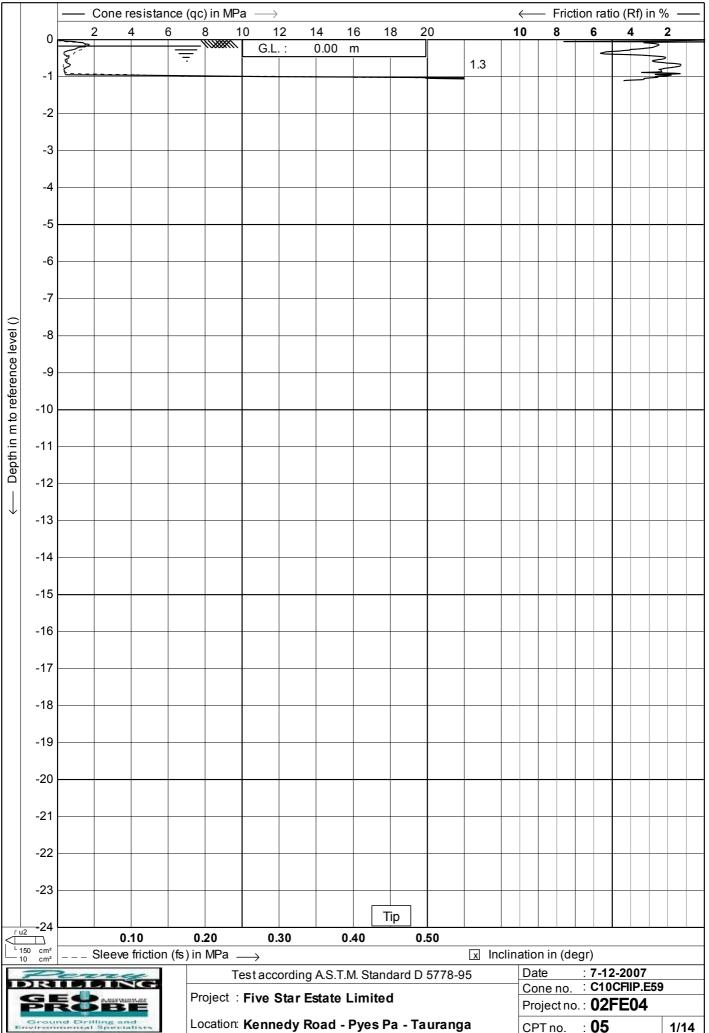


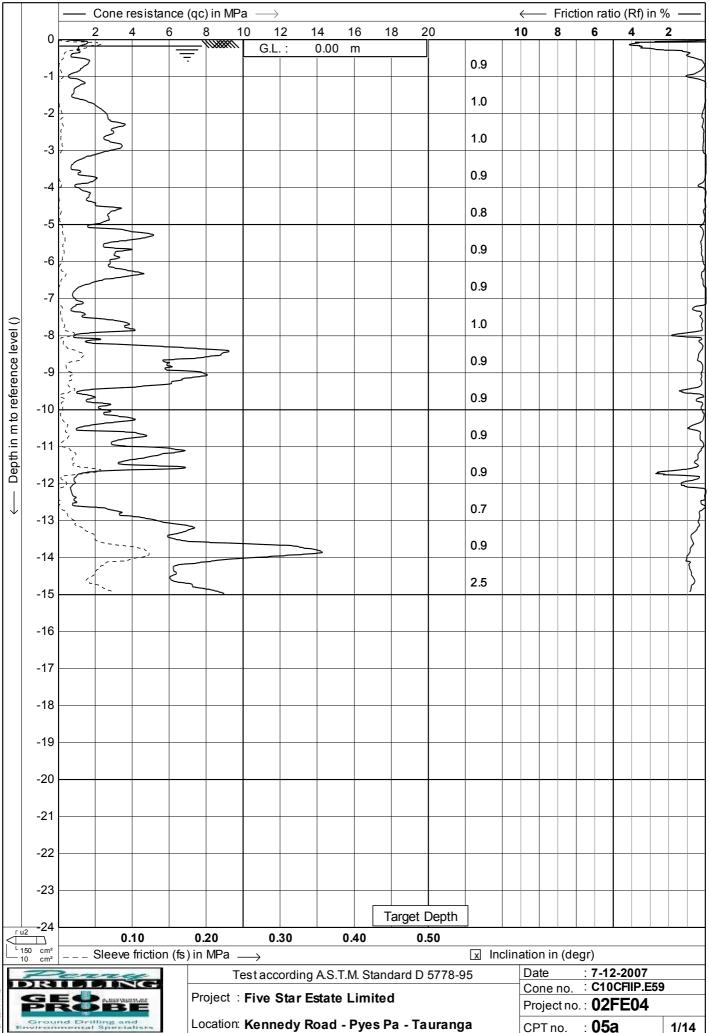
CPTask V1.14k

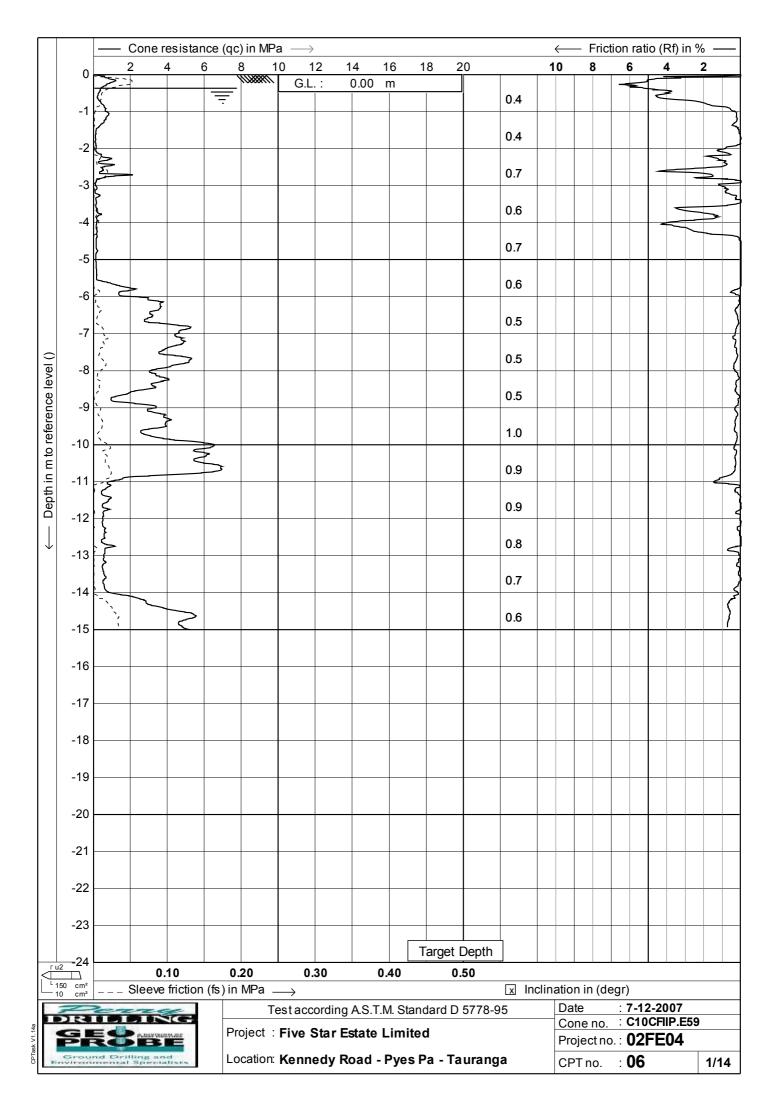


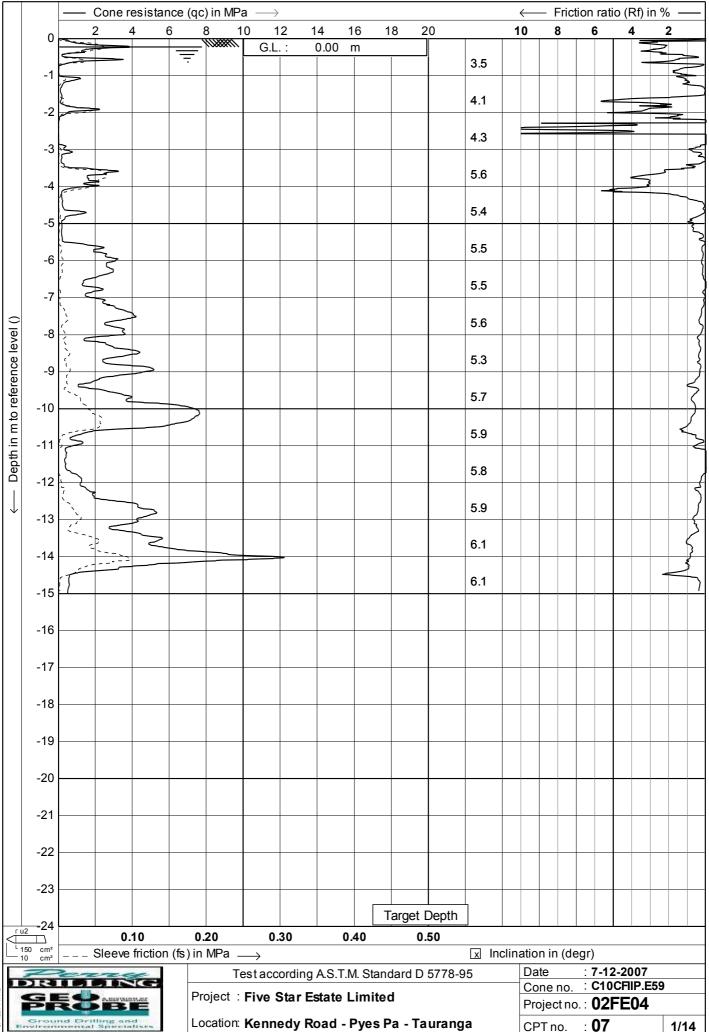
CPTask V1.14.

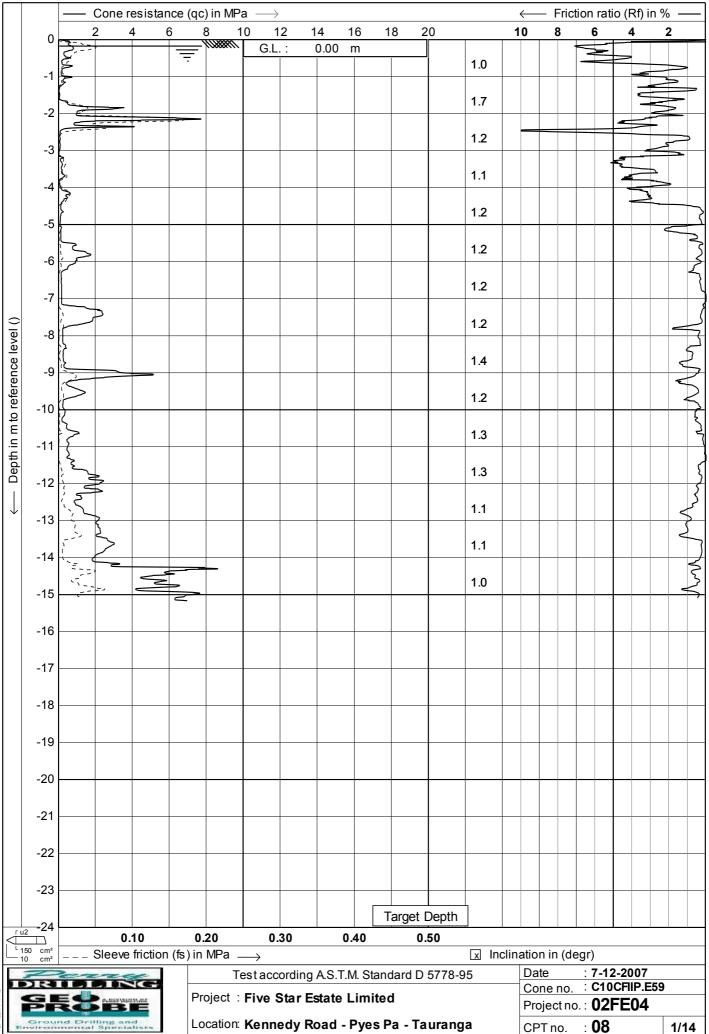


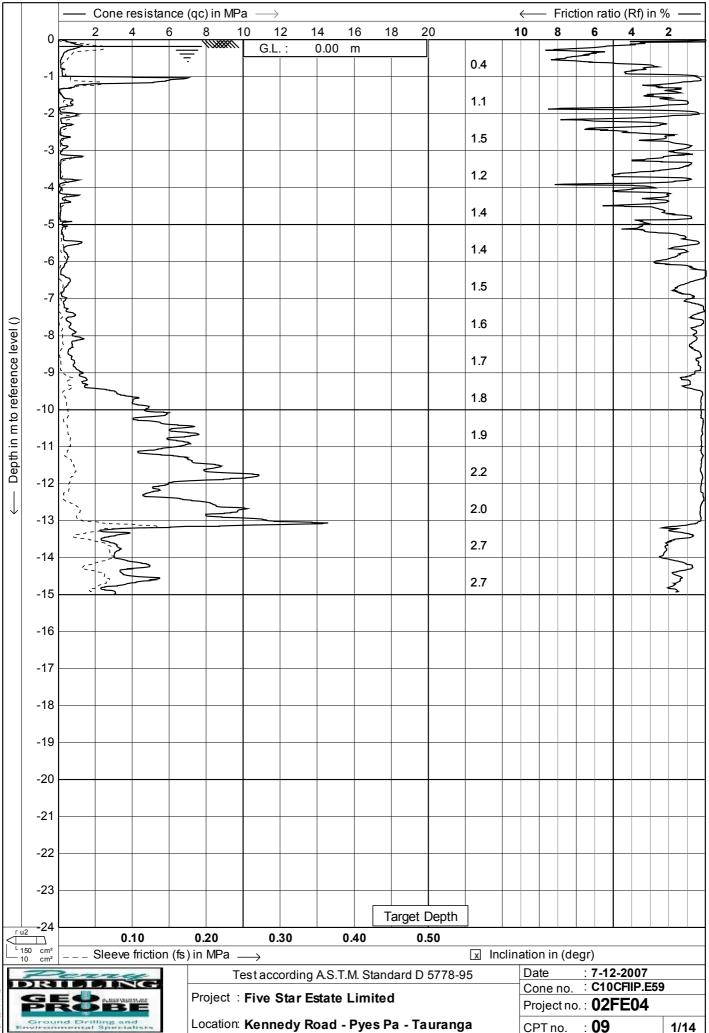


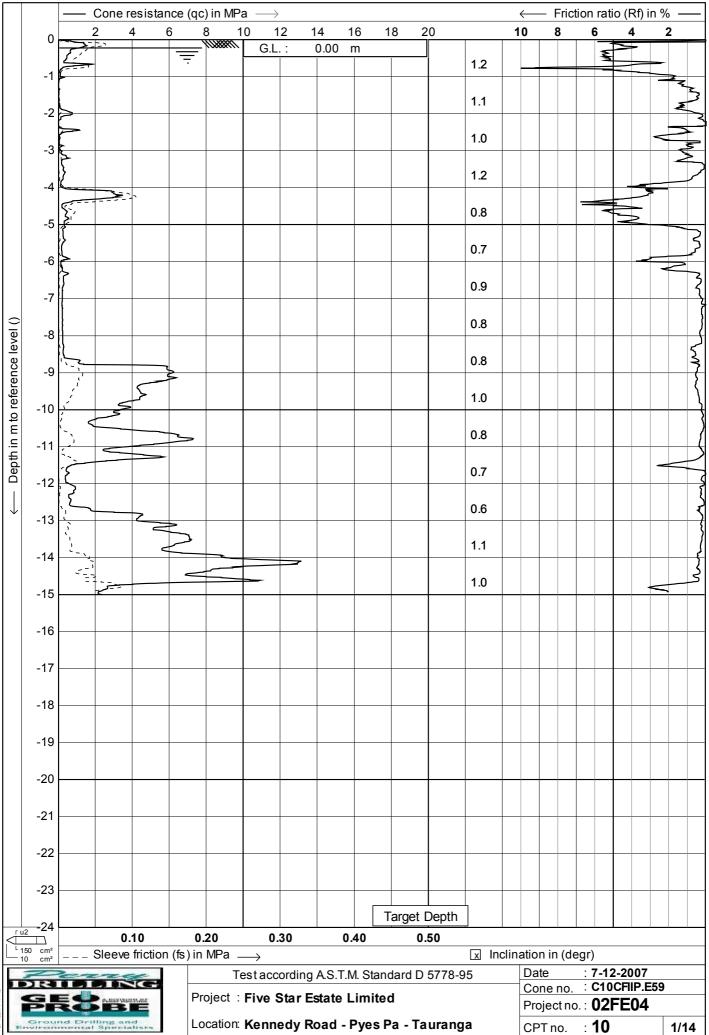


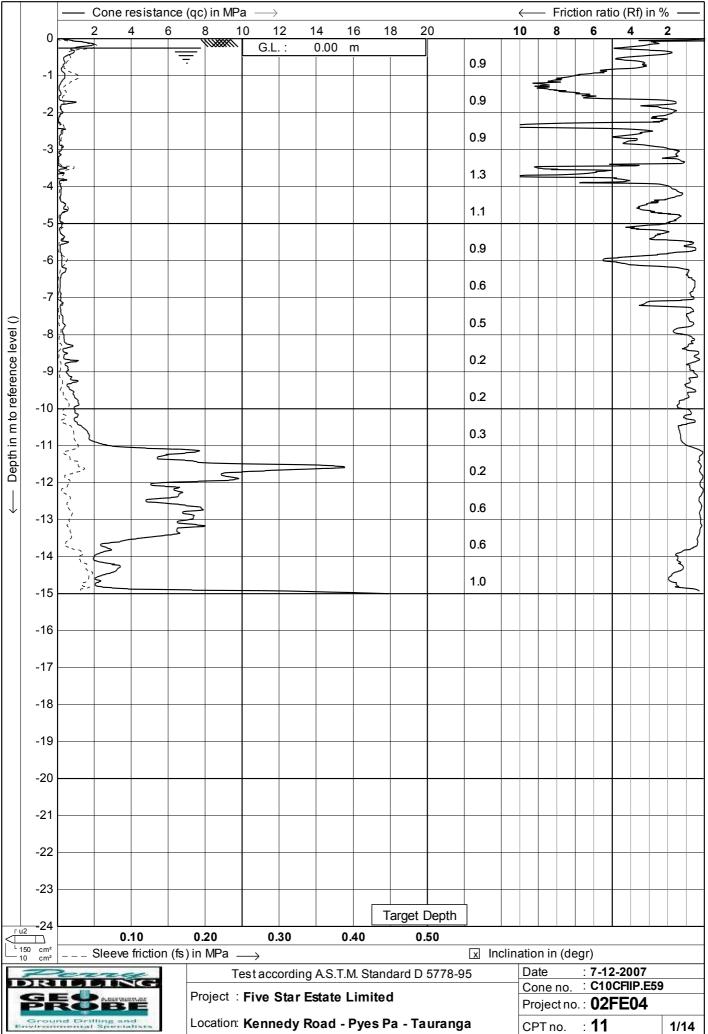


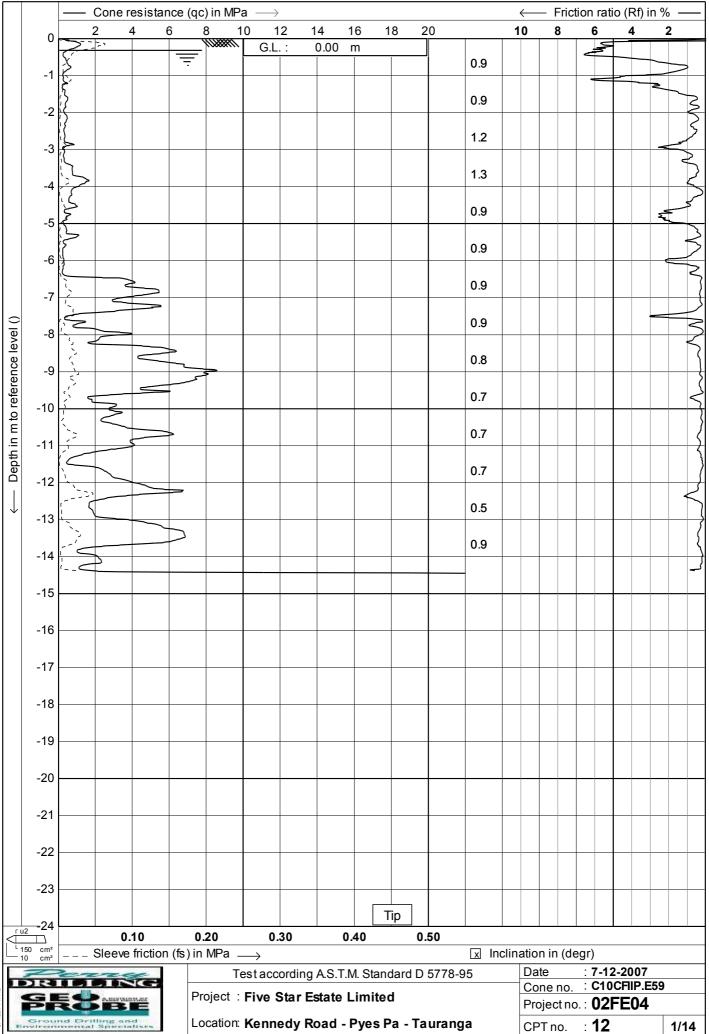


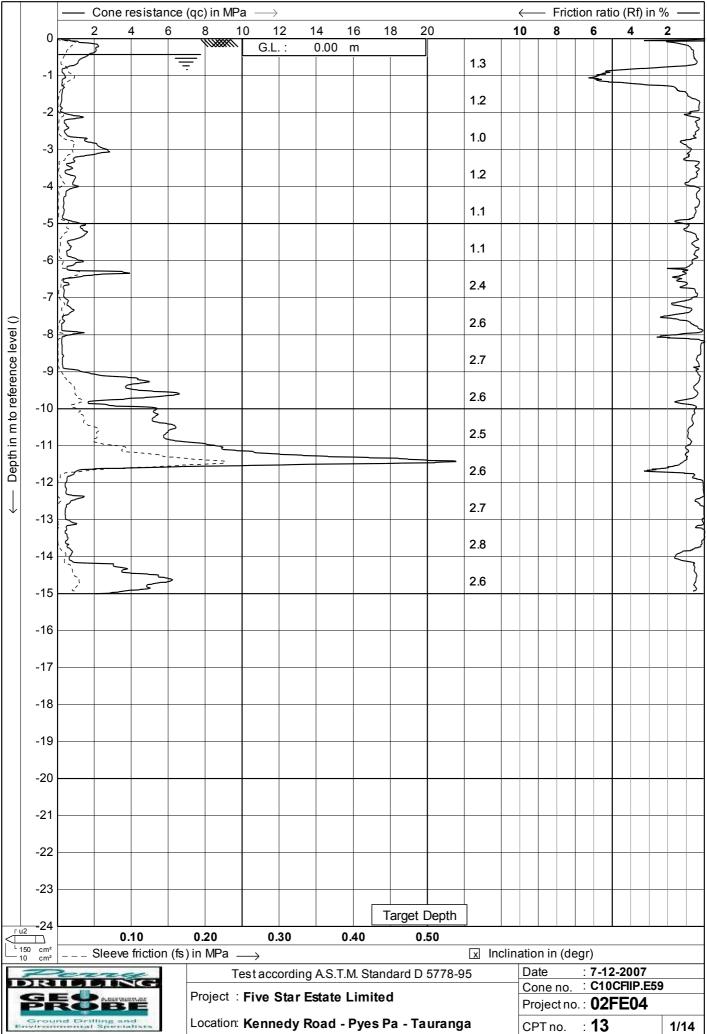












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TRIAL PIT 13717 TEST PITS 070208.GPJ COFFEY.GDT 14.2.08

Form GEO 5.5 Rev.5

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-				7	0				Т	rial Pit No.	TP 02
Eı	างุ	ginee	eri	ng	Log	- T	Frial Pit			heet roject No:	1 of 1 GEOTTAUC13717
Clie	nt:			FIVE	STAR	EST	ATE LIMITED		D	ate started:	5.2.2008
Prin	cipa	al:							D	ate complet	ed: 5.2.2008
Ргој	ect:			KEN	INEDY	ROA	D, PYES PA		L	ogged by:	MJP
-		location:			acent to					hecked by:	MJP
		nt type: HIT		-			Pit Orientation:	Easting: m		R.L. Surfa	
Exca	vati	on dimensio	ns: n	n long	m wide		Vane No: 017	Northing: m		Datum:	
exc	ava	ation info	rmat	ion			erial substance				
stratigraphy	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material Soil - Soil type; colour, structure, plasticity, sensitivity. Secondary an Rock - Colour, fabric, rock type; disc information.	Grading; bedding; d minor components. continuities, additional	moisture condition consistency/	density index 25 50 75 75 75 70 75 70 750 70 750 750 75	structure and additional observations
				-		sw /			D		Alluvium
				_			SAND, fine, yellow-orange TOPSOIL		M-		-
-	<u> </u>			1	*** ***	ML Pt	SILT, light brown, no plasticity PEAT, abundant 5 to 400mm diame	ter slightly	W S		-
				-	** ** ** **		decomposed, fibrous organic inclusi silty matrix, saturated	ions (wood) in a black			-
					<u>жжж</u> ; жжж; жжж;						-
				2	** * ** *						-
				-	<u>жжж</u> и Жжжи Жжжи						
					** * * * * * * * *						
				3	жж жл жж жл жж жл						-
				-							
					<u>жжж</u> жжжл жжжл						
				4	** * ** * *						-
				-	жж ж; жж ж; жж ж;						
_					***		Test pit TP 02 terminated at 4.5 me	tres.			
				5							-
				-							-
				-							
				6							
51	(etc	81									
se ba	oil de ased etes,		and G sts ed sam ad sam sample	eotechn nple 50m nple 63m e	ical Society I nm diameter nm diameter		vane shear (kPa) ● remoulded × peak ≫× peak greater than 200kPa water ■ 10/1/98 water level on date shown ▶ water inflow water outflow	moisture D dry M moist W wet S saturated		onsistency/ de VS very s S soft F firm St stiff VSt very s H hard	soft VL very loose L loose MD medium dense D dense

TRIAL PIT 13717 TEST PITS 070208.GPJ COFFEY.GDT 14.2.08

Form GEO 5.5 Rev.5



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Engineering Log - Trial Pit

Client:	FIVESTAR ESTATE LIMITED
Principal:	

ject	:		KEN	INEDY	ROA	D, PYES PA			Log	iged	by	:	
al pit	location:								Che	ecke	d b	y:	
ipme	ent type; HIT	ГАСН	EX20)		Pit Orientation:	Easting: m			R.	S	urfa	ce: m
avati	on dimensio	ns: n	n long	m wide		Vane No: 017	Northing: m			Da	tum	:	
cav	ation info	rmat	ion		mate	erial substance		_					
water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	Soil - Soil lype; colour, st plasticity, sensitivity. Secon Rock - Colour, fabric, rock ty	ructure. Grading; bedding; dary and minor components. rpe; discontinuities, additional	moisture condition	consistency/ density index	25 50 vane shear	100 (remoulded	150 /peak) kPa	
			1 - 2 - 3 - 4 -	, , , , , , , , , , , , , , , , , , ,	MH	SILT with trace clay; low pla streaked with slightly sandy appearance, easily broken b	sticity, dark orange texture, moist, fissured y hand, uniform appearance	M M W	St VSt H St F	•	×	×	Your Matu
	al pit lipme avati cav	avation dimension cavation info notes samples,	al pit location: ipment type: HITACH avation dimensions: n cavation informat notes samples,	al pit location: ipment type: HITACHI EX200 avation dimensions: m long cavation information particular information	al pit location: ipment type: HITACHI EX200 avation dimensions: m long m wide cavation information by notes samples, etc RL g b c c c c c c c c c c c c c c c c c c	al pit location: ipment type: HITACHI EX200 avation dimensions: m long m wide cavation information mate notes samples, rests, etc RL 99 E State of the set of th	al pit location: ipment type: HITACHI EX200 Pit Orientation: avation dimensions: m long m wide Vane No: 017 cavation information material substance notes samples, RL 50 E Soil substance Rock - Colour, fabric, rock type tests, etc RL 50 E Soil spe: colour, fabric, rock type tests, etc RL 1 - * * * * * * * ML SILT, yellow-light brown, fria 1 - * * * * * * * * MH SILT with trace clay; low plast 1 - * * * * * * * * * * * * * * * * * *	al pit location: pit Orientation: Easting: m avation dimensions: m long m wide Vane No: 017 Northing: m cavation information material substance inces inces inces samples, tests, etc RL inces information information material substance information information material substance information information pit Signation information information information information information information pit Signation information information information information </td <td>al pit location: ipment type: HITACHI EX200 Pit Orientation: Easting: m avation dimensions: m long m wide Vane No: 017 Northing: m cavation information material substance tests, etc RL Set Set Set Set Set Set Set Set Set Set</td> <td>al pit location: Che ipment type: HITACHI EX200 Pit Orientation: Easting: m avation dimensions: m long m wide Vane No: 017 Northing: m cavation information material substance</td> <td>al pit location: Checke ipment type: HITACHI EX200 Pit Orientation: Easting: m R.I. avation dimensions: m long m wide Vane No: 017 Northing: m Da cavation information material substance tests, etc RL g g g g g g g g g g g g g g g g g g</td> <td>al pit location: ipment type: HITACHI EX200 Pit Orientation: Easting: m R.L.S avation dimensions: m long m wide Vane No: 017 Northing: m Datum cavation information material substance tests, etc RL g g at a soft type: colour, structure. Grading: bedding: g g g g g g g g g g g g g g g g g g g</td> <td>al pit location: ipment type: HITACHI EX200 Pit Orientation: Easing: m R.L. Surfax avation dimensions: m long m wide Vane No: 017 Northing: m Datum: cavation information material substance motes samples, RL gap bit origin of the secondary and minor components. Reck - Colour, fabric, rock type; discondary and minor components. tests, etc RL gap bit of the secondary and minor components. T tests, etc RL do the secondary and minor components. T tests, etc RL do the secondary and minor components. T tests, etc RL do the secondary and minor components. T tests, etc RL do the secondary and minor components.</td>	al pit location: ipment type: HITACHI EX200 Pit Orientation: Easting: m avation dimensions: m long m wide Vane No: 017 Northing: m cavation information material substance tests, etc RL Set	al pit location: Che ipment type: HITACHI EX200 Pit Orientation: Easting: m avation dimensions: m long m wide Vane No: 017 Northing: m cavation information material substance	al pit location: Checke ipment type: HITACHI EX200 Pit Orientation: Easting: m R.I. avation dimensions: m long m wide Vane No: 017 Northing: m Da cavation information material substance tests, etc RL g g g g g g g g g g g g g g g g g g	al pit location: ipment type: HITACHI EX200 Pit Orientation: Easting: m R.L.S avation dimensions: m long m wide Vane No: 017 Northing: m Datum cavation information material substance tests, etc RL g g at a soft type: colour, structure. Grading: bedding: g g g g g g g g g g g g g g g g g g g	al pit location: ipment type: HITACHI EX200 Pit Orientation: Easing: m R.L. Surfax avation dimensions: m long m wide Vane No: 017 Northing: m Datum: cavation information material substance motes samples, RL gap bit origin of the secondary and minor components. Reck - Colour, fabric, rock type; discondary and minor components. tests, etc RL gap bit of the secondary and minor components. T tests, etc RL do the secondary and minor components. T tests, etc RL do the secondary and minor components. T tests, etc RL do the secondary and minor components. T tests, etc RL do the secondary and minor components.

Test pit TP 03 terminated at 5.5 metres.

Trial Pit No.

Project No:

Date started:

Date completed:

Sheet

TP 03

5.2.2008

5.2.2008

structure and additional observations

MJP

MJP

Younger Ash

Matua Subgroup

GEOTTAUC13717

1 of 1

TRIAL PIT 13717 TEST PITS 070208.GPJ COFFEY.GDT 14.2.08

T

Sketch

so ba	undisturbed sample 63mm diameter disturbed sample	water 10/1/ in da water	ulded	mol: D M W S	sture dry moist wet saturated	consist VS S F St VSt H	ancy/ density in very soft soft firm stiff very stiff hard	dex VL L D VD	very loose loose medium dense dense very dense

C	20	offe	51			geo	otechnics			Trial D	it blo				
			-							Trial P Sheet	It NO.		TP 0		
E	ng	gine	eri	ng	LO] -	Trial Pit	Projec	t No:			TTAUC13	717		
Clie	ent:			FIVE	ESTAR	EST	ESTATE LIMITED						5.2.20	008	
Pri	ncipa	al:								Date c	omplete	ed:	5.2.2008		
Pro	oject			KEN	INEDY	ROA	D, PYES PA			Logge	d by:		MJP		
Tria	al pit	location:		Adja	acent t	o CP	Т 06			Check	ed by:		MJP		
		ent type: HIT					Pit Orientation :	Easting: m			.L. Surfa	ice m			
_		on dimension ation info			m wide	mate	Vane No: 017 erial substance	Northing: m		D	atum:				
stratigraphy	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material Soil - Soil type; colour, structure, plasticity, sensitivity. Secondary an Rock - Colour, fabric, rock type; dis information.	. Grading; bedding; Id minor components. continuities, additional	moisture condition	consistency/ density index	75 vane shear 100 (remoulded 125 /peak) kPa	2		cture and I observation	s
	_			1	× × × × × × × × × × × × × × × × × × ×	ML	TOPSOIL SILT with some sand; occasional w grey with common bands of topsoil,	hite streaking light	M	Ň		Alluviu	Im		
				2	**************************************	CL	TOPSOIL SILT, with some clay, slightly plastic brown with common slightly decom 300mm diameter organic inclusions	posed, fibrous 5 to	M- W						
				4 4 5	<pre>x x x x x x x x x x x x x x x x x x x</pre>		at 3.5m becoming dark brown at 4.3m becoming brown and light g	jrey							international second
		·····			× × × × × × × × × × × × × × × × × × ×		Test pit TP 04 terminated at 5.5 me	tres	-						-
				6											
s	6keto	h													
s b n U	otes,		and Ge its id sam id sam sample te	eotechnic nple 50m nple 63m e	m diameter		vane shear (kPa) ● remoulded × peak >>> peak greater than 200kPa water ■ 10/1/98 waler level on date shown ■ water inflow water outflow	moisture D dry M moist W wet S saturated		consiste VS F St VSt H	oncy/ den very so soft firm stiff very st hard		K L MD D VD	very loose loose medium dens dense very dense	e

TRIAL PIT 13717 TEST PITS 070208.GPJ COFFEY.GDT 14.2.08

C		offe	3)		> g	jec	otechnics			Trial Pit No.	TP 05
							Frial Pit			Sheet Project No:	1 of 1 GEOTTAUC13717
Clie	ent:			FIVE	STAR	EST	ATE LIMITED			Date started:	5.2.2008
Pri	ncipa	al:								Date completed:	5.2.2008
	ject			KEN		POA	D, PYES PA			Logged by:	MJP
	·	location:		-	acent to	CPI		Fasting, at		Checked by: R L. Surface:	MJP
		nttype: Hil					Pit Orientation:	Easting: m		Datum:	m
		on dimensio ation info			m wide	mate	Vane No: 017 rial substance	Northing: m	-	Daterri.	
						ц.	material			a ded	
stratigraphy	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	Soil - Soil type; colour, structure plasticity, sensitivity. Secondary an Rock - Colour, fabric, rock type; dis information.	d minor components.	moisture condition	consistency/ density index 25 vane shear 75 vane shear 100 (remoulded 130 /peak) kPa	structure and additional observations
	V			-	****	ML	TOPSOIL SILT with trace sand; no plasticity, I	ight brown and light	м		luvium
	-			-	<u>ж</u> ж ж; жж ж;	Pt	grey streaked brown with common 10mm thick, moist	/	s		-
				1	<u>***</u> *	SM	PEAT, abundant 5 to 200mm diame decomposed to moderately decomp	osed organic	M-		-
				-	<		inclusions (wood) in a dark brown s (perched watertable)	ilty matrix, saturated	W		-
				-	x x x x		Silty SAND, light brown streaked lig	ht grey, moist to			-
				2	× × ×						-
				-	(X X X X						
				-	XXX						-
				3	×`×`						-
				-	∫x						-
					** * ** * * *	Pt	PEAT, abundant 5 to 150mm diame decomposed to moderately decomp]		-
					жж ж; жж ж; жж ж;		inclusions (wood) in a dark brown-b				-
					× × ×	CL	Clayey SILT, light grey, slightly stic	ky, low plasticity, wet	w		
				-	× × × × × × × ×						-
				- -	× × × × × ×						_
	-			2	÷÷×÷×÷						-
			_		x x x x x x x x x x						
				-			Test pit TP 05 terminated at 5.5 me	tres.			-
-				6					<u> </u>		
	keta	h									
s t n	oil de ased otes, s		and Ge its id sam id sam sample le	ple 50m ple 63m	cal Society I m diameter m diameter		vano shear (kPa) ● remoulded × peak >>× peak greater than 200kPa water ↓ 10/1/98 water level on date shown water inflow water outflow	moisture D dry M moist W wet S saturated		consistency/ density i VS very soft S soft F firm St stiff VSt very stiff H hard	index VL very loose L loose MD medium dense D dense VD very dense

TRIAL PIT 13717 TEST PITS 070208.GPJ COFFEY.GDT 14.2.08

Form GEO 5.5 Rev.5



Engineering Log **Trial Dif**

Ε	ng	gine	eri	ng	Log	- "	Trial Pit			She Pro		No	· ·		
Clie	ent:			FIVE	STAR	EST	ATE LIMITED			Dat		-			
Prie	ncipa	al:								Dat	e co	m	plet	ed:	
	ject			KEN	NEDY	ROA	D, PYES PA			Log					
		location:			icent to					Che	•				
_		ent type: HI					Pit Orientation.	Easting. m			_			ace	; m
		on dimensio			m wide		Vane No: 017	Northing: m			D	atur	n:		
ex	cav	ation info	rmat	ion			erial substance		1	_	_		_	_	
stratigraphy	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	Soil - Soil type; colour, st plasticity, sensitivity. Secon Rock - Colour, fabric, rock ty	terial ructure. Grading; bedding idary and minor compone ype; discontinuities, additi mation.	nts. [콜콜	consistency/ density index	25	75 Valle Silear	125 /peak) kPa	e)L	
	Y			1 1 2 3		SW ML ML	TOPSOIL SAND and gravels; fine to n orange streaked yellow and sands, dry SILT, low plasticity, dark bro brown with common topsoil at 1.3m becoming light brow slightly decomposed to mod inclusions (wood) up to 100 Sandy SILT, fine, light grey,	light grey, grading to fine wwn and black streaked lig bands up to 15mm with rare to common lerately decomposed orga mm diameter, wet	ht W						Alluv
				4 			at 3.8m with a large tree stu decomposed Test pit TP 06 terminated at								
_				6											
ç	6keta	ch													
		fication sym	bols a	nd			vane shear (kPa) • remoulded								

consistency/ density index

VS	very soft
S	soft
F	firm
St	stiff
VSt	very stiff
н	hard

Trial Pit No.

TP 06

5.2.2008

5.2.2008

structure and additional observations

MJP MJP

Alluvium

GEOTTAUC13717

1 of 1

very loose loose medium dense dense very dense

VL.

L

MD D

VD

10/1/98 water level on date shown

peak peak greater than 200kPa

moisture

dry moist

wet salurated

D M W S

water outflow

water inflow

4

× ≫X

water

T

TRIAL PIT 13717 TEST PITS 070208.GPJ COFFEY.GDT 14.2.08

U₅₀ U₆₃ D

Bs

ε

R

based on New Zealand Geotechnical Society Inc 2005

undisturbed sample 63mm diameter disturbed sample

notes, samples, tests U₂₀ undisturbed sample 50mm diameter

bulk sample environmental sample

refusal



			•								Exca	ation ID.	TP18				
⊂,	nai	no	orin	a I	~	N		avation			sheet	:	1 of 1				
	igi			<u> </u>	-	-		cavation			projec	ct no.	GENZTAUC13086A				
clien	nt:	The	Lakes	s (20 ⁻	12) L	.td					date e	excavated	22 May 2014				
princ	cipal:										date o	completed	dt 22 May 2014				
proje	ect:	The	Lakes	s Sta	ges :	2U &	2V				logge	d by:	G. Nijhuis				
locat	tion:	Nor	thern	end	of pr	opos	ed ac	cess road			check	ed by:	R.Telford				
positi	on: E:	367,842	2; N: 800,7	766 (WC	GS84)			surface elevation: 10.00 m (Moturiki)		pit orie	entation:	E-W					
			Excavator	Excava	ator				excavati	on dime	nsions: (3.5 m long (0.6 m wide vane id.: 4523				
exca	avation	Inform	ation				rial subs	material description			, ity	shear	structure and				
method support	penetration	water	samples & field tests		depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic colour, secondary and minor components	,	moisture condition	consistency / relative density	vane ⊕remoulded ⊙peak (kPa) 02 02 00 02 02 00	additional observations				
		22/05/14 ∳d		-9.5 -9.0 -8.5 -7.5				Sandy SILT to Silty SAND: non-plastic, orange I with white lenses. Slightly Silty SAND : non-plastic, grey, pumiceo ORGANIC SILT: non plastic, dark brown, organic odour, organic inclusions ~ 5%. PEAT: non plastic, dark brown, fibrous, wood branches up to 100mm diameter.	US.	W W	H	\$V,UTP \$V,UTP \$V,UTP 	FILL FILL Moderate water inflow below 1.5m Measured water level at end of excavation				
				-6.5 -6.0 -5.5				Test pit TP18 terminated at 3.2 m Machine limit		assification	tion sym						
N X BH R E	existir backh		ation (et	► ►			to er	samples & field tests U## undisturbed sample D disturbed sample B bulk disturbed sample E environmental sample HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane sheapeak/remouded (uncorrected kPa) R refusal	mois D M W W		escriptio on Unific ation Sys	n ed	consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D_ dense				



										Exca	atio/	n ID.	TP19
End	nin	oorin			2	Ev	opustion			sheet			1 of 1
	JIII	eenn	ıg ı	-0(y -	CX	cavation			projec	ct no).	GENZTAUC13086AL
client:	TI	he Lakes	s (20	12) L	.td					date e	exca	vate	d: 22 May 2014
principa	al:									date o	comp	olete	d: 22 May 2014
project:	Т	he Lakes	s Sta	ges	2U &	2V				logge	d by	:	G. Nijhuis
location	: M	iddle of	prop	ose	d acc	ess r	oad			check	ked b	DV:	R.Telford
position:	E: 367,	844; N: 800,7	748 (WC	GS84)			surface elevation: 8.50 m (Moturiki)		pit orie	entation:	E-W		
equipme	nt type: 1	0t Excavator	Excava	ator			excavation method: Excavator e	excavatio	on dime	nsions: (3.5 m	long	0.6 m wide vane id.:
		rmation			mate	erial sub				>			
	² penetration ³ water	samples & field tests		depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	,	moisture condition	consistency / relative density	va ⊕rem ⊙p	ear noulded peak Pa) 02 02 02	structure and additional observations
A N	Λ N 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			0.5 -			SAND: fine to coarse grained, white. TOPSOIL		D				FILL Moderate inflow from gravel layer
					8. [×] • • • •		Sandy GRAVEL: fine to coarse grained.						ALLUVIAL DEPOSITS
				- - 1.0-			ORGANIC SILT: non plastic, grey brown.		W		 699 		
				- 1.5 - -			PEAT : dark brown, fibrous, ~50% organics, slightly highly decomposed.	y to					
			-6.5	2.0-									
			-6.0	2.5							1 1 1		
			-5.5	3.0 -									
			-5.0	3.5-									
				4.0-	-		Test pit TP19 terminated at 3.8 m Machine limit						
			-4.0	4.5-	-								
N na X ex BH ba B bu R rip E ex suppor N no	method penetral N natural exposure X existing excavation BH bulldozer blade R ripper E excavator support None				no resis ranging refusal ct-12 wa on date inflow outflow	to ter shown	samples & field tests U## undisturbed sample ##mm diameter D disturbed sample B bulk disturbed sample E environmental sample HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane sheapeak/remouded (uncorrected kPa) R R refusal	C moist D c M r W v W _P p	soil de based lassifica		n ed		consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense



			- y										
			-							Exca	avation	ID.	TP20
E۲	nai	no	orin	а I	~	Υ.	Ev	cavation		shee	et:		1 of 1
	iyi	ne	enn	y ı	-0(<u>J -</u>		Savation		proje	ect no.		GENZTAUC13086A
client	:	The	Lakes	(20	12) L	.td				date	excava	ted:	22 May 2014
princ	ipal:									date	comple	eted:	22 May 2014
proje	ct:	The	Lakes	Sta	ges 2	2U &	2V			logg	ed by:		G. Nijhuis
locati	ion:	Sou	thern	end	of pr	opos	sed a	ccess road		cheo	cked by		R.Telford
positio	n: E:		; N: 800,7			-1		surface elevation: 8.00 m (Moturiki)	pit	orientatio	,		
equipr	ment ty	pe: 10t E	Excavator	Excava	tor			excavation method: Excavator	excavation di	mensions	: 3.5 m lo	ong 0.	6 m wide vane id.:
exca		inform	ation		1	mate	rial sub	stance					
_	penetration		samples & field tests		(î	bol :	catior	material description	e	on ncy/ density	shea vane ⊕remoul		structure and additional observations
method support	1 2 penet	water	lieid tests	SRL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic colour, secondary and minor components	moisture	condition consistency / relative density	© pea (kPa 1200 20 20	k	
A N				0.0	-			ORGANIC SILT: non plastic, dark brown.	N			1	TOPSOIL
					-			Sandy SILT: non plastic, sand is medium to coars	ie.				FILL
				-7.5	0.5			ORGANIC SILT: low liquid limit, dark brown.			! ! !	iΗ	ALLUVIAL DEPOSITS
				7.5	- 0.5							į	
					-							Ì	
				-7.0	- 1.0 -						 		
					-	TTT		SAND: coarse grained, pale grey. PEAT: dark brown, slightly to highly decomposed,	W	F_	-		Moderate water inflow at 1.1m depth
					-			50% organic material.					
				-6.5	- 1.5	╏┛┚┚		SILT: non plastic, blue grey, minor sand.				į	
					-								
					-								
				-6.0	2.0 -								
					-							į.	
					-							į	
				-5.5	2.5 -							Ì	
					-								
					-								
				-5.0	3.0 —								
	111				-								
					-			becoming pale brown streaked orange				i	
				-4.5	3.5 -			difficult to excavate due to water inflow					Difficult to excavate due to water
* *		+						Test pit TP20 terminated at 3.7 m			-	' F	nflow
					-			Machine limit					
				-4.0	4.0-								
	111				-								
				o -									
				-3.5	4.5-								
					-								
					-								
meth	nod			penetra				samples & field tests		ication sy il descript		Τ	consistency / relative density
N X		al exposi ng excav		5 - 7	—	no resis		U## undisturbed sample ##mm diameter D disturbed sample B bulk disturbed sample	bas	ed on Uni ification S	fied		VS very soft S soft F firm
BH B	backh	oe buck zer blad	et			ranging refusal	to	E environmental sample HP hand penetrometer (kPa)	moisture			\neg	St stiff VSt very stiff
R E	ripper excav			water	10-0~	t-12 wa	ter	N standard penetration test (SPT) N* SPT - sample recovered	D dry M mois	t			H hard Fb friable
sup						on date :		Nc SPT with solid cone VS vane sheapeak/remouded	W wet W _P plast				VL very loose L loose
N S	none shorin	g		-		outflow		(uncorrected kPa) R refusal	W _L liquid	1 limit			MD medium dense D dense
													VD very dense



The Lakes (2012) Ltd client:

principal:

	ipal:										uale	complete	2
oroje	ct:	Th	e Lakes	s Sta	ges :	2U &	2V				logge	d by:	G. Nijhuis
ocati	ion:										chec	ked by:	R.Telford
			74; N: 800,6					surface elevation: 7.50 m (Moturiki)		•	entation		
			t Excavator	Excava	ator	mata		excavation method: Excavator	excavatio	on dime	nsions:	3.5 m long	0.6 m wide vane id.:
exca	vation ⊊	Infor	nation			mate	rial sub ⊊				≥	abaar	ctmucture and
support	penetration	water	samples a field tests		depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic colour, secondary and minor components	С,	moisture condition	consistency / relative density	shear vane ⊕remoulded ⊙peak (kPa) 02 00 05 000	structure and additional observations
N				7.5	-	$\left \right\rangle$		ORGANIC SILT: non plastic, dark brown.					TOPSOIL
					-			ORGANIC SILT: non plastic, black and white.					ALLUVIAL DEPOSITS
				-7.0	0.5-	┝╌┙┛╷╴ ╴╴┓╷╴		SAND: coarse grained.					
					-			ORGANIC SILT					
				-6.5				PEAT			F		
		►			-			SAND					
				-6.0	1.5			ORGANIC SILT					Minor Inflow from sand layers
				-5.5	2.0-			CLAY/SILT : pale grey, medium to high plasticity	<i>I</i> .	W			
		•		-5.0	- - 2.5— -			Slightly Sandy SILT : yellow-orange, non-plastic	C.				Moderate Inflow
				-4.5	3.0								Water level = 2.6m at end of excavation. Standing water level 3.0hrs later = 0.7m. Hole did not collape.
				-4.0	3.5-								
					-	<u> </u>		Test pit TP21 terminated at 3.8 m Machine limit					
				-3.5	4.0								
				-3.0	4.5								
meth	nod	1		penetra	ation			samples & field tests	cla		tion syn		consistency / relative density
N X BH R E	buildozer blade ripper excavator pport none			- 10-Oc level c	no resis ranging refusal t-12 wat on date s inflow outflow	to	U## undisturbed sample ##mm diamete D disturbed sample B bulk disturbed sample E environmental sample HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane sheapeak/remouded (uncorrected kPa) R refusal	C moist D d M n W v W _P p	based lassifica		ed	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

Excavation ID. **TP21** sheet: 1 of 1 GENZTAUC13086AL project no. date excavated: 22 May 2014 22 May 2014 date completed:



The Lakes (2012) Ltd client:

princi	pal:									date com	olete	d: 22 May 2014
projec	ct:	Th	e Lakes	s Sta	ges 2	2U &	2V			logged by	:	G. Nijhuis
locatio	on:									checked b	oy:	R.Telford
			31; N: 800,5					surface elevation: 8.00 m (Moturiki)	•	entation: E-W		
	-	-	t Excavator nation	Excava	tor	mate	rial sub		tion dimer	nsions: 3.5 m	long	0.6 m wide vane id.:
excav								material description		_ <u>≹</u> sh	ear	structure and
method support	¹ 2 penetration	water	samples & field tests	SRL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE : plasticity or particle characteristic, colour, secondary and minor components	moisture condition	isi (k	ne noulded peak Pa) 50 70 70 70 70 70 70 70 70 70 70 70 70 70	additional observations
				-7.5 -7.0 -6.5 -6.0 -5.5 -5.0 4.5 -4.0 -3.5				PEAT: dark brown, fibrous, large trees and branches, slightly to heavily decomposed. Sandy SILT ORGANIC SILT Clayey SILT: medium to high liquid limit, grey. Test pit TP22 terminated at 3.5 m Machine limit	D W	F		ALLUVIAL DEPOSITS
metho N X BH B R E supp	X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator Support N none			m 10-Oct	n date inflow	to ter	Samples & new tests U## undisturbed sample D disturbed sample B bulk disturbed sample E environmental sample HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Mc SPT with solid cone VS vane sheapeak/remouded	soil de based d Classifica	ion symbol & scription on Unified tion System		consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense	

Excavation ID.

date excavated:

sheet:

project no.

TP22

GENZTAUC13086AL

22 May 2014



The Lakes (2012) Ltd client:

principal:

princ	rincipal: roject: The Lakes Stage :											date	complete	d: 22 May 2014
proje	ect:	:	The	e Lakes	Sta	ges :	2U &	2V				logge	d by:	G. Nijhuis
locat	tior	า:										check	ked by:	R.Telford
positi	on:	E: 3	67,75	0; N: 800,50)1 (WG	SS84)			surface elevation: 8.50 m (Moturiki)	p	it orie	ntation	E-W	
equip	me	ent typ	e: 10t	Excavator E	Excava	tor			excavation method: Excavator	excavation	dimer	isions:	3.5 m long	0.6 m wide vane id.:
exca	1		nforn	nation	1		mate	rial sub	stance					
support		² penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture	condition	consistency / relative density	shear Vane ⊕remoulded ⊚peak (kPa) 05 00 05 00	structure and additional observations
A N					- 8.5	- - - 0.5 - -			Silty SAND: non plastic, dark brown, iron staining.		to M			ALLUVIAL DEPOSITS
			22/05/14		-7.5	- - 1.0 - -			ORGANIC SILT: non plastic, dark brown black.					Moderate inflow at 1.0m depth
					-7.0	- 1.5 - -			Clayey SILT: medium to high liquid limit, grey blue	e	W			
Ļ					-6.5	- 2.0— -			becoming organic rich					
					-6.0	- 2.5— - -	2.5		two large branches/logs up to 300mm diameter					
					-5.5	- 3.0— - -								
,					-5.0	3.5			Test pit TP23 terminated at 3.8 m					
					-4.5				Machine limit					
					-4.0	4.5 - - - -								
N X BH R E	method N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator support N none			10-Oc level c	no resis ranging refusal t-12 wa n date : inflow outflow	to	samples & field tests U## undisturbed sample D disturbed sample B bulk disturbed sample E environmental sample HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane sheapeak/remouded (uncorrected kPa) R	s ba	ist t stic lir		ed	consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose D dense VD very dense		

Excavation ID. **TP23** sheet: 1 of 1 GENZTAUC13086AL project no. date excavated: 22 May 2014 22 May 2014 date completed:



client: The Lakes (2012) Ltd

р	orino	cipa	al:									date	complete	d: 22 N	lay 2014
р	oroje	ect	:	Th	e Lake:	s Sta	ges 2	2U &	2V			logge	d by:	G. N	lijhuis
lo	oca	tior	n:									check	ked by:	R.Te	elford
1					56; N: 800,4					surface elevation: 7.50 m (Moturiki)		it orientation			
-					t Excavator	Excava	tor	ment		excavation method: Excavator	excavation	dimensions:	3.5 m long	0.6 m wide	vane id.:
F	exca	ava			nation				erial sub	material description		ją "	shear		structure and
method	support	auppoir	² penetration	water	samples a field tests		depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic colour, secondary and minor components	c, distinction	condition consistency / relative density	vane ⊕remoulded ⊚peak (kPa)		ional observations
A	• N			•		-7.0				ORGANIC SILT: dark brown.				Unable to ex	ow from 0.5m depth.
	,					-6.0	- 1.5 - - - - - - -			PEAT : dark brown, ~ 25% wood fibres, some branches.					and pit wall collapse
						-5.0	2.5			Test pit TP24 terminated at 2.0 m Flooding					-
						-4.5	3.0								-
						-4.0	3.5								-
)))))						-3.5	4.0								-
						-3.0	4.5								
	support level water		m 10-Oct	n date inflow	to ter shown	samples & field tests U## undisturbed sample ##mm diamete D disturbed sample B bulk disturbed sample E environmental sample HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane sheanpeak/remouded (uncorrected kPa) R R refusal	r ba Clas moistur D dry M mo W wet	ist t stic limit	o n ed	consisten VS S F St VSt H F b VL L MD D VD	cy / relative density very soft soft firm stiff very stiff hard friable very loose loose medium dense dense very dense				

Excavation ID.

date excavated:

sheet:

project no.

TP24

GENZTAUC13086AL

22 May 2014



The Lakes (2012) Ltd client:

									excavale	u. 22 May 2014
principal:								date	complete	ed: 22 May 2014
project:	The Lak	es Stag	ges 2	2U &	2V			logg	ed by:	G. Nijhuis
location:								cheo	ked by:	R.Telford
position: E	: 367,848; N: 80),685 (WG	S84)			surface elevation: 7.50 m (Moturiki)	k	oit orientatio	n: E-W	
	ype: 10t Excavat	or Excavate	or				excavation	dimensions	: 3.5 m long	0.6 m wide vane id.:
	n information			mate	rial sub ⊂			~		
hethod upport penetration	sample field tes		(u)	c log	ficatio	material description SOIL TYPE: plasticity or particle characteristic,	1	ion ency/	shear vane ⊕remoulded	structure and additional observations
method support ¹ 2 penetr	vater	sts (L) L	depth (m)	graphic log	classification symbol	colour, secondary and minor components	, toion	condition consistency / relative density	⊙ peak (kPa) 02 02 02 03 02 02	
CDF_0_9_04BB.GLB Log COF EXCAVATION 13086AL_GPJ < </th <th></th> <th>-7.0 -7.0 -6.5 -6.0 -5.5 -5.0 -4.5 -4.0 -3.5 -3.0</th> <th></th> <th></th> <th></th> <th>PEAT: dark brown. Test pit TP25 terminated at 1.0 m Flooding</th> <th></th> <th>W VSt</th> <th></th> <th>ALLUVIAL DEPOSITS</th>		-7.0 -7.0 -6.5 -6.0 -5.5 -5.0 -4.5 -4.0 -3.5 -3.0				PEAT: dark brown. Test pit TP25 terminated at 1.0 m Flooding		W VSt		ALLUVIAL DEPOSITS
method N natur X exist BH back	ral exposure ing excavation hoe bucket ozer blade r vator	•	10-Oci level o water	no resis ranging refusal t-12 was on date s inflow outflow	to	samples & field tests U## undisturbed sample ##mm diameter D disturbed sample B bulk disturbed sample E environmental sample HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane sheapeak/remouded (uncorrected kPa) R refusal	b Claa moistuu D dry M mo W we W _P pla	/ bist	i on fied	consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense

Excavation ID.

date excavated:

sheet:

project no.

TP25

GENZTAUC13086AL

22 May 2014



The Lakes (2012) Ltd client:

principal:											e complete	
projec		Th	e Lakes	Sta	nes	211 &	21/				jed by:	G. Nijhuis
		110	e Lanes	Jia	yes i	20 & 2	2 V					-
ocatio											cked by:	R.Telford
			8; N: 800,68					surface elevation: 12.50 m (Moturiki)		it orientatio		
			Excavator	Excava	lui	materi	ial sub	excavation method: Excavator	excavation of	Intensions	s. 5.5 milliong	0.6 m wide vane id.:
								material description		2	shear	structure and
support	¹ 2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic colour, secondary and minor components	moisture	condition consistency / relative density	Vane ⊕remoulded ⊚peak (kPa) 02 02 05 05	additional observations
N				12.5	-	\Box		Sandy SILT: non plastic, dark brown, friable.		M VS		TOPSOIL
				-12.0	- - 0.5-			SILT: low liquid limit, orange brown, some fine to coarse sand, black specks.				YOUNGER ASH
					-			SAND: fine to coarse grained, yellow-orange.			 ⊕ -⊚	ROTOEHU ASH
				-11.5	- 1.0 <i>—</i> -			CLAY / SILT : pale brown, medium plasticity.				MATUA SUBGROUP?
-11.0 1.5-				- - 1.5-			Clayey SILT: medium to high liquid limit, white.					
				-10.5	- - - 2.0 - -					S		
				-10.0	- 2.5— -					VS		
				-9.5	- 3.0— -			becoming orange-brown		St	⊕-© ⊕-© 	
V				-9.0	3.5-			becoming wet		N		
		-8.5 4.0			- - 4.0 - -			Test pit TP26 terminated at 3.6 m Machine limit				
				-8.0	- 4.5 - -							
N X BH B R	K existing excavation BH backhoe bucket 3 bulldozer blade R ripper excavator			n 1	no resista ranging t refusal	0	samples & field tests U## undisturbed sample D disturbed sample B bulk disturbed sample E environmental sample HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered	s ba		t ion ified	consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable	
support N none			level o water	t-12 wate in date sh inflow outflow	nown	Nc SPT with solid cone VS vane sheapeak/remouded (uncorrected kPa) R refusal	W wet W _P plas W _L liqui	tic limit		VL very loose L loose MD medium dense D dense VD very dense		

Excavation ID.

date excavated:

sheet:

project no.

TP26

GENZTAUC13086AL

22 May 2014



The Lakes (2012) Ltd client:

a sin alı		المعاملة معسمه ماما	22 May 2014
ncipal:		date completed	•
oject: The Lakes Stages 2U & 2V		logged by:	G. Nijhuis
ation:		checked by:	R.Telford
	, , ,	entation: N-S	.
uipment type: 10t Excavator Excavator excavation metho cavation information material substance	: Excavator excavation dimer	nsions: 3.5 m long 0.	.6 m wide vane id.:
	material description	<u>_</u> ≱ shear	structure and
samples & L (L) (L) (L) (L) (L) (L) (L) (L) (L) (vane ⊕remoulded ©peak	additional observations
SOIL TYPE: p samples & field tests symbol depth (m) symbol depth (m) symbol depth (m)	asticity or particle characteristic, ondary and minor components	consistency / relative density papprouet⊕ 2000 (8dx) 2000 (8dx) 2	
	minor fine to coarse sand.		TOPSOIL
Sandy SILT: non	plastic, orange-brown.		YOUNGER ASH
		VSt	
		 ⊕ ⊕	
		₽ <u></u> _6	
		St	
Sandy SILT: non	plastic, orange.		VOLCANIC ASH
	e grained, orange, pumiceous.		
I I I I I Test pit TP27 term I I I I I Machine limit	inated at 3.5 m		
nethod penetration samples & fid	soil de	tion symbol & escription	consistency / relative density VS very soft
existing excavation		on Unified ation System	VS very soft S soft F firm
H backhoe bucket	onmental sample I penetrometer (kPa) moisture		St stiff VSt very stiff
ripper water N star excavator 10 Oct 12 water N* SP	dard penetration test (SPT) D dry - sample recovered M moist		H hard Fb friable
level on date shown Nc SPT	with solid cone W wet sheanpeak/remouded W _P plastic lir		VL very loose L loose
none	(uncorrected kPa) W _L liquid lim		

Excavation ID.

date excavated:

sheet:

project no.

TP27

GENZTAUC13086AL

22 May 2014



client: The Lakes (2012) Ltd

			,					data .		
principal:		- 04-			<u>017</u>				complete	2
project:	The Lake	s Sta	ges 2	20 &	2V			logge	d by:	G. Nijhuis
ocation:								check	ked by:	R.Telford
	367,955; N: 800					surface elevation: 11.50 m (Moturiki)		t orientation:		
	pe: 10t Excavato	or Excavat	tor		ial auto		excavation d	limensions: 3	3.5 m long	0.6 m wide vane id.:
	mormation				ial sub	material description		₹	shear	structure and
upport penetration	samples field tes		(u)	lic log	ificati ol	SOIL TYPE: plasticity or particle characteristic,	, en	tion tency.	Vane ⊕remoulded ⊚peak	additional observations
support benetr	water	BL (m)	depth (m)	graphic log	classification symbol	colour, secondary and minor components	moist	condition consistency / relative density	(kPa) 50 12 00 20 50 12 00 20	
		11.5	-	$ \rangle$		Sandy SILT: non plastic, dark brown, fine rootlets within top 50mm.		и н		TOPSOIL
			-							
			-			Sandy SILT to Silty SAND : mottled brown and v	vhite.		\$У ЧТР	FILL
		-11.0	0.5 —							
			-						 \$v/ UтР	
		10.5	-							
		-10.5	1.0							
			-					VSt	- \$v uπ₽	
		10.0	-							
		-10.0	1.5							
ii			-							
			-							
		-9.5	2.0 -					VSt	- \$V UTP	
			-							
			-							
		-9.0	2.5 -							
			-			interbedded with grey, non-plastic SILT		St		
			-							
		-8.5	3.0							
			-							
			-							
		-8.0	3.5 —	Î		PEAT / ORGANIC SILT : Slightly to highly decomposed.				ALLUVIAL DEPOSITS
V			-			·				
		-7.5	-			Test pit TP28 terminated at 3.8 m Machine limit				
		-7.5	4.0 -							
			-							
		-7.0	- 4.5—							
		7.0	ч.5							
			-							
			-							
method	T	penetra				samples & field tests U## undisturbed sample ##mm diameter	so	ification sym oil descriptio	n	consistency / relative density VS very soft
X existi	c existing excavation				ance	D disturbed sample B bulk disturbed sample		sed on Unifi sification Sys		S soft F firm
3H backhoe bucket 3 bulldozer blade				ranging refusal	to	E environmental sample HP hand penetrometer (kPa)	moisture)		St stiff VSt very stiff
R ripper water				t-12 wate	er	N standard penetration test (SPT) N* SPT - sample recovered	D dry M mois	st		H hard Fb friable
support				n date sl	hown	Nc SPT with solid cone VS vane sheatpeak/remouded	W wet W _P plas	tic limit		VL very loose L loose
	N none					(uncorrected kPa) R refusal	W _∟ liqui	d limit		MD medium dense D dense
								VD very dense		

Excavation ID.

date excavated:

sheet:

project no.

TP28

GENZTAUC13086AL

22 May 2014



The Lakes (2012) Ltd client:

princ	ipal:								date	e completed	22 May 2014
proje	ct:	The	e Lakes	Sta	ges 2	2U 8	2V		logg	ed by:	G. Nijhuis
ocat	ion:								che	cked by:	R.Telford
			8; N: 800,44						prientatio		
	ment typ vation i		Excavator E	xcava	tor	mat	erial sub	excavation method: Excavator excavation din	nensions	: 3.5 m long ().6 m wide vane id.:
exca			liation					material description	ž,	shear	structure and
support	1 2 penetration	water	samples & field tests	SRL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	consistency / relative density	vane ⊕remoulded ⊚peak (kPa) 03 0 0 0 00 03 0 00 00	additional observations
A N				-19.0				Sandy SILT: non plastic, dark brown, rootlets within M top 50mm.	H VSt		TOPSOIL VOLCANIC ASH
					-					 ⊕+⊕ 	
				-18.5	1.0			Sandy SILT: non plastic, orange, becomes greasy		 	
				-18.0	- 1.5 — -			when reworked.			
I				-17.5	2.0		- - - - - -	Silty SAND to Sandy SILT : orange-brown, non plastic. SAND and SILT : trace gravel, sand is fine to coarse, yellow brown.		⊕ <mark> </mark> ⊕ <mark> </mark> 	
				-17.0			· · · · · · · · · · · · · · · · · · ·				
				-16.5	- 3.0 <i>-</i> -		· · · · · · · · · · · · · · · · · · ·	SAND: fine grained, pale brown.			
				-16.0	- - 3.5 — -		· · · ·	Clayey SILT: medium to high liquid limit, pale W	St		
				-15.5	4.0-			grey-brown. Test pit TP29 terminated at 3.7 m Machine limit			
				-15.0	- 4.5 - -						
method penel N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator water) 	rangin refusa t-12 wa	ater	U## undisturbed sample soil D disturbed sample base B bulk disturbed sample Classif E environmental sample moisture HP hand penetrometer (kPa) moisture N standard penetration test (SPT) D N* SPT - sample recovered M	cation sy descript ed on Un ication S	mbol & ified	consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable		
sup N S	support N none		level o water water	n date inflow	shown	Nc SPT with solid cone W wet VS vane sheapeak/remouded W _P plastic (uncorrected kPa) W _L liquid	: limit limit		VL very loose L loose MD medium dense D dense VD very dense		

Excavation ID.

date excavated:

sheet:

project no.

TP29

GENZTAUC13086AL

22 May 2014



												Boreh	ole ID.	MH28
C ,	nc	nin	~~~	rir		ad Barak		~				sheet	:	1 of 4
	ΠĈ	JIII	lee		ng Log - Cor	eu porei	101	9				projec	t no.	GENZTAUC13086
clie	nt:	7	The L	.ake	s (2012) Ltd							date s	started:	25 Jul 2014
prin	cipa	ıl:										date o	completed:	25 Jul 2014
proj	ect:	7	The L	.ake	s Stages 2U & 2V							logge	d by:	S.Campbell
loca	ation	: /	lear	culv	vert crossing							check	ed by:	R.Telford
posi	tion:	E: 36	7,817;	N: 80	0,752 (BOPC2000)	surface elevation: 8.0	0 m (Mo	turiki)			angle	e from ho	rizontal: 90°	
drill r	node	el: Mor	rooka,	Track	mounted	drilling fluid:					casir	ig diame	ter : NW	vane id.:
drill	ing i	nform	ation	mat	terial substance material desc	samples,	rock	mass de defect		dditional observations and				
method & support	water	RL (m)	depth (m)	graphic log	ROCK TYPE: grain of colour, structure, min	core run details	spacing (mm)	(type, inclir	defect descriptions nation, planarity, roughness, coatin thickness, other)					
ਸ ਸ	ž	* *	ğ	<u>Б</u>	start coring at 0.00m	C SILT: low to	weathering alteration	° ≊ ≈ §		a = axial; d = diametral	ч S	00 50 60 50 0 50 60 50	articular	gene
			.		medium plasticity, dark brow grey, m, some clay, moist;	vn mottled brown								
	24/07/14				SILT: non plastic, grey brow brown specks, some very fi	n with dark orange	1							AL DEPOSITS (PEAT+ C SILT AND CLAYS)
Р Я	24/0	F	0.5-	1	some completely weathered (pale grey sandy silt), moist	d pumice inclusions								-,
Ĭ			.	╏┼╁╎	0.75 m: 20mm coarse grai		4				TCR= 60%			
		-7	1.0		ORGANIC SILT: low plastic amorphous. Minor highly de	ty, dark brown,								
					fibers, moist to wet, soft; PE 0.90 m: wood fragments fro	AT.								
X			·		occasional interbedded silt			! ! ! !				İİİİ		
		-	1.5 -											
			.							SPT 1, 0, 0, 0, 1,	TCR=			
										0 N=1	0%			
		-6	2.0-											
A 								! ! ! !						
			2.5								TCR=			
			2.5								0%			
			.											
		-5	3.0 -		3 00 m; clavov silt lonso (m	odium plasticity, grov		iiii	i i L					
					3.00 m: clayey silt lense (m becomng dark brown) 3.05 m: becoming low plas					SPT), 0, 1, 0, 0,	TCR=			
			.		<60% fibrous wood inclusio					0 N=1	0%			
		-	3.5 -											
			4.0	<u> </u>					ÌÌ		TCR=	<u>iii</u>		
		-4	4.0-	┨╎┫╿							29%			
Ż			.]										
		F	4.5 -	 	1.50 m; 150/ wood instru-i-	20				VS 13				
				╡╎┃│	4.50 m: 15% wood inclusio	115		1111		/6 kPa SPT	TCR=		SPT sanl	k 450mm under hammer
			:	╡║┫╿						HW/450mm	100%		weight	
		-3	5.0 -	╡╎┃│										
			-	<u> </u>							TCR= 95%			
					5.30 m: becoming dark gre	y brown							1	
me AS AD CB	aug aug	& supp ger scr ger dril w or bl	ewing		water		covered	-		HW highly	al soil etely we weather	athered ed	defect typ BS beddi PT partin JT joint	ng shear PL planar g CU curved UN undulating
W NM	wa LCNN	shbore	e re (51.9		water inflow		mbols indicate			MW moder SW slightly UW unwea	/ weathe		SZ shear SS shear CO conta	surface IR Irregular
NQ HQ	wir wir	eline c eline c	ore (47. ore (63.	6mm) 5mm)	complete drilling fluid loss		recovere	eu.		*W replaced w strength	ith A for a	Iteration	CO conta CS crush SM seam	ed seam
PQ SP		indard	ore (85. penetra		_		vithdrawn			VW very w W weak MS moder	еак ately str	ong	roughness SL slick	s coating ensided CN clean
	.00				بے water pressure test resu (lugeons) for depth interval shown	It I TCR = Total Co	re Recov	ery (%)		S strong VS very st	rong	-	POL polis SO smo	hed SN stain oth VN veneer
					interval shown	SCR = Solid Co RQD = Rock Q	re Recov	ery (%)			ely stro	ng	RO roug VR very	h CO coating rough



				-									Во	reho	le ID.	MH28	3	
E	n	nin		rin	g Log - Core	d Barah		•					she	eet:		2 of 4		
	ΠĆ												pro	oject	no.	GENZ	TAUC1	3086A
clie	ent:	7	The L	.akes	s (2012) Ltd								da	te sta	arted:	25 Jul	2014	
priı	ncipa	al:											da	te co	mpleted:	25 Jul	2014	
pro	ject:	: 1	The L	.akes	s Stages 2U & 2V								log	ged	by:	S.Can	npbell	
loc	atior	n: 🖊	Vear	culv	ert crossing								che	ecke	d by:	R.Telf	ord	
pos	ition:	E: 36	7,817;	N: 800,	752 (BOPC2000) surfa	ace elevation: 8.00	m (Mo	oturił	<i)< td=""><td></td><td></td><td>angle</td><td>e from</td><td>n horiz</td><td>ontal: 90°</td><td></td><td></td><td></td></i)<>			angle	e from	n horiz	ontal: 90°			
			,			ng fluid:							-		: NW	١	ane id.:	
dri	lling	inform	nation	mate	rial substance material descriptio	on	ø	e	stimate	ed	samples,	rock		s defe fect		ditional obse	ervations and	
method &	water	RL (m)	depth (m)	graphic log	ROCK TYPE: grain charac colour, structure, minor cor		weathering 8 alteration	0	trengt & Is50 × = axial = diamet ຊີ) ; ral	field tests & Is(50) (MPa) a = axial; d = diametral	core run details	(n	10000000000000000000000000000000000000	(type, inclina	defect des ation, planari thickness	ty, roughness	s, coating, general
			-		Clayey SILT: medium plasticity, minor 30x10mm wood inclusions			1		Ì		TCR= 95%				L DEPOSITS SILT AND (-
		-2	6.0		SILT: low plasticity, pale grey, migrained sand, moist, soft.	inor fine					VS 16 /5 kPa SPT 1, 0, 0, 0, 0, 0, 0	TCR= 100%						
		-	6.5-		Silty CLAY: medium to high plas brown grey, wet.	ticity, pale		1 :		1.1	<u>N*=0</u> _r							-
		-1	7.0		SILT: low to medium plasticity, p some clay, some fine to medium moist to wet. 7.00 m: becoming pale brown g	ا grained sand,						TCR= 100%				L DEPOSITS		
		-	7.5-		absent Sandy SILT: non plastic, pale gr fine grained, moist.	ey, sand is very					SPT 1, 0, 0, 0, 0, 0	TCR= 20%						
.но		-0	8.0-		Silty SAND: very fine grained, pa dilative, dry, very loose.	ale grey,					N*=0							
		_	8.5							1		TCR= 71%						-
		1	9.0-		SAND: fine to coarse grained, we grey, trace to minor coarse grain	led rounded					SPT 1, 0, 0, 0, 0, 0,	TCR=						- - -
		-	9.5		pumice gravels, moist to wet, ve	ry loose to loose.					0 N*=0	15%						- - -
		2	10.0		10.05 m: orange brown lense <ł becoming fine to coarse grained							TCR= 100%						-
		-	- - 10.5 - -		grey inclusions <5mm below 10. 10.30 m: becoming orange brov 10.45 m: sand becoming dark b	1m vn below 10.3m					SPT 3, 3, 4, 5, 6, 5	TCR= 80%						- - - -
AS AE CE W NI NO HO PO	S au D au B cla WLONI Q wi Q wi Q wi	reline c reline c reline c andard	ewing ling ade bit	6mm) 5mm) 0mm)	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss partial drilling fluid loss water pressure test result (lugeons) for depth interval shown	graphic log / corr core rec (graphic sym no core core run details barrel wi TCR = Total Corr	overed abols indicate recovere ithdrawn	e mater		-	HW highly MW moder SW slightly UW unwea *W replaced w strength VW very w W weak	al soil etely we weather rately we weather thered ith A for a eak ately stru	athere ed eathere ered Iteration	ed ed	CO contac CS crushe SM seam roughness	ig shear zone surface tt id seam insided ied th	planarity PL plana CU curve UN undul ST stepp IR Irregu CN clean SN stain VN venec CO coatir	d ating ed ilar er



Ŭ				J							Boreho	le ID.	MH28	
F	'n	nir		rin	g Log - Core	d Rorah	مام	د			sheet:		3 of 4	
_	· · · 〈	_			<u> </u>			,			project	no.	GENZTAUC1	3086AL
clie	ent:	7	The L	.ake	s (2012) Ltd						date sta	arted:	25 Jul 2014	
prir	ncipa	al:									date co	mpleted:	25 Jul 2014	
pro	ject:	7	The L	.ake	s Stages 2U & 2V						logged	by:	S.Campbell	
loc	atior	n: 🖊	lear	culv	ert crossing						checke	d by:	R.Telford	
pos	ition:	E: 36	7,817;	N: 800	,752 (BOPC2000) sur	face elevation: 8.00) m (Mot	turiki)		angle	e from horiz	zontal: 90°		
			-	-		ing fluid:					ig diameter		vane id.:	
arii	lling	inform	ation	mat	erial substance material descripti	on	ంర	estimated	samples,	rock	defect		dditional observations and	
method & support	water	RL (m)	depth (m)	graphic log	ROCK TYPE: grain chara colour, structure, minor co		weathering alteration	strength & Is50 X = axial; O = diametral ≷ ≥ ≌ ∞ ∞ Ω	field tests & Is(50) (MPa) a = axial; d = diametral	core run details	spacing (mm) ର ଜ ରି ଭି ରି	(type, inclination)	defect descriptions ation, planarity, roughnes thickness, other)	s, coating, general
		-5			SAND: fine to coarse grained, w grey, trace to minor coarse grain pumice gravels, moist to wet, ve (continued)	ned rounded				0		ALLUVIA	L DEPOSITS (NON C SILTS + SANDS)	-
		-	11.5							TCR= 95%				-
		4	12.0						SPT 3, 2, 2, 2, 2, 2, 1 N*=7	TCR= 80%				-
		-	12.5 –		12.45 m: some fine to coarse m brown gravels (possible weathe									-
		5	13.0 -		- - - -					TCR= 33%				-
На –		_	13.5 —	ाव		m grou, grouelo								-
Н0 —		6	- - - 14.0 –		Gravelly SILT: non plastic, crea are fine to coarse grained, roun comprise pumice and rhyolite, n SILT: non plastic, pale grey, dila wet.	ded and noist to wet.			SPT 1, 1, 0, 0, 0, 0, 0 N*=0	TCR= 0%				-
		_	14.5 –	-						TCR= 62%				-
		7	15.0 —											-
									SPT HW/450mm	TCR= 0%		SPT sank weight	: 450mm under hammer	-
			· ·		Sandy SILT: non plastic, pale g fine grained, moist to wet.	rey, sand is very								-
		8	16.0 -							TCR= 70%				-
AS AE CE W NN HO PO	S au D au B cla WLONI Q wi Q wi Q wi	reline o reline o reline o	ewing ling ade bit re (51.9 ore (51.9 ore (47. ore (63. ore (85.	6mm) 5mm) 0mm)	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss			material)	MW moder SW slightly UW unwea *W replaced w strength VW very w	al soil etely we weather ately we weathe weathe thered ith A for a	athered ed athered red	CO contac CS crushe SM seam	ng shear PL plana g CU curve UN undu zone ST stepp surface IR Irregu ct ed seam	ed lating bed
SF	PT sta te:		penetra	uon	water pressure test result (lugeons) for depth interval shown	TCR = Total Con SCR = Solid Con RQD = Rock Qu	e Recove e Recove	ery (%)	S strong VS very st	ately stro rong iely stror	-	POL polish SO smoo RO rough	ensided CN clean hed SN stain oth VN vene	er



•	Ŭ	-		J							Boreho	le ID.	MH28	
E	n 0		~~~	rin	alog Coro	d Darak		`			sheet:		4 of 4	
	ng	JIN	lee	rin	g Log - Core	a Borer	1016	9			project	no.	GENZTAUC	13086A
clie	nt:	7	The L	.akes	s (2012) Ltd						date sta	arted:	25 Jul 2014	
prin	icipa	1:									date co	mpleted:	25 Jul 2014	
proj	ject:	7	The L	.akes	s Stages 2U & 2V						logged	by:	S.Campbell	
loca	ation	: /	Vear	culv	ert crossing						checke	d by:	R.Telford	
posi	tion:	E: 36	7,817;	N: 800	,752 (BOPC2000) sur	face elevation: 8.00) m (Mo	turiki)		angle	e from horiz	contal: 90°		
			-			ing fluid:				-	ig diameter		vane id.:	
drill	ling I	ntorm	nation	mate	erial substance material descripti	on	ళ	estimated		rock	mass defe defect	1	dditional observations an	ıd
method & support	5	Ê	depth (m)	graphic log	ROCK TYPE : grain chara colour, structure, minor co		weathering alteration	strength & Is50 × = axial;	field tests & Is(50) (MPa)	core run details	spacing (mm)	(type, inclina	defect descriptions ation, planarity, roughnes thickness, other)	ss, coating,
met	water	RL (m)	dept	grap			wea alter	O=diametra ≷ ≥ ≌ ω %		core det:	200 200 200 200	particular		general
			-		Sandy SILT: non plastic, pale g fine grained, moist to wet. (cont				SPT 1, 1, 1, 1, 0,	TCR=			L DEPOSITS (NON C SILTS + SANDS)	-
			-		- - -				1 N*=3	100%				
		9	17.0											-
			-		- - -									
			- 17.5 -		- -					TCR=				-
			-							100%				
			-											
		10	18.0 -											
Å.			-		· ·				SPT 1, 0, 0, 0, 0, 0	TCR= 100%				
			10 5						N*=0					
			18.5											
5			-											
5		11	19.0 —		· ·					TCR= 100%				-
			-		- - -									
5			-											•
		-	19.5 -						SPT					-
2			-						1, 0, 0, 0, 0, 0,	TCR= 100%				
		12	- 20.0		Borehole MH28 terminated at 1	9.95 m	-		N -1					
			-		Target depth									
5			-											
5 P		F	20.5 -											-
			-											
2		13	- 21.0 —											-
			-											
			-											
		F	21.5											
			-		1	-				9 -14	 	dofest to		
me AS AD	au	& sup ger sci	ewing		water	graphic log / cor		ry	RS residu CW comp	ial soil letely we	athered	BS beddin PT parting	ng shear PL plan g CU curv	nar ved
CB W	cla wa	shbore	ade bit		level on date shown water inflow	(graphic syr	covered mbols indicate	material)		weather rately we	ed athered	JT joint SZ shear:	UN und	ulating ped
NM NQ HQ	LONN win	ILC co eline c eline c	re (51.9 ore (47. ore (63.	mm) 6mm) 5mm)	complete drilling fluid loss	no core	recovere	ed	UW unwea *W replaced w strength	a dia a mandal		CO contac CS crushe		30101
PQ SP	wir Tsta	eline c indard	ore (85. penetra	0mm)		core run details	ام مالك		VW very w W weak	veak		SM seam roughness		
	tes	t			water pressure test result (lugeons) for depth interval shown	TCR = Total Cor	vithdrawn re Recove	ery (%)	MS moder S strong VS very s		ong	SL slicke POL polish SO smoo		n
					interval shown	SCR = Solid Col RQD = Rock Qu	re Recov	ery (%)	ES extrem	nely stror	ng	RO rough		



												Boreh	ole ID.	MH29
F	nr	nir		rin	ng Log - Core	d Rorah	امر	2				sheet:		1 of 4
	ΠĆ	-			<u> </u>							projec	t no.	GENZTAUC13086A
clie	ent:	7	he L	.ake	s (2012) Ltd							date s	tarted:	25 Jul 2014
prir	ncipa	al:										date c	ompleted:	25 Jul 2014
pro	ject:	7	The L	ake	s Stages 2U & 2V							logged	l by:	S.Campbell
loc	ation	:: J	lust	off v	rehicle access way							check	ed by:	R.Telford
1 ⁻						face elevation: 9.00) m (Mo	oturik	i)		-		izontal: 90°	
		el: Mor nform	,		mounted dril	ing fluid:						ng diamet		vane id.:
					material descript		& D		timated trength	samples, field tests		defect spacing		dditional observations and defect descriptions
method &	water	RL (m)	depth (m)	graphic log	ROCK TYPE: grain chara colour, structure, minor co start coring at 0.00m		weathering 8 alteration		k Is50 K = axial; = diametral ≌ ω ⊗ Ω	& Is(50) (MPa) a = axial; d = diametral	core run details	(mm)		ation, planarity, roughness, coating, thickness, other) general
		9	-		Sandy SILT: non plastic, brown	, trace medium	2.0						FILL	
			-		rounded gravels, dry.		-							-
		L	- 0.5		SAND: fine to medium grained, pale grey, some silt, moist.	poorly graded,								-
			-				-				TCR=			
			-		Silty SAND: fine to medium gra	/	-				57%			
		-8	1.0-		Sandy SILT : non plastic to low brown, sand is fine to medium g	plasticity, pale grained, moist.								-
			-		Clayey SILT: medium plasticity	brown, moist.								L DEPOSITS (PEAT+ C SILT AND CLAYS)
			- 1.5 —		ORGANIC SILT: non plastic, da									
			-		various sized wood inclusions t moist.	nroughout, dry to		ļį		SPT 0, 0, 0, 0, 0, 0,	TCR=			
			-					į		0 N*=0	100%			
		-7	2.0-											-
			-											
			2.5								TCR=			
			2.5								33%			
РН РН			-											
		-6	3.0 -					ļį						-
			-							SPT 0, 0, 0, 0, 0, 0, 0	TCR=			450mm under hammer
								1		N=0	0 /0	1111		
			3.5 -					1 :						-
			-											
		-5	4.0-								TCR= 33%			-
			-											
			-											-
		-	4.5 -					1		SPT				-
			-					1		0, 0, 0, 0, 0, 0, 0 N=0	TCR= 0%		SPT sanl	450mm under hammer
		-4	5.0					1		11-0				
			-					i			TCR=			-
			-								100%		i	
AS AE CE W	6 au 9 au 9 cla 9 wa MLONM 0 wir 0 wir 0 wir 0 wir 0 wir 7 sta	IShbore ALC co reline co reline co reline co andard	ewing ling ade bit	3mm) 5mm) 0mm)	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss	core run details	covered nbols indicate recovere	e materi ed		HW highly MW model SW slightly UW unwea *W replaced w strength VW very w W weak	al soil etely we weathe rately we y weathe y weathe athered rith A for a reak	ation* eathered eathered ered alteration	defect typ BS beddi PT partin JT joint SZ shear SS shear CO conta CS crush SM seam roughness	ng shear PL planar g CU curved UN undulating zone ST stepped surface IR Irregular ct ed seam s coating
	tes				water pressure test result (lugeons) for depth interval shown	TCR = Total Cor SCR = Solid Cor RQD = Rock Qu	re Recov	ery (°	%)	MS moder S strong VS very st ES extrem		-	POL polis SO smo RO roug	oth VN veneer



											Boreh	ole ID.	MH29
F	nr	nir		rin	a Loa - Coro	d Rorat	امد	`			sheet:		2 of 4
_	ΠĆ	-			g Log - Core			7			projec	t no.	GENZTAUC13086
clie	nt:	7	The L	ake	s (2012) Ltd						date s	tarted:	25 Jul 2014
prir	ncipa	al:									date c	ompleted:	25 Jul 2014
pro	ject:	7	The L	akes	s Stages 2U & 2V						logged	l by:	S.Campbell
loca	ation	n: J	lust o	off v	ehicle access way						checke	ed by:	R.Telford
T						ace elevation: 9.00	0 m (Mo	turiki)		angl	e from hor	izontal: 90°	
		el: Moi i nform			mounted drilli erial substance	ng fluid:				-	ng diamete		vane id.:
un					material description	on	∞	estimate		TOCK	defect		dditional observations and
method & support	water	RL (m)	depth (m)	graphic log	ROCK TYPE: grain chara colour, structure, minor col		weathering 8 alteration	strength & Is50 X = axial; O = diametr	& Is(50) (MPa)	core run details	spacing (mm) ຄູ່ຜູ້ຊີຜູ້ຊີ		defect descriptions ation, planarity, roughness, coatir thickness, other) gene
	>		-		ORGANIC SILT: non plastic, dar		> 10			0 -	99797	ALLUVIA	L DEPOSITS (PEAT+ C SILT AND CLAYS)
			-		various sized wood inclusions th moist. (continued)	rougnout, ary to				TCR= 100%			S SIET AND CEATS
		-3	6.0						I				
			-						SPT 0, 0, 0, 0, 0	, TCR=		 SPT sank	450mm under hammer
			-		SILT: low plasticity, pale grey, so inclusions from 6.2m to 6.75, we				0 N*=0	84%		weight	
		F	6.5 -										
			-		6.75 m: - becoming pale grey st	ained orange							
		-2	7.0		brown	j.				TCR=			
			-							100 /0			
		-	7.5						I SPT				
									0, 0, 0, 0, 0	, TCR= 96%		SPT sank	450mm under hammer
		-1	8.0-						N*=0				
			-		8.00 m: - becoming saturated in	core box							
Р Н													
		-	8.5 -							TCR= 86%			
					Sandy SILT: low plasticity, pale sand is very fine grained, moist	brown grey, to wet.						ORGANIC	L DEPOSITS (NON C SILTS + SANDS)
		-0	9.0						1				
			9.0 -						SPT	TOD			
			-						0 N*=2	, TCR= 0%			
		-	9.5										
			-										
			-						1	TCR=			
		1	10.0							100%			
			-						i				
		ŀ	- 10.5 —						i				
									I SPI 1, 0, 0, 0, 1				
			-						N=3	100%			
me AS		& supp ger scr			water	graphic log / cor	e recove		weathering RS resid	ual soil		defect type BS beddir	ng shear PL planar
AD CE	au cla	ger dri aw or bl	ling ade bit		10/10/12, water level on date shown		covered mbols indicate	material)	CW comp HW highly MW mode		red	PT parting JT joint SZ shear	UN undulating
W NN NG	1LONN	ashbore MLC co reline c	e re (51.9 ore (47.6	mm) Smm)	water inflow complete drilling fluid loss		recovere		SW slight UW unwe	ly weathered	ered	SS shear CO contac	surface IR Irregular
HC PC) wir) wir	reline c reline c	ore (63.5 ore (85.0	5mm) Omm)	partial drilling fluid loss	core run details			*W replaced strength VW very v W weak	veak	marauUII	CS crushe SM seam roughness	
58	tes		penetrat	1011	water pressure test result		vithdrawn		MS mode S strong	rately str	ong	SL slicke POL polist	ensided CN clean hed SN stain
					(lugeons) for depth interval shown	TCR = Total Co SCR = Solid Co RQD = Rock Qu	re Recov	ery (%)	VS very s ES extrem	strong nely stro	ng	SO smoo RO rough VR very	



				J							Boreho	le ID.	MH29	
C	n	nir		rir	alog Coroc	l Barah		•			sheet:		3 of 4	
	ΠĆ	JII	iee		ig Log - Corec		Ole	;			project	no.	GENZTAUC	13086A
clie	nt:	7	The L	.ake	s (2012) Ltd						date sta	arted:	25 Jul 2014	
prin	ncipa	al:									date co	mpleted:	25 Jul 2014	
pro	ject:	7	The L	.ake	s Stages 2U & 2V						logged	by:	S.Campbell	
loca	ation		Just	off v	ehicle access way						checke	d by:	R.Telford	
posi	tion:	E: 36	67,860;	N: 800),743 (BOPC2000) surfa	ce elevation: 9.00	m (Mo	turiki)		angle	e from horiz	ontal: 90°		
			-	1		ıg fluid:				-	ig diamete		vane id.:	
dril	ling i	nforn	nation	mat	erial substance material description	n	~	estimate	d samples,	rock	mass defe defect	-	ditional observations a	nd
method & support	water	RL (m)	depth (m)	graphic log	ROCK TYPE: grain charact colour, structure, minor com	terisics,	weathering a	strengtl & Is50 X = axial; O = diametr	field tests & ls(50) (MPa)	core run details	spacing (mm)		defect descriptions ation, planarity, roughne thickness, other)	ess, coating,
5 0	3	-2	ō	5	Sandy SILT: low plasticity, pale b		<u>77</u> <	≷ » ≌ «≶	d = diametral	80	2 8 2 8 2	ALLUVIA	L DEPOSITS (NON	general
					sand is very fine grained, moist to (continued)	o wet.						ORGANIC	SILTS + SANDS)	
			11.5 -		- - -			 	1	TCR=				_
									1	95%				
		3	12.0 -		- - - -			! ! ! ! !	i ———					-
								! ! ! ! !	SPT 1, 0, 0, 0, 0, 0, 0	TCR= 100%				
									N*=0	100 /0				
		-	12.5 -		· ·									-
					- - -				1					
		4	13.0 -		· · ·					TCR= 100%				-
									i					
		-	13.5 -					! ! ! ! !						-
-на					- - -				1, 0, 0, 0, 0, 0, 0	TCR= 100%				
		5	14.0 -											-
		-	14.5 -		Silty SAND: fine to coarse graine	d, well graded,			1	TCR= 100%				-
					grey mottled orange brown, some grained gravels, wet.	e medium			1					
		6	15.0 –		SILT: non plastic, pale grey, dry.				1					_
		-0							SPT	TOD-				-
					Silty SAND: fine to coarse graine grey, minor fine grained gravels, of				1 N*=5	TCR= 100%				
		$\left \right $	15.5 -]					1					-
				T	SILT: non plastic, pale grey, some grained sand, moist.	e very fine			i l					-
		_		1					i l	TCR=				
		7	16.0 -	1					i l	86%				
				1					1					
	44	•		1111		anality in the			weathering	& altera	 	defect type	planarit	v
AS AD	au au	ger dri	rewing Iling		water	graphic log / core		ry	RS residu CW comp	ial soil letely we	athered	BS beddin PT parting	ngshear PL pla g CU cur	nar ved
CB W	cla wa	w or b	lade bit e	mm)	 level on date shown water inflow 	(graphic symb		material)	HW highly MW mode SW slight	rately we y weathe	athered	SZ shear SS shear	surface IR Irre	
NM NG HG) wir) wir	eline o eline o	ore (51.9 core (47. core (63.	6mm) 5mm)	complete drilling fluid loss	no core re	ecovere	d	W unwes *W replaced v strength	athered vith A for a		CO contac CS crushe SM seam		
PQ SP		andard	ore (85. penetra		``	core run details barrel wit	hdrawn		VW very w W weak	veak rately stro		roughness	ensided CN cle	an
	168				uter pressure test result (lugeons) for depth	I I TCR = Total Core	Recove		S strong VS very s	trong	-	POL polish SO smoo	ned SN sta oth VN ver	in neer
					interval shown	SCR = Solid Core RQD = Rock Qua				nely stror	ng	RO rough VR very		aung



													Bo	rehol	e ID.	MH29)	
с.	n n	in		rin	aloa Coro	d Barak		~					sh	eet:		4 of 4		
	ng	JII	iee	nn	g Log - Core	u borer		e					pro	oject	no.	GENZ	TAUC13	3086A
clier	nt:	7	The L	.akes	s (2012) Ltd								da	te sta	irted:	25 Jul	2014	
prin	cipa	l:											da	te co	mpleted:	25 Jul	2014	
proj	ect:	7	The L	.akes	s Stages 2U & 2V								log	ged	by:	S.Cam	pbell	
loca	tion	: .	lust	off v	ehicle access way								ch	ecke	d by:	R.Telf	ord	
posit	tion:	E: 36	7,860;	N: 800	743 (BOPC2000) sur	face elevation: 9.00) m (Mo	oturil	ki)			angle	e fron	1 horiz	ontal: 90°			
						ing fluid:							-	meter		V	ane id.:	
drill	ing ii	ntorm	nation		rial substance material descripti	on	ళ		stima		samples,	rock	de	s defe		Iditional obse		
method & support	water	RL (m)	depth (m)	graphic log	ROCK TYPE: grain chara colour, structure, minor co		weathering 8 alteration	c	stren & Is5 ×=axi >= diam ≥ v 2 v	50 al; etral	field tests & Is(50) (MPa) a = axial; d = diametral	core run details	(r	acing nm)	(type, inclina	defect dese ation, planarit thickness	y, roughness	, coating, general
T	-				SILT : non plastic, pale grey, sor grained sand, moist. <i>(continued</i> 16.50 m: - some clay below 16.)					SPT 1, 0, 0, 0, 0, 0,	TCR=				DEPOSITS		
			-					li	ii		0 N*=0	100%						
		8	17.0							ii L								-
			-						 									
		-	17.5 -		17.50 m: - clay absent below 17							TCR= 100%						-
					pale grey with some dark brown 17.70 m: - becoming hard below													
		9	18.0 —	1														
년 9			-								SPT 2, 2, 3, 2, 3, 3	TCR= 100%						
			-								N*=11	100 %						
		-	18.5 -															-
					Silty SAND: very fine grained, p medium dense.	ale grey, moist,												
		10	19.0 -									TCR= 100%						
					19.20 m: - becoming orange bro													
		_	19.5 —		becoming fine to coarse grained 19.40 m: - becoming dark orang													
											SPT 6, 9, 9, 6, 7,	TCR=						
			-					li		<u>ii</u>	6 N*=28	100%						
		11	20.0-		Borehole MH29 terminated at 1 Target depth	9.95 m		1										-
			.	1						Η.								
		-	20.5 -]						Η.								-
								İ		ΪÌ.								
		12	21.0					1		ΪÌ.								-
			-					1		ΙI.								
			.					1		ΙI.								
		-	21.5 -					1		ii.								-
								1										
			-								weathering	9 altor			defect type		plonority	
AS AD CB W NM NQ HQ PQ	aug clav was LONM wire wire wire	ger dri w or b shbore ILC cc eline c eline c eline c	rewing lling lade bit ore (51.9 ore (47. ore (63. ore (85.	6mm) 5mm) 0mm)	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss			e mate	rial)		HW highly MW moder SW slightly UW unwea *W replaced w strength VW very w	al soil etely we weather rately we weather thered ith A for a	athere red eather ered	ed	SM seam	g shear I zone surface	planarity PL planar CU curved UN undula ST steppe IR Irregul	d ating ed
SP	Γ sta tes		penetra	tion	water pressure test result (lugeons) for depth interval shown	TCR = Total Col SCR = Solid Co RQD = Rock Qu	re Recov	/ery	(%)	(%)	W weak MS moder S strong VS very st ES extrem	rong	-		SL slicke POL polish SO smoo RO rough VR very r	th I	coating CN clean SN stain VN venee CO coatin	er



				-									Bor	ehol	e ID.	MH30	
ς,	~~	-in	~~~	~ir	~~	Log Coro	J Darah	<u>sal</u>	~				she	eet:		1 of 4	
	<u> </u>	-				g Log - Corec			9				pro	ject	no.	GENZTA	UC13086A
clien	ıt:	7	he L	ake	es	(2012) Ltd							dat	e sta	arted:	25 Jul 20)14
princ	cipa	ıl:											dat	e co	mpleted:	25 Jul 20)14
proje	ect:	7	he L	.ake	s	Stages 2U & 2V							log	ged	by:	S.Campt	bell
locat	tion	: E	dge	of I	lov	v lying flooded groun	d in valley								d by:	R.Telford	
positi	ion:		-				ace elevation: 7.50) m (Mo	oturiki)			angle			ontal: 90°		-
drill m	node	el: Mor	ooka,	Track	c mo	bunted drillin	ng fluid:					casir	ng diar	neter	: NW	vane	id.:
drilli	ng ir	nform	ation	mat	teri	al substance material descriptio			estim	ated	samples,	rock	mass def			lditional observati	bao and
& P ₽			E)	c log		ROCK TYPE: grain charac	cterisics,	ering & ion	strer & Is	ngth 50	field tests & Is(50)	ہ ⊨ س	spac (m	cing		defect descripti ation, planarity, ro	ions oughness, coating,
method a support	water	RL (m)	depth (m)	graphic log		colour, structure, minor con	iponents	weathering a	X=a O=dia ≶ ≥ ≌	axial; imetral	(MPa) a = axial; d = diametral	core run details	, 60 20		particular	thickness, oth	
<u>م ع</u>	5	Ľ	р _			start coring at 0.00m TOPSOIL: ORGANIC SILT: non (o <	5 \$ 2	о > ш	u = urannovos	0 -			TOPSOIL		9010.0
	_ <u>_</u>			H		60% fine rootlets, moist; TOPSO SILT: low plasticity, grey with bro									ALLUVIAI	DEPOSITS	
	25/07/14		25-			moist; ALLUVIUM.	·····										
	25/	-7	0.5	┟┼╁┼		0.50 m: - 50mm sand lense (fine grained)	to medium								ORGANIC	DEPOSITS	
	i I					ORGANIC SILT: low plasticity, da						TCR= 23%			UNO-41.5	DEFOOID	
		 -	- 1.0 -			minor wood fibers throughout, me	DIST.										-
			-														
	i I								Ì	i.							
	i I	-6	1.5			1.40 m: - becoming black, wood i increasing to 20%	inclusions				VS 3 /2 kPa						-
	i I]]								SPT 0, 0, 0, 0, 0, 0,	TCR=					
	i I										0 N=0	0%					
		-	2.0-	\square		SILT: low plasticity, pale brown gimoist to wet.	rey, minor clay,								ALLUVIAL	DEPOSITS	
	i I		-														
	i I	-5	2.5		1111 ~	2.30 m: - wood inclusions through WOOD DEPOSITS: dark brown,						TCR=			WOOD		
			2.3			slightly decomposed and compris stems/branches, moist to wet.						33%					
Э́Н	i I]														
	i I	-	3.0														-
			-	Will	M						SPT 0, 0, 0, 1, 0,						
			-		M						0 HB N=1	0%					
	i I	-4	3.5														-
	i			胚肿													
	i I				ŧ.							TCR=					
			4.0-	Will								33%					-
	i I		-		1												
	i I	-3	4.5-						lii	ij							-
			-								SPT 0, 0, 0, 0, 0, 0,	TCR=					
	i I			<i>[</i>]]							0, 0, 0, 0, 0, 0, 0 N=0	0%					
		-	5.0 -			SILT: low plasticity, dark brown g	rey, 10-15%								ALLUVIAI	DEPOSITS	
]			wood inclusions, wet.				ii		TCR= 29%					
	i I]]									2370					
meti AS		& supp ger scre			T	water	graphic log / core	e recove	ry		weathering RS residu	ial soil			defect type BS beddin	ig shear PL	anarity _ planar
AD CB	aug	ger drill w or bla	ling ade bit			10/10/12, water level on date shown	core reco		≏ material)		HW highly	letely we weather rately we	red		PT parting JT joint SZ shear 2	U	U curved N undulating F stepped
W NML	was LCNM	Ishbore	e re (51.9	mm)		water inflow	no core i				SW slightly UW unwea	y weathe athered	ered		SZ shears SS shears CO contac	surface IR	
NQ HQ PQ	wire	eline co	ore (47.6 ore (63.5 ore (85.0	5mm)		partial drilling fluid loss	core run details	00012.			*W replaced w strength VW very w	vith A for a	Iteration		CS crushe SM seam		
SPT		andard p	penetrat				barrel wi	ithdrawn	I		W weak MS moder	rately str	ong			nsided Cl	bating N clean N stain
						water pressure test result (lugeons) for depth interval shown	TCR = Total Core SCR = Solid Core				S strong VS very st ES extrem	trong nely stro	na		POL polish SO smoo RO rough	th VN	veneer O coating



	J		Borehole ID.	МН30
Enai	incoring Log C	arad Parabala	sheet:	2 of 4
Eng	ineering Log - C	ored Borenole	project no.	GENZTAUC13086AL
client:	The Lakes (2012) Ltd		date started:	25 Jul 2014
principal:			date completed:	25 Jul 2014
project:	The Lakes Stages 2U & 2	V	logged by:	S.Campbell
location:	Edge of low lying flooded	ground in valley	checked by:	R.Telford
position: E	: 367,816; N: 800,675 (BOPC2000)	surface elevation: 7.50 m (Moturiki)	angle from horizontal: 90°	
drill model:	Morooka. Track mounted	drillina fluid:	casing diameter : NW	vane id.:

dri	ill m	odel	: Mor	ooka,	Frack n	nounted drilling fluid:					casir	ng diameter	: NW	vane id.:
dı	rillir	ng in	form	ation	mate	rial substance					rock	mass defe	cts	
method &	upport	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain characterisics, colour, structure, minor components	weathering & alteration	estima stren & Ist × = au o = diar	gth 50 xial; netral	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run details	defect spacing (mm)	defect de (type, inclination, plana	servations and scriptions rity, roughness, coating, s, other) genera
Ē	s I	>	2	σ		SILT: low plasticity, dark brown grey, 10-15%	5 00	> < < <	η > ι Π		0 -	00000	ALLUVIAL DEPOSIT	-
		-	-	- - 6.0		wood inclusions, wet. (continued)				SPT 0, 0, 0, 0, 0, 0,	TCR= 29% TCR=			
		-	-1	- 6.5 — - -						0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0	50%			
		-	-	- 7.0 - -		7.00 m: - wood inclusions increasing to 20% 7.20 m: - solid wood block <50mm at 7.2m					TCR= 95%			-
10,00/20 14 10.32		-	-0	- 7.5 -		SAND: fine to medium grained, poorly graded, grey, clean sand, wet.	-		 	SPT 0, 0, 0, 0, 0, 0, 0	TCR=			
< <urawingrile>> uc</urawingrile> HO 	2	-	-	- 8.0 -		7.70 m: - sand beocming fine to coarse grained, well graded				N=0	0 //			
		-	1	- 8.5 — - -		8.50 m: - 100mm dark brown grey silt lense below 8.5m					TCR= 79%			
		-	-	9.0 -						SPT 2, 2, 2, 3, 3, 3 N=11	TCR= 0%			
»		-	2	9.5										
		-	-	- 10.0 - -					11		TCR= 100%			
		-	3	- 10.5 — - - -		10.30 m: - gravels absent below 10.3m 10.45 m: - large black wood inclusions at 10.45m 10.50 m: - some fine to medium grianed rounded pumice gravels				SPT 2, 1, 2, 4, 5, 6 N*=17	TCR= 51%			
	nethod & support NS auger screwing Dauger drilling CB claw or blade bit V washbore MLCNMLC core (51.9 mm) MQ wireline core (47.6mm IQ wireline core (63.5mm CQ wireline core (63.5mm SPT standard penetration test				imm) imm) imm)	water inflow complete drilling fluid loss partial drilling fluid loss	vithdrawr recover	e material) ed very (%) very (%)		S strong VS very st	al soil etely we weather rately we weather thered ith A for a eak ately stru	athered red eathered ered Ilteration	defect type BS bedding shear PT parting JT joint SZ shear surface CO contact CS crushed seam SM seam roughness SL SIckensided POL POL polished SO smooth RO rough	planarity PL planar CU curved UN undulating ST stepped IR Irregular coating CN clean SN stain VN veneer CO coating

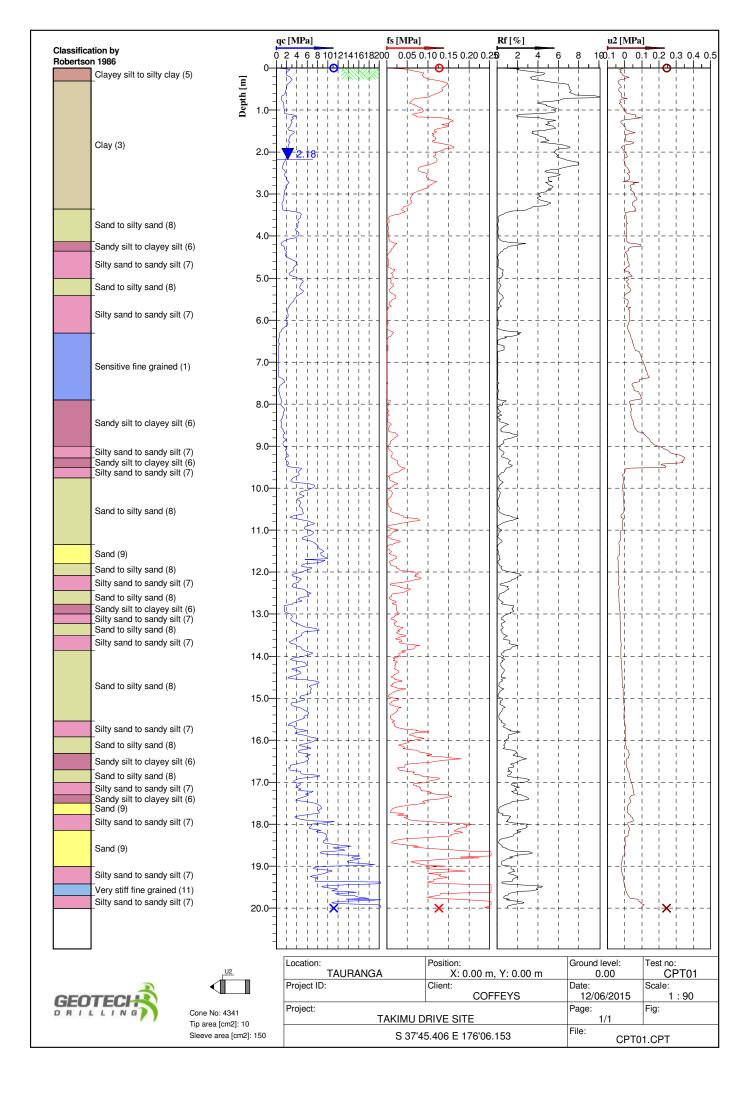


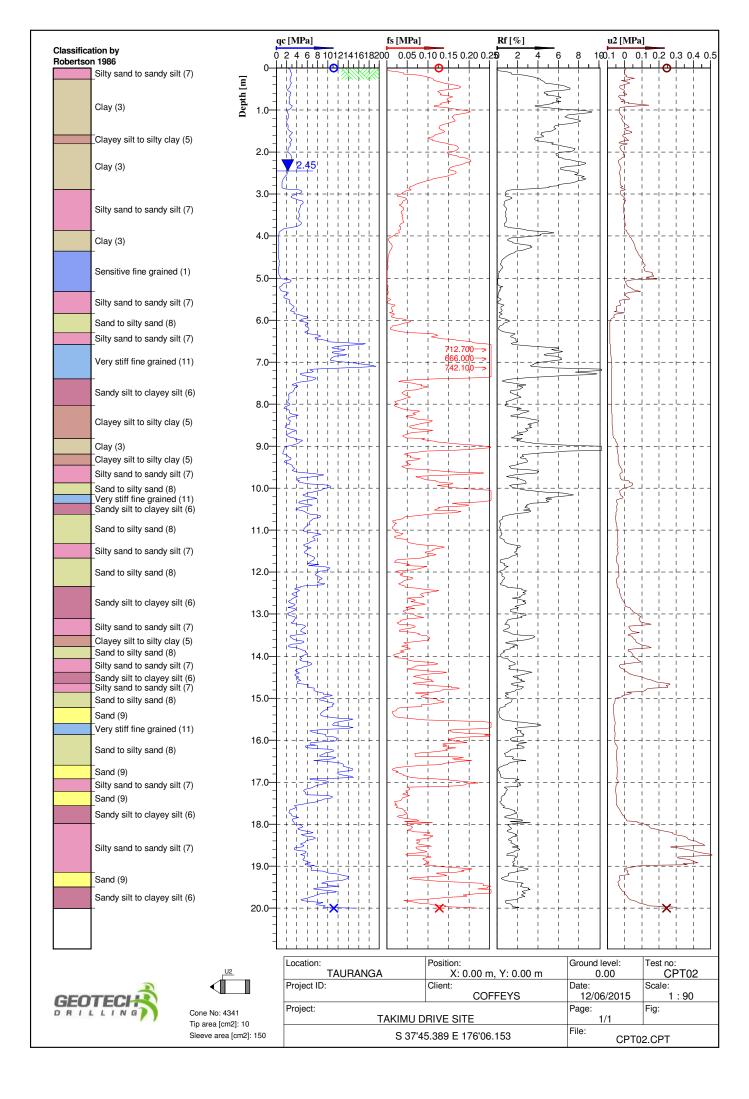
				J							Borehol	e ID.	MH30	
E	- 	~ .				d Darah	مام	•			sheet:		3 of 4	
	ng	gin	iee	rin	g Log - Core	a Borer	101	9			project	no.	GENZTAUC	13086AL
clie	ent:	7	The L	.akes	s (2012) Ltd						date sta	irted:	25 Jul 2014	
prir	ncipa	al:									date co	mpleted:	25 Jul 2014	
pro	ject:	: 1	The L	.akes	s Stages 2U & 2V						logged	by:	S.Campbell	
loc	atior	n: E	Edae	of Ic	w lying flooded grou	nd in vallev					checked	d by:	R.Telford	
			-			ace elevation: 7.50) m (Mo	turiki)		angl	e from horiz	,		
drill	mod	el: Mo	rooka,	Track r	nounted drilli	ng fluid:		,		casir	ng diameter	: NW	vane id.:	
dri	lling	inform	nation	mate	rial substance			actimated	aamalaa	rock	defect		dditional observations a	nd
method &	water	RL (m)	depth (m)	graphic log	material description ROCK TYPE: grain chara colour, structure, minor co	cterisics,	weathering & alteration	estimated strength & Is50 X = axial; O = diametral ≥ ≥ ∞ ∞ ∞ ∞	samples, field tests & Is(50) (MPa) a = axial; d = diametral	core run details	spacing (mm)		defect descriptions a ation, planarity, roughne thickness, other)	
					SAND: fine to medium grained, grey, clean sand, wet. (continue 11.00 m: - some fine rounded p	d)							L DEPOSITS	-
		4	11.5		Silty SAND: fine grained, uniform	n, brown grey,				TCR= 76%				-
		F	12.0 -		moist. SAND: uniform, very fine graine moist.	d, pale grey,			SPT					-
		5	12.5 –		12.20 m: - sand becoming fine t minor fine grained pumice grave				2, 2, 3, 4, 4, 5 N*=16	TCR= 93%				-
			13.0 –		12.80 m: - sand becoming fine g	grained				TCR= 124%				
		6	13.5 –		13.45 m: - minor silt below 13.4	Sm				124 /0				
НО					10.40 million sinc below 10.44				SPT 5, 6, 7, 6, 8, 9 N*=30	TCR= 93%				
		7	14.5 -		∖ 14.40 m: - dark brown organic s	ilt lense <50mm ⊥/				TCR=				- - -
		/			below 14.4m Sandy SILT: non plastic to low p brown, sand is very fine to fine o	lasticity, grey				95%				-
			15.0						SPT 1, 2, 2, 2, 2, 2, 3 N*=9	TCR= 100%				
		8	15.5 —		SAND: fine to medium grained, grey, moist to wet.	poorly graded,								
		-	16.0 -		Sandy SILT: non plastic, brown very fine grained, moist to wet.	grey, sand is				TCR= 52%				-
					SAND : fine to medium grained, pale grey, minor silt, moist to we									-
AS AE CE W NM NO HO PO	Sau Dau Bcla WLONI Qwi Qwi Qwi Qwi	ashbore MLC co ireline c ireline c ireline c	rewing Iling lade bit	6mm) 5mm) 0mm)	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss	graphic log / corr core rec (graphic syn no core core run details	overed holds indicate recovere	e material) ed	HW highly MW mode SW slight UW unwea *W replaced w strength VW very w W weak	al soil letely we weathe rately we y weathe athered with A for a weak	eathered red eathered ered alteration	CO contac CS crushe SM seam roughness	ng shear PL pla g CU cu UN un zone ST ste surface IR Irre t ad seam	nar rved dulating epped egular
	te		-		water pressure test result (lugeons) for depth interval shown	TCR = Total Cor SCR = Solid Cor RQD = Rock Qu	e Recov e Recov	ery (%) /ery (%)	MS moder S strong VS very s ES extrem	trong	-	SL slicke POL polish SO smoo RO rough VR very r	h VN ver	ain neer



		Borehole ID.	MH30
Enai	incoving Log Cored Develop	sheet:	4 of 4
Eng	ineering Log - Cored Borehole	project no.	GENZTAUC13086AL
client:	The Lakes (2012) Ltd	date started:	25 Jul 2014
principal:		date completed:	25 Jul 2014
project:	The Lakes Stages 2U & 2V	logged by:	S.Campbell
location:	Edge of low lying flooded ground in valley	checked by:	R.Telford

posi	ition	: E: 36	-		675 (BOPC2000) surfa	ice elevation: 7.50	m (Mo	turiki)		angl	e from horiz	ontal: 90°	
						ig fluid:	(e			•	ng diameter		vane id.:
dril	ling	inforr	nation	mate	erial substance					rock	mass defe	cts	
method & support	water	PRL (m)	depth (m)	graphic log	material descriptio ROCK TYPE: grain charac colour, structure, minor con	terisics,	weathering & alteration	estimated strength & Is50 X = axial; O = diametra ≷ ≥ ♀ ∽ ∽	field tests & ls(50) (MPa)	core run details	defect spacing (mm)	defect de (type, inclination, plana	servations and escriptions rifty, roughness, coating, ss, other) general
		_	- - - 17.0 - - - -		SAND: fine to medium grained, p pale grey, minor silt, moist to wet 16.50 m: - wood inclusions from 16.95m 16.70 m: - sand beocming fine to	. (continued) 16.5m to				TCR= 89%		ALLUVIAL DEPOSIT	'S - - - - - - - - - - - -
5:32 		10	17.5		17.80 m: - sand beocming coars fine to medium gravels Sandy SILT: non plastic, pale bro to wet.				2, 3, 3, 3, 3, 3,	TCR= 105% TCR= 96%			 - - - - - - - - - - - - - - - - - -
Brevzer Log CUF BUREHULE: OPRED 130804L_GFD <		11	18.5		Silty SAND: fine to coarse graine dark orange brown, moist to wet. SAND: fine to coarse grained, we grey, minor fine to medium grain moist to wet. PUMICE: pale pink grey, dense of pumice cobble, moist to wet. SAND: fine grained, grey, moist t 19.20 m: - sand becoming coars	ell graded, ed gravels,				TCR= 143%			
		-			Borehole MH30 terminated at 19 Target depth	.95 m			SPT 3, 4, 5, 6, 8, 11 N*=30	TCR= 91%			- -
B REV. AP LOG CUF BUREHU		13	- - 20.5 - - -										
CUP_U_9_00_LIBRARY-IESI.GL		14	21.0										
AS AD CB W	; ai) ai 3 cl 3 w /ILON /ILON /ILON /ILON /ILON /ILON /ILON /ILON /ILON	vashbor IMLC co vireline vireline	rewing illing lade bit	6mm) 5mm) 0mm)	water 10/10/12, water level on date shown water inflow complete drilling fluid loss partial drilling fluid loss partial drilling fluid loss partial drilling fluid loss	graphic log / core core recc (graphic symi no core r core run details barrel wi TCR = Total Core SCR = Solid Core RQD = Rock Qua	thdrawn e Recovere e Recovere	ry material) d ≘ry (%) ery (%)	weathering RS residt CW comp HW highly MW mode SW slight UW unwe Wreplaced v strength VW very W W weak MS mode S strong VS very s ES extrer	al soil letely we weathe rately we y weathe athered with A for a reak rately str	atton* eathered red eathered ered alteration	defect type BS bedding shear PT parting JT joint SZ shear zone SS shear surface CO contact CS crushed seam SM seam roughness SL slickensided POL polished SO smooth RO rough VR very rough	planarity PL planar CU curved UN undulating ST stepped IR Irregular CN clean SN stain VN veneer CO coating





	ng nt: cipa ect:	jin ז	The L	rir .ake .ake	1g s (20 s St	Log - E 012) Ltd ages 2U & 2	Borehole 2V oximal to SH36					s p d d	lole II heet: roject ate st ate co ogged hecke	no. arted omple by:	eted:	MH31 1 of 3 GENZTA 15 Jun 20 15 Jun 20 S.Campb R.Telford	015 015 ell
		E: 36	7961; i	N: 800	438 (B	OPC2000) nounted	surface elevation:	15.45 m (Moturi	iki)			le fro	om hori meter :	zontal	: 90°	vane	
		if type		-		ubstance					TION	e ulai	neter .	100 11		Valle	iu
metnod & support	water	RL (m)	depth (m)	graphic log	class ification	SOIL T colou ROC	material description YPE:plasticity or particle char Ir, secondary and minor comp K TYPE:grain characterisics, structure, minor component	colour,	moisture condition	consistency / relative density	samples field test	& ⊕	vane shear remoulded © peak (kPa)	Core ri detail	ls (typ	additional obser defect desc be, inclination, plan coating, thickne cular	riptions arity, roughnes
НОЗ		-15 				ORGANIC Si brown speck SILT: non pla mottled pale grained sand 2.60 m: 100r organic silt a 3.00 m: becc medium sand	ming dark orange brown,	t. ge brown to medium grey. eands of trace fine to			SPT 3, 3, 3, 3, 3, N*=13 SPT 3, 1, 2, 1, N*=6			100% 100% 89% 100%		OPSOIL FILL	rs
		-11	4.0			dark grey, tra	fine to coarse grained, we ice fine grained gravels. grey-black staining betwe	-		MD	SPT 4, 2, 4, 3, N*=12	3		94% 84% 49%			
meth AD AS CT DT HA RR W B V T * e.g. NMLC NQ PQ	auge auge cable diatu hand roller wash blank V bit TC b bit sh AD/T C NML wireli	be auger /tricone bore c bit it nown by C core ine core	ing*))))))))))))))	Lev wat cor par	metres. 5.30 m: sanc Oct., 73 Water rel on Date shown er inflow nplete drilling fluid loss tial drilling fluid loss Classification	becoming fine to coarse weathering & alteration* RS residual soil CW completely weathered HW highly weathered MW moderately weathered SW slightly weathered UW unweathered "W replaced with A for alteration moisture D dry M moist W wet S saturated Wp plastic limit W liquid limit	grained. consistency / relative density VS very soft S soft F firm St stiff H hard Fb friable VL very lose L lose MD medium dense VD very dense	W W MS r S S VS V ES 6 TCR SCR	gth rery weak moderately trong rery strong xxtremely s run detai Total Corr Recovery Solid Corr Recovery Rock Que Designati	v strong	J## u # D dd B b E e HP h N s (; V* S V V S v VS v	les & fie undisturbe #mm dia listurbed vulk distu novironm and pene tandard p SPT) SPT - sars SPT with ane shea weak/remue	ed samp meter sample rbed sar ental sar etromete benetrati nple reco solid con ar (kPa);	le nple mple er (kPa) ion test overed ne	defect type BS bedding shea PT parting JT joint SZ shear zone SS shear surfac CO contact CS crushed sear SM seam roughness SL slickensider POL polished SO smooth RO rough VR very rough	CU curved UN undulat ST stepped IR Irregula n coating

				J	?							Hol	e ID).		MH31	
C ,	~ ~	in	00	rin	а I		oroholo					she	et:			2 of 3	
	ΠŲ				_	_	orehole					pro	ject	no.		GENZTAUC1	3086A
clier	nt:	7	he L	akes	; (201	2) Ltd						dat	e st	arte	d:	15 Jun 2015	
orin	cipa	I:										date	e co	omp	leteo	d: 15 Jun 2015	
oroj	ect:	7	he L	.akes	s Stag	ges 2U & 2	2V					log	ged	by:		S.Campbell	
oca	tion	: E	ast	of old	d farı	n shed pro	oximal to SH36					che	cke	d b	y:	R.Telford	
					•	PC2000)	surface elevation:	15.45 m (Motur	iki)			le from					
		if type			rial sub	stance					noi	e diame	ter :	100	mm	vane id.:	
			_	Ð	tion	SOIL TY	material description PE:plasticity or particle char	acteristic		ty / nsity	samples	vai		core det		additional observations defect descriptions	S
support &	er	RL (m)	depth (m)	graphic log	classification symbol	colour ROCH	, secondary and minor comp (TYPE:grain characterisics,	colour,	moisture condition	consistency / relative density	field test	⊕ remo ⊚ p				(type, inclination, planarity, r coating, thickness, oth	oughness,
ans -	water	RL	deb	gra	cla: syn		structure, minor component		or 2	con rela		(kF	(a) 52 53 52 53 54 50 52 50 52 50 52 50 52 50 52 50 52 50 52 50 52 50 52 50 52 50 52 50 52 50 50 50 50 50 50 50 50 50 50 50 50 50	TCR	RQD	particular ALLUVIAL DEPOSITS	gener
			-			medium grain	non plastic, grey, sand is ed.	line to					ii.	%		ALLUVIAL DEPOSITS	
			-											94%			
		-	6.0				coarse grained, well gra	ded, grey,	-	VL	SPT	$\exists \vdots$					
			-			trace fine grai	neu graveis.				SPT 1, 0, 0, 0, N*=0			60%			
		-9	- 6.5 									-11			_		
			-														
			-														
		_	7.0											%0			
			-										ii.				
		-8	- 7.5 <i>-</i> -														
			-				ne to coarse grained, we k specks, some fine grai							%			
			-											80%			
		_	8.0			Sandy SILT: r	non plastic, grey, sand is	fine grained,	-								
HQ3 —			-			some fine gra	ined gravels.										
Ī		-7	- 8.5											100%			
						Silty SAND: fi	ne to coarse grained, we	ll graded,	-					10			
			-			~ ,	k specks, some fine grai non plastic, pale grey, sa		-				ii ii				
		F	9.0			medium grain			-	MD		-		\vdash	_		
			-				k specks, sand is fine to				SPT 1, 0, 1, 6, N*=11	-		73%			
		-6	- - 9.5								IN =			Ľ			
			9.0 -														
			-														
		-	- 10.0 —											%0			
			-														
		-5	-														
			10.5								SPT						
			-								4, 2, 2, 4, N*=12	4		84%			
meth	nod	-		wate	ər		weathering & alteration*	consistency /	stren	gth		amples	i i	ld te	sts		anarity
AD AS CT DT	auge		ı* ng*		, 10 Oc	., 73 Water on Date shown nflow	RS residual soil CW completely weathered HW highly weathered MW moderately weathered	relative density VS very soft S soft F firm	VW V W V MS r	ery weak veak noderately trong	v strong	J## undi ##m	sturbe m dia	ed san meter	nple	BS bedding shear PL PT parting CU	planar curved undulating
HA RR W	hand	auger /tricone				ete drilling fluid loss drilling fluid loss	SW slightly weathered UW unweathered *W replaced with A for alteration	St stiff VSt verv stiff	VS v	ery strong xtremely	strong	3 bulk	distur		e ample ample	SS shear surface IR	Irregular
B V	blank V bit	c bit		USC	чI.	Hold 1055	moisture	Fb friable VL very loose	core	run detai		IP hand	d pene dard p	etrome	eter (kl ation to	Pa) SM seam est roughness co	ating
T * e.g.	AD/T	own by		Unifi	ed Soil Cl	assification	D dry M moist W wet	L loose MD medium dense D dense	TCR	Total Core Recovery			- san	nple re solid c	cover	ed SL slickensided CN POL polished SN	l clean
NML(NQ	wirel	ine core	51.9 mm (47.6mn (63.5mn	n)			S saturated Wp plastic limit	VD very dense		Solid Core Recovery		/S vane		ar (kPa	a);		coating

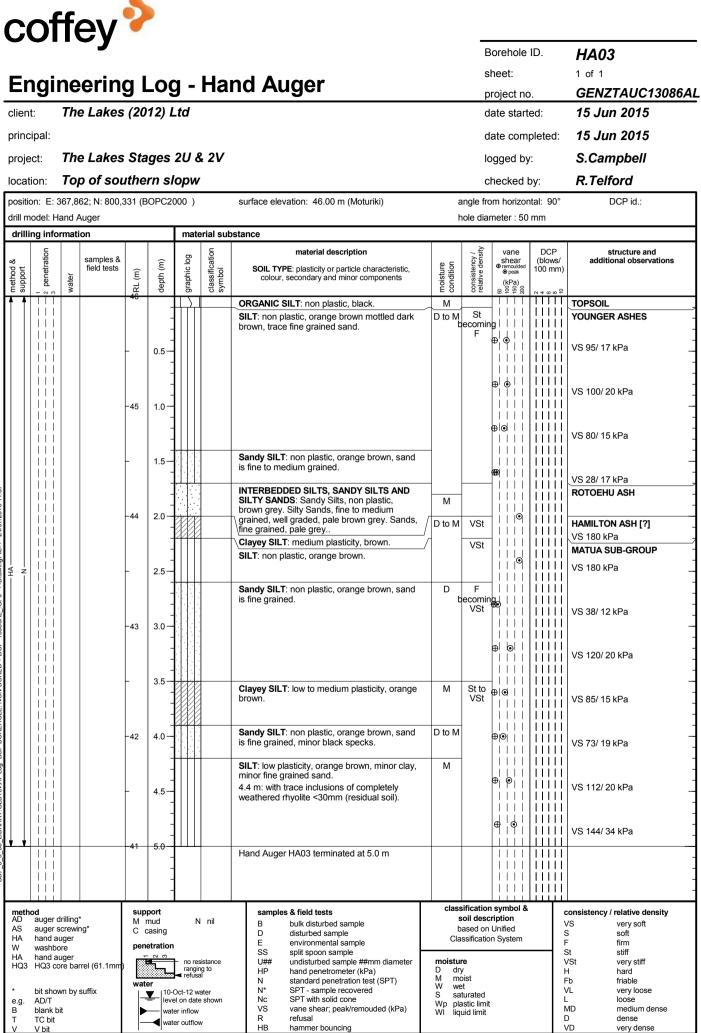
		gin	ee	rin	<u> </u>	.og - B	orehole					ę	Hole I sheet projec	:	10.		MH31 3 of 3 GENZT		3086A
oroj	nt: cipa ect: tion	ıl: 7	The L	.akes	s Stag	12) Ltd ges 2U & 2 n shed pro	V oximal to SH36					c I	date s date c ogge check	con d b	nplet y:	ed:	15 Jun 2 15 Jun 2 S.Camp R.Telfol	2015 bell	
equip	omer	nt type	e: Moro		38 (BO ack mo	PC2000) unted	surface elevation:	15.45 m (Moturi	ki)			•	om ho Imeter				var	ie id.:	
support	water water	nform (m) H	depth (m)	graphic log	classification symbol	colour	material description PE:plasticity or particle char , secondary and minor comp TYPE:grain characterisics, structure, minor component	colour,	moisture condition	consistency / relative density	samples field tes	ts e	vane shear eremoulde ⊚ peak (kPa)	d			additional obs defect de e, inclination, pl coating, thicl ular	scriptions anarity, ro	oughness,
		-4	- - - 11.5 — - -				ne to coarse grained, we k specks, sand is fine to <i>inued</i>)			MD					%0	AL	LUVIAL DEPO	SITS	
		- -3	- 12.0 — - - 12.5 —			SAND: fine to	coarse grained, well gra	ded, grey.		L to MD	SPT 5, 3, 3, 3 N*=14	, J			80%	_			
-HQ3		_													100%				
		-2				grey and blac	oming dark grey, trace sil k inclusions, fine gravel. oming pale grey, some si				SPT 4, 0, 2, 3 N*=9	, 4		-	13%	_			
		-1	- - - 14.5 — - -			pale grey with gravels. 14.60 m: sand	ne to coarse grained, we black specks, trace fine I becoming fine to mediu y to pale brown.	grained		MD	-				%00L				
			- 15.0 — - - - 15.5 —			Borebole MH	31 terminated at 15.45 m				SPT 3, 5, 4, 5 N*=21	, 7			60%	-			
		-				Target depth	, commated at 10.40 III												
Meth AD AS CT DT HA RR W B V T * e.g. NML0 NQ	auge auge cable diatu hand roller wash blank V bit TC b bit sh AD/T C NML	ibe l auger r/tricone hbore k bit bit hown by C core	ing*	n) Syst	 10 Oc Level water compl partial S 	t., 73 Water on Date shown inflow ete drilling fluid loss drilling fluid loss assification	weathering & alteration* RS residual soil CW completely weathered HW moderately weathered WW anderately weathered WW rederately meathered WW rederately eathered W rederate/red W rederate/red W rederate/red W rediate/red W and D dry M moist W wet S saturated Wp plastic limit	consistency / relative density VS very soft F firm St stiff H hard Fb friable VL very loose L loose MD medium dense VD very dense	W MS r S S VS V ES 6 TCR	gth rery weak weak moderately trong rery strong extremely s run detai Total Core Recovery Solid Core Recovery	strong I s e	U## D B E HP N N N* Nc VS	bles & f undistur ##mm d disturbe- bulk dist environr hand pe standarc (SPT) SPT sa SPT with vane sh- peak/rer	bed liam d sa turbe netro d per ampl h sol	sample eter mple ed samp al samp ometer netration e recov id cone kPa);	ole ole (kPa) n test ered	defect type BS bedding S PT parting JT joint SZ shear zon SS shear sun SS shear sun SM seam roughness SL slickensi POL polished SO smooth RO rough VR very roug	hear PL CU UN e ST ace IR eam ded CN SN VN CO	narity planar curved undulatin stepped Irregular ting clean stain veneer coating



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	-		Су							В	orehole	ID.	HA01
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	igi	ne	erin	<u>g ı</u>	<u>-0(</u>	<u>J -</u>	па	nd Auger		р	roject no).	GENZTAUC13086
lien	it:	Th	e Lakes	; (20	12) L	td				d	ate start	ed:	15 Jun 2015
orino	cipal:									d	ate com	pleted:	15 Jun 2015
oroje	ect:	Th	e Lakes	s Sta	iges	2U (& 2V			lo	ogged by	r <u>.</u>	S.Campbell
	tion:		e of sou								hecked l		R.Telford
			85; N: 800,					surface elevation: 24.00 m (Moturiki)	a		om horizor		DCP id.:
	nodel: ł			,		,				-	meter : 50		
drill	ing inf	ormat	ion		1	mat	erial sub	ostance					
support	penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) ਨਿ ਦੇ ਨੇ ਨੇ	DCP (blows/ 100 mm)	
= 0 A	0 0 J	\$		24	-		0 0	SILT: non plastic to low plasticity, brown, trace clay and some fine grained sand.	M	St to VSt	8 5 5 8	04000	RE-WORKED VOLCANIC
					-					VOL			Adried
				-	0.5-						⊕¦	11111	VS 108/ 17 kPa
					-								
					-		1	0.8 m: some clay, becoming low plasticity.			⊕⊚		VS 61/ 17 kPa
				-23	1.0-			Clayey SILT: medium plasticity, brown.	-	VSt			
					-						⊕ •)	11111	VS 105/ 19 kPa
					-			SILT: low plasticity, brown, some clay, trace	1	VSt			V3 100/ 19 KPa
				F	1.5			fine grained sand. 1.5 m: rare to trace manganese specks <3mm.					
					-								VS >180 kPa
				-22	2.0-			1.9 m: clay becoming minor.				11111	
				-22	2.0								VS >180 kPa
					-								
 2 z				-	2.5-			2.5 mitrace to minor fine grained numice cand			⊕ <mark> </mark> •		VS 147/ 19 kPa
					-			2.5 m: trace to minor fine grained pumice sand. INTERBEDDED SILTS, SANDY SILTS AND	-			11111	ROTOEHU ASH
					-			SILTY SANDS : Silts, low plasticity, pale brown grey. Sandy Silts, non plastic, pale brown grey.	D to M		∎⊜		
				-21	3.0-			Silty Sands, fine to coarse grained, well graded, pale brown grey	M	St			VS 63/ 9 kPa
					-					St			VS 64/ 22 kPa
					-		• •						
				-	3.5		:	SAND: fine grained, uniform, grey.	1				
					-			Clayey SILT: medium to high plasticity, pale	1	VSt			HAMILTON ASH
				-20	4.0-			grey. 3.8 m: becoming dark grey brown.			 ⊕ ⊙		
					-						liii.		VS 125/ 17 kPa
					-			4.2 m: becoming brown. CLAY: medium to high plasticity, orange	-	VSt			MATUA SUB-GROUP
				-	4.5-	V///		brown.			⊕ij∳i 		VS 139/ 26 kPa
					-	<i>V///</i>							
,]					-	<i>V///</i>					⊕ <mark> </mark> ●		VS 132/ 22 kPa
				-19	5.0-	[[1	Hand Auger HA01 terminated at 5.0 m				11111	
					-	1							
					-								
meth AD	auger			sup M	port mud	1	N nil	samples & field tests B bulk disturbed sample	s	soil desc			consistency / relative density VS very soft
AS HA	auger hand a	auger	ng*	Co	casing			D disturbed sample E environmental sample		ased on assificatio	Unified n System		S soft F firm
W HA HO3	washt hand a	auger	rrel (61 1mm		etration	h no re	esistance	SS split spoon sample U## undisturbed sample ##mm diameter	moistu				St stiff VSt very stiff
HQ3	HQ3 (uie da	rrel (61.1mm) wat	er		ing to	HP hand penetrometer (kPa) N standard penetration test (SPT)	D dry M mo	y oist			H hard Fb friable
* e.g.	bit sho AD/T	wn by	suffix		V 10-	Oct-12 v el on da	vater te shown	N* SPT - sample recovered Nc SPT with solid cone		et iturated astic limit			VL very loose L loose
в	blank	bit				er inflov er outflo		VS vane shear; peak/remouded (kPa) R refusal		uid limit			MD medium dense D dense



	•		Ξy							_			
			-							В	orehole	ID.	HA02
с.	adi	no	orin	а I	~	N	ปว	nd Augor		S	heet:		1 of 1
	iyi		enn	<u>y i</u>	-0	<u>J -</u>	па	nd Auger		р	roject no).	GENZTAUC13086
clier	nt:	Th	e Lakes	; (20	12) L	.td				d	ate start	ed:	15 Jun 2015
orino	cipal:									d	ate com	pleted:	15 Jun 2015
oroje	ect.	Th	e Lakes	Sta	aes	2118	2 21			Ic	ogged by		S.Campbell
			ddle of		-								R.Telford
	tion:						pe				hecked I	,	
	nodel: I		74; N: 800, Auger	351 (B	IOPC20))))		surface elevation: 34.00 m (Moturiki)		-	om horizor meter : 50		DCP id.:
	ing inf		-			mate	erial sub	stance					
	ion					D	ion	material description		y / Isity	vane	DCP	structure and
metnod & support	1 2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	shear ⊕ remoulded ⊚ peak (kPa) ♀ ♀ ♀ ♀	(blows/ 100 mm) ∾ + ∞ ∞ ₽	additional observations
	111			34	-	$ \rangle$		ORGANIC SILT: non plastic, black.	M				TOPSOIL
								SILT: low plasticity, brown, minor clay.	 	VSt			RE-WORKED VOLCANIC ASHES
					-					ecomin S	9 ⊕ ⊕		VS 99/ 19 kPa
				Ē	0.5							11111	
											_ ⊕ ₀		
				22	-			0.9 m: minor pale brown and pale grey mottles					VS 132/ 15 kPa
				-33	1.0			(possible colluvium ?).			1111	11111	
											⊕ ⊚ 		VS 122/ 15 kPa
				_	- 1.5			1.4 m: minor to some medium grained sand.					
					-						⊕ �	11111	VS 153/ 15 kPa
					-								
				-32	- 2.0			1.9 m: becoming moist to wet, drilling becoming easy.	M to W	-	() (€) () () () () () () () () () () () () () (VS 22/ 10 kPa
									14/	F			
							•	SANDY SILT/SILTY SAND: fine to coarse grained, well graded, non plastic,	W			11111	MATUA SUB-GROUP
				-	2.5-			orange brown, [Completely Weathered Pumice Sands].	M	VSt			VS 28/ 12 kPa
					-			SILT: low plasticity, brown, trace to minor clay, minor fine grained sand.			●		VS 149/ 12 kPa
	; ; ;				-							11111	
				-31	3.0-								VS 162/ 26 kPa
					-			3.2 m: with trace fine grained, sub-rounded and					
	liii				-			moderately weathered rhyolite/andesite		VSt to		11111	VS >180 kPa
				-	3.5		•	Sandy SILT: low plasticity, brown mottled pale brown, minor sand pockets <10mm dia. from		St			
								3.4m to 3.6m. 3.7 m: with minor 10-50mm sand pockets					
	111			-30	- 4.0		*	becoming orange brown, sand becoming fine grained.			1111	11111	VS >180 kPa
								g					
							*	4.2 m: with <40mm pockets/inclusions of silt (low to medium plasticity, pale brown , some			⊕ ♀ 		VS 90/ 24 kPa
				F	- 4.5		*	clay). 4.4 m: becoming pale yellow brown, sand	D to M	1			
	111							becoming fine grained, dry to moist.	М	St		11111	
					-			Clayey SILT: low to medium plasticity, pale brown.					VS 80/ 9 kPa
				-29	5.0-	XXX	1	Hand Auger HA02 terminated at 5.0 m					
	111												
meth	liii				port			complex & field tests	class	sification	symbol &		consistancy / minitis density
AD AS	auger	drilling screwi		Mi		Ν	l nil	samples & field tests B bulk disturbed sample	5	soil desc ased on	ription	· · ·	VS very soft
HA W	hand	auger	3		etration			D disturbed sample E environmental sample			n System		S soft = firm
HA HQ3	hand	auger	rrel (61.1mm		- N 0	- no re	sistance	SS split spoon sample U## undisturbed sample ##mm diameter	moistu			· · ·	St stiff /St very stiff
20				wate	er	rangir refusa	ig io al	HP hand penetrometer (kPa) N standard penetration test (SPT)	D dr M m W we	oist			H hard Fb friable
* e.g.	AD/T	own by	suffix		Ileve	Oct-12 w el on date	e shown	N* SPT - sample recovered Nc SPT with solid cone	S sa	turated			/L very loose loose
B T	blank TC bit				-	er inflow er outflov		VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing		uid limit			MD medium dense D dense VD very dense

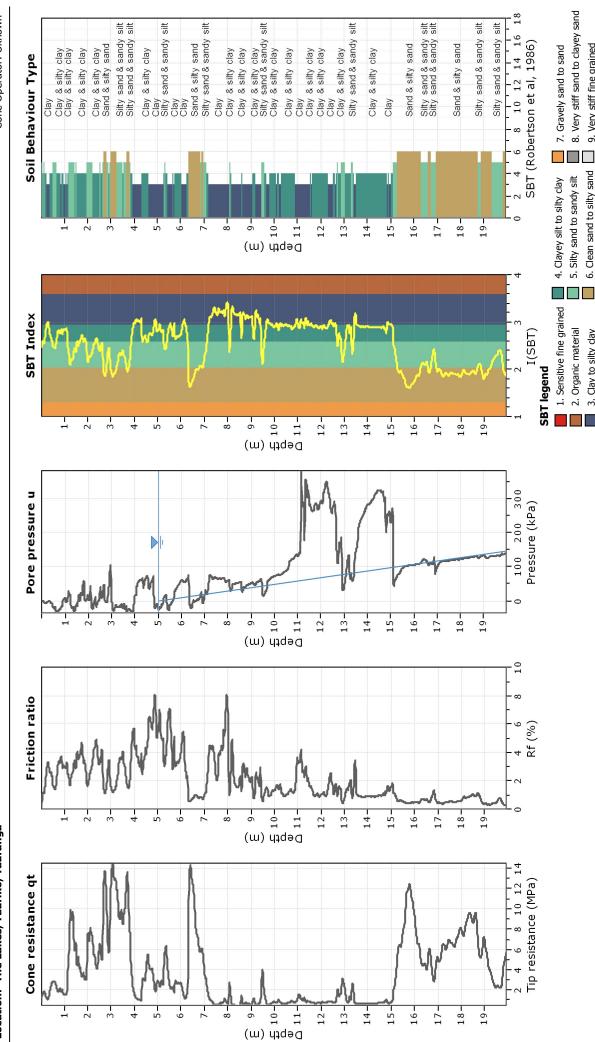


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Geotechnical Software The Lakes Stage 2U Project:

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Location: The Lakes, Tauriko, Tauranga



CPeT-IT v.1.7.6.19 - CPTU data presentation & interpretation software - Report created on: 11/08/2015, 5:30:14 p.m. Project file: F:\1.GENZ\1.GEOTECHNICS PROJECTS\13086AL THE LAKES STAGE 2UV\3. FIELDWORK RESULTS\INVESTIGATIONS\UNY 2015 CPTs\13086AL Stage 2U CPTs 2015.cpt

CPT: CPT-17

Surface Elevation: 13.00 m Coords: X:0.00, Y:0.00 Cone Type: Uknown Cone Operator: Uknown Total depth: 19.93 m, Date: 28/07/2015

8. Very stiff sand to clayey sand

9. Very stiff fine grained

6. Clean sand to silty sand 5. Silty sand to sandy silt 4. Clayey silt to silty clay

1. Sensitive fine grained

2. Organic material

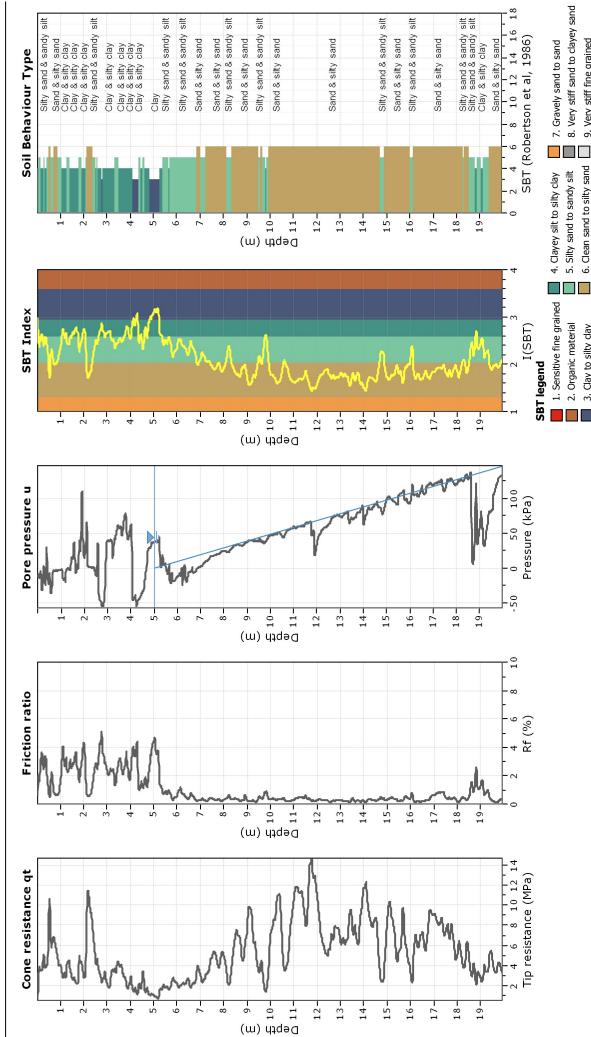
3. Clay to silty clay

7. Gravely sand to sand

GEO

The Lakes Stage 2U Geotechnical Software Project:

Location: The Lakes, Tauriko, Tauranga



CPeT-IT v.1.7.6.19 - CPTU data presentation & interpretation software - Report created on: 11/08/2015, 5:30:15 p.m. Project file: F:\1.GENZ\1.GEOTECHNICS PROJECTS\13086AL THE LAKES STAGE 2UV\3. FIELDWORK RESULTS\INVESTIGATIONS\UNY 2015 CPTs\13086AL Stage 2U CPTs 2015.cpt

CPT: CPT-18

Surface Elevation: 13.00 m Coords: X:0.00, Y:0.00 Cone Type: Uknown Cone Operator: Uknown Total depth: 19.93 m, Date: 28/07/2015

8. Very stiff sand to clayey sand

9. Very stiff fine grained

6. Clean sand to silty sand 5. Silty sand to sandy silt 4. Clayey silt to silty clay

1. Sensitive fine grained

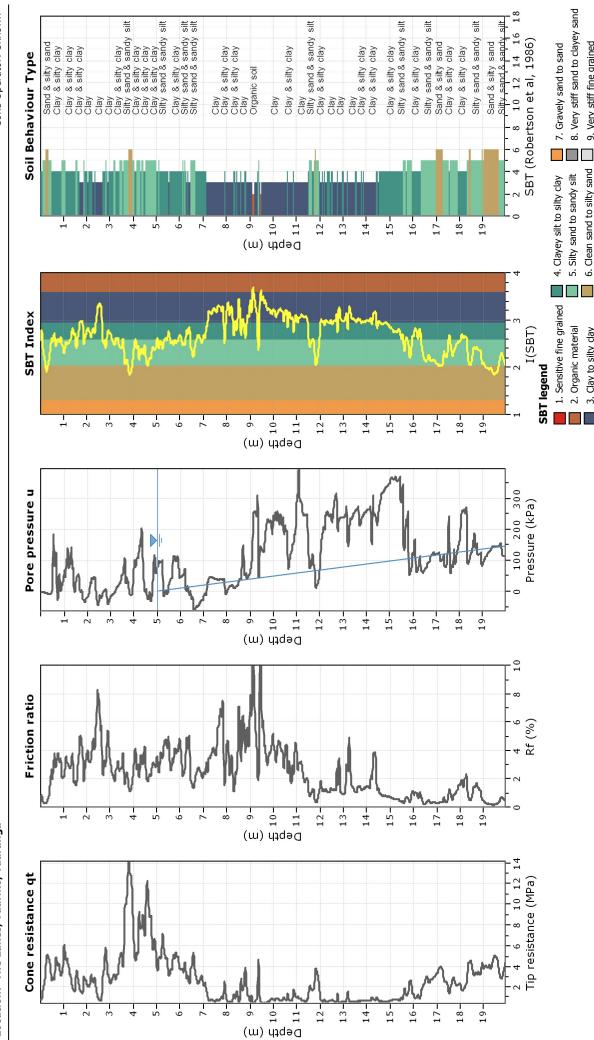
2. Organic material

3. Clay to silty clay

7. Gravely sand to sand

H

The Lakes Stage 2U Geotechnical Software Project: Location: The Lakes, Tauriko, Tauranga



CPeT-IT v.1.7.6.19 - CPTU data presentation & interpretation software - Report created on: 11/08/2015, 5:30:15 p.m. Project file: F:\1.GENZ\1.GEOTECHNICS PROJECTS\13086AL THE LAKES STAGE 2UV\3. FIELDWORK RESULTS\INVESTIGATIONS\UNY 2015 CPTs\13086AL Stage 2U CPTs 2015.cpt

CPT: CPT-19

Surface Elevation: 13.00 m Cone Type: Uknown Cone Operator: Uknown Total depth: 19.93 m, Date: 28/07/2015 Coords: X:0.00, Y:0.00

m

8. Very stiff sand to clayey sand

9. Very stiff fine grained

6. Clean sand to silty sand

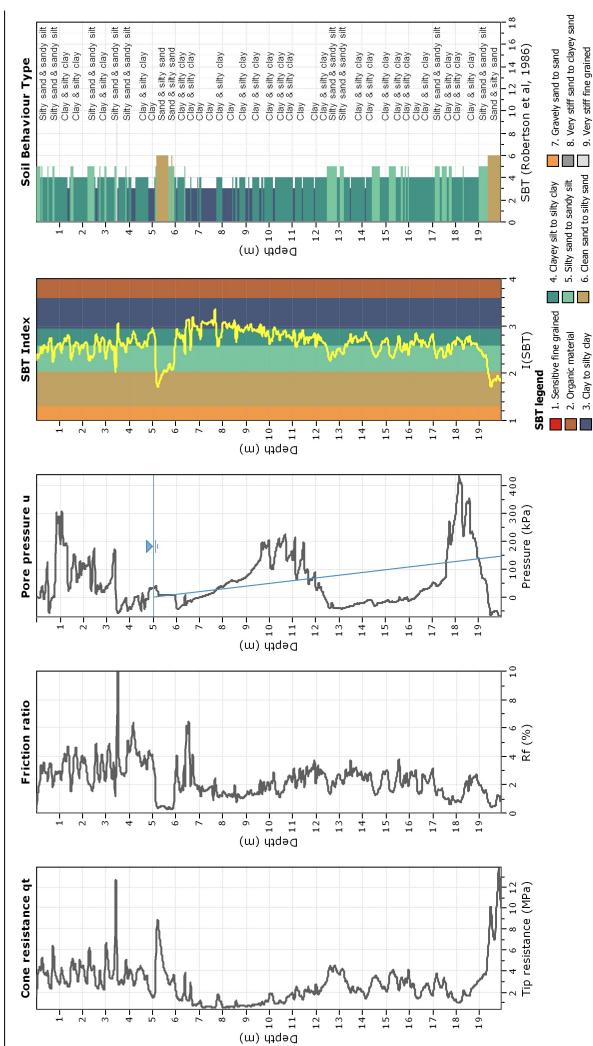
5. Silty sand to sandy silt

2. Organic material

3. Clay to silty clay

Ξ

The Lakes Stage 2U Geotechnical Software Project: Location: The Lakes, Tauriko, Tauranga



CPeT-IT v.1.7.6.19 - CPTU data presentation & interpretation software - Report created on: 11/08/2015, 5:30:16 p.m. Project file: F:\1.GENZ\1.GEOTECHNICS PROJECTS\13086AL THE LAKES STAGE 2UV\3. FIELDWORK RESULTS\INVESTIGATIONS\UNY 2015 CPTs\13086AL Stage 2U CPTs 2015.cpt

CPT: CPT-20

Surface Elevation: 13.00 m Coords: X:0.00, Y:0.00 Cone Type: Uknown Cone Operator: Uknown

Total depth: 19.93 m, Date: 28/07/2015

8. Very stiff sand to clayey sand

9. Very stiff fine grained

6. Clean sand to silty sand

5. Silty sand to sandy silt

2. Organic material

3. Clay to silty clay



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-			C	,							E	Boreho	le II	Э.		HA04
_		-									s	heet:				1 of 1
E	າg	Ine	eri	ng	j L	-0(g -	На	nd Auger		р	roject	no.			GENZTAUC13086A
lien	ıt:	Tŀ	IE LA	KES	5 20)12 I	LTD					j late sta		d:		10 Nov 2015
orino	cipal:										d	late co	mpl	eteo	1:	10 Nov 2015
oroje	ect:	Tŀ	IE LA	KES	S S	TAG	E 21	N			lo	ogged	bv:			SWH
-	tion:								about			hecke	-	<i>r</i>		RBT
		-	978; N: 80					ouna	surface elevation: Not Specified	a	angle fro				0	DCP id.:
		Hand		,	·		,		·		ole diar					
drill	<u> </u>	forma	tion				mat	erial sub	stance	1		1				
s to	penetration		sample field te		(r	(m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic,	tion	consistency / relative density	vane shea @remoul @pea	e ar ded k	DC blo' 100 r	NS/	structure and additional observations
support	² pen	3 water			RL (m)	depth (m)	graph	class symb	colour, secondary and minor components	moisture condition	consis relativ	(kPa))	0.46	8	
						-	×××	OL	BARK AND VEGETATION.	D					Π	
						-	\bigotimes		ORGANIC SILT: non plastic, black, some roots.	-	VSt	 ⊕ €				TOPSOIL FILL FILL
	ii	i I				- 0.5 —			SILT: non plastic, pale brown-grey, some fine to coarse grained sand.		VOL	1 1 1	Ì.	ij	ij.	VS 146/ 43 kPa
		¦				-		Ś							ÌÌ.	VS 119/ 38 kPa
						-	Ĩ	ML	SILT: low liquid limit, brown-orange.				o		ii.	YOUNGER ASHES
						1.0-										VS >181 kPa
		tered				-						 ⊕ ∉	 0			
 z	ii	Encountered				-									ij.	VS 177/ 52 kPa
ĺ		Not				1.5-			1.5 m: trace of fine to coarse grained, black and grey sand; trace of fine grained, grey pummice			⊕ i k	9	111	11	VS 170/ 47 kPa
		:				-			gravel				Ì			
						2.0 —							9 			VS >181 kPa _
						-		ML	Sandy SILT: non plastic to low liquid limit, brown-grey.	1						ROTOEHU ASH
						-		SM		-						VS UTP
	ii	i I				2.5-		. Sivi	Silty SAND: fine to coarse grained, grey, sand is fine to coarse grained.				i l	ij	ij.	-
	!!	!				-		:		-	VSt				2.2	
, ,		<u> </u>				- 		ML	SILT: low liquid limit, brown-grey, some fine to coarse grained sand.				۳L		11	VS >181 kPa
						-			Hand Auger HA04 terminated at 3.0 m Target depth							
						-										
						3.5-										-
		i				-									11	
						- 4.0 <i>-</i>	-									
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		¦				-						; ; ;				
		!				5.0-										-
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						-										
meth	nod				sup	oort	L		samples & field tests		sificatio		ol &		T T	consistency / relative density
AD AS	auge auge	er drillin er screv	wing*		Mi		I	N nil	B bulk disturbed sample D disturbed sample	b	soil desc ased on	Unified				/S very soft
HA W	was	l augei hbore				etration	ı		E environmental sample SS split spoon sample	Clas	ssificatio	on Syste	em		F	firm St stiff
HA	hand	l augei					rang	sistance ng to	U## undisturbed sample ##mm diameter HP hand penetrometer (kPa)	moistur D dr	у					/St very stiff
*	hit e	nown P	oy suffix		wate		Oct-12	al	N standard penetration test (SPT) N* SPT - sample recovered	M m W we	oist et				F	Fb friable /L very loose
e.g. B	AD/7 blan	Г	., cuiix			lev		e shown	Nc SPT with solid cone VS vane shear; peak/remouded (kPa)	Wp pla	iturated astic lim juid limit				L	3
T V	TC b	it			-		ter outflo		R refusal HB hammer bouncing	vvi ilq					C	



			⊂ y										
										E	Borehole I	D.	HA05
-						_				s	heet:		1 of 1
Eľ	ngi	ne	erin	gι	-0(g -	на	nd Auger		р	roject no.		GENZTAUC13086A
clien	t:	TH	E LAKE	ES 2	012	LTD				d	late starte	ed:	10 Nov 2015
princ	ipal:									d	late comp	leted:	10 Nov 2015
proje	ct:	тн	E LAKE	es s	TAG	E 2U	v			lo	ogged by:		SWH
locat			rthern e					ıt			hecked b	v.	RBT
			i4; N: 800,76	-				surface elevation: Not Specified	6		m horizonta	,	DCP id.:
	nodel: H			,		,		·			meter : 50 m		
drilli	ng info	ormati	on	1		mate	erial sub	stance					
method & support	penetration	e	samples & field tests	(E)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ©remoulded ©peak	DCP (blows/ 100 mm	structure and additional observations
sup	o ⊳ −	water		Ч	dep	gra				cons	⁵⁰ 100 (kPa) 500 (kPa)	<u>1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </u>	
			В	-			SW ML	SAND: fine to coarse grained, grey. Sandy SILT: non plastic to low liquid limit, grey, stained black, brown and orange, sand is fine to coarse grained.		VSt			
					0.5-		ML	SILT: low liquid limit, brown.					
		ared	В	-	- 1.0			0.8 m: becoming brown-orange, with some black staining; tracef of fine grained, black gravel					VS UTP
		Not Encountered			- - 1.5-		ML	Sandy SILT: non plastic to low liquid limit, grey, sand is fine to coarse grained; trace of fine \grained, grey pummice gravel. /	-				VS UTP
					2.0-		ML	Sandy SILT: non plastic to low liquid limit, grey, Varies between grey Sandy SILT and brown SILT. Appears to be unsorted mixture.	_		 		
			В	-	- - 2.5-		SM	Silty SAND: fine to coarse grained, non plastic, grey, trace of fine grained, black and grey gravel.	-		- - 		VS >181 kPa
					- - - - - -		ML	Sandy SILT: low liquid limit, pale brown-grey, sand is fine to coarse grained; trace of fine \grained, black gravel. /	-	VSt	_ _ © _ 0		VS >181 kPa
								Hand Auger HA05 terminated at 3.0 m Target depth					
					-	-							
					4.0-								-
					4.5-	-							-
					5.0-								-
					-			· · · ·					
meth AD AS HA W HA	auger auger hand a washt	screw auger oore		M C (pen		ı	l nil sistance	samples & field tests B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample #mm diameter	s b Cla: moistu	soil desc ased on ssification re			consistency / relative density VS very soft S soft F firm St stiff VSt very stiff
* e.g. B T V	I I I <td>-Oct-12 w el on date ter inflow</td> <td>al rater e shown</td> <td>HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing</td> <td>M m W w S sa Wp pl</td> <td>y oist et aturated astic lim quid limit</td> <td></td> <td></td> <td>H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense</td>					-Oct-12 w el on date ter inflow	al rater e shown	HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing	M m W w S sa Wp pl	y oist et aturated astic lim quid limit			H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense



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-			-	_y							В	orehole	ID.		HA06	
-		. : .		- -	- I						sł	neet:			1 of 1	
E	ng	gII	ne	erin	g I	_ O	g -	на	nd Auger		рі	oject no			GENZTAUC13086	A
clier	nt:		TH	E LAKE	S 2	012	LTD				da	ate starte	ed:		10 Nov 2015	
prin	cipa	al:									da	ate comp	pleted:		10 Nov 2015	
proje	ect:		ΤН	E LAKE	s s	TAG	E 21	N			lo	gged by:			SWH	
oca			Soi	uthern	edae	e of l	Rour	ndabo	ut			necked b			RBT	
				64; N: 800,74	-				surface elevation: Not Specified			n horizont	<i>.</i>		DCP id.:	
			and A		,		,				-	neter : 50 r				
drill	1		rmati	on	1		mat	erial sub	stance							
× ×		penetration		samples & field tests		Ê	log :	classification symbol	material description	e u	consistency / relative density	vane shear ⊕remoulded ⊚peak	DCF (blow	s/	structure and additional observations	
method & support		penet	water	lielu lesis	RL (m)	depth (m)	graphic log	lassifi	SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	onsiste	● peak (kPa) 09 09 09 00	100 m	ŕ		
	-	3 7	>		L.	0	Ň	ML	SILT: non plastic, brown-grey, some fine to	D	H	ÎIIÎ	0 4 9		FILL	
								k	coarse grained grey angular gravel in the upper 0.2m. Very difficult to penetrate.							-
								sw	SAND: fine to coarse grained, grey, some fine	-					VS UTP	-
	li	ii.				0.5-	\mathbb{X}		grained, black and grey (pummice) subangular gravel.							
								ž.	9.0.0.							•
						1.0-	\otimes	ML	SILT: low liquid limit, dark brown-orange, some	-	VSt to					_
			g					Ś	black and orange staining, trace of fine grained, black gravel.		н				VS >181 kPa	
	ļį	ij.	Encountered				\otimes	8				iii.				
			ot Enco			1.5-		X .								-
			Not					Š							VS >181 kPa	
								Ś				 9				
		ij.				2.0-		Ŕ	1.9 m: some fine to coarse grained, grey sand						VS >181 kPa	-
								Š.								
							\mathbb{W}	Š	2.4 m: becoming brown, grey and orange. Colours						VS >181 kPa	
	ļį	ij.				2.5-		Ś	are highly variable							-
								8	2.7 m: thin layer of pale orange, Sandy SILT					i i	VS >181 kPa	
• •						3.0-		2				•		Ш	VS >181 kPa	
							-		Hand Auger HA06 terminated at 3.0 m Target depth							
		11										iii.				
	1					3.5-										_
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	1	ii ii					-									
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meti AD AS	au		Irilling crewi		M	mud	1	N nil	samples & field tests B bulk disturbed sample	:	soil descu ased on	ription		V	S very soft	
HA W	ha	and a ashb	uger	a		casing etratio	n		D disturbed sample E environmental sample			n System		S F	firm	
HA		and a				- N M		sistance	SS split spoon sample U## undisturbed sample ##mm diameter	moistu D di					/St very stiff	
*	4. ا	tohe	un hi	ouffix	wat		 refus 	aľ	HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered	M m W w	oist et			H F V	b friable	
ê.g. B	A	t sho D/T ank b		suffix		- lev	-Oct-12 v el on dat iter inflow	e shown	Nc SPT with solid cone VS vane shear; peak/remouded (kPa)	Wp pl	aturated astic limi	t		L		
T V	ТС	bit			-		iter inflow		R refusal HB hammer bouncing	WI lio	quid limit			D		

										_				
-	_	_	y							E	orehole	ID.		HA07
-			!	I		-				s	heet:			1 of 1
Er	ngi	ne	erin	g I	_ O(J -	на	nd Auger		р	roject no).		GENZTAUC13086A
clien	t:	TH	E LAKE	S 2	012 I	TD				d	ate start	ed:		10 Nov 2015
princ	ipal:									d	ate com	pleted	1:	10 Nov 2015
proje	ct:	ТН	E LAKE	s s	TAG	E 2U	V			lo	ogged by	:		SWH
locat	ion:	Ap	orox 12	0m	sout	h of i	Roun	dabout			hecked I			RBT
			'6; N: 800,6'					surface elevation: Not Specified	a		m horizon	,	0	DCP id.:
drill m	nodel: H	Hand Ai	uger						ł	ole diar	neter : 50	mm		
drilli	-	ormati	on			mate	erial sub			~		1		[
method & support	penetration	er	samples & field tests	(E)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear eremoulded epeak	DC (blow 100 n	ws/	structure and additional observations
sup	ъ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	water		Ч	deb	gra gra			_		(kPa) 200 (adv)	0 4 0	<u>8</u> 6	
ĪĪ					-		ML	SILT: low liquid limit, dark brown-black.	D	VSt				FILL
					-			0.3 m: becoming brown-grey			€∣⊙		11	VS 129/ 38 kPa
					0.5-		ML	SILT: low liquid limit, brown.	-				11	
					-			0.7 m: some fine to coarse grained, grey sand;						VS >181 kPa
					- 1.0-		ML	trace of fine grained, grey gravel SILT: low liquid limit, brown-orange.	-					VS 150/ 70 kPa
		, a			-			· · · · · · · · · · · · · · · · · · ·						
					-						⊕ l©l	:::	ii	VS 124/ 50 kPa
		1 1 1			1.5-		ML	1.45 m: stained black	м	St				YOUNGER ASHES
					-			SILT: low liquid limit, brown-orange.			1111			VS 70/ 38 kPa
					2.0-						 †€€ 			VS 80/ 40 kPa
					-		ML	SILT: low liquid limit, pale orange, trace of fine	M to W	E to St	6 9			VS 91/ 40 kPa
					2.5-		IVIL	grained sand.		1 10 51			ij.	ROTOEHU ASH VS 43/ 21 kPa
					-							!!!	2.2	V3 45/ 21 KFa
• •					- 3.0			Lland August 1407 terminated at 2.0 m			⊕⊙			VS 86/ 28 kPa
					-			Hand Auger HA07 terminated at 3.0 m Target depth						
					-								11	
	 				3.5-									
					-									
					4.0-								11	
					-							:::	11	
					-								11	
	111				4.5-							liii	ii.	
					-								11	
					5.0-								Ϊİ.	
					-								Ϊİ.	
					-									
meth AD AS HA	od auger auger hand	drilling screwi auger		M C	port mud casing		nil	samples & field tests B bulk disturbed sample D disturbed sample E environmental sample	s b	soil desc ased on		<u> </u>		
W HA	wash			pen			sistance Ig to al	SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa)	moistu D dr	re y	-		S V F	St stiff /St very stiff H hard
*		own by	suffix	wat	10-	Oct-12 w	ater	N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone	W we S sa	turated				b friable /L very loose loose
e.g. B T	AD/T blank TC bi				- wat	er inflow		VS vane shear; peak/remouded (kPa) R refusal		astic lim Juid limit				AD medium dense
V	V bit	•		-	- wat	er outflow	v	HB hammer bouncing						/D very dense



	пе <i>тн</i> <i>тн</i> Ар 367,90	E LAKE E LAKE prox 22	ES 20 ES S 20m	012 L TAG sout	E 2U	V	nd Auger dabout surface elevation: Not Specified		s p d d lc c	iorehole heet: roject no ate starte ate comp ogged by: hecked b m horizont neter : 50 r). ed:)oleted: ;)y: al: 90°	HA08 1 of 1 <u>GENZTAUC13086A</u> 10 Nov 2015 10 Nov 2015 SWH RBT DCP id.:
drilling inf		-				rial sub	stance material description			vane	DCP (blows/	structure and
method & support 1 2 penetration	water	field tests	RL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	shear ⊕remoulded ⊚peak (kPa) 05 00 00 05 00	(blows/ 100 mm)	additional observations
						ML	Sandy SILT: non plastic, pale grey, sand is fine to coarse grained; some fine to medium gravel in the upper 02.m.	D	VSt			EMBANKMENT FILL VS UTP VS UTP
				- 1.0		ML	SILT: non plastic, black.			⊕ ⊕ 		BURIED TOPSOIL VS 104/ 50 kPa
	Not Encountered			-		ML	SILT: non plastic to low liquid limit, brown-grey, stained black, orange and grey, trace of fine to medium grained sand.		St			COLLUVIUM VS 70/ 28 kPa
				1.5		ML	SILT: low liquid limit, pale brown.	M	St to VSt			YOUNGER ASHES VS 119/ 45 kPa
				2.0-						 ♥♥ 		VS 94/ 40 kPa
				2.5-		ML	SILT: low liquid limit, pale brown.	M to W	St			ROTOEHU ASH VS 60/ 21 kPa
, v				-		ML	Sandy SILT: low liquid limit, pale brown-grey, sand is fine to coarse grained.	-				VS 62/ 26 kPa VS 78/ 33 kPa
				3.0			Hand Auger HA08 terminated at 3.0 m Target depth					
				3.5-								
				4.0								
				4.5								
				5.0-								
AS auger HA hand W wash HA hand	drilling screw auger bore	ing*	M C pen	v 10-	I	l ater	samples & field tests B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone	s D Clas moistur D dr M m W wo S sa	soil desc ased on ssificatio re y oist	Unified on System		consistency / relative density /S very soft S soft firm St stiff St very stiff hard b friable /L very loose loose

Appendix D - Completion Test Data



TETRA TECH	H COMPANY								Borehole	ID.	HAL3		
Engi	ineerir	na	Lo	a -	Bo	rehole		S	heet:		1 of 1		
		_		<u> </u>					roject no		GENZTAUC13086AR		
client:	The Lake	es (2	012)	Ltd				d	ate start	ed:	10 Oct 2016		
principal:								d	date completed:		10 Oct 2016 DBC RBT		
project:	roject: The Lakes Stage 2							logged by: checked by:					
ocation: Center of Lot 3													
osition: N	ot Specified					surface elevation: Not Specified	ä	angle fro	om horizon	ital: 90°	DCP id.:		
drill model:	Hand Auger			_		drilling fluid:		nole dia	meter : 50	mm	vane id.: 4523 / New B		
drilling in	formation			ma	terial sub								
method & support 2 penetration	samples field test		depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) 02 00 02	DCP (blows/ 100 mm)	structure and additional observations		
					X	ORGANIC SILT: non plastic, black.	М				TOPSOIL FILL		
	 	Pa				SILT: non plastic to low plasticity, orange brown, with minor clay and minor sand.	M	Н	_		- FILL		
	 VS >215 k 	Pa	0.5			Sandy SILT: non plastic, grey mottled orange brown.	M	Н			-		
	 VS >215 k 	Pa	1.0-								-		
AL	VS >215 k	Pa											
	 VS >215 k 	Pa	1.5-			SILTY SAND: fine to medium grained, grey mottled orange brown.	M				-		
	 VS >215 k	Pa	2.0-		XXXXXXX	Sandy SILT: non plastic, grey mottled orange brown.	М	Н			-		
		Pa											

| | |

classification symbol &

soil description

based on Unified

Classification System

moisture

D dry M moist W wet S saturated Wp plastic limit WI liquid limit

11111

S F

. St VSt

H Fb

VL

L MD

D VD

consistency / relative density VS very soft

very soft soft firm

very loose

very dense

medium dense

loose

dense

stiff very stiff hard friable

20.05/0017 16 GP.I Ś Ś GCR HA NCN L Log 'ev:AT CDF_0_9_06_LIBRARY.GLB I

| | |

| | || | |||||||||||||||||

methodADauger drilling*ASauger screwing*

hand auger

washbore

hand auger

AD/T

blank bit

TC bit

Vbit

bit shown by suffix

AS HA W HA

*

e.g. B T

2.5

support M mud

C casing

penetration

⊻

<u>ات</u> water

N nil

no resistance ranging to
 refusal

10-Oct-12 water level on date shown

water inflow

water outflow

HAL3 terminated at 2.5 m Target depth

samples & field tests B bulk disturbed sample

refusal

D E

SS

U##

HP N N*

Nc VS

R HB

disturbed sample environmental sample

SPT - sample recovered SPT with solid cone

hammer bouncing

environmental sample split spoon sample undisturbed sample ##mm diameter hand penetrometer (kPa) standard penetration test (SPT)

vane shear; peak/remouded (kPa)



1 of 1 sheet: **Engineering Log - Borehole** GENZTAUC13086AR project no. The Lakes (2012) Ltd client: 10 Oct 2016 date started: principal: 10 Oct 2016 date completed: The Lakes Stage 2UV logged by: DBC project: Center of Lot 6 RBT location: checked by: position: Not Specified surface elevation: Not Specified angle from horizontal: 90° DCP id.: drill model: Hand Auger drilling fluid: hole diameter : 50 mm vane id.: 4523 / New drilling information material substance consistency / relative density DCP material description vane structure and class ification g (blows/ 100 mm) samples & shear ⊕ remould ⊚ peak additional obs Ē method & support penetra moisture condition SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components field tests graphic lu symbol Ê depth (water (kPa) 8 8 8 R ORGANIC SILT: non plastic, black. Μ TOPSOIL FILL Шİ ||||||11111 1.1.1 | | | | |||||| | | |11111 VS >215 kPa | | | 🕑 11111 111 Sandy SILT: non plastic, orange brown. М Н FILL 1111 11 | | | | |11111 1 + 1| | | |0.5 SILTY SAND: fine to medium grained, pale 11111 М |||||||VS UTP Vs UTP ||||| ||grey. İİİİİ 111 111 | | | | |

Borehole ID.

HAL6

lade

/ations

W 111 ||||||111 | | | | |11111 s 0.8 m: slight groundwater seepage VS >215 kPa 111 encountered. M to W н 11111 SILT: non plastic to low plasticity, orange ||||brown, with minor clay and some sand | | | |11111 1.0 | || | | |11111 | | | |11 11 VS UTP <<Drawing γ\$ UTP ||||Sandy SILT: non plastic, grey. М н ₹ ż 11111 1111 11 20-05-16.GPJ 11111 | | | | |**SILT**: non plastic, orange brown streaked pale grey, with some sand. М н |||||||1.5 11111 111 11111 VS UTP ₽ VS UTP 111 a C C 11 | | | | |11111 NON CORED + DCP ||||11111 |||||||| | | | |11111 11 11111 |||||11 | | | |11111 SAND: fine to medium grained, pale grey, М 111 11111 VS UTP γs ήτρ with some silt 2.0 BOREHOLE: ніі 11111 SILTY SAND: fine to medium grained, pale М 11111 ||||||grey. 111 1 1 1 1 11111 СQF | | | | |11111 111 1 1 1 1 11111 00 |||||||||1111 ||||| | | | |11111 VS >215 kPa GLB 2.5 HAL6 terminated at 2.5 m 11 11 BRARY ||||Target depth ||||||11111 ||11111 11111 ||||||||||90 11111 | | | | |11111 |||||||11111 ||||||11111 111 classification symbol & method AD auger drilling* consistency / relative density support samples & field tests soil description N nil bulk disturbed sample VS Μ mud В verv soft auger screwing' disturbed sample environmental sample based on Unified AS C casing D S F soft HA W hand auger Classification System Е firm penetration washbore SS split spoon sample St stiff hand auger HA very stiff undisturbed sample ##mm diameter VSt no resistance ranging to
 refusal U## moisture HP hand penetrometer (kPa) H Fb hard dry moist wet D M W standard penetration test (SPT) Ν friable wate N* SPT - sample recovered VL very loose bit shown by suffix 10-Oct-12 water saturated V SPT with solid cone Nc loose L e.g. B AD/T evel on date shown plastic limit liquid limit VS vane shear; peak/remouded (kPa) Wp MD medium dense blank bit vater inflow ۱۸/i R refusal D dense TC bit water outflow HB hammer bouncing VD very dense



Engineering Log - Borehole The Lakes (2012) Ltd

client:

principal:

project: The Lakes Stage 2UV

Center of Lot 8 location:

Borehole ID.	HAL8
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	10 Oct 2016
date completed:	10 Oct 2016
logged by:	DBC
checked by:	RBT

		nter of		<u> </u>					0	hecked	Jy.	RBI	
position: N	lot Spe	cified					surface elevation: Not Specified	a	angle fro	om horizor	ntal: 90°	DCP id.:	
Irill model:		•					drilling fluid:	ł	nole dia	meter : 50	mm	vane id.: 4523 / New E	
drilling in	format	ion	1		mate		stance		1	1			
support support 2 penetration		samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) 38 00 000000000000000000000000000000000	DCP (blows/ 100 mm)		
	1.1			-			ORGANIC SILT: non plastic, black.	M					
		VS UTP		-			SILT: non plastic, orange brown, with minor sand.	М	Н	- V\$ UTP 			
z	Not Encountered	VS UTP		0.5			SILTY SAND: fine to coarse grained, pale grey streaked orange brown, pumicious. gravels encountered between 0.6m and 1.2m.	М		 vs uтр		-	
		VS UTP		- - 1.0						 VS UTP 		-	
					~~~~		HAL8 terminated at 1.2 m Obstruction in the hole						
AS auge HA hand W wash HA hand	r drilling er screwi l auger abore l auger nown by	ng*	pene	mud casing etration er er leve wate		ater shown	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	b Cla moistuu D dn M moi W we S sa Wp pla	soil desc based on ussificatio re y bist	Unified n System			



The Lakes (2012) Ltd client:

principal:

## project: The Lakes Stage 2UV

#### Center of Lot 9 location.

Borehole ID.	HAL9
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	10 Oct 2016
date completed:	10 Oct 2016
logged by:	DBC
checked by:	RBT

ocation:	Cel	nter of		9					C	hecked I	by:	RBT
position: N	ot Spec	cified					surface elevation: Not Specified	a	angle fro	m horizor	ntal: 90°	DCP id.:
drill model:	Hand A	luger					drilling fluid:	ł	nole diar	neter : 50	mm	vane id.: 4523 / New I
drilling inf	ormati	on		-	mate	rial sub	stance					
method & support 2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) S 00 00 00	DCP (blows/ 100 mm	1)
				-			SILT: non plastic, black.	М				TOPSOIL FILL
		VS UTP		-			SILT: non plastic, orange brown, with minor sand.	M	Н	.                   V\$ UTP 		FILL   
		VS UTP		0.5-			SILTY SAND: fine to medium grained, pale grey, pumicious.	М		        vs:uтр 		     
		VS UTP		-			Sandy SILT: non plastic, orange brown	M	Н	                                                               		
                     z	Not Encountered	VS UTP		1.0			streaked pale grey. <b>SILTY SAND</b> : fine to medium grained, pale grey streaked orange brown, pumicious.	M to W		                     γς μτΡ		
		1/9 2215 kD		- - 1.5—			SILT: non plastic, orange brown streaked pale grey, with some sand.	M	VSt to H			     
	VS >215 kPa                         	V3 ~2 13 KF2	u	-						<b> </b>                               		
		VS 176/ 47 kPa		2.0						⊕    ●		       
		VS 165/ 41 kPa					UNIO to residue to 2.5 m					
				-   -			HAL9 terminated at 2.5 m Target depth					
AS auger HA hand N wash	r drilling [*] r screwir auger				I	nil	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample	s b Cla	soil desc based on bassificatio			consistency / relative density VS very soft S soft F firm St stiff
	own by: bit	suffix	wate	er 	Dct-12 wa er inflow er outflow	l ater shown	U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	D dr M mo W we S sa Wp pla	M moist W wet S saturated Wp plastic limit			VSt         very stiff           H         hard           Fb         friable           VL         very loose           L         loose           MD         medium dense           D         dense           VD         very dense



The Lakes (2012) Ltd client:

principal:

## project: The Lakes Stage 2UV

Borehole ID.	HAL11
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	10 Oct 2016
date completed:	10 Oct 2016
logged by:	DBC
checked by:	RBT

ocation	: <b>C</b>	en:	ter of l	Lot	11					С	hecked b	oy:	RBT
oosition:	Not S	pecif	ied					surface elevation: Not Specified	а	ingle fro	om horizor	ntal: 90°	DCP id.:
drill mode			-			. —		drilling fluid:	h	ole dia	meter : 50	mm	vane id.: 4523 / New E
drilling i		atio	n			mate	erial sub						1
method & support 1		water	samples & field tests	RL (m)	depth (m)	graphic log	class ification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DCP (blows/ 100 mm)	
					-			ORGANIC SILT: non plastic, black.	М				TOPSOIL FILL
			VS UTP		-			Sandy SILT: non plastic, orange brown.	M	Н	-         -           \V\$\UTP		- FILL -
					- 0.5—			<b>SILTY SAND</b> : fine to medium grained, pale grey streaked orange brown.	М				-
			VS UTP		-			SILT: non plastic, orange brown, with some	M	Н	Vsl Uтр           -		-
			VS UTP		-			sand.			VS UTP		
		Itered			1.0			1.0 m: becoming pale grey streaked orange brown.					-
z		Not Encountered	S >215 kPa		-								
			VS UTP		- 1.5—						             V\$ UTP		-
			VS 138/ 19 kPa		-					VSt	-           ⊕   ⊕   		
					-				M to W	St			
			VS 76/ 25 kPa		2.0-						$ \begin{array}{c c}   &   &   &   \\ \Phi_{ } \bullet_{ } \bullet_{ } &   &   \\   &   &   &   \\ \end{array} $		-
					-					Н			
<u> </u>			VS UTP		-						YS UTP		
					-			HAL11 terminated at 2.5 m Target depth					
					-								
method AD auc	ger drill	ina*		sup M r			nil	samples & field tests B bulk disturbed sample		ification oil desc	n symbol &		consistency / relative density VS very soft
AS aug HA har V was	ger scro nd augo shbore	ewing er	*	C of	asing etration പറ	1	istance	D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter			Unified on System		S soft F firm St stiff VSt very stiff
e.g. AD	bit shown by suffix		er ▼  10-	Oct-12 week	ig to Il ater	HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remouded (kPa)	D dry M mo W we S sa	/ bist	ł		H hard Fb friable VL very loose L loose MD medium dense		
B blaı T TC √ Vb						er inflow er outflow	v	R refusal HB hammer bouncing		uid limit			D dense VD very dense



client: The Lakes (2012) Ltd

principal:

## project: The Lakes Stage 2UV

location: Center of Lot 13

Borehole ID.	HAL13
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	10 Oct 2016
date completed:	10 Oct 2016
logged by:	DBC
checked by:	RBT

	n:		nter of	201	15					CI	necked I	Jy.	RBI
osition		·						surface elevation: Not Specified		•	m horizor		
rill moo			-			mat	wial and	drilling fluid:	h	ole diar	neter : 50	mm	vane id.: 4523 / New
drilling	-	rmat				mate	erial sub			~			
support	² penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) ₀₂ 00 00	DCI (blow 100 m	mm) additional observations
					-			SILT: non plastic, orange brown, with some sand.	M				
			VS UTP VS UTP		- - 0.5—			Sandy SILT: non plastic, orange brown streaked pale grey.	M	Н	γsυτΡ           		
			VS 215 kPa		-			SILT: non plastic, orange brown, with some sand.	М	Н	· VS UTP		
Z		Not Encountered	VS 215 kPa		- 1.0 - -			1.3 m: with minor sand.			                                         		ii
			VS 215 kPa		- 1.5								
			VS UTP		2.0-	2.0-		SAND: fine to medium grained, grey, with some silt.	M to W		             VS UTP           		
			VS UTP		-			SILT: non plastic, orange brown, with minor sand.	Μ	Н			
					- <u>2.5</u> - - -			HAL13 terminated at 2.5 m Target depth					
NS a IA h V w	auger	ore		Min Cic pen	etration	I	nil istance g to	samples & field tests         B       bulk disturbed sample         D       disturbed sample         E       environmental sample         SS       split spoon sample         U##       undisturbed sample ##mm diameter         HP       hand penetrometer (kPa)         N       standard penetration test (SPT)	s ba Clas <b>moistur</b> D dry M mo	oil desci ased on ssification e vist		_	consistency / relative density           VS         very soft           S         soft           F         firm           St         stiff           VSt         very stiff           H         hard           Fb         friable
* bit shown by suffix e.g. AD/T B blank bit T TC bit V V bit			el on date er inflow	shown	N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing		t turated stic limit uid limit			VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense			



client: The Lakes (2012) Ltd

principal:

## project: The Lakes Stage 2UV

location: Center of Lot 14

Borehole ID.	HAL14
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	10 Oct 2016
date completed:	10 Oct 2016
logged by:	DBC
checked by:	RBT

ocatic		00	nter of	201						C	hecked b	y.	RBI
position		•						surface elevation: Not Specified		0	om horizon		DCP id.:
drill mo			-					drilling fluid:	ł	nole dia	meter : 50 i	mm	vane id.: 4523 / New
drilling	g info	rmati	on			mate		stance		1			
method & support	<ol> <li>penetration</li> </ol>	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) S	DCP (blows/ 100 mm)	
			VS 50/ 15 kPa VS UTP		- - - 0.5 — -			SILT: non plastic, orange brown, with minor sand and common gravels. 0.4 m: becoming orange brown streaked pale grey with some sand. Gravels absent.	M	St	+ + + + + + + + + + + + + + + + + + +		FILL
		Not Encountered	VS >215 kPa VS UTP		- - 1.0 - - -			0.9 m: becoming orange brown with minor sand.			                                     YS UTP       		-
			VS >215 kPa		- 1.5								-
			VS >215 kPa		- 2.0								-
			VOUIT		- <u>2.5</u> - -			HAL14 terminated at 2.5 m Target depth					
AS a HA h V v HA h	auger drilling* M mud auger screwing* hand auger washbore hand auger bit shown by suffix M mud C casing penetratic water				M mud N nil B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample U## undisturbed sample U## undisturbed sample HP hand penetrometer (kPa) N standard penetration test (SPT) N standard penetration test (SPT)				classification symbol & soil description based on Unified Classification System moisture D dry M moist W wet				consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose
B b T 1	B blank bit TC bit			Ievel on date shown         NC         SP1 with solid cone           water inflow         VS         vane shear; peak/remouded (kPa)           water outflow         R         refusal           water outflow         HB         hammer bouncing				astic limit Juid limit	: 		MD medium dense D dense VD very dense		



The Lakes (2012) Ltd client:

principal:

## project: The Lakes Stage 2UV

## Contar of Lat 22

Borehole ID.	HAL22
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	23 Jan 2017
date completed:	23 Jan 2017
logged by:	ODS
checked by:	RBT

location:	Center of I	Lot 22					checked	by:	RBT
position: Not S	Specified			surface elevation: Not Specified angle from horizontal: 90°		DCP id.:			
drill model: Hand Auger					drilling fluid:	hole di	ameter : 50	mm	vane id.: SL588
drilling inform	mation		mate	erial sub	stance				
method & support ¹ ² penetration	samples & field tests	RL (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition consistency / relative density	vane shear ⊕remoulded ⊛peak (kPa) ⊛ ♀ ♀ ∞	DCP (blows/ 100 mm	))
HA H H H H H H H H H H H H H H H H H H H	VS UTP           VS 194/ 29 kPa           VS >202 kPa           VS >202 kPa           VS >202 kPa           VS >202 kPa           VS >202 kPa	0.3			ORGANIC SILT: non plastic, black, with trace fine to coarse grained sand. SILT: non plastic, brown with mottled orange brown, with trace fine to coarse grained gravel and with minor fine to coarse grained sand. 0.5 m: becoming grey 0.6 m: becoming orange brown with mottled brown 1.3 m: becoming orange brown with mottled grey 1.4 m: with trace fine to coarse grained angular gravel HAL22 terminated at 2.0 m	D to M	уз цлр		TOPSOIL FILL
method       AD       auger dri       AS       auger sci       HA       hand aug       W       washborr       HA       hand aug	rewing* ger ger n by suffix			ater e shown	samples & field tests         B       bulk disturbed sample         D       disturbed sample         E       environmental sample         SS       split spoon sample         U##       undisturbed sample for ecovered         N       standard penetrometer (kPa)         N       standard penetrometer (kPa)         N       standard penetrometer (kPa)         N       standard penetrometer (kPa)         N       standard penetrometer (kPa)         N       standard penetrometer (kPa)         R       refusal         HB       hammer bouncing	soil des based o	nit		



The Lakes (2012) Ltd client:

principal:

#### project: The Lakes Stage 2UV

Contor of Lot 24 la antinua.

Borehole ID.	HAL24
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	23 Jan 2017
date completed:	23 Jan 2017
logged by:	NM
checked by:	RBT

location:	Cei	nter of	Lot	24					С	hecked I	by:	RBT
position: Not Specified							surface elevation: Not Specified	a	angle fro	om horizor	ntal: 90	° DCP id.:
drill model: I		-					drilling fluid:	ł	nole dia	meter : 50	mm	vane id.: DR2244
drilling inf	ormati	on			mate		ostance				1	
method & support ¹ ² penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	class ification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊚ peak (kPa) S 00 050	DCP (blows 100 mr	n)
				-			SILT: non plastic, black/brown with mottled orange brown and grey, with minor fine grained sand and with trace sub-rounded to angular fine to medium gravel.	D				
				- 0.5 <i>-</i> -	<u> </u>		SAND: fine to medium grained, orange.		MD			
				-			0.6 m: becoming grey			-		
		VS 76/ 27 kPa		-			SILT: non plastic, orange brown, with minor clay and with trace fine grained sand.	M	St to VSt	-        ⊕ ●      		
z          z      	Not Enc	VS 128/ 21 kPa		1.0— - -			1.0 m: becoming pale grey					1 1 1 1 1
		VS 81/ 24 kPa		- - 1.5—						                     		
		VS 97/ 29 kPa		-						-                     ⊕  ⊕     		
		VS 103/ <del>29 kPa</del>		-								
		20 0		-			HAL24 terminated at 2.0 m Target depth			<b>⊕</b> ♥                              	liii	
				- 2.5— -								1 1 1 1
				-								
	oore		pene			nil stance g to	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)	b Cla moistur D dr	soil desc based on issification re			consistency / relative density           VS         very soft           S         soft           F         firm           St         stiff           VSt         very stiff           H         hard           Ch         fine
* bit she e.g. AD/T B blank T TC bit V V bit		suffix	wate	leve	Oct-12 wa el on date er inflow er outflow	iter shown	N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	W we S sa Wp pla	bist et turated astic limit uid limit	t		Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense



client: The Lakes (2012) Ltd

principal:

## project: The Lakes Stage 2UV

location: Center of Lot 26

Borehole ID.	HAL26
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	23 Jan 2017
date completed:	23 Jan 2017
logged by:	ODS
checked by:	RBT

location:	Ce	nter of	Lot	26					C	hecked b	oy:	RBT
position: N	ot Spe	cified					surface elevation: Not Specified	а	ingle fr	om horizor	ital: 90°	DCP id.:
drill model:	Hand A	Auger					drilling fluid:	h	ole dia	meter : 50	mm	vane id.: SL588
drilling in	formati	on		-	mate	rial suk	stance					
support support	³ water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) B	DCP (blows/ 100 mm)	structure and additional observations
		VS 175/ 26 kPa		-			ORGANIC SILT: non plastic, black, with trace fine to coarse grained sand.	D to M	VSt			TOPSOIL
		VS 153/ 29 kPa		- 0.5— -			brown, with minor fine to coarse grained sand.					
             z	t Encountered	VS >202 kPa	a	- - 1.0—			0.7 m: becomes orange brown with mottled pale grey		Sta			MATUA SUBGROUP
		VS 125/ 29 kPa		-			SILT: non plastic, orange brown, with trace fine grained sand. SAND: fine to coarse grained, grey.	_	St to VSt			WATUA SUBGROUP
		VS 134/ 39 kPa		- 1.5—			<b>Silty CLAY</b> : non plastic to low plasticity, orange brown, with trace fine grained sand. Is sticky and sensitive in hand sample.			            ⊕  @   		
		VS 93/ 38 kPa		-						  ⊕@               		
				<del>2.0 -</del> - -			HAL26 terminated at 2.0 m Target depth					
				- 2.5— -								
		<b>r</b>		-					lfioc41-			
AS auge HA hand N wash	r drilling r screwi auger bore auger		M n C c pen	port mud casing etration		nil stance g to	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)	s b	oil dese ased or ssificatio	n symbol & cription Unified on System	\ 5 	consistency / relative density       /S     very soft       S     soft       F     firm       St     stiff       /St     very stiff       H     hard       -b     friable
* bit sh e.g. AD/T B blank T TC b V V bit	k bit it	suffix	wate	Leve	Oct-12 wa el on date er inflow er outflow	ter shown	N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing	W we S sat Wp pla		t	L N E	Fb friable VL very loose Loose MD medium dense O dense VD very dense



The Lakes (2012) Ltd client:

principal:

## project: The Lakes Stage 2UV

#### Center of Lot 28 location:

ocatio			nter of l					aurface elevation. Not Specified			checked	,	n°	DCP id.:
oosition Irill moo								surface elevation: Not Specified drilling fluid:		U	meter : 50		0	vane id.: DR2244
drilling			-			mate	rial sub				ineter . 50			
support	² penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) ରୁଦ୍ଦୁ ଦୁଦ୍ଦୁ ସ୍ଥ୍	DCI (blow 100 m	vs/ nm)	structure and additional observations
					-			SILT: non plastic, brown/black with mottled grey, with trace gravel and trace fine grained sand.	D W to S					FILL MATUA SUBGROUP
		Not Encountered	VS 91/ 18 kPa VS 52/ 10 kPa VS 57/		0.5			SILT: non plastic, yellow brown, with minor clay.	W IO S	51	$ \begin{array}{c} \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet $			MATUA SUBGROUP
		Not En	15 kPa VS 88/ 18 kPa		1.0— - - -			1.0 m: becoming pale grey with minor fine grained sand and with trace clay	W		●                                                                                             			
					1.5			SAND: fine to medium grained, orange.		L		<u>a</u> ii		
					- 2.0 - - - 2.5 - - - - - -			HAL28 terminated at 2.0 m Target depth						
AS a HA h W w HA h e.g. A B b	dauger d auger s nand au washbo nand au bit show AD/T blank bi FC bit	crewin uger uger uger	ıg*	pene wate	mud casing etration er er V leve wat		ater shown	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       NC     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	s b Cla moistur D dry M mc W we S sai Wp pla	soil desc ased on ssification re / bist	t Unified on System			St stiff /St very stiff H hard Fb friable /L very loose

Borehole ID.

sheet:

project no.

date started:

logged by:

date completed:

**HAL28** 1 of 1

NM

23 Jan 2017 23 Jan 2017

GENZTAUC13086AR



#### Borehole ID. HAL30 1 of 1 sheet: **Engineering Log - Borehole** GENZTAUC13086AR project no. The Lakes (2012) Ltd client: 23 Jan 2017 date started: 23 Jan 2017 principal: date completed: The Lakes Stage 2UV logged by: ODS project: Center of Lot 30 RBT location: checked by: position: Not Specified surface elevation: Not Specified angle from horizontal: 90° DCP id.: drill model: Hand Auger drilling fluid: hole diameter : 50 mm vane id.: SL588 drilling information material substance DCP (blows/ 100 mm) classification symbol consistency / relative density structure and additional observat material description vane shear ⊕ remould ● peak samples & field tests graphic log rvations method & support penetrat Ē moisture condition SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components Ê depth ( water (kPa) RL ORGANIC SILT: non plastic, black, with trace D to M TOPSOIL fine to coarse grained sand 111 | | | | |VSt to Sandy SILT: fine grained, non plastic, yellow 1.1.1 ||||||brown Η MATUA SUBGROUP ||||| | | | |VS UTP VS UTP 11 11 1 ||||11 11 1 + 111 3|||| 0.5 SAND: fine to coarse grained, grey. MD ||Silty CLAY: low plasticity, orange brown, with trace fine grained sand. Is sticky in hand St М 11111 |||||sample. VS 79/ 29 kPa 11111 €i⊙i 11111 ountered

— HA —	Ž         VS 86/         26 kPa	1.0-		+ + + + + + + + + + + + + + + + + + +	-             
<b>y y</b>	       VS 158,       25 kPa 	1.5	Silty CLAY: low plasticity, pale grey, Is sensitive in hand sample.		
	VS 114.       46 kPa         				
			HAL30 terminated at 2.0 m Target depth		II II II II II II II II II II
meth AD AS HA W HA * e.g. B T V	od auger drilling* auger screwing* hand auger washbore hand auger bit shown by suffix AD/T blank bit TC bit V bit	support M mud N n C casing penetration refusal water level on date sh water inflow water outflow	D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered	classification symbol & soil description based on Unified Classification System moisture D dry M moist W wet S saturated Wp plastic limit Wi liquid limit	consistency / relative density         VS       very soft         S       soft         F       firm         St       stiff         VSt       very stiff         H       hard         Fb       friable         VL       very loose         L       loose         MD       medium dense         D       dense         VD       very dense



## sheet: **Engineering Log - Borehole** project no. The Lakes (2012) Ltd client: date started: principal: date completed: project: The Lakes Stage 2UV logged by: Center of Lot 32 location: checked by: position: Not Specified surface elevation: Not Specified angle from horizontal: 90° drill model: Hand Auger drilling fluid: hole diameter : 50 mm

Borehole ID.

HAL32

23 Jan 2017

23 Jan 2017

DCP id.:

NM

RBT

GENZTAUC13086AR

drill model: Hand	1 Auger					drilling fluid:	h	- Iole dia	meter : 50	mm	vane id.: DR2244
drilling information	-		material substance								
method & support 2 penetration 3 water water	samples &	RL (m)	depth (m)	graphic log	class ification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) St 20 St	DCP (blows/ 100 mm)	structure and additional observations
	VS >182 kPa VS 91/ 18 kPa					ORGANIC SILT: non plastic, black, with trace fine to coarse grained sand and with trace fine to coarse gravel. SILT: non plastic, grey with mottled dark brown, with minor fine grained sand.	D	VSt St	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		TOPSOIL
HA N N N N N N N N N N N N N N N N N N N	VS 79/ 18 kPa VS 93/ 18 kPa	1	- - 1.0 -			SILT: non plastic, white with mottled orange brown, with trace clay. 0.8 to 1.3 m: poor recovery	W to S	St to VSt	+		MATUA SUBGROUP
	VS 91/ 24 kPa	1	- - 1.5 -			1.3 m: becoming pale grey with minor fine grained sand and with trace clay. Chalky in hand sample	D to M		□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □		
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	29 kPa VS 103/ 24 kPa	2	- - 2.0 - -			1.9 m: becoming grey and with some fine to coarse grained sand HAL32 terminated at 2.0 m Target depth			$\begin{array}{c c c c c c c c c c c c c c c c c c c $		
		2	- - 2.5 - - -								
method       AD     auger drillin       AS     auger scre       HA     hand auge       W     washbore       HA     hand auge       *     bit shown th       e.g.     AD/T       B     blank bit	wing* r r	suppor M mu C cas penetra water	id sing ration	N - no resis ranging < refusal Oct-12 wavelow I on date er inflow	g to ter	samples & field tests         B       bulk disturbed sample         D       disturbed sample         E       environmental sample         SS       split spoon sample         U##       undisturbed sample ##mm diameter         HP       hand penetrometer (kPa)         N       standard penetration test (SPT)         N*       SPT sample recovered         Nc       SPT with solid cone         VS       vane shear; peak/remouded (kPa)         R       refusal	s b Cla moistuu D dny M mo W we S sa Wp pla	soil desc ased on ssification re / bist	n symbol & ription Unified n System		Consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense



## **Engineering Log - Borehole** The Lakes (2012) Ltd

client:

principal:

## project: The Lakes Stage 2UV

location Center of Lot 34

Borehole ID.	HAL34
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	23 Jan 2017
date completed:	23 Jan 2017
logged by:	ODS
checked by:	RBT

ocation:	Ce	nter of	Lot 3	34					С	hecked b	y:	RBT
position: Not Specified							surface elevation: Not Specified	а	ingle fro	om horizon	tal: 90°	
drill model: Hand Auger						drilling fluid:			ole dia	meter : 50	mm	vane id.: SL588
drilling i	nformat	ion			mate		stance			· · · · ·		
metnoa & support 1 2 penetration		samples & field tests	RL (m)	depth (m)	graphic log	class ification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊚ peak (kPa) S 00 00 00	DCP (blows/ 100 mm)	
				-			ORGANIC SILT: non plastic, black, with trace fine to coarse grained sand. SILT: non plastic to low plasticity, brown with	D to M	VSt			TOPSOIL
		VS 190/ 51 kPa		-			mottled orange brown and grey, with trace fine to coarse grained sand.					
		VS 96/ 25 kPa		0.5			<b>Silty CLAY</b> : low plasticity, pale grey, is sensitive in hand sample.	M	St	⊕		MATUA SUBGROUP
	countered	VS 63/ 28 kPa		-			0.8 m: becomes pale grey to white			         ⊕•        		
z                 		VS 71/ 25 kPa		1.0— - -						                             ⊕●		
				- - 1.5								
		VS 66/ 32 kPa		-			1.7 m: 150mm layer of silty SAND, orange					
		VS 70/ 29 kPa		- - <del>2.0 -</del>			brown, fine to coarse grained			            ⊕ •      		
				-			HAL34 terminated at 2.0 m Target depth					
				- 2.5								
				-								
				_			T	class	ification	                       symbol &	               <u> </u>	
AS aug IA han V was	ger drilling ger screwi nd auger shbore nd auger		pene	nud asing etration		nil	samples & field tests B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter	s b Cla	oil desc ased on ssificatio	ription		consistency / relative density           VS         very soft           S         soft           F         firm           St         stiff           VSt         very stiff
bit s e.g. AD/	shown by	suffix	wate	<b>r</b> ■ ■  10-0  leve	<ul> <li>no res rangin</li> <li>refusa</li> <li>Oct-12 watel</li> <li>on date</li> <li>on date</li> </ul>	iter	HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear, peak/remouded (kPa)	Wp pla	/ bist tt turated istic limit			H hard Fb friable VL very loose L loose MD medium dense
TC TC V bi	bit				er outflow		R refusal HB hammer bouncing	WI liqu	uid limit			D dense VD very dense



#### Borehole ID. HAL36 1 of 1 sheet: **Engineering Log - Borehole** project no. GENZTAUC13086AR The Lakes (2012) Ltd client: 23 Jan 2017 date started: principal: 23 Jan 2017 date completed: The Lakes Stage 2UV NM project: logged by: Center of Lot 36 RBT location: checked by: position: Not Specified surface elevation: Not Specified angle from horizontal: 90° DCP id.: drill model: Hand Auger drilling fluid: hole diameter : 50 mm vane id.: DR2244 material substance drilling information DCP structure and additional observat consistency / relative density material description vane classification go samples & field tests shear ⊕ remould ● peak (blows/ 100 mm) rvations method & support Ē penetrat moisture condition SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components graphic l symbol Ê depth ( water (kPa) R ORGANIC SILT: non plastic, black, with trace fine to coarse grained sand and with trace fine D TOPSOIL iiii | | | | |to coarse gravel. ||| | | | |11111 111 | | | | |St to VSt SILT: non plastic, orange brown, with minor M to W MATUA SUBGROUP | | || | | |VS >182 kPa fine grained sand. |||0 11111 111 11 | | | |11111 0.4 m: becoming orange brown with mottled VS 79/ 18 kPa 1111 ||||⊕.⊙ 0.5 pale grey 11 11111 11111 111 ||||||11111 ||||||0.7 m: becoming grey with some fine grained VS 91/ 30 kPa _ **⊕ ●** | | sand 0.8 m: becoming pale grey with mottled orange brown. With minor fine to medium grained sand 7 13:19 ||11111 Not Encountered 111 1 1 1 1 ||||| | | | |11111 ||||| | | |11111 ¥ 1.0 ż SAND: fine to medium grained, pale orange. D | | || | | | |11111 ||||||||11111 W to M St SILT: non plastic, brown, with trace clay. VS 88/ ||||11111 ∲¦∮¦¦ 15 kPa 11111 ||||İİİİİ ||||||SILT: non plastic, pale grey to white, with W to S 11111 ||||trace clay. Poor recovery 11111 111 1111 VS 77/ 10 kPa €i@ | | **| | | | | |** 1.5 11111

06/06/2017	
< <drawingfile>&gt;</drawingfile>	
:: NON CORED + DCP GCR HA -20-05-16.GPJ	
ION CORED + DCP	
COF BOREHOLE: N	
Log	
CDF_0_9_06_LIBRARY.GLB rev:AT	
	⊢

VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110/ VS 110		HAL36 terminated at 2.0 m Target depth		
method AD         auger drilling*           AS         auger screwing*           HA         hand auger           W         washbore           HA         hand auger           *         bit shown by suffix           e.g.         AD/T           B         blank bit           T         TC bit           V         V bit	support M mud N nil C casing penetration ranging to resistance ranging to refusal water 10-Oct-12 water level on date shown water inflow water outflow	samples & field tests         B       bulk disturbed sample         D       disturbed sample         E       environmental sample         SS       split spoon sample         U##       undisturbed sample ##mm diameter         HP       hand penetrometer (kPa)         N       standard penetration test (SPT)         N*       SPT - sample recovered         Nc       SPT with solid cone         VS       vane shear; peak/remouded (kPa)         R       refusal         HB       hammer bouncing	classification symbol & soil description based on Unified Classification System moisture D dry M moist W wet S saturated Wp plastic limit WI liquid limit	consistency / relative density       VS     very soft       S     soft       F     firm       St     stiff       VSt     very stiff       H     hard       Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense



#### Borehole ID. **HAL38** 1 of 1 sheet: **Engineering Log - Borehole** GENZTAUC13086AR project no. The Lakes (2012) Ltd client: 23 Jan 2017 date started: 23 Jan 2017 principal: date completed: The Lakes Stage 2UV ODS project: logged by: Center of Lot 38 RBT location: checked by: position: Not Specified surface elevation: Not Specified angle from horizontal: 90° DCP id.: drill model: Hand Auger drilling fluid: hole diameter : 50 mm vane id.: SL588 drilling information material substance DCP (blows/ 100 mm) classification symbol material description consistency / relative density structure and additional observat vane shear ⊕ remould ● peak samples & field tests graphic log method & support penetrati Ē moisture condition SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components Ê depth ( water (kPa) RL ORGANIC SILT: non plastic, black, with trace D to M TOPSOIL 11 fine to coarse grained sand. | | | | |||| | | | || | | | | | 111 ||||||**SILT**: non plastic to low plasticity, orange brown with mottled brown, with trace fine to medium grained sand. VSt to H FILL | | |VS >202 kPa 111 1111 iiii 11 ||||0.5 11111 VS >202 kPa ||||| | | 🗄 liiiii 111 | | | | |1111 111 | | | | |0.8 m: with trace fine grained sand Not Encountered VS 195/ 0 ¢¦ 58 kPa 11111 ||||| | |11111 Ψ 11 1.0 ż ||||11111 1.1 m: with trace clay <202

rvations

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VS >202 kP				
		HAL38 terminated at 2.0 m Target depth		
method       AD     auger drilling*       AS     auger screwing*       HA     hand auger       W     washbore       HA     hand auger       *     bit shown by suffix       e.g.     AD/T       B     blank bit       T     TC bit       V     V bit	support M mud N nil C casing penetration ranging to refusal water level on date shown water inflow water inflow water outflow	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	classification symbol & soil description based on Unified Classification System moisture D dry M moist W wet S saturated Wp plastic limit WI liquid limit	consistency / relative density       VS     very soft       S     soft       F     firm       St     stiff       VSt     very stiff       H     hard       Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense



#### Borehole ID. HAL40 1 of 1 sheet: **Engineering Log - Borehole** GENZTAUC13086AR project no. The Lakes (2012) Ltd client: 23 Jan 2017 date started: 23 Jan 2017 principal: date completed: project: The Lakes Stage 2UV logged by: NM Center of Lot 40 RBT location: checked by: position: Not Specified surface elevation: Not Specified angle from horizontal: 90° DCP id.: drill model: Hand Auger drilling fluid: hole diameter : 50 mm vane id.: DR2244 drilling information material substance DCP (blows/ 100 mm) classification symbol material description consistency / relative density structure and additional observat vane samples & field tests shear ⊕ remould ● peak graphic log method & support penetrati Ē moisture condition SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components Ê depth ( water (kPa) RL ORGANIC SILT: non plastic, black, with trace D TOPSOIL 1 1 1 fine to coarse grained sand. | | | | |||| | | | |VS >182 kPa ||||| | |@ FILL SILT: non plastic, yellow brown, with trace fine VSt | | || | | |grained sand. 11111 111 ||||||| | || | | || | || | | |11111 111 VS >182 kPa . 0.5 |||||||1111 ||||||||||||||||||||VS >182 kPa e М 0.8 m: with minor fine grained sand

rvations

ост па -20-09-10.00 - 20 - 20 - 20 - 20 - 20 - 20 - 20	VS >182 kPa VS >182 kPa VS >182 kPa VS >182 kPa VS >182 kPa VS >182 kPa VS >182 kPa VS >182 kPa VS >182 kPa VS >182 kPa VS >182 kPa VS >182 kPa VS >182 kPa		1.2 m: becoming orange brown with trace clay	M to W         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I           I         I         I         I         I         I           I         I         I         I         I         I           I         I         I         I         I         I           I         I         I         I         I         I	
	       VS >182 kPa                   VS >182 kPa				
			HAL40 terminated at 2.0 m Target depth		
meth AD AS HA W HA * e.g. B T V	od auger drilling* auger screwing* hand auger washbore hand auger bit shown by suffix AD/T blank bit TC bit V bit	support M mud N nil C casing penetration penetration ranging to refusal water 10-Oct-12 water level on date shown water outflow water outflow	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear, peak/remouded (kPa)       R     refusal       HB     hammer bouncing	classification symbol & soil description based on Unified Classification System D dry M moist W wet S saturated Wp plastic limit W liquid limit	consistency / relative density       VS     very soft       S     soft       F     firm       St     stiff       VSt     very stiff       H     hard       Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.HAL43sheet:1 of 1project no.GENZTAUC13086ARdate started:20 May 2016date completed:20 May 2016logged by:ODSchecked by:BBT

location:	Cer	nter of l	Lot	43					С	hecked I	by:	RBT
position: No	·						surface elevation: Not Specified		•	om horizor		
drill model: H		-					drilling fluid:	ł	nole dia	meter : 50	mm	vane id.: SL588
aupport support penetration 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	stance material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊛peak (kPa)	DCP (blows 100 mr	additional observations
	Not Encountered Nate	VS 146/ 34 kPa VS 98/ 55 kPa VS 122/ 24 kPa VS 92/ 21 kPa VS 112/ 49 kPa VS 106/ 26 kPa VS 74/ 34 kPa	R		01a	clar sym	Silty SILT: low plasticity, dark brown. SILT: non plastic, orange brown, with trace to minor clay and with trace fine to coarse grained sand. 0.6 m: becomes "greasy" in hand sample	M	St to VSt			TOPSOIL
		VS 173/ <del>29 kPa</del>		- <u>2.0</u> - - 2.5 - - - - - -			HAL43 terminated at 2.0 m Target depth					I I I I I I I I I I I I I I
AS auger HA hand a W washb HA hand a	oore auger own by s	ng*	pene wate	nud casing etration c c c c c c c c c c c c c c c c c c c	- no re rangii ◄ refus Oct-12 w	al /ater e shown	samples & field tests         B       bulk disturbed sample         D       disturbed sample         E       environmental sample         SS       split spoon sample         U##       undisturbed sample ##mm diameter         HP       hand penetrometer (kPa)         N       standard penetration test (SPT)         N*       SPT - sample recovered         Nc       SPT with solid cone         VS       vane shear; peak/remouded (kPa)         R       refusal         HB       hammer bouncing	t Cla <b>moistu</b> D dr M mo W we S sa Wp pla	soil desc based on ussification re y bist	Unified on System		consistency / relative density         VS       very soft         S       soft         F       firm         St       stiff         VSt       very stiff         H       hard         Fb       friable         VL       very loose         L       loose         MD       medium dense         D       dense         VD       very dense



The Lakes (2012) Ltd client:

principal:

#### project: The Lakes Stage 2UV

#### Center of Lot 45 location.

Borehole ID.	HAL45
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	ODS
checked by:	RBT

locatio	л. Л	Ce	nter of	LOL	45					checke	ed by:	RBT
position	n: No	t Spe	cified					surface elevation: Not Specified	i	angle from hor	izontal: 90°	DCP id.:
drill mo	del: H	land <i>i</i>	Auger					drilling fluid:		nole diameter	: 50 mm	vane id.: SL588
drilling	g info	ormat	ion			mate	erial sub	stance				
method & support	<ol> <li>penetration</li> </ol>	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	Consistency / relative density meas foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods foods	ar (blows ^{ulded} 100 mn	((
					-			Silty SILT: low plasticity, dark brown.	М			Topsoil   
			VS 154/ 25 kPa		-			Sandy SILT: non plastic, orange brown, fine to coarse grained sand.		1 1	  =	   MATUA SUBGROUP   
			VS >202 kPa	8	0.5-						<b>         </b>   <b>           </b>     <b>         </b>     <b>       </b>	
		per	VS >202 kPa	8	-						   •           •   •	i l
 z		Not Encountered	VS >202 kPa	a	- 1.0-			1.0 m: trace fine to coarse grained sand				
			VS >202 kPa	8				1.15 to 1.25 m: 10cm layer of fine to coarse grained sand				
			VS 59/ 29 kPa		- 1.5—			SILTY SAND: non plastic, brown, fine grained sand.		VL     ØPP   	<mark>     </mark>                       	Į į
					-			SAND: fine to coarse grained, grey brown.		VL		
			VS 49/ 29 kPa		- 2.0			Clayey SILT: non plastic, pale grey. HAL45 terminated at 2.0 m	_	F		
					-			Target depth				
					- 2.5							
					-							
					-							
AS a HA h W w	auger drilling* M mud auger screwing* C casing hand auger			lling* M mud rewing* C casing ger penetration			N nil B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter			sification symbo soil description based on Unified assification Syste	1	consistency / relative density           VS         very soft           S         soft           F         firm           St         stiff           VSt         very stiff
bit shown by suffix e.g. AD/T 3 blank bit			Leve	no resistance     OF     HP     hand penetrometer (kPa)       ranging to ranging to refusal     HP     hand penetrometer (kPa)       ■ refusal     N     standard penetration test (SPT)       >bct-12 water     N*     SPT - sample recovered       l on date shown     Nc     SPT with solid cone       vane shear; peak/remouded (kPa)     R     refusal       er outflow     HB     hammer bouncing			D dry M moist W wet S saturated Wp plastic limit Wt limit mid limit			H     hard       Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense		



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.HAL47sheet:1 of 1project no.GENZTAUC13086ARdate started:20 May 2016date completed:20 May 2016logged by:ODSchecked by:RBT

1 4	Contor - El -	4 47							
location:	Center of Lo	ι4/				С	hecked b	iy:	RBT
position: Not	Specified			surface elevation: Not Specified	а	ingle fro	om horizon	tal: 90°	DCP id.:
drill model: Ha	and Auger			drilling fluid:	h	ole dia	meter : 50	mm	vane id.: SL588
drilling infor	mation		material sub	stance					
method & support 1 2 penetration	samples & field tests	depth (m)	graphic log classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded @ peak (kPa) 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DCP (blows/ 100 mm)	
HA HA HA HA HA HA HA HA HA HA HA HA HA H	то         то           VS >202 kPa         VS           VS >202 kPa         VS           VS >202 kPa         VS           VS >202 kPa         VS           VS >202 kPa         VS           VS >202 kPa         VS           VS >202 kPa         VS           VS >202 kPa         VS           VS >202 kPa         VS           VS >202 kPa         VS           VS 109/ 32 kPa         VS           VS 112/ 32 kPa         VS           VS 173/         VS		gradient and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second se	Silty SILT: low plasticity, dark brown. SILT: non plastic to low plasticity, orange brown, with minor fine to coarse grained sand. Sandy SILT: non plastic, pale brown, fine to coarse grained sand. SAND: fine to coarse grained, grey brown. Silty CLAY: low plasticity, brown, with trace fine to coarse grained sand. Silty CLAY: low plasticity, white.	Job         M	VSt to H			TOPSOIL MATUA SUBGROUP
method           AD           auger di           AL           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H           H	rilling* M crewing* C Iger P Iger [		N nil  no resistance ranging to ranging to Cct-12 water l on date shown	HAL47 terminated at 2.0 m Target depth samples & field tests B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V svane shear; peak/remouded (kPa)	b Cla moistur D dry M mo W we S sat	soil desc ased on ssification re / bist			consistency / relative density         VS       very soft         S       soft         F       firm         St       stiff         VSt       very stiff         H       hard         Fb       friable         VL       very loose         L       loose         MD       medium dense



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL49
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	ODS
checked by:	RBT

location:	Cei	nter of l	Lot 4	49					cl	necked I	oy:	RBT
position: No	ot Spec	ified					surface elevation: Not Specified	e	angle fro	m horizor	ntal: 90°	DCP id.:
Irill model: I	Hand A	luger					drilling fluid:	ł	nole diar	neter : 50	mm	vane id.: SL588
drilling inf	ormati	on			mate	rial sub	stance					
support support penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊚ peak (kPa) S 0 0 0 00	DCP (blows/ 100 mm)	
					$\left \right\rangle$		Silty SILT: low plasticity, dark brown.	М				TOPSOIL
		VS 173/ 29 kPa		-			Clayey SILT: low plasticity, pale grey.	_	VSt	€           €		MATUA SUBGROUP
		VS 153/ 29 kPa		0.5						 ⊕   ⊕   		
		VS 129/ 29 kPa		-						         ⊕  ⊙   		
 z         	Not Encoun	VS 98/ 25 kPa		- 1.0 <i>-</i> -						-         ⊕ ⊕    		
		VS 106/ 25 kPa		-						□         ⊕		
		VS 180/ 63 kPa		- 1.5						             ⊕   ⊙  		
		VS 156/ 41 kPa		-								
+         +         - +		VS 114/ 29 kPa		- 2.0			HAL49 terminated at 2.0 m			+ + + + + + + + + + + + + + + + + + +		
				- - 2.5 - - - -			Target depth					
AS auger HA hand W washt HA hand	bore	ng*	pene	nud asing etration		ater	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone	b Cla moistuu D dr M mo W we S sa	soil desc based on assification re y oist			consistency / relative density       VS     very soft       S     soft       F     firm       St     stiff       VSt     very stiff       H     hard       Fb     friable       VL     very loose       L     loose
B blank T TC bit V V bit				- wate	er inflow er outflow		VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing		uid limit			MD medium dense D dense VD very dense



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL51
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	ODS
checked by:	RBT

			nter of i					ourfood alouation: Not One-Service			necked i	•	
	on: No odel: H	·						surface elevation: Not Specified drilling fluid:			om horizor meter : 50		DCP id.: vane id.: SL588
	ng info		-			mate	rial sub						
	-							material description		ity /	vane	DCP	structure and
method & support	1 2 penetration 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	shear ⊕remoulded ⊚peak (kPa)	(blows 100 mm	additional observations
					-	$\left \right\rangle$		Silty SILT: low plasticity, dark brown.	м				
					- - 0.5 — -			SAND: fine to coarse grained, grey brown.		VL to L			MATUA SUBGROUP   
		untered	VS 75/ 18 kPa		-			Clayey SILT: low plasticity, pale grey.		St to VSt	⊕  <b>●</b>		
N		Not Encountered	VS 82/ 21 kPa		1.0						⊕ @               		
			VS 117/ 29 kPa		-						⊕ <b>●</b>		i l
			VS >202 kPa	a	- 1.5								
		,	VS >202 kPa	a	-								
			VS 182/ <del>32 kPa</del>		2.0	XXX		HAL51 terminated at 2.0 m					
					- - 2.5 - -			Target depth					
meth AD AS HA W HA		screwin auger ore		pene	nud asing etration		nil istance g to	samples & field tests         B       bulk disturbed sample         D       disturbed sample         E       environmental sample         SS       split spoon sample         U##       undisturbed sample ##mm diameter         HP       hand penetrometer (kPa)         N       standard penetration test (SPT)	t Cla <b>moist</b> u D dr M m	soil desc based on assificatio			
e.g. AD/T B blank bit				leve	Oct-12 wa el on date er inflow er outflow	shown	N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	W w S sa Wp pl	et aturated astic limit quid limit			VL very loose L loose MD medium dense D dense VD very dense	



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL52
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	ODS
checked by:	RBT

location:	Cel	nter of l		52					C	hecked b	by:	RBT
position: No	ot Spec	cified					surface elevation: Not Specified	é	angle fro	om horizon	tal: 90°	DCP id.:
drill model: I	Hand A	luger					drilling fluid:	ł	nole dia	meter : 50	mm	vane id.: SL588
drilling inf	ormati	on			mate	rial sub	stance					
method & support 2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded @ peak (kPa) 03 00000000000000000000000000000000000	DCP (blows/ 100 mm)	
					$\left  \right\rangle$		Silty SILT: low plasticity, dark brown.	M				TOPSOIL
		VS 104/ 29 kPa		-			Clayey SILT: low plasticity, pale grey.		St to VSt	-           ⊕ ⊕ ⊕     		MATUA SUBGROUP
		VS 93/ 24 kPa		0.5						$ \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\$		
		VS 177/ 26 kPa		-								
z	t Encountere	VS 156/ 24 kPa		- 1.0—								
		VS 185/ 62 kPa		-								
		VS >202 kPa	3	- 1.5—								
		VS 104/ 26 kPa	-						   ⊕ ⊕     			
• • • • • • • • • • • • • • • • • • •		VS 173/ 29 kPa		- - <del>2.0 -</del>			HAL52 terminated at 2.0 m Target depth			                     		
				-								
				2.5								
				-								
AS auger HA hand W washt	thod auger screwing* hand auger washbore hand auger				rewing* C casing D disturbed sample per penetration S split spoon sample ger Definition no resistance U## undisturbed sample #				soil desc based on assification re y			consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard D field
e.g. AD/T B blank bit T TO hit			Leve	Oct-12 wa	refusal     N standard penetration test (SPT)     N* SPT - sample recovered     Nc SPT with solid cone     VS vane shear; peak/remouded (kPa)     R refusal			D dry M moist W wet S saturated Wp plastic limit WI liquid limit			Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense	



## **Engineering Log - Borehole** The Lakes (2012) Ltd

client:

principal:

#### project: The Lakes Stage 2UV

Contor of Lot 55 le e e tie e e e

Borehole ID.	HAL55
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	24 May 2016
date completed:	24 May 2016
logged by:	NM
checked by:	RBT

| ition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<><td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the s</td><td>NS -183 MPa       ML       SLT: too plastic, dark brown.       D to M       I i i i i i i i i i i i i i i i i i i i</td><td>ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS +
100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td></td></t<></td></td></t<></tr></tr></tr> | - ○ ○         ≥           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○ <td>- N m         ≥           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I      <t< td=""><td>- ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS 92/         I</td><td>$\sim$ N$\geq$$\mathcal{L}$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$<t< td=""><td>- N m       ≥       C       5       5         I       I       I       VS &gt; 183 kPa       I       I         I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<><td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the
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D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td></td></t<></td> | - N m         ≥           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I <t< td=""><td>- ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS 92/         I</td><td>$\sim$ N$\geq$$\mathcal{L}$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$<t< td=""><td>- N m       ≥       C       5       5         I       I       I       VS &gt; 183 kPa       I       I         I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<><td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set
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D to M       I i i i i i i i i i i i i i i i i i i i</td><td>ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td></td></t<> | - ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS >183 kPa         I           I         I         I         VS >183 kPa         I           I         I         VS >183 kPa         VS >183 kPa         I           I         I         VS >183 kPa         VS >183 kPa         I           I         I         VS >183 kPa         I         I           I         I         I         VS >183 kPa         I           I         I         I         VS >183 kPa         I           I         I         I         VS >183 kPa         I           I         I         VS >183 kPa         I         I           I         I         VS >183 kPa         I         I           I         I         VS >183 kPa         I         I           I         I         VS >183 kPa         I         I           I         I         VS >183 kPa         I         I           I         I         VS >183 kPa         I         I           I         I         VS 92/         I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | $\sim$ N $\geq$ $\mathcal{L}$ $\overline{\mathbf{S}}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\overline{\mathbf{S}}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\vee$ $\vee$ $\vee$ $\mid$ $\vee$ $\vee$ $\vee$ $\mid$ $\vee$ $\vee$ $\vee$ $\mid$ $\vee$ $\vee$ $\vee$ $\mid$ $\vee$ <t< td=""><td>- N m       ≥       C       5       5         I       I       I       VS &gt; 183 kPa       I       I         I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.      
SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<> <td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the s</td> <td>NS -183 MPa       ML       SLT: too plastic, dark brown.       D to M       I i i i i i i i i i i i i i i i i i i i</td> <td>ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td> | - N m       ≥       C       5       5         I       I       I       VS > 183 kPa       I       I         I       I       VS > 183 kPa       0.5 -       I         I       I       I       VS > 183 kPa       0.5 -       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I       I         I       I       VS > 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I                                                                                                                                                                                                                                                                                                                                                                   | → N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS >183 kPa       I       I       ML         I       I       VS >183 kPa       0.5       I       ML         I       I       VS >183 kPa       0.5       I       ML         I       I       VS >183 kPa       0.5       I       ML         I       I       VS >183 kPa       I       I       I       I         I       I       VS >183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I </td <td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td> <td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown,
with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td> | No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS >183 MPa       0.5-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     < | ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS >183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit                                                                                                                                                                                                                       | Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the s | NS -183 MPa       ML       SLT: too plastic, dark brown.       D to M       I i i i i i i i i i i i i i i i i i i i | ML         SLT. iow plasticity, orange brown, with minor<br>Occusional pockets of low plasticity, while, sitt<br>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Occusional pockets of low plasticity, while, sitt<br>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa |
| - ○ ○         ≥           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○ <td>- N m         ≥           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I      <t< td=""><td>- ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS 92/         I</td><td>$\sim$ N$\geq$$\mathcal{L}$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$<t< td=""><td>- N m       ≥       C       5       5         I       I       I       VS &gt; 183 kPa       I       I         I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<><td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the
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D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td></td></t<></td> | - N m         ≥           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I <t< td=""><td>- ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS 92/         I</td><td>$\sim$ N$\geq$$\mathcal{L}$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$<t< td=""><td>- N m       ≥       C       5       5         I       I       I       VS &gt; 183 kPa       I       I         I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<><td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set
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D to M       I i i i i i i i i i i i i i i i i i i i</td><td>ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td></td></t<> | - ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS >183 kPa         I           I         I         I         VS >183 kPa         I           I         I         VS >183 kPa         VS >183 kPa         I           I         I         VS >183 kPa         VS >183 kPa         I           I         I         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                                                             | $\sim$ N $\geq$ $\mathcal{L}$ $\overline{\mathbf{S}}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\overline{\mathbf{S}}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ 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      I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<> <td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the s</td> <td>NS -183 MPa       ML       SLT: too plastic, dark brown.       D to M       I i i i i i i i i i i i i i i i i i i i</td> <td>ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | - N m       ≥       C       5       5         I       I       I       VS > 183 kPa       I       I         I       I       VS > 183 kPa       0.5 -       I         I       I       I       VS > 183 kPa       0.5 -       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I       I         I       I       VS > 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td> <td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td> | No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS >183 MPa       0.5-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     <                                                                                                                                                                                                                                             
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D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS >183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit | Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of
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D to M       I i i i i i i i i i i i i i i i i i i i                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ML         SLT. iow plasticity, orange brown, with minor<br>Occusional pockets of low plasticity, while, sitt<br>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Occusional pockets of low plasticity, while, sitt<br>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| - ○ ○         ≥           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○ <td>- N m         ≥           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I      <t< td=""><td>- ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS 92/         I</td><td>$\sim$ N$\geq$$\mathcal{L}$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$<t< td=""><td>- N m       ≥       C       5       5         I       I       I       VS &gt; 183 kPa       I       I         I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<><td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the
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D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td></td></t<></td> | - N m         ≥           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I <t< td=""><td>- ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS 92/         I</td><td>$\sim$ N$\geq$$\mathcal{L}$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$<t< td=""><td>- N m       ≥       C       5       5         I       I       I       VS &gt; 183 kPa       I       I         I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<><td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set
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D to M       I i i i i i i i i i i i i i i i i i i i</td><td>ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td></td></t<> | - ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS >183 kPa         I           I         I         I         VS >183 kPa         I           I         I         VS >183 kPa         VS >183 kPa         I           I         I         VS >183 kPa         VS >183 kPa         I           I         I         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                                                             | $\sim$ N $\geq$ $\mathcal{L}$ $\overline{\mathbf{S}}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\overline{\mathbf{S}}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ 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      I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<> <td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the s</td> <td>NS -183 MPa       ML       SLT: too plastic, dark brown.       D to M       I i i i i i i i i i i i i i i i i i i i</td> <td>ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | - N m       ≥       C       5       5         I       I       I       VS > 183 kPa       I       I         I       I       VS > 183 kPa       0.5 -       I         I       I       I       VS > 183 kPa       0.5 -       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I       I         I       I       VS > 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          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NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td> <td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td> | No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS >183 MPa       0.5-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     <                                                                                                                                                                                                                                             
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D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS >183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit | Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of
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D to M       I i i i i i i i i i i i i i i i i i i i                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ML         SLT. iow plasticity, orange brown, with minor<br>Occusional pockets of low plasticity, while, sitt<br>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Occusional pockets of low plasticity, while, sitt<br>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| - ○ ○         ≥           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○         >           - ○ ○ <td>- N m         ≥           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I      <t< td=""><td>- ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS 92/         I</td><td>$\sim$ N$\geq$$\mathcal{L}$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$<t< td=""><td>- N m       ≥       C       5       5         I       I       I       VS &gt; 183 kPa       I       I         I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<><td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the
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D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td></td></t<></td> | - N m         ≥           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I           I         I         I <t< td=""><td>- ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         I         VS &gt;183 kPa         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS &gt;183 kPa         I         I           I         I         VS 92/         I</td><td>$\sim$ N$\geq$$\mathcal{L}$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\overline{\mathbf{S}}$$\mid$ $\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$ $\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\mathbf{S}$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$$\vee$$\vee$$\mid$$\vee$<t< td=""><td>- N m       ≥       C       5       5         I       I       I       VS &gt; 183 kPa       I       I         I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       0.5 -       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I         I       I       I       VS &gt; 183 kPa       I       I       I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<><td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set
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D to M       I i i i i i i i i i i i i i i i i i i i</td><td>ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td></td></t<> | - ∞ ∞         ≥         ∠           I         I         I         I         I           I         I         I         VS >183 kPa         I           I         I         I         VS >183 kPa         I           I         I         VS >183 kPa         VS >183 kPa         I           I         I         VS >183 kPa         VS >183 kPa         I           I         I         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                                                             | $\sim$ N $\geq$ $\mathcal{L}$ $\overline{\mathbf{S}}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\overline{\mathbf{S}}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ $\mid$ $\vee$ $\vee$ $\mathbf{S}$ $\mid$ $\mid$ 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      I       I         I       I       VS &gt; 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I</td><td>→ N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS &gt;183 kPa       I       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       0.5       I       ML         I       I       VS &gt;183 kPa       I       I       I       I         I       I       VS &gt;183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I<!--</td--><td>No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td><td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td></td></t<> <td>Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the s</td> <td>NS -183 MPa       ML       SLT: too plastic, dark brown.       D to M       I i i i i i i i i i i i i i i i i i i i</td> <td>ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Occusional pockets of low plasticity, while, sitt<br/>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br/>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br/>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa</td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | - N m       ≥       C       5       5         I       I       I       VS > 183 kPa       I       I         I       I       VS > 183 kPa       0.5 -       I         I       I       I       VS > 183 kPa       0.5 -       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I         I       I       I       VS > 183 kPa       I       I       I       I         I       I       VS > 183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | → N m       ≥       ∞       ∞       ∞       5       5       5       0       6         I       I       I       I       I       I       ML       ML         I       I       I       VS >183 kPa       I       I       ML         I       I       VS >183 kPa       0.5       I       ML         I       I       VS >183 kPa       0.5       I       ML         I       I       VS >183 kPa       0.5       I       ML         I       I       VS >183 kPa       I       I       I       I         I       I       VS >183 kPa       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I       I      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NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS &gt;183 MPa       0.5-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.0-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS &gt;183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     &lt;</td> <td>ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS &gt;183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS &gt;20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit</td> | No.       SLT: non plastic, dark brown.         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         NL       SLT: tow plasticity, orange brown, with minor         VS >183 MPa       0.5-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.0-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS >183 MPa       1.5-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-         VS 92/       2.0-     <                                                                                                                                                                                                                                             
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ML       SILT: non plastic, dark brown.       D to M         ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor clay, time fine to medium grained sand.       D to M         VS >183 KPa       0.5-       ML       SILT: tow plasticity, orange brown, with minor       D         VS >183 KPa       1.0-       ML       SILT: tow plasticity, orange brown, with minor       D         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >183 KPa       1.5-       ML       SILT: tow plasticity, orange brown streaked       M         VS >20       2.0       ML       SILT: tow plasticity, orange brown streaked       M         Mu red avand or part streaked       N nit | Image: Solution of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of
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D to M       I i i i i i i i i i i i i i i i i i i i                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | ML         SLT. iow plasticity, orange brown, with minor<br>Occusional pockets of low plasticity, while, sitt<br>With some day (4cm).         D to M         VIS + 183 kPa           VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Occusional pockets of low plasticity, while, sitt<br>WIS + 183 kPa         0.5         ML         SLT. iow plasticity, while, sitt<br>WIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         0.5         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         ML         SLT. iow plasticity, orange brown, with minor<br>Calv, trace fine grained sand.         D         D         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 183 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa         VIS + 100 kPa |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |



The Lakes (2012) Ltd client:

principal:

#### project: The Lakes Stage 2UV

Center of Lot 56 location.

Borehole ID.	HAL56
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	24 May 2016
date completed:	24 May 2016
logged by:	NM
checked by:	RBT

locatio	on:	Ce	nter of l	LOT	56					С	hecked b	oy:	RBT
position	: Not	Spe	cified					surface elevation: Not Specified	á	angle fro	om horizor	ital: 90°	DCP id.:
drill mod	del: H	and A	Auger			-		drilling fluid:	ł	nole diar	meter : 50	mm	vane id.: DR2244
drilling	g info	rmati	on			mate	rial sub	stance					
method & support	2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) S 00 S 00	DCP (blows/ 100 mm)	
			VS >183 kPa	8	-		ML	SILT: low plasticity, orange brown, with minor clay, trace fine grained sand.	D	VSt to H			FILL
			VS >183 kPa	8	- 0.5			0.4 m: becoming white with trace clay.					
		ed	VS >183 kPa	a	-			<ul><li>0.6 m: becoming orange brown with some fine to medium grained sand.</li><li>0.8 m: becoming white with trace fine grained</li></ul>	M to W	-			
 [z   		Not Encountered	VS >183 kPa	a	- 1.0—			1.0 m: becoming orange brown.					
			VS 151 kPa		-				D	-			
			VS >183 kPa	a	- 1.5—			1.4 m: becoming grey with minor fine grained sand.			               <b> </b>		
			VS UTP		-			1.6 m: becoming orange brown with some fine to medium grained sand.			             vs uтр		
			VS 142/ 18 kPa		- 2.0		ML	Clayey SILT: low plasticity, orange brown, with minor clay, trace fine grained sand, trace rootlets. HAL56 terminated at 2.0 m	M	VSt	+                       <del> </del>   <del> </del> <del> </del> <del> </del>   <del> </del>		VOLCANIC ASHES
					-			Target depth					
					2.5								
method AD ai AS ai HA hi W w		crewii uger ore		M r C c	port mud casing etration	no resi		samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter	s Cla moistu	soil desc based on assificatio	symbol &		consistency / relative density VS very soft S soft F firm St stiff VSt very stiff
e.g. A B b T T	oit shov AD/T olank b IC bit / bit		suffix	wate	■  10-  leve	rangin refusal Oct-12 wa el on date er inflow er outflow	iter shown	HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	W we S sa Wp pla	oist			H     hard       Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL58
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	24 May 2016
date completed:	24 May 2016
logged by:	NM
checked by:	RBT

	lion:		enter or								пескеа	, 	RBI
		·	ecified					surface elevation: Not Specified		•	om horizor		DCP id.:
		forma	Auger			mate	rial cut	drilling fluid:		nole dia	meter : 50	mm	vane id.: DR2244
unin	<u> </u>					mate		material description		₹	vane	DCP	structure and
method & support	1 2 penetration	3 water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	shear ⊕ remoulded ⊚ peak (kPa) 05 00 05 00	(blows/ 100 mm) ∾ + ∞ ∞ ₽	additional observations
			VS >183 kP				ML	SILT: low plasticity, pale orange brown, with some fine to medium grained sand, minor clay.	D to M	VSt to H			FILL
			VS >183 kP		0.5			to medium grained sand.					
		Not	VS 183/ 31 kPa VS >183 kP	a	1.0			0.9 m: becoming mottled pale orange with minor fine to medium grained sand.					
			VS 183/ 78 kPa VS >183 kP		- 1.5— -		ML	SILT: low plasticity, white mottled orange brown, with some clay.	D	-			
	VS >183 kPa       VS >183 kPa       VS >183 kPa       VS >183 kPa         		- - - - - - - -		ML	Clayey SILT: low plasticity, orange brown flecked white. HAL58 terminated at 2.0 m Target depth							
					2.5								
method AD     support       AD     auger drilling*     M       AS     auger screwing*     C       HA     hand auger     penetration       WA     washbore     penetration       HA     hand auger     water			g* M mud N nil B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (KPa) N standard penetrometer (KPa)		B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)	classification symbol & soil description based on Unified Classification System moisture D dry M moist				consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable			
* B T V	bit sh AD/T blank TC b V bit	k bit it	y suffix		■  10-  leve	Oct-12 wa el on date er inflow er outflow	shown	N*         SPT - sample recovered           Nc         SPT with solid cone           VS         vane shear; peak/remouded (kPa)           R         refusal           HB         hammer bouncing	Wp pl	et aturated astic limit juid limit			VL very loose L loose MD medium dense D dense VD very dense



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL60
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	24 May 2016
date completed:	24 May 2016
logged by:	NM
checked by:	RBT

location:	Cen	nter of L	-01 0	50					С	hecked I	oy:	RBT	
position: Not Specified							surface elevation: Not Specified	angle from horizontal: 90°				DCP id.:	
drill model:	Hand Au	uger			_		drilling fluid:	ł	nole diar	meter : 50	mm	vane id.: DR2244	
drilling information mater							stance						
method & support 1 2 penetration	/ater	samples & field tests	RL (m)	depth (m)	graphic log	class ification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊛peak (kPa) S	DCP (blows/ 100 mm)		
		/S >183 kPa		-		ML	<b>SILT</b> : non plastic to low plasticity, pale orange brown mottled grey, with some fine to medium grained sand, minor clay.	М	VSt to H				
		/S >183 kPa		0.5 —			0.4 m: becoming pale orange brown with minor fine to medium grained sand.						
HA	t Encountered	/S >183 kPa VS 151/ 43 kPa		- - 1.0—			0.9 m: becoming grey mottled orange brown with trace fine grained sand.	D to M					
		VS UTP		-			1.1 m: minor fine to medium grained sand.			   γς μτρ           			
		/S >183 kPa		- 1.5			<ul><li>1.4 m: becoming brown with trace fine grained sand.</li><li>1.6 m: becoming streaked black with trace</li></ul>			       <b> </b>       <b> </b> 			
		/S >183 kPa VS >120/		-		ML	medium grained rounded gravel.  SILT: low plasticity, orange brown, with minor fine grained sand, trace clay.					YOUNGER ASH	
		<del>31 kPa</del>		<del>-2.0 -</del> -			HAL60 terminated at 2.0 m Target depth						
				- 2.5—									
				-									
AS auger HA hand W wash	r drilling* r screwing auger bore auger	g*	pene	nud asing etration		nil stance g to	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)	t Cla moistu D dr	soil desc based on bassificatio			consistency / relative density       VS     very soft       S     soft       F     firm       St     stiff       VSt     very stiff       H     hard       Fb     friable	
* bit sh e.g. AD/T B blank T TC bi V V bit	bit	uffix	wate	leve	Oct-12 wa el on date er inflow er outflow	shown	N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	W we S sa Wp pla				VL very loose L loose MD medium dense D dense VD very dense	



The Lakes (2012) Ltd client:

principal:

#### project: The Lakes Stage 2UV

#### Center of Lot 62 location:

Borehole ID.	HAL62
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	24 May 2016
date completed:	24 May 2016
logged by:	NM
checked by:	RBT

locatior	n:	Cel	nter of		02					С	hecked b	oy:	RBT	
position:	Spec	cified					surface elevation: Not Specified	angle from horizontal: 90°				DCP id.:		
drill model: Hand Auger							drilling fluid:				meter : 50	mm	vane id.: DR2244	
°								stance					-	
	² penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	class ification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊚ peak (kPa) S 00 S 00	DCP (blows. 100 mm	))	
			VS >183 kPa VS >183 kPa				ML	SILT: low plasticity, orange brown mottled white, with minor clay, trace fine grained sand.	M	VSt to H				
		ountered	VS >183 kPa VS >183 kPa					<ul><li>0.5 m: becoming orange brown with some fine to medium grained sand.</li><li>0.8 m: minor clay with occasional pockets of white silt.</li></ul>						
			VS >183 kPa		-			1.1 m: becoming white mottled orange brown with sand absent.	D	-				
			VS >183 kPa		- 1.5— -		ML	<b>SILT</b> : low plasticity, orange brown, with some clay, trace fine to medium grained sand.	-		       <b>©</b>         <b>©</b>           			
			VS >183 kPa VS >183 kPa		- - -2.0			HAL62 terminated at 2.0 m						
					- - 2.5 — -			Target depth						
method	                                 	rilling		sup			pił	samples & field tests		sification	                     		       consistency / relative density	
AS au HA ha W wa HA ha					etration	<ul> <li>no resi ranging</li> <li>refusal</li> <li>Oct-12 wa</li> </ul>	g to ter	B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Ne SPT - sample recovered	t Cla <b>moistu</b> D dr M m W we	based on assificatio re y oist			VS         very soft           S         soft           F         firm           St         stiff           VSt         very stiff           H         hard           Fb         friable           VL         very losse           V         very cose	
e.g. AD/T B blank bit				wat	el on date er inflow er outflow	on date shown NC SP1 with solid cone inflow VS vane shear; peak/remouded (kPa) R refusal		Wp plastic limit WI liquid limit				L loose MD medium dense D dense VD very dense		



## **Engineering Log - Borehole** The Lakes (2012) Ltd

client:

principal:

#### project: The Lakes Stage 2UV

Borehole ID.	HAL68
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	NM
checked by:	RBT



### **Engineering Log - Borehole** The Lakes (2012) Ltd client:

principal:

#### project: The Lakes Stage 2UV

Center of Lot 70 location.

Borehole ID.	HAL70
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	NM
checked by:	RBT

location:	Cel	nter of l	Lot	70					С	hecked b	oy:	RBT
position: No	ot Spec	cified					surface elevation: Not Specified	а	ingle fro	om horizon	tal: 90°	DCP id.:
drill model: H		-					drilling fluid:	h	ole dia	meter : 50	mm	vane id.: DR2244
drilling info	ormati	on	, , , , , , , , , , , , , , , , , , ,		mate	erial sub	stance					1
method & support 1 2 penetration 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) 3 00 00 000	DCP (blows/ 100 mm)	
					$ \rangle$	ML	SILT: low plasticity, dark brown.	D				TOPSOIL
		VS 183 kPa		-		ML	<b>SILT</b> : low plasticity, grey mottled orange, with minor clay.		VSt St			MATUA SUBGROUP
		VS 81/ 19 kPa		0.5				M		⊕ ⊕   ●                     		
	Not Encountered	VS 94/ 25 kPa VS 55/		-			0.8 m: minor fine grained sand.	W to S				
		19 kPa VS 74/ 19 kPa		1.0			1.2 m: becoming dilatant.			⊕●                               ⊕ ●		
		VS 107/ 31 kPa		- 1.5 —					VSt	                     		
		VS 107/ 21 kPa		-						             ⊕   ⊕     		
• • • • • • • • • • • • • • • • • • •		VS 81/ 31 kPa		- <u>2.0</u>			HAL70 terminated at 2.0 m Target depth		St	╡                    ⊕⊖       		
				- - 2.5 - - - -								
AS auger HA hand a W washb	auger drilling* M mud auger screwing* C casing hand auger washbore penetratio			nud asing etration		l nil sistance ng to al	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)	s b Cla <b>moistur</b> D dry M mo	soil desc ased on ssification re / bist			consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable
* bit sho e.g. AD/T B blank T TC bit V V bit		suffix		leve	Oct-12 w el on date er inflow er outflo	e shown	N*         SPT - sample recovered           Nc         SPT with solid cone           VS         vane shear; peak/remouded (kPa)           R         refusal           HB         hammer bouncing	Wp pla	et turated astic limit uid limit	t		VL very loose L loose MD medium dense D dense VD very dense



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL72
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	01 Feb 2017
date completed:	01 Feb 2017
logged by:	ODS
checked by:	RBT

position: Not Specified drill model: Hand Auger									surface elevation: Not Specified drilling fluid:		•	om horizon meter : 50		0° DCP id.: vane id.: SL588	
drilling information						formation material substance									
				depth (m)	graphic log	class ification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊚ peak (kPa) 30 00 00 000	DCP (blows/ 100 mm	)			
				√S >202 kPa		-			SILT: non plastic to low plasticity, orange brown, with trace fine grained sand.	М	VSt			VOLCANIC ASHES	
				√S >202 kPa		- 0.5 — -			0.7 m: with trace to minor clay, low plasticity						
			Not Encountered	VS 112/ 24 kPa		- - 1.0			0.7 m. with trace to minor day, low plasticity			                                       			
			-	VS 106/ 18 kPa VS 125/ 58 kPa	- - 1.5 —	-				⊕  ∲              	 ⊕  ∲                        				
				VS 120/ 34 kPa					HAL72 terminated at 2.0 m Target depth			⊕			
						- - 2.5									
meti AD AS	aug		illing*	g*	supj Mr		1	N nil	<b>samples &amp; field tests</b> B bulk disturbed sample D disturbed sample	5	sification soil desc				
HA W HA * e.g.	har was har bit s	nd aug shbor nd aug show	ger e ger n by s		pene wate	etration ∾ ∞ er er ↓ 10-C leve	rangi refus Oct-12 v I on dat	vater e shown	E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone	Cla moistu D dr M ma W we S sa Wp pla	re y oist et turated astic limit	on System		F         firm           St         stiff           VSt         very stiff           H         hard           Fb         friable           VL         very loose           L         loose	
e.g. B T V		nk bit bit				- leve wate	l on dat er inflow er outflo	,	VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing	Wp pla		t			



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL74
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	01 Feb 2017
date completed:	01 Feb 2017
logged by:	ODS
checked by:	RBT

positio	ion	n: N	ot Spe		ed Of L					surface elevation: Not Specified	a		om horizor	-	DCP id.:				
drill model: Hand Auger     drilling fluid:       drilling information     material substance									ł	nole dia	meter : 50	mm	vane id.: SL588						
								mate				<u> </u>							
method & support		2 penetration	s water	sa fi	amples & ield tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) S 0 0 00 00	DCP (blows/ 100 mm	))				
			     	vs	⇒202 kPa		-			ORGANIC SILT: non plastic, black.	D to M	VSt			TOPSOIL				
			     				- 0.5—			SILTY SAND: fine to coarse grained, yellow brown, with trace fine pumiceous gravel.	М								
2			countered	,	VS UTP		- - 1.0-			Sandy SILT: fine grained, non plastic, yellow brown.			           γς μτρ           						
							-			SAND: fine to coarse grained, grey brown.					ROTOEHU ASH   				
				VS 98/ 34 kPa							- - 1.5-			Silty CLAY: low plasticity, brown, sticky in hand sample.		St	-                       ⊕ ⊕     		
					VS 97/ 29 kPa		-			CLAY: medium plasticity, white to pale grey.									
							<del>2.0 -</del> - -	/////		HAL74 terminated at 2.0 m Target depth									
							2.5 - - -												
<b>meth</b> AD AS HA W HA	noc a a f v	d auge auge hand wash	r drilling r screw auger			pen	nud asing etration		nil istance g to	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)	s D Cla <b>moistu</b> D dr	soil dese ased or ssification re	n symbol &	بننيا					
* bit shown by suffix e.g. AD/T B blank bit T TC bit V V bit		shown	N*         SPT - sample recovered           Nc         SPT with solid cone           VS         vane shear; peak/remouded (kPa)           R         refusal           HB         hammer bouncing	W we S sa Wp pla		t		VL very loose L loose MD medium dense D dense VD very dense											



-20-05-16.GP

GCR HA

0_9_06_LIBRARY.GLB rev.AT Log COF BOREHOLE: NON CORED + DCP

CDF

### **Engineering Log - Borehole** The Lakes (2012) Ltd client: р

#### р

Borehole ID. HAL76 sheet: 1 of 1 GENZTAUC13086AR project no. date started: 01 Feb 2017 01 Eab 2017

prin	cipal:									d	ate com	pleted	01 Feb 2017
proj	ect:	Th	e Lakes	Sta	nge 2	UV				lo	bgged b	y:	ODS
loca	ition:	Ce	nter of l	Lot	76					С	hecked	by:	RBT
1° -	ion: No	·						surface elevation: Not Specified		•	om horizo		
	nodel: F					mate	rial sub	drilling fluid:		nole dia	meter : 50	) mm	vane id.: SL588
method & support	ation	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊚ peak (kPa) G	DCP (blows 100 mm	n)
					-			SILT: non plastic to low plasticity, orange brown, with trace fine grained sand.	D				
			VS >202 kPa		-			<b>SILT</b> : non plastic to low plasticity, orange brown with mottled grey, with trace fine to coarse grained sand and trace clay.	D to M	VSt to H	-                             •		FILL 
			VS >202 kPa		0.5-			Sandy SILT: fine grained, non plastic, yellow brown.					
		ered			-			SAND: fine to coarse grained, grey.					ROTOEHU ASH   
		Not Encountered	VS 93/ 21 kPa		- 1.0 -			Silty CLAY: non plastic to low plasticity, brown, with trace fine grained sand. Sticky in hand sample.	М	St to VSt			HAMILTON ASH       
3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3			VS 112/ 41 kPa VS 96/		- - 1.5—			CLAY: medium plasticity, white to pale grey.		St to VSt			
			24 kPa VS 105/ 32 kPa		-						⊕ • •                                             ⊕ ⊕		
		-			2.0-			HAL76 terminated at 2.0 m	-				
								Target depth					
metil AD AS HA W HA * e.g. B T V	AS auger screwing* HA hand auger W washbore HA hand auger W washbore HA hand auger W washbore HA hand auger W washbore HA hand auger T T D bit HA hand auger W washbore HA hand auger HA hand auger W washbore HA hand auger HA hand auger HA hand auger W washbore HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand auger HA hand penetration test (SPT) N* SPT - sample recovered VS vane shear; peak/remouded (kPa) R refusal HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bit HA hand bi		t Cla moistu D dr M m W w S sa Wp pl	soil desc based on assificatio re y oist	Unified on System		consistency / relative density       VS     very soft       S     soft       F     firm       St     stiff       VSt     very stiff       H     hard       Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense						



The Lakes (2012) Ltd client:

principal:

#### project: The Lakes Stage 2UV

#### Center of Lot 78 location:

Borehole ID.	HAL78
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	01 Feb 2017
date completed:	01 Feb 2017
logged by:	ODS
checked by:	RBT

location:	Center of Lot 78							checked by:				P DCP id.:		
position: No	position: Not Specified						surface elevation: Not Specified				angle from horizontal: 90°			
drill model:	Hand /	Auger			drilling fluid:			h	ole dia	meter : 50	vane id.: SL588			
drilling inf	nformat	ion			material substance									
method & support 1 2 penetration	method & support * 2 penetration * 2 penetration * * * * * * * * * * * * * * * * * * *				graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊛peak (kPa) 3 00 00 000	DCP (blows/ 100 mm)			
		VS >202 kPa VS >202 kPa					<b>ORGANIC SILT</b> : non plastic to low plasticity, dark brown with mottled grey and orange brown, with trace fine to coarse grained sand. Faint organic odour.	D to M	VSt			FILL		
	Not Encountered	VS 112/ 22 kPa		- - 1.0-			CLAY: medium plasticity, white to pale grey.	M	St to VSt	-                               		MATUA SUBGROUP		
	       	VS 125/ 24 kPa		-						□           ⊕   ●                 				
		VS 151/ 62 kPa VS 71/ 34 kPa		1.5										
				2.0 -			HAL78 terminated at 2.0 m Target depth							
				- - 2.5 - -										
method AD auger AS auger HA hand W washi HA hand	er drilling er screwi d auger hbore d auger	ng*	water	tration	<ul> <li>no resi ranging</li> <li>refusal</li> <li>Oct-12 was</li> <li>on date</li> </ul>	g to ter	samples & field tests         B       bulk disturbed sample         D       disturbed sample         E       environmental sample         SS       split spoon sample         U##       undisturbed sample ##mm diameter         HP       hand penetrometer (kPa)         N       standard penetration test (SPT)         N*       SPT - sample recovered         Nc       SPT with solid cone	b Cla moistuu D dry M mo W we S sa	soil desc ased on ssification re / bist et turated	Unified n System		consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose		
HA hand	d auger hown by T k bit pit	suffix	water	r                         	ranging refusal	g to ter shown	U## undisturbed sample ##mm diameter HP hand penetrometer (kPa) N standard penetration test (SPT) N* SPT - sample recovered	D dry M mo W we S sa Wp pla	/ bist et			VSt very stif H hard Fb friable VL very loo		



The Lakes (2012) Ltd client:

principal:

#### project: The Lakes Stage 2UV

_		
	Borehole ID.	HAL80
	sheet:	1 of 1
	project no.	GENZTAUC13086AR
	date started:	20 May 2016
	date completed:	20 May 2016
	logged by:	NM
	checked by:	RBT

location:	Cel	nter of	Lot 8	80					C	hecked I	oy:	RBT
position: No	ion: Not Specified surface elevation: Not Specified nodel: Hand Auger drilling fluid:									om horizor	ital: 90°	DCP id.:
		-					drilling fluid:	ł	nole dia	meter : 50	mm	vane id.: DR2244
drilling inf	ormati	on	, , , , , , , , , , , , , , , , , , ,		mate	erial sub	ostance		1			
method & support	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊚ peak (kPa) B 0 0 00	DCP (blows/ 100 mm)	
		VS 114/		-	$\left \right\rangle$	ML	SILT: low plasticity, dark brown.	D				TOPSOIL
		28 kPa VS 142/ 25 kPa				ML	SILT: low plasticity, pale yellow, with trace clay.	M	VSt			MATUA SUBGROUP
		VS 126/ 19 kPa		-						+ + + + + + + + + + + + + + + + + + +		
z         z       	Not End	VS 68/ 19 kPa		1.0			1.0 m: becoming grey with trace fine grained sand. Clay absent.	w	St	-           ⊕⊚      		
		VS 107/ 19 kPa		-			1.2 m: minor fine grained sand. Dilatant.	S	VSt	 ⊕  ∲              		
		VS 126/ 25 kPa		- 1.5						            ⊕   ⊙              		
		VS 107/ 19 kPa		-						           ⊕  ⊕    		
		VS 120/ <del>31 kPa</del>		- - <del>2.0 -</del>			1.9 m: fine to coarse grained sand. HAL80 terminated at 2.0 m	М				
				- - - 2.5 - - - -			Target depth					
method AD auger	drilling* screwir auger bore		pene	nud asing etration		nil sistance ig to	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (KPa)       N     standard penetration test (SPT)	b Cla <b>moistu</b> D dr M mo	soil desc based on ussification re y bist	n symbol &		consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable
* bit shown by suffix e.g. AD/T B blank bit T TO-U		Oct-12 wa I on date er inflow er outflow	e shown	N*         SPT - sample recovered           Nc         SPT with solid cone           VS         vane shear; peak/remouded (kPa)           R         refusal           HB         hammer bouncing	Wp pla	et Iturated astic limit uid limit			VL very loose L loose MD medium dense D dense VD very dense			



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL82
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	NM
checked by:	RBT

location:	Ce	nter of l		8Z					C	checked by:	RBT
position: N	lot Spec	cified					surface elevation: Not Specified	а	ingle fr	om horizontal: 90°	DCP id.:
drill model:	Hand A	Auger				drilling fluid:				ameter : 50 mm	vane id.: DR2244
drilling in	formati	on			mate	erial sub	ostance				
method & method & support support & support a standard & water & a support a standard & a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a support a suppor				depth (m)	graphic log classification symbol		bit     material description       SOIL TYPE: plasticity or particle characteristic, tere bit or bit     SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components		and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second		1)
		VS 133/		_	$\left \right\rangle$	ML	Silty SILT: low plasticity, dark brown.	D	VSt		TOPSOIL
		33 kPa		-		ML	SILT: low plasticity, grey, with trace clay, trace fine grained sand.	М			MATUA SUBGROUP
		VS 120/ 19 kPa		_ 0.5 — _			0.5 to 1.0 m: Soil becomes sensitive in hand sample	W to S			     From 0.5 to 1.0: low recover 
		VS 88/ 19 kPa		-							
z	: L f	VS 133/ 25 kPa		- 1.0						-	
		VS 133/ 25 kPa		-			1.1 m: becoming pale orange with some fine to medium grained sand.				İ.
		VS 68/ 31 kPa		1.5-			1.3 m: becoming grey with sand absent.		St		
		VS UTP		-		ML	Sandy SILT: non plastic, grey, with fine to medium grained sand.				
↓                         				- - <del>2.0</del> -		SP	SAND: fine to medium grained, pale orange, with trace silt. HAL82 terminated at 2.0 m Target depth		MD		             
				- 2.5 —							
				-							
AD auger drilling* M AS auger screwing* C HA hand auger W washbore <b>pen</b> HA hand auger		pen	nud casing etration		nil istance g to	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)	b Cla moistur D dry M mo	soil dese ased or ssification re / bist	n symbol & cription I Unified on System	consistency / relative density       VS     very soft       S     soft       F     firm       St     stiff       VSt     very stiff       H     hard       Fb     friable	
e.g. AD/T B blank	eg. AD/T B blank bit T TC bit		■ 10-0 leve	Oct-12 w el on date er inflow er outflow	shown	N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	Wp pla	et turated astic limi uid limit		VL very loose L loose MD medium dense D dense VD very dense	



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL83
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	ODS
checked by:	RBT

locatior	n:	Cer	nter of	LOT	83					checked	by:	RBT
position:	Not	Spec	ified					surface elevation: Not Specified	a	angle from horizo	ntal: 90°	DCP id.:
drill mod	lel: Ha	and A	uger					drilling fluid:	ł	nole diameter : 5	0 mm	vane id.: SL588
drilling	info	rmati	on			mate	erial sub	stance				
	² penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	class ification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	anav shear shear shear to shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear shear		,
		-	VS 158/		-			Silty SILT: low plasticity, dark brown.	M			TOPSOIL
			12 kPa		-			Clayey SILT: non plastic to low plasticity, pale grey, "sticky".		VSt		MATUA SUBGROUP
			VS 58/ 15 kPa		0.5					St to VSt		
		sred	VS 122/ 29 kPa		-			0.8 m: becomes white		⊕ ©   		
 z		Not Encountered	VS 67/ 21 kPa		- 1.0—					 ⊕@      		
			VS 134/ 29 kPa		-			1.2 to 1.5 m: with trace limonite staining		 ⊕    <b>⊙</b>   		
			VS 93/ 26 kPa		- 1.5—					□                     ⊕  @     		
			VS 166/ 36 kPa		-							
			VS 133/ 49 kPa		- - 2.0 -			SILT: non plastic, orange brown, with minor fine to coarse grained sand and with trace fine grained pumiceous gravel. HAL83 terminated at 2.0 m Target depth	-			
					-							
					2.5-							
					-   -							
<b>method</b> AD au AS au HA ha W wa	D auger drilling* M mud S auger screwing* C casing A hand auger washbore <b>penetratio</b>			mud casing etration	no res	l nil sistance	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)	t Cla moistu D dr	у		consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard	
e.g. AD/T B blank bit			Cct-12 w el on date er inflow er outflow	ater e shown	N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	W we S sa Wp pla	oist et iturated astic limit uid limit		Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense			



## **Engineering Log - Borehole** The Lakes (2012) Ltd

client:

principal:

#### project: The Lakes Stage 2UV

Borehole ID.	HAL85
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	ODS
checked by:	RBT

positio	or	n: No	ot Spe	cified		00			surface elevation: Not Specified	i		om horizor	-	DCP id.:
			Hand	-					drilling fluid:		nole dia	meter : 50	mm	vane id.: SL588
arilli	Ing	-	ormat				mate		material description		⊵	vane	DCP	structure and
method & support		2 penetration	, water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	shear ⊕remoulded ⊚peak (kPa) G 00 00 00	0CF (blows. 100 mm	additional observations
			i			-			Silty SILT: low plasticity, dark brown.	M				
				VS 173/ 21 kPa		-			Sandy SILT: non plastic, orange brown, fine to coarse grained sand.		St to VSt			MATUA SUBGROUP
						0.5-			<b>SAND</b> : fine to coarse grained, orange brown, with trace fine gravel and trace silt.					i l
				VS 153/ 18 kPa		-			Clayey SILT: non plastic to low plasticity, brown, with trace fine to coarse grained sand.		St to VSt	-                               ⊕    ∲  		i
 z			Not Encoun	VS 105/ 34 kPa		1.0-						           ⊕ • •     		
				VS 65/ 21 kPa		-			Silty CLAY: low plasticity, white, with trace limonite staining.			+ + + + + + + + + + + + + + + + + + +		
				VS 156/ 32 kPa		1.5-						             ⊕   ⊕   		
				VS 98/ 18 kPa		-						 ⊕  ⊕               		1 1 1 1
				VS 78/ <del>28 kPa</del>		2.0-			HAL85 terminated at 2.0 m					
			VS 78/		-			Target depth						
						2.5-								
						-	-							
<b>meth</b> AD AS HA W HA	auger screwing* A hand auger washbore penetration			mud casing	1	nil istance g to	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)	t Cla <b>moistu</b> D dr	soil dese based or assification re y			consistency / relative density           VS         very soft           S         soft           F         firm           St         stiff           VSt         very stiff           H         hard           Eb         fible		
e.g. AD/T leve B blank bit blank bit			Oct-12 wa el on date ter inflow ter outflov	ater shown	N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	W we S sa Wp pla	oist et aturated astic limi juid limit			Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense				



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL87
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	ODS
checked by:	RBT

	osition: Not Specified ill model: Hand Auger drilling information							surface elevation: Not Specified drilling fluid:		U	om horizont liameter : 5			
						mate	erial sub			0				
	penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊚ peak (kPa) S 00 00 00	DCP (blows/ 100 mm	))	
HA		Not Encountered Wa	VS 142/ 29 kPa VS 85/ 21 kPa VS 88/ 25 kPa VS 133/ 29 kPa VS 161/ 34 kPa VS 160/ 51 kPa VS 173/ 48 kPa		<u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u> <u> </u>		syr	Silty SILT: low plasticity, dark brown.         SILT: non plastic to low plasticity, orange brown, with trace fine to coarse grained sand.         Clayey SILT: low plasticity, pale grey.         0.7 m: with trace limonite staining 0.75 m: becoming white	<u>mios</u> M	St to VSt	$\begin{array}{c} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$		TOPSOIL MATUA SUBGROUP	
method AD at	uger o				2.0	<u> </u>	nil	HAL87 terminated at 2.0 m Target depth samples & field tests B bulk disturbed sample	s	soil desc	Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: constraint of the symbol         Image: consthe symbol         Image: constraintosymbol		T 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
HA ha W w HA ha * bi e.g. A B bi T T	AS auger screwing* IA hand auger W washbore IA hand auger bit shown by suffix g. AD/T S blank bit T TC bit				sistance ig to al ater ∌ shown	D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	Cla moistur D dr M mo W we S sa Wp pla	re y pist	on System		S         soft           F         firm           St         stiff           VSt         very stiff           H         hard           Fb         friable           VL         very loose           L         loose           MD         medium dense           D         dense           VD         very dense			



Borehole ID. **HAL89** 1 of 1 sheet: **Engineering Log - Borehole** project no. GENZTAUC13086AR The Lakes (2012) Ltd client: 20 May 2016 date started: principal: 20 May 2016 date completed: The Lakes Stage 2UV NM project: logged by: Center of Lot 89 RBT location: checked by: position: Not Specified surface elevation: Not Specified angle from horizontal: 90° DCP id.: drill model: Hand Auger drilling fluid: hole diameter : 50 mm vane id.: DR2244 material substance drilling information consistency / relative density DCP structure and additional observat material description vane classification go samples & field tests shear ⊕ remould ● peak (blows/ 100 mm) vations method & support Ê penetra moisture condition SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components graphic I symbol Ê depth ( water (kPa) 8 8 8 R ML SILT: low plasticity, dark brown. D TOPSOIL 11111 11 VOLCANIC ASHES SILT: non plastic to low plasticity, orange brown, with minor clay, trace fine to coarse VSt ||MI | | | | |VS >183 kPa 111 | | |@ 11111 grained sand. | | || | | |11111 11 ||||||11111 11111 ||||||111 11111 VS >183 kPa | | |0 1111 ||||0.5 11111 ||||||||||||111 11111 SILT: low to medium plasticity, grey, with minor clay, trace black coarse grained sand. M to W VSt MATUA SUBGROUP ML 11111 ||||||111 VS 135/ 19 kPa | | | | | | **0** | 11111 ₽ï ||11111 0.8 m: From 0.8 to 2.0m: Soil is sensitive in From 0.8 to 2.0m: poor Not Encountered hand sample 1111 recovery. 30/05/2017 111 1111 11111 VS 107/ 18 kPa ||||⊕l∳ll 11111 Ψ 1.0 ż ||||ĨΗ 11111 ~~ |||||||||11111 VS 120/ 19 kPa | | | |0| | | |11111 ₩¦ 11111 ||||| | |11111 1111 ||||||||||11111 1.4 m: trace fine grained sand, dilatant with clay absent. W to S ||1111 111 VS 120/ 19 kPa 1.5 ||||||11111 111 ||||||||||||||||||||||| | | |11111 VS 151/ 19 kPa 11111 €I | 🌢 |

20-05-16.GPJ ₽ NON RORFHOLF. ЦО Log TA-ver GLBr IBRARY 90 CDF

HUD KNO     I     I     I     I       I     I     I     I     V       I     I     I     I     V       I     I     I     I     I       I     I     I     I     I       I     I     I     I     I       I     I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I     I       I     I     I <th></th> <th>HAL89 terminated at 2.0 m arget depth</th> <th></th> <th></th>		HAL89 terminated at 2.0 m arget depth		
method       AD     auger drilling*       AS     auger screwing*       HA     hand auger       W     washbore       HA     hand auger       *     bit shown by suffix       e.g.     AD/T       B     blank bit       T     TC bit       V     V bit	support M mud N nil C casing penetration resistance ranging to refusal water 10-Oct-12 water level on date shown water inflow water outflow	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	classification symbol & soil description based on Unified Classification System	consistency / relative densityVSvery softSsoftFfirmStstiffVStvery stiffHhardFbfriableVLvery looseLlooseMDmedium denseDdenseVDvery dense



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL91
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	24 May 2016
date completed:	24 May 2016
logged by:	NM
checked by:	RBT

	tion:		nter of l	_01	51						hecked		RBI	
	on: No	·						surface elevation: Not Specified		•	om horizor	DCP id.:		
	nodel: H							drilling fluid:	ł	ole dia	meter :		vane id.: DR2244	
drilli	ing info	ormati	on			mate	erial sub	ostance						
method & support	1 2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DCP (blows/ 100 mm)		
					_	$\left \right\rangle$	ML	SILT: low plasticity, dark brown.	D				TOPSOIL	
			VS >183 kPa		-		ML	<b>SILT</b> : low plasticity, white mottled orange, with some clay.		H to VSt			MATUA SUBGROUP	
			VS >183 kPa		0.5									
		eq	VS 120/ 19 kPa		-			0.6 m: becoming white with minor clay.	M to W	VSt	                     ⊕  ●			
		Not Encountered	VS 151/ 21 kPa		- 1.0			1.0 m: becoming dilatant.	w		           ⊕    ⊕   			
			VS 126/ 31 kPa		-						 ⊕  ⊙   			
			VS 126/ 31 kPa		- 1.5						+ + + + + + + + + + + + + + + + + + +			
			VS 126/ 31 kPa		-			1.8 m: becoming mottled orange.						
		-	VS 151/ 31 kPa		- 2.0			HAL91 terminated at 2.0 m						
					-			Target depth						
					2.5									
meth AD	         	drilling	*	sup			nil	samples & field tests		ification	1 symbol &		consistency / relative density	
AS HA W HA	AD auger drilling* M mud AS auger screwing* C casing IA hand auger V washbore penetratio				casing etration	⊢ no res	istance	B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample U## undisturbed sample ##mm diameter HP hand penetrometer (kPa)	b	ased on ssificatic			VS very soft S soft F firm St stiff VSt very stiff H hard	
* e.g. B T	e.g. AD/T B blank bit			Land terms to the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second seco	rangin refusa Oct-12 wa el on date er inflow er outflov	ater e shown	N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone VS vane shear; peak/remouded (kPa) R refusal HB hammer bouncing	M mo W we S sa Wp pla	bist			Fb friable VL very loose L loose MD medium dense D dense VD very dense		



*

e.g. B T

bit shown by suffix

AD/T blank bit

TC bit V bit

⊻

1 water

no resistance ranging to

10-Oct-12 water level on date shown

water inflow

water outflow

HP N N* VS R HB

refusal

hammer bouncing

	COMP	ANY	u I	00	1 – F	Ro	rehole			orehole I heet:	ID.	HAL94
Eng			_		-	DU	Tenole		р	roject no.	•	<u>GENZTAUC13086AR</u> 20 May 2016 20 May 2016 NM
client:	The	e Lakes	: (20	12) L	.td				d	ate starte	ed:	
principal:									d	ate comp	oleted:	
project:	The	e Lakes	Sta	ige 2	UV				lc	gged by:	:	
location:	Cer	nter of	Lot	94					С	hecked b	y:	RBT
position: N	ot Spec	ified					surface elevation: Not Specified		•	m horizont		DCP id.:
drill model: drilling int		-			mat	erial sul	drilling fluid:		nole diar	neter : 50 ı	mm	vane id.: DR2244
	ormau						material description		sity	vane	DCP	structure and
method & support 2 penetration	, water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	shear ⊕ remoulded ⊚ peak (kPa) B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 00 B 0	(blows/ 100 mm)	additional observations
					$ \rangle$	ML	SILT: low plasticity, dark brown.	D				TOPSOIL
		VS 133/ 31 kPa		-		ML	SILT: non plastic to low plasticity, grey, with coarse silt.	M	VSt			MATUA SUBGROUP
		VS 120/ 19 kPa		0.5			0.6 m: becoming sensitive and dilatant.		F to St	□         ⊕           .             .		
	ntered	VS 68/ 9 kPa								           ₽             		-
z	Not Encountered	VS 43/ 9 kPa		1.0				W	VSt	 ⊕•         		From 0.6 to 1.2: poor recovery
		VS 101/ 19 kPa		-				S	V31	⊕		-
		VS 126/ 19 kPa		-		SP	SAND: fine to coarse grained, orange red,	_	MD	⊕    <b>⊙</b>               		-
		VS 126/		-			with trace silt.					-
		31 kPa VS 126/				ML	SILT: low plasticity, orange red mottled grey, with some fine to coarse grained sand.	M	VSt		++++++++++++++++++++++++++++++++++++++	-
				2.5			HAL94 terminated at 2.0 m Target depth					-
AS auge HA hand W wash	r drilling* r screwir auger bore auger		M C (	port mud casing etration		I nil sistance	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)	ł	soil desc based on assificatio			consistency / relative density       /S     very soft       S     soft       =     firm       St     stiff       /St     very stiff       H     hard

environmental sample split spoon sample undisturbed sample ##mm diameter hand penetrometer (kPa) standard penetration test (SPT) SPT - sample recovered SPT with solid cone vane shear; peak/remouded (kPa) refueal

moisture D dry M moist W wet S saturated Wp plastic limit WI liquid limit

H Fb VL

L MD

D VD

very stiff hard friable

very loose loose medium dense

dense very dense



The Lakes (2012) Ltd client:

principal:

#### project: The Lakes Stage 2UV

Borehole ID.	HAL95
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	NM
checked by:	RBT

locatio	on:	Ce	nter of	Lot	95					С	hecked I	by:	RBT
position	n: Not	Spec	cified					surface elevation: Not Specified	e	angle fro	om horizor	ntal: 90°	DCP id.:
drill mo	del: H	and A	luger					drilling fluid:	h	nole dia	meter : 50	mm	vane id.: DR2244
drilling	g info	rmati	on			mate	erial sub	stance					
method & support	¹ 2 penetration 3	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕ remoulded ⊚ peak (kPa) B 0 0 00	DCP (blows 100 mn	n)
			VS 172/ 25 kPa		-		ML ML	SILT: non plastic, dark brown. SILT: non plastic to low plasticity, pale yellow, with minor fine grained sand, trace clay	D	VSt			TOPSOIL         MATUA SUBGROUP
			VS 151/ 19 kPa		- 0.5			<ul><li>(Chalky).</li><li>0.4 m: becoming white with trace to minor fine grained sand.</li></ul>	M	-	                     ⊕     ⊕   		   .   _
		ountered	VS 120/ 19 kPa		-				W	-	                     ⊕    @    		
– HA – – – – – – – – – – – – – – – – – –		Not Encountered	VS 151/ 19 kPa VS 133/		1.0			1.0 m: becoming sensitive and dilatant in hand sample.	S		⊕    ⊕             		From 1.0 to 1.2: poor recovery
			19 kPa VS 117/ 37 kPa		- - 1.5-						⊕                                             ⊕ (₽)		
			VS 142/ 43 kPa		-			1.6 m: becoming some fine grained sand.	M to W	-	                       ⊕   ⊕   		
<u> </u>			VS >183 kPa		<del>- 2.0</del> - -			HAL95 terminated at 2.0 m Target depth					
					- 2.5— -								1 1 1 1 1
methor	                         		I	sup	- - port			samples & field tests			n symbol &		
AD a AS a HA h W v	D auger drilling* M mud S auger screwing* C casing IA hand auger Penetration IA hand auger Penetration IA hand auger Penetration			mud casing etration	ld N nil B bulk disturbed sample ing D disturbed sample F environmental sample		b Cla <b>moistur</b> D dry M mo	<b>re</b> y oist			VS         very soft           S         soft           F         firm           St         stiff           VSt         very stiff           H         hard           Fb         friable		
e.g. A B b T T	e.g. AD/T B blank bit T TC bit			Oct-12 w I on date er inflow er outflov	e shown	N*         SPT - sample recovered           Nc         SPT with solid cone           VS         vane shear; peak/remouded (kPa)           R         refusal           HB         hammer bouncing	W we S sa Wp pla		t		VL very loose L loose MD medium dense D dense VD very dense		



Borehole ID. **HAL96** 1 of 1 sheet: **Engineering Log - Borehole** GENZTAUC13086AR project no. The Lakes (2012) Ltd client: 20 May 2016 date started: principal: 20 May 2016 date completed: The Lakes Stage 2UV NM project: logged by: Center of Lot 96 RBT location: checked by: position: Not Specified surface elevation: Not Specified angle from horizontal: 90° DCP id.: drill model: Hand Auger drilling fluid: hole diameter : 50 mm vane id.: DR2244 drilling information material substance DCP structure and additional observat consistency / relative density material description vane classification go samples & field tests shear ⊕ remould ● peak (blows/ 100 mm) vations method & support Ê penetra moisture condition SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components graphic I symbol Ê depth ( water (kPa) R ML SILT: non plastic, dark brown, with trace fine D TOPSOIL 11111 grained sand, trace rootlets | | | | |MATUA SUBGROUP **SILT**: non plastic to low plasticity, pale yellow, with minor fine sand, trace clay (Chalky). VSt MI ||||||VS 172/ 25 kPa 111 ⊕ | |⊝| 11111 ||||| | | |11111 111 11111 11 11111 ||||||11 11111 М VS 151/ 19 kPa 1111 ||||0.5 h۹ 11111 11111 111 W 0.6 m: minor fine grained sand. 11111 11111 111 VS 120/ 19 kPa | | | |0| | 11111 ₿ċ ||11111 Not Encountered 111 30/05/2017 111 1 1 1 1 11111 VS 151/ 19 kPa ||||**⊕**||⊕| 11111 Ψ 1.0 ż 1.0 m: trace fine grained sand. Dilatant. S From 1.0 to 1.2: poor recovery ||||ΙΙĪΙ ||||||~ ~ |||||||||11111 VS 133/ 19 kPa | |11111 ₽ï 11111 ||||| | |11111 1111 ||||-20-05-16.GPJ 11111 ||11111 111 VS 117/ 37 kPa 1.5 11111 111 1111 GCR HA |||||||||||||000 | | || | | |VS 142/ 43 kPa ||||⊕ | ⊕ | 11111 1.8 m: minor to trace fine grained sand. M to W ĨĬĬĬ 11111 111 11111

CDF_0_9_06_LIBRARY.GLB rev:AT_Log_COF BOREHOLE: NON CORED + DCP_GCR HA -20-05-16.GPJ

9 1 1	VS >183 kPa	a <u>2.0 </u>			11
KEHOLE			HAL96 terminated at 2.0 m Target depth		11 11 11
met AD AS HA W HA * e.g. B T V	thod auger drilling* auger screwing* hand auger washbore hand auger bit shown by suffix AD/T blank bit TC bit V bit	support M mud N nil C casing penetration refusal water 10-Oct-12 water level on date shown water inflow water outflow	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	classification symbol & soil description based on Unified Classification System	consistency / relative densityVSvery softSsoftFfirmStstiffVStvery stiffHhardFbfriableVLvery looseLlooseMDmedium denseDdenseVDvery dense



The Lakes (2012) Ltd client:

principal:

#### project: The Lakes Stage 2UV

Contor of Lot 08 le settere.

Borehole ID.	HAL98
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	01 Feb 2017
date completed:	01 Feb 2017
logged by:	ODS
checked by:	RBT

location:	Cer	nter of	Lot	98					С	hecked by	:	RBT		
position: No	ot Spec	cified					surface elevation: Not Specified	a	angle fro	om horizonta	l: 90°	DCP id.:		
drill model: I		-					drilling fluid:	ł	nole dia	meter : 50 m	m	vane id.: SL588		
drilling inf	ormati	on	-		mate		ostance			· · ·				
method & support support & support & support & support & support & support & water & here tration & mater & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here & here &			graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	⊕ remoulded ⊚ peak 10 (kPa)	DCP blows/ 00 mm)	structure and additional observations				
		VS 189/ 39 kPa		-			ORGANIC SILT: non plastic to low plasticity, black.	D				TOPSOIL		
		VS 161/ 49 kPa		- 0.5			SILT: low plasticity, orange brown, with trace fine to coarse grained sand and with trace clay.	M	St to VSt	               		POST ROTOEHU ASH		
	Not Encountered	VS 202 kPa		- - 1.0—			0.9 m: with minor fine to coarse grained sand							
		VS 190/ 35 kPa		-			1.1 m: with some fine to coarse grained sand							
		VS 90/ 39 kPa		1.5			SAND: fine to coarse grained, grey brown.	-		(⊕) (⊕) (⊕) (⊕) (+) (+) (+) (+) (+) (+) (+) (+) (+) (+		ROTOEHU ASH		
↓                               		VS 139/ 29 kPa					CLAY: low plasticity, pale grey to white with streaked orange brown.	-	VSt			MATUA SUBGROUP		
				-			HAL98 terminated at 2.0 m Target depth							
				2.5										
method     support       AD     auger drilling*     M mud       AS     auger screwing*     C casing       HA     hand auger     penetration       W     washbore     penetration		nud casing etration		nil istance g to	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)	s D Cla <b>moistu</b> D dr	soil desc based on ussificatio re y poist	n symbol &		Consistency / relative density /S very soft 5 soft 5 firm 5 stiff 7 stiff 7/St very stiff 1 hard 6 friable				
e.g. AD/T B blank bit			el on date er inflow	N*         SPT - sample recovered           I on date shown         VS         vane shown         vane shown			et Iturated astic limit uid limit			/L very loose loose MD medium dense D dense /D very dense				



Borehole ID. HAL102 1 of 1 sheet: **Engineering Log - Borehole** GENZTAUC13086AR project no. The Lakes (2012) Ltd client: 24 May 2016 date started: principal: 24 May 2016 date completed: The Lakes Stage 2UV NM project: logged by: Center of Lot 102 RBT location: checked by: position: Not Specified surface elevation: Not Specified angle from horizontal: 90° DCP id.: drill model: Hand Auger drilling fluid: hole diameter : 50 mm vane id.: DR2244 drilling information material substance consistency / relative density DCP structure and additional observat material description vane classification go samples & field tests shear ⊕ remould ● peak (blows/ 100 mm) vations method & support Ê penetra moisture condition SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components graphic I symbol Ê depth ( water (kPa) R ML SILT: low plasticity, dark brown. D VSt TOPSOIL Шİ | | | | |Clayey SILT: low plasticity, pale orange brown. VOLCANIC ASHES CL-ML | | | | |VS 183/ 25 kPa 11111 111 ⊕|||₀| |||| | | |11111 11111 11 11111 11 11111 VS 183/ 25 kPa 1111 ||||0.5 Ð, 11111 ||||1 111 11111 111 1111 111 ||||||VS 133/ 31 kPa | | | |**0** | 11111 Ð **SILT**: low plasticity, grey, with minor fine grained sand, minor clay. ||M to W MATUA SUBGROUP ML St to Not Encountered VSt 30/05/2017 111 1 1 1 1 11111 VS 120/ 25 kPa ||||11111 Ψ 1.0 ż ||||1 I I 11111 ~~ |||||||||11111 VS 114/ 21 kPa | |11111 | | | || | || | ₽¦ 11111 ||||11111 1111 |||||||||11111 11111 111 VS 94/ 37 kPa ||||||⊕ @ | | 1.5 11111 ||||||11111 111 | | |||||||||||||||||

CDF_0_9_06_LIBRARY.GLB rev:AT_Log_COF BOREHOLE: NON CORED + DCP_GCR HA -20-05-16.GPJ_<<DrawingFile>> 300520

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|||||

VS 81/ 19 kPa

VS 94/ VS 94/ 37 kPa 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		HAL102 terminated at 2.0 m Farget depth		
method         AD       auger drilling*         AS       auger screwing*         HA       hand auger         W       washbore         HA       hand auger         *       bit shown by suffix         e.g.       AD/T         B       blank bit         T       TC bit         V       V bit	support M mud N nil C casing penetration renging to refusal water 10-Oct-12 water level on date shown water not flow water outflow	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)       N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	classification symbol & soil description       based on Unified       Classification System       moisture       D     dry       M     moist       W     wet       S     saturated       Wp     plastic limit       WI     liquid limit	consistency / relative density         VS       very soft         S       soft         F       firm         St       stiff         VSt       very stiff         H       hard         Fb       friable         VL       very loose         L       loose         MD       medium dense         D       dense         VD       very dense

| | | |

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client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL103
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	ODS
checked by:	RRT

locati	on:	Ce	nter of	Lot	103				by:	RBT				
position: Not Specified								surface elevation: Not Specified	e	angle fro	om horizor	ntal: 90°		
drill mo	odel: H	Hand A	Auger					drilling fluid:	h	nole dia	meter : 50	mm	vane id.: SL588	
drillin	ng info	ormati	on			mate	erial sub	ostance						
method & support	2 penetration	water	samples & field tests	RL (m)	depth (m)	graphic log	classification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) B 0 0 00	DCP (blows/ 100 mm		
			VS 74/		-			Silty SILT: low plasticity, dark brown.	M				TOPSOIL	
			15 kPa		-			Clayey SILT: low plasticity, pale grey, "sticky".		St to VSt	⊕ 10                           		MATUA SUBGROUP	
			21 kPa		0.5-						⊕ <mark> </mark>			
			VS 109/ 25 kPa		-			0.7 m: with trace limonite staining 0.75 m: becoming white			-           ⊕  ∲              			
2   		Not Enc	VS 148/ 46 kPa		1.0-									
			VS 156/ 26 kPa		-						□         ⊕     •       •   			
			VS 136/ 22 kPa		1.5-									
			VS 75/ 38 kPa		-									
			VS 98/ 38 kPa		- 2.0			HAL103 terminated at 2.0 m						
	I I I         _         Target depth           I I I         _         _           I I I         _         _           I I I         _         _													
					2.5									
					-									
e.g. AD/T B blank bit			⊢ no res	l nil sistance ng to	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (kPa)	s b Cla <b>moistu</b> D dn	soil desc based on assification re			consistency / relative density       VS     very soft       S     soft       F     firm       St     stiff       VSt     very stiff       H     hard       Dr     first late				
			Oct-12 w el on date er inflow	ranging to     HP     hand penetrometer (kPa)       ◄ refusal     N     standard penetration test (SPT)       N*     SPT - sample recovered       I on date shown     NC     SPT with solid cone       VS     vare shear pesk/removed (kPa)			oist et Iturated astic limi uid limit			Fb     friable       VL     very loose       L     loose       MD     medium dense       D     dense       VD     very dense				



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL105
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	NM
checked by:	RBT

position: Not Specified drill model: Hand Auger									surface elevation: Not Specified		0	om horizor			
_							mat	erial sub	drilling fluid:	r	nole dia	meter : 50	mm		vane id.: DR2244
drilling information						_	material description		cy / ensity	vane shear ⊕remoulded	DCP (blows		structure and additional observations		
method	Inddas	<ol> <li>penetration</li> </ol>	water	field tests	RL (m)	depth (m)	graphic log	classification symbol	SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	⊕ remoulded ● peak (kPa) 05 00 05 00	100 mr	m)	
1	1						$ \rangle$	ML	SILT: non plastic, dark brown.	D	VSt			П	TOPSOIL
				VS >183 kPa		-		ML	<b>SILT</b> : low plasticity, orange brown, with minor clay, trace fine to coarse grained sand.						VOLCANIC ASHES
				VS 133/ 19 kPa		- 0.5		ML	<b>SILT</b> : non plastic to low plasticity, grey, with minor fine grained sand, trace clay.	M	St to VSt				MATUA SUBGROUP
						-			0.6 m: becoming sensitive in hand sample	W to S	-				
11			Intered	VS 88/ 21 kPa		-						⊕  •         ⊕  •         			
	 Z		Not Encountered	VS 133/ 24 kPa		1.0						 ⊕   @   			
				VS 120/ 31 kPa		-						● ●			
				VS 123/ 30 kPa		- 1.5						           ⊕    ○    			
				VS 126/ 19 kPa		-			1.6 m: becoming dilatant.						
	VS 126/			- 			HAL105 terminated at 2.0 m								
	Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic         Harmonic														
						2.5-									
						-									
1						_									
AD AS HA W	HA hand auger ★ bit shown by suffix e.g. AD/T B blank bit T TO bit		mud casing etration		N nil B bulk disturbed sample D disturbed sample E environmental sample SS split spoon sample H# undisturbed sample ##mm diameter ranging to HP hand penetrometer (kPa)		s b Cla <b>moistu</b> D dn	classification symbol & soil description based on Unified Classification System moisture				Service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the service of the servic			
B T			Oct-12 v	vater te shown v	N     standard penetration test (SPT)       N*     SPT - sample recovered       Nc     SPT with solid cone       VS     vane shear; peak/remouded (kPa)       R     refusal       HB     hammer bouncing	W we S sa Wp pla	oist et iturated astic limit uid limit	t		Ft VI L M D VI	L very loose loose D medium dense dense				



## **Engineering Log - Borehole** The Lakes (2012) Ltd

client:

principal:

#### The Lakes Stage 2UV project:

Borehole ID.	HAL107
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	NM
checked by:	RBT

position: Not Spe						•	om horizor		DCP id.:	
drill model: Hand drilling informa	-		mate	erial sub	drilling fluid:	1	iole dia	meter : 50	mm	vane id.: DR2244
upport penetration /ater	samples & field tests	RL (m) depth (m)	graphic log	class ification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane shear ⊕remoulded ⊚peak (kPa) S 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DCP (blows/ 100 mm)	
H N N N N Not Encountered Not Encountered Not Encountered Not Encountered Not Encountered	VS 151/ 25 kPa VS 107/ 21 kPa VS 110/ 21 kPa VS 120/ 21 kPa VS 123/ 21 kPa VS 123/ 21 kPa VS 107/ 21 kPa VS 107/ 21 kPa	<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>		- LIM - LIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM - RIM	SILT: low plasticity, orange brown, with minor fine to coarse grained sand, minor clay.         SILT: low plasticity, grey, with minor clay, trace fine grained sand.         0.8 m: becoming sensitive in hand sample	E to D M to W W to S	VSt			TOPSOIL VOLCANIC ASHES MATUA SUBGROUP
method         AD         auger drillin         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I	g* ing*	support M mud C casing penetration water	n	ater e shown	HAL107 terminated at 2.0 m Target depth	s b Cla moistuu D dny M mo W we S sa Wp pla	soil deso ased on ssification re y bist	n symbol & ription		



client: The Lakes (2012) Ltd

principal:

### project: The Lakes Stage 2UV

Borehole ID.	HAL109
sheet:	1 of 1
project no.	GENZTAUC13086AR
date started:	20 May 2016
date completed:	20 May 2016
logged by:	NM
checked by:	RBT

location:	: Ce	enter of	LOT	109				checked by:	•		
position: I	Not Spe	ecified					surface elevation: Not Specified	a	angle fro	om horizontal: 90°	DCP id.:
drill model: Hand Auger drilling fluid:									nole dia	meter : 50 mm	vane id.: DR2244
drilling i	nforma	tion			mate	rial sub	stance				
method & support ¹ 2 penetration		samples & field tests	RL (m)	depth (m)	graphic log	class ification symbol	material description SOIL TYPE: plasticity or particle characteristic, colour, secondary and minor components	moisture condition	consistency / relative density	vane DCP shear ⊕remoulded ⊚peak (kPa) g; 0, 2, 5, 0, 3, 4, ∞, ∞, 0, 2, 4, ∞, ∞, 0, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3,	
				-	$\left \right\rangle$	ML	SILT: non plastic, dark brown.	D	VSt		TOPSOIL
		VS >183 kPa VS 94/	3	-		ML	SILT: low plasticity, grey, with minor fine grained sand.	M			MATUA SUBGROUP
		19 kPa VS UTP		0.5		ML	SAND: fine to medium grained, orange brown.	D	L to MD		
z       z     	Not Encoun	VS >183 kPa	a	- 1.0			medium grained sand.				
		VS >183 kPa VS >183 kPa		- - 1.5-							
		VS >183 kPa VS 183 kPa		-							
				- 2.0			HAL109 terminated at 2.0 m Target depth				
				2.5							
method AD     auger drilling* AS     support M       AS     auger drilling* A hand auger     M     mud C       W     washbore     Penetration       HA     hand auger     washbore       HA     hand auger     washbore       HA     hand auger     user       *     bit shown by suffix     user       *     bit shown by suffix     user       B     blank bit     user			no res	nil istance g to	samples & field tests       B     bulk disturbed sample       D     disturbed sample       E     environmental sample       SS     split spoon sample       U##     undisturbed sample ##mm diameter       HP     hand penetrometer (KPa)       N     standraf penetration test (SPT)	s b Cla <b>moistu</b> D dr	ased on ssification	n symbol & cription n Unified on System	consistency / relative density VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable		
			ranging to refusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal           Image: Perfusal			W we S sa	et turated astic limi	t	VL very loose L loose MD medium dense D dense VD very dense		

Appendix E – Fill Test Results

<b>.</b>	uitor	<b>1 Hoga</b> i	Poplar Lane, Te Puke Private Bag 12016, Tauranga 3143 Telephone: +64 7 542 9672 Facsimile: +64 7 542 2245 www.fultonhogan.com 0800 LABORATORY Report No: ND:BOP15W0024							
Nuc lea	ar Densi	ity Report				Issue No: 1				
Client:	Paul Francis JMC Limited PO Box 1607 Bethlehem	-			Contact the la are tested as	Is reported herein are not accredited. boratory for further information. Samples received unless stated otherwise. This ly be reproduced in full.				
	Tauranga 314	47			Approved Signatory: Rob Ermens					
Project:	The Lakes - S	Stage 3, Zone 2			(Lab Manager) Date of Issue: 12/01/15					
Field Methods	2UV Barrack Carle 05/01/15 14:30 Pumice/Sand Contract Specifi S: NZS 4407:1991		36 Test 2.1	Compact Material Sam MDD Method: Max. Dry Den Min. Dry Dens Solid Density	NZS 4402:1986 T sity: 1.31 t/m³ @ 29.0 ° sity (t/m³):					
Test Resu										
Site		Moisture (%)		sity (t/m³)	Dry Density (t/m ³ )	Relative Compaction (%)				
1		13 0 13 0		.47 .44	1 30 1.27	99.2 96.9				

Comments * Test was conducted externally and is not accredited by this laboratory. MDD target from report reference BOP14S-04474. Density measurements are not accredited due to being outside of NDM range of calibration. Tested at same location as Scalas on report BOP15S-00054.

Form No* 18988, Report No: ND BOP15W0024

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Bay of Plenty Laboratory

	Ulton I The Density				Poplar Private Bag 12016, Telephone: Facsimile: www.fult	64 7 542 9672 64 7 542 2245 onhogan.com .ABORATORY P15W0262 Issue No: 1
Project:	JMC Limited PO Box 16070 Bethlehem Tauranga 3147 The Lakes - Stage	3, Zone 2			Indicated) have been performed in the laboratory's scope of accredital may only be reproduced in full. Approved Signatory: Rob Erm (Lab Manager) IANZ Accreditation No:749 Date of Issue: 02/03/15	accordance with ion. This report
Field Methods	etails 2UV Barrack Carle 18/02/15 09:30 Ash Contract Specification NZS 4407:1991 Test 4 NZS 4402:1986 Test 2		Compact Material Sam MDD Method Max. Dry Den Min. Dry Den Solid Density	: nsity: sity (t/m³):		
Test Resu	l <b>its</b> te No	Moisture (%)	Wet Densit	y (Ưm³)	Dry Density (t/m³)	Air Voids (%)
	3 4 5	24.5 32.5 26.0	1.81 1.81 1.74		1·46 1.37 1.38	7-2 1.7 10.3

#### Comments

Density measurements are not accredited due to being outside of NDM range of calibration. Site 5 was noted as having pumice sand present. Shear strength values determined by Shear Vane (NZGS guidelines - 2001) and are accredited. Results located on page 2. Solid Density target of 2.60t/m3 from report reference BOP14S 04495. GPS locations taken by client on site.

JIVIC, The La	akes 201	/ 18-02-1	<u>15 - Snea</u>	ar Vane	Shear Strength
	1	2	3	4	Shear Strength Ave
Test Location	kPa	kPa	kPa	kPa	kPa
3	232.0	232.0	232.0	232.0	232.0
4	232.0	205.5	222.0	232.0	222.9
5	159.1	232.0	232.0	112.7	183.9

<b>Fultor</b>			66.83	Private Bag 12016, Tai Telephone: +64 Facsimile: +64 www.fulton 0800 LA Report No: ND:BOP	ne, Te Puke uranga 3143 4 7 542 9672 4 7 542 2245 Ihogan.com BORATORY
Client: Paul Francis JMC Limited PO Box 1607 Bethlehem Tauranga 314 NZ Project: The Lakes - S	0		ACCAREDITED LABORATORY	The test (s) reported herein (unless oll indicated) have been performed in act the laboratory's scope of accreditation may only be reproduced in full. Approved Signatory: Rob Ermen (Lab Manager) IANZ Accreditation No:749 Date of Issue: 22/12/2015	herwise cordance with . This report
Testing DetailsSite Tested:2UVTested By:Rob ErmensDate Tested:18/12/2015Time Tested:10:30Material:AshSpecification:Contract SpecificField Methods:NZS 4407:1991Lab Methods:NZS 4402:1986	Test 4.2.1	Compact Material Sam MDD Method Max. Dry Der Min. Dry Den Solid Density	: sity: sity (t/m³):	Details	
Test Results Site No	Moisture (%)	Wet Densit	y (t/m³)	Dry Density (t/m³)	Air Voids (%)
252 253 254	53.0 46.5 54.5	1.62 1.67 1.68		1.06 1.14 1.09	2.9 2.7 -1.7

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JIVIC, The	Lakes 18-12-15 -	Shear Vane Sh	ear Strength Result
	Shear Strength Ave		
Test Location			
252	172.5		
253	206.4		
254	174.7		

	<b>ulton H</b> o or Density Ro			This report repl	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 Report No: ND:BOP16W0825 Issue No: 2 acces all previous issues of report no VD:BOP16W0825:
Client: Project:	Paul Francis JMC Limited PO Box 16070 Bethlehem Tauranga 3147 NZ The Lakes - Stage 3, Z	one 2		ACCREDITED LA GORATORY	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. Approved Signatory: Barrack Carle IANZ Accreditation No:749 Date of Issue: 1/09/2016
Testing De Site Tested: Tested By: Date Tested: Time Tested: Material: Specification: Field Methods:		-	Compact Material Sam MDD Method Max. Dry Den Min. Dry Den Solid Density	sity: sity (t/m³):	Details
Test Resu s	Its ite No 320	Moisture (%) 56.5	Wet I	Density (t/m³) 1.61	Dry Density (t/m³) 1.03

### 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.GPS locations recorded by client. Solid density target 2.58t/m3 from report reference BOP15S-02607. Shear strength values determined by Shear Vane (NZGS guidelines - 2001) and are accredited. Results located on page 2. Issue 2 with correct site Shear vanes.

	Shear Strength Ave		
Test Location	kPa		
320	194.7		

**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

# Fulton Hogan

Nuclear Density Report

Jason Mather JMC Limited PO Box 16070 Bethlehem

Client:

#### Report No: ND:BOP17W0454

Issue No: 1

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

**ANZ** 

34

Approved Signatory: Rob Ermens (Lab Manager) IANZ Accreditation No:749 Date of Issue: 18/05/2017

NZ
Project: The Lakes - Stage 3, Zone 2

Tauranga 3147

Testing Details		Compaction Targe	t Details					
Site Tested: 2UV		Material Sample ID:						
Tested By: Barrack Carle		MDD Method:						
Date Tested: 27/04/2017		Max. Dry Density:						
ime Tested: 08:00 laterial: Ash		Min. Dry Density (t/m³):						
		Solid Density Type:						
Specification: No Specification								
Field Methods: NZS 4407:2015 T	est 4.2							
Lab Methods: NZS 4402:1986 T	est 2.1							
Test Results								
Site No	Moisture (%)	Wet Density (t/m³)	Dry Density (t/m³)	Air Voids (%)				
373	60.6	1.66	1.04	-3				
374	45.8	1.77	1.22	-3				
375	26.9	1.83	1.45	5				
376	27.5	1.83	1.44	5				
377	34.0	1.77	1.32	4				
378	39.0	1.88	1.35	-5				
379	35.2	1.79	1.33	2				
380	34.7	1.87	1.38	-1				
381	63.7	1.69	1.03	-5				
382	30.0	1.81	1.39	4				

#### Comments

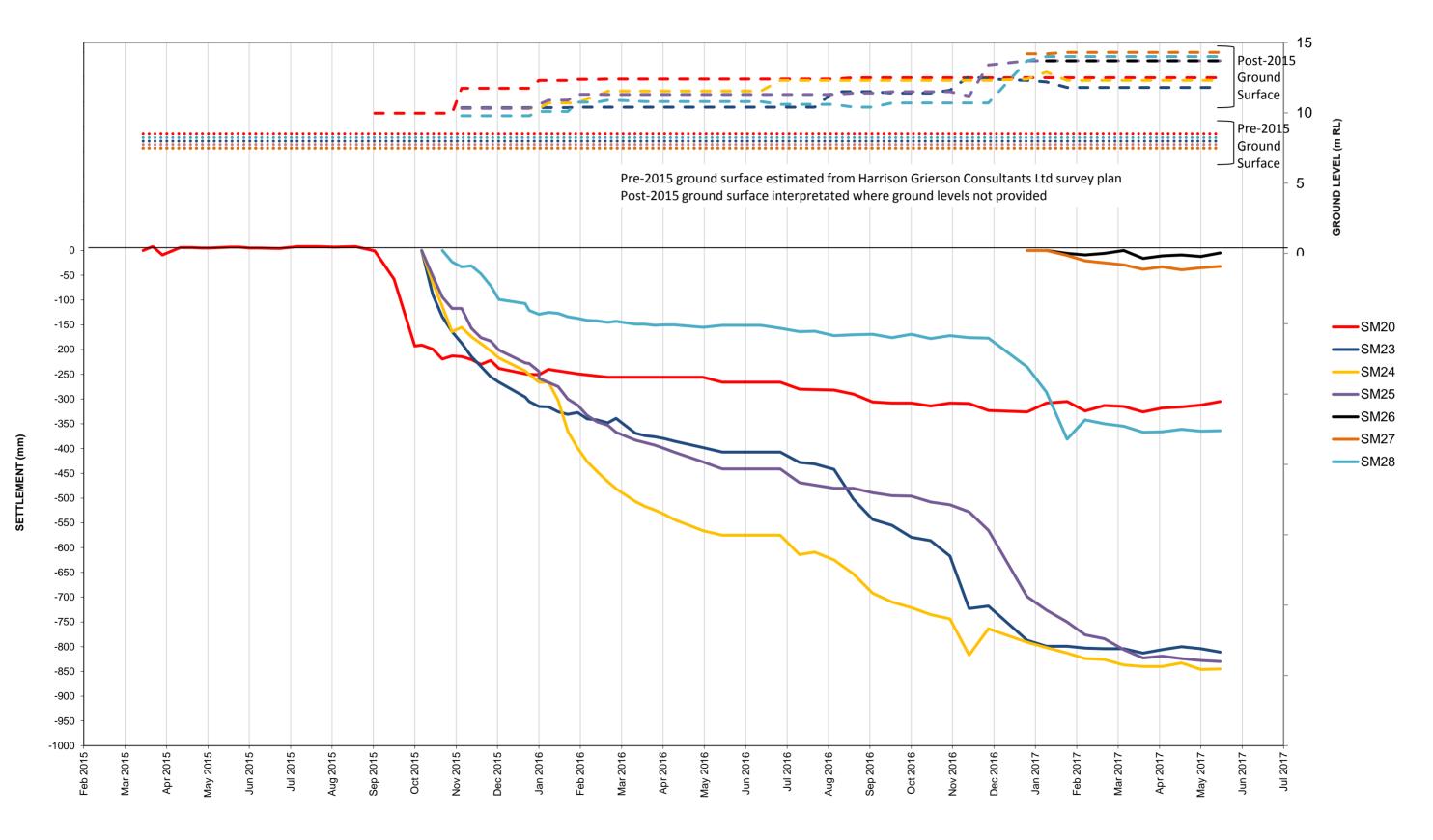
Wet density measurements that fall below 1.72t/m3 are not accredited due to being outside the NDM range of calibration. Shear strength values determined by Shear Vane (NZGS guidelines - 2001) and are accredited. Results located on page 2. Solid Density of 2.58t/m3 from FH report reference BOP15S-02607.

	Shear Strength Ave	
<b>Fest Location</b>	kPa	
373	176.5	UTP = Unable To Penetrate
374	224.5	
375	210.7	
376	211.5	
377	219.6	
378	UTP	
379	227,8	
380	227,8	
381	199,3	
382	UTP	

Appendix F – Static Settlement Results



### SETTLEMENT VS TIME

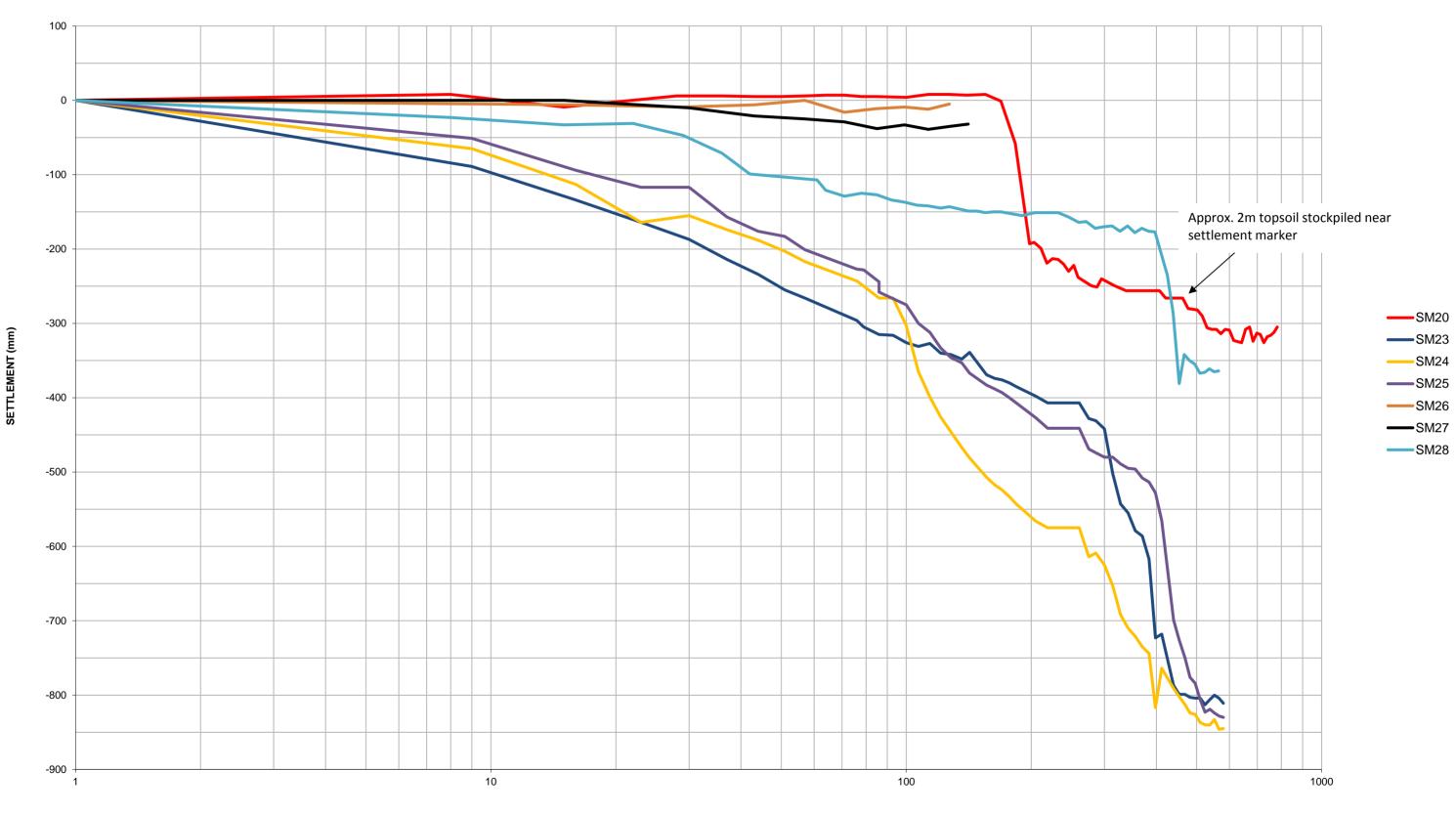


DATE

GENZTAUC13086AR-AD THE LAKES STAGE 2V GEOTECHNICAL COMPLETION REPORT SETTLEMENT MONITORING



SETTLEMENT VS TIME (LOG SCALE)



TIME (days, log scale)

F:\1.GENZ\1.GEOTECHNICS PROJECTS\13086AR THE LAKES 2UV CONSTRUCTION SUPERVISION\7. ANALYSES & DESIGN\SETTLEMENT\Plot 2