

14 August 2023

STAGES 2C, 2D, 3B & 3C WOONG TREE SUBDIVISION

64 SHORTCUT ROAD, CROMWELL

GEOTECHNICAL COMPLETION REPORT

Woong Tree Property Development LP

TGA2022-0063AE Rev 1

TGA2022-0063AE		
Date	Revision	Comments
21 July 2023	A	Initial draft for internal review
8 August 2023	0	Final issue to client
14 August 2023	1	Revised issue to client


	Name	Signature	Position
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1 INTRODUCTION

This Geotechnical Completion Report (GCR) has been prepared for Wooing Tree Property Development LP as part of the documentation to be submitted to Central Otago District Council (CODC) following residential subdivision development.

This report covers the earthworks construction for Stages 2D, 3B, and 3C, and Lots 208 and 209 of Stage 2C within the Wooing Tree Estate development located at 64 Shortcut Road, Cromwell, as shown on the appended Site Location Plan (**Drawing 01**). CMW previously undertook an investigation and reporting (ref. TGA2022-0063AB Rev 1, dated 12 January 2023) within the site to support a GCR for Stage 2 of the Wooing Tree Estate development (referred to herein as Stages 2A, 2B, and Lots 237 to 240 of Stage 2D).

This report is intended to be used for geotechnical certification purposes for 92 new residential lots and 3 commercial lots, numbered between Lots 208 to 603, created from existing Lot 200 DP 560535.

It provides a review of existing geotechnical investigations, relevant earthfill quality control data together with as-built plans provided by Paterson Pitts Group (PPG).

2 DESCRIPTION OF SUBDIVISION

The contour of the original landform, prior to development earthworks, is similar to that of the as-built contour presented on the **PPG plans** in **Appendix C** and depicts level topography at approximately RL 212m.

As depicted on the appended Cut Fill Contour Plan (refer **Appendix C**), the ground levels have been modified slightly by earthworks typically involving shallow cuts of up to 1.5m to form access roads and fills of up to 2.0m to form a perimeter buffer bund in the west. Some areas of uncontrolled fill were also undercut and replaced with engineered fill.

Access to the collective Stages 2C, 2D, 3B and 3C is via Vintage Street and Blondie Drive through the completed Stage 1, Wooing Tree Development. These stages consist of 92 flat residential lots ranging in size from 253m² to 730m², 3 commercial lots ranging in size from 1830m² and 2955m², and 5 internal roads.

Wastewater and concentrated stormwater flows will connect to Council reticulation via the developments network currently under construction.

3 DESCRIPTION OF EARTHWORKS

Bulk earthworks were carried out by Civil Construction Ltd (CCL) across Stages 2C, 2D, 3B and 3C from July 2022 to October 2022.

During subdivision earthworks, the original grape vines were pulled out with the roots either excavated or the main organic root ball removed by 'root-raking' with tynes on the back of a bulldozer. Test pits were excavated prior to and following the root-raking, which suggest that the raking process was effective in breaking up and removing the main root ball mass. Roots that did remain appeared to comprise individual small diameter discontinuous root fibres and strands spread throughout the sandy soil profile.

Earthworks observations and testing were undertaken by Civil Construction Limited and Central Testing Services (CTS) and certified by B F Whitham. A copy of the B F Whitham Quality Assurance Report presenting a summary of observations and test results can be found in **Appendix E**.

Civil works within Stages 2C, 2D, 3B and 3C are being undertaken by Benchmark Construction Ltd.

4 GROUND MODEL

4.1 Published Geology

Published geological maps¹ for the Cromwell area depict the regional geology as comprising Middle Quaternary glacial outwash deposits consisting of silts to sandy gravels associated with the last glacial retreat approximately 11.7k years ago.

4.2 Field Investigations

CMW Geosciences undertook a geotechnical investigation across the Wooing Tree Estate Development in late March 2022 to assess the near surface soil profile. All fieldwork was carried out under the direction of CMW in general accordance with the NZGS guidance². Logging of soils was done by a CMW Engineering Geologist in general accordance with NZGS guidelines³. The scope of work carried out was as follows:

- A walkover survey of the site was undertaken to assess the general landform and site conditions;
- Nine test pits, denoted TP01 to TP09, were excavated using a 20-tonne hydraulic excavator to depths or between 3.0 metres and 3.5 metres below existing ground levels. Engineering Logs and Photographs of the test pits are presented in **Appendix D**;
- Dynamic Cone Penetrometer (DCP) tests were carried out adjacent to the test pits to a maximum depth of 3.8m (refusal). DCP results show that the soils are loose to very dense with values ranging from 2 to 20 blows per 100mm of penetration.

The approximate locations of the respective test pits referred to above are shown on the Geotechnical Investigation Plan (**Drawing 01**).

Following bulk earthworks, post-construction testing within each lot across Stage 3 was undertaken by CTS between 4 May and 12 May 2023 and comprised:

- A post-construction hand auger borehole with Dynamic Cone Penetrometer testing near the centre of each lot to a target depth of 2.0m. DCP test results along with a description of the materials encountered in the hand auger boreholes are presented in **Appendix F**.

4.3 Stratigraphic Units

The ground conditions encountered during the investigations are consistent with the published geology for the area and are summarised in Table 1.

¹ www.gns.cri.nz

² NZ Geotechnical Society et al, New Zealand Ground Investigation Specification, Vol 1, April 2017.

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

Table 1: Summary of Soil Stratigraphy

Unit	Approximate Depth to Top (m)		Approximate Thickness (m)	
	Min	Max	Min	Max
Topsoil – Organic SILT*	0.0	0.0	0.0	0.2
Silty Fine SANDS* – <i>loose to dense</i>	0.0	0.2	0.25	1.4
Fine to Coarse SAND & GRAVELS – <i>medium dense to very dense</i>	0.2	0.5	>1.5	>2.0

Notes: *Unit not found within every test pit.

4.4 Groundwater

Groundwater was not encountered in any of the investigation holes and test pits. A review of a Cromwell Aquifer Study⁴ indicates that the regional groundwater level is located at approximately RL194m, approximately 17m below the existing ground level which approximately coincides with the water level of nearby Lake Dunstan.

5 EVALUATION OF COMPLETED LANDFORM

5.1 Contractors Work

The majority of the construction observations and testing were overseen by others. As such, we have relied on the Contractor's diligence and observations and test records of CCL, B F Whitham, and PPG for construction observations to ensure that the works have been carried out in accordance with:

- a) The approved Contract drawings and design details;
- b) The approved Contract specifications.
- c) The conditions of Resource, Earthworks and Building Consents where applicable.
- d) The relevant Geotechnical Investigation reports, recommendations, and site instructions.
- e) That all as-built information and other details provided to the Client and/or CMW Geosciences (NZ) Limited are accurate and correct in all respects.

5.2 Engineered Fill

Earthfill quality control testing and certification was carried out by CCL and overseen by B F Whitham. The Quality Control Report presented in **Appendix E** details that the engineered fill placed across Stages 2C, 2D, 3B and 3C has been constructed in accordance with NZS4431:1989 and meets the compaction control criteria of at least 95% of the materials Maximum Dry Density (MDD).

5.3 Liquefaction

Soil liquefaction is a process where typically, granular soils develop excess pore water pressures during cyclic (earthquake) loading. Following the onset of liquefaction, the shear strength and stiffness of the liquefied soil is effectively lost, potentially causing excessive differential settlement of the ground surface, bearing capacity failure and collapse of structures and low angle lateral spreading of slopes in liquefiable soils.

⁴ Rekker, J. Otago Regional Council. Cromwell Terrace Aquifer Study, 2012.

As detailed in Section 4.4, the groundwater is anticipated to be approximately 17m deep, therefore by definition a 17m thick crust of non-liquefiable material mantles the site. As such the risk of liquefaction and surface manifestation is assessed to be low where the consideration of liquefaction effects during the design of foundations within Stages 2C, 2D, 3B and 3C lots is not considered necessary.

5.4 Slope Stability

As depicted on the plans in **Appendix C**, the as-built landform and surrounding area is flat with no significant slopes within the vicinity of the site. As such, the risk of slope instability is considered low and has not been considered further.

5.5 Foundation Recommendations

Future lots within Stages 2C, 2D, 3B and 3C span across a former vineyard, as such the following specific foundation options are recommended:

- Over-excavate former vine rows to nominally 0.5m wide x 0.5m deep, fill to subgrade level with suitability compacted fill / proof rolled under the guidance of a Chartered Professional Engineer, adopt standard NZ3604 foundations with a Geotechnical Ultimate Bearing Capacity of 300kPa.
- Proof roll subgrade and adopt standard raft foundation (i.e., Firth Ribraft) to account for zones of potential lower bearing capacity along former vine rows. The position of the raft should avoid former vine rows being directly beneath external corners or edges of the foundation. Over-excavation and compacted fill replacement along those rows, as described above, would be required in that case.
- Proof roll subgrade and adopt TC2 foundation (ie Firth TC2 Ribraft) regardless of location relative to former vine rows.

For the raft foundation options above, the design of ground beams incorporated into the raft may adopt a Geotechnical Ultimate Bearing Capacity of 300kPa for ground beam widths of up to 1.0m.

As with all residential building construction, it is recommended the building platform be subject to routine foundation inspection by the area building inspector at the time of building construction. Where any isolated lenses of soft or loose soils are encountered during routine foundation construction inspections, they must be over-excavated and replaced with suitably compacted granular filling or footings widened / depend accordingly necessitating the involvement of a Chartered Professional Engineer.

5.6 Settlement

Subject to compliance with the further earthfill recommendations detailed in Section 5.10 and foundation recommendations in Section 5.5, load induced static settlements are expected be negligible for lightweight timber-framed dwellings.

The grape vine root fibres and strands that remain through the soil profile are generally isolated and mixed with the sandy subgrade and are not considered likely to lead to foundation settlement.

5.7 Building Consent Investigations

In accordance with NZS3604:2011 a building with a plan area up to 200m² requires a minimum of four tests across the plan area to determine bearing capacity of the soils with one additional test required for each 100m² additional plan area.

The post construction hand augers appended to this report may be used to accompany the findings of future site-specific foundation bearing assessment so long it is consistent with the site-specific testing.

Given the consistency of the sandy soil profile across the site, as determined from the subdivision post construction hand augers, at the discretion of Council, consideration may be given to relaxing the building consent testing frequency.

5.8 Strength Reduction Factor

As required by Section B1/VM4 of the New Zealand Building Code Handbook, a strength reduction factor of 0.50 or 0.80 should be applied to all recommended geotechnical ultimate soil capacities in conjunction with their use in factored design load cases for static and earthquake overload conditions respectively.

5.9 Seismic Site Subsoil Class

The geological units encountered beneath the site comprise soil strength materials, which with respect to the seismic site subsoil category defined in Section 3.1.4 of NZS1170.5, is defined as having an unconfined compressive strength (UCS) < 1MPa.

Based on these ground conditions encountered within the geotechnical investigation and Rekker. J study, the seismic site subsoil category is assessed as being Class D (deep soil site) in accordance with NZS1170.5.

5.10 Cut and Fill Restrictions

The lots are relatively flat to gently sloping and as such it is anticipated that only minor cut to fill earthworks will be required to create level building platforms. Normal topsoil stripping, conditioning, and appropriate compaction where applicable for any filling must be in accordance with the requirements of the Central Otago District Council. As stipulated in NZS3604, any filling greater than 0.6m thick shall be deemed appropriate by a Chartered Professional Engineer and subject to routine construction inspections and testing.

5.11 Stormwater Controls

In terms of future stormwater management, it is important that due care is paid to the design and construction of appropriate stormwater disposal systems. These systems should collect all runoff from roofs and paved areas, which should connect directly into the public stormwater drainage network or into onsite stormwater attenuation systems (soakage pits/trenches).

It should be noted that any future site owner will become responsible for Erosion and Sediment Control Measures that comply with Regional Council requirements as soon as development works begin on the site. Measures deemed necessary will need to be maintained until the development lot area is re-stabilised and/or stormwater is disposed to reticulation.

5.12 Service Trenches

The backfilling and compaction of service trenches on this subdivision were not inspected as part of CMW observations. As is normal on all subdivisions, building developments involving foundations within a 45-degree zone of influence from pipe inverts will require specific design by a Chartered Professional Engineer with a view to piling foundation loads below that zone.

5.13 Road Subgrade

All road subgrade preparation, inspections and certification have been completed under the direction of PPG and is outside the scope of this report.

6 CLOSURE

This report is provided to CODC and Wooing Tree Property Development LP for their purposes alone on the express condition that it will not be relied upon by any other person. It is important that prospective purchasers satisfy themselves as to any specific conditions pertaining to their particular land interest.

Although regular site visits have been undertaken for observation, for providing guidance and instruction and for testing purposes, the geotechnical services scope did not include full time site presence. To this end, our appended Suitability Statement also relies on the Contractors' work practices and assumes that when we have

not been present to observe the work, it has been completed to high standards and in accordance with the drawings, instructions and consent conditions provided to them.

Similarly, it assumes that all as-built information and other details provided to the Client and/or CMW by other members of the project team are accurate and correct in all respects.

Additional important information regarding the use of your CMW report is provided in the '*Using your CMW Report*' document attached to this report.

This report has been prepared for use by Wooing Tree Property Development LP in relation to the Stages 2C, 2D, 3B & 3C Wooing Tree Subdivision 64 Shortcut Road, Cromwell project in accordance with the scope, proposed uses and limitations described in the report. Should you have further questions relating to the use of your report please do not hesitate to contact us.

Where a party other than Wooing Tree Property Development LP seeks to rely upon or otherwise use this report, the consent of CMW should be sought prior to any such use. CMW can then advise whether the report and its contents are suitable for the intended use by the other party.

USING YOUR CMW GEOTECHNICAL REPORT

Geotechnical reporting relies on interpretation of facts and collected information using experience, professional judgement, and opinion. As such it generally has a level of uncertainty attached to it, which is often far less exact than other engineering design disciplines. The notes below provide general advice on what can be reasonably expected from your report and the inherent limitations of a geotechnical report.

Preparation of your report

Your geotechnical report has been written for your use on your project. The contents of your report may not meet the needs of others who may have different objectives or requirements. The report has been prepared using generally accepted Geotechnical Engineering and Engineering Geology practices and procedures. The opinions and conclusions reached in your report are made in accordance with these accepted principles. Specific items of geotechnical or geological importance are highlighted in the report.

In producing your report, we have relied on the information which is referenced or summarised in the report. If further information becomes available or the nature of your project changes, then the findings in this report may no longer be appropriate. In such cases the report must be reviewed, and any necessary changes must be made by us.

Your geotechnical report is based on your project's requirements

Your geotechnical report has been developed based on your specific project requirements and only applies to the site in this report. Project requirements could include the type of works being undertaken; project locality, size and configuration; the location of any structures on or around the site; the presence of underground utilities; proposed design methodology; the duration or design life of the works; and construction method and/or sequencing.

The information or advice in your geotechnical report should not be applied to any other project given the intrinsic differences between different projects and site locations. Similarly geotechnical information, data and conclusions from other sites and projects may not be relevant or appropriate for your project.

Interpretation of geotechnical data

Site investigations identify subsurface conditions at discrete locations. Additional geotechnical information (e.g. literature and external data source review, laboratory testing etc) are interpreted by Geologists or Engineers to provide an opinion about a site specific ground models, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist due to the variability of geological environments. 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. Interpretation of factual data can be influenced by design and/or construction methods. Where these methods change review of the interpretation in the report may be required.

Subsurface conditions can change

Subsurface conditions are created by natural processes and then can be altered anthropically or over time. For example, groundwater levels can vary with time or activities adjacent to your site, fill may be placed on a site, or the consistency of near surface conditions might be susceptible to seasonal changes. The report is based on conditions which existed at the time of investigation. It is important to confirm whether conditions may have changed, particularly when large periods of time have elapsed since the investigations were performed.

Interpretation and use by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a geotechnical report. To help avoid misinterpretations, it is important to retain the assistance of CMW to work with other project design professionals who are affected by the contents of your report. CMW staff can explain the report implications to design professionals and then review design plans and specifications to see that they have correctly incorporated the findings of this report.

Your report's recommendations require confirmation during construction

Your report is based on site conditions as revealed through selective point sampling. Engineering judgement is then applied to assess how indicative of actual conditions throughout an area the point sampling might be. Any assumptions made cannot be substantiated until construction is complete. For this reason, you should retain geotechnical services throughout the construction stage, to identify variances from previous assumption, conduct additional tests if required and recommend solutions to problems encountered on site.

A Geotechnical Engineer, who is fully familiar with the site and the background information, can assess whether the report's recommendations remain valid and whether changes should be considered as the project develops. An unfamiliar party using this report increases the risk that the report will be misinterpreted.

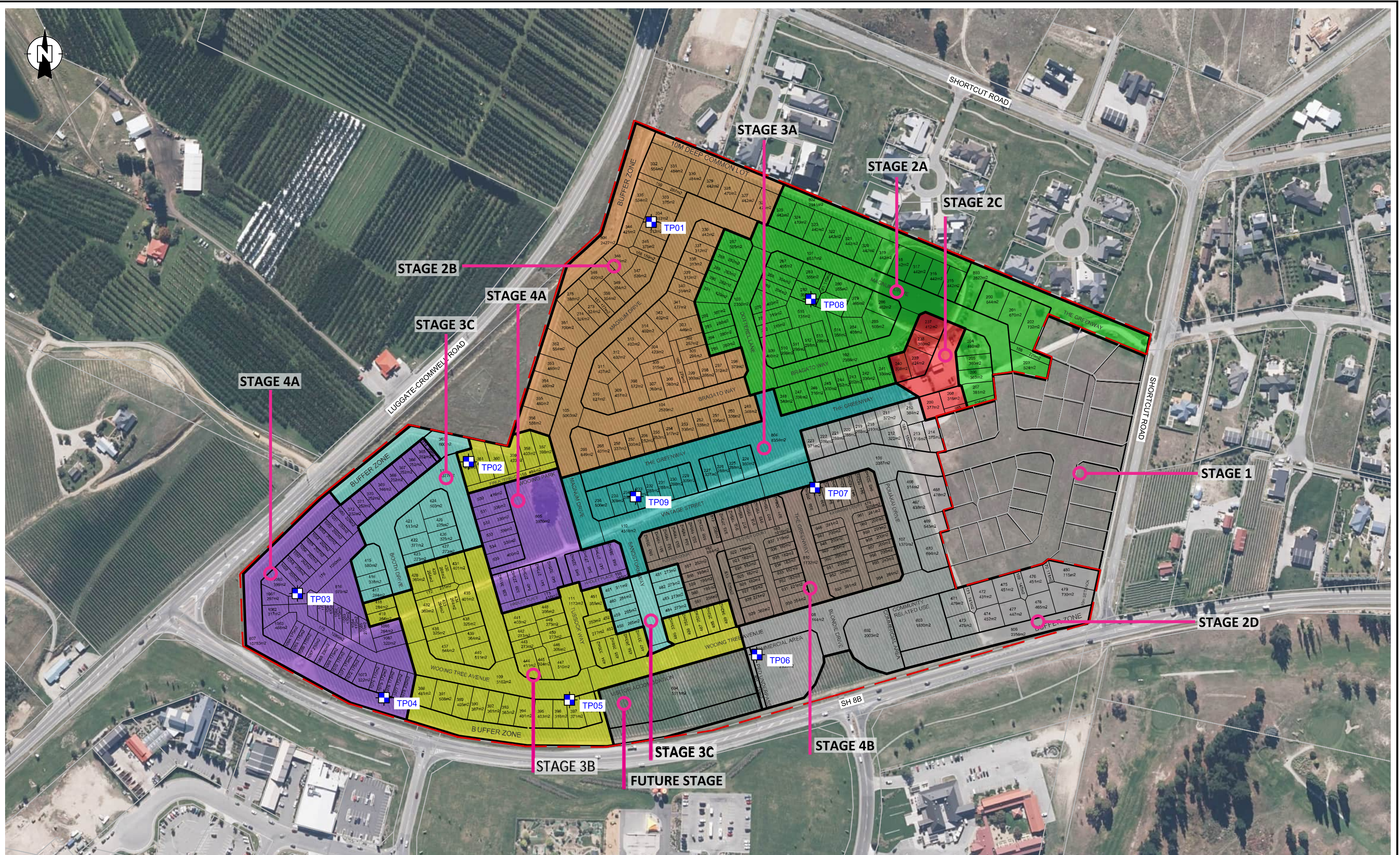
Environmental Matters Are Not Covered

Unless specifically discussed in your report environmental matters are not covered by a CMW Geotechnical Report. Environmental matters might include the level of contaminants present of the site covered by this report, potential uses or treatment of contaminated materials or the disposal of contaminated materials. These matters can be complex and are often governed by specific legislation.

The personnel, equipment, and techniques used to perform an environmental study can differ significantly from those used in this report. For that reason, our report does not provide environmental recommendations. Unanticipated subsurface environmental problems can have large consequences for your site. If you have not obtained your own environmental information about the project site, ask your CMW contact about how to find environmental risk-management guidance.

APPENDIX A: DRAWINGS

Title	Reference No.	Date	Revision
Geotechnical Investigation Plan	Drawing 01	2/08/2023	1



LEGEND:
 TP01 TEST PIT (TP) LOCATION
 SITE BOUNDARY

NOTES:
 1. AERIAL IMAGE ADAPTED FROM LAND INFORMATION NEW ZEALAND DATA SERVICE.



CLIENT: WOONG TREE PROPERTY DEVELOPMENT LP	DRAWN: HV	PROJECT: TGA2022-0063
PROJECT: 64 SHORTCUT ROAD, CROMWELL	CHECKED: MS	DRAWING: 01
TITLE: TEST LOCATION PLAN	REVISION: 1	SCALE: 1:3000
	DATE: 02/08/2023	SHEET: A3 L

APPENDIX B: LOT SUMMARY REPORT

DP No:	Lot 200 DP 560535	Property Address:	Woongi Tree Estate	Project Number:	TGA2022-0063
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Location:	Subsurface Data								Foundations		Additional Comments
	Minimum DCP Blows per 300mm	Maximum DCP Blows per 300mm	Comments	Subdivision Filling		Natural Topography Unworked	Natural Topography Earthworked		Conventional Shallow Foundation to NZS 3604:2011	Specific Design	
				Y/N	Depth (m)		Y/N	Depth (m)			
Lot 208/209 Boundary	12	29		N	-	Y	N	-	Y	N	
Lot 210/213 Boundary	13	25		N	-	Y	N	-	Y	N	
Lot 211/212 Boundary	11	28		N	-	Y	N	-	Y	N	
Lot 213/214 Boundary	17	48		N	-	Y	N	-	Y	N	
Lot 218/219 Boundary	10	26		N	-	Y	N	-	Y	N	
Lot 220/221 Boundary	9	22		N	-	Y	N	-	Y	N	
Lot 222/223 Boundary	11	23		Y	0.0 - 0.5	N	Y	0.0 - 0.5	Y	N	
Lot 224/225 Boundary	13	24		N	-	Y	N	-	Y	N	
Lot 226/227 Boundary	11	33		N	-	Y	N	-	Y	N	
Lot 229/230 Boundary	19	28		N	-	Y	N	-	Y	N	
Lot 231/232 Boundary	13	35		N	-	Y	N	-	Y	N	
Lot 233/234 Boundary	20	32		N	-	Y	N	-	Y	N	
Lot 235/236 Boundary	16	42		N	-	Y	N	-	Y	N	
Lot 357/358 Boundary	7	60		N	-	Y	N	-	Y	N	
Lot 359/360 Boundary	43	-70	Refusal at 850mm depth	N	-	Y	N	-	Y	N	
Lot 359	19	67	Refusal at 900mm depth	N	-	Y	N	-	Y	N	
Lot 361/362 Boundary	15	23		N	-	Y	N	-	Y	N	
Lot 363	19	63		N	-	Y	N	-	Y	N	
Lot 365/366 Boundary	17	27		N	-	Y	N	-	Y	N	
Lot 368/369 Boundary	= 42	= 42	Refusal at 550mm depth	N	-	Y	N	-	Y	N	
Lot 369/370 Boundary	15	35		N	-	Y	N	-	Y	N	
Lot 371/372 Boundary	81	81	Refusal at 600mm depth	N	-	Y	N	-	Y	N	
Lot 388	16	38		N	-	Y	N	-	Y	N	
Lot 389/391 Boundary	14	= 34		N	-	Y	N	-	Y	N	
Lot 391	42	42	Refusal at 600mm depth	N	-	Y	N	-	Y	N	
Lot 390/392 Boundary	10.5	67		N	-	Y	N	-	Y	N	
Lot 392	8	11	* Low blow from 500-600mm	N	-	Y	N	-	Y	N	
Lot 393/394 Boundary	27	89		N	-	Y	N	-	Y	N	
Lot 395/396 Boundary	20	59		N	-	Y	N	-	Y	N	
Lot 397/398 Boundary	29	41		N	-	Y	N	-	Y	N	
Lot 415	8	19	* Low blow from 300-400mm	N	-	Y	N	-	Y	N	
Lot 416/417 Boundary	10	59		N	-	Y	N	-	Y	N	
Lot 418/419 Boundary	15	26		N	-	Y	N	-	Y	N	
Lot 419	19	26		N	-	Y	N	-	Y	N	
Lot 421	9	51		N	-	Y	N	-	Y	N	
Lot 422/423 Boundary	13	38		N	-	Y	N	-	Y	N	
Lot 424/425 Boundary	11	38		N	-	Y	N	-	Y	N	
Lot 426/427 Boundary	8	45		N	-	Y	N	-	Y	N	
Lot 428/429 Boundary	12	21		N	-	Y	N	-	Y	N	
Lot 430/431 Boundary	2.7	39	* Low blows from 300-600mm	N	-	Y	N	-	Y	N	
Lot 432/433 Boundary	12	27		N	-	Y	N	-	Y	N	
Lot 434/435 Boundary	10	38		N	-	Y	N	-	Y	N	
Lot 435	10	13		N	-	Y	N	-	Y	N	
Lot 436/437 Boundary	9	30		N	-	Y	N	-	Y	N	
Lot 437	15	37		N	-	Y	N	-	Y	N	
Lot 438/439 Boundary	9	41		N	-	Y	N	-	Y	N	
Lot 440	7	15		N	-	Y	N	-	Y	N	
Lot 441/442 Boundary	17	28		N	-	Y	N	-	Y	N	
Lot 443/444 Boundary	13	26		N	-	Y	N	-	Y	N	
Lot 445/447 Boundary	7	32		N	-	Y	N	-	Y	N	
Lot 446/450 Boundary	12	32		N	-	Y	N	-	Y	N	
Lot 448/449 Boundary	15	27		N	-	Y	N	-	Y	N	
Lot 450/451 Boundary	16	32		N	-	Y	N	-	Y	N	
Lot 452/453 Boundary	15	51		N	-	Y	N	-	Y	N	
Lot 454/455 Boundary	15	32		N	-	Y	N	-	Y	N	
Lot 456/457 Boundary	21	32		Y	0.0 - 0.5	N	Y	0.0 - 0.5	Y	N	
Lot 458/459 Boundary	23	49		N	-	Y	N	-	Y	N	
Lot 466/467 Boundary	13	54		N	-	N	Y	0.0 - 0.5	Y	N	
Lot 469/470 Boundary	6	40		N	-	N	Y	0.0 - 0.5	Y	N	
Lot 475/477 Boundary	6	16		N	-	Y	N	-	Y	N	
Lot 476/478 Boundary	13	27		N	-	Y	N	-	Y	N	
Lot 479/480 Boundary	8	28		N	-	Y	N	-	Y	N	
Lot 530/531 Boundary	49	49	Refusal at 650mm depth	N	-	Y	N	-	Y	N	
Lot 532/533 Boundary	12	68		N	-	Y	N	-	Y	N	
Lot 532	12	-54		N	-	Y	N	-	Y	N	
Lot 534/545 Boundary	12	25		N	-	Y	N	-	Y	N	
Lot 536	21	30		N	-	Y	N	-	Y	N	
Lot 537/538 Boundary	17	35		N	-	Y	N	-	Y	N	
Lot 539/540 Boundary	20	39		N	-	Y	N	-	Y	N	
Lot 541/542 Boundary	20	29		N	-	Y	N	-	Y	N	
Lot 543/544 Boundary	23	37		N	-	Y	N	-	Y	N	
Lot 1067	20	22		N	-	Y	N	-	Y	N	
Lot 1086/1087 Boundary	3	18	* Low blows from 700-900mm	N	-	Y	N	-	Y	N	

See Note 1

COMMENTS:

Note 1: This table must be read in conjunction with the CMW Geotechnical Completion Report referenced TGA2022-0063AE Rev 1

* Topsoil or seating values within the upper 300mm not considered

APPENDIX C: SELECT SUBDIVISION DEVELOPMENT AND AS-BUILT PLANS

APPENDIX D: FIELD INVESTIGATION RECORDS

TEST PIT LOG - TP01

Client: Wooing Tree Property Development LP
 Project: Wooing Tree Subdivision
 Site Location: Cromwell
 Project No.: TGA2022-0063
 Date: 28/03/2022
 Test Pit Location: Refer to site plan



Logged by: MS Checked by: MS Scale: 1:25 Sheet 1 of 1

Position: Projection: Pit Dimensions: 1.0m by 3.0m
 Datum: Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
	Depth	Type & Results								
				0		SM: Silty fine to coarse SAND with some rootlets and some gravel: Well graded, subrounded; gravel, fine to coarse. (Topsoil) <i>... from 0.00m to 0.50m, concentrated roots.</i>	L		2	
				0.5		GW: Fine to coarse GRAVEL with trace cobbles and trace boulders: grey. Well graded, subangular to subrounded, very thinly bedded, river beds dipping east; gravel, fine to coarse, schist, greywacke; cobbles, schist. (Alluvial Sands)	D		8	
				1					10	
				1					10	
				1					11	
				1					7	
				1					7	
				1					8	
				1					9	
				1					8	
				1					20	
				1					0	
				1					VD	
				2		SW: Fine to coarse SAND with some gravel and trace cobbles: grey. Well graded, thinly bedded, Beds dipping East ; gravel, fine to coarse, schist, quartz, lithics. (Alluvial Sands)	D			
				3		Test pit terminated at 3.00 m				
				4						
				5						

Termination Reason: Hole collapse

Shear Vane No: DCP No: 8

Remarks: Groundwater not encountered.

TEST PIT PHOTOGRAPHS: TP01

Client: Wooing Tree Property Development LP

Project: Wooing Tree Estate

Location: Cromwell

Project No: TGA2022-0063

Date: 28/03/2022



Logged by: MS

Position: See Drawing 01

Dimensions: 3mx1m

Plant: Excavator

Checked by: MS

Termination Depth: 3m

Contractor: Benchmark Construction Ltd



TP01 – TEST PIT EXCAVATION

TEST PIT LOG - TP02

Client: Wooing Tree Property Development LP
 Project: Wooing Tree Subdivision
 Site Location: Cromwell
 Project No.: TGA2022-0063
 Date: 28/03/2022
 Test Pit Location: Refer to site plan



Logged by: MS Checked by: MS Scale: 1:25 Sheet 1 of 1

Position: Projection: Datum: Pit Dimensions: 3.0m by 1.0m
 Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
	Depth	Type & Results								
						SP: Silty fine SAND with trace rootlets: greyish brown. Poorly graded. (Topsoil)				
						SP: Silty fine SAND with trace rootlets: brown. Poorly graded. (Alluvial Sands)				
						GW: Fine to coarse GRAVEL with trace cobbles and trace boulders: grey. Well graded, subangular to subrounded, very thinly bedded, river beds dipping East; gravel, fine to coarse, schist, greywacke; cobbles, schist. (Alluvial Sands)		MD to D		
						SW: Fine to coarse SAND with some gravel and trace cobbles: grey. Well graded, thinly bedded, beds dipping east; gravel, fine to coarse, schist, quartz, lithic. (Alluvial Sands)				
						Test pit terminated at 3.50 m				

Termination Reason: Equipment refusal
 Shear Vane No: DCP No: 8
 Remarks: Groundwater not encountered.

TEST PIT PHOTOGRAPHS: TP02

Client: Wooing Tree Property Development LP

Project: Wooing Tree Estate

Location: Cromwell

Project No: TGA2022-0063

Date: 28/03/2022



Sheet No. 2 of 9

Logged by: MS

Position: See Drawing 01

Dimensions: 3m x 1m

Plant: Excavator

Checked by: MS

Termination Depth: 3.5m

Contractor: Benchmark Construction Ltd



TP02 – TEST PIT EXCAVATION

TEST PIT PHOTOGRAPHS: TP03

Client: Wooing Tree Property Development LP

Project: Wooing Tree Estate

Location: Cromwell

Project No: TGA2022-0063

Date: 28/03/2022



Logged by: MS

Position: See Drawing 01

Dimensions: 3mx1m

Plant: Excavator

Checked by: MS

Termination Depth: 3m

Contractor: Benchmark Construction Ltd



TP03 – TEST PIT EXCAVATION

TEST PIT LOG - TP04

Client: Wooing Tree Property Development LP
 Project: Wooing Tree Subdivision
 Site Location: Cromwell
 Project No.: TGA2022-0063
 Date: 28/03/2022
 Test Pit Location: Refer to site plan



Logged by: MS Checked by: MS Scale: 1:25 Sheet 1 of 1

Position: Projection: Datum: Pit Dimensions: 3.0m by 1.0m
 Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
	Depth	Type & Results								
				0		SM: Silty fine SAND with some rootlets: greyish brown. Poorly graded. (Topsoil)	VL to L		2	
				0.5		SM: Silty fine SAND with some rootlets: brown. Poorly graded. (Alluvial Sands)			3	
				1					5	
				1.5					8	
				2					7	
				2.5					7	
				3					8	
				3.5					8	
				4					9	
				4.5					10	
				5					10	
				5.5					5	
				6					5	
				6.5					5	
				7					10	
				7.5					11	
				8					10	
				8.5					15	
				9					16	
				9.5					18	
				10					20	
				10.5					0	
				11						
				11.5						
				12						
				12.5						
				13						
				13.5						
				14						
				14.5						
				15						
				15.5						
				16						
				16.5						
				17						
				17.5						
				18						
				18.5						
				19						
				19.5						
				20						
				20.5						
				21						
				21.5						
				22						
				22.5						
				23						
				23.5						
				24						
				24.5						
				25						
				25.5						
				26						
				26.5						
				27						
				27.5						
				28						
				28.5						
				29						
				29.5						
				30						
				30.5						
				31						
				31.5						
				32						
				32.5						
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				35						
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				36						
				36.5						
				37						
				37.5						
				38						
				38.5						
				39						
				39.5						
				40						
				40.5						
				41						
				41.5						
				42						
				42.5						
				43						
				43.5						
				44						
				44.5						
				45						
				45.5						
				46						
				46.5						
				47						
				47.5						
				48						
				48.5						
				49						
				49.5						
				50						

Termination Reason: Equipment refusal
 Shear Vane No: DCP No: 8
 Remarks: Groundwater not encountered.

TEST PIT PHOTOGRAPHS: TP04

Client: Wooing Tree Property Development LP

Project: Wooing Tree Estate

Location: Cromwell

Project No: TGA2022-0063

Date: 28/03/2022



Logged by: MS

Position: See Drawing 01

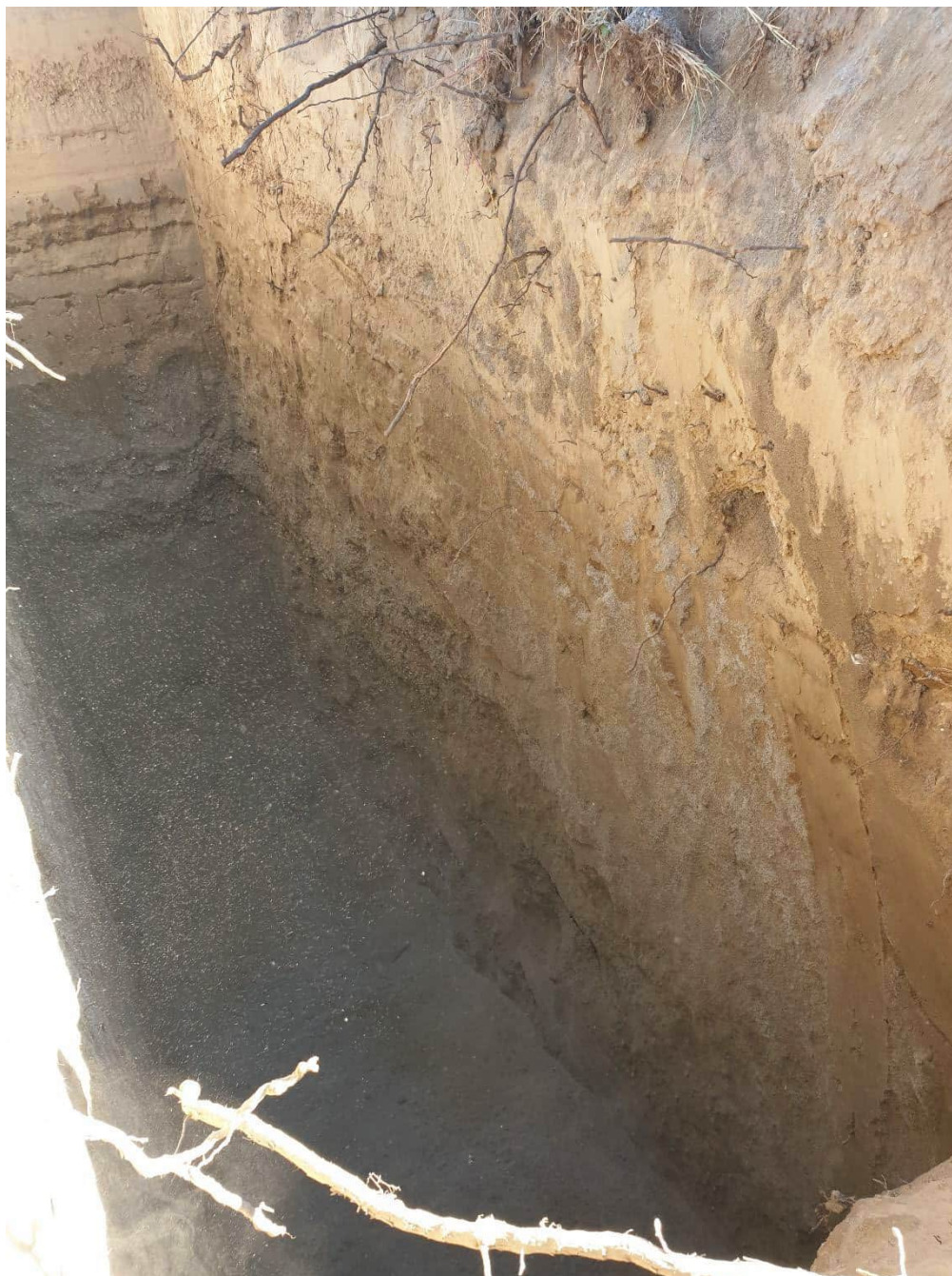
Dimensions: 3mx1m

Plant: Excavator

Checked by: MS

Termination Depth: 3.2m

Contractor: Benchmark Construction Ltd



TP04 – TEST PIT EXCAVATION

TEST PIT PHOTOGRAPHS: TP05

Client: Wooing Tree Property Development LP

Project: Wooing Tree Estate

Location: Cromwell

Project No: TGA2022-0063

Date: 28/03/2022



Logged by: MS

Position: See Drawing 01

Dimensions: 3mx1m

Plant: Excavator

Checked by: MS

Termination Depth: 3.5m

Contractor: Benchmark Construction Ltd



TP05 – TEST PIT EXCAVATION

TEST PIT PHOTOGRAPHS: TP06

Client: Wooing Tree Property Development LP

Project: Wooing Tree Estate

Location: Cromwell

Project No: TGA2022-0063

Date: 28/03/2022



Logged by: MS

Position: See Drawing 01

Dimensions: 3mx1m

Plant: Excavator

Checked by: MS

Termination Depth: 3.5m

Contractor: Benchmark Construction Ltd



TP06 – TEST PIT EXCAVATION

TEST PIT LOG - TP07

Client: Wooing Tree Property Development LP
 Project: Wooing Tree Subdivision
 Site Location: Cromwell
 Project No.: TGA2022-0063
 Date: 28/03/2022
 Test Pit Location: Refer to site plan



Logged by: MS Checked by: MS Scale: 1:25 Sheet 1 of 1

Position: Projection: Pit Dimensions: m by m
 Datum: Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
	Depth	Type & Results								
						SW: Fine to coarse SAND with some gravel and trace cobbles: grey, bedded. Well graded, subangular to subrounded, thinly bedded; gravel, fine to coarse, silicious; cobbles, schist.				
						... from 2.50m to 3.00m, contains boulders.				
						Test pit terminated at 3.00 m				

Termination Reason: Hole collapse
 Shear Vane No: DCP No: 8
 Remarks: Groundwater not encountered.

TEST PIT PHOTOGRAPHS: TP07

Client: Wooing Tree Property Development LP

Project: Wooing Tree Estate

Location: Cromwell

Project No: TGA2022-0063

Date: 28/03/2022



Logged by: MS

Position: See Drawing 01

Dimensions: 3mx1m

Plant: Excavator

Checked by: MS

Termination Depth: 3m

Contractor: Benchmark Construction Ltd



TP07 – TEST PIT EXCAVATION

TEST PIT LOG - TP08

Client: Wooing Tree Property Development LP
 Project: Wooing Tree Subdivision
 Site Location: Cromwell
 Project No.: TGA2022-0063
 Date: 28/03/2022
 Test Pit Location: Refer to site plan



Logged by: MS Checked by: MS Scale: 1:25 Sheet 1 of 1

Position: Projection: Pit Dimensions: 3.0m by 1.0m
 Datum: Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
	Depth	Type & Results								
				0		SW: Fine to coarse SAND with some gravel and trace cobbles: grey, bedded. Well graded, subangular to subrounded, thinly bedded; gravel, fine to coarse, silicious; cobbles, schist. (Alluvial Sands)				
				1						
				2						
				3						
				3.10		Test pit terminated at 3.10 m				
				4						
				5						

Termination Reason: Equipment refusal
 Shear Vane No: DCP No: 8
 Remarks: Groundwater not encountered.

TEST PIT PHOTOGRAPHS: TP08

Client: Wooing Tree Property Development LP

Project: Wooing Tree Estate

Location: Cromwell

Project No: TGA2022-0063

Date: 28/03/2022



Logged by: MS

Position: See Drawing 01

Dimensions: 3mx1m

Plant: Excavator

Checked by: MS

Termination Depth: 3.1m

Contractor: Benchmark Construction Ltd



TP08 – TEST PIT EXCAVATION

TEST PIT LOG - TP09

Client: Wooing Tree Property Development LP
 Project: Wooing Tree Subdivision
 Site Location: Cromwell
 Project No.: TGA2022-0063
 Date: 28/03/2022
 Test Pit Location: Refer to site plan



Logged by: Checked by: MS Scale: 1:25 Sheet 1 of 1

Position: Projection: Datum: Pit Dimensions: m by m
 Survey Source: pLog Tablet

Groundwater	Samples & Insitu Tests		RL (m)	Depth (m)	Graphic Log	Material Description Soil: Soil symbol; soil type; colour; structure; bedding; plasticity; sensitivity; additional comments. (origin/geological unit) Rock: Colour; fabric; rock name; additional comments. (origin/geological unit)	Moisture Condition	Consistency/Relative Density	Dynamic Cone Penetrometer (Blows/100mm)	Structure & Other Observations Discontinuities: Depth; Defect Number; Defect Type; Dip; Defect Shape; Roughness; Aperture; Infill; Seepage; Spacing; Block Size; Block Shape; Remarks
	Depth	Type & Results								
				0		SW: Sandy SILT with some gravel and some roots: brown. Low plasticity, subrounded; sand, fine to coarse; gravel, fine to coarse. (Topsoil)	VL to L		1	
				0		SM: Sandy SILT with some gravel and some roots: brown. Low plasticity; sand, fine to coarse. (Alluvium)			3	
				0		SW: Fine to coarse SAND with some gravel and trace cobbles: grey, bedded. Well graded, subangular to subrounded, thinly bedded; gravel, fine to coarse, silicious; cobbles, schist. (Alluvial Sands)	MD		4	
				0					4	
				0					5	
				0					6	
				0					6	
				0					7	
				0					5	
				0					6	
				0					2	
				0					0	
				1						
				2						
				3						
				4						
				5						
				5						

Test pit terminated at 3.20 m

Termination Reason: Hole collapse

Shear Vane No: DCP No: 8

Remarks: Groundwater not encountered.

TEST PIT PHOTOGRAPHS: TP09

Client: Wooing Tree Property Development LP

Project: Wooing Tree Estate

Location: Cromwell

Project No: TGA2022-0063

Date: 28/03/2022



Logged by: MS

Position: See Drawing 01

Dimensions: 3mx1m

Plant: Excavator

Checked by: MS

Termination Depth: 3.2m

Contractor: Benchmark Construction Ltd



TP09 – TEST PIT EXCAVATION

APPENDIX E: B F WHITHAM QUALITY ASSURANCE REPORT

APPENDIX F: CTS POST CONSTRUCTION BOREHOLES



Central Testing Services

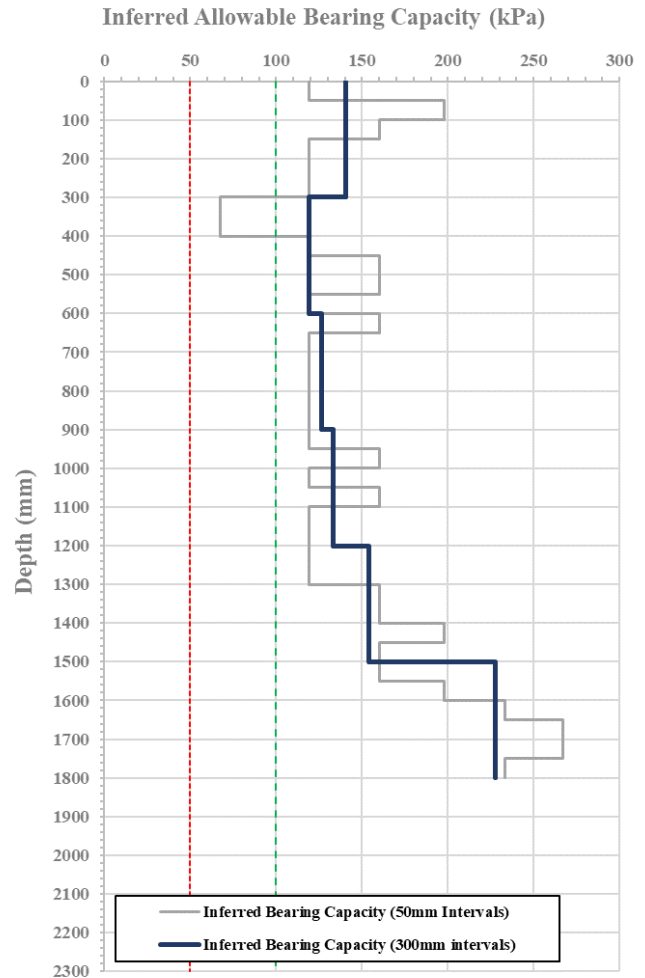
18 Ngapara St, P.O. Box 397, Alexandra 9340, Central Otago, New Zealand
 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 208 / 209 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	6	15	119	357
50 - 100	12.5			198	594
100 - 150	16.7			160	481
150 - 200	25.0	5	15	119	357
200 - 250	25.0			119	357
250 - 300	25.0	4	15	119	357
300 - 350	50.0			68	203
350 - 400	50.0	2	15	68	203
400 - 450	25.0			119	357
450 - 500	16.7	5	12	160	481
500 - 550	16.7			160	481
550 - 600	25.0	5	12	119	357
600 - 650	16.7			160	481
650 - 700	25.0	5	12	119	357
700 - 750	25.0			119	357
750 - 800	25.0	4	13	119	357
800 - 850	25.0			119	357
850 - 900	25.0	4	13	119	357
900 - 950	25.0			119	357
950 - 1000	16.7	5	14	160	481
1000 - 1050	25.0			119	357
1050 - 1100	16.7	5	14	160	481
1100 - 1150	25.0			119	357
1150 - 1200	25.0	4	14	119	357
1200 - 1250	25.0			119	357
1250 - 1300	25.0	4	17	119	357
1300 - 1350	16.7			160	481
1350 - 1400	16.7	6	17	160	481
1400 - 1450	12.5			198	594
1450 - 1500	16.7	7	17	160	481
1500 - 1550	16.7			160	481
1550 - 1600	12.5	7	29	198	594
1600 - 1650	10.0			233	700
1650 - 1700	8.3	11	29	267	800
1700 - 1750	8.3			267	800
1750 - 1800	10.0	11	29	233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 208 / 209 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 1000 *	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed / Loose. Gravel, subangular to rounded, maximum particle size 63.0mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By:



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

Nº 434



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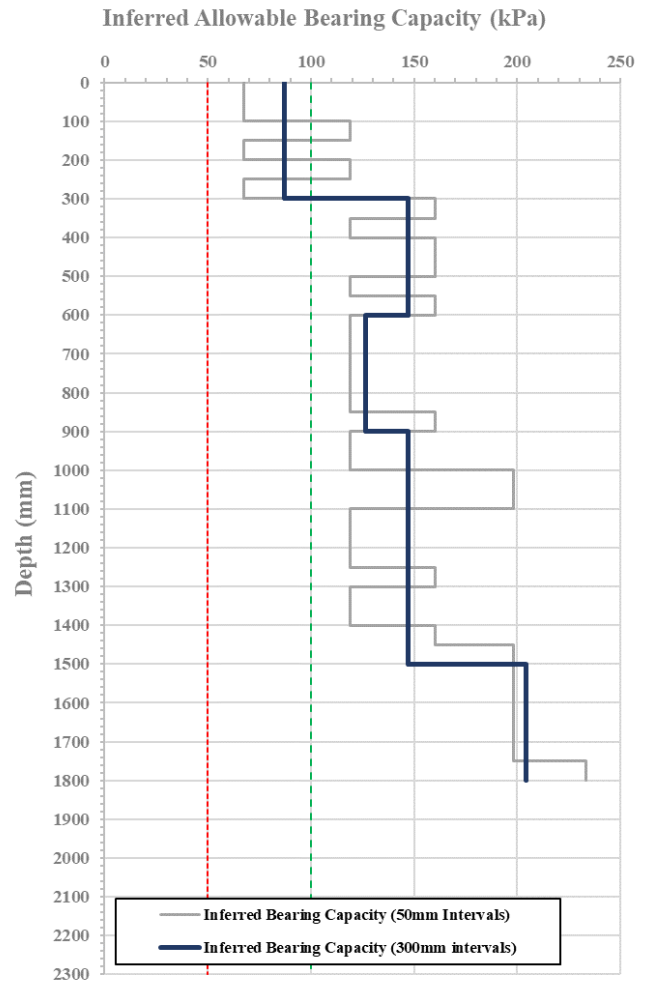
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 210 / 213 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)	
		100 mm	300 mm			
0 - 50	50.0	2	8	68	203	
50 - 100	50.0			68	203	
100 - 150	25.0	3		119	357	
150 - 200	50.0			68	203	
200 - 250	25.0	3		119	357	
250 - 300	50.0			68	203	
300 - 350	16.7	5	16	160	481	
350 - 400	25.0			119	357	
400 - 450	16.7	6		160	481	
450 - 500	16.7			160	481	
500 - 550	25.0	5		119	357	
550 - 600	16.7			160	481	
600 - 650	25.0	4		13	119	357
650 - 700	25.0				119	357
700 - 750	25.0	4			119	357
750 - 800	25.0				119	357
800 - 850	25.0	5			119	357
850 - 900	16.7				160	481
900 - 950	25.0	4	16	119	357	
950 - 1000	25.0			119	357	
1000 - 1050	12.5	8		198	594	
1050 - 1100	12.5			198	594	
1100 - 1150	25.0	4		119	357	
1150 - 1200	25.0			119	357	
1200 - 1250	25.0	5		16	119	357
1250 - 1300	16.7				160	481
1300 - 1350	25.0	4			119	357
1350 - 1400	25.0				119	357
1400 - 1450	16.7	7			160	481
1450 - 1500	12.5				198	594
1500 - 1550	12.5	8	25	198	594	
1550 - 1600	12.5			198	594	
1600 - 1650	12.5	8		198	594	
1650 - 1700	12.5			198	594	
1700 - 1750	12.5	9		198	594	
1750 - 1800	10.0			233	700	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 210 / 213 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 800	Light brown SAND with some gravel and trace of silt. Moist. Tightly packed / loose. Gravel, subrounded to rounded, maximum particle size 4.75mm; Sand, fine to coarse; Silt, non-plastic.
800 to 1000 *	Light brown SAND with some gravel and trace of silt. Moist. Tightly packed. Gravel, subrounded to rounded, maximum particle size 4.75mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



Test results indicated as not accredited are outside the scope of the laboratory's accreditation



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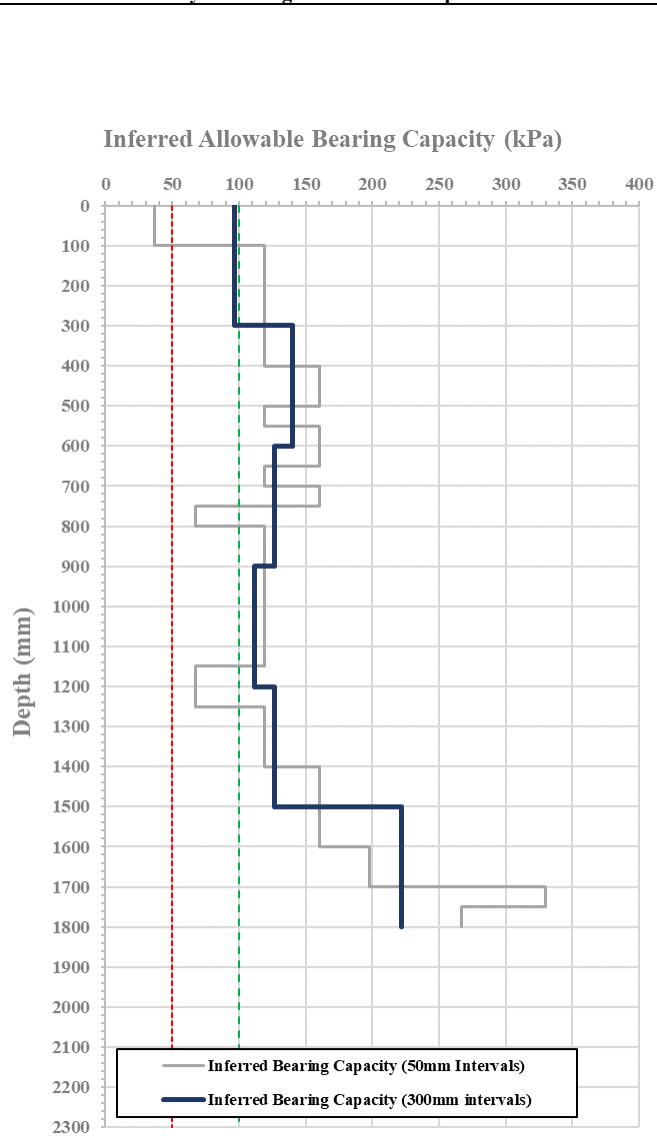
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Wooving Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 211 / 212 boundary – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	100.0	1	9	36	109
50 - 100	100.0	1		36	109
100 - 150	25.0	4		119	357
150 - 200	25.0	4	15	119	357
200 - 250	25.0	4		119	357
250 - 300	25.0	4		119	357
300 - 350	25.0	4	13	119	357
350 - 400	25.0	4		119	357
400 - 450	16.7	6		160	481
450 - 500	16.7	6	11	160	481
500 - 550	25.0	5		119	357
550 - 600	16.7	5		160	481
600 - 650	16.7	5	13	119	357
650 - 700	25.0	4		160	481
700 - 750	16.7	4		68	203
750 - 800	50.0	4	28	119	357
800 - 850	25.0	4		119	357
850 - 900	25.0	4		119	357
900 - 950	25.0	4	13	119	357
950 - 1000	25.0	4		119	357
1000 - 1050	25.0	4		119	357
1050 - 1100	25.0	4	8	119	357
1100 - 1150	25.0	3		119	357
1150 - 1200	50.0	3		68	203
1200 - 1250	50.0	3	13	68	203
1250 - 1300	25.0	3		119	357
1300 - 1350	25.0	4		119	357
1350 - 1400	25.0	4	6	119	357
1400 - 1450	16.7	6		160	481
1450 - 1500	16.7	6		160	481
1500 - 1550	16.7	6	28	160	481
1550 - 1600	16.7	6		160	481
1600 - 1650	12.5	8		198	594
1650 - 1700	12.5	8	14	198	594
1700 - 1750	6.3	14		330	989
1750 - 1800	8.3	14		267	800



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 211 / 212 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 600	Dark brown Gravelly SAND with trace of gravel. Moist. Tightly packed / loose. Gravel, subrounded to rounded, maximum particle size 9.50mm; Sand, fine to coarse; Silt, non-plastic.
600 to 850 *	Light grey / brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subrounded to rounded, maximum particle size 13.2mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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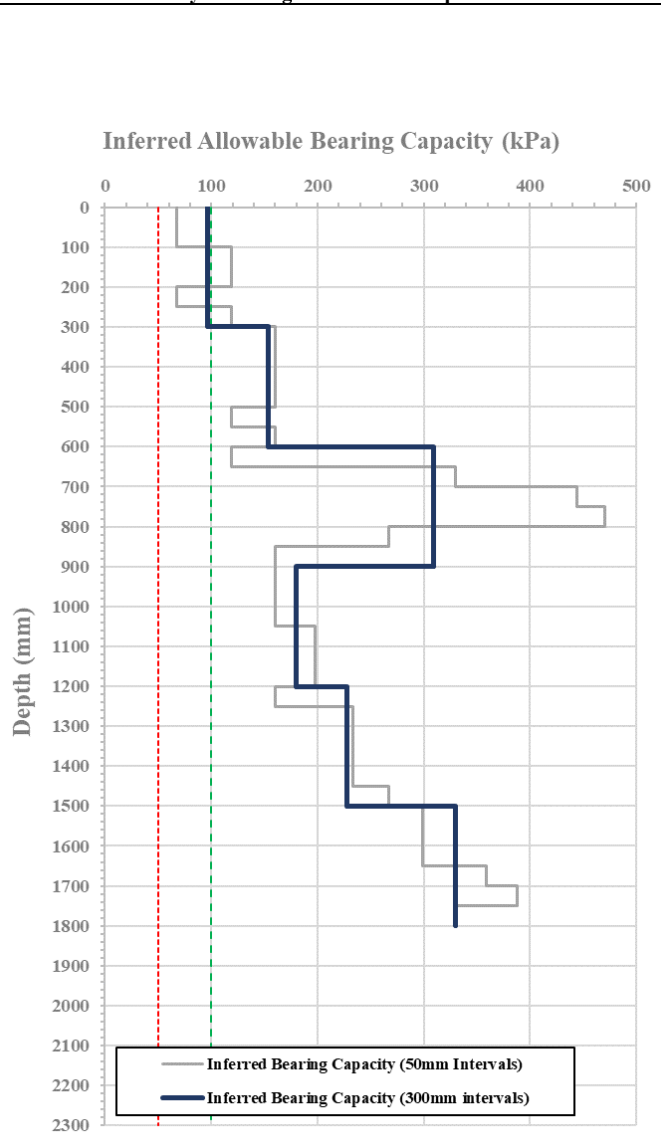
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Wooving Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 213 / 214 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	9	68	203
50 - 100	50.0	2		68	203
100 - 150	25.0	4		119	357
150 - 200	25.0	3	17	119	357
200 - 250	50.0			68	203
250 - 300	25.0	119		357	
300 - 350	16.7	6	44	160	481
350 - 400	16.7			160	481
400 - 450	16.7	6		160	481
450 - 500	16.7			160	481
500 - 550	25.0	5	21	119	357
550 - 600	16.7			160	481
600 - 650	25.0	10		119	357
650 - 700	6.3		330	989	
700 - 750	4.2	25	48	444	1331
750 - 800	3.8			471	1412
800 - 850	8.3	9		267	800
850 - 900	16.7			160	481
900 - 950	16.7	6	29	160	481
950 - 1000	16.7			160	481
1000 - 1050	16.7	7		160	481
1050 - 1100	12.5		198	594	
1100 - 1150	12.5	8	48	198	594
1150 - 1200	12.5			198	594
1200 - 1250	16.7	8		160	481
1250 - 1300	10.0			233	700
1300 - 1350	10.0	10	233	700	
1350 - 1400	10.0		233	700	
1400 - 1450	10.0	11	48	233	700
1450 - 1500	8.3			267	800
1500 - 1550	7.1	14		299	896
1550 - 1600	7.1		299	896	
1600 - 1650	7.1	16	299	896	
1650 - 1700	5.6		359	1078	
1700 - 1750	5.0	18	388	1164	
1750 - 1800	6.3		330	989	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 213 / 214 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 600	Dark brown SAND with some gravel and trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 53.0mm; Sand, fine to medium; Silt, non-plastic.
600 to 1050 *	Light grey / brown Gravelly SAND and trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 31.5mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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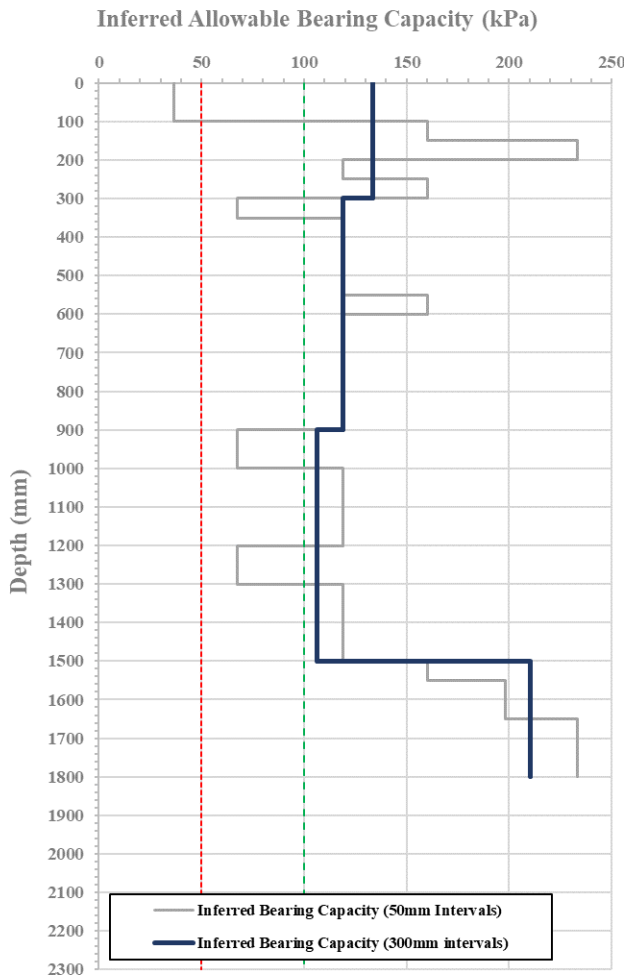
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 218 / 219 boundary – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	100.0	1	14	36	109
50 - 100	100.0	1		36	109
100 - 150	16.7	8		160	481
150 - 200	10.0	5	12	233	700
200 - 250	25.0			119	357
250 - 300	16.7	3	12	160	481
300 - 350	50.0			68	203
350 - 400	25.0	4	10	119	357
400 - 450	25.0			119	357
450 - 500	25.0			119	357
500 - 550	25.0	5	12	119	357
550 - 600	16.7			160	481
600 - 650	25.0	4	12	119	357
650 - 700	25.0			119	357
700 - 750	25.0	4	12	119	357
750 - 800	25.0			119	357
800 - 850	25.0	4	10	119	357
850 - 900	25.0			119	357
900 - 950	50.0	2	10	68	203
950 - 1000	50.0			68	203
1000 - 1050	25.0	4	10	119	357
1050 - 1100	25.0			119	357
1100 - 1150	25.0	4	10	119	357
1150 - 1200	25.0			119	357
1200 - 1250	50.0	2	10	68	203
1250 - 1300	50.0			68	203
1300 - 1350	25.0	4	10	119	357
1350 - 1400	25.0			119	357
1400 - 1450	25.0	4	10	119	357
1450 - 1500	25.0			119	357
1500 - 1550	16.7	7	26	160	481
1550 - 1600	12.5			198	594
1600 - 1650	12.5	9	26	198	594
1650 - 1700	10.0			233	700
1700 - 1750	10.0	10	26	233	700
1750 - 1800	10.0			233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 218 / 219 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 950 *	Dark brown SAND with some gravel and trace of silt. Moist. Loose. Gravel, subrounded to rounded, maximum particle size 31.5mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson Date: 4 to 12-May-23

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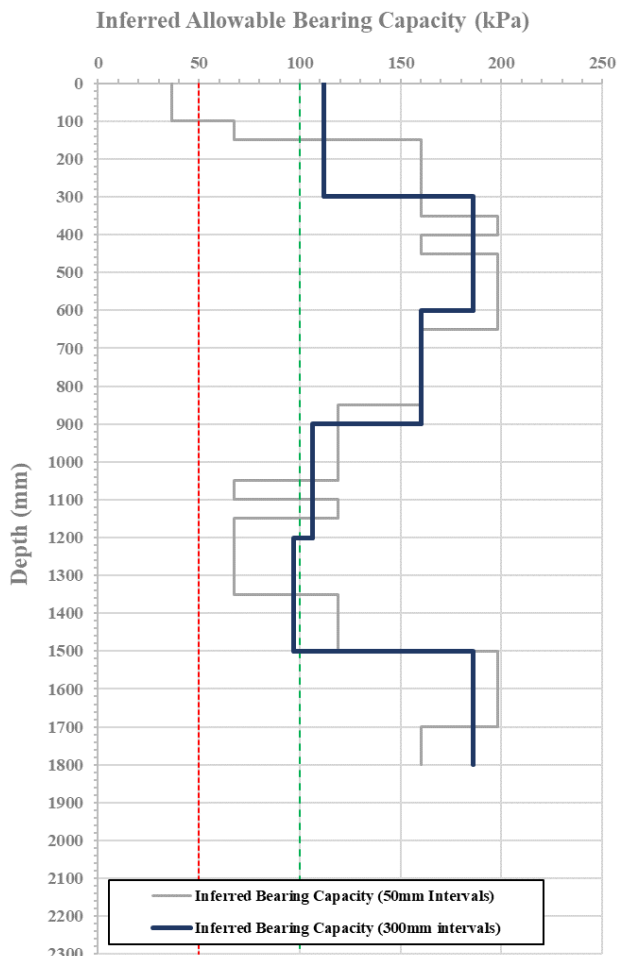
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 220 / 221 boundary – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	100.0	1	11	36	109
50 - 100	100.0	1		36	109
100 - 150	50.0	4		68	203
150 - 200	16.7	4		160	481
200 - 250	16.7	6	160	481	
250 - 300	16.7		160	481	
300 - 350	16.7	7	160	481	
350 - 400	12.5		198	594	
400 - 450	16.7	7	160	481	
450 - 500	12.5		198	594	
500 - 550	12.5	8	198	594	
550 - 600	12.5		198	594	
600 - 650	12.5	7	198	594	
650 - 700	16.7		160	481	
700 - 750	16.7	6	160	481	
750 - 800	16.7		160	481	
800 - 850	16.7	5	160	481	
850 - 900	25.0		119	357	
900 - 950	25.0	4	119	357	
950 - 1000	25.0		119	357	
1000 - 1050	25.0	3	119	357	
1050 - 1100	50.0		68	203	
1100 - 1150	25.0	3	119	357	
1150 - 1200	50.0		68	203	
1200 - 1250	50.0	2	68	203	
1250 - 1300	50.0		68	203	
1300 - 1350	50.0	3	68	203	
1350 - 1400	25.0		119	357	
1400 - 1450	25.0	4	119	357	
1450 - 1500	25.0		119	357	
1500 - 1550	12.5	8	198	594	
1550 - 1600	12.5		198	594	
1600 - 1650	12.5	8	198	594	
1650 - 1700	12.5		198	594	
1700 - 1750	16.7	6	160	481	
1750 - 1800	16.7		160	481	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 220 / 221 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 550	Dark brown SAND with minor gravel and trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 4.75mm; Sand, fine to medium; Silt, non-plastic.
550 to 1100 *	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 13.2mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Date: 4 to 12-May-23

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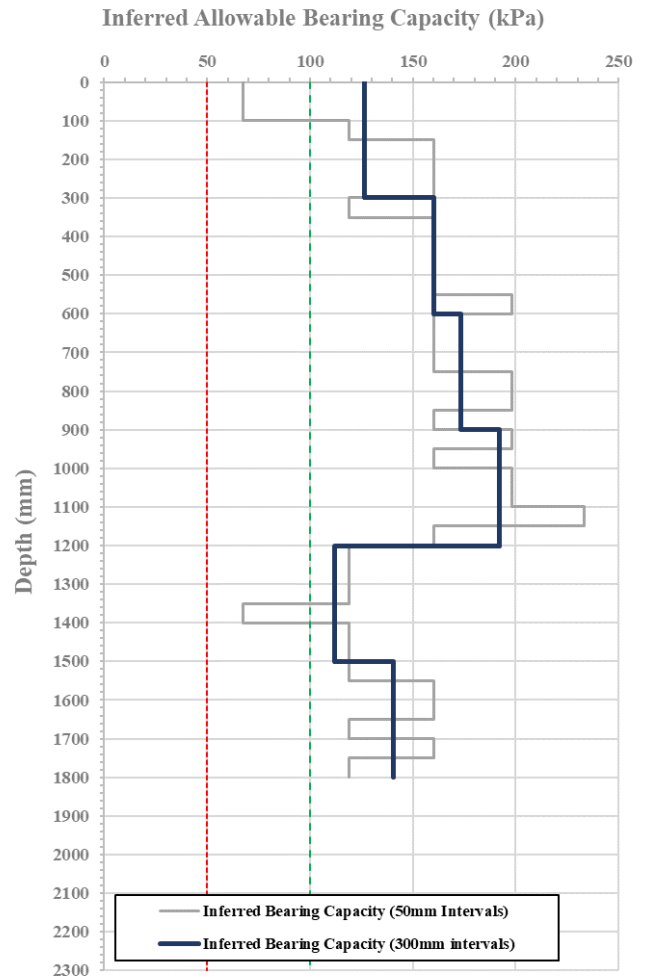
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 222 / 223 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)	
		100 mm	300 mm			
0 - 50	50.0	2	13	68	203	
50 - 100	50.0			68	203	
100 - 150	25.0	5		119	357	
150 - 200	16.7			160	481	
200 - 250	16.7	6		160	481	
250 - 300	16.7			160	481	
300 - 350	25.0	5		119	357	
350 - 400	16.7			160	481	
400 - 450	16.7	6		160	481	
450 - 500	16.7			160	481	
500 - 550	16.7	7	18	160	481	
550 - 600	12.5			198	594	
600 - 650	16.7	6		160	481	
650 - 700	16.7			160	481	
700 - 750	16.7	7		160	481	
750 - 800	12.5			198	594	
800 - 850	12.5	7		198	594	
850 - 900	16.7			160	481	
900 - 950	12.5	7		20	198	594
950 - 1000	16.7				160	481
1000 - 1050	12.5	8	198		594	
1050 - 1100	12.5		198		594	
1100 - 1150	10.0	8	233		700	
1150 - 1200	16.7		160		481	
1200 - 1250	25.0	4	11		119	357
1250 - 1300	25.0				119	357
1300 - 1350	25.0	3			119	357
1350 - 1400	50.0				68	203
1400 - 1450	25.0	4		119	357	
1450 - 1500	25.0			119	357	
1500 - 1550	25.0	5		15	119	357
1550 - 1600	16.7				160	481
1600 - 1650	16.7	5			160	481
1650 - 1700	25.0				119	357
1700 - 1750	16.7	5	160		481	
1750 - 1800	25.0		119		357	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 222 / 223 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 1000 *	Dark brown SAND with minor gravel and trace of silt. Moist. Tightly packed. Gravel, subrounded to rounded, maximum particle size 4.75mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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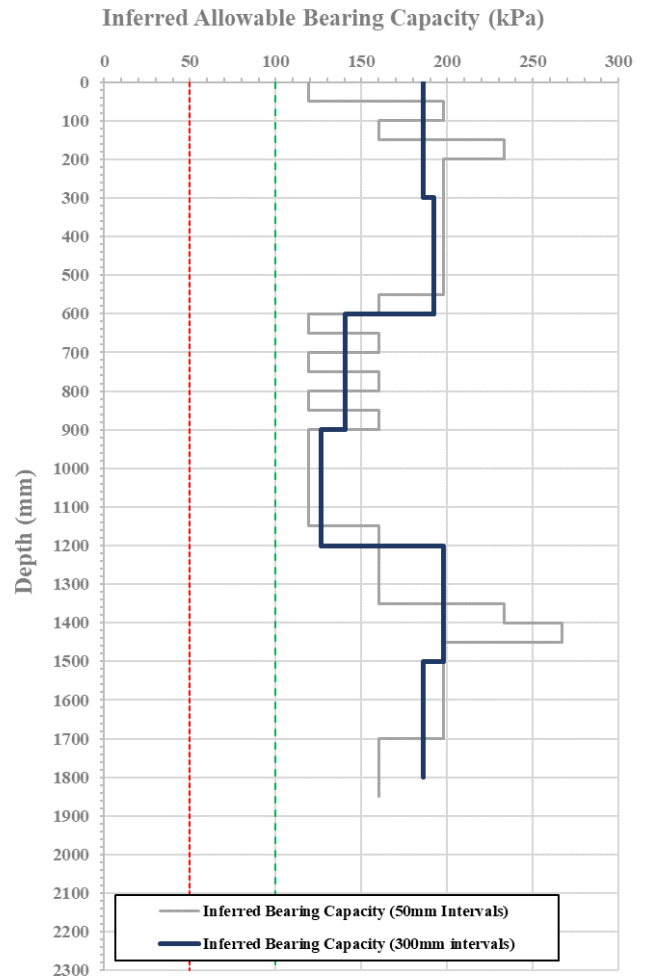
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 224 / 225 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)	
		100 mm	300 mm			
0 - 50	25.0			119	357	
50 - 100	12.5	6	22	198	594	
100 - 150	16.7	8		160	481	
150 - 200	10.0			233	700	
200 - 250	12.5	8		198	594	
250 - 300	12.5	8		198	594	
300 - 350	12.5	8	23	198	594	
350 - 400	12.5	8		198	594	
400 - 450	12.5	8		198	594	
450 - 500	12.5	8		198	594	
500 - 550	12.5	7		160	481	
550 - 600	16.7		15	119	357	
600 - 650	25.0	5		160	481	
650 - 700	16.7	5		119	357	
700 - 750	25.0	5		160	481	
750 - 800	16.7		13	119	357	
800 - 850	25.0	5		119	357	
850 - 900	16.7	5		119	357	
900 - 950	25.0	4		160	481	
950 - 1000	25.0	4	24	119	357	
1000 - 1050	25.0	4		119	357	
1050 - 1100	25.0	5		119	357	
1100 - 1150	25.0	6		160	481	
1150 - 1200	16.7		10	160	481	
1200 - 1250	16.7	6		160	481	
1250 - 1300	16.7	8		233	700	
1300 - 1350	16.7	10		267	800	
1350 - 1400	10.0		22	198	594	
1400 - 1450	8.3	8		198	594	
1450 - 1500	12.5	8		198	594	
1500 - 1550	12.5	8		198	594	
1550 - 1600	12.5	8		160	481	
1600 - 1650	12.5	8	6	160	481	
1650 - 1700	12.5	6		160	481	
1700 - 1750	16.7					
1750 - 1800	16.7					
1800 - 1850	16.7	-		160	481	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 224 / 225 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 800 *	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 9.50mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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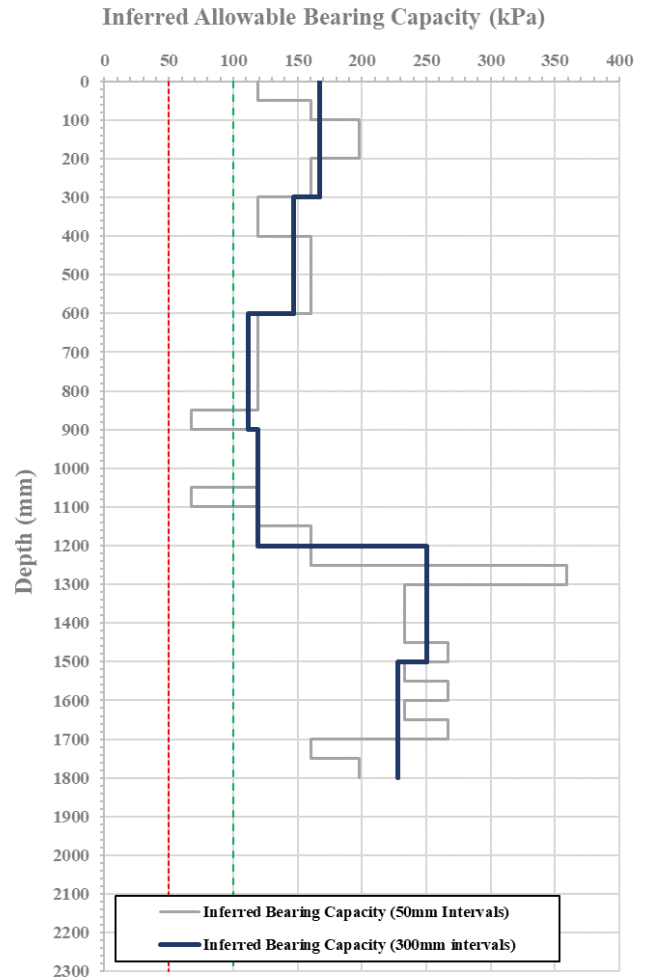
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 226 / 227 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	5	19	119	357
50 - 100	16.7			160	481
100 - 150	12.5			198	594
150 - 200	12.5	8	19	198	594
200 - 250	16.7			160	481
250 - 300	16.7	6	19	160	481
300 - 350	25.0			119	357
350 - 400	25.0	4	19	119	357
400 - 450	16.7			160	481
450 - 500	16.7	6	16	160	481
500 - 550	16.7			160	481
550 - 600	16.7			160	481
600 - 650	25.0	4	11	119	357
650 - 700	25.0			119	357
700 - 750	25.0	4	11	119	357
750 - 800	25.0			119	357
800 - 850	25.0	3	11	119	357
850 - 900	50.0			68	203
900 - 950	25.0	4	12	119	357
950 - 1000	25.0			119	357
1000 - 1050	25.0	3	12	119	357
1050 - 1100	50.0			68	203
1100 - 1150	25.0	5	12	119	357
1150 - 1200	16.7			160	481
1200 - 1250	16.7	12	33	160	481
1250 - 1300	5.6			359	1078
1300 - 1350	10.0	10	33	233	700
1350 - 1400	10.0			233	700
1400 - 1450	10.0	11	29	233	700
1450 - 1500	8.3			267	800
1500 - 1550	10.0	11	29	233	700
1550 - 1600	8.3			267	800
1600 - 1650	10.0	11	29	233	700
1650 - 1700	8.3			267	800
1700 - 1750	16.7	7	29	160	481
1750 - 1800	12.5			198	594



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 226 / 227 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 1000 *	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 16.0mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

- Note:**
- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
 - This report may not be reproduced except in full.

Tested By: C. Pearson **Date:** 4 to 12-May-23

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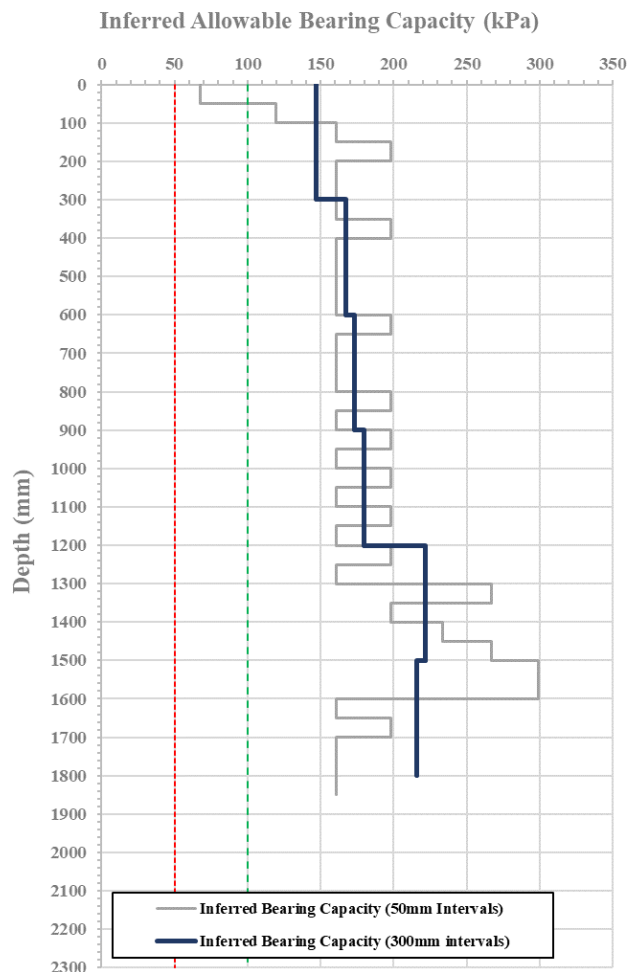
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 229 / 230 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	16	68	203
50 - 100	25.0			119	357
100 - 150	16.7			160	481
150 - 200	12.5	7	16	198	594
200 - 250	16.7			160	481
250 - 300	16.7	6	19	160	481
300 - 350	16.7			160	481
350 - 400	12.5	7	20	198	594
400 - 450	16.7			160	481
450 - 500	16.7	6	21	160	481
500 - 550	16.7			160	481
550 - 600	16.7	7	28	160	481
600 - 650	12.5			198	594
650 - 700	16.7	7	11	160	481
700 - 750	16.7			160	481
750 - 800	16.7	6	27	160	481
800 - 850	12.5			198	594
850 - 900	16.7	7	14	160	481
900 - 950	12.5			198	594
950 - 1000	16.7	7	7	160	481
1000 - 1050	12.5			198	594
1050 - 1100	16.7	7	10	160	481
1100 - 1150	12.5			198	594
1150 - 1200	16.7	7	11	160	481
1200 - 1250	12.5			198	594
1250 - 1300	16.7	10	28	160	481
1300 - 1350	8.3			267	800
1350 - 1400	12.5	11	27	198	594
1400 - 1450	10.0			233	700
1450 - 1500	8.3	14	14	267	800
1500 - 1550	7.1			299	896
1550 - 1600	7.1	7	27	299	896
1600 - 1650	16.7			160	481
1650 - 1700	12.5	6	6	198	594
1700 - 1750	16.7			160	481
1750 - 1800	16.7	-	-	160	481
1800 - 1850	16.7	-	-	160	481



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.
 NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 229 / 230 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 750	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 13.2mm; Sand, fine to medium; Silt, non-plastic.
750 to 1100 *	Light brown grey / brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



Test results indicated as not accredited are outside the scope of the laboratory's accreditation



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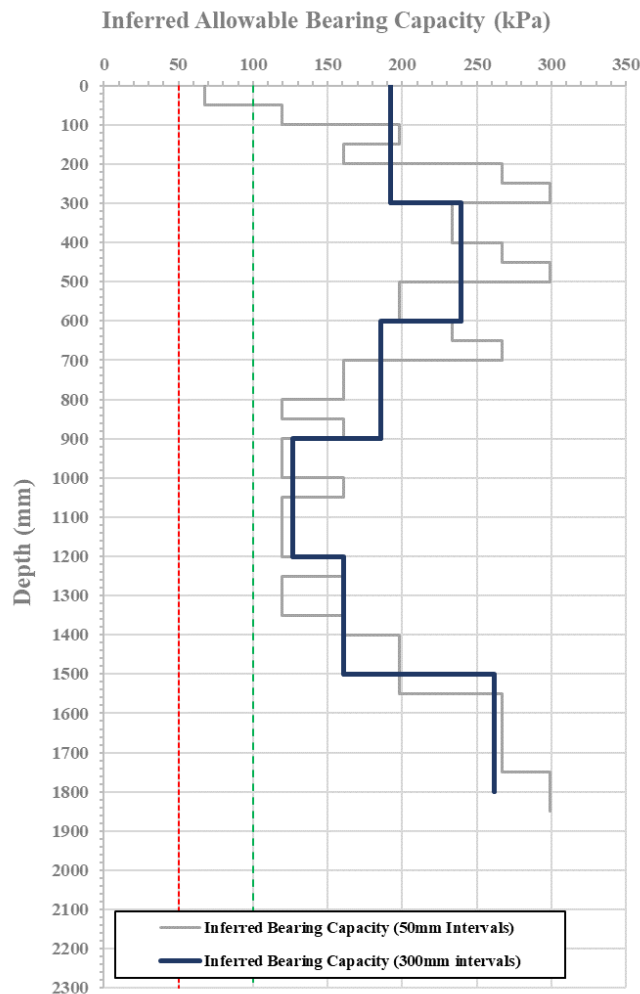
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 231 / 232 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	23	68	203
50 - 100	25.0	3		119	357
100 - 150	12.5	7		198	594
150 - 200	16.7	13	31	160	481
200 - 250	8.3			267	800
250 - 300	7.1	10	22	299	896
300 - 350	10.0			233	700
350 - 400	10.0	13	35	233	700
400 - 450	8.3			267	800
450 - 500	7.1			299	896
500 - 550	12.5	8	18	198	594
550 - 600	12.5	8		198	594
600 - 650	10.0	11	22	233	700
650 - 700	8.3			267	800
700 - 750	16.7	6	35	160	481
750 - 800	16.7			160	481
800 - 850	25.0	5	13	119	357
850 - 900	16.7			160	481
900 - 950	25.0	4	18	119	357
950 - 1000	25.0			119	357
1000 - 1050	16.7	5	35	160	481
1050 - 1100	25.0			119	357
1100 - 1150	25.0	4	18	119	357
1150 - 1200	25.0			119	357
1200 - 1250	16.7	5	35	160	481
1250 - 1300	25.0			119	357
1300 - 1350	25.0	5	18	119	357
1350 - 1400	16.7			160	481
1400 - 1450	12.5	8	35	198	594
1450 - 1500	12.5			198	594
1500 - 1550	12.5	10	18	198	594
1550 - 1600	8.3			267	800
1600 - 1650	8.3	12	35	267	800
1650 - 1700	8.3			267	800
1700 - 1750	8.3	13	18	267	800
1750 - 1800	7.1			299	896
1800 - 1850	7.1	-	-	299	896



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 231 / 232 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 950 *	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 26.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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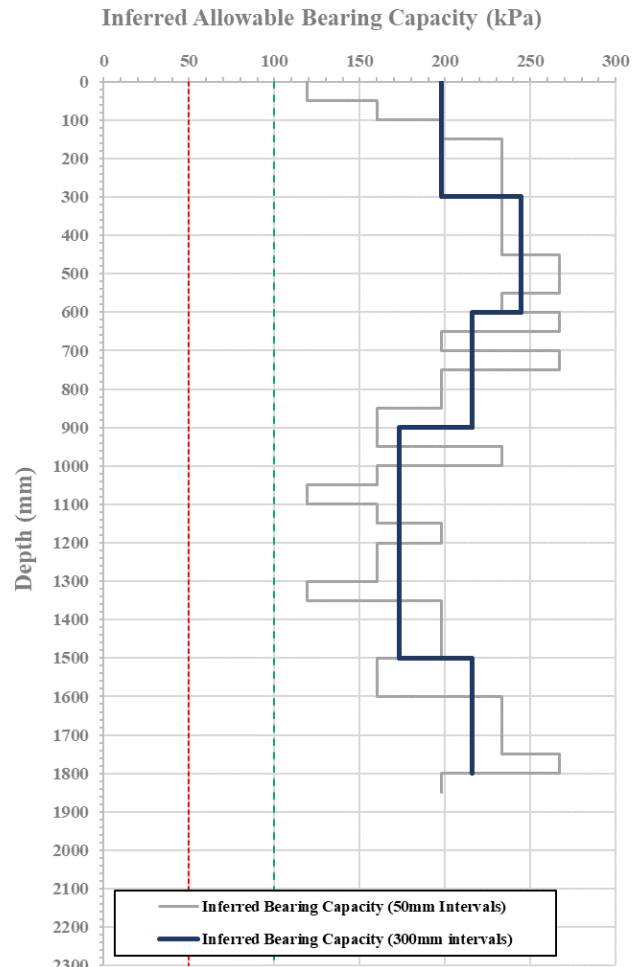
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 233 / 234 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	5	24	119	357
50 - 100	16.7			160	481
100 - 150	12.5			198	594
150 - 200	10.0			233	700
200 - 250	10.0	10	27	233	700
250 - 300	10.0			233	700
300 - 350	10.0	10	27	233	700
350 - 400	10.0			233	700
400 - 450	10.0	11	32	233	700
450 - 500	8.3			267	800
500 - 550	8.3	11	32	267	800
550 - 600	10.0			233	700
600 - 650	8.3	10	27	267	800
650 - 700	12.5			198	594
700 - 750	8.3	10	27	267	800
750 - 800	12.5			198	594
800 - 850	12.5	7	27	198	594
850 - 900	16.7			160	481
900 - 950	16.7	8	20	160	481
950 - 1000	10.0			233	700
1000 - 1050	16.7	5	20	160	481
1050 - 1100	25.0			119	357
1100 - 1150	16.7	7	20	160	481
1150 - 1200	12.5			198	594
1200 - 1250	16.7	6	20	160	481
1250 - 1300	16.7			160	481
1300 - 1350	25.0	6	20	119	357
1350 - 1400	12.5			198	594
1400 - 1450	12.5	8	27	198	594
1450 - 1500	12.5			198	594
1500 - 1550	16.7	6	27	160	481
1550 - 1600	16.7			160	481
1600 - 1650	10.0	10	27	233	700
1650 - 1700	10.0			233	700
1700 - 1750	10.0	11	27	233	700
1750 - 1800	8.3			267	800
1800 - 1850	12.5			198	594



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 233 / 234 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 450	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 13.2mm; Sand, fine to coarse; Silt, non-plastic.
450 to 900 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 31.5mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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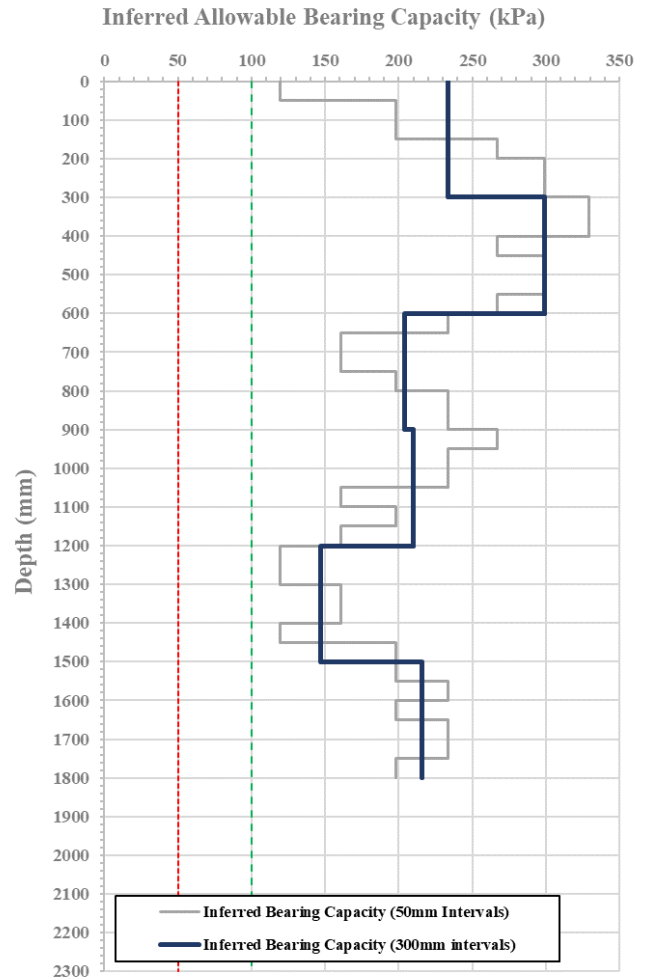
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 235 / 236 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	6	30	119	357
50 - 100	12.5			198	594
100 - 150	12.5	10	30	198	594
150 - 200	8.3			267	800
200 - 250	7.1	14	30	299	896
250 - 300	7.1			299	896
300 - 350	6.3	16	30	330	989
350 - 400	6.3			330	989
400 - 450	8.3	13	42	267	800
450 - 500	7.1			299	896
500 - 550	7.1	13	42	299	896
550 - 600	8.3			267	800
600 - 650	10.0	8	25	233	700
650 - 700	16.7			160	481
700 - 750	16.7	7	25	160	481
750 - 800	12.5			198	594
800 - 850	10.0	10	25	233	700
850 - 900	10.0			233	700
900 - 950	8.3	11	26	267	800
950 - 1000	10.0			233	700
1000 - 1050	10.0	8	26	233	700
1050 - 1100	16.7			160	481
1100 - 1150	12.5	7	26	198	594
1150 - 1200	16.7			160	481
1200 - 1250	25.0	4	16	119	357
1250 - 1300	25.0			119	357
1300 - 1350	16.7	6	16	160	481
1350 - 1400	16.7			160	481
1400 - 1450	25.0	6	16	119	357
1450 - 1500	12.5			198	594
1500 - 1550	12.5	9	27	198	594
1550 - 1600	10.0			233	700
1600 - 1650	12.5	9	27	198	594
1650 - 1700	10.0			233	700
1700 - 1750	10.0	9	27	233	700
1750 - 1800	12.5			198	594



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 235 / 236 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 800 *	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

- Note:**
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Tested By: C. Pearson Date: 4 to 12-May-23

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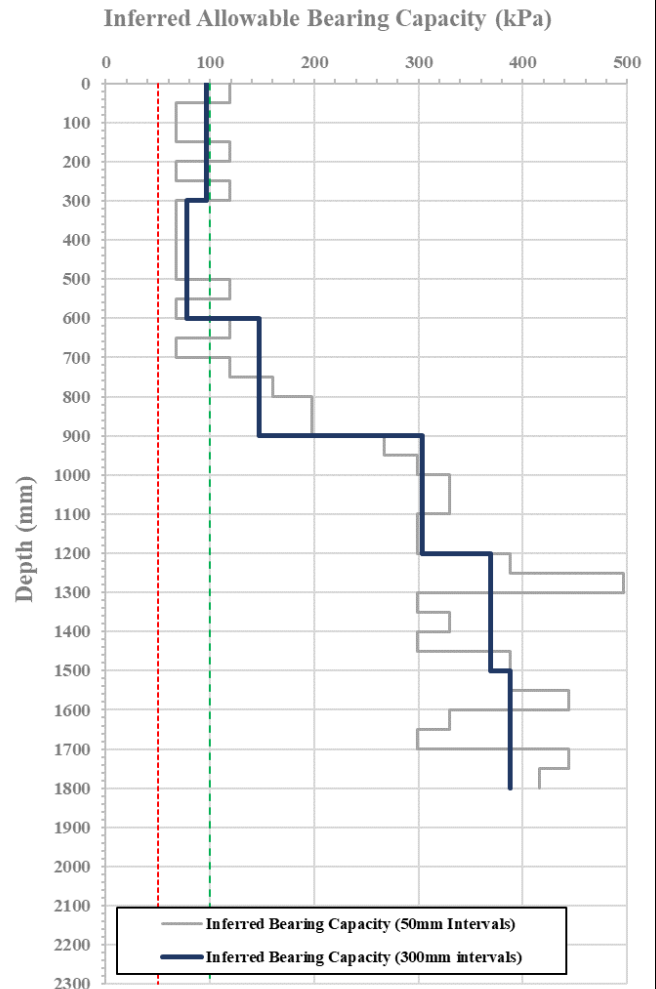
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 357 / 358 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	3	9	119	357
50 - 100	50.0	3		68	203
100 - 150	50.0	3		68	203
150 - 200	25.0	3		119	357
200 - 250	50.0	3	7	68	203
250 - 300	25.0	3		119	357
300 - 350	50.0	2		68	203
350 - 400	50.0	2		68	203
400 - 450	50.0	2	16	68	203
450 - 500	50.0	2		68	203
500 - 550	25.0	3		119	357
550 - 600	50.0	3		68	203
600 - 650	25.0	3	43	119	357
650 - 700	50.0	3		68	203
700 - 750	25.0	5		119	357
750 - 800	16.7	5		160	481
800 - 850	12.5	8	56	198	594
850 - 900	12.5	8		198	594
900 - 950	8.3	13		267	800
950 - 1000	7.1	13		299	896
1000 - 1050	6.3	16	60	330	989
1050 - 1100	6.3	16		330	989
1100 - 1150	7.1	14		299	896
1150 - 1200	7.1	14		299	896
1200 - 1250	5.0	24	60	388	1164
1250 - 1300	3.6	24		497	1490
1300 - 1350	7.1	15		299	896
1350 - 1400	6.3	15		330	989
1400 - 1450	7.1	17	60	299	896
1450 - 1500	5.0	17		388	1164
1500 - 1550	5.0	22		388	1164
1550 - 1600	4.2	22		444	1331
1600 - 1650	6.3	15	60	330	989
1650 - 1700	7.1	15		299	896
1700 - 1750	4.2	23		444	1331
1750 - 1800	4.5	23		416	1249



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 357 / 358 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 200	Topsoil & vegetation (organic matter).
200 to 800	Dark brown Sandy GRAVEL with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.
800 to 1200 *	Light brown Sandy GRAVEL with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 53.0mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

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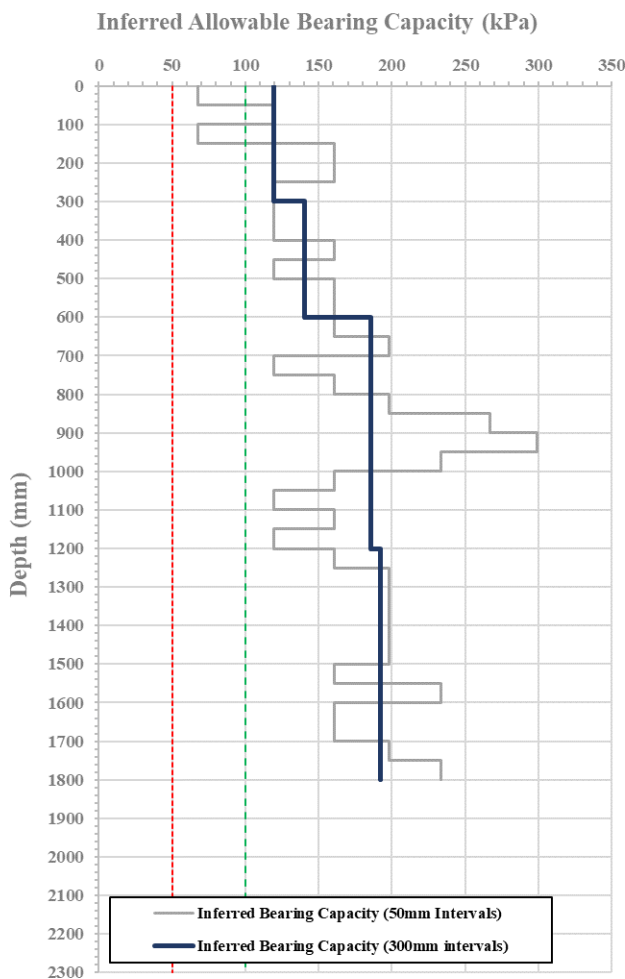
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 361 / 362 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	12	68	203
50 - 100	25.0			119	357
100 - 150	50.0			68	203
150 - 200	16.7	4	12	160	481
200 - 250	16.7			160	481
250 - 300	25.0	5	15	119	357
300 - 350	25.0			119	357
350 - 400	25.0	4	15	119	357
400 - 450	16.7			160	481
450 - 500	25.0	5	15	119	357
500 - 550	16.7			160	481
550 - 600	16.7	6	15	160	481
600 - 650	16.7			160	481
650 - 700	12.5	7	22	198	594
700 - 750	25.0			119	357
750 - 800	16.7	5	22	160	481
800 - 850	12.5			198	594
850 - 900	8.3	10	22	267	800
900 - 950	7.1			299	896
950 - 1000	10.0	12	22	233	700
1000 - 1050	16.7			160	481
1050 - 1100	25.0	5	22	119	357
1100 - 1150	16.7			160	481
1150 - 1200	25.0	5	22	119	357
1200 - 1250	16.7			160	481
1250 - 1300	12.5	7	23	198	594
1300 - 1350	12.5			198	594
1350 - 1400	12.5	8	23	198	594
1400 - 1450	12.5			198	594
1450 - 1500	12.5	8	23	198	594
1500 - 1550	16.7			160	481
1550 - 1600	10.0	8	23	233	700
1600 - 1650	16.7			160	481
1650 - 1700	16.7	6	23	160	481
1700 - 1750	12.5			198	594
1750 - 1800	10.0	9	23	233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 361 / 362 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 150	Topsoil & vegetation (organic matter).
150 to 500	Dark brown Sandy GRAVEL with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine; Silt, non-plastic.
500 to 1100 *	Light greyish brown Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subrounded to rounded, maximum particle size 9.50mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



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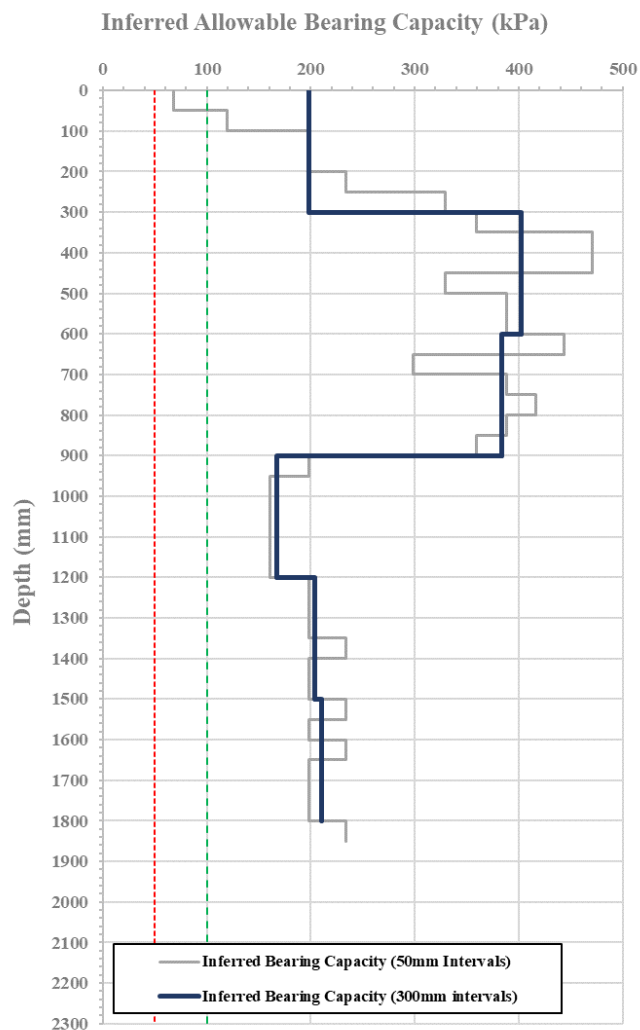
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 363 – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	24	68	203
50 - 100	25.0	3		119	357
100 - 150	12.5	8		198	594
150 - 200	12.5	13	63	198	594
200 - 250	10.0			233	700
250 - 300	6.3	22	59	330	989
300 - 350	5.6			359	1078
350 - 400	3.8	21	63	471	1412
400 - 450	3.8			471	1412
450 - 500	6.3	20	59	330	989
500 - 550	5.0			388	1164
550 - 600	5.0	19	25	388	1164
600 - 650	4.2			444	1331
650 - 700	7.1	21	59	299	896
700 - 750	5.0			388	1164
750 - 800	4.5	19	26	416	1249
800 - 850	5.0			388	1164
850 - 900	5.6	8	25	359	1078
900 - 950	12.5			198	594
950 - 1000	16.7	6	19	160	481
1000 - 1050	16.7			160	481
1050 - 1100	16.7	6	26	160	481
1100 - 1150	16.7			160	481
1150 - 1200	16.7	8	25	160	481
1200 - 1250	12.5			198	594
1250 - 1300	12.5	9	26	198	594
1300 - 1350	12.5			198	594
1350 - 1400	10.0	8	26	233	700
1400 - 1450	12.5			198	594
1450 - 1500	12.5	9	26	198	594
1500 - 1550	10.0			233	700
1550 - 1600	12.5	9	26	198	594
1600 - 1650	10.0			233	700
1650 - 1700	12.5	8	26	198	594
1700 - 1750	12.5			198	594
1750 - 1800	12.5	-	-	198	594
1800 - 1850	10.0			233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.
 NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 363 - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 300	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 9.50mm; Sand, fine to coarse; Silt, non-plastic.
300 to 750 *	Light brown Sandy GRAVEL with minor silt. Moist. Tightly packed. Gravel, subrounded to rounded, maximum particle size 13.2mm; Sand, fine; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



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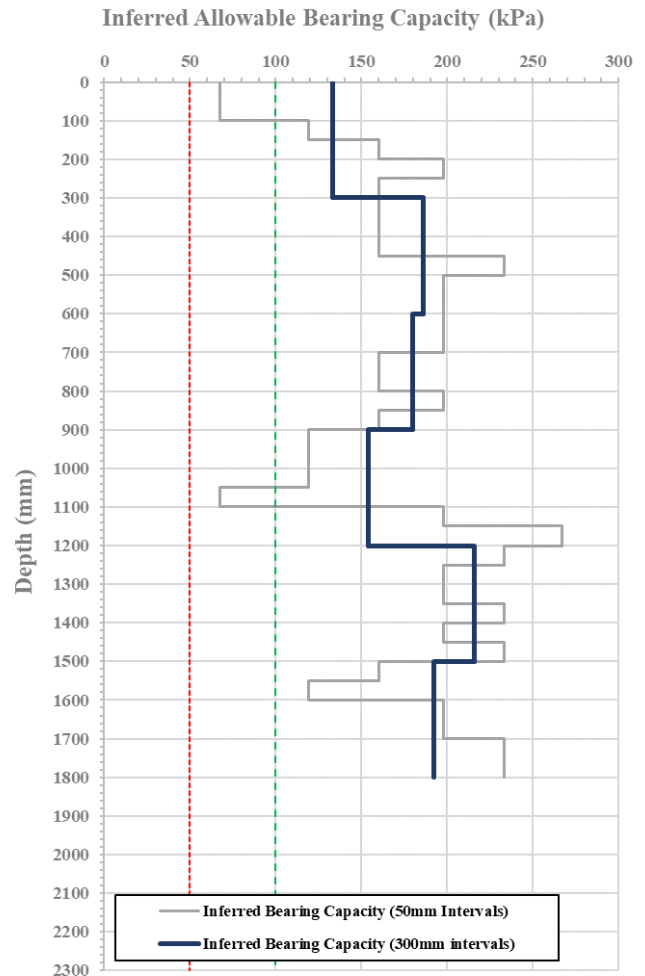
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 365 / 366 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	14	68	203
50 - 100	50.0	2		68	203
100 - 150	25.0	5		119	357
150 - 200	16.7	7	22	160	481
200 - 250	12.5			160	481
250 - 300	16.7	6	21	160	481
300 - 350	16.7			160	481
350 - 400	16.7	8	17	160	481
400 - 450	16.7			160	481
450 - 500	10.0	8	27	233	700
500 - 550	12.5			198	594
550 - 600	12.5	6	23	198	594
600 - 650	12.5			198	594
650 - 700	12.5	6	10	198	594
700 - 750	16.7			160	481
750 - 800	16.7	7	9	160	481
800 - 850	12.5			198	594
850 - 900	16.7	4	27	160	481
900 - 950	25.0			119	357
950 - 1000	25.0	3	23	119	357
1000 - 1050	25.0			119	357
1050 - 1100	50.0	10	9	68	203
1100 - 1150	12.5			198	594
1150 - 1200	8.3	9	9	267	800
1200 - 1250	10.0			233	700
1250 - 1300	12.5	9	5	198	594
1300 - 1350	12.5			198	594
1350 - 1400	10.0	9	8	233	700
1400 - 1450	12.5			198	594
1450 - 1500	10.0	9	10	233	700
1500 - 1550	16.7			160	481
1550 - 1600	25.0	5	8	119	357
1600 - 1650	12.5			198	594
1650 - 1700	12.5	8	10	198	594
1700 - 1750	10.0			233	700
1750 - 1800	10.0	10	233	700	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.
 NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 365 / 366 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 600	Dark brown Gravelly SAND with minor silt. Moist. Tightly packed / loose. Gravel, subrounded to rounded, maximum particle size 4.75mm; Sand, fine; Silt; non-plastic.
600 to 1200	Light brown Gravelly SAND with minor silt. Moist. Tightly packed / loose. Gravel, angular to subrounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.
1200 to 1300 *	Light brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



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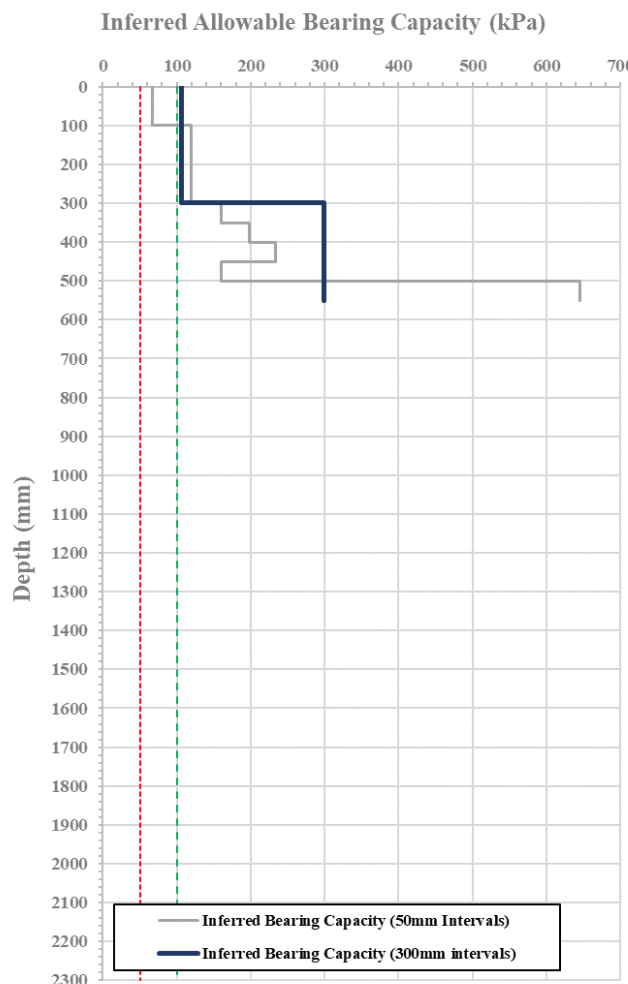
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 368 / 369 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	10	68	203
50 - 100	50.0			68	203
100 - 150	25.0	4		119	357
150 - 200	25.0			119	357
200 - 250	25.0	4		119	357
250 - 300	25.0			119	357
300 - 350	16.7	7	≅ 42	160	481
350 - 400	12.5			198	594
400 - 450	10.0	8	233	700	
450 - 500	16.7		160	481	
500 - 550	2.5	-	645	1936	



Refusal

¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 368 / 369 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 700	Light brown Gravelly SAND with minor silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson **Date:** 4 to 12-May-23

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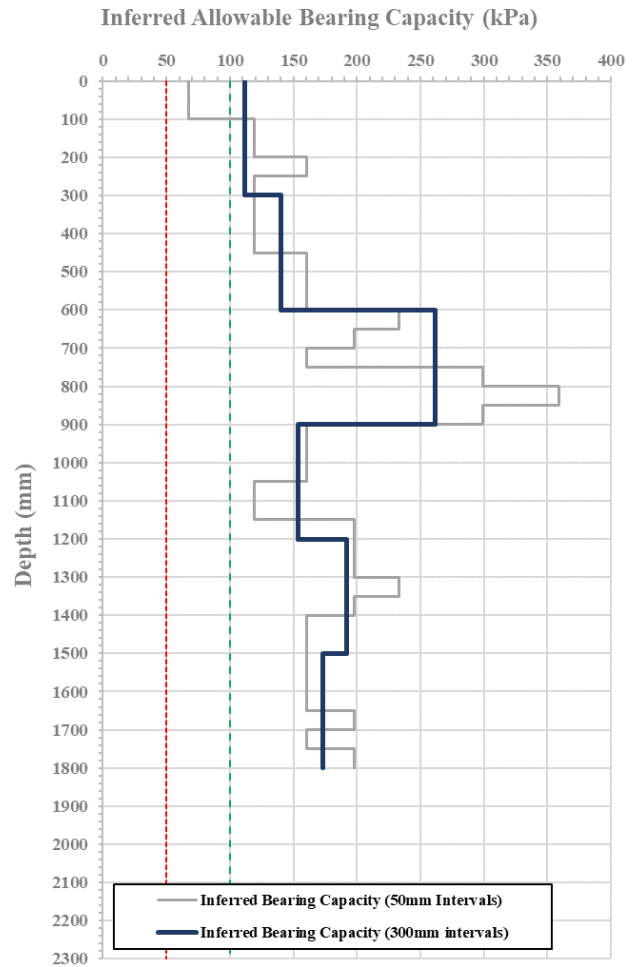
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 369 / 370 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)	
		100 mm	300 mm			
0 - 50	50.0	2	11	68	203	
50 - 100	50.0			68	203	
100 - 150	25.0	4		119	357	
150 - 200	25.0			119	357	
200 - 250	16.7	5		160	481	
250 - 300	25.0			119	357	
300 - 350	25.0	4		119	357	
350 - 400	25.0			119	357	
400 - 450	25.0	5		15	119	357
450 - 500	16.7				160	481
500 - 550	16.7	6	160		481	
550 - 600	16.7		160		481	
600 - 650	10.0	9	233		700	
650 - 700	12.5		198		594	
700 - 750	16.7	10	35		160	481
750 - 800	7.1				299	896
800 - 850	5.6	16			359	1078
850 - 900	7.1				299	896
900 - 950	16.7	6		160	481	
950 - 1000	16.7			160	481	
1000 - 1050	16.7	5		17	160	481
1050 - 1100	25.0				119	357
1100 - 1150	25.0	6			119	357
1150 - 1200	12.5				198	594
1200 - 1250	12.5	8	23		198	594
1250 - 1300	12.5				198	594
1300 - 1350	10.0	9			233	700
1350 - 1400	12.5				198	594
1400 - 1450	16.7	6			160	481
1450 - 1500	16.7				160	481
1500 - 1550	16.7	6		20	160	481
1550 - 1600	16.7				160	481
1600 - 1650	16.7	7			160	481
1650 - 1700	12.5				198	594
1700 - 1750	16.7	7	160		481	
1750 - 1800	12.5		198		594	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 369 / 370 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 400	Light brown SAND with minor silt. Moist. Loose. Sand; fine; Silt, non-plastic.
400 to 1100 *	Light brown Gravelly SAND with minor silt. Moist. Tightly packed /loose. Gravel, angular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Date: 4 to 12-May-23

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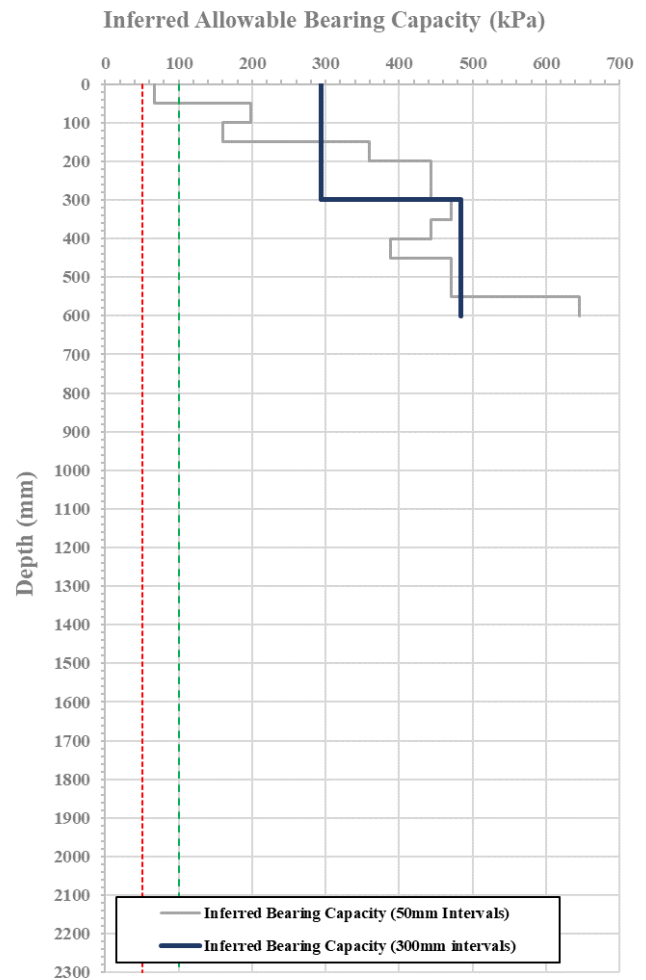
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Wooring Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 371 / 372 boundary – See Page 66 for location plan					
Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	5	41	68	203
50 - 100	12.5			198	594
100 - 150	16.7			160	481
150 - 200	5.6	359		1078	
200 - 250	4.2	24		444	1331
250 - 300	4.2		444	1331	
300 - 350	3.8	25	471	1412	
350 - 400	4.2		444	1331	
400 - 450	5.0	23	81	388	1164
450 - 500	3.8			471	1412
500 - 550	3.8			471	1412
550 - 600	2.5	33		645	1936
Refusal					
<p>¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.</p> <p>NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.</p>					
AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 371 / 372 boundary - See page 66 for location plan					
Depth (mm)	Description				
0 to 500 *	Dark brown Gravelly SAND with minor silt and trace of cobbles. Moist. Tightly packed. Gravel / cobbles, subrounded to rounded, maximum particle size 75.0mm; Sand, fine, Silt, non-plastic.				
* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.					



Note:

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Tested By: C. Pearson

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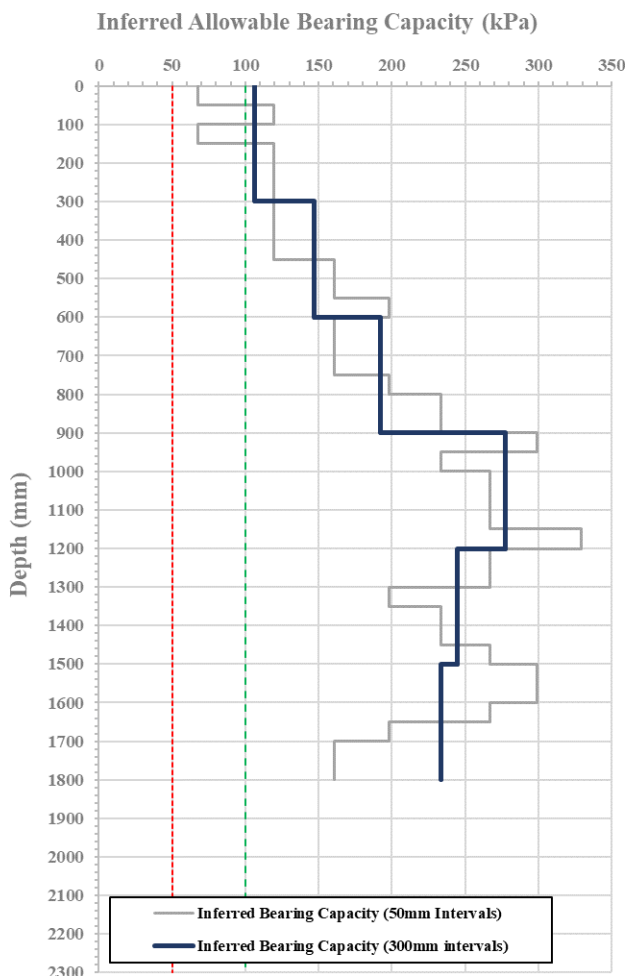
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 388 – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	10	68	203
50 - 100	25.0			119	357
100 - 150	50.0			68	203
150 - 200	25.0	3	10	119	357
200 - 250	25.0			119	357
250 - 300	25.0	4	16	119	357
300 - 350	25.0			119	357
350 - 400	25.0	4	16	119	357
400 - 450	25.0			119	357
450 - 500	16.7	5	16	160	481
500 - 550	16.7			160	481
550 - 600	12.5	7	23	198	594
600 - 650	16.7			160	481
650 - 700	16.7	6	23	160	481
700 - 750	16.7			160	481
750 - 800	12.5	7	23	198	594
800 - 850	10.0			233	700
850 - 900	10.0	10	30	233	700
900 - 950	7.1			299	896
950 - 1000	10.0	12	38	233	700
1000 - 1050	8.3			267	800
1050 - 1100	8.3	12	38	267	800
1100 - 1150	8.3			267	800
1150 - 1200	6.3	14	32	330	989
1200 - 1250	8.3			267	800
1250 - 1300	8.3	12	32	267	800
1300 - 1350	12.5			198	594
1350 - 1400	10.0	9	30	233	700
1400 - 1450	10.0			233	700
1450 - 1500	8.3	11	30	267	800
1500 - 1550	7.1			299	896
1550 - 1600	7.1	14	30	299	896
1600 - 1650	8.3			267	800
1650 - 1700	12.5	10	30	198	594
1700 - 1750	16.7			160	481
1750 - 1800	16.7	6	30	160	481



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 388 - See page 66 for location plan

Depth (mm)	Description
0 to 150	Topsoil & vegetation (organic matter).
150 to 650	Light brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 4.75mm; Sand, fine to coarse; Silt, non-plastic.
650 to 1200 *	Light brown Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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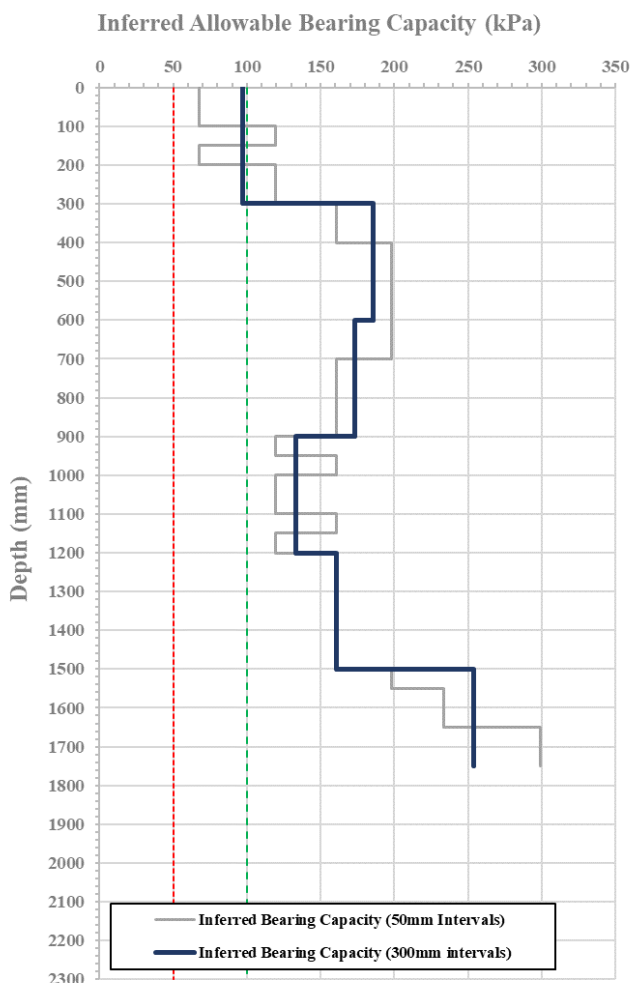
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P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 389 / 391 boundary – See Page 66 for location plan					
Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	9	68	203
50 - 100	50.0	2		68	203
100 - 150	25.0	3		119	357
150 - 200	50.0	4	22	68	203
200 - 250	25.0			119	357
250 - 300	25.0	6	20	119	357
300 - 350	16.7			160	481
350 - 400	16.7	8	14	160	481
400 - 450	12.5			198	594
450 - 500	12.5	8	18	198	594
500 - 550	12.5			198	594
550 - 600	12.5	6	34	198	594
600 - 650	12.5			160	481
650 - 700	12.5	6	18	160	481
700 - 750	16.7			160	481
750 - 800	16.7	6	14	160	481
800 - 850	16.7			160	481
850 - 900	16.7	5	18	160	481
900 - 950	25.0			119	357
950 - 1000	16.7	4	14	160	481
1000 - 1050	25.0			119	357
1050 - 1100	25.0	5	18	119	357
1100 - 1150	16.7			160	481
1150 - 1200	25.0	6	18	119	357
1200 - 1250	16.7			160	481
1250 - 1300	16.7	6	18	160	481
1300 - 1350	16.7			160	481
1350 - 1400	16.7	6	18	160	481
1400 - 1450	16.7			160	481
1450 - 1500	16.7	9	34	160	481
1500 - 1550	12.5			233	700
1550 - 1600	10.0	12	34	233	700
1600 - 1650	10.0			299	896
1650 - 1700	7.1	-	34	299	896
1700 - 1750	7.1			299	896



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 389 / 391 boundary - See page 66 for location plan	
Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 800	Light brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 4.75mm; Sand, fine to coarse; Silt, non-plastic.
800 to 1000 *	Light brown Gravelly SAND with trace of cobbles and trace of silt. Moist. Tightly packed. Gravel / cobbles, subangular to rounded, maximum particle size 90.0mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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Test results indicated as not accredited are outside the scope of the laboratory's accreditation



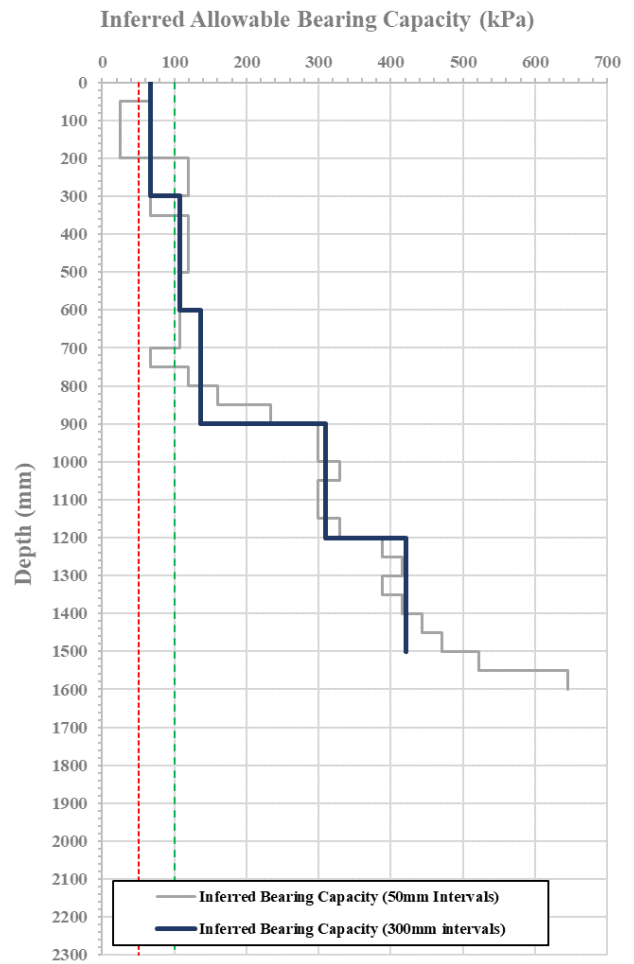
Central Testing Services

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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 390 / 392 boundary – See Page 66 for location plan					
Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	1.3	6	68	203
50 - 100	150.0			25	76
100 - 150	150.0			25	76
150 - 200	150.0	0.7		25	76
200 - 250	25.0			119	357
250 - 300	25.0	4		119	357
300 - 350	50.0	3	10.5	68	203
350 - 400	25.0			119	357
400 - 450	25.0	4		119	357
450 - 500	25.0			119	357
500 - 550	28.6	3.5		108	324
550 - 600	28.6			108	324
600 - 650	28.6	3.5	14.5	108	324
650 - 700	28.6			68	203
700 - 750	50.0	3		119	357
750 - 800	25.0			160	481
800 - 850	16.7	8		233	700
850 - 900	10.0			299	896
900 - 950	7.1	14	44	299	896
950 - 1000	7.1			330	989
1000 - 1050	6.3	15		299	896
1050 - 1100	7.1			299	896
1100 - 1150	7.1	15		299	896
1150 - 1200	6.3			330	989
1200 - 1250	5.0	21	67	388	1164
1250 - 1300	4.5			416	1249
1300 - 1350	5.0	21		388	1164
1350 - 1400	4.5			416	1249
1400 - 1450	4.2	25		444	1331
1450 - 1500	3.8			471	1412
1500 - 1550	3.3	35	523	1568	
1550 - 1600	2.5		-	645	1936



Refusal

¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 390 / 392 boundary - See page 66 for location plan	
Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 300	Light brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 4.75mm; Sand, fine to coarse; Silt, non-plastic plasticity.
300 to 1000	Light brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.
1000 to 1100	Light grey Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, angular to rounded, maximum particle size 31.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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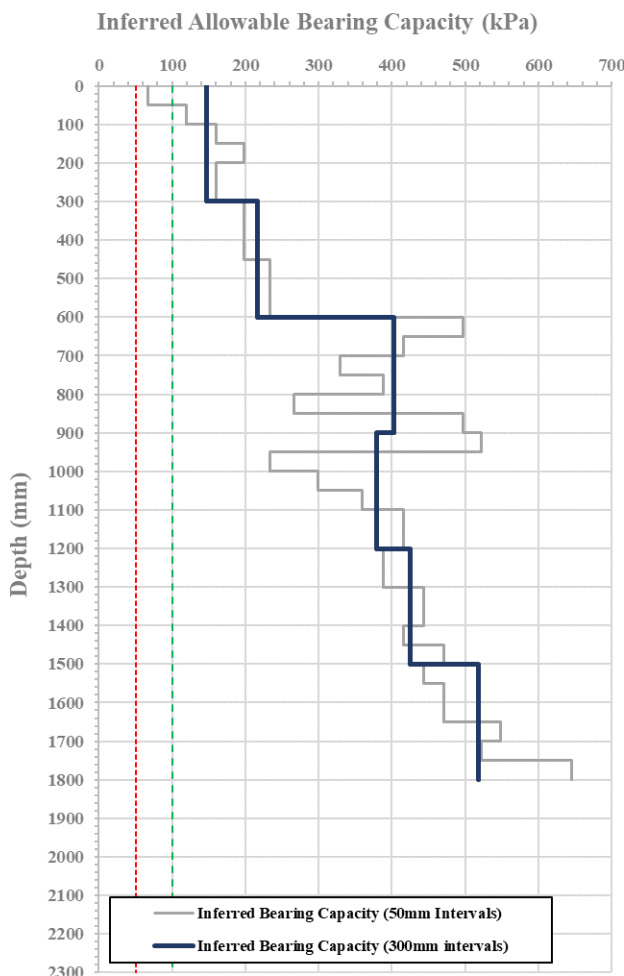
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 393 / 394 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	16	68	203
50 - 100	25.0			119	357
100 - 150	16.7			160	481
150 - 200	12.5	7	16	198	594
200 - 250	16.7			160	481
250 - 300	16.7	6	16	160	481
300 - 350	12.5			198	594
350 - 400	12.5	8	27	198	594
400 - 450	12.5			198	594
450 - 500	10.0	9	27	233	700
500 - 550	10.0			233	700
550 - 600	10.0	10	27	233	700
600 - 650	3.6			497	1490
650 - 700	4.5	25	63	416	1249
700 - 750	6.3			330	989
750 - 800	5.0	18	63	388	1164
800 - 850	8.3			267	800
850 - 900	3.6	20	63	497	1490
900 - 950	3.3			523	1568
950 - 1000	10.0	20	58	233	700
1000 - 1050	7.1			299	896
1050 - 1100	5.6	16	58	359	1078
1100 - 1150	4.5			416	1249
1150 - 1200	4.5	22	68	416	1249
1200 - 1250	5.0			388	1164
1250 - 1300	5.0	20	68	388	1164
1300 - 1350	4.2			444	1331
1350 - 1400	4.2	24	68	444	1331
1400 - 1450	4.5			416	1249
1450 - 1500	3.8	24	89	471	1412
1500 - 1550	4.2			444	1331
1550 - 1600	3.8	25	89	471	1412
1600 - 1650	3.8			471	1412
1650 - 1700	3.1	29	89	548	1644
1700 - 1750	3.3			523	1568
1750 - 1800	2.5	35	89	645	1936



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 393 / 394 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 800 *	Dark brown Sandy GRAVEL with trace of silt. Wet. Tightly packed. Gravel, subangular to rounded, maximum particle size 63.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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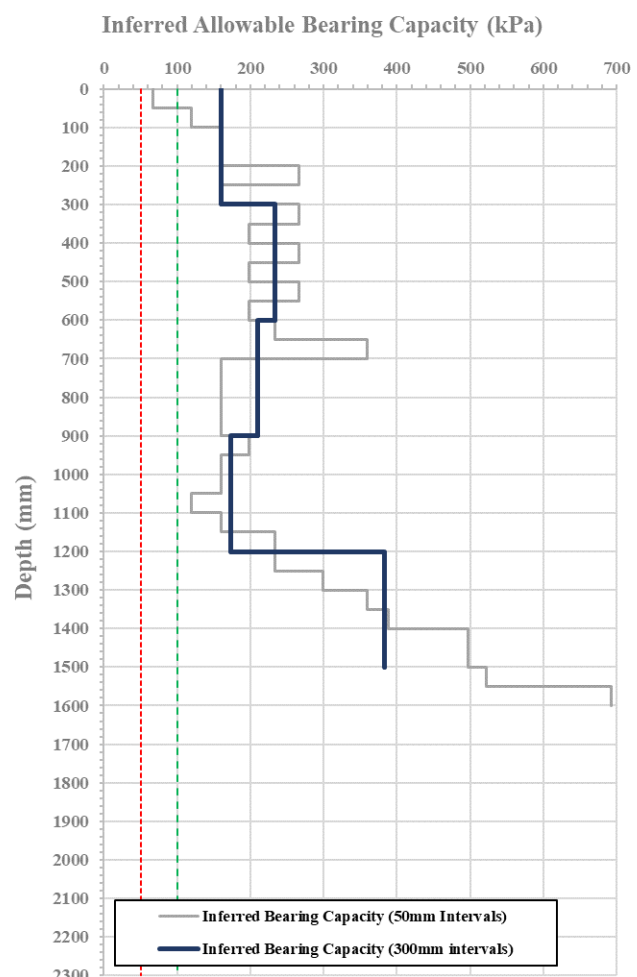
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 395 / 396 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	18	68	203
50 - 100	25.0			119	357
100 - 150	16.7			160	481
150 - 200	16.7	6	18	160	481
200 - 250	8.3			267	800
250 - 300	16.7	9	26	160	481
300 - 350	8.3			267	800
350 - 400	12.5	10	30	198	594
400 - 450	8.3			267	800
450 - 500	12.5	10	26	198	594
500 - 550	8.3			267	800
550 - 600	12.5	10	30	198	594
600 - 650	10.0			233	700
650 - 700	5.6	14	59	359	1078
700 - 750	16.7			160	481
750 - 800	16.7	6	26	160	481
800 - 850	16.7			160	481
850 - 900	16.7	6	26	160	481
900 - 950	12.5			198	594
950 - 1000	16.7	7	20	160	481
1000 - 1050	16.7			160	481
1050 - 1100	25.0	5	20	119	357
1100 - 1150	16.7			160	481
1150 - 1200	10.0	8	59	233	700
1200 - 1250	10.0			233	700
1250 - 1300	7.1	12	59	299	896
1300 - 1350	5.6			359	1078
1350 - 1400	5.0	19	59	388	1164
1400 - 1450	3.6			497	1490
1450 - 1500	3.6	28	59	497	1490
1500 - 1550	3.3			523	1568
1550 - 1600	2.3	37	-	692	2077



Refusal

¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 395 / 396 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 200	Topsoil & vegetation (organic matter).
200 to 900 *	Light brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 63.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Central Testing Services

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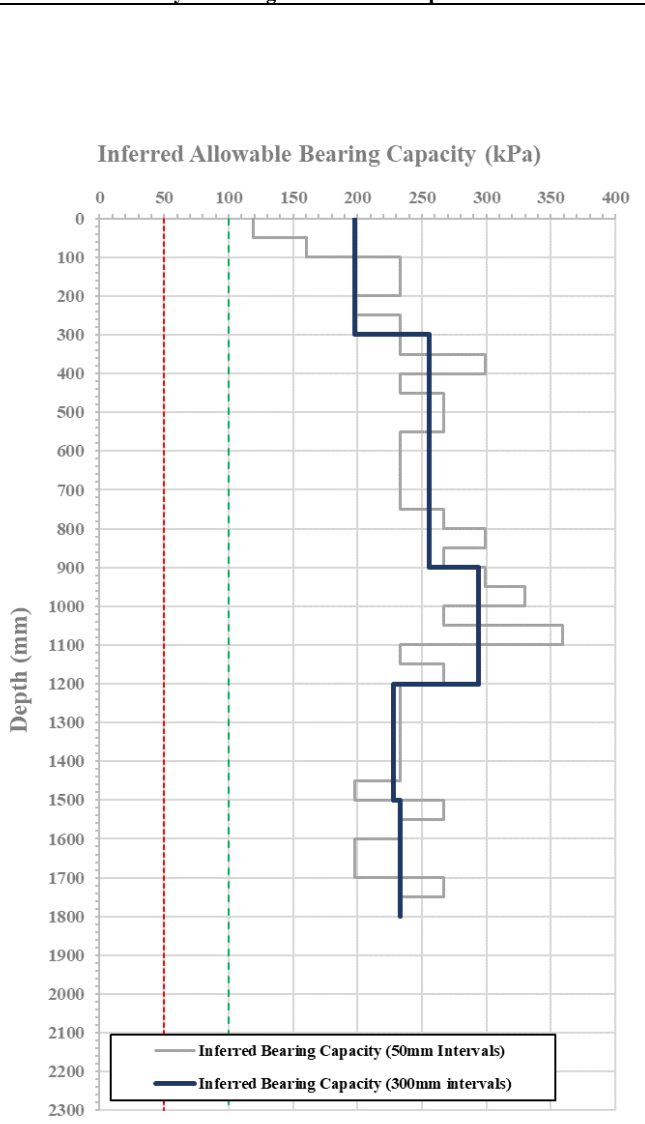
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 397 / 398 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	5	24	119	357
50 - 100	16.7			160	481
100 - 150	10.0			233	700
150 - 200	10.0	9	24	233	700
200 - 250	12.5			198	594
250 - 300	10.0	12	34	233	700
300 - 350	10.0			233	700
350 - 400	7.1			299	896
400 - 450	10.0	11	34	233	700
450 - 500	8.3			267	800
500 - 550	8.3	11	34	267	800
550 - 600	10.0			233	700
600 - 650	10.0	10	29	233	700
650 - 700	10.0			233	700
700 - 750	10.0			233	700
750 - 800	8.3	11	34	267	800
800 - 850	7.1			299	896
850 - 900	8.3	13	34	267	800
900 - 950	7.1			299	896
950 - 1000	6.3	15	41	330	989
1000 - 1050	8.3			267	800
1050 - 1100	5.6	15	41	359	1078
1100 - 1150	10.0			233	700
1150 - 1200	8.3	11	29	267	800
1200 - 1250	10.0			233	700
1250 - 1300	10.0	10	29	233	700
1300 - 1350	10.0			233	700
1350 - 1400	10.0			233	700
1400 - 1450	10.0	9	29	233	700
1450 - 1500	12.5			198	594
1500 - 1550	8.3	11	30	267	800
1550 - 1600	10.0			233	700
1600 - 1650	12.5	8	30	198	594
1650 - 1700	12.5			198	594
1700 - 1750	8.3	11	30	267	800
1750 - 1800	10.0			233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 397 / 398 Boundary - See page 66 for location plan

Depth (mm)	Description
0 to 150	Topsoil & vegetation (organic matter).
150 to 350	Light grey Gravelly SAND with trace of cobbles and trace of silt. Dry / Moist. Tightly packed. Gravel / cobbles, subrounded to rounded, maximum particle size 75.0mm. Sand, fine to coarse; Silt, non-plastic.
350 to 700 *	Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



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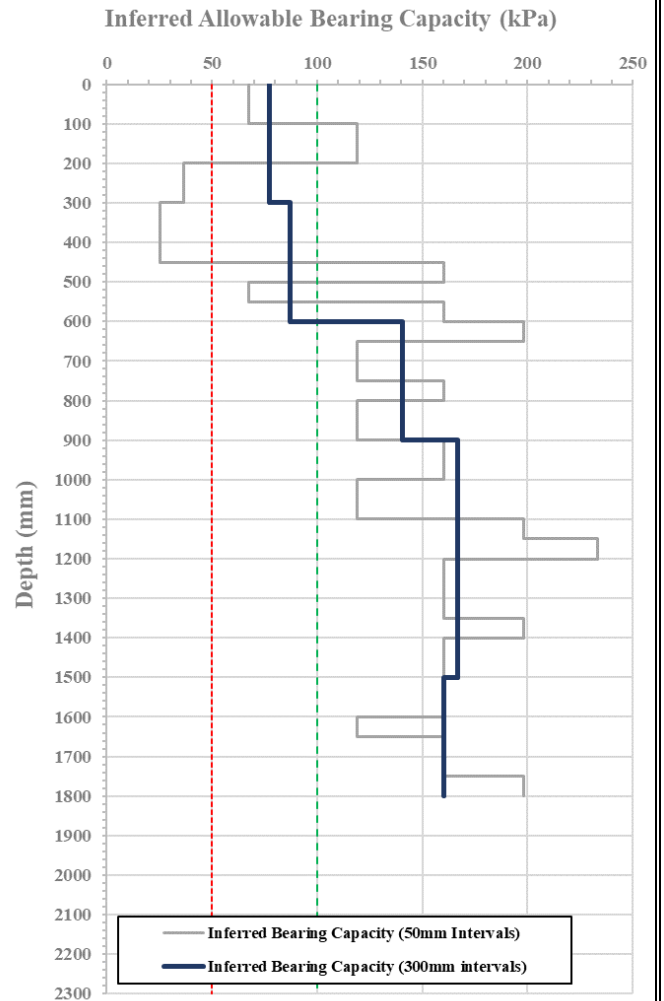
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 415 – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	7	68	203
50 - 100	50.0			68	203
100 - 150	25.0			119	357
150 - 200	25.0	4	7	119	357
200 - 250	100.0			36	109
250 - 300	100.0	1	7	36	109
300 - 350	150.0			25	76
350 - 400	150.0	0.7	7	25	76
400 - 450	150.0			25	76
450 - 500	16.7	3.3	8	160	481
500 - 550	50.0			68	203
550 - 600	16.7	4	8	160	481
600 - 650	12.5			198	594
650 - 700	25.0	6	15	119	357
700 - 750	25.0			119	357
750 - 800	16.7	5	15	160	481
800 - 850	25.0			119	357
850 - 900	25.0	4	15	119	357
900 - 950	16.7			160	481
950 - 1000	16.7	6	19	160	481
1000 - 1050	25.0			119	357
1050 - 1100	25.0	4	19	119	357
1100 - 1150	12.5			198	594
1150 - 1200	10.0	9	19	233	700
1200 - 1250	16.7			160	481
1250 - 1300	16.7	6	19	160	481
1300 - 1350	16.7			160	481
1350 - 1400	12.5	7	19	198	594
1400 - 1450	16.7			160	481
1450 - 1500	16.7	6	18	160	481
1500 - 1550	16.7			160	481
1550 - 1600	16.7	6	18	160	481
1600 - 1650	25.0			119	357
1650 - 1700	16.7	5	18	160	481
1700 - 1750	16.7			160	481
1750 - 1800	12.5	7	18	198	594



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 415 - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 600	Dark brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to subrounded, maximum particle size 37.5mm; Sand, fine; Silt, non-plastic plasticity.
600 to 1000 *	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 13.2mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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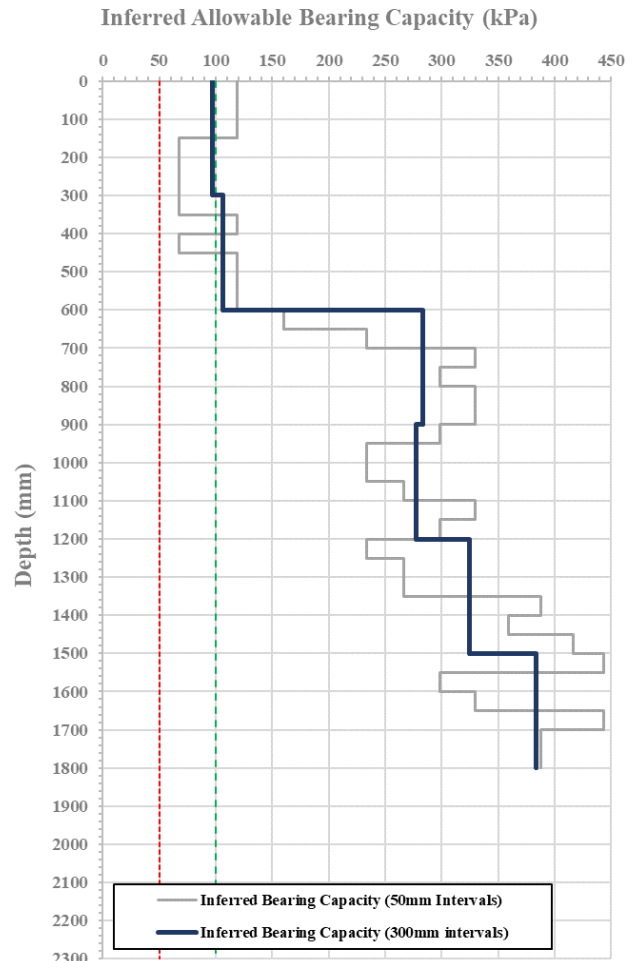
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 416 / 417 boundary – See Page 66 for location plan					
Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	4	9	119	357
50 - 100	25.0			119	357
100 - 150	25.0	3	9	119	357
150 - 200	50.0			68	203
200 - 250	50.0	2	9	68	203
250 - 300	50.0			68	203
300 - 350	50.0	3	10	68	203
350 - 400	25.0			119	357
400 - 450	50.0	3	10	68	203
450 - 500	25.0			119	357
500 - 550	25.0	4	10	119	357
550 - 600	25.0			119	357
600 - 650	16.7	8	39	160	481
650 - 700	10.0			233	700
700 - 750	6.3	15	39	330	989
750 - 800	7.1			299	896
800 - 850	6.3	16	39	330	989
850 - 900	6.3			330	989
900 - 950	7.1	12	38	299	896
950 - 1000	10.0			233	700
1000 - 1050	10.0	11	38	233	700
1050 - 1100	8.3			267	800
1100 - 1150	6.3	15	47	330	989
1150 - 1200	7.1			299	896
1200 - 1250	10.0	11	47	233	700
1250 - 1300	8.3			267	800
1300 - 1350	8.3	16	47	267	800
1350 - 1400	5.0			388	1164
1400 - 1450	5.6	20	59	359	1078
1450 - 1500	4.5			416	1249
1500 - 1550	4.2	19	59	444	1331
1550 - 1600	7.1			299	896
1600 - 1650	6.3	20	59	330	989
1650 - 1700	4.2			444	1331
1700 - 1750	5.0	20	59	388	1164
1750 - 1800	5.0			388	1164



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 416 / 417 boundary - See page 66 for location plan	
Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 1200 *	Light brown Gravelly SAND with trace of cobbles and trace of silt. Moist. Tightly packed / loose. Gravel / cobbles, subrounded to rounded, maximum particle size 75.0mm; Sand, fine; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

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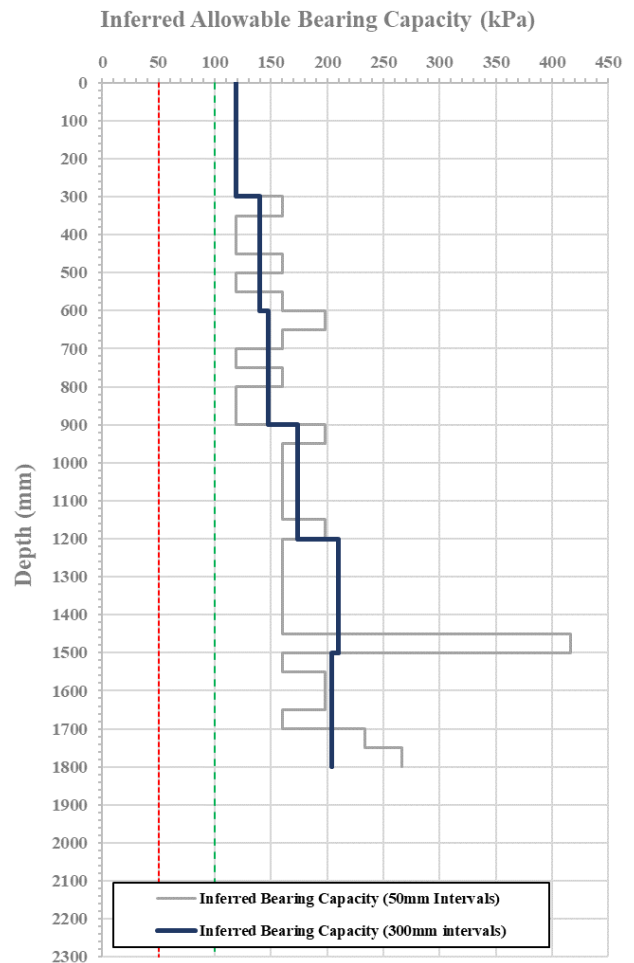
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 418 / 419 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	4	12	119	357
50 - 100	25.0			119	357
100 - 150	25.0			119	357
150 - 200	25.0			119	357
200 - 250	25.0	4	12	119	357
250 - 300	25.0			119	357
300 - 350	16.7	5	15	160	481
350 - 400	25.0			119	357
400 - 450	25.0	5	15	119	357
450 - 500	16.7			160	481
500 - 550	25.0			119	357
550 - 600	16.7	5	15	160	481
600 - 650	12.5			198	594
650 - 700	16.7	7	16	160	481
700 - 750	25.0			119	357
750 - 800	16.7	5	16	160	481
800 - 850	25.0			119	357
850 - 900	25.0	4	16	119	357
900 - 950	12.5			198	594
950 - 1000	16.7	7	20	160	481
1000 - 1050	16.7			160	481
1050 - 1100	16.7	6	20	160	481
1100 - 1150	16.7			160	481
1150 - 1200	12.5	7	26	198	594
1200 - 1250	16.7			160	481
1250 - 1300	16.7	6	26	160	481
1300 - 1350	16.7			160	481
1350 - 1400	16.7	6	26	160	481
1400 - 1450	16.7			160	481
1450 - 1500	4.5	14	25	416	1249
1500 - 1550	16.7			160	481
1550 - 1600	12.5	7	25	198	594
1600 - 1650	12.5			198	594
1650 - 1700	16.7	7	25	160	481
1700 - 1750	10.0			233	700
1750 - 1800	8.3	11	25	267	800



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 418 / 419 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 1300	Light brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subrounded to rounded, maximum particle size 13.2mm; Sand, fine; Silt, non-plastic.
1300 to 1600 *	Light brown Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subrounded to rounded, maximum particle size 9.50mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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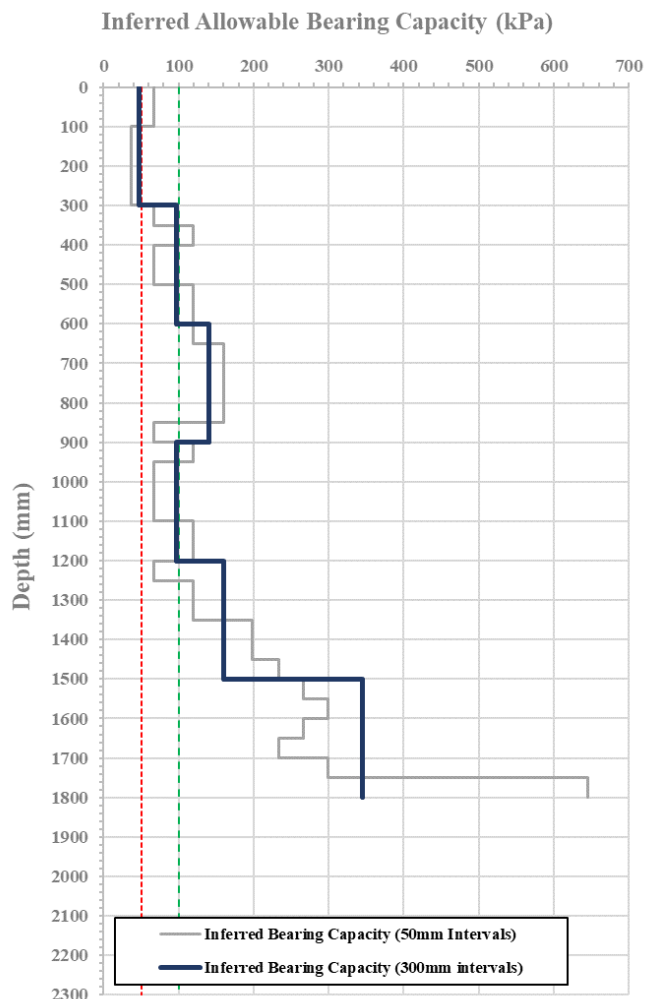
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 421 – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)	
		100 mm	300 mm			
0 - 50	50.0	2	4	68	203	
50 - 100	50.0			68	203	
100 - 150	100.0	1		36	109	
150 - 200	100.0			36	109	
200 - 250	100.0	1	9	36	109	
250 - 300	100.0			36	109	
300 - 350	50.0	3		68	203	
350 - 400	25.0			119	357	
400 - 450	50.0	2	15	68	203	
450 - 500	50.0			68	203	
500 - 550	25.0	4		119	357	
550 - 600	25.0			119	357	
600 - 650	25.0	5		18	119	357
650 - 700	16.7				160	481
700 - 750	16.7	6	160		481	
750 - 800	16.7		160		481	
800 - 850	16.7	4	160		481	
850 - 900	50.0		68		203	
900 - 950	25.0	3	51		119	357
950 - 1000	50.0				68	203
1000 - 1050	50.0	2			68	203
1050 - 1100	50.0				68	203
1100 - 1150	25.0	4			119	357
1150 - 1200	25.0				119	357
1200 - 1250	50.0	3		68	203	
1250 - 1300	25.0			119	357	
1300 - 1350	25.0	6		119	357	
1350 - 1400	12.5			198	594	
1400 - 1450	12.5	9		198	594	
1450 - 1500	10.0			233	700	
1500 - 1550	8.3	13		267	800	
1550 - 1600	7.1			299	896	
1600 - 1650	8.3	11		267	800	
1650 - 1700	10.0			233	700	
1700 - 1750	7.1	27		299	896	
1750 - 1800	2.5			645	1936	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 421 - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 800	Light brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 9.50mm; Sand, fine; Silt, non-plastic.
800 to 1100 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 31.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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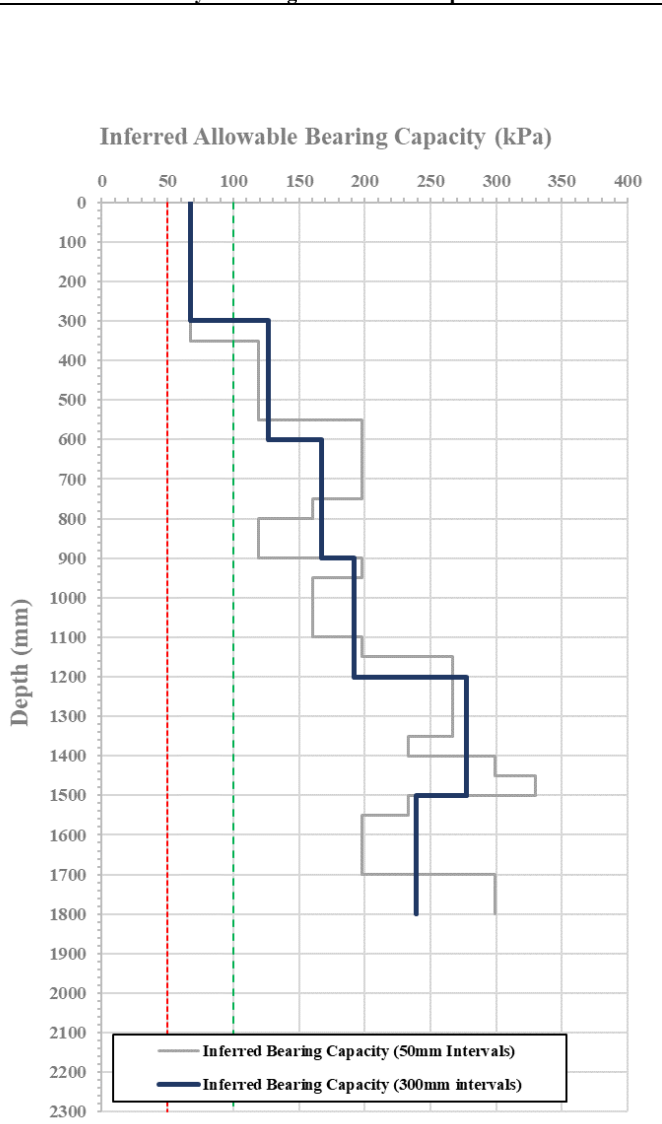
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Wooving Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 422 / 423 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	6	68	203
50 - 100	50.0	2		68	203
100 - 150	50.0	2		68	203
150 - 200	50.0	2		68	203
200 - 250	50.0	2		68	203
250 - 300	50.0	2	13	68	203
300 - 350	50.0	3		119	357
350 - 400	25.0	3		119	357
400 - 450	25.0	4	19	119	357
450 - 500	25.0	4		119	357
500 - 550	25.0	6	31	119	357
550 - 600	12.5	6		198	594
600 - 650	12.5	8	38	198	594
650 - 700	12.5	8		198	594
700 - 750	12.5	7	31	198	594
750 - 800	16.7	7		160	481
800 - 850	25.0	4	23	119	357
850 - 900	25.0	4		119	357
900 - 950	12.5	7	38	198	594
950 - 1000	16.7	7		160	481
1000 - 1050	16.7	6	31	160	481
1050 - 1100	16.7	6		160	481
1100 - 1150	12.5	10	38	198	594
1150 - 1200	8.3	10		267	800
1200 - 1250	8.3	12	31	267	800
1250 - 1300	8.3	12		267	800
1300 - 1350	8.3	11	38	267	800
1350 - 1400	10.0	11		233	700
1400 - 1450	7.1	15	31	299	896
1450 - 1500	6.3	15		330	989
1500 - 1550	10.0	9	38	233	700
1550 - 1600	12.5	9		198	594
1600 - 1650	12.5	8	31	198	594
1650 - 1700	12.5	8		198	594
1700 - 1750	7.1	14	38	299	896
1750 - 1800	7.1	14		299	896



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 422 / 423 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 800	Light yellowish brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 4.75mm; Sand, fine; Silt, non-plastic.
800 to 1000 *	Light greyish brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Date: 4 to 12-May-23

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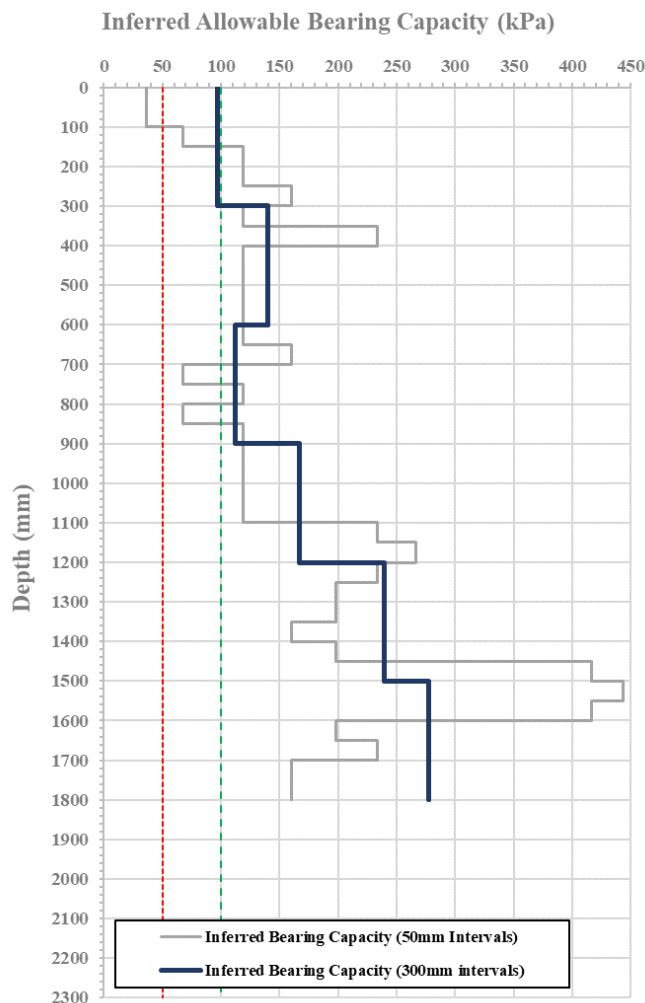
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P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 424 / 425 boundary – See Page 66 for location plan					
Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	100.0	1	9	36	109
50 - 100	100.0	1		36	109
100 - 150	50.0	3		68	203
150 - 200	25.0	5	15	119	357
200 - 250	25.0			119	357
250 - 300	16.7	7	11	160	481
300 - 350	25.0			119	357
350 - 400	10.0	4	19	233	700
400 - 450	25.0			119	357
450 - 500	25.0	4	31	119	357
500 - 550	25.0			119	357
550 - 600	25.0	5	38	119	357
600 - 650	25.0			119	357
650 - 700	16.7	3	15	160	481
700 - 750	50.0			68	203
750 - 800	25.0	3	11	119	357
800 - 850	50.0			68	203
850 - 900	25.0	4	19	119	357
900 - 950	25.0			119	357
950 - 1000	25.0	4	31	119	357
1000 - 1050	25.0			119	357
1050 - 1100	25.0	11	15	119	357
1100 - 1150	10.0			233	700
1150 - 1200	8.3	9	31	267	800
1200 - 1250	10.0			233	700
1250 - 1300	12.5	7	15	198	594
1300 - 1350	12.5			198	594
1350 - 1400	16.7	4	23	160	481
1400 - 1450	12.5			198	594
1450 - 1500	4.5	9	38	416	1249
1500 - 1550	4.2			444	1331
1550 - 1600	4.5	6	15	416	1249
1600 - 1650	12.5			198	594
1650 - 1700	10.0	9	31	233	700
1700 - 1750	16.7			160	481
1750 - 1800	16.7	6	160	481	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 424 / 425 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 400	Dark brown Gravelly SAND with minor cobbles and trace of silt. Moist. Loose. Gravel / cobbles, subrounded, maximum particle size 200.0mm; Sand, fine; Silt, non-plastic.
400 to 900 *	Light brown Sandy GRAVEL / Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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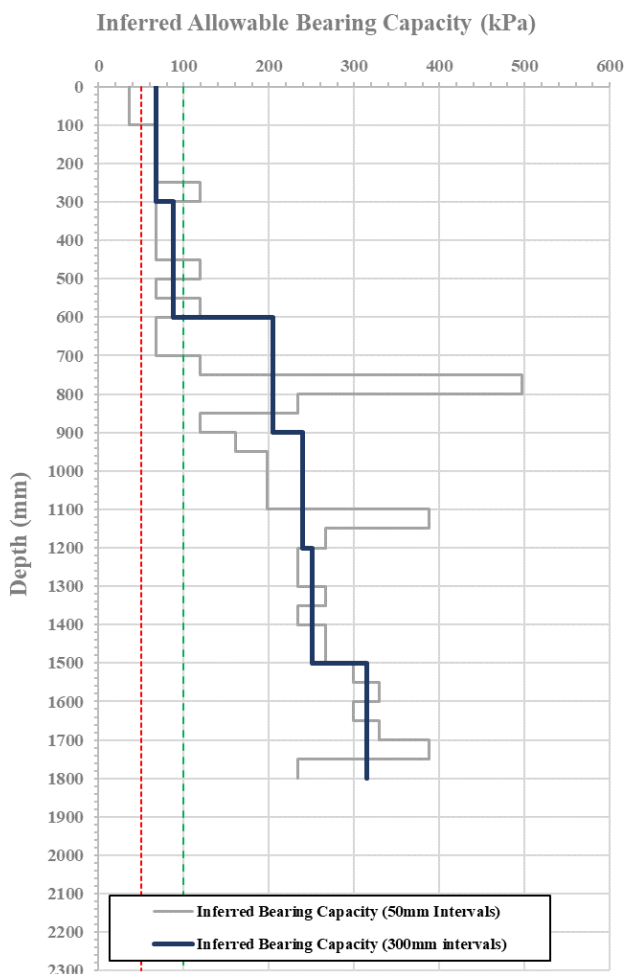
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 426 / 427 boundary – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)		
		100 mm	300 mm				
0 - 50	100.0	1	6	36	109		
50 - 100	100.0	1		36	109		
100 - 150	50.0	2		68	203		
150 - 200	50.0	2		68	203		
200 - 250	50.0	3	8	68	203		
250 - 300	25.0			119	357		
300 - 350	50.0	2		68	203		
350 - 400	50.0	2		68	203		
400 - 450	50.0	3	25	68	203		
450 - 500	25.0			119	357		
500 - 550	50.0			68	203		
550 - 600	25.0	3		119	357		
600 - 650	50.0	2		68	203		
650 - 700	50.0	16		31	68	203	
700 - 750	25.0		119		357		
750 - 800	3.6		497		1490		
800 - 850	10.0		233		700		
850 - 900	25.0	7	119		357		
900 - 950	16.7	7	33		160	481	
950 - 1000	12.5				198	594	
1000 - 1050	12.5	8			45	198	594
1050 - 1100	12.5					198	594
1100 - 1150	5.0	16				388	1164
1150 - 1200	8.3					267	800
1200 - 1250	10.0		233			700	
1250 - 1300	10.0	10	233	700			
1300 - 1350	8.3		267	800			
1350 - 1400	10.0	11	233	700			
1400 - 1450	8.3		267	800			
1450 - 1500	8.3	12	267	800			
1500 - 1550	7.1		299	896			
1550 - 1600	6.3		15	330		989	
1600 - 1650	7.1	299		896			
1650 - 1700	6.3	15	330	989			
1700 - 1750	5.0		388	1164			
1750 - 1800	10.0	15	233	700			



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 426 / 427 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 150	Topsoil & vegetation (organic matter).
150 to 300	Dark brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subrounded to rounded, maximum particle size 13.2mm; Sand, fine to coarse; Silt, non-plastic.
300 to 700 *	Light brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, angular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

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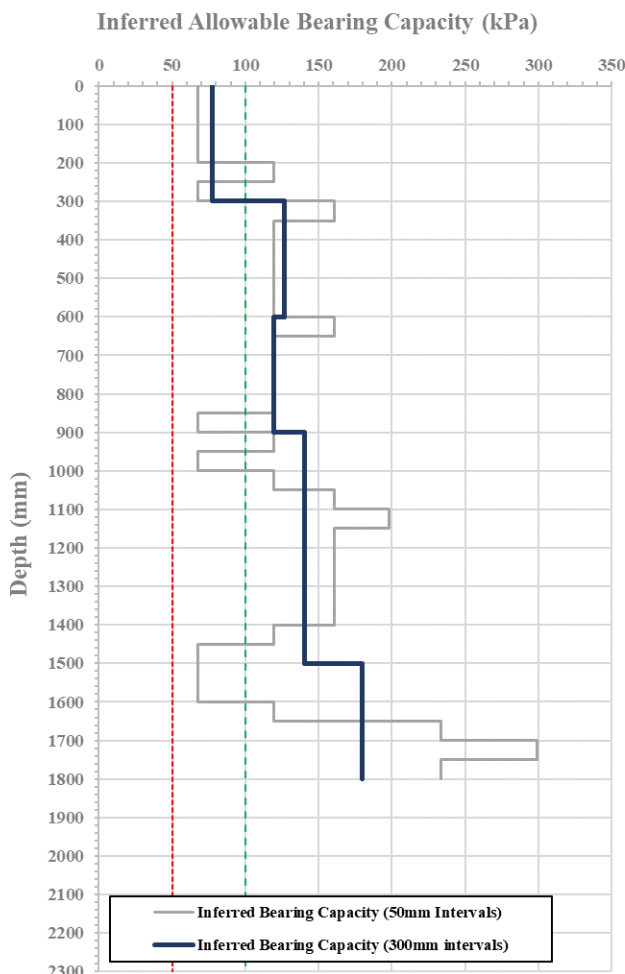
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 428 / 429 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	7	68	203
50 - 100	50.0			68	203
100 - 150	50.0	2		68	203
150 - 200	50.0			68	203
200 - 250	25.0	3	119	357	
250 - 300	50.0		68	203	
300 - 350	16.7	5	160	481	
350 - 400	25.0		119	357	
400 - 450	25.0	4	119	357	
450 - 500	25.0		119	357	
500 - 550	25.0	4	119	357	
550 - 600	25.0		119	357	
600 - 650	16.7	5	160	481	
650 - 700	25.0		119	357	
700 - 750	25.0	4	119	357	
750 - 800	25.0		119	357	
800 - 850	25.0	3	119	357	
850 - 900	50.0		68	203	
900 - 950	25.0	3	119	357	
950 - 1000	50.0		68	203	
1000 - 1050	25.0	5	119	357	
1050 - 1100	16.7		160	481	
1100 - 1150	12.5	7	198	594	
1150 - 1200	16.7		160	481	
1200 - 1250	16.7	6	160	481	
1250 - 1300	16.7		160	481	
1300 - 1350	16.7	6	160	481	
1350 - 1400	16.7		160	481	
1400 - 1450	25.0	3	119	357	
1450 - 1500	50.0		68	203	
1500 - 1550	50.0	2	68	203	
1550 - 1600	50.0		68	203	
1600 - 1650	25.0	7	119	357	
1650 - 1700	10.0		233	700	
1700 - 1750	7.1	12	299	896	
1750 - 1800	10.0		233	700	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 428 / 429 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 500	Light yellowish brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 4.75mm; Sand, fine; Silt, non-plastic.
500 to 900 *	Light yellowish brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 31.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Date: 4 to 12-May-23

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No 434



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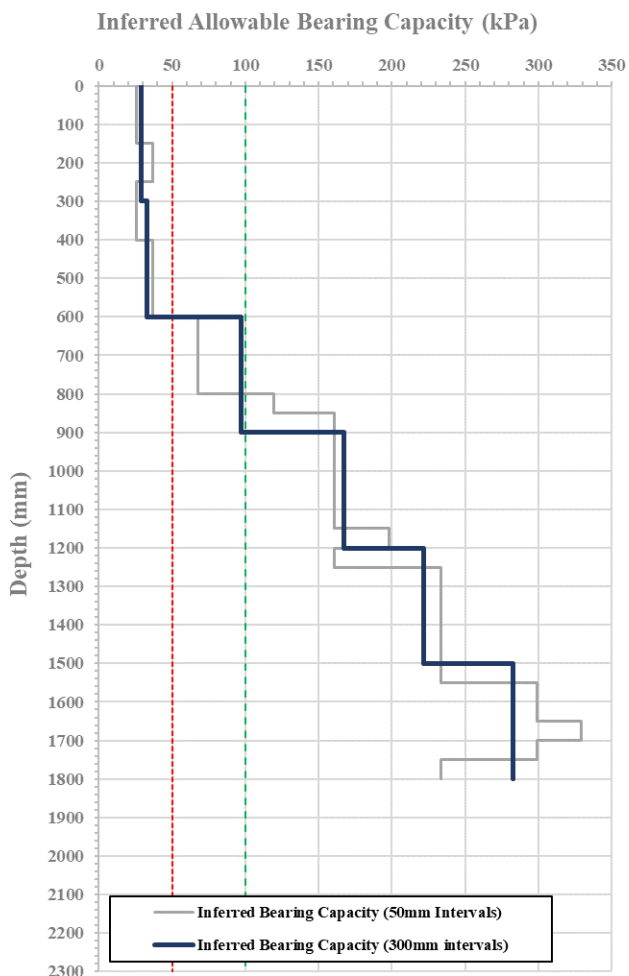
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 430 / 431 boundary – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)	
		100 mm	300 mm			
0 - 50	150.0	0.7	2.3	25	76	
50 - 100	150.0			25	76	
100 - 150	150.0			25	76	
150 - 200	100.0	36		109		
200 - 250	100.0	36		109		
250 - 300	150.0	0.8		25	76	
300 - 350	150.0	0.7	2.7	25	76	
350 - 400	150.0			25	76	
400 - 450	100.0			36	109	
450 - 500	100.0	36		109		
500 - 550	100.0	1		36	109	
550 - 600	100.0	1		36	109	
600 - 650	50.0	2	9	68	203	
650 - 700	50.0			68	203	
700 - 750	50.0			68	203	
750 - 800	50.0	2		68	203	
800 - 850	25.0	5		19	119	357
850 - 900	16.7				160	481
900 - 950	16.7		160		481	
950 - 1000	16.7	6	28		160	481
1000 - 1050	16.7				160	481
1050 - 1100	16.7				160	481
1100 - 1150	16.7	7		39	160	481
1150 - 1200	12.5				198	594
1200 - 1250	16.7				160	481
1250 - 1300	10.0	8	28		233	700
1300 - 1350	10.0				233	700
1350 - 1400	10.0				233	700
1400 - 1450	10.0	10		39	233	700
1450 - 1500	10.0				233	700
1500 - 1550	10.0				233	700
1550 - 1600	7.1	12	39		299	896
1600 - 1650	7.1				299	896
1650 - 1700	6.3				330	989
1700 - 1750	7.1	15		39	299	896
1750 - 1800	10.0				233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 430 / 431 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 200	Topsoil & vegetation (organic matter).
200 to 1100 *	Dark brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Date: 4 to 12-May-23

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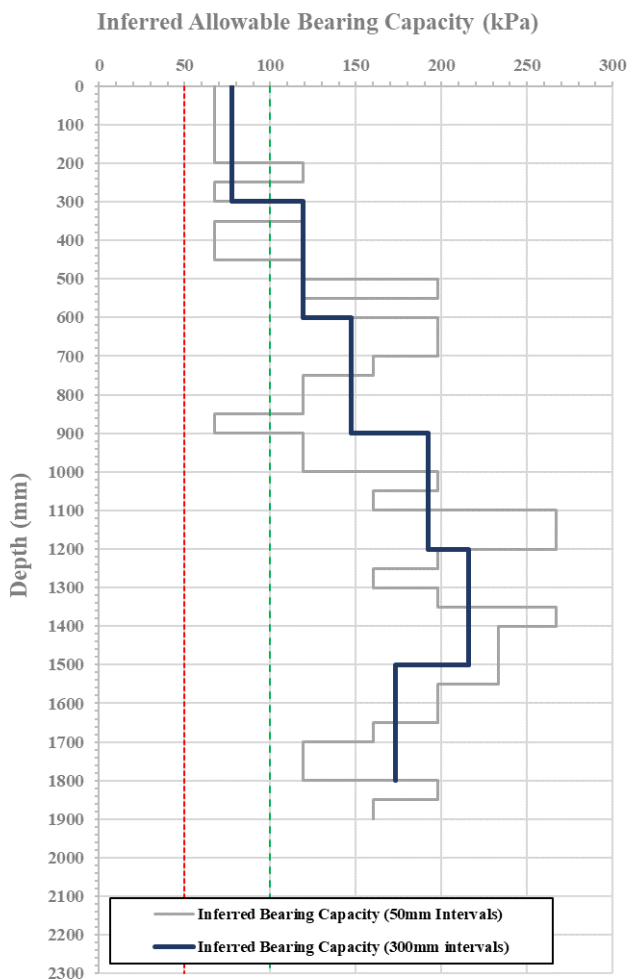
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Wooring Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 432 / 433 boundary – See Page 66 for location plan					
Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	7	68	203
50 - 100	50.0			68	203
100 - 150	50.0	2	7	68	203
150 - 200	50.0			68	203
200 - 250	25.0	3	12	119	357
250 - 300	50.0			68	203
300 - 350	25.0	3	12	119	357
350 - 400	50.0			68	203
400 - 450	50.0	3	12	68	203
450 - 500	25.0			119	357
500 - 550	12.5	6	16	198	594
550 - 600	25.0			119	357
600 - 650	12.5	8	16	198	594
650 - 700	12.5			198	594
700 - 750	16.7	5	16	160	481
750 - 800	25.0			119	357
800 - 850	25.0	3	16	119	357
850 - 900	50.0			68	203
900 - 950	25.0	4	23	119	357
950 - 1000	25.0			119	357
1000 - 1050	12.5	7	23	198	594
1050 - 1100	16.7			160	481
1100 - 1150	8.3	12	27	267	800
1150 - 1200	8.3			267	800
1200 - 1250	12.5	7	27	198	594
1250 - 1300	16.7			160	481
1300 - 1350	12.5	10	27	198	594
1350 - 1400	8.3			267	800
1400 - 1450	10.0	10	20	233	700
1450 - 1500	10.0			233	700
1500 - 1550	10.0	9	20	233	700
1550 - 1600	12.5			198	594
1600 - 1650	12.5	7	20	198	594
1650 - 1700	16.7			160	481
1700 - 1750	25.0	4	20	119	357
1750 - 1800	25.0			119	357
1800 - 1850	12.5	7	-	198	594
1850 - 1900	16.7			160	481



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.
 NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 432 / 433 boundary - See page 66 for location plan	
Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 200	Dark brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 13.2mm; Sand, fine to coarse; Silt, non-plastic.
200 to 350	Light yellowish brown SAND with some gravel and trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 31.5mm; Sand, fine; Silt, non-plastic.
350 to 1200 *	Light yellowish brown Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 9.50mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Date: 4 to 12-May-23

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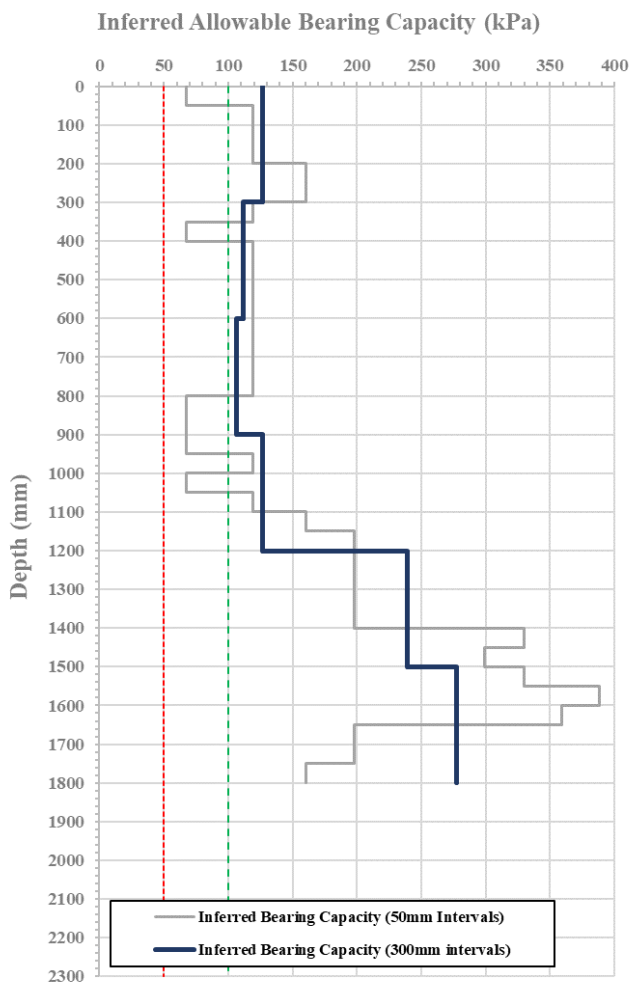
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 434 / 435 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	13	68	203
50 - 100	25.0	3		119	357
100 - 150	25.0	4		119	357
150 - 200	25.0	4		119	357
200 - 250	16.7	6	11	160	481
250 - 300	16.7			160	481
300 - 350	25.0	3		119	357
350 - 400	50.0	3		68	203
400 - 450	25.0	4	10	119	357
450 - 500	25.0	4		119	357
500 - 550	25.0	4		119	357
550 - 600	25.0	4		119	357
600 - 650	25.0	4	31	119	357
650 - 700	25.0	4		119	357
700 - 750	25.0	4		119	357
750 - 800	25.0	4		119	357
800 - 850	50.0	2	38	68	203
850 - 900	50.0			68	203
900 - 950	50.0	3		68	203
950 - 1000	25.0	3		119	357
1000 - 1050	50.0	3	31	68	203
1050 - 1100	25.0			119	357
1100 - 1150	16.7	7		160	481
1150 - 1200	12.5	8		198	594
1200 - 1250	12.5	8	31	198	594
1250 - 1300	12.5			198	594
1300 - 1350	12.5	8		198	594
1350 - 1400	12.5	15		38	330
1400 - 1450	6.3		299		896
1450 - 1500	7.1	18	330		989
1500 - 1550	6.3	13	38		388
1550 - 1600	5.0			359	1078
1600 - 1650	5.6	7		198	594
1650 - 1700	12.5	7		38	198
1700 - 1750	12.5		160		481
1750 - 1800	16.7	7	160		481



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 434 / 435 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 1300 *	Dark brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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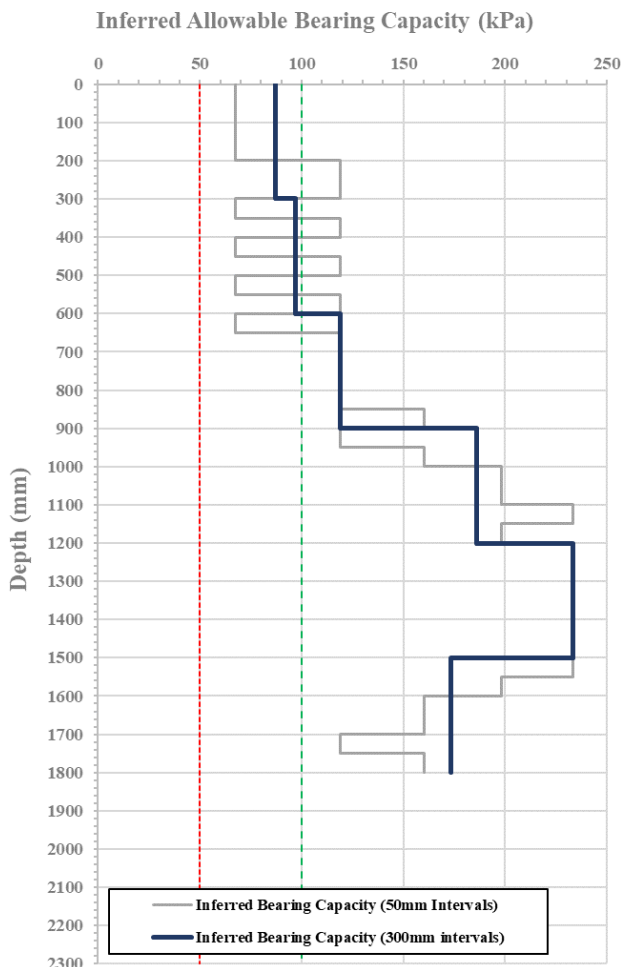
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 436 / 437 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	8	68	203
50 - 100	50.0			68	203
100 - 150	50.0			68	203
150 - 200	50.0			68	203
200 - 250	25.0	4	12	119	357
250 - 300	25.0			119	357
300 - 350	50.0	3	12	68	203
350 - 400	25.0			119	357
400 - 450	50.0	3	9	68	203
450 - 500	25.0			119	357
500 - 550	50.0	3	12	68	203
550 - 600	25.0			119	357
600 - 650	50.0	3	12	68	203
650 - 700	25.0			119	357
700 - 750	25.0	4	12	119	357
750 - 800	25.0			119	357
800 - 850	25.0	5	12	119	357
850 - 900	16.7			160	481
900 - 950	25.0	5	22	119	357
950 - 1000	16.7			160	481
1000 - 1050	12.5	8	22	198	594
1050 - 1100	12.5			198	594
1100 - 1150	10.0	9	30	233	700
1150 - 1200	12.5			198	594
1200 - 1250	10.0	10	30	233	700
1250 - 1300	10.0			233	700
1300 - 1350	10.0	10	30	233	700
1350 - 1400	10.0			233	700
1400 - 1450	10.0	10	30	233	700
1450 - 1500	10.0			233	700
1500 - 1550	10.0	9	20	233	700
1550 - 1600	12.5			198	594
1600 - 1650	16.7	6	20	160	481
1650 - 1700	16.7			160	481
1700 - 1750	25.0	5	20	119	357
1750 - 1800	16.7			160	481



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 436 / 437 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 800	Light brown SAND with minor gravel and trace of silt. Moist. Loose. Gravel, subrounded, maximum particle size 2.36mm; Sand, fine; Silt, non-plastic.
800 to 1300 *	Light brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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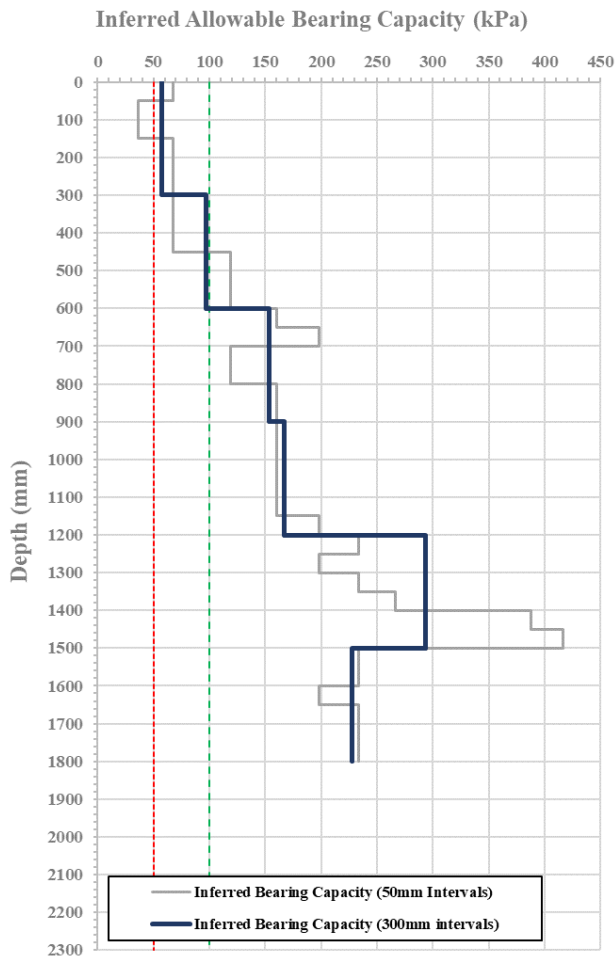
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P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 438 / 439 boundary – See Page 66 for location plan					
Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	1.5	5	68	203
50 - 100	100.0			36	109
100 - 150	100.0			36	109
150 - 200	50.0	68		203	
200 - 250	50.0	2		68	203
250 - 300	50.0			68	203
300 - 350	50.0	2	68	203	
350 - 400	50.0		68	203	
400 - 450	50.0	3	9	68	203
450 - 500	25.0			119	357
500 - 550	25.0			119	357
550 - 600	25.0	4		119	357
600 - 650	16.7			160	481
650 - 700	12.5	7		198	594
700 - 750	25.0		119	357	
750 - 800	25.0	4	17	119	357
800 - 850	16.7			160	481
850 - 900	16.7	6		160	481
900 - 950	16.7			160	481
950 - 1000	16.7	6		160	481
1000 - 1050	16.7			160	481
1050 - 1100	16.7	6	19	160	481
1100 - 1150	16.7			160	481
1150 - 1200	12.5	7		198	594
1200 - 1250	10.0			9	233
1250 - 1300	12.5	198			594
1300 - 1350	10.0	11			233
1350 - 1400	8.3		267	800	
1400 - 1450	5.0	21	388	1164	
1450 - 1500	4.5		416	1249	
1500 - 1550	10.0	10	29	233	700
1550 - 1600	10.0			233	700
1600 - 1650	12.5	9		198	594
1650 - 1700	10.0			233	700
1700 - 1750	10.0	10		233	700
1750 - 1800	10.0			233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 438 / 439 boundary - See page 66 for location plan	
Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 500	Dark brown SAND with trace of gravel and trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 31.5mm; Sand, fine to coarse; Silt, non-plastic.
500 to 1100 *	Light brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



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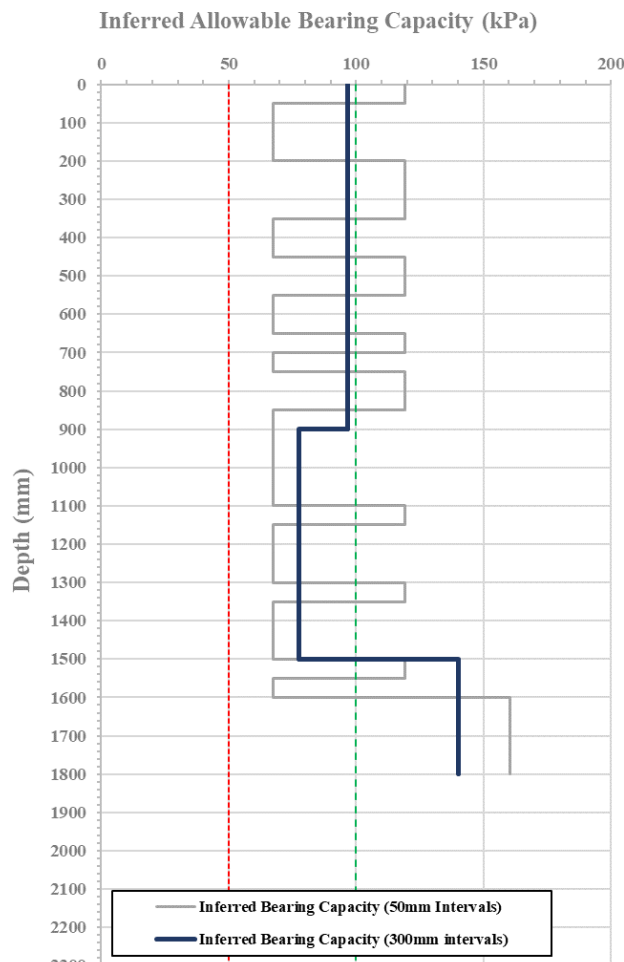
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 440 – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	3	9	119	357
50 - 100	50.0			68	203
100 - 150	50.0			68	203
150 - 200	50.0	2		68	203
200 - 250	25.0			119	357
250 - 300	25.0	4		119	357
300 - 350	25.0		119	357	
350 - 400	50.0	3	68	203	
400 - 450	50.0		68	203	
450 - 500	25.0	3	119	357	
500 - 550	25.0		119	357	
550 - 600	50.0	3	68	203	
600 - 650	50.0		68	203	
650 - 700	25.0	3	119	357	
700 - 750	50.0		68	203	
750 - 800	25.0	3	119	357	
800 - 850	25.0		119	357	
850 - 900	50.0	3	68	203	
900 - 950	50.0		68	203	
950 - 1000	50.0	2	68	203	
1000 - 1050	50.0		68	203	
1050 - 1100	50.0	2	68	203	
1100 - 1150	25.0		119	357	
1150 - 1200	50.0	3	68	203	
1200 - 1250	50.0		68	203	
1250 - 1300	50.0	2	68	203	
1300 - 1350	25.0		119	357	
1350 - 1400	50.0	3	68	203	
1400 - 1450	50.0		68	203	
1450 - 1500	50.0	2	68	203	
1500 - 1550	25.0		119	357	
1550 - 1600	50.0	3	68	203	
1600 - 1650	16.7		160	481	
1650 - 1700	16.7	6	160	481	
1700 - 1750	16.7		160	481	
1750 - 1800	16.7	6	160	481	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 440 - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 1000 *	Dark brown SAND with trace of cobbles, trace of gravel and trace of silt. Moist. Loose. Gravel / cobbles, subrounded, maximum particle size 75.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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Central Testing Services

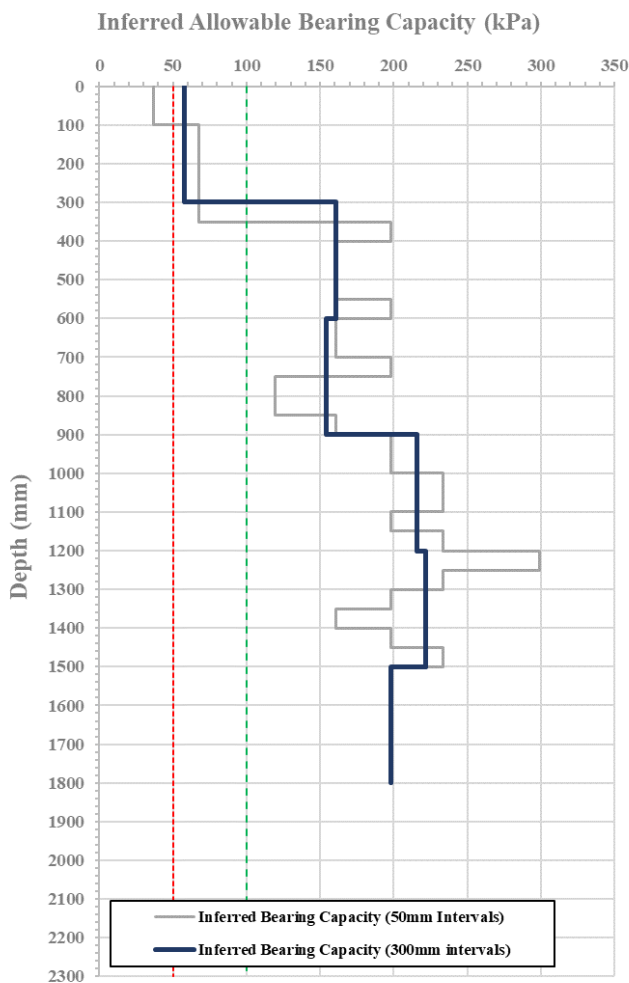
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 441 / 442 boundary – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	100.0	1	5	36	109
50 - 100	100.0	1		36	109
100 - 150	50.0	2		68	203
150 - 200	50.0	2		68	203
200 - 250	50.0	2		68	203
250 - 300	50.0	2	18	68	203
300 - 350	50.0	5		68	203
350 - 400	12.5	5		198	594
400 - 450	16.7	6		160	481
450 - 500	16.7	6		160	481
500 - 550	16.7	7	17	160	481
550 - 600	12.5	7		198	594
600 - 650	16.7	6		160	481
650 - 700	16.7	6		160	481
700 - 750	12.5	6		198	594
750 - 800	25.0	6	27	119	357
800 - 850	25.0	6		119	357
850 - 900	16.7	5		160	481
900 - 950	12.5	8		198	594
950 - 1000	12.5	8		198	594
1000 - 1050	10.0	10	24	233	700
1050 - 1100	10.0	10		233	700
1100 - 1150	12.5	9		198	594
1150 - 1200	10.0	9		233	700
1200 - 1250	7.1	12		299	896
1250 - 1300	10.0	12	28	233	700
1300 - 1350	12.5	7		198	594
1350 - 1400	16.7	7		160	481
1400 - 1450	12.5	9		198	594
1450 - 1500	10.0	9		233	700
1500 - 1550	12.5	8	24	198	594
1550 - 1600	12.5	8		198	594
1600 - 1650	12.5	8		198	594
1650 - 1700	12.5	8		198	594
1700 - 1750	12.5	8		198	594
1750 - 1800	12.5	8	198	594	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 441 / 442 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 200	Topsoil & vegetation (organic matter).
200 to 750 *	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 13.2mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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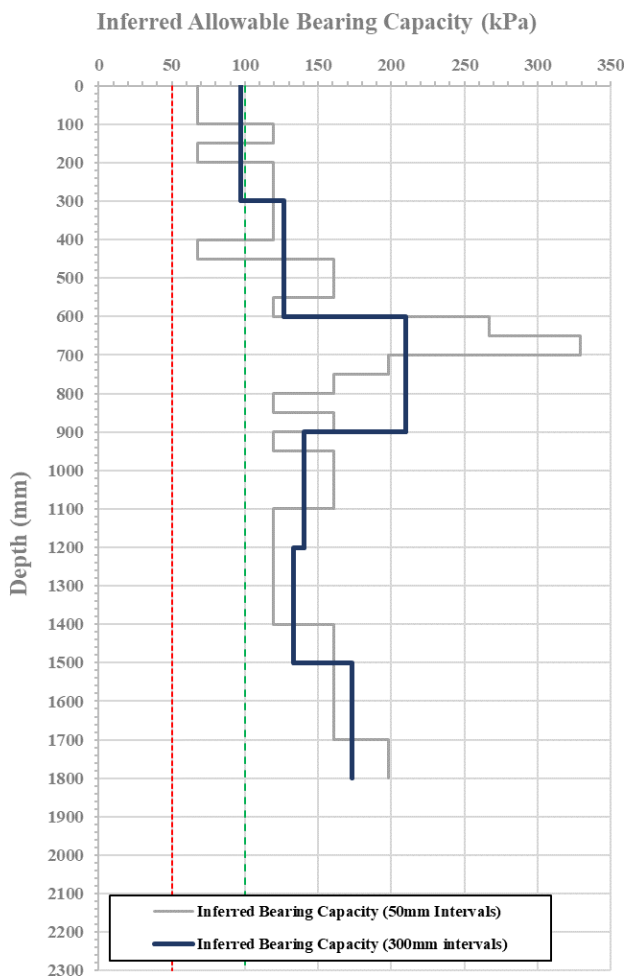
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 443 / 444 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	9	68	203
50 - 100	50.0			68	203
100 - 150	25.0	3	9	119	357
150 - 200	50.0			68	203
200 - 250	25.0	4	9	119	357
250 - 300	25.0			119	357
300 - 350	25.0	4	13	119	357
350 - 400	25.0			119	357
400 - 450	50.0	4	13	68	203
450 - 500	16.7			160	481
500 - 550	16.7	5	13	160	481
550 - 600	25.0			119	357
600 - 650	8.3	14	26	267	800
650 - 700	6.3			330	989
700 - 750	12.5	7	26	198	594
750 - 800	16.7			160	481
800 - 850	25.0	5	26	119	357
850 - 900	16.7			160	481
900 - 950	25.0	5	15	119	357
950 - 1000	16.7			160	481
1000 - 1050	16.7	6	15	160	481
1050 - 1100	16.7			160	481
1100 - 1150	25.0	4	14	119	357
1150 - 1200	25.0			119	357
1200 - 1250	25.0	4	14	119	357
1250 - 1300	25.0			119	357
1300 - 1350	25.0	4	14	119	357
1350 - 1400	25.0			119	357
1400 - 1450	16.7	6	20	160	481
1450 - 1500	16.7			160	481
1500 - 1550	16.7	6	20	160	481
1550 - 1600	16.7			160	481
1600 - 1650	16.7	6	20	160	481
1650 - 1700	16.7			160	481
1700 - 1750	12.5	8	20	198	594
1750 - 1800	12.5			198	594



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 443 / 444 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 400	Dark brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.
400 to 1200 *	Light greyish brown Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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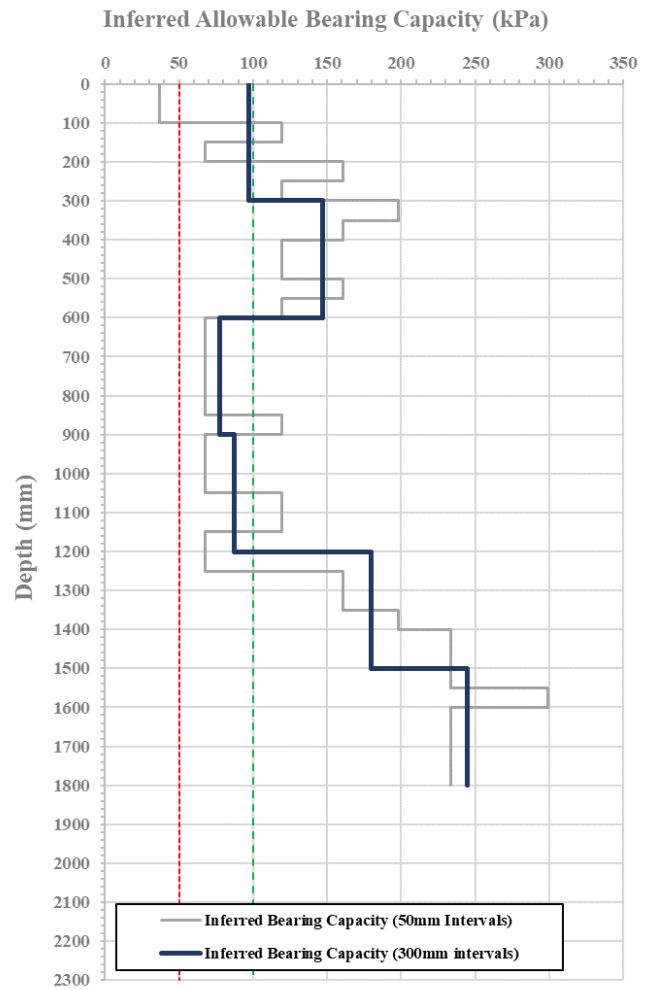
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 445 / 447 boundary – See Page 66 for location plan					
Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	100.0	1	9	36	109
50 - 100	100.0	1		36	109
100 - 150	25.0	3		119	357
150 - 200	50.0	3	16	68	203
200 - 250	16.7	5		160	481
250 - 300	25.0	5	7	119	357
300 - 350	12.5	7		198	594
350 - 400	16.7	7	16	160	481
400 - 450	25.0	4		119	357
450 - 500	25.0	4	7	119	357
500 - 550	16.7	5		160	481
550 - 600	25.0	5	7	119	357
600 - 650	50.0	2		68	203
650 - 700	50.0	2	7	68	203
700 - 750	50.0	2		68	203
750 - 800	50.0	2	8	68	203
800 - 850	50.0	3		68	203
850 - 900	25.0	3	8	119	357
900 - 950	50.0	2		68	203
950 - 1000	50.0	2	8	68	203
1000 - 1050	50.0	3		68	203
1050 - 1100	25.0	3	21	119	357
1100 - 1150	25.0	3		119	357
1150 - 1200	50.0	3	32	68	203
1200 - 1250	50.0	4		68	203
1250 - 1300	16.7	4	21	160	481
1300 - 1350	16.7	7		160	481
1350 - 1400	12.5	7	32	198	594
1400 - 1450	10.0	10		233	700
1450 - 1500	10.0	10	32	233	700
1500 - 1550	10.0	12		233	700
1550 - 1600	7.1	12	32	299	896
1600 - 1650	10.0	10		233	700
1650 - 1700	10.0	10	32	233	700
1700 - 1750	10.0	10		233	700
1750 - 1800	10.0	10	32	233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 445 / 447 boundary - See page 66 for location plan	
Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 400	Light brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 13.2mm; Sand, fine to coarse; Silt, non-plastic.
400 to 900 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson Date: 4 to 12-May-23

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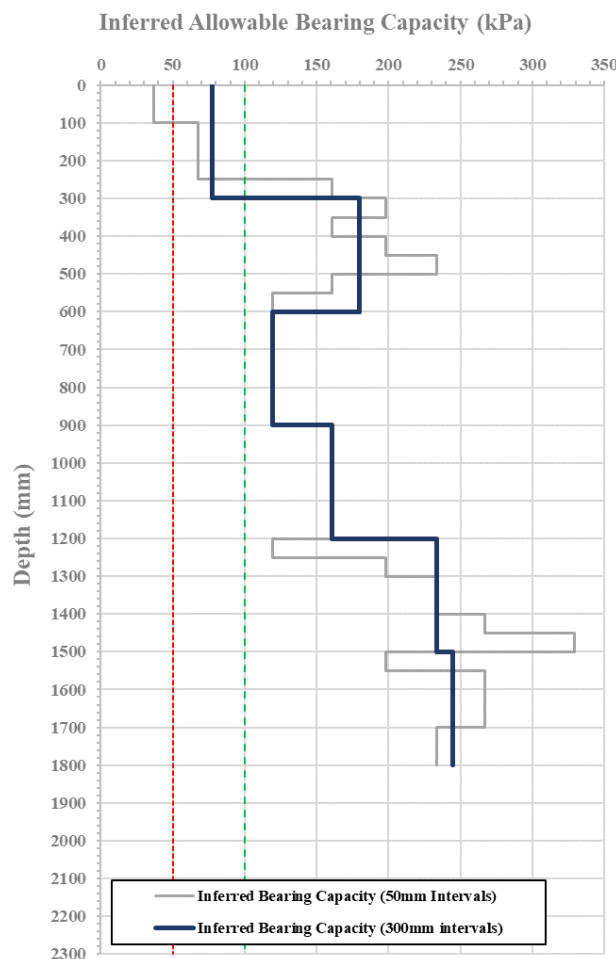
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 446 / 450 boundary – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	100.0	1	7	36	109
50 - 100	100.0	1		36	109
100 - 150	50.0	2		68	203
150 - 200	50.0	4	7	68	203
200 - 250	50.0			68	203
250 - 300	16.7	7	21	160	481
300 - 350	12.5			198	594
350 - 400	16.7	9	12	160	481
400 - 450	12.5			198	594
450 - 500	10.0			233	700
500 - 550	16.7	5	18	160	481
550 - 600	25.0			119	357
600 - 650	25.0	4	30	119	357
650 - 700	25.0			119	357
700 - 750	25.0	4	32	119	357
750 - 800	25.0			119	357
800 - 850	25.0	4	14	119	357
850 - 900	25.0			119	357
900 - 950	16.7	6	10	160	481
950 - 1000	16.7			160	481
1000 - 1050	16.7	6	30	160	481
1050 - 1100	16.7			160	481
1100 - 1150	16.7	6	12	160	481
1150 - 1200	16.7			160	481
1200 - 1250	25.0	6	10	119	357
1250 - 1300	12.5			198	594
1300 - 1350	10.0	10	14	233	700
1350 - 1400	10.0			233	700
1400 - 1450	8.3	14	10	267	800
1450 - 1500	6.3			330	989
1500 - 1550	12.5	10	12	198	594
1550 - 1600	8.3			267	800
1600 - 1650	8.3	12	10	267	800
1650 - 1700	8.3			267	800
1700 - 1750	10.0	10	10	233	700
1750 - 1800	10.0			233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 446 / 450 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 600	Dark brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 31.5mm; Sand, fine to coarse; Silt, non-plastic.
600 to 1100 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 53.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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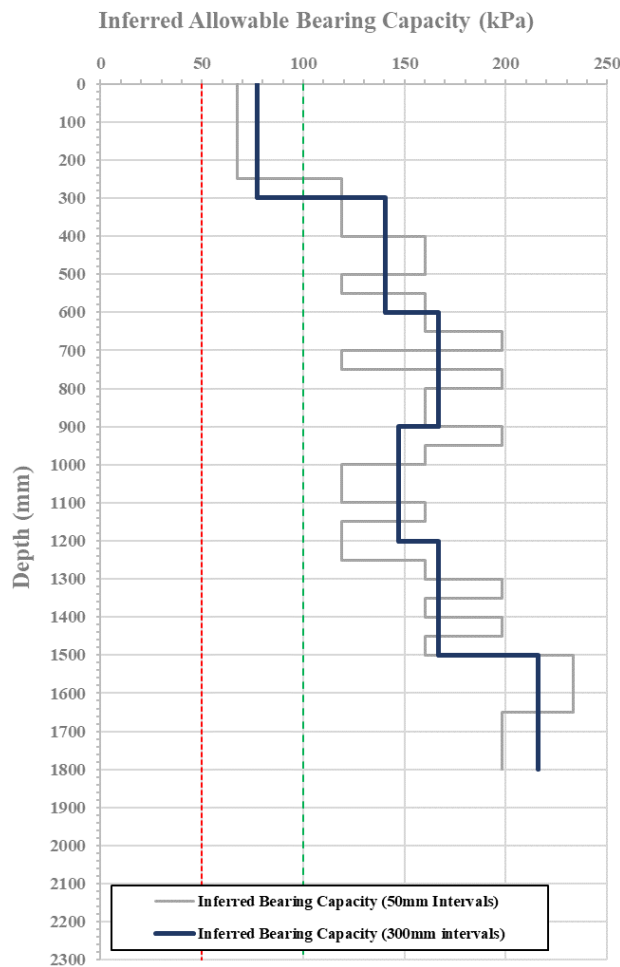
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 448 / 449 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	7	68	203
50 - 100	50.0	2		68	203
100 - 150	50.0	2		68	203
150 - 200	50.0	2		68	203
200 - 250	50.0	3	7	68	203
250 - 300	25.0			119	357
300 - 350	25.0	4	15	119	357
350 - 400	25.0			119	357
400 - 450	16.7	6	19	160	481
450 - 500	16.7			160	481
500 - 550	25.0	5	19	119	357
550 - 600	16.7			160	481
600 - 650	16.7	7	19	160	481
650 - 700	12.5			198	594
700 - 750	25.0	6	19	119	357
750 - 800	12.5			198	594
800 - 850	16.7	6	16	160	481
850 - 900	16.7			160	481
900 - 950	12.5	7	19	198	594
950 - 1000	16.7			160	481
1000 - 1050	25.0	4	27	119	357
1050 - 1100	25.0			119	357
1100 - 1150	16.7	5	27	160	481
1150 - 1200	25.0			119	357
1200 - 1250	25.0	5	19	119	357
1250 - 1300	16.7			160	481
1300 - 1350	12.5	7	19	198	594
1350 - 1400	16.7			160	481
1400 - 1450	12.5	7	27	198	594
1450 - 1500	16.7			160	481
1500 - 1550	10.0	10	27	233	700
1550 - 1600	10.0			233	700
1600 - 1650	10.0	9	27	233	700
1650 - 1700	12.5			198	594
1700 - 1750	12.5	8	27	198	594
1750 - 1800	12.5			198	594



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 448 / 449 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 150	Topsoil & vegetation (organic matter).
150 to 900	Light brown Sandy GRAVEL with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.
900 to 1000 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



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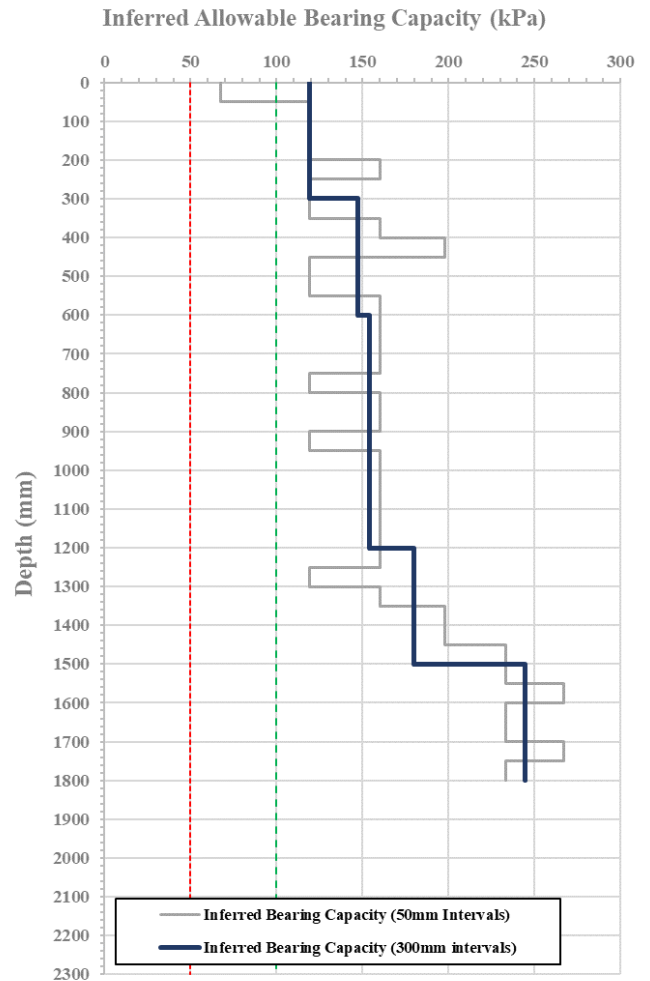
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 450 / 451 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	12	68	203
50 - 100	25.0			119	357
100 - 150	25.0			119	357
150 - 200	25.0	4	12	119	357
200 - 250	16.7			160	481
250 - 300	25.0	5	16	119	357
300 - 350	25.0			119	357
350 - 400	16.7	5	16	160	481
400 - 450	12.5			198	594
450 - 500	25.0	6	17	119	357
500 - 550	25.0			119	357
550 - 600	16.7	5	17	160	481
600 - 650	16.7			160	481
650 - 700	16.7	6	17	160	481
700 - 750	16.7			160	481
750 - 800	25.0	5	17	119	357
800 - 850	16.7			160	481
850 - 900	16.7	6	17	160	481
900 - 950	25.0			119	357
950 - 1000	16.7	5	17	160	481
1000 - 1050	16.7			160	481
1050 - 1100	16.7	6	17	160	481
1100 - 1150	16.7			160	481
1150 - 1200	16.7	6	17	160	481
1200 - 1250	16.7			160	481
1250 - 1300	25.0	5	21	119	357
1300 - 1350	16.7			160	481
1350 - 1400	12.5	7	21	198	594
1400 - 1450	12.5			198	594
1450 - 1500	10.0	9	32	233	700
1500 - 1550	10.0			233	700
1550 - 1600	8.3	11	32	267	800
1600 - 1650	10.0			233	700
1650 - 1700	10.0	10	32	233	700
1700 - 1750	8.3			267	800
1750 - 1800	10.0	11	32	233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 450 / 451 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 1000 *	Dark brown Gravelly sand with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, slight plasticity.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



Test results indicated as not accredited are outside the scope of the laboratory's accreditation



TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 452 / 453 boundary – See Page 66 for location plan					
Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	5		119	357
50 - 100	16.7			160	481
100 - 150	6.3		39	330	989
150 - 200	6.3	16		330	989
200 - 250	5.6			359	1078
250 - 300	5.6	18		359	1078
300 - 350	5.0			388	1164
350 - 400	4.2	22		444	1331
400 - 450	5.0		51	388	1164
450 - 500	4.5	21		416	1249
500 - 550	12.5			198	594
550 - 600	12.5	8		198	594
600 - 650	12.5			198	594
650 - 700	16.7	7		160	481
700 - 750	16.7		17	160	481
750 - 800	16.7	6		160	481
800 - 850	25.0			119	357
850 - 900	25.0	4		119	357
900 - 950	16.7			160	481
950 - 1000	25.0	5		119	357
1000 - 1050	12.5		20	198	594
1050 - 1100	12.5	8		198	594
1100 - 1150	12.5			198	594
1150 - 1200	16.7	7		160	481
1200 - 1250	50.0			68	203
1250 - 1300	50.0	2		68	203
1300 - 1350	25.0		15	119	357
1350 - 1400	16.7	5		160	481
1400 - 1450	12.5			198	594
1450 - 1500	12.5	8		198	594
1500 - 1550	5.6			359	1078
1550 - 1600	7.1	16		299	896
1600 - 1650	5.6		45	359	1078
1650 - 1700	5.6	18		359	1078
1700 - 1750	8.3			267	800
1750 - 1800	10.0	11		233	700
1800 - 1850	6.3	-	-	330	989

¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 452 / 453 boundary - See page 66 for location plan	
Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 300	Dark brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 13.2mm; Sand, fine to coarse; Silt, non-plastic.
300 to 850 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 53.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Date: 4 to 12-May-23

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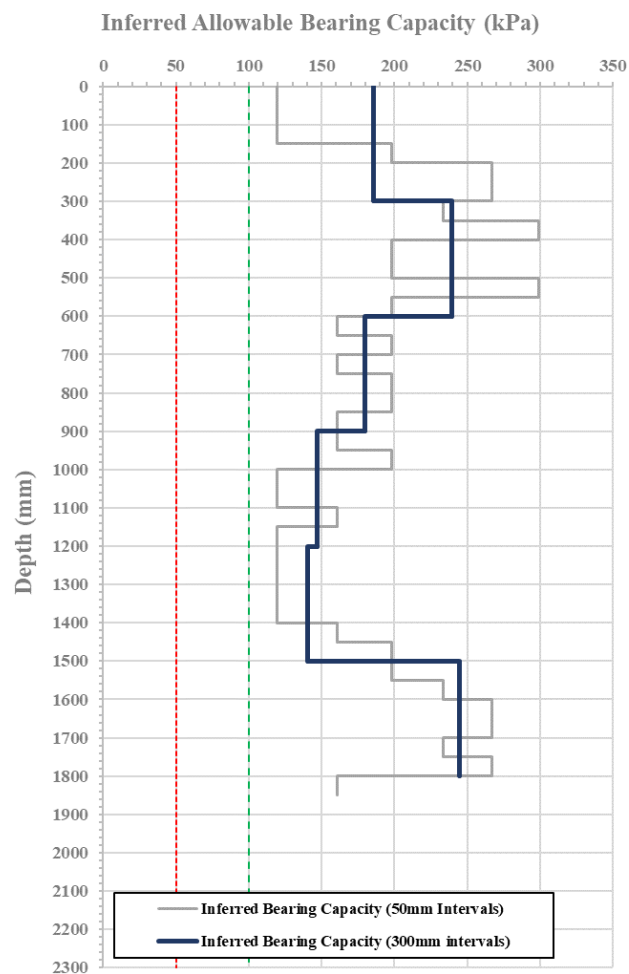
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 454 / 455 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)	
		100 mm	300 mm			
0 - 50	25.0	4	22	119	357	
50 - 100	25.0			119	357	
100 - 150	25.0			119	357	
150 - 200	12.5	6		198	594	
200 - 250	8.3			267	800	
250 - 300	8.3	12		267	800	
300 - 350	10.0		233	700		
350 - 400	7.1	12	31	299	896	
400 - 450	12.5			198	594	
450 - 500	12.5			198	594	
500 - 550	7.1	11		299	896	
550 - 600	12.5			198	594	
600 - 650	16.7	7		21	160	481
650 - 700	12.5		198		594	
700 - 750	16.7		160		481	
750 - 800	12.5	7	198		594	
800 - 850	12.5		198		594	
850 - 900	16.7	7	16		160	481
900 - 950	16.7			198	594	
950 - 1000	12.5			119	357	
1000 - 1050	25.0	4		32	119	357
1050 - 1100	25.0				119	357
1100 - 1150	16.7	5			160	481
1150 - 1200	25.0		119	357		
1200 - 1250	25.0	4	15	119	357	
1250 - 1300	25.0			119	357	
1300 - 1350	25.0			119	357	
1350 - 1400	25.0	4		32	119	357
1400 - 1450	16.7				160	481
1450 - 1500	12.5	7			198	594
1500 - 1550	12.5		9	198	594	
1550 - 1600	10.0	233		700		
1600 - 1650	8.3	12		267	800	
1650 - 1700	8.3		267	800		
1700 - 1750	10.0	11	233	700		
1750 - 1800	8.3		267	800		
1800 - 1850	16.7	-	-	160	481	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 454 / 455 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 1000 *	Dark brown Gravelly sand with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 26.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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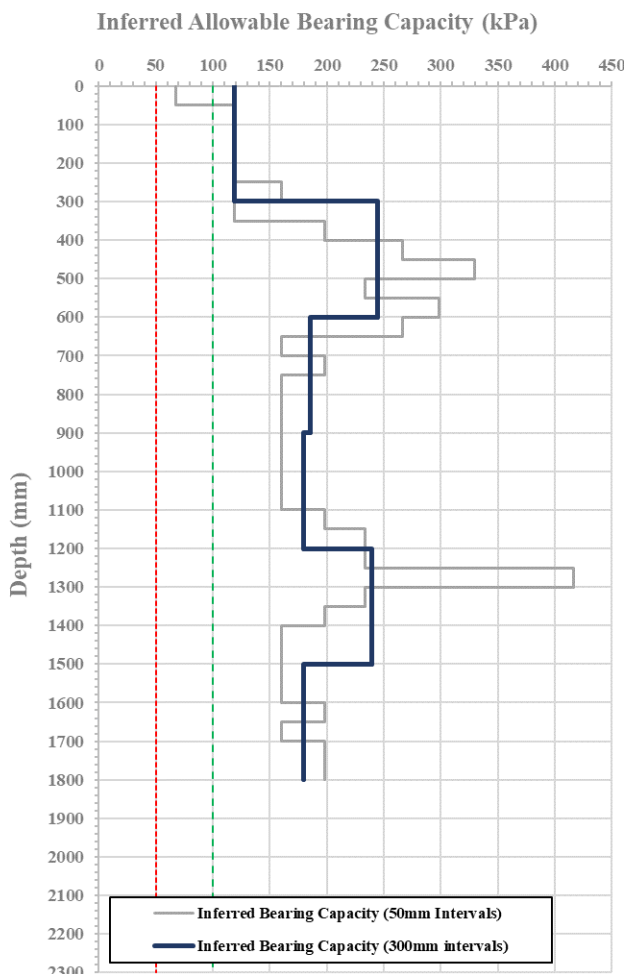
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 456 / 457 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	12	68	203
50 - 100	25.0	3		119	357
100 - 150	25.0	4		119	357
150 - 200	25.0	4		119	357
200 - 250	25.0	5	32	119	357
250 - 300	16.7			160	481
300 - 350	25.0	6		119	357
350 - 400	12.5			198	594
400 - 450	8.3	14	22	267	800
450 - 500	6.3			330	989
500 - 550	10.0			233	700
550 - 600	7.1			299	896
600 - 650	8.3	9	31	267	800
650 - 700	16.7			160	481
700 - 750	12.5	7		198	594
750 - 800	16.7			160	481
800 - 850	16.7	6	21	160	481
850 - 900	16.7			160	481
900 - 950	16.7	6		160	481
950 - 1000	16.7			160	481
1000 - 1050	16.7	6	21	160	481
1050 - 1100	16.7			160	481
1100 - 1150	12.5	9		198	594
1150 - 1200	10.0			233	700
1200 - 1250	10.0	16	31	233	700
1250 - 1300	4.5			416	1249
1300 - 1350	10.0	9		233	700
1350 - 1400	12.5			198	594
1400 - 1450	16.7	6	21	160	481
1450 - 1500	16.7			160	481
1500 - 1550	16.7	6		160	481
1550 - 1600	16.7			160	481
1600 - 1650	12.5	7	198	594	
1650 - 1700	16.7		160	481	
1700 - 1750	12.5	8	198	594	
1750 - 1800	12.5		198	594	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 456 / 457 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 700	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 31.5mm; Sand, fine to coarse; Silt, non-plastic.
700 to 950 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

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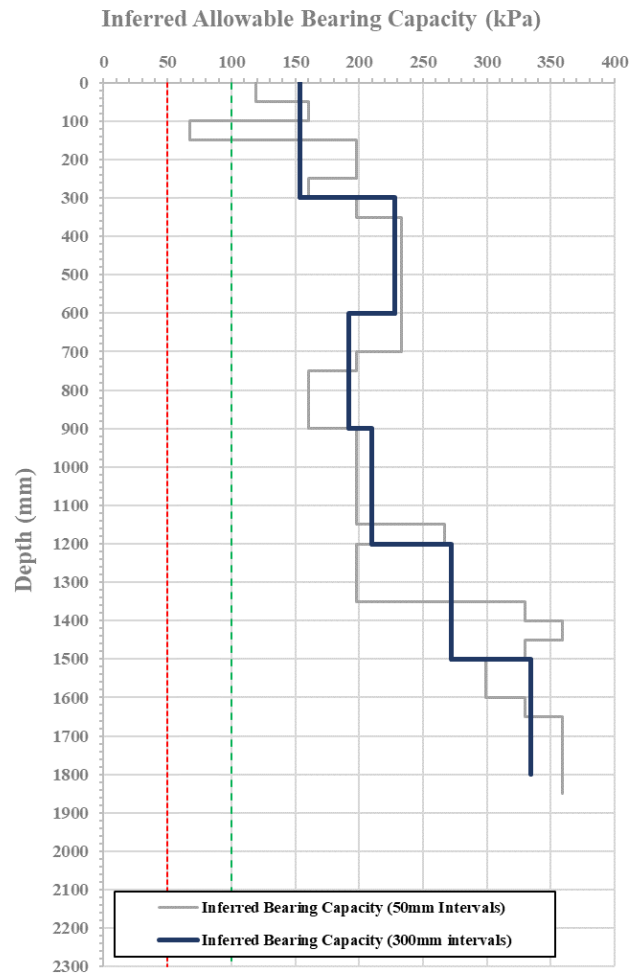
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 458 / 459 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	5		119	357
50 - 100	16.7	5	17	160	481
100 - 150	50.0	5		68	203
150 - 200	12.5	5		198	594
200 - 250	12.5	7	29	198	594
250 - 300	16.7	7		160	481
300 - 350	12.5	9	29	198	594
350 - 400	10.0	9		233	700
400 - 450	10.0	10	29	233	700
450 - 500	10.0	10		233	700
500 - 550	10.0	10	23	233	700
550 - 600	10.0	10		233	700
600 - 650	10.0	10	23	233	700
650 - 700	10.0	10		233	700
700 - 750	12.5	7	23	198	594
750 - 800	16.7	7		160	481
800 - 850	16.7	6	26	160	481
850 - 900	16.7	6		160	481
900 - 950	12.5	8	26	198	594
950 - 1000	12.5	8		198	594
1000 - 1050	12.5	8	26	198	594
1050 - 1100	12.5	8		198	594
1100 - 1150	12.5	10	37	198	594
1150 - 1200	8.3	10		267	800
1200 - 1250	12.5	8	37	198	594
1250 - 1300	12.5	8		198	594
1300 - 1350	12.5	12	37	198	594
1350 - 1400	6.3	12		330	989
1400 - 1450	5.6	17	49	359	1078
1450 - 1500	6.3	17		330	989
1500 - 1550	7.1	14	49	299	896
1550 - 1600	7.1	14		299	896
1600 - 1650	6.3	17	49	330	989
1650 - 1700	5.6	17		359	1078
1700 - 1750	5.6	18	49	359	1078
1750 - 1800	5.6	18		359	1078
1800 - 1850	5.6	-	-	359	1078



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 458 / 459 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 150	Topsoil & vegetation (organic matter).
150 to 800	Dark brown Gravelly SAND with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, slight plasticity.
800 to 1100 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 63.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

- Note:**
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Tested By: C. Pearson **Date:** 4 to 12-May-23

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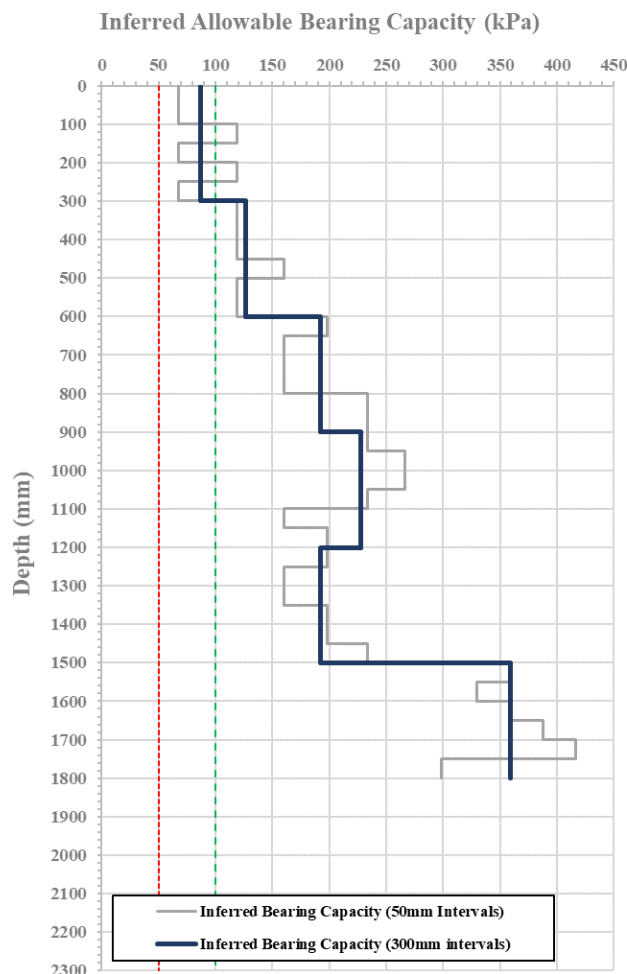
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 466 / 467 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	8	68	203
50 - 100	50.0			68	203
100 - 150	25.0	3	8	119	357
150 - 200	50.0			68	203
200 - 250	25.0	3	8	119	357
250 - 300	50.0			68	203
300 - 350	25.0	4	8	119	357
350 - 400	25.0			119	357
400 - 450	25.0	5	13	119	357
450 - 500	16.7			160	481
500 - 550	25.0	4	13	119	357
550 - 600	25.0			119	357
600 - 650	12.5	7	23	198	594
650 - 700	16.7			160	481
700 - 750	16.7	6	23	160	481
750 - 800	16.7			160	481
800 - 850	10.0	10	23	233	700
850 - 900	10.0			233	700
900 - 950	10.0	11	29	233	700
950 - 1000	8.3			267	800
1000 - 1050	8.3	11	29	267	800
1050 - 1100	10.0			233	700
1100 - 1150	16.7	7	23	160	481
1150 - 1200	12.5			198	594
1200 - 1250	12.5	7	23	198	594
1250 - 1300	16.7			160	481
1300 - 1350	16.7	7	23	160	481
1350 - 1400	12.5			198	594
1400 - 1450	12.5	9	23	198	594
1450 - 1500	10.0			233	700
1500 - 1550	5.6	17	54	359	1078
1550 - 1600	6.3			330	989
1600 - 1650	5.6	19	54	359	1078
1650 - 1700	5.0			388	1164
1700 - 1750	4.5	18	54	416	1249
1750 - 1800	7.1			299	896



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 466 / 467 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 250	Dark brown SAND with some gravel and trace of silt. Moist. Loose. Gravel, subrounded to rounded, maximum particle size 6.70mm; Sand, fine to coarse; Silt, non-plastic.
250 to 900 *	Light grey Gravelly SAND with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 9.50mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



Test results indicated as not accredited are outside the scope of the laboratory's accreditation



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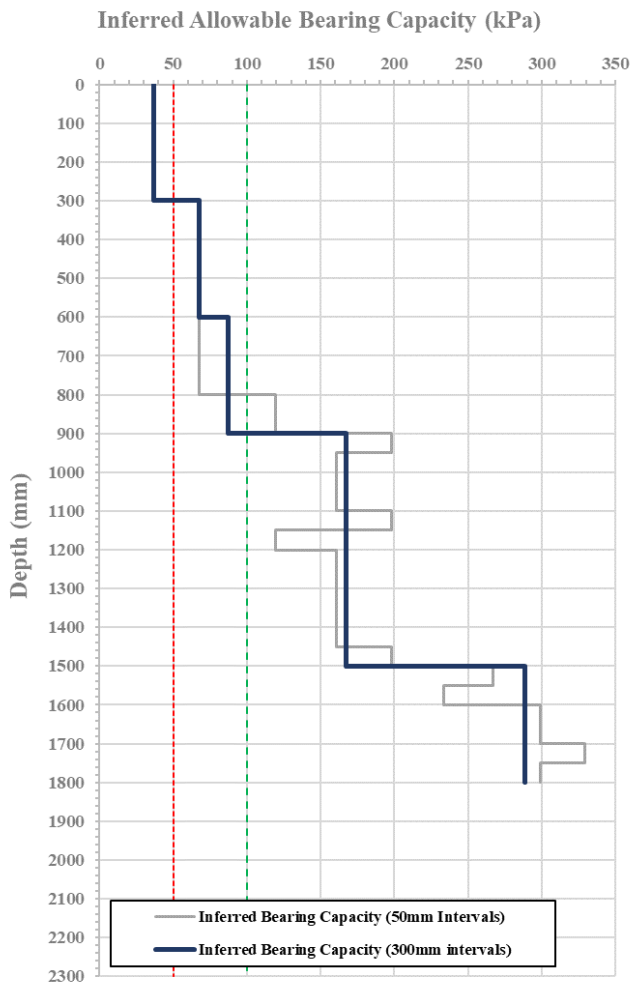
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 469 / 470 boundary – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	100.0	1	3	36	109
50 - 100	100.0	1		36	109
100 - 150	100.0	1		36	109
150 - 200	100.0	1		36	109
200 - 250	100.0	1	6	36	109
250 - 300	100.0	1		36	109
300 - 350	50.0	2		68	203
350 - 400	50.0	2		68	203
400 - 450	50.0	2	8	68	203
450 - 500	50.0	2		68	203
500 - 550	50.0	2		68	203
550 - 600	50.0	2		68	203
600 - 650	50.0	2	19	68	203
650 - 700	50.0	2		68	203
700 - 750	50.0	2		68	203
750 - 800	50.0	2		68	203
800 - 850	25.0	4	40	119	357
850 - 900	25.0	4		119	357
900 - 950	12.5	7		198	594
950 - 1000	16.7	7		160	481
1000 - 1050	16.7	6	19	160	481
1050 - 1100	16.7	6		160	481
1100 - 1150	12.5	6		198	594
1150 - 1200	25.0	6		119	357
1200 - 1250	16.7	6	40	160	481
1250 - 1300	16.7	6		160	481
1300 - 1350	16.7	6		160	481
1350 - 1400	16.7	6		160	481
1400 - 1450	16.7	7	11	160	481
1450 - 1500	12.5	7		198	594
1500 - 1550	8.3	11		267	800
1550 - 1600	10.0	11		233	700
1600 - 1650	7.1	14	15	299	896
1650 - 1700	7.1	14		299	896
1700 - 1750	6.3	15		330	989
1750 - 1800	7.1	15	299	896	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 469 / 470 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 850 *	Dark brown SAND with minor gravel and trace of silt. Moist. Loose. Gravel, subrounded to rounded, maximum particle size 4.75mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

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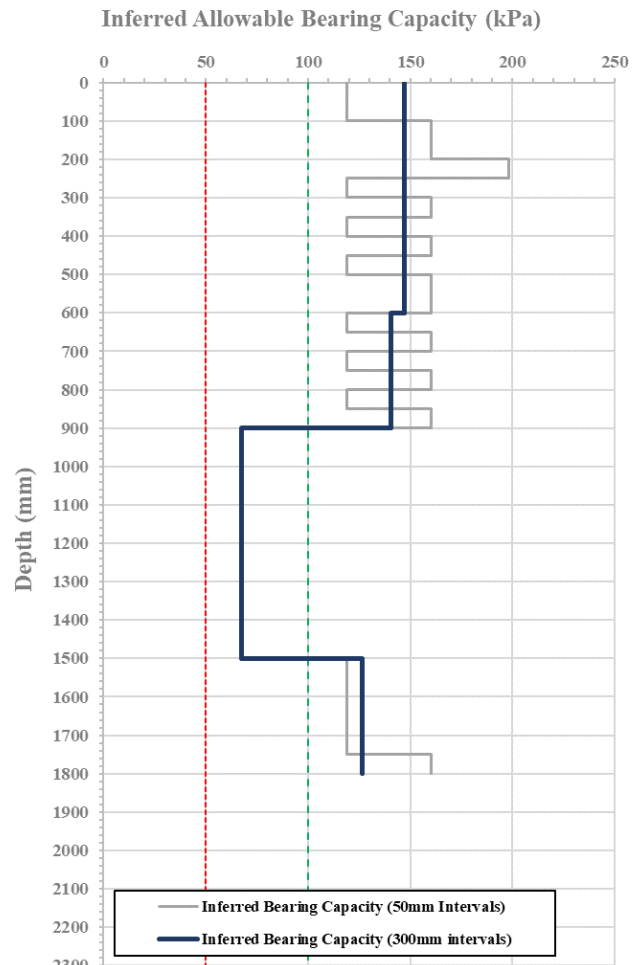
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 P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 475 / 477 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)		
		100 mm	300 mm				
0 - 50	25.0	4	16	119	357		
50 - 100	25.0			119	357		
100 - 150	16.7			6	16	160	481
150 - 200	16.7					160	481
200 - 250	12.5	6	16	198	594		
250 - 300	25.0			119	357		
300 - 350	16.7	5	16	160	481		
350 - 400	25.0			119	357		
400 - 450	16.7	5	16	160	481		
450 - 500	25.0			119	357		
500 - 550	16.7	6	16	160	481		
550 - 600	16.7			160	481		
600 - 650	25.0	5	16	119	357		
650 - 700	16.7			160	481		
700 - 750	25.0	5	15	119	357		
750 - 800	16.7			160	481		
800 - 850	25.0	5	15	119	357		
850 - 900	16.7			160	481		
900 - 950	50.0	2	6	68	203		
950 - 1000	50.0			68	203		
1000 - 1050	50.0	2	6	68	203		
1050 - 1100	50.0			68	203		
1100 - 1150	50.0	2	6	68	203		
1150 - 1200	50.0			68	203		
1200 - 1250	50.0	2	6	68	203		
1250 - 1300	50.0			68	203		
1300 - 1350	50.0	2	6	68	203		
1350 - 1400	50.0			68	203		
1400 - 1450	50.0	2	6	68	203		
1450 - 1500	50.0			68	203		
1500 - 1550	25.0	4	13	119	357		
1550 - 1600	25.0			119	357		
1600 - 1650	25.0	4	13	119	357		
1650 - 1700	25.0			119	357		
1700 - 1750	25.0	5	13	119	357		
1750 - 1800	16.7			160	481		



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 475 / 477 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 150	Topsoil & vegetation (organic matter).
150 to 1200 *	Dark brown SAND with trace of gravel and trace of silt. Moist. Loose. Gravel, subrounded to rounded, maximum particle size 4.75mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

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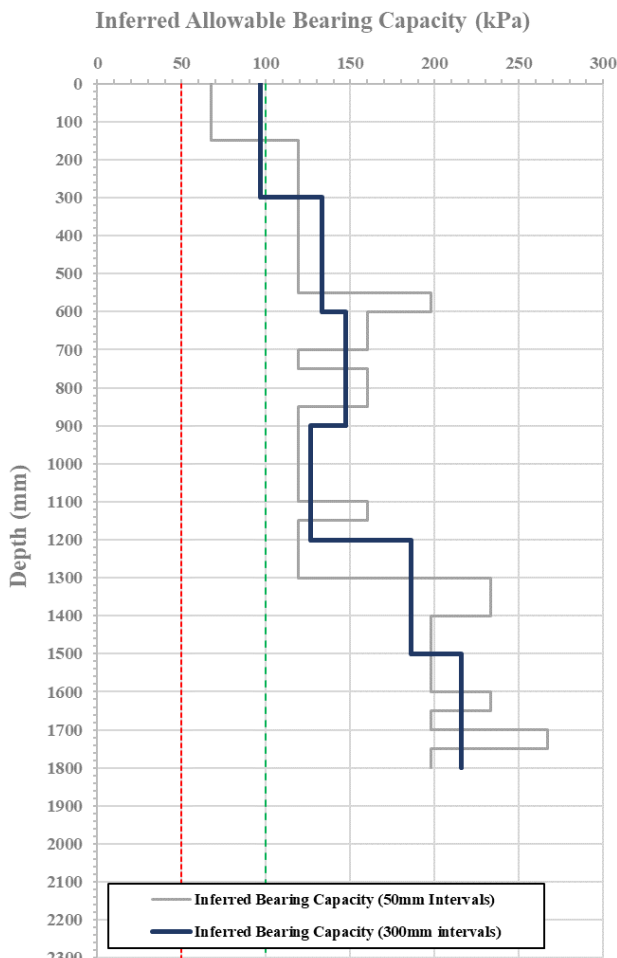
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 476 / 478 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	9	68	203
50 - 100	50.0			68	203
100 - 150	50.0	3	9	68	203
150 - 200	25.0			119	357
200 - 250	25.0	4	9	119	357
250 - 300	25.0			119	357
300 - 350	25.0	4	14	119	357
350 - 400	25.0			119	357
400 - 450	25.0	4	14	119	357
450 - 500	25.0			119	357
500 - 550	25.0	6	14	119	357
550 - 600	12.5			198	594
600 - 650	16.7	6	16	160	481
650 - 700	16.7			160	481
700 - 750	25.0	5	16	119	357
750 - 800	16.7			160	481
800 - 850	16.7	5	16	160	481
850 - 900	25.0			119	357
900 - 950	25.0	4	13	119	357
950 - 1000	25.0			119	357
1000 - 1050	25.0	4	13	119	357
1050 - 1100	25.0			119	357
1100 - 1150	16.7	5	22	160	481
1150 - 1200	25.0			119	357
1200 - 1250	25.0	4	22	119	357
1250 - 1300	25.0			119	357
1300 - 1350	10.0	10	27	233	700
1350 - 1400	10.0			233	700
1400 - 1450	12.5	8	27	198	594
1450 - 1500	12.5			198	594
1500 - 1550	12.5	8	27	198	594
1550 - 1600	12.5			198	594
1600 - 1650	10.0	9	27	233	700
1650 - 1700	12.5			198	594
1700 - 1750	8.3	10	27	267	800
1750 - 1800	12.5			198	594



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 476 / 478 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 800 *	Dark brown SAND with some gravel and trace of silt. Moist. Loose. Gravel, subrounded to rounded, maximum particle size 13.2mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson **Date:** 4 to 12-May-23

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Test results indicated as not accredited are outside the scope of the laboratory's accreditation

No 434



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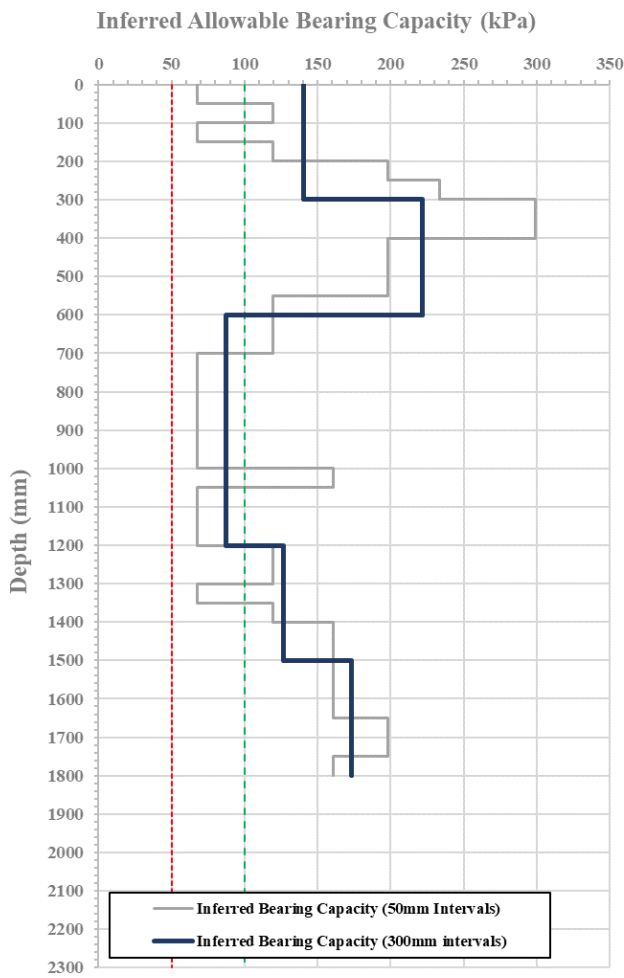
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 479 / 480 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	15	68	203
50 - 100	25.0			119	357
100 - 150	50.0			68	203
150 - 200	25.0	119		357	
200 - 250	12.5	9		198	594
250 - 300	10.0			233	700
300 - 350	7.1		299	896	
350 - 400	7.1	14	299	896	
400 - 450	12.5		198	594	
450 - 500	12.5	8	198	594	
500 - 550	12.5		198	594	
550 - 600	25.0		119	357	
600 - 650	25.0	4	119	357	
650 - 700	25.0		119	357	
700 - 750	50.0	2	68	203	
750 - 800	50.0		68	203	
800 - 850	50.0		68	203	
850 - 900	50.0		68	203	
900 - 950	50.0	2	68	203	
950 - 1000	50.0		68	203	
1000 - 1050	16.7	4	160	481	
1050 - 1100	50.0		68	203	
1100 - 1150	50.0	2	68	203	
1150 - 1200	50.0		68	203	
1200 - 1250	25.0		119	357	
1250 - 1300	25.0	4	119	357	
1300 - 1350	50.0		68	203	
1350 - 1400	25.0	3	119	357	
1400 - 1450	16.7		160	481	
1450 - 1500	16.7		160	481	
1500 - 1550	16.7	6	160	481	
1550 - 1600	16.7		160	481	
1600 - 1650	16.7		160	481	
1650 - 1700	12.5	7	198	594	
1700 - 1750	12.5		198	594	
1750 - 1800	16.7	7	160	481	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 479 / 480 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 950 *	Dark brown SAND with minor gravel and trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 63.0mm; Sand, fine to medium; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



Test results indicated as not accredited are outside the scope of the laboratory's accreditation



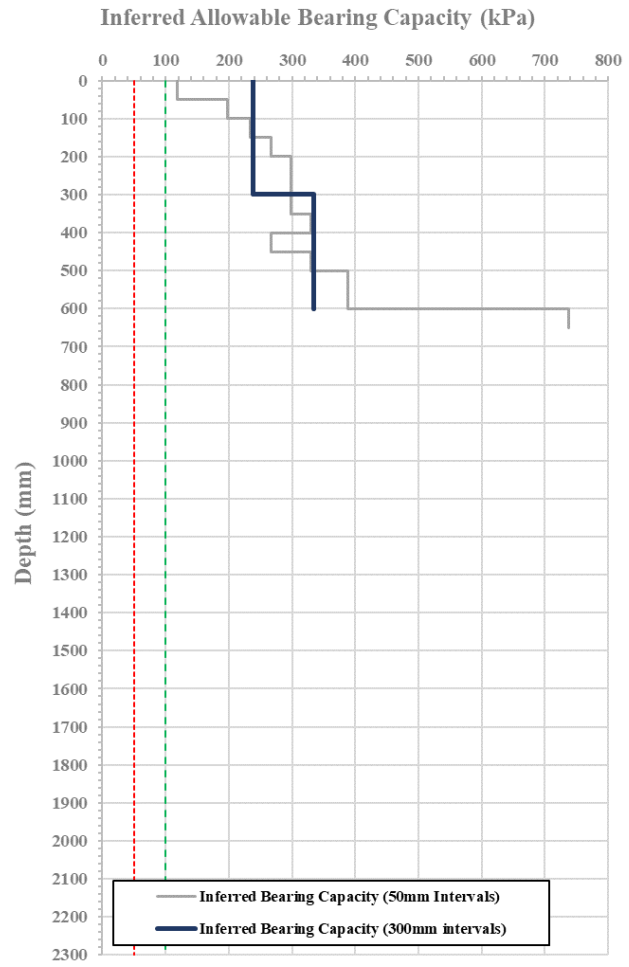
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 530 / 531 boundary – See Page 66 for location plan					
Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	6	31	119	357
50 - 100	12.5			198	594
100 - 150	10.0	11		233	700
150 - 200	8.3	14	49	267	800
200 - 250	7.1			299	896
250 - 300	7.1	14		299	896
300 - 350	7.1	15		299	896
350 - 400	6.3	14	49	330	989
400 - 450	8.3			267	800
450 - 500	6.3	14		330	989
500 - 550	5.0	20		388	1164
550 - 600	5.0			388	1164
600 - 650	2.1	-	-	738	2214
Refusal					
<p>¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.</p> <p>NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.</p>					



AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 530 / 53 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 600 *	Dark brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine; Silt, slight plasticity.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 4 to 12-May-23

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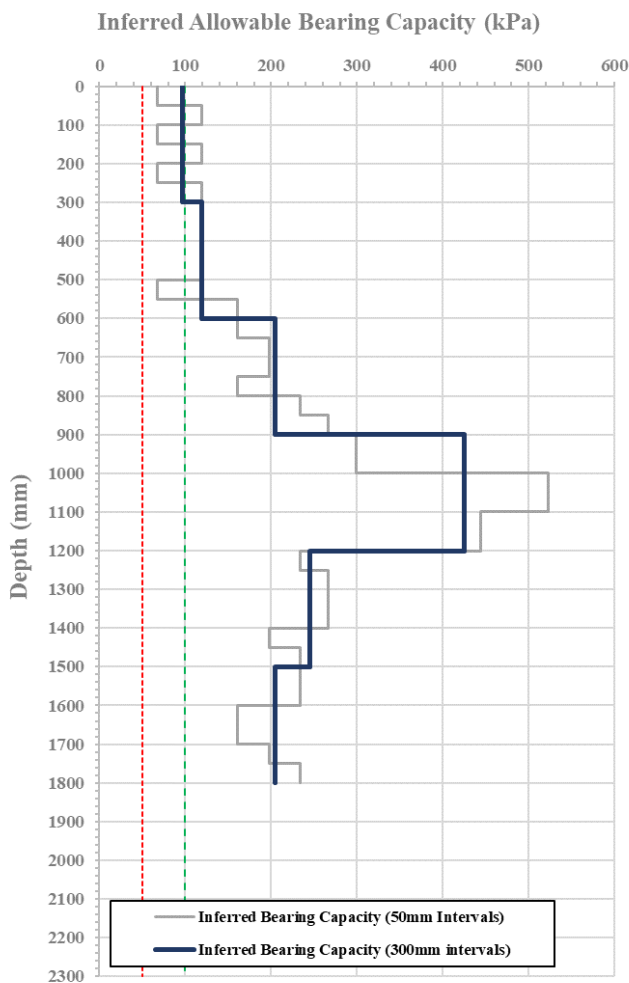
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 532 / 533 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	9	68	203
50 - 100	25.0	3		119	357
100 - 150	50.0	3		68	203
150 - 200	25.0	3	119	357	
200 - 250	50.0		68	203	
250 - 300	25.0		119	357	
300 - 350	25.0	4	119	357	
350 - 400	25.0		119	357	
400 - 450	25.0	4	119	357	
450 - 500	25.0		119	357	
500 - 550	50.0		68	203	
550 - 600	16.7	4	160	481	
600 - 650	16.7		160	481	
650 - 700	12.5		198	594	
700 - 750	12.5	7	198	594	
750 - 800	16.7		160	481	
800 - 850	10.0		233	700	
850 - 900	8.3	11	267	800	
900 - 950	7.1		299	896	
950 - 1000	7.1	14	299	896	
1000 - 1050	3.3		523	1568	
1050 - 1100	3.3	30	523	1568	
1100 - 1150	4.2		444	1331	
1150 - 1200	4.2	24	444	1331	
1200 - 1250	10.0		233	700	
1250 - 1300	8.3	11	267	800	
1300 - 1350	8.3		267	800	
1350 - 1400	8.3		267	800	
1400 - 1450	12.5	12	198	594	
1450 - 1500	10.0		233	700	
1500 - 1550	10.0	10	233	700	
1550 - 1600	10.0		233	700	
1600 - 1650	16.7		160	481	
1650 - 1700	16.7	6	160	481	
1700 - 1750	12.5		198	594	
1750 - 1800	10.0	9	233	700	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 532 / 533 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 700	Dark brown Sandy GRAVEL with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 26.5mm; Sand, fine; Silt, slight plasticity.
700 to 1100 *	Dark brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to subrounded, maximum particle size 53.0mm; Sand, fine; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



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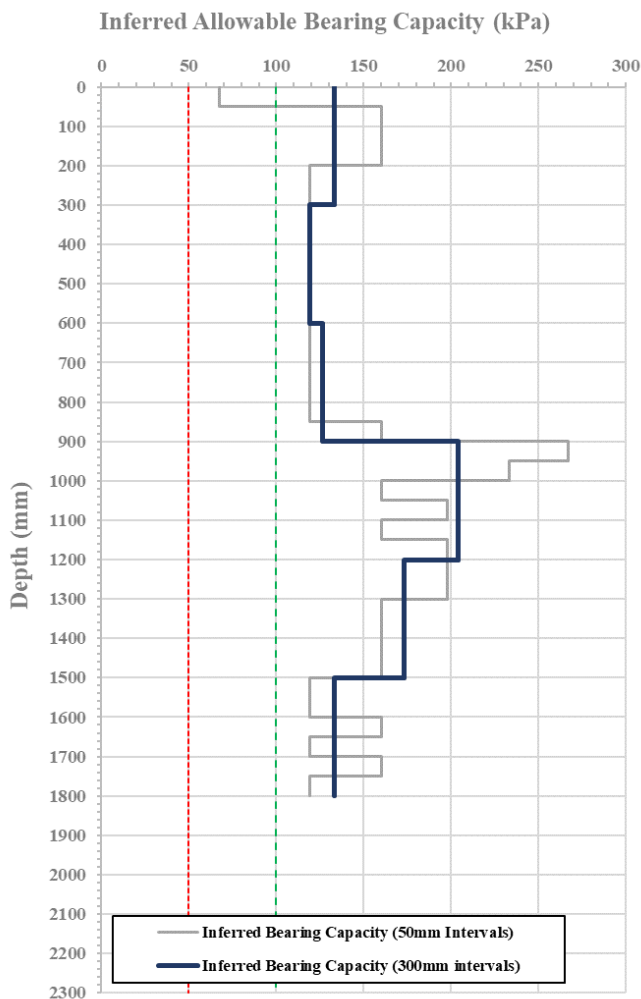
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 534 / 535 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	4	14	68	203
50 - 100	16.7			160	481
100 - 150	16.7			160	481
150 - 200	16.7			160	481
200 - 250	25.0	4	14	119	357
250 - 300	25.0			119	357
300 - 350	25.0	4	12	119	357
350 - 400	25.0			119	357
400 - 450	25.0	4	13	119	357
450 - 500	25.0			119	357
500 - 550	25.0			119	357
550 - 600	25.0			119	357
600 - 650	25.0	4	13	119	357
650 - 700	25.0			119	357
700 - 750	25.0	4	13	119	357
750 - 800	25.0			119	357
800 - 850	25.0	5	13	119	357
850 - 900	16.7			160	481
900 - 950	8.3	11	25	267	800
950 - 1000	10.0			233	700
1000 - 1050	16.7	7	25	160	481
1050 - 1100	12.5			198	594
1100 - 1150	16.7	7	25	160	481
1150 - 1200	12.5			198	594
1200 - 1250	12.5	8	20	198	594
1250 - 1300	12.5			198	594
1300 - 1350	16.7	6	20	160	481
1350 - 1400	16.7			160	481
1400 - 1450	16.7	6	20	160	481
1450 - 1500	16.7			160	481
1500 - 1550	25.0	4	14	119	357
1550 - 1600	25.0			119	357
1600 - 1650	16.7	5	14	160	481
1650 - 1700	25.0			119	357
1700 - 1750	16.7	5	14	160	481
1750 - 1800	25.0			119	357



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 534 / 535 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 750	Dark brown Sandy GRAVEL with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 13.2mm; Sand, fine; Silt, slight plasticity.
750 to 1200 *	Dark brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 19.0mm; Sand, fine; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



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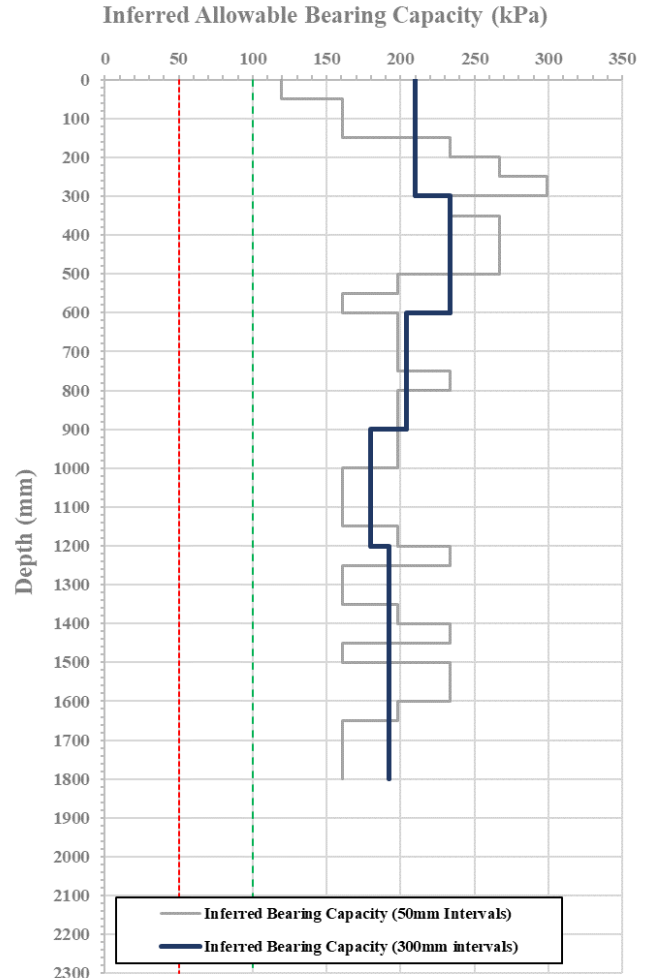


TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 536 – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	5	26	119	357
50 - 100	16.7			160	481
100 - 150	16.7			160	481
150 - 200	10.0	8	26	233	700
200 - 250	8.3			267	800
250 - 300	7.1	13	30	299	896
300 - 350	10.0			233	700
350 - 400	8.3			267	800
400 - 450	8.3	12	25	267	800
450 - 500	8.3			267	800
500 - 550	12.5	7	23	198	594
550 - 600	16.7			160	481
600 - 650	12.5	8	21	198	594
650 - 700	12.5			198	594
700 - 750	12.5			198	594
750 - 800	10.0	9	23	233	700
800 - 850	12.5			198	594
850 - 900	12.5	8	23	198	594
900 - 950	12.5			198	594
950 - 1000	12.5			198	594
1000 - 1050	16.7	6	23	160	481
1050 - 1100	16.7			160	481
1100 - 1150	16.7	7	23	160	481
1150 - 1200	12.5			198	594
1200 - 1250	10.0			233	700
1250 - 1300	16.7	8	23	160	481
1300 - 1350	16.7			160	481
1350 - 1400	12.5	7	23	198	594
1400 - 1450	10.0			233	700
1450 - 1500	16.7			160	481
1500 - 1550	10.0	10	23	233	700
1550 - 1600	10.0			233	700
1600 - 1650	12.5	7	23	198	594
1650 - 1700	16.7			160	481
1700 - 1750	16.7			160	481
1750 - 1800	16.7	6	23	160	481



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 536 - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 950 *	Dark brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



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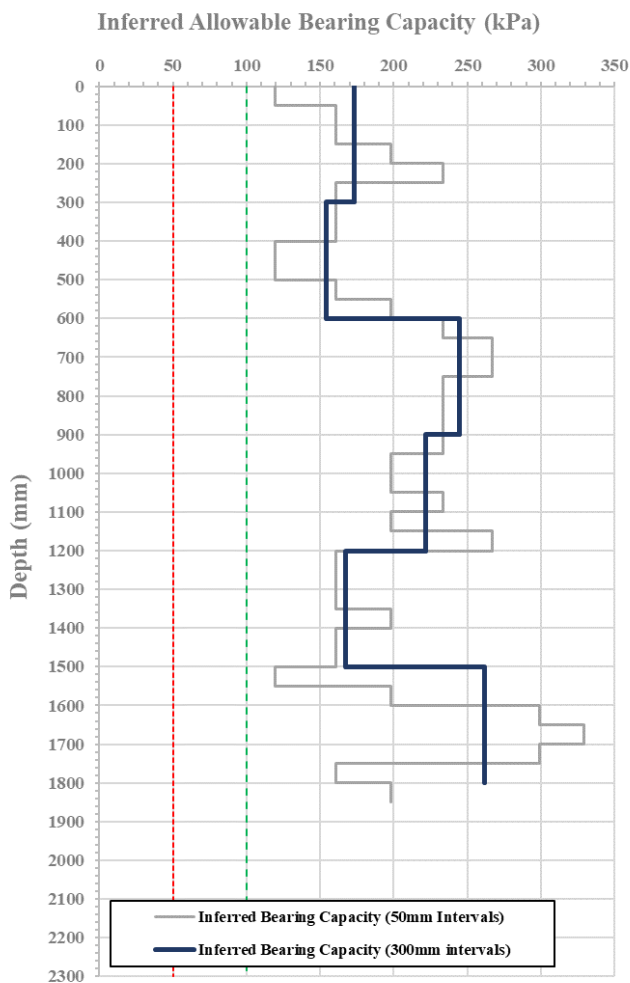
Reference No: 23/1744

Date: 22 May 2023

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 537 / 538 boundary – See Page 66 for location plan					
Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	5	20	119	357
50 - 100	16.7	5		160	481
100 - 150	16.7	7		160	481
150 - 200	12.5	8	17	198	594
200 - 250	10.0	8		233	700
250 - 300	16.7	6		160	481
300 - 350	16.7	11	32	160	481
350 - 400	16.7			160	481
400 - 450	25.0			119	357
450 - 500	25.0	7	19	119	357
500 - 550	16.7	7		160	481
550 - 600	12.5	11		198	594
600 - 650	10.0	10	28	233	700
650 - 700	8.3			267	800
700 - 750	8.3			267	800
750 - 800	10.0	6	35	233	700
800 - 850	10.0			233	700
850 - 900	10.0			233	700
900 - 950	10.0	15	14	233	700
950 - 1000	12.5			198	594
1000 - 1050	12.5			198	594
1050 - 1100	10.0	6	35	233	700
1100 - 1150	12.5			198	594
1150 - 1200	8.3			267	800
1200 - 1250	16.7	6	35	160	481
1250 - 1300	16.7			160	481
1300 - 1350	16.7			160	481
1350 - 1400	12.5	6	35	198	594
1400 - 1450	16.7			160	481
1450 - 1500	16.7			160	481
1500 - 1550	25.0	6	35	119	357
1550 - 1600	12.5			198	594
1600 - 1650	7.1			299	896
1650 - 1700	6.3	14	35	330	989
1700 - 1750	7.1			299	896
1750 - 1800	16.7			160	481
1800 - 1850	12.5	-	-	198	594



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 537 / 538 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 450	Dark brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.
450 to 1100 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Loose. Gravel, subangular to rounded, maximum particle size 53.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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Tested By: C. Pearson Date: 4 to 12-May-23

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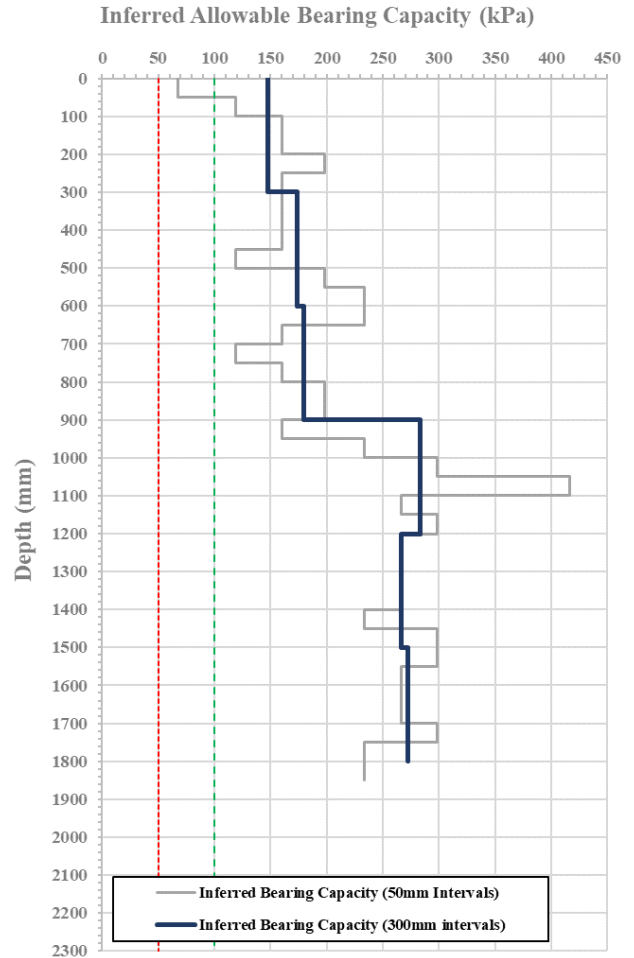
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 539 / 540 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)	
		100 mm	300 mm			
0 - 50	50.0	3	16	68	203	
50 - 100	25.0			119	357	
100 - 150	16.7			160	481	
150 - 200	16.7	160		481		
200 - 250	12.5	7		198	594	
250 - 300	16.7			160	481	
300 - 350	16.7	6	160	481		
350 - 400	16.7		160	481		
400 - 450	16.7	5	20	160	481	
450 - 500	25.0			119	357	
500 - 550	12.5			198	594	
550 - 600	10.0	9		233	700	
600 - 650	10.0			233	700	
650 - 700	16.7	8		160	481	
700 - 750	25.0		119	357		
750 - 800	16.7	5	21	160	481	
800 - 850	12.5			198	594	
850 - 900	12.5	8		198	594	
900 - 950	16.7	8		160	481	
950 - 1000	10.0			233	700	
1000 - 1050	7.1	18		39	299	896
1050 - 1100	4.5		416		1249	
1100 - 1150	8.3	13	267		800	
1150 - 1200	7.1		299		896	
1200 - 1250	8.3	12	267		800	
1250 - 1300	8.3		267		800	
1300 - 1350	8.3	12	36	267	800	
1350 - 1400	8.3			267	800	
1400 - 1450	10.0	12		233	700	
1450 - 1500	7.1			299	896	
1500 - 1550	7.1	13		299	896	
1550 - 1600	8.3			267	800	
1600 - 1650	8.3	12	37	267	800	
1650 - 1700	8.3			267	800	
1700 - 1750	7.1	12		299	896	
1750 - 1800	10.0			233	700	
1800 - 1850	10.0	-		-	233	700



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 539 / 540 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 250	Topsoil & vegetation (organic matter).
250 to 1050 *	Dark brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

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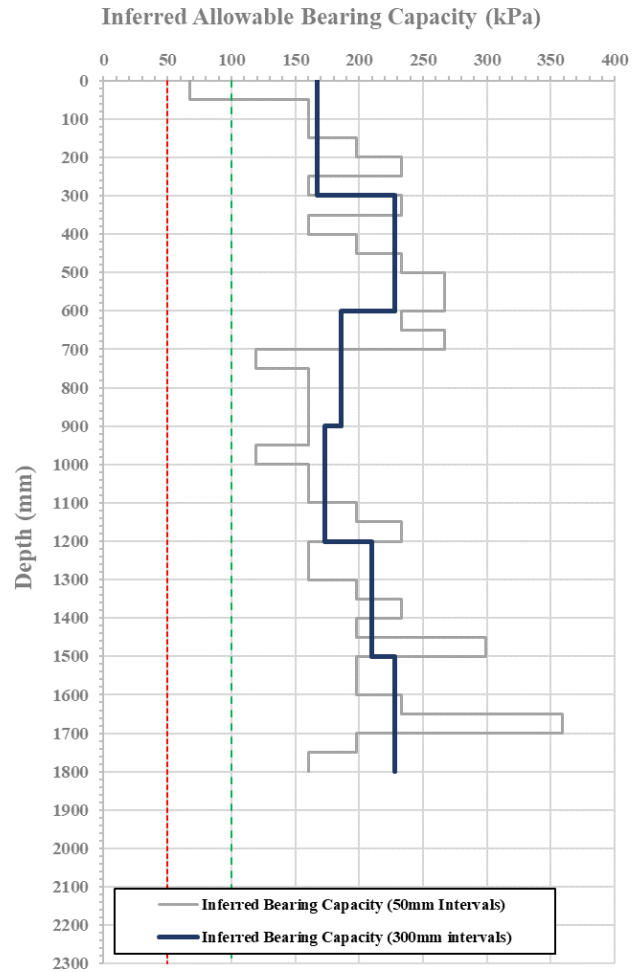
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 541 / 542 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	4	19	68	203
50 - 100	16.7			160	481
100 - 150	16.7			160	481
150 - 200	12.5	7	19	198	594
200 - 250	10.0			233	700
250 - 300	16.7	8	19	160	481
300 - 350	10.0			233	700
350 - 400	16.7	8	29	160	481
400 - 450	12.5			198	594
450 - 500	10.0			233	700
500 - 550	8.3	12	22	267	800
550 - 600	8.3			267	800
600 - 650	10.0	11	22	233	700
650 - 700	8.3			267	800
700 - 750	25.0			119	357
750 - 800	16.7	5	22	160	481
800 - 850	16.7			160	481
850 - 900	16.7	6	22	160	481
900 - 950	16.7			160	481
950 - 1000	25.0	5	20	119	357
1000 - 1050	16.7			160	481
1050 - 1100	16.7	6	20	160	481
1100 - 1150	12.5			198	594
1150 - 1200	10.0	9	26	233	700
1200 - 1250	16.7			160	481
1250 - 1300	16.7			160	481
1300 - 1350	12.5	9	26	198	594
1350 - 1400	10.0			233	700
1400 - 1450	12.5	11	29	198	594
1450 - 1500	7.1			299	896
1500 - 1550	12.5			198	594
1550 - 1600	12.5	8	29	198	594
1600 - 1650	10.0			233	700
1650 - 1700	5.6	14	29	359	1078
1700 - 1750	12.5			198	594
1750 - 1800	16.7	7	29	160	481



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 541 / 542 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 100	Topsoil & vegetation (organic matter).
100 to 300	Dark brown Sandy GRAVEL with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 37.5mm; Sand, fine to coarse; Silt, non-plastic.
300 to 950 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 63.0mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



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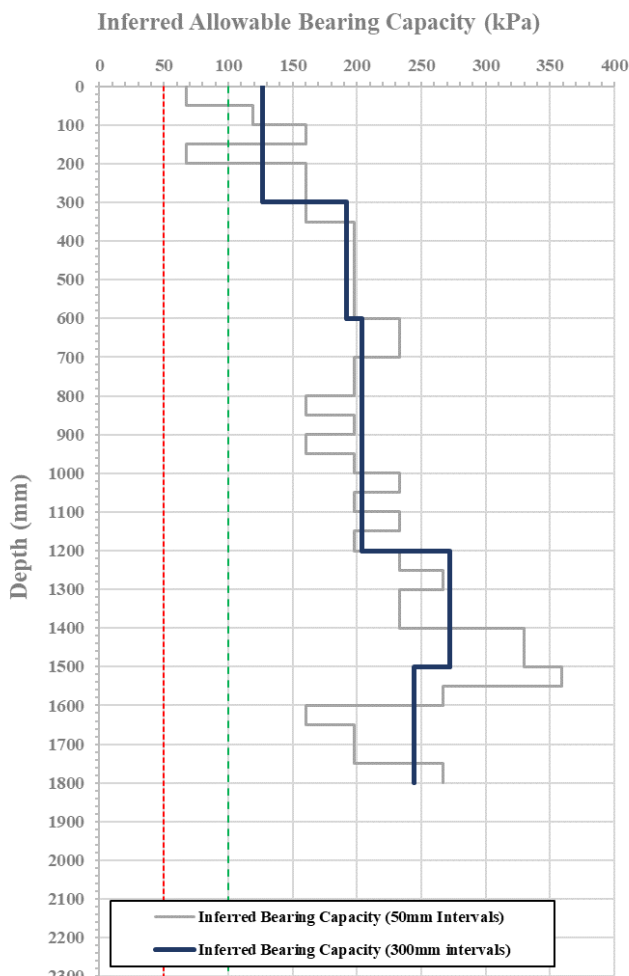
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 543 / 544 boundary – See Page 66 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	13	68	203
50 - 100	25.0	3		119	357
100 - 150	16.7	4		160	481
150 - 200	50.0	6	23	68	203
200 - 250	16.7			160	481
250 - 300	16.7			160	481
300 - 350	16.7	7	25	160	481
350 - 400	12.5			198	594
400 - 450	12.5			198	594
450 - 500	12.5	8	37	198	594
500 - 550	12.5			198	594
550 - 600	12.5			198	594
600 - 650	10.0	10	32	233	700
650 - 700	10.0			233	700
700 - 750	12.5			198	594
750 - 800	12.5	8	25	198	594
800 - 850	16.7			160	481
850 - 900	12.5			198	594
900 - 950	16.7	7	25	160	481
950 - 1000	12.5			198	594
1000 - 1050	10.0			233	700
1050 - 1100	12.5	9	37	198	594
1100 - 1150	10.0			233	700
1150 - 1200	12.5			198	594
1200 - 1250	10.0	11	32	233	700
1250 - 1300	8.3			267	800
1300 - 1350	10.0			233	700
1350 - 1400	10.0	10	37	233	700
1400 - 1450	6.3			330	989
1450 - 1500	6.3			330	989
1500 - 1550	5.6	15	32	359	1078
1550 - 1600	8.3			267	800
1600 - 1650	16.7			160	481
1650 - 1700	12.5	7	25	198	594
1700 - 1750	12.5			198	594
1750 - 1800	8.3			267	800



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3. NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 543 / 544 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 50	Topsoil & vegetation (organic matter).
50 to 550	Dark brown Sandy GRAVEL with trace of silt. Moist. Tightly packed / loose. Gravel, subangular to rounded, maximum particle size 13.2mm; Sand, fine to coarse; Silt, non-plastic.
550 to 1000 *	Light grey / brown Sandy GRAVEL with trace of silt. Moist. Tightly packed. Gravel, subangular to rounded, maximum particle size 26.5mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



Test results indicated as not accredited are outside the scope of the laboratory's accreditation



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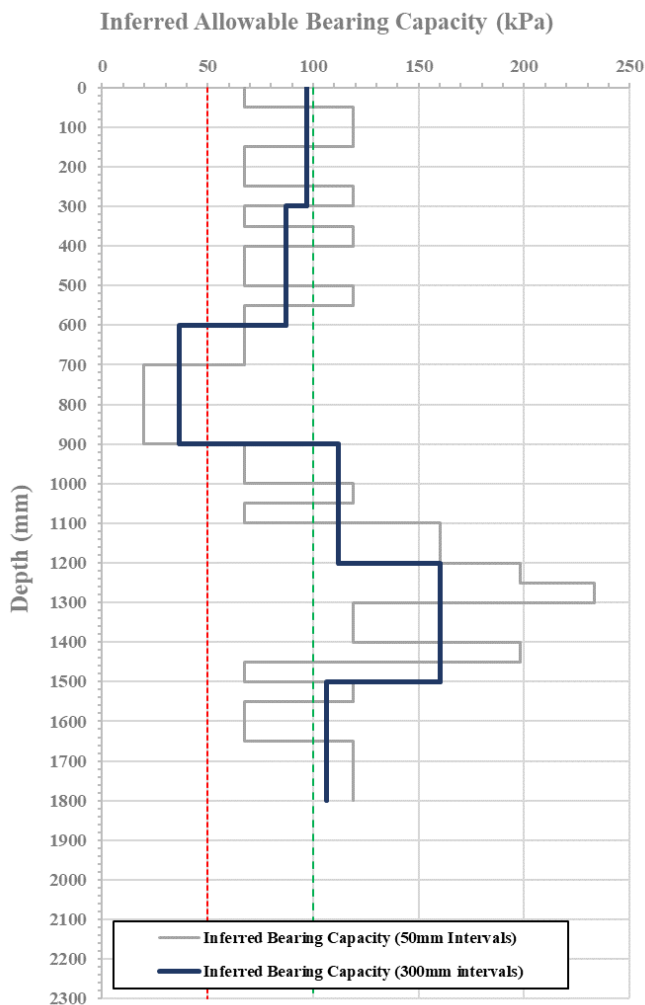
P: 03 4487644, W: www.centraltesting.co.nz, E: info@centraltesting.co.nz

TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 1086 / 1087 boundary – See Page 66 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	9	68	203
50 - 100	25.0			119	357
100 - 150	25.0			119	357
150 - 200	50.0	3	9	68	203
200 - 250	50.0			68	203
250 - 300	25.0			119	357
300 - 350	50.0	3	9	68	203
350 - 400	25.0			119	357
400 - 450	50.0	2	8	68	203
450 - 500	50.0			68	203
500 - 550	25.0	3	9	119	357
550 - 600	50.0			68	203
600 - 650	50.0	2	8	68	203
650 - 700	50.0			68	203
700 - 750	200.0	0.5	3	20	59
750 - 800	200.0			20	59
800 - 850	200.0			20	59
850 - 900	200.0	0.5	3	20	59
900 - 950	50.0			68	203
950 - 1000	50.0	2	8	68	203
1000 - 1050	25.0			119	357
1050 - 1100	50.0	3	9	68	203
1100 - 1150	16.7			160	481
1150 - 1200	16.7	6	11	160	481
1200 - 1250	12.5			198	594
1250 - 1300	10.0	9	18	233	700
1300 - 1350	25.0			119	357
1350 - 1400	25.0	4	11	119	357
1400 - 1450	12.5			198	594
1450 - 1500	50.0	5	18	68	203
1500 - 1550	25.0			119	357
1550 - 1600	50.0	3	10	68	203
1600 - 1650	50.0			68	203
1650 - 1700	25.0	3	10	119	357
1700 - 1750	25.0			119	357
1750 - 1800	25.0	4	11	119	357



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

AUGER FIELD LOG: NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited); Lot 1086 / 1087 boundary - See page 66 for location plan

Depth (mm)	Description
0 to 150	Topsoil & vegetation (organic matter).
150 to 1100	Light brown SAND with minor gravel and trace of silt. Moist. Loose. Gravel, subrounded to rounded, maximum particle size 4.75mm; Sand, fine; Silt, non-plastic.
1100 to 1400 *	Light brown Gravelly SAND with trace of silt. Moist. Loose. Gravel, subrounded to rounded, maximum particle size 9.50mm; Sand, fine to coarse; Silt, non-plastic.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe. Unable to complete past the depth indicated.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

No 434



TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Wooring Tree Subdivision, Cromwell		
Test Methods:	Scala Penetrometer - NZS 4402:1988, Test 6.5.2 Field Logs – NZ Geotechnical Society Guidelines 2005 (Not IANZ Accredited)		



Approximate Test Locations

Note:

- Geotechnical issues relating to slope stability, suitability of the site or the potential for liquefaction are outside the scope of this report.
- The results stated above are specific to the test locations as recorded. Central Testing Services accepts no liability for any extrapolated use of this data.
- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 4 to 12-May-23

Checked By: *[Signature]*

Approved Signatory

[Signature]

**A.P. Julius
Laboratory Manager**



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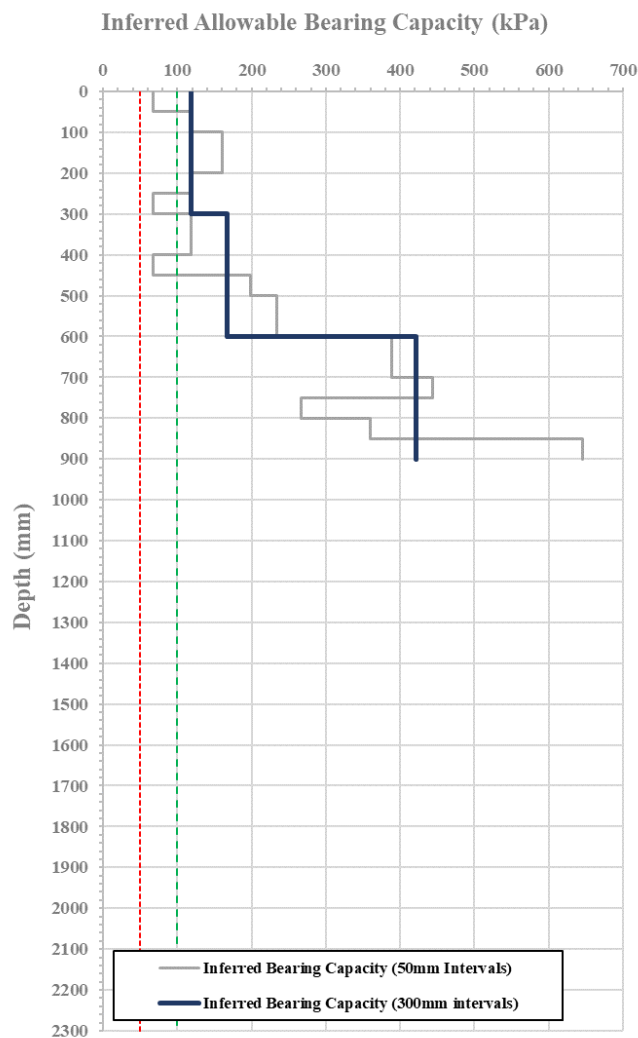


TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 359 – See Page 9 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	12	68	203
50 - 100	25.0			119	357
100 - 150	16.7			160	481
150 - 200	16.7	6		160	481
200 - 250	25.0			119	357
250 - 300	50.0	3		68	203
300 - 350	25.0	4	19	119	357
350 - 400	25.0			119	357
400 - 450	50.0	5		68	203
450 - 500	12.5		198	594	
500 - 550	10.0	10	67	233	700
550 - 600	10.0			233	700
600 - 650	5.0	20		388	1164
650 - 700	5.0		388	1164	
700 - 750	4.2	18	444	1331	
750 - 800	8.3		267	800	
800 - 850	5.6	29	359	1078	
850 - 900	2.5		645	1936	



Refusal

¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe – not requested by client.

Note:

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Tested By: C. Pearson

Date: 19-Jun-23

Checked By:



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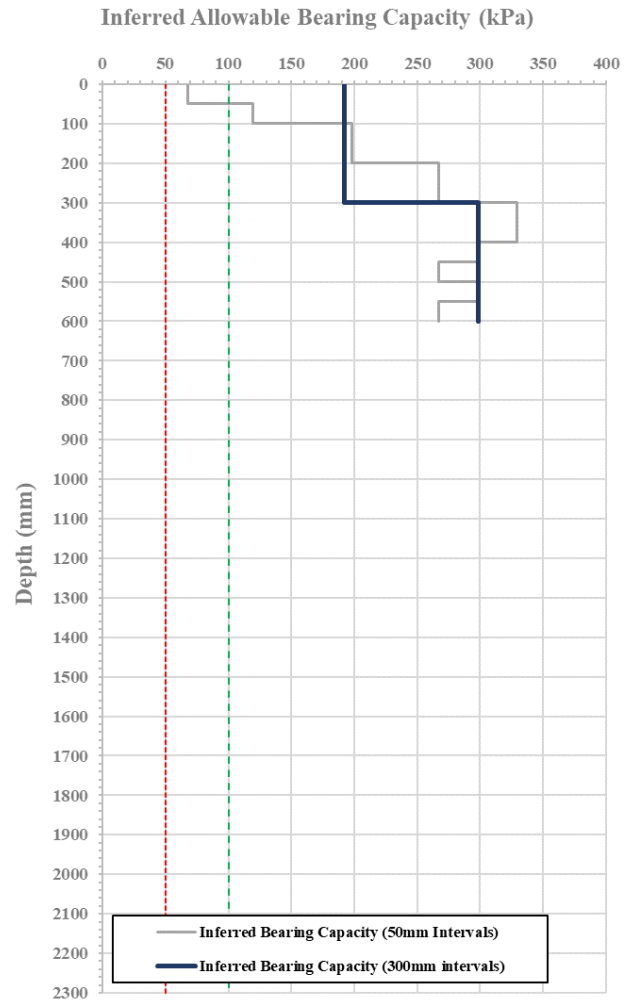
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 391 – See Page 9 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	23	68	203
50 - 100	25.0			119	357
100 - 150	12.5			198	594
150 - 200	12.5	8		198	594
200 - 250	8.3			267	800
250 - 300	8.3	12		267	800
300 - 350	6.3		330	989	
350 - 400	6.3	16	330	989	
400 - 450	7.1		299	896	
450 - 500	8.3	13	42	267	800
500 - 550	7.1			299	896
550 - 600	8.3	267		800	



Refusal

¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe – not requested by client.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
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Tested By: C. Pearson **Date:** 19-Jun-23

Checked By:



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Nº 434



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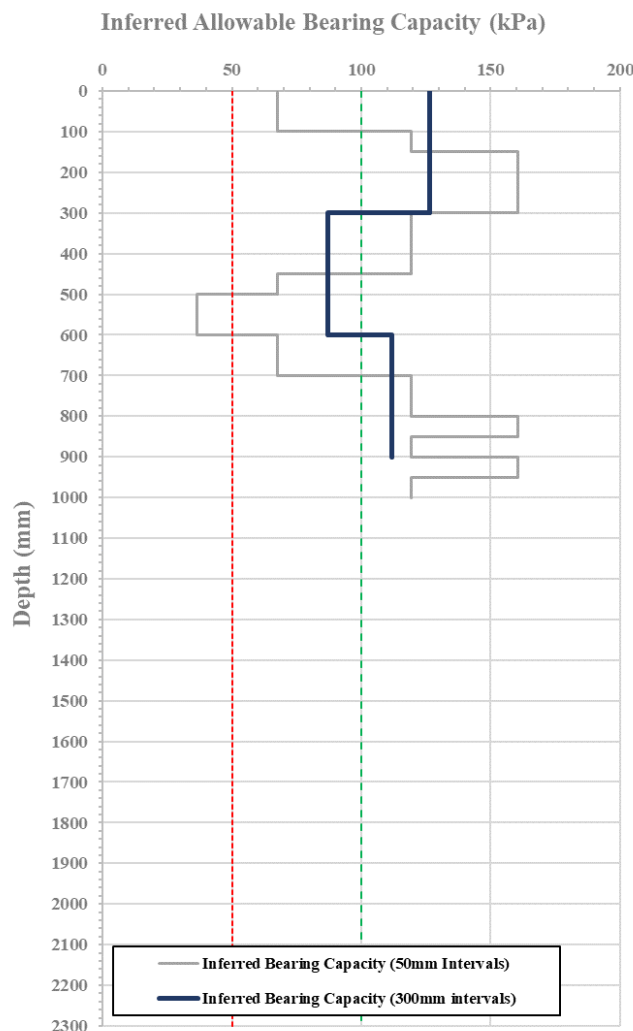
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 392 – See Page 9 for location plan

Depth (mm)	Equivalent Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	13	68	203
50 - 100	50.0			68	203
100 - 150	25.0	5		119	357
150 - 200	16.7			160	481
200 - 250	16.7	6		160	481
250 - 300	16.7			160	481
300 - 350	25.0	4	8	119	357
350 - 400	25.0			119	357
400 - 450	25.0	3		119	357
450 - 500	50.0			68	203
500 - 550	100.0	1		36	109
550 - 600	100.0			36	109
600 - 650	50.0	2	11	68	203
650 - 700	50.0			68	203
700 - 750	25.0	4		119	357
750 - 800	25.0			119	357
800 - 850	16.7	5		160	481
850 - 900	25.0			119	357
900 - 950	16.7	5	160	481	
950 - 1000	25.0		-	119	357



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe – not requested by client.

Note:

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Date: 19-Jun-23

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TEST REPORT – SCALA PENETROMETER RESULTS

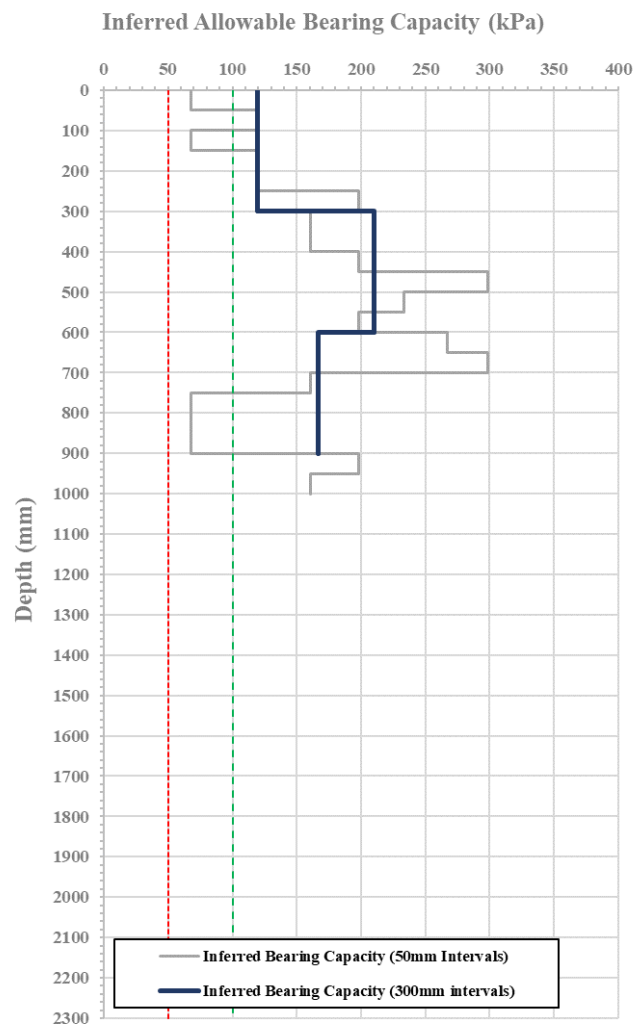
Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 419 – See Page 9 for location plan					
Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	12	68	203
50 - 100	25.0			119	357
100 - 150	50.0			68	203
150 - 200	25.0	119		357	
200 - 250	25.0	6		119	357
250 - 300	12.5			198	594
300 - 350	16.7	6	26	160	481
350 - 400	16.7			160	481
400 - 450	12.5	11		198	594
450 - 500	7.1			299	896
500 - 550	10.0			233	700
550 - 600	12.5	9		19	198
600 - 650	8.3		267		800
650 - 700	7.1	13	299		896
700 - 750	16.7		160		481
750 - 800	50.0	4	68		203
800 - 850	50.0		68		203
850 - 900	50.0	2	68	203	
900 - 950	12.5		198	594	
950 - 1000	16.7	7	-	160	481

¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe – not requested by client.



Note:

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Tested By: C. Pearson

Date: 19-Jun-23

Checked By:



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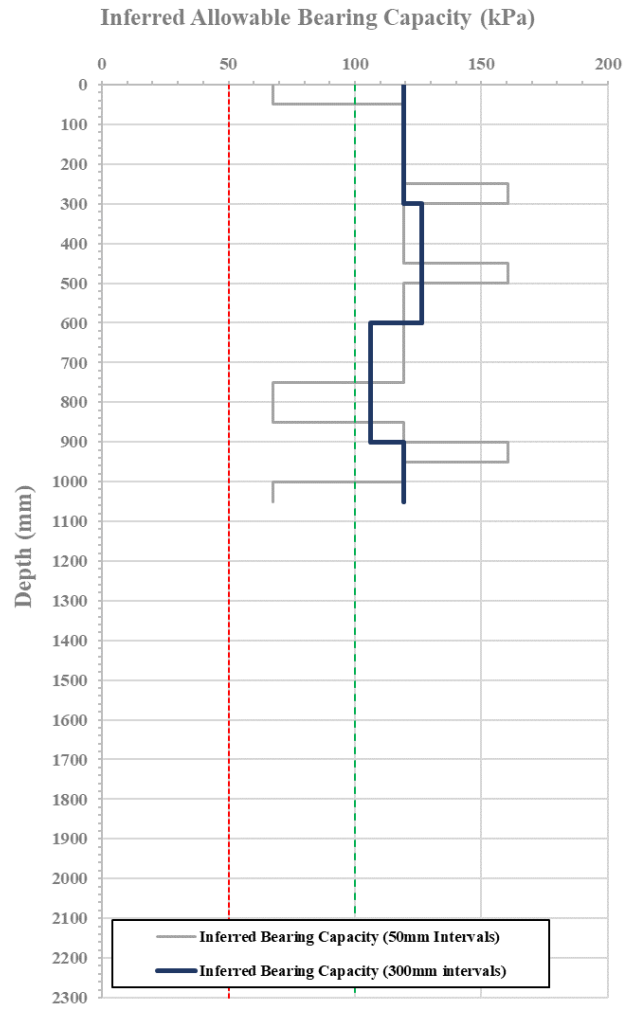


TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 435 – See Page 9 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	12	68	203
50 - 100	25.0			119	357
100 - 150	25.0			119	357
150 - 200	25.0	4		119	357
200 - 250	25.0			119	357
250 - 300	16.7	5		160	481
300 - 350	25.0	4	13	119	357
350 - 400	25.0			119	357
400 - 450	25.0	5		119	357
450 - 500	16.7			160	481
500 - 550	25.0	4		119	357
550 - 600	25.0			119	357
600 - 650	25.0	4	10	119	357
650 - 700	25.0			119	357
700 - 750	25.0	3		119	357
750 - 800	50.0			68	203
800 - 850	50.0	3		68	203
850 - 900	25.0			119	357
900 - 950	16.7	5	≅ 12	160	481
950 - 1000	25.0			119	357
1000 - 1050	50.0	-	68	203	



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe – not requested by client.

Note:

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Tested By: C. Pearson

Date: 19-Jun-23

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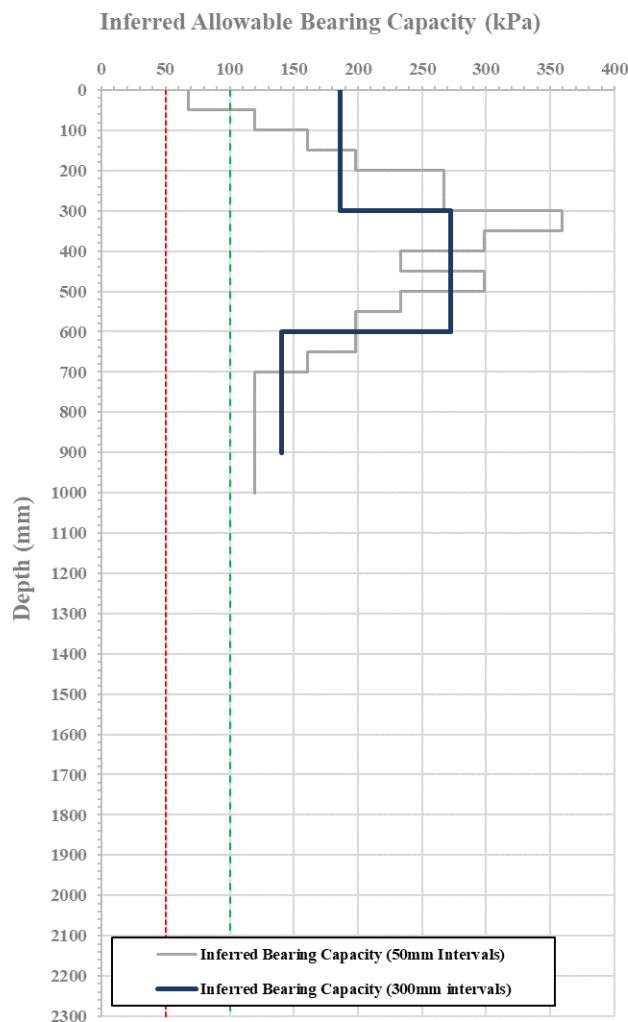
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TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 437 – See Page 9 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	3	22	68	203
50 - 100	25.0			119	357
100 - 150	16.7			160	481
150 - 200	12.5	7		198	594
200 - 250	8.3			267	800
250 - 300	8.3	12		267	800
300 - 350	5.6		359	1078	
350 - 400	7.1	16	37	299	896
400 - 450	10.0			233	700
450 - 500	7.1	12		299	896
500 - 550	10.0			233	700
550 - 600	12.5	9		198	594
600 - 650	12.5			198	594
650 - 700	16.7	7	15	160	481
700 - 750	25.0			119	357
750 - 800	25.0	4		119	357
800 - 850	25.0			119	357
850 - 900	25.0	4		119	357
900 - 950	25.0			119	357
950 - 1000	25.0	4	-	119	357



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe – not requested by client.

Note:

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- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 19-Jun-23

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TEST REPORT – SCALA PENETROMETER RESULTS

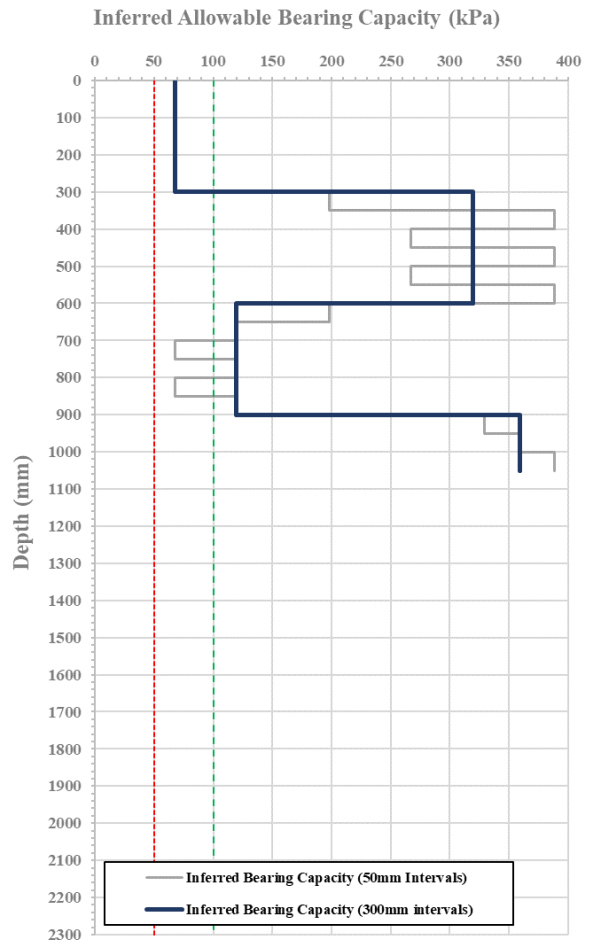
Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 532 - See Page 9 for location plan					
Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	50.0	2	6	68	203
50 - 100	50.0			68	203
100 - 150	50.0			68	203
150 - 200	50.0			68	203
200 - 250	50.0			68	203
250 - 300	50.0	14	46	68	203
300 - 350	12.5			198	594
350 - 400	5.0			388	1164
400 - 450	8.3			267	800
450 - 500	5.0			388	1164
500 - 550	8.3	16	12	267	800
550 - 600	5.0			388	1164
600 - 650	12.5			198	594
650 - 700	25.0			119	357
700 - 750	50.0			68	203
750 - 800	25.0	3	12	119	357
800 - 850	50.0			68	203
850 - 900	25.0			119	357
900 - 950	6.3	17	54	330	989
950 - 1000	5.6			359	1078
1000 - 1050	5.0			388	1164

¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe – not requested by client.



Note:

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Tested By: C. Pearson

Date: 19-Jun-23

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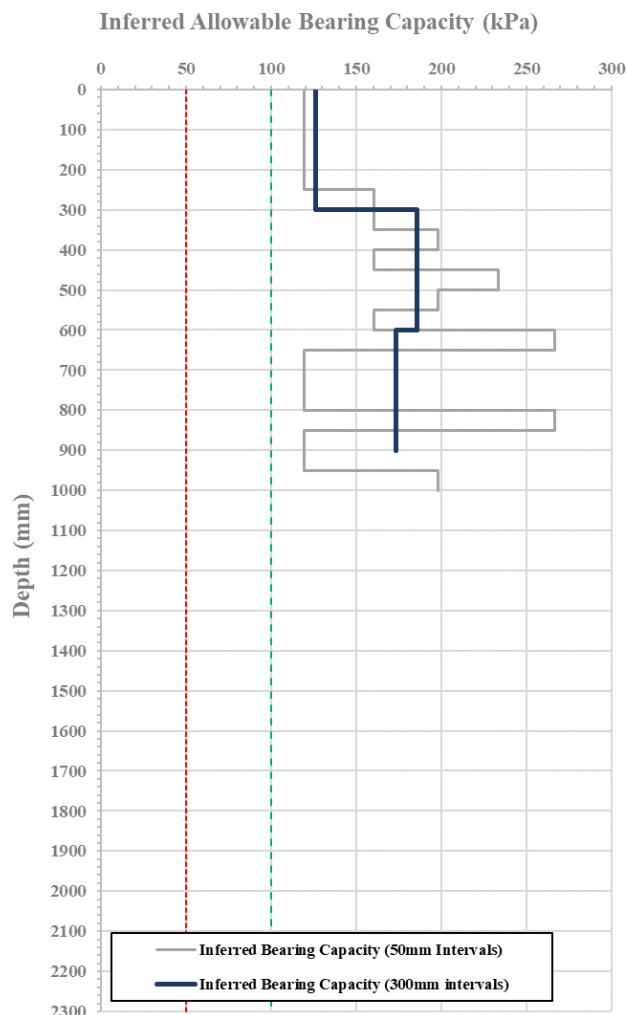


TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Woong Tree Subdivision, Cromwell		

SCALA PENETROMETER (NZS 4402:1988, Test 6.5.2); Lot 1067 – See Page 9 for location plan

Depth (mm)	Penetration (mm/blow)	Blows /		Inferred Allowable Bearing Capacity ¹ (kPa)	Inferred Ultimate Bearing Capacity ¹ (kPa)
		100 mm	300 mm		
0 - 50	25.0	4	13	119	357
50 - 100	25.0			119	357
100 - 150	25.0			119	357
150 - 200	25.0			119	357
200 - 250	25.0	5	13	119	357
250 - 300	16.7			160	481
300 - 350	16.7	7	22	160	481
350 - 400	12.5			198	594
400 - 450	16.7	8	20	160	481
450 - 500	10.0			233	700
500 - 550	12.5	7	13	198	594
550 - 600	16.7			160	481
600 - 650	8.3	8	20	267	800
650 - 700	25.0			119	357
700 - 750	25.0	4	13	119	357
750 - 800	25.0			119	357
800 - 850	8.3	8	20	267	800
850 - 900	25.0			119	357
900 - 950	25.0	6	-	119	357
950 - 1000	12.5			198	594



¹ Bearing capacity results stated above have been inferred from Fig 2 – Determination of allowable bearing pressure under small structures, M.J. Stockwell. The results are relative to the ground conditions at the time of test and will be heavily influenced if significant gravel fraction is present. The inferred values should be used conservatively. IANZ endorsement does not apply to these values. Ultimate bearing capacity values have been calculated from the allowable bearing capacity applying a safety factor of 3.

NZS 3604:2011, Section 3.3.7.1 (b) states that the ultimate bearing capacity of the foundation shall be assumed to be not less than 300 kPa if the number of blows per 100mm exceeds 5 down to a depth equal to twice the width of the widest footing below the underside of the proposed footing and 3 at greater depths.

* NZS 3604:2011, Section 3.3.6 requires a minimum 50mm diameter auger hole to be completed to the depth of each scala penetrometer probe – not requested by client.

Note:

- The results stated above are specific to the approximate test locations as recorded. CTS accepts no liability for any extrapolated use of this data.
- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 19-Jun-23

Checked By:



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

No 434



Central Testing Services

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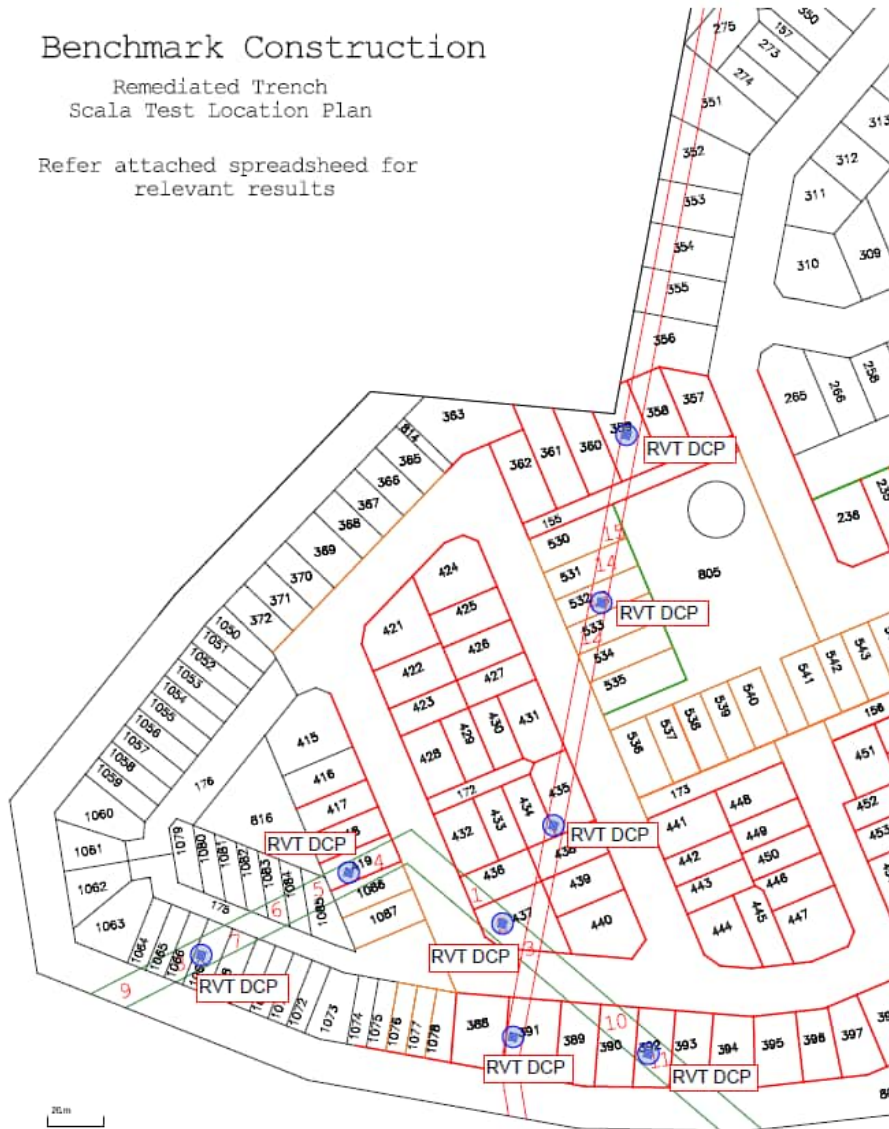
TEST REPORT – SCALA PENETROMETER RESULTS

Client Details:	Veros, stephenc@veros.co.nz	Attention:	S. Cornwall
Job Description:	Wooring Tree Subdivision, Cromwell		
Test Methods:	Scala Penetrometer - NZS 4402:1988, Test 6.5.2		

Benchmark Construction

Remediated Trench
 Scala Test Location Plan

Refer attached spreadsheet for relevant results



Approximate Test Locations

Note:

- Geotechnical issues relating to slope stability, suitability of the site or the potential for liquefaction are outside the scope of this report.
- The results stated above are specific to the test locations as recorded. Central Testing Services accepts no liability for any extrapolated use of this data.
- This report may not be reproduced except in full.

Tested By: C. Pearson

Date: 19-Jun-23

Checked By:

Approved Signatory

A.P. Julius
 Laboratory Manager



Test results indicated as not accredited are outside the scope of the laboratory's accreditation

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