



**MIRVAC RESIDENTIAL (NSW) PTY LTD
C/- BEVERIDGE WILLIAMS**

**PROPOSED RESIDENTIAL SUBDIVISION (STAGE 1 to 7)
WESTERN SYDNEY UNIVERSITY (WSU) MILPERRA NSW
REPORT ON GEOTECHNICAL INVESTIGATION**

**REPORT 9739/1-AD-R2
17 November 2025**

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Document Prepared by

Geotech Testing Pty Ltd

1 Lemko Place, Penrith NSW 2750

PO Box 880, Penrith NSW 2751

Email: geotech@geotech.com.au

Tel: +61 2 4722 2700

www.geotech.com.au

Document Information

Document Title	Geotechnical Investigation Report – SSDA1
Site Address	Western Sydney University (WSU) Milperra NSW
Job No	9739/1
Report No	9739/1-AD-R2
Client	Mirvac Residential (NSW) Pty Ltd c/- Beveridge Williams
Client Address	Level 28, 200 George Street
Client Contact	Jerome Guinto

Document Control

Rev	Date	Revision Detail/Status	Author	Reviewer	Approver
0	29 October 2025	Initial	D. Perera	J. Chen	E Rizkalla
1	5 November 2025	Comments and updated recommendations	J. Chen	J. Chen	E Rizkalla
2	17 November 2025	Comments	J. Chen	J. Chen	E Rizkalla

Reviewer Signature		Approver Signature	
Name	Joe Chen (G2)	Name	Emged Rizkalla (G3)
Title	Project Manager	Title	Director

This document is produced by Geotech Testing Pty Ltd solely for the benefit and use by the client in accordance with the terms of the engagement. Geotech Testing Pty Ltd does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by any third party on the content of this document.

Mirvac Residential (NSW) Pty Ltd
C/- Beveridge Williams
DP.JC.ER/17.11.2025

Table of Contents

	Page
1. Introduction-----	1
1.1. General -----	1
1.2. The Proposed Development-----	2
1.3. Relevant SEARs-----	3
2. Field Work-----	4
3. Review of Available Information -----	5
3.1. Geology-----	5
3.2. Soil Landscape -----	5
3.3. Salinity -----	6
3.4. Acid Sulphate Soil-----	6
3.5. Mine Subsidence-----	7
3.6. Review of Previous Reports-----	7
3.7. Propose Staging Plan-----	8
4. Site Conditions -----	9
4.1. Site Description-----	9
4.2. Subsurface Condition -----	9
4.3. Groundwater Conditions-----	11
5. Laboratory Testing -----	12
5.1. Physical Tests-----	12
5.1.1. California Bearing Ratio (CBR).....	12
5.1.2. Atterberg Limits.....	15
5.1.3. Particle Size Distribution.....	16
5.1.4. Emerson Crumb Test.....	18
5.1.5. Shrink Swell Index.....	19
5.1.6. Permeability Test.....	20
5.2. Chemical Testing-----	21
6. Discussion And Recommendations -----	24
6.1. Salinity Assessment -----	24
6.2. Aggressivity Assessment-----	28
6.3. Erodibility Assessment-----	32
6.4. Soil Management Plan-----	32
6.5. Excavation Conditions -----	34

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

(Table of Content continued)

6.6.	Re-use of Existing Fill	34
6.7.	Subgrade Preparation and Fill Placement	35
6.8.	Ground Vibrations & Construction Noise	36
6.9.	Geotechnical Model	36
6.10.	Batter Slopes and Retaining Structures	37
6.11.	Preliminary Site Classification	38
6.12.	Floor Slabs and Footings	39
6.13.	Slope Stability (Slip & Subsidence)	40
7.	Pavement Thickness Design	42
7.1.	Proposed Roads & Design Traffic Loading	42
7.2.	Design CBR Values	42
7.3.	Recommended Pavement Thickness	42
7.4.	Suitability of Reusing Pavement Materials Assessment	43
8.	CONCLUSION	45
9.	Limitations	46
10.	References	47

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW
(Table of Content continued)

Appendices

APPENDIX A	Drawing No 9739/1-AD1 (Test Pit Location Plan) & Approximate Extent of Fill.
APPENDIX B	Test Pit Logs Explanatory Notes
APPENDIX C	Laboratory Test Results

List Of Tables

Table 1 SEARs Compliance Table	3
Table 2: Summary of Subsurface Conditions	9
Table 3: CBR Test Results	12
Table 4: Atterberg Limits	15
Table 5: Particle Size Distribution	17
Table 6: Summary of Emerson Crumb Test	19
Table 7: Summary of Shrink/Swell Index	19
Table 8: Permeability Test Results	20
Table 9: Chemical Test Results	21
Table 10: Salinity Classification	24
Table 11: Calculated ECe Values and Salinity Assessment	24
Table 12: Aggressivity Assessment	29
Table 13: Dispersive Assessment	32
Table 14: Recommended Geotechnical Parameters	36
Table 15: Recommended Batter Slopes for Cut and Fill Slopes	37
Table 16: Recommended Earth Pressure Parameters	37
Table 17: Recommended Allowable Bearing Pressures	39
Table 18: Definitions of Landslide Risk	40
Table 19: Road Category & Design Traffic Loading Values	42
Table 20: Recommended Pavement Thickness	42
Table 21: Recommended Thick AC Pavement Thickness	43

List Of Figures

Figure 1: Approximate Area of Proposed Development	1
Figure 2: Geological Map of the Proposed Development	5
Figure 3: Salinity Potential Map of the site	6
Figure 4: Proposed Residential Stages	8

1. Introduction

1.1. General

The site is currently owned by Western Sydney University and is located within the Canterbury Bankstown LGA at 2 and 2A Bullecourt Avenue, Milperra, being legally described as Lot 2 in DP1291984 and Lot 1 in DP101147 as shown below in Figure 1.

The total site has an area of approximately 19.64ha and is the subject of numerous easements affecting the site, including two easements to drain water, easements for electricity and other purposes, and a right of carriageway.



NOT TO SCALE



Figure 1: Approximate Area of Proposed Development

Since the demolition of the previous buildings on the site, the site currently comprises:

- Existing at-grade car park (within Zone 4) repurposed as parking and hardstand area for the temporary sales office.
- Existing at-grade car park for the Childcare Centre (generally within the location of the future Road 2B).
- At-grade roads off Bullecourt Avenue.
- A large oval to the south covered with topsoil.
- The Western Sydney University Early Learning Centre (Child-care centre).
- Vegetation of varying significance, including Cumberland Plain Woodland.

The site is bound by the M5 Motorway to the south, Ashford Avenue / existing residential dwellings to the west, Bullecourt Avenue / existing industrial development to the north, and Horsley Road / existing industrial development to the east. Adjoining the site along the southeastern boundary is Mount St Joseph Catholic College.

A substantial number of bus stops are located along Bullecourt Avenue and Horsley Road, servicing routes that connect passengers both within and beyond the LGA, including direct links to Bankstown Central (approximately 8.5km drive from the site), Westfield Burwood, and Westfield Miranda. While the nearest train line is the T8, accessible via East Hills, Panania, and Revesby stations, the T6 line at Bankstown Station can also be reached via bus services operating near the site.

1.2. The Proposed Development

The project will be delivered in stages and across two separate SSDA Projects, and comprises the construction of up to 430 dwellings, three (3) public parks, new roads and shared paths, civil infrastructure, car park, and the management of conservation land.

Specifically, across the two SSDAs, consent is sought for:

- Tree removal
- Site remediation (excluding works carried out as category 2 remediation works)
- Construction of bulk earthworks, public roads and landscaping, and services
- Augmentation of existing services and road infrastructure
- Construction of three (3) public parks
- Construction of up to 430 dwelling houses
- Construction of a carpark to service the existing childcare centre and E1 Local Centre zoned land
- Subdivision resulting in up to 430 residential lots, infrastructure lots, and the creation of a community title lot for land zoned C2 Environmental Conservation and E1 Local Centre
- Conservation works including the management of >2Ha Cumberland Plain Woodland Species.

This SSDA comprises of all Civil works across the entirety of the site as well as the construction of all 62 dwellings in Stages 1 and 2 only, which are as follows:

- Stage 1 – Commencement of site-wide tree removal and land remediation, creation of two (2) super lots and total of 22 residential lots, and construction of 22 dwelling houses fronting Ashford Avenue. This will be the first stage to be delivered and will connect into the existing infrastructure that located within Ashford Avenue.
- Stage 2 – Creation of four (4) super lots, a new lot (Lot 25) across the RE1 Public Recreation zoned land, and 40 residential lots. This stage also involves the construction of 40 dwellings within Stage 2, and the construction of new roads and the new public park referred to in the Civil Plans as the 'Central Park'.
- Stage 3a – Creation of a new super lot, and the construction of perimeter roads surrounding the existing childcare centre, construction of a new car park to service the childcare centre and C2 Environmental Conservation zoned land. It is proposed all associated civil works required to enable the operation of the existing childcare centre will be delivered under this stage. The new traffic intersections at both Bullecourt Avenue and Horsley Road will be constructed.
- Stage 3b – Creation of three (3) lots to be delivered under a Community Title Scheme for the E1 Local Centre zoned land.
- Stage 4 – Creation of eight (8) super lots, a new lot (Lot 50) across the RE1 Public Recreation zoned land, and a new lot (Lot 49) across the SP2 Infrastructure zoned land. This stage also involves the construction of new roads, the stormwater infrastructure Basin 1 and Basin 2, and the new public park referred to in the Civil Plans as the 'Southern Park', all to be dedicated to Council.

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

- Stage 5 – Creation of six (6) super lots and construction of new roads and civil works.
- Stage 6 – Creation of nine (9) super lots and a new lot (70) across the RE1 Public Recreation zoned land. This stage also involves the construction of new roads and civil works, and the new public park referred to in the Civil Plans as the 'Northern Park', all to be dedicated to Council.
- Stage 7 – Creation of six (6) super lots and construction of road and civil works.

The second SSDA will seek consent for all outstanding works in stages 3 to 7, which are as follows:

- Stage 3 – Construction of the Childcare Alterations and Additions and Construction of a permanent structure for Commercial use.
- Stage 4, 5, 6 & 7 – Creation of the subsequent subdivision into residential lots and construction of dwellings.

1.3. Relevant SEARs

This Geotechnical Investigation report addresses the following relevant Secretary's Environmental Assessment Requirements (SEARs) set out in the table below.

Table 1 SEARs Compliance Table

SEARS Request	Response / Location in Report
Assess Groundwater conditions and its impact on the proposed development and construction works. Assess the groundwater conditions and its requirement for further Groundwater Impact Assessment.	Section: 4.3
Address salinity potential and concerns across the site, and the requirement for further assessment.	Section: 3.3, 6.1
Assessment on potential Acid Sulfate Soils (ASS) in accordance with the site locality and proposed development.	Section: 3.4, 3.6,

2. Field Work

Field work for the geotechnical investigation was conducted on 3 April 2025, 1 to 3 & 7 & 8 October 2025, and the following work was completed:

- Prepare Work Health Safety (WHS) and relevant Safe Work Method Statements (SWMS) for the relevant site.
- Reviewing available information and geological landscape maps relevant to the site.
- Carrying out a walk over survey to assess existing site conditions and establish test pit locations.
- Reviewing the underground service plans obtained from “Before You Dig Australia” to determine the locations of services across the site.
- Scanning the proposed test pit locations for underground services to ensure that the services are not damaged during field work. We engaged a specialist service locator for this purpose.
- Excavate fifty (62) test pits (TP1.C to TP3.C, TP9.C to TP17.C and TP1 to TP50) to depths ranging from of 1.5m to 3.0m. The test pit locations are shown on the attached Drawing No 9739/1-AD1, and the engineering logs are attached at the end of this report.
- Conduct seven (7) Dynamic Cone Penetrometer (DCP) tests adjacent to selective test pit locations to determine the strength of subsurface soils. DCP’s were terminated at depths up to 1.7m.
- Recovering representative soil samples for visual assessment and laboratory tests.
- Measuring groundwater and seepage levels during excavation of the test pits (if encountered).

The above field work was supervised by a suitably qualified Geotechnical Engineer from this company who was responsible for the walk over survey, nominating the test pit locations, supervision of in-situ testing, sampling, and preparation of field logs.

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

3. Review of Available Information

3.1. Geology

According to the NSW Seamless Geology map (Figure 2) from MinView, the proposed development site is predominantly underlain by Ashfield Shale of the Wianamatta Group, consisting of black to light grey shale and laminite. These rocks typically weather to form residual clays of medium to high plasticity. A small portion at the southern end of the site is underlain by alluvial deposits, consisting of unconsolidated clay, silt, sand, and gravel.

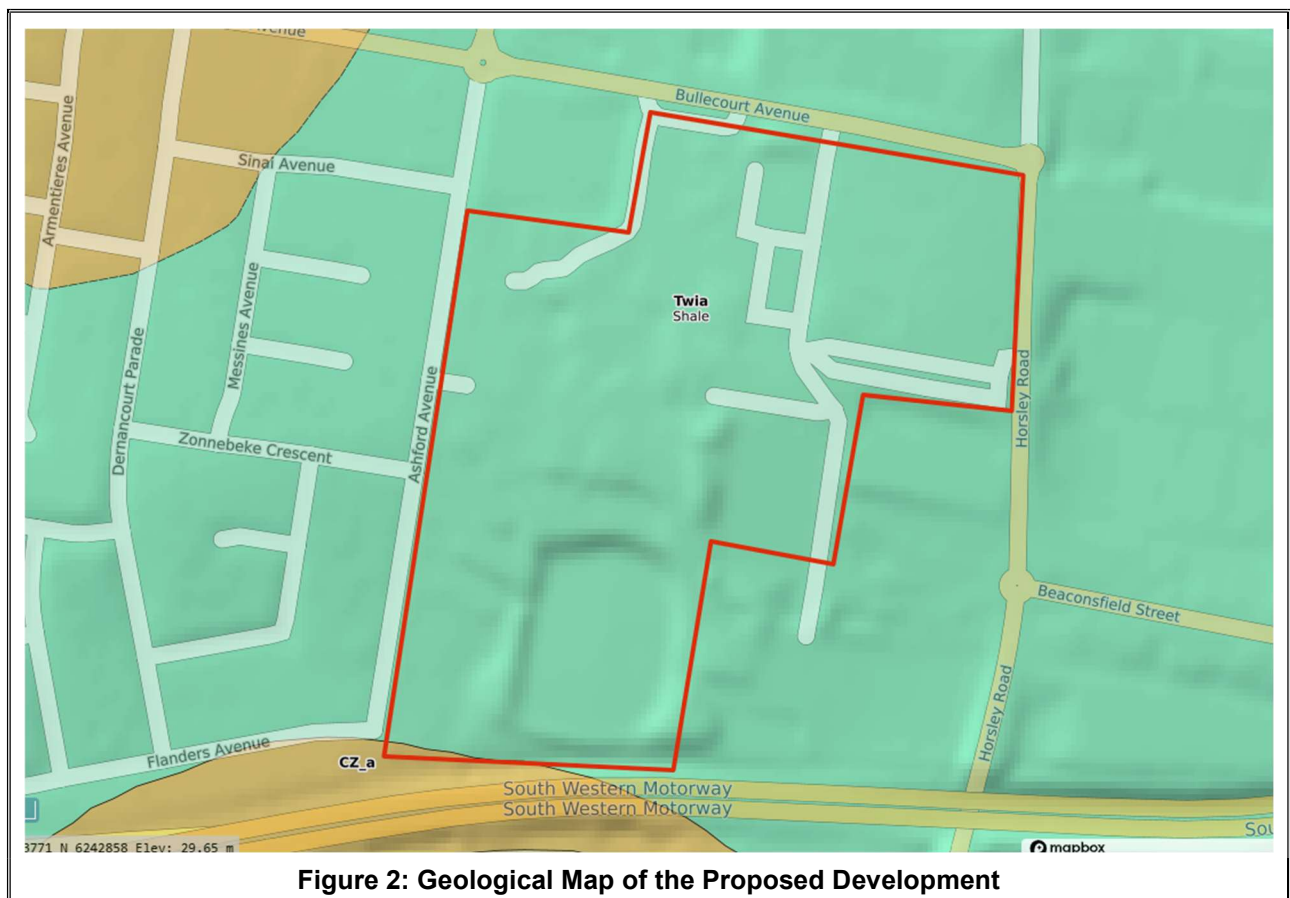


Figure 2: Geological Map of the Proposed Development

3.2. Soil Landscape

Reference to eSPADE portal (<https://www.environment.nsw.gov.au/eSpade2WebApp>), developed by the NSW Department of Planning, Industry and Environment, indicates that the landscape of the site belongs to the Blacktown (9030bt) landscape unit. This unit is characterised by gently undulating rises on Wianamatta Group shales, with local relief up to 30m and ground slopes usually >5%, but occasionally up to 10%. Broad rounded crests and ridges with gently inclined slopes. Cleared Eucalypt woodland and tall open forest.

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

3.3. Salinity

The Salinity Potential in Western Sydney (2002) map indicates that the site exhibits moderate salinity potential.

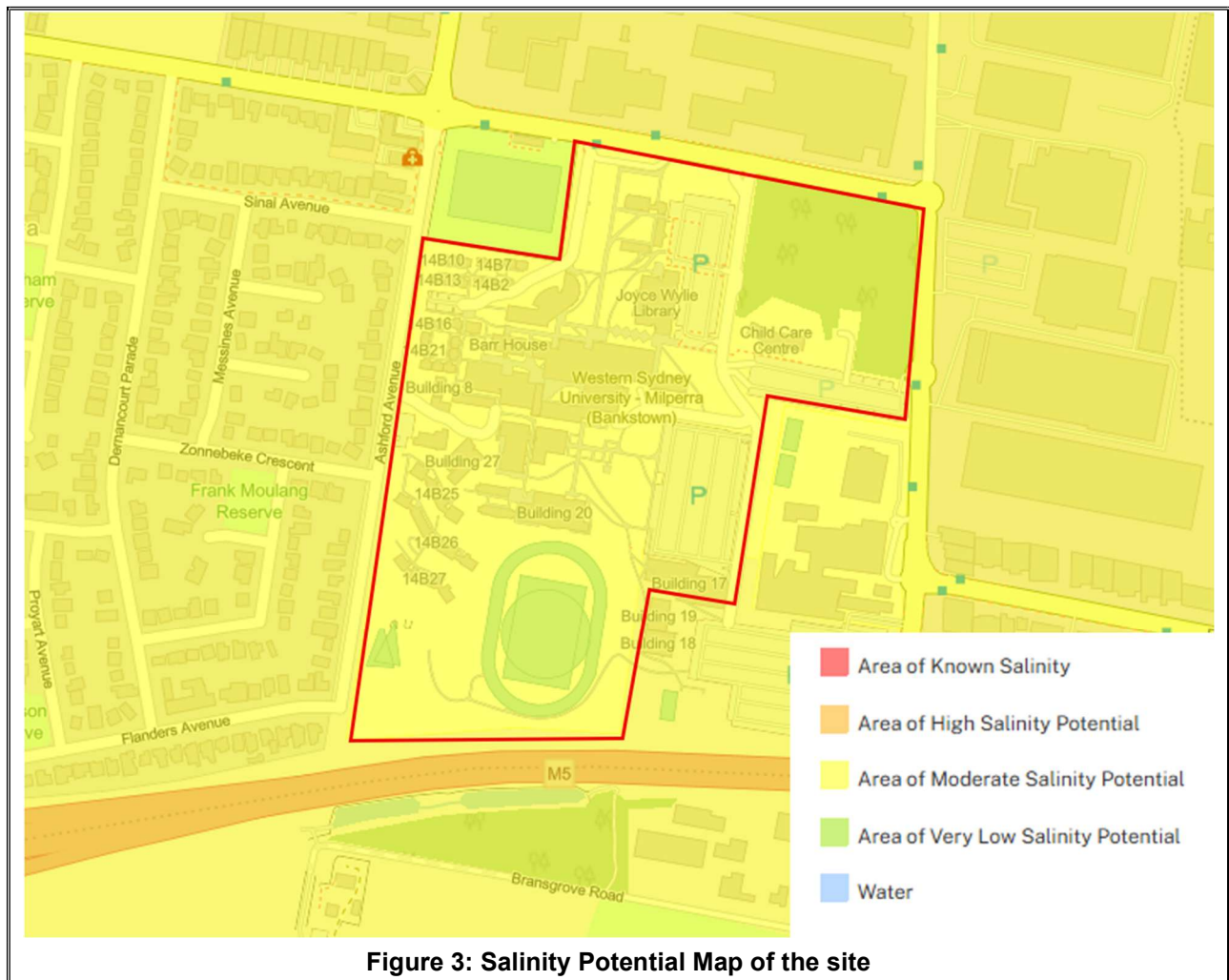


Figure 3: Salinity Potential Map of the site

3.4. Acid Sulphate Soil

A reference to the Acid Sulphate Soil (ASS) Risk Mapping on the eSPADE portal developed by the State of NSW and the Department of Planning, Industry, and Environment (2024), indicates that there are no documented occurrences of Acid Sulphate Soil within the site. However, the area immediately adjacent to the southern boundary of the site is classified as X4 (Disturbed terrain, elevation >4m AHD). Attached ASS risk map within appendix A of this report.

3.5. Mine Subsidence

A reference to the NSW Planning Portal Spatial Viewer developed by the Department of Customer Service (2020), indicates that the site is not within a mine subsidence district and does not require consideration of mine subsidence parameters.

3.6. Review of Previous Reports

Alliance Geotechnical previously conducted a detailed site investigation at the site and provided a draft report (Report No: 9996-ER-1-1) on dated 30 January 2020. The field works involved the excavation of 102 boreholes/test pits/hand auger locations across approximately 65% of the site area, construction and development of eight (8) groundwater monitoring wells.

The groundwater monitoring well gauging results indicate that the standing water level at the site generally varies from RL: 1.534 to RL: 16.312 m AHD, across the site and the groundwater flow direction is likely to be towards the south southwest. Suspected depth of groundwater >8 m below ground levels.

The report indicates the acid sulfate soil status of the site based on a review of the Department of Land and Water Conservation NSW Acid Sulfate Soil Risk Map for Liverpool (1997) and field observations, which reveal that the site lies in an area mapped as 'No Known Occurrence,' where acid sulfate soils are not known or expected to occur.

Although the report provides no information regarding soil salinity, three electrical conductivity tests were carried out on soil samples from BH01, BH03, and BH07. The results indicate that the soil at the site is generally non-saline to slightly saline.

Geotech Testing previously conduct a Geotechnical Investigation and report (9739/1-AB-R1 dated 2 September 2025) at the site which involved drilling of six (6) boreholes to depths ranging from 10.5m to 15.0m. Installation of one (1) groundwater monitoring well near the proposed basin. The purpose of the investigation was to determine the subsurface conditions for the proposed retaining wall, to assist with future designs and further geotechnical and structural analysis.

Nine (9) disturbed samples were sampled at the lower depths of the boreholes and near the highest potential of acid sulphate contamination across the site. From these findings we can summarise no likely indication of Acid Sulphate Soils (ASS), and the lack of capacity to produce significant additional acid the soils are non-acid sulphate. Given the likely disturbance of the areas where concerns may be is localised and minor, no ASS management plan is required as part of the civil and earthworks constructions.

For further details including laboratory results and conclusions, please refer to the forementioned reports.

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

3.7. Propose Staging Plan

Reference to the proposed Subdivision staging plan provided by Beveridge Williams reference 2301879 Revision A, dated 1 August 2025, we understand that a total of six residential stages and one commercial area are proposed within the site as shown in the Figure 4 below.

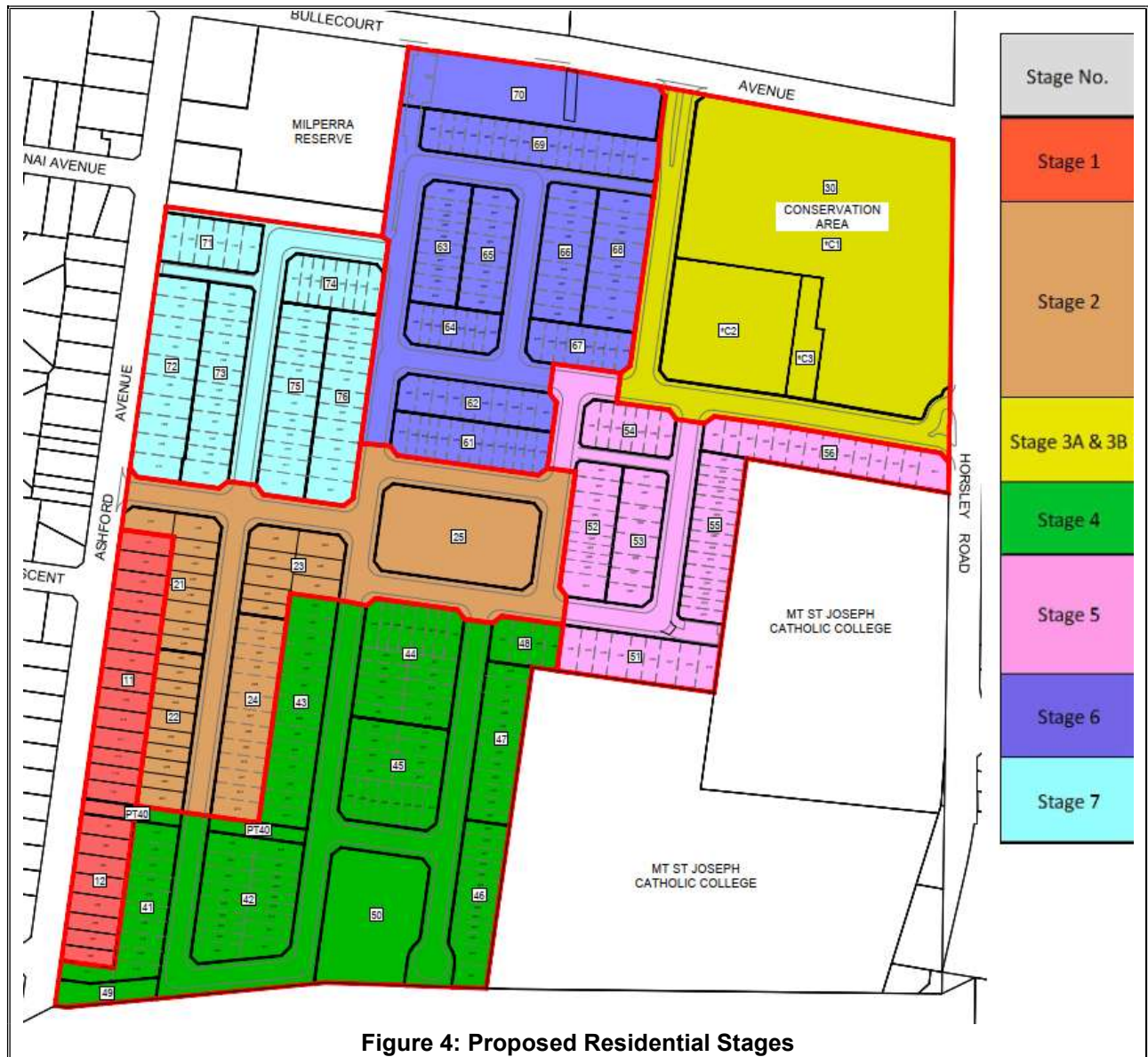


Figure 4: Proposed Residential Stages

4. Site Conditions

4.1. Site Description

The site is covered with low grass vegetation and scattered low-density trees. It is bounded by the Southwestern Motorway to the south, followed by open grassland and forested areas, to the west by Ashford Avenue, beyond which are medium to high density residential lots with internal roads, to the north by Bullecourt Avenue, beyond which are commercial buildings, and to the east by an existing school.

The site features an undulating surface topography with a downwards slope till the fence boundary from north to south at approximately 20 to 30 degrees. Existing granular asphalt car park at the entrance off Bullecourt Avenue and stockpiles of pavement materials at the eastern car park of the proposed Stage 5. Vegetation was limited to topsoil and scattered trees.

4.2. Subsurface Condition

Subsurface conditions encountered in the test pits (TP) are detailed in the attached logs and summarised below in Table 1.

Table 2: Summary of Subsurface Conditions

Location	Topsoil (m)	Fill (m)	Natural Soil (m)	Bedrock (m)	Termination Depth (m)	Termination Remarks (m)
TP1.C	0.00 – 0.40	NE	0.40 – 2.50	NE	2.5	Target Depth
TP2.C	0.00 – 0.20	NE	0.20 – 2.50	NE	2.5	Target Depth
TP3.C	0.00 – 0.20	NE	0.20 – 2.50	NE	2.5	Target Depth
TP9.C	NE	0.00 – 0.80	0.80 – 1.80	1.8	1.8	Refusal on Bedrock
TP10.C	NE	0.00 – 0.30	0.30 – 1.50	NE	1.5	Target Depth
TP11.C	NE	0.00 – 1.10	1.10 – 1.60	NE	1.6	Target Depth
TP12.C	NE	0.00 – 1.30	1.30 – 2.00	NE	2.0	Target Depth
TP13.C	NE	0.00 – 1.60	1.60 – 2.00	NE	2.0	Target Depth
TP14.C	NE	0.00 – 1.20	1.20 – 2.00	NE	2.0	Target Depth
TP15.C	NE	0.00 – 1.20	1.20 – 2.00	NE	2.0	Target Depth
TP16.C	0.0 – 0.4	0.40 – 1.00	1.00 – 2.00	NE	2.0	Target Depth
TP17.C	NE	0.00 – 2.50	NE	NE	2.5	Target Depth
TP1	NE	0.00 – 0.90	0.90 – 2.60	NE	2.6	Target Depth
TP2	NE	0.00 – 0.80	0.80 – 2.50	NE	2.5	Target Depth
TP3	NE	0.00 – 0.35	0.35 – 2.50	NE	2.5	Target Depth
TP4	0.00 – 0.10	0.10 – 0.80	0.80 – 2.20	2.20 – 2.30	2.3	Refusal on Bedrock
TP5	NE	0.00 – 1.10	1.10 – 1.70	1.70 – 1.80	1.8	Refusal on Bedrock
TP6	0.00 – 0.10	0.10 – 0.20	0.20 – 1.80	1.80 – 1.90	1.9	Refusal on Bedrock
TP7	NE	0.00 – 0.30	0.30 – 2.50	NE	2.5	Target Depth
TP8	NE	0.00 – 0.90	0.90 – 2.00	NE	2.0	Collapsed
TP9	0.00 – 0.30	0.30 – 1.20	1.20 – 2.50	NE	2.5	Target Depth
TP10	0.00 – 0.30	0.30 – 0.70	0.70 – 1.40	1.40 – 1.50	1.5	Refusal on Bedrock
TP11	NE	0.00 – 1.70	1.70 – 2.20	NE	2.2	Target Depth

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Location	Topsoil (m)	Fill (m)	Natural Soil (m)	Bedrock (m)	Termination Depth (m)	Termination Remarks (m)
TP12	NE	0.00 – 0.80	0.80 – 2.20	NE	2.2	Target Depth
TP13	NE	0.00 – 2.00	2.00 – 2.50	NE	2.5	Target Depth
TP14	0.00 – 0.10	0.10 – 0.80	0.80 – 2.20	NE	2.2	Target Depth
TP15	0.00 – 0.10	0.10 – 1.50	1.50 – 2.20	NE	2.2	Target Depth
TP16	NE	0.00 – 0.70	0.70 – 2.50	NE	2.5	Target Depth
TP17	NE	0.00 – 1.20	1.20 – 2.70	NE	2.7	Target Depth
TP18	NE	0.00 – 1.40	1.40 – 2.50	NE	2.5	Target Depth
TP19	NE	0.00 – 1.70	1.70 – 2.50	NE	2.5	Target Depth
TP20	NE	0.00 – 0.70	0.70 – 2.50	NE	2.5	Target Depth
TP21	0.00 – 0.30	0.30 – 1.00	1.00 – 1.90	1.90 – 2.00	2.0	Refusal on Bedrock
TP22	0.00 – 0.15	0.15 – 0.50	0.50 – 1.70	1.70 – 1.80	1.8	Refusal on Bedrock
TP23	NE	0.00 – 3.00	NE	NE	3.0	Target Depth
TP24	NE	0.00 – 1.10	1.10 – 2.40	2.40 – 2.50	2.5	Target Depth
TP25	NE	0.00 – 1.00	1.00 – 2.50	NE	2.5	Target Depth
TP26	NE	0.00 – 2.50	NE	NE	2.5	Collapsed
TP27	NE	0.00 – 0.90	0.90 – 2.50	NE	2.5	Target Depth
TP28	0.00 – 0.30	0.30 – 1.20	1.20 – 2.50	NE	2.5	Target Depth
TP29	NE	0.00 – 1.10	1.10 – 2.30	2.30 – 2.50	2.5	Target Depth
TP30	NE	0.00 – 1.30	1.30 – 1.90	1.90 – 2.00	2.0	Refusal on Bedrock
TP31	NE	0.00 – 1.20	1.20 – 2.50	NE	2.5	Target Depth
TP32	NE	0.00 – 1.20	1.20 – 2.30	2.30 – 2.40	2.4	Refusal on Bedrock
TP33	NE	0.00 – 0.60	0.60 – 2.30	2.30 – 2.50	2.5	Target Depth
TP34	NE	0.00 – 0.50	0.50 – 2.50	NE	2.5	Target Depth
TP35	NE	0.00 – 3.00	NE	NE	3.0	Target Depth
TP36	0.00 – 0.30	0.30 – 1.40	1.40 – 2.50	NE	2.5	Target Depth
TP37	0.00 – 0.30	0.30 – 0.80	0.80 – 2.50	NE	2.5	Target Depth
TP38	0.00 – 0.30	0.30 – 2.70	2.70 – 3.00	NE	3.0	Target Depth
TP39	0.00 – 0.40	0.40 – 1.50	1.50 – 2.50	NE	2.5	Target Depth
TP40	0.00 – 0.30	NE	0.30 – 2.00	2.00 – 2.20	2.2	Refusal on Bedrock
TP41	0.00 – 0.30	NE	0.30 – 0.60	0.60 – 1.00	1.0	Refusal on Bedrock
TP42	NE	0.00 – 0.90	0.90 – 2.30	2.30 – 2.40	2.4	Refusal on Bedrock
TP43	NE	0.00 – 0.40	0.40 – 1.80	1.80 – 2.00	2.0	Refusal on Bedrock
TP44	NE	0.00 – 0.90	0.90 – 2.40	2.40 – 2.50	2.5	Target Depth
TP45	NE	0.00 – 2.60	NE	NE	2.6	Collapsed
TP46	0.00 – 0.40	NE	0.40 – 2.30	2.30 – 2.50	2.5	Target Depth
TP47	NE	0.00 – 0.20	0.20 – 1.60	1.60 – 1.90	1.9	Refusal on Bedrock
TP48	NE	0.00 – 0.50	0.50 – 2.30	2.30 – 2.50	2.5	Target Depth
TP49	0.00 – 0.30	NE	0.30 – 1.80	1.80 – 1.90	1.9	Refusal on Bedrock
TP50	NE	0.00 – 1.00	1.00 – 2.50	NE	2.5	Target Depth

Note: NE: Not Encountered

Based on the information presented in Table 1, the subsurface profile encountered in test pits can be generalised consists of topsoil with thicknesses ranging from 0.1m to 0.4m underlain with fill material extending to varying depths of 0.0m and greater than 3.0m overlying natural soils with varying depths from 0.2m to 3.0m overlying bedrock at varying depths ranging from 0.6m to 2.4m below the existing ground level. Dynamic Cone Penetrometer (DCP) tests indicated that the natural soils are of firm to stiff consistency, transitioning to very stiff with increasing depth.

Descriptions of the materials encountered in the test pits are summarised below. For further details, please refer to the attached engineering logs in Appendix B.

Topsoil	Clayey Silty Sand, fine to coarse grained, dark brown, of low plasticity clays, trace rootlets Silty Clay, medium plasticity, dark brown, with fine to coarse grained sand, trace rootlets Clayey Sand, fine to coarse grained, dark grey and brown, with fine to coarse grained gravel and rootlets
Fill	Sandy Silty Clay, orange, brown mottled pale grey, medium plasticity, trace gravel Silty Clay, medium to high plasticity, dark brown/ red brown and yellow brown / red brown mottled pale grey/ dark brown and grey, trace to with fine to coarse grained sand, trace to with gravel Silty Sandy Clay, medium plasticity, orange, brown, fine to coarse grained sand Clayey Sand, fine to coarse grained, orange-brown mottled pale grey / dark brown, of medium plasticity clay, trace gravel Gravelly Sand, fine to coarse grained, dark grey and black, fine to coarse grained gravel, trace silt Sand, fine to coarse grained, pale brown, trace gravel and silt Sandy Gravel, fine to coarse grained, yellow brown and pale brown, fine to coarse grained sand, with cobbles (Road base layers) Silty Sandy Gravel, fine to coarse grained, grey / Sandy Gravel, fine to coarse grained, pale grey, fine to coarse grained sand, with silt (Pavement) Asphalt
Natural Soil	Silty CLAY: medium to high plasticity, red-brown mottled pale grey / yellow- brown mottled pale grey / pale grey mottled red-brown / pale grey mottled orange-brown, trace to with sand, trace to with gravel Silty Gravelly CLAY, high plasticity, orange-brown mottled grey and red brown, fine to coarse grained gravel, with fine to coarse grained sand Gravelly Sandy CLAY, medium plasticity, red brown and grey mottled yellow-brown, fine to coarse grained gravel, fine to coarse grained sand, trace silt Clayey GRAVEL, fine to coarse grained, pale grey and orange-brown, of high plasticity clay
Bedrock	SHALE, pale grey and brown / orange-brown and grey/ pale grey and yellow-brown, very low to low strength, highly weathered

4.3. Groundwater Conditions

Seepage was encountered in test pits TP8, TP18, TP23, TP30, TP31, TP35, TP38, TP39, and TP42 at a depth of 2.0m, 1.2m, 1.8m, 1.1m, 1.4m, 1.5m, 2.4m, 1.6m, and 1.2m respectively below the existing ground level during excavation. It is important to note that groundwater levels typically fluctuate and are influenced by various factors beyond the scope of the current investigation.

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

5. Laboratory Testing

5.1. Physical Tests

During the fieldwork, a number of soil samples were collected from various depths of the test pits to conduct the following tests:

- California Bearing Ratio (CBR)
- Particle Size Distribution (PSD)
- Atterberg Limits
- Shrink/Swell Index
- Emerson Crumb Number (ECN)
- Permeability Test

The above tests were conducted as per relevant Australian standards, in the NATA accredited laboratory of Geotech Testing Pty Ltd AND Macquarie Geotech. The results are summarised below and detailed in the attached certificates.

5.1.1. California Bearing Ratio (CBR)

Laboratory compaction for CBR was performed in accordance with AS1289.6.1.1, on remoulded samples compacted to 100% of SMDD at 100% of SOMC. The test results are summarised in Table 3 below.

Table 3: CBR Test Results

Test ID	Sample Depth (m)	Material Description	MDD (t/m ³)	OMC (%)	FMC (%)	Moisture Variation (%)	Swell (%)	CBR (%)
TP1.C	0.6 – 0.8	(CH) Silty CLAY: high plasticity, yellow - brown mottled pale grey, trace gravel	1.74	17.5	18.1	0.6 (wet)	3.5	1.0
TP2.C	2.1 – 2.3	(CH) Silty CLAY: high plasticity, pale grey mottled red-brown, with fine to coarse grained gravel and sand	1.81	15.5	15.2	0.3 (dry)	4.0	1.5
TP3.C	2.1 – 2.3	(CH) Silty CLAY, high plasticity, orange, brown, with fine to coarse grained sand and gravel	1.86	14.0	13.5	0.5 (dry)	1.0	6.0
TP10.C	0.1 – 0.3	FILL: Silty Sandy Clay, medium plasticity, orange, brown, fine to coarse grained sand	1.83	17.0	16.5	0.5 (dry)	0.0	3.0
TP15.C	0.9 – 1.1	FILL: Silty Clay, high plasticity, yellow - brown and red-brown mottled pale grey	1.56	25.0	25.6	0.6 (wet)	1.0	3.5
TP3	0.4 – 0.7	Gravelly CLAY, medium to high plasticity, red brown mottled grey, fine to coarse grained gravel, with fine to coarse grained sand	1.51	17.5	27.9	10.4 wet	1.5	3.5

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Test ID	Sample Depth (m)	Material Description	MDD (t/m ³)	OMC (%)	FMC (%)	Moisture Variation (%)	Swell (%)	CBR (%)
TP6	0.8 – 1.1	(CH) Silty CLAY, high plasticity, grey mottled orange brown, fine to coarse grained, with fine to coarse grained sand	1.72	20.5	19.9	0.6 dry	2	3.5
TP7	1.2 – 1.5	(CH) Silty CLAY, high plasticity, red brown mottled grey, with fine to coarse grained gravel and sand	1.65	22.5	22.4	0.1 wet	1.5	3
TP8	1.2 – 1.5	(CH) Silty CLAY, high plasticity, red brown and grey. with fine to coarse grained gravel and sand	1.59	26	29.2	3.2 wet	0	0.5
TP10	0.7 – 1.0	Silty CLAY, high plasticity, pale grey mottled red brown and yellow brown, with fine to coarse grained sand, trace gravel	1.62	21.5	21.7	0.2 wet	3	2
TP11	1.2 – 1.5	FILL: Clayey Sand, fine to coarse grained, grey brown, of medium plasticity clay, trace gravel, trace boulder	1.87	13.5	15.6	2.1 wet	0.5	3.5
TP12	1.0 – 1.3	Silty CLAY, medium plasticity, yellow brown mottled grey, with fine to coarse grained sand, trace gravel	1.79	16.5	17.1	0.6 wet	0	4
TP14	0.8 – 1.1	(CH) Silty CLAY, medium plasticity, yellow brown mottled grey and red brown, with fine to coarse grained gravel and sand	1.88	15	15.4	0.4 (wet)	0	3
TP15	1.0 – 1.3	FILL: Silty Clay, yellow brown and red brown mottled pale grey and white, with fine to coarse grained gravel and sand	1.71	18	19.4	1.4 wet	2	5
TP18	1.4 – 1.7	(CH) Silty CLAY, high plasticity, pale grey mottled orange brown. trace gravel and sand	1.7	20.5	19.1	1.4 dry	3	2
TP20	0.8 – 1.1	(CH) Silty CLAY, high plasticity, yellow brown and grey mottled red brown, with fine to coarse grained gravel and sand	1.5	27	26.2	0.8 dry	2	2.5
TP22	0.6 – 0.9	(CH) Silty CLAY, high plasticity, yellow brown and red brown mottled grey, trace gravel and sand	1.38	28.5	28.2	0.3 dry	4	2
TP23	1.5 – 1.8	FILL: Silty Clay, medium to high plasticity, pale grey mottled red brown and yellow brown, with fine to coarse grained gravel and sand, trace cobbles	1.85	16.5	15.7	0.8 dry	2	3.5
TP24	1.1 – 1.4	(CH) Silty CLAY, high plasticity, orange brown and grey, with fine to coarse grained gravel and sand	1.55	19.5	21.6	2.1 wet	6.5	1

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Test ID	Sample Depth (m)	Material Description	MDD (t/m ³)	OMC (%)	FMC (%)	Moisture Variation (%)	Swell (%)	CBR (%)
TP25	1.0 – 1.3	(SC) Clayey SAND, fine to coarse grained, orange brown mottled grey, of high plasticity clay, trace gravel and silt	1.78	18	16.6	1.4 dry	0.5	1.5
TP28	1.2 – 1.5	(CH) Silty CLAY, high plasticity, red brown mottled yellow brown and grey, trace gravel and sand	1.7	25	26.6	1.6 wet	1	1.5
TP30	1.3 – 1.6	(CH) Silty CLAY, high plasticity, orange brown and grey, trace gravel and sand	1.75	17.5	18.4	0.9 wet	4	1.5
TP38	2.7 – 3.0	Silty CLAY, high plasticity, red brown and grey, with fine to coarse grained sand, trace gravel	1.72	19.5	21.3	1.8 wet	1	2.5
TP42	0.9 – 1.2	Silty CLAY, high plasticity, grey and yellow brown mottled red brown, trace gravel and sand	1.78	17	17.7	0.7 dry	3.5	1.5
TP44	1.5 – 1.8	(CH) Silty CLAY, high plasticity, pale grey mottled orange brown, with fine to coarse grained gravel and sand	1.81	16	16.4	0.4 wet	1.5	3
TP45	1.2 – 1.5	FILL: Silty Clay, high plasticity, pale grey mottled orange brown and dark brown, with fine to coarse grained gravel and sand, trace boulder	1.84	17	16.6	0.4 dry	1	2.5
TP46	0.9 – 1.4	(CH) Silty CLAY, high plasticity, yellow brown mottled red brown, trace gravel, trace sand	1.49	27.5	28	0.5 wet	2.5	2
TP47	0.5 – 0.8	(CH) Silty CLAY, high plasticity, red brown and yellow brown mottled grey, with fine to coarse grained gravel and sand	1.56	21	20.6	0.4 dry	5	1
TP48	0.6 – 0.9	(CH) Silty CLAY, high plasticity, orange brown mottled pale grey, with fine to coarse grained gravel and sand	1.59	20	20.9	0.9 wet	3.5	0.5
TP49	0.7 – 1.0	(CH) Silty CLAY, high plasticity, red brown and yellow brown mottled grey, with fine to coarse grained sand, trace	1.48	26.5	26.3	0.2 dry	2.5	3
TP50	1.3 – 1.6	Silty CLAY, medium plasticity, red brown, with fine to coarse grained sand, trace gravel	1.58	19.5	16.3	3.2 dry	4.5	1

MDD: Maximum Dry Density, FMC: Field Moisture Content, OMC: Optimum Moisture Content, CBR: California Bearing Ratio

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

The above results indicate that the CBR values range from 0.5% to 6%, with an average of approximately 3%. The swell of the tested samples ranged from 0.0% to 6.5%, indicating none to high expansive potential for the subgrade soils. Field moisture content was generally within the optimum, range of $\pm 2\%$. Depending on the time of construction, moisture conditioning of the subgrade will be required to achieve a moisture content within $\pm 2\%$ of OMC.

5.1.2. Atterberg Limits

Atterberg limit tests were carried out as per the standards listed below and the results are summarised in Table 4.

- Liquid Limit AS1289 3.1.1
- Plastic Limit AS1289 3.2.1
- Plasticity Index AS1289 3.3.1

Table 4: Atterberg Limits

Location ID	Sample Depth (m)	Material Description	LL (%)	PL (%)	PI (%)	LS (%)
TP1.C	0.6 – 0.8	(CH) Silty CLAY: high plasticity, yellow-brown mottled pale grey, trace gravel	65	19	46	-
TP3.C	0.8 – 1.0	(CI) Silty CLAY: high plasticity, red-brown and yellow brown mottled pale grey, with fine to coarse grained sand and gravel	57	20	37	-
TP11.C	0.6 – 0.8	FILL: Silty Clay, medium plasticity, dark brown, trace sand and gravel	32	18	14	-
TP12.C	1.3 – 1.5	(CH) Silty CLAY, high plasticity, red-brown mottled pale grey, trace gravel and sand	55	20	35	-
TP13.C	0.7 – 0.9	FILL: Silty Clayey Sand, fine to coarse grained, dark brown and grey, of low plasticity clay, trace gravel	29	17	12	-
TP14.C	0.6 – 0.8	FILL: Sandy Silty Clay, low plasticity, orange-brown mottled pale grey, fine to coarse grained sand, with fine to coarse grained gravel	27	14	13	-
TP1	1.0 – 1.2	Silty Gravelly CLAY, high plasticity, orange brown mottled grey and red brown, fine to coarse grained gravel,	88	29	59	16
TP2	0.8 – 1.0	(CH) Sandy CLAY, high plasticity, yellow brown and red brown, fine to coarse grained sand, with fine to coarse grained gravel	65	26	39	13
TP4	0.8 – 1.0	(CI) Silty CLAY, medium plasticity, grey mottled red brown and yellow brown, with fine to coarse grained sand, trace gravel	17	15	32	8.5

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Location ID	Sample Depth (m)	Material Description	LL (%)	PL (%)	PI (%)	LS (%)
TP5	1.5 – 1.7	Silty CLAY, high plasticity, grey and brown, with fine to coarse grained gravel and sand	57	22	35	13.5
TP9	1.2 – 1.4	(CH) Silty CLAY, high plasticity, yellow brown and grey mottled red brown, trace gravel and sand	85	29	56	14
TP13	2.2 – 2.4	(SC) Clayey SAND, fine to coarse grained, orange brown and grey, of medium plasticity, trace gravel	49	17	32	8
TP19	1.0 – 1.2	FILL: Gravelly Clay, medium to high plasticity, dark grey and brown, fine to coarse grained gravel, with fine to coarse grained sand	37	17	20	10.5
TP21	1.2 – 1.4	(CH) Silty CLAY, high plasticity, yellow brown and grey mottled red brown, trace gravel and sand	68	23	46	14
TP26	1.1 – 1.3	FILL: Silty Clay, medium plasticity, grey and brown mottled red and yellow brown, with fine to coarse grained gravel and sand	44	14	30	11
TP27	0.9 – 1.2	(CH) Silty CLAY, high plasticity, grey mottled red brown and yellow brown, with fine to coarse grained gravel and sand	58	21	37	12.5
TP31	1.2 – 1.4	(CH) Silty CLAY, medium plasticity, brown mottled red brown and dark grey, trace gravel and sand	48	19	29	8.5
TP32	1.4 – 1.6	(CH) Silty CLAY, high plasticity, red brown and grey, trace gravel and sand	54	21	33	11.5
TP33	1.0 – 1.2	(CH) Silty CLAY, high plasticity, pale grey and yellow brown, with fine to coarse grained gravel and sand	54	20	34	9.5
TP39	1.8 – 2.0	(CH) Silty CLAY, high plasticity, grey mottled red brown, with fine to coarse grained gravel and sand	69	22	47	9

Note: LL: Liquid Limit; PL: Plastic Limit; PI: Plasticity Index, LS: Linear Shrinkage

The above results indicate that the soils at the site are generally of medium to high plasticity clays, prone to shrinking and swelling to moisture changes.

5.1.3. Particle Size Distribution

Particle size distribution tests on recovered samples in accordance with AS1289.3.6.1. The results are summarised below and detailed in the attached certificates.

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Table 5: Particle Size Distribution

Location ID	Sample Depth (m)	Material Description	% Gravel	% Sand	% Fines
TP12.C	0.4 – 0.6	FILL: Silty Clay, high plasticity, brown mottled pale grey, with fine to coarse grained sand, trace gravel	9	25	66
TP13.C	0.5 – 0.7	FILL: Clayey Sand, fine to coarse grained, dark brown and grey, of low plasticity clay, trace gravel	15	50	35
TP15.C	0.2 – 0.4	FILL: Clayey Sand, fine to coarse grained, orange-brown mottled pale grey, of medium plasticity clay, trace gravel	15	56	29
TP2	0.6 – 0.8	FILL: Clayey Sand, fine to coarse grained, pale brown, trace cobbles	9	65	26
TP1	0.9 – 1.1	Silty CLAY, high plasticity, orange brown mottled grey and red, with fine to coarse grained sand, trace gravel	14	23	63
TP6	1.0 – 1.2	(GP) Sandy GRAVEL, fine to coarse grained, grey mottled orange brown, fine to coarse grained sand, with clay	70	16	14
TP7	0.9 – 1.1	(CH) Silty CLAY, high plasticity, yellow brown mottled red brown, trace sand	-	7	93
TP8	1.0 – 1.2	FILL: Sand, fine to coarse grained, pale brown, with fine to coarse grained gravel,	10	76	14
TP9	1.2 – 1.4	(CH) Silty CLAY, high plasticity, yellow brown and grey mottled red brown, trace gravel and sand	13	2	85
TP10	1.0 – 1.2	(CH) Silty CLAY, high plasticity, pale grey mottled yellow brown, trace gravel and sand	7	2	91
TP13	2.0 – 2.2	(SC) Clayey SAND, fine to coarse grained, orange brown and grey, of medium plasticity, trace gravel	10	50	40
TP16	0.5 – 0.7	FILL: Sandy Clay, medium plasticity, pale brown mottled orange brown, fine to coarse grained sand, with fine to coarse grained gravel	24	32	44
TP19	1.7 – 1.9	(CH) Silty CLAY, high plasticity, yellow brown and red brown, with fine to coarse grained sand, trace gravel	5	26	69
TP25	1.3 – 1.5	(SC) Clayey SAND, fine to coarse grained, orange brown mottled grey, of high plasticity clay, trace gravel and silt	2	53	45
TP26	0.8 – 1.0	FILL: Sandy Clay, medium to high plasticity, grey brown mottled red and yellow brown, fine to coarse grained sand, trace gravel	5	46	49
TP27	0.9 – 1.2	(CH) Silty CLAY, high plasticity, grey mottled red brown and yellow brown, trace fine to coarse grained gravel and sand	5	7	88
TP29	1.1 – 1.3	(CH) Silty CLAY, high plasticity, grey mottled yellow brown, with fine to coarse grained gravel, trace sand	27	14	59

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Location ID	Sample Depth (m)	Material Description	% Gravel	% Sand	% Fines
TP34	0.6 – 0.8	(CH) Silty CLAY, high plasticity, yellow brown mottled red brown and grey, with sand, trace gravel	9	22	69
TP36	1.4 – 1.6	(CH) Silty CLAY, high plasticity, grey mottled yellow brown and red brown, trace gravel and sand	1	9	90
TP37	0.8 – 1.0	(CH) Silty CLAY, high plasticity, yellow brown and grey mottled orange brown, trace sand, trace gravel	4	6	90
TP39	1.6 – 1.8	(CH) Sandy CLAY, high plasticity, grey mottled red brown, fine to coarse grained sand, trace gravel	6	35	59
TP40	0.9 – 1.1	(CH) Silty CLAY, high plasticity, pale grey and yellow brown mottled red brown, with fine to coarse grained gravel, trace sand	22	5	73
TP41	0.4 – 0.6	(CH) Silty CLAY, high plasticity, dark grey mottled pale grey and orange brown, with gravel, trace sand	22	5	73
TP43	1.2 – 1.4	(CH) Silty Gravelly CLAY, high plasticity, pale grey mottled yellow brown, fine to coarse grained gravel, with fine to coarse grained sand	41	8	51
TP46	1.3 – 1.5	(CH) Silty CLAY, high plasticity, pale grey mottled orange brown, with fine to coarse grained gravel, trace sand	21	8	71
TP47	0.9 – 1.1	(CH) Silty CLAY, high plasticity, grey mottled orange brown, with fine to coarse grained gravel and sand	26	1	73

The above PSD and Atterberg limit test results indicate that the Fill and natural material at the site generally comprised a mixture of gravel, sand, silt and clay.

5.1.4. Emerson Crumb Test

Emerson Crumb Number was performed in accordance with AS1289.3.8.1. The result of the tests is summarised in Table 6 below and detailed in the attached certificates.

Table 6: Summary of Emerson Crumb Test

TP ID	Depth (m)	Material Description	ECN
TP1.C	0.4 – 0.5	(CH) Silty CLAY, high plasticity, yellow- brown mottled pale grey, trace gravel	4
TP12.C	1.3 – 1.5	(CH) Silty CLAY, high plasticity, red-brown mottled pale grey, trace gravel and sand	2
TP13.C	0.4 – 0.5	FILL: Silty Clayey Sand, fine to coarse grained, dark brown and grey, of low plasticity clay, trace gravel	4
TP14.C	1.1 – 1.2	FILL: Silty Clay, high plasticity, yellow brown mottled pale grey, trace gravel	1
TP34	0.6 – 0.8	(CH) Silty CLAY, high plasticity, yellow brown mottled red brown and grey, with sand, trace gravel	3
TP39	1.5 – 1.6	(CH) Sandy CLAY, high plasticity, grey mottled red brown, fine to coarse grained sand, trace gravel	6

Emerson Class Number indicates that the soils are varying from highly dispersive to non-dispersive in nature.

5.1.5. Shrink Swell Index

Shrink Swell Index Test was performed in accordance with AS1289.7.1.1 & 2.1.1. The result of the tests is summarised in Table 7 below and detailed in the attached certificates.

Table 7: Summary of Shrink/Swell Index

TP ID	Depth (m)	Material Description	Shrink/ Swell Index (%/pF)
TP2.C	0.7 – 0.9	(CH) Silty CLAY: high plasticity, pale grey mottled red-brown, trace gravel	0.5
TP9.C	0.8 – 1.0	(CH) Silty CLAY: high plasticity, pale grey mottled yellow brown, trace gravel, trace sand	2.0
TP13.C	0.5 – 0.7	FILL: Silty Clayey Sand, fine to coarse grained, dark brown and grey, of low plasticity clay, trace gravel	0.5
TP4	0.8 – 0.98	(CI) Silty CLAY, medium plasticity, grey mottled red brown and yellow brown, with fine to coarse grained sand, trace gravel	0.7
TP7	0.5 – 0.61	(CH) Silty CLAY, high plasticity, yellow brown mottled red brown, trace sand	2.8
TP16	0.7 – 0.9	(CI-CH) Gravelly Silty CLAY, medium to high plasticity, orange brown and grey, fine to coarse grained gravel, with fine to coarse grained sand	1.4
TP21	1.0 – 1.16	(CH) Silty CLAY, high plasticity, yellow brown and grey mottled red brown, trace gravel and sand	3.8

TP ID	Depth (m)	Material Description	Shrink/ Swell Index (%/pF)
TP29	0.8 – 0.95	(CH) Silty CLAY, high plasticity, grey mottled yellow brown, with fine to coarse grained gravel, trace sand	3.7
TP31	1.2 – 1.4	(CI) Silty CLAY, medium plasticity, brown mottled red brown and dark grey, trace gravel and sand	2.1
TP32	1.2 – 1.4	(CH) Silty CLAY, high plasticity, red brown and grey, trace gravel and sand	3.7
TP33	0.6 – 0.8	(CH) Silty CLAY, high plasticity, brown mottled grey, trace gravel and sand	3.6
TP34	0.5 – 1.0	(CH) Silty CLAY, high plasticity, yellow brown mottled red brown and grey, with sand, trace gravel	2.2
TP36	0.5 – 0.62	FILL: Silty Clay, medium to high plasticity, dark brown mottled dark grey and yellow brown, with fine to coarse grained gravel and sand	1.9
TP37	0.8 – 1.0	(CH) Silty CLAY, high plasticity, yellow brown and grey mottled orange brown, trace sand and gravel	0.7
TP40	0.5 – 0.73	(CH) Silty CLAY, high plasticity, pale grey mottled red brown and yellow brown, with fine to coarse grained sand, trace gravel	3.5
TP43	0.5 – 0.66	(CH) Silty CLAY, high plasticity, pale grey and orange brown, trace gravel and sand	2.9
TP46	0.5 – 0.63	(CH) Silty CLAY, high plasticity, yellow brown mottled red brown, trace gravel and sand	2.8

5.1.6. Permeability Test

Permeability Test was performed in accordance with AS1289.6.7.3 on remoulded samples compacted to 98% of SMDD at 100% of SOMC. The result of the tests is summarised in Table 8 below and detailed in the attached certificates.

Table 8: Permeability Test Results

TP ID	Depth (m)	Material Description	Coefficient of Permeability, k (m/s)
TP11.C	0.6 – 0.8	FILL: Silty Clay, low plasticity, dark brown, trace sand and gravel	3×10^{-9}
TP15.C	0.4 – 0.6	FILL: Gravelly Sandy Silty Clay, fine to coarse grained, orange-brown mottled pale grey, with medium plasticity clay	4×10^{-10}

Based on the permeability results above, it is our assessment that the clayey soils encountered across the site are poor draining.

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

5.2. Chemical Testing

Samples recovered from the test pits were tested to determine electrical conductivity (EC), pH, Sulphate, Chloride, and exchangeable sodium percentage (ESP), in the NATA accredited laboratory of SGS. The purpose of pH, sulphate, and chloride tests was to assess soil aggressivity, EC test was to assess soil salinity. The tests are summarised below in Table 9 and attached in the certificates at the end of the report.

Table 9: Chemical Test Results

Location ID	Sample Depth (m)	EC (µS/cm)	pH	Sulphate (ppm)	Chloride (ppm)	ESP (%)
TP1.C	1.3 – 1.4	1500	6.6	-	-	
TP2.C	0.4 – 0.5	87	4.3	-	-	
TP2.C	1.0 – 1.1	110	4.4	76	68	
TP3.C	0.4 – 0.5	140	6.2	-	-	
TP3.C	1.0 – 1.1	250	4.8	150	220	
TP10.C	0.4 – 0.5	300	5.3	-	-	
TP10.C	1.0 – 1.1	340	-	160	290	
TP11.C	0.2 – 0.3	92	4.5	-	-	
TP11.C	1.0 – 1.1	100	-	75	49	
TP12.C	0.7 – 0.8	74	-	39	34	
TP13.C	0.4 – 0.5	130	5.3	-	-	
TP13.C	1.2 – 1.3	110	-	21	88	
TP14.C	0.6 – 0.7	380	7.9	-	-	
TP14.C	1.3 – 1.4	900	-	330	1300	
TP15.C	0.4 – 0.5	370	8.2	-	-	
TP15.C	0.8 – 0.9	330	7.7	-	-	
TP16.C	0.4 – 0.5	320	-	340	110	
TP1	0.5-0.6	280	6.6	-	-	9.7
TP1	1.5-1.6	230	-	11	310	-
TP2	0.4-0.5	88	-	83	4.3	-
TP2	1.1-1.2	93	5.4	-	-	-
TP3	0.2-0.3	69	7.1	-	-	-
TP3	1.0-1.1	51	5.0	-	-	-
TP4	0.6-0.7	65	5.8	-	-	-
TP4	1.6-1.7	93	4.9	-	-	-
TP5	0.3-0.5	330	7.6	-	-	-
TP5	1.0-1.1	230	7.9	-	-	-
TP6	0.6-0.7	32	5.7	-	-	6.4
TP6	1.5-1.6	52	5.4	-	-	-
TP7	0.4-0.6	140	-	33	38	-
TP7	1.1-1.2	56	5.4	-	-	-
TP8	0.8-0.9	390	6.7	-	-	-

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Location ID	Sample Depth (m)	EC (µS/cm)	pH	Sulphate (ppm)	Chloride (ppm)	ESP (%)
TP8	1.2-1.3	420	5.7	-	-	-
TP9	0.7-0.8	50	6.0	-	-	-
TP9	1.5-1.6	180	4.6	-	-	-
TP10	0.5-0.6	150	4.7	-	-	-
TP10	1.2-1.3	130	5.1	-	-	-
TP11	0.8-0.9	40	-	18	4	-
TP11	1.8-1.9	78	-	84	8.7	-
TP12	0.8-0.9	61	6.2	-	-	-
TP12	1.8-1.9	32	6.4	-	-	-
TP13	0.9-1.0	36	6.1	-	-	-
TP13	2.2-2.4	48	5.5	-	-	-
TP14	0.7-0.8	18	7.2	-	-	-
TP14	1.4-1.5	45	5.5	-	-	-
TP15	0.7-0.8	46	6.9	-	-	-
TP15	1.7-1.8	87	5.0	-	-	-
TP16	0.4-0.5	57	-	48	2.9	-
TP16	1.1-1.2	110	-	110	6.6	-
TP17	0.5-0.6	180	7.6	-	-	-
TP17	1.4-1.5	91	4.5	-	-	-
TP18	0.8-0.9	430	7.4	-	-	-
TP18	1.8-1.9	400	7.9	-	-	-
TP19	0.5-0.6	590	-	720	270	-
TP19	1.2-1.3	290	9.1	-	-	-
TP20	0.6-0.7	220	5.5	-	-	-
TP20	1.4-1.5	130	5.2	-	-	-
TP21	0.4-0.5	140	7.7	-	-	-
TP21	1.0-1.1	190	5.5	-	-	-
TP22	0.5-0.6	120	5.3	-	-	5.9
TP22	1.4-1.5	65	5.3	-	-	-
TP23	1.4-1.5	490	7.9	-	-	14.4
TP23	2.2-2.3	390	6.1	-	-	-
TP24	0.9-1.0	120	5.1	-	-	-
TP24	1.7-1.8	52	5.6	-	-	-
TP25	0.6-0.7	69	6.6	-	-	-
TP25	1.6-1.7	120	4.9	-	-	-
TP26	0.3-0.4	160	4.9	-	-	-
TP26	1.0-1.1	160	6.7	-	-	-
TP27	0.4-0.5	300	8.0	-	-	-

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Location ID	Sample Depth (m)	EC (µS/cm)	pH	Sulphate (ppm)	Chloride (ppm)	ESP (%)
TP27	1.1-1.2	39	-	49	7.5	-
TP28	0.8-0.9	160	8.2	-	-	1.6
TP28	1.8-1.9	290	4.8	-	-	-
TP29	0.5-0.6	230	-	290	37	-
TP29	1.5-1.6	89	-	100	44	-
TP30	0.9-1.0	200	6.8	-	-	-
TP30	1.7-1.8	33	5.2	-	-	-
TP31	0.6-0.7	340	7.1	-	-	-
TP31	1.6-1.7	520	5.0	-	-	-
TP32	0.6-0.7	170	-	400	63	-
TP32	1.6-1.7	480	-	290	310	-
TP33	0.6-0.7	1000	-	350	1200	-
TP33	1.2-1.3	1100	-	480	1400	-
TP34	0.5-0.6	750	-	400	650	-
TP34	1.0-1.1	1400	-	380	1700	-
TP35	0.5-0.6	250	-	280	170	-
TP35	1.0-1.1	380	-	150	470	-
TP36	0.8-0.9	780	-	340	680	-
TP36	1.4-1.5	710	-	210	560	-
TP37	0.6-0.7	66	-	70	25	-
TP37	1.5-1.6	710	-	230	860	-
TP38	1.3-1.4	380	5.3	-	-	-
TP38	2.2-2.3	550	5.9	-	-	-
TP39	1.5-1.6	150	4.9	-	-	22.8
TP39	2.0-2.1	150	5.0	-	-	-
TP40	0.4-0.5	91	4.6	-	-	-
TP40	1.0-1.1	410	4.7	-	-	-
TP41	0.3-0.4	190	5.7	-	-	-
TP41	0.9-1.0	130	6.6	-	-	-
TP42	0.9-1.0	47	6.9	-	-	-
TP42	2.0-2.1	35	5.7	-	-	-
TP43	0.4-0.5	150	-	85	140	-
TP43	1.1-1.2	93	-	73	68	-
TP44	1.0-1.1	90	6.9	-	-	2.6
TP44	2.0-2.1	60	5.3	-	-	-
TP45	0.9-1.0	38	7.3	-	-	-
TP45	2.0-2.1	91	7.3	-	-	-
TP46	0.7-0.8	90	5.0	-	-	-

Location ID	Sample Depth (m)	EC ($\mu\text{S/cm}$)	pH	Sulphate (ppm)	Chloride (ppm)	ESP (%)
TP46	1.5-1.6	110	4.7	-	-	-
TP47	0.4-0.5	260	5.0	-	-	-
TP47	1.1-1.2	46	5.4	-	-	-
TP48	0.5-0.6	99	5.1	-	-	-
TP48	1.2-1.3	140	5.1	-	-	-
TP49	0.6-0.7	64	-	66	4.6	-
TP49	1.4-1.5	49	-	59	3.8	-
TP50	1.2-1.3	210	4.5	-	-	-
TP50	2.0-2.1	150	4.6	-	-	-

6. Discussion And Recommendations

6.1. Salinity Assessment

Salinity refers to the presence of excess salt in the environment, either in soil or water. Salinity is a serious problem for any development due to the many environmental, economic and social impacts. Soil salinity is generally assessed by measuring Electrical Conductivity (EC) of a soil sample made up of 1:5 soil water suspension. The measured Electrical Conductivity (EC) is then adjusted by multiplying it by a multiplication factor (MF) varying from 6 to 17, based on the texture of the soil sample, to obtain corrected Electrical Conductivity designated as EC_e (Lillicrap & McGhie, 2002). The criteria for assessment of soil salinity classes are shown below (Lillicrap & McGhie, 2002).

Table 10: Salinity Classification

Classification	EC_e (dS/m)	Comments
Non-saline	<2	Salinity effects mostly negligible
Slightly saline	2 – 4	Yields of very sensitive crops may be affected
Moderately saline	4 – 8	Yields of many crops affected
Very saline	8 – 16	Only tolerant crops yield satisfactorily
Highly saline	>16	Only a few tolerant crops yield satisfactorily

Calculated EC_e values of the tested samples are shown below in Table 11. Considering the type of subsurface materials encountered at the site MF ranging from 6 to 9 were used to calculated EC_e values.

Table 11: Calculated EC_e Values and Salinity Assessment

Test Pit	Depth (m)	EC ($\mu\text{S/cm}$)	MF	EC_e (dS/m)	Salinity Assessment
TP1.C	1.3 – 1.4	1500	6	9	Very saline
TP2.C	0.4 – 0.5	87	6	0.5	Non-saline
	1.0 – 1.1	110	6	0.7	Non-saline
TP3.C	0.4 – 0.5	140	6	0.8	Non-saline
	1.0 – 1.1	250	6	1.5	Non-saline
TP10.C	0.4 – 0.5	300	6	1.8	Non-saline
	1.0 – 1.1	340	6	2.0	Slightly saline

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Test Pit	Depth (m)	EC (µS/cm)	MF	ECe (dS/m)	Salinity Assessment
TP11.C	0.2 – 0.3	92	9	0.8	Non-saline
	1.0 – 1.1	100	9	0.9	Non-saline
TP12.C	0.7 – 0.8	74	6	0.4	Non-saline
TP13.C	0.4 – 0.5	130	8	1.0	Non-saline
	1.2 – 1.3	110	9	1.0	Non-saline
TP14.C	0.6 – 0.7	380	9	3.4	Slightly saline
	1.3 – 1.4	900	6	5.4	Moderately saline
TP15.C	0.4 – 0.5	370	8	3.0	Slightly saline
TP15.C	0.8 – 0.9	330	6	2.0	Non-saline
TP16.C	0.4 – 0.5	320	6	1.9	Non-saline
TP1	0.5-0.6	280	7	2.0	Slightly saline
TP1	1.5-1.6	230	6	1.4	Non-saline
TP2	0.4-0.5	88	9	0.8	Non-saline
TP2	1.1-1.2	93	8	0.7	Non-saline
TP3	0.2-0.3	69	7	0.5	Non-saline
TP3	1.0-1.1	51	7	0.4	Non-saline
TP4	0.6-0.7	65	8	0.5	Non-saline
TP4	1.6-1.7	93	6	0.6	Non-saline
TP5	0.3-0.5	330	7	2.3	Slightly saline
TP5	1.0-1.1	230	7	1.6	Non-saline
TP6	0.6-0.7	32	6	0.2	Non-saline
TP6	1.5-1.6	52	6	0.3	Non-saline
TP7	0.4-0.6	140	6	0.8	Non-saline
TP7	1.1-1.2	56	6	0.3	Non-saline
TP8	0.8-0.9	390	9	3.5	Slightly saline
TP8	1.2-1.3	420	6	2.5	Slightly saline
TP9	0.7-0.8	50	7	0.4	Non-saline
TP9	1.5-1.6	180	6	1.1	Non-saline
TP10	0.5-0.6	150	6	0.9	Non-saline
TP10	1.2-1.3	130	6	0.8	Non-saline
TP11	0.8-0.9	40	8	0.3	Non-saline
TP11	1.8-1.9	78	6	0.5	Non-saline
TP12	0.8-0.9	61	6	0.4	Non-saline
TP12	1.8-1.9	32	6	0.2	Non-saline
TP13	0.9-1.0	36	8	0.3	Non-saline
TP13	2.2-2.4	48	6	0.3	Non-saline
TP14	0.7-0.8	18	8	0.1	Non-saline
TP14	1.4-1.5	45	6	0.3	Non-saline
TP15	0.7-0.8	46	7	0.3	Non-saline
TP15	1.7-1.8	87	6	0.5	Non-saline

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Test Pit	Depth (m)	EC (µS/cm)	MF	ECe (dS/m)	Salinity Assessment
TP16	0.4-0.5	57	8	0.5	Non-saline
TP16	1.1-1.2	110	7	0.8	Non-saline
TP17	0.5-0.6	180	8	1.4	Non-saline
TP17	1.4-1.5	91	6	0.5	Non-saline
TP18	0.8-0.9	430	7	3.0	Non-saline
TP18	1.8-1.9	400	6	2.4	Slightly saline
TP19	0.5-0.6	590	7	4.1	Moderately saline
TP19	1.2-1.3	290	6	1.7	Non-saline
TP20	0.6-0.7	220	6	1.3	Non-saline
TP20	1.4-1.5	130	7	0.9	Non-saline
TP21	0.4-0.5	140	6	0.8	Non-saline
TP21	1.0-1.1	190	6	1.1	Non-saline
TP22	0.5-0.6	120	6	0.7	Non-saline
TP22	1.4-1.5	65	6	0.4	Non-saline
TP23	1.4-1.5	490	7	3.4	Slightly saline
TP23	2.2-2.3	390	7	2.7	Slightly saline
TP24	0.9-1.0	120	8	1.0	Non-saline
TP24	1.7-1.8	52	6	0.3	Non-saline
TP25	0.6-0.7	69	8	0.6	Non-saline
TP25	1.6-1.7	120	6	0.7	Non-saline
TP26	0.3-0.4	160	7	1.1	Non-saline
TP26	1.0-1.1	160	7	1.1	Non-saline
TP27	0.4-0.5	300	6	1.8	Non-saline
TP27	1.1-1.2	39	6	0.2	Non-saline
TP28	0.8-0.9	160	9	1.4	Non-saline
TP28	1.8-1.9	290	6	1.7	Non-saline
TP29	0.5-0.6	230	6	1.4	Non-saline
TP29	1.5-1.6	89	6	0.5	Non-saline
TP30	0.9-1.0	200	6	1.2	Non-saline
TP30	1.7-1.8	33	6	0.2	Non-saline
TP31	0.6-0.7	340	7	2.4	Slightly saline
TP31	1.6-1.7	520	6	3.1	Slightly saline
TP32	0.6-0.7	170	8	1.4	Non-saline
TP32	1.6-1.7	480	6	2.9	Slightly saline
TP33	0.6-0.7	1000	6	6.0	Moderately saline
TP33	1.2-1.3	1100	6	6.6	Moderately saline
TP34	0.5-0.6	750	6	4.5	Moderately saline
TP34	1.0-1.1	1400	6	8.4	Very saline
TP35	0.5-0.6	250	7	1.8	Non-saline
TP35	1.0-1.1	380	7	2.7	Slightly saline

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Test Pit	Depth (m)	EC ($\mu\text{S/cm}$)	MF	EC _e (dS/m)	Salinity Assessment
TP36	0.8-0.9	780	6	4.7	Moderately saline
TP36	1.4-1.5	710	6	4.3	Moderately saline
TP37	0.6-0.7	66	6	0.4	Non-saline
TP37	1.5-1.6	710	6	4.3	Moderately saline
TP38	1.3-1.4	380	6	2.3	Slightly saline
TP38	2.2-2.3	550	7	3.9	Slightly saline
TP39	1.5-1.6	150	6	0.9	Non-saline
TP39	2.0-2.1	150	6	0.9	Non-saline
TP40	0.4-0.5	91	6	0.5	Non-saline
TP40	1.0-1.1	410	6	2.5	Slightly saline
TP41	0.3-0.4	190	6	1.1	Non-saline
TP41	0.9-1.0	130	6	0.8	Non-saline
TP42	0.9-1.0	47	6	0.3	Non-saline
TP42	2.0-2.1	35	6	0.2	Non-saline
TP43	0.4-0.5	150	6	0.9	Non-saline
TP43	1.1-1.2	93	6	0.6	Non-saline
TP44	1.0-1.1	90	6	0.5	Non-saline
TP44	2.0-2.1	60	6	0.4	Non-saline
TP45	0.9-1.0	38	9	0.3	Non-saline
TP45	2.0-2.1	91	6	0.6	Non-saline
TP46	0.7-0.8	90	6	0.5	Non-saline
TP46	1.5-1.6	110	6	0.7	Non-saline
TP47	0.4-0.5	260	6	1.6	Non-saline
TP47	1.1-1.2	46	6	0.3	Non-saline
TP48	0.5-0.6	99	6	0.6	Non-saline
TP48	1.2-1.3	140	6	0.8	Non-saline
TP49	0.6-0.7	64	6	0.4	Non-saline
TP49	1.4-1.5	49	6	0.3	Non-saline
TP50	1.2-1.3	210	8	1.7	Non-saline
TP50	2.0-2.1	150	6	0.9	Non-saline

The foregoing laboratory EC results and the multiplication factors of 6 to 9 used to convert EC_{1:5} to EC_e values, the calculated EC_e values range from 0.1dS/m to 9.0dS/m, with an average of approximately 1.5dS/m. Out of 117 samples, sixteen (16) samples slightly saline, eight (8) samples moderately saline and one sample (TP34, 1.0–1.1 m) very saline, with an EC_e value of 9.0dS/m. Therefore, it is our assessment that the soils are generally non-saline with localised areas of slightly to moderately saline across the site. Based on these results it is our assessment that salinity is overall consistent with the salinity potential map as shown in Figure 3 and does not require further testing or assessment.

6.2. Aggressivity Assessment

Aqueous solution of chlorides causes corrosion of iron and steel, including steel reinforcement in concrete. High acidity and soils with high sulphates affect the integrity of concrete structures buried in the soil. Concrete structures constructed in aggressive soils will require increased concrete strength proportional to the increased in soil aggressivity. In addition, the concrete cover and curing period should be increased depending on the degree of aggressivity of the soil.

The aggressivity classifications of soil and groundwater applicable to iron and steel, in accordance with AS2159 (Standards Australia, 2009), are given below:

Iron & Steel			Concrete		
pH	Chloride (ppm)	Low Permeability Soil	pH	Sulphate (ppm)	Low Permeability Soil
>5.0	<5,000	Non-aggressive	>5.5	<5,000	Non-aggressive
4.0-5.0	5,000-20,000	Non-aggressive	4.5-5.5	5,000-10,000	Mild
3.0-4.0	20,000 – 50,000	Mild	4.0-4.5	10,000 – 20,000	Moderate
<3.0	>50,000	Moderate	<4.0	>20,000	Severe

For aggressivity assessment, soil samples were tested to determine pH, sulphate and chloride contents. Based on the test results and the texture of the soil samples, aggressivity assessment of the test samples is shown below in Table 12.

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Table 12: Aggressivity Assessment

Test Pit	Depth (m)	pH	Sulphate (ppm)	Chloride (ppm)	Assessment	
					Iron/Steel	Concrete
TP1.C	1.3 – 1.4	6.6	-	-	Non-aggressive	Non-aggressive
TP2.C	0.4 – 0.5	4.3	-	-	Non-aggressive	Moderate
	1.0 – 1.1	4.4	76	68	Non-aggressive	Moderate
TP3.C	0.4 – 0.5	6.2	-	-	Non-aggressive	Non-aggressive
	1.0 – 1.1	4.8	150	220	Non-aggressive	Mild
TP10.C	0.4 – 0.5	5.3	-	-	Non-aggressive	Mild
	1.0 – 1.1	4.3	160	290	Non-aggressive	Moderate
TP11.C	0.2 – 0.3	4.5	-	-	Non-aggressive	Mild
	1.0 – 1.1	6.4	75	49	Non-aggressive	Non-aggressive
TP12.C	0.7 – 0.8	6.3	39	34	Non-aggressive	Non-aggressive
TP13.C	0.4 – 0.5	5.3	-	-	Non-aggressive	Mild
	1.2 – 1.3	5.8	21	88	Non-aggressive	Non-aggressive
TP14.C	0.6 – 0.7	7.9	-	-	Non-aggressive	Non-aggressive
	1.3 – 1.4	8	330	1300	Non-aggressive	Non-aggressive
TP15.C	0.4 – 0.5	8.2	-	-	Non-aggressive	Non-aggressive
TP15.C	0.8 – 0.9	7.7	-	-	Non-aggressive	Non-aggressive
TP16.C	0.4 – 0.5	5.5	340	110	Non-aggressive	Non-aggressive
TP1	0.5-0.6	6.6	-	-	Non-aggressive	Non-aggressive
TP1	1.5-1.6	-	11	310	Non-aggressive	Non-aggressive
TP2	0.4-0.5	-	83	4.3	Non-aggressive	Non-aggressive
TP2	1.1-1.2	5.4	-	-	Non-aggressive	Mild
TP3	0.2-0.3	7.1	-	-	Non-aggressive	Non-aggressive
TP3	1.0-1.1	5.0	-	-	Non-aggressive	Mild
TP4	0.6-0.7	5.8	-	-	Non-aggressive	Non-aggressive
TP4	1.6-1.7	4.9	-	-	Non-aggressive	Mild
TP5	0.3-0.5	7.6	-	-	Non-aggressive	Non-aggressive
TP5	1.0-1.1	7.9	-	-	Non-aggressive	Non-aggressive
TP6	0.6-0.7	5.7	-	-	Non-aggressive	Non-aggressive
TP6	1.5-1.6	5.4	-	-	Non-aggressive	Mild
TP7	0.4-0.6	-	33	38	Non-aggressive	Non-aggressive
TP7	1.1-1.2	5.4	-	-	Non-aggressive	Mild
TP8	0.8-0.9	6.7	-	-	Non-aggressive	Non-aggressive
TP8	1.2-1.3	5.7	-	-	Non-aggressive	Non-aggressive
TP9	0.7-0.8	6.0	-	-	Non-aggressive	Non-aggressive
TP9	1.5-1.6	4.6	-	-	Non-aggressive	Mild
TP10	0.5-0.6	4.7	-	-	Non-aggressive	Mild
TP10	1.2-1.3	5.1	-	-	Non-aggressive	Mild
TP11	0.8-0.9	-	18	4	Non-aggressive	Non-aggressive
TP11	1.8-1.9	-	84	8.7	Non-aggressive	Non-aggressive

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Test Pit	Depth (m)	pH	Sulphate (ppm)	Chloride (ppm)	Assessment	
					Iron/Steel	Concrete
TP12	0.8-0.9	6.2	-	-	Non-aggressive	Non-aggressive
TP12	1.8-1.9	6.4	-	-	Non-aggressive	Non-aggressive
TP13	0.9-1.0	6.1	-	-	Non-aggressive	Non-aggressive
TP13	2.2-2.4	5.5	-	-	Non-aggressive	Non-aggressive
TP14	0.7-0.8	7.2	-	-	Non-aggressive	Non-aggressive
TP14	1.4-1.5	5.5	-	-	Non-aggressive	Non-aggressive
TP15	0.7-0.8	6.9	-	-	Non-aggressive	Non-aggressive
TP15	1.7-1.8	5.0	-	-	Non-aggressive	Mild
TP16	0.4-0.5	-	48	2.9	Non-aggressive	Non-aggressive
TP16	1.1-1.2	-	110	6.6	Non-aggressive	Non-aggressive
TP17	0.5-0.6	7.6	-	-	Non-aggressive	Non-aggressive
TP17	1.4-1.5	4.5	-	-	Non-aggressive	Mild
TP18	0.8-0.9	7.4	-	-	Non-aggressive	Non-aggressive
TP18	1.8-1.9	7.9	-	-	Non-aggressive	Non-aggressive
TP19	0.5-0.6	-	720	270	Non-aggressive	Non-aggressive
TP19	1.2-1.3	9.1	-	-	Non-aggressive	Non-aggressive
TP20	0.6-0.7	5.5	-	-	Non-aggressive	Non-aggressive
TP20	1.4-1.5	5.2	-	-	Non-aggressive	Mild
TP21	0.4-0.5	7.7	-	-	Non-aggressive	Non-aggressive
TP21	1.0-1.1	5.5	-	-	Non-aggressive	Non-aggressive
TP22	0.5-0.6	5.3	-	-	Non-aggressive	Mild
TP22	1.4-1.5	5.3	-	-	Non-aggressive	Mild
TP23	1.4-1.5	7.9	-	-	Non-aggressive	Non-aggressive
TP23	2.2-2.3	6.1	-	-	Non-aggressive	Non-aggressive
TP24	0.9-1.0	5.1	-	-	Non-aggressive	Mild
TP24	1.7-1.8	5.6	-	-	Non-aggressive	Non-aggressive
TP25	0.6-0.7	6.6	-	-	Non-aggressive	Non-aggressive
TP25	1.6-1.7	4.9	-	-	Non-aggressive	Mild
TP26	0.3-0.4	4.9	-	-	Non-aggressive	Mild
TP26	1.0-1.1	6.7	-	-	Non-aggressive	Non-aggressive
TP27	0.4-0.5	8.0	-	-	Non-aggressive	Non-aggressive
TP27	1.1-1.2	-	49	7.5	Non-aggressive	Non-aggressive
TP28	0.8-0.9	8.2	-	-	Non-aggressive	Non-aggressive
TP28	1.8-1.9	4.8	-	-	Non-aggressive	Mild
TP29	0.5-0.6	-	290	37	Non-aggressive	Non-aggressive
TP29	1.5-1.6	-	100	44	Non-aggressive	Non-aggressive
TP30	0.9-1.0	6.8	-	-	Non-aggressive	Non-aggressive
TP30	1.7-1.8	5.2	-	-	Non-aggressive	Mild
TP31	0.6-0.7	7.1	-	-	Non-aggressive	Non-aggressive
TP31	1.6-1.7	5.0	-	-	Non-aggressive	Mild

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

Test Pit	Depth (m)	pH	Sulphate (ppm)	Chloride (ppm)	Assessment	
					Iron/Steel	Concrete
TP32	0.6-0.7	-	400	63	Non-aggressive	Non-aggressive
TP32	1.6-1.7	-	290	310	Non-aggressive	Non-aggressive
TP33	0.6-0.7	-	350	1200	Non-aggressive	Non-aggressive
TP33	1.2-1.3	-	480	1400	Non-aggressive	Non-aggressive
TP34	0.5-0.6	-	400	650	Non-aggressive	Non-aggressive
TP34	1.0-1.1	-	380	1700	Non-aggressive	Non-aggressive
TP35	0.5-0.6	-	280	170	Non-aggressive	Non-aggressive
TP35	1.0-1.1	-	150	470	Non-aggressive	Non-aggressive
TP36	0.8-0.9	-	340	680	Non-aggressive	Non-aggressive
TP36	1.4-1.5	-	210	560	Non-aggressive	Non-aggressive
TP37	0.6-0.7	-	70	25	Non-aggressive	Non-aggressive
TP37	1.5-1.6	-	230	860	Non-aggressive	Non-aggressive
TP38	1.3-1.4	5.3	-	-	Non-aggressive	Mild
TP38	2.2-2.3	5.9	-	-	Non-aggressive	Non-aggressive
TP39	1.5-1.6	4.9	-	-	Non-aggressive	Mild
TP39	2.0-2.1	5.0	-	-	Non-aggressive	Mild
TP40	0.4-0.5	4.6	-	-	Non-aggressive	Mild
TP40	1.0-1.1	4.7	-	-	Non-aggressive	Mild
TP41	0.3-0.4	5.7	-	-	Non-aggressive	Non-aggressive
TP41	0.9-1.0	6.6	-	-	Non-aggressive	Non-aggressive
TP42	0.9-1.0	6.9	-	-	Non-aggressive	Non-aggressive
TP42	2.0-2.1	5.7	-	-	Non-aggressive	Non-aggressive
TP43	0.4-0.5	-	85	140	Non-aggressive	Non-aggressive
TP43	1.1-1.2	-	73	68	Non-aggressive	Non-aggressive
TP44	1.0-1.1	6.9	-	-	Non-aggressive	Non-aggressive
TP44	2.0-2.1	5.3	-	-	Non-aggressive	Mild
TP45	0.9-1.0	7.3	-	-	Non-aggressive	Non-aggressive
TP45	2.0-2.1	7.3	-	-	Non-aggressive	Non-aggressive
TP46	0.7-0.8	5.0	-	-	Non-aggressive	Mild
TP46	1.5-1.6	4.7	-	-	Non-aggressive	Mild
TP47	0.4-0.5	5.0	-	-	Non-aggressive	Mild
TP47	1.1-1.2	5.4	-	-	Non-aggressive	Mild
TP48	0.5-0.6	5.1	-	-	Non-aggressive	Mild
TP48	1.2-1.3	5.1	-	-	Non-aggressive	Mild
TP49	0.6-0.7	-	66	4.6	Non-aggressive	Non-aggressive
TP49	1.4-1.5	-	59	3.8	Non-aggressive	Non-aggressive
TP50	1.2-1.3	4.5	-	-	Non-aggressive	Mild
TP50	2.0-2.1	4.6	-	-	Non-aggressive	Mild

Based on the above results, the soils at the site have a pH range of 4.3 to 9.1, with sulphate levels up to 720 ppm and chloride levels up to 1700 ppm. Of the seventeen (17) samples tested, three (3) samples were assessed as moderately aggressive, thirty-seven (37) samples as mildly aggressive, and seventy-seven (77) samples as non-aggressive to concrete. For iron and steel, all samples were found to be non-aggressive. Therefore, the soils at site are generally non-aggressive to iron and steel, and ranges from non-aggressive to mildly aggressive to concrete, with isolated areas of moderate aggressivity. From the above, we can conclude that none of the pH values are <4.0 indicating severe potential, therefore further ASS testing is no required.

6.3. Erodibility Assessment

Soil dispersivity or erodibility is generally assessed by conducting chemical tests such as Exchangeable Sodium Percentage (ESP) and Sodium Absorption Ratio (SAR), and physical tests such as Emerson Crumb Dispersion and Pinhole Dispersion. It should be noted that assessment of soil dispersibility based on these methods might differ from each other.

For the proposed work, only ESP values of representative soil samples were determined. Soils with ESP values of 5% or more are considered sodic, and those with ESP more than 15% are considered highly sodic (Fell, et al., 2015). It should be noted that sodic soils are dispersive and susceptible to excessive erosion.

ESP results and the assessment based on the above criteria are summarised below in Table 13 and attached at the end of this report:

Table 13: Dispersive Assessment

Location ID	Sample Depth (m)	ESP (%)	Assessment
TP1	0.5-0.6	9.7	Sodic
TP6	0.6-0.7	6.4	Sodic
TP22	0.5-0.6	5.9	Sodic
TP23	1.4-1.5	14.4	Sodic
TP28	0.8-0.9	1.6	Non-Sodic
TP39	1.5-1.6	22.8	Highly Sodic
TP44	1.0-1.1	2.6	Non-Sodic

Based on the above results, the range of values are between 1.6% to 22.8% with an average of ≈9%, soils at the site are generally non-sodic to highly sodic and susceptible to erosion. Therefore, we recommend that the earthworks for the proposed development should be carried out in accordance with a suitable soil management plan. This plan should be prepared by the contractor or in alignment with our report.

6.4. Soil Management Plan

Emerson Crumb Test results in Table 6 and the ESP results in Table 9 indicated the soils to be generally highly dispersive to non-dispersive. Therefore, we recommend that a soil management plan should be implemented to minimise and not worsen the soil during construction. The soil management plan may be developed by the contractor or as recommended below.

The following should be considered in developing a Soil Management Plan:

- Minimise erosion and sediment loss before, during and after construction.
- Minimise water pollution due to erosion, siltation and sedimentation.
- Reduce and manage salinity within the site so that impacts on future structures (including buildings, roads etc) are minimised and acceptable.

We recommended the following as part of the Soil Management Plan during earthworks to manage impacts from erosive and saline soils:

- The best use of the existing topography should be developed to minimise cut and fill operations.
- Construct V-drains behind the crest of all slopes to divert water away from the slope face.
- Ensure that earthworks and construction activities do not affect the natural flow of groundwater. Where groundwater is intercepted during earthworks, the flow should be diverted to stormwater drains or creeks by providing appropriate surface and sub-surface drainage. We do not consider that proposed earthworks will affect the natural flow of groundwater. However, NSW Office of Water should be contacted if groundwater is intercepted before any water is drained into the stormwater. The Environmental Protection Authority (EPA) might need to be contacted regarding any diversion to stormwater drains.
- Finished ground surface in each lot should be provided with adequate fall to the street to allow water run-off and prevent water ponding, waterlogging and infiltration of rainwater.
- Erosion and Sediment Control Plans must be developed and implemented by the earthwork's contractors, in accordance with recommendations in the Landcom's Stormwater Manual (Landcom, 2004). All sediment and erosion controls proposed by the Erosion and Sediment Control Plan are to be installed prior to the commencement of earthworks.
- On cut and fill batters, provide a secured turf overlay or shotcreting to guard against erosion.
- Retaining walls for cut and fill slopes, where required, should be provided with adequate and appropriate drainage.
- Utilise native and deep-rooted plants to minimise soil erosion. Where vegetation cover is not adequate to control erosion, improve soil resistance to erosion by stabilising dispersive soils with hydrated lime or gypsum. The exact proportions of lime and gypsum to be used can be determined on the basis of laboratory testing, but for preliminary planning purposes we suggest about 2% to 3% of lime and gypsum.
- Select construction materials and techniques suitable for a non-aggressive site.
- Reduce groundwater recharge through appropriate land use and land management practices. This can be achieved by minimising deep infiltration by providing well compacted impermeable liners along surfaces of waterways (drains, channels, creeks etc) and maximising vegetation cover, planting of deep-rooted trees and use of salt-tolerant plants.
- For low lying portions of the site, stormwater drains along roads can be used to control groundwater level. However, to reduce the distance between drains, subsoil drains could also be installed along the property boundaries.
- Soil importation is not allowed unless the imported soil is thoroughly tested for salinity and is assessed as VENM (Virgin Excavated Natural Material) by an Environmental Consultant in accordance with EPA Guidelines. Any imported soil should have a maximum salinity (EC_e) of 4dS/m (non to slightly saline soils) and be used in the top 1.5m to minimise the effect of saline soils on buried utilities and footings.

6.5. Excavation Conditions

At the current stage, the excavation and fill depths remain to be finalised. Considering the proposed cut and fill plan ref:2301879 dated 8 August 2025 by Beveridge Williams, we expect that cutting and filling will be carried at the site to achieve design grades. The depth of excavation is expected to be 1.8m or more than 1.8m below existing ground levels and fill to depths up to or greater than 2.7 m. Based on the test pits conducted at the site, overburden soils are likely to be encountered to these depths. It is our assessment that overburden soils at the site can be excavated using conventional earthmoving equipment such as excavators and dozers.

Selection of excavation equipment should be based on site access, strength of sub-surface materials and the likely impact of vibration to structures in the vicinity of the excavation. Acceptable vibration is based on the nature and state of neighbouring structures, which will have to be established by a dilapidation survey. As a general guide, the acceptable maximum peak particle velocity (PPV) in a residential area would range from about 5mm/s to 10mm/s. Contractors should make their own judgement when tendering for excavation works, using the engineering logs attached to this report and experience in such circumstances.

Minor seepage was encountered in a few of the test pits. Based on the seepage encountered and the proposed earthworks requirement, we do not anticipate significant groundwater inflow during excavation except at some low-lying areas. Groundwater inflow during excavation, if any, could be adequately managed using a conventional pump and sump system or equivalent. However, trafficability problems might arise locally during wet weather or if water is allowed to pond at the site. We recommend water to be diverted where required prior to earthworks if groundwater or heavy rainfalls are encountered. A layer of recycled gravel can be used to provide a working platform. Based on the likely hood of groundwater seepage to be encountered during the proposed development and the trafficability, it is our assessment that no further Groundwater Impact Assessment is required at this stage.

6.6. Re-use of Existing Fill

Observation of test pits TP9.C to TP17.C, TP1 to TP39, TP42 to TP45, TP47 to TP48 and TP50 indicate that the fill material extending to a depth of 3.0m or more from existing levels. Similarly, fill may be encountered above existing or pre-existing services. The fill encountered at the time of investigation is assessed to be variably compacted in nature. Although the fill is assessed to be variably compacted in nature, unless there is evidence (such as density tests, fill summary reports etc) on how the fill has been placed certifying that the fill is controlled in accordance with AS3798 the fill should be considered uncontrolled in nature and unsuitable as a load bearing foundation for the proposed development. Furthermore, all test pits below the pre-existing structure have encountered fill. Although the extent of fill is undetermined for the time being we interpreted that all existing and pre-existing structures are underlain with fill to depths up to or greater than 3.0m.

It is our assessment that the existing fill at the site is uncontrolled and not suitable for supporting grade-raise fill and load bearing structures. Therefore, it is recommended that the fill encountered at the site is excavated with the removal of all deleterious materials, moisture conditioned and backfilled in a controlled manner and compacted as recommended in the following Section 6.7.

Furthermore, it should be reiterated that the proposed parameters in Table 14 to Table 16 are related to controlled fill. If proposed retaining structures are to be founded on existing or uncontrolled fill, revised parameters may be required.

6.7. Subgrade Preparation and Fill Placement

Prior to subgrade preparation and fill placement at the site we recommend removing existing dwellings/structures, underground assets and trees which are not part of the proposed subdivision. We recommend the following for subgrade preparation and fill placement:

- Strip existing fill and topsoil and stockpile separately for possible future use. Topsoil may be used in landscaping. Some of the existing fill may be used in controlled fill after moisture conditioning, removal of unsuitable materials and environmental validation. It is to be noted that topsoil would not be suitable to be placed within 1.0m of design subgrade level. Excess materials may be disposed of the site or temporarily placed in the future stages to be used at a future development.
- Undertake proof rolling (using an 8 to 10 tonnes static roller) of the exposed surface to detect potentially weak ground (ground heave). Excavate areas of localised heaving to a depth of about 300mm and replace with controlled fill, compacted as described below.
- Undertake proof rolling of the weak ground replaced with controlled fill, as described above. If the backfilled area shows further movement during further proof rolling, this office should be contacted for additional recommendations, which may include stripping additional soft soils and replacing with granular materials with or without geogrid reinforcement. No proof rolling will be required where bedrock is exposed after the stripping.
- Place controlled fill materials on proof rolled subgrade. Fill should be placed in horizontal layers of 200mm to 250mm maximum loose thickness and compacted thickness $\leq 200\text{mm}$ to a Density Ratio of 98% Standard, at moisture content within -2% to +2.0% of Optimum Moisture Content (OMC) unless otherwise directed. The final 300mm of pavement subgrade shall be compacted to a minimum density ratio of 100%.
- Controlled (imported fill should preferably comprise non-saline to slightly saline ($E_{ce} < 4 \text{ dS/m}$) and non-reactive fill (e.g. crushed sandstone, sands), with a maximum particle size not exceeding 75mm, or low plasticity clay. Natural soils, bedrock (if encountered) and some of fill materials obtained from excavations within the site may be selectively used in controlled fill after environmental validation, moisture conditioning and removal of deleterious materials (construction materials, tools, tyres etc).
- If fill material is heaving due to moisture. Moisture conditioning can be adopted as one or more of the following methods or equivalent;
 - Aeration: naturally drying by wind and air, may require aeration overnight or stabilise with lime if process is to be speeded up.
 - Drying: transporting wet material into open areas to dry typically a thinner layer will speed up the process. May require to be dried overnight or until approved upon Geotechnical Inspection.
 - Under or over optimal moistures may undergo wetting of material or blending with wetter material to achieve optimal moisture values.
- Fill placement should be supervised to ensure that material quality, layer thickness, testing frequency and compaction criteria conform to the specifications. We recommend "Level 1" supervision, in accordance with AS3798-2007. It should be noted that a Geotechnical Inspection and Testing Authority will generally provide certification on quality of compacted fill only if Level 1 supervision and testing is carried out.

- Any fill which has been treated by a qualified hygienist or environmental engineer to be reused in non-structural areas such as road subgrade or below open space such as parks can be filled/contained at depths greater than 1.0m from finished surface levels or of the pavement subgrade. Further geotechnical inspection would be required to determine the suitability of the fill and advise if further blending is required. It is recommended that the fill placed above these areas are clayey in nature to minimise exposure of chemicals. It is to be noted that where the fill is conforming the subgrade pavement, the material shall achieve the minimum design CBR as recommended in section Recommended Pavement Thickness 7.3 of this report.
- Based on the subsurface conditions encountered, existing granular fill (sandy/gravelly) soils are likely to be encountered. We recommend that this material is to be selectively stockpiled or blended with clayey soils for fill within the top 1.0m of residential lots or 0.5m from road subgrade, to improve or maintain its geotechnical properties and recommendations made in this report (preliminary site class & design subgrade CBR).

All tests conducted within this report (prior to civil) are following NATA accredited laboratories and procedures. It should be noted that all testing conducted prior, during and post construction shall be conducted by NATA accredited laboratories.

6.8. Ground Vibrations & Construction Noise

Ground vibration during excavation is generally represented by maximum peak particle velocity. Australian Standard AS2187.1 indicates that the houses and low-rise residential buildings, similar to those present in the vicinity of the site, can generally tolerate ground vibrations of about 5.0mm/s to 10.0mm/s.

As excavation in soils is expected at the site, conventional earthmoving equipment are likely to be used. Therefore, ground vibrations are expected to be less than 10.0mm/s.

6.9. Geotechnical Model

Based on our site observation and the information obtained from the test pits, an approximate geotechnical model has been developed for the site. Anticipated Geotechnical Units constituting the model for the site are provided in Table 14. Each geotechnical unit represents a specific nature of soil likely to encounter across the site.

In describing the bedrock encountered across the site, the Geotechnical Units and rock classifications are used interchangeably. Assessed strength parameters, in terms of cohesion and internal friction angle, as well as modulus (drained parameters) for each geotechnical unit are presented below in Table 14.

Table 14: Recommended Geotechnical Parameters

Geotechnical Units	Unit Weight, γ (kN/m ³)	Cohesion, c' (kPa)	Friction Angle, ϕ' (deg)	Modulus, E' (MPa)	Poisson's Ratio
Unit 1 – Controlled Fill	19	4	28	8	0.3
Unit 2 – Natural Soil (Soft to Stiff)	17.5	1	21	1	0.3
Unit 3 – Natural Soil (Stiff to Hard)	19	5	28	10	0.3
Class V & IV bedrock	21	15	35	100	0.3

6.10. Batter Slopes and Retaining Structures

Site preparation for proposed development works may result in cut and fill slopes. Such cut and fill slopes should be battered for stability or retained by engineered retaining structures. Recommended batter slopes for stability of cut and fill slopes are presented below.

Table 15: Recommended Batter Slopes for Cut and Fill Slopes

Material	Temporary	Permanent
Natural Soil and Controlled Fill	1.5H:1.0V	2.5H:1.0V
Bedrock – Very low to low strength	1:0H:1.0V	1.5H:1.0V

These batter slopes are recommended under the following conditions:

- Cut and fill slopes are at sufficient distance (at least 2m) from structures in the vicinity of the site.
- The excavation faces are protected appropriately from erosion.
- Adequate surface and sub-surface drainage is provided.
- Excavation faces are monitored regularly to observe any signs of movements so that appropriate remedial actions can be taken immediately.
- Collapse of excavation faces if it occurs is unlikely to pose a threat to the safety of people and structures in the vicinity.

If the cut and fill slopes steeper than those recommended in Table 15 are required, then the slopes should be retained by engineered retaining structures. Appropriate retaining structures for the proposed basement excavations would comprise bored pile walls or cantilever wall or gravity wall. Active earth pressure distribution on above mentioned types of retaining walls may be estimated using following equation:

$$p_h = \gamma KH$$

Where,

- p_h = Horizontal active pressure (kN/m²)
- γ = Total density of materials to be retained (kN/m³)
- K = Coefficient of earth pressure (K_a or K_0)
- H = Retained height (m)

For the design of flexible retaining structures where some lateral movement is acceptable, an active earth pressure coefficient (K_a) is recommended. If it is critical to limit the horizontal deformation of a retaining structure, use of an earth pressure coefficient at rest (K_0) is recommended. Recommended earth pressure coefficients for the design of retaining structures are presented below.

Table 16: Recommended Earth Pressure Parameters

Retained Material	Unit Weight (kN/m ³)	Active Earth Pressure Coefficient	At Rest Earth Pressure Coefficient	Ultimate Passive Earth Pressure (kPa)*
Unit 1 – Controlled Fill	19.0	0.36	0.53	Ignore
Unit 2 – Natural Soil (Soft to Stiff)	17.5	0.47	0.64	Ignore
Unit 3 – Natural Soil (Stiff to Hard)	19.0	0.36	0.53	Ignore
Class V & IV Bedrock	21.0	0.25	0.42	300

If retaining structure is anchored or strutted, the pressure distribution on the retaining structure may be assumed to be trapezoidal in shape and estimated as below:

- p_h is linearly increasing from zero at ground surface (top of retaining wall) to $K_a \gamma H$ at depth of $0.25H$
- p_h is constant at $K_a \gamma H$ from depth of $0.25H$ to $0.75H$
- p_h is decreasing from $K_a \gamma H$ at depth of $0.75H$ to zero the base of excavation

The above coefficients are based on the assumptions that the ground level behind the retaining structure is horizontal, and the retained material is effectively drained. Additional earth pressures resulting from surcharge loads (buildings, infrastructures, etc) on retained materials and groundwater pressure, if any, should also be allowed for in design of retaining structures.

The design of any retaining structure should also be checked for bearing capacity, overturning, sliding and overall stability of the slope.

6.11. Preliminary Site Classification

It is our assessment that the site is suitable for construction of residential buildings after completion of site preparation works.

At completion of earthworks (i.e. cut and fill operations) for proposed development works, when building platforms and footing subgrade are ready for construction of residences, sub-surface profiles within the residential lots are anticipated to comprise either of the following:

- Controlled fill; or
- Controlled fill overlying natural clays; or
- Controlled fill overlying, natural clays overlying bedrock; or
- Natural clays; or
- Natural clays overlying bedrock.

The magnitude of ground surface movement due to moisture variation, which is required for site classification, depends on shrink-swell index values and thickness of soils underlying a building slab. Based on the shrink-swell index results (Table 7), the subgrade is predominately of natural clayey soils and to be reactive in nature.

Based on anticipated thickness of soils (including controlled fill and natural clays) and estimated shrink-swell movements, site classifications for future residential lots are expected to be Class "M" (Moderately reactive) to "H1" (Highly reactive), in accordance with AS2870-2011 (Standards Australia, 2011). In areas where weathered bedrock will be exposed, the residential lots would generally be classified as class "S" (Slightly reactive). In areas where natural clays are exposed the site classification is expected to be Class "M" to "H1". In fill areas (clayey soils) it is expected that the residential lots will be classified as Class "M" and Class "H1".

Definitions of site classes provided in AS2870-2011 are reproduced below:

Site Classification	Foundation Condition	Ground Surface Movement (mm)
Class S	Slightly reactive clay sites, which may experience with only slight ground movement from moisture changes	Less than 20
Class M	Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes	20 to 40
Class H1	Highly reactive clay sites, which may experience high ground movement from moisture changes	40 to 60

The above classifications should be considered preliminary only and site classification for individual building platform for final design should be confirmed by sampling and testing of foundation materials after construction of subdivisional lots is completed. It should also be noted that trees proposed or existing which are not to be removed within or adjacent to the lots are taken into consideration of the influence depth in accordance with AS2870-2011 section H2.1 to 2.6 as this may increase the final site classification. For lots to achieve a higher grade; the following(s) would be required.

- Lots with bedrock encountered within <1.0m (Can improve from Class '≥H1' to 'M' or 'S').
- Similarly, if lots are to be stripped further till footings are to be on bedrock a Class 'A' or 'S' may be recommended or if bedrock is within ≤0.6m then an expected slab design of class 'S' or better is likely to be recommended and encountered.
- Controlled Fill material is mostly sandy/gravelly or with a shrink/swell potential <1.0%/_pf (likely to be more expensive to source such materials) generally a minimum of Class 'M' if not overlain with bedrock.

6.12. Floor Slabs and Footings

We anticipate foundation materials to be controlled fill, residual soils, or siltstone/shale bedrock. Under such circumstances, ground floor slabs for the future buildings may be designed and constructed as ground bearing slabs or suspended slabs supported by footings designed in accordance with recommendations provided in this report.

Site classification in accordance with AS2870-2011 is only applicable for the design of footing systems for a single dwelling, house, townhouse or similar structure that would be detached or separated by a party wall or common wall including buildings classified as Class 1 and Class 10a in the Building Code of Australia (BCA). Therefore, a geotechnical investigation will be required for dwellings that would be classified in accordance with the BCA.

Foundation materials across the site might vary from controlled fill to natural clayey soils to shale/siltstone bedrock, depending on the location of a building with regard to cut and fill profile. Therefore, assessment of foundation materials and allowable bearing pressure for specific buildings should be reassessed after completion of site preparation works and during footing construction. For the proposed shallow and deep footing designs, the following is recommended.

Table 17: Recommended Allowable Bearing Pressures

Founding Material	Allowable End Bearing Capacity Shallow footings (kPa)	Allowable End Bearing Capacity Deep footings (kPa)	Shaft Adhesion Deep Footings (kPa)
-------------------	---	--	------------------------------------

Unit 1 – Controlled Fill	150	N/A	-
Unit 2 – Natural Soil (Soft to Stiff)	100	N/A	-
Unit 3 – Natural Clay (Stiff to Hard)	150	300	30*
Class V & IV Bedrock	600	700	100*

NOTE * Bored Piers only

If footings are founded above the 1 Horizontal to 1 Vertical line projected from the edge at the base of any excavation, the recommended allowable bearing pressures presented in Table 17 are not applicable and appropriate allowable bearing pressure will have to be determined by reassessment of materials exposed in the excavation face.

Total settlement of shallow footings (pad or strip type) founded in overburden soils and controlled fill under the recommended allowable bearing pressures is estimated to be about 15mm to 20mm. Differential settlements of footings founded on similar material, in strength and stiffness, are estimated to be about half the estimated total settlements. Footings founded in bed are likely to settle about 1% to 2% of the minimum footing dimension or pier diameter. To reduce differential settlement, we recommend that footings are founded on similar material (strength and stiffness).

6.13. Slope Stability (Slip & Subsidence)

Site factors such as slope angles, depth of in-situ soils, strengths of sub-surface materials and concentrations of water generally govern the stability of a site. As per the guidelines (Australian Geomechanics Society, 2007) prepared by Australian Geomechanics Society (AGS) the landslide risk of a site is assessed on the basis of the likelihood of a landslide event and the consequences of that event. Using AGS guideline, assessed qualitative measures for the likelihood and consequence of landslides as well as level of risk for the WSU Milperra development site is as follows:

Qualitative Measures of Likelihood - It is our assessment that the event of a landslide within the site is conceivable but only under very exceptional circumstances ($\approx 10^{-5}$), i.e.: it is “Rare”.

Qualitative Measures of Consequences to Property - It is our assessment that the consequences of landslides to the property would be “Minor”, causing limited damage to part of structure, or part of the site requiring some reinstatement/stabilisation work.

Qualitative Risk Analysis – Level of Risk to Property - Based on the above Qualitative Measures, the Redmond place, Orange site is assessed to have a “Very Low to low” Risk Level. The abstract of definitions of risk levels, as provided by AGS, is presented below in Table 18.

Table 18: Definitions of Landslide Risk

Risk Level	Implication
Very High Risk (VH)	Extensive detailed investigation and research, planning and implementation of treatment options, essential to reduce risk to acceptable levels; may be too expensive and not practical.
High Risk (H)	Detailed investigation, planning and implementation of treatment options required to reduce risk to acceptable levels.
Moderate Risk (M)	Tolerable, provided a treatment plan is implemented to maintain or reduce risks. May be accepted. May require investigation and planning of treatment options.
Low Risk (L)	Usually accepted. Treatment requirements and responsibility to be defined to maintain or reduce risk.
Very Low Risk (VL)	Acceptable. Manage by normal slope maintenance procedures.

*9739/1-AD-R2**Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW*

As the risk of slope instability across the site is assessed to be very low to low, it is our assessment that the site is suitable for development, from a slope stability point of view, providing good engineering and construction practices are used during construction stage. The risk level of the site, or portions of the site, could change if proposed development involves significant ground modifications, including fill placement and excavations. However, the risk level will still be low and acceptable for residential, if cut and fill slopes exceeding 900mm during proposed development works are battered or retained by retaining structures designed as recommended in this report.

7. Pavement Thickness Design

7.1. Proposed Roads & Design Traffic Loading

Based on City of Canterbury Bankstown Council Standard Subdivision Roads (S-041), the following design traffic loadings are considered appropriate for the proposed roads within the development.

Table 19: Road Category & Design Traffic Loading Values

Council Urban Road Category	Design Traffic Loading (ESA)
Local Minor	5x10 ⁵
Local Major	1x10 ⁶
Collector Road	5x10 ⁶

7.2. Design CBR Values

The soaked CBR tests conducted on the subgrade soil samples recovered from the site indicates that the approximate subgrade level CBR values range from 0.5% to 6.0% (Table 3) with an average of ≈2.5%.

Given the likelihood of cutting and filling procedures for the proposed development, the subgrade in cut areas is expected to consist of clayey soils or proposed fill. In fill sections, it is anticipated that the subgrade will consist of onsite clayey fill (on-site soils), assuming that material from cut areas will be used as controlled fill in fill areas.

CBR results in various test pits, indicate low CBR values and moderate to high swelling potential at approximate subgrade levels. Due to low CBR values and highly expansive nature of the subgrade, we recommend implementing subgrade replacement or stabilisation for the sections shown on the attached drawing 9739/1-AD2. In this regard, the top 300mm of the proposed road subgrade shall be replaced with crushed sandstone or lime-stabilised (3% lime) to attain a minimum CBR value of 20% for the replaced or stabilised layer. Upon subgrade replacement, a conservative design CBR of 3.0% may be adopted for the pavement design.

7.3. Recommended Pavement Thickness

The pavement design is based on the Austroads Guide (Austroads, 2017) and Canterbury Bankstown Council Standard Subdivision Roads (S-041). Based on the above design traffic loading and the design CBR values, we recommend the following pavement thicknesses for the proposed roads.

Table 20: Recommended Pavement Thickness

Council Road Category	Design CBR (%)	AC(mm)	Base Course (DGB20) (mm)	Sub-base (mm)	Total including AC (mm)
Local Minor	3	60*	150	335	545
Local Major	3	80*	150	375	605
Collector Road	3	100**	160	460	720

* primer, plus 7mm one coat flush seal, plus specified thickness AC10 Asphalt

** primer, plus 7mm one coat flush seal, plus specified thickness AC14 Asphalt

As part of the proposed road alignment, we understand that various areas may encounter shallow services or underlying shallow tree roots. As such a deep lift pavement is proposed to assist with the construction in these areas.

Table 21: Recommended Thick AC Pavement Thickness

Pavement ID	Design Traffic Loading (ESA)	Pavement Thickness*	
Local Minor	5x10 ⁵ (3.0% CBR value)	60mm	AC14
		55mm	AC14
		<u>60mm</u>	AC14**
		175mm	Total thickness
Local Major	1x10 ⁶ (3.0% CBR value)	60mm	AC14
		65mm	AC14
		<u>70mm</u>	AC14**
		195mm	Total thickness (includes AC)
Collector Road	5x10 ⁶ (3.0% CBR value)	60mm	AC14
		90mm	AC20
		<u>90mm</u>	AC20**
		240mm	Total thickness (includes AC)

*AC Modulus 3000 MPa

**Over prime, plus 7mm one coat flush seal.

The above pavement options/depths are only valid if the subgrade and pavement materials are compacted to the following Minimum Dry Density Ratios (AS1289 5.4.1) or directed by council engineers.

Basecourse	98% Modified
Sub-Basecourse	98% Modified
Subgrade	100% Standard

It should be noted that areas where subgrade is supported on 'controlled fill' the subgrade pavement, the material shall achieve a minimum CBR value of 3.0% prior to adopting the above design.

7.4. Suitability of Reusing Pavement Materials Assessment

We understand that the site comprises of granular soils (road base and possibly crushed sandstone) and asphaltic concrete (AC) from the stripped car park or to be stripped car park areas. As such a geotechnical assessment is required to determine the suitability and potential reuse of the pavement soils as pavement material. Additionally, one (1) disturbed sample from the asphalt was obtained from the site to test for coal tar, the results indicate that no coal tar is present in the asphalt.

In accordance with Transport for New South Wales (TfNSW) QA-3051 specification up to 40% of the existing Asphalt pavement can be reused as recycled asphalt pavement (RAP) within the base and subbase layers. Prior to reusing of RAP, the material must be processed in accordance with TfNSW – QA-3153 section 7 as follows: (a) 100% passing the 26.5mm AS sieve; (b) free flowing with consistent particle size distribution and complying with the tolerances specified in table 3152.3 of TfNSW 3152; and (c) minimal fracture of aggregate particles.

9739/1-AD-R2

Stages 1 to 7 - Western Sydney University (WSU) Milperra NSW

All granular soils obtained from the pavement can be used to conform the lower 100mm of the subbase without further testing. Where the granular material is to be used as the full depth of subbase further testing may be required to determine the following:

- CBR value $\geq 30.0\%$ - AS1289 5.1.1
- $\leq 15\%$ fines within the 0.075 sieve – AS 1141.11.1
- $PI \leq 12\%$

We recommend that an inspection is to be carried out upon stockpiling of granular soils to confirm the uniformity and suitability.

8. CONCLUSION

Based on the available information, our site observations, laboratory tests and test pit locations conducted across the site, the following assessments and recommendations throughout the report for the SSDA1 can be summarised as follows:

- Material expected to encounter are likely to comprise of topsoil underlying fill underlying natural clays.
- Groundwater is unlikely to be encountered during the proposed BEW and civils. Minor seepage may be encountered and manageable. Therefore, no further Groundwater Impact Assessment is required at this stage.
- Our physical properties, tests the material encountered are predominately medium to high plasticity clays with a ground movement potential up to 60mm. CBR values range from 0.5% to 6.0% indicating low subgrade potential where further stabilisation would be required prior to pavement design.
- Our chemical test on the soils is assessed to be non-saline with localised areas of slightly saline to moderately saline soils and non-aggressive soils. However, soils are susceptible to erosion, therefore a Soil Management Plan is to be carried out to not worsen the site conditions.
- Further ASS testing or management plan during construction is not required. Based on the previous ASS testing results, chemical testing of pH values >4.0 and the site locality. The site is unlikely to be impacted from Acid Sulphate Soil, and no further testing is required.
- Natural soils and bedrock excavated are suitable to be used as 'controlled fill' as part of the WSU, Milperra. Excavated bedrock (where encountered) should ideally be used as road pavement if thinner future pavement designs are to be recommended.
- Ground vibration during excavations during development of WSU residential development is unlikely to adversely impact on stability of existing structures in the vicinity of the site.
- The risk of slope instability for existing slopes across WSU, Milperra Development Project is very low to low and tolerable for proposed development works.

Based on above assessments and the nature of proposed development works within WSU, Milperra, this geotechnical investigation report provides recommendations on appropriate construction practices, designs of batter slopes, retaining structures, footings and pavement design relevant to the subdivision. Therefore, the proposed works to be carried out as part of the SSDA1 are suitable assuming good construction practices and recommendations in accordance with this report are followed.

9. Limitations

The conclusions and recommendations presented in this report are based on the site observation and information from sixty-two (62) test pits and laboratory tests. Although we believe that the sub-surface profile presented in this report is indicative of the general profile across the site, it is possible that the sub-surface profile could differ from that encountered in the test pits. We recommend that this company is contacted for further advice if soils or bedrock encountered during the construction stage differ from those presented in this report. Likewise, the assessment on the depth to groundwater level should be considered as indicative and should be confirmed during construction or by continuing groundwater investigation. If deep piling is proposed for any residential developments within the proposed lots, a detailed geotechnical investigation, including coring (if rock is encountered), should be conducted to gain a better understanding of the bedrock profile.

The services performed by Geotech Testing in preparing this report were conducted in a manner consistent with the level of quality and skill generally exercised by members of the profession and consulting practice. To the best of our knowledge, all information obtained and contained in this report is factual. No further investigation has been carried out to authenticate the information.

This report has been prepared for Beveridge Williams for the purposes stated within. Any reliance on this report by other parties shall be at such parties' sole risk as the report might not contain sufficient information for other purposes.

This report shall only be presented in full and may not be used to support any other objective than those set out in the report, except where written approval is provided by Geotech Testing.

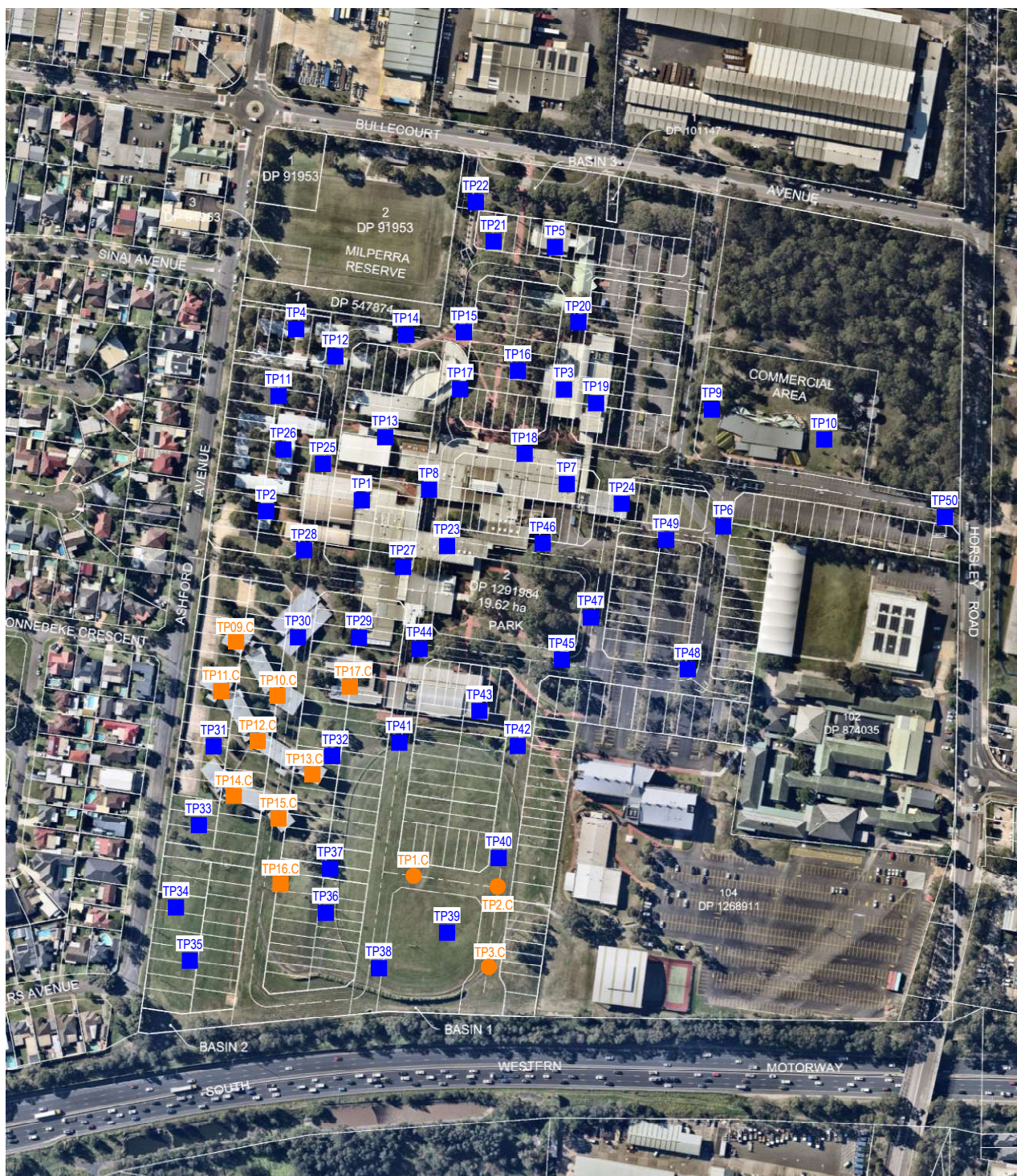
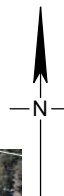
The information in this report is considered accurate at the time of conducting the field work, in accordance with the current conditions of the site and standards. Any variations to the site form or use beyond this date could nullify the conclusions stated.

10. References

- Acid Soil Management Advisory Committee, 1988. *Acid Sulphate Soil Manual*, New South Wales: s.n.
- Acid Soil Management Advisory Committee, 1988. *Acid Sulphate Soil Manual*, New South Wales: s.n.
- Australian Geomechanics Society, 2007. Practice Note Guidelines for Landslide Risk Management. *Australian Geomechanics*, 1 March, Volume 42, pp. 63-114.
- Austroads, 2017. *Guide to pavement technology: part 2: pavement structural design*, Sydney: Austroads.
- Campbelltown City Council, 2009, June. Engineering Design for Development. *Campbelltown (Sustainable City) Development Control Plan*, Volume 2.
- City of Canterbury Bankstown, 2021. *Standard Subdivision Road S-041*. s.l., s.n.
- Fell, R. et al., 2015. *Geotechnical Engineering of Dams*. Second ed. Leiden: CRC Press/Balkema.
- Landcom, 2004. *Managing Urban Stormwater : Soils and Construction (Vol 1)*, Sydney: Landcom.
- Lillicrap, A. & McGhie, S., 2002. *Site Investigations for Urban Salinity*. Sydney(NSW): Department of Land and Water Conservation.
- Pells, P., Mostyn, G. & Walker, B., Dec 1998. Foundations on Sandstone and Shale in the Sydney Region. *Australian Geomechanics*, pp. 17-29.
- Standards Australia, 2007. *AS 1170.4 Structural design actions - Part4: Earthquake actions in Australia*, Sydney: Sai Global.
- Standards Australia, 2007. *AS3798-2007 Guidelines on earthworks for commercial and residential developments*. Sydney: SAI Global Limited.
- Standards Australia, 2009. *AS2159-2009 Piling - Design and installation*. Sydney: SAI Global Limited.
- Standards Australia, 2011. *AS2870-2011 Residential slabs and footings*. Sydney: SAI Global Limited.
- Standards Australia, 2017. *AS1726-2017 Geotechnical site investigations*. Sydney: SAI Global Limited.

APPENDIX A

**TEST PIT LOCATION PLAN
(Drawing No 9739/1-AD1)
ACID SULPHATE SOILS RISK MAP
APPROXIMATE EXTENT OF FILL PLAN**



Imagery © NearMap.com

LEGEND

- Test Pit (October 2025)
- Test Pit (April 2025)

0 40 80 120 160 200m



Scale 1:4000



34 Borec Road
Penrith
NSW 2750
ABN 71 076 676 321

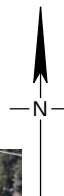
Ph: 02 4722 2744
e-mail: info@geotech.com.au
www.geotech.com.au

Beveridge Williams
2 Bullecourt Avenue
Milperra

Test Pit Locations

Drawing No: 9739/1-AD1
Job No: 9739/1
Drawn By: MH
Date: 27 October 2025
Checked By: DP/JC

File No: 9739-1
Layers: 0, AD1



Imagery © NearMap.com

LEGEND

 Subgrade Replacement Area

0 40 80 120 160 200m



Scale 1:4000



34 Borec Road
Penrith
NSW 2750
ABN 71 076 676 321

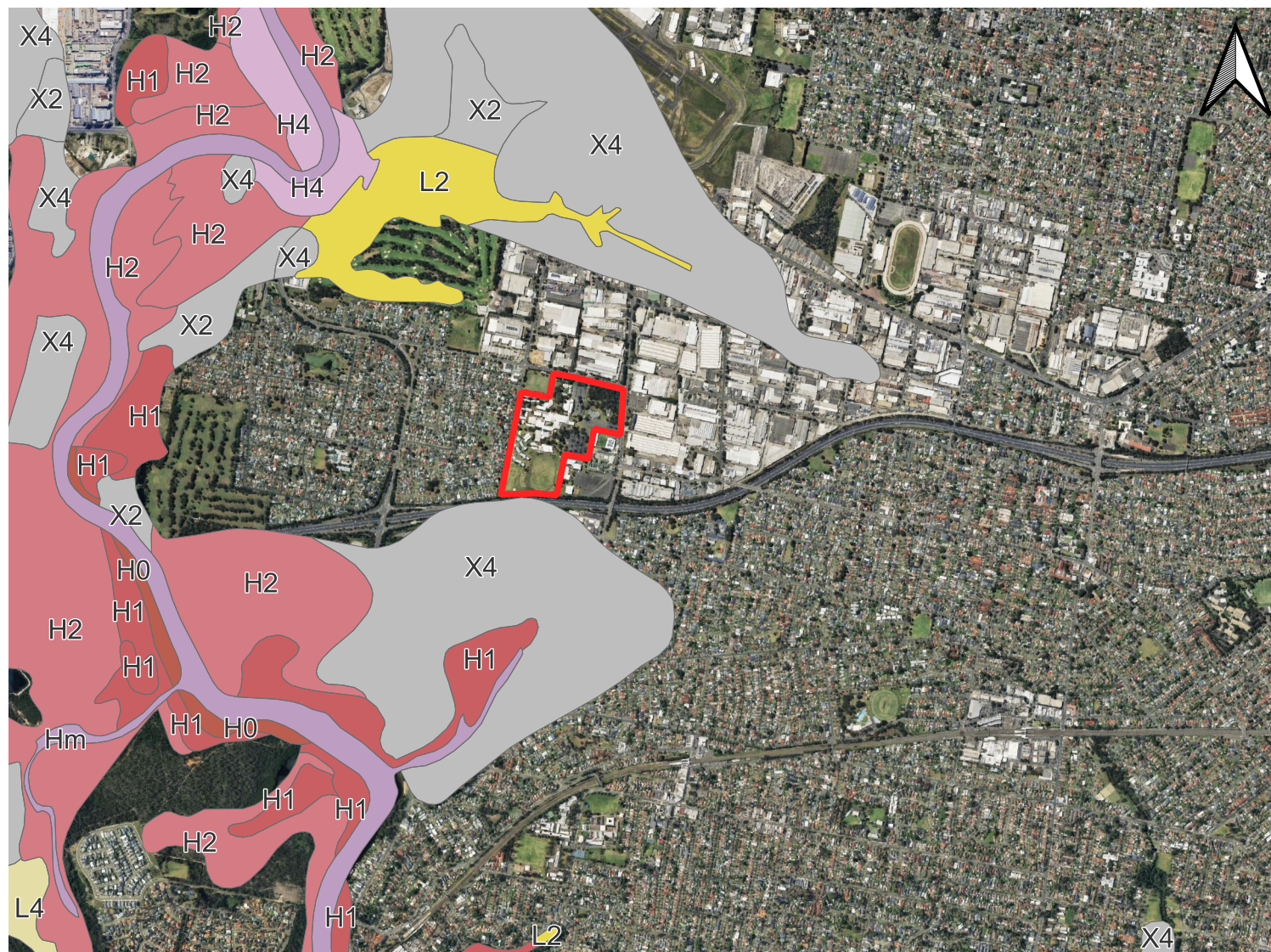
Ph: 02 4722 2744
e-mail: info@geotech.com.au
www.geotech.com.au

Beveridge Williams
2 Bullecourt Avenue
Milperra

Subgrade Inspection

Drawing No: 9739/1-AD4
Job No: 9739/1
Drawn By: MH/JC
Date: 6 November 2025
Checked By: JC

File No: 9739-1
Layers: 0, AD4



LEGEND

 Site boundary

Acid Sulphate Risk Map

-  Hm: High probability in bottom sediments
-  H0: High probability at/near ground surface
-  H1: High probability <1 m below ground surface
-  H2: High probability 1 - 3 m below ground surface
-  H4: High probability >3 m below ground surface
-  L2: Low probability 1 - 3 m below ground surface
-  L4: Low probability >3 m below ground surface
-  X2: Disturbed terrain, elevation 2 - 4 m AHD
-  X4: Disturbed terrain, elevation >4 m AHD

0 250 500 750 1,000 m



1:30000

GEOTECH
TESTING PTY LTD

PO Box 880
Penrith NSW 2750
Tel: 02 4722 2700

e-mail: info@geotech.com.au
www.geotech.com.au

NOTES

1. Site Features are indicative and not to scale.
2. This drawing has been produced using a base plan provided by othered to which additional information e.g test pits, borehole locations or notes have been added. some or all of the plan may not be relevant at the time of producing this drawing.

SOURCES

1. Base map © Google Maps
2. Acid Sulfate Soils Risk © State Government of NSW and NSW Department of Climate Change, Energy, the Environment and Water 1998

PROJECT: 2 BULLECOURT AVENUE, MILPERRA

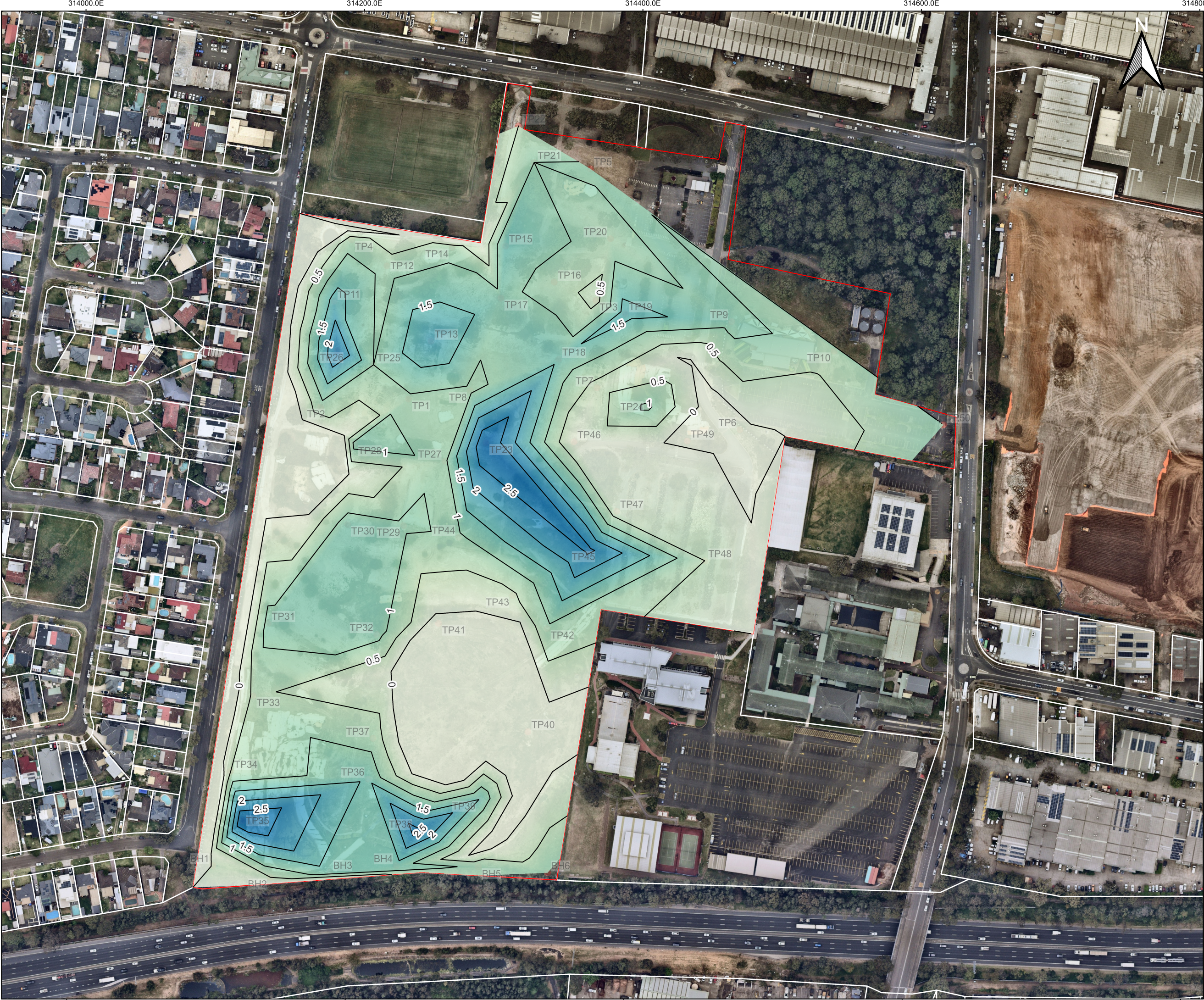
JOB NUMBER: 9739/1

TITLE: ACID SULPHATE SOILS RISK

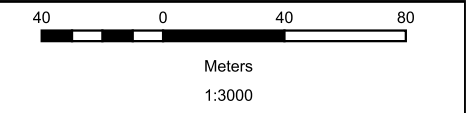
CLIENT: BEVERIDGE WILLIAMS

Drawn by: Jack Scott Herben
Date: 05/12/2024

Version: 1
Page size: A4



GEOTECH
TESTING PTY LTD®
PO Box 880
Penrith NSW 2750
Tel: 02 4722 2700
e-mail: info@geotech.com.au
www.geotech.com.au



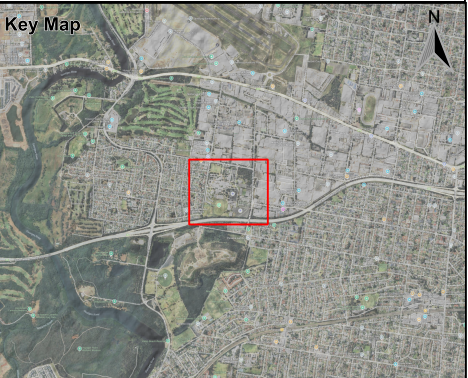
LEGEND

- Boreholes and Testpits (used in the generation)
- Approximate Site Boundary

Approximate Depth of Fill

— Contours (0.5m)

0m 3m



SOURCES
1. © Department of Finance, Services & Innovation 2018, Map data ©2015 Google, ©Nearmap 2025

© Geotech Testing Pty Ltd 2025. All Rights Reserved
Note: While reasonable care has been taken to ensure the information presented on this map is accurate and up to date, it includes data from multiple sources and may contain errors or omissions. No warranty is provided regarding its completeness or accuracy. Users are advised to verify all information before use and assume full responsibility for any reliance placed upon it. This map is not intended to serve as a design document.

PROJECT: Stages 1 to 7 - WSU Milperra NSW
CLIENT: Beveridge Williams
TITLE: Approximate Depth of Fill
Job No: 9739/1
Drawing No: 9739/1-AD2
Drawn By: JSH
Date: 05/11/2025
Checked By: ER
Revision: R0
Page Size: A3

APPENDIX B

ENGINEERING TEST PIT LOGS EXPLANATORY NOTES

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 2 & 3				Pit No :		TP1.C				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/04/2025				
						Logged/Checked by:		YN/ZA				
Equipment type and model:						5 Tonne Excavator		R.L. surface :				
Excavation dimensions :						2.00 m long 0.45 m wide		datum :				
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
Not Encountered				NO	0			TOPSOIL: Clayey Silty Sand, fine to coarse grained, dark brown, of low plasticity clays, trace rootlets				TOPSOIL @ 0.2 m possible fill
				DS	0.5		CH	Silty CLAY: high plasticity, yellow- brown mottled pale grey, trace gravel	M<PL	F-St		ALLUVIAL SOIL
				DB	1							
					1.5			From 1.2 m, pale grey mottled yellow- brown		VSt		
				DS	2							
				DB	2.5			From 2.2 m, with fine to coarse grained gravel				
					3							
					3.5							
					4							
					4.5							
					2.5			TP1 terminated at 2.5 m. Target depth reached.				

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 2 & 3				Pit No :		TP2.C			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/04/2025			
						Logged/Checked by:		YN/ZA			
Equipment type and model:						5 Tonne Excavator				R.L. surface :	
Excavation dimensions :						2.00 m long		0.45 m wide		datum :	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
Not Encountered					0			TOPSOIL: Silty Clayey Sand, fine to coarse grained, dark brown, of low plasticity clays, trace rootlets				TOPSOIL
			DS		0.5		CH	Silty CLAY: high plasticity, red-brown mottled pale grey, with fine to coarse grained sand, trace gravel	M<PL	F-St		ALLUVIAL SOIL
			U50		1		CH	Silty CLAY: high plasticity, pale grey mottled red-brown, trace gravel				
			DS		1.5			From 1.5 m, with fine to coarse grained gravel and sand				
			DB		2							
					2.5			TP2 terminated at 2.5 m. Target depth reached.				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd							Job No : 9739/1						
Project : WSU Milperra NSW - Stage 2 & 3							Pit No : TP3.C						
Location : 2 Bullecourt Avenue, Milperra NSW							Date : 03/04/2025 Logged/Checked by: YN/ZA						
Equipment type and model: 5 Tonne Excavator								R.L. surface :					
Excavation dimensions : 2.00 m long 0.45 m wide								datum :					
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations	
Not Encountered				MZOC	0	[diagonal hatching]	CI	TOPSOIL: Silty Clayey Sand, fine to coarse grained, dark brown, of low plasticity clay, trace rootlets	M<PL	St		TOPSOIL	
					0.3	[diagonal hatching]		Silty CLAY: high plasticity, pale grey mottled orange-brown, with fine to coarse grained sand and gravel				Vst	ALLUVIAL SOIL
					0.4	[diagonal hatching]		From 0.4 m, brown					
					0.5	[diagonal hatching]							
			DS		0.6	[diagonal hatching]							
					0.7	[diagonal hatching]							
					0.8	[diagonal hatching]							
					0.9	[diagonal hatching]							
					1.0	[diagonal hatching]							
			DS		1.1	[diagonal hatching]							
					1.2	[diagonal hatching]							
					1.3	[diagonal hatching]							
					1.4	[diagonal hatching]							
			DS		1.5	[diagonal hatching]							
					1.6	[diagonal hatching]							
					1.7	[diagonal hatching]							
			1.8	[diagonal hatching]									
			1.9	[diagonal hatching]									
			2.0	[diagonal hatching]									
			2.1	[diagonal hatching]									
			2.2	[diagonal hatching]									
			2.3	[diagonal hatching]									
			2.4	[diagonal hatching]									
			2.5	[diagonal hatching]									
					2.5		TP3 terminated at 2.5 m. Target depth reached.						
					3								
					3.5								
					4								
					4.5								

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 2 & 3				Pit No :		TP9.C			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/04/2025			
						Logged/Checked by:		YN/ZA			
Equipment type and model:						5 Tonne Excavator		R.L. surface :			
Excavation dimensions :						2.00 m long		0.45 m wide		datum :	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
Not Encountered					0			FILL: Sandy Silty Clay, orange brown mottled pale grey, medium plasticity, trace gravel				FILL
					0.5			Fill: Silty Clay, medium plasticity, dark brown, with fine to coarse grained sand, trace gravel				
								From 0.6 m, high plasticity, yellow brown mottled pale grey				
					1	CH	Silty CLAY: high plasticity, pale grey mottled yellow brown, trace gravel, trace sand	M<PL	St-VSt		RESIDUAL SOIL	
				1.5	CH	Silty CLAY: high plasticity, pale grey mottled yellow brown, with fine to coarse grained gravel, trace sand	M<PL	VSt-H		EXTREMELY WEATHERED MATERIAL		
					2			TP9 terminated at 1.8 m. Refusal on bedrock.				
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 2 & 3				Pit No :		TP10.C				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/04/2025				
						Logged/Checked by: YN/ZA						
Equipment type and model:						5 Tonne Excavator						
Excavation dimensions :						2.00 m long		0.45 m wide		R.L. surface :		
						datum :						
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
Not Encountered			DB		0			FILL: Silty Sandy Clay, medium plasticity, orange brown, fine to coarse grained sand				FILL
			DS		0.5		CH	FILL: Silty Clay, high plasticity, red brown and yellow-brown, trace sand and gravel Silty CLAY: high plasticity, red-brown mottled pale grey, trace gravel	M<PL	F-St		RESIDUAL SOIL
					1							
			DS		1.5			TP10 terminated at 1.5 m. Target depth reached.				
					2							
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1					
Project :		WSU Milperra NSW - Stage 2 & 3				Pit No :		TP11.C					
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/04/2025					
						Logged/Checked by: YN/ZA							
Equipment type and model:						5 Tonne Excavator							
Excavation dimensions :						2.00 m long		0.45 m wide		R.L. surface :			
						datum :							
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations	
Not Encountered				9	0			FILL: Silty Clay, low plasticity, red brown mottled pale grey, with fine to coarse grained sand, trace gravel	M<PL			FILL	
				4									
			DS	1									
				3									
				13	0.5			From 0.4 m, dark brown, trace sand and gravel					
				7									
			DS	7									
				8									
				5									
			DS	4	1								
			5			CH	Silty CLAY, high plasticity, orange-brown mottled pale grey and dark brown	M<PL	VSt-H		RESIDUAL SOIL		
			5										
			6										
			9										
			10	1.5									
			19										
				R				TP11 terminated at 1.6 m. Target depth reached.					
					2								
					2.5								
					3								
					3.5								
					4								
					4.5								

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 2 & 3				Pit No :		TP12.C				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/04/2025				
						Logged/Checked by:		YN/ZA				
Equipment type and model:						5 Tonne Excavator		R.L. surface :				
Excavation dimensions :						2.00 m long 0.45 m wide		datum :				
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
Not Encountered					0			FILL: Silty Clay, high plasticity, brown mottled pale grey, with fine to coarse grained sand, trace gravel	M<PL			FILL
			DS		0.5			FILL: Silty Clay, high plasticity, dark brown, with fine to coarse grained sand, trace gravel				
			DS		1							
			DS		1.5		CH	Silty CLAY, high plasticity, red-brown mottled pale grey, trace gravel and sand	M<PL	F-St		RESIDUAL SOIL
					2			TP12 terminated at 2.0 m. Target depth reached.				
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 2 & 3				Pit No :		TP13.C			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/04/2025			
						Logged/Checked by: YN/ZA					
Equipment type and model:						5 Tonne Excavator					
Excavation dimensions :						2.00 m long		0.45 m wide		R.L. surface : datum :	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
Not Encountered				NO	0			FILL: Silty Sandy Clay, medium plasticity, orange-brown, fine to coarse grained sand, trace gravel				FILL Variably Compacted
			DS	1	0.5			FILL: Silty Clayey Sand, fine to coarse grained, dark brown and grey, of low plasticity clay, trace gravel				
			U50 DS	1								
				2								
				1								
				2								
				2								
			DS	2								
				1								
				2								
				1.5								
				1		CH	Silty CLAY, high plasticity, red-brown mottled pale grey, trace gravel	M<PL	VS-S		RESIDUAL SOIL	
				2			TP13 terminated at 2.0 m. Target depth reached.					
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 2 & 3				Pit No :		TP14.C				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/04/2025				
						Logged/Checked by: YN/ZA						
Equipment type and model:						5 Tonne Excavator						
Excavation dimensions :						2.00 m long		0.45 m wide		R.L. surface :		
						datum :						
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
Not Encountered				16 8 6 8 4 4 3 4 4 3 3 4 4 5 5 16	0			FILL: Silty Clay, medium plasticity, dark brown, with fine to coarse grained sand, trace gravel	M<PL			FILL
					0.5			FILL: Sandy Silty Clay, low plasticity, orange-brown mottled pale grey, fine to coarse grained sand, with fine to coarse grained gravel	M≤PL			
			DS					FILL: Silty Clay, high plasticity, yellow brown mottled pale grey, trace gravel				
					1							
			DS				CH	Silty CLAY, high plasticity, orange-brown mottled pale grey, trace sand and gravel	M<PL	St-VSt		RESIDUAL SOIL
			DS							H		
					1.5							
					2							
					2.5			TP14 terminated at 2.0 m. Target depth reached.				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 2 & 3				Pit No :		TP15.C				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/04/2025				
						Logged/Checked by: YN/ZA						
Equipment type and model:						5 Tonne Excavator						
Excavation dimensions :						2.00 m long		0.45 m wide		R.L. surface :		
						datum :						
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
Not Encountered					0			FILL: Sand, fine to coarse grained, orange-brown mottled pale grey, with medium plasticity clay, trace gravel	M<PL			FILL
			DS		0.5			FILL: Silty Clay, medium plasticity, dark brown, with fine to coarse grained sand, trace gravel				
			DS		1			FILL: Silty Clay, high plasticity, yellow-brown and red-brown mottled pale grey				
			DB		1.5	CH	Silty CLAY, high plasticity, orange-brown mottled pale grey, trace gravel	M<PL	F-St		RESIDUAL SOIL	
					2			TP15 terminated at 2.0 m. Target depth reached.				
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 2 & 3				Pit No :		TP16.C			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/04/2025			
						Logged/Checked by:		YN/ZA			
Equipment type and model:						5 Tonne Excavator		R.L. surface :			
Excavation dimensions :						2.00 m long		0.45 m wide		datum :	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
Not Encountered				3	0			TOPSOIL: Silty Clay, medium plasticity, dark brown, with fine to coarse grained sand, trace rootlets.				TOPSOIL @ 0.2 m, possible fill
				3								
				1								
				2								
				4	0.5			FILL: Silty Clay, high plasticity, yellow-brown mottled grey, with fine to coarse grained sand	M<PL			FILL
			DS	9								
			DB	8								
			U50	6								
				4								
				4	1		CH	Silty CLAY, high plasticity, red-brown mottled pale grey, trace gravel	M<PL	F-St		RESIDUAL SOIL
				2								
				2	1.5							
			2									
			2									
			3	2				TP16 terminated at 2.0 m. Target depth reached.				
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

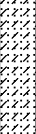
Client : Mirvac Homes (NSW) Pty LtdJob No : 9739/1 Project : WSU Milperra NSW - Stage 2 & 3Pit No : TP17.C Location : 2 Bullecourt Avenue, Milperra NSWDate : 03/04/2025 Logged/Checked by: YN/ZA												
Equipment type and model: 5 Tonne ExcavatorR.L. surface : Excavation dimensions : 2.00 m long 0.45 m wide datum :												
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
Not Encountered				6	0			FILL: Silty Clay, medium to high plasticity, pale grey mottled orange-brown, with fine to coarse grained sand and gravel	M<PL			FILL
				4								
				4								
				3								
				6								
				0.5								
				5								
				5								
				3								
				3								
			1									
			3									
			4									
			4									
			7									
			4									
			1.5									
			4									
			2									
			2									
			2.5									
								TP17 terminated at 2.5 m. Target depth reached.				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP1				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025				
						Logged/Checked by: DP/JC						
Equipment type and model:						5 Tonne Excavator			R.L. surface : 13.695			
Excavation dimensions :						2.0 m long 0.45 m wide			datum : ADH			
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Silty Clay, medium to high plasticity, pale grey mottled red brown and yellow brown, with fine to coarse grained gravel and sand @0.2m, colour changes to red brown mottled pale grey and yellow brown	M<PL			Fill
			DS		0.5							
				DS	1		CH	Silty CLAY, high plasticity, orange brown mottled grey and red, with fine to coarse grained sand, trace gravel @1.4m, colour changes to red brown mottled grey	M<PL	St-VSt		Natural
				DS	1.5							
					2							
					2.5			@2.4m, colour changes to pale grey mottled yellow brown and red brown				
					3			Test Pit TP1 terminated at 2.6m Target depth reached				
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP2			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		02/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 12.493		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Gravelly Sand, fine to coarse grained, dark grey and black, fine to coarse grained gravel, trace silt	D			Fill
			DS		0.5			FILL: Sand, fine to coarse grained, pale brown, trace gravel and silt	M			
			DS				CH	Sandy CLAY, high plasticity, yellow brown and red brown, fine to coarse grained sand, with fine to coarse grained gravel	M<PL	F-St		Natural
			DS		1							
			DS		1.5		CH	Gravelly Sandy CLAY, medium plasticity, red brown and grey mottled yellow brown, fine to coarse grained gravel, fine to coarse grained sand, trace silt				
					2							
					2.5			Test Pit TP2 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP3				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025				
						Logged/Checked by:		DP/JC				
Equipment type and model:						5 Tonne Excavator		R.L. surface :		17.180		
Excavation dimensions :						2.00 m long 0.45 m wide		datum :		AHD		
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Gravelly Sand, fine to coarse grained, grey brown, fine to coarse gravel	D			Fill
			DS					FILL: Sandy Clay, medium to high plasticity, pale brown, fine to coarse grained sand and gravel	M<PL			
			DB		0.5		CH	Silty CLAY, high plasticity, red brown mottled yellow brown and grey, with fine to coarse gravel and sand	M<PL	F-St		Natural
			DS		1		CI-CH	Gravelly CLAY, medium to high plasticity, red brown mottled grey, fine to coarse grained gravel, with fine to coarse grained sand	M<PL	St-VSt		
					1.5			@1.5m, colour changes to red brown mottled pale grey				
					2							
					2.5			Test Pit TP3 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP4	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 01/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 12.360	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, grey brown, trace gravel	M			Topsoil
					0.5			FILL: Clayey Sand, fine to coarse grained, pale brown, with fine to coarse grained gravel and cobbles				Fill
			DS		1		CI	Silty CLAY, medium plasticity, grey mottled red brown and yellow brown, with fine to coarse grained sand, trace gravel	M<PL	St-VSt		Natural
			DS		1.5			@1.4m, colour changes to pale grey mottled red brown and yellow brown				
					2			SHALE, red brown and pale grey mottled yellow brown, very low to low strength, highly weathered				Bedrock
					2.5			Test Pit TP4 terminated at 2.3m Refusal on bedrock				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP5				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		01/10/2025				
						Logged/Checked by:		DP/JC				
Equipment type and model:						5 Tonne Excavator		R.L. surface :		17.196		
Excavation dimensions :						2.00 m long 0.45 m wide		datum :		AHD		
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Silty Clay, medium to high plasticity, brown and grey mottled red brown	M<PL			Fill
			DS		0.5							
			U ₅₀									
				DS	1							
					1.5		CH	Silty CLAY, high plasticity, grey and brown, with fine to coarse grained gravel and sand	M<PL	St-VSt		Natural
								SHALE, pale grey and brown, very low to low strength, highly weathered				Bedrock
					2			Test Pit TP05 terminated at 1.8m Refusal on bedrock				
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP6	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 07/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 20.308	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, dark brown, with fine to coarse gravel, trace rootlets	M<PL			Topsoil
							CH	FILL: Silty Clay, high plasticity, dark brown and grey, with fine to coarse grained gravel and sand	M<PL	F-St		Fill
				DS	0.5			Silty CLAY, high plasticity, red brown and yellow brown mottled grey, with fine to coarse grained sand, trace gravel				Natural
				DS	1		CH	@0.8m grey mottled orange brown, with fine to coarse grained gravel and sand		St-VSt		
				DS	1.5			Silty CLAY, high plasticity, grey mottled orange brown, fine to coarse grained, with fine to coarse grained sand	M<PL	Vst-H		Extremely weathered material
					2			SHALE, orange brown and grey, very low to low strength, highly weathered				Bedrock
					2.5			Test Pit TP6 terminated at 1.9m				
					3			Refusal on bedrock				
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP7			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 17.473		
Excavation dimensions :						2.00 m long 0.45 m wide			datum : AHD		

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Gravelly Sand, fine to coarse grained, pale brown, fine to coarse grained gravel	D			Fill
			DS		0.5		CH	Silty CLAY, high plasticity, yellow brown mottled red brown, trace sand	M<PL	F-St		Natural
			U ₅₀									
			DS		1			@0.9m red brown mottled grey, with fine to coarse grained gravel and sand				
			DS		1.5							
					2		CH	Gravelly CLAY, high plasticity, pale grey mottled red brown, fine to coarse grained gravel, with fine to coarse grained sand		St-VSt		
					2.5		GC	Clayey GRAVEL, fine to coarse grained, pale grey and orange brown, of high plasticity clay	D	D-VD		Extremely weathered material
					2.5			Test Pit TP7 terminated at 2.5m Target depth Reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd Project : WSU Milperra NSW - Stage 1 to 7 Location : 2 Bullecourt Avenue, Milperra NSW		Job No : 9739/1 Pit No : TP8 Date : 07/10/2025 Logged/Checked by: DP/JC											
Equipment type and model: 5 Tonne Excavator Excavation dimensions : 2.00 m long 0.45 m wide		R.L. surface : 15.235 datum : AHD											
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations	
					0			FILL: Silty Clay, high plasticity, red brown and grey, with fine to coarse grained gravel and sand	M<PL			Fill	
			DS		0.5								Caved in at 0.6m
			DS		1			FILL: Sand, fine to coarse grained, pale brown, with fine to coarse grained gravel, trace cobbles	M				
			DB		1.5		CH	Silty CLAY, high plasticity, red brown and grey, with fine to coarse grained gravel and sand	M>PL	F-St		Natural	
					2			Test Pit TP8 terminated at 2.0m Collapsed				@2.0m, groundwater seepage	
					2.5								
					3								
					3.5								
					4								
					4.5								

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP9				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		08/10/2025				
						Logged/Checked by: DP/JC						
Equipment type and model:						5 Tonne Excavator			R.L. surface : 21.385			
Excavation dimensions :						2.00 m long 0.45 m wide			datum : AHD			
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Sandy Clay, low to medium plasticity, dark grey brown, fine to coarse grained sand, with fine to coarse grained gravel, trace rootlets				Topsoil
					0.5			FILL: Silty Sandy Clay, medium to high plasticity, dark brown and grey, fine to coarse grained sand, with fine to coarse grained gravel	M<PL			Fill
			DS		1			FILL: Clayey Sand, fine to coarse grained, dark grey brown, of medium plasticity clay, with fine to coarse grained gravel	M			
					1.5			FILL: Silty Sandy Clay, medium to high plasticity, pale brown mottled red brown, fine to coarse grained sand, trace gravel	M<PL			
			DB		2	CH		Silty CLAY, high plasticity, yellow brown and grey mottled red brown, trace gravel and sand	M<PL	F-St		Natural
			DS		2.5		CH	Gravelly CLAY, high plasticity, pale grey mottled orange brown, fine to coarse grained gravel, with fine to coarse grained sand	M<PL	St-VSt		Extremely weathered material
					2.5			Test Pit TP9 terminated at 2.5m				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP10			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		08/10/2025			
						Logged/Checked by:		DP/JC			
Equipment type and model:						5 Tonne Excavator		R.L. surface :		22.475	
Excavation dimensions :						2.00 m long 0.45 m wide		datum :		AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Sandy Clay, medium plasticity, grey brown, fine to coarse grained sand, with fine to coarse grained gravel, trace rootlets				Topsoil
				DS	0.5			FILL: Silty Clay, high plasticity, red brown mottled yellow brown and grey, with fine to coarse grained sand, trace gravel	M<PL			Fill
				DB			CH	Silty CLAY, high plasticity, pale grey mottled red brown and yellow brown, with fine to coarse grained sand, trace gravel	M<PL	St-VSt		Natural
				DS	1							
				DS			CH	Gravelly CLAY, high plasticity, pale grey mottled yellow brown, fine to coarse grained gravel, with fine to coarse grained sand	M<PL	VSt-H		Extremely weathered material
					1.5			SHALE, pale grey and orange brown, very low to low strength, highly weathered Test Pit TP10 terminated at 1.5m Refusal on bedrock				Bedrock
					2							
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP11	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 01/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 12.460	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Gravelly Sand, fine to coarse grained, pale grey and brown, fine to coarse grained gravel	D			Fill abandoned services (electrical)
					0.5		FILL: Sand, fine to coarse grained, pale brown, with fine to coarse grained gravel and cobbles, trace boulder					
					1		FILL: Clayey Sand, fine to coarse grained, grey brown, of medium plasticity clay, trace gravel, trace boulder					
			DS		1.5							
				DB								
					2		CH	Silty CLAY, high plasticity, grey mottled yellow brown and red brown, trace gravel and sand	M<PL	St		Natural
		DS				CH	Silty Gravelly CLAY, high plasticity, red brown and grey mottled yellow brown, fine to coarse grained gravel, with fine to coarse grained sand	St-VSt				
					2.5			Test Pit TP11 terminated at 2.2m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP12	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 01/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 13.196	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Gravelly Sand, fine to coarse grained grey brown, fine to coarse grained gravel, trace clay	D			Fill
					0.5			FILL: Sand, fine to coarse grained, pale brown, with silt, trace gravel				
				DS		1		CI	Silty CLAY, medium plasticity, yellow brown mottled grey, with fine to coarse grained sand, trace gravel	M<PL	St	Natural
				DB								
					1.5	CH		Sandy CLAY, high plasticity, grey mottled yellow brown and red brown, with fine to coarse grained gravel				
			DS		2		CH	Gravelly CLAY, high plasticity, red brown mottled grey and orange brown, fine to coarse grained gravel, with fine to coarse grained sand	M<PL	VSt-H	Extremely weathered material	
					2.5			Test Pit TP12 terminated at 2.2m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP13				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025				
						Logged/Checked by:		DP/JC				
Equipment type and model:						5 Tonne Excavator		R.L. surface :		15.053		
Excavation dimensions :						2.00 m long 0.45 m wide		datum :		AHD		
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Sandy Clay, medium plasticity, dark grey and brown, fine to coarse grained sand, with fine to coarse grained gravel, trace rootlets	M<PL			Fill
					0.5							
					1			FILL: Clayey Sand, fine to coarse grained, dark grey and brown, of medium plasticity clay, with fine to coarse grained gravel	M			
					1.5							
			DS		2		SC	FILL: Clayey Sand, fine to coarse grained, pale brown, of high plasticity clay, with fine to coarse grained gravel Clayey SAND, fine to coarse grained, orange brown and grey, of medium plasticity, trace gravel	M<PL	St-VSt		Natural
			DS		2.5			@2.4m, colour changes to red brown and grey mottled yellow brown Test Pit TP13 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP14	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 01/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 14.444	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, grey brown, trace rootlets	M			Topsoil
					0.5			FILL: Clayey Sand, fine to coarse grained, dark grey and brown, trace gravel and rootlets				Fill
			DS					FILL: Clayey Sand, fine to coarse grained, pale brown, trace gravel				
			DB		1		CI	Silty CLAY, medium plasticity, yellow brown mottled grey and red brown, with fine to coarse grained gravel and sand	M<PL	F-St		Natural
			DS		1.5			@1.4m, colour changes to red brown mottled yellow brown and grey				
					2			@1.8m, colour changes to grey mottled red brown				
					2.5			Test Pit TP14 terminated at 2.2m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP15	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 01/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 15.222	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, grey brown, trace rootlets	D			Topsoil
					0.5			FILL: Sand, fine to medium grained, pale brown	M<PL			Fill
			DS		1			FILL: Silty Clay, medium plasticity, yellow brown and red brown mottled pale grey and white, with fine to coarse grained gravel and sand				@0.8m, boulders (construction debris)
			DB		1.5		CH	Silty CLAY, high plasticity, pale grey mottled red brown and yellow brown, with fine to coarse grained gravel and sand	M<PL	F-St		Natural @1.5m, plastic pipe
			DS		2							
					2.5			Test Pit TP15 terminated at 2.2m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP16	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 08/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 16.535	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Clayey Sand, fine to coarse grained, dark grey brown, of medium plasticity clay, with fine to coarse grained gravel, trace rootlets	D			Fill
			DS		0.5			FILL: Sandy Clay, medium plasticity, pale brown mottled orange brown, fine to coarse grained sand, with fine to coarse grained gravel	M<PL			
			DS									
			U ₅₀				CI-CH	Gravelly Silty CLAY, medium to high plasticity, orange brown and grey, fine to coarse grained gravel, with fine to coarse grained sand	M<PL	St-VSt		Natural
			DS		1							
					1.5			@1.5m, colour changes to red brown and grey mottled yellow brown				
					2							
					2.5			Test Pit TP16 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP17	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 08/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 15.468	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL/TOPSOIL: Clayey Sand, fine to coarse grained, dark grey brown, with fine to coarse grained gravel, with rootlets	D			Fill
			DS		0.5			FILL: Clayey Sand, fine to coarse grained, medium plasticity clay, pale brown and grey, fine to coarse grained sand, trace gravel	D			
				DS	1.5		CH	Gravelly CLAY, high plasticity, orange brown and grey, fine to coarse grained gravel, with fine to coarse grained sand @1.4m, colour changes to red brown and grey mottled yellow brown	M<PL	St-VSt		Natural
					2.5							
					3			Test Pit TP17 terminated at 2.7m Target depth reached				
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP18			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 15.967		
Excavation dimensions :						2.00 m long 0.45 m wide			datum : AHD		

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
					0			FILL: Silty Sandy Clay, medium to high plasticity, brown and grey, fine to coarse grained sand, with fine to coarse grained gravel	M<PL			Fill
					0.5			FILL: Silty Clay, medium to high plasticity, red brown mottled grey and dark grey, with fine to coarse grained gravel and sand	M>PL			
			DS		1							Groundwater seepage at 1.2m
					1.5	CH	Silty CLAY, high plasticity, pale grey mottled orange brown, trace gravel and sand	M<PL	F-St		Natural	
			DS		2							
					2.5		CH	Silty Gravelly CLAY, high plasticity, orange brown and grey, fine to coarse grained gravel, with fine to coarse grained sand	M<PL	St-VSt		Extremely weathered material
					2.5			Test Pit TP18 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP19			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 19.034		
Excavation dimensions :						2.00 m long 0.45 m wide			datum : AHD		

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Gravelly Clayey Sand, fine to coarse grained, grey brown, fine to coarse grained gravel, of high plasticity clay	D			Fill
			DS	0.5			FILL: Gravelly Clay, medium to high plasticity, dark grey and brown, fine to coarse grained gravel, with fine to coarse grained sand	M<PL				
			DS	1								
			DS	1.5								
			DS	2		CH	Silty CLAY, high plasticity, yellow brown and red brown, with fine to coarse grained sand, trace gravel	M<PL	F-St		Natural	
					2.5		CH	Gravelly CLAY, high plasticity, red brown mottled grey, fine to coarse grained gravel, with fine to coarse grained sand		St-VSt		
					2.5			Test Pit TP19 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP20	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 08/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 17.911	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Clayey Sand, fine to coarse grained, grey brown, with fine to coarse grained gravel, trace rootlets	D			Fill
					0.5			FILL: Silty Clay, high plasticity, pale brown and grey, with fine to coarse grained sand, trace gravel	M<PL			
			DS				CH	Silty CLAY, high plasticity, yellow brown and grey mottled red brown, with fine to coarse grained gravel and sand	M<PL	F-St		Natural
			DB		1							
			DS		1.5		CI-CH	Gravelly CLAY, medium to high plasticity, pale grey mottled red brown and yellow brown, fine to coarse grained gravel, with fine to coarse grained sand		St-VSt		
					2							
					2.5			Test Pit TP20 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP21			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		01/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 15.779		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, dark brown and grey, of medium plasticity clay, with rootlets				Topsoil
			DS		0.5			FILL: Silty Clay, high plasticity, brown mottled yellow brown and grey, trace gravel and sand, trace rootlets	M<PL			Fill
								FILL: Sand, fine to medium grained, pale brown, trace gravel and rootlets	M			
			U ₅₀		1		CH	Silty CLAY, high plasticity, yellow brown and grey mottled red brown, trace gravel and sand	M<PL	St-VSt		@0.9m, abandoned clay pipe Natural
			DS		1.5		CH	Silty CLAY, high plasticity, pale grey mottled yellow brown and red brown, with fine to coarse gravel and sand	M<PL	VSt-H		Extremely weathered material
					2			SHALE, pale grey and yellow brown, very low to low strength, highly weathered Test Pit TP21 terminated at 2.0m Refusal on bedrock				Bedrock
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP22	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 01/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 15.044	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, grey brown, with fine to coarse grained gravel and rootlets FILL: Sandy Gravel, fine to coarse grained, yellow brown and pale brown, fine to coarse grained sand, with cobbles	D			Topsoil Fill
			DS		0.5		CH	Silty CLAY, high plasticity, yellow brown and red brown mottled grey, trace gravel and sand	M<PL	F-St		Natural
			DB		1							
			DS		1.5		CH	Silty CLAY, high plasticity, pale grey mottled red brown and yellow brown, with fine to coarse grained gravel and sand	M<PL	VSt-H		Extremely weathered material
								SHALE, pale grey and yellow brown, very low to low strength, highly weathered Test Pit TP22 terminated at 1.8m Refusal on bedrock				Bedrock
					2							
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1		
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP23		
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025		
						Logged/Checked by:		DP/JC		
Equipment type and model:						5 Tonne Excavator		R.L. surface :		15.615
Excavation dimensions :						2.00	m long	0.45	m wide	datum : AHD

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
					0			FILL: Silty Clay, medium to high plasticity, pale grey mottled red brown and yellow brown, with fine to coarse grained gravel and sand, trace cobbles	M<PL			Fill
					0.5							
					1							
					1.5							
				DS	1.5							
				DB	1.5							
					2				M>PL			Groundwater seepage at 1.8m
					2.5							
				DS	2.5							
					3							
					3			Test Pit TP23 terminated at 3.0m Target depth reached				
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP24			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 18.905		
Excavation dimensions :						2.00 m long 0.45 m wide			datum : AHD		

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Sandy Gravel, fine to coarse grained, grey and brown, fine to coarse grained sand, with medium plasticity clay	D			Fill
					0.5			FILL: Clayey Gravel, fine to coarse grained, dark grey and brown, of medium plasticity clay, with fine to coarse grained sand				
			DS		1							
			DB		1.5	CH	Silty CLAY, high plasticity, orange brown and grey, with fine to coarse grained gravel and sand	M<PL	F-St		Natural	
			DS		2			@1.7m, colour changes to pale grey mottled orange brown		St-VSt		
					2.5			SHALE, pale grey mottled orange brown, very low to low strength, highly weathered				Bedrock
					3			Test Pit TP24 terminated at 2.5m Target depth reached				
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP25			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		02/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 13.173		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Clayey Sand, fine to coarse grained, dark grey and brown, with fine to coarse grained gravel, with silt	D			Fill
					0.5			@0.4m, colour changes to pale brown	M			
				DS								
					1		SC	Clayey SAND, fine to coarse grained, orange brown mottled grey, of high plasticity clay, trace gravel and silt	M<PL	F-St		Natural
				DB								
			DS		1.5		CH	Gravelly Sandy CLAY, high plasticity, red brown and grey mottled orange brown, fine to coarse gravel and sand, trace silt		St-VSt		
			DS		2							
					2.5			Test Pit TP25 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty LtdJob No : 9739/1 Project : WSU Milperra NSW - Stage 1 to 7Pit No : TP26 Location : 2 Bullecourt Avenue, Milperra NSWDate : 01/10/2025 Logged/Checked by: DP/JC													
Equipment type and model: 5 Tonne ExcavatorR.L. surface : 12.595 Excavation dimensions : 2.00 m long 0.45 m wide datum : AHD													
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations	
DRY					0			FILL: Sandy Clay, medium to high plasticity, grey brown mottled red and yellow brown, fine to coarse grained sand, trace gravel	M<PL			Fill	
					DS								0.5
					DS								1
					DS								1.5
					DS								2
													2.5
													3
													3.5
													4
													4.5
								Test Pit TP26 terminated at 2.5 Collapsed					

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP27			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		02/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator		R.L. surface :		14.250	
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Silty Clay, high plasticity, brown mottled dark grey, with fine to coarse grained gravel and sand, trace boulder and cobble (construction debris)	M<PL			Fill
			DS		0.5							@0.6m, abandoned service
			DS		1		CH	Silty CLAY, high plasticity, grey mottled red brown and yellow brown, trace fine to coarse grained gravel and sand	M<PL	F-St		Natural
			DS		1.5							
					2							
					2.5			Test Pit TP27 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP28			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		02/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 12.904		
Excavation dimensions :						2.00 m long 0.45 m wide			datum : AHD		

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, dark grey and brown, with fine to coarse grained gravel and rootlets				Topsoil
			DS		0.5			FILL: Silty Clay, medium to high plasticity, yellow brown mottled grey, with fine to coarse grained sand, trace gravel	M<PL			Fill
			DS		1			FILL: Sand, fine to coarse grained, pale brown, trace gravel and silt	M			
			DB		1.5		CH	Silty CLAY, high plasticity, red brown mottled yellow brown and grey, trace gravel and sand	M<PL	F-St		Natural @1.2m, abandoned service (sewer)
			DS		2			@1.6m, colour changes to pale grey and red brown mottled yellow brown @1.8m, with fine to coarse grained sand and gravel		St-VSt		
					2.5		CI-CH	Sandy CLAY, medium to high plasticity, red brown mottled grey and yellow brown, fine to coarse grained sand, with fine to coarse grained gravel				
					2.5			Test Pit TP28 terminated at 2.5m				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP29	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 02/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 12.701	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Gravelly Sand, fine to coarse grained, grey brown, fine to coarse grained gravel, with silt	D			Fill
					0.5		FILL: Clayey Sand, fine to coarse grained, dark grey and brown, of high plasticity clay, with fine to coarse grained gravel	M				
			DS		1		FILL: Silty Clay, high plasticity, orange brown and grey, with fine to coarse grained gravel and sand	M<PL				
			U ₅₀		1.5		CH Silty CLAY, high plasticity, grey mottled yellow brown, with fine to coarse grained gravel, trace sand	M<PL	F-St		Natural	
			DS		2		@2.0m, colour changes to pale grey mottled orange brown, with fine to coarse grained gravel		St-VSt			
					2.5		SHALE, pale grey and orange brown, very low to low strength, highly weathered				Bedrock	
					2.5		Test Pit TP29 terminated at 2.5m Target depth reached					
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP30			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		02/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 11.945		
Excavation dimensions :						2.00 m long 0.45 m wide			datum : AHD		

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
					0			FILL: Gravelly Sand, fine to coarse grained, grey brown, fine to coarse grained gravel, with medium plasticity clay, trace silt	D			Fill
					0.5			FILL: Silty Clay, high plasticity, dark brown mottled orange brown and dark grey, with fine to coarse grained gravel and sand	M<PL			
			DS		1							@1.1m, groundwater seepage
			DB		1.5		CH	Silty CLAY, high plasticity, orange brown and grey, trace gravel and sand	M≈PL	F-St		Natural
			DS					@1.5m, colour changes to pale grey mottled orange brown, with fine to coarse gravel and sand	M≈PL	St-VSt		
					2			SHALE, grey and orange brown, very low to low strength, highly weathered				
								Test Pit TP30 terminated at 2.0m Refusal on bedrock				
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP31			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		02/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 8.549		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
					0			FILL: Sandy Gravel, fine to coarse grained, pale brown and grey	M			Fill
			DS		0.5			FILL: Sandy Clay, medium to high plasticity, dark grey and brown, fine to coarse grained sand, with fine to coarse grained gravel	M≈PL			@0.6m, abandoned services
			DS		1							
			DS		1.5		CI	Silty CLAY, medium plasticity, brown mottled red brown and dark grey, trace gravel and sand	M≈PL	F-St		Natural
			DS		2		CI-CH	Sandy CLAY, medium to high plasticity, red brown mottled grey and yellow brown, fine to coarse grained sand, with gravel	M≈PL	St-VSt		@1.4m, groundwater seepage
					2.1			@2.1m, colour changes to pale grey mottled red brown and yellow brown	M≈PL			
					2.5		CI-CH	Gravelly Silty CLAY, medium to high plasticity, pale grey mottled red brown and yellow brown, fine to coarse grained ironstone gravels, with fine to coarse grained sand		VSt-H		
					2.5			Test Pit TP31 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP32	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 02/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 9.548	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Clayey Sand, fine to coarse grained, grey brown, with fine to coarse grained gravel	M			Fill
					0.5		FILL: Sandy Clay, medium plasticity, dark grey and brown, fine to coarse grained sand, with fine to coarse grained gravel	M<PL				
			DS		1							
					1.5		CH	Silty CLAY, high plasticity, red brown and grey, trace gravel and sand	M<PL	F-St		Natural
			U ₅₀		2			@1.6m, colour changes to pale grey mottled red brown and orange brown, with fine to coarse grained gravel		St-VSt		
			DS		2.5			SHALE, red brown and yellow brown mottled grey, very low to low strength, highly weathered				Bedrock
					3			Test Pit TP32 terminated at 2.4m Refusal on bedrock				
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP33			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		02/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 6.782		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL/TOPSOIL: Clayey Sand, fine to coarse grained, dark grey and brown, with fine to coarse grained gravel and rootlets	D			Fill
					0.5							
				DS			CH	Silty CLAY, high plasticity, brown mottled grey, trace gravel and sand	M<PL	F-St		Natural
				DS	1			@1.0m pale grey and yellow brown, with fine to coarse grained gravel and sand	M<PL			
				DS								
					1.5							
					2		CH	Gravelly CLAY, high plasticity, yellow brown and red brown mottled grey, fine to coarse grained gravel, with fine to coarse grained sand	M<PL	St-VSt		
					2.5			SHALE, yellow brown and red brown mottled grey, very low to low strength, highly weathered				Bedrock
					2.5			Test Pit TP33 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP34			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		02/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 5.529		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL/TOPSOIL: Clayey Sand, fine to coarse grained, dark grey and brown, with fine to coarse grained gravel, with silt, trace rootlets				Fill
				DS	0.5		CH	Silty CLAY, high plasticity, yellow brown mottled red brown and grey, with sand, trace gravel	M<PL	F-St		Natural
				DS				@1.0m, colour changes to grey mottled red brown and yellow brown				
				DS	1			@2.2m, with fine to coarse grained gravel		St-VSt		
					2.5			Test Pit TP34 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP35			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		02/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 5.047		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
					0			TOPSOIL/FILL: Clayey Sand, fine to coarse grained, dark grey and brown, with fine to coarse grained gravel, trace rootlets	D			Fill
			DS		0.5			FILL: Silty Clay, medium to high plasticity, dark brown mottled dark grey and yellow brown, with fine to coarse grained gravel and sand	M<PL			
			DS									
				DS	1							
					1.5				M>PL			@1.5m, groundwater seepage
					2							
					2.5							
					3			Test Pit TP35 terminated at 3.0m Target depth reached				
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP36			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 6.805		
Excavation dimensions :						2.00 m long 0.45 m wide			datum : AHD		

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, grey brown, with fine to coarse grained gravel, trace rootlets				Topsoil
					0.5			FILL: Silty Clay, high plasticity, pale grey and red brown mottled yellow brown, with fine to coarse grained gravel and sand	M<PL			Fill
					1			@0.8m, colour changes to brown mottled dark grey				
					1.5		CH	Silty CLAY, high plasticity, grey mottled yellow brown and red brown, trace gravel and sand	M<PL	F-St		Natural
					2.5			Test Pit TP36 terminated at 2.5m				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP37	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 03/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 6.815	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, dark brown and grey, with fine to coarse grained gravel, trace rootlets				Topsoil
					0.5			FILL: Silty Sandy Clay, medium to high plasticity, brown and dark grey, fine to coarse grained sand, with fine to coarse grained gravel	M<PL			Fill
			DS		1		CH	Silty CLAY, high plasticity, yellow brown and grey mottled orange brown, trace sand, trace gravel	M<PL	F-St		Natural
			DS		1.5			@1.4m pale grey mottled red brown and orange brown, with fine to coarse grained gravel and sand		St-VSt		
					2							
					2.5			Test Pit TP37 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP38			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 6.751		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
					0			TOPSOIL: Clayey Sand, fine to coarse grained, dark brown and grey, with fine to coarse grained gravel, trace rootlets				Topsoil
					0.5			FILL: Silty Clay, high plasticity, grey mottled red brown and yellow brown, with fine to coarse grained gravel and sand	M<PL			Fill
					1			@1.0m, colour changes to brown mottled dark grey	M<PL			
			DS		1.5							
					2			FILL: Sandy Clay, medium to high plasticity, brown mottled dark grey, fine to coarse grained sand				
			DS		2.5				M>PL			@2.4m, groundwater seepage
					3		CH	Silty CLAY, high plasticity, red brown and grey, with fine to coarse grained sand, trace gravel	M<PL	F-St		Natural
			DB		3.5			Test Pit TP38 terminated at 3.0m Target depth reached				
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP39			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 7.019		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, dark brown, with fine to coarse grained gravel, trace rootlets				Topsoil
					0.5			FILL: Silty Clay, high plasticity, grey and red brown, with fine to coarse grained gravel and sand	M<PL			Fill
					1			FILL: Silty Clay, high plasticity, dark brown and dark grey, with fine to coarse grained gravel, trace rootlets				
					1.5			FILL: Sandy Clay, medium to high plasticity, dark brown and grey, fine to coarse grained sand, trace gravel	M≈PL			
				DS		1.5	CH	Sandy CLAY, high plasticity, grey mottled red brown, fine to coarse grained sand, trace gravel	M≈PL	F-ST		Natural @1.6m, groundwater seepage
			DS		2							
			DS		2.5			Test Pit TP39 terminated at 2.5m Target depth reached				
			DS		3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client : Mirvac Homes (NSW) Pty Ltd		Job No : 9739/1	
Project : WSU Milperra NSW - Stage 1 to 7		Pit No : TP40	
Location : 2 Bullecourt Avenue, Milperra NSW		Date : 03/10/2025	
Logged/Checked by: DP/JC			
Equipment type and model: 5 Tonne Excavator		R.L. surface : 6.914	
Excavation dimensions : 2.00 m long 0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, dark brown and grey, with fine to coarse grained gravel, trace rootlets				Topsoil
				DS	0.5		CH	Silty CLAY, high plasticity, pale grey mottled red brown and yellow brown, with fine to coarse grained sand, trace gravel	M<PL	F-St		Natural
				U ₅₀								
				DS	1			@0.9m, colour changes to pale grey and yellow brown mottled red brown, with fine to coarse grained gravel, trace sand		St-VSt		
					1.5							
					2			SHALE, grey and orange brown, very low to low strength, highly weathered				Bedrock
					2.5			Test Pit TP40 terminated at 2.2m Refusal on bedrock				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP41				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/10/2025				
						Logged/Checked by:		DP/JC				
Equipment type and model:						5 Tonne Excavator		R.L. surface :		7.146		
Excavation dimensions :						2.00 m long 0.45 m wide		datum :		AHD		
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Clayey Sand, fine to coarse grained, dark brown and grey, with fine to coarse grained gravel, trace rootlets				Topsoil
			DS		0.5		CH	Silty CLAY, high plasticity, dark grey mottled pale grey and orange brown, with gravel, trace sand	M<PL	VSt-H		Extremely weathered material
			DS					SHALE, dark grey, very low to low strength, highly weathered				
			DS		1			Test Pit TP41 terminated at 1.0m Refusal on bedrock				
					1.5							
					2							
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP42			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 11.948		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
					0			FILL/TOPSOIL: Clayey Sand, fine to coarse grained, dark brown and grey, with fine to coarse grained gravel, trace rootlets, trace cobble	D			Fill
					0.5			FILL: Silty Clay, high plasticity, dark brown and grey, with fine to coarse grained gravel and sand	M<PL			
			DB		1		CH	Silty CLAY, high plasticity, grey and yellow brown mottled red brown, trace gravel and sand	M<PL	F-St		Natural
					1.5			@1.6m, with fine to coarse grained gravel and sand	M≈PL			@1.2m, groundwater seepage
			DS		2		CH	Gravelly CLAY, high plasticity, pale grey mottled orange brown, fine to coarse grained gravel, with fine to coarse grained sand	M<PL	VSt-H		Extremely weathered material
								SHALE, pale grey and orange brown, very low to low strength, highly weathered				Bedrock
					2.5			Test Pit TP42 terminated at 2.4m Refusal on bedrock				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP43			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 11.788		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL: Silty Clay, medium to high plasticity, pale grey, dark grey and brown, with fine to coarse grained gravel and sand, trace cobbles	M<PL			Fill
			DS		0.5		CH	Silty CLAY, high plasticity, pale grey and orange brown, trace gravel and sand	M<PL	F-St		Natural
			U ₅₀		1							
			DS		1.5		CH	Silty Gravelly CLAY, high plasticity, pale grey mottled yellow brown, fine to coarse grained gravel, with fine to coarse grained sand		St-VSt		
					2			SHALE, pale grey mottled orange brown, very low to low strength, highly weathered				Bedrock
					2			Test Pit TP43 terminated at 2.0m Refusal on bedrock				
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP44			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 13.620		
Excavation dimensions :						2.00 m long 0.45 m wide			datum : AHD		

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL/FILL: Clayey Sand, fine to coarse grained, dark brown and grey, with fine to coarse gravel, with rootlets	D			Fill
					0.5							
					1		CH	Silty CLAY, high plasticity, orange brown and grey, trace gravel and sand	M<PL	F-St		Natural
				DS	1.5			@1.3m pale grey mottled orange brown, with fine to coarse grained gravel and sand		St-VSt		
				DB	2		CH	Silty Gravelly CLAY, high plasticity, pale brown and orange brown, with fine to coarse grained sand	M<PL	VSt-H		Extremely weathered material
			DS	2.5				SHALE, pale grey and orange brown, very low to low strength, highly weathered				Bedrock
					2.5			Test Pit TP44 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP45				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/10/2025				
						Logged/Checked by: DP/JC						
Equipment type and model:						5 Tonne Excavator			R.L. surface : 17.694			
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD		
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			FILL/TOPSOIL: Clayey Sand, fine to coarse grained, dark brown, with fine to coarse grained gravel, trace rootlets	D			Fill
					0.5							
			DS		1							@1.0m, abandoned service (electrical)
					1.5			FILL: Silty Clay, high plasticity, pale grey mottled orange brown and dark brown, with fine to coarse grained gravel and sand, trace boulder	M<PL			
			DB		2							Caved in
					2.5							
			DS		3							
					3.5							
					4							
					4.5							
								Test Pit TP45 terminated at 2.6m Collapsed				

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP46				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025				
						Logged/Checked by:		DP/JC				
Equipment type and model:						5 Tonne Excavator		R.L. surface :		17.394		
Excavation dimensions :						2.00 m long 0.45 m wide		datum :		AHD		
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL: Silty Clay, medium to high plasticity, dark grey and brown, with fine to coarse grained gravel and sand				Topsoil
					0.5		CH	Silty CLAY, high plasticity, yellow brown mottled red brown, trace gravel, trace sand	M<PL	F-St		Natural
				U ₅₀								
				DS								
				DB				@0.9m, colour changes to red brown and yellow brown mottled grey				
					1							
				DS			CH	Silty Gravelly CLAY, high plasticity, pale grey mottled red brown and yellow brown, fine to coarse grained gravel, with fine to coarse grained sand		St-VSt		
				DS								
					1.5							
					2		GC	Clayey GRAVEL, fine to coarse grained, pale grey and orange brown, of high plasticity clay, with fine to coarse grained sand	D	VSt-H		Extremely weathered material
								SHALE, pale grey mottled orange brown, very low to low strength, highly weathered				Bedrock
					2.5			Test Pit TP46 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP47				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025				
						Logged/Checked by:		DP/JC				
Equipment type and model:						5 Tonne Excavator		R.L. surface :		16.430		
Excavation dimensions :						2.00 m long 0.45 m wide		datum :		AHD		
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			ROADBASE: Silty Sandy Gravel, fine to coarse grained, grey	D			Fill (Roadbase 200mm)
					0.5		CH	Silty CLAY, high plasticity, red brown and yellow brown mottled grey, with fine to coarse grained gravel and sand	M<PL	St-VSt		Natural
					1		CH	Silty CLAY, high plasticity, grey mottled orange brown, with fine to coarse grained gravel and sand	M<PL	VSt-H		Extremely weathered material
					1.5			SHALE, orange brown, brown and grey, very low to low strength, highly weathered				Bedrock
					2			Test Pit TP47 terminated at 1.9m Refusal on bedrock				
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP48				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		03/10/2025				
						Logged/Checked by:		DP/JC				
Equipment type and model:						5 Tonne Excavator		R.L. surface :		15.897		
Excavation dimensions :						2.00 m long 0.45 m wide		datum :		AHD		
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			ROADBASE: Silty Gravel, fine to coarse grained, pale grey, with fine to coarse grained sand	D			Fill (Roadbase 300mm)
					0.5		CH	FILL: Silty Clay, medium to high plasticity, dark brown and grey, with fine to coarse grained gravel and sand Silty CLAY, high plasticity, orange brown mottled pale grey, with fine to coarse grained gravel and sand	M<PL M<PL	St-VSt		@0.4m, abandoned service Natural
			DS		1		CH	Silty Gravelly CLAY, pale grey mottled orange brown, fine to coarse grained gravel, with fine to coarse grained sand		VSt-H		
			DB		1.5		CH	SHALE, pale grey mottled orange brown, very low to low strength, highly weathered				Bedrock
					2							
					2.5			Test Pit TP48 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1				
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP49				
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		07/10/2025				
						Logged/Checked by:		DP/JC				
Equipment type and model:						5 Tonne Excavator		R.L. surface :		19.469		
Excavation dimensions :						2.00 m long 0.45 m wide		datum :		AHD		
groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			TOPSOIL/FILL: Silty Clay, medium to high plasticity, dark brown and dark grey, with fine to coarse grained gravel and sand, trace rootlets	M<PL			Topsoil
					0.5		CH	Silty CLAY, high plasticity, red brown and yellow brown mottled grey, with fine to coarse grained sand, trace gravel	M<PL	F-St		Natural
			DS									
			DB									
					1			@0.9m pale grey mottled red brown and yellow brown, with fine to coarse grained gravel and sand		St-VSt		
			DS		1.5		CH	Silty Gravelly CLAY, high plasticity, pale grey and orange brown, fine to coarse grained gravel, with fine to coarse grained sand		VSt-H		Extremely weathered material
					2			SHALE, grey and orange brown, very low to low strength, highly weathered Test Pit TP49 terminated at 1.9m Refusal on bedrock				Bedrock
					2.5							
					3							
					3.5							
					4							
					4.5							

engineering log - excavation

Client :		Mirvac Homes (NSW) Pty Ltd				Job No :		9739/1			
Project :		WSU Milperra NSW - Stage 1 to 7				Pit No :		TP50			
Location :		2 Bullecourt Avenue, Milperra NSW				Date :		08/10/2025			
						Logged/Checked by: DP/JC					
Equipment type and model:						5 Tonne Excavator			R.L. surface : 21.804		
Excavation dimensions :						2.00 m long		0.45 m wide		datum : AHD	

groundwater	env samples	PID reading (ppm)	geo samples	field tests	depth or R.L. in meters	graphic log	classification symbol	MATERIAL DESCRIPTION soil type, plasticity or particle characteristic, colour, secondary and minor components.	moisture condition	consistency density index	hand penetrometer kPa	Remarks and additional observations
DRY					0			ASPHALT	D			Fill (Pavement 40mm) Roadbase 360mm
					0.5			FILL: Silty Sandy Clay, pale brown and grey, fine to coarse grained sand, with fine to coarse grained gravel				@0.7m, abandoned service (plastic pipe)
			DS		1		CI	Silty CLAY, medium plasticity, red brown, with fine to coarse grained sand, trace gravel	M<PL	St-VSt		Natural
			DB		1.5			@1.3m, colour changes to orange brown and grey, with fine to coarse grained gravel	M<PL			
					2							
			DS		2.5		CH	Silty Gravelly CLAY, high plasticity, pale grey mottled orange brown, fine to coarse grained gravel, with fine to coarse grained sand	M<PL	VSt-H		Extremely weathered material
					2.5			Test Pit TP50 terminated at 2.5m Target depth reached				
					3							
					3.5							
					4							
					4.5							

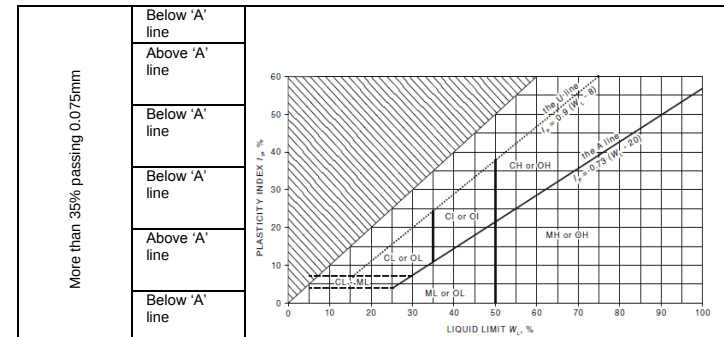
Log Symbols & Abbreviations (Non-cored Borehole Log)

Log Column	Symbol/Value	Description																					
Drilling Method	V-bit TC-bit RR DB BB	Hardened steel 'V' shaped bit attached to auger Tungsten Carbide bit attached to auger Tricone (Rock Roller) bit Drag bit Blade bit																					
Groundwater	Dry  	Groundwater not encountered to the drilled or auger refusal depth Groundwater level at depths shown on log Groundwater seepage at depths shown on log																					
Environment Sample	GP G P	Glass bottle and plastic bag sample over depths shown on log Glass bottle sample over depths shown on log Plastic bag sample over depths shown on log																					
PID Reading	100	PID reading in ppm																					
Geotechnical Sample	DS DB U ₅₀	Disturbed Small bag sample over depths shown on log Disturbed Bulk sample over depths shown on log Undisturbed 50mm tube sample over depths shown on log																					
Field Test	N=10 3,5,5 N=R 10,15/100	Standard Penetration Test (SPT) 'N' value. Individual numbers indicate blows per 150mm penetration. 'R' represents refusal to penetration in hard/very dense soils or in cobbles or boulders. The first number represents 10 blows for 150mm penetration whereas the second number represents 15 blows for 100mm penetration where SPT met refusal																					
	DCP/PSP	5 6 R/10																					
		Dynamic Cone Penetration (DCP) or Perth Sand Penetrometer (PSP). Each number represents blows per 100mm penetration. 'R/10' represents refusal after 10mm penetration in hard/very dense soils or in gravels or boulders.																					
Classification	GP GW GM GC SP SW SM SC ML MI MH CL CI CH	Poorly Graded GRAVEL Well graded GRAVEL Silty GRAVEL Clayey GRAVEL Poorly graded SAND Well graded SAND Silty SAND Clayey SAND SILT / Sandy SILT / clayey SILT, low plasticity SILT / Sandy SILT / clayey SILT, medium plasticity SILT / Sandy SILT / clayey SILT, high plasticity CLAY / Silty CLAY / Sandy CLAY / Gravelly CLAY, low plasticity CLAY / Silty CLAY / Sandy CLAY / Gravelly CLAY, medium plasticity CLAY / Silty CLAY / Sandy CLAY / Gravelly CLAY, high plasticity																					
Moisture Condition Cohesive soils	M<PL M=PL M>PL	Moisture content less than Plastic Limit Moisture content equal to Plastic Limit Moisture content to be greater than Plastic Limit																					
Cohesionless soils	D M W	Dry - Runs freely through hand Moist - Tends to cohere Wet - Tends to cohere																					
Consistency Cohesive soils	VS S F St VSt H	<table> <tr> <th>Term</th><th>Undrained shear strength, C_u (kPa)</th><th>Hand Penetrometer (Q_u)</th></tr> <tr> <td>Very Soft</td><td>≤12</td><td><25</td></tr> <tr> <td>Soft</td><td>>12 & ≤25</td><td>25 – 50</td></tr> <tr> <td>Firm</td><td>>25 & ≤50</td><td>50 – 100</td></tr> <tr> <td>Stiff</td><td>>50 & ≤100</td><td>100 – 200</td></tr> <tr> <td>Very Stiff</td><td>>100 & ≤200</td><td>200 – 400</td></tr> <tr> <td>Hard</td><td>>200</td><td>>400</td></tr> </table>	Term	Undrained shear strength, C _u (kPa)	Hand Penetrometer (Q _u)	Very Soft	≤12	<25	Soft	>12 & ≤25	25 – 50	Firm	>25 & ≤50	50 – 100	Stiff	>50 & ≤100	100 – 200	Very Stiff	>100 & ≤200	200 – 400	Hard	>200	>400
Term	Undrained shear strength, C _u (kPa)	Hand Penetrometer (Q _u)																					
Very Soft	≤12	<25																					
Soft	>12 & ≤25	25 – 50																					
Firm	>25 & ≤50	50 – 100																					
Stiff	>50 & ≤100	100 – 200																					
Very Stiff	>100 & ≤200	200 – 400																					
Hard	>200	>400																					
Density Index Cohesionless soils	VL L M D VD	<table> <tr> <th>Term</th><th>Density Index, I_p (%)</th><th>SPT 'N' (blows/300mm)</th></tr> <tr> <td>Very Loose</td><td>≤15</td><td>≤5</td></tr> <tr> <td>Loose</td><td>>15 & ≤35</td><td>>5 & ≤10</td></tr> <tr> <td>Medium Dense</td><td>>35 & ≤65</td><td>>10 & ≤30</td></tr> <tr> <td>Dense</td><td>>65 & ≤85</td><td>>30 & ≤50</td></tr> <tr> <td>Very Dense</td><td>>85</td><td>>50</td></tr> </table>	Term	Density Index, I _p (%)	SPT 'N' (blows/300mm)	Very Loose	≤15	≤5	Loose	>15 & ≤35	>5 & ≤10	Medium Dense	>35 & ≤65	>10 & ≤30	Dense	>65 & ≤85	>30 & ≤50	Very Dense	>85	>50			
Term	Density Index, I _p (%)	SPT 'N' (blows/300mm)																					
Very Loose	≤15	≤5																					
Loose	>15 & ≤35	>5 & ≤10																					
Medium Dense	>35 & ≤65	>10 & ≤30																					
Dense	>65 & ≤85	>30 & ≤50																					
Very Dense	>85	>50																					
Hand Penetrometer	100 200	Unconfined compressive strength (q _u) in kPa determined using pocket penetrometer, at depths shown on log																					
Remarks	Residual Alluvium Colluvial Aeolian Marine	Geological origin of soils Residual soils above bedrock River deposited Alluvial soils Gravity deposited Colluvial soils Wind deposited Aeolian soils Marine Soils																					

AS1726 : 2017– Unified Soil Classification System

Major Divisions		Particle size (mm)	Group Symbol	Typical Names	Field Identifications Sand and Gravels			Laboratory classification					
OVERSIZE	BOULDERS	>200						% Fines (2)	Plasticity of Fine Fraction	$C_u = D_{60}/D_{10}$	$C_c = (D_{30})^2/(D_{10}D_{60})$	Notes	
	COBBLES	63											
COARSE GRAINED SOIL (more than 65% of soil excluding oversize fraction is greater than 0.075mm)	GRAVEL (more than half of coarse fraction is larger than 2.36mm)	Coarse 19	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength			≤5	-	>4	between 1 and 3	1. Identify lines by the method given for fine grained soils	
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines, uniform gravels	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength			≤5	-	Fails to comply with above			
		Medium 6.7	GM	Silty gravels, gravel-sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength			≥12	Below 'A' line or $I_p<4$	-	-	2. Borderline classifications occur when the percentage of fines (fraction smaller than 0.075mm size) is greater than 5% and less than 12%. Borderline classifications require the use of dual symbols e.g. SP-SM, GW-GC	
		Fine 2.36	GC	Clayey gravels, gravel-sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength			≥12	Above 'A' line or $I_p>7$	-	-		
	SAND (more than half of coarse fraction is smaller than 2.36mm)	Coarse 0.6	SW	Well-graded sands, gravelly sands, little or no fines	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength			≤5	-	>6	between 1 and 3		
		Medium 0.21	SP	Poorly graded sands and gravelly sands; little or no fines, uniform sands	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength			≤5	-	Fails to comply with above			
			SM	Silty sands, sand-silt mixtures	'Dirty' materials with excess of non-plastic fines, zero to medium dry strength			≥12	Below 'A' line or $I_p<4$	-	-		
			SC	Clayey sand, sand-clay mixtures	'Dirty' materials with excess of plastic fines, medium to high dry strength			≥12	Above 'A' line of $I_p>7$	-	-		
		Fine 0.075											
	FINE GRAINED SOIL (more than 35% of soil excluding oversize fraction is less than 0.075mm)	SILT (0.075mm to 0.002mm) & CLAY (<0.002mm) Liquid Limit<50%	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	Dry Strength	Dilatancy	Toughness	More than 35% passing 0.075mm	Below 'A' line				
				CL, CI	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays	Medium to high	None to very slow		Medium		Above 'A' line		
				OL	Organic silts and organic silty clays of low plasticity	Low to medium	Slow		Low		Below 'A' line		
SILT (0.075mm to 0.002mm) & CLAY (<0.002mm) Liquid Limit>50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	Low to medium	None to slow	Low to medium	Below 'A' line						
		CH	Inorganic clays of medium to high plasticity, fat clays	High to very high	None	High	Above 'A' line						
		OH (1)	Organic clays of medium to high plasticity, organic silts	Medium to high	None to very slow	Low to medium	Below 'A' line						
HIGHLY ORGANIC SOILS		Pt (1)	Peat and highly organic soils	Identified by colour, odour, spongy feel and generally by fibrous texture					Effervesces with H ₂ O ₂				

Use the gradation of material passing 63mm for classification of fractions according to the criteria given in 'Major Divisions'



Log Symbols & Abbreviations (Cored Borehole Log)

Log Column	Symbol / Abbreviation	Description
Core Size	NQ NMLC HQ	Nominal Core Size (mm) 47 52 63
Water Loss	 	Complete water loss Partial water loss
Weathering (AS1726:2017)	RS XW HW MW SW FR	Residual Soil Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported Extremely Weathered Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible Highly Weathered The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognizable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching, or may be decreased due to deposition of weathering products in pores. Moderately Weathered The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognizable, but shows little or no change of strength from fresh rock Slightly Weathered Rock is partially discoloured with staining or bleaching along joints but shows little or no change in strength from fresh rock Fresh Rock shows no sign of decomposition of individual minerals or colour changes <i>Note : Where it is not possible to distinguish between HW and MW rock the term Distinctly Weathered (DW) may be used. DW is defined as 'Rock strength usually changed by weathering. The rock may be highly discoloured, usually by ironstaining. Porosity may be increased by leaching, or may be decreased by deposition of weathering products in pores'</i>
Strength (AS1726:2017)	VL L M H VH EH	Term Point Load Strength Index (I_{s50}, MPa) Very Low ≥0.03 ≤0.1 Low >0.1 ≤0.3 Medium >0.3 ≤1 High >1 ≤3 Very High >3 ≤10 Extremely High >10
Defect Spacing		Description Spacing (mm) Extremely closely spaced <20 Very closely spaced 20 to 60 Closely spaced 60 to 200 Medium spaced 200 to 600 Widely spaced 600 to 2000 Very widely spaced 2000 to 6000 Extremely widely spaced >6000
Defect Description (AS1726:2017) Type	Pt Jo Sh Sz Ss Cs Is Ews	Parting Joint Sheared Surface Sheared Zone Sheared Seam Crushed Seam Infilled Seam Extremely Weathered Seam
Macro-surface geometry	St Cu Un Ir Pl	Stepped Curved Undulating Irregular Planar
Micro-surface geometry	Vro Ro Sm Po Sl	Very Rough Rough Smooth Polished Slickensided
Coating or infilling	cn sn vn cg	clean stained veneer coating

AS1726 – Identification of Sedimentary Rocks for Engineering Purposes

Grain Size mm		Bedded rocks (mostly sedimentary)											
More than 20	20	Grain Size Description		CONGLOMERATE Rounded boulders, cobbles and gravel cemented in a finer matrix Breccia Irregular rock fragments in a finer matrix		At least 50% of grains are of carbonate			At least 50% of grains are of fine-grained volcanic rock				
	6	RUDACEOUS				LIMESTONE and DOLOMITE (undifferentiated)	Calcirudite	Fragments of volcanic ejecta in a finer matrix		SALINE ROCKS			
	2							Rounded grains AGGLOMERATE Angular grains VOLCANIC BRECCIA		Halite Anhydrite			
							ARENACEOUS	Coarse	SANDSTONE Angular or rounded grains, commonly cemented by clay, calcite or iron minerals Quartzite Quartz grains and siliceous cement Arkose Many feldspar grains Greywacke Many rock chips		Calcareous Mudstone		Calcsiltite
0.6	Medium	TUFF											
0.2	Fine												
0.06													
	0.002	ARGILLACEOUS		MUDSTONE	SILTSTONE Mostly silt			Calcsiltite	CHALK	Fine-grained TUFF			
	Less than 0.002			SHALE Fissile	CLAYSTONE Mostly clay					Very fine-grained TUFF			
Amorphous or crypto-crystalline				Flint: occurs as hands of nodules in the chalk Chert: occurs as nodules and beds in limestone and calcareous sandstone								COAL LIGNITE	
				Granular cemented – except amorphous rocks									
				SILICEOUS		CALCAREOUS			SILICEOUS		CARBONACEOUS		
				SEDIMENTARY ROCKS Granular cemented rocks vary greatly in strength, some sandstones are stronger than many Igneous rocks. Bedding may not show in hand specimens and is best seen in outcrop. Only sedimentary rocks, and some metamorphic rocks derived from them, contain fossils Calcareous rocks contain calcite (calcium carbonate) which effervesces with dilute hydrochloric acid									

AS1726 – Identification of Metamorphic and Igneous Rocks for Engineering Purposes

Obviously foliated rocks (mostly metamorphic)			Rocks with massive structure and crystalline texture (mostly igneous)							Grain size (mm)				
Grain size description	GNEISS Well developed but often widely spaced foliation sometimes with schistose bands Migmatite Irregularly foliated: mixed schists and gneisses		MARBLE	Grain size description	Pegmatite			GABBRO	Pyrosenite	More than 20				
COARSE				QUARTZITE	COARSE	GRANITE	Diorite		Peridotite	20				
						These rocks are sometimes porphyritic and are then described, for example, as porphyritic granite				6				
MEDIUM			HORNFELS	COARSE	These rocks are sometimes porphyritic and are then described as porphyries			Dolerite	2					
										Amphibolite	MEDIUM	Microgranite	Microdiorite	0.6
												Serpentine	MEDIUM	These rocks are sometimes porphyritic and are then described as porphyries
0.06														
FINE			PHYLLITE Slightly undulose foliation; sometimes 'spotted'	FINE	FINE	RHYOLITE	ANDESITE	BASALT	0.002					
						These rocks are sometimes porphyritic and are then described as porphyries				Less than 0.002				
	MYLONITE Found in fault zones, mainly in igneous and metamorphic areas			Obsidian	Volcanic glass			Amorphous or cryptocrystalline						
CRYSTALLINE				Pale<----->Dark										
SILICEOUS			Mainly SILICEOUS		ACID Much quartz	INTERMEDIATE Some quartz	BASIC Little or no quartz	ULTRA BASIC						
METAMORPHIC ROCKS Most metamorphic rocks are distinguished by foliation which may impart fissility. Foliation in gneisses is best observed in outcrop. Non-foliated metamorphics are difficult to recognize except by association. Any rock baked by contact metamorphism is described as 'hornfels' and is generally somewhat stronger than the parent rock Most fresh metamorphic rocks are strong although perhaps fissile				IGNEOUS ROCKS Composed of closely interlocking mineral grains. Strong when fresh; not porous Mode of occurrence : 1 Batholith; 2 Laccoliths; 3 Sills; 4 Dykes; 5 Lava Flows; 6 Veins										

APPENDIX C

LABORATORY TEST RESULTS

Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621A
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 10/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP1.C, Depth: 0.4-0.5
Material: (CH) Silty CLAY, high plasticity, yellow-brown mottled pale grey, trace gravel



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	4 *		
Soil Description	Silty Clay, high plast, yellow-brown		
Nature of Water	Distilled Water		
Temperature of Water (°C)	25		
* Mineral Present	Carbonate and Gypsum		

Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621B
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 15/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP1.C, Depth: 0.6-0.8
Material: (CH) Silty CLAY, high Plasticity, yellow-brown mottled pale grey, trace gravel

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au

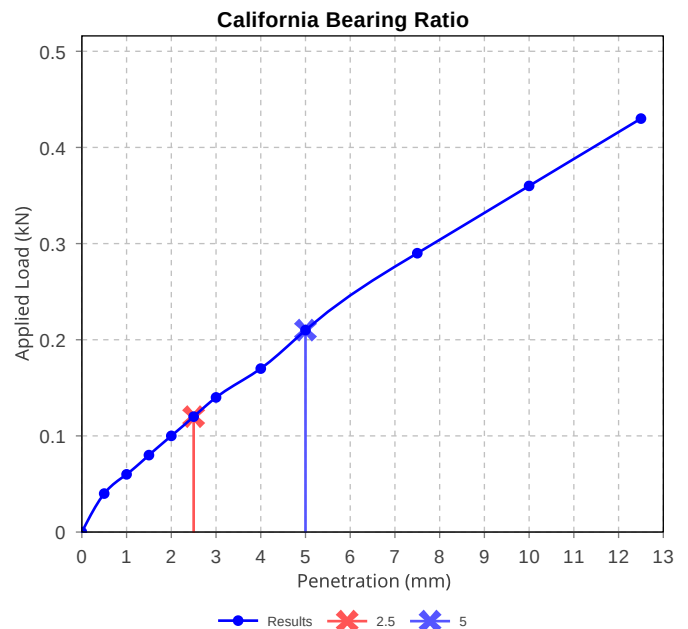


Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	1.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.74		
Optimum Moisture Content (%)	17.5		
Laboratory Density Ratio (%)	98.0		
Laboratory Moisture Ratio (%)	100.5		
Dry Density after Soaking (t/m ³)	1.65		
Field Moisture Content (%)	18.1		
Moisture Content at Placement (%)	17.6		
Moisture Content Top 30mm (%)	26.5		
Moisture Content Rest of Sample (%)	20.2		
Mass Surcharge (kg)	9.0		
Soaking Period (days)	4		
Curing Hours (h)	48.4		
Swell (%)	3.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	65		
Plastic Limit (%)	19		
Plasticity Index (%)	46		



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621D
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 15/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP2.C, Depth: 2.1-2.3
Material: (CI) Silty CLAY, medium Plasticity, pale grey mottled red-brown, with fine to coarse grained gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

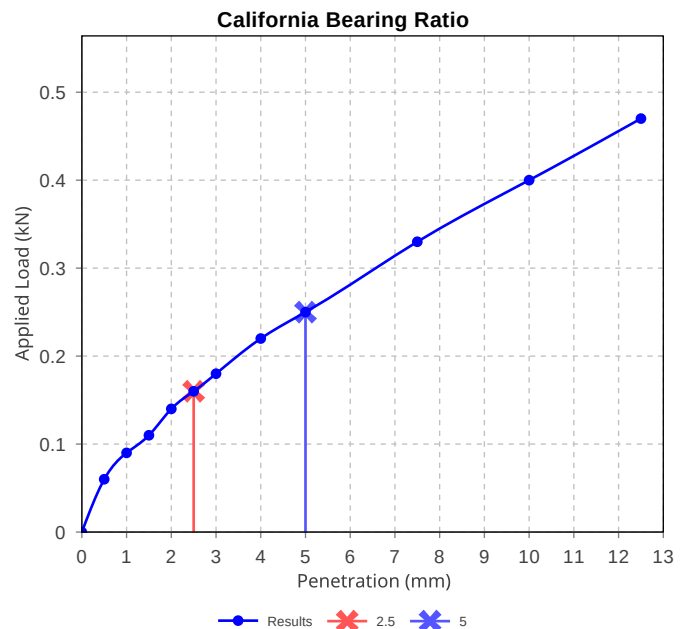
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	1.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.81		
Optimum Moisture Content (%)	15.5		
Laboratory Density Ratio (%)	98.5		
Laboratory Moisture Ratio (%)	98.0		
Dry Density after Soaking (t/m ³)	1.72		
Field Moisture Content (%)	15.2		
Moisture Content at Placement (%)	15.3		
Moisture Content Top 30mm (%)	25.1		
Moisture Content Rest of Sample (%)	21.0		
Mass Surcharge (kg)	9.0		
Soaking Period (days)	4		
Curing Hours (h)	50.2		
Swell (%)	4.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621E
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 10/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP3.C, Depth: 0.8-1.0
Material: (CH) Silty CLAY, High Plasticity, red-brown and yellow brown mottled pale grey, with fine to coarse grained sand and gravel

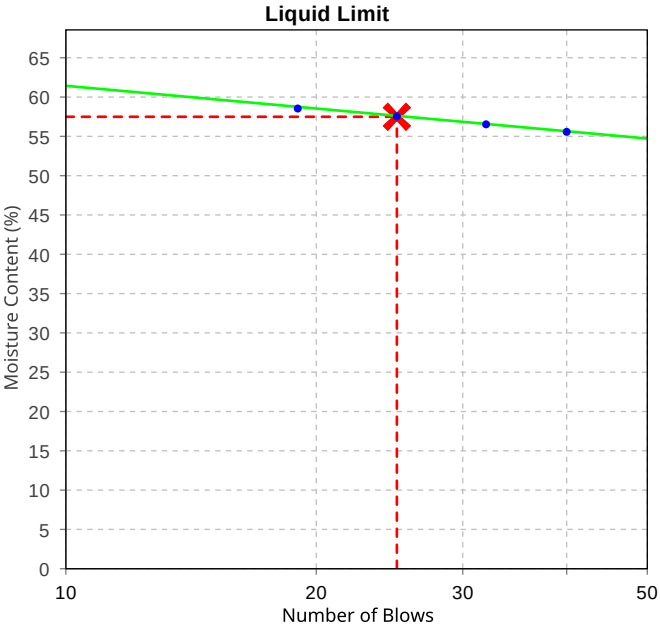


Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing
Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	57		
Plastic Limit (%)	20		
Plasticity Index (%)	37		



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621F
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 28/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP3.C, Depth: 2.1-2.3
Material: (CH) Silty CLAY, high plasticity, orange-brown, with fine to coarse grained sand and gravel

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

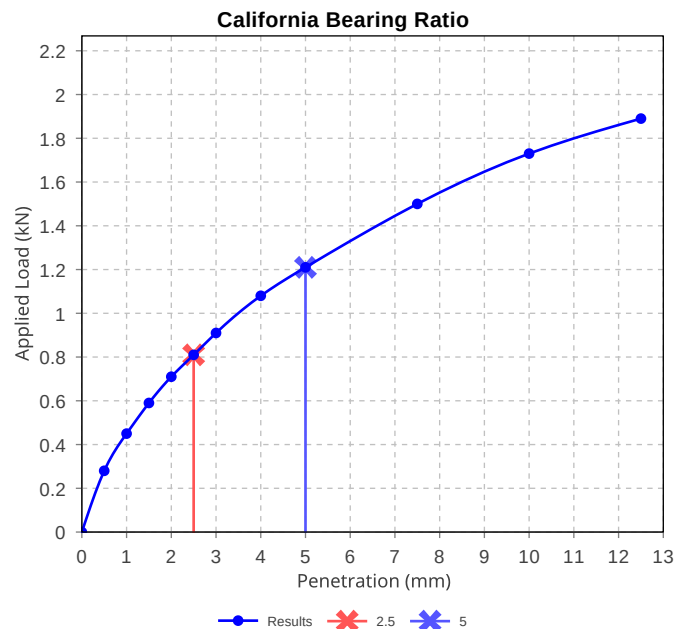
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	6		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.86		
Optimum Moisture Content (%)	14.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	100.0		
Dry Density after Soaking (t/m ³)	1.84		
Field Moisture Content (%)	13.5		
Moisture Content at Placement (%)	14.0		
Moisture Content Top 30mm (%)	17.0		
Moisture Content Rest of Sample (%)	15.0		
Mass Surcharge (kg)	9.0		
Soaking Period (days)	4		
Curing Hours (h)	311		
Swell (%)	1.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621G
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 10/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP11.C, Depth: 0.6-0.8
Material: FILL, Silty CLAY, Medium Plasticity, dark brown, trace sand and gravel

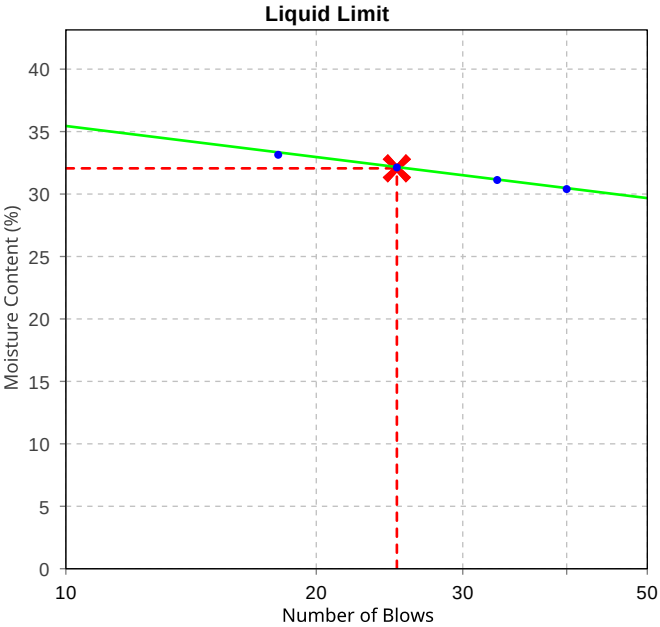


Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing
Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	32		
Plastic Limit (%)	18		
Plasticity Index (%)	14		



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621H
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 16/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP12.C, Depth: 0.4-0.6
Material: FILL, Silty Sandy Clay, high plasticity, brown mottled pale grey, fine to coarse sand, trace gravel



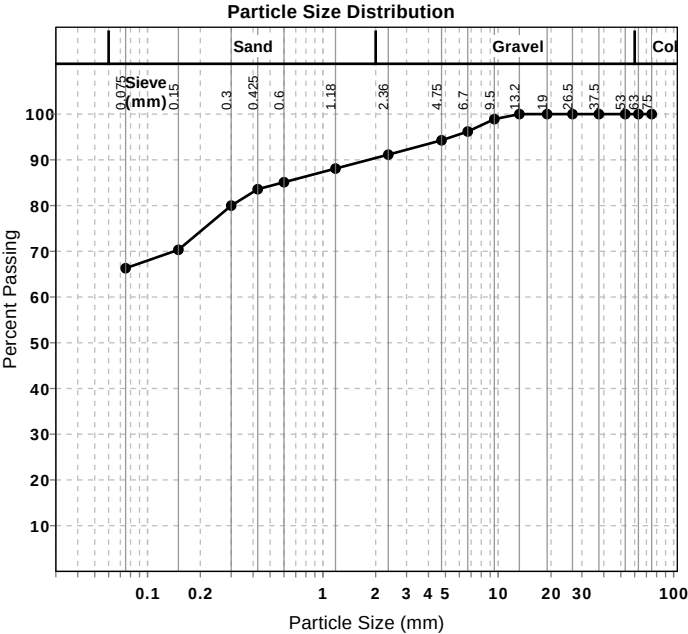
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)		
Sieve	Passed %	Passing Limits
75 mm	100	
63 mm	100	
53 mm	100	
37.5 mm	100	
26.5 mm	100	
19 mm	100	
13.2 mm	100	
9.5 mm	99	
6.7 mm	96	
4.75 mm	94	
2.36 mm	91	
1.18 mm	88	
0.6 mm	85	
0.425 mm	84	
0.3 mm	80	
0.15 mm	70	
0.075 mm	66	



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-6211
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 10/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP12.C, Depth: 1.3-1.5
Material: (CH) Silty CLAY, high plasticity, red-brown mottled pale grey,
trace gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au

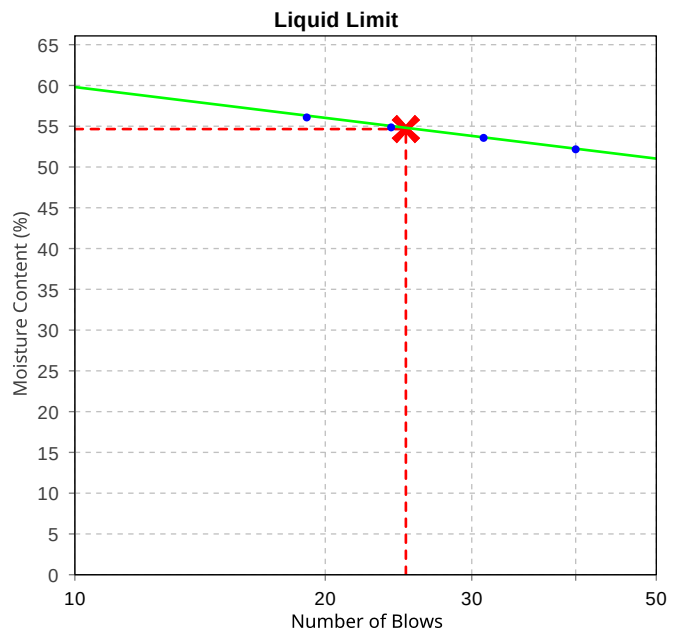


Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	55		
Plastic Limit (%)	20		
Plasticity Index (%)	35		

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	2		
Soil Description	Silty CLAY, high plast, red-brown mottled pale grey		
Nature of Water	Distilled Water		
Temperature of Water (°C)	25		



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621J
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 10/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP13.C, Depth: 0.4-0.5
Material: FILL, Silty Sandy Clay, medium plasticity, orange-brown, fine to coarse grained sand, trace gravel



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	4 *		
Soil Description	Fill, Silty Sandy Clay, med plast, orange-brown		
Nature of Water	Distilled Water		
Temperature of Water (°C)	25		
* Mineral Present	Carbonate and Gypsum		

Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621K
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 01/05/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP13.C, Depth: 0.5-0.7
Material: FILL, Silty Clay, high plasticity, dark brown and grey, trace sand and gravel



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
75 mm	100		
63 mm	100		
53 mm	100		
37.5 mm	100		
26.5 mm	100		
19 mm	100		
13.2 mm	98		
9.5 mm	96		
6.7 mm	94		
4.75 mm	92		
2.36 mm	85		
1.18 mm	78		
0.6 mm	75		
0.425 mm	70		
0.3 mm	58		
0.15 mm	40		
0.075 mm	35		

Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621L
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 10/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP14.C, Depth: 0.6-0.8
Material: FILL, Sandy Silty Clay, medium plasticity, orange-brown mottled pale grey, fine to coarse grained sand, with fine to coarse grained gravel

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

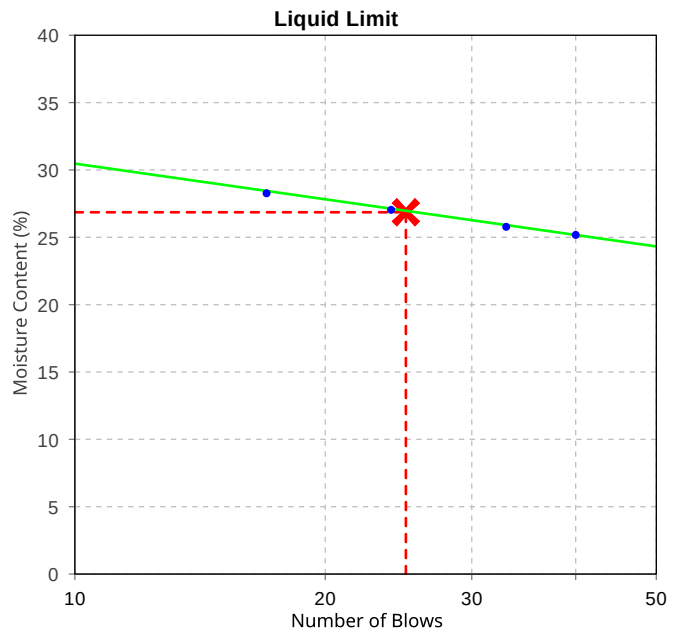
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	27		
Plastic Limit (%)	14		
Plasticity Index (%)	13		



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621M
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 10/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP14.C, Depth: 1.1-1.2
Material: FILL, Silty Clay, high plasticity, yellow-brown mottled pale grey, trace gravel



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	1		
Soil Description	Fill, Silty Clay, high plast, yellow-brown mottled pale grey		
Nature of Water	Distilled Water		
Temperature of Water (°C)	25		

Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621N
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 01/05/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP15.C, Depth: 0.2-0.4
Material: FILL, Silty Sandy Clay, medium plasticity, orange-brown mottled pale grey, fine to coarse sand, with fine to coarse grained gravel

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing


Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
75 mm	100		
63 mm	100		
53 mm	100		
37.5 mm	100		
26.5 mm	100		
19 mm	100		
13.2 mm	94		
9.5 mm	91		
6.7 mm	88		
4.75 mm	87		
2.36 mm	85		
1.18 mm	83		
0.6 mm	72		
0.425 mm	57		
0.3 mm	43		
0.15 mm	32		
0.075 mm	29		

Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621O
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 15/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP15.C, Depth: 0.9-1.1
Material: Fill, Silty Clay, high plasticity, yellow-brown and red-brown mottled pale grey

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

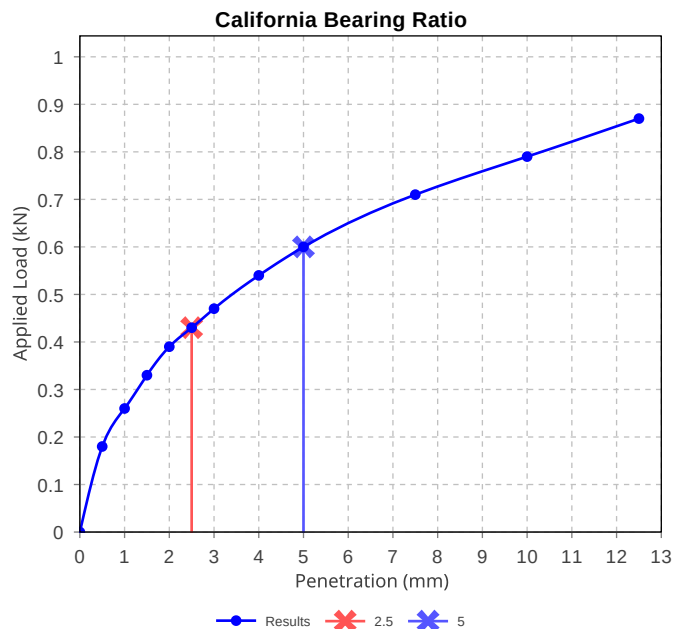
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	3.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.56		
Optimum Moisture Content (%)	25.0		
Laboratory Density Ratio (%)	101.5		
Laboratory Moisture Ratio (%)	101.5		
Dry Density after Soaking (t/m ³)	1.56		
Field Moisture Content (%)	25.6		
Moisture Content at Placement (%)	25.5		
Moisture Content Top 30mm (%)	28.5		
Moisture Content Rest of Sample (%)	24.3		
Mass Surcharge (kg)	9.0		
Soaking Period (days)	4		
Curing Hours (h)	49.7		
Swell (%)	1.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621P
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 22/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP13.C, Depth: 0.7 - 0.9m
Material: FILL, Silty CLAY, Medium Plasticity, dark brown and grey,
trace sand and gravel



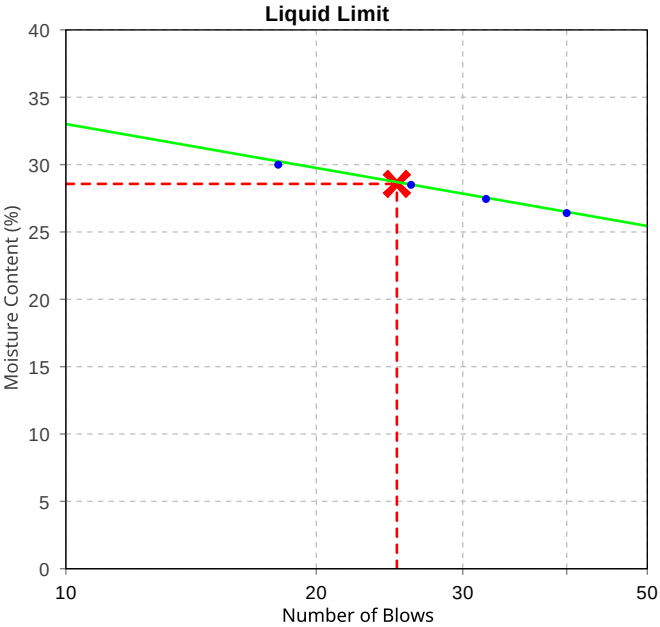
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.1 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	29		
Plastic Limit (%)	17		
Plasticity Index (%)	12		



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Sample Number: S-621Q
Date Sampled: 03/04/2025
Dates Tested: 08/04/2025 - 16/04/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP10.C, Depth: 0.1-0.3
Material: FILL, Silty Sandy Clay, medium plasticity, orange brown, fine to coarse grained sand

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

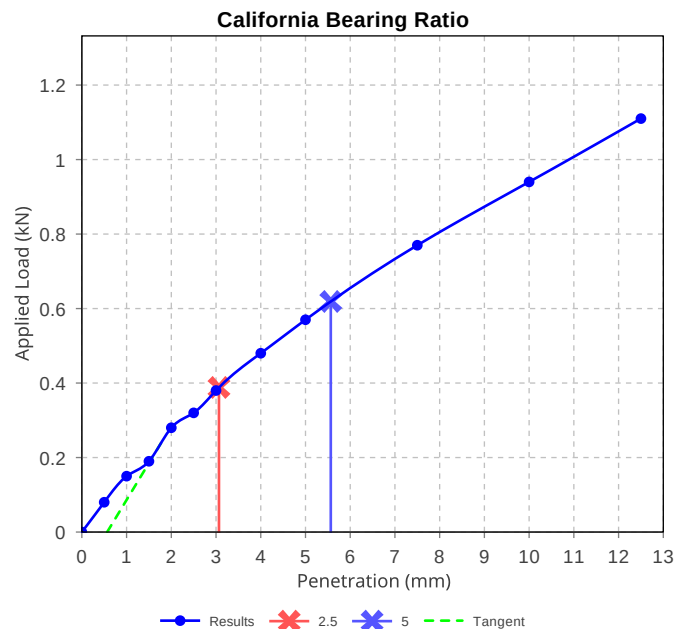
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	3.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.83		
Optimum Moisture Content (%)	17.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	99.5		
Dry Density after Soaking (t/m ³)	1.83		
Field Moisture Content (%)	16.5		
Moisture Content at Placement (%)	16.8		
Moisture Content Top 30mm (%)	16.7		
Moisture Content Rest of Sample (%)	17.0		
Mass Surcharge (kg)	9.0		
Soaking Period (days)	4		
Curing Hours (h)	48.1		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-1
Issue Number: 4 - This version supersedes all previous issues
Reissue Reason: update
Date Issued: 28/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 621
Dates Tested: 08/04/2025 - 23/04/2025
Location: Stages 2 and 3 Milperra WSU



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S-621C	S-621K	S-621R		
Date Sampled	03/04/2025	03/04/2025	16/04/2025		
Date Tested	16/04/2025	16/04/2025	23/04/2025		
Material Source	50mm Tube Sampling	50mm Tube Sampling	50mm tube sample		
Sample Location	TP 2.C (0.7 - 0.9m)	TP13.C (0.5-0.7)	TP 9.C (0.8 - 1.0m)		
Inert Material Estimate (%)	0.5	0.1	0.1		
Pocket Penetrometer before (kPa)	49	34	31		
Pocket Penetrometer after (kPa)	23	30	27		
Shrinkage Moisture Content (%)	11.5	14.2	17.5		
Shrinkage (%)	0.8	0.9	3.2		
Swell Moisture Content Before (%)	12.7	11.3	20.2		
Swell Moisture Content After (%)	21.3	17.8	19.7		
Swell (%)	0.1	0.1	1.0		
Shrink Swell Index Iss (%)	0.5	0.5	2.0		
Visual Description	(CH) Silty CLAY, high plasticity, pale grey mottled red-brown, trace gravel	FILL, Silty Clay, high plasticity, dark brown and grey, trace sand and gravel	(CH) Silty CLAY, high plasticity, pale grey mottled yellow brown, trace gravel and sand		
Cracking	HC	SC	HC		
Crumbling	Yes	Yes	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.

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437H
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 14, Depth: 0.8 - 1.1m
Material: Silty CLAY, medium plasticity, yellow-brown mottled grey and red-brown, fine to coarse grained gravel and sand

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

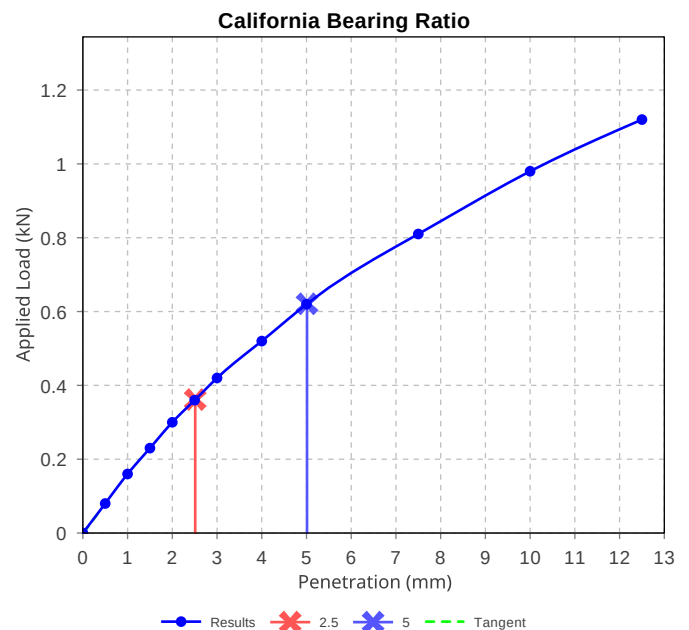
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	3.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.88		
Optimum Moisture Content (%)	15.0		
Laboratory Density Ratio (%)	98.0		
Laboratory Moisture Ratio (%)	103.0		
Dry Density after Soaking (t/m ³)	1.84		
Field Moisture Content (%)	15.4		
Moisture Content at Placement (%)	15.4		
Moisture Content Top 30mm (%)	16.0		
Moisture Content Rest of Sample (%)	14.9		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	48.6		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-14371
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 30, Depth: 1.3 - 1.6m
Material: Silty CLAY, medium plasticity, orange-brown and grey, trace gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

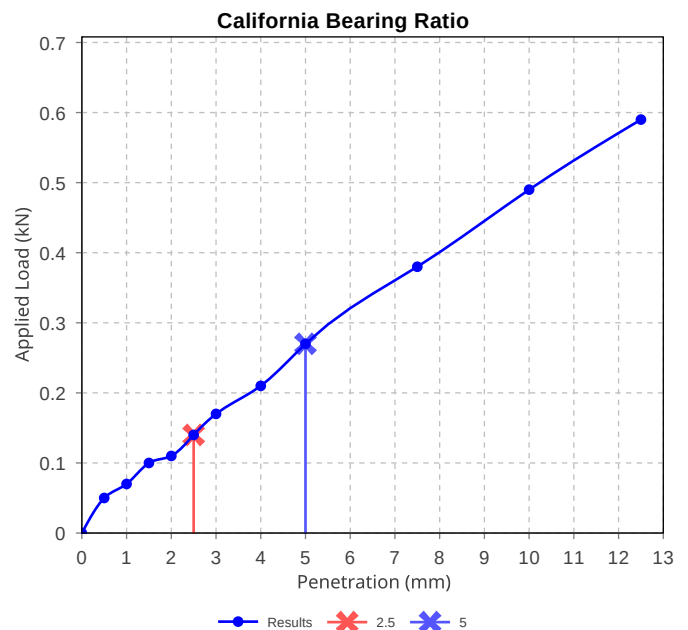
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	1.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.75		
Optimum Moisture Content (%)	17.5		
Laboratory Density Ratio (%)	100.5		
Laboratory Moisture Ratio (%)	93.0		
Dry Density after Soaking (t/m ³)	1.70		
Field Moisture Content (%)	18.4		
Moisture Content at Placement (%)	16.1		
Moisture Content Top 30mm (%)	28.4		
Moisture Content Rest of Sample (%)	20.2		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	48.7		
Swell (%)	4.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437J
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 25, Depth: 1.0 - 1.3m
Material: Sandy CLAY, medium plasticity, orange-brown mottled grey,
fine to coarse grained sand, trace gravel and silt

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

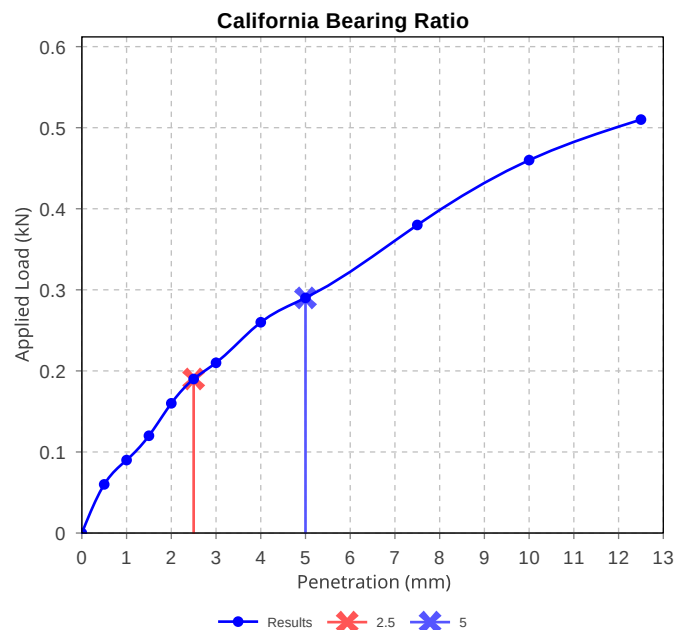
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	1.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.78		
Optimum Moisture Content (%)	18.0		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	96.0		
Dry Density after Soaking (t/m ³)	1.77		
Field Moisture Content (%)	16.6		
Moisture Content at Placement (%)	17.2		
Moisture Content Top 30mm (%)	18.3		
Moisture Content Rest of Sample (%)	16.9		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	48.2		
Swell (%)	0.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437K
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 21/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 22, Depth: 0.6 - 0.9m
Material: Silty CLAY, high plasticity, yellow-brown and red-brown, mottled grey, trace gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

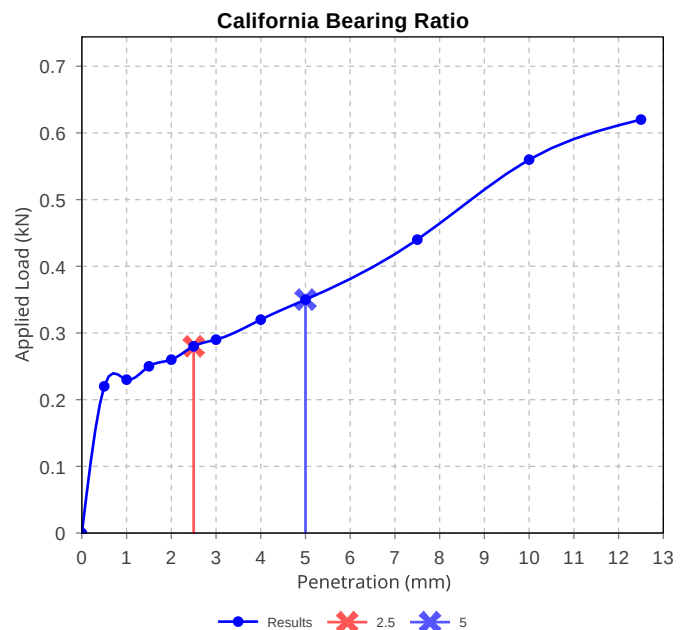
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	2.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.38		
Optimum Moisture Content (%)	28.5		
Laboratory Density Ratio (%)	102.0		
Laboratory Moisture Ratio (%)	100.5		
Dry Density after Soaking (t/m ³)	1.36		
Field Moisture Content (%)	28.2		
Moisture Content at Placement (%)	28.8		
Moisture Content Top 30mm (%)	38.4		
Moisture Content Rest of Sample (%)	33.1		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	97		
Swell (%)	4.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437L
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 21/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 11, Depth: 1.2 - 1.5m
Material: Fill: Clayey SAND, fine to coarse grained, grey-brown of medium plasticity clay, trace gravel, trace boulder

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

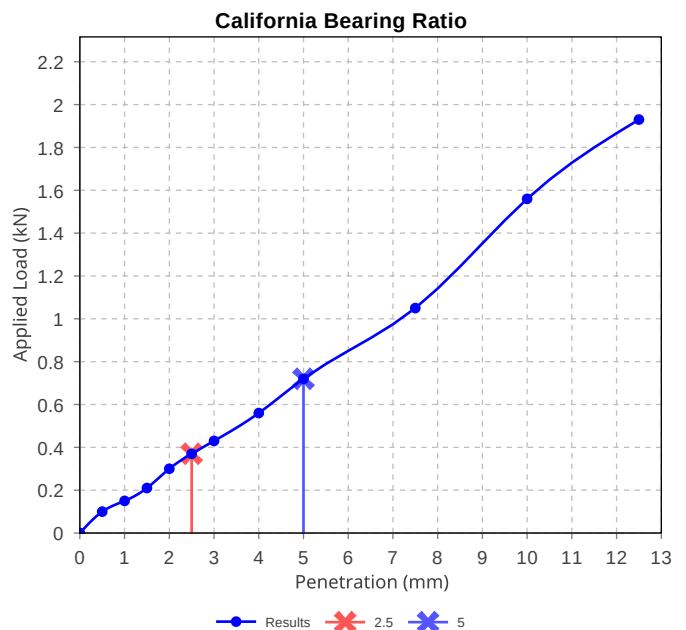
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	3.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.87		
Optimum Moisture Content (%)	13.5		
Laboratory Density Ratio (%)	101.5		
Laboratory Moisture Ratio (%)	94.5		
Dry Density after Soaking (t/m ³)	1.88		
Field Moisture Content (%)	15.6		
Moisture Content at Placement (%)	12.9		
Moisture Content Top 30mm (%)	13.3		
Moisture Content Rest of Sample (%)	13.2		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	70.4		
Swell (%)	0.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437M
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 28, Depth: 1.2 - 1.5m
Material: Silty CLAY, high plasticity, red-brown mottled yellow-brown and grey, trace gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

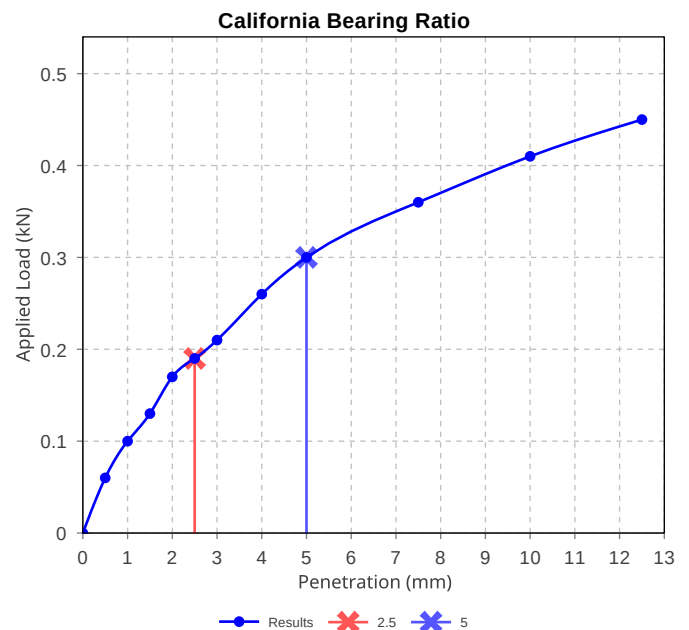
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	1.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.70		
Optimum Moisture Content (%)	25.0		
Laboratory Density Ratio (%)	98.5		
Laboratory Moisture Ratio (%)	100.5		
Dry Density after Soaking (t/m ³)	1.66		
Field Moisture Content (%)	26.6		
Moisture Content at Placement (%)	25.3		
Moisture Content Top 30mm (%)	30.0		
Moisture Content Rest of Sample (%)	24.3		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	140.3		
Swell (%)	1.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437N
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 12, Depth: 1.0 - 1.3m
Material: Silty CLAY, medium plasticity, yellow-brown mottled grey, fine to coarse grained sand, trace gravel

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

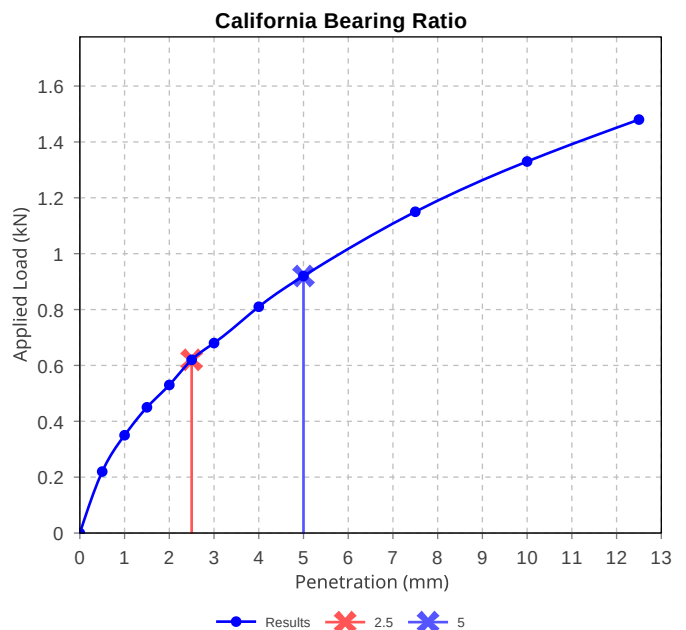
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	4.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.79		
Optimum Moisture Content (%)	16.5		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	98.5		
Dry Density after Soaking (t/m ³)	1.78		
Field Moisture Content (%)	17.1		
Moisture Content at Placement (%)	16.2		
Moisture Content Top 30mm (%)	18.3		
Moisture Content Rest of Sample (%)	16.0		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	48.9		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-14370
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 16/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 2, Depth: 0.6 - 0.8m
Material: Fill: SAND, fine to coarse grained, pale brown, trace gravel
and silt



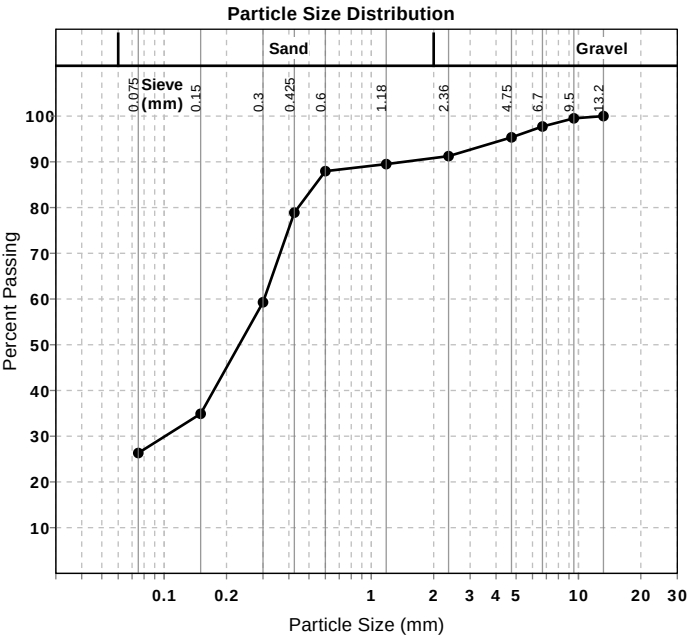
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
13.2 mm	100		
9.5 mm	100		
6.7 mm	98		
4.75 mm	95		
2.36 mm	91		
1.18 mm	90		
0.6 mm	88		
0.425 mm	79		
0.3 mm	59		
0.15 mm	35		
0.075 mm	26		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437P
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 09/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 2, Depth: 0.8 - 1.0m
Material: Sandy CLAY, high Plasticity, yellow-brown and red-brown,
fine to coarse grained sand and gravel



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing


Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	65		
Plastic Limit (%)	26		
Plasticity Index (%)	39		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	13.0		
Cracking Crumbling Curling	Cracking		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437Q
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 09/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 4, Depth: 0.8 - 1.0m
Material: Silty CLAY, medium plasticity, grey mottled red-brown and yellow-brown, fine to coarse grained sand, trace gravel

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	47		
Plastic Limit (%)	15		
Plasticity Index (%)	32		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	8.5		
Cracking Crumbling Curling	None		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437R
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 09/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 5, Depth: 1.5 - 1.7m
Material: Silty CLAY, high plasticity grey and brown, fine to coarse grained gravel and sand



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	57		
Plastic Limit (%)	22		
Plasticity Index (%)	35		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	13.5		
Cracking Crumbling Curling	Curling		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437S
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 10/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 21, Depth: 1.2 - 1.4m
Material: Silty CLAY, high plasticity, yellow-brown and grey mottled red-brown, trace gravel and sand



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing


Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	68		
Plastic Limit (%)	23		
Plasticity Index (%)	45		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	14.0		
Cracking Crumbling Curling	Curling		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437T
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 15/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 25, Depth: 1.3 - 1.5m
Material: Sandy CLAY, high plasticity, orange-brown mottled grey, fine to coarse grained sand, trace gravel and silt

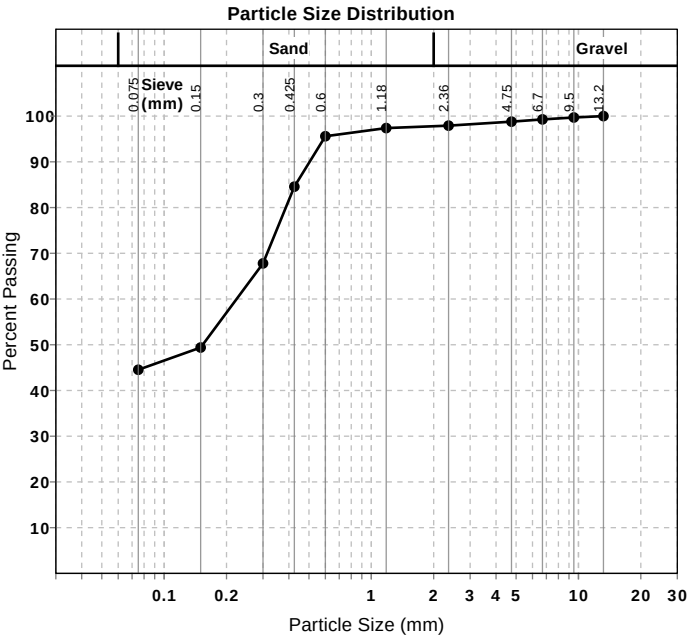


Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing
Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
13.2 mm	100		
9.5 mm	100		
6.7 mm	99		
4.75 mm	99		
2.36 mm	98		
1.18 mm	97		
0.6 mm	96		
0.425 mm	85		
0.3 mm	68		
0.15 mm	49		
0.075 mm	45		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437U
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 26, Depth: 0.8 - 1.0m
Material: Fill: Silty CLAY, medium to high plasticity, grey and brown mottled red and yellow-brown, fine to coarse grained gravel and sand



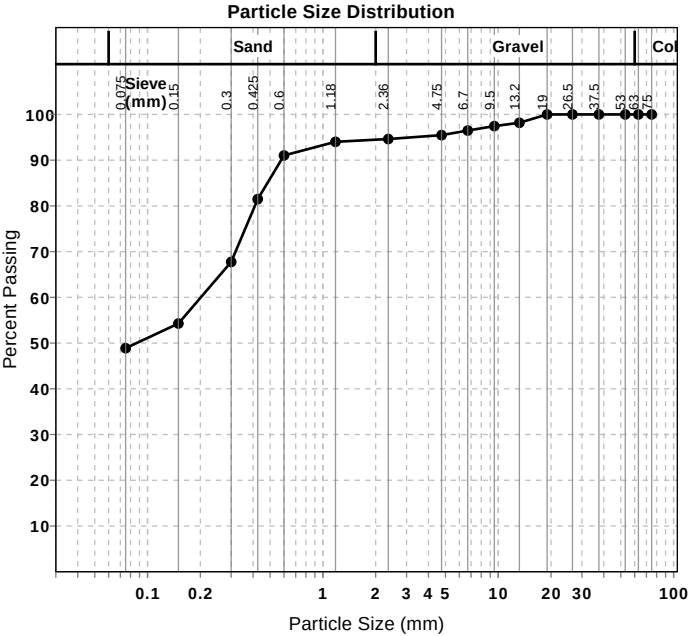
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
75 mm	100		0	
63 mm	100		0	
53 mm	100		0	
37.5 mm	100		0	
26.5 mm	100		0	
19 mm	100		0	
13.2 mm	98		2	
9.5 mm	97		1	
6.7 mm	96		1	
4.75 mm	95		1	
2.36 mm	95		1	
1.18 mm	94		1	
0.6 mm	91		3	
0.425 mm	81		10	
0.3 mm	68		14	
0.15 mm	54		13	
0.075 mm	49		5	



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437V
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 09/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 26, Depth: 1.1 - 1.3m
Material: Fill: Silty CLAY, medium to high plasticity, grey and brown mottled red and yellow-brown, fine to coarse grained gravel and sand



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	44		
Plastic Limit (%)	14		
Plasticity Index (%)	30		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	11.0		
Cracking Crumbling Curling	Cracking		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437W
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 27, Depth: 0.9 - 1.2m
Material: Silty CLAY, high plasticity, grey mottled red-brown and yellow-brown, fine to coarse grained gravel and sand



Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



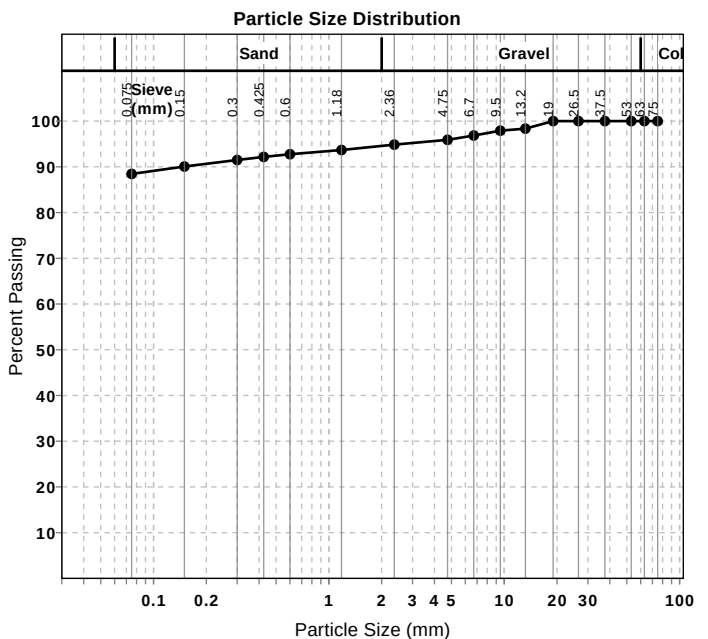
Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
75 mm	100		0	
63 mm	100		0	
53 mm	100		0	
37.5 mm	100		0	
26.5 mm	100		0	
19 mm	100		0	
13.2 mm	98		2	
9.5 mm	98		0	
6.7 mm	97		1	
4.75 mm	96		1	
2.36 mm	95		1	
1.18 mm	94		1	
0.6 mm	93		1	
0.425 mm	92		1	
0.3 mm	91		1	
0.15 mm	90		1	
0.075 mm	88		2	

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	58		
Plastic Limit (%)	21		
Plasticity Index (%)	37		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	12.5		
Cracking Crumbling Curling	None		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437X
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 29, Depth: 1.1 - 1.3m
Material: Silty CLAY, high plasticity, grey mottled yellow-brown, fine to coarse grained sand, trace gravel



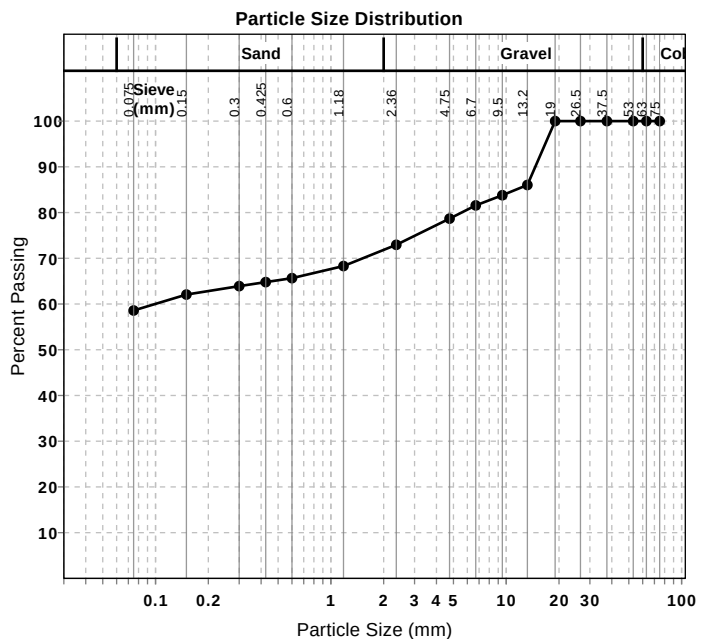
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
75 mm	100		0	
63 mm	100		0	
53 mm	100		0	
37.5 mm	100		0	
26.5 mm	100		0	
19 mm	100		0	
13.2 mm	86		14	
9.5 mm	84		2	
6.7 mm	82		2	
4.75 mm	79		3	
2.36 mm	73		6	
1.18 mm	68		5	
0.6 mm	66		3	
0.425 mm	65		1	
0.3 mm	64		1	
0.15 mm	62		2	
0.075 mm	59		3	



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437Y
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 09/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 31, Depth: 1.2 - 1.4m
Material: Silty CLAY, medium plasticity, brown mottled red-brown and dark grey, trace gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	48		
Plastic Limit (%)	19		
Plasticity Index (%)	29		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	8.5		
Cracking Crumbling Curling	None		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437Z
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 09/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 32, Depth: 1.4 - 1.6m
Material: Silty CLAY, high plasticity, pale grey mottled red-brown and orange-brown, fine to coarse grained gravel and sand



Geotech Testing Pty Ltd

Penrith Laboratory

34 Borec Road Penrith NSW 2750

Phone: (02) 4722 2744

Email: matthew@geotech.com.au

Accredited for compliance with ISO/IEC 17025 - Testing



Approved Signatory: Mathew Morley

Laboratory Manager

NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	54		
Plastic Limit (%)	21		
Plasticity Index (%)	33		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	11.5		
Cracking Crumbling Curling	Cracking		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AA
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 09/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 33, Depth: 1.0 - 1.2m
Material: Silty CLAY, high plasticity, pale grey and yellow-brown, fine to coarse grained gravel and sand



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	54		
Plastic Limit (%)	20		
Plasticity Index (%)	34		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	9.5		
Cracking Crumbling Curling	Cracking		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AB
Date Sampled: 03/10/2025
Dates Tested: 03/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 34, Depth: 0.6 - 0.8m
Material: Silty CLAY, high plasticity, yellow-brown mottled red-brown
 and grey, trace gravel and sand



Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au

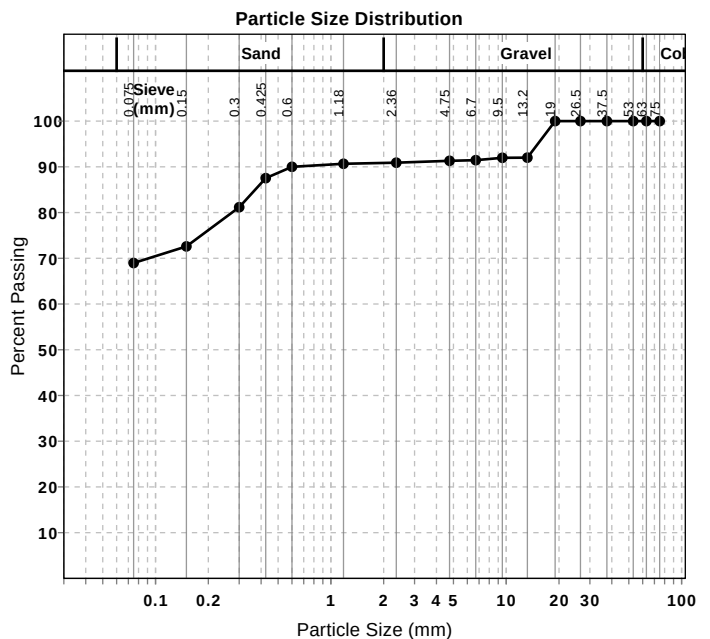


Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits
75 mm	100		0	
63 mm	100		0	
53 mm	100		0	
37.5 mm	100		0	
26.5 mm	100		0	
19 mm	100		0	
13.2 mm	92		8	
9.5 mm	92		0	
6.7 mm	91		1	
4.75 mm	91		0	
2.36 mm	91		0	
1.18 mm	91		0	
0.6 mm	90		1	
0.425 mm	88		2	
0.3 mm	81		6	
0.15 mm	73		9	
0.075 mm	69		4	

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	3		
Soil Description	Silty Clay, high plast, yellow-brown mottled red-brown		
Nature of Water	Distilled		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AC
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 46, Depth: 0.9 - 1.4m
Material: Silty CLAY, high plasticity, red-brown-yellow mottled grey,
 trace gravel and sand

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

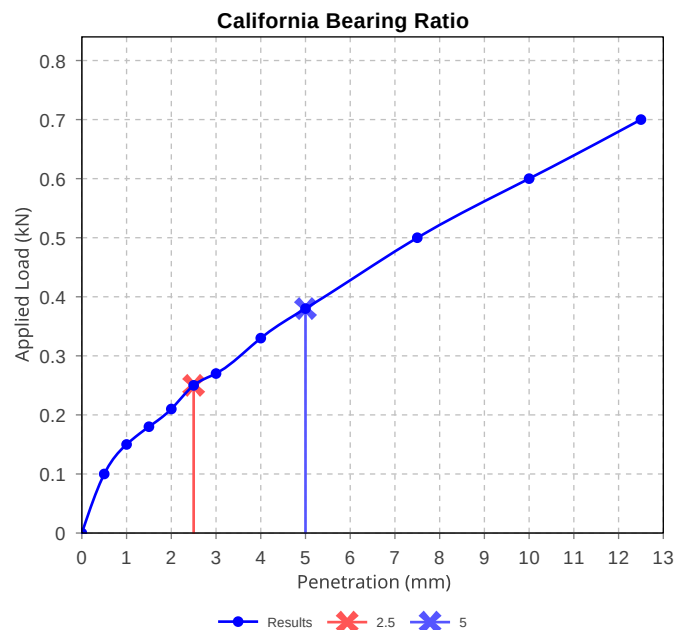
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	2.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.49		
Optimum Moisture Content (%)	27.5		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	99.5		
Dry Density after Soaking (t/m ³)	1.45		
Field Moisture Content (%)	28.0		
Moisture Content at Placement (%)	27.5		
Moisture Content Top 30mm (%)	36.4		
Moisture Content Rest of Sample (%)	28.4		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	115.4		
Swell (%)	2.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AD
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 24, Depth: 1.1 - 1.4m
Material: Silty CLAY, High Plasticity, orange-brown-grey, fine to coarse
 grained gravel and sand

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

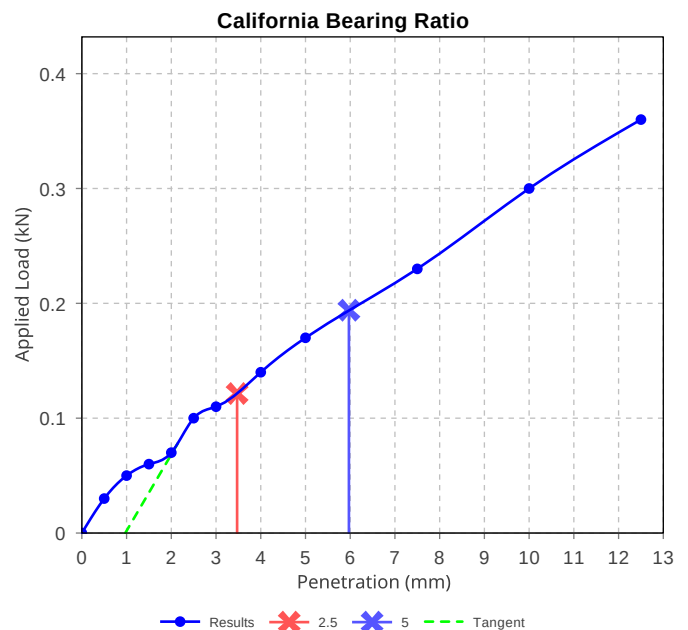
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	1.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.55		
Optimum Moisture Content (%)	19.5		
Laboratory Density Ratio (%)	100.5		
Laboratory Moisture Ratio (%)	104.5		
Dry Density after Soaking (t/m ³)	1.46		
Field Moisture Content (%)	21.6		
Moisture Content at Placement (%)	20.4		
Moisture Content Top 30mm (%)	32.8		
Moisture Content Rest of Sample (%)	26.2		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	144		
Swell (%)	6.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AE
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 21/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 38, Depth: 2.7 - 3.0m
Material: Silty CLAY, high plasticity, red-brown and grey, fine to coarse grained sand, trace gravel

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

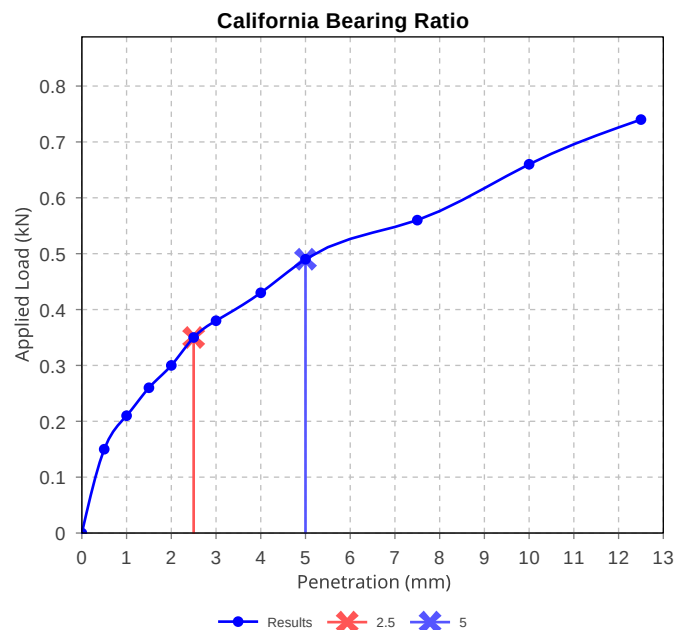
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.72		
Optimum Moisture Content (%)	19.5		
Laboratory Density Ratio (%)	102.5		
Laboratory Moisture Ratio (%)	99.5		
Dry Density after Soaking (t/m ³)	1.74		
Field Moisture Content (%)	21.3		
Moisture Content at Placement (%)	19.4		
Moisture Content Top 30mm (%)	23.9		
Moisture Content Rest of Sample (%)	21.8		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	96.9		
Swell (%)	1.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AF
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 27/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 23, Depth: 1.5 - 1.8m
Material: FILL: Silty Clay, medium to high plasticity, pale grey mottled red-brown and yellow-brown, with fine to coarse grained gravel and sand, trace cobbles

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

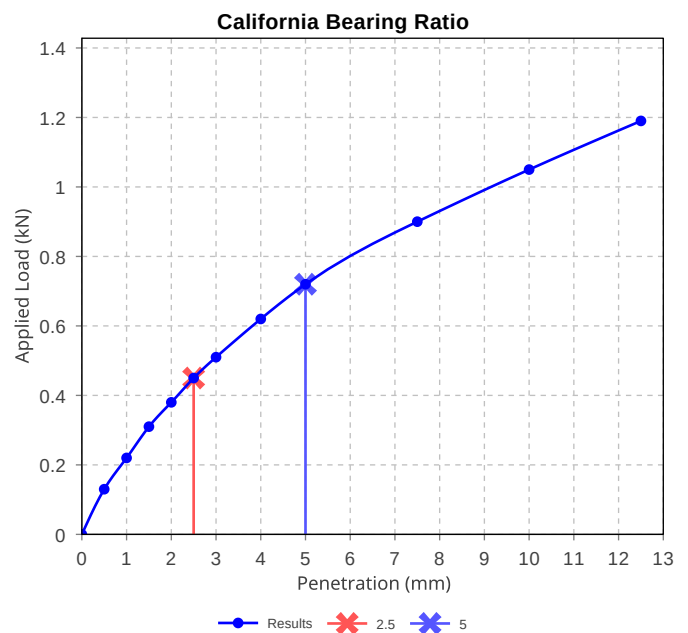
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	3.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.85		
Optimum Moisture Content (%)	16.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	99.5		
Dry Density after Soaking (t/m ³)	1.81		
Field Moisture Content (%)	15.7		
Moisture Content at Placement (%)	16.4		
Moisture Content Top 30mm (%)	21.8		
Moisture Content Rest of Sample (%)	18.4		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	143.4		
Swell (%)	2.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AG
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 27/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 8, Depth: 1.2 - 1.5m
Material: Silty CLAY, high plasticity, red-brown-grey, fine to coarse grained gravel and sand

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

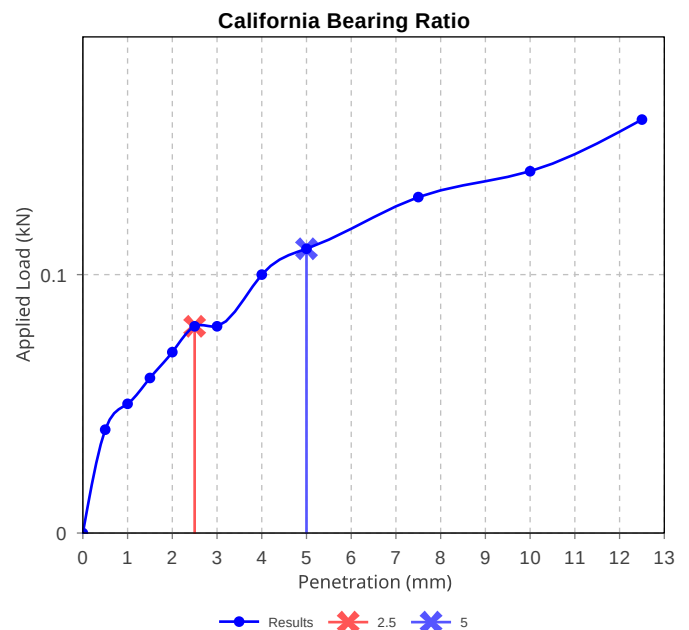
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	0.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.59		
Optimum Moisture Content (%)	26.0		
Laboratory Density Ratio (%)	99.0		
Laboratory Moisture Ratio (%)	97.0		
Dry Density after Soaking (t/m ³)	1.58		
Field Moisture Content (%)	29.2		
Moisture Content at Placement (%)	25.1		
Moisture Content Top 30mm (%)	27.2		
Moisture Content Rest of Sample (%)	24.8		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	144.5		
Swell (%)	0.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AH
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 44, Depth: 1.5 - 1.8m
Material: Silty CLAY, medium plasticity, pale grey mottled orange-brown, fine to coarse grained gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

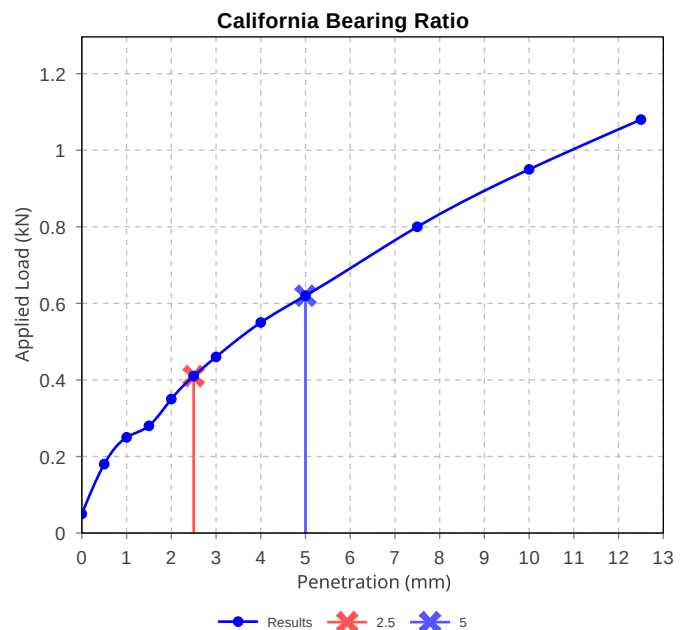
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	3.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.81		
Optimum Moisture Content (%)	16.0		
Laboratory Density Ratio (%)	99.0		
Laboratory Moisture Ratio (%)	107.5		
Dry Density after Soaking (t/m ³)	1.77		
Field Moisture Content (%)	16.4		
Moisture Content at Placement (%)	17.3		
Moisture Content Top 30mm (%)	21.3		
Moisture Content Rest of Sample (%)	19.4		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	97.6		
Swell (%)	1.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AI
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 21/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 15, Depth: 1.0 - 1.3m
Material: Fill: Silty CLAY, medium plasticity, yellow-brown and red-brown mottled pale grey and white, fine to coarse grained gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

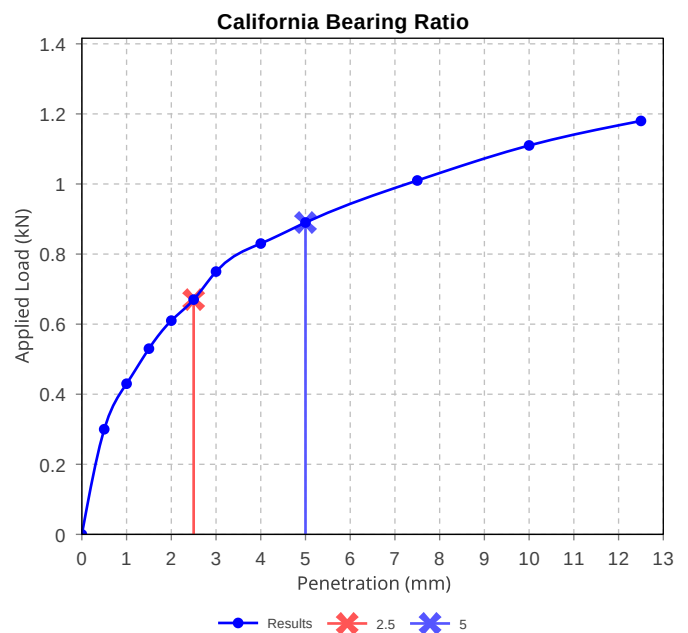
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.71		
Optimum Moisture Content (%)	18.0		
Laboratory Density Ratio (%)	100.5		
Laboratory Moisture Ratio (%)	105.0		
Dry Density after Soaking (t/m ³)	1.69		
Field Moisture Content (%)	19.4		
Moisture Content at Placement (%)	19.1		
Moisture Content Top 30mm (%)	21.9		
Moisture Content Rest of Sample (%)	21.0		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	48		
Swell (%)	2.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AJ
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 18, Depth: 1.4 - 1.7m
Material: Silty CLAY, high plasticity, pale grey mottled orange-brown,
trace gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

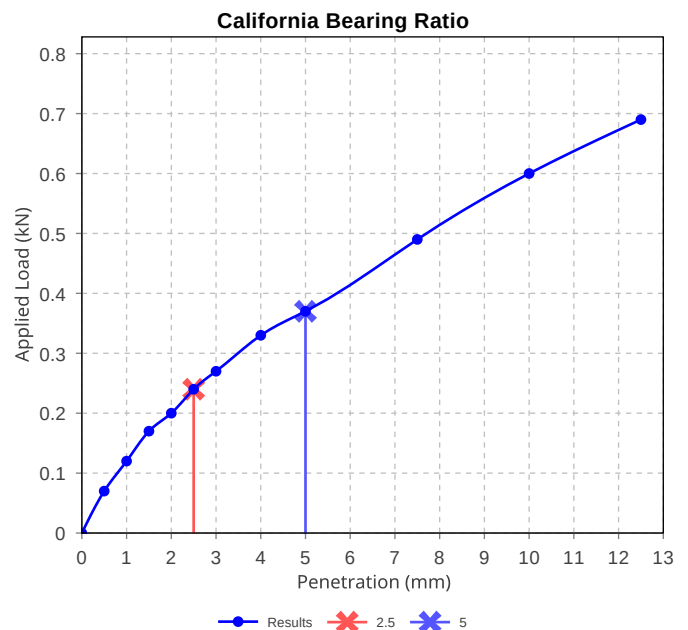
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	2.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.70		
Optimum Moisture Content (%)	20.5		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	100.0		
Dry Density after Soaking (t/m ³)	1.64		
Field Moisture Content (%)	19.1		
Moisture Content at Placement (%)	20.6		
Moisture Content Top 30mm (%)	27.4		
Moisture Content Rest of Sample (%)	19.1		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	142		
Swell (%)	3.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AK
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 49, Depth: 0.7 - 1.0m
Material: Silty CLAY, high plasticity, red-brown & yellow-brown mottled grey, fine to coarse grained sand, trace gravel

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

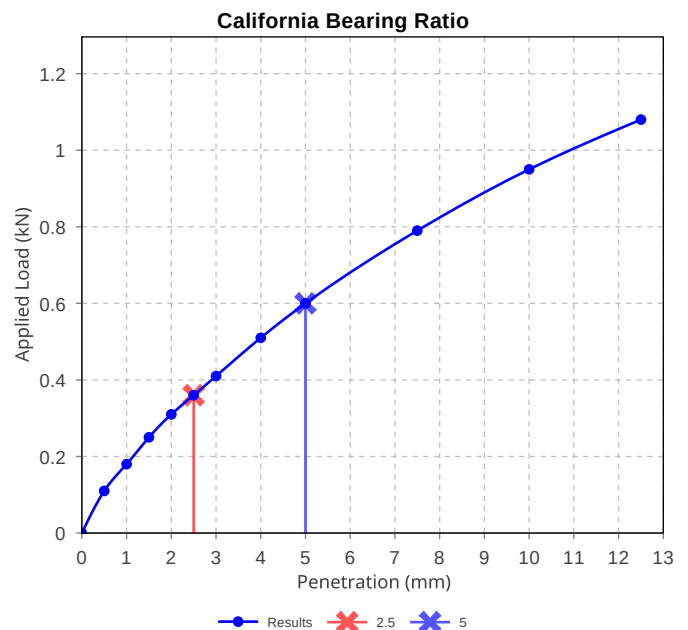
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	3.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.48		
Optimum Moisture Content (%)	26.5		
Laboratory Density Ratio (%)	101.0		
Laboratory Moisture Ratio (%)	99.5		
Dry Density after Soaking (t/m ³)	1.46		
Field Moisture Content (%)	26.3		
Moisture Content at Placement (%)	26.5		
Moisture Content Top 30mm (%)	36.0		
Moisture Content Rest of Sample (%)	26.3		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	144.9		
Swell (%)	2.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AL
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 42, Depth: 0.9 - 1.2m
Material: Silty CLAY, medium plasticity, grey and yellow-brown mottled red-brown, trace gravel and sand

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

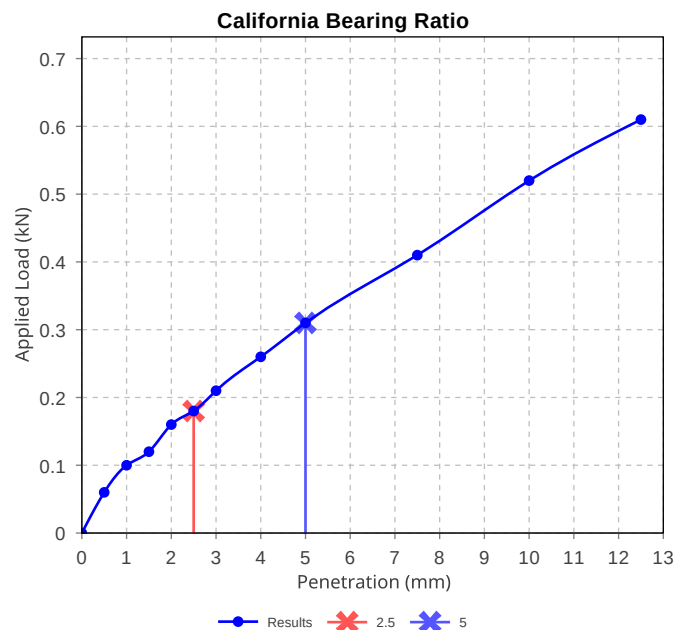
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	1.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.78		
Optimum Moisture Content (%)	17.0		
Laboratory Density Ratio (%)	99.0		
Laboratory Moisture Ratio (%)	101.0		
Dry Density after Soaking (t/m ³)	1.71		
Field Moisture Content (%)	17.7		
Moisture Content at Placement (%)	17.2		
Moisture Content Top 30mm (%)	24.1		
Moisture Content Rest of Sample (%)	17.2		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	48.7		
Swell (%)	3.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AM
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 6, Depth: 0.8 - 1.1m
Material: Silty CLAY, high plasticity, grey mottled orange-brown, fine to coarse grained gravel

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

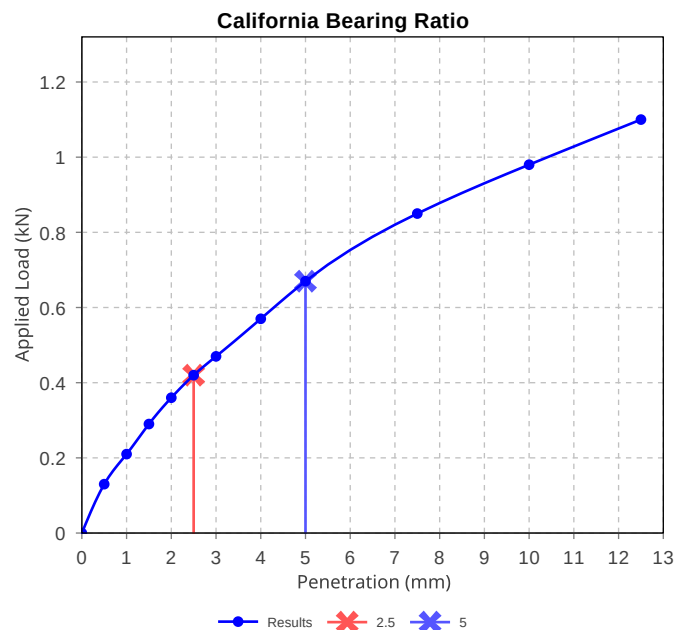
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	3.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.72		
Optimum Moisture Content (%)	20.5		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	101.0		
Dry Density after Soaking (t/m ³)	1.67		
Field Moisture Content (%)	19.9		
Moisture Content at Placement (%)	20.7		
Moisture Content Top 30mm (%)	25.5		
Moisture Content Rest of Sample (%)	21.0		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	140.9		
Swell (%)	2.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AN
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 21/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 48, Depth: 0.6 - 0.9m
Material: Silty CLAY, high plasticity, orange-brown mottled pale grey,
 fine to coarse grained gravel and sand

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

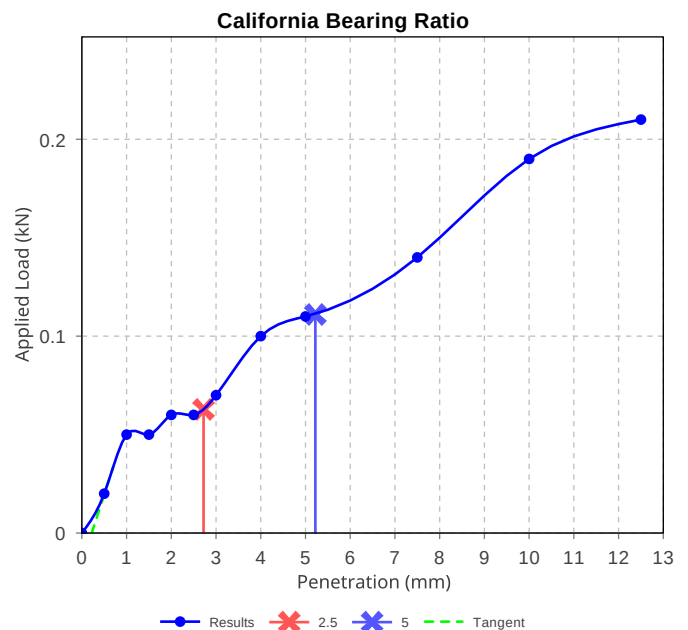
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	0.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.59		
Optimum Moisture Content (%)	20.0		
Laboratory Density Ratio (%)	97.0		
Laboratory Moisture Ratio (%)	99.0		
Dry Density after Soaking (t/m ³)	1.49		
Field Moisture Content (%)	20.9		
Moisture Content at Placement (%)	19.9		
Moisture Content Top 30mm (%)	34.2		
Moisture Content Rest of Sample (%)	29.1		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	96		
Swell (%)	3.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AO
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 3, Depth: 0.4 - 0.7m
Material: Silty CLAY, high plasticity, red-brown mottled yellow-brown-grey, fine to coarse grained gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

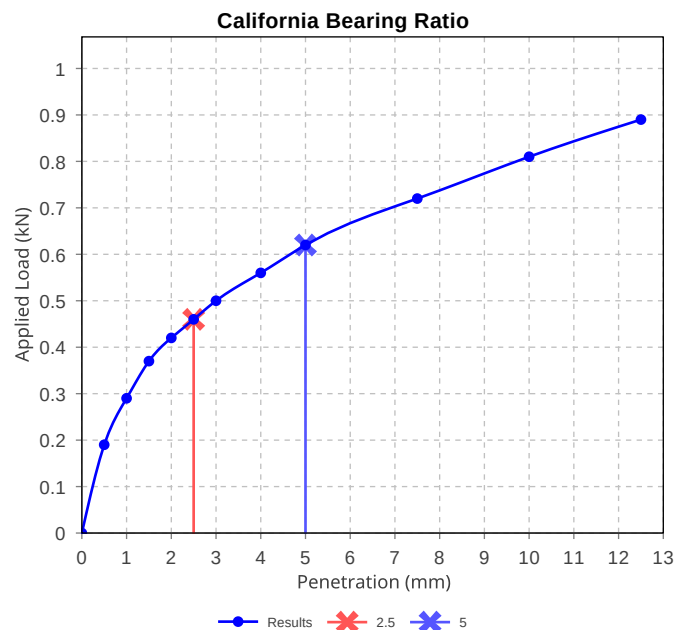
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	3.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.51		
Optimum Moisture Content (%)	27.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	98.5		
Dry Density after Soaking (t/m ³)	1.49		
Field Moisture Content (%)	27.9		
Moisture Content at Placement (%)	27.1		
Moisture Content Top 30mm (%)	33.3		
Moisture Content Rest of Sample (%)	26.1		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	143.7		
Swell (%)	1.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AP
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 21/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 47, Depth: 0.5 - 0.8m
Material: Silty CLAY, high plasticity, red-brown-yellow mottled grey,
fine to coarse grained gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

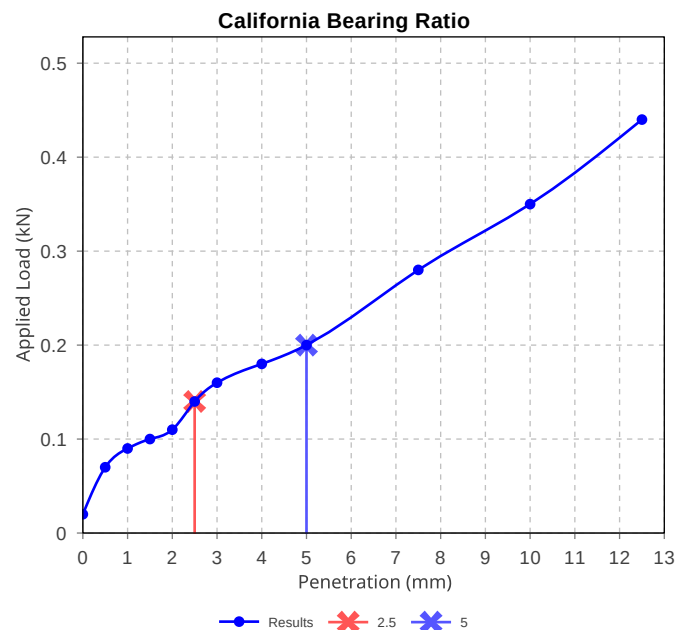
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	2.5 mm		
CBR %	1.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	visual		
Maximum Dry Density (t/m ³)	1.56		
Optimum Moisture Content (%)	21.0		
Laboratory Density Ratio (%)	97.0		
Laboratory Moisture Ratio (%)	103.0		
Dry Density after Soaking (t/m ³)	1.43		
Field Moisture Content (%)	20.6		
Moisture Content at Placement (%)	21.8		
Moisture Content Top 30mm (%)	32.9		
Moisture Content Rest of Sample (%)	27.8		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	97.2		
Swell (%)	5.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AQ
Date Sampled: 09/10/2025
Dates Tested: 09/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 20, Depth: 0.8 - 1.1m
Material: Silty CLAY, high plasticity, yellow-brown-grey mottled red-brown, fine to coarse grained gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

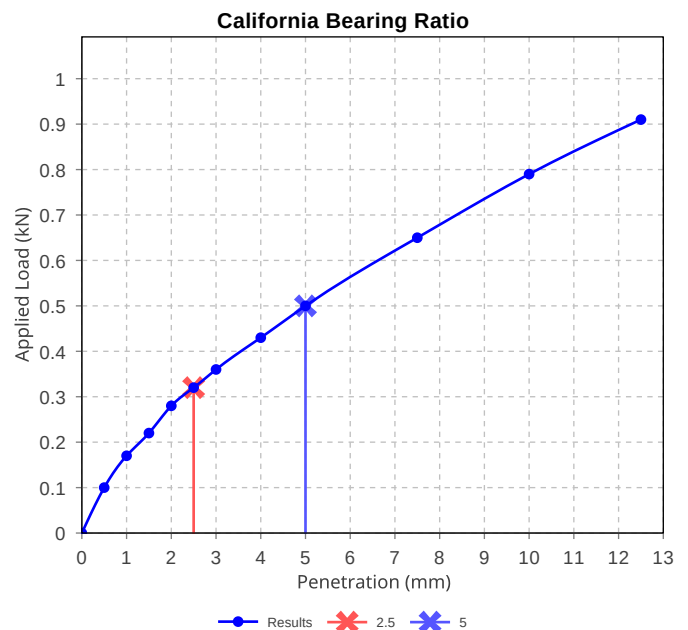
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.50		
Optimum Moisture Content (%)	27.0		
Laboratory Density Ratio (%)	99.0		
Laboratory Moisture Ratio (%)	100.5		
Dry Density after Soaking (t/m ³)	1.45		
Field Moisture Content (%)	26.2		
Moisture Content at Placement (%)	26.9		
Moisture Content Top 30mm (%)	33.7		
Moisture Content Rest of Sample (%)	26.8		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	141.9		
Swell (%)	2.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AR
Date Sampled: 09/10/2025
Dates Tested: 09/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 10, Depth: 0.7 - 1.0m
Material: Silty CLAY, high plasticity, pale grey mottled red-brown and yellow-brown, with fine to coarse grained sand and gravel

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

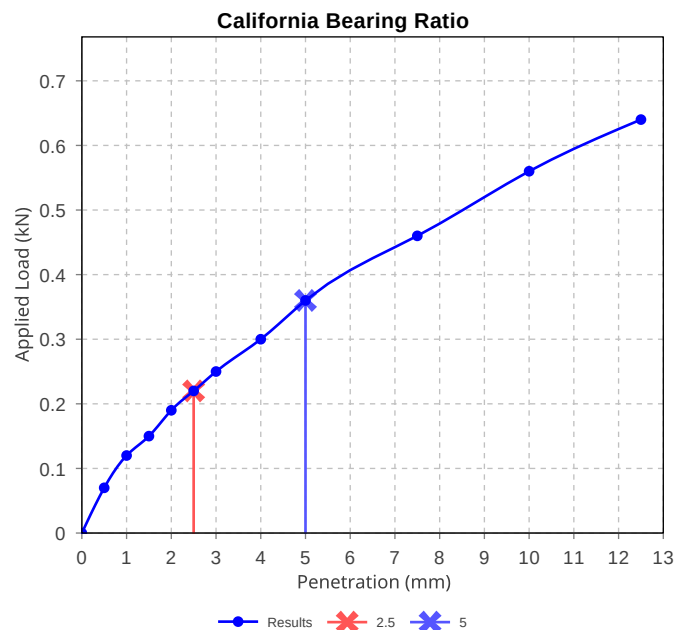
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	2.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.62		
Optimum Moisture Content (%)	21.5		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	100.0		
Dry Density after Soaking (t/m ³)	1.57		
Field Moisture Content (%)	21.7		
Moisture Content at Placement (%)	21.6		
Moisture Content Top 30mm (%)	29.5		
Moisture Content Rest of Sample (%)	23.7		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	140.6		
Swell (%)	3.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AS
Date Sampled: 09/10/2025
Dates Tested: 09/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 7, Depth: 1.2 - 1.5m
Material: Silty CLAY, high plasticity, red-brown mottled grey, fine to coarse grained gravel and sand

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

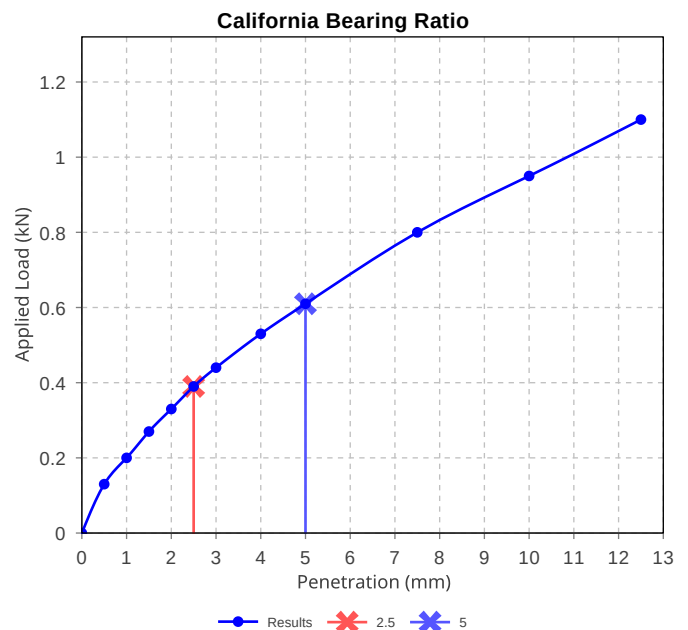
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	3.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.65		
Optimum Moisture Content (%)	22.5		
Laboratory Density Ratio (%)	98.0		
Laboratory Moisture Ratio (%)	105.0		
Dry Density after Soaking (t/m ³)	1.59		
Field Moisture Content (%)	22.4		
Moisture Content at Placement (%)	23.9		
Moisture Content Top 30mm (%)	30.4		
Moisture Content Rest of Sample (%)	23.4		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	141.6		
Swell (%)	1.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AT
Date Sampled: 09/10/2025
Dates Tested: 09/10/2025 - 21/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP50, Depth: 1.3 - 1.6m
Material: Silty CLAY, medium to high plasticity, orange-brown and grey, with fine to coarse grained gravel

GEOTECH
TESTING PTY LTD
ABN 71 076 676 321

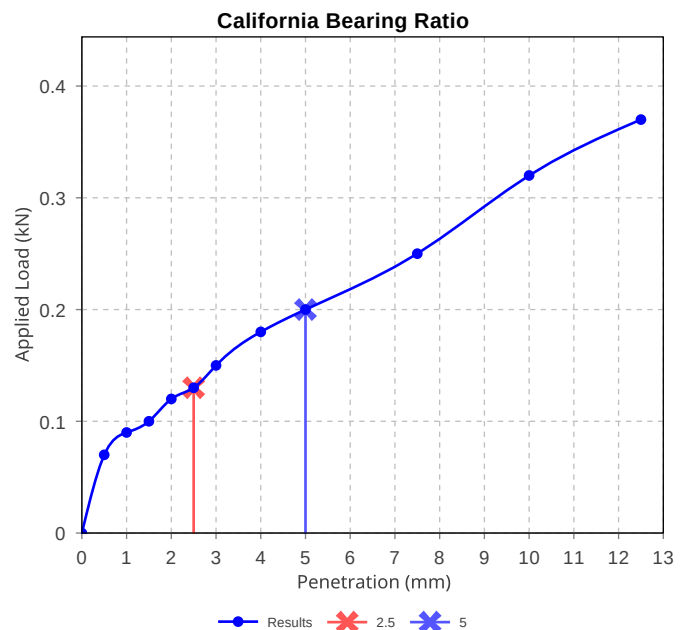
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	1.0		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.58		
Optimum Moisture Content (%)	19.5		
Laboratory Density Ratio (%)	99.0		
Laboratory Moisture Ratio (%)	99.0		
Dry Density after Soaking (t/m ³)	1.50		
Field Moisture Content (%)	16.3		
Moisture Content at Placement (%)	19.3		
Moisture Content Top 30mm (%)	30.4		
Moisture Content Rest of Sample (%)	26.0		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	96.8		
Swell (%)	4.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AU
Date Sampled: 09/10/2025
Dates Tested: 09/10/2025 - 27/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Remarks: BAG stored in Engineering shed
Sample Location: TP 45, Depth: 1.2 - 1.5
Material: Fill: Silty CLAY, high plasticity, pale grey mottled orange-brown and dark brown, fine to coarse grained gravel and sand, trace boulders

GEOTECH
TESTING PTY LTD
 ABN 71 076 676 321

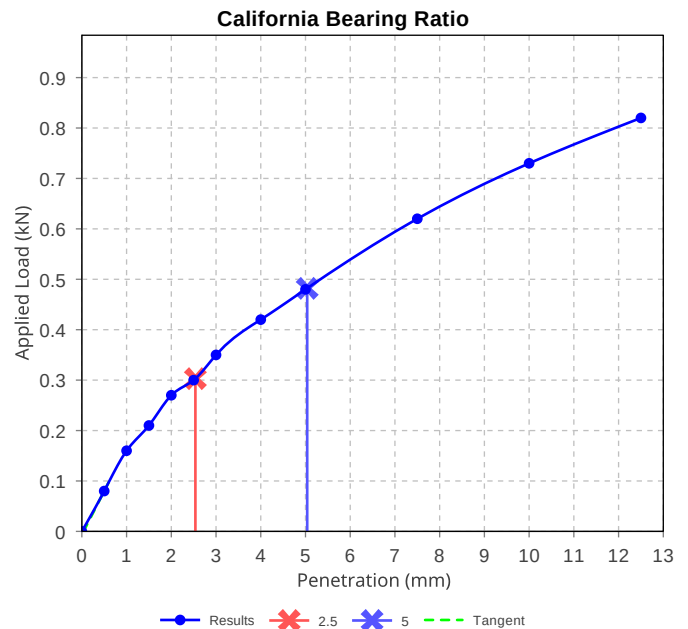
Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	2.5		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS 1289 5.1.1 & 2.1.1		
Method used to Determine Plasticity	Visual		
Maximum Dry Density (t/m ³)	1.84		
Optimum Moisture Content (%)	17.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	91.5		
Dry Density after Soaking (t/m ³)	1.82		
Field Moisture Content (%)	16.6		
Moisture Content at Placement (%)	15.7		
Moisture Content Top 30mm (%)	20.8		
Moisture Content Rest of Sample (%)	18.3		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	144		
Swell (%)	1.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0.0		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AV
Date Sampled: 09/10/2025
Dates Tested: 09/10/2025 - 13/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 39, Depth: 1.8 - 2.0m
Material: Silty CLAY, high plasticity, grey mottled red-brown, fine to coarse grained gravel and sand



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	69		
Plastic Limit (%)	22		
Plasticity Index (%)	47		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	9.0		
Cracking Crumbling Curling	Cracking		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AW
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 13/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 9, Depth: 1.2 - 1.4
Material: Silty CLAY, high plasticity, yellow-brown-grey mottled red-brown, trace gravel and sand



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	85		
Plastic Limit (%)	29		
Plasticity Index (%)	56		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	14.0		
Cracking Crumbling Curling	None		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AX
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 13/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 13, Depth: 2.2 - 2.4
Material: Silty Gravely CLAY, medium to high Plasticity, orange-brown-grey, fine to coarse grained gravel and sand



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	49		
Plastic Limit (%)	17		
Plasticity Index (%)	32		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	8.0		
Cracking Crumbling Curling	Cracking		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AY
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 13/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 1, Depth: 1.0 - 1.2
Material: Silty Gravely CLAY, high plasticity, orange brown mottled grey & red-brown, fine to coarse grained gravel and sand



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	88		
Plastic Limit (%)	29		
Plasticity Index (%)	59		
Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	16.0		
Cracking Crumbling Curling	Cracking		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437AZ
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 13/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 19 , Depth: 1.0 - 1.2
Material: Fill: Gravelly CLAY, medium plasticity, dark grey-brown, fine to coarse grained gravel and sand



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	37		
Plastic Limit (%)	17		
Plasticity Index (%)	20		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.1		
Linear Shrinkage (%)	10.5		
Cracking Crumbling Curling	None		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BA
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 13/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 39, Depth: 1.5 - 1.6m
Material: Silty CLAY, High Plasticity, grey mottled red-brown, fine to coarse grained gravel and sand



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Emerson Class Number of a Soil (AS 1289 3.8.1)		Min	Max
Emerson Class	6		
Soil Description	Silty CLAY		
Nature of Water	Distilled		

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BG
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 16/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 1, Depth: 0.9 - 1.1m
Material: Silty Gravely CLAY, high plasticity, orange-brown-grey, fine to coarse grained gravel and sand

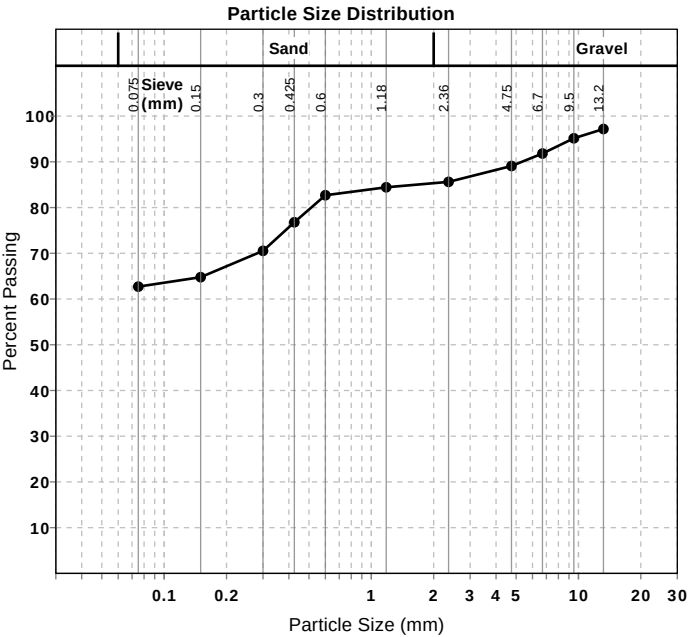


Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing
Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
13.2 mm	97		
9.5 mm	95		
6.7 mm	92		
4.75 mm	89		
2.36 mm	86		
1.18 mm	84		
0.6 mm	83		
0.425 mm	77		
0.3 mm	71		
0.15 mm	65		
0.075 mm	63		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BH
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 15/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 6, Depth: 1.0 - 1.2
Material: Gravelly CLAY, high plasticity, grey mottled orange-brown,
fine to coarse grained gravel and sand



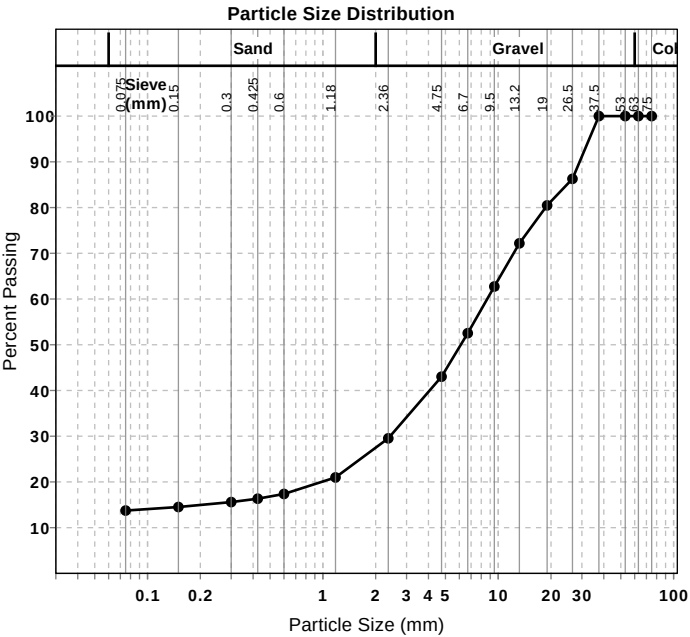
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)		
Sieve	Passed %	Passing Limits
75 mm	100	
63 mm	100	
53 mm	100	
37.5 mm	100	
26.5 mm	86	
19 mm	80	
13.2 mm	72	
9.5 mm	63	
6.7 mm	53	
4.75 mm	43	
2.36 mm	30	
1.18 mm	21	
0.6 mm	17	
0.425 mm	16	
0.3 mm	16	
0.15 mm	15	
0.075 mm	14	



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BI
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 16/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 7, Depth: 0.9 - 1.1
Material: Silty CLAY, high plasticity, red-brown mottled grey, fine to coarse grained gravel and sand



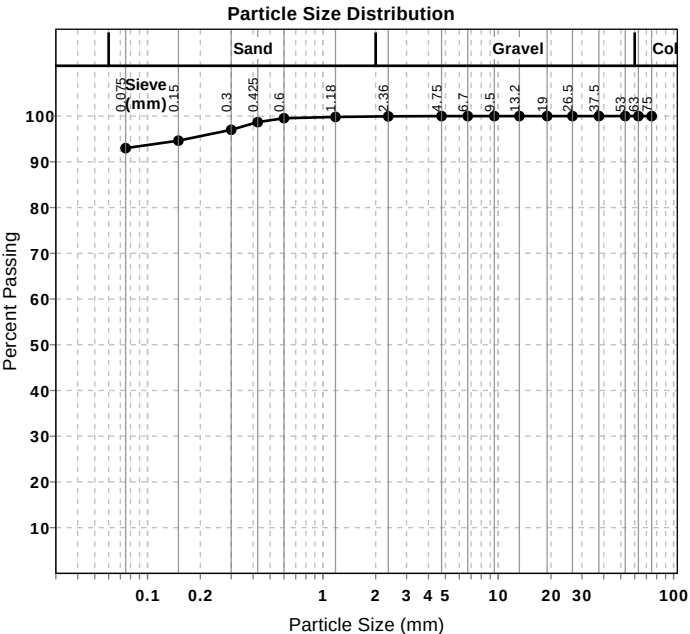
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
75 mm	100		
63 mm	100		
53 mm	100		
37.5 mm	100		
26.5 mm	100		
19 mm	100		
13.2 mm	100		
9.5 mm	100		
6.7 mm	100		
4.75 mm	100		
2.36 mm	100		
1.18 mm	100		
0.6 mm	100		
0.425 mm	99		
0.3 mm	97		
0.15 mm	95		
0.075 mm	93		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BJ
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 15/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 9, Depth: 1.2 - 1.4
Material: Fill: Silty Sandy CLAY, medium to high plasticity, pale brown
mottled red-brown, fine to coarse grained sand, trace gravel



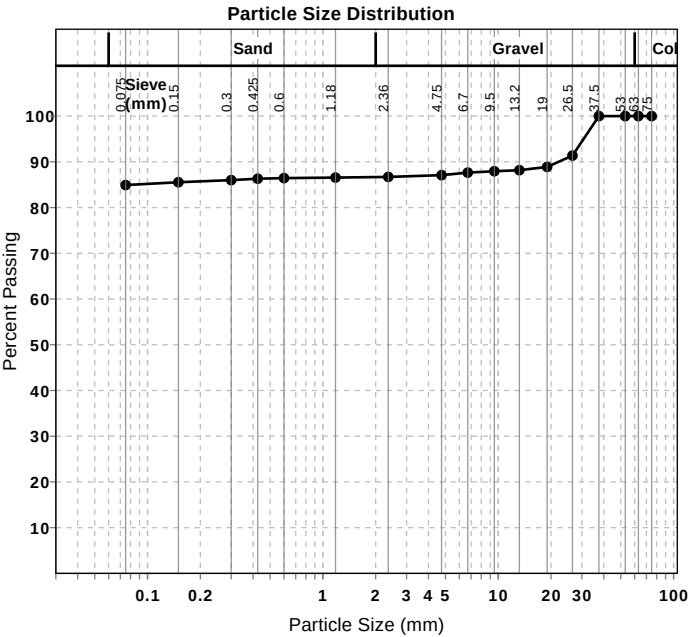
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
75 mm	100		
63 mm	100		
53 mm	100		
37.5 mm	100		
26.5 mm	91		
19 mm	89		
13.2 mm	88		
9.5 mm	88		
6.7 mm	88		
4.75 mm	87		
2.36 mm	87		
1.18 mm	87		
0.6 mm	86		
0.425 mm	86		
0.3 mm	86		
0.15 mm	86		
0.075 mm	85		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BK
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 10, Depth: 1.0 - 1.2
Material: Gravely CLAY, high plasticity, pale grey mottled yellow-brown, fine to coarse grained gravel, with fine to coarse grained sand



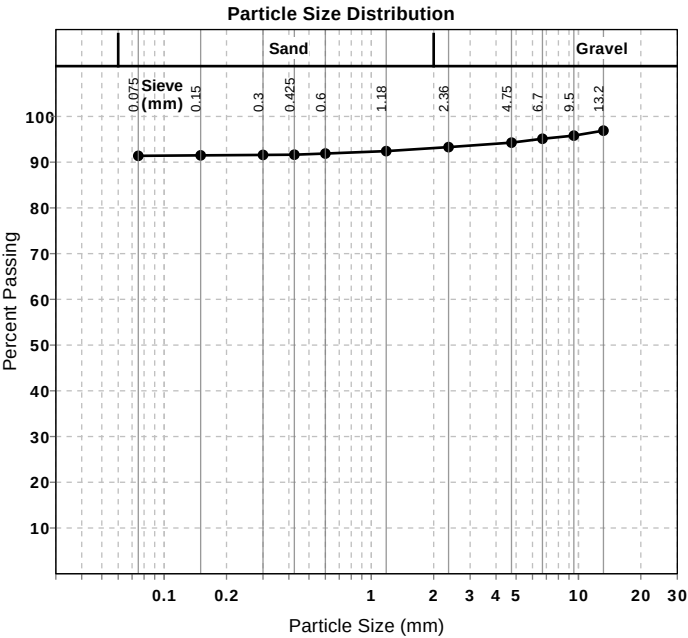
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
13.2 mm	97		
9.5 mm	96		
6.7 mm	95		
4.75 mm	94		
2.36 mm	93		
1.18 mm	92		
0.6 mm	92		
0.425 mm	92		
0.3 mm	92		
0.15 mm	91		
0.075 mm	91		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BL
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 16/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 13, Depth: 2.0 - 2.2
Material: Silty Gravely CLAY, high plasticity, orange-brown-grey, fine to coarse grained gravel and sand



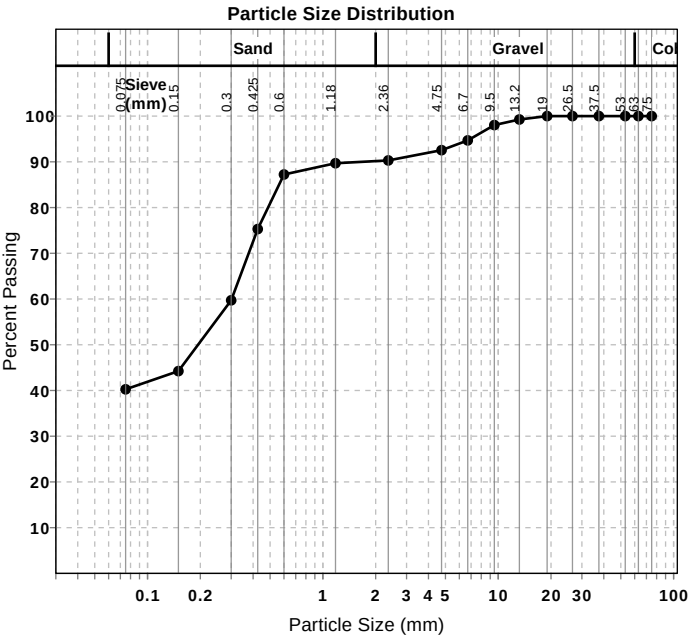
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)		
Sieve	Passed %	Passing Limits
75 mm	100	
63 mm	100	
53 mm	100	
37.5 mm	100	
26.5 mm	100	
19 mm	100	
13.2 mm	99	
9.5 mm	98	
6.7 mm	95	
4.75 mm	93	
2.36 mm	90	
1.18 mm	90	
0.6 mm	87	
0.425 mm	75	
0.3 mm	60	
0.15 mm	44	
0.075 mm	40	



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BM
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 16/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 16, Depth: 0.5 - 0.7
Material: Fill: Sandy CLAY, medium plasticity, pale brown mottled orange-brown, fine to coarse gravel and sand

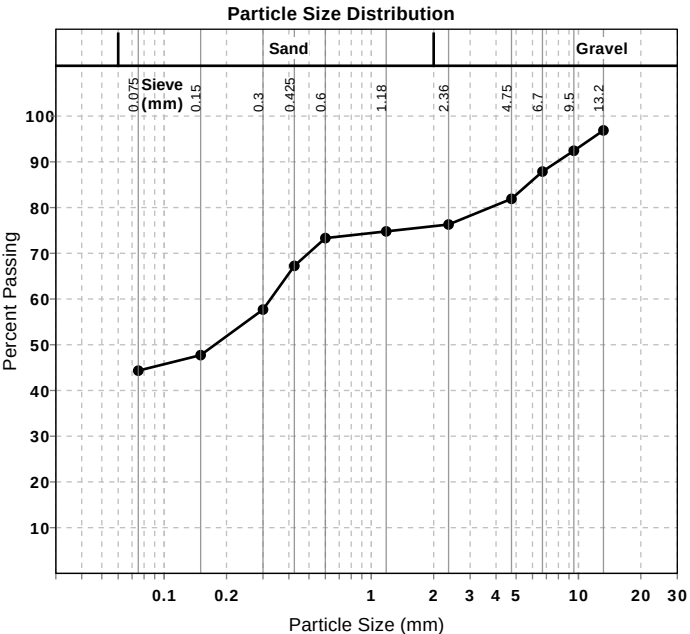


Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing
Mathew Morley
Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
13.2 mm	97		
9.5 mm	92		
6.7 mm	88		
4.75 mm	82		
2.36 mm	76		
1.18 mm	75		
0.6 mm	73		
0.425 mm	67		
0.3 mm	58		
0.15 mm	48		
0.075 mm	44		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BN
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 19, Depth: 1.7 - 1.9
Material: Silty CLAY, high plasticity, yellow-brown and red-brown, fine to coarse grained sand, trace gravel

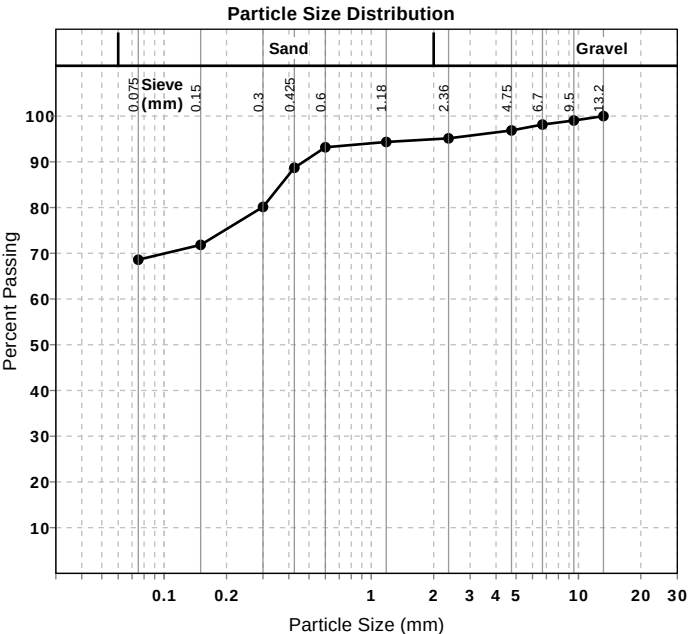


Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing
Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
13.2 mm	100		
9.5 mm	99		
6.7 mm	98		
4.75 mm	97		
2.36 mm	95		
1.18 mm	94		
0.6 mm	93		
0.425 mm	89		
0.3 mm	80		
0.15 mm	72		
0.075 mm	69		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BO
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 20/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 36, Depth: 1.4 - 1.6
Material: Silty CLAY, high plasticity, grey mottled yellow-brown and red-brown, trace gravel and sand



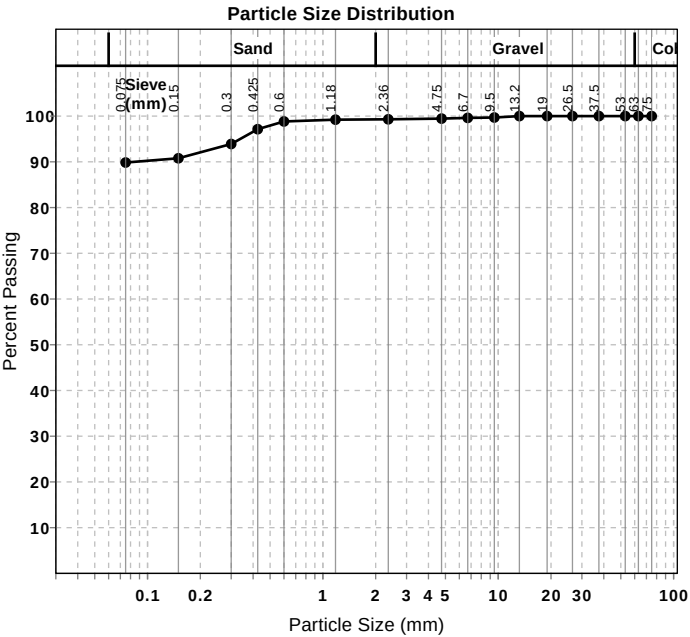
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
75 mm	100		
63 mm	100		
53 mm	100		
37.5 mm	100		
26.5 mm	100		
19 mm	100		
13.2 mm	100		
9.5 mm	100		
6.7 mm	100		
4.75 mm	99		
2.36 mm	99		
1.18 mm	99		
0.6 mm	99		
0.425 mm	97		
0.3 mm	94		
0.15 mm	91		
0.075 mm	90		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BP
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 37, Depth: 0.8 - 1.0
Material: Silty CLAY, high plasticity, yellow-brown and grey mottled
orange-brown, trace sand, trace gravel

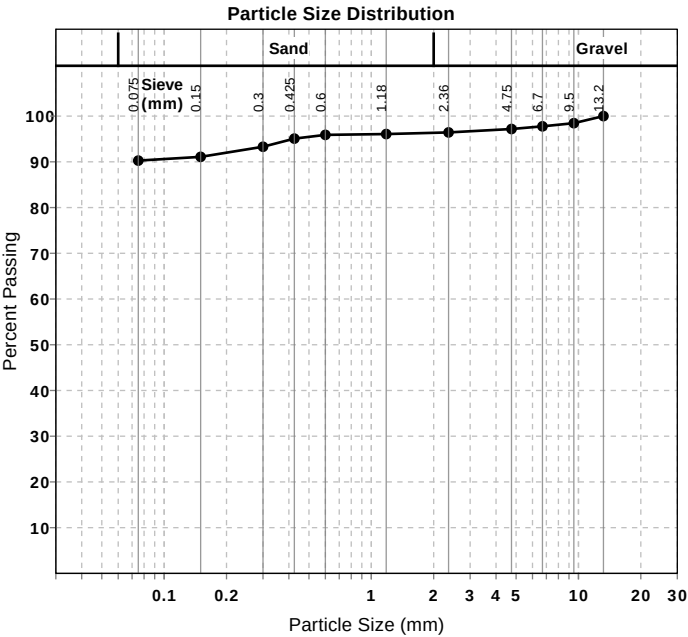


Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing
Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
13.2 mm	100		
9.5 mm	98		
6.7 mm	98		
4.75 mm	97		
2.36 mm	96		
1.18 mm	96		
0.6 mm	96		
0.425 mm	95		
0.3 mm	93		
0.15 mm	91		
0.075 mm	90		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BQ
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 39, Depth: 1.6 - 1.8m
Material: Silty CLAY, high plasticity, grey mottled red-brown, fine to coarse grained gravel and sand

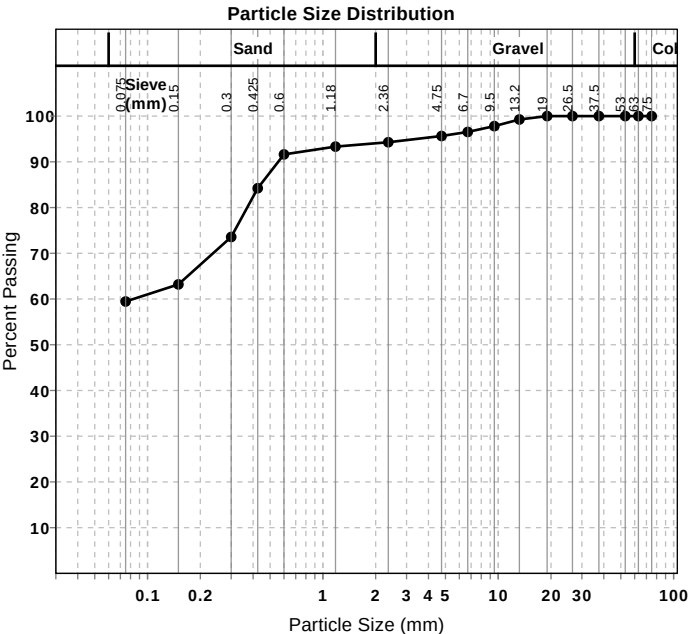


Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing
Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)		
Sieve	Passed %	Passing Limits
75 mm	100	
63 mm	100	
53 mm	100	
37.5 mm	100	
26.5 mm	100	
19 mm	100	
13.2 mm	99	
9.5 mm	98	
6.7 mm	97	
4.75 mm	96	
2.36 mm	94	
1.18 mm	93	
0.6 mm	92	
0.425 mm	84	
0.3 mm	74	
0.15 mm	63	
0.075 mm	59	



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BR
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 40, Depth: 0.9 - 1.1m
Material: Silty CLAY, high plasticity, pale grey and yellow-brown
mottled red-brown, fine to coarse grained gravel and sand

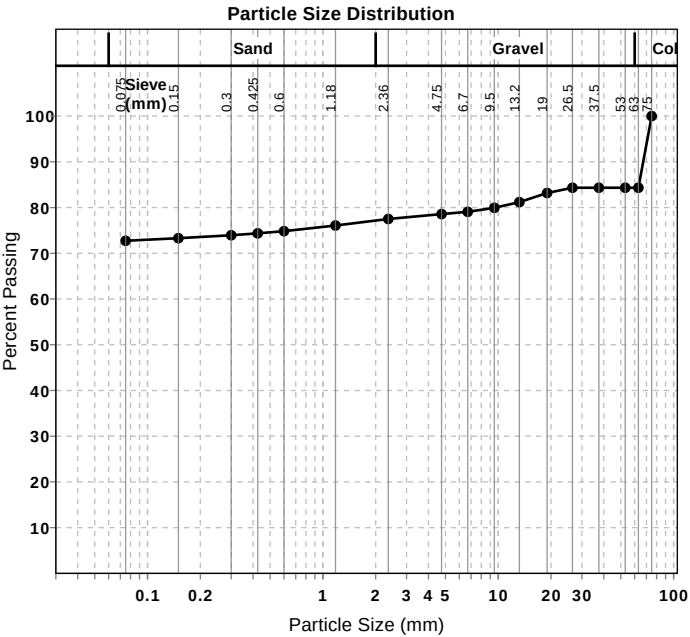


Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing
Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)		
Sieve	Passed %	Passing Limits
75 mm	100	
63 mm	84	
53 mm	84	
37.5 mm	84	
26.5 mm	84	
19 mm	83	
13.2 mm	81	
9.5 mm	80	
6.7 mm	79	
4.75 mm	79	
2.36 mm	78	
1.18 mm	76	
0.6 mm	75	
0.425 mm	74	
0.3 mm	74	
0.15 mm	73	
0.075 mm	73	



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BS
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 16/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 41, Depth: 0.4 - 0.6m
Material: Silty Gravelly CLAY, high plasticity, dark grey mottled pale
grey and orange-brown, fine to coarse grained gravel



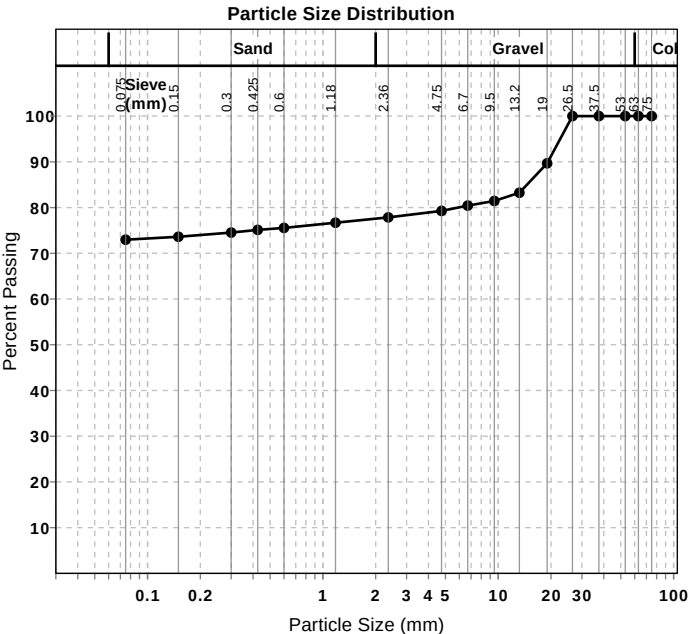
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)		
Sieve	Passed %	Passing Limits
75 mm	100	
63 mm	100	
53 mm	100	
37.5 mm	100	
26.5 mm	100	
19 mm	90	
13.2 mm	83	
9.5 mm	81	
6.7 mm	80	
4.75 mm	79	
2.36 mm	78	
1.18 mm	77	
0.6 mm	76	
0.425 mm	75	
0.3 mm	75	
0.15 mm	74	
0.075 mm	73	



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BT
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 43, Depth: 1.2 - 1.4
Material: Silty Gravelly CLAY, high plasticity, pale grey mottled yellow-brown, fine to coarse grained gravel and sand



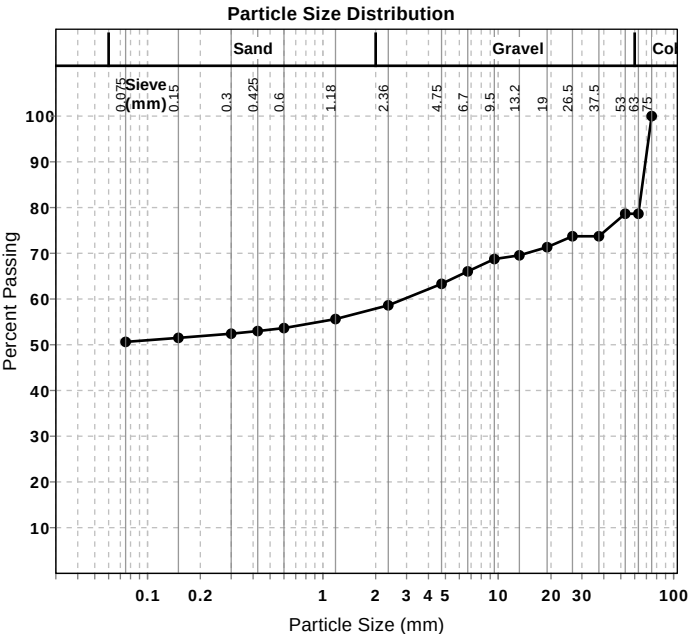
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)		
Sieve	Passed %	Passing Limits
75 mm	100	
63 mm	79	
53 mm	79	
37.5 mm	74	
26.5 mm	74	
19 mm	71	
13.2 mm	70	
9.5 mm	69	
6.7 mm	66	
4.75 mm	63	
2.36 mm	59	
1.18 mm	56	
0.6 mm	54	
0.425 mm	53	
0.3 mm	52	
0.15 mm	52	
0.075 mm	51	



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BU
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 22/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP 46, Depth: 1.3 - 1.5m
Material: Silty Gravelly CLAY, high plasticity, pale grey mottled red-brown and yellow-brown, fine to coarse grained gravel and sand



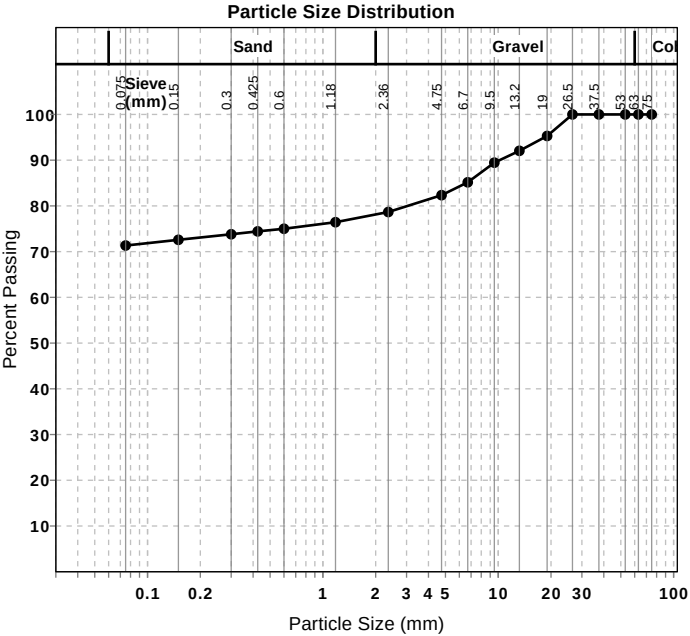
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)			
Sieve	Passed %	Passing Limits	
75 mm	100		
63 mm	100		
53 mm	100		
37.5 mm	100		
26.5 mm	100		
19 mm	95		
13.2 mm	92		
9.5 mm	89		
6.7 mm	85		
4.75 mm	82		
2.36 mm	79		
1.18 mm	76		
0.6 mm	75		
0.425 mm	74		
0.3 mm	74		
0.15 mm	73		
0.075 mm	71		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BV
Date Sampled: 10/10/2025
Dates Tested: 10/10/2025 - 16/10/2025
Sampling Method: AS 1289.1.2.1 6.5.4 - Machine excavated pit or trench
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: TP47, Depth: 0.9 - 1.1
Material: Gravelly CLAY, high plasticity, grey mottled orange-brown,
fine to coarse grained gravel, with fine to coarse grained sand



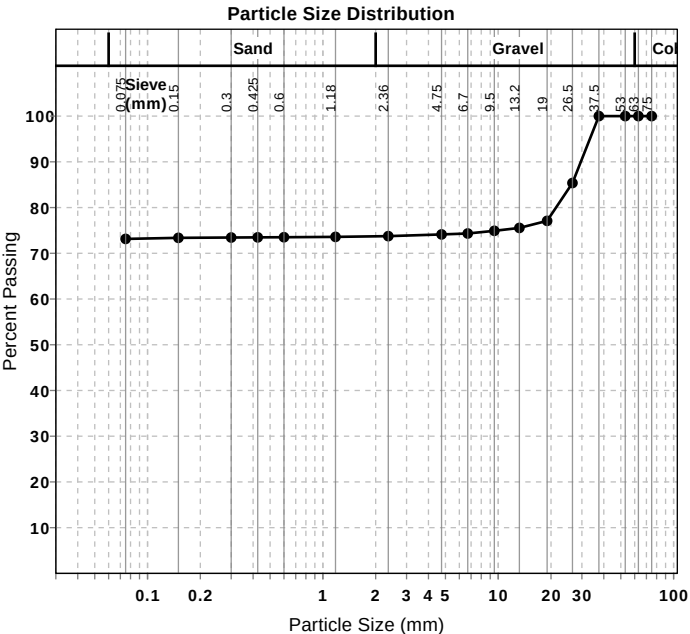
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1289 3.6.1)		
Sieve	Passed %	Passing Limits
75 mm	100	
63 mm	100	
53 mm	100	
37.5 mm	100	
26.5 mm	85	
19 mm	77	
13.2 mm	76	
9.5 mm	75	
6.7 mm	74	
4.75 mm	74	
2.36 mm	74	
1.18 mm	74	
0.6 mm	74	
0.425 mm	73	
0.3 mm	73	
0.15 mm	73	
0.075 mm	73	



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Sample Number: S-1437BY
Date Sampled: 08/10/2025
Dates Tested: 08/10/2025 - 23/10/2025
Sample Location: TP 8, Depth: 1.0 - 1.2
Lot No: TP 8
Material: FILL: Sand, fine to coarse grained, pale brown, with fine to coarse grained gravel (ABC), trace cobbles



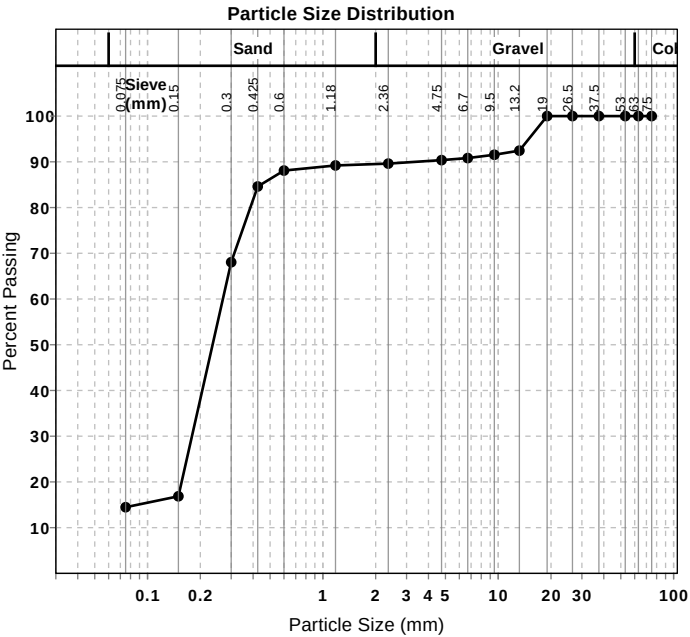
Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Particle Size Distribution (AS1141.11.1)					
Sample Washing	Sample was Washed				
Sieve	Passed %	Passing Limits	Retained %	Retained Limits	
75 mm	100		0		
63 mm	100		0		
53 mm	100		0		
37.5 mm	100		0		
26.5 mm	100		0		
19 mm	100		0		
13.2 mm	92		8		
9.5 mm	92		1		
6.7 mm	91		1		
4.75 mm	90		0		
2.36 mm	90		1		
1.18 mm	89		0		
0.6 mm	88		1		
0.425 mm	85		3		
0.3 mm	68		17		
0.15 mm	17		51		
0.075 mm	14		2		



Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Dates Tested: 03/10/2025 - 14/10/2025
Location: 2 Bullecourt Ave, Milperra



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S-1437A	S-1437B	S-1437C	S-1437D	S-1437E
Date Sampled	03/10/2025	03/10/2025	03/10/2025	03/10/2025	03/10/2025
Date Tested	13/10/2025	13/10/2025	13/10/2025	13/10/2025	13/10/2025
Material Source	U50	U50	U50	U50	U50
Sample Location	TP 4 (0.8 - 0.98m)	TP 21 (1.0 - 1.16m)	TP 29 (0.8 - 0.95m)	TP 31 (1.2 - 1.4m)	TP 32 (1.2 - 1.4m)
Inert Material Estimate (%)	**	0.0	0.1	**	**
Pocket Penetrometer before (kPa)	53	42	42	40	31
Pocket Penetrometer after (kPa)	36	24	28	33	15
Shrinkage Moisture Content (%)	16.0	33.8	21.5	18.5	22.1
Shrinkage (%)	1.3	6.3	5.6	3.7	5.1
Swell Moisture Content Before (%)	14.6	29.4	17.5	23.1	19.8
Swell Moisture Content After (%)	17.9	34.9	22.8	21.6	22.8
Swell (%)	-0.9	1.1	2.0	-0.2	3.2
Shrink Swell Index Iss (%)	0.7	3.8	3.7	2.1	3.7
Visual Description	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay
Cracking	UC	SC	SC	MC	SC
Crumbling	**	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.

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Dates Tested: 03/10/2025 - 14/10/2025
Location: 2 Bullecourt Ave, Milperra



Geotech Testing Pty Ltd
Penrith Laboratory
34 Borec Road Penrith NSW 2750
Phone: (02) 4722 2744
Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
Laboratory Manager
NATA Accredited Laboratory Number: 2734

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S-1437F	S-1437G	S-1437BB	S-1437BC	S-1437BD
Date Sampled	03/10/2025	03/10/2025	08/10/2025	08/10/2025	08/10/2025
Date Tested	13/10/2025	13/10/2025	13/10/2025	13/10/2025	13/10/2025
Material Source	U50	U50	U50	U50	U50
Sample Location	TP 33 (0.6 - 0.8m)	TP 34 (0.5 - 1.0m)	TP 16 (0.7 - 0.9)	TP 36 (0.5 - 0.62)	TP 37 (0.8 - 1.0)
Inert Material Estimate (%)	0.0	**	**	**	**
Pocket Penetrometer before (kPa)	34	37	34	28	32
Pocket Penetrometer after (kPa)	16	22	21	19	25
Shrinkage Moisture Content (%)	22.2	23.8	29.1	17.5	17.5
Shrinkage (%)	4.5	3.8	2.5	3.2	1.3
Swell Moisture Content Before (%)	18.8	25.8	24.9	15.1	17.6
Swell Moisture Content After (%)	25.5	31.2	32.1	20.2	16.5
Swell (%)	3.9	0.4	0.1	0.4	-0.3
Shrink Swell Index Iss (%)	3.6	2.2	1.4	1.9	0.7
Visual Description	Silty Clay	Silty CLAY	GRAVELLY silty Clay	FILL: Silty Clay, high plasticity, pale grey and red-brown mottled yellow-brown, with fine to coarse grained gravel and sand	Silty CLAY, high plasticity, yellow brown and grey mottled orange-brown, trace sand, trace gravel
Cracking	UC	SC	HC	SC	SC
Crumbling	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.

Material Test Report

Report Number: 9739/1-2
Issue Number: 1
Date Issued: 29/10/2025
Client: BEVERIDGE WILLIAMS
 LEVEL 4 LPC HOUSE, SUITE 4.05, 3 FORDHAM WAY,
 ORAN PARK NSW 2570
Project Number: 9739/1
Project Name: GEOTECHNICAL INVESTIGATION
Project Location: 2 BULLECOURT AVENUE, MILPERRA
Work Request: 1437
Dates Tested: 03/10/2025 - 14/10/2025
Location: 2 Bullecourt Ave, Milperra



Geotech Testing Pty Ltd
 Penrith Laboratory
 34 Borec Road Penrith NSW 2750
 Phone: (02) 4722 2744
 Email: matthew@geotech.com.au



Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Mathew Morley
 Laboratory Manager
 NATA Accredited Laboratory Number: 2734

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	S-1437BE	S-1437BF	S-1437BW	S-1437BX	
Date Sampled	08/10/2025	08/10/2025	08/10/2025	08/10/2025	
Date Tested	14/10/2025	13/10/2025	14/10/2025	14/10/2025	
Material Source	U50	U50	U50	U50	
Sample Location	TP 40 (0.5 - 0.73)	TP 43 (0.5 - 0.66)	TP 7 (0.5 - 0.61)	TP 46 (0.5 - 0.63)	
Inert Material Estimate (%)	0.2	0.2	**	**	
Pocket Penetrometer before (kPa)	39	35	28	44	
Pocket Penetrometer after (kPa)	19	18	22	31	
Shrinkage Moisture Content (%)	15.1	18.9	21.7	21.6	
Shrinkage (%)	3.7	5.0	5.1	5.0	
Swell Moisture Content Before (%)	18.2	20.5	29.5	29.0	
Swell Moisture Content After (%)	19.8	23.7	32.6	32.8	
Swell (%)	5.3	0.5	-0.1	-0.1	
Shrink Swell Index Iss (%)	3.5	2.9	2.8	2.8	
Visual Description	Silty CLAY, high plasticity, pale grey mottled red-brown and yellow-brown, with fine to coarse grained sand, trace gravel	Silty CLAY, high plasticity, pale grey and orange-brown, trace gravel and sand	Silty CLAY, high plasticity, yellow-brown mottled red-brown, trace gravel and sand	Silty CLAY, high plasticity, yellow-brown mottled red-brown, trace gravel, trace sand	
Cracking	SC	UC	MC	SC	
Crumbling	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.

CLIENT DETAILS

Contact **Joe Chen**
 Client **Geotechnique**
 Address **P.O. Box 880
 PENRITH NSW 2751**

Telephone **02 4722 2700**
 Facsimile **02 4722 6161**
 Email **joe@geotech.com.au**
 Project **9739/1 2 Bullecourt Avenue, Milperra**
 Order Number **9739/1**
 Samples **17**

LABORATORY DETAILS

Manager **Shane McDermott**
 Laboratory **SGS Alexandria Environmental**
 Address **Unit 16, 33 Maddox St
 Alexandria NSW 2015**

Telephone **+61 2 8594 0400**
 Facsimile **+61 2 8594 0499**
 Email **au.environmental.sydney@sgs.com**
 SGS Reference **SE281051 R0**
 Date Received **8/4/2025**
 Date Reported **15/4/2025**

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



ANALYTICAL RESULTS

SE281051 R0

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography [AN245] Tested: 15/4/2025

			TP2	TP3	TP10	TP11	TP12
			SOIL 1.0-1.1 8/4/2025 SE281051.003	SOIL 1.0-1.1 8/4/2025 SE281051.005	SOIL 1.0-1.1 8/4/2025 SE281051.007	SOIL 1.0-1.1 8/4/2025 SE281051.009	SOIL 0.7-0.8 8/4/2025 SE281051.010
PARAMETER	UOM	LOR					
Chloride	mg/kg	0.25	68	220	290	49	34
Sulfate	mg/kg	0.5	76	150	160	75	39

			TP13	TP14	TP16
			SOIL 1.2-1.3 8/4/2025 SE281051.012	SOIL 1.3-1.4 8/4/2025 SE281051.014	SOIL 0.4-0.5 8/4/2025 SE281051.017
PARAMETER	UOM	LOR			
Chloride	mg/kg	0.25	88	1300	110
Sulfate	mg/kg	0.5	21	330	340



ANALYTICAL RESULTS

SE281051 R0

pH in soil (1:2) [AN101] Tested: 14/4/2025

			TP2	TP3	TP10	TP11	TP12
			SOIL 1.0-1.1 8/4/2025 SE281051.003	SOIL 1.0-1.1 8/4/2025 SE281051.005	SOIL 1.0-1.1 8/4/2025 SE281051.007	SOIL 1.0-1.1 8/4/2025 SE281051.009	SOIL 0.7-0.8 8/4/2025 SE281051.010
PARAMETER	UOM	LOR					
pH (1:2)	pH Units	-	4.2	4.7	4.3	6.4	6.3

			TP13	TP14	TP16
			SOIL 1.2-1.3 8/4/2025 SE281051.012	SOIL 1.3-1.4 8/4/2025 SE281051.014	SOIL 0.4-0.5 8/4/2025 SE281051.017
PARAMETER	UOM	LOR			
pH (1:2)	pH Units	-	5.8	8.0	5.5



ANALYTICAL RESULTS

SE281051 R0

pH in soil (1:5) [AN101] Tested: 14/4/2025

			TP1	TP2	TP2	TP3	TP3
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.3-1.4	0.4-0.5	1.0-1.1	0.4-0.5	1.0-1.1
			8/4/2025	8/4/2025	8/4/2025	8/4/2025	8/4/2025
PARAMETER	UOM	LOR	SE281051.001	SE281051.002	SE281051.003	SE281051.004	SE281051.005
pH	pH Units	0.1	6.6	4.3	4.4	6.2	4.8

			TP10	TP11	TP13	TP14	TP15
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.4-0.5	0.2-0.3	0.4-0.5	0.6-0.7	0.4-0.5
			8/4/2025	8/4/2025	8/4/2025	8/4/2025	8/4/2025
PARAMETER	UOM	LOR	SE281051.006	SE281051.008	SE281051.011	SE281051.013	SE281051.015
pH	pH Units	0.1	5.3	4.5	5.3	7.9	8.2

			TP15
			SOIL
			0.8-0.9
			8/4/2025
PARAMETER	UOM	LOR	SE281051.016
pH	pH Units	0.1	7.7



ANALYTICAL RESULTS

SE281051 R0

Conductivity (1:2) in soil [AN106] Tested: 14/4/2025

			TP2	TP3	TP10	TP11	TP12
			SOIL 1.0-1.1 8/4/2025 SE281051.003	SOIL 1.0-1.1 8/4/2025 SE281051.005	SOIL 1.0-1.1 8/4/2025 SE281051.007	SOIL 1.0-1.1 8/4/2025 SE281051.009	SOIL 0.7-0.8 8/4/2025 SE281051.010
PARAMETER	UOM	LOR					
Conductivity (1:2) @25 C*	µS/cm	1	180	410	550	200	150
Resistivity (1:2)*	ohm cm	-	5400	2500	1800	5000	6600

			TP13	TP14	TP16
			SOIL 1.2-1.3 8/4/2025 SE281051.012	SOIL 1.3-1.4 8/4/2025 SE281051.014	SOIL 0.4-0.5 8/4/2025 SE281051.017
PARAMETER	UOM	LOR			
Conductivity (1:2) @25 C*	µS/cm	1	180	1800	530
Resistivity (1:2)*	ohm cm	-	5500	560	1900

Conductivity and TDS by Calculation - Soil [AN106] Tested: 14/4/2025

PARAMETER	UOM	LOR	TP1	TP2	TP2	TP3	TP3
			SOIL 1.3-1.4 8/4/2025	SOIL 0.4-0.5 8/4/2025	SOIL 1.0-1.1 8/4/2025	SOIL 0.4-0.5 8/4/2025	SOIL 1.0-1.1 8/4/2025
			SE281051.001	SE281051.002	SE281051.003	SE281051.004	SE281051.005
Conductivity of Extract (1:5 as received)	µS/cm	1	1300	73	94	110	220
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	1500	87	110	140	250

PARAMETER	UOM	LOR	TP10	TP10	TP11	TP11	TP12
			SOIL 0.4-0.5 8/4/2025	SOIL 1.0-1.1 8/4/2025	SOIL 0.2-0.3 8/4/2025	SOIL 1.0-1.1 8/4/2025	SOIL 0.7-0.8 8/4/2025
			SE281051.006	SE281051.007	SE281051.008	SE281051.009	SE281051.010
Conductivity of Extract (1:5 as received)	µS/cm	1	250	270	78	81	61
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	300	340	92	100	74

PARAMETER	UOM	LOR	TP13	TP13	TP14	TP14	TP15
			SOIL 0.4-0.5 8/4/2025	SOIL 1.2-1.3 8/4/2025	SOIL 0.6-0.7 8/4/2025	SOIL 1.3-1.4 8/4/2025	SOIL 0.4-0.5 8/4/2025
			SE281051.011	SE281051.012	SE281051.013	SE281051.014	SE281051.015
Conductivity of Extract (1:5 as received)	µS/cm	1	110	87	350	770	320
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	130	110	380	900	370

PARAMETER	UOM	LOR	TP15	TP16
			SOIL 0.8-0.9 8/4/2025	SOIL 0.4-0.5 8/4/2025
			SE281051.016	SE281051.017
Conductivity of Extract (1:5 as received)	µS/cm	1	290	260
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	330	320



ANALYTICAL RESULTS

SE281051 R0

Moisture Content [AN002] Tested: 14/4/2025

			TP1	TP2	TP2	TP3	TP3
			SOIL 1.3-1.4 8/4/2025	SOIL 0.4-0.5 8/4/2025	SOIL 1.0-1.1 8/4/2025	SOIL 0.4-0.5 8/4/2025	SOIL 1.0-1.1 8/4/2025
PARAMETER	UOM	LOR	SE281051.001	SE281051.002	SE281051.003	SE281051.004	SE281051.005
% Moisture	%w/w	1	17.2	16.0	11.6	17.6	11.2

			TP10	TP10	TP11	TP11	TP12
			SOIL 0.4-0.5 8/4/2025	SOIL 1.0-1.1 8/4/2025	SOIL 0.2-0.3 8/4/2025	SOIL 1.0-1.1 8/4/2025	SOIL 0.7-0.8 8/4/2025
PARAMETER	UOM	LOR	SE281051.006	SE281051.007	SE281051.008	SE281051.009	SE281051.010
% Moisture	%w/w	1	18.4	20.9	15.2	20.3	17.5

			TP13	TP13	TP14	TP14	TP15
			SOIL 0.4-0.5 8/4/2025	SOIL 1.2-1.3 8/4/2025	SOIL 0.6-0.7 8/4/2025	SOIL 1.3-1.4 8/4/2025	SOIL 0.4-0.5 8/4/2025
PARAMETER	UOM	LOR	SE281051.011	SE281051.012	SE281051.013	SE281051.014	SE281051.015
% Moisture	%w/w	1	11.0	18.6	8.0	14.9	14.8

			TP15	TP16
			SOIL 0.8-0.9 8/4/2025	SOIL 0.4-0.5 8/4/2025
PARAMETER	UOM	LOR	SE281051.016	SE281051.017
% Moisture	%w/w	1	11.6	18.3

METHOD

METHODOLOGY SUMMARY

AN002

The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.

AN101

pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl₂) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.

AN106

Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract of as received sample with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.

AN106

Resistivity of the extract is reported on the extract basis and is the reciprocal of conductivity. Salinity and TDS can be calculated from the extract conductivity and is reported back to the soil basis.

AN245

Anions by Ion Chromatography: A water sample or extract is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO₂, NO₃ and SO₄ are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
		LNR	Sample listed, but not received.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be $1.6 / 2$ (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the $\pm$ sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: www.sgs.com.au/en-gb/environment-health-and-safety.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

This report must not be reproduced, except in full.



STATEMENT OF QA/QC PERFORMANCE

SE281051 R0

CLIENT DETAILS

Contact Joe Chen
Client Geotechnique
Address P.O. Box 880
PENRITH NSW 2751

Telephone 02 4722 2700
Facsimile 02 4722 6161
Email joe@geotech.com.au

Project **9739/1 2 Bullecourt Avenue, Milperra**
Order Number **9739/1**
Samples 17

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

SGS Reference **SE281051 R0**
Date Received 08 Apr 2025
Date Reported 15 Apr 2025

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	17 Soil	Type of documentation received	COC
Date documentation received	8/4/2025	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	22.5°C
Sample container provider	Client	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Conductivity (1:2) in soil

Method: ME-(AU)-ENVJAN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP2	SE281051.003	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP3	SE281051.005	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP10	SE281051.007	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP11	SE281051.009	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP12	SE281051.010	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP13	SE281051.012	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP14	SE281051.014	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP16	SE281051.017	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-ENVJAN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1	SE281051.001	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP2	SE281051.002	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP2	SE281051.003	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP3	SE281051.004	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP3	SE281051.005	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP10	SE281051.006	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP10	SE281051.007	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP11	SE281051.008	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP11	SE281051.009	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP12	SE281051.010	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP13	SE281051.011	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP13	SE281051.012	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP14	SE281051.013	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP14	SE281051.014	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP15	SE281051.015	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP15	SE281051.016	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP16	SE281051.017	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025

Moisture Content

Method: ME-(AU)-ENVJAN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1	SE281051.001	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP2	SE281051.002	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP2	SE281051.003	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP3	SE281051.004	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP3	SE281051.005	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP10	SE281051.006	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP10	SE281051.007	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP11	SE281051.008	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP11	SE281051.009	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP12	SE281051.010	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP13	SE281051.011	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP13	SE281051.012	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP14	SE281051.013	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP14	SE281051.014	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP15	SE281051.015	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP15	SE281051.016	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025
TP16	SE281051.017	LB344218	08 Apr 2025	08 Apr 2025	22 Apr 2025	14 Apr 2025	19 Apr 2025	15 Apr 2025

pH in soil (1:2)

Method: ME-(AU)-ENVJAN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP2	SE281051.003	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP3	SE281051.005	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP10	SE281051.007	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP11	SE281051.009	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP12	SE281051.010	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP13	SE281051.012	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP14	SE281051.014	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP16	SE281051.017	LB344235	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025

pH in soil (1:5)

Method: ME-(AU)-ENVJAN101

Sample Name	Sample No.	QC Ref
-------------	------------	--------

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

pH in soil (1:5) (continued)

Method: ME-(AU)-ENVJAN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1	SE281051.001	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP2	SE281051.002	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP2	SE281051.003	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP3	SE281051.004	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP3	SE281051.005	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP10	SE281051.006	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP10	SE281051.007	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP11	SE281051.008	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP11	SE281051.009	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP12	SE281051.010	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP13	SE281051.011	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP13	SE281051.012	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP14	SE281051.013	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP14	SE281051.014	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025
TP15	SE281051.015	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP15	SE281051.016	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	14 Apr 2025
TP16	SE281051.017	LB344234	08 Apr 2025	08 Apr 2025	15 Apr 2025	14 Apr 2025	15 Apr 2025	15 Apr 2025

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-ENVJAN245

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP2	SE281051.003	LB344342	08 Apr 2025	08 Apr 2025	15 Apr 2025	15 Apr 2025	13 May 2025	15 Apr 2025
TP3	SE281051.005	LB344342	08 Apr 2025	08 Apr 2025	15 Apr 2025	15 Apr 2025	13 May 2025	15 Apr 2025
TP10	SE281051.007	LB344342	08 Apr 2025	08 Apr 2025	15 Apr 2025	15 Apr 2025	13 May 2025	15 Apr 2025
TP11	SE281051.009	LB344342	08 Apr 2025	08 Apr 2025	15 Apr 2025	15 Apr 2025	13 May 2025	15 Apr 2025
TP12	SE281051.010	LB344342	08 Apr 2025	08 Apr 2025	15 Apr 2025	15 Apr 2025	13 May 2025	15 Apr 2025
TP13	SE281051.012	LB344342	08 Apr 2025	08 Apr 2025	15 Apr 2025	15 Apr 2025	13 May 2025	15 Apr 2025
TP14	SE281051.014	LB344342	08 Apr 2025	08 Apr 2025	15 Apr 2025	15 Apr 2025	13 May 2025	15 Apr 2025
TP16	SE281051.017	LB344342	08 Apr 2025	08 Apr 2025	15 Apr 2025	15 Apr 2025	13 May 2025	15 Apr 2025

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No surrogates were required for this job.

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Conductivity (1:2) in soil

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result
LB344235.001	Conductivity (1:2) @25 C*	µS/cm	1	<1

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result
LB344234.001	Conductivity of Extract (1:5 as received)	µS/cm	1	1
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	1.33

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR	Result
LB344342.001	Chloride	mg/kg	0.25	<0.25
	Sulfate	mg/kg	0.5	<0.5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Conductivity (1:2) in soil

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281051.017	LB344235.012	Conductivity (1:2) @25 C*	µS/cm	1	530	500	30	5
		Resistivity (1:2)*	ohm cm	-	1900	2000	31	5

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281051.010	LB344234.014	Conductivity of Extract (1:5 as received)	µS/cm	1	61	76	33	22
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	74	32.4007416563	32	22
SE281097.001	LB344234.023	Conductivity of Extract (1:5 as received)	µS/cm	1	783	802	30	2
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	85.26024785506	741658722	30	2

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281051.010	LB344218.011	% Moisture	%w/w	1	17.5	14.7	36	18
SE281061.003	LB344218.022	% Moisture	%w/w	1	17.79483600836	4009111617	36	8
SE281079.002	LB344218.030	% Moisture	%w/w	1	24.82185273183	8263950396	34	4

pH in soil (1:2)

Method: ME-(AU)-[ENV]AN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281051.017	LB344235.012	pH (1:2)	pH Units	-	5.5	5.4	32	1

pH in soil (1:5)

Method: ME-(AU)-[ENV]AN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281097.001	LB344234.023	pH	pH Units	0.1	9.0122	9.2592	31	3

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-[ENV]AN245

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE281051.017	LB344342.012	Chloride	mg/kg	0.25	110	100	30	2
		Sulfate	mg/kg	0.5	340	330	31	4

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Conductivity (1:2) in soil

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344235.002	Conductivity (1:2) @25 C*	µS/cm	1	1000	1015	85 - 115	102

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344234.002	Conductivity of Extract (1:5 as received)	µS/cm	1	1000	1015	85 - 115	100
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	1015	85 - 115	100

pH in soil (1:2)

Method: ME-(AU)-[ENV]AN101

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344235.003	pH (1:2)	pH Units	-	7.4	7.415	98 - 102	100

pH in soil (1:5)

Method: ME-(AU)-[ENV]AN101

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344234.003	pH	pH Units	0.1	7.4	7.415	98 - 102	100

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-[ENV]AN245

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB344342.002	Chloride	mg/kg	0.25	39	40	70 - 130	97
	Sulfate	mg/kg	0.5	41	40	70 - 130	104

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spikes were required for this job.

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : https://www.sgs.com.au/~media/Local/Australia/Documents/Technical Documents/MP-AU-ENV-QU-022_QA_QC_Plan.pdf

- * NATA accreditation does not cover the performance of this service.
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This test report shall not be reproduced, except in full.



SAMPLE RECEIPT ADVICE

SE281051

CLIENT DETAILS

Contact Joe Chen
Client Geotechnique
Address P.O. Box 880
PENRITH NSW 2751

Telephone 02 4722 2700
Facsimile 02 4722 6161
Email joe@geotech.com.au

Project 9739/1 2 Bullecourt Avenue, Milperra
Order Number 9739/1
Samples 17

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Tue 8/4/2025
Report Due Tue 15/4/2025
SGS Reference SE281051

SUBMISSION DETAILS

This is to confirm that 17 samples were received on Tuesday 8/4/2025. Results are expected to be ready by COB Tuesday 15/4/2025. Please quote SGS reference SE281051 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	17 Soil	Type of documentation received	COC
Date documentation received	8/4/2025	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	22.5°C
Sample container provider	Client	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	None	Samples clearly labelled	Yes
Complete documentation received	Yes		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

TP1 0.4-0.5, TP12 1.4-1.5; Extra sample received.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

CLIENT DETAILS

Client **Geotechnique**

Project **9739/1 2 Bullecourt Avenue, Milperra**

SUMMARY OF ANALYSIS

No.	Sample ID	Conductivity (1:2) in soil	Conductivity and TDS by Calculation - Soil	Moisture Content	pH in soil (1:2)	pH in soil (1:5)	Soluble Anions in Soil from 1:2 DI Extract by Ion
001	TP1 1.3-1.4	-	2	1	-	1	-
002	TP2 0.4-0.5	-	2	1	-	1	-
003	TP2 1.0-1.1	2	2	1	1	1	2
004	TP3 0.4-0.5	-	2	1	-	1	-
005	TP3 1.0-1.1	2	2	1	1	1	2
006	TP10 0.4-0.5	-	2	1	-	1	-
007	TP10 1.0-1.1	2	2	1	1	-	2
008	TP11 0.2-0.3	-	2	1	-	1	-
009	TP11 1.0-1.1	2	2	1	1	-	2
010	TP12 0.7-0.8	2	2	1	1	-	2
011	TP13 0.4-0.5	-	2	1	-	1	-
012	TP13 1.2-1.3	2	2	1	1	-	2
013	TP14 0.6-0.7	-	2	1	-	1	-
014	TP14 1.3-1.4	2	2	1	1	-	2
015	TP15 0.4-0.5	-	2	1	-	1	-
016	TP15 0.8-0.9	-	2	1	-	1	-
017	TP16 0.4-0.5	2	2	1	1	-	2

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.

The numbers shown in the table indicate the number of results requested in each package.

Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .

CLIENT DETAILS

Contact Joe Chen
 Client Geotech Testing Pty Ltd
 Address P.O. Box 880
 PENRITH
 NSW 2751

Telephone 02 4722 2700
 Facsimile 02 4722 6161
 Email joe@geotech.com.au

Project 9739/1 2 Bullecourt Avenue, Milperra
 Order Number 9739/1
 Samples 100

LABORATORY DETAILS

Manager Shane McDermott
 Laboratory SGS Alexandria Environmental
 Address Unit 16, 33 Maddox St
 Alexandria NSW 2015

Telephone +61 2 8594 0400
 Facsimile +61 2 8594 0499
 Email au.environmental.sydney@sgs.com

SGS Reference SE290914 R0
 Date Received 10/10/2025
 Date Reported 20/10/2025

COMMENTS

Accredited for compliance with ISO/IEC 17025 - Testing. NATA accredited laboratory 2562(4354).

SIGNATORIES



Dong LIANG
 Metals/Inorganics Team Leader



Ly Kim HA
 Organic Section Head



Shane MCDERMOTT
 Laboratory Manager



Ying Ying ZHANG
 Laboratory Technician

pH in soil (1:5) [AN101] Tested: 16/10/2025

PARAMETER	UOM	LOR	TP1	TP2	TP3	TP3	TP4
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.5-0.6	1.1-1.2	0.2-0.3	1.0-1.1	0.6-0.7
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.001	SE290914.004	SE290914.005	SE290914.006	SE290914.007
pH	pH Units	0.1	6.6	5.4	7.1	5.0	5.8

PARAMETER	UOM	LOR	TP4	TP5	TP5	TP6	TP6
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.6-1.7	0.3-0.5	1.0-1.1	0.6-0.7	1.5-1.6
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.008	SE290914.009	SE290914.010	SE290914.011	SE290914.012
pH	pH Units	0.1	4.9	7.6	7.9	5.7	5.4

PARAMETER	UOM	LOR	TP7	TP8	TP8	TP9	TP9
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.1-1.2	0.8-0.9	1.2-1.3	0.7-0.8	1.5-1.6
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.014	SE290914.015	SE290914.016	SE290914.017	SE290914.018
pH	pH Units	0.1	5.4	6.7	5.7	6.0	4.6

PARAMETER	UOM	LOR	TP10	TP10	TP12	TP12	TP13
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.5-0.6	1.2-1.3	0.8-0.9	1.8-1.9	0.9-1.0
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.019	SE290914.020	SE290914.023	SE290914.024	SE290914.025
pH	pH Units	0.1	4.7	5.1	6.2	6.4	6.1

PARAMETER	UOM	LOR	TP13	TP14	TP14	TP15	TP15
			SOIL	SOIL	SOIL	SOIL	SOIL
			2.2-2.4	0.7-0.8	1.4-1.5	0.7-0.8	1.7-1.8
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.026	SE290914.027	SE290914.028	SE290914.029	SE290914.030
pH	pH Units	0.1	5.5	7.2	5.5	6.9	5.0

PARAMETER	UOM	LOR	TP17	TP17	TP18	TP18	TP19
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.5-0.6	1.4-1.5	0.8-0.9	1.8-1.9	1.2-1.3
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.033	SE290914.034	SE290914.035	SE290914.036	SE290914.038
pH	pH Units	0.1	7.6	4.5	7.4	7.9	9.1

PARAMETER	UOM	LOR	TP20	TP20	TP21	TP21	TP22
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.6-0.7	1.4-1.5	0.4-0.5	1.0-1.1	0.5-0.6
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.039	SE290914.040	SE290914.041	SE290914.042	SE290914.043
pH	pH Units	0.1	5.5	5.2	7.7	5.5	5.3

pH in soil (1:5) [AN101] Tested: 16/10/2025 (continued)

PARAMETER	UOM	LOR	TP22	TP23	TP23	TP24	TP24
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.4-1.5	1.4-1.5	2.2-2.3	0.9-1.0	1.7-1.8
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.044	SE290914.045	SE290914.046	SE290914.047	SE290914.048
pH	pH Units	0.1	5.3	7.9	6.1	5.1	5.6

PARAMETER	UOM	LOR	TP25	TP25	TP26	TP26	TP27
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.6-0.7	1.6-1.7	0.3-0.4	1.0-1.1	0.4-0.5
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.049	SE290914.050	SE290914.051	SE290914.052	SE290914.053
pH	pH Units	0.1	6.6	4.9	4.9	6.7	8.0

PARAMETER	UOM	LOR	TP28	TP28	TP30	TP30	TP31
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.8-0.9	1.8-1.9	0.9-1.0	1.7-1.8	0.6-0.7
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.055	SE290914.056	SE290914.059	SE290914.060	SE290914.061
pH	pH Units	0.1	8.2	4.8	6.8	5.2	7.1

PARAMETER	UOM	LOR	TP31	TP38	TP38	TP39	TP39
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.6-1.7	1.3-1.4	2.2-2.3	1.5-1.6	2.0-2.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.062	SE290914.075	SE290914.076	SE290914.077	SE290914.078
pH	pH Units	0.1	5.0	5.3	5.9	4.9	5.0

PARAMETER	UOM	LOR	TP40	TP40	TP41	TP41	TP42
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.4-0.5	1.0-1.1	0.3-0.4	0.9-1.0	0.9-1.0
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.079	SE290914.080	SE290914.081	SE290914.082	SE290914.083
pH	pH Units	0.1	4.6	4.7	5.7	6.6	6.9

PARAMETER	UOM	LOR	TP42	TP44	TP44	TP45	TP45
			SOIL	SOIL	SOIL	SOIL	SOIL
			2.0-2.1	1.0-1.1	2.0-2.1	0.9-1.0	2.0-2.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.084	SE290914.087	SE290914.088	SE290914.089	SE290914.090
pH	pH Units	0.1	5.7	6.9	5.3	7.3	7.3

PARAMETER	UOM	LOR	TP46	TP46	TP47	TP47	TP48
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.7-0.8	1.5-1.6	0.4-0.5	1.1-1.2	0.5-0.6
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.091	SE290914.092	SE290914.093	SE290914.094	SE290914.095
pH	pH Units	0.1	5.0	4.7	5.0	5.4	5.1



ANALYTICAL RESULTS

SE290914 R0

pH in soil (1:5) [AN101] Tested: 16/10/2025 (continued)

			TP48	TP50	TP50
			SOIL	SOIL	SOIL
			1.2-1.3	1.2-1.3	2.0-2.1
			9/10/2025	9/10/2025	9/10/2025
			SE290914.096	SE290914.099	SE290914.100
PARAMETER	UOM	LOR			
pH	pH Units	0.1	5.1	4.5	4.6

Conductivity and TDS by Calculation - Soil [AN106] Tested: 16/10/2025

PARAMETER	UOM	LOR	TP1	TP1	TP2	TP2	TP3
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.5-0.6	1.5-1.6	0.4-0.5	1.1-1.2	0.2-0.3
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.001	SE290914.002	SE290914.003	SE290914.004	SE290914.005
Conductivity of Extract (1:5 as received)	µS/cm	1	210	170	80	78	61
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	280	230	88	93	69

PARAMETER	UOM	LOR	TP3	TP4	TP4	TP5	TP5
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.0-1.1	0.6-0.7	1.6-1.7	0.3-0.5	1.0-1.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.006	SE290914.007	SE290914.008	SE290914.009	SE290914.010
Conductivity of Extract (1:5 as received)	µS/cm	1	42	60	82	270	190
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	51	65	93	330	230

PARAMETER	UOM	LOR	TP6	TP6	TP7	TP7	TP8
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.6-0.7	1.5-1.6	0.4-0.6	1.1-1.2	0.8-0.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.011	SE290914.012	SE290914.013	SE290914.014	SE290914.015
Conductivity of Extract (1:5 as received)	µS/cm	1	25	44	100	44	320
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	32	52	140	56	390

PARAMETER	UOM	LOR	TP8	TP9	TP9	TP10	TP10
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.2-1.3	0.7-0.8	1.5-1.6	0.5-0.6	1.2-1.3
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.016	SE290914.017	SE290914.018	SE290914.019	SE290914.020
Conductivity of Extract (1:5 as received)	µS/cm	1	320	43	140	120	110
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	420	50	180	150	130

PARAMETER	UOM	LOR	TP11	TP11	TP12	TP12	TP13
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.8-0.9	1.8-1.9	0.8-0.9	1.8-1.9	0.9-1.0
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.021	SE290914.022	SE290914.023	SE290914.024	SE290914.025
Conductivity of Extract (1:5 as received)	µS/cm	1	34	66	52	28	31
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	40	78	61	32	36

PARAMETER	UOM	LOR	TP13	TP14	TP14	TP15	TP15
			SOIL	SOIL	SOIL	SOIL	SOIL
			2.2-2.4	0.7-0.8	1.4-1.5	0.7-0.8	1.7-1.8
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.026	SE290914.027	SE290914.028	SE290914.029	SE290914.030
Conductivity of Extract (1:5 as received)	µS/cm	1	43	16	38	40	73
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	48	18	45	46	87

PARAMETER	UOM	LOR	TP16	TP16	TP17	TP17	TP18
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.4-0.5	1.1-1.2	0.5-0.6	1.4-1.5	0.8-0.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.031	SE290914.032	SE290914.033	SE290914.034	SE290914.035
Conductivity of Extract (1:5 as received)	µS/cm	1	47	82	160	76	380
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	57	110	180	91	430

Conductivity and TDS by Calculation - Soil [AN106] Tested: 16/10/2025 (continued)

PARAMETER	UOM	LOR	TP18	TP19	TP19	TP20	TP20
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.8-1.9	0.5-0.6	1.2-1.3	0.6-0.7	1.4-1.5
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.036	SE290914.037	SE290914.038	SE290914.039	SE290914.040
Conductivity of Extract (1:5 as received)	µS/cm	1	320	540	270	170	110
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	400	590	290	220	130

PARAMETER	UOM	LOR	TP21	TP21	TP22	TP22	TP23
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.4-0.5	1.0-1.1	0.5-0.6	1.4-1.5	1.4-1.5
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.041	SE290914.042	SE290914.043	SE290914.044	SE290914.045
Conductivity of Extract (1:5 as received)	µS/cm	1	110	150	85	52	400
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	140	190	120	65	490

PARAMETER	UOM	LOR	TP23	TP24	TP24	TP25	TP25
			SOIL	SOIL	SOIL	SOIL	SOIL
			2.2-2.3	0.9-1.0	1.7-1.8	0.6-0.7	1.6-1.7
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.046	SE290914.047	SE290914.048	SE290914.049	SE290914.050
Conductivity of Extract (1:5 as received)	µS/cm	1	310	97	46	62	100
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	390	120	52	69	120

PARAMETER	UOM	LOR	TP26	TP26	TP27	TP27	TP28
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.3-0.4	1.0-1.1	0.4-0.5	1.1-1.2	0.8-0.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.051	SE290914.052	SE290914.053	SE290914.054	SE290914.055
Conductivity of Extract (1:5 as received)	µS/cm	1	140	140	260	34	140
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	160	160	300	39	160

PARAMETER	UOM	LOR	TP28	TP29	TP29	TP30	TP30
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.8-1.9	0.5-0.6	1.5-1.6	0.9-1.0	1.7-1.8
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.056	SE290914.057	SE290914.058	SE290914.059	SE290914.060
Conductivity of Extract (1:5 as received)	µS/cm	1	250	190	74	160	27
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	290	230	89	200	33

PARAMETER	UOM	LOR	TP31	TP31	TP32	TP32	TP33
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.6-0.7	1.6-1.7	0.6-0.7	1.6-1.7	0.6-0.7
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.061	SE290914.062	SE290914.063	SE290914.064	SE290914.065
Conductivity of Extract (1:5 as received)	µS/cm	1	290	430	150	410	800
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	340	520	170	480	1000

PARAMETER	UOM	LOR	TP33	TP34	TP34	TP35	TP35
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.2-1.3	0.5-0.6	1.0-1.1	0.5-0.6	1.0-1.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.066	SE290914.067	SE290914.068	SE290914.069	SE290914.070
Conductivity of Extract (1:5 as received)	µS/cm	1	930	580	1100	210	310
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	1100	750	1400	250	380

Conductivity and TDS by Calculation - Soil [AN106] Tested: 16/10/2025 (continued)

PARAMETER	UOM	LOR	TP36	TP36	TP37	TP37	TP38
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.8-0.9	1.4-1.5	0.6-0.7	1.5-1.6	1.3-1.4
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.071	SE290914.072	SE290914.073	SE290914.074	SE290914.075
Conductivity of Extract (1:5 as received)	µS/cm	1	620	570	58	590	300
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	780	710	66	710	380

PARAMETER	UOM	LOR	TP38	TP39	TP39	TP40	TP40
			SOIL	SOIL	SOIL	SOIL	SOIL
			2.2-2.3	1.5-1.6	2.0-2.1	0.4-0.5	1.0-1.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.076	SE290914.077	SE290914.078	SE290914.079	SE290914.080
Conductivity of Extract (1:5 as received)	µS/cm	1	480	130	130	76	360
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	550	150	150	91	410

PARAMETER	UOM	LOR	TP41	TP41	TP42	TP42	TP43
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.3-0.4	0.9-1.0	0.9-1.0	2.0-2.1	0.4-0.5
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.081	SE290914.082	SE290914.083	SE290914.084	SE290914.085
Conductivity of Extract (1:5 as received)	µS/cm	1	160	120	37	31	130
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	190	130	47	35	150

PARAMETER	UOM	LOR	TP43	TP44	TP44	TP45	TP45
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.1-1.2	1.0-1.1	2.0-2.1	0.9-1.0	2.0-2.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.086	SE290914.087	SE290914.088	SE290914.089	SE290914.090
Conductivity of Extract (1:5 as received)	µS/cm	1	67	71	52	32	76
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	93	90	60	38	91

PARAMETER	UOM	LOR	TP46	TP46	TP47	TP47	TP48
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.7-0.8	1.5-1.6	0.4-0.5	1.1-1.2	0.5-0.6
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.091	SE290914.092	SE290914.093	SE290914.094	SE290914.095
Conductivity of Extract (1:5 as received)	µS/cm	1	68	84	210	41	83
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	90	110	260	46	99

PARAMETER	UOM	LOR	TP48	TP49	TP49	TP50	TP50
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.2-1.3	0.6-0.7	1.4-1.5	1.2-1.3	2.0-2.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.096	SE290914.097	SE290914.098	SE290914.099	SE290914.100
Conductivity of Extract (1:5 as received)	µS/cm	1	110	51	38	180	130
Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	140	64	49	210	150

Moisture Content [AN002] Tested: 15/10/2025

PARAMETER	UOM	LOR	TP1	TP1	TP2	TP2	TP3
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.5-0.6	1.5-1.6	0.4-0.5	1.1-1.2	0.2-0.3
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.001	SE290914.002	SE290914.003	SE290914.004	SE290914.005
% Moisture	%w/w	1	24.3	24.5	9.1	16.1	10.9

PARAMETER	UOM	LOR	TP3	TP4	TP4	TP5	TP5
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.0-1.1	0.6-0.7	1.6-1.7	0.3-0.5	1.0-1.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.006	SE290914.007	SE290914.008	SE290914.009	SE290914.010
% Moisture	%w/w	1	17.5	8.4	11.9	19.5	17.4

PARAMETER	UOM	LOR	TP6	TP6	TP7	TP7	TP8
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.6-0.7	1.5-1.6	0.4-0.6	1.1-1.2	0.8-0.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.011	SE290914.012	SE290914.013	SE290914.014	SE290914.015
% Moisture	%w/w	1	22.8	15.3	25.9	21.9	17.8

PARAMETER	UOM	LOR	TP8	TP9	TP9	TP10	TP10
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.2-1.3	0.7-0.8	1.5-1.6	0.5-0.6	1.2-1.3
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.016	SE290914.017	SE290914.018	SE290914.019	SE290914.020
% Moisture	%w/w	1	25.0	14.6	21.2	21.6	14.1

PARAMETER	UOM	LOR	TP11	TP11	TP12	TP12	TP13
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.8-0.9	1.8-1.9	0.8-0.9	1.8-1.9	0.9-1.0
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.021	SE290914.022	SE290914.023	SE290914.024	SE290914.025
% Moisture	%w/w	1	13.4	15.6	16.1	13.4	13.2

PARAMETER	UOM	LOR	TP13	TP14	TP14	TP15	TP15
			SOIL	SOIL	SOIL	SOIL	SOIL
			2.2-2.4	0.7-0.8	1.4-1.5	0.7-0.8	1.7-1.8
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.026	SE290914.027	SE290914.028	SE290914.029	SE290914.030
% Moisture	%w/w	1	12.3	10.2	14.5	12.9	16.0

PARAMETER	UOM	LOR	TP16	TP16	TP17	TP17	TP18
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.4-0.5	1.1-1.2	0.5-0.6	1.4-1.5	0.8-0.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.031	SE290914.032	SE290914.033	SE290914.034	SE290914.035
% Moisture	%w/w	1	18.2	24.9	14.7	16.5	10.8

Moisture Content [AN002] Tested: 15/10/2025 (continued)

PARAMETER	UOM	LOR	TP18	TP19	TP19	TP20	TP20
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.8-1.9	0.5-0.6	1.2-1.3	0.6-0.7	1.4-1.5
			9/10/2025 SE290914.036	9/10/2025 SE290914.037	9/10/2025 SE290914.038	9/10/2025 SE290914.039	9/10/2025 SE290914.040
% Moisture	%w/w	1	21.2	9.5	8.2	24.8	16.6

PARAMETER	UOM	LOR	TP21	TP21	TP22	TP22	TP23
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.4-0.5	1.0-1.1	0.5-0.6	1.4-1.5	1.4-1.5
			9/10/2025 SE290914.041	9/10/2025 SE290914.042	9/10/2025 SE290914.043	9/10/2025 SE290914.044	9/10/2025 SE290914.045
% Moisture	%w/w	1	26.8	22.1	26.9	19.9	19.6

PARAMETER	UOM	LOR	TP23	TP24	TP24	TP25	TP25
			SOIL	SOIL	SOIL	SOIL	SOIL
			2.2-2.3	0.9-1.0	1.7-1.8	0.6-0.7	1.6-1.7
			9/10/2025 SE290914.046	9/10/2025 SE290914.047	9/10/2025 SE290914.048	9/10/2025 SE290914.049	9/10/2025 SE290914.050
% Moisture	%w/w	1	21.9	20.5	11.3	9.0	16.2

PARAMETER	UOM	LOR	TP26	TP26	TP27	TP27	TP28
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.3-0.4	1.0-1.1	0.4-0.5	1.1-1.2	0.8-0.9
			9/10/2025 SE290914.051	9/10/2025 SE290914.052	9/10/2025 SE290914.053	9/10/2025 SE290914.054	9/10/2025 SE290914.055
% Moisture	%w/w	1	15.5	15.3	16.2	14.1	15.5

PARAMETER	UOM	LOR	TP28	TP29	TP29	TP30	TP30
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.8-1.9	0.5-0.6	1.5-1.6	0.9-1.0	1.7-1.8
			9/10/2025 SE290914.056	9/10/2025 SE290914.057	9/10/2025 SE290914.058	9/10/2025 SE290914.059	9/10/2025 SE290914.060
% Moisture	%w/w	1	13.7	18.2	17.0	20.2	17.2

PARAMETER	UOM	LOR	TP31	TP31	TP32	TP32	TP33
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.6-0.7	1.6-1.7	0.6-0.7	1.6-1.7	0.6-0.7
			9/10/2025 SE290914.061	9/10/2025 SE290914.062	9/10/2025 SE290914.063	9/10/2025 SE290914.064	9/10/2025 SE290914.065
% Moisture	%w/w	1	15.9	18.2	12.8	14.6	22.0

PARAMETER	UOM	LOR	TP33	TP34	TP34	TP35	TP35
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.2-1.3	0.5-0.6	1.0-1.1	0.5-0.6	1.0-1.1
			9/10/2025 SE290914.066	9/10/2025 SE290914.067	9/10/2025 SE290914.068	9/10/2025 SE290914.069	9/10/2025 SE290914.070
% Moisture	%w/w	1	14.3	23.0	22.1	16.0	18.9

Moisture Content [AN002] Tested: 15/10/2025 (continued)

PARAMETER	UOM	LOR	TP36	TP36	TP37	TP37	TP38
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.8-0.9	1.4-1.5	0.6-0.7	1.5-1.6	1.3-1.4
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.071	SE290914.072	SE290914.073	SE290914.074	SE290914.075
% Moisture	%w/w	1	20.7	19.2	12.3	16.9	21.5

PARAMETER	UOM	LOR	TP38	TP39	TP39	TP40	TP40
			SOIL	SOIL	SOIL	SOIL	SOIL
			2.2-2.3	1.5-1.6	2.0-2.1	0.4-0.5	1.0-1.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.076	SE290914.077	SE290914.078	SE290914.079	SE290914.080
% Moisture	%w/w	1	13.1	16.2	15.5	16.9	14.2

PARAMETER	UOM	LOR	TP41	TP41	TP42	TP42	TP43
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.3-0.4	0.9-1.0	0.9-1.0	2.0-2.1	0.4-0.5
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.081	SE290914.082	SE290914.083	SE290914.084	SE290914.085
% Moisture	%w/w	1	15.4	7.9	21.4	12.7	10.5

PARAMETER	UOM	LOR	TP43	TP44	TP44	TP45	TP45
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.1-1.2	1.0-1.1	2.0-2.1	0.9-1.0	2.0-2.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.086	SE290914.087	SE290914.088	SE290914.089	SE290914.090
% Moisture	%w/w	1	28.4	21.3	13.5	16.0	16.8

PARAMETER	UOM	LOR	TP46	TP46	TP47	TP47	TP48
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.7-0.8	1.5-1.6	0.4-0.5	1.1-1.2	0.5-0.6
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.091	SE290914.092	SE290914.093	SE290914.094	SE290914.095
% Moisture	%w/w	1	24.4	20.3	19.2	10.9	16.7

PARAMETER	UOM	LOR	TP48	TP49	TP49	TP50	TP50
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.2-1.3	0.6-0.7	1.4-1.5	1.2-1.3	2.0-2.1
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.096	SE290914.097	SE290914.098	SE290914.099	SE290914.100
% Moisture	%w/w	1	22.0	21.1	21.1	16.3	11.4

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR) [AN122] Tested: 20/10/2025

PARAMETER	UOM	LOR	TP1	TP6	TP22	TP23	TP28
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.5-0.6 9/10/2025 SE290914.001	0.6-0.7 9/10/2025 SE290914.011	0.5-0.6 9/10/2025 SE290914.043	1.4-1.5 9/10/2025 SE290914.045	0.8-0.9 9/10/2025 SE290914.055
Exchangeable Calcium, Ca	mg/kg	2	2400	330	1200	1800	3800
Exchangeable Calcium, Ca	meq/100g	0.01	12	1.7	5.8	9.1	19
Exchangeable Calcium Percentage*	%	0.1	61.6	22.4	51.1	57.9	88.7
Exchangeable Potassium, K	mg/kg	2	200	320	150	150	70
Exchangeable Potassium, K	meq/100g	0.01	0.52	0.83	0.40	0.38	0.18
Exchangeable Potassium Percentage*	%	0.1	2.7	11.1	3.5	2.4	0.8
Exchangeable Magnesium, Mg	mg/kg	2	600	550	550	480	230
Exchangeable Magnesium, Mg	meq/100g	0.02	5.0	4.5	4.5	4.0	1.9
Exchangeable Magnesium Percentage*	%	0.1	25.9	60.1	39.5	25.3	8.8
Exchangeable Sodium, Na	mg/kg	2	430	110	150	520	79
Exchangeable Sodium, Na	meq/100g	0.01	1.9	0.48	0.66	2.3	0.34
Exchangeable Sodium Percentage*	%	0.1	9.7	6.4	5.9	14.4	1.6
Cation Exchange Capacity	meq/100g	0.02	19	7.5	11	16	21

PARAMETER	UOM	LOR	TP39	TP44
			SOIL	SOIL
			1.5-1.6 9/10/2025 SE290914.077	1.0-1.1 9/10/2025 SE290914.087
Exchangeable Calcium, Ca	mg/kg	2	190	3100
Exchangeable Calcium, Ca	meq/100g	0.01	0.96	15
Exchangeable Calcium Percentage*	%	0.1	20.5	78.7
Exchangeable Potassium, K	mg/kg	2	35	170
Exchangeable Potassium, K	meq/100g	0.01	0.09	0.44
Exchangeable Potassium Percentage*	%	0.1	1.9	2.2
Exchangeable Magnesium, Mg	mg/kg	2	320	390
Exchangeable Magnesium, Mg	meq/100g	0.02	2.6	3.2
Exchangeable Magnesium Percentage*	%	0.1	54.8	16.4
Exchangeable Sodium, Na	mg/kg	2	250	120
Exchangeable Sodium, Na	meq/100g	0.01	1.1	0.51
Exchangeable Sodium Percentage*	%	0.1	22.8	2.6
Cation Exchange Capacity	meq/100g	0.02	4.7	20

pH in soil (1:2) [AN101] Tested: 16/10/2025

PARAMETER	UOM	LOR	TP1	TP2	TP7	TP11	TP11
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.5-1.6	0.4-0.5	0.4-0.6	0.8-0.9	1.8-1.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.002	SE290914.003	SE290914.013	SE290914.021	SE290914.022
pH (1:2)	pH Units	-	4.3	6.8	4.8	7.0	5.7

PARAMETER	UOM	LOR	TP16	TP16	TP19	TP27	TP29
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.4-0.5	1.1-1.2	0.5-0.6	1.1-1.2	0.5-0.6
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.031	SE290914.032	SE290914.037	SE290914.054	SE290914.057
pH (1:2)	pH Units	-	5.9	4.6	9.0	4.9	6.3

PARAMETER	UOM	LOR	TP29	TP32	TP32	TP33	TP33
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.5-1.6	0.6-0.7	1.6-1.7	0.6-0.7	1.2-1.3
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.058	SE290914.063	SE290914.064	SE290914.065	SE290914.066
pH (1:2)	pH Units	-	4.6	6.2	6.2	7.1	5.9

PARAMETER	UOM	LOR	TP34	TP34	TP35	TP35	TP36
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.5-0.6	1.0-1.1	0.5-0.6	1.0-1.1	0.8-0.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.067	SE290914.068	SE290914.069	SE290914.070	SE290914.071
pH (1:2)	pH Units	-	5.5	4.1	6.2	5.1	5.7

PARAMETER	UOM	LOR	TP36	TP37	TP37	TP43	TP43
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.4-1.5	0.6-0.7	1.5-1.6	0.4-0.5	1.1-1.2
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.072	SE290914.073	SE290914.074	SE290914.085	SE290914.086
pH (1:2)	pH Units	-	4.9	5.3	5.1	4.4	4.3

PARAMETER	UOM	LOR	TP49	TP49
			SOIL	SOIL
			0.6-0.7	1.4-1.5
			9/10/2025	9/10/2025
			SE290914.097	SE290914.098
pH (1:2)	pH Units	-	4.9	5.0

Conductivity (1:2) in soil [AN106] Tested: 16/10/2025

PARAMETER	UOM	LOR	TP1	TP2	TP7	TP11	TP11
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.5-1.6	0.4-0.5	0.4-0.6	0.8-0.9	1.8-1.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.002	SE290914.003	SE290914.013	SE290914.021	SE290914.022
Conductivity (1:2) @25 C*	µS/cm	1	330	190	190	60	130
Resistivity (1:2)*	ohm cm	-	3000	5300	5100	17000	7800

PARAMETER	UOM	LOR	TP16	TP16	TP19	TP27	TP29
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.4-0.5	1.1-1.2	0.5-0.6	1.1-1.2	0.5-0.6
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.031	SE290914.032	SE290914.037	SE290914.054	SE290914.057
Conductivity (1:2) @25 C*	µS/cm	1	66	140	1200	74	350
Resistivity (1:2)*	ohm cm	-	15000	7400	810	14000	2900

PARAMETER	UOM	LOR	TP29	TP32	TP32	TP33	TP33
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.5-1.6	0.6-0.7	1.6-1.7	0.6-0.7	1.2-1.3
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.058	SE290914.063	SE290914.064	SE290914.065	SE290914.066
Conductivity (1:2) @25 C*	µS/cm	1	210	520	660	1700	1900
Resistivity (1:2)*	ohm cm	-	4800	1900	1500	600	540

PARAMETER	UOM	LOR	TP34	TP34	TP35	TP35	TP36
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.5-0.6	1.0-1.1	0.5-0.6	1.0-1.1	0.8-0.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.067	SE290914.068	SE290914.069	SE290914.070	SE290914.071
Conductivity (1:2) @25 C*	µS/cm	1	1200	2000	490	690	1100
Resistivity (1:2)*	ohm cm	-	860	500	2000	1400	890

PARAMETER	UOM	LOR	TP36	TP37	TP37	TP43	TP43
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.4-1.5	0.6-0.7	1.5-1.6	0.4-0.5	1.1-1.2
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.072	SE290914.073	SE290914.074	SE290914.085	SE290914.086
Conductivity (1:2) @25 C*	µS/cm	1	910	120	1200	260	190
Resistivity (1:2)*	ohm cm	-	1100	8000	820	3900	5200

PARAMETER	UOM	LOR	TP49	TP49
			SOIL	SOIL
			0.6-0.7	1.4-1.5
			9/10/2025	9/10/2025
			SE290914.097	SE290914.098
Conductivity (1:2) @25 C*	µS/cm	1	80	77
Resistivity (1:2)*	ohm cm	-	12000	13000

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography [AN245] Tested: 17/10/2025

PARAMETER	UOM	LOR	TP1	TP2	TP7	TP11	TP11
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.5-1.6	0.4-0.5	0.4-0.6	0.8-0.9	1.8-1.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.002	SE290914.003	SE290914.013	SE290914.021	SE290914.022
Chloride	mg/kg	0.25	310	4.3	38	4.0	8.7
Sulfate	mg/kg	0.5	11	83	33	18	84

PARAMETER	UOM	LOR	TP16	TP16	TP19	TP27	TP29
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.4-0.5	1.1-1.2	0.5-0.6	1.1-1.2	0.5-0.6
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.031	SE290914.032	SE290914.037	SE290914.054	SE290914.057
Chloride	mg/kg	0.25	2.9	6.6	270	7.5	37
Sulfate	mg/kg	0.5	48	110	720	49	290

PARAMETER	UOM	LOR	TP29	TP32	TP32	TP33	TP33
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.5-1.6	0.6-0.7	1.6-1.7	0.6-0.7	1.2-1.3
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.058	SE290914.063	SE290914.064	SE290914.065	SE290914.066
Chloride	mg/kg	0.25	44	63	310	1200	1400
Sulfate	mg/kg	0.5	100	400	290	350	480

PARAMETER	UOM	LOR	TP34	TP34	TP35	TP35	TP36
			SOIL	SOIL	SOIL	SOIL	SOIL
			0.5-0.6	1.0-1.1	0.5-0.6	1.0-1.1	0.8-0.9
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.067	SE290914.068	SE290914.069	SE290914.070	SE290914.071
Chloride	mg/kg	0.25	650	1700	170	470	680
Sulfate	mg/kg	0.5	400	380	280	150	340

PARAMETER	UOM	LOR	TP36	TP37	TP37	TP43	TP43
			SOIL	SOIL	SOIL	SOIL	SOIL
			1.4-1.5	0.6-0.7	1.5-1.6	0.4-0.5	1.1-1.2
			9/10/2025	9/10/2025	9/10/2025	9/10/2025	9/10/2025
			SE290914.072	SE290914.073	SE290914.074	SE290914.085	SE290914.086
Chloride	mg/kg	0.25	560	25	860	140	68
Sulfate	mg/kg	0.5	210	70	230	85	73

PARAMETER	UOM	LOR	TP49	TP49
			SOIL	SOIL
			0.6-0.7	1.4-1.5
			9/10/2025	9/10/2025
			SE290914.097	SE290914.098
Chloride	mg/kg	0.25	4.6	3.8
Sulfate	mg/kg	0.5	66	59

METHOD

METHODOLOGY SUMMARY

AN002

The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.

AN101

pH in Soil Sludge Sediment and Water: pH is measured electrometrically using a combination electrode and is calibrated against 3 buffers purchased commercially. For soils, sediments and sludges, an extract with water (or 0.01M CaCl₂) is made at a ratio of 1:5 and the pH determined and reported on the extract. Reference APHA 4500-H+.

AN106

Conductivity and TDS by Calculation: Conductivity is measured by meter with temperature compensation and is calibrated against a standard solution of potassium chloride. Conductivity is generally reported as µmhos/cm or µS/cm @ 25°C. For soils, an extract of as received sample with water is made at a ratio of 1:5 and the EC determined and reported on the extract, or calculated back to the as-received sample. Salinity can be estimated from conductivity using a conversion factor, which for natural waters, is in the range 0.55 to 0.75. Reference APHA 2510 B.

AN106

Resistivity of the extract is reported on the extract basis and is the reciprocal of conductivity. Salinity and TDS can be calculated from the extract conductivity and is reported back to the soil basis.

AN122

Exchangeable Cations, CEC and ESP: Soil sample is extracted in 1M Ammonium Acetate at pH=7 (or 1M Ammonium Chloride at pH=7) with cations (Na, K, Ca & Mg) then determined by ICP OES/ICP MS and reported as Exchangeable Cations. For saline soils, these results can be corrected for water soluble cations and reported as Exchangeable cations in meq/100g or soil can be pre-treated (aqueous ethanol/aqueous glycerol) prior to extraction. Cation Exchange Capacity (CEC) is the sum of the exchangeable cations in meq/100g.

AN122

The Exchangeable Sodium Percentage (ESP) is calculated as the exchangeable sodium divided by the CEC (all in meq/100g) times 100.

ESP can be used to categorise the sodicity of the soil as below :

ESP < 6%	non-sodic
ESP 6-15%	sodic
ESP > 15%	strongly sodic

Method is referenced to Rayment and Lyons, 2011, sections 15D3 and 15N1.-

AN245

Anions by Ion Chromatography: A water sample or extract is injected into an eluent stream that passes through the ion chromatographic system where the anions of interest ie Br, Cl, NO₂, NO₃ and SO₄ are separated on their relative affinities for the active sites on the column packing material. Changes to the conductivity and the UV-visible absorbance of the eluent enable identification and quantitation of the anions based on their retention time and peak height or area. APHA 4110 B

FOOTNOTES

*	NATA accreditation does not cover the performance of this service.	-	Not analysed.	UOM	Unit of Measure.
**	Indicative data, theoretical holding time exceeded.	NVL	Not validated.	LOR	Limit of Reporting.
***	Indicates that both * and ** apply.	IS	Insufficient sample for analysis.	↑↓	Raised/lowered Limit of Reporting.
NAD	No Asbestos Detected.	LNR	Sample listed, but not received.		
		NA	Not Applicable.		

Unless it is reported that sampling has been performed by SGS, the samples have been analysed as received.
Solid samples expressed on a dry weight basis.

Where "Total" analyte groups are reported (for example, Total PAHs, Total OC Pesticides) the total will be calculated as the sum of the individual analytes, with those analytes that are reported as <LOR being assumed to be zero. The summed (Total) limit of reporting is calculated by summing the individual analyte LORs and dividing by two. For example, where 16 individual analytes are being summed and each has an LOR of 0.1 mg/kg, the "Totals" LOR will be 1.6 / 2 (0.8 mg/kg). Where only 2 analytes are being summed, the "Total" LOR will be the sum of those two LORs.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

If reported, measurement uncertainty follow the ± sign after the analytical result and is expressed as the expanded uncertainty calculated using a coverage factor of 2, providing a level of confidence of approximately 95%, unless stated otherwise in the comments section of this report.

Results reported for samples tested under test methods with codes starting with ARS-SOP, radionuclide or gross radioactivity concentrations are expressed in becquerel (Bq) per unit of mass or volume or per wipe as stated on the report. Becquerel is the SI unit for activity and equals one nuclear transformation per second.

Note that in terms of units of radioactivity:

- 1 Bq is equivalent to 27 pCi
- 37 MBq is equivalent to 1 mCi

For results reported for samples tested under test methods with codes starting with ARS-SOP, less than (<) values indicate the detection limit for each radionuclide or parameter for the measurement system used. The respective detection limits have been calculated in accordance with ISO 11929.

The QC and MU criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: <https://www.sgs.com/en-au/industry/environmental-health-and-safety>.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .



STATEMENT OF QA/QC PERFORMANCE

SE290914 R0

CLIENT DETAILS

Contact Joe Chen
Client Geotech Testing Pty Ltd
Address P.O. Box 880
PENRITH
NSW 2751

Telephone 02 4722 2700
Facsimile 02 4722 6161
Email joe@geotech.com.au

Project **9739/1 2 Bullecourt Avenue, Milperra**
Order Number **9739/1**
Samples 100

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

SGS Reference **SE290914 R0**
Date Received 10 Oct 2025
Date Reported 20 Oct 2025

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document.

This QA/QC Statement must be read in conjunction with the referenced Analytical Report.

The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography	27 items
Analysis Date	Conductivity and TDS by Calculation - Soil	100 items

SAMPLE SUMMARY

Sample counts by matrix	100 Soil	Type of documentation received	COC
Date documentation received	10/10/2025@5:23pr	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	22.9°C
Sample container provider	Client	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ambient	Samples clearly labelled	Yes
Complete documentation received	Yes		

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Conductivity (1:2) in soil**Method: ME-(AU)-ENVJAN106**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1	SE290914.002	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP2	SE290914.003	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP7	SE290914.013	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP11	SE290914.021	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP11	SE290914.022	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP16	SE290914.031	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP16	SE290914.032	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP19	SE290914.037	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP27	SE290914.054	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP29	SE290914.057	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP29	SE290914.058	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP32	SE290914.063	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP32	SE290914.064	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP33	SE290914.065	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP33	SE290914.066	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP34	SE290914.067	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP34	SE290914.068	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP35	SE290914.069	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP35	SE290914.070	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP36	SE290914.071	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP36	SE290914.072	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP37	SE290914.073	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP37	SE290914.074	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP43	SE290914.085	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP43	SE290914.086	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP49	SE290914.097	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025
TP49	SE290914.098	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025

Conductivity and TDS by Calculation - Soil**Method: ME-(AU)-ENVJAN106**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1	SE290914.001	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP1	SE290914.002	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP2	SE290914.003	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP2	SE290914.004	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP3	SE290914.005	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP3	SE290914.006	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP4	SE290914.007	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP4	SE290914.008	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP5	SE290914.009	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP5	SE290914.010	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP6	SE290914.011	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP6	SE290914.012	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP7	SE290914.013	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP7	SE290914.014	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP8	SE290914.015	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP8	SE290914.016	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP9	SE290914.017	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP9	SE290914.018	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP10	SE290914.019	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP10	SE290914.020	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	20 Oct 2025†
TP11	SE290914.021	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP11	SE290914.022	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP12	SE290914.023	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP12	SE290914.024	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP13	SE290914.025	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP13	SE290914.026	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP14	SE290914.027	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP14	SE290914.028	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP15	SE290914.029	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP15	SE290914.030	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†



HOLDING TIME SUMMARY

SE290914 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Conductivity and TDS by Calculation - Soil (continued)

Method: ME-(AU)-ENVJAN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP16	SE290914.031	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP16	SE290914.032	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP17	SE290914.033	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP17	SE290914.034	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP18	SE290914.035	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP18	SE290914.036	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP19	SE290914.037	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP19	SE290914.038	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP20	SE290914.039	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP20	SE290914.040	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP21	SE290914.041	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP21	SE290914.042	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP22	SE290914.043	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP22	SE290914.044	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP23	SE290914.045	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP23	SE290914.046	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP24	SE290914.047	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP24	SE290914.048	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP25	SE290914.049	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP25	SE290914.050	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP26	SE290914.051	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP26	SE290914.052	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP27	SE290914.053	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP27	SE290914.054	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP28	SE290914.055	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP28	SE290914.056	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP29	SE290914.057	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP29	SE290914.058	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP30	SE290914.059	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP30	SE290914.060	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP31	SE290914.061	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP31	SE290914.062	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP32	SE290914.063	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP32	SE290914.064	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP33	SE290914.065	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP33	SE290914.066	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP34	SE290914.067	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP34	SE290914.068	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP35	SE290914.069	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP35	SE290914.070	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP36	SE290914.071	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP36	SE290914.072	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP37	SE290914.073	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP37	SE290914.074	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP38	SE290914.075	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP38	SE290914.076	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP39	SE290914.077	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP39	SE290914.078	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP40	SE290914.079	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP40	SE290914.080	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP41	SE290914.081	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP41	SE290914.082	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP42	SE290914.083	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP42	SE290914.084	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP43	SE290914.085	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP43	SE290914.086	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP44	SE290914.087	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP44	SE290914.088	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP45	SE290914.089	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP45	SE290914.090	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†



HOLDING TIME SUMMARY

SE290914 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Conductivity and TDS by Calculation - Soil (continued)

Method: ME-(AU)-ENVJAN106

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP46	SE290914.091	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP46	SE290914.092	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP47	SE290914.093	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP47	SE290914.094	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP48	SE290914.095	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP48	SE290914.096	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP49	SE290914.097	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP49	SE290914.098	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP50	SE290914.099	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†
TP50	SE290914.100	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025†

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-ENVJAN122

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1	SE290914.001	LB365297	09 Oct 2025	10 Oct 2025	06 Nov 2025	20 Oct 2025	06 Nov 2025	20 Oct 2025
TP6	SE290914.011	LB365297	09 Oct 2025	10 Oct 2025	06 Nov 2025	20 Oct 2025	06 Nov 2025	20 Oct 2025
TP22	SE290914.043	LB365297	09 Oct 2025	10 Oct 2025	06 Nov 2025	20 Oct 2025	06 Nov 2025	20 Oct 2025
TP23	SE290914.045	LB365297	09 Oct 2025	10 Oct 2025	06 Nov 2025	20 Oct 2025	06 Nov 2025	20 Oct 2025
TP28	SE290914.055	LB365297	09 Oct 2025	10 Oct 2025	06 Nov 2025	20 Oct 2025	06 Nov 2025	20 Oct 2025
TP39	SE290914.077	LB365297	09 Oct 2025	10 Oct 2025	06 Nov 2025	20 Oct 2025	06 Nov 2025	20 Oct 2025
TP44	SE290914.087	LB365297	09 Oct 2025	10 Oct 2025	06 Nov 2025	20 Oct 2025	06 Nov 2025	20 Oct 2025

Moisture Content

Method: ME-(AU)-ENVJAN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1	SE290914.001	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP1	SE290914.002	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP2	SE290914.003	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP2	SE290914.004	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP3	SE290914.005	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP3	SE290914.006	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP4	SE290914.007	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP4	SE290914.008	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP5	SE290914.009	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP5	SE290914.010	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP6	SE290914.011	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP6	SE290914.012	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP7	SE290914.013	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP7	SE290914.014	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP8	SE290914.015	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP8	SE290914.016	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP9	SE290914.017	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP9	SE290914.018	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP10	SE290914.019	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP10	SE290914.020	LB364875	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP11	SE290914.021	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP11	SE290914.022	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP12	SE290914.023	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP12	SE290914.024	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP13	SE290914.025	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP13	SE290914.026	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP14	SE290914.027	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP14	SE290914.028	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP15	SE290914.029	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP15	SE290914.030	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP16	SE290914.031	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP16	SE290914.032	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP17	SE290914.033	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP17	SE290914.034	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP18	SE290914.035	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP18	SE290914.036	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP19	SE290914.037	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP19	SE290914.038	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Moisture Content (continued)**Method: ME-(AU)-ENVJAN002**

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP20	SE290914.039	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP20	SE290914.040	LB364876	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP21	SE290914.041	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP21	SE290914.042	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP22	SE290914.043	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP22	SE290914.044	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP23	SE290914.045	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP23	SE290914.046	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP24	SE290914.047	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP24	SE290914.048	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP25	SE290914.049	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP25	SE290914.050	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP26	SE290914.051	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP26	SE290914.052	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP27	SE290914.053	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP27	SE290914.054	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP28	SE290914.055	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP28	SE290914.056	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP29	SE290914.057	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP29	SE290914.058	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP30	SE290914.059	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP30	SE290914.060	LB364877	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP31	SE290914.061	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP31	SE290914.062	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP32	SE290914.063	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP32	SE290914.064	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP33	SE290914.065	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP33	SE290914.066	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP34	SE290914.067	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP34	SE290914.068	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP35	SE290914.069	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP35	SE290914.070	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP36	SE290914.071	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP36	SE290914.072	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP37	SE290914.073	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP37	SE290914.074	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP38	SE290914.075	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP38	SE290914.076	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP39	SE290914.077	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP39	SE290914.078	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP40	SE290914.079	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP40	SE290914.080	LB364878	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP41	SE290914.081	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP41	SE290914.082	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP42	SE290914.083	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP42	SE290914.084	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP43	SE290914.085	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP43	SE290914.086	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP44	SE290914.087	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP44	SE290914.088	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP45	SE290914.089	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP45	SE290914.090	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP46	SE290914.091	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP46	SE290914.092	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP47	SE290914.093	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP47	SE290914.094	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP48	SE290914.095	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP48	SE290914.096	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP49	SE290914.097	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP49	SE290914.098	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

Moisture Content (continued)

Method: ME-(AU)-ENVJAN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP50	SE290914.099	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025
TP50	SE290914.100	LB364879	09 Oct 2025	10 Oct 2025	23 Oct 2025	15 Oct 2025	20 Oct 2025	17 Oct 2025

pH in soil (1:2)

Method: ME-(AU)-ENVJAN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1	SE290914.002	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP2	SE290914.003	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP7	SE290914.013	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP11	SE290914.021	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP11	SE290914.022	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP16	SE290914.031	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP16	SE290914.032	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP19	SE290914.037	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP27	SE290914.054	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP29	SE290914.057	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP29	SE290914.058	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP32	SE290914.063	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP32	SE290914.064	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP33	SE290914.065	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP33	SE290914.066	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP34	SE290914.067	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP34	SE290914.068	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP35	SE290914.069	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP35	SE290914.070	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP36	SE290914.071	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP36	SE290914.072	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP37	SE290914.073	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP37	SE290914.074	LB365097	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP43	SE290914.085	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP43	SE290914.086	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP49	SE290914.097	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP49	SE290914.098	LB365087	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025

pH in soil (1:5)

Method: ME-(AU)-ENVJAN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1	SE290914.001	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP1	SE290914.002	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP2	SE290914.003	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP2	SE290914.004	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP3	SE290914.005	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP3	SE290914.006	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP4	SE290914.007	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP4	SE290914.008	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP5	SE290914.009	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP5	SE290914.010	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP6	SE290914.011	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP6	SE290914.012	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP7	SE290914.013	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP7	SE290914.014	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP8	SE290914.015	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP8	SE290914.016	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP9	SE290914.017	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP9	SE290914.018	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP10	SE290914.019	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP10	SE290914.020	LB365088	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP11	SE290914.021	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP11	SE290914.022	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP12	SE290914.023	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP12	SE290914.024	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP13	SE290914.025	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP13	SE290914.026	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

pH in soil (1:5) (continued)

Method: ME-(AU)-ENVJAN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP14	SE290914.027	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP14	SE290914.028	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP15	SE290914.029	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP15	SE290914.030	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP16	SE290914.031	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP16	SE290914.032	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP17	SE290914.033	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP17	SE290914.034	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP18	SE290914.035	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP18	SE290914.036	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP19	SE290914.037	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP19	SE290914.038	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP20	SE290914.039	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP20	SE290914.040	LB365076	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP21	SE290914.041	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP21	SE290914.042	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP22	SE290914.043	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP22	SE290914.044	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP23	SE290914.045	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP23	SE290914.046	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP24	SE290914.047	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP24	SE290914.048	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP25	SE290914.049	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP25	SE290914.050	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP26	SE290914.051	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP26	SE290914.052	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP27	SE290914.053	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP27	SE290914.054	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP28	SE290914.055	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP28	SE290914.056	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP29	SE290914.057	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP29	SE290914.058	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP30	SE290914.059	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP30	SE290914.060	LB365074	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP31	SE290914.061	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP31	SE290914.062	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP32	SE290914.063	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP32	SE290914.064	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP33	SE290914.065	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP33	SE290914.066	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP34	SE290914.067	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP34	SE290914.068	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP35	SE290914.069	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP35	SE290914.070	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP36	SE290914.071	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP36	SE290914.072	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP37	SE290914.073	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP37	SE290914.074	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP38	SE290914.075	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP38	SE290914.076	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP39	SE290914.077	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP39	SE290914.078	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP40	SE290914.079	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP40	SE290914.080	LB365096	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP41	SE290914.081	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP41	SE290914.082	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP42	SE290914.083	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP42	SE290914.084	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP43	SE290914.085	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP43	SE290914.086	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the

pH in soil (1:5) (continued)

Method: ME-(AU)-ENVJAN101

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP44	SE290914.087	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP44	SE290914.088	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP45	SE290914.089	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP45	SE290914.090	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP46	SE290914.091	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP46	SE290914.092	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP47	SE290914.093	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP47	SE290914.094	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP48	SE290914.095	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP48	SE290914.096	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP49	SE290914.097	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP49	SE290914.098	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	17 Oct 2025
TP50	SE290914.099	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025
TP50	SE290914.100	LB365089	09 Oct 2025	10 Oct 2025	16 Oct 2025	16 Oct 2025	17 Oct 2025	16 Oct 2025

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-ENVJAN245

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
TP1	SE290914.002	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP2	SE290914.003	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP7	SE290914.013	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP11	SE290914.021	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP11	SE290914.022	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP16	SE290914.031	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP16	SE290914.032	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP19	SE290914.037	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP27	SE290914.054	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP29	SE290914.057	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP29	SE290914.058	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP32	SE290914.063	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP32	SE290914.064	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP33	SE290914.065	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP33	SE290914.066	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP34	SE290914.067	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP34	SE290914.068	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP35	SE290914.069	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP35	SE290914.070	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP36	SE290914.071	LB365199	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP36	SE290914.072	LB365202	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP37	SE290914.073	LB365202	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP37	SE290914.074	LB365202	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP43	SE290914.085	LB365202	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP43	SE290914.086	LB365202	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP49	SE290914.097	LB365202	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025
TP49	SE290914.098	LB365202	09 Oct 2025	10 Oct 2025	16 Oct 2025	17 Oct 2025†	14 Nov 2025	20 Oct 2025

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA/QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No surrogates were required for this job.

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Conductivity (1:2) in soil

Method: ME-(AU)-ENVJAN106

Sample Number	Parameter	Units	LOR	Result
LB365087.001	Conductivity (1:2) @25 C*	µS/cm	1	<1
LB365097.001	Conductivity (1:2) @25 C*	µS/cm	1	<1

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-ENVJAN106

Sample Number	Parameter	Units	LOR	Result
LB365074.001	Conductivity of Extract (1:5 as received)	µS/cm	1	1
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	1
LB365076.001	Conductivity of Extract (1:5 as received)	µS/cm	1	1
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	1.18
LB365088.001	Conductivity of Extract (1:5 as received)	µS/cm	1	1
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	1.01
LB365089.001	Conductivity of Extract (1:5 as received)	µS/cm	1	<1
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	0.93
LB365096.001	Conductivity of Extract (1:5 as received)	µS/cm	1	1
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	1.04

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-ENVJAN122

Sample Number	Parameter	Units	LOR	Result
LB365297.001	Exchangeable Sodium, Na	mg/kg	2	0.0386
	Exchangeable Potassium, K	mg/kg	2	-0.0009
	Exchangeable Calcium, Ca	mg/kg	2	0.0044
	Exchangeable Magnesium, Mg	mg/kg	2	-0.0036

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-ENVJAN245

Sample Number	Parameter	Units	LOR	Result
LB365199.001	Chloride	mg/kg	0.25	<0.25
	Sulfate	mg/kg	0.5	<0.5
LB365202.001	Chloride	mg/kg	0.25	<0.25
	Sulfate	mg/kg	0.5	<0.5

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Conductivity (1:2) in soil

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE290914.037	LB365087.021	Conductivity (1:2) @25 C*	µS/cm	1	1200	1200	30	3
		Resistivity (1:2)*	ohm cm	-	810	840	31	3
SE290914.072	LB365097.014	Conductivity (1:2) @25 C*	µS/cm	1	910	980	30	8
		Resistivity (1:2)*	ohm cm	-	1100	1000	31	8
SE290914.074	LB365097.017	Conductivity (1:2) @25 C*	µS/cm	1	1200	1200	30	2
		Resistivity (1:2)*	ohm cm	-	820	800	31	2
SE290914.098	LB365087.020	Conductivity (1:2) @25 C*	µS/cm	1	77	90	32	15
		Resistivity (1:2)*	ohm cm	-	13000	11000	30	15

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]AN106

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE290914.010	LB365088.014	Conductivity of Extract (1:5 as received)	µS/cm	1	190	230	31	22
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	230	82.246056782	31	22
SE290914.020	LB365088.025	Conductivity of Extract (1:5 as received)	µS/cm	1	110	120	32	12
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	130	44.965753424	31	12
SE290914.030	LB365076.014	Conductivity of Extract (1:5 as received)	µS/cm	1	73	69	33	5
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	87	32.3897986577	32	5
SE290914.040	LB365076.025	Conductivity of Extract (1:5 as received)	µS/cm	1	110	97	32	11
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	130	15.685459940	32	11
SE290914.050	LB365074.014	Conductivity of Extract (1:5 as received)	µS/cm	1	100	99	32	2
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	120	18.325964010	32	2
SE290914.060	LB365074.025	Conductivity of Extract (1:5 as received)	µS/cm	1	27	32	37	16
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	33	38.529584352	36	16
SE290914.070	LB365096.014	Conductivity of Extract (1:5 as received)	µS/cm	1	310	350	31	13
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	380	31.811894882	30	13
SE290914.080	LB365096.025	Conductivity of Extract (1:5 as received)	µS/cm	1	360	350	31	1
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	410	11.452781371	30	1
SE290914.090	LB365089.014	Conductivity of Extract (1:5 as received)	µS/cm	1	76	100	32	30
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	91	23.129756097	32	30
SE290914.100	LB365089.025	Conductivity of Extract (1:5 as received)	µS/cm	1	130	140	31	6
		Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	150	56.935483870	31	6

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE290914.010	LB364875.011	% Moisture	%w/w	1	17.4	17.5	36	0
SE290914.020	LB364875.022	% Moisture	%w/w	1	14.1	16.6	37	16
SE290914.030	LB364876.011	% Moisture	%w/w	1	16.0	15.6	36	3
SE290914.040	LB364876.022	% Moisture	%w/w	1	16.6	15.9	36	4
SE290914.050	LB364877.011	% Moisture	%w/w	1	16.2	14.1	37	14
SE290914.060	LB364877.022	% Moisture	%w/w	1	17.2	16.0	36	7
SE290914.070	LB364878.011	% Moisture	%w/w	1	18.9	18.0	35	5
SE290914.080	LB364878.022	% Moisture	%w/w	1	14.2	13.2	37	7
SE290914.090	LB364879.011	% Moisture	%w/w	1	16.8	17.3	36	3
SE290914.100	LB364879.022	% Moisture	%w/w	1	11.4	14.6	38	25

pH in soil (1:2)

Method: ME-(AU)-[ENV]AN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE290914.037	LB365087.021	pH (1:2)	pH Units	-	9.0	9.0	31	0
SE290914.072	LB365097.014	pH (1:2)	pH Units	-	4.9	4.7	32	4
SE290914.074	LB365097.017	pH (1:2)	pH Units	-	5.1	5.0	32	1
SE290914.098	LB365087.020	pH (1:2)	pH Units	-	5.0	4.9	32	1

pH in soil (1:5)

Method: ME-(AU)-[ENV]AN101

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE290914.010	LB365088.014	pH	pH Units	0.1	7.9	8.0	31	0
SE290914.020	LB365088.025	pH	pH Units	0.1	5.1	5.0	32	2
SE290914.030	LB365076.014	pH	pH Units	0.1	5.0	5.0	32	0
SE290914.040	LB365076.025	pH	pH Units	0.1	5.2	5.2	32	0
SE290914.050	LB365074.014	pH	pH Units	0.1	4.9	4.9	32	0
SE290914.060	LB365074.025	pH	pH Units	0.1	5.2	5.1	32	3
SE290914.080	LB365096.025	pH	pH Units	0.1	4.7	4.7	32	0
SE290914.090	LB365089.014	pH	pH Units	0.1	7.3	7.3	31	0
SE290914.100	LB365089.025	pH	pH Units	0.1	4.6	4.7	32	2

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

NOTE: The RPD reported is calculated from the unrounded data for the original and replicate result. Manual calculation of the RPD from the rounded data reported may

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-ENVJAN245

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE290914.013	LB365199.028	Chloride	mg/kg	0.25	38	40	31	4
		Sulfate	mg/kg	0.5	33	39	36	19
SE290914.037	LB365199.029	Chloride	mg/kg	0.25	270	270	30	2
		Sulfate	mg/kg	0.5	720	680	30	5
SE290914.098	LB365202.011	Chloride	mg/kg	0.25	3.8	3.8	37	1
		Sulfate	mg/kg	0.5	59	66	33	12

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Conductivity (1:2) in soil

Method: ME-(AU)-[ENV]JAN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB365087.002	Conductivity (1:2) @25 C*	µS/cm	1	1000	1015	85 - 115	98
LB365097.002	Conductivity (1:2) @25 C*	µS/cm	1	1000	1015	85 - 115	99

Conductivity and TDS by Calculation - Soil

Method: ME-(AU)-[ENV]JAN106

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB365074.002	Conductivity of Extract (1:5 as received)	µS/cm	1	910	1015	85 - 115	90
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	1015	85 - 115	90
LB365076.002	Conductivity of Extract (1:5 as received)	µS/cm	1	1000	1015	85 - 115	100
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	1015	85 - 115	100
LB365088.002	Conductivity of Extract (1:5 as received)	µS/cm	1	900	1015	85 - 115	88
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	1015	85 - 115	88
LB365089.002	Conductivity of Extract (1:5 as received)	µS/cm	1	1000	1015	85 - 115	98
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	1015	85 - 115	98
LB365096.002	Conductivity of Extract (1:5 as received)	µS/cm	1	980	1015	85 - 115	96
	Conductivity of Extract (1:5 dry sample basis)	µS/cm	1	NA	1015	85 - 115	96

Exchangeable Cations and Cation Exchange Capacity (CEC/ESP/SAR)

Method: ME-(AU)-[ENV]JAN122

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB365297.002	Exchangeable Sodium, Na	meq/100g	0.01	0.20	0.188	80 - 120	107
	Exchangeable Potassium, K	meq/100g	0.01	0.13	0.141	80 - 120	90
	Exchangeable Calcium, Ca	meq/100g	0.01	1.8	2.17	80 - 120	84
	Exchangeable Magnesium, Mg	meq/100g	0.02	1.3	1.53	80 - 120	88

pH in soil (1:2)

Method: ME-(AU)-[ENV]JAN101

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB365087.003	pH (1:2)	pH Units	-	7.4	7.415	98 - 102	100
LB365097.003	pH (1:2)	pH Units	-	7.4	7.415	98 - 102	100

pH in soil (1:5)

Method: ME-(AU)-[ENV]JAN101

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB365074.003	pH	pH Units	0.1	7.4	7.415	98 - 102	100
LB365076.003	pH	pH Units	0.1	7.4	7.415	98 - 102	100
LB365088.003	pH	pH Units	0.1	7.4	7.415	98 - 102	100
LB365089.003	pH	pH Units	0.1	7.4	7.415	98 - 102	100
LB365096.003	pH	pH Units	0.1	7.4	7.415	98 - 102	100

Soluble Anions in Soil from 1:2 DI Extract by Ion Chromatography

Method: ME-(AU)-[ENV]JAN245

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB365199.002	Chloride	mg/kg	0.25	43	40	70 - 130	107
	Sulfate	mg/kg	0.5	40	40	70 - 130	100
LB365202.002	Chloride	mg/kg	0.25	43	40	70 - 130	107
	Sulfate	mg/kg	0.5	41	40	70 - 130	102

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub-sample during the sample preparation stage. The original sample's result is subtracted from the sub-sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spikes were required for this job.

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: $RPD = | \text{OriginalResult} - \text{ReplicateResult} | \times 100 / \text{Mean}$

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: $MAD = 100 \times \text{SDL} / \text{Mean} + \text{LR}$

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifier when outside suggested criteria. Refer to the footnotes section at the

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here : <https://www.sgs.com/en-au/industry/environmental-health-and-safety>

- * NATA accreditation does not cover the performance of this service .
- ** Indicative data, theoretical holding time exceeded.
- *** Indicates that both * and ** apply.
- Sample not analysed for this analyte.
- IS Insufficient sample for analysis.
- LNR Sample listed, but not received.
- LOR Limit of reporting.
- QFH QC result is above the upper tolerance.
- QFL QC result is below the lower tolerance.
- NA Not Applicable
- ① At least 2 of 3 surrogates are within acceptance criteria.
- ② RPD failed acceptance criteria due to sample heterogeneity.
- ③ Results less than 5 times LOR preclude acceptance criteria for RPD.
- ④ Recovery failed acceptance criteria due to matrix interference.
- ⑤ Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
- ⑥ LOR was raised due to sample matrix interference.
- ⑦ LOR was raised due to dilution of significantly high concentration of analyte in sample.
- ⑧ Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
- ⑨ Recovery failed acceptance criteria due to sample heterogeneity.
- ⑩ LOR was raised due to high conductivity of the sample (required dilution).
- † Refer to relevant report comments for further information.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client only. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law .

This test report shall not be reproduced, except in full.

GEOTECHNIQUE PTY LTD

E-MAILED
10/10 @ 5:23 pm

Laboratory Test Request / Chain of Custody Record

Lentok Place
PENRITH NSW 2750

P O Box 880
PENRITH NSW 2751
Tel: (02) 4722 2700
Fax: (02) 4722 6161
email: info@geotech.com.au

Page 1 of 4

SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2015

PH: 02 8594 0400
ATTN: Ms Emily Yin

FAX: 02 8594 0499

Project Manager: DP/JC

Location: 2 Bullecourt Avenue, Milperra

Sampling By: DP

Job No: 9739/1

Project: Proposed Residential Subdivision - Milperra WSU

Sampling details

Results required by:

Location	Depth	Soil	Water	EC (1:5)	PH	ESP	ASS	Aggressivity	Remarks	Keep Sample
TP1	0.5-0.6	DSP		✓	✓	✓			Aggressivity Test Includes pH, Cl, SO4 and Resistivity	✓
TP1	1.5-1.6	DSP		✓				✓		✓
TP2	0.4-0.5	DSP		✓						✓
TP2	1.1-1.2	DSP		✓	✓					✓
TP3	0.2-0.3	DSP		✓	✓				ESP=Exchangeable Sodium Percentage ASS = SPOCAS	✓
TP3	1.0-1.1	DSP		✓	✓					✓
TP4	0.6-0.7	DSP		✓	✓					✓
TP4	1.6-1.7	DSP		✓	✓					✓
TP5	0.3-0.5	DSP		✓	✓					✓
TP5	1.0-1.1	DSP		✓	✓					✓
TP6	0.6-0.7	DSP		✓	✓	✓				✓
TP6	1.5-1.6	DSP		✓	✓			✓		✓
TP7	0.4-0.6	DSP		✓						✓
TP7	1.1-1.2	DSP		✓	✓					✓
TP8	0.8-0.9	DSP		✓	✓					✓
TP8	1.2-1.3	DSP		✓	✓					✓
TP9	0.7-0.8	DSP		✓	✓					✓
TP9	1.5-1.6	DSP		✓	✓					✓
TP10	0.5-0.6	DSP		✓	✓					✓
TP10	1.2-1.3	DSP		✓	✓					✓
TP11	0.8-0.9	DSP		✓				✓		✓
TP11	1.8-1.9	DSP		✓						✓
TP12	0.8-0.9	DSP		✓	✓					✓
TP12	1.8-1.9	DSP		✓	✓					✓
TP13	0.9-1.0	DSP		✓	✓					✓
TP13	2.2-2.4	DSP		✓	✓					✓
TP14	0.7-0.8	DSP		✓	✓					✓
TP14	1.4-1.5	DSP		✓	✓					✓

Full Excel Output File Please

SGS EHS Sydney COC
SE290914



Name
Joe Chen

Signature
JC

Date
9-Oct-25

Name
Xiaoqiang Wei

Received by
Signature

Legend:

WG Undisturbed soil sample (glass jar) ✓ DSP Disturbed soil sample (small plastic bag)
WSP Disturbed soil sample (glass jar) ✓ Test required

* Purge & Trap
Geotechnique Screen

Laboratory Test Request / Chain of Custody Record

Page 2 of 4

Job No: 9739/1

Project: Proposed Residential Subdivision - Milperra WSU

Location: 2 Bullecourt Avenue, Milperra

Sampling details						Results required by:				
Location	Depth	Soil	Water	EC (1:5)	PH	ESP	ASS	Aggressivity	Remarks	Keep Sample
TP15	0.7-0.8	DSP		✓	✓				Aggressivity Test Includes pH, Cl, SO4 and Resistivity ESP=Exchangeable Sodium Percentage ASS = SPOCAS	✓
TP15	1.7-1.8	DSP		✓	✓			✓		✓
TP16	0.4-0.5	DSP		✓				✓		✓
TP16	1.1-1.2	DSP						✓		✓
TP17	0.5-0.6	DSP		✓	✓					✓
TP17	1.4-1.5	DSP		✓	✓					✓
TP18	0.8-0.9	DSP		✓	✓					✓
TP18	1.8-1.9	DSP		✓	✓			✓		✓
TP19	0.5-0.6	DSP		✓	✓					✓
TP19	1.2-1.3	DSP		✓	✓					✓
TP20	0.6-0.7	DSP		✓	✓				✓	
TP20	1.4-1.5	DSP		✓	✓				✓	
TP21	0.4-0.5	DSP		✓	✓				✓	
TP21	1.0-1.1	DSP		✓	✓	✓			✓	
TP22	0.5-0.6	DSP		✓	✓				✓	
TP22	1.4-1.5	DSP		✓	✓				✓	
TP23	1.4-1.5	DSP		✓	✓	✓			✓	
TP23	2.2-2.3	DSP		✓	✓				✓	
TP24	0.9-1.0	DSP		✓	✓				✓	
TP24	1.7-1.8	DSP		✓	✓				✓	
TP25	0.6-0.7	DSP		✓	✓				✓	
TP25	1.6-1.7	DSP		✓	✓				✓	
TP26	0.3-0.4	DSP		✓	✓				✓	
TP26	1.0-1.1	DSP		✓	✓				✓	
TP27	0.4-0.5	DSP		✓	✓			✓	✓	
TP27	1.1-1.2	DSP		✓	✓	✓			✓	
TP28	0.8-0.9	DSP		✓	✓				✓	
TP28	1.8-1.9	DSP		✓	✓				✓	

Full Excel Output File Please

Relinquished by				Received by	
Name	Signature	Date	Name	Signature	
Joe Chen	JC	9-Oct-25	Xiaodan Wei	AW	10/10/25
USG	Undisturbed soil sample (glass jar)	DSP	Disturbed soil sample (small plastic bag)		
WPG	Disturbed soil sample (glass jar)	✓	Test required		

Legend:
 WPG *Purge & Trap
 USG # Geotechnique Screen

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lemko Place
 PENRITH NSW 2750
 Tel: (02) 4722 2700
 Fax: (02) 4722 6161
 email: info@geotech.com.au

Page 3 of 4

TO: SGS ENVIRONMENTAL SERVICES
 UNIT 16
 33 MADDOX STREET
 ALEXANDRIA NSW 2015
 Project Manager: DP/JC
 Location: 2 Bullecourt Avenue, Milperra

PH: 02 8594 0400
 FAX: 02 8594 0499
 Project: Proposed Residential Subdivision - Milperra WSU

ATTN: Ms Emily Yin
 Sampling By: DP
 Job No: 9739/1

Sampling details						Results required by:			
Location	Depth	Soil	Water	EC (1:5)	PH	ESP	ASS	Aggressivity	Remarks
TP29	0.5-0.6	DSP		✓				✓	Aggressivity Test Includes pH, Cl, SO4 and Resistivity
TP29	1.5-1.6	DSP		✓					
TP30	0.9-1.0	DSP		✓	✓				
TP30	1.7-1.8	DSP		✓					
TP31	0.6-0.7	DSP		✓	✓				ESP=Exchangeable Sodium Percentage ASS = SPOCAS
TP31	1.6-1.7	DSP		✓				✓	
TP32	0.6-0.7	DSP		✓				✓	
TP32	1.6-1.7	DSP		✓				✓	
TP33	0.6-0.7	DSP		✓				✓	
TP33	1.2-1.3	DSP		✓				✓	
TP34	0.5-0.6	DSP		✓				✓	
TP34	1.0-1.1	DSP		✓				✓	
TP35	0.5-0.6	DSP		✓				✓	
TP35	1.0-1.1	DSP		✓				✓	
TP36	0.8-0.9	DSP		✓				✓	
TP36	1.4-1.5	DSP		✓				✓	
TP37	0.6-0.7	DSP		✓				✓	
TP37	1.5-1.6	DSP		✓				✓	
TP38	1.3-1.4	DSP		✓	✓				
TP38	2.2-2.3	DSP		✓					
TP39	1.5-1.6	DSP		✓	✓	✓			
TP39	2.0-2.1	DSP		✓					
TP40	0.4-0.5	DSP		✓	✓				
TP40	1.0-1.1	DSP		✓	✓				
TP41	0.3-0.4	DSP		✓	✓				
TP41	0.9-1.0	DSP		✓	✓				
TP42	0.9-1.0	DSP		✓	✓				
TP42	2.0-2.1	DSP		✓	✓				

Full Excel Output File Please

Name: Joe Chen
 Signature: JC
 Date: 9-Oct-25
 Name: Xianjian Wei
 Signature: [Signature]
 Date: 10/10 2:35

Relinquished by: [Signature]
 Received by: [Signature]

Legend: USG Undisturbed soil sample (glass jar) ✓ Disturbed soil sample (small plastic bag)
 WPG Disturbed soil sample (glass jar) ✓ Test required
 # Geotechnique Screen

GEOTECHNIQUE PTY LTD

Laboratory Test Request / Chain of Custody Record

Lenko Place
PENRITH NSW 2750
Tel: (02) 4722 2700
Fax: (02) 4722 6161
email: info@geotech.com.au

Page 4 of 4

SGS ENVIRONMENTAL SERVICES
UNIT 16
33 MADDOX STREET
ALEXANDRIA NSW 2016

Sampling By: DP

Job No: 97391

Project: Proposed Residential Subdivision - Milperra WSU

PH: 02 8594 0400 FAX: 02 8594 0499

Project Manager: DP/JC

Location: 2 Bullecourt Avenue, Milperra

ATTN: Ms Emily Yin

Sampling details

Results required by:

Location	Depth	Soil	Water	EC (1:5)	PH	ESP	ASS	Aggressivity	Remarks	Keep Sample
TP43	0.4-0.5	DSP		✓				✓	Aggressivity Test includes pH, Cl, SO4 and Resistivity	✓
TP43	1.1-1.2	DSP		✓				✓		✓
TP44	1.0-1.1	DSP		✓	✓	✓				✓
TP44	2.0-2.1	DSP		✓	✓					✓
TP45	0.9-1.0	DSP		✓	✓				ESP=Exchangeable Sodium Percentage ASS = SPOCAS	✓
TP45	2.0-2.1	DSP		✓	✓					✓
TP46	0.7-0.8	DSP		✓	✓					✓
TP46	1.5-1.6	DSP		✓	✓					✓
TP47	0.4-0.5	DSP		✓	✓					✓
TP47	1.1-1.2	DSP		✓	✓					✓
TP48	0.5-0.6	DSP		✓	✓					✓
TP48	1.2-1.3	DSP		✓	✓			✓		✓
TP49	0.6-0.7	DSP		✓				✓		✓
TP49	1.4-1.5	DSP		✓	✓					✓
TP50	1.2-1.3	DSP		✓	✓					✓
TP50	2.0-2.1	DSP		✓	✓					✓

Full Excel Output File Please

Name	Relinquished by	Signature	Date	Name	Received by	Signature
Joe Chen	Signature	JC	9-Oct-25	Xiaoqian Wei	Signature	10/10 2.25

Legend: USG Undisturbed soil sample (glass jar) DSP Disturbed soil sample (small plastic bag) WP Disturbed soil sample (glass jar) ✓ Test required

*Purge & Trap
Geotechnique Screen



SAMPLE RECEIPT ADVICE

SE290914

CLIENT DETAILS

Contact Joe Chen
Client Geotech Testing Pty Ltd
Address P.O. Box 880
PENRITH
NSW 2751

Telephone 02 4722 2700
Facsimile 02 4722 6161
Email joe@geotech.com.au

Project **9739/1 2 Bullecourt Avenue, Milperra**
Order Number **9739/1**
Samples 100

LABORATORY DETAILS

Manager Shane McDermott
Laboratory SGS Alexandria Environmental
Address Unit 16, 33 Maddox St
Alexandria NSW 2015

Telephone +61 2 8594 0400
Facsimile +61 2 8594 0499
Email au.environmental.sydney@sgs.com

Samples Received Fri 10/10/2025
Report Due Mon 20/10/2025
SGS Reference **SE290914**

SUBMISSION DETAILS

This is to confirm that 100 samples were received on Friday 10/10/2025. Results are expected to be ready by COB Monday 20/10/2025. Please quote SGS reference SE290914 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	100 Soil	Type of documentation received	COC
Date documentation received	10/10/2025@5:23pm	Samples received in good order	Yes
Samples received without headspace	N/A	Sample temperature upon receipt	22.9°C
Sample container provider	Client	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ambient	Samples clearly labelled	Yes
Complete documentation received	Yes		

Unless otherwise instructed, water and bulk samples will be held for one month from date of report, and soil samples will be held for two months.

COMMENTS

Extra sample TP28 0.7-0.8 received.

This document is issued by the Company under its General Conditions of Service accessible at www.sgs.com/en/Terms-and-Conditions.aspx. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

CLIENT DETAILS

Client **Geotech Testing Pty Ltd**

Project **9739/1 2 Bullecourt Avenue, Milperra**

SUMMARY OF ANALYSIS

No.	Sample ID	Conductivity (1:2) in soil	Conductivity and TDS by Calculation - Soil	Exchangeable Cations and Cation Exchange Capacity	Moisture Content	pH in soil (1:2)	pH in soil (1:5)	Soluble Anions in Soil from 1:2 DI Extract by Ion
001	TP1 0.5-0.6	-	2	13	1	-	1	-
002	TP1 1.5-1.6	2	2	-	1	1	-	2
003	TP2 0.4-0.5	2	2	-	1	1	-	2
004	TP2 1.1-1.2	-	2	-	1	-	1	-
005	TP3 0.2-0.3	-	2	-	1	-	1	-
006	TP3 1.0-1.1	-	2	-	1	-	1	-
007	TP4 0.6-0.7	-	2	-	1	-	1	-
008	TP4 1.6-1.7	-	2	-	1	-	1	-
009	TP5 0.3-0.5	-	2	-	1	-	1	-
010	TP5 1.0-1.1	-	2	-	1	-	1	-
011	TP6 0.6-0.7	-	2	13	1	-	1	-
012	TP6 1.5-1.6	-	2	-	1	-	1	-
013	TP7 0.4-0.6	2	2	-	1	1	-	2
014	TP7 1.1-1.2	-	2	-	1	-	1	-
015	TP8 0.8-0.9	-	2	-	1	-	1	-
016	TP8 1.2-1.3	-	2	-	1	-	1	-
017	TP9 0.7-0.8	-	2	-	1	-	1	-
018	TP9 1.5-1.6	-	2	-	1	-	1	-
019	TP10 0.5-0.6	-	2	-	1	-	1	-
020	TP10 1.2-1.3	-	2	-	1	-	1	-
021	TP11 0.8-0.9	2	2	-	1	1	-	2
022	TP11 1.8-1.9	2	2	-	1	1	-	2
023	TP12 0.8-0.9	-	2	-	1	-	1	-
024	TP12 1.8-1.9	-	2	-	1	-	1	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.

The numbers shown in the table indicate the number of results requested in each package.

Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .

CLIENT DETAILS

Client **Geotech Testing Pty Ltd**

Project **9739/1 2 Bullecourt Avenue, Milperra**

SUMMARY OF ANALYSIS

No.	Sample ID	Conductivity (1:2) in soil	Conductivity and TDS by Calculation - Soil	Exchangeable Cations and Cation Exchange Capacity	Moisture Content	pH in soil (1:2)	pH in soil (1:5)	Soluble Anions in Soil from 1:2 DI Extract by Ion
025	TP13 0.9-1.0	-	2	-	1	-	1	-
026	TP13 2.2-2.4	-	2	-	1	-	1	-
027	TP14 0.7-0.8	-	2	-	1	-	1	-
028	TP14 1.4-1.5	-	2	-	1	-	1	-
029	TP15 0.7-0.8	-	2	-	1	-	1	-
030	TP15 1.7-1.8	-	2	-	1	-	1	-
031	TP16 0.4-0.5	2	2	-	1	1	-	2
032	TP16 1.1-1.2	2	2	-	1	1	-	2
033	TP17 0.5-0.6	-	2	-	1	-	1	-
034	TP17 1.4-1.5	-	2	-	1	-	1	-
035	TP18 0.8-0.9	-	2	-	1	-	1	-
036	TP18 1.8-1.9	-	2	-	1	-	1	-
037	TP19 0.5-0.6	2	2	-	1	1	-	2
038	TP19 1.2-1.3	-	2	-	1	-	1	-
039	TP20 0.6-0.7	-	2	-	1	-	1	-
040	TP20 1.4-1.5	-	2	-	1	-	1	-
041	TP21 0.4-0.5	-	2	-	1	-	1	-
042	TP21 1.0-1.1	-	2	-	1	-	1	-
043	TP22 0.5-0.6	-	2	13	1	-	1	-
044	TP22 1.4-1.5	-	2	-	1	-	1	-
045	TP23 1.4-1.5	-	2	13	1	-	1	-
046	TP23 2.2-2.3	-	2	-	1	-	1	-
047	TP24 0.9-1.0	-	2	-	1	-	1	-
048	TP24 1.7-1.8	-	2	-	1	-	1	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.

The numbers shown in the table indicate the number of results requested in each package.

Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .

CLIENT DETAILS

Client **Geotech Testing Pty Ltd**

Project **9739/1 2 Bullecourt Avenue, Milperra**

SUMMARY OF ANALYSIS

No.	Sample ID	Conductivity (1:2) in soil	Conductivity and TDS by Calculation - Soil	Exchangeable Cations and Cation Exchange Capacity	Moisture Content	pH in soil (1:2)	pH in soil (1:5)	Soluble Anions in Soil from 1:2 DI Extract by Ion
049	TP25 0.6-0.7	-	2	-	1	-	1	-
050	TP25 1.6-1.7	-	2	-	1	-	1	-
051	TP26 0.3-0.4	-	2	-	1	-	1	-
052	TP26 1.0-1.1	-	2	-	1	-	1	-
053	TP27 0.4-0.5	-	2	-	1	-	1	-
054	TP27 1.1-1.2	2	2	-	1	1	-	2
055	TP28 0.8-0.9	-	2	13	1	-	1	-
056	TP28 1.8-1.9	-	2	-	1	-	1	-
057	TP29 0.5-0.6	2	2	-	1	1	-	2
058	TP29 1.5-1.6	2	2	-	1	1	-	2
059	TP30 0.9-1.0	-	2	-	1	-	1	-
060	TP30 1.7-1.8	-	2	-	1	-	1	-
061	TP31 0.6-0.7	-	2	-	1	-	1	-
062	TP31 1.6-1.7	-	2	-	1	-	1	-
063	TP32 0.6-0.7	2	2	-	1	1	-	2
064	TP32 1.6-1.7	2	2	-	1	1	-	2
065	TP33 0.6-0.7	2	2	-	1	1	-	2
066	TP33 1.2-1.3	2	2	-	1	1	-	2
067	TP34 0.5-0.6	2	2	-	1	1	-	2
068	TP34 1.0-1.1	2	2	-	1	1	-	2
069	TP35 0.5-0.6	2	2	-	1	1	-	2
070	TP35 1.0-1.1	2	2	-	1	1	-	2
071	TP36 0.8-0.9	2	2	-	1	1	-	2
072	TP36 1.4-1.5	2	2	-	1	1	-	2

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.

The numbers shown in the table indicate the number of results requested in each package.

Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .

CLIENT DETAILS

Client **Geotech Testing Pty Ltd**

Project **9739/1 2 Bullecourt Avenue, Milperra**

SUMMARY OF ANALYSIS

No.	Sample ID	Conductivity (1:2) in soil	Conductivity and TDS by Calculation - Soil	Exchangeable Cations and Cation Exchange Capacity	Moisture Content	pH in soil (1:2)	pH in soil (1:5)	Soluble Anions in Soil from 1:2 DI Extract by Ion
073	TP37 0.6-0.7	2	2	-	1	1	-	2
074	TP37 1.5-1.6	2	2	-	1	1	-	2
075	TP38 1.3-1.4	-	2	-	1	-	1	-
076	TP38 2.2-2.3	-	2	-	1	-	1	-
077	TP39 1.5-1.6	-	2	13	1	-	1	-
078	TP39 2.0-2.1	-	2	-	1	-	1	-
079	TP40 0.4-0.5	-	2	-	1	-	1	-
080	TP40 1.0-1.1	-	2	-	1	-	1	-
081	TP41 0.3-0.4	-	2	-	1	-	1	-
082	TP41 0.9-1.0	-	2	-	1	-	1	-
083	TP42 0.9-1.0	-	2	-	1	-	1	-
084	TP42 2.0-2.1	-	2	-	1	-	1	-
085	TP43 0.4-0.5	2	2	-	1	1	-	2
086	TP43 1.1-1.2	2	2	-	1	1	-	2
087	TP44 1.0-1.1	-	2	13	1	-	1	-
088	TP44 2.0-2.1	-	2	-	1	-	1	-
089	TP45 0.9-1.0	-	2	-	1	-	1	-
090	TP45 2.0-2.1	-	2	-	1	-	1	-
091	TP46 0.7-0.8	-	2	-	1	-	1	-
092	TP46 1.5-1.6	-	2	-	1	-	1	-
093	TP47 0.4-0.5	-	2	-	1	-	1	-
094	TP47 1.1-1.2	-	2	-	1	-	1	-
095	TP48 0.5-0.6	-	2	-	1	-	1	-
096	TP48 1.2-1.3	-	2	-	1	-	1	-

CONTINUED OVERLEAF

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.

The numbers shown in the table indicate the number of results requested in each package.

Please indicate as soon as possible should your request differ from these details .

Testing as per this table shall commence immediately unless the client intervenes with a correction .



SAMPLE RECEIPT ADVICE

SE290914

CLIENT DETAILS

Client **Geotech Testing Pty Ltd**

Project **9739/1 2 Bullecourt Avenue, Milperra**

SUMMARY OF ANALYSIS

No.	Sample ID	Conductivity (1:2) in soil	Conductivity and TDS by Calculation - Soil	Moisture Content	pH in soil (1:2)	pH in soil (1:5)	Soluble Anions in Soil from 1:2 DI Extract by Ion
097	TP49 0.6-0.7	2	2	1	1	-	2
098	TP49 1.4-1.5	2	2	1	1	-	2
099	TP50 1.2-1.3	-	2	1	-	1	-
100	TP50 2.0-2.1	-	2	1	-	1	-

The above table represents SGS' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details .
Testing as per this table shall commence immediately unless the client intervenes with a correction .