Albury Wodonga Geotechnical Pty Ltd
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31 May 2023
Report No. 23AWG454

Barker Group
P O Box 3490
Albury, NSW, 2640

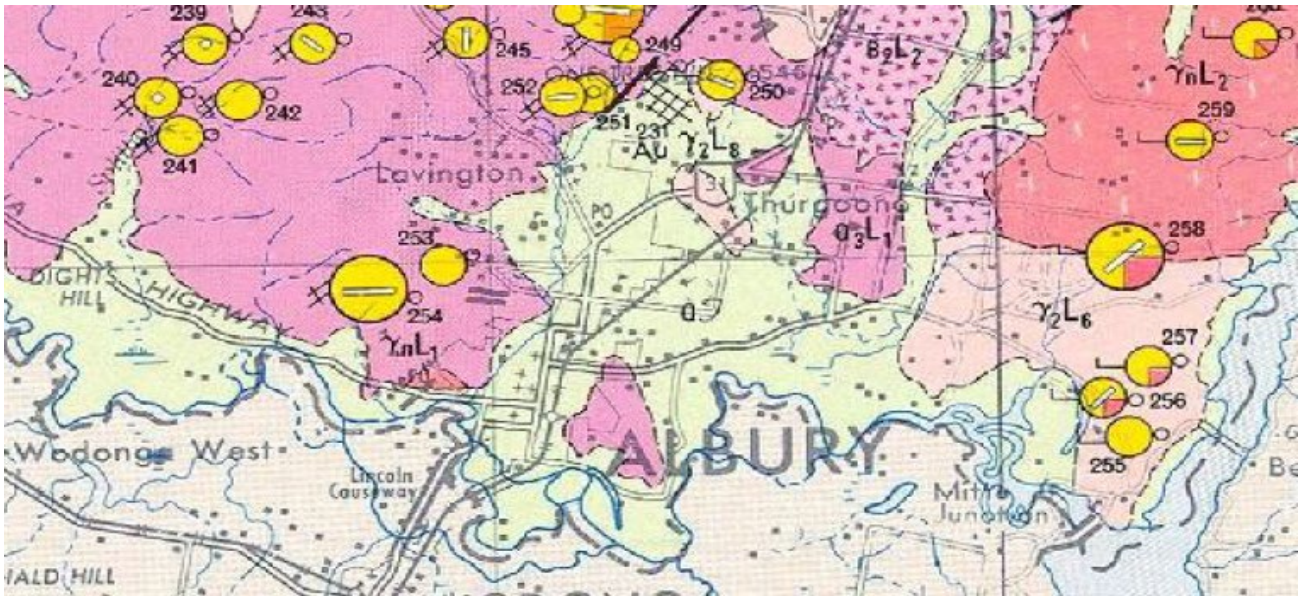
RE: GEOTECHNICAL REPORT - Site Investigation – Lot 2, 7 McLaurin Road, Ettamogah.

1. INTRODUCTION

At your request a site investigation and pavement design were performed for the proposed development located at Lot 2, 7 McLaurin Road, Ettamogah.

Findings and design parameters are reported in subsequent sections of the report.

2. SITE GEOLOGY



3. FIELD INVESTIGATION

Eight bores were excavated to identify the underlying subgrade site conditions across the site.

A sampling and testing procedure were undertaken to provide recommendations for the proposed pavement construction and building development.

The subsoil conditions were relatively consistent over the site generally consisting of naturally occurring clays of medium-high plasticity (CL-CH) to termination depth.

Detailed bore logs are provided where soil descriptions and depths are included in an appendix to this report.

Soil moisture conditions are considered consistent with the seasonal conditions in the area and time of testing.

Groundwater was not encountered in any of the boreholes, however, may occur depending on abnormal seasonal weather conditions.

4. LABORATORY TEST RESULTS

Four disturbed samples were taken as part of the onsite works.

CBR, Grading & Atterberg tests were performed on the samples taken from the existing subgrade level to establish the parameters for the pavement design.

Laboratory data has been tabulated below:

Bore No.	Depth (m)	Soil Description	CBR (%)	PI (%)
5	0.3-0.8	CLAY	2.5	44.0
6	0.4-0.8	CLAY	14.0	22.0
7	0.3-0.8	CLAY	6.0	16.0
8	0.4-0.8	CLAY	1.5	36.0

5. PAVEMENT DESIGN

The pavement design below was calculated for the estimated traffic flows for a 30-year lifespan.

The pavement designs below were designed using Austroads Pavement Design Manual and the ARRB supplement to Austroads Pavement Design.

5a. RECOMMENDED DESIGN FOR ROADWAY (Flexible Pavement)

Pavement Design without stabilization for 30-year lifespan

Design traffic = 1.0 * 10^5 ESA's
Adopted CBR = 3.0%

Total Pavement Depth Recommended = 380mm + Seal

Surface	Prime & 2 Coat Seal (7/14)
Base	150mm – Vicroads Class 2 or DGB 20 Gravel (CBR 100+)
Subbase	230mm – Vicroads Class 3 or DGS 20 Gravel (CBR 60+) 2 layers
Subgrade	depth as necessary of suitable site cut material (CBR 3.0+)

Density Requirements:

Base	100% Modified Maximum Density (2% dry to 2% wet of OMC)
Subbase	95% Modified Maximum Density (2% dry to 2% wet of OMC)
Subgrade	100% Standard Maximum Density (2% dry to 2% wet of OMC)

5b. RECOMMENDED DESIGN FOR ROADWAY (Flexible Pavement)

Pavement Design with stabilization for 30-year lifespan

Design traffic = 1.0 * 10^5 ESA's
Adopted CBR = 10.0%

Total Pavement Depth Recommended = 280mm + Seal

Surface	Prime & 2 Coat Seal (7/14)
Base	150mm – Vicroads Class 2 or DGB 20 Gravel (CBR 100+)
Subbase	130mm – Vicroads Class 3 or DGS 20 Gravel (CBR 60+)
Subgrade	stabilized with 3% hydrated lime to 200mm in depth (CBR 10.0+)

Density Requirements:

Base	100% Modified Maximum Density (2% dry to 2% wet of OMC)
Subbase	95% Modified Maximum Density (2% dry to 2% wet of OMC)
Subgrade	100% Standard Maximum Density (2% dry to 2% wet of OMC)

5c. RECOMMENDED DESIGN FOR ROADWAY (Rigid Pavement)

Pavement Design without stabilization for 30-year lifespan

Design traffic = 1.0 * 10^5 ESA's
Adopted CBR = 3.0%

Total Pavement Depth Recommended = 320mm

Surface	170mm 32mPa Concrete SL92 Mesh
Subbase	150mm – Vicroads Class 2 or DGB 20 Gravel (CBR 100+)
Subgrade	depth as necessary of suitable site cut material (CBR 3.0+)

Density Requirements:

Subbase	95% Modified Maximum Density (2% dry to 2% wet of OMC)
Subgrade	100% Standard Maximum Density (2% dry to 2% wet of OMC)

The moisture range recommended is only quoted as a guide to assist the contractor in attempting to achieve desirable compaction results. It is not intended as a requirement when assessing the density test results on site.

6. CONSTRUCTION GUIDELINES FOR PAVEMENTS

It is recommended that the area be stripped, and all unsuitable materials excluded from civil construction works.

The subbase material should then be proof rolled to locate any soft areas where further excavation may be necessary.

Subsoil drainage around the pavements to 200mm below subgrade depth.

The subgrade material may prove difficult to traffic after a rain event. Care should be taken to make the site free draining to minimize water damage and enable continuous construction.

7. TESTING REQUIREMENTS FOR PAVEMENTS

Density testing shall be carried out on each layer of the roadworks at the rate of 1 test per 500 lineal metres.

8. TESTING LOCATION PLAN

9. SITE CLASSIFICATION

The recommendations below include a range footing types to allow selection of footings to suit the structures that may be built on site.

Based on the results of the investigation the site has been classified as **Class "H1-D" – Highly Reactive-Deep – high movement from moisture changes.** The site classification has been undertaken in accordance with ***AS 2870-2011*** 'Site Classification - Residential Slabs and Footings' – Site Classification by surface movement calculation.

RECOMMENDATIONS

The footings system for a conventional slab may be designed as a **Class "H1-D"** site classification with any external beams founded a minimum of **500mm** below existing surface level.

If piers, stumps, or strip footings are used on this site they should be founded a minimum of **1500mm** below existing surface level.

The footings for a waffle pod slab may be designed for a **Class "H1-D"** site classification with the external beams founded a minimum of **400mm** below existing surface level.

It is suggested the site be stripped of all vegetation and topsoil, with any areas of soft, loose, or wet material be selectively excavated to provide a consistent and stable working platform.

The allowable bearing pressure for this site is **250kPa** from **400mm** in depth.

The allowable end bearing capacity for bored piers is **400kPa** from **1500mm** below the existing surface level.

No allowance for skin friction shall be made for the first metre of embedment of the bored pier in natural soils, there after skin friction of **20kPa** is allowable.

GENERAL SITE COMMENTS & RECOMMENDATIONS

- It is suggested the site be stripped of all vegetation and topsoil, with any areas of soft, loose, or wet material selectively excavated to provide a consistent and stable working platform.
- The Earthquake Design Category (AS1170.4 - 1993) is found to be a category "D".
- The wind classification for this site is **N2** in accordance with AS 4055-2006 Wind Loads.
- Footings are to be inspected and the applicable bearing capacity confirmed.
- The **insitu subgrade** materials encountered on site will be suitable for use as fill if required.
- The allowable angle for temporary **batters** is 60^0 in the clay materials. Permanent batters in the clay materials shall be restricted to 30^0.
- Friction Coefficient (**μ = F/L)** Value for this site is 0.40 μ
- Passive Pressure Coefficient (kp) for this site is 2.
- Active Pressure Coefficient (ka) for this site is 0.5.
- An Earth Pressure Coefficient (k) of 0.6 is considered appropriate when determining surcharge loadings.
- Soil Bulk Density - 1.95 t/m^3
- **Propped Retaining Walls:** For design of propped retaining walls a uniform horizontal pressure, equal to 7 x H kPa where H equals the height of the retained material in metres may be adopted. However, if a degree of wall movement can be tolerated a horizontal pressure distribution equal to 6 x H may be adopted. Surcharge loads must be included in the foregoing calculations.

- **Cantilever Retaining Structures:** For design of cantilever retaining structures an at rest earth pressure co-efficient (K_o) of 0.65 may be adopted. Surcharge loads must be included in the foregoing calculations.

10. FILL MATERIAL

Some building sites may contain areas of fill, which cannot be visually identified at the time of investigation. It is also often difficult to determine fill from natural insitu materials during a site investigation borehole. If fill is encountered during excavation of footings, and it is not described in the field investigation log, further advice must be obtained.

Where compacted fill is encountered, the amount of compacted fill allowable is up to 800mm of "sand" fill or 400mm of "other" fill. AS 2870 - 2011 provides details of additional construction requirements for controlled fill sites.

11. GENERAL NOTE

The following general measures are recommended in reducing the potential of future building damage:

- Maintain a reasonable distance from building when planting trees or damaging vegetation.
- Monitor watering systems and avoid excessive garden watering.
- Monitor underground services and attend any damage as soon as required.

12. APPLICATION

This report has been prepared specifically for the above project and any data or opinions that are given should not be used out of context or pertaining to any other job or purpose without analysis and overview from the undersigned.

This report has been based upon field and sample analysis from the locations indicated, the nature and continuity below borehole depth is inferred and it must be considered that further investigation may be required to assess actual conditions of subsurface undisturbed soils.
If more information is required regarding this report, please contact the undersigned.

ALBURY WODONGA GEOTECHNICAL

Prepared by	**Checked by**
	
Jesse Hill	**Peter Vella**

APPENDIX A

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 1
Page: 2 of 2

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group** | Date Logged: **13.4.2023**
Investigation For: **Site Investigation** | Logged By: **DNH**
Location: **Lot 2, 7 McLaurin Road, Ettamogah** | Checked By: **PCV**
Borehole/Trench Location: **See GPS Plan** | Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other | Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
3100	As Above	Moist	Dense			
	Silty Sandy CLAY, yellow & grey-brown Fine to coarse grained Medium to high plasticity		Very Stiff			
4600	Silty Sandy CLAY, grey & yellow-brown Fine to coarse grained Medium to high plasticity					
5600	Clayey Silty SAND, grey & orange-brown Fine to coarse grained Low plasticity		Dense			
6000	Borehole terminated at 6.0m					

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow
D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 1
Page: 1 of 2

INVESTIGATION LOG
REPORT NO: 23AWG454

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Location: **Lot 2, 7 McLaurin Road, Ettamogah** | Checked By: **PCV**
Borehole/Trench Location: **See GPS Plan** | Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other | Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
	Clayey Silty SAND, grey Fine to medium grained, low plasticity	Moist	Medium Dense			
200	Silty Sandy CLAY, yellow & grey-brown Fine to medium grained High plasticity		Very Stiff			
1200	Silty Sandy CLAY, light grey-brown Fine to coarse grained High plasticity					
1800	Clayey Silty SAND, grey & orange-brown Fine to coarse grained Low plasticity		Dense			
2500	Silty SAND, orange & grey-brown Fine to coarse grained Low plasticity					
3000						

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow
D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 2
Page: 2 of 2

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group** | Date Logged: **13.4.2023**
Investigation For: **Site Investigation** | Logged By: **DNH**
Location: **Lot 2, 7 McLaurin Road, Ettamogah** | Checked By: **PCV**
Borehole/Trench Location: **See GPS Plan** | Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other | Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
	As Above	Moist	Very Stiff			
3400	Silty Sandy CLAY, orange & grey-brown Fine to medium grained Medium to high plasticity					
4600	Silty Sandy CLAY, light grey-brown Fine to medium grained Medium to high plasticity					
5100	Silty Sandy CLAY, yellow & grey-brown Fine to medium grained Medium to high plasticity					
6000	Borehole terminated at 6.0m					

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow
D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 2
Page: 1 of 2

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group** | Date Logged: **13.4.2023**
Investigation For: **Site Investigation** | Logged By: **DNH**
Location: **Lot 2, 7 McLaurin Road, Ettamogah** | Checked By: **PCV**
Borehole/Trench Location: **See GPS Plan** | Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other | Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
	Clayey Silty SAND, dark grey Fine to medium grained, low plasticity	Moist	Medium Dense			
100						
	Clayey Silty SAND, light grey Fine to medium grained, low plasticity					
300						
	Silty Sandy CLAY, orange & grey-brown Fine to medium grained High plasticity		Very Stiff			
800						
	Silty Sandy CLAY, grey & orange-brown Fine to coarse grained High plasticity					
1400						
	Clayey SAND, grey & yellow-brown Fine to coarse grained Low plasticity		Dense			
2400						
	Silty Sandy CLAY, yellow & grey-brown Fine to coarse grained High plasticity		Very Stiff			
3000						

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow
D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 3
Page: 2 of 2

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group** | Date Logged: **13.4.2023**
Investigation For: **Site Investigation** | Logged By: **DNH**
Location: **Lot 2, 7 McLaurin Road, Ettamogah** | Checked By: **PCV**
Borehole/Trench Location: **See GPS Plan** | Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other | Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
	Silty Sandy CLAY, grey & orange-brown Fine to coarse grained High plasticity	Moist	Very Stiff			
4800	Silty Sandy CLAY, red & orange-brown Fine to coarse grained Medium to high plasticity					
5400	Silty Sandy CLAY, orange-brown Fine to coarse grained Medium to high plasticity					
6000	Borehole terminated at 6.0m					

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow
D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 3
Page: 1 of 2

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group** | Date Logged: **13.4.2023**
Investigation For: **Site Investigation** | Logged By: **DNH**
Location: **Lot 2, 7 McLaurin Road, Ettamogah** | Checked By: **PCV**
Borehole/Trench Location: **See GPS Plan** | Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other | Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
	Clayey Silty SAND, dark grey Fine to medium grained, low plasticity	Moist	Medium Dense			
100						
	Clayey Silty SAND, light grey Fine to medium grained Low plasticity					
500						
	Silty Sandy CLAY, orange & yellow-brown Fine to coarse grained High plasticity		Very Stiff			
1400						
	Silty Sandy CLAY, grey & orange-brown Fine to coarse grained High plasticity					
3000						

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow
D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 4
Page: 2 of 2

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group** | Date Logged: **13.4.2023**
Investigation For: **Site Investigation** | Logged By: **DNH**
Location: **Lot 2, 7 McLaurin Road, Ettamogah** | Checked By: **PCV**
Borehole/Trench Location: **See GPS Plan** | Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other | Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
3100	As Above	Moist	Dense			
	Silty Sandy CLAY, grey & orange-brown Fine to coarse grained Medium to high plasticity		Very Stiff			
4800	Silty Sandy CLAY, grey & yellow-brown Fine to medium grained Medium to high plasticity					
6000	Borehole terminated at 6.0m					

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow
D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 4
Page: 1 of 2

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group** | Date Logged: **13.4.2023**
Investigation For: **Site Investigation** | Logged By: **DNH**
Location: **Lot 2, 7 McLaurin Road, Ettamogah** | Checked By: **PCV**
Borehole/Trench Location: **See GPS Plan** | Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other | Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
	Clayey Silty SAND, grey Fine to medium grained, low plasticity	Moist	Medium Dense			
200	Clayey Silty SAND, grey & orange-brown Fine to medium grained Low plasticity					
800	Silty Sandy CLAY, orange & yellow-brown Fine to coarse grained High plasticity		Very Stiff			
1300	Silty CLAY, grey-brown Fine to medium grained High plasticity					
1800	Clayey SAND, grey & orange-brown Fine to coarse grained Low plasticity		Dense			
3000						

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow
D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 5
Page: 1 of 1

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group**
Investigation For: **Site Investigation**
Location: **Lot 2, 7 McLaurin Road, Ettamogah**
Borehole/Trench Location: **See GPS Plan**

Date Logged: **13.4.2023**
Logged By: **DNH**
Checked By: **PCV**
Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other

Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
	Clayey Silty SAND, dark grey Fine to medium grained, low plasticity	Moist	Medium Dense			
100						
	Clayey Silty SAND, light grey Fine to medium grained, low plasticity					
300						
	Silty Sandy CLAY, light grey-brown Fine to coarse grained High plasticity		Very Stiff		D=300 -800	
1200						
	Silty Sandy CLAY, orange & grey-brown Fine to coarse grained Medium to high plasticity					
2000						
	Borehole terminated at 2.0m					

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow

D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 6
Page: 1 of 1

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group** | Date Logged: **13.4.2023**
Investigation For: **Site Investigation** | Logged By: **DNH**
Location: **Lot 2, 7 McLaurin Road, Ettamogah** | Checked By: **PCV**
Borehole/Trench Location: **See GPS Plan** | Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other | Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
	Clayey Silty SAND, dark grey Fine to medium grained, low plasticity	Moist	Medium Dense			
100						
	Clayey Silty SAND, grey & orange-brown Fine to medium grained, low plasticity					
200						
	Silty Sandy CLAY, orange & red-brown Fine to coarse grained Medium plasticity		Very Stiff		D=400 -800	
1100						
	Silty Sandy CLAY, orange & yellow-brown Fine to coarse grained High plasticity					
2000						
	Borehole terminated at 2.0m					

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow
D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 7
Page: 1 of 1

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group**
Investigation For: **Site Investigation**
Location: **Lot 2, 7 McLaurin Road, Ettamogah**
Borehole/Trench Location: **See GPS Plan**

Date Logged: **13.4.2023**
Logged By: **DNH**
Checked By: **PCV**
Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other

Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
	Clayey Silty SAND, dark grey Fine to medium grained, low plasticity	Moist	Medium Dense			
100						
	Clayey Silty SAND, grey & orange-brown Fine to medium grained, low plasticity					
300						
	Silty Sandy CLAY, grey & yellow-brown Fine to coarse grained Low plasticity		Very Stiff		D=300 -800	
1300						
	Silty Sandy CLAY, orange & grey-brown Fine to medium grained High plasticity					
2000						
	Borehole terminated at 2.0m					

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow

D -Disturbed Sample
U -Undisturbed Sample

Albury Wodonga Geotechnical
SOILS ENGINEERING LABORATORY

Borehole No: 8
Page: 1 of 1

INVESTIGATION LOG
REPORT NO: 23AWG454

Client: **Barker Group** | Date Logged: **13.4.2023**
Investigation For: **Site Investigation** | Logged By: **DNH**
Location: **Lot 2, 7 McLaurin Road, Ettamogah** | Checked By: **PCV**
Borehole/Trench Location: **See GPS Plan** | Date: **13.5.2023**

Method: ☐ Hand Auger ☐ Backhoe ☒ Drill Rig ☐ Other | Alignment: **90**°

DEPTH mm	MATERIAL DESCRIPTION & CLASSIFICATION	MOISTURE CONDITION	CONSIST. DENSITY INDEX	VS kPa	SAMPLE TAKEN	REMARKS
	Clayey Silty SAND, dark grey Fine to medium grained, low plasticity	Moist	Medium Dense			
100						
	Clayey Silty SAND, light grey Fine to medium grained, low plasticity					
400						
	Silty Sandy CLAY, grey & yellow-brown Fine to coarse grained High plasticity		Very Stiff		D=400 -800	
1500						
	Silty Sandy CLAY, orange & red-brown Fine to coarse grained Medium to high plasticity					
2000						
	Borehole terminated at 2.0m					

DRAINAGE: **-General** Good ☒ Fair ☐ Poor ☐ Free Water ☐ Swampy ☐ Subject to Flooding ☐

TOPOGRAPHY:

-General Flat ☒ Undulating ☐ Hilly ☐

-Local Flat ☐ Moderate Slope ☐ Dip ☒ Valley ☐ High Flat ☐ Low Flat ☐ Crest ☐ Steep Slope ☐

----W---- - Water Level
<-------- - Water Inflow
D -Disturbed Sample
U -Undisturbed Sample

APPENDIX B

TEST RESULTS

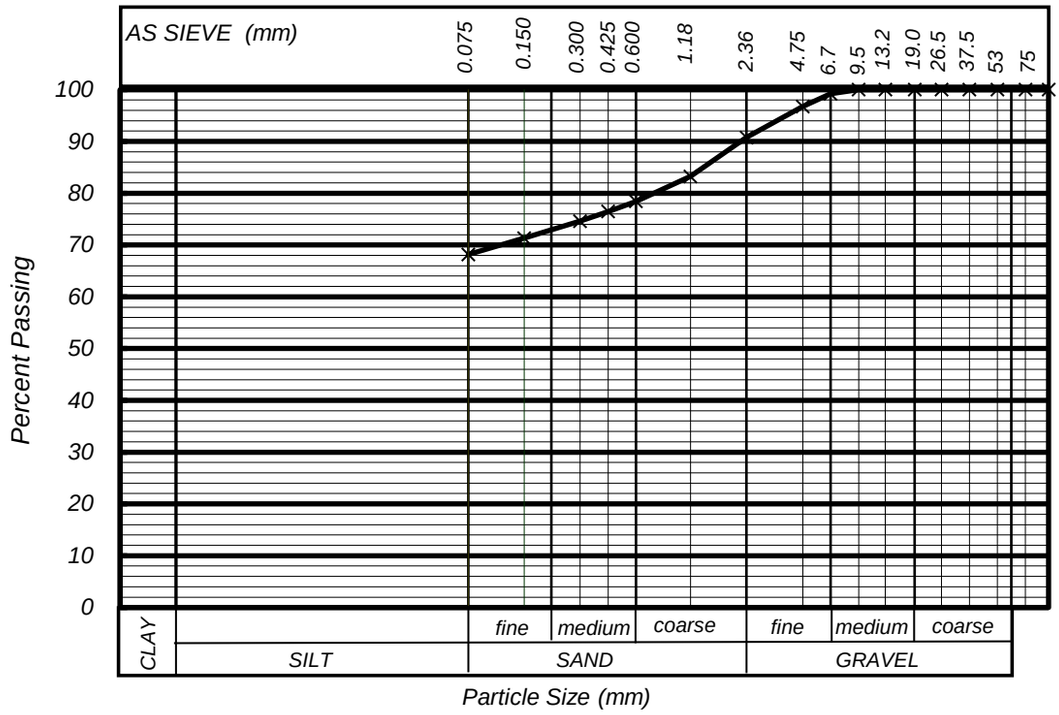
CIVIL GEOTECHNICAL SERVICES
6 - 8 Rose Avenue, Croydon 3136

		Job No	23030
		Report No	23030/R141
		Date of Issue	24/05/23
Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	Tested by	Apu M / SK
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	Date tested	09-16/05/23
Location	ETTAMOGAH	Checked by	PJF
Sample identification	BH5 0.3 - 0.8m	Sample No	23030073
		Date sampled	03/05/23
Sampling method	By Client		

Particle Size Distribution

AS 1289.3.6.1

AS sieve (mm)	Percent Passing
100	100
75.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
9.5	100
6.7	99
4.75	97
2.36	91
1.18	83
0.600	78
0.425	76
0.300	75
0.150	71
0.075	68



Granular Material

SAND	fine	4.6%	GRAVEL	fine	8.4%	COBBLES	0.0%
	medium	5.7%		medium	0.8%	GRAVEL	9.2%
	coarse	12.3%		coarse	0.0%	SAND	22.6%
						FINES	68.2%
	TOTAL	22.6%		TOTAL	9.2%	TOTAL	100.0%

Field moisture content

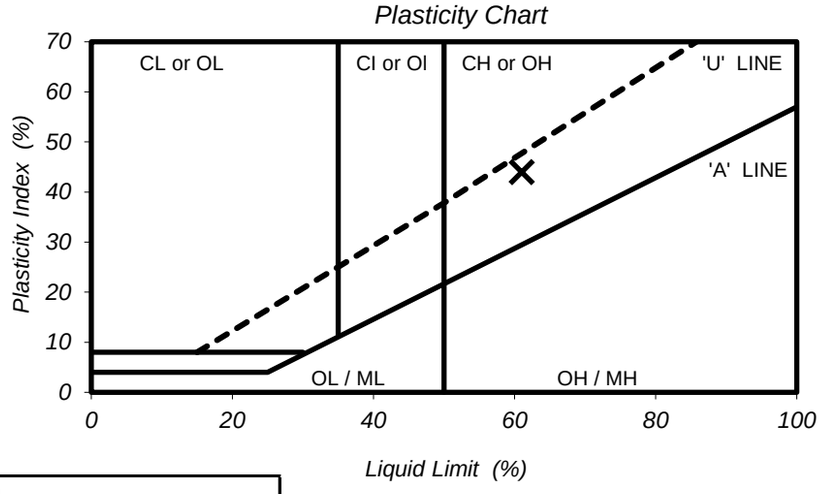
AS 1289.2.1.1

Moisture content	%	18.7

Atterberg limits

AS1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Liquid Limit	%	61
Plastic Limit	%	17
Plasticity Index	%	44
Linear Shrinkage	%	16.0
Method of drying:		LT Oven
Method of sieving:		Dry
Curling / Cracking		Yes / No



Material description

Classification AS 1726 Table 9 & 10 (2017) = **(CH)**

CLAY, high plasticity, dark brown, with fine to coarse sand.

AS1720G V1.4 OCT 18

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

Approved Signatory : Peter Fry

TEST RESULTS

CIVIL GEOTECHNICAL SERVICES
6 - 8 Rose Avenue, Croydon 3136

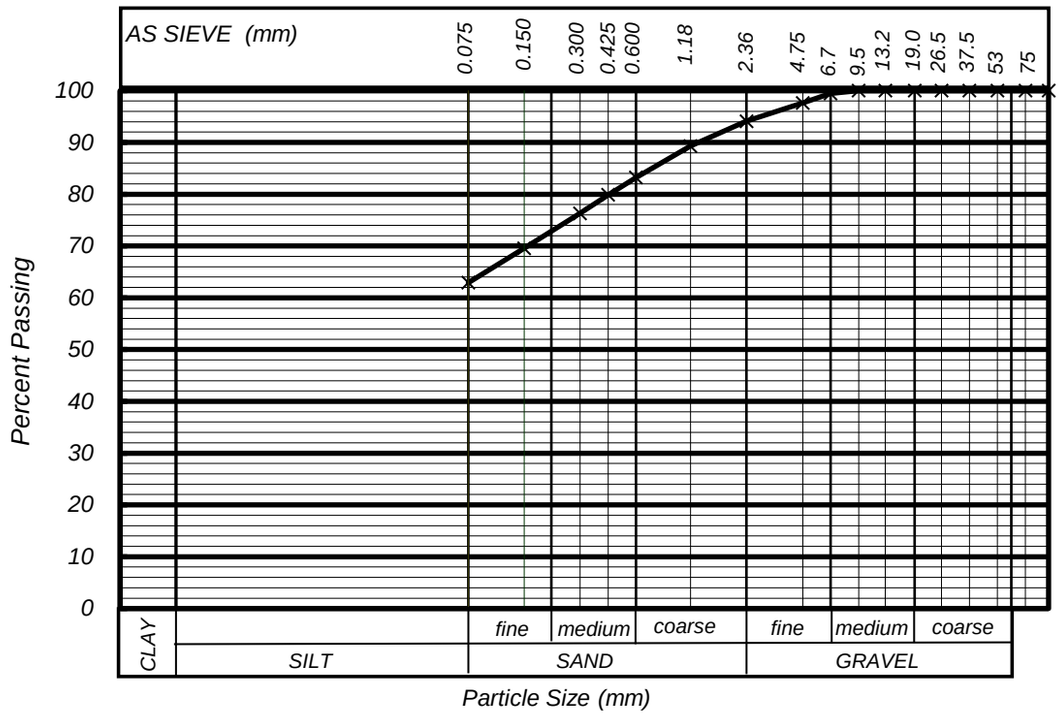
Job No	23030
Report No	23030/R142
Date of Issue	24/05/23

Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	Tested by	Apu M / SK
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	Date tested	09-16/05/23
Location	ETTAMOGAH	Checked by	PJF
Sample identification	BH6 0.4 - 0.8m	Sample No	23030074
		Date sampled	03/05/23
Sampling method	By Client		

Particle Size Distribution

AS 1289.3.6.1

AS sieve (mm)	Percent Passing
100	100
75.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
9.5	100
6.7	99
4.75	98
2.36	94
1.18	89
0.600	83
0.425	80
0.300	76
0.150	70
0.075	63



Granular Material

SAND	fine	9.5%	GRAVEL	fine	5.3%	COBBLES	0.0%
	medium	10.8%		medium	0.6%	GRAVEL	5.9%
	coarse	10.9%		coarse	0.0%	SAND	31.2%
						FINES	62.9%
	TOTAL	31.2%		TOTAL	5.9%	TOTAL	100.0%

Field moisture content

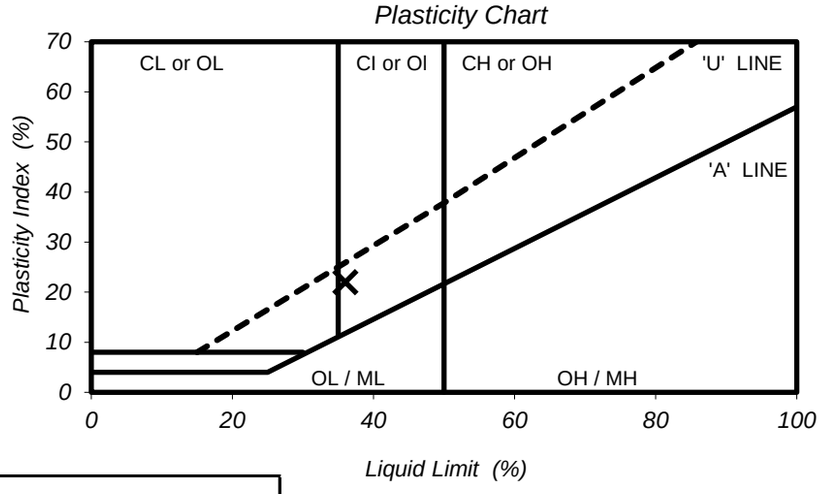
AS 1289.2.1.1

Moisture content	%	11.0

Atterberg limits

AS1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Liquid Limit	%	36
Plastic Limit	%	14
Plasticity Index	%	22
Linear Shrinkage	%	10.0
Method of drying:		LT Oven
Method of sieving:		Dry
Curling / Cracking		No / No



Material description

Classification AS 1726 Table 9 & 10 (2017) = **(CI)**

sandy CLAY, medium plasticity, BROWN, sand fine to coarse, trace of fine to medium gravel.

AS1720G V1.4 OCT 18

Approved Signatory : Peter Fry

TEST RESULTS

Job No	23030
Report No	23030/R143
Date of Issue	24/05/23

CIVIL GEOTECHNICAL SERVICES

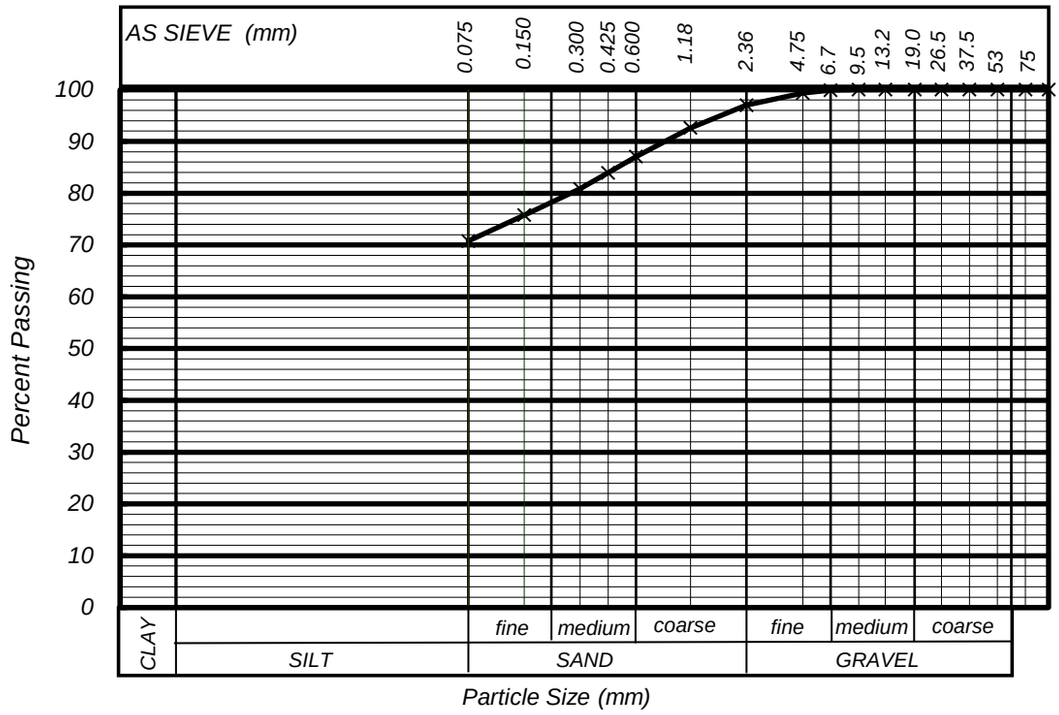
6 - 8 Rose Avenue, Croydon 3136

Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	*Tested by*	Apu M / SK
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	*Date tested*	09-16/05/23
Location	ETTAMOGAH	*Checked by*	PJF
Sample identification	BH7 0.3 - 0.8m	*Sample No*	23030075
		Date sampled	03/05/23
Sampling method	By Client		

Particle Size Distribution

AS 1289.3.6.1

AS sieve (mm)	*Percent Passing*
100	100
75.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
9.5	100
6.7	100
4.75	99
2.36	97
1.18	93
0.600	87
0.425	84
0.300	81
0.150	76
0.075	71



Granular Material

SAND	*fine*	7.1%	*GRAVEL*	*fine*	2.9%	*COBBLES*	0.0%
	medium	9.2%		*medium*	0.1%	*GRAVEL*	3.0%
	coarse	9.9%		*coarse*	0.0%	*SAND*	26.2%
						FINES	70.8%
	TOTAL	26.2%		TOTAL	3.0%	TOTAL	100.0%

Field moisture content

AS 1289.2.1.1

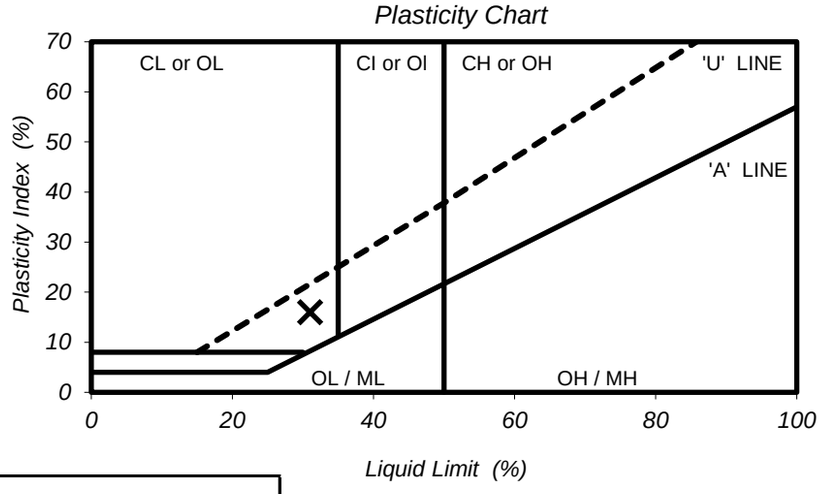
Moisture content	%	14.6

Atterberg limits

AS1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Liquid Limit	%	31
Plastic Limit	%	15
Plasticity Index	%	16
Linear Shrinkage	%	8.0
Method of drying:		LT Oven
Method of sieving:		Dry
Curling / Cracking		No / No

Plasticity Chart



Material description

Classification AS 1726 Table 9 & 10 (2017) = **(CL)**

CLAY, low plasticity, dark brown, with fine to coarse sand, trace of fine gravel.

AS1720G V1.4 OCT 18

Approved Signatory : Peter Fry

TEST RESULTS

CIVIL GEOTECHNICAL SERVICES
6 - 8 Rose Avenue, Croydon 3136

Job No	23030
Report No	23030/R144
Date of Issue	24/05/23

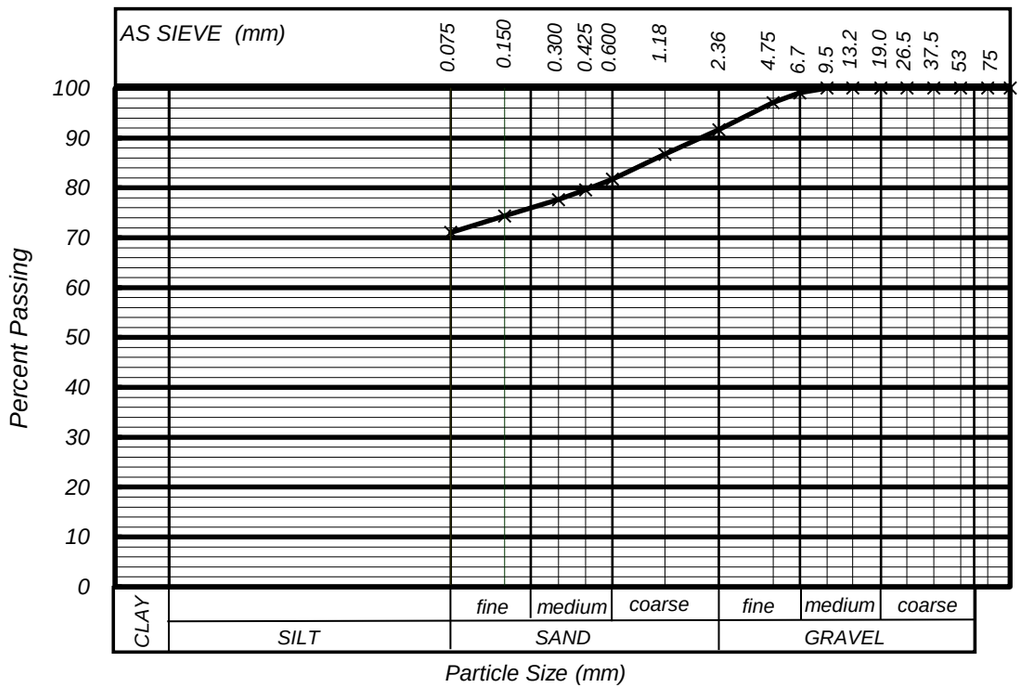
Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	Tested by	Apu M / SK
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	Date tested	09-16/05/23
Location	ETTAMOGAH	Checked by	PJF

Sample identification	BH8 0.4 - 0.8m	Sample No	23030076
		Date sampled	03/05/23
Sampling method	By Client		

Particle Size Distribution

AS 1289.3.6.1

AS sieve (mm)	Percent Passing
100	100
75.0	100
53.0	100
37.5	100
26.5	100
19.0	100
13.2	100
9.5	100
6.7	99
4.75	97
2.36	92
1.18	87
0.600	82
0.425	80
0.300	78
0.150	74
0.075	71



Granular Material

SAND	fine	4.8%	GRAVEL	fine	7.4%	COBBLES	0.0%
	medium	6.0%		medium	0.9%	GRAVEL	8.3%
	coarse	9.9%		coarse	0.0%	SAND	20.7%
						FINES	71.0%
	TOTAL	20.7%		TOTAL	8.3%	TOTAL	100.0%

Field moisture content

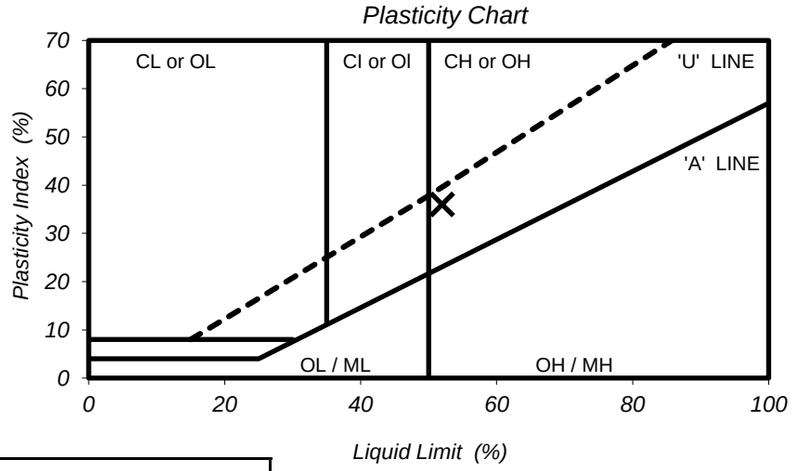
AS 1289.2.1.1

Moisture content	%	14.5

Atterberg limits

AS1289.3.1.2, 3.2.1, 3.3.1 & 3.4.1

Liquid Limit	%	52
Plastic Limit	%	16
Plasticity Index	%	36
Linear Shrinkage	%	13.0
Method of drying:		LT Oven
Method of sieving:		Dry
Curling / Cracking		Yes / No



Material description

Classification AS 1726 Table 9 & 10 (2017) = **(CH)**

CLAY, high plasticity, brown, with fine to coarse sand, trace of fine gravel.

AS1720G V1.4 OCT 18

Approved Signatory : Peter Fry

STANDARD COMPACTION

AS 1289.5.1.1

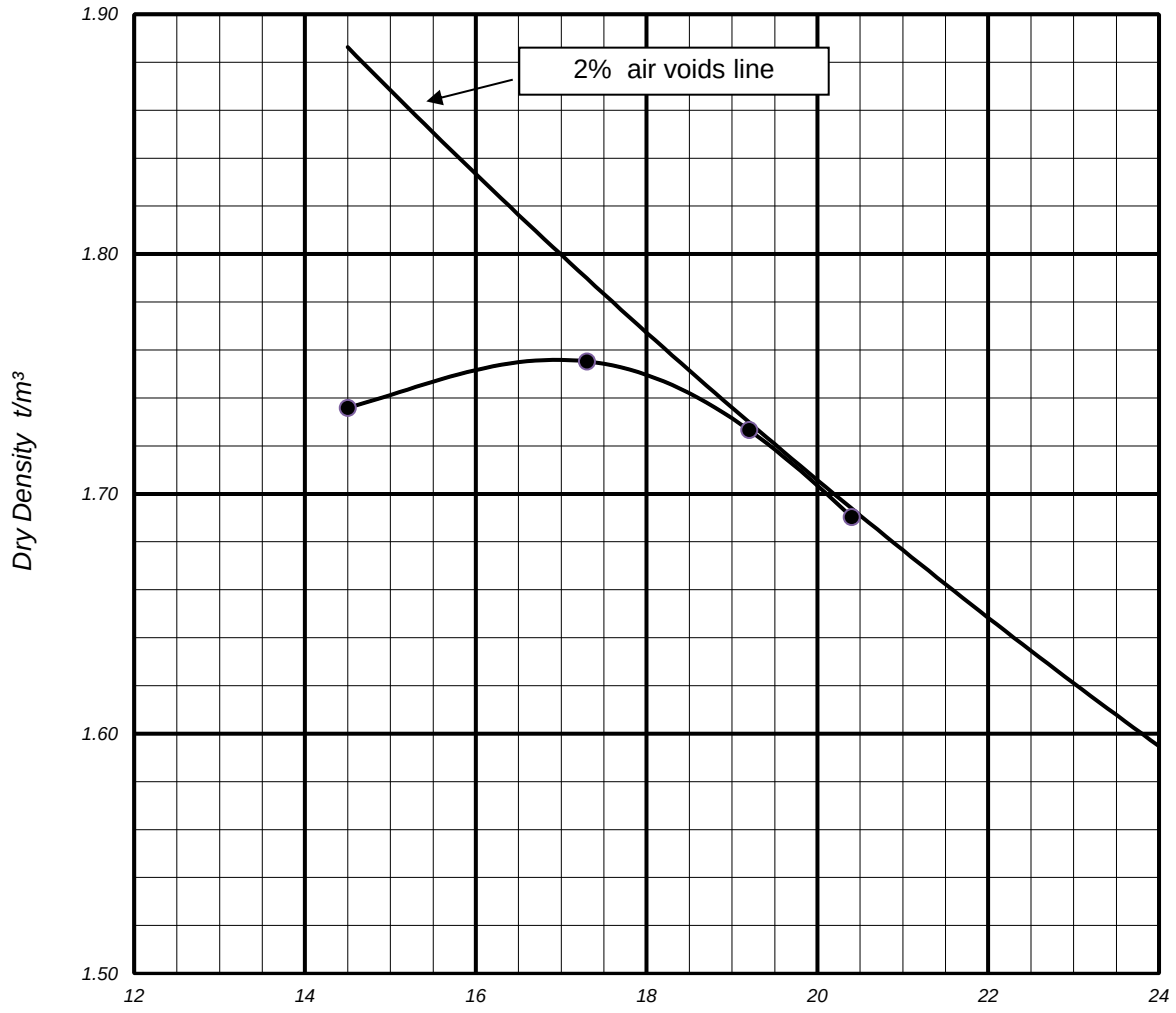
CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

		Job No	23030
		Report No	23030/R145
		Date of Issue	24/05/23
Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	*Tested by*	XF
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	*Date tested*	11/05/23
Location	ETTAMOGAH	*Checked by*	PJF
Sample Identification	BH5 0.3 - 0.8m	*Sample No*	23030073
Sample Description		*Sampled by*	Client
CLAY, high plasticity, dark brown, with fine to coarse sand		*Curing time*	192 hours
		Liquid limit	Visual / Tactile
Oversize material retained on 19.0mm sieve = 0 %		*Mould Type*	A
Maximum Dry Density	1.76 *t/m³*	*Optimum Moisture Content*	17.0 *%*

DRY DENSITY - MOISTURE CONTENT PLOT

Calculated apparent particle density = 2.67 *t/m³*



AS512-R8-MAR 13

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

Approved Signatory : Peter Fry

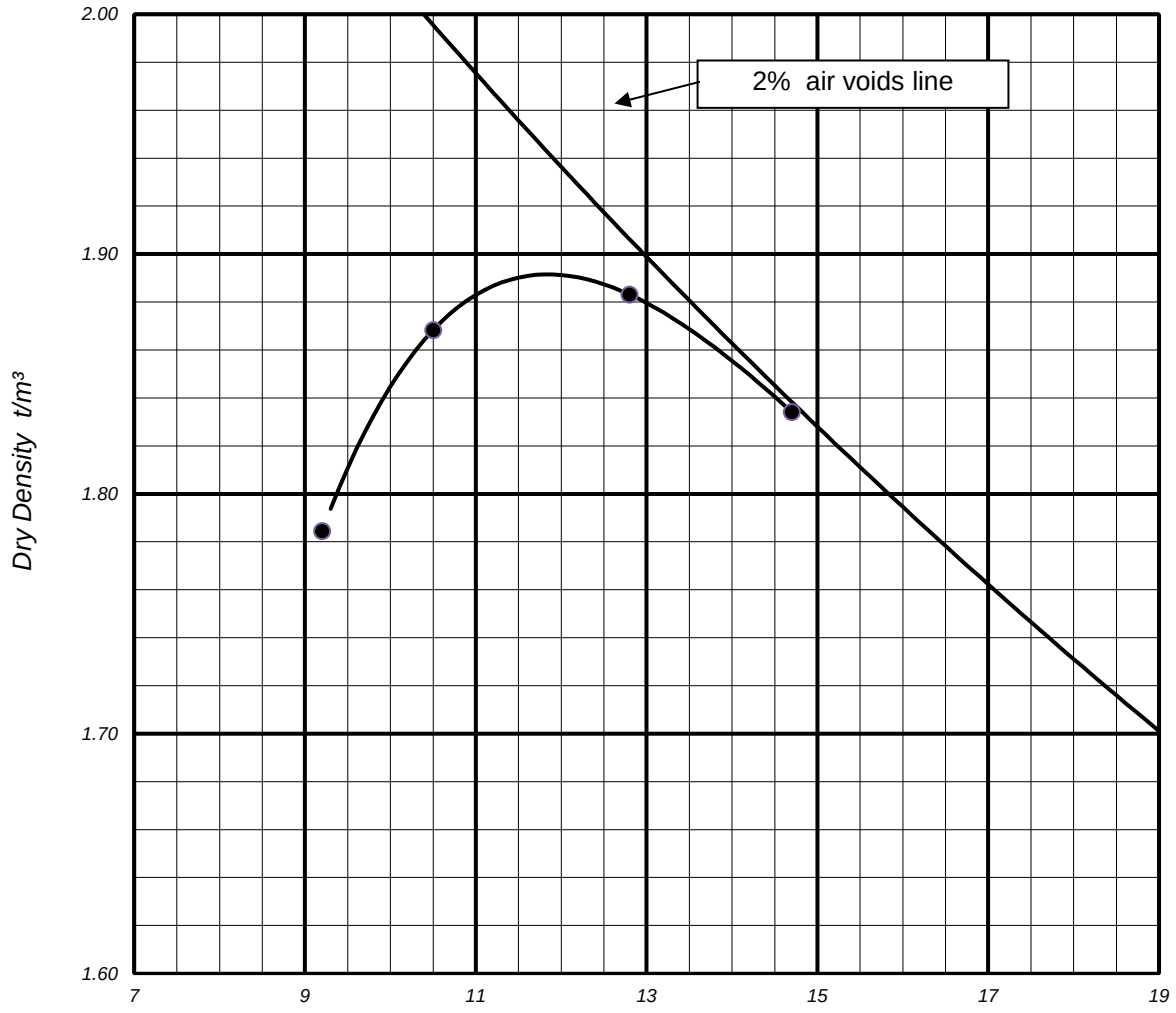
STANDARD COMPACTION

AS 1289.5.1.1

		Job No	23030
CIVIL GEOTECHNICAL SERVICES		*Report No*	23030/R146
6 - 8 Rose Avenue, Croydon 3136		*Date of Issue*	24/05/23
Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	*Tested by*	B P T
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	*Date tested*	16/05/23
Location	ETTAMOGAH	*Checked by*	PJF
Sample Identification	BH6 0.4 - 0.8m	*Sample No*	23030074
Sample Description		*Sampled by*	Client
sandy CLAY, medium plasticity, brown, sand fine to coarse, trace of fine gravel.		*Curing time*	308 hours
		Liquid limit	Visual / Tactile
Oversize material retained on 19.0mm sieve = 0 %		*Mould Type*	A
Maximum Dry Density	1.89 *t/m³*	*Optimum Moisture Content*	12.0 *%*

DRY DENSITY - MOISTURE CONTENT PLOT

Calculated apparent particle density = 2.59 *t/m³*



AS512-R8-MAR 13

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

Approved Signatory : Peter Fry

STANDARD COMPACTION

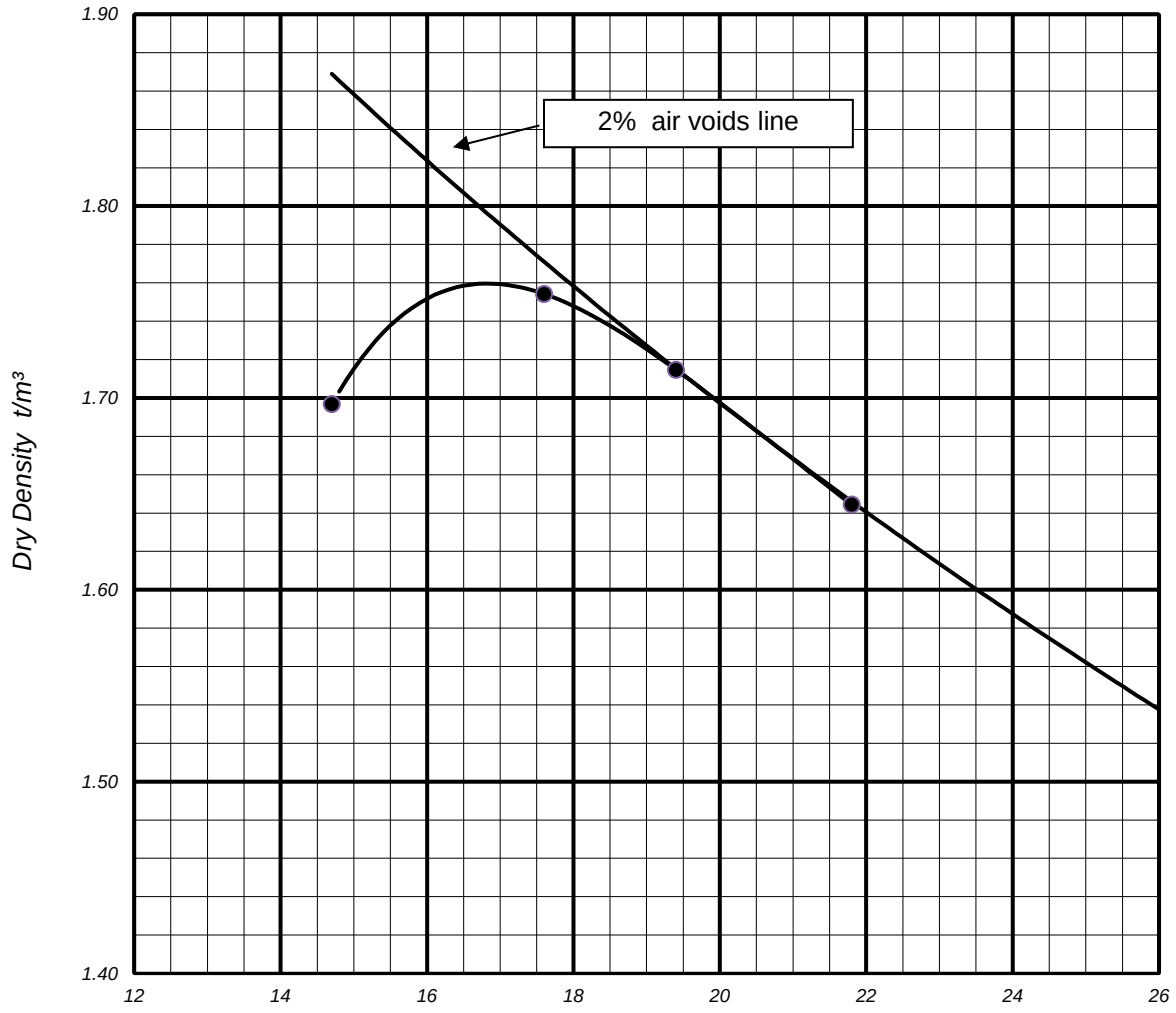
AS 1289.5.1.1

		Job No	23030
CIVIL GEOTECHNICAL SERVICES		*Report No*	23030/R147
6 - 8 Rose Avenue, Croydon 3136		*Date of Issue*	24/05/23
Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	*Tested by*	B P T
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	*Date tested*	16/05/23
Location	ETTAMOGAH	*Checked by*	PJF
Sample Identification	BH7 0.3 - 0.8m	*Sample No*	23030075
Sample Description		*Sampled by*	Client
CLAY, low plasticity, dark brown, with fine to coarse sand		*Curing time*	309 hours
		Liquid limit	Visual / Tactile

Oversize material retained on 19.0mm sieve = 0 %		*Mould Type*	A
Maximum Dry Density	1.76 *t/m³*	*Optimum Moisture Content*	17.0 *%*

DRY DENSITY - MOISTURE CONTENT PLOT

Calculated apparent particle density = 2.65 *t/m³*



AS512-R8-MAR 13

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

Approved Signatory : Peter Fry

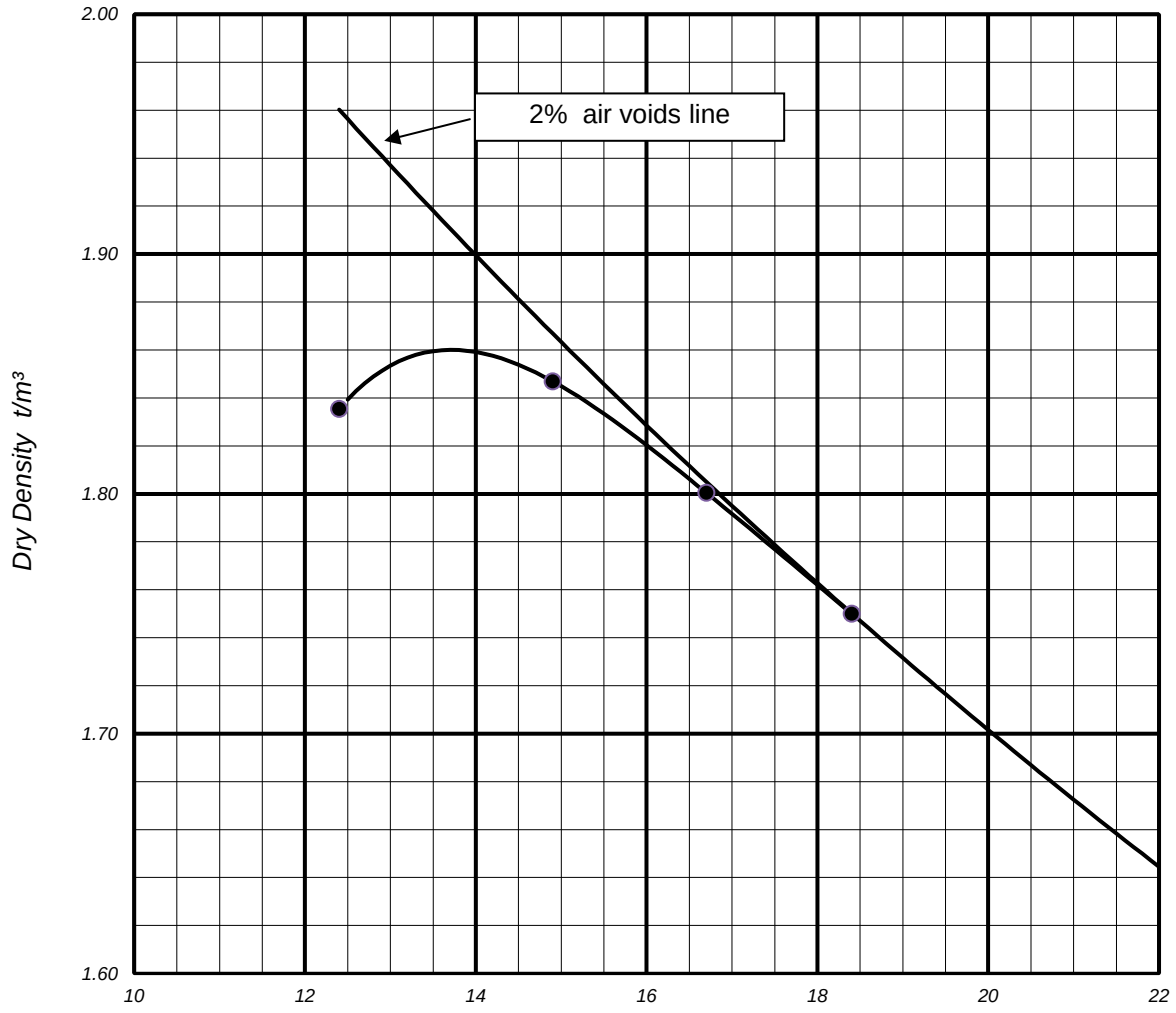
STANDARD COMPACTION

AS 1289.5.1.1

		Job No	23030
CIVIL GEOTECHNICAL SERVICES		*Report No*	23030/R148
6 - 8 Rose Avenue, Croydon 3136		*Date of Issue*	24/05/23
Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	*Tested by*	B P T
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	*Date tested*	16/05/23
Location	ETTAMOGAH	*Checked by*	PJF
Sample Identification	BH8 0.4 - 0.8m	*Sample No*	23030076
Sample Description		*Sampled by*	Client
CLAY, high plasticity, brown, with fine to coarse sand		*Curing time*	312 hours
		Liquid limit	Visual / Tactile
Oversize material retained on 19.0mm sieve = 0 %		*Mould Type*	A
Maximum Dry Density	1.86 *t/m³*	*Optimum Moisture Content*	13.5 *%*

DRY DENSITY - MOISTURE CONTENT PLOT

Calculated apparent particle density = 2.66 *t/m³*



AS512-R8-MAR 13

NATA Accredited Laboratory No 9909
Accredited for compliance with
ISO/IEC 17025 - Testing

Approved Signatory : Peter Fry

SOAKED C.B.R. TEST

AS 1289.6.1.1

CIVIL GEOTECHNICAL SERVICES
6 - 8 Rose Avenue, Croydon 3136

Job No 23030
Report No 23030/R149
Date of Issue 24/05/23

Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	Tested by	XF
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	Date tested	22/05/23
Location	ETTAMOGAH	Checked by	PJF

Sample No		23030073
Sample identification		BH5 0.3 - 0.8m
Liquid limit determination / Curing / Moisture determination		Visual Tactile / 163 hours / AS 1289.2.1.1
Date sampled		03/05/23
Sampled by		Client
Sampling method		By Client
Field moisture content		
Moisture content	%	18.7
Compaction details 1		
AS 1289.5.1.1 Standard Compaction - see Report No		23030/R145
Maximum Dry Density	t/m³	1.76
Optimum Moisture Content	%	17.0
Material retained on 19.0mm sieve and discarded	%	0
Compaction details 2		
Target laboratory density ratio	%	100
Target laboratory moisture ratio	%	100
No of layers		3
Specimen details before soaking		
Dry density	t/m³	1.76
Moisture content	%	17.3
Laboratory moisture ratio	%	102
Laboratory density ratio	%	100
Period of soaking	days	4
Specimen details after soaking		
Dry density	t/m³	1.75
Moisture content	%	18.8
Laboratory moisture ratio	%	112
Laboratory density ratio	%	100
Test details		
Moisture content top 30mm	%	19.0
Surcharge mass	kg	4.5
Swell	%	0.5
C.B.R. VALUE	**%**	**2.5**
Penetration	mm	5.0
Sample description		CLAY, high plasticity, dark brown, with fine to coarse sand

Approved Signatory : Peter Fry

SOAKED C.B.R. TEST

AS 1289.6.1.1

CIVIL GEOTECHNICAL SERVICES
6 - 8 Rose Avenue, Croydon 3136

Job No	23030
Report No	23030/R150
Date of Issue	24/05/23

Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	Tested by	XF
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	Date tested	23/05/23
Location	ETTAMOGAH	Checked by	PJF

Sample No		23030074
Sample identification		BH6 0.4 - 0.8m
Liquid limit determination / Curing / Moisture determination		Visual Tactile / 120 hours / AS 1289.2.1.1
Date sampled		03/05/23
Sampled by		Client
Sampling method		By Client
Field moisture content		
Moisture content	%	11.1
Compaction details 1		
AS 1289.5.1.1 Standard Compaction - see Report No		23030/R146
Maximum Dry Density	t/m³	1.89
Optimum Moisture Content	%	12.0
Material retained on 19.0mm sieve and discarded	%	0
Compaction details 2		
Target laboratory density ratio	%	100
Target laboratory moisture ratio	%	100
No of layers		3
Specimen details before soaking		
Dry density	t/m³	1.88
Moisture content	%	12.5
Laboratory moisture ratio	%	106
Laboratory density ratio	%	99
Period of soaking	days	4
Specimen details after soaking		
Dry density	t/m³	1.87
Moisture content	%	14.7
Laboratory moisture ratio	%	125
Laboratory density ratio	%	99
Test details		
Moisture content top 30mm	%	15.3
Surcharge mass	kg	4.5
Swell	%	0.5
C.B.R. VALUE	**%**	**14**
Penetration	mm	2.5
Sample description		sandy CLAY, medium plasticity, brown, sand fine to coarse, trace of fine gravel.

Approved Signatory : Peter Fry

SOAKED C.B.R. TEST

AS 1289.6.1.1

CIVIL GEOTECHNICAL SERVICES

6 - 8 Rose Avenue, Croydon 3136

Job No	23030
Report No	23030/R151
Date of Issue	24/05/23

Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	*Tested by*	XF
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	*Date tested*	23/05/23
Location	ETTAMOGAH	*Checked by*	PJF

Sample No		23030075
Sample identification		BH7 0.3 - 0.8m
Liquid limit determination / Curing / Moisture determination		Visual Tactile / 100 hours / AS 1289.2.1.1
Date sampled		03/05/23
Sampled by		Client
Sampling method		By Client
Field moisture content		
Moisture content	%	14.6
Compaction details 1		
AS 1289.5.1.1 Standard Compaction - see Report No		23030/R147
Maximum Dry Density	t/m³	1.76
Optimum Moisture Content	%	17.0
Material retained on 19.0mm sieve and discarded	%	0
Compaction details 2		
Target laboratory density ratio	%	100
Target laboratory moisture ratio	%	100
No of layers		3
Specimen details before soaking		
Dry density	t/m³	1.76
Moisture content	%	16.9
Laboratory moisture ratio	%	101
Laboratory density ratio	%	100
Period of soaking	days	4
Specimen details after soaking		
Dry density	t/m³	1.73
Moisture content	%	19.3
Laboratory moisture ratio	%	115
Laboratory density ratio	%	99
Test details		
Moisture content top 30mm	%	21.2
Surcharge mass	kg	4.5
Swell	%	1.5
C.B.R. VALUE	**%**	**6**
Penetration	mm	2.5
Sample description		CLAY, low plasticity, dark brown, with fine to coarse sand

Approved Signatory : Peter Fry

SOAKED C.B.R. TEST

AS 1289.6.1.1

CIVIL GEOTECHNICAL SERVICES
6 - 8 Rose Avenue, Croydon 3136

Job No	23030
Report No	23030/R152
Date of Issue	24/05/23

Client	ALBURY WODONGA GEOTECHNICAL (WODONGA)	Tested by	XF
Project	23AWG454 LOT 2 - 7 MCLAURIN ROAD, ETTAMOGAH	Date tested	23/05/23
Location	ETTAMOGAH	Checked by	PJF

Sample No		23030076
Sample identification		BH8 0.4 - 0.8m
Liquid limit determination / Curing / Moisture determination		Visual Tactile / 97 hours / AS 1289.2.1.1
Date sampled		03/05/23
Sampled by		Client
Sampling method		By Client
Field moisture content		
Moisture content	%	14.5
Compaction details 1		
AS 1289.5.1.1 Standard Compaction - see Report No		23030/R148
Maximum Dry Density	t/m³	1.86
Optimum Moisture Content	%	13.5
Material retained on 19.0mm sieve and discarded	%	0
Compaction details 2		
Target laboratory density ratio	%	100
Target laboratory moisture ratio	%	100
No of layers		3
Specimen details before soaking		
Dry density	t/m³	1.86
Moisture content	%	13.1
Laboratory moisture ratio	%	96
Laboratory density ratio	%	100
Period of soaking	days	4
Specimen details after soaking		
Dry density	t/m³	1.77
Moisture content	%	17.4
Laboratory moisture ratio	%	127
Laboratory density ratio	%	95
Test details		
Moisture content top 30mm	%	23.9
Surcharge mass	kg	4.5
Swell	%	5.0
C.B.R. VALUE	**%**	**1.5**
Penetration	mm	2.5
Sample description		CLAY, high plasticity, brown, with fine to coarse sand

Approved Signatory : Peter Fry