Lot 192 - Canterbury Estate Stage 7
Jackass Flat

Geotechnical Investigation for

Arbor Estates

Report 19C 0454 (Lot 192)
October 2019

GTS
GEOTECHNICAL TESTING SERVICES

Lot 192 - Canterbury Estate Stage 7
Jackass Flat

Geotechnical Investigation
for
Arbor Estates

Revision

Revision	Date	Authorised
19C 0454 (Lot 192)	8/10/19	BAB

Distribution (this version only)

Recipient	Format	Date
GTS	On file	8/10/19
Arbor Estates	Email PDF	8/10/19

PO Box 13,
Strathdale VIC 3550
Fax 03 5441 5089
Email info@gts.com.au

Bendigo Laboratory
Gate 7, Sharon St,
Flora Hill VIC 3550
Phone 03 5441 4881

Echuca Laboratory
Shed 3, 140 Ogilvie Ave,
Echuca VIC 3565
Phone 03 5480 0601

Ballarat Laboratory
Unit 6, 33 Laidlaw Dr,
Delacombe VIC 3356
Phone 03 5335 6494

1 INTRODUCTION

Arbor Estates commissioned Geotechnical Testing Services (GTS) to conduct a geotechnical investigation for the proposed development at Lot 192, 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 26th September 2019 using a trailer mounted drill rig to drill 2 boreholes to depths of 1.0 to 1.5 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 is relatively flat 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 and known details of the proposed structure, the site has been classified as **Class S** (*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:

- Silty CLAY, medium plasticity, brown, pale brown, stiff to very stiff
  At depth below 0.1 to 0.15 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.

- If FILL is found during this investigation, it is an indication of what was found during the investigation and it may vary over the site. It may be in the best interest of the buyer/seller to undertake a more detailed investigation, in this instance.

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

Benj Beatty BA/BSc (Hons), MPA
Geotechnical Engineer – Ballarat District Manager

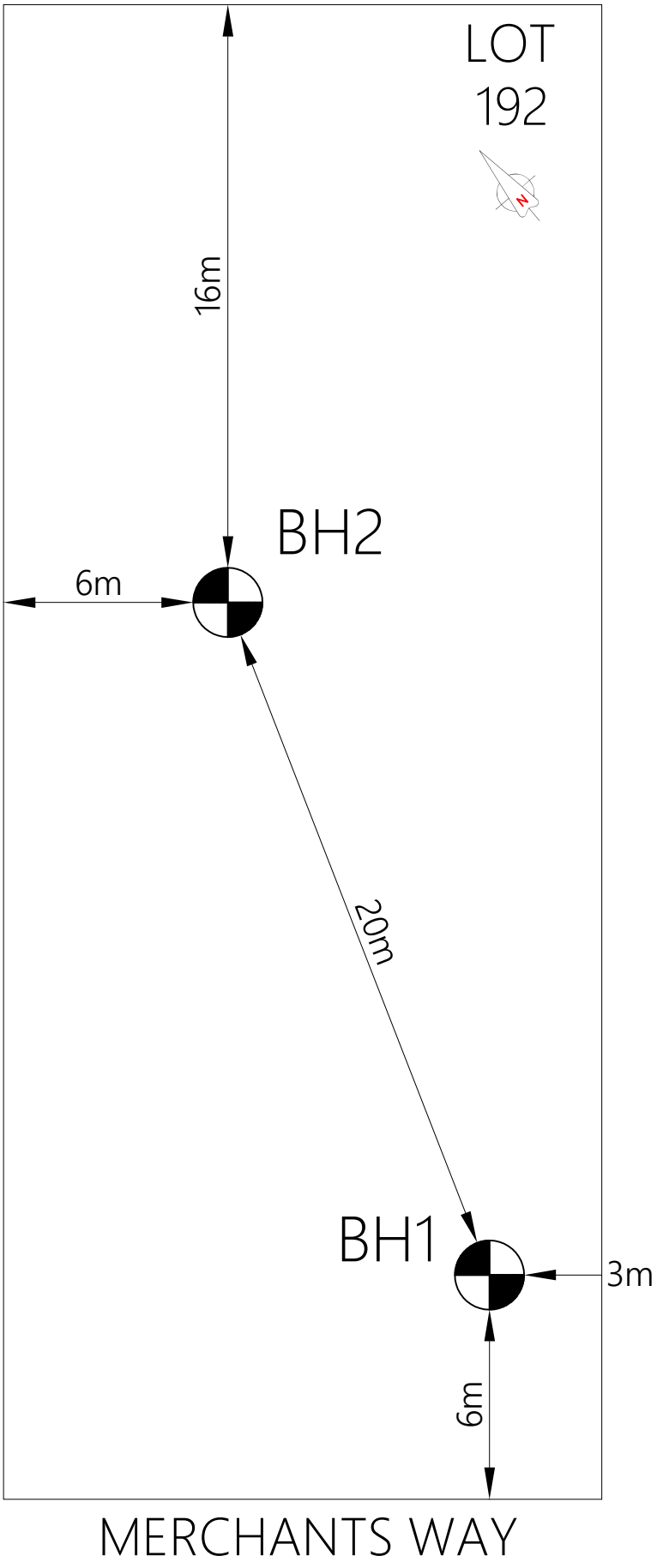
BOREHOLE LOGS

Client:	Arbor Estates	Borehole log no:	1-2
		Report number:	19C 0454 (Lot 192)
		Date drilled:	26/09/19
Project:	Canterbury Estate Stage 7 - Lot 192 Jackass Flat	Logged by:	TP
		Drilling method:	AS

Profile (mm):	* Structure: (see key)	Material Description:	Moisture Description:	Cohesion Density:	Plasticity:	Testing / Sampling:
0 To 150	FILL	**BH1** Gravelly Silty CLAY Brown, fine to medium gravel	M	St	Medium	
To 400	Soil profile	Silty CLAY Brown	M	VSt	Medium	
To 800		Gravelly Silty CLAY Brown, fine to medium gravel	M	VSt	Medium	
To 1000	Rock	SILTSTONE Extremely weathered, pale brown	D	Hard	-	Refusal @ 1.0m
0 To 100	FILL	**BH2** Sandy SILT Dark brown	M	L	-	
To 600	Soil profile	Silty CLAY Brown, pale brown	M	St	Medium	
To 1500	Rock	SILTSTONE Extremely weathered, off white, pale brown	M	Soft rock	-	

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



GTS GEOTECHNICAL TESTING SERVICES

GEOTECHNICAL INVESTIGATION

APPROXIMATE LOCATIONS
NOT TO SCALE

CLIENT: ARBOR ESTATES
PROJECT: CANTERBURY ESTATE STAGE 7
JACKASS FLAT

GTS REF: 19C 0454 (Lot 192)
CLIENT REF:

DRAWN BY: BAB
DATE: 8 OCTOBER 2019