Geotechnical Report for Proposed Plan Change

Falcons Subdivision Proposed Extension

Issue Date: **25 November 2020**

Miyamoto Ref: **200357-RP-002[A]**

Prepared for: **Yoursection Ltd**

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Report Tracking

Revision	Status	Date	Prepared by	Reviewed by
A	FINAL	25 November 2020	C. Gibbens	C. McDermott

Authorisation

Author's Signature		**Approver's Signature**	
Name	Clem Gibbens	**Name**	Charles McDermott
Title	Engineering Geologist BSc MSc (Hons) MEngNZ	**Title**	Associate Geotechnical Engineer BEng (Hons) CMEngNZ CPEng

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Table of Contents

1. Introduction

Miyamoto International NZ Limited (MINZ) has been engaged by Yoursection Limited to undertake a geotechnical investigation, evaluation and land suitability assessment as part of the proposed land reclassification and plan change required for the proposed extension of the Falcons residential subdivision (encompassing 151 and 153 Lincoln Rolleston Road).

Our assessment comprised the following scope of works:

- Research of available information; including historic reports, the New Zealand Geotechnical Database (NZGD), Selwyn District Council (SDC) and Environment Canterbury (ECan);
- Site walkover inspection of the land;
- Shallow field investigation comprising:
    - Machine excavated trial pits (TP);
    - Dynamic cone penetrometer (DCP) testing.
- Geotechnical Assessment including high-level assessment of the site with regard to the Resource Management Act (RMA) Section 106.

This report presents the findings of our investigation and assessment which were carried out considering the Ministry of Business, Innovation & Employment (MBIE) Guidance documents “Planning and engineering guidance for potentially liquefaction-prone land” - Version 1, dated September 2017, “Repairing and rebuilding houses affected by the Canterbury earthquakes” - Version 3, dated December 2012, and “Earthquake geotechnical engineering practice - Modules 2 & 3”.

It is noted that this report is limited to geotechnical assessment. Advice related to other development requirements (such as roading infrastructure, pavements, services, stormwater management and contaminated land) should be sought from appropriately qualified personnel.

2. Site Description

The site (approximately 25 hectares in area) is located in a rural setting in Rolleston, Selwyn, south of the existing Falcons / Branthwaite residential subdivision, and encompasses the following land parcels (as shown in Figure 1):

- Lot 1 DP 357634;
- Lot 1 DP 50631 BLKS III IV Leeston SD.

The site is predominantly flat with a global elevation difference of 2.0 m to 3.0 m (increasing to the north-west). The land is predominantly grass covered farmland with residential dwellings, workshops and sheep farming buildings currently occupying two relatively small areas of the proposed development area.

Figure 1: Site Location / Layout Plan

3. Data Sources

The following sources of third-party information were considered and are referenced in this report:

- GNS Science - Geological Maps;
- New Zealand Geotechnical Database (NZGD);
- Environment Canterbury (ECan);
- Aurecon (2017). Falcons Landing Geotechnical Subdivision Report;
- Selwyn District Council (SDC);
- Canterbury Maps.

4. Geotechnical Assessment

Geological Setting

The geological map of the area (GNS 1:250,000 QMap) indicates that the site geology is described as 'modern (Quaternary) river floodplain/low-level degradation terraces of unweathered, variably sorted gravel/sand/silt/clay'.

Field Investigations

Miyamoto undertook a site-specific ground investigation on 17 November 2020, comprising:

- 27No. machine excavated trial pits (referenced TP001 to TP027);
- 27No. Dynamic Cone Penetrometer (DCP) tests associated with the above exploratory holes.

In addition to our site-specific investigation we have also utilised available geotechnical information from the surrounding subdivisions and a number of ECan well bores as part of our assessment.

The test locations are shown in Figure 2, the general details of the ground investigations are summarised in Table 1, and the engineering and well bore logs are presented in Appendix A.

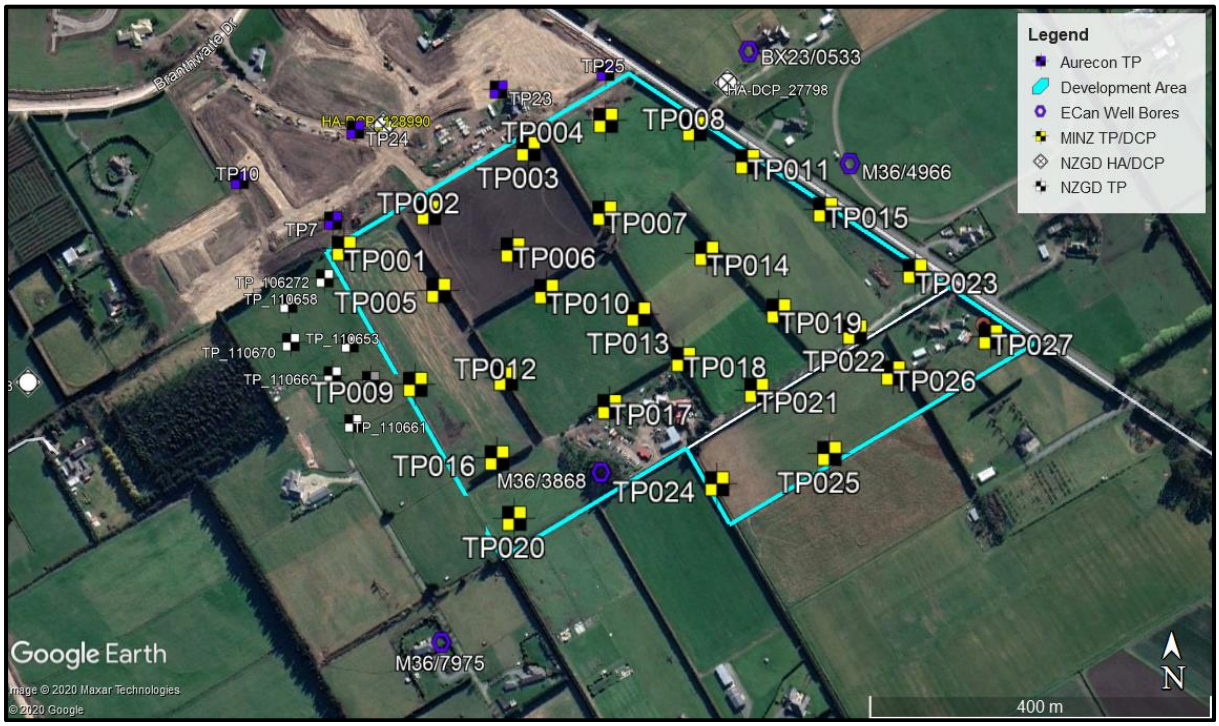

Figure 2: Ground Investigation Location Plan

Table 1: Summary of Ground Investigations

Test Ref.	Source	Source Ref.	Test Type	Depth (mbgl)
TP001 to TP027	MINZ	200357	TP / DCP	0.7 to 1.8
Various	Aurecon	254246	TP	1.6 to 1.7
Various	NZGD / Landtech	LTCL18051	TP / DCP	2.1 to 2.6
HA-DCP_128990	NZGD / Davis Ogilvie	39353	HA / DCP	1.2 to 1.7
HA-DCP_27798	NZGD / LDE	10774	TP / DCP	0.8 to 3.0
ECan Well Bores	ECan	Various	Rotary / Percussion / Cable Tool	37.0 to 48.0

Ground Conditions

The ground profile interpreted from the on-site shallow ground investigation, correlated with the available existing data, generally comprises a layer of topsoil (0.2 m to 0.4 m in thickness), overlying low plasticity, firm to stiff Sandy SILT to between 0.4 m and 1.1 mbgl, below which dense to very dense Sandy fine to coarse GRAVEL is present to depth. It is

noted that the upper 0.1 m to 0.2 of the gravel layer is more of a gravelly Sand and a relatively thin layer (0.2 m to 0.4 m) of sand was encountered at isolated locations.

Groundwater

Standing groundwater was not encountered during our site-specific investigation and the soils encountered were dry. Long-term groundwater level monitoring information available from ECan well bores from the surrounding area indicate the groundwater table to average around 10 to 13 mbgl with seasonal fluctuations reaching a shallowest level of ~6 mbgl.

Liquefaction Assessment

The site is located within an area of 'low geotechnical risk' as defined by Selwyn District Council (McCahon, 2013). The site is also located within an area identified as 'Liquefaction damage is unlikely' (2012), and a 'Zone of low liquefaction potential' (2006) as presented on the Canterbury Maps Viewer.

Based on our assessment (including the site-specific ground conditions and groundwater regime) we concur that the risk of damaging effects from liquefaction at the site is low with the seismic performance expected to be equivalent to MBIE Technical Category (TC) 1 as per the MBIE Guidance (2012).

NZS1170.5 Site Sub-soil Class

Based on our geotechnical assessment, geological maps and other available information, NZS1170.5 Site Sub-soil Class D (deep or soft soil site) is considered appropriate for the site.

Flood Hazard

The site is not currently located within one of the Flood Zones identified by Selwyn District Council, however, restrictions around building floor levels must be checked at building consent stage.

5. Development Considerations

At this stage in the project, the future development plans are not defined. However, considering likely residential subdivision similar to that in the local area, the following preliminary guidance is provided:

- Earthworks should be undertaken in general accordance with the requirements of NZS 4431:1989. All unsuitable materials should be stripped from the work areas and stockpiled clear of the operations or removed from site;
- Preliminarily, NZS3604 foundations are considered geotechnically feasible for NZS3604 compliant structures, subject to building-specific geotechnical investigations to assess the available bearing capacity.

It is noted that this report is limited to geotechnical assessment. Advice related to other development requirements (such as roading infrastructure, pavements, services,

stormwater management and contaminated land) should be sought from appropriately qualified personal.

6. Assessment Against RMA Section 106

As per the requirements of Section 106 of the Resource Management Act (RMA) (2017), we have undertaken a high-level assessment of the significant geotechnical hazards that may affect the site. These hazards include, but are not limited to:

- Erosion;
- Falling debris;
- Slippage;
- Subsidence
- Inundation.

At the time of our site visit, there was no evidence of erosion or erosional features on site. The shallow soils could be vulnerable to erosion if the topsoil layer is removed and left unprotected for prolonged periods of time. This can be easily mitigated with appropriate design measures during construction.

Given the proximity of the site to any source, rockfall (falling debris) is not considered a risk to the site and given the site is generally flat with only a minor gradual change in elevation across the site, slope instability (slippage) is not considered to be a risk.

On the basis of our geotechnical assessment herein, we do not consider subsidence (under either static or seismic loading) to be a significant hazard for normal construction (i.e. NZS3604 compliant buildings).

The site is not currently located within one of the Flood Zones identified by Selwyn District Council, however, restrictions around building floor levels must be checked at building consent stage.

Based on our assessment, we consider that the geotechnical hazards may be mitigated to an acceptable standard, provided that the geotechnical recommendations given in this report are followed, and the appropriate engineering measures implemented, we consider that the development is unlikely to be affected nor worsen, accelerate or result in material damage.

7. Limitations

This report is subject to the following limitations:

- This report has been prepared by Miyamoto for the Client for the purpose/s agreed with the Client (Purpose). Miyamoto accepts no responsibility for the validity, appropriateness, sufficiency or consequences of the Client using the report for purposes other than for the Purpose.
- This report is not intended for general publication or circulation. This report is not to be reproduced by the Client except in relation to the Purpose, without Miyamoto's prior written permission. Miyamoto disclaims all risk and all responsibility to any third party.
- This report is provided based on the various assumptions contained in the report.

- Miyamoto's professional services are performed using a degree of care and skill reasonably exercised by reputable consultants providing the same or similar services as at the date of this report.
- The sub surface information has been obtained from investigation carried out at discrete locations, which by their nature only provide information about a relatively small volume of subsoils. While Miyamoto has taken reasonable skill and care in carrying out the investigation to determine the subsoil condition, the subsoil condition could differ substantially from the results of any sampling investigation. Miyamoto is not responsible for and does not accept any liability in respect of any difference between the actual subsoil conditions and the results of our investigation.
- A change in circumstances, facts, information after the report has been provided may affect the adequacy or accuracy of the report. Miyamoto is not responsible for the adequacy or accuracy of the report as a result of any such changes.
- This report is not to be reproduced, either wholly or in part, without our prior written permission.

If you have any queries or you require any further clarification on any aspects of this report, please do not hesitate to contact Miyamoto International (NZ) Ltd.

References

Environment Canterbury, 2014. Canterbury Maps Viewer, http://canterburymaps.govt.nz/Viewer/#webmap

Environment Canterbury, Web app viewer - Flood Hazard, https://ecanmaps.ecan.govt.nz/portal/apps/webappviewer/index.html?id=57c74073c2f14a85ac0caf30073ae48a

Forsyth, P.J. ; Barrell, D.J.A. ; Jogens, R. (compilers) 2008. Geology of the Christchurch area. Institute of Geological and Nuclear Sciences 1: 250000 geological map 16. Lower Hutt, New Zealand.

GNS Science (2012). Review of liquefaction hazard information in eastern Canterbury, including Christchurch City and parts of Selwyn, Waimakariri and Hurunui Districts, Report No. R12/83

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Ministry of Business, Innovation, and Employment, 2012. *Repairing and rebuilding houses affected by the Canterbury earthquakes.*

New Zealand Geotechnical Database, 2017. Accessed via Google Earth from https://www.nzgd.org.nz/.

New Zealand Geotechnical Society (NZGS) and Ministry of Business, Innovation and Employment (MBIE) (2016). Earthquake geotechnical engineering practice Module 2: Geotechnical investigations for earthquake engineering, November 2016.

New Zealand Geotechnical Society (NZGS) and Ministry of Business, Innovation and Employment (MBIE) (2016). Earthquake geotechnical engineering practice Module 3: Identification, assessment and mitigation of liquefaction hazards, May 2016.

New Zealand Standard NZS1170.5 (2004). Structural Design Actions, Part 5: Earthquake Actions - New Zealand Standard, NZS 2004.

Selwyn District Council - District Plan Online Maps, https://eplan.selwyn.govt.nz/eplan/#/Property/7941662.

Appendices

A. Ground Investigation Data

MINZ site-specific investigation logs

ECan well bore logs

Aurecon 2017 investigation logs (nearby only)

LandTech 2018 investigation logs (nearby only)

Davis Ogilvie 2019 investigation logs (nearby only)

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PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP001

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.8 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	

Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
0.5	6, 8, 9, 9, 11, 13, 20	NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
1.0	Weight Bouncing			Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
1.5				**EOH (TARGET STRATA REACHED)**											
2.0															
2.5															

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

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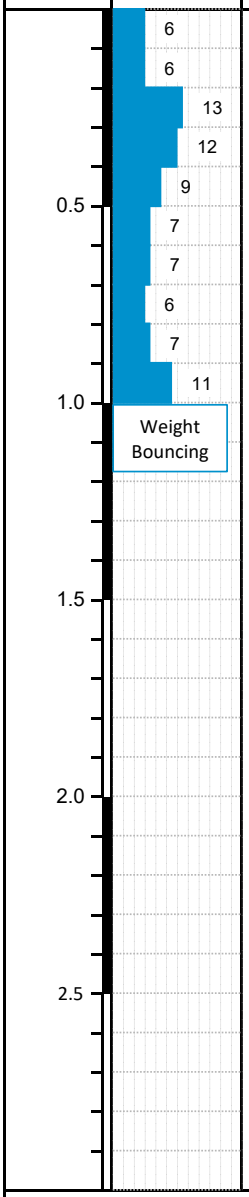
SHALLOW GROUND INVESTIGATION LOG

TP002

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**1.0 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI	Grain Size GR	Grain Size SA	Grain Size FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
0.0	6, 6, 13, 12, 9, 7, 7, 6, 7, 11	NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
1.0	Weight Bouncing			**EOH (TARGET STRATA REACHED)**											

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SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

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SHALLOW GROUND INVESTIGATION LOG

TP003

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.7 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	

Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
0.5	5 5 11 12 15 20 Weight Bouncing	NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
1.0				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
1.5				**EOH (TARGET STRATA REACHED)**											
2.0															
2.5															

LEGEND

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HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

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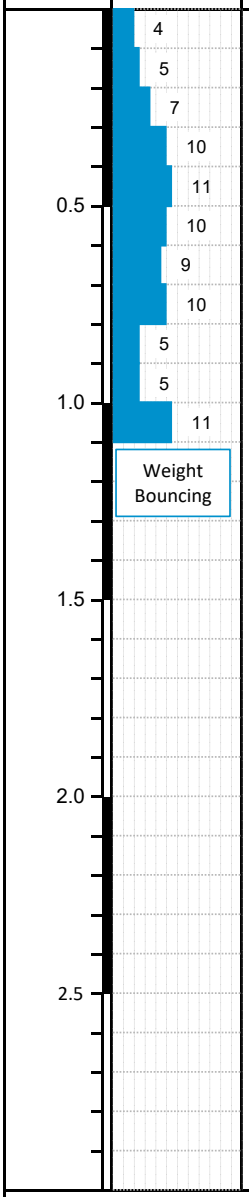
TP004

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**1.2 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
		NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				SAND; fine to medium, yellow-brown, dry											
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SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

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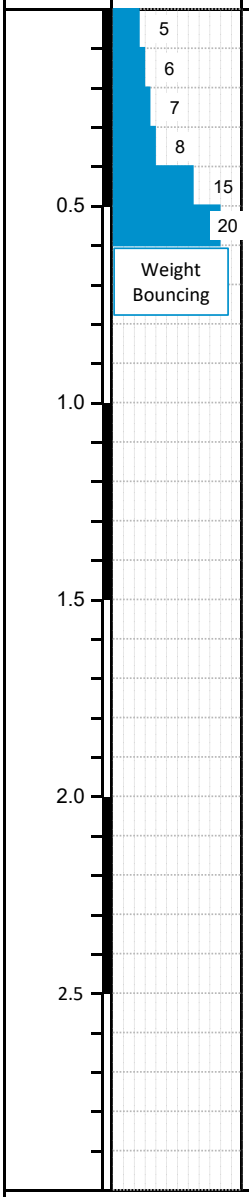
SHALLOW GROUND INVESTIGATION LOG

TP005

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.6 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
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TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
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PROJECT NUMBER:	**200357**
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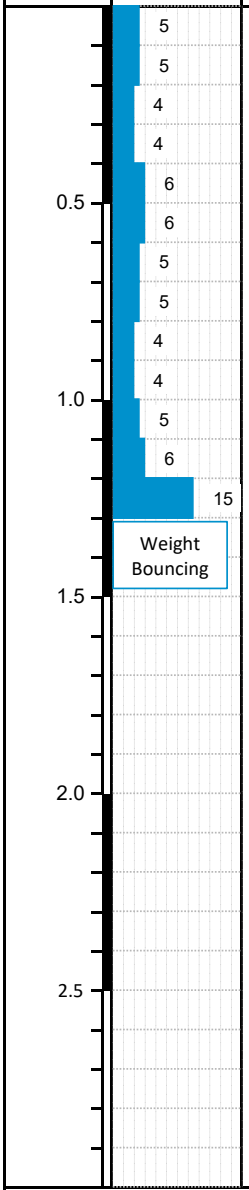
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP006

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**1.3 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
		NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
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PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP007

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.6 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	

Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description			Sample Taken	Lab Testing								Shear Vane Reading (kPa) peak/remoulded
							Atterberg Limits			Grain Size			WC (%)	UW	
			USC	Soil Characteristics	Graphic Log		LL	PL	PI	GR	SA	FC			
0.0	5 6 8 20 Weight Bouncing	NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
0.5				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											
1.0															
1.5															
2.0															
2.5															

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

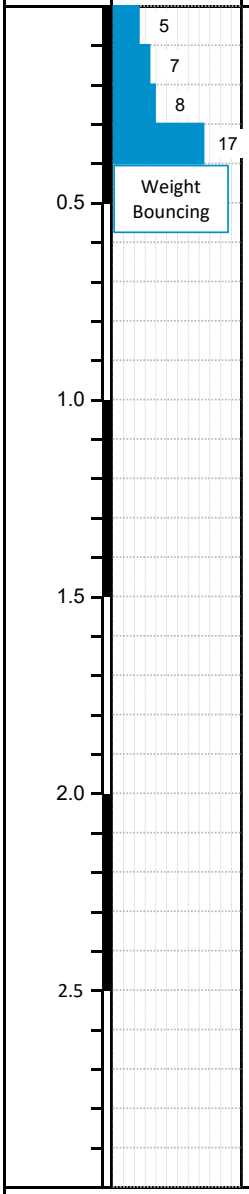
miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS

PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP008

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.5 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	PL	PI	Grain Size GR	SA	FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

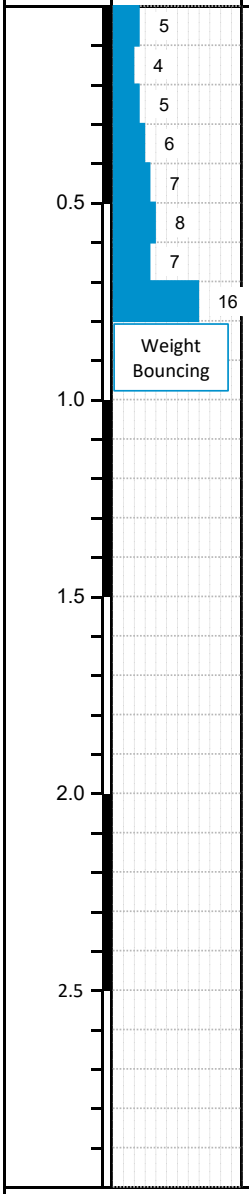
NOTES

miyamoto. ENGINEERS+ CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200357**
	CLIENT:	**Yoursection Ltd**
	TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP009

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.7 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

miyamoto. ENGINEERS+ CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200357**
	CLIENT:	**Yoursection Ltd**
	TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP010

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.7 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	

Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
0.5	5 4 4 2 7 16 Weight Bouncing	NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
1.0				**EOH (TARGET STRATA REACHED)**											
1.5															
2.0															
2.5															

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

miyamoto. ENGINEERS+ CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200357**
	CLIENT:	**Yoursection Ltd**
	TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP011

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.7 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	

Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
0.5	8 9 7 7 11 20 Weight Bouncing	NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
1.0				**EOH (TARGET STRATA REACHED)**											
1.5															
2.0															
2.5															

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

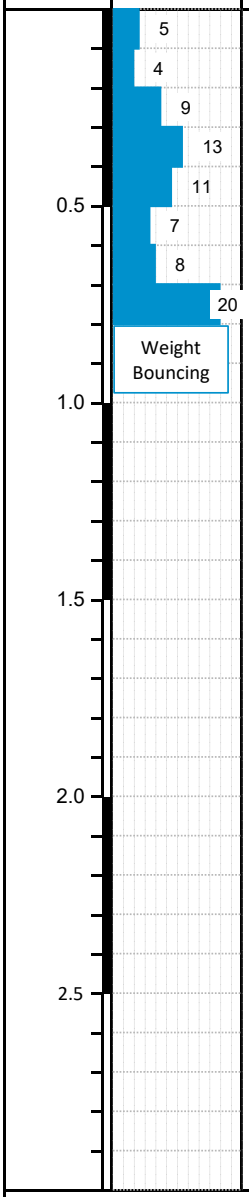
miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS

PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP012

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.8 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	PL	PI	Grain Size GR	SA	FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

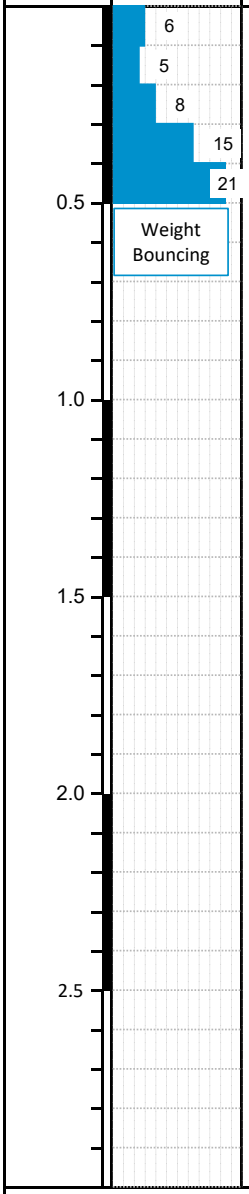
NOTES

miyamoto. ENGINEERS+ CONSTRUCTION CONSULTANTS	PROJECT NUMBER:	200357
	CLIENT:	Yoursection Ltd
	TESTING COMPLETED:	17 November 2020

SHALLOW GROUND INVESTIGATION LOG

TP013

PROJECT:	151 & 153 Lincoln Rolleston Road, Rolleston				
LOGGED BY:	CG	TOTAL TESTING DEPTH:	0.9 mbgl	HOLE DIAMETER:	50 mm
PROCESSED BY:	CG	TESTING METHOD:	TP + DCP	SHEAR VANE NUMBER:	-
LOCATION:	REFER TO SITE PLAN	GROUNDWATER LEVEL:	N/E	This report may only be reproduced in full	



Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI	Grain Size GR	Grain Size SA	Grain Size FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
		NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				SAND; fine to medium, yellow-brown, dry											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS

PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP014

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.5 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	

Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	PL	PI	Grain Size GR	SA	FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
0	8	NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
	15			Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
	15			Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
0.5	Weight Bouncing			**EOH (TARGET STRATA REACHED)**											
1.0															
1.5															
2.0															
2.5															

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

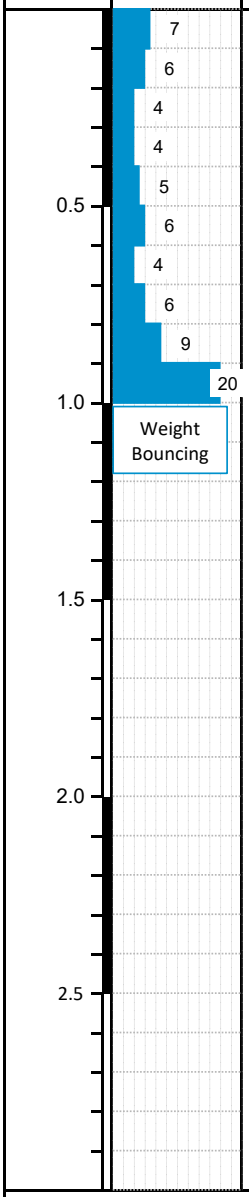
NOTES

miyamoto. ENGINEERS+ CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200357**
	CLIENT:	**Yoursection Ltd**
	TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP015

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**1.0 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS

PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP016

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.8 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	

Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	PL	PI	Grain Size GR	SA	FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
0.0	5	NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
	7			Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
	11														
0.5	20														
	Weight Bouncing														
1.0				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											
1.5															
2.0															
2.5															

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

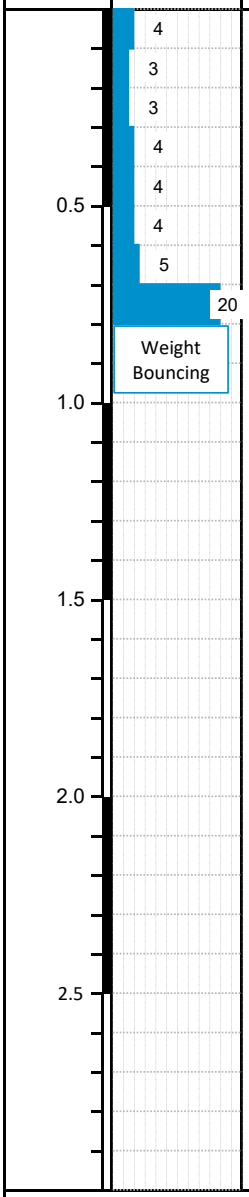
NOTES

miyamoto. ENGINEERS+ CONSTRUCTION CONSULTANTS	PROJECT NUMBER:	200357
	CLIENT:	Yoursection Ltd
	TESTING COMPLETED:	17 November 2020

SHALLOW GROUND INVESTIGATION LOG

TP017

PROJECT:	151 & 153 Lincoln Rolleston Road, Rolleston				
LOGGED BY:	CG	TOTAL TESTING DEPTH:	0.8 mbgl	HOLE DIAMETER:	50 mm
PROCESSED BY:	CG	TESTING METHOD:	TP + DCP	SHEAR VANE NUMBER:	-
LOCATION:	REFER TO SITE PLAN	GROUNDWATER LEVEL:	N/E	This report may only be reproduced in full	



Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI	Grain Size GR	Grain Size SA	Grain Size FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
		NOT ENCOUNTERED		EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

miyamoto. ENGINEERS+ CONSTRUCTION CONSULTANTS	PROJECT NUMBER:	200357
	CLIENT:	Yoursection Ltd
	TESTING COMPLETED:	17 November 2020

SHALLOW GROUND INVESTIGATION LOG

TP018

PROJECT:	151 & 153 Lincoln Rolleston Road, Rolleston				
LOGGED BY:	CG	TOTAL TESTING DEPTH:	0.4 mbgl	HOLE DIAMETER:	50 mm
PROCESSED BY:	CG	TESTING METHOD:	TP + DCP	SHEAR VANE NUMBER:	-
LOCATION:	REFER TO SITE PLAN	GROUNDWATER LEVEL:	N/E	This report may only be reproduced in full	

Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description			Sample Taken	Lab Testing								Shear Vane Reading (kPa) peak/remoulded
							Atterberg Limits			Grain Size			WC (%)	UW	
			USC	Soil Characteristics	Graphic Log		LL	PL	PI	GR	SA	FC			
0.0	5 8 20 Weight Bouncing	NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
0.5				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
1.0				EOH (TARGET STRATA REACHED)											
1.5															
2.0															
2.5															

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

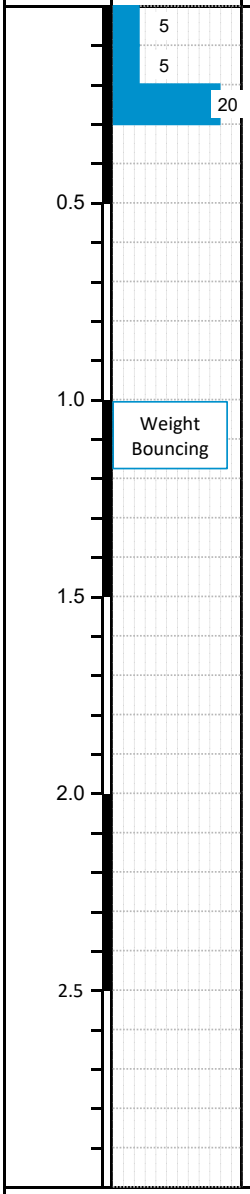
miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS

PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP019

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.4 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	PL	PI	Grain Size GR	SA	FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

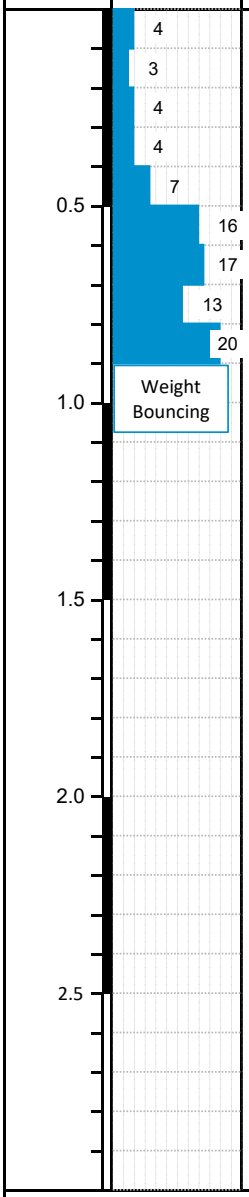
miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS

PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP020

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**1.2 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI	Grain Size GR	Grain Size SA	Grain Size FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

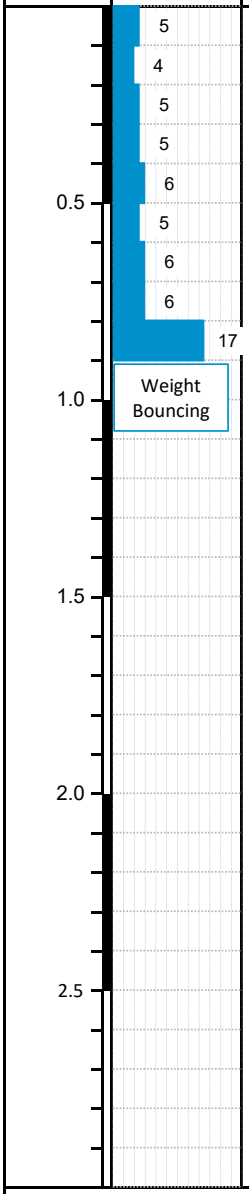
NOTES

miyamoto. ENGINEERS+ CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200357**
	CLIENT:	**Yoursection Ltd**
	TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP021

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.9 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI	Grain Size GR	Grain Size SA	Grain Size FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

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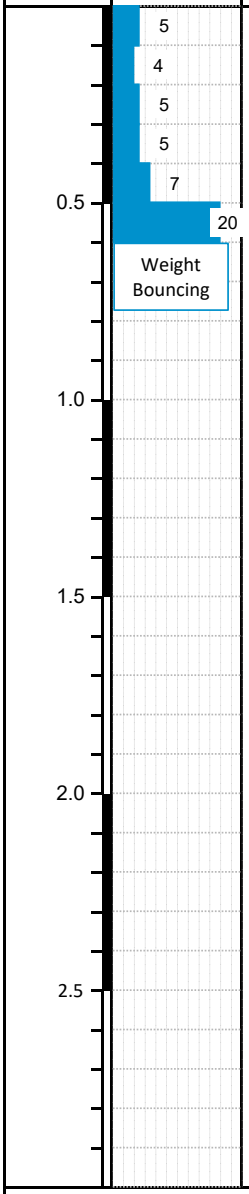
PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP022

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.6 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	PL	PI	Grain Size GR	SA	FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
		NOT ENCOUNTERED		**EOH (TARGET STRATA REACHED)**											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

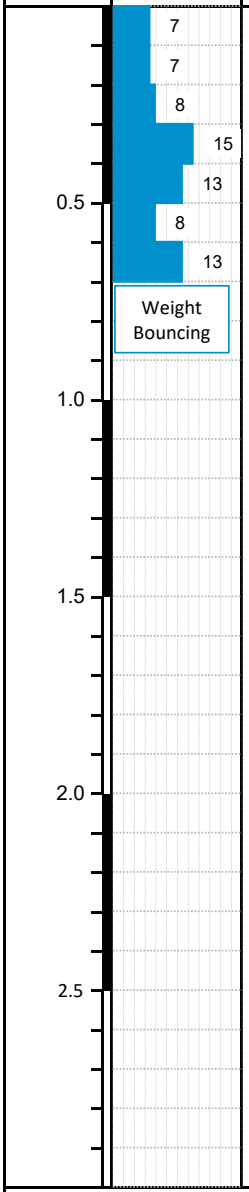
NOTES

miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200357**
	CLIENT:	**Yoursection Ltd**
	TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP023

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.9 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

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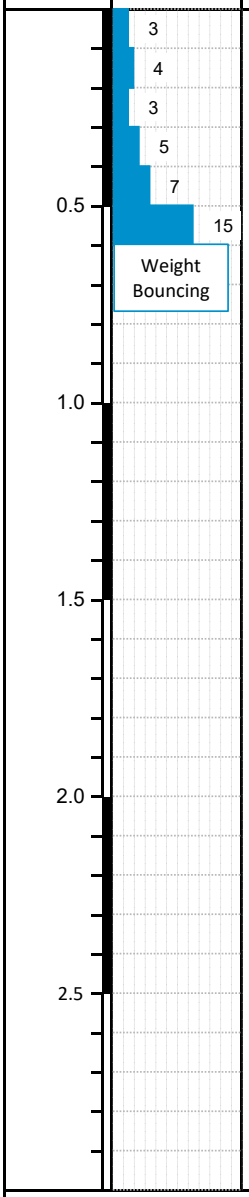
PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP024

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.9 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*GR*	*SA*	*FC*			
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

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PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP025

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.5 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	

Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	PL	PI	Grain Size GR	SA	FC	WC (%)	UW	Shear Vane Reading (kPa) peak/remoulded
0.0	4	NOT ENCOUNTERED		SILT; non-plastic, dark brown, dry (TOPSOIL)											
	4			Sandy SILT; low plasticity, yellow-brown, dry, sand is fine to medium											
	6			Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
0.5	15			**EOH (TARGET STRATA REACHED)**											
	Weight Bouncing														
1.0															
1.5															
2.0															
2.5															

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

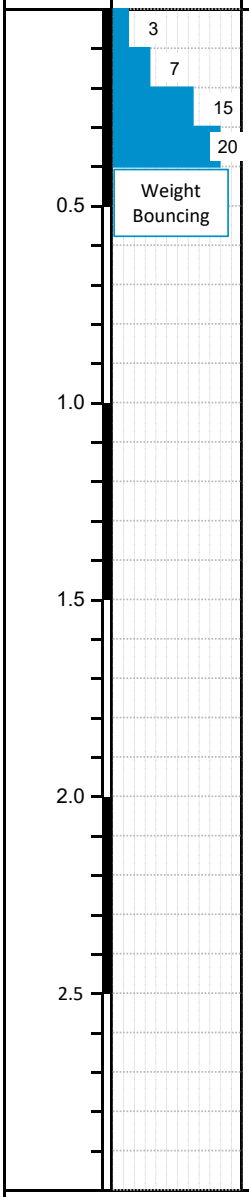
NOTES

miyamoto. ENGINEERS+ CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200357**
	CLIENT:	**Yoursection Ltd**
	TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP026

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.4 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
			USC	*Soil Characteristics*	*Graphic Log*		*Atterberg Limits*			*Grain Size*			*WC (%)*	*UW*	
							LL	*PL*	*PI*	*GR*	*SA*	*FC*			
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

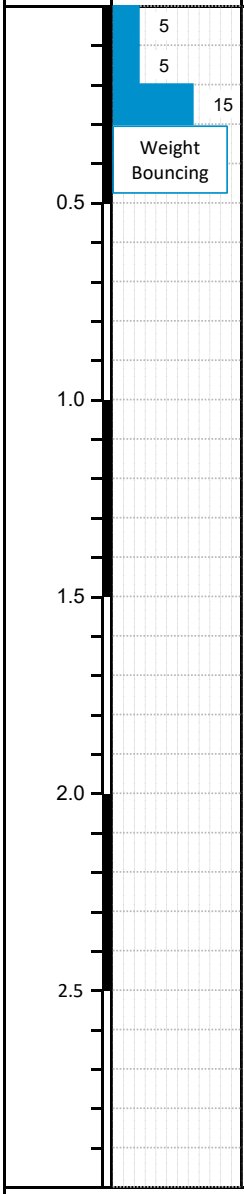
miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS

PROJECT NUMBER:	**200357**
CLIENT:	**Yoursection Ltd**
TESTING COMPLETED:	**17 November 2020**

SHALLOW GROUND INVESTIGATION LOG

TP027

PROJECT:	**151 & 153 Lincoln Rolleston Road, Rolleston**				
LOGGED BY:	**CG**	*TOTAL TESTING DEPTH:*	**0.3 mbgl**	*HOLE DIAMETER:*	**50 mm**
PROCESSED BY:	**CG**	*TESTING METHOD:*	**TP + DCP**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Shear Vane Reading (kPa) peak/remoulded*
			USC	*Soil Characteristics*	*Graphic Log*		*Atterberg Limits*			*Grain Size*			*WC (%)*	*UW*	
							LL	*PL*	*PI*	*GR*	*SA*	*FC*			
				SILT; non-plastic, dark brown, dry (TOPSOIL)											
				Gravelly fine to coarse SAND / Sandy Gravel; fine to coarse, grey, dry, gravel is subrounded to subangular											
				EOH (TARGET STRATA REACHED)											

LEGEND

ABBREVIATIONS

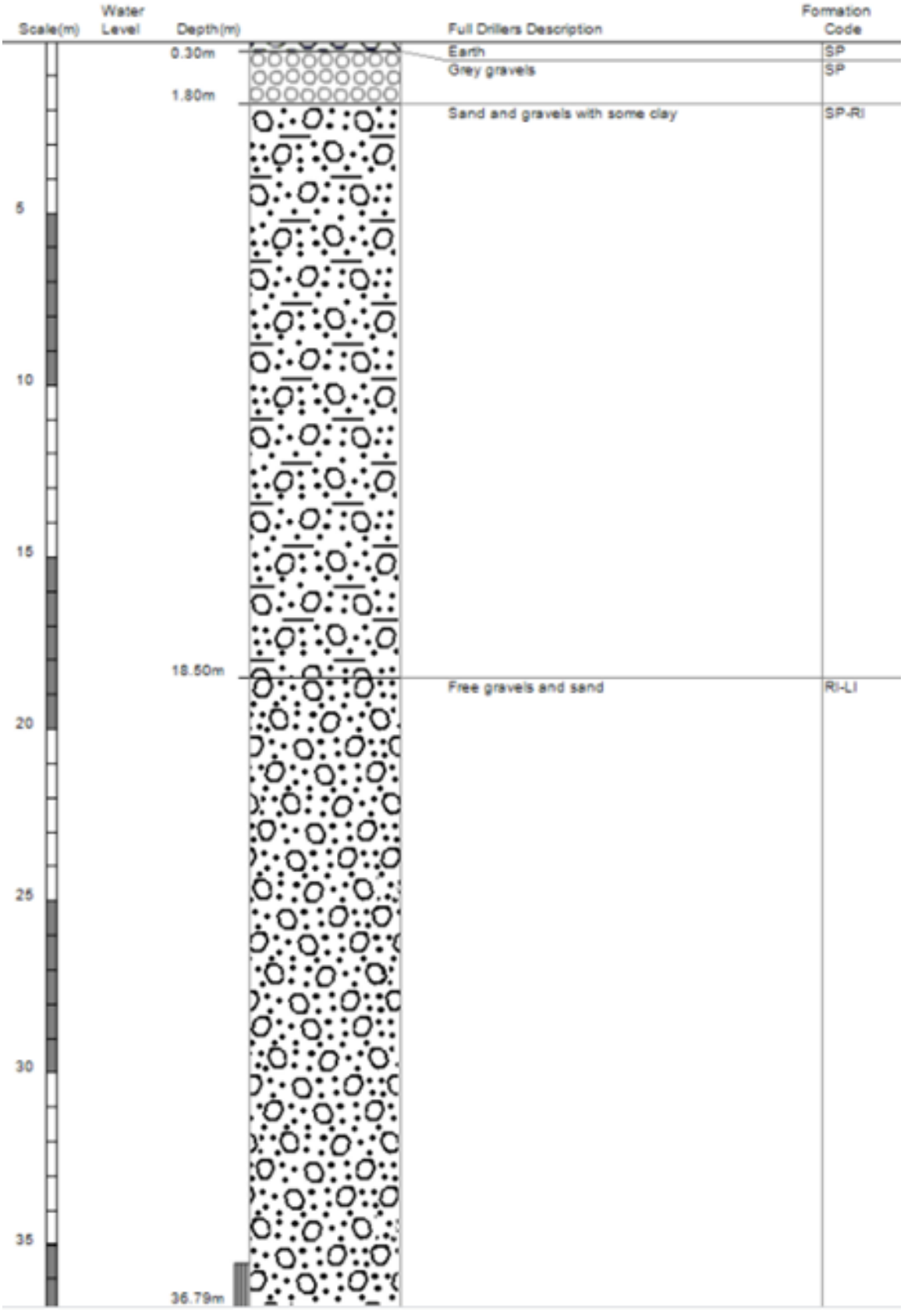
DCP	DYNAMIC CONE PENETROMETER	N/E	NOT ENCOUNTERED	LL	LIQUID LIMIT	GR	GRAVEL
HA	HAND AUGER	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	SA	SAND
SV	SHEAR VANE	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
TP	TEST PIT	UW	UNIT WEIGHT (kN/m^3)	WC	WATER CONTENT	▽	STANDING GWL
GWL	GROUNDWATER LEVEL	mbgl	METERS BELOW GROUND LEVEL				

NOTES

Borelog for well M36/3868

Grid Reference (NZTM): 1552494 mE, 5171203 mN
Location Accuracy: 10 - 50m
Ground Level Altitude: 38.4 m +MSD Accuracy: < 2.5 m
Driller: McMillan Drilling Ltd
Drill Method: Rotary/Percussion
Borelog Depth: 36.8 m Drill Date: 18-Jan-1988

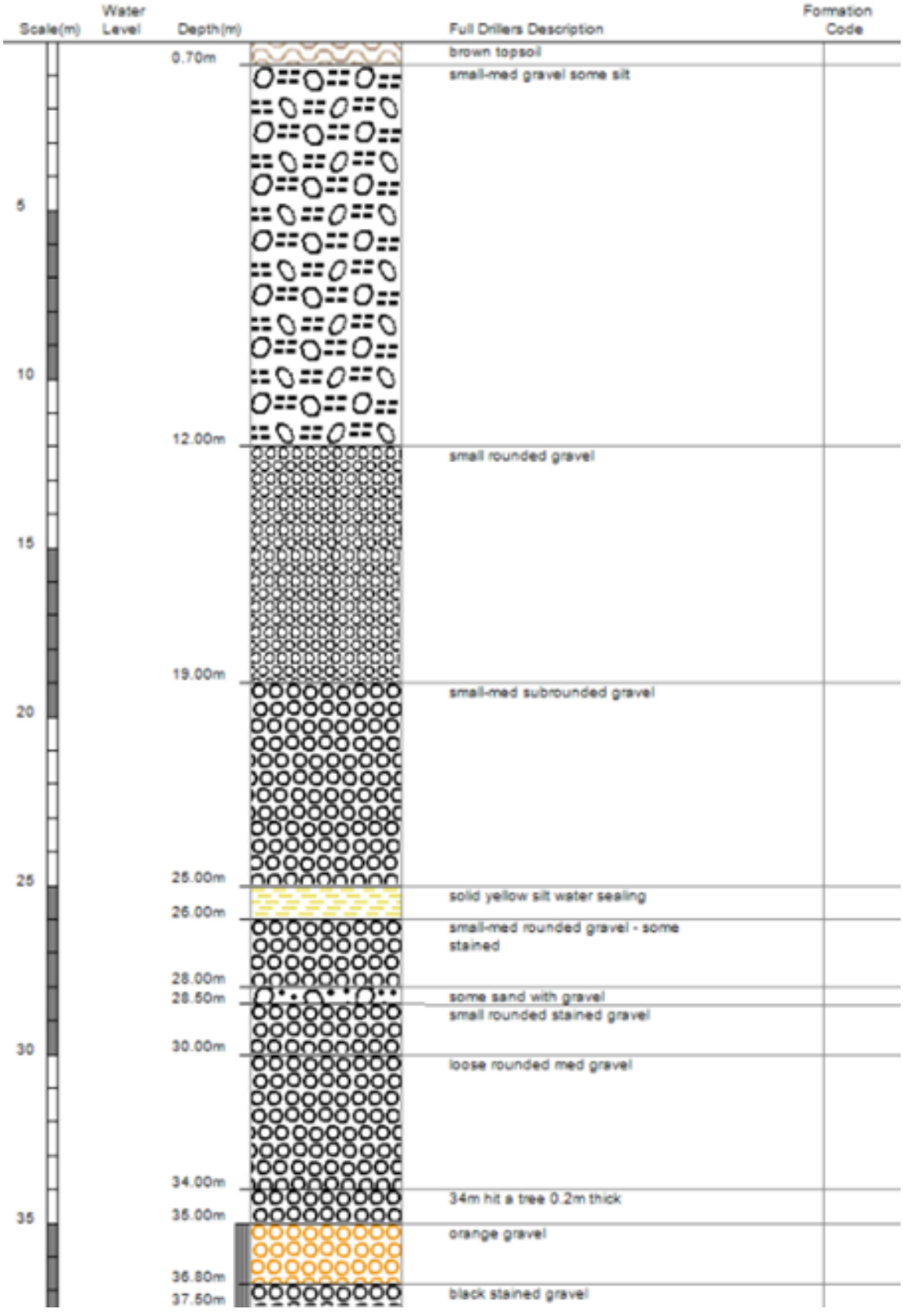
Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha



Borelog for well M36/7975

Grid Reference (NZTM): 1552317 mE, 5171001 mN
Location Accuracy: 50 - 300m
Ground Level Altitude: 37.7 m +MSD Accuracy: < 2.5 m
Driller: Dynes Road Drilling
Drill Method: Cable Tool
Borelog Depth: 37.5 m Drill Date: 05-Sep-2005

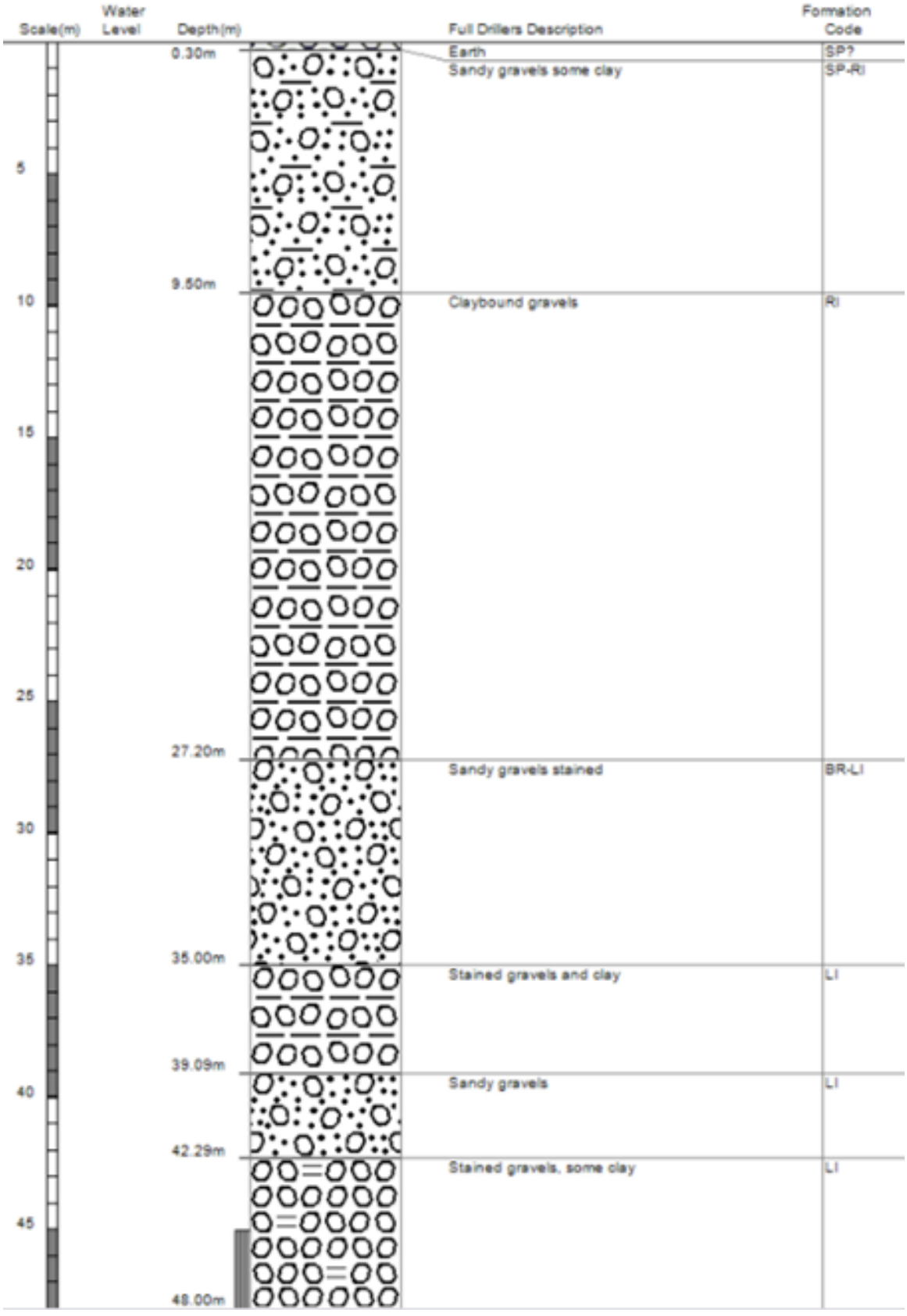
Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha



Borelog for well M36/4966

Grid Reference (NZTM): 1552787 mE, 5171550 mN
Location Accuracy: 50 - 300m
Ground Level Altitude: 38.6 m +MSD Accuracy: < 2.5 m
Driller: McMillan Drilling Ltd
Drill Method: Rotary/Percussion
Borelog Depth: 48.0 m Drill Date: 18-Aug-1995

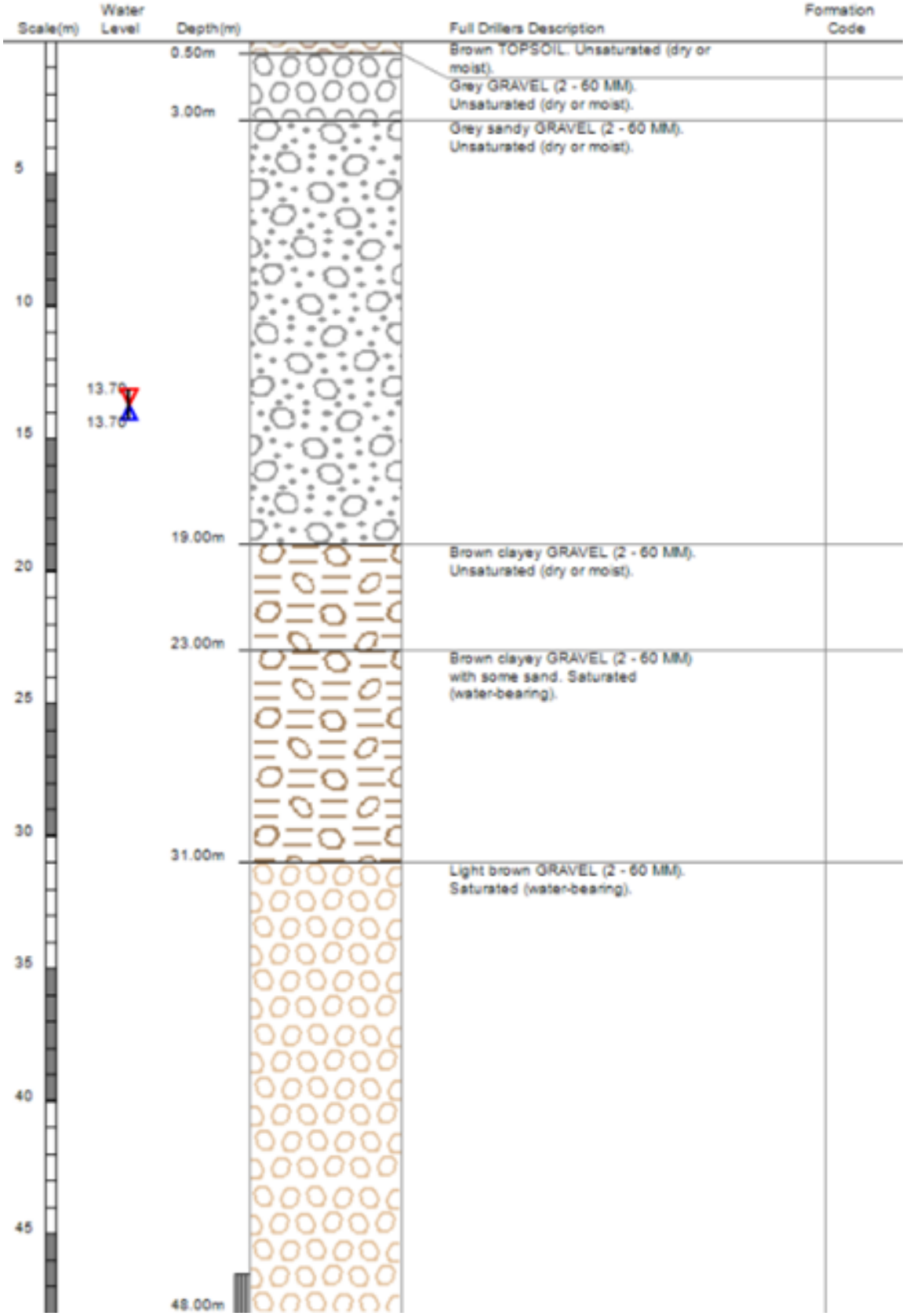
Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha



Borelog for well BX23/0533

Grid Reference (NZTM): 1552674 mE, 5171682 mN
Location Accuracy: 10 - 50m
Ground Level Altitude: m +MSD Accuracy:
Driller: East Coast Drilling
Drill Method: Air Rotary
Borelog Depth: 48.0 m Drill Date: 20-Nov-2015

Environment Canterbury Regional Council
Kaunihera Taiao ki Waitaha



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TEST PIT RECORD

TEST PIT NO. **TP7**

PROJECT NO. **254246**

PROJECT **Branthwaite Drive**

METHOD **TP**	CO-ORDINATES (NZTM) **E 1552186** **N 5171475**	LOGGED **T. MITCHELL**	CHECKED **A. HILLS**
MACHINE & NO. **Wheeled Excavator**		DATE **22/11/2016**	DATE **2/12/2016**
CONTRACTOR **Maugers**	GROUND LEVEL **+37.00** m RL		

STRATA			SAMPLES & TESTS		
Depth (m)	Legend	Description	Depth	No	Remarks/Tests
0.50		SILT with minor sand and trace of rootlets; dark brown. Moist, low plasticity; sand, fine. (TOPSOIL)			
1.40		SILT; light brown with orange-grey mottles. Moist, low plasticity. 1.20 - 1.40 Becomes with minor sand.			
1.70		Fine to coarse GRAVEL with minor sand, silt and cobbles; brownish grey. Moist, subrounded to rounded; sand, fine to medium.			
		End of Trial pit/trench at 1.70m, on 22/11/2016 *Termination Reason:* Target depth acheived.			

GENERAL REMARKS

SHORING/SUPPORT: **None**
STABILITY: **Generally Stable**

Groundwater not encountered.
Coordinates found using handheld GPS, likely accurate to +/- 5 m.
Ground level found using handheld GPS, likely accurate to +/- 10 m.

All dimensions in metres | CLIENT **GW Rolleston Ltd.** | ▷▷ Pocket Penetrometer Test ⌵ Insitu Vane Shear Test | ▼ Water Level

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TEST PIT RECORD

TEST PIT NO. **TP10**

PROJECT NO. **254246**

PROJECT **Branthwaite Drive**

METHOD **TP**	CO-ORDINATES (NZTM) **E 1552053** **N 5171529**	LOGGED **T. MITCHELL**	CHECKED **A. HILLS**
MACHINE & NO. **Wheeled Excavator**		DATE **22/11/2016**	DATE **2/12/2016**
CONTRACTOR **Maugers**	GROUND LEVEL **+43.00** m RL		

STRATA			SAMPLES & TESTS		
Depth (m)	Legend	Description	Depth	No	Remarks/Tests
0.25		SILT with minor sand and some rootlets; dark brown. Moist, low plasticity; sand, fine. (TOPSOIL)			
0.70		SILT with minor sand; light brown. Moist, low plasticity; sand, fine.			
1.60		Fine to coarse GRAVEL with some sand; greyish brown. Moist, subrounded to rounded; sand, fine to coarse.			
		End of Trial pit/trench at 1.60m, on 22/11/2016 *Termination Reason:* Target depth acheived.			

GENERAL REMARKS

SHORING/SUPPORT: **None**
STABILITY: **Generally Stable**

Groundwater not encountered.
Coordinates found using handheld GPS, likely accurate to +/- 5 m.
Ground level found using handheld GPS, likely accurate to +/- 10 m.

All dimensions in metres | CLIENT **GW Rolleston Ltd.** | Pocket Penetrometer Test | Insitu Vane Shear Test | Water Level

Aurecon New Zealand Limited, , . Tel: Fax:

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TEST PIT RECORD

TEST PIT NO. **TP23**

PROJECT NO. **254246**

PROJECT **Branthwaite Drive**

METHOD **TP**	CO-ORDINATES (NZTM) **E 1552359** **N 5171660**	LOGGED **T. MITCHELL**	CHECKED **A. HILLS**
MACHINE & NO. **Wheeled Excavator**		DATE **23/11/2016**	DATE **5/12/2016**
CONTRACTOR **Maugers**	GROUND LEVEL **+43.00** m RL		

STRATA			SAMPLES & TESTS		
Depth (m)	Legend	Description	Depth	No	Remarks/Tests
0.25		SILT with minor sand and rootlets; dark brown. Moist, low plasticity; sand, fine. (TOPSOIL)			
0.50		Silty fine SAND with trace of rootlets; brown. Dry.			
1.60		Fine to coarse GRAVEL with some sand, minor cobbles, trace of rootlets and occasional boulders; brown. Dry, subrounded to rounded; sand, fine to coarse. 1.00 Becomes with no rootlets; greyish brown.			
		End of Trial pit/trench at 1.60m, on 23/11/2016 *Termination Reason:* Target depth acheived.			

GENERAL REMARKS

SHORING/SUPPORT: **None**
STABILITY: **Generally Stable**

Groundwater not encountered.
Coordinates found using handheld GPS, likely accurate to +/- 5 m.
Ground level found using handheld GPS, likely accurate to +/- 10 m.

All dimensions in metres | CLIENT **GW Rolleston Ltd.** | ▷▷ **Pocket Penetrometer Test** ⌵ **Insitu Vane Shear Test** | ▼ **Water Level**

Aurecon New Zealand Limited, , . Tel: Fax:

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TEST PIT RECORD

TEST PIT NO. **TP24**

PROJECT NO. **254246**

PROJECT **Branthwaite Drive**

METHOD **TP**	CO-ORDINATES (NZTM) **E 1552208** **N 5171608**	LOGGED **T. MITCHELL**	CHECKED **A. HILLS**
MACHINE & NO. **Wheeled Excavator**		DATE **23/11/2016**	DATE **5/12/2016**
CONTRACTOR **Maugers**	GROUND LEVEL **+44.00** m RL		

STRATA			SAMPLES & TESTS		
Depth (m)	Legend	Description	Depth	No	Remarks/Tests
0.20		SILT with minor sand and tree roots (up to 10 mm); dark brown. Moist, low plasticity; sand, fine. (TOPSOIL)			
0.80		SILT with minor sand; brown. Moist, low plasticity; sand, fine.			
1.70		Fine to coarse GRAVEL with some sand, minor cobbles and trace of rootlets; light brown. Moist, subrounded to rounded; sand, medium. 1.20 Becomes with no rootlets.			
		End of Trial pit/trench at 1.70m, on 23/11/2016 *Termination Reason:* Target depth acheived.			

GENERAL REMARKS

SHORING/SUPPORT: **None**
STABILITY: **Generally Stable**

Groundwater not encountered.
Coordinates found using handheld GPS, likely accurate to +/- 5 m.
Ground level found using handheld GPS, likely accurate to +/- 10 m.

All dimensions in metres | CLIENT **GW Rolleston Ltd.** | ▷▷ Pocket Penetrometer Test ⌵ Insitu Vane Shear Test | ▼ Water Level

Aurecon New Zealand Limited, , . Tel: Fax:

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www.aurecongroup.com

TEST PIT RECORD

TEST PIT NO. **TP25**

PROJECT NO. **254246**

PROJECT **Branthwaite Drive**

METHOD **TP**	CO-ORDINATES (NZTM) **E 1552490** **N 5171658**	LOGGED **T. MITCHELL**	CHECKED **A. HILLS**
MACHINE & NO. **Wheeled Excavator**		DATE **23/11/2016**	DATE **5/12/2016**
CONTRACTOR **Maugers**	GROUND LEVEL **+44.00** m RL		

STRATA			SAMPLES & TESTS		
Depth (m)	Legend	Description	Depth	No	Remarks/Tests
0.35		SILT with minor sand and rootlets; dark brown. Moist, low plasticity; sand, fine. (TOPSOIL)			
0.70		SILT with some sand; brown. Moist, low plasticity; sand, fine.			
1.60		Fine to coarse GRAVEL with some sand and trace of rootlets; brownish grey. Moist, subrounded to rounded; sand, fine to medium. 0.70 - 0.80 Sand becomes medium to coarse, light brown. 1.30 Becomes with no rootlets.			
		End of Trial pit/trench at 1.60m, on 23/11/2016 *Termination Reason:* Target depth acheived.			

GENERAL REMARKS

SHORING/SUPPORT: **None**
STABILITY: **Generally Stable**

Groundwater not encountered.
Coordinates found using handheld GPS, likely accurate to +/- 5 m.
Ground level found using handheld GPS, likely accurate to +/- 10 m.

All dimensions in metres | CLIENT **GW Rolleston Ltd.** | ▷▷ Pocket Penetrometer Test ⌵ Insitu Vane Shear Test | ▼ Water Level

Aurecon New Zealand Limited, , . Tel: Fax:

LandTech CONSULTING

Client: Hank Developments Limited
Project: Proposed Subdivision
Address: 7/572 Selwyn Road, Rolleston

Augerhole No. HA01
Sheet No. 1 of 1

Drill Type:	8 Ton Excavator	Project No:	LTCL18051	Logged By:	BE
Drilled By:	BE	Coordinates:	NZTM: 1552177 mE, 5171418 mN	Shear Vane No:	N/A
Date Started:	6-Apr-18	Ground Conditions:	Grassed, Near level	Calibration Factor:	N/A
Date Finished:	6-Apr-18	Groundwater Level (m):	Not Encountered (6-Apr-18)	Calibration Date:	N/A

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
TOPSOIL	0.0		SILT, minor fine sand, minor organics, dark brown, medium dense, moist, non-plastic [TOPSOIL]
RIVER DEPOSITS	0.5		SILT, minor fine sand, yellowish brown, dense, moist, non-plastic [RIVER DEPOSITS]
	1.0		Fine to coarse subrounded greywacke gravelly fine to coarse SAND, trace subrounded greywacke cobbles, greyish brown, tightly packed, moist
	1.5		Fine to coarse subrounded greywacke GRAVEL, some to minor fine to coarse sand, greyish brown, tightly packed, moist
	2.0		Fine to coarse subrounded greywacke gravelly fine to coarse SAND, trace subrounded greywacke cobbles, greyish brown, tightly packed, moist
	2.5		
	3.0		End of Test Pit (2.6m)
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): 0.5

In-situ Field Testing

Shear Strength (kPa): Peak: / Remoulded: (0)

Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	3
-0.2	4
-0.3	5
-0.4	7
-0.5	8
-0.6	10
-0.7	12
-0.8	25 +
-0.9	
-1.0	
-1.1	
-1.2	
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Scala Blow Count / 100mm (0 5 10 15 20)

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

NZGD ID: TP_106272

LandTech CONSULTING

Client: Hank Developments Limited
Project: Proposed Subdivision
Address: 7/572 Selwyn Road, Rolleston

Augerhole No. HA02
Sheet No. 1 of 1

Drill Type:	8 Ton Excavator	Project No:	LTCL18051	Logged By:	BE
Drilled By:	BE	Coordinates:	NZTM: 1552207 mE, 5171344 mN	Shear Vane No:	N/A
Date Started:	6-Apr-18	Ground Conditions:	Grassed, Near level	Calibration Factor:	N/A
Date Finished:	6-Apr-18	Groundwater Level (m):	Not Encountered (6-Apr-18)	Calibration Date:	N/A

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
TOPSOIL	0.0		SILT, minor fine sand, minor organics, dark brown, medium dense, moist, non-plastic [TOPSOIL]
RIVER DEPOSITS	0.5		SILT, minor fine sand, trace subrounded greywacke gravel, yellowish brown, dense, moist, non-plastic [RIVER DEPOSITS]
	1.0		
	1.5		Fine to coarse sandy fine to coarse subrounded greywacke GRAVEL, trace to minor subrounded greywacke cobbles, greyish brown, tightly packed, moist
	2.0		
	2.5		End of Test Pit (2.2m)
	3.0		
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m)

In-situ Field Testing

Shear Strength (kPa)
Peak:
Remoulded:
0

Dynamic Cone Penetrometer
Scala Blow Count / 100mm
0 5 10 15 20

Depth (m)	Blow Count
-0.1	3
-0.2	3
-0.3	4
-0.4	7
-0.5	10
-0.6	11
-0.7	12
-0.8	10
-0.9	19
-1.0	25 +
-1.1	
-1.2	
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

In-situ field testing in accordance with the following Standards:
Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer
Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

NZGD ID: TP_110653

LandTech CONSULTING

Client: Hank Developments Limited
Project: Proposed Subdivision
Address: 7/572 Selwyn Road, Rolleston

Augerhole No. HA03
Sheet No. 1 of 1

Drill Type:	8 Ton Excavator	Project No:	LTCL18051	Logged By:	BE
Drilled By:	BE	Coordinates:	NZTM: 1552231 mE, 5171302 mN	Shear Vane No:	N/A
Date Started:	6-Apr-18	Ground Conditions:	Grassed, Near level	Calibration Factor:	N/A
Date Finished:	6-Apr-18	Groundwater Level (m):	Not Encountered (6-Apr-18)	Calibration Date:	N/A

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
TOPSOIL	0.0		SILT, minor fine sand, minor organics, dark brown, medium dense, moist, non-plastic [TOPSOIL]
RIVER DEPOSITS	0.5		SILT, minor fine sand, yellowish brown, dense, moist, non-plastic [RIVER DEPOSITS]
	1.0		Fine to coarse sandy, fine to coarse subrounded greywacke GRAVEL, trace subrounded cobbles, greyish brown, tightly packed, moist
	2.5		End of Test Pit (2.3m)

Groundwater Level (m)

In-situ Field Testing

Shear Strength (kPa)
Peak:
Remoulded:
0

Dynamic Cone Penetrometer
Scala Blow Count / 100mm
0 5 10 15 20

Depth (m)	Blow Count
-0.1	3
-0.2	2
-0.3	4
-0.4	6
-0.5	10
-0.6	12
-0.7	25 +

In-situ field testing in accordance with the following Standards:
Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer
Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

NZGD ID: TP_110656

LandTech CONSULTING

Client: Hank Developments Limited
Project: Proposed Subdivision
Address: 7/572 Selwyn Road, Rolleston

Augerhole No. HA04
Sheet No. 1 of 1

Drill Type:	8 Ton Excavator	Project No:	LTCL18051	Logged By:	BE
Drilled By:	BE	Coordinates:	NZTM: 1552136 mE, 5171389 mN	Shear Vane No:	N/A
Date Started:	6-Apr-18	Ground Conditions:	Grassed, Near level	Calibration Factor:	N/A
Date Finished:	6-Apr-18	Groundwater Level (m):	Not Encountered (6-Apr-18)	Calibration Date:	N/A

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
TOPSOIL	0.0		SILT, minor fine sand, minor organics, dark brown, medium dense, moist, non-plastic [TOPSOIL]
RIVER DEPOSITS	0.5		SILT, minor fine sand, yellowish brown, dense, moist, non-plastic [RIVER DEPOSITS]
	1.0		Fine to coarse sandy fine to coarse subrounded greywacke GRAVEL, trace to minor subrounded greywacke cobbles, greyish brown, tightly packed, moist
	1.5		
	2.0		
	2.5		End of Test Pit (2.2m)
	3.0		
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m): 0.5

In-situ Field Testing

Shear Strength (kPa): Peak: / Remoulded: (0)

Dynamic Cone Penetrometer

Depth (m)	Blow Count	Scala Blow Count / 100mm (0 5 10 15 20)
-0.1	3	
-0.2	4	
-0.3	3	
-0.4	8	
-0.5	10	
-0.6	12	
-0.7	25 +	
-0.8		
-0.9		
-1.0		
-1.1		
-1.2		
-1.3		
-1.4		
-1.5		
-1.6		
-1.7		
-1.8		
-1.9		
-2.0		
-2.1		
-2.2		
-2.3		
-2.4		
-2.5		
-2.6		
-2.7		
-2.8		
-2.9		
-3.0		
-3.1		
-3.2		
-3.3		
-3.4		
-3.5		
-3.6		
-3.7		
-3.8		
-3.9		
-4.0		
-4.1		
-4.2		
-4.3		
-4.4		
-4.5		
-4.6		
-4.7		
-4.8		
-4.9		
-5.0		

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

NZGD ID: TP_110658

LandTech CONSULTING

Client: Hank Developments Limited
Project: Proposed Subdivision
Address: 7/572 Selwyn Road, Rolleston

Augerhole No. HA07
Sheet No. 1 of 1

Drill Type:	8 Ton Excavator	Project No:	LTCL18051	Logged By:	BE
Drilled By:	BE	Coordinates:	NZTM: 1552139 mE, 5171345 mN	Shear Vane No:	N/A
Date Started:	6-Apr-18	Ground Conditions:	Grassed, Near level	Calibration Factor:	N/A
Date Finished:	6-Apr-18	Groundwater Level (m):	Not Encountered (6-Apr-18)	Calibration Date:	N/A

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
TOPSOIL	0.0		SILT, minor fine sand, minor organics, dark brown, medium dense, moist, non-plastic [TOPSOIL]
RIVER DEPOSITS	0.5		SILT, minor fine sand, yellowish brown, dense, moist, non-plastic [RIVER DEPOSITS]
	1.0		Fine to coarse sandy fine to coarse subrounded greywacke gravel, greyish brown, tightly packed, moist [RIVER DEPOSITS]
	1.5		trace to minor subrounded greywacke cobbles
	2.0		
	2.5		
	3.0		End of Test Pit (2.6m)
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m)

In-situ Field Testing

Shear Strength (kPa)
Peak:
Remoulded:
0

Dynamic Cone Penetrometer
Scala Blow Count / 100mm
0 5 10 15 20

Depth (m)	Blow Count
-0.1	3
-0.2	3
-0.3	4
-0.4	6
-0.5	8
-0.6	11
-0.7	25 +
-0.8	
-0.9	
-1.0	
-1.1	
-1.2	
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

In-situ field testing in accordance with the following Standards:
Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer
Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

NZGD ID: TP_110670

LandTech CONSULTING

Client: Hank Developments Limited
Project: Proposed Subdivision
Address: 7/572 Selwyn Road, Rolleston

Augerhole No. HA05
Sheet No. 1 of 1

Drill Type:	8 Ton Excavator	Project No:	LTCL18051	Logged By:	BE
Drilled By:	BE	Coordinates:	NZTM: 1552187 mE, 5171307 mN	Shear Vane No:	N/A
Date Started:	6-Apr-18	Ground Conditions:	Grassed, Near level	Calibration Factor:	N/A
Date Finished:	6-Apr-18	Groundwater Level (m):	Not Encountered (6-Apr-18)	Calibration Date:	N/A

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
TOPSOIL	0.0		SILT, minor fine sand, minor organics, dark brown, loose, moist, non-plastic [TOPSOIL]
RIVER DEPOSITS	0.5		SILT, minor fine sand, yellowish brown, medium dense, moist, non-plastic [RIVER DEPOSITS]
	1.0		Fine to coarse sandy fine to coarse subrounded greywacke GRAVEL, trace subrounded greywacke cobbles, greyish brown, tightly packed, moist
	2.0		End of Test Pit (2.1m)

Groundwater Level (m): Depth (m) 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0

In-situ Field Testing

Shear Strength (kPa): Peak: / Remoulded: 0

Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	2
-0.2	2
-0.3	3
-0.4	4
-0.5	5
-0.6	8
-0.7	8
-0.8	8
-0.9	7
-1.0	8
-1.1	
-1.2	
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Scala Blow Count / 100mm: 0 5 10 15 20

In-situ field testing in accordance with the following Standards:

Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer

Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

NZGD ID: TP_110660

LandTech CONSULTING

Client: Hank Developments Limited
Project: Proposed Subdivision
Address: 7/572 Selwyn Road, Rolleston

Augerhole No. HA06
Sheet No. 1 of 1

Drill Type:	8 Ton Excavator	Project No:	LTCL18051	Logged By:	BE
Drilled By:	BE	Coordinates:	NZTM: 1552211 mE, 5171252 mN	Shear Vane No:	N/A
Date Started:	6-Apr-18	Ground Conditions:	Grassed, Near level	Calibration Factor:	N/A
Date Finished:	6-Apr-18	Groundwater Level (m):	Not Encountered (6-Apr-18)	Calibration Date:	N/A

Stratigraphy	Depth (m)	Graphic Log	Soil description in accordance with *Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes*, NZ Geotechnical Society Inc., 2005
TOPSOIL	0.0		SILT, minor fine sand, minor organics dark brown, loose, moist, non-plastic [TOPSOIL]
RIVER DEPOSITS	0.5		SILT, minor to some fine sand, yellowish brown, medium dense, moist, non-plastic [RIVER DEPOSITS]
	1.0		Fine to coarse sandy fine to coarse subrounded greywacke GRAVEL, trace subrounded greywacke cobbles, greyish brown, tightly packed, moist
	1.5		
	2.0		
	2.5		End of Test Pit (2.2m)
	3.0		
	3.5		
	4.0		
	4.5		
	5.0		

Groundwater Level (m)

In-situ Field Testing

Shear Strength (kPa)
Peak:
Remoulded:
0

Dynamic Cone Penetrometer

Depth (m)	Blow Count
-0.1	2
-0.2	3
-0.3	3
-0.4	4
-0.5	5
-0.6	5
-0.7	25 +
-0.8	
-0.9	
-1.0	
-1.1	
-1.2	
-1.3	
-1.4	
-1.5	
-1.6	
-1.7	
-1.8	
-1.9	
-2.0	
-2.1	
-2.2	
-2.3	
-2.4	
-2.5	
-2.6	
-2.7	
-2.8	
-2.9	
-3.0	
-3.1	
-3.2	
-3.3	
-3.4	
-3.5	
-3.6	
-3.7	
-3.8	
-3.9	
-4.0	
-4.1	
-4.2	
-4.3	
-4.4	
-4.5	
-4.6	
-4.7	
-4.8	
-4.9	
-5.0	

Scala Blow Count / 100mm
0 5 10 15 20

In-situ field testing in accordance with the following Standards:
Scala Penetrometer Testing: NZS 4402:1988, Test 6.5.2, Dynamic Cone Penetrometer
Shear Vane Testing: Guideline for Hand Held Shear Vane Test, NZGS, August 2001

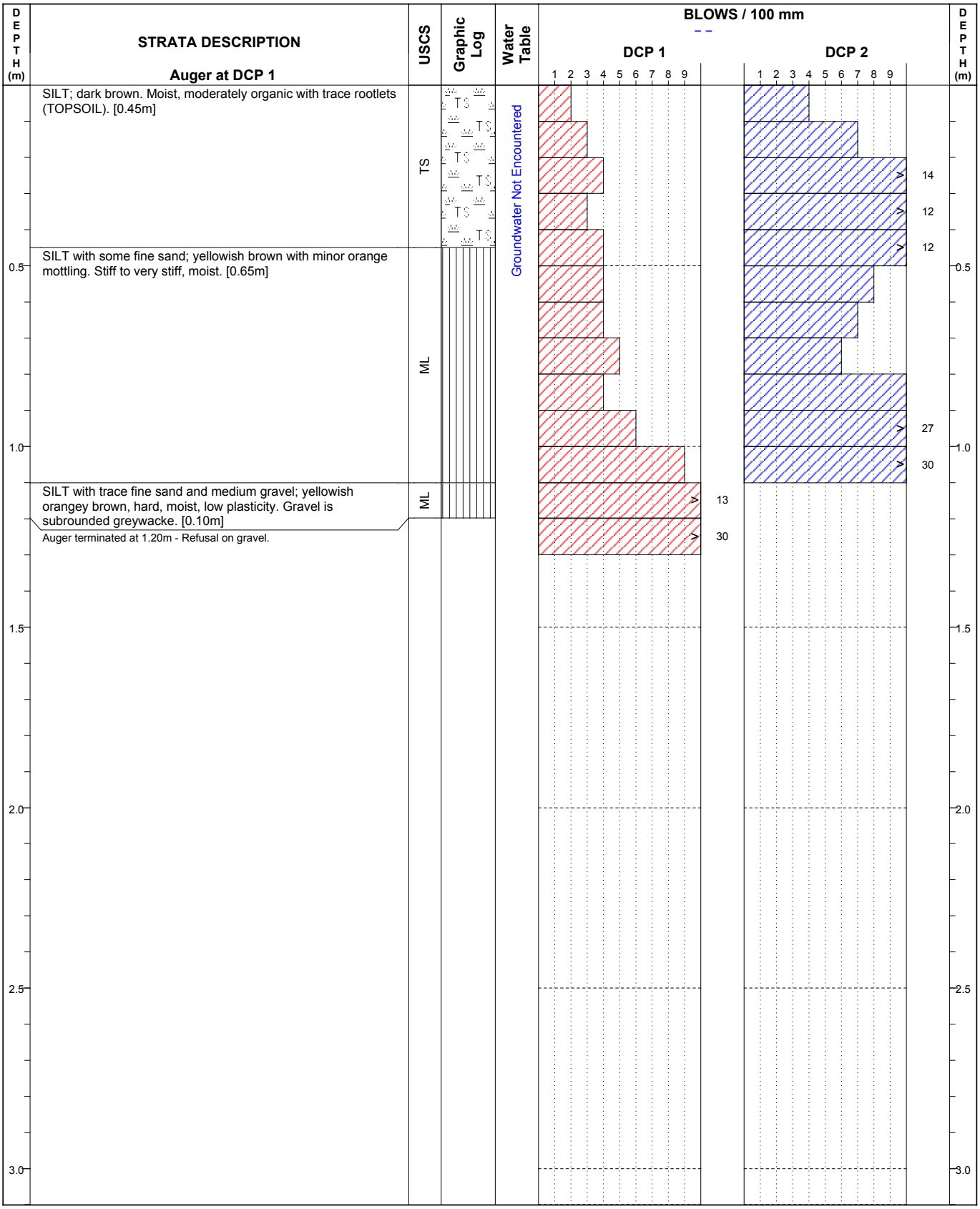
NZGD ID: TP_110661

DAVIS OGILVIE
Davis Ogilvie & Partners Limited
Level 1, 24 Moorhouse Avenue,Addington, Christchurch 8140
Office 0800 999 333 Email hello@do.nz
www.do.nz

SHALLOW INVESTIGATION RESULTS

Job Nº /39353
Test Nº /DCP 1 + HA DCP 2

Project:	19 Raptor Street, Falcons Landing, Rolleston (Lot 298 DP 532807)	**Date:**	28/08/19
Client:	Compass Homes	**Time:**	10:00 a.m.
Test Location:	Refer to attached Geotechnical Site Plan (DWG G01A)	**Excavation Method:**	DCP+HA



Logged By:	HC+GC	**Notes:**	Dynamic Penetrometer Test and logs give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building. Dynamic Cone Penetrometer Test performed in accordance with NZS 4402 Test 6.5.2 (Procedure 1 and 2)
Plotted By:	GC		
Checked By:	HC		

NZGD ID: HA-DCP_128990

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SHALLOW INVESTIGATION RESULTS

Job Nº /**39353**
Test Nº /**DCP 3 + HA DCP 4**

Project:	19 Raptor Street, Falcons Landing, Rolleston (Lot 298 DP 532807)	**Date:**	28/08/19
Client:	Compass Homes	**Time:**	10:00 a.m.
Test Location:	Refer to attached Geotechnical Site Plan (DWG G01A)	**Excavation Method:**	DCP+HA

DEPTH (m)	STRATA DESCRIPTION Auger at DCP 3	USCS	Graphic Log	Water Table
0.0	SILT; dark brown. Moist, moderately organic with trace rootlets (TOPSOIL). [0.50m]	TS		Groundwater Not Encountered
0.5	SILT with some fine sand; yellowish brown with minor orange mottling. Stiff, moist. [0.90m]	ML		
1.0				
1.5	SILT with trace fine sand, yellowish orangey brown. Hard, moist, low plasticity. [0.10m]	ML		
	Fine and medium SAND with some silt; greyish brown. Dense, wet. [0.10m]	SM		
	SILT with trace fine sand; mottled orange and grey. Hard, moist, low plasticity. [0.10m]	ML		
	Auger terminated at 1.70m - Refusal on gravel.			
2.0	1.7m: Sandy fine and medium gravel recovered			
2.5				
3.0				

BLOWS / 100 mm

DCP 3	DCP 4
15	28
16	30
30	

Logged By:	HC+GC
Plotted By:	GC
Checked By:	HC

Notes:

Dynamic Penetrometer Test and logs give an indication of the ground condition at the location of the tests only. While they are representative of typical conditions across the site, they do not identify variations in the ground away from the test locations. This log does not cover slope stability or suitability of the site for building.

Dynamic Cone Penetrometer Test performed in accordance with NZS 4402 Test 6.5.2 (Procedure 1 and 2)

NZGD ID: HA-DCP_128990