

# Lot 180 - Canterbury Estate Stage 7 Jackass Flat

Geotechnical Investigation for  
Arbor Estates

Report 19C 0454 (Lot 180)  
October 2019

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## Geotechnical Investigation for Arbor Estates

### Revision

| Revision           | Date    | Authorised |
|--------------------|---------|------------|
| 19C 0454 (Lot 180) | 8/10/19 | BAB        |

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## 1 INTRODUCTION

Arbor Estates commissioned Geotechnical Testing Services (GTS) to conduct a geotechnical investigation for the proposed development at Lot 180, Canterbury Estate Stage 7, Jackass Flat.

The investigation has been conducted for the purpose of assessing general subsurface conditions at the site and consequently assigning a Site Classification in accordance with *AS2870 – 2011 Residential Slabs and Footings*.

## 2 INVESTIGATION

The investigation was conducted on the 6<sup>th</sup> August 2019 using a trailer mounted drill rig to drill 2 boreholes to depths of 1.5 to 3.0 metres within the designated area. The subsequent soil profiles are presented on page 4 and the location of the boreholes is presented on page 5.

At the time of this investigation, the type of development proposed is understood by GTS to be a new residential building. If the actual construction varies from this then changes may be necessary to this classification report.

## 3 SITE CONDITIONS

The site has been cut and filled under controlled conditions (supervised and tested by GTS) to form a relatively flat surface and is currently vacant. At the time of the investigation, the surface of the site was dry with no grass cover. There were no trees near the site. There was visual evidence of surface rock as reef outcrop near the site but no visual evidence of surface cracking. No groundwater seepage was encountered over the investigated depths.

Full details of the soil conditions are presented in the borehole logs.

## 4 SITE CLASSIFICATION

After allowing due consideration to the site geology, soil conditions, drainage, vegetation, the controlled fill (GTS Report 17C 0651) and known details of the proposed structure, the site has been classified as **Class M-D** (*AS2870 – 2011*).

Foundations designed in accordance with this classification are to be subject to the overriding conditions of Section 5 below.

## 5 DISCUSSION

Particular attention should be paid to the design of footings as required by *AS2870 – 2011*.

In addition to the normal founding requirements arising from the above classification, particular conditions at the site dictate that the founding medium and minimum depth below existing surface levels for all footings should be as follows:

- Controlled FILL: Gravelly Silty CLAY, medium plasticity, pale brown, brown, very stiff, fine to medium gravel  
At depth below 0.0 metres in the region of BH1 & BH2

An allowable bearing pressure of 100kPa is available for edge beams, strips and stump footings founded as above. All foundations should extend a minimum of 100mm into the above foundation material.

The proposed development should be located a minimum distance of 1 x the mature height of all trees. This distance should be increased by 50% for groups or lines of trees. If this distance is impeded, then the size and distance from the development of the tree(s) needs to be taken into account when designing the foundation.

## 6 IMPORTANT NOTES ABOUT THIS REPORT

- The site classification presented in Section 4 assumes that the current natural drainage and infiltration conditions at the site will not be markedly affected by the proposed site development work. Care should therefore be taken to ensure that surface water is not permitted to collect adjacent to the structure and that significant changes to seasonal soil moisture equilibria do not develop as a result of service trench construction or tree root action.
- Attention is drawn to Appendix B of AS2870 and CSIRO document *BTF 18 – Foundation Maintenance and Footing Performance: A Homeowner's Guide* as a guide to maintenance requirement for the proposed structure.
- This is not a comprehensive investigation nor is it economic or practical to determine every subsurface feature on the site. Although this investigation indicates

that soil conditions are relatively uniform across the site, it is recommended that the base of all footing excavations be inspected to ensure that the founding medium meets that requirements referenced herein with respect to type and strength of founding materials. If further variations in descriptions in soil types, colour or depths are discovered during construction, this office should be notified immediately so that potential influence on the footings may be assessed.

- The soil colours provided in the borehole logs attached may vary with soil moisture content and individual interpretation, therefore colour alone should not be used to identify these soils.
- Strength characteristics of soils often exhibit a large variation between wet and dry conditions. Soil characteristics of a soil profile are given on the soil conditions at the time of the investigation.
- In the event of significant earthworks being undertaken on the site after this investigation, this report may require an amendment if appropriate.

Should you have any further queries concerning these results, please do not hesitate to contact GTS on 03 5441 4881.



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**Geotechnical Engineer – Ballarat District Manager**

## BOREHOLE LOGS

|          |                                                     |                  |                       |
|----------|-----------------------------------------------------|------------------|-----------------------|
| Client:  | Arbor Estates                                       | Borehole log no: | 1-2                   |
|          |                                                     | Report number:   | 19C 0454<br>(Lot 180) |
|          |                                                     | Date drilled:    | 6/08/19               |
| Project: | Canterbury Estate Stage 7 - Lot 180<br>Jackass Flat | Logged by:       | BT                    |
|          |                                                     | Drilling method: | AS                    |

| Profile (mm):  | * Structure: (see key) | Material Description:                                                                         | Moisture Description: | Cohesion Density: | Plasticity:     | Testing / Sampling: |
|----------------|------------------------|-----------------------------------------------------------------------------------------------|-----------------------|-------------------|-----------------|---------------------|
| 0<br>To<br>500 | Controlled FILL        | <b>BH1</b><br>Gravelly Silty CLAY<br>Pale brown, brown,<br>fine to medium gravel              | M                     | VSt               | Medium          |                     |
| To<br>1800     | Soil profile           | Silty CLAY<br>Brown, pale brown, trace fine sand                                              | M                     | VSt               | Medium          |                     |
| To<br>3000     |                        | Sandy Gravelly CLAY<br>Brown, reddish brown,<br>fine to coarse sand,<br>fine to medium gravel | M                     | St                | Low -<br>medium |                     |
| 0<br>To<br>700 | Controlled FILL        | <b>BH2</b><br>Gravelly Silty CLAY<br>Pale brown, brown,<br>fine to medium gravel              | M                     | VSt               | Medium          |                     |
| To<br>1500     | Soil profile           | Silty CLAY<br>Brown, some fine to medium sand,<br>some fine to medium gravel                  | M                     | VSt               | Medium          |                     |

### Key

| Drilling Method     | Moisture Condition | Cohesion         | Density           | Testing/Sampling                  |
|---------------------|--------------------|------------------|-------------------|-----------------------------------|
| AS – auger screwing | D – dry            | VS – very soft   | VL – vey loose    | PP – pocket penetrometer          |
| HA – hand auger     | M – moist          | S – soft         | L – loose         | V – hand vane sheer               |
|                     | W – wet            | F – firm         | MD – medium dense | DCP – dynamic cone penetrometer   |
|                     |                    | St – stiff       | D – dense         | SPT – standard penetration test   |
|                     |                    | VSt – very stiff | VD – very dense   | US – undisturbed sampling         |
|                     |                    | H – hard         |                   | DS – disturbed sampling           |
|                     |                    | VH – very hard   |                   | * see notes on bore location page |

