28 October 2022 Project No: LTC22215

Attention: Chloe McConochie Gould Developments Limited

RE:



LandTech Consulting Ltd

Email: info@landtech.nz

 SHALLOW SOIL TEST REPORT
 Postal: PO Box 119, Christchurch 8013

 LOT 198, 138 & 5/144 DUNNS CROSSING ROAD
 Auckland Office: 09 930 9334

 9B Collard Place, Henderson

Auckland Office: 09 930 9334 9B Collard Place, Henderson Christchurch Office: 03 390 1371 11B Carlyle Street, Sydenham

1.0 Introduction & Background

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LandTech Consulting Limited (LandTech) were engaged by Gould Developments Limited to carry out lot specific shallow soil testing for the subdivision at 138 & 5/144 Dunns Crossing Road. This shallow soil test report is for Lot 198 of the subdivision herein referred to as the site. The purpose of the shallow soil testing is to confirm subsurface conditions and provide geotechnical recommendations with regards to future residential foundations within the site.

2.0 Shallow Soil Testing

LandTech investigated the site on 26 October 2022, comprising two hand auger holes with corresponding Scala Penetrometer tests and two additional Scala Penetrometer tests. The test locations were measured from lot boundaries and/or surveyed centre pegs and are approximate only. The test locations are shown on the LandTech *Test Location Plan*, Drawing No. Lot 198/ TLP attached to this report.

The soil conditions encountered within the hand auger holes were logged by LandTech technical staff in accordance with New Zealand Geotechnical Society *Guideline for the Description of Soil and Rock for Engineering Purposes* (2005). The hand auger logs are attached to this report.

The Dynamic Cone (Scala) Penetrometer testing procedure was carried out in accordance with NZS 4402:1988, Test 6.5.2, *Dynamic Cone Penetrometer*. The Scala penetrometer test results are attached to this report.

The hand auger holes encountered topsoil/fill material from the ground surface to approximately 0.1m depths, underlain by inferred natural gravel. Groundwater was not encountered during testing. Scala Penetrometer testing at each of the four locations returned results between 9 and 40+ blows per 100mm penetration at the test positions, encountering refusal at 0.4m below present ground level.

The two hand auger holes were carried out at either end of the lot; therefore, ground conditions could vary away from the test positions. Additionally, the tests refused within placed topsoil and inferred

underlying natural ground. This bears the potential for greater depths of unsuitable topsoil and fill than those encountered within our hand augers, which should be considered during earthworks and foundation excavations.

3.0 Foundation Recommendations

We have previously investigated the site at 138 & 5/144 Dunns Crossing Road as part of a proposed subdivision investigation. The corresponding report is titled *Geotechnical Investigation Report for Proposed Residential Subdivision, 138 Dunns Crossing Road, Rolleston,* project reference: LTC20416, Revision A, dated 17 September 2021. The report classified the land as equivalent TC1, indicating the proposed new foundations are likely to be constructed in accordance with the NZS 3604: 2011 (i.e. light timber framed one or two story construction), subject to lot specific testing at the Building Consent stage.

From the lot-specific investigation for the site we conclude the site has "Good Ground", and that dwelling foundations on this site can comprise NZS3604:2011 type foundations or codemark approved concrete slab foundations that are applicable for the site conditions (i.e. "good ground"). All foundations must be embedded to a minimum depth of 0.1m below ground level, into the underlying Natural Gravel or Engineered Fill. At these depths, either "Good Ground" or an Ultimate Bearing Capacity of 300kPa is available/inferred. If specific engineering design is being carried out a strength reduction factor of ϕ =0.5 should be used. This depth has been supplied based on ground level at the time of testing. All topsoil and unsuitable materials should be removed below foundations and floor slab areas.

The subgrade should be inspected by a suitably qualified structural or geotechnical engineer or suitably experienced building inspector to confirm founding conditions meet the requirements of NZS3604:2011 "Good Ground".



SHALLOW SOIL TESTING REPORT LANDTECH CONSULTING LIMITED 28 OCTOBER 2022

4.0 Limitations

This shallow soil testing report has been prepared for our client, Gould Developments Limited. This report shall not be extrapolated for other nearby sites or used for any other purposes without the express approval of LandTech and their client.

This report has been based on the results of tests at point locations; therefore, subsurface conditions could vary away from the assumed geotechnical model. Should exposed soil conditions vary from those described herein we request to be informed to determine the continued applicability of our recommendations. We have attempted to conduct a thorough investigation of soil types across the site, within the agreed scope of works. However, variations still may exist as soils can vary naturally and due to previous human activities, which LandTech have no control over and should not be held accountable for.

The geotechnical investigation was confined to geotechnical aspects of the site only and did not involve the assessment for environmental contaminants. In addition, our investigation and analyses have also not taken into account possible fault rupture that may cause deformations and displacements of the ground directly below the site. This type of assessment is outside of the scope of our geotechnical engagement.

If you have any queries regarding this report, please contact the undersigned at your convenience.

Yours faithfully, LandTech Consulting Limited

Prepared By:

Kristen Bullen – Engineering Geologist BSc (Geology)

Authorised By:

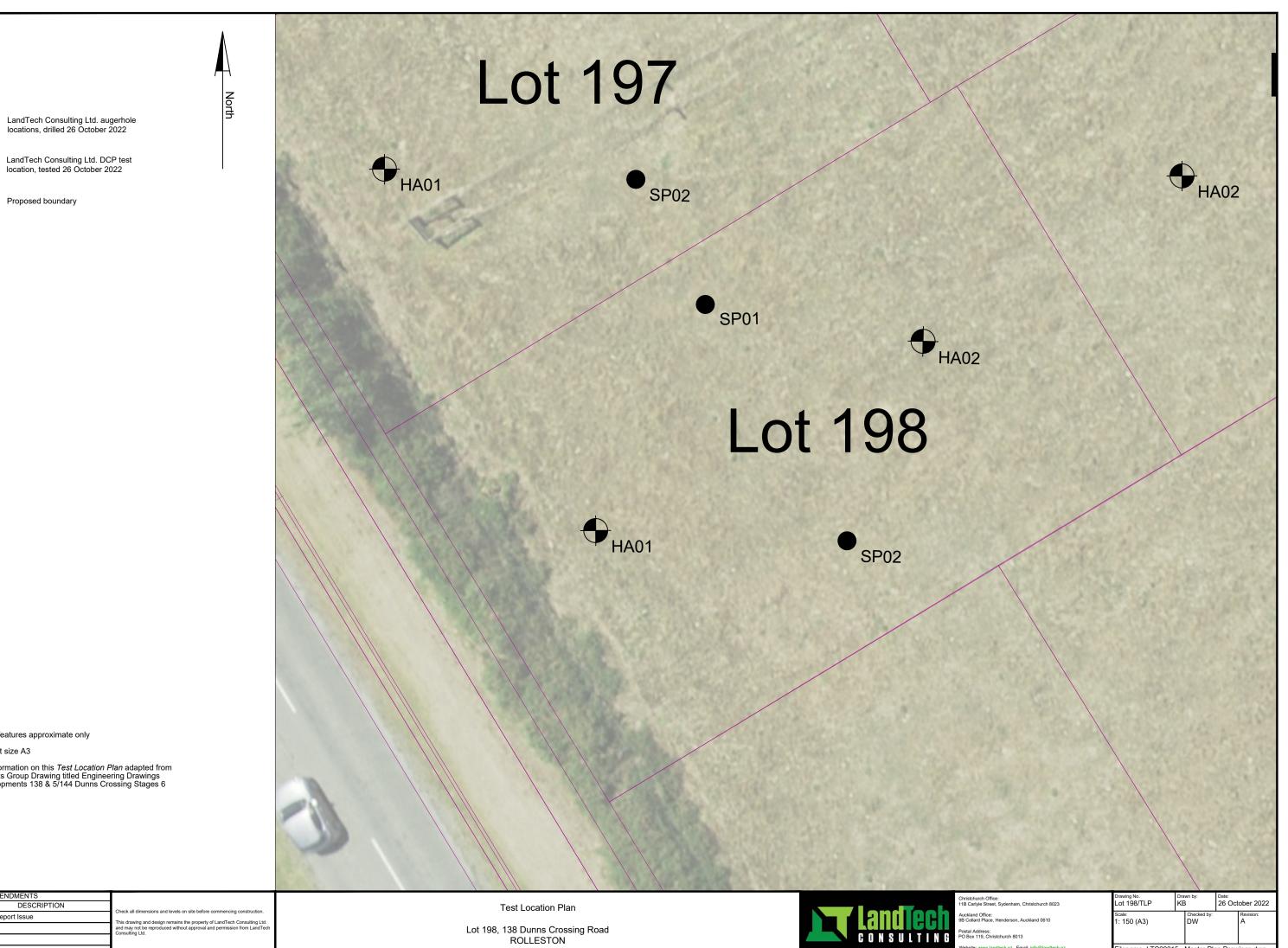
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Dwayne Wilson - Director CMEngNZ, CPEng, IntPE(NZ)

Attachments: Test Location Plan Test Results

SHALLOW SOIL TESTING REPORT LANDTECH CONSULTING LIMITED 28 OCTOBER 2022





NOTES:

KEY:

• SP01

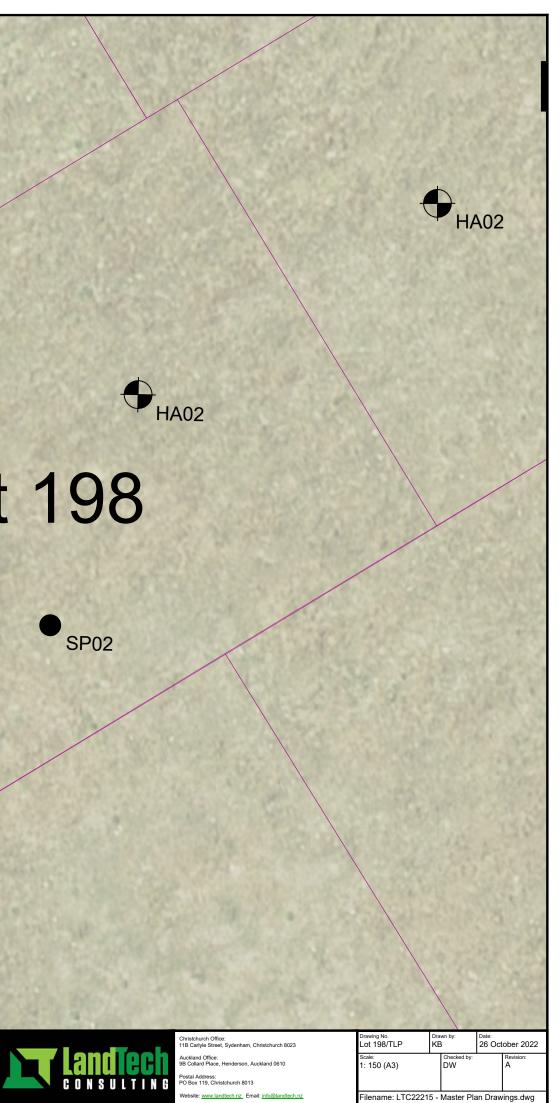
Proposed boundary

Locations of features approximate only

Original sheet size A3

Boundary information on this *Test Location Plan* adapted from Patterson Pitts Group Drawing titled Engineering Drawings Gould Developments 138 & 5/144 Dunns Crossing Stages 6 & 7

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