ABN 31 105 704 078 13 Brock Street, Thomastown Victoria 3074 (P) +61 3 9464 4617 (F) +61 3 9464 4618



# GEOTECHNICAL SITE CLASSIFICATION LOT 129 FIVE FARMS ESTATE STAGE 1, CLYDE NORTH

Prepared for Frasers Property Australia c/- Beveridge Williams Pty Ltd

Report Reference: G4589.1

Date: 2 February 2022

ABN 31 105 704 078 13 Brock Street, Thomastown Victoria 3074 (P) +61 3 9464 4617 (F) +61 3 9464 4618



## **PROJECT DETAILS**

Project Reference	G4589.1	Rev	BC	
Project Title	Five Farms Estate Stage 1			
Project Location	Clyde North	State	VIC	
Date	2 February 2022			

## **CLIENT DETAILS**

Prepared For (Client)	Frasers Property Australia					
Prepared For (Facilitator)	Beveridge Williams Pty Ltd					
Client Address	Level 9, 484 St Kilda Road	Suburb	Melbourne			

## DISTRIBUTION

Original Held By	Ground Science Pty Ltd			
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One (1) Electronic Copy	Beveridge Williams Pty Ltd			

This document presents the results of the site classification conducted for the aforementioned project and is detailed for the sole use of the intended recipient. Should you have any questions related to this report please do not hesitate to contact the undersigned.

AUTHOR:

CDConully

Chris Connelly Engineering Geologist

**TECHNICAL REVIEW:** 

Gee Singh, MIEAust (NER) Senior Geotechnical Engineer

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#### 1. INTRODUCTION

This report presents the results of the geotechnical site classification investigation carried out by Ground Science at Lot 129, Five Farms Estate Stage 1 located in Clyde North, Victoria (the site). The scope of works detailed herein was commissioned by Beveridge Williams Pty Ltd (the facilitator) on behalf of Frasers Property Australia (the Client).

#### 2. PROJECT BACKGROUND & UNDERSTANDING

The project involved providing geotechnical site classifications for the allotments within Stage 1 of the Five Farms Estate residential development.

The residential development included the construction of building platforms as part of the bulk earthworks phase of the project, which primarily involved site cuts and placement of controlled fill. Controlled fill was placed and compacted to Level 1 procedures in general accordance with AS3798 (2007) 'Guidelines on Earthworks for Residential and Commercial Developments'. A plan showing the approximate areas of fill and field density test locations is shown on Figure 2 in Appendix A. Ground Science were the nominated Geotechnical Inspection and Testing Authority for the Level 1 filling works within this stage of the estate (report reference: GS5860.1 AA dated 29<sup>th</sup> September 2021).

The professional advice provided in this report is based on the information provided at the time of the report preparation and may not be valid if changes are made to the site, the development proposal, or the construction methods. In the event of such changes, further advice should be sought from Ground Science.

#### 3. PROJECT AIMS

The aims of the investigation were as follows:

- To assess the subsurface conditions at the site relevant to the proposed development through a desktop regional geological study;
- To recover soil samples for laboratory analysis (representative soil samples spread across Stage 1);
- To log the soils as per the guidelines presented in AS1726 (2017) 'Geotechnical Site Investigations';
- To classify the site in accordance with AS2870 (2011) 'Residential Slabs and Footings';
- To calculate the characteristic surface movement (Y<sub>S</sub>) for the site;
- To provide advice on allowable bearing pressures and geotechnical parameters for the design of footing systems;
- To provide general construction advice.

#### 4. FIELDWORK

The fieldwork was completed on the 9<sup>th</sup> and 13<sup>th</sup> of December 2021 which involved the drilling of 23 boreholes at the locations shown on Figure 3 in Appendix A. The boreholes were drilled using an ATS or GT10 drilling rig supplied and operated by Ground Science. The boreholes were advanced to a target depth of 2.0m below the surface level.

Details of the subsurface conditions encountered within the boreholes are presented in the engineering borehole logs in Appendix B. The fieldwork was conducted by a geotechnical engineer from Ground Science who located the boreholes, recovered soil samples, operated the drilling rig and prepared the engineering borehole logs. The laboratory testing was undertaken in Ground Science's NATA accredited laboratory in Thomastown, Victoria.



#### 5. RESULTS

#### 5.1 REGIONAL GEOLOGICAL CONDITIONS

An understanding of the regional geological conditions was undertaken through the review of the Geological Survey maps of Victoria, which indicates the site to be underlain by Miocene to Pliocene aged 'Red Bluff Sandstone' deposits, with Pleistocene to Holocene aged alluvial deposits indicated to exist to the west and south/west. This assessment excludes any fill or foreign material, with controlled (engineered) fill noted to have been placed on the allotments. The regional geological conditions are presented in Figure 2:



Figure 2: Regional Geological Conditions

#### 5.2 SURFACE CONDITIONS

The site is located south-west of Pound Road and south of Hardys Road and situated north and east of existing greenfields that are yet to be developed. At the time of our investigation, the site was observed to be generally flat with poor to fair drainage conditions noted. The surface of the allotments was dry and generally comprised barren soil. The site was generally trafficable to a 4WD mounted drilling rig with occasional large soil stockpiles noted across the site. No trees were observed to be located within close proximity to the building envelopes.

#### 5.3 SUBSURFACE CONDITIONS

The subsurface soil profile encountered during the field investigation is considered to be generally consistent with our expectations of the site. The subsurface soils generally comprised controlled fill (Sandy CLAY (CL-CH), low to high plasticity, brown mottled orange/grey/red, stiff to very stiff and moist, approximately equal to the Plastic Limit) overlying natural occurring inferred alluvial deposits (comprising Silty SAND (SM), fine to coarse grained, grey, loose to medium dense and moist) or inferred 'Red Bluff Sandstone' residual soils (comprising Silty/Sandy CLAY (CI-CH), medium to high plasticity, grey mottled orange/brown or brown mottled orange/grey red, stiff to very stiff and moist, approximately equal to the Plastic Limit).

As observed during the Level 1 filling phase, controlled fill generally present within all allotments in the site (refer to Figure 2 in Appendix A).

#### 5.4 GROUNDWATER

Groundwater was not encountered during the borehole drilling. The Visualising Victoria's Groundwater dataset indicates the regional groundwater table to exist at a depth of less than 5.0m below surface level. During wet



seasons or following torrential rainfalls, there is a possibility for a perched water table to develop in the area. This should be carefully considered during the construction stage, especially when footing excavations are left exposed or prior to topsoil application.

#### 5.5 LABORATORY TESTING

Representative soil samples of natural clay soils and controlled fill materials were collected from nominated borehole locations for Shrink/Swell Index tests and Atterberg Limits tests. It is considered the soil samples generally represent the soil conditions at the time of testing. Laboratory test reports are presented in Appendix C and a summary of the laboratory test results are present in Table 1:

Sample #	Borehole	Depth (m)	Soil Unit	Liquid Limit (%)	Plasticity Index (%)	Shrink Swell Index Iss (%)
S1	BH2	0.5 - 1.0	Fill	-	-	1.1
S2	BH6	1.0 - 1.4	Natural	-	-	4.0
S3	BH9	1.0 - 1.3	Natural	-	-	3.5
S4	BH13	0.5 - 0.75	Fill	34	22	-
S5	BH16	0.5 - 0.9	Fill	-	-	3.2
<b>S</b> 7	BH20	1.0 - 1.5	Fill	38	20	-

#### Table 1: Laboratory Test Results Summary

The laboratory test results indicate the fill to comprise low to medium plasticity material, with a Shrink/Swell Index of 1.1%. The naturally occurring materials recorded Shrink/Swell values ranging between 3.5% and 4.0%.



#### 6. DISCUSSION & RECOMMENDATIONS

#### 6.1 PRELIMINARY AS2870-2011 SITE CLASSIFICATION

The site has been classified in general accordance with the guidelines presented in AS2870-2011 'Residential Slabs and Footings'.

The following site characteristics were adopted in the site classification assessment:

#### **Table 2: Site Characteristics**

Climatic Zone	2 (Figure D1 of AS2870-2011)
Soil Profile Group	Predominantly Group 3 (Table D1 of AS2870-2011) or Controlled Fill
Depth of Soil Suction Change (Hs)	1.8m

Based on the results of the geotechnical investigation, the geological setting and the guidelines presented in AS2870-2011, the site has been classified as **Class H1**, with an assessed characteristic surface movement ( $y_s$ ) of between 40mm and 60mm.

According to the Building Code of Australia (BCA), the above classification is only applicable for building Class 1 to 10a. For other building types/loads, this classification should only be used as a guide.

It is recommended that precautions be taken to control moisture variations within the founding soils given the variable reactivity of subsurface soils, as follows:

- Restrict tree planting in the vicinity of the building. AS2870-2011 advises that trees be planted no closer to the building than a distance equal to 1.0 times their mature height on Class H1 sites. This distance should be increased where rows or groups of trees are involved;
- Provide paving to the edge of the building to limit soil moisture variations due to seasonal wetting and drying. The paved surface should be graded away from the building such that run-off drains away, and water cannot pond against the building;
- Service trenches, particularly plumbing and drainage, should be avoided beneath buildings. Where
  service trenches are to pass beneath or close to the building, they should be backfilled with a low
  permeability material, such as compacted clay, to prevent the ingress of water. The use of porous backfill
  materials should be avoided;
- Any leaking or damaged underground services should be repaired promptly; and
- During construction, footing excavations should not be left exposed to the weather for extended periods. Water should not be allowed to pond in these areas, nor should it be left unprotected to dry and crack in the sun.

#### 6.2 FOOTING DESIGN

#### Shallow/Spread Footings

It is considered that shallow footings suitably embedded within the controlled fill or naturally occurring sols may adopt an allowable bearing pressure of 100kPa, under stiff/medium dense (or better) and dry to damp conditions.

#### **Deep Footings**

Where deep footings such as bored piers are adopted, the footings shall be found 4 times the diameter of the pier foundation from the nominal ground level, and the below parameters may be adopted.

Allowable End Bearing Capacity (stiff/medium dense or better clay/sand): 200kPa



Allowable Skin Friction (stiff/medium dense or better clay/sand):

15kPa

No skin friction shall be adopted for downloads in fill soils or soils within 1200mm of surface level, however, are applicable for uplift load due to soil swelling. Alternatively, screw piles mat be considered and the loss of ground support due to soil shrinkage may be considered as  $0.5 \times H_{S}$  (1.8m) for this site during the design.

It should be noted that construction during wet/winter periods may experience a reduced bearing pressure, particularly if left exposed for periods of time. Where required, a reassessment of the applicable bearing pressures may be undertaken. Footings should not be founded within any fill, unless the fill has been placed as controlled fill in accordance with AS3798 (2007) 'Guidelines for Earthworks on Residential and Commercial Developments' if applicable.

#### 7. GENERAL RECOMMENDATIONS

#### 7.1 FOOTINGS

- It is recommended that all footing excavations be inspected by a geotechnical engineer from this office to confirm that the founding conditions are consistent with design recommendations. The footing size and the founding level may need to be adjusted if the required founding material is not encountered at the design founding level.
- To reduce soil moisture variations near the footings, the builder should compact clean soil (without rubble or organic matter) around the footings to reduce potential water ingress around the footings.
- To reduce, but not eliminate, the possibility of damage to the footing, tree planting should be restricted as indicated earlier in this report.
- Good drainage is important to footing performance. The Builder should prevent water accumulation near the building footings (even during construction). It is recommended that sufficient ground clearance be created to accommodate paving which slopes a minimum of 1:20 away from the building. This slope should be achieved by excavation and not by building up loose fill around the footings.
- The roof water should be diverted away from the footing as soon as the roof is constructed by using temporary pipes, if necessary. The surface water should also be provided by constructing surface gutters or grading the surface to divert the water away from the footing.
- During wet conditions, machinery traffic may disturb the subgrade soils and should be avoided in the area of the building
- Any proposed footings which are close to an easement, underground service trenches, and/or other excavations, (including those in adjoining properties) should be founded below a line projected up at 45° to the horizontal (for firm/stiff Clay) and measured from the nearest base of the easement excavations.
- Avoid excavations close to footings since those founded on sandy soils can experience settlements while those founded in clayey soils can also move due to the shrinking and swelling of the clay. Plumbers and drainers should follow all the recommendations made in AS 2870-2011 and other appropriate codes with respect to drainage works.
- Protection of the footing system from moisture ingress or moisture loss after construction is the responsibility of the homeowner.

#### 7.2 DRAINAGE DESIGN REQUIREMENTS (AS2870-2011)

• It should be noted that the building and site drainage design, as well as height of the floor level above the finished ground level, may be affected by factors other than structural design requirements, such as below:



- Run-off water and influence of local topography;
- Possibility of flooding;
- Effects of existing and post-construction landscaping;
- Level of the legal point of stormwater discharge;
- Plumbing and drainage requirements;
- Minimum height from finished ground level to the damp-proof course level;
- Termite management.
- Surface drainage shall be designed and constructed to avoid water ponding against or near the footing. The
  ground in the immediate vicinity of the perimeter footing, including the ground uphill from the slab on cut and fill
  sites shall be graded to fall 50mm minimum away from the footing over 1m and shaped to prevent ponding of
  water. Where the filling is placed adjacent to the building, the filling shall be compacted and graded to ensure
  drainage of water away from the building. The requirements of Clause 5.2.2 of AS2870 (2011) shall be applied
  to reduce the possibility of surface water entering living areas. Alternative drainage systems will be required on
  zero lot line construction. Any paving shall also be suitably sloped.
- The site classification as stated in this report shall be stated on any construction drawings. The selected footing system and any required site work and required site drainage shall be documented.

#### 7.3 SUBGRADE PREPARATION

- The subgrade should be stripped of all topsoil and soils containing significant organic matter.
- The exposed subgrade surface should be presented in a suitably moist condition and test rolled with several passes of an 8-10 tonne smooth drum roller. Any soft spots identified during test rolling should be removed by excavation and replaced with well-compacted suitable fill.
- Under no circumstances should any additional fill contain a significant amount of organic matter or be a mixture
  of greatly different particle sizes; e.g. it should not be a mixture of rock and soil, although less than 10% rock
  may be permitted.
- It is important that any fill be compacted close to its optimum moisture content during compaction.
- The compaction method and equipment should suit the fill material used and its degree of compaction should be tested and/or inspected by a suitably accredited NATA laboratory to meet the requirements of AS 3798-2007 "Guidelines on earthworks for commercial and residential developments".

#### 8. DISCLOSURE

This document is detailed for the sole use of the intended recipient(s) or its authorized representatives. Distribution of this report may be carried out at the Clients discretion and must be reproduced in full. Should you have any questions related to this report please do not hesitate to contact this office.

AUTHOR:

CDConully

Chris Connelly Engineering Geologist

**TECHNICAL REVIEW:** 

Gee Singh, MIEAust (NER) Senior Geotechnical Engineer



#### 9. LIMITATIONS

The advice provided in this document (as per our commission) is not designed or capable of identifying all soil conditions, (which can vary with products chosen). The advice given in this document is based on the assumption that the test results are representative of the overall soil conditions. However, it should be noted that actual conditions in some parts of the site might differ from those found. If further sampling/ testing reveals soil characteristics significantly different from those shown in our findings, Ground Science must be consulted.

The scope and the period of Ground Science services are described in the document and are subject to restrictions and limitations. Ground Science did not perform a complete assessment of all possible conditions or circumstances that may exist. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Ground Science in regards to it.

Where data has been supplied by the client or a third party, it is assumed that the information is correct unless otherwise stated. No responsibility is accepted by Ground Science for incomplete or inaccurate data supplied by others.

It is recognized that the passage of time affects the information and assessment provided in this document. Ground Science's assessment is based on information that existed at the time of the preparation of this document. It is understood that the services provided allowed Ground Science to form no more than an opinion of the actual site conditions observed during sampling and observations of the site visit and cannot be used to assess the effects of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.

Any drawings or figures presented in this report should be considered only as pictorial evidence of our work. Therefore, unless otherwise stated, any dimensions should not be used for accurate calculations or dimensioning.

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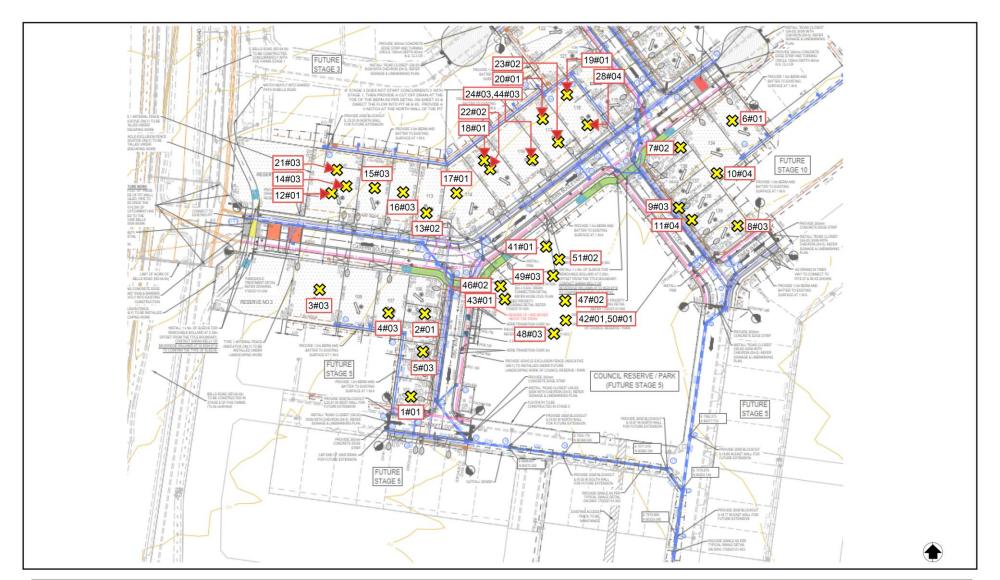


#### 10. REFERENCES

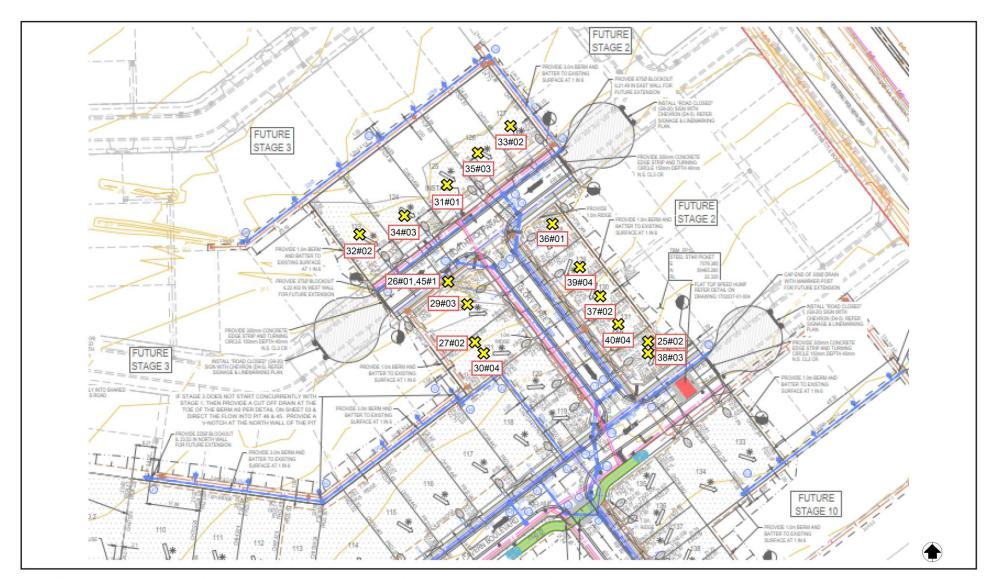
- Geological maps, Geological Survey of Victoria.
- AS2870 2011 Residential Slabs and Footings.
- AS3798 2007 Guidelines on Earthworks for Residential and Commercial Developments.
- AS1289 Testing of Soils for Engineering Purposes.
- AS1726 2017 Geotechnical Site Investigations.

## APPENDIX A

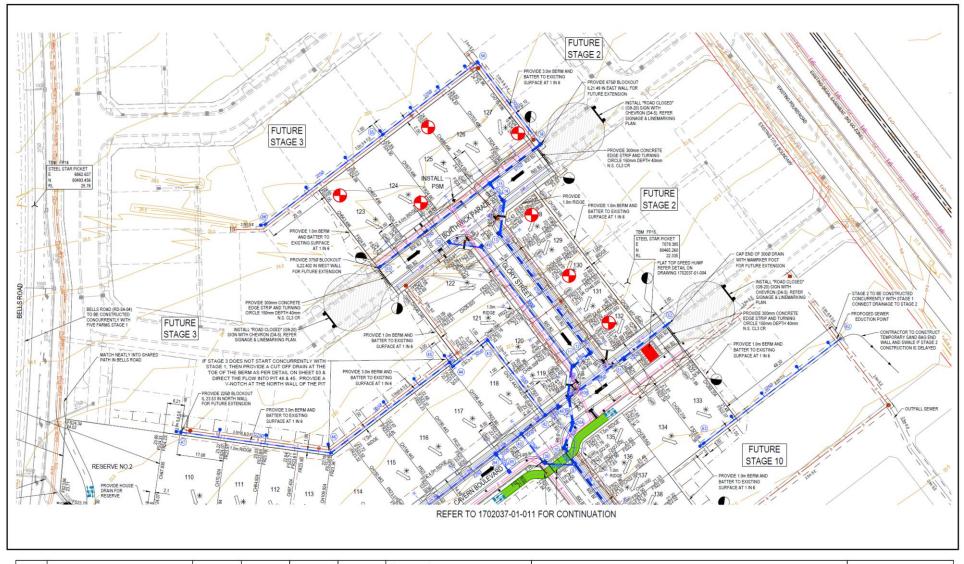
Site & Test Location Plans



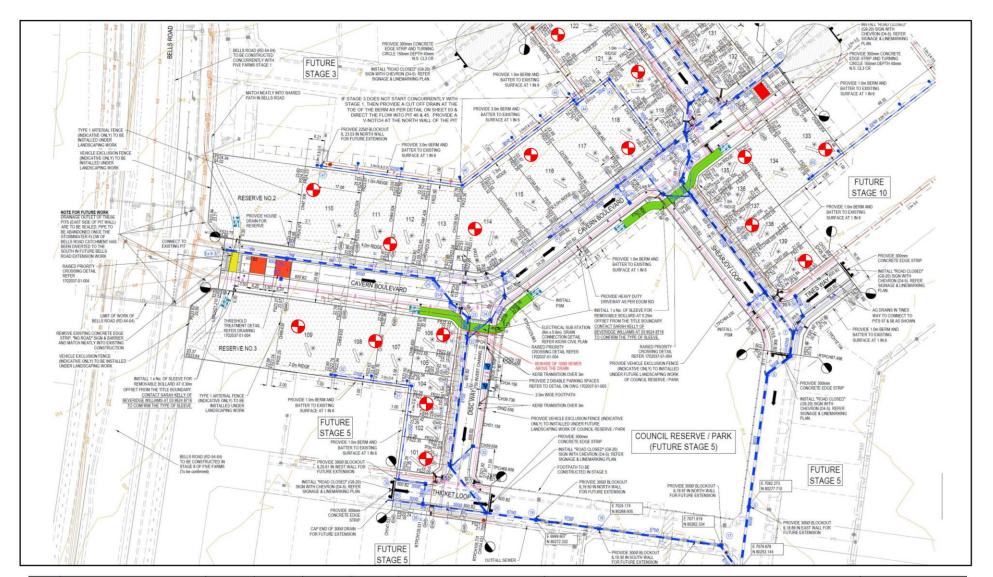
Rev		Drawn	Date	Checked	Scale	Legend	FIVE FARMS - STAGE 1	
						Density Test Location		
						(#Layer number)	CLYDE NORTH (LEVEL 1)	
							Prepared For: Frasers Property Australia	
0	Figure 1: Density Test Locations	AM	21/09/2021	GS	NTS		Job No: GS5860.1 AA	GroundScience



Rev		Drawn	Date	Checked	Scale	Legend	FIVE FARMS - STAGE 1	
						Density Test Location		
						(#Layer number)	CLYDE NORTH (LEVEL 1)	
			6					
							Prepared For: Frasers Property Australia	- 10.1
0	Figure 2: Density Test Locations	AM	21/09/2021	GS	NTS		Job No: GS5860.1 AA	GroundScience



Rev		Drawn	Date	Checked	Scale	Legend		
						Proposed Borehole Location	STAGE 1 PROPOSED BOREHOLE LOCATIONS	
						Thoposed Dorenoie Location	FIVE FARMS ESTATE, CLYDE NORTH	
							Prepared For: Frasers Property Australia	- 10.1
0	Figure 1 of 2: Proposed Boreholes	CC	13.09.21		NTS	$\mathbf{\Psi}$	Job No: G4589.1	GroundScience



Rev		Drawn	Date	Checked	Scale	Legend		
						Proposed Borehole Location	STAGE 1 PROPOSED BOREHOLE LOCATIONS	
							FIVE FARMS ESTATE, CLYDE NORTH	
							Prepared For: Frasers Property Australia	- 10.1
0	Figure 2 of 2: Proposed Boreholes	CC	13.09.21		NTS	$\square$	Job No: G4589.1	<b>Ground</b> Science

## APPENDIX B

Borehole Log Sheets

Grou	undScience	ENGINEERING BOREHOLE LOG	Borehole	No	BH1	
			JOB No :		G4589.1	
	rty Group Pty Ltd tate Site Classification - Stage 1		TEST DAT		09-Dec-21 JSP	
LOCATION: Clyde North TEST LOCATION: Refer to site pl	an, Appendix A		CHECKED		CC N/A	
DRILL METHOD: GT10 Drill Ri HOLE DIAMETER: 100mm	g	EASTING: ND NORTHING: ND	INCLINAT		90° ND	
DRILLING	SAMPLING	FIELD MATERIAL DESCRIPTION				
C PENERTRATION C RESISTANCE WATER DEPTH (metres) DEPTH (RL)	SAMPLE OR FIELD TEST RECOVERED GRAPHIC LOG USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
0.0		FILL: sitly SAND, fine to medium grained, angular to subangular, pale brown, low plasticity sitl, trace rootlets FILL: sandy CLAY, medium to high plasticity, brown mottled orange/grey, fine to coarse grained, angular to subangular	L St - VSt	M w≈PL	Controlled Fill	
0.05 0.5 0.5 0.5 0.50 0.75 0.75 1.70 1.70	CH	PLU: sandy CLAY, medium to high plasticity, brown motified orange/grey, the to coarse grained, angular to subangular sand, with silt brown, trace gravel silly CLAY, medium to high plasticity, brown motified orange/grey/red, with sand sandy CLAY, high plasticity, brown motified orange/grey/red, with sand	VSt	W = PL	Inferred Red Bluff Sandistone Residual Soil	
20 20 20 20 20 20 20 20 20 20 20 20 20 2	CONSISTENCY Vs Very Soft S Soft F Firm St Stiff H Hard	DENSITY       MOISTURE CONDITION       TEST NOTES         Fb       Friable       D       Dry       PP       Pocket Penetrom         VL       Very Loose       M       Moist       U50       Undisturbed Sam         VL       Very Loose       M       Moist       U50       Undisturbed Sam         D       Dense       w ≈ PL Moist, dry of plastic limit       D       Disturbed Sam         VD       Very Dense       w ≈ PL Moist, wet of plastic limit       E       Environmental se         VD       Very Dense       w ≈ LL Wet, near plastic limit       E       Environmental se         VD       Very Dense       w ≈ LL Wet, wet of flauid limit       HSV       Hand Shear Van         w > LL Wet, wet of flauid limit       W SVL Wet, wet of flauid limit       HSV       Hand Shear Van	iple 50mm iple 63mm e imple e test	ו	Groundwater Level UTP Unable to Penetrate	

U			Gro	oundSo	cien	)CE		ENGINEERING BOREHOLE LOO	G	Borehole JOB No :		BH2 G4589.1	3 1 19	
CLIENT: PROJECT: LOCATION: TEST LOCAT		F	Five Farms E Clyde North	perty Group Pty Ltd Estate Site Classifica plan, Appendix A		je 1				TEST DAT LOGGED CHECKED VANE SHI	BY: D BY:	09-Dec-21 JSP CC N/A		
DRILL METH	HOD:		GT10 Drill R 100mm					EASTING: ND NORTHING: ND		INCLINAT	TION:	90° ND		
		LLING		SAMPLIN	NG	F	_	FIELD MATERIAL DESCR			1	Т		
L PENERTRATION C RESISTANCE	4 WATER		DEPTH (RL)	SAMPLE OR FIELD TEST		GRAPHIC LOG		SOIL / ROCK MATERIAL DESCRIPTION		CONSISTENCY DENSITY	MOISTURE		ITIONAL OBSERVATIONS	3
	Ī	0.0					SM	FILL: silly SAND, fine to medium grained, angular to subangular, pale brown, low plasticity silt, trace roc	iotiets	L	M		Controlled Fill	
		0.5	0.30				CI-CH	FILL: sandy CLAY, medium to high plasticity, brown mottled orange/grey, fine to coarse grained, angula sand, with silt, trace gravel	ar to subangular	St - VSt	w ≈ PL	-		
							~~~~~							
		1.0	1.10				СН	sandy CLAY, medium to high plasticity, brown mottled orange/grey/red, fine to coarse grained, angular sand, with silt, trace gravel	r to subangular	VSt		Inferred Red	l Bluff Sandstone Residual Soil	
		1.5				NAXXXXXXXX								
	Not Encountered					XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX								
		2.0	2.00					Borehole Terminated @ 2m						
		2.5												
		3.0												
		3.5	-											-
PENETRATIC		3 4 1	5	CONSISTENCY Vs F St VSt H	Very Soft Firm Stiff Very Hard	n y Stiff		VL         Very Loose         M         Moist         U50         Un           L         Loose         W         Wet         U63         Un           MD         Medium Dense         w < PL Moist, dry of plastic limit	ocket Penetrome Indisturbed Samp Indisturbed Sample isturbed Sample ulk Sample nvironmental sar	ple 50mm ple 63mm e mple	n		roundwater Level nable to Penetrate	
		refi _6.0 2019	efusal					w ≈ LL Wet, near liquid limit HSV Ha	and Shear Vane	e test	1		Sheet 1 of 1	1

				Gro	undSc	ien	Ce		ENGIN	EERING BOREHO	LE LOG	Borehole	No	BH3	
								,				JOB No :		G4589.1	
CLIENT: PROJEC					perty Group Pty Ltd Estate Site Classificat	tion - Stag	e 1					TEST DAT		09-Dec-21 JSP	
LOCATIO TEST LO		DN:		Clyde North Refer to site p	plan, Appendix A							CHECKEE		CC N/A	
DRILL M HOLE D				GT10 Drill F 100mm	Rig				EASTING: ND NORTHING: ND			INCLINAT		90° ND	
		DRILL	ING		SAMPLIN	G	F			FIELD M	IATERIAL DESCRIPTION				
2 PENERTRATION	5 RESISTANCE	WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL		SOIL / ROCK MATERIAL DESCRIPTION		CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	s
	Τ	Π	0.0			T			FILL: sandy CLAY, medium to high pl sand, with silt, trace gravel	lasticity, brown mottled orange/grey, fine to coar	rse grained, angular to subangular	St - VSt	-	Controlled Fill	
			-												
			-												-
			-												
			0.5												
				0.65	1		**** •••••		silty SAND, fine to coarse grained, ar	ngular to subangular, grey, low plasticity silt		VSt	w ≈ PL		┦┨
			-											Soil	
			-	0.85			<b>KXX</b>		sandy CLAY, medium to high plasticit with silt	ty, brown mottled orange/grey, fine to coarse gra	ained, angular to subangular sand,	St - VSt			
			1.0												-
			-												-
			-	1.20			XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	СН	silty CLAY, high plasticity, orange mo	ttled red/grey/brown, with sand, trace gravel		VSt			
			-												
			1.5												
		pe	-												-
		Not Encountered	-												
		Not En	-	1.80					sandy CLAY, high plasticity, orange n trace gravel	mottled red/grey/brown, fine to coarse grained, a	angular to subangular sand, with silt,	1			-
	+		2.0	2.00		+			Borehole Terminated @ 2m						+-
			-												
			_												_
			-												
			2.5												_
			-												
			_												
			-												-
			3.0												-
			-												
			-												
			-												=
PENETR	ATION		3.5		CONSISTENCY				DENSITY	MOISTURE CONDITION	TEST NOTES			<u> </u>	
		1 2	3 4		Vs S	Very Soft	Soft		Fb Friable VL Very Loose	D Dry M Moist	PP Pocket Penetron U50 Undisturbed San			Groundwater Level UTP Unable to Penetrate	
	$\geq$	5			F	Firm Stiff			L Loose MD Medium Dense	W Wet w < PL Moist, dry of plastic limit	U63 Undisturbed San D Disturbed Sampl	nple 63mm			
	no resis	stence			VSt H	Very Hard			D Dense VD Very Dense	w ≈ PL Moist, near plastic limit w > PL Moist, wet of plastic limit	Bs Bulk Sample E Environmental sa				
			refu	usal		, ard			vory bonad	w ≈ LL Wet, near liquid limit w > LL Wet, wet of liquid limit	HSV Hand Shear Van Cu Undrained Shea	e test			
<u> </u>	HAM L	.OG 6.	.0 2019		L				I	n - ce wor, wer of inquira infilt	Sa Shuraineu Shea	Juongen		Sheet 1 of 1	1

Gro	undScience	ENGINEERING BOREHOLE LOG	Borehole	No	BH4	
			JOB No :		G4589.1	
	perty Group Pty Ltd Estate Site Classification - Stage 1		TEST DA		09-Dec-21 JSP	
LOCATION: Clyde North			CHECKE VANE SH	D BY:	CC N/A	
DRILL METHOD: GT10 Drill HOLE DIAMETER: 100mm		EASTING: ND NORTHING: ND	INCLINA	FION:	90° ND	
DRILLING	SAMPLING	FIELD MATERIAL DESCRIPTION	1	1	1	
C C PENERTRATION C RESISTANCE WATER WATER DEPTH (RL) DEPTH (RL)	SAMPLE OR FIELD TEST RECOVERED GRAPHIC LOG USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
0.0 -		FILL: silty SAND, fine to medium grained, angular to subangular, pale brown, low plasticity silt, with clay, trace rootlets	L	M	Controlled Fill	_
0.10 0.5 0.5 0.5 0.90 10 1.20 1.20 1.5 1.50		FIL: sandy CLAY, medium to high plasticity, brown motified orange/grey, fine to coarse grained, angular to subangular sand, with silt, trace rootlets CLAY, high plasticity, dark grey motified orange/brown, trace sand CLAY, high plasticity, dark grey motified orange/brown, trace sand pale grey motified orange/brown, with sand	VSt	w ≈ PL w > PL w ≈ PL	Inferred Red Bluff Sandstone Residual Soil	
20 2.00	CONSISTENCY Vs Very Soft S Soft F Firm St Stiff VSt Very Stiff H Hard	Borehole Terminated @ 2m         MOISTURE CONDITION         TEST NOTES           Fb         Friable         D         Dry         PP         Pocket Penetro           VL         Very Loose         M         Moist         U50         Undisturbed Sa           L         Loose         W         Vet         U63         Undisturbed Sa           D         Dense         w < PL Moist, near plastic limit	nple 50mr nple 63mr le ample ne test	n	✓ Groundwater Level UTP Unable to Penetrate	

			Gro	oundSci	ier	166	Ş	ENGINEERING BOREHOLE LOG	Borehole	No	BH5	
Y									JOB No :		G4589.1	
CLIENT: PROJECT:				operty Group Pty Ltd Estate Site Classification	tion - Star	ae 1			TEST DA		09-Dec-21 JSP	
LOCATION: TEST LOCAT		C	Clyde North						CHECKE VANE SH	D BY:	CC N/A	
DRILL METH HOLE DIAME	HOD:		GT10 Drill F 100mm			_		EASTING: ND NORTHING: ND	INCLINAT	TION:	90° ND	
	DRILL	LING			;	F		FIELD MATERIAL DESCRIPTION		1		$\square$
C PENERTRATION C RESISTANCE	4 WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
		0.0	0.05		T		SM CI-CH	FILL: sity SAND, fine to medium grained, angular to subangular, pale brown, with day, trace rootlets FILL: sandy CLAY, medium to high plasticity, brown mottled orange/grey, fine to coarse grained, angular to subangular sand, with sit	L	M tw≈PL	Controlled Fill	
		0.5	-								-	
			0.65				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	FILL: silly CLAY, medium to high plasticity, brown mottled orange/grey/ted/white, with sand, trace gravel	VSt			
		1.0	- - - - - - -					silly CLAY, high plasticity, orange mottled grey/brown, with sand	_		Inferred Red Bluff Sandstone Residual Soil	
		1.5	- - - 1.50					sandy CLAY, high plasticity, orange mottled grey/brown, fine to coarse grained, angular to subangular sand, with silt	_			
	Not Encountered		-			ĨŶŶŶŶŶŶŶŶŶŶŶŶ						-
		2.0	2.00		$\left  \right $	2724		Borehole Terminated @ 2m				-
		2.5										-
			-									-
		3.0	-									-
												-
PENETRATIC	JON	3.5	<u> </u>	CONSISTENCY	Van		_	DENSITY MOISTURE CONDITION TEST NOTES			Groundwater Level	
no re	1 2	<u>`</u>	√ efusal	Vs S F St VSt H	Very Soft Firm Stiff Very Hard	n y Stiff		Fb         Friable         D         Dry         PP         Pocket Penetro           VL         Very Loose         M         Moist         U50         Undisturbed Sa           L         Loose         W         Wet         UG3         Undisturbed Sa           MD         Medium Dense         w < PL Moist, dry of plastic limit	ample 50mr ample 63mr ple sample	m	Groundwater Level UTP Unable to Penetrate	
HAN	M_LOG_6					—		w > LL Wet, wet of liquid limit Cu Undrained She		1	Sheet 1 of 1	

1			Ga	oundS	cier	100	_	ENGINEERING BOREHOLE LOG	Borehole	No	BH6	
Y				June	Con		7		JOB No :		G4589.1	
CLIENT: PROJECT	r:			Property Group Pty Lto ns Estate Site Classifi		ge 1			TEST DAT		09-Dec-21 JSP	
LOCATIO		:	Clyde Nor						CHECKER VANE SH		CC N/A	
DRILL ME	THOD:		GT10 D 100mm	Irill Rig				EASTING: ND NORTHING: ND	INCLINAT	TION:	90° ND	
		RILLIN		SAMPL	ING	F		FIELD MATERIAL DESCRIPTION	1	1	1	_
C PENERTRATION C RESISTANCE	3 4	WATER	DEPTH (metres) DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
	$\overline{\prod}$	0.0		1	Ŧ		CI-CH	FIL: sity SAND, fine to medium grained, angular to subangular, pale brown, low plasticity sit, with clay, trace rootlets FIL: sandy CLAY, medium to high plasticity, brown mottled orangeigrey, fine to coarse grained, angular to subangular sand, with sit	L	M tw≈PL	Controlled Fill	
			-				8	sano, wm sir				=
							8					
			]									
		0.5	5 _ 0.50	7			8	FILL: silty CLAY, medium to high plasticity, brown mottled orange/grey/red	VSt			-
			1									
			0.70	7			÷	silty SAND, fine to coarse grained, angular to subangular, grey, low plasticity silt	L - MD	М	Inferred Alluvial Deposits	-
			0.90	<u>_</u>				silty CLAY, high plasticity, brown mottled orange/grey, fine to coarse grained, angular to subangular sand, with silt	VSt	w≈ PL	Inferred Red Bluff Sandstone Residual	=
		1.0		S2	U50						Soil	H
			4									_
			1.30	/		***	W.W.W.	sandy CLAY, high plasticity, brown motified orange/grey, fine to coarse grained, angular to subangular sand, with silt	1			
					$\top$	***	W					Ē
		1.5				10 A A A A A A A A A A A A A A A A A A A						
	- I - I	ntered	1			10	N. N					-
		Not Encountered	]									
	2	Not	]									
	Ħ	2.0	0 _ 2.00	r	+	- <b>8</b> 22	╞	Borehole Terminated @ 2m				-
			]									
			-									-
												=
		2.5	5									_
			-									-
			_									
			1									
		3.0	-									
			1									
			_									
			1									
			1									
Ш		3.5	5			L						-
PENETRA				CONSISTENCY Vs	Very	y Soft		DENSITY         MOISTURE CONDITION         TEST NOTES           Fb         Friable         D         Dry         PP         Pocket Penetron			Groundwater Level	
	:: →□	2 3	4	S F	Soft Firm			VL Very Loose M Moist U50 Undisturbed San L Loose W Wet U63 Undisturbed San			UTP Unable to Penetrate	
		7	4	St	Stiff			MD Medium Dense w < PL Moist, dry of plastic limit D Disturbed Sampl				
n	o resisten	nce		VSt H	Very Hard	y Stiff d		D         Dense         w ≈ PL Moist, near plastic limit         Bs         Bulk Sample           VD         Very Dense         w > PL Moist, wet of plastic limit         E         Environmental st	ample			
			refusal					w ≈ LL Wet, near liquid limit HSV Hand Shear Van w > LL Wet, wet of liquid limit Cu Undrained Shea	e test			
F	AM_LOG	G 6.02	2019			—	—	W > LE Wet, wet of liquid limit	orengen		Sheet 1 of 1	

1				Gro	undSa	ier	ICE	è	ENGINEER	ING BOREHOL	LE LOG	Borehole	No	BH7	
								·				JOB No :		G4589.1	
CLIENT: PROJECT		-			perty Group Pty Ltd Estate Site Classificati	tion - Star	ge 1					TEST DAT		09-Dec-21 JSP	
LOCATIO TEST LO		)N:		yde North efer to site p	plan, Appendix A							CHECKEE		CC N/A	
DRILL ME HOLE DI				GT10 Drill F 100mm	Rig				EASTING: ND NORTHING: ND			INCLINAT		90° ND	
		DRILLI	NG			3	$\vdash$			FIELD MA	ATERIAL DESCRIPTION	 T			
C PENERTRATION	4 RESISTANCE	WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / R	ROCK MATERIAL DESCRIPTION		CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	\$
	T		0.0	0.05		T		CI-CH	FILL: silty SAND, fine to medium grained, angula FILL: sandy CLAY, medium to high plasticity, bro sand, with silt	ar to subangular, pale brown, low plast wn mottled orange/grey, fine to coars	ticity silt, with clay, trace gravel se grained, angular to subangular	L	M tw≈PL	Controlled Fill	
			_												
			-												
			0.5	0.50				a i	FILL: silty CLAY, medium to high plasticity, brow	n mottled orange/grey/red		VSt			
			1	0.70			**** ***	SM	silty SAND, fine to coarse grained, angular to sul	bangular, grey, low plasticity silt		L - MD	м	Inferred Alluvial Deposits	
			1	0.80	1			СН	silty CLAY, high plasticity, brown mottled orange	/grey, with sand		VSt	w ≈ PL	Inferred Red Bluff Sandstone Residual Soil	
			1.0		1										
			-		1										
			-		1										
			-		1										
			1.5												
		red	+	1.60			1X/ 1922 1922		sandy CLAY, high plasticity, brown mottled orang	ge/grey, fine to coarse grained, angula	ar to subangular sand, with silt				
		Not Encountered	-		1		\$20 \$20								
		Not F			1		97.00 1922 1922 1922								
	T		2.0	2.00		$\uparrow$			Borehole Terminated @ 2m						1
			-		1										
			-		1										=
			-		1										
			2.5		1										
			_		1										
					1										
			3.0		1										-
					1										
			_												=
			-		1										
			3.5												_
PENETR	ATION	_			CONSISTENCY Vs	Very	y Soft	_	DENSITY MOIS Fb Friable D		TEST NOTES PP Pocket Penetrom	neter Test		Groundwater Level	<u> </u>
	₁  >	23	4		S F	Soft Firm			VL Very Loose M L Loose V	M Moist V Wet	U50 Undisturbed Sam U63 Undisturbed Sam			UTP Unable to Penetrate	
	no resist	tence			St VSt	Stiff Very	y Stiff			PL Moist, dry of plastic limit PL Moist, near plastic limit	D Disturbed Sample Bs Bulk Sample	e			
	io reala	ence	refus	sal	н	Hard	ł		W ≈	PL Moist, wet of plastic limit LL Wet, near liquid limit	E Environmental sa HSV Hand Shear Van				
	HAM L	.OG_6.0	0 2019		L				w >	LL Wet, wet of liquid limit	Cu Undrained Shear	Strength		Sheet 1 of 1	1

			Gro	undSci	ier	CE		ENGINE	ERING BOREHOL	LE LOG	Borehole	No	BH8	
Y							,				JOB No :		G4589.1	
CLIENT: PROJECT:				perty Group Pty Ltd Estate Site Classification	ion - Staç	ae 1					TEST DAT		09-Dec-21 JSP	
LOCATION: TEST LOCATIO	ON:	C	Clyde North		-	-					CHECKER VANE SH		CC N/A	
DRILL METHO	ID:		GT10 Drill F					EASTING: ND NORTHING: ND			INCLINAT	TION:	90° ND	
	DRILL		Tuuhim	SAMPLING	;		_		FIELD M/	ATERIAL DESCRIPTION	SURFAC	: KL:		
c PENERTRATION c RESISTANCE 4	WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	S	SOIL / ROCK MATERIAL DESCRIPTION		CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	;
	-	0.0			Ť		SM	FILL: silty SAND, fine to medium grained,	, angular to subangular, pale greybrown, low	v plasticity silt, with clay, trace gravel		М	Controlled Fill	
			0.20					silly SAND, fine to coarse grained, angula	ar to subangular sand, pale grey-brown, trace	ie day	L - MD		Inferred Inferred Alluvial Deposits	
		0.5	0.85				СН	silty CLAY, high plasticity, brown mottled	• Investment of the sound		VSt	w≈PL		
			0.05				G	sifty CLAY, high prasticity, prown mouree o	brange/grey, with sand		VGL	W~r	Inferred Red Bluff Sandstone Residual Soil	
		1.0	1.30					sandy CLAY, high plasticity, brown mottle	sd orangelgrey, fine to coarse grained, angul	lar to subangular sand, with silt	-			
	Not Encountered	1.5				XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX								
	1	2.0	2.00		+	2744		Borehole Terminated @ 2m						<u>†</u>
		25												
PENETRATIO	4	3.5		CONSISTENCY				DENSITY	MOISTURE CONDITION	TEST NOTES				
no resi	1 2	ref	fusal	Vs S F St VSt H	Very Soft Firm Stiff Very Hard	Stiff		Fb Friable VL Very Loose L Loose MD Medium Dense D Dense VD Very Dense	D Dry M Moist W Vet w < PL Moist, dry of plastic limit w ≈ PL Moist, wet of plastic limit w > PL Moist, wet of plastic limit w > LL Wet, near liquid limit w > LL Wet, wet of liquid limit	PP Pocket Penetrom U50 Undisturbed Sam U63 Undisturbed Sam D Disturbed Sample Bs Bulk Sample E Environmental sa HSV Hand Shear Vane Cu Undrained Shear	nple 50mn nple 63mn e ample e test	n	Groundwater Level UTP Unable to Penetrate	1

			Gro	undSa	ien	ce		ENGINEERING BOREHOLE LOG	Borehole	No	BH9	
Y									JOB No :		G4589.1	
CLIENT: PROJECT:				erty Group Pty Ltd Estate Site Classificati	on - Stag	e 1			TEST DA	BY:	09-Dec-21 JSP	
LOCATION: TEST LOCAT	10N:		Clyde North Refer to site	plan, Appendix A					CHECKE VANE SH		CC N/A	
DRILL METH HOLE DIAME			GT10 Drill 100mm	Rig				EASTING: ND Northing: ND	INCLINA SURFAC		90° ND	
	DRIL	LING	I		;	$\square$		FIELD MATERIAL DESCRIPTION	1	1	1	
C PENERTRATION C RESISTANCE	4 WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	<b>USC SYMBOL</b>	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
	Ì	0.0	-		Ť		CI-CH	ILL: sandy CLAY, medium to high plasticity, orange-yellow mottled grey, fine to coarse grained, angular to subangula and, with silt		w ≈ PL	. Controlled Fill	-
		-	0.30				SM	silly SAND, fine to coarse grained, angular to subangular sand, pale grey-brown, trace clay	L - MD	M	Inferred Inferred Alluvial Deposits	-
							•	ny orana ana ana ang ang ana ang ang ang ang	-			
		0.5	-									
		-					011		VO	DI UNITE DI	Information and District Operations Desidered	_
			0.80				СН	Silly CLAY, high plasticity, brown mottled orange/grey, with sand	VSt	w≈PL	Inferred Red Bluff Sandstone Residual Soil	=
		1.0		\$3	U50							
												=
		-										_
			1									
		1.5	1.40					andy CLAY, high plasticity, brown mottled orange/grey, fine to coarse grained, angular to subangular sand, with silt				_
	Not Encountered											_
	lot Enco											-
			-			9922 9922						
		2.0	2.00					Sorehole Terminated @ 2m				-
		_	-									
												-
			-									-
		2.5										
												-
		-										-
			]									
		3.0										-
			-									-
		-	-									
			1									-
		3.5										-
PENETRATIC	DN			CONSISTENCY Vs	Very	Soft		Density         MOISTURE CONDITION         TEST NOTES           Fb         Friable         D         Dry         PP         Pocket Penetro	meter Test		Groundwater Level	
⊳	1 2	34		S F	Soft Firm			VL         Very Loose         M         Moist         U50         Undisturbed St           L         Loose         W         Wet         U63         Undisturbed St	mple 50mr	n	UTP Unable to Penetrate	
		<u> </u>	4	St VSt	Stiff Very			MD Medium Dense w < PL Moist, dry of plastic limit D Disturbed Sam D Dense w ≈ PL Moist, near plastic limit Bs Bulk Sample				
no re	sistence			H	Hard			D         Dense         W = PL Molst, heat plastic timit         Ds         Duck sample           VD         Very Dense         w > PL Molst, wet of plastic limit         E         Environmental           w = LL Wet, near liquid limit         HSV         Hand Shear Va				
НАМ	LOG	r 6.0 2019	efusal					w = LL Wet, near induid limit HSV Hand Shear VE w > LL Wet, wet of liquid limit Cu Undrained She		1	Sheet 1 of 1	

			Gro	undSci	ier	ICE	è	ENGINEERING BOREHOLE LOG	Borehole	No	BH10	
7									JOB No :	:	G4589.1	
CLIENT: PROJECT:			Five Farms E	perty Group Pty Ltd Estate Site Classification	ion - Stag	je 1			TEST DA	BY:	09-Dec-21 JSP	
LOCATION: TEST LOCA	ATION:			plan, Appendix A					CHECKE VANE SH	IEAR:	CC N/A	
DRILL METH	IETER:		GT10 Drill F 100mm	-				EASTING: ND NORTHING: ND	INCLINAT SURFAC		90° ND	
	DRIL	LLING	$\square$		, T	┢		FIELD MATERIAL DESCRIPTION	<b>—</b>			-
C PENERTRATION C RESISTANCE	4 WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
	T	0.0			T			FILL: sandy CLAY, medium to high plasticity, orange-yellow mottled grey, fine to coarse grained, angular to subangula		w≈PL	Controlled Fill	
			0.20				1	silly SAND, fine to coarse grained, angular to subangular sand, pale grey-brown, trace clay	L - MD	M	Inferred Inferred Alluvial Deposits	
		-										=
		0.5	1									
		-	0.70				СН	silty CLAY, high plasticity, brown mottled orange, with sand	VSt	w ≈ PL	Inferred Red Bluff Sandstone Residual	-
								ng an 1) ng para 1, .			Soil	
		-										=
		1.0										
		-										-
		-	1									-
			1.40					sandy CLAY, high plasticity, brown mottled orange/grey, fine to coarse grained, angular to subangular sand, with silt	-			
		1.5				\$%X \$%X						-
	per	-	1									=
	Not Encountered		1			9922 9922						-
	Not E	-	1									=
	$\vdash$	2.0	2.00		+	\$*** \$***		Borehole Terminated @ 2m	+	$\left  - \right $		$\vdash$
		-										-
		_	1									_
		2.5	1									_
		£.~~										-
												_
			1									-
			1									-
		3.0	]									
		-	1									-
		-	4									-
		-	1									
		3.5		CONCIETENCY								-
PENETRATI		3 4		Vs	Very			DENSITY         MOISTURE CONDITION         TEST NOTES           Fb         Friable         D         Dry         PP         Pocket Penetry           U//         Viscul across         N         Next         USE         Use Use Use Use Use Use Use Use Use Use			Groundwater Level UTP Unable to Penetrate	
P		.,		S F	Soft Firm		ľ	VL Very Loose M Moist U50 Undisturbed Sa L Loose W Wet U63 Undisturbed Sa	ample 63mr		UTP Unable to Penetrate	
no r	resistence	ļĿ	5	St VSt	Stiff Very	Stiff	ļ	MD         Medium Dense         w < PL Moist, dry of plastic limit         D         Disturbed Sam           D         Dense         w ≈ PL Moist, near plastic limit         Bs         Bulk Sample				
			efusal	н	Hard		ļ	VD Very Dense w > PL Moist, wet of plastic limit E Environmental w ≈ LL Wet, near liquid limit HSV Hand Shear Va	ane test			
1AH	M LOG	6.0 2019	]			—		w > LL Wet, wet of liquid limit Cu Undrained She	ar Strength	1	Sheet 1 of 1	

			(	Gro	undSc	ien	ICE	•	ENGINEERING BOREHOLE LOG	Borehole	No	BH11	
Y		/								JOB No :		G4589.1	
CLIENT: PROJECT	r:		Five	ve Farms Es	erty Group Pty Ltd Estate Site Classificati	tion - Stag	je 1			TEST DAT		09-Dec-21 JSP	
LOCATION TEST LOC		N:		yde North efer to site pl	plan, Appendix A					CHECKED		CC N/A	
DRILL ME HOLE DIA	METER	R:	1(	GT10 Drill R	-					INCLINAT SURFACE		90° ND	
_		DRILLI	١G	-+		;	$\vdash$		FIELD MATERIAL DESCRIPTION				
C PENERTRATION C RESISTANCE	3 4	WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
	Π	_	0.0			Ť		CI-CH	FILL: sandy CLAY, medium to high plasticity, orange motified grey/brown, fine to coarse grained, angular to subangular		w≈PL	Controlled Fill	
			-		1								-
			1		1								
			-	0.35				SM	silly SAND, fine to coarse grained, angular to subangular sand, pale grey-brown, trace day	L - MD	м	Inferred Inferred Alluvial Deposits	_
			0.5		1								-
			-										_
			-		1								_
			1	0.90	1			СН	silly CLAY, high plasticity, brown mottled orange, with sand	VSt	w ≈ PL	Inferred Red Bluff Sandstone Residual	
			1.0									Soil	_
			1										
			-	1.20	1				sandy CLAY, high plasticity, brown motiled orange/grey, fine to coarse grained, angular to subangular sand, with silt				_
			-		1								-
			1.5		1		***						_
		pe	-										_
		Not Encountered			1							.	_
		Not En	-										_
	Щ	1	2.0	2.00		+	8888 8888		Borehole Terminated @ 2m				_
			]		1								_
			4									.	_
			-		1								_
			2.5										_
			-		1								-
			_		1								_
			-										_
					1								-
		1	3.0		1								-
			-										_
			-										-
			-		1								-
PENETRA		:	3.5	$\rightarrow$	CONSISTENCY		Ш		DENSITY MOISTURE CONDITION TEST NOTES				_
PENEIKA		2 3	4		Vs S	Very Soft			Fb Friable D Dry PP Pocket Penetrom VL Very Loose M Moist U50 Undisturbed Sam			Groundwater Level UTP Unable to Penetrate	-
ſ	⇒⊓		,		F	Firm		ľ	L Loose W Wet U63 Undisturbed Sam	ple 63mm			
m	o resiste	ence			St VSt	Very	Stiff	ľ	MD         Medium Dense         w < PL Moist, dry of plastic limit         D         Disturbed Sample           D         Dense         w ≈ PL Moist, near plastic limit         Bs         Bulk Sample				
			refusi	al	н	Hard		ľ	VD Very Dense w > PL Moist, wet of plastic limit E Environmental sa w ≈ LL Wet, near liquid limit HSV Hand Shear Vane	e test			
н	AM_LO	OG 6.0	2019		<u> </u>	—	—		w > LL Wet, wet of liquid limit Cu Undrained Shear	Strength		Sheet 1 of 1	_

Grc	ound Science	ENGINEERING BOREHOLE LOG	Borehole	No	BH12
			JOB No :		G4589.1
	operty Group Pty Ltd s Estate Site Classification - Stage 1		TEST DAT		09-Dec-21 JSP
LOCATION: Clyde North			CHECKED	D BY:	CC N/A
DRILL METHOD: GT10 Drill HOLE DIAMETER: 100mm			INCLINAT	TION:	90° ND
DRILLING	SAMPLING	FIELD MATERIAL DESCRIPTION		T	1
DEPTH (RU) DEPTH (RU)	SAMPLE OR FIELD TEST RECOVERED GRAPHIC LOG USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS
	SM	H FILL: sandy CLAY, medium to high plasticity, brown mottled orange/grey, fine to coarse grained, angular to subangular	L	≥ M tw≈PL	Controlled Fill
0.05 0.05 0.90 1.0 1.0 1.0 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.30 1.3		sand, with silt	VSt	₩ ≈ rL	Inferred Red Bluff Sandstone Residual Sol
25 25 25 30 30 4 7 7 7 7 7 7 7 7 7 7 7 7 7	CONSISTENCY Vs Very Soft S Soft F Firm St Stiff VSt Very Stiff H Hard	Density         MOISTURE CONDITION         TEST NOTES           Fb         Friable         D         Dry         PP         Pocket Penetrom           VL         Very Loose         M         Moist         U50         Undisturbed Sample           L         Loose         W         Wet         U63         Undisturbed Sample           D         Dense         w ~ PL Moist, ear plastic limit         D         Disturbed Sample           VD         Very Dense         w ~ PL Moist, mear ligatid limit         E         Erroronmental sa           w = LL Wet, near ligatid limit         HSV         Hand Shear Vane         w ~ LL Wet, vet of ligatid limit         HSV	nple 50mm nple 63mm e ample e test	n	Groundwater Level UTP Unable to Penetrate

			Gro	oundSci	ien	CE		ENGINEERING BOREHOLE LOG	Borehole	No	BH13	
Y							P		JOB No :		G4589.1	
CLIENT: PROJECT:				perty Group Pty Ltd Estate Site Classificatio	on - Stag	je 1			TEST DA		13-Dec-21 JSP	
LOCATION TEST LOCA			Clyde North						CHECKEI VANE SH		CC N/A	
DRILL MET HOLE DIAN			ATS Drill R 100mm	lig				EASTING: ND NORTHING: ND	INCLINAT		90° ND	
		ILLING		SAMPLING	1	$\square$		FIELD MATERIAL DESCRIPTION	<u>т</u>		I	
c PENERTRATION c RESISTANCE	4 ATAN	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
		0.0	0.05		Ť			FIL: sity SAND, fine to medium grained, angular to subangular, pale brown, low plasticity sitt, with clay, trace rootlets FIL: sandy CLAY, medium to high plasticity, brown motified orange/grey, fine to coarse grained, angular to subangular	L	M tw≈PL	Controlled Fill	-
			-					sand, with silt, trace gravel				
		-	-									
		0.5	-	S4	U63							
		0			000							
			-									
			]									
			- 0.05								deve disferred Allusial Danasite	
		1.0	0.95				SM	silty SAND, fine to coarse grained, angular to subangular, grey, low plasticity silt, trace clay	L - MD	М	Inferred Inferred Alluvial Deposits	
		-	1.20	1		\$\$2 \$\$2	СН	sandy CLAY, high plasticity, brown mottled orange/grey/red, fine to coarse grained, angular to subangular sand, with silt trace gravel	VSt	w ≈ PL	Inferred Red Bluff Sandstone Residual Soil	_
			-			¥22						
			-			9920 9920						-
		1.5	]			112 112						
	tered											-
	Not Encountered											
	Not F	-				770 1970 1970						
	Н	2.0	2.00		–	<b>***</b>	<u> </u>	Borehole Terminated @ 2m				-
			-									
		_	-									
		2.5	-									
			-									-
		-	-									
			-									-
			]									
		3.0	]									
		-										
												=
		3.5	-									-
PENETRAT	ION			CONSISTENCY Vs	Very	Soft		DENSITY         MOISTURE CONDITION         TEST NOTES           Fb         Friable         D         Dry         PP         Packet Penetroi	notor Tost		- Groundwater Level	_
	1 2	3 4	_	s	Soft			VL Very Loose M Moist U50 Undisturbed Sa	mple 50mm	n	UTP Unable to Penetrate	
		L		F St	Firm Stiff			L         Loose         W         Wet         U63         Undisturbed Sai           MD         Medium Dense         w < PL Moist, dry of plastic limit		n		
no	resistenc	æ	ĸ	VSt H	Very Hard			D Dense w ≈ PL Moist, near plastic limit Bs Bulk Sample VD Very Dense w > PL Moist, wet of plastic limit E Environmental s				
			refusal	l "	ridiu			$w \approx LL$ Wet, near liquid limit HSV Hand Shear Var	ne test			
HA	M_LOG	_6.0 201	9	L				w > LL Wet, wet of liquid limit Cu Undrained Shea	r Strength		Sheet 1 of 1	

	<b>Ground</b> Scien	ce	ENGINEERING BOREHOLE LOG	
			JOB No : G4589.1	
	rasers Property Group Pty Ltd ive Farms Estate Site Classification - Stag	ge 1	TEST DATE: 13-Dec-21 LOGGED BY: JSP	
	llyde North Refer to site plan, Appendix A		CHECKED BY: CC VANE SHEAR: N/A	
	ATS Drill Rig 100mm		EASTING:         ND         INCLINATION:         90°           NORTHING:         ND         SURFACE RL:         ND	
DRILLING		$\overline{\Box}$	FIELD MATERIAL DESCRIPTION	
5     PENERTRATION       4     RESISTANCE       WATER     WATER       DEPTH (metres)	DEPTH (RL) SAMPLE OR FIELD TEST RECOVERED	GRAPHIC LOG USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	ERVATIONS
0.0 -			FILL: silly SAND, fine to medium grained, angular to subangular, pale brown, low plasticity silt, with clay, trace rootlets L M Controlled Fill	
0.5 1.5 1.5	0.10	CLCH	FIL: sandy CLAY, medium to high plasticity, brown motified orange/grey/fine to coarse grained, angular to subangular $\left\{ \begin{array}{c} St - VSt \\ w \approx PL \\ sind, with silt, trace gravel \\ \end{array} \right\}$	
20 20 25	2.00		Borehole Terminated @ 2m	
PENETRATION	CONSISTENCY Vs Very S Soft F Firm St Stiff VSt Very H Hard	y Soft	DENSITY         MOISTURE CONDITION         TEST NOTES           Fb         Friable         D         Dry         PP         Pocket Penetrometer Test         ▼         Groundwater           VL         Very Loose         M         Moist         U50         Undisturbed Sample 50mm         UTP         Unable to Pen           L         Loose         W         Wet         U63         Undisturbed Sample 63mm           D         Dense         w ≈ PL Moist, dry of plastic limit         B         Bulk Sample         Fundost, wet of plastic limit           VD         Very Dense         w ≈ PL Moist, wet of plastic limit         E         Environmental sample           v = LL         L/Wet, near liquid limit         HSV         Hand Shear Vane test         Vane test	

Gro	ound Science	ENGINEERING BOREHOLE LOG	Borehole No	。BH15
			JOB No :	G4589.1
	operty Group Pty Ltd Estate Site Classification - Stage 1		TEST DATE	
LOCATION: Clyde North			CHECKED E	BY: CC
DRILL METHOD: ATS Drill HOLE DIAMETER: 100mm		EASTING: ND NORTHING: ND	INCLINATIO SURFACE R	<b>DN:</b> 90°
DRILLING	SAMPLING	FIELD MATERIAL DESCRIPTION	SURPACE IN	
C C C C C C C C C C C C C C C C C	SAMPLE OR FIELD TEST RECOVERED GRAPHIC LOG USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	ADDITIONAL OBSERVATIONS
0.0 -		FILL: silty SAND, fine to coarse grained, angular to subangular, grey, low plasticity silt, with gravel	L - MD	D Controlled Fill -
0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.10 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	CH	sity SAND, fine to coarse grained, angular to subangular, grey, low plasticity sit, trace clay sity CLAY, high plasticity, grey mottled orange/brown, with sand sandy CLAY, medium to high plasticity, brown mottled orange/grey/red, fine to coarse grained, angular to subangular sand, with sit, trace gravel	VSt v	M Interred Inferred Alluvial Deposits w = PL Interred Red Bluff Sandstone Residual Soil
PENETRATION	CONSISTENCY Vs Very Soft S Soft F Firm St Stiff VSt Very Stiff H Hard	Borehole Terminated @ 2m       DENSITY     MOISTURE CONDITION     TEST NOTES       Fb     Friable     D     Dry     PP     Pocket Penetrom       VL     Very Loose     M     Moist     U50     Undisturbed Sample       VL     Very Dense     w ≈ PL Moist, dry of plastic limit     D     Disturbed Sample       VD     Very Dense     w ≈ PL Moist, wet of plastic limit     Bs     Bulk Sample       VD     Very Dense     w ≈ LL Met, wet of flauic limit     HSV     Hand Shear Vant       VD     Very Dense     w ≈ LL Wet, wet of flauic limit     HSV     Hand Shear Vant	ple 50mm ple 63mm e mple e test	Groundwater Level UTP Unable to Penetrate

				Gra	oundSci	ier	166	2	ENGINEERING BOREHOLE LOG	ſ	Borehole	No	BH16	3	
Y	Ī					/w	140	<i>p</i>			JOB No :		G4589.1		
CLIENT: PROJECT:	(;				operty Group Pty Ltd Estate Site Classification	ion - Sta	iae 1				TEST DAT		13-Dec-21 JSP		
LOCATION TEST LOCA	N:	IN:		Clyde North						(	CHECKED	D BY:	CC N/A		
DRILL MET	THOD	D:		ATS Drill R 100mm					EASTING: ND NORTHING: ND		INCLINAT SURFACE	TION:	90° ND		
HULE DIA		ER: DRILL	LING	100/11	SAMPLING	,	T		FIELD MATERIAL DESCRIPTIO		SURFACE	: KL:			
ATION					SAMPLE OR FIELD TEST										
PENERTRATION RESISTANCE		£	DEPTH (metres)	DEPTH (RL)	PLE OR FI	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION		CONSISTENCY DENSITY	MOISTURE	ADDITI	IONAL OBSERVATIONS	)
1 2 3	34	-	0.0	DEP	SAM	REC	GRAF GRAF		FILL: sandy CLAY, low to medium plasticity, brown, fine to coarse grained, angular to subangular sand, with	silt. trace	VSt	SIOM D		ontrolled Fill	
	11		w	0.10	{			SM	FILE: saliny CERT, for to medium presidury, inform, time to coarse grained, enguine to subangular sand, with rootests FILE: silly SAND, fine to coarse grained, angular to subangular, grey, low plasticity silt, with clay		L - MD			Illonder I.	
			_					8							E
			.	0.30	1			CI-CF	FILL: sandy CLAY, medium to high plasticity, brown mottled orange/grey/red, fine to coarse grained, angular subangular sand, with sitt	r to	St - VSt	w≈PL			
								8							
			0.5		S5	U63	3	*							
								222							
			-	-				****							
				-	<u> </u>	+	-	8							
			1.0	-				8							
				4				8							
			_	1.25	4			СН	silly CLAY, high plasficity, grey mottled orange/brown, with sand	$ \rightarrow $	VSt		Informed Red B	luff Sandstone Residual	_
									ani, Aru i niki kasayi i suku unanar su faranci i				hildings	Soil	
			Ļ												
			1.5												
		Itered		1.65	1			XXX	sandy CLAY, high plasticity, brown mottled orange/grey/red, fine to coarse grained, angular to subangular sa trace gravel	and, with silt,					
		Not Encountered		-				X							
		Not		] '			992 992								
	Η		2.0	2.00	<u> </u>	+	- <u>**</u> **	-	Borehole Terminated @ 2m						+-
			-												_
				]											
			2.5	-											_
			6	-											=
				-											
				]											-
															-
			3.0	-											
				-											-
			-												=
				-											
				3 /											-
PENETRAT	TION		3.5		CONSISTENCY	<u> </u>	<u> </u>	<u> </u>	DENSITY MOISTURE CONDITION TEST NOTES						
	1	2	3 4	-	Vs S	Very Soft	y Soft t	-		t Penetrome turbed Samp				undwater Level ble to Penetrate	
	>	5		'	F St	Firm Stiff	n		L Loose W Wet U63 Undistu	turbed Samp bed Sample	ple 63mm				
no	o resiste	tence			VSt	Very	y Stiff		D Dense w ≈ PL Moist, near plastic limit Bs Bulk Sa	Sample					
				refusal	н	Hard	1		w ≈ LL Wet, near liquid limit HSV Hand S	onmental san Shear Vane	test				
H	AM 1	06.6	6.0 2019	9		—	—	—	w > LL Wet, wet of liquid limit Cu Undrain	ined Shear S	Strength			Sheet 1 of 1	1

	Gro	undSci	ien	ce		ENGINE	ERING BOREHO	LE LC	)G	Borehole	No	BH	17	
										JOB No :		G4589.1		
CLIENT: PROJECT:		perty Group Pty Ltd Estate Site Classification	on - Stage	91						TEST DAT		13-Dec-21 JSP		_
LOCATION: TEST LOCATION:	Clyde North Refer to site p	plan, Appendix A								CHECKED		CC N/A		
DRILL METHOD: HOLE DIAMETER:	ATS Drill Ri 100mm					EASTING: ND NORTHING: ND				INCLINAT SURFACE		90° ND		
DRILLING		SAMPLING	$\overline{-}$	F	-		FIELD MJ	IATERIAL DES	SCRIPTION					
C         PENERTRATION           C         PENERTRATION           P         RESISTANCE           P         MATER           DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	s	SOIL / ROCK MATERIAL DESCRIPTION			CONSISTENCY DENSITY	MOISTURE	A	DDITIONAL OBSERVATION:	S
0.0	1		T T	KXXX CI	-CH	FILL: sandy CLAY, medium to high plasti subangular sand, with silt	icity, brown mottled orange/grey/red, fine to c	coarse grained	l, angular to		w≈PL		Controlled Fill	$\top$
Not Encountered						silly CLAY, high plasticity, grey motified or	rangeibrown, with sand			VSt		Interned R	Red Bluff Sandstone Residual Soil	
20	- - - - - -			9922 9922 9922		Borehole Terminated @ 2m								
25														
PENETRATION		CONSISTENCY Vs	Very	Soft	コ	DENSITY Fb Friable	MOISTURE CONDITION D Dry	TEST NOTES PP	s Pocket Penetrom	eter Test		_ <u>_</u> _	Groundwater Level	
1 2 3 4	refusal	S F St VSt H	Soft Firm Stiff Very S Hard	Stiff		VL Very Loose L Loose MD Medium Dense D Dense VD Very Dense	$\label{eq:model} \begin{array}{ll} M & \text{Moist} \\ W & \text{Vet} \\ w < PL \ \text{Moist}, \ dry \ of \ plastic \ limit \\ w \approx PL \ \text{Moist}, \ mear \ plastic \ limit \\ w = LL \ Wet, \ mear \ liquid \ limit \\ w > LL \ Wet, \ wet \ of \ liquid \ limit \\ \end{array}$	U50 U63 D Bs E HSV	Undisturbed Sam Undisturbed Sample Disturbed Sample Bulk Sample Environmental sa Hand Shear Vane Undrained Shear	ple 50mm ple 63mm mple e test	n		Unable to Penetrate	- 1

(				Gro	undSci	ien	ce	<u>b</u>	ENGINEERING BOREHOLE LO	OG	Borehole	No	BH18	
	4										JOB No :		G4589.1	
CLIENT					perty Group Pty Ltd Estate Site Classificati	ion - Stag	ie 1				TEST DAT		13-Dec-21 JSP	
LOCAT		ON:	(	Clyde North							CHECKED	D BY:	CC N/A	
DRILL I	METHO	D:		ATS Drill Ri 100mm					EASTING: ND NORTHING: ND		INCLINAT	FION:	90° ND	
		DRILI	LING		SAMPLING	; —	$\square$	_	FIELD MATERIAL DE					
C PENERTRATION	2 RESISTANCE	WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION		CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVAT	IONS
		Ī	0.0	0.05		İ		CI-CH	FILL: sandy CLAY, medium to high plasticity, brown mottled orange/grey/red, fine to coarse grainer subangular sand, with silt	d, angular to	St - VSt		Controlled Fill	
														]
			-											
			0.5											$\vdash$
			-											
														]
			1.0											
			-											
				1.20					silty SAND, fine to coarse grained, angular to subangular, grey, low plasticity silt, trace clay		L - MD	м	Inferred Inferred Alluvial Depos	iits
			-	1.30				СН	silty CLAY, high plasticity, grey mottled orange/brown, with sand		VSt	w ≈ PL	Inferred Red Bluff Sandstone Res Soil	idual
			1.5		S6	U63								
		ered												
		Not Encountered	-											
		Not F												
+			2.0	2.00		+	<i>\$</i>		Borehole Terminated @ 2m			$\left  \right $		+
			-					'						
			_					'						_
								1						
			2.5					1						_
			2.5					'						=
			-					1						
			-					1						-
			-					1						-
			3.0					1						=
			-					1						-
			-					1						
			-					1						=
			35					'						
PENET	RATIO	N	0.0	<u> </u>	CONSISTENCY Vs	Very	<u></u>		DENSITY MOISTURE CONDITION TEST NOTE Fb Friable D Dry PP	ES Pocket Penetrome	-ter Toet		Groundwater Level	
		1 2	3 4		S	Soft		ľ	VL Very Loose M Moist U50	Undisturbed Samp	ple 50mm	n	UTP Unable to Penetrate	
		5		_	F St	Firm Stiff		ľ	L         Loose         W         Wet         U63           MD         Medium Dense         w < PL Moist, dry of plastic limit	Undisturbed Sample		1		
	no resi	stence			VSt H	Very Hard		ľ	D         Dense         w ≈ PL Moist, near plastic limit         Bs           VD         Very Dense         w > PL Moist, wet of plastic limit         E	Bulk Sample Environmental sar	mple			
			re <sup>4</sup>	fusal				ľ	w ≈ LL Wet, near liquid limit HSV w > LL Wet, wet of liquid limit Cu	Hand Shear Vane Undrained Shear	e test			
<b> </b>	HAM	LOG 6	6.0 2019				_				3-1		Sheet 1	1 of 1

			Gro	oundSci	ier	ICE	2	ENGINE	EERING BOREHO	LE LOG	Borehole	No	BH	119	
Y				•							JOB No :		G4589.1		
CLIENT: PROJECT:				perty Group Pty Ltd Estate Site Classification	ion - Staç	ge 1					TEST DA		13-Dec-21 JSP		
LOCATION: TEST LOCAT			Clyde North Refer to site	a plan, Appendix A							CHECKEI VANE SH		CC N/A		
DRILL METH HOLE DIAME	ETER:		ATS Drill R 100mm			_		EASTING: ND NORTHING: ND			INCLINAT SURFACE		90° ND		
	DRIL	LLING			, T	┢			FIELD N	MATERIAL DESCRIPTION	1				
PENERTRATION RESISTANCE		DEPTH (metres)	(RL)	SAMPLE OR FIELD TEST	ERED	GRAPHIC LOG	MBOL		SOIL / ROCK MATERIAL DESCRIPTION		CONSISTENCY DENSITY	JRE	A	ADDITIONAL OBSERVATION	IS
123	4 MATER	-	DEPTH (RL)	SAMPL	RECOVERED					1. A second second		MOISTURE		5	
		0.0	0.05	·			8	FILL: sandy CLAY, medium to high pla subangular sand, with silt	lasticity, brown mottled orange/grey/red, fine to	coarse grained, angular to	St - VSt	tw <pl w≈PL</pl 		Controlled Fill	
							al l								
			0.30	1			СН	sandy CLAY, high plasticity, brown mo trace gravel	ottled orange/grey/red, fine to coarse grained, a	angular to subangular sand, with silt,	VSt		Inferred	Red Bluff Sandstone Residua Soil	
		0.5				922 922 922									
						972 972									
						***									
		1.0				922 922									
						9928 9922									
		1.5													
	untered					9920 9920									
	Not Encountered	-													
		-	2.00												
		2.0	2.00					Borehole Terminated @ 2m							
															=
															_
		2.5													-
															_
															=
		3.0													
															-
															-
PENETRATIO		3.5		CONSISTENCY				DENSITY	MOISTURE CONDITION	TEST NOTES					
PENEIRAIN		3 4		Vs S		y Soft		Fb Friable	D Dry M Moist	PP Pocket Penetrom			UTP	Groundwater Level Unable to Penetrate	
P	· 「「」			F	Soft Firm	ı		L Loose	W Wet	U63 Undisturbed Sam	nple 63mm		UIP	Unable to Penetrate	
no re	esistence	, <b></b> <	Í	St VSt	Stiff Very	y Stiff		MD Medium Dense D Dense	w < PL Moist, dry of plastic limit w ≈ PL Moist, near plastic limit	D Disturbed Sample Bs Bulk Sample					
		rei	afusal	н	Hard	1		VD Very Dense	w > PL Moist, wet of plastic limit w ≈ LL Wet, near liquid limit	E Environmental sa HSV Hand Shear Van	e test				
HAN	1106 (	6.0 2019		<u> </u>		—			w > LL Wet, wet of liquid limit	Cu Undrained Shear	Strength			Sheet 1 of	1

				Gro	undSc	ien	ce	•	ENGINEERIN	g Boreho	LE LOG	ì	Borehole	No	BH	20	
Y	U	/						,					JOB No :		G4589.1		
CLIENT: PROJECT:					erty Group Pty Ltd Estate Site Classificati	on - Stag	e 1						TEST DAT		13-Dec-21 JSP		
LOCATION TEST LOC	4:		C	Clyde North		un							CHECKEI VANE SH	BY:	CC N/A		
DRILL MET	THOD	:		ATS Drill Ri	plan, Appendix A ig				EASTING: ND				INCLINAT	ION:	90°		
HOLE DIAN		r: Drill		100mm	SAMPLING	6			NORTHING: ND	FIELD M	IATERIAL DESCRI		SURFACE	RL:	ND		
N					TEST	Τ	$\square$										
<pre>c FENERTRATION c RESISTANCE</pre>	4	WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / ROCK	MATERIAL DESCRIPTION			CONSISTENCY DENSITY	MOISTURE	A	ADDITIONAL OBSERVATION	VS
	Π	_	0.0			Ī		SM	FILL: silty SAND, low plasticity, pale brown, fine to co-	arse grained, angular to subang	gular sand		L	D - M		Controlled Fill	-
	1		-	0.10				CL	FILL: sandy CLAY, low plasticity, brown, fine to coars	e grained, angular to subangula	ar sand, with silt, tra	ce gravel	VSt	w ≈ PL			-
	H		_	0.25				CI-CH	FILL: sandy CLAY, medium to high plasticity, brown n	nottled orange/grey, fine to coar	rse grained, angular	to subangular	St - VSt				-
									sand, with silt, trace gravel								
			-														_
	H		0.5	0.55			***	СН	sandy CLAY, high plasticity, brown mottled orange/gr	ey/red, fine to coarse grained, a	angular to subangula	ar sand, with silt	VSt		Inferred	Red Bluff Sandstone Residua Soil	al _
	H		-													00	
	Π		_														-
	Π		-														-
	Π		1.0				9922 9922										
	Π		-				9722 9722										-
	Π		_														
	H		-														
	Π		-														-
	Π		1.5	1.50					ncreased sand content with depth								-
	Π	red	-				9%20 9%20										
	Π	Not Encountered	-														-
	Π	Not Er	-														-
	Ц		2.0	2.00		-			Borehole Terminated @ 2m								
			-	2.00					Solenoie reminated @ zm								
			-														-
			-														
			-														-
			2.5														-
			-														-
			_														_
			-														-
			-														-
			3.0														
			-														-
			_														
			-														
			35														
PENETRAT	TION				CONSISTENCY		•			E CONDITION	TEST NOTES				<b>V</b>	0	
	1	2	34		Vs S	Very Soft	Soft		Fb         Friable         D           VL         Very Loose         M	Dry Moist	U50 Uno	ket Penetrome disturbed Sam			UTP	Groundwater Level Unable to Penetrate	
ľ	>	5			F St	Firm Stiff			L Loose W MD Medium Dense w < PL f	Wet Moist, dry of plastic limit		disturbed Samp turbed Sample		ı			
no	resist	ence			VSt	Very			D Dense w≈PLI	Moist, near plastic limit	Bs Bul	k Sample					
			ref	usal	н	Hard			w ≈ LL V	Moist, wet of plastic limit Vet, near liquid limit	HSV Har	vironmental san nd Shear Vane	test				
HA	W LO	)G 6.	0 2019						w > LL \	Vet, wet of liquid limit	Cu Uno	drained Shear	Strength			Sheet 1 of	f1

G G	iround Scie	ence	ENGINEERING BOREHOLE LOG	Borehole	No	BH21	
				JOB No :		G4589.1	
	ers Property Group Pty Ltd Farms Estate Site Classification -	Stage 1		TEST DAT		13-Dec-21 JSP	_
	e North r to site plan, Appendix A			CHECKED		CC N/A	
	S Drill Rig Omm		EASTING: ND NORTHING: ND	INCLINAT		90° ND	
DRILLING			FIELD MATERIAL DESCRIPTION				
C PENERTRATION C RESISTANCE WATER DEPTH (metres)	DEPTH (RL) SAMPLE OR FIELD TEST	RECOVERED GRAPHIC LOG USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
0.0		SM	FILL: silly SAND, fine to coarse grained, angular to subangular, pale brown	L - MD	D - M	Controlled Fill	
	0.20		FILL: sandy CLAY, medium to high plasticity, brown mottled orange/grey, fine to coarse grained, angular to subangular	St - VSt	w≈PL		
	0.20		FILE. Sandy CLAY, medium to high plasticity, drown mouteo orangergrey, nine to coarse grameo, angular to subangular sand, with silt, trace gravel	01- 10.	w c		
0.5							-
	0.75	CH	silty CLAY, high plasticity, brown mottled orange/grey/red, with sand	VSt		Inferred Red Bluff Sandstone Residual Soil	-
1.0							-
	1.30		sandy CLAY, high plasticity, brown motified orange/grey/red, fine to coarse grained, angular to subangular sand, with silt				
	1.30		sandy CCAL, ingli pasicuty, utomi molieu orangelyetyreu, ine io Coase granieu, angular lo subangular sanu, mur sii				
1.5		6828 6828				-	
pe -		2500 5500 5500					
Not Encountered		9800 9800					
Not E		9900 9900 9900					-
2.0 2	2.00		Borehole Terminated @ 2m				
							-
							-
2.5							_
							-
3.0							-
							-
PENETRATION		/on/ Soft	DENSITY         MOISTURE CONDITION         TEST NOTES           Fb         Friable         D         Dry         PP         Pocket Penetrorr	I otor Test	1	Groundwater Level	
1 2 3 4	s s	/ery Soft Soft	VL Very Loose M Moist U50 Undisturbed Sam	ple 50mm	ı	UTP Unable to Penetrate	
	St S	Firm Stiff Vers Stiff	MD Medium Dense w < PL Moist, dry of plastic limit D Disturbed Sample				
no resistence		/ery Stiff Iard	D         Dense         w ≈ PL Moist, near plastic limit         Bs         Bulk Sample           VD         Very Dense         w > PL Moist, wet of plastic limit         E         Environmental st				
refusal HAM_LOG_6.0 2019			w = LL Wet, near liquid limit HSV Hand Shear Van w > LL Wet, wet of liquid limit Cu Undrained Shear			Sheet 1 of 1	

			Gro	undSa	ien	ce	2	ENGINEERING BOREHOLE LOG	Borehole	No	BH22	
Y									JOB No :		G4589.1	
CLIENT: PROJECT:		F	ive Farms E	erty Group Pty Ltd state Site Classificati	on - Stag	e 1			TEST DA	BY:	13-Dec-21 JSP	
LOCATION: TEST LOCA	TION:		Clyde North Refer to site p	plan, Appendix A					CHECKE VANE SH		CC N/A	
DRILL METH			ATS Drill Ri 100mm	g				EASTING: ND NORTHING: ND	INCLINAT		90° ND	
	DRILI			SAMPLING	;			FIELD MATERIAL DESCRIPTION				
C PENERTRATION C RESISTANCE	4 AATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION	CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
		0.0					CI-CH	FILL: sandy CLAY, medium to high plasticity, brown mottled orange/grey, fine to coarse grained, angular to subangular and, with silt, trace gravel	St	w≈PL	. Controlled Fill	-
												=
				S8	U63							=
		0.5										<u> </u>
			0.60		-	***	SM	silty SAND, fine to coarse grained, angular to subangular, grey, low plasticity silt, trace clay	L - MD	M	Inferred Inferred Alluvial Deposits	
			0.70				СН	silty CLAY, high plasticity, brown mottled orange/grey/red, with sand	VSt	w ≈ PL	Inferred Red Bluff Sandstone Residual Soil	1_
												-
		1.0										
												-
			1.30					sandy CLAY, high plasticity, brown mottled orange/grey/red, fine to coarse grained, angular to subangular sand, with si	t			-
						*** ***						
		1.5										-
	red											-
	Not Encountered					9722 9722						
	Not Er											=
	-	2.0	2.00		+			Borehole Terminated @ 2m				-
								, and the second s				
												_
												-
												-
		2.5										
												-
												-
												=
		3.0										
												=
												=
												=
PENETRATI	ON	3.5		CONSISTENCY				DENSITY MOISTURE CONDITION TEST NOTES				<u> </u>
	1 2	3 4		Vs S	Very Soft	Soft		Fb Friable D Dry PP Pocket Penetro			Groundwater Level UTP Unable to Penetrate	
P	5			F	Firm			L Loose W Wet U63 Undisturbed Sa	mple 63mr		OTF Unable to Penetrate	
no re	esistence	Ļ		St VSt	Stiff Very	Stiff		MD         Medium Dense         w < PL Moist, dry of plastic limit         D         Disturbed Sam           D         Dense         w ≈ PL Moist, near plastic limit         Bs         Bulk Sample				
			usal	н	Hard			VD Very Dense $w > PL$ Moist, wet of plastic limit E Environmental $w \approx LL$ Wet, near liquid limit HSV Hand Shear Va				
HAM	LOG_6							w > LL Wet, wet of liquid limit Cu Undrained She		1	Sheet 1 of 1	

			Gro	ound Science ENGINEERING BOREHOLE LOG				OG	Borehole	No	BH23		
Y										JOB No :		G4589.1	
CLIENT: PROJECT:				erty Group Pty Ltd state Site Classification	on - Stag	e 1				TEST DAT		13-Dec-21 JSP	
LOCATION: TEST LOCATI	ON:		lyde North tefer to site p	plan, Appendix A						CHECKED		CC N/A	
DRILL METHO	DD:		ATS Drill Ri 100mm					ASTING: ND Iorthing: ND		INCLINAT	ION:	90° ND	
	DRILL		1.001	SAMPLING	1			FIELD MATERIAL D			1	1	
C PENERTRATION C RESISTANCE	WATER	DEPTH (metres)	DEPTH (RL)	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USC SYMBOL	SOIL / ROCK MATERIAL DESCRIPTION		CONSISTENCY DENSITY	MOISTURE	ADDITIONAL OBSERVATIONS	
	Ī	0.0					CI-CH	ILL: sandy CLAY, medium to high plasticity, brown mottled orange/grey, fine to coarse grained, and, with silt, trace gravel	angular to subangular	St	w≈PL	Controlled Fill	-
													$\left  - \right $
													-
		0.5											
													-
			0.65				SM	ilty SAND, fine to coarse grained, angular to subangular, grey, low plasticity silt, trace clay		L - MD	М	Inferred Inferred Alluvial Deposits	] _
			0.85				СН	ilty CLAY, high plasticity, brown mottled orange/grey/red, with sand		VSt	w ≈ PL		
			0.00				СП	ity CLAY, nigh plasticity, brown motiled orange/grey/red, with sand		Või	W≈PL	Inferred Red Bluff Sandstone Residual Soil	=
		1.0											-
													-
		1.5	1.50					andy CLAY, high plasticity, brown mottled orange/grey/red, fine to coarse grained, angular to su	hannular sand with silt				
		<sup>~~</sup> -	1.50					andy GEAT, migh plasterity, down motied orangeligieynes, me to deales grained, angular to a	utangular aana, war ait				=
	ntered					112 112							-
	Not Encountered					982 982							
	No												=
	1	2.0	2.00			<b>*</b> ***		lorehole Terminated @ 2m					-
													-
		-]											-
		2.5											
		-											=
													=
													-
		3.0					1						
													_
													=
							1						=
													-
PENETRATIO	N	3.5		CONSISTENCY				NENSITY MOISTURE CONDITION TEST NO	TES				
	1 2	3 4		Vs	Very	Soft		Fb Friable D Dry PP	Pocket Penetrom			Groundwater Level	
P	5	. +		S F	Soft Firm			VL Very Loose M Moist U50 L Loose W Wet U63	Undisturbed Sam Undisturbed Sam	ple 63mn		UTP Unable to Penetrate	
	istence			St VSt	Stiff Very	Stiff			Disturbed Sample Bulk Sample				
no res				н	Hard			VD Very Dense $w > PL$ Moist, wet of plastic limit E $w \approx LL$ Wet, near liquid limit HSV	Environmental sa Hand Shear Vane				
НАМ	LOG A	refu .0 2019	lbou					w > LL Wet, wet of liquid limit Cu	Undrained Shear			Sheet 1 of 1	

## APPENDIX C

Laboratory Test Results

#### **Material Test Report**

Report Number:	G4589.1-1
Issue Number:	1
Date Issued:	13/01/2022
Client:	Frasers Property Australia c/- Beveridge Williams
	1 Glenferrie Road, Malvern VIC 3144
Contact:	Craig Muse
Project Number:	G4589.1
Project Name:	Five Farms Residential Development - Stage 1
Project Location:	Clyde North
Work Request:	6393
Sample Number:	4589.1-S4
Date Sampled:	15/12/2021
Dates Tested:	15/12/2021 - 11/01/2022
Sampling Method:	AS 1289.1.2.1 6.5.3 - Power auger drilling
Sample Location:	BH13 (0.5 - 0.75m)
Material:	CLAY, low plasticity, brown

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	34		
Plastic Limit (%)	12		
Plasticity Index (%)	22		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	8.0		
Cracking Crumbling Curling	Cracking & Curling		

Ground Science Geolechrical & Environmental Consultants Ground Science Pty Ltd

Ground Science Pty Ltd Ground Science Laboratory 13 Brock Street Thomastown Victoria 3074 Phone: (03) 9464 4617 Email: pelin@groundscience.com.au Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Pelin Erden gs-pelin NATA Accredited Laboratory Number: 15055

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#### **Material Test Report**

Report Number:	G4589.1-1
Issue Number:	1
Date Issued:	13/01/2022
Client:	Frasers Property Australia c/- Beveridge Williams
	1 Glenferrie Road, Malvern VIC 3144
Contact:	Craig Muse
Project Number:	G4589.1
Project Name:	Five Farms Residential Development - Stage 1
Project Location:	Clyde North
Work Request:	6393
Sample Number:	4589.1-S7
Date Sampled:	15/12/2021
Dates Tested:	15/12/2021 - 11/01/2022
Sampling Method:	AS 1289.1.2.1 6.5.3 - Power auger drilling
Sample Location:	BH20 (1 - 1.5m)
Material:	CLAY, medium plasticity, brown

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)			Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	38		
Plastic Limit (%)	18		
Plasticity Index (%)	20		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	9.5		
Cracking Crumbling Curling	rling Cracking		

Ground Science Geotechnical & Environmental Consult

Ground Science Pty Ltd Ground Science Laboratory 13 Brock Street Thomastown Victoria 3074 Phone: (03) 9464 4617 Email: pelin@groundscience.com.au Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Pelin Erden gs-pelin NATA Accredited Laboratory Number: 15055

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#### **Material Test Report**

Report Number: Issue Number: Date Issued: Client:	G4589.1-1 1 13/01/2022 Frasers Property Australia c/- Beveridge Williams 1 Glenferrie Road, Malvern VIC 3144
Contact:	Craig Muse
Project Number:	G4589.1
Project Name:	Five Farms Residential Development - Stage 1
Project Location:	Clyde North
Work Request:	6393
Dates Tested:	15/12/2021 - 17/12/2021



Ground Science Pty Ltd Ground Science Laboratory 13 Brock Street Thomastown Victoria 3074 Phone: (03) 9464 4617 Email: pelin@groundscience.com.au Accredited for compliance with ISO/IEC 17025 - Testing



WORLD RECOGNISED

Approved Signatory: Pelin Erden gs-pelin NATA Accredited Laboratory Number: 15055

Has

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	4589.1-S1	4589.1-S2	4589.1-S3	4589.1-S5	
Date Sampled	15/12/2021	15/12/2021	15/12/2021	15/12/2021	
Date Tested	16/12/2021	16/12/2021	16/12/2021	17/12/2021	
Material Source	**	**	**	**	
Sample Location	BH2 (0.5 - 1m)	BH6 (1 - 1.4m)	BH9 (1 - 1.3m)	BH16 (0.5 - 0.9m)	
Inert Material Estimate (%)	2	0	2	3	
Pocket Penetrometer before (kPa)	110	150	150	175	
Pocket Penetrometer after (kPa)	110	160	140	220	
Shrinkage Moisture Content (%)	16.8	31.6	26.7	16.1	
Shrinkage (%)	2.0	6.8	4.9	5.8	
Swell Moisture Content Before (%)	17.5	32.5	17.0	8.6	
Swell Moisture Content After (%)	19.8	33.2	25.4	15.9	
Swell (%)	-0.1	1.0	2.8	-0.2	
Shrink Swell Index Iss (%)	1.1	4.0	3.5	3.2	
Visual Description	sandy CLAY, medium plasticity, brown, trace gravel	silty CLAY, medium to high plasticity, brown, mottled grey, orange	sandy CLAY, medium to high plasticity, brown, mottled grey, orange	sandy CLAY, low to medium plasticity, brown, trace gravel	
Cracking	MC	SC	SC	SC	
Crumbling	No	No	No	No	
Remarks	**	**	**	**	

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.

Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.

NATA Accreditation does not cover the performance of pocket penetrometer readings.

Report Number: G4589.1-1