Additional Geotechnical Investigation Report

Upgrades to Melrose Park Public School

110 Wharf Road, Melrose Park NSW 2114

Prepared for: Department of Education

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NSW GOVERNMENT Education School Infrastructure

ADE CONSULTING GROUP

T. 1300 796 922| E. info@ade.group

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For and on behalf of
ADE Consulting Group Pty Ltd

Prepared by:

Digitally signed by Jeremie Young
Date: 02-Apr-25

Jeremie Young
Senior Geotechnical Engineer

Reviewed by:

Antony Tam

Digitally signed by Antony Tam
DN: cn=Antony Tam, c=AU, o=ADE Consulting Group, ou=NSW Geotechnical Group, email=antony.tam@ade.group
Date: 2025.04.17 11:25:46 +10'00'

Antony Tam
Geotechnical State Discipline Manager

Table of Contents

List of Tables

List of Figures

Appendices

1 Introduction

1.1 General Information

This Additional geotechnical Investigation Report for upgrades to Melrose Park Public School has been prepared to accompany a Review of Environmental Factors (REF) for an activity proposed by the Department of Education under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and *State Environmental Planning Policy (Transport and Infrastructure) 2021* (SEPP TI).

This document has been prepared in accordance with the *Guidelines for Division 5.1 assessments* (the Guidelines) by the Department of Planning, Housing and Infrastructure.

This report examines and takes into account the relevant environmental factors in the Guidelines and *Environmental Planning and Assessment Regulations 2021* under Section 170, Section 171 and Section 171A of the EP&A Regulation as outlined in **Table 1.**

Table 1 – Summary of Relevant Section of the Part 5 Guidelines and EP&A Regulation 2021

Regulation/ Guideline Section	Requirement	Response	Report Section
171(2)(a)	(a) Any environmental impact on a community (a1) Impact during construction – such as noise, vibration, traffic, construction vehicle routes, access and parking, pollution/dust, water and stormwater flow, sediment and run-off, waste removal, servicing arrangements, bushfire, flooding, contamination, other construction occurring in the area. (a2) impact post-construction (including from any development, activity, public-address systems and sirens, signage, events, hours of operation, or out of hours use of facilities, helicopter facilities, emergency facilities) which may include: (i) water flow/water quality, downstream impacts (ii) flooding impact, flood evacuation routes, changes to flood risk and patterns (iii) bushfire impact, bushfire evacuation routes, changes to bushfire risk and patterns (iv) impact, during a flood or bushfire event, on existing infrastructure such as roads, etc (v) impact on emergency response to existing communities (vi) waste and servicing arrangements (vii) traffic and parking impacts, pedestrian and road safety (including pedestrian and cyclist conflict and safety), operation of the surrounding road network, impact on road capacity, including peak hour, intersection performance and any cumulative impact from surrounding approved developments, impacts of potential	Examination of factors outside of the below are outside of the scope of this site investigation report. (a) Geotechnical Investigation was completed pre-construction phase to assist in foundation design of the buildings. (a1) **Groundwater encountered during construction** Refer to comments inside this report on groundwater observations, groundwater management and mitigation measures regarding groundwater management during construction. **Salinity** Refer ADE's previous report A201023.436.00_B_v1f, dated 14 December 2023, Section "5.10" Soil Salinity. Based on the analytical results, the site has been classified as "Non-Saline". **Acid Sulfate Soils** The site is mapped as having no acid sulfate soils potential.	N/A 3.2, 5.3, 5.6 1.5 1.5

	queuing in drop-off/pick- up zones and bus bays during peak periods, emergency drop-offs, servicing and loading/unloading areas, large vehicles and height clearances, parking arrangements and rates. Consider in the context of availability, frequency, location and convenience of public transport and consequences of parking overflowing into adjoining streets (viii) existing utility infrastructure and service provider assets (a3) impact on flight paths of nearby airport, airfield, or helicopter landing sites (a4) other environmental impacts (social, economic or cultural) on the community not mentioned above (a5) cumulative impacts from the development and other surrounding approved developments		
171(2)(b)	Any transformation of a locality	Not Applicable	N/A
171(2)(c)	Any environmental impact on the ecosystems of the locality	Not Applicable	N/A
171(2)(d)	Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality	Not Applicable	N/A
171(2)(e)	Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations	Not Applicable	N/A
171(2)(f)	Any impact on the habitat of protected animals (within the meaning of the Biodiversity Conservation Act 2016)	Not Applicable	N/A
171(2)(g)	Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air	Not Applicable	N/A
171(2)(h)	Any long-term effects on the environment	Not Applicable	N/A
171(2)(i)	Any degradation of the quality of the environment	Not Applicable	N/A
171(2)(j)	Any risk to the safety of the environment	Not Applicable	N/A
171(2)(k)	Any reduction in the range of beneficial uses of the environment	Not Applicable	N/A
171(2)(l)	Any pollution of the environment	Not Applicable	N/A
171(2)(m)	Any environmental problems associated with the disposal of waste	Not Applicable	N/A
171(2)(n)	Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply	Not Applicable	N/A
171(2)(o)	Any cumulative environmental effect with other existing or likely future activities	Not Applicable	N/A
171(2)(p)	Any impact on coastal processes and coastal hazards, including those under projected climate change conditions	Not Applicable	N/A
171(2)(q)	Any applicable local strategic planning statement, regional strategic plan or district strategic plan made under Division 3.1 of the Act	Not Applicable	N/A
171(2)(r)	Any other relevant environmental factors	Not Applicable	N/A

ADE has previously prepared a Preliminary Geotechnical Desktop Study (PGDS) report (reference no. A01023.0436.00_A_v1f dated the 7th of November 2023 and an IGI report (Reference no. A201023.0436.00_B_v1f) dated 14th December 2023, for the proposed school infrastructure activity.

This report details the methodology and findings of a second IGI completed between 6th and 10th January 2025, comprising eight additional boreholes to varying depths. The general aim of the report is to address the geotechnical ground conditions encountered, particularly the existing bedrock levels and the strength of the bedrock, with recommendations and geotechnical parameters to assist in the design of shallow foundation, pile and carpark pavement design.

1.2 Activity Description

The activity is for upgrades to Melrose Park Public School within a one to three-storey built form, including:

- Demolition of existing school buildings;
- Site preparation works including tree removal;
- Construction of the following buildings:
  - **Block A**: One (1) storey building comprising:
    - universal pre-school;
    - outdoor play area for the UPS; and
    - detached storeroom;
  - **Block B1**: Two (2) storey building comprising:
    - staff and administration areas;
    - library;
    - 4 special programs rooms;
    - Pedestrian bridge to Block B2;
  - **Block B2:** Three (3) storey building comprising:
    - 23 classrooms;
    - amenities/services cores; and
    - pedestrian bridge to Block B3;
  - **Block B3:** Three (3) storey building comprising:
    - 12 classrooms; and
    - amenities/services cores;
  - **Block C**: One (1) storey building comprising:
    - hall;
    - amenities;
    - canteen;
    - OSHC; and
    - COLA;
- Construction of two (2) car parking areas; and
- Landscaping works.

1.3 Activity Site

Melrose Park Public School is located at 110 Wharf Road, Melrose Park and is legally known as Lot 3 in DP 535298 with an approximate site area of 2.5 hectares. The Landowner has been identified as the Minister for Education and Early Learning. The site has a frontage to Wharf Road (east), Mary Street (south), and Waratah Street (west). The site is adjoined by 2-3 storey light industrial development to the north, 1-2 storey industrial and commercial developments to the south, residential dwellings to the east and industrial and commercial development to the west.

An aerial photograph of the site is provided in **Figure 1** below.

Figure 1: Aerial Photograph

Figure 2 below shows the approximate location of MPPS site boundaries, existing structures, and the borehole locations from this round of investigation.

Figure 2: Aerial View of the Site Showing Boundaries and Existing Structures, (Astrea, 2025).

1.4 Scope of Work

In summary, the IGI generally comprised the following:

- Preparation and approval of a Safety, Health, Environment, and Safe Work Method Statement (SHEWMS) prior to undertaking works.
- Obtained Dial Before You Dig (DBYD) plans for the existing underground services.
- A site walkover prior to the commencement of the investigation to understand site conditions.
- Identified the existing underground services using an electromagnetic scanned equipment operated by an accredited service locator.
- Borehole's locations were identified by measuring distance from the nearest site features.
- Mechanical drilling of eight boreholes identified as BH101 to BH108 inclusive between 6th and 10th January 2025. Boreholes were excavated using a track-mounted drilling rig, using Continuous Flight Augers (CFA) attached with a Tungsten-Carbide (TC) drilling bit, and followed by rock coring.
- Standard Penetration Test (SPT) was conducted at regular intervals of 1.5m during borehole drilling to SPT refusal up to about 50 number of blows per 150mm depth.
- Drilling of boreholes BH105, BH106, BH107 and BH108 extended to TC bit refusal using CFA method and then continued with HQ3 rotary diamond coring techniques along with a water flush to final depths ranging from 9m to 12m below ground level (bgl).
- Rock core samples were stored in steel core boxes and photographed before assessing their strength.
- An experienced geotechnical engineer logged the observed subsurface materials per Australian Standard AS1726-2017 – Geotechnical Site Investigations.
- All boreholes were backfilled with excavated cut-soil and sand after drilling.
- The following laboratory tests were undertaken on selected soil and rock samples for assessment of the materials characteristics and strength by the relevant Australian Standards:
  - Four California Bearing Ratio (CBR)
  - 64 number of Point Load Index (PLI)
  - Eight number of Unconfined Compressive Strength (UCS)
- This geotechnical investigation report outlines the investigation methods, in-situ and laboratory test results, inferred subsurface materials characteristics, and existing groundwater observations.

A layout plan of the borehole locations is in **Appendix I** of this report.

Borehole Logs, rock core photographs, PLI test results including ADE's borehole log explanatory notes, which describe the investigation techniques, define the logging terms and symbols, are in **Appendix II** of this report.

1.5 REF Checklist

Table 2 below summarise all relevant REF checklist items addressed in this IGI report and provide section references for review.

Table 2: REF Review Checklist – General Requirements

Requirement	Y	N	N/A	Comments
General requirements				
Regulatory requirements Does the REF include: • an acknowledgement of County?	☐	☐	☒	
• details of: ○ the proposed activity?	☒	☐	☐	Refer Section 1.1 "General Information" of this report
○ need for the activity?	☒	☐	☐	Refer Section 1.1 "General Information" of this report
○ alternatives considered, including the do-nothing option?	☐	☐	☒	Not applicable to the activity
○ relevant planning policies, including relevant indicative layout plans, masterplans, strategic plans or Voluntary Planning Agreements apply to the site?	☐	☐	☒	Not applicable to the activity
○ how proposal relates to relevant legislation and policies?	☒	☐	☐	Refer Section 1.1 "General Information" of this report
○ related approvals required?	☐	☐	☒	
○ relevant determining authority (i.e. the NSW Department of Education)	☒	☐	☐	Refer Section 1.1 "General Information" of this report
• a description of the site (including address and lot/DP) and surrounding environment using text and plans/photos including details the environmental features and planning constraints?	☒	☐	☐	Refer Section 2.1 "Site Description" of this report
• a description of land / road reserves associated with any off-site works?	☐	☐	☒	Not applicable to the activity
• a summary of existing approvals and relevant conditions that apply to the site?	☐	☐	☒	Not applicable to the activity
• for existing schools, confirmation that the proposed activity does not contravene a relevant condition of consent?	☒	☐	☐	Refer Section 1.1 "General information" of this report
• an assessment of potential impacts of the proposal?	☐	☐	☒	Not applicable to the activity
• a summary of consultation undertaken, responses received and how responses were considered?	☐	☐	☒	Not applicable to the activity
• a statement certifying that the contents are true and correct?	☒	☐	☐	Refer Section 8 "Limitations" of this report
• a conclusion that the proposal is not likely to significantly affect the environment or threatened species, communities or habitats unless a Species Impact Statement (SIS) (for aquatic biodiversity) or (terrestrial) Biodiversity Development Assessment Report (BDAR) has been prepared?	☐	☐	☒	Not applicable to the activity
• a statement that the proposed activity qualifies as development without consent?	☒	☐	☐	Refer Section 1.1 "General Information" of this report
• a detailed response to the design quality principles set out in the T&I SEPP?	☐	☐	☒	Not applicable to the activity
• a detailed response to the Design for Schools Guide?	☐	☐	☒	Not applicable to the activity
• where relevant, a detailed response to any School	☐	☐	☒	Not applicable to the activity

Design Review Panel comments?				
• a schedule of mitigation measures that are specific and deliverable?	☐	☐	☒	Not applicable to the activity
Has the REF addressed s171 of the EP&A Reg including the environmental factors set out in the October 2024 Addendum for Consideration of environmental factors for health services facilities and schools and s171A (if the site is located in a regulated water catchment)?	☐	☐	☒	Not applicable to the activity
Has the REF been prepared in accordance with the Part 5 Guidelines, including the October 2024 Addendum for Consideration of environmental factors for health services facilities and schools	☒	☐	☐	Not applicable to the activity
If early engagement has occurred, has the REF summarised the issues raised been summarised and set out how they have been considered?	☐	☐	☒	
Landowner's detail and consent If owned by 'education', does the REF note that the land is owned by the Minister for Education and Early Learning rather than the department?	☒	☐	☐	Refer Section 1.1 "introduction" of this report
Has landowner's consent been obtained or has the landowner been notified of the REF? Note: It is the preference Landowner's consent is to be obtained prior to lodgement. However, where this is not possible and for any public domain or road works on council land, the council must be notified of the proposed works prior to lodgement of the REF.	☐	☐	☒	Refer Section 1.1 "Introduction" of this report.
Terminology Does the REF use appropriate terminology for a REF: • "activity" instead of "development"?	☒	☐	☐	
• "NSW Department of Education" shortened to "the department" instead of "School Infrastructure NSW" or "SINSW"?	☒	☐	☐	
• "Proponent" instead of "Applicant"?	☐	☐	☒	
• "Mitigation measures" instead of "conditions"?	☒	☐	☐	Refer Section "5.6" Mitigation measures
Soil and water				
If the site is mapped as, or has otherwise been identified, as having salinity potential, does the geotechnical report consider impacts from salinity and set out measures to mitigate impacts (i.e. Salinity Management Plan) so that they would not be significant?	☒	☐	☐	Refer to ADE's previous report A201023.436.00_B_v1f section "5.10" Soil Salinity for comments on the salinity of the site.
If the site is mapped as, or has otherwise been identified as having acid sulfate soils (ASS) potential, does the geotechnical report consider impacts from ASS and set out measures to mitigate impacts (i.e. ASS Management Plan) so that they would not be significant?	☐	☐	☒	The site is mapped as having no acid sulfate soils potential (Refer eSPADE online tool by NSW Planning, Industry & Environment.
If the site is mapped as being in an area of groundwater vulnerability, does the REF include an Integrated Water Management Plan that assess the potential of the activity to impact groundwater and does it conclude that the activity would not be likely to have significant environmental impacts with or without mitigation measures?	☐	☐	☒	Not applicable to the activity
If the site is mapped as being in an area of landslide risk, does the REF assess the potential of the activity	☐	☐	☒	Not applicable to the activity

and does it conclude that the activity would not be likely to have significant environmental impacts with or without mitigation measures?				
Has an Erosion and Sediment Control plan been prepared to inform the REF that includes: • a plan(s) detailing: ○ property boundaries, existing levels of the land in relation to the building, roads and where stormwater surface flows enter and leave the site?	☐	☐	☒	Not applicable to the activity
○ the location of stabilised construction access points?	☐	☐	☒	Not applicable to the activity
○ the location of perimeter sediment/erosion controls?	☐	☐	☒	Not applicable to the activity
○ any 'no-go' areas that are not to be disturbed?	☐	☐	☒	Not applicable to the activity
○ location of stockpile areas?	☐	☐	☒	Not applicable to the activity
○ location of proposed temporary and permanent site drainage?	☐	☐	☒	Not applicable to the activity
• specific measures to be implemented to prevent pollution of stormwater off the site?	☐	☐	☒	Not applicable to the activity
Does the REF summarise the proposed controls and incorporate any mitigation measures identified in the above documents?	☐	☐	☒	Not applicable to the activity

2 Background

2.1 Site Description

Melrose Park Public School is located at 110 Wharf Road, Melrose Park and is legally known as Lot 3 in DP 535298 with an approximate site area of 2.5 hectares. The Landowner has been identified as the Minister for Education and Early Learning. The site has a frontage to Wharf Road (east), Mary Street (south), and Waratah Street (west). The site is adjoined by 2-3 storey light industrial development to the north, 1-2 storey industrial and commercial developments to the south, residential dwellings to the east and industrial and commercial development to the west.

The site was generally rectangular, with school buildings occupying the central and eastern sections. Basketball courts, football fields and a lawn occupied the western section. The east boundary was generally vegetated, with a few car parking lots. General recreation and horticultural areas were located in the western and central portions of the site. **Figure 3** and **Figure 4** show the recreation areas and existing school structures.

Figure 3: Playground and Facilities

Figure 4: Existing Buildings

2.2 Regional Geology

Geological Survey of NSW (1983) indicates that the site is underlain by Hawkesbury Sandstone (Rh) and Alluvial soil (Qha) geologies. Hawkesbury Sandstone is part of Wianamatta Group, Triassic aged and described as "*medium to coarse-grained quartz sandstone, very minor shale and laminate lenses*". Alluvial soils mapped to the south and east of the site are Quaternary aged and described as "*Silty to peaty quartz sand, silt, and clay. Ferruginous and humic cementation in places. Common shell layers*".
Figure *5* shows the excerpt of the local geology from the Sydney Geological Map.

Figure 5: Excerpt of the Sydney Geological Map showing the Site Location

3 Fieldwork Results

3.1 Subsurface Conditions

The inferred ground profiles from borehole numbers BH 101 to 108 are summarised in Table 3. Reference should be made to the attached borehole logs and associated information presented in **Appendix II** of this report.

Table 3: Summary of Subsurface Materials (Locations of Proposed New Structures)

Unit	Details	BH101	BH102	BH103	BH104	BH105	BH106	BH107	BH108
		Approximate Depth (m)							
Unit 1	FILL/Silty CLAY: low to medium plasticity, trace fine to medium gravel and organics	0.00 – 0.40	0.00 – 0.60	0.00 – 0.40	0.00 – 0.50	0.00 – 0.50	0.00 – 0.80	0.00 – 0.50	0.00 – 0.50
Unit 2	Silty CLAY: medium to high plasticity, ranging stiff to very stiff, residual	0.40 – 1.30	0.60 – 0.95	0.40 – 1.00	0.50 – 1.40	0.50 – 2.80	-	0.50 – 1.82	0.50 – 3.27
Unit 3	Silty CLAY, low plasticity, extremely weathered material	1.30 – 2.00	0.95 – 2.20	1.00 – 1.50	1.40 – 2.00	2.80 – 3.70	0.8 – 1.60	1.82 – 3.40	-
Unit 4	(Class V*) SHALE: extremely weathered, extremely low strength, with clay bands					3.70 – 4.80	1.60 – 2.40	3.40 – 4.90	3.27 – 5.38
Unit 5	(Class IV*) Interbedded SHALE and SANDSTONE: highly weathered, very low to low strength, with ironstone and clay bands					4.80 – 5.95	2.40 – 6.54	4.90 – 7.89	5.38 – 7.70

Unit 6	(Class III*) Interbedded SHALE and SANDSTONE: moderately to slightly weathered, ranging medium to high strength					5.95 – 9.60	6.54 – 9.60	7.89 – 12.74	7.70 – 10.00

Note:
*Bedrock considered to be SHALE for purposes of classification in accordance with the research paper of Pells P.J.N, Mostyn G. & Walker B.F. Foundations on Sandstone and Shale in the Sydney Region, Australian Geomechanics Journal, December 1998

3.2 Groundwater

No groundwater seepage was encountered during auger drilling of boreholes up to the investigation depth of about 10 m.

Groundwater or seepage may occur at greater depths, particularly at soil and bedrock interface or within bedrock defects. Groundwater levels may fluctuate due to seasonal rainfall events or damage to underground or above water-carrying services.

4 Laboratory Testing

California Bearing Ratio (CBR), Point Load Strength Index (Is50) and Unconfined Compressive Strength (UCS) tests were completed on selected soil and rock core samples at various depths by ADE's or other NATA-accredited laboratories. The laboratory test results are summarised in Tables 4 and 5 below and laboratory testing certificates are included in **Appendix III**.

Table 4: Summary CBR test results between boreholes (BH101 to BH104)

Sample Number	Soil Classification	CBR Ratio (%)	MDD (t/m^3)	OMC (%)	Swell (%)
BH101-A (0.6 – 1.0m)	Silty CLAY	3.5	1.74	15.5	2.0
BH102-A (0.7 – 1.0m)	Silty CLAY	4.0	1.67	18.5	1.5
BH103-A (0.7 – 1.0m)	Silty CLAY	3.5	1.64	16.0	3.5
BH104-A (0.6 – 1.0m)	Silty CLAY	4.5	1.64	19.0	2.0

Table 5: Summary of Unconfined Compressive Strength (UCS) test results

Sample ID	Diameter (mm)	Specimen Length (mm)	Dry Density (t/m^3)	UCS (MPa)
BH105 6.70 – 6.89m	60.7	142.8	2.56	22.0
BH105 7.71 – 7.93m	60.7	142.3	2.57	32.0
BH106 7.33 – 7.56m	60.7	141.6	2.53	22.1
BH106 8.59 – 8.77m	60.8	142.3	2.54	21.3
BH107 8.59 – 8.79m	60.9	143.5	2.56	29.9
BH107 9.59 – 9.79m	60.8	142.8	2.57	24.0
BH108 6.52 – 6.68m	60.8	117.6	2.26	5.36
BH108 9.81 – 10.00m	60.8	143.0	2.53	20.3

5 Geotechnical Recommendations

5.1 Site Preparation and Excavatability

Based on limited geotechnical investigation records, the inferred subsurface ground profile comprises fill extending to about 0.5m depth, overlying residual soil of Silty CLAY. Extremely to highly weathered bedrock with very low strength was inferred at shallow depths, likely ranging from 1.6m to 3.5m bgl. This very low strength bedrock is considered excavatable by standard earthmoving equipment.

General stripping of topsoil or unsuitable fill materials (e.g. organic materials, timber, concrete, rubble, and any other materials deemed unsuitable by a qualified geotechnical engineer) will likely be required for ground levelling and engineering purposes.

Excavated areas can be backfilled to the future designed subgrade level with engineered fill, subject to geotechnical engineer advice. Residual soil and excavated bedrock should be stockpiled separately for subsequent construction materials testing and assessment for reuse/blending as recommendations. Site-won materials be used for backfill or other engineering purposes, which must be contamination-free and comply with *AS3789-2007 Guidelines on earthworks for commercial and residential developments*.

Due to the presence of clay soils and relatively flat grades, surface drainage would unlikely be effective, leading to potential trafficability issues during construction. Temporary haul roads or working platforms composed of granular materials or crushed rock are recommended for facilitating construction activities.

5.2 Engineered Fill

Placement and compaction of Engineered Fill material to support any proposed structural foundation should comply with the following requirements, but not limited:

- Material should be contamination free and well graded granular base materials with no oversize larger than two thirds the compacted layer thickness (AS 3798-2007).
- They should be placed in layers of not more than 200mm loose thickness to achieve a maximum thickness of 150mm compacted fill layer
- Compaction should achieve a relative Standard Maximum Dry Density (SMDD) of minimum 98% and moisture conditioned to ±2% of its Standard Optimum Moisture Content (SOMC)
- The earthworks should be carried out under Geotechnical Inspection and Testing Authority (GITA) Level 1 Supervision
- Materials and earthwork should be carried out in accordance with AS3798-2007 *Guidelines on Earthworks for Commercial and Residential Developments*.

5.3 Groundwater Management

Although no groundwater was observed in the limited geotechnical investigation records, it is advisable to install groundwater wells before construction to monitor for any groundwater present at depth. If encountered, a Groundwater Management Plan (GMP) should be developed and implemented during the construction. ADE's hydrogeologists can assist with this if required.

5.4 Pavement Design Recommendation

The pavement design is expected to be founded on residual silty Clay at depths ranging from 0.6m to 1m below ground level. Additional CBR samples were collected from BH101 to BH104 for laboratory testing. These additional laboratory test results have allowed us to refine the previously assumed CBR values (ADE 2023), adjusting them to about 3% to 4.5% at the assessed locations.

5.5 Shallow Foundation Recommendation

Given the presence of extremely to highly weathered bedrock with very low strength at shallow depths, likely ranging from 1.6m to 3.5m bgl, a shallow foundation system is considered feasible for low-rise school buildings. However, this is subject to further geotechnical assessment based on the proposed superstructure design, as no architectural design drawings were available during the preparation of this report.

In addition, the nominated Structural Engineer has indicated a preference for a waffle raft foundation system. The site is classified as "Class H1" under Australian Standard AS 2870:2011, Residential Slabs and Footings, which identifies it as highly reactive clay that may experience significant ground movement due to moisture changes. Accordingly, the necessary engineering design assessment should be conducted in accordance with Section 3.4 (Waffle Rafts) and Section 4.0 (Design by Engineering Principles) of AS 2870:2011.

The recommended geotechnical design parameters for shallow foundations are presented in Table 6.

Table 6: Summary of Geotechnical Foundation Design Parameters recommended for Shallow Foundations

Subsurface materials	Unit weight (kN/m^3)	Drained Cohesion c' (kPa)	Friction angle ϕ' (°)	Undrained Cohesion, Cu (kPa)	Elasticity Modulus E (MPa)	Poisson's Ratio v'
Unit 2	18	4	24	100	15	0.3
Unit 3	20	5	28	150	45	0.3
Unit 4	22	10	28	200	75	0.3
Unit 5	22	25	30	-	200	0.3
Unit 6	24	50	35	-	400	0.2

Table 7: Recommendable Foundation Design Parameters

Subsurface Materials	Ultimate End Bearing (kPa)	Serviceability End Bearing (kPa	Ultimate Shaft Adhesion (kPa)	
			Compression	Tension
Unit 4 (Class V)	3000	700	75	37.5
Unit 5 (Class IV)	3000	1000	150	75
Unit 6 (Class III)	15,000	3000	450	225

Notes:

- Rock classified as shale using Pells et al (1998) "Foundations on Sandstone and Shale in the Sydney Region" Australian Geomechanics Journal, Dec 1998
- Assumes a minimum embedment depth of shallow foundation to be at least 0.5 m into the relevant bearing stratum

We recommend a meeting after the initial structural design has been completed to confirm that our recommendations have been correctly interpreted. A construction quality assurance plan should be developed based on the proposed final design before the commencement of construction. We also recommend a meeting at the commencement of construction to discuss the primary geotechnical issues and inspection requirements.

5.6 Mitigation Measures

The potential project environmental risks and recommended mitigation measures are summarised in Table 8 below:

Table 8: Summary of Mitigation Measures

Mitigation Name	Aspect/Section	Mitigation Measure	Reason for Mitigation Measure
Noise and Vibration Monitoring	Noise Monitoring, Vibration, Operational Noise	Shallow foundations and bored pile foundations are unlikely to generate significant noise and vibration	Noise and vibration assessment is outside the scope of the IGI, however use of these techniques can reduce noise and vibration impact on surrounding areas.
Groundwater Management	Groundwater	Encountering groundwater will depend on the completion of the detailed design and foundation type proposed for the building structures. If shallow foundations are used, groundwater will unlikely be encountered. If deep foundations such as piles are used, groundwater will likely be encountered during piling excavation. Foundations and piles must be sufficiently dewatered to prevent groundwater infiltration and reduce risk of slope instability. A Groundwater Management Plan (GMP) is	Reduce risk of slope instability, prevent groundwater infiltration to excavation or piles. Identify procedure for disposal of water.

		recommended to be prepared and implemented during the construction phase (outside the scope of the IGI).	
Settlement analysis	Structural Analysis	After selection of the foundation system, it is recommended to carry out a settlement analysis to confirm the total and differential settlements are within the tolerance.	Analysis to be carried out to determine if total and differential settlements are within the design tolerance
Removal of soft and unsuitable soils	Earthworks	All loose/soft soil within the footprint of proposed structures to be removed, including grubbing out of tree roots, if present. These layers may be backfilled with suitably engineered fill layers to the designed subgrade level. Any fill unsuitable for re-use, deleterious/surplus material (if present) such as timber, concrete, rubble, should be identified and disposed off-site.	Must be carried out in accordance with AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments"
Foundation validation	Earthworks	Validation of the foundation should be completed by an experienced geotechnical engineer	Identify locations of soft or unsuitable material and remediate prior to backfilling and construction of foundations

6 References

- ADE 2023, "A201023.0436.00_B_v1f - Geotechnical Investigation Report", dated 14th December 2023.
- Astrea, 2025. "Survey report", dated 8th January 2025.
- Herbert, C., 1983. Sydney 1: 100 000 Geological Sheet 9130. *Geological Survey of New South Wales, Sydney*.
- Standards Australia 2017, *Geotechnical Site Investigations.* Standards Australia.
- Standards Australia 2011, *Residential slabs and footings*. Standards Australia.
- Standards Australia 2009, *Piling – Design and installation*. Standards Australia.
- Standards Australia Limited, 2007. *Guidelines on earthworks for commercial and residential developments*. Standards Australia.
- Pells, P.J.N., Mostyn, G. and Walker, B.F., 1998. Foundations on sandstone and shale in the Sydney region. *Australian Geomechanics*, *33*(3), pp.17-29.
- Pells, P.J., Douglas, D.J., Rodway, B., Thorne, C. and McMahon, B.K., 1978. Design loadings for foundations on shale and sandstone in the Sydney region.
- Transport for NSW, Specification D&C R44 – Earthworks, Edition 4, Revision 0, (Published 28th June 2023)

7 Limitations

This report has been prepared for use by the Client who has commissioned the works in accordance with the project brief only and has been based on information provided by the Client. The advice herein relates only to this project and all results, conclusions and recommendations made should be reviewed by a competent and experienced person with experience in geotechnical investigations, before being used for any other purpose.

ADE Consulting Group Pty Ltd (ADE) accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced or amended in any away without prior approval by the client or ADE and should not be relied upon by any other party, who should make their own independent inquiries.

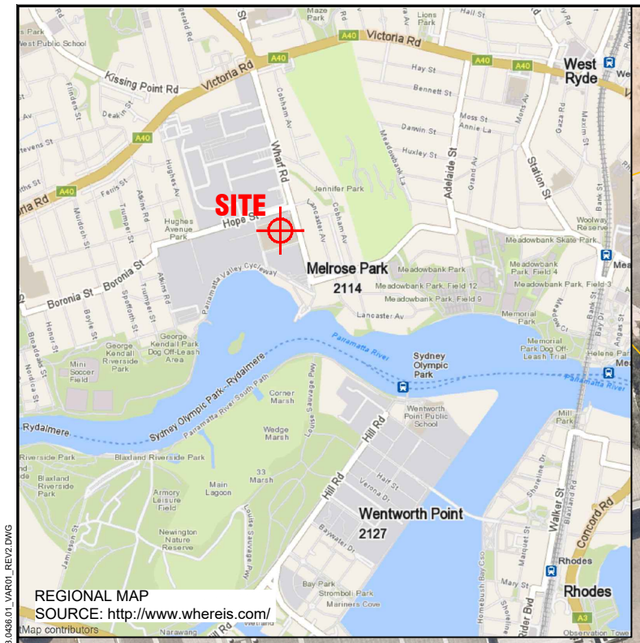
This report does not provide a complete assessment of the geotechnical status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site (e.g., conditions exposed at the site during earthworks varying significantly with the results within this report), ADE reserves the right to review the report in the context of the additional information.

ADE's professional opinions are based upon its professional judgment, experience, training, and results from analytical data. In some cases, further testing and analysis may be required, thus producing different results and/or opinions. ADE has limited investigation to the scope agreed upon with its client.

This report has been written with the intent of providing information on the site subsurface to the client for design and construction purposes. Subsurface conditions relevant to the works undertaken by the client should be assessed by a competent contractor who can make their interpretation of the data represented within this report.

Subsurface conditions will always vary within a worksite and the extremes of these variations cannot be defined by exhaustive investigations, and as such, the measurements and values obtained within this result may not be representative of these extremes.

Appendix I – Borehole Location Plan



EASTING	NORTHING	RL	
321489.77	6256672.75	10.742	BH101
321466.09	6256698.12	9.242	BH102
321477.51	6256717.82	10.408	BH103
321606.55	6256660.09	13.948	BH104
321555.58	6256701.88	13.950	BH105
321508.33	6256727.76	12.402	BH106
321555.94	6256751.34	15.376	BH107
321609.45	6256755.22	15.512	BH108

LEGEND

SITE BOUNDARY

BH — BORE HOLE LOCATION

NOTE:
ALL LOCATIONS ARE APPROXIMATE
DIMENSIONS IN METRES.

AERIAL IMAGE SOURCE: MAPS.AU.NEARMAP.COM, 30 OCT 2024.

revision	no.	description	drawn	approved	date
	A	FIRST ISSUE	MC	JK	19/12/24
	B	FIRST ISSUE	MC	JK	16/01/25

0 10 20 30 40 50
SCALE 1:1000 @A3 METRES

drawn	MC
approved	JK
date	16/01/2025
scale	AS SHOWN
original size	A3

client: SCHOOL INFRASTRUCTURE NSW

project: GEOTECHNICAL CONSULTING SERVICES VARIATION REQUEST
ADDITIONAL SITE INVESTIGATION, MELROSE PARK PUBLIC SCHOOL
110 WHARF ROAD, ERMINGTON, NSW

title: BORE HOLE LOCATION PLAN

project no: A201023.0436.01 | figure no: FIGURE 1 | rev: B

ADE CONSULTING GROUP
Sydney Office
ADE Consulting Group Pty Ltd
Unit 6 / 7 Millennium Court, Silverwater, NSW 2128
www.ADE.group | info@ade.group | 1300 976 922

PLOT DATE: 16/01/2025 1:47:53 PM DWG FILE: C:\USERS\MIRANDA.CHAU\ADE CONSULTING GROUP PTY LTD\GEO-WORKING - DOCUMENTS\NSW\PROJECTS\A201023.0436.01 GI SINSW\MELROSE PARK\

Appendix II – Borehole Logs, Core Photos and Explanatory Notes

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH101

FILE / JOB NO : A201023.0436.01
SHEET : 1 OF 1

CLIENT : School Infrastructure NSW
LOCATION : 110 Wharf Road, Ermington NSW 2114
PROJECT : Melrose Park Public School

POSITION : E: 321489.8, N: 6256672.7 (AHD) SURFACE ELEVATION (RL) : 10.74 (M AHD) ANGLE FROM HORIZONTAL : 90°

EXCAVATION METHOD : 7720R MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Luck

DATE STARTED : 1/9/2025 DATE COMPLETED : 1/9/2025 DATE LOGGED : 1/9/2025 LOGGED BY : AS CHECKED BY : JK

DRILLING						MATERIAL						
PROGRESS: DRILLING & CASING	PROGRESS: WATER	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm 5 10 15 20	STRUCTURE & Other Observations
AD/V		Not Encountered	0.60m B-2 1.00m B-1 1.30m 1.50m B-1 1.90m	10.5 10.0 9.5 9.0	0 0.5 1.0 1.5 2.0			**TOPSOIL/ Silty CLAY:** low to medium plasticity, dark-brown, with subangular to angular gravels and organics. 0.15m **FILL/ Silty CLAY**: low to medium plasticity, red-brown, with fine to medium, subangular to angular gravels. 0.40m **Silty CLAY**: medium to high plasticity, red-brown, trace fine to medium, subangular to angular ironstone gravels. 1.30m **SHALE**: pale brown, extremely weathered, with very low strength sandstone bands. 2.00m Hole Terminated at 2.00 m Target depth	w<PL w<PL w<PL D to M	F to St VSt to H		TOPSOIL or FILL FILL RESIDUAL SOIL EXTREMELY WEATHERED MATERIAL

See Explanatory Notes for details of abbreviations & basis of descriptions.

ADECONSULTINGGROUP
SOLUTIONS THROUGH INNOVATION

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH102

FILE / JOB NO : A201023.0436.01
SHEET : 1 OF 1

CLIENT : School Infrastructure NSW
LOCATION : 110 Wharf Road, Ermington NSW 2114
PROJECT : Melrose Park Public School

POSITION : E: 321466.1, N: 6256698.1 (AHD) SURFACE ELEVATION (RL) : 9.24 (M AHD) ANGLE FROM HORIZONTAL : 90°

EXCAVATION METHOD : 7720R MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Luck

DATE STARTED : 1/9/2025 DATE COMPLETED : 1/9/2025 DATE LOGGED : 1/9/2025 LOGGED BY : AS CHECKED BY : JK

DRILLING						MATERIAL						
PROGRESS: DRILLING & CASING	PROGRESS: WATER	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm 5 10 15 20	STRUCTURE & Other Observations
AD/V		Not Encountered	0.70m B-2 1.00m B-1 1.40m 1.50m B-1 2.00m	9.0 8.5 8.0 7.5	0.5 1.0 1.5 2.0		CL	**TOPSOIL/ Silty CLAY**: low to medium plasticity, dark-brown, with organics and trace subangular to angular gravels. **FILL/ Silty CLAY**: low to medium plasticity, grey-brown, with fine to coarse, subangular to angular gravels. 0.60m **Silty CLAY**: low plasticity, red-brown, trace fine to coarse, subangular to angular ironstone gravels. 0.95m **SHALE**: pale brown, extremely weathered, with very low strength sandstone bands. 2.20m Hole Terminated at 2.20 m Target depth	w<PL w<PL w<PL D to M	H		TOPSOIL or FILL FILL RESIDUAL SOIL EXTREMELY WEATHERED MATERIAL

See Explanatory Notes for details of abbreviations & basis of descriptions.

ADECONSULTINGGROUP
SOLUTIONS THROUGH INNOVATION

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH103

FILE / JOB NO : A201023.0436.01
SHEET : 1 OF 1

CLIENT : School Infrastructure NSW
LOCATION : 110 Wharf Road, Ermington NSW 2114

PROJECT : Melrose Park Public School

POSITION : E: 321477.5, N: 6256717.8 (AHD) SURFACE ELEVATION (RL) : 10.41 (M AHD) ANGLE FROM HORIZONTAL : 90°

EXCAVATION METHOD : 7720R MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Luck

DATE STARTED : 1/9/2025 DATE COMPLETED : 1/9/2025 DATE LOGGED : 1/9/2025 LOGGED BY : AS CHECKED BY : JK

DRILLING						MATERIAL						
PROGRESS: DRILLING & CASING	PROGRESS: WATER	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm 5 10 15 20	STRUCTURE & Other Observations
AD/V		Not Encountered	0.70m B-1 1.00m B-1 1.40m	10.0 9.5 9.0	0.5 1.0 1.5		CI-CH	**TOPSOIL/ Silty CLAY**: low to medium plasticity, dark-brown, trace subangular to angular gravel, with surficial vegetation. **FILL / Silty CLAY**: low to medium plasticity, dark-brown, trace fine to coarse, subangular to angular gravel. 0.40m **Silty CLAY**: medium to high plasticity, red-brown mottled grey, trace fine to medium, subangular to angular gravels. 1.00m **SHALE**: grey mottled red-brown, extremely weathered, very low strength with iron indurated bands. 1.50m Hole Terminated at 1.50 m Refusal	w<PL w<PL w<PL D to M	H		TOPSOIL or FILL FILL RESIDUAL SOIL EXTREMELY WEATHERED MATERIAL

See Explanatory Notes for details of abbreviations & basis of descriptions.

ADECONSULTINGGROUP
SOLUTIONS THROUGH INNOVATION

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH104

FILE / JOB NO : A201023.0436.01
SHEET : 1 OF 1

CLIENT : School Infrastructure NSW
LOCATION : 110 Wharf Road, Ermington NSW 2114
PROJECT : Melrose Park Public School

POSITION : E: 321606.5, N: 6256660.1 (AHD) SURFACE ELEVATION (RL) : 13.95 (M AHD) ANGLE FROM HORIZONTAL : 90°

EXCAVATION METHOD : 7720R MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Luck

DATE STARTED : 1/9/2025 DATE COMPLETED : 1/9/2025 DATE LOGGED : 1/9/2025 LOGGED BY : AS CHECKED BY : JK

DRILLING | MATERIAL

PROGRESS: DRILLING & CASING	PROGRESS: WATER	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	DCP TEST (AS 1289.6.3.2-1997) Blows per 100 mm 5 10 15 20	STRUCTURE & Other Observations
AD/V		Not Encountered	0.60m B-1 1.00m B-1 1.40m 1.80m B-1 2.00m	13.5 13.0 12.5 12.0	0.5 1.0 1.5 2.0		CL	0.04m **ASPHALT** **ROADBASE/Sandy GRAVEL**: fine to medium gravel, pale-grey, angular to subangular. 0.20m **FILL/ Silty CLAY**: low to medium plasticity, brown, with fine to coarse angular gravels. 0.50m **Silty CLAY**: low plasticity, brown, red-brown, with Extrememly Weathered Shale bands. 1.40m **SHALE**: red-brown, extermely weathered, low strength. 2.00m Hole Terminated at 2.00 m Target depth	M M w<PL D to M	H		ROAD SURFACE FILL RESIDUAL SOIL EXTREMELY WEATHERED MATERIAL

See Explanatory Notes for details of abbreviations & basis of descriptions.

ADECONSULTINGGROUP
SOLUTIONS THROUGH INNOVATION

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH105

FILE / JOB NO : A201023.0436.01
SHEET : 1 OF 3

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321555.6, N: 6256701.9 (AHD) SURFACE ELEVATION : 13.95 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/6/2025 DATE COMPLETED : 1/6/2025 DATE LOGGED : 1/6/2025 LOGGED BY : GL CHECKED BY : JK

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m M AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/V		E	Not Encountered		0.0 14.0			**TOPSOIL/ Silty CLAY**: medium to high plasticity, brown, with fine to medium, subangular to angular shale gravel with organics.	w<PL		TOPSOIL or FILL
					0.15m			**FILL / Silty CLAY**: medium to high plasticity, brown, with fine to medium, subangular to angular shale gravel.	w<PL		FILL
				SPT 4,8,12 N=20	0.5 13.5 0.50m			**Silty CLAY**: medium plasticity, brown mottled pale-grey, with fine to medium, subangular to angular shale bands.		St	RESIDUAL SOIL
					1.0 13.0		CI		w<PL	VSt	
				SPT 10,21/140mm HB N=R	1.5 12.5 1.50m			**Silty CLAY**: medium to high plasticity, pale-grey mottled orange, trace rootlets.			
					2.0 12.0		CI-CH		w<PL	H	
					2.5 11.5 2.80m			**Silty CLAY**: medium to high plasticity, grey, with very low strength shale bands.			EXTREMELY WEATHERED MATERIAL
				SPT 12,20,25 N=45	3.0 11.0		CI-CH		w<PL		
					3.5 10.5 3.65m			Continued as Cored Drill Hole			
					4.0 10.0						
					4.5 9.5						
					5.0 9.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : BH105

FILE / JOB NO : A201023.0436.01
SHEET : 2 OF 3

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321555.6, N: 6256701.9 (AHD) SURFACE ELEVATION : 13.95 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/6/2025 DATE COMPLETED : 1/6/2025 DATE LOGGED : 1/6/2025 LOGGED BY : GL CHECKED BY : JK

CASING DIAMETER : BARREL (Length) : BIT : BIT CONDITION :

DRILLING					MATERIAL				FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH UCS=20·$I_{s(50)}$ ● - Axial ○ - Diametral ■ - UCS VL -2 L -6 M -20 H -60 VH -200 EH	NATURAL FRACTURE (mm) 20 40 100 300 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
					0.0							
					0.5							
					1.0							
					1.5							
					2.0							
					2.5							
					3.0							
					3.5		3.65m START CORING AT 3.65m					
HQ3		5.00	51	Is(50) A=0.120 MPa Is(50) D=0.0100 MPa Is(50) A=0.100 MPa Is(50)	4.0		**SHALE**: grey, red-brown.	XW HW MW				BP, 0 - 5°, clay VNR, PR, RF BP, 5 - 10°, clay VNR, IR, RF BP, 10°, clay FILLED, PR, RF JT, 20°, clay CT, PR, SM BP, 10 - 30°, clay CT, IR, SM BP, 5 - 10°, clay CT, IR, SM BP, 5°, clay CT, PR, SM BP, 0 - 30°, Fe, IR, RF BP, 10°, CN, PR, RF BP, 10°, clay VNR, PR, RF BP, 5°, clay VNR, PR, RF JT, 50°, CN, PR, RF BP, 5°, clay VNR, PR, RF
					4.5							
					5.0							

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : BH105

FILE / JOB NO : A201023.0436.01
SHEET : 3 OF 3

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321555.6, N: 6256701.9 (AHD) SURFACE ELEVATION : 13.95 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/6/2025 DATE COMPLETED : 1/6/2025 DATE LOGGED : 1/6/2025 LOGGED BY : GL CHECKED BY : JK

CASING DIAMETER : BARREL (Length) : BIT : BIT CONDITION :

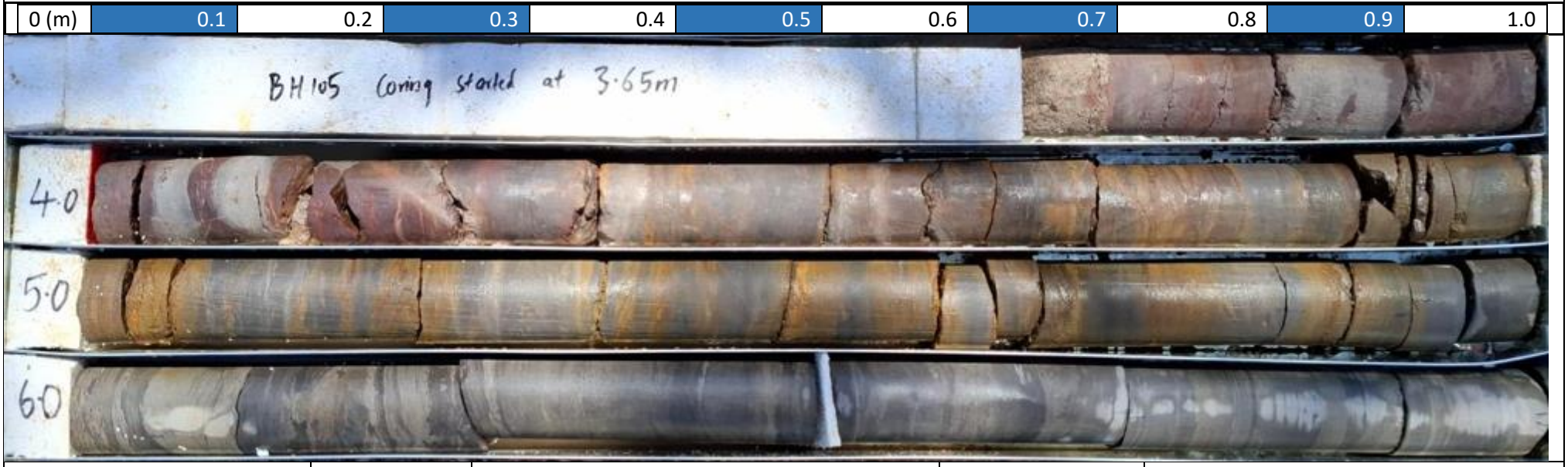
DRILLING | MATERIAL | FRACTURES

PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) / DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION: ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH (UCS=20·$I_{s(50)}$; ● - Axial ○ - Diametral ■ - UCS; VL -2 L -6 M -20 H -60 VH -200 EH)	NATURAL FRACTURE (mm) (20 40 100 300 1000)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
HQ3			86	D=0.180 MPa	5.0		**SHALE**: grey, red-brown. *(continued)*	MW				BP, 5°, clay VNR, PR, RF BP, 5°, clay VNR, PR, RF BP, 0°, CN, PR, RF BP, 5°, CN, PR, RF
				Is(50) A=0.510 MPa Is(50) D=0.180 MPa	5.5							BP, 10°, clay CT, PR, RF BP, 10°, CN, PR, RF BP, 0°, clay CT, PR, RF BP, 0 - 10°, CN, PR, RF BP, 10°, clay VNR, PR, RF
							5.95m					
				Is(50) A=1.01 MPa	6.0		**INTERBEDDED SANDSTONE AND SHALE**: pale-grey and grey, fine grained sandstone.					BP, 0 - 5°, clay CT, PR, RF BP, 0 - 5°, CN, PR, RF BP, 0 - 30°, CN, PR, RF
		6.50	74		6.5							
				6.70m UCS =22 MPa				SW				
				Is(50) D=3.71 MPa	7.0							BP, 0°, CN, PR, SM BP, 10°, CN, IR, RF BP, 0°, CN, PR, RF JT, 90°, CN, PR, RF BP, 0 - 5°, CN, PR, RF BP, 0°, CN, PR, RF BP, 0°, CN, PR, RF
				Is(50) A=0.470 MPa 7.71m UCS =32 MPa	7.5							BP, 5°, CN, PR, SM BP, 0 - 5°, CN, PR, RF
		8.10	96		8.0							BP, 10°, CN, PR, SM
					8.5							BP, 0°, CN, PR, RF BP, 5 - 10°, CN, PR, RF
				Is(50) A=1.03 MPa Is(50) D=0.560 MPa Is(50) A=1.56 MPa Is(50) D=0.400 MPa	9.0							BP, 0 - 5°, CN, PR, RF
		9.60			9.5		9.60m					BP, 0°, CN, PR, RF BP, 0°, CN, PR, RF
					10.0		Hole Terminated at 9.60 m Target depth					

See Explanatory Notes for details of abbreviations & basis of descriptions.

ADE Consulting Group

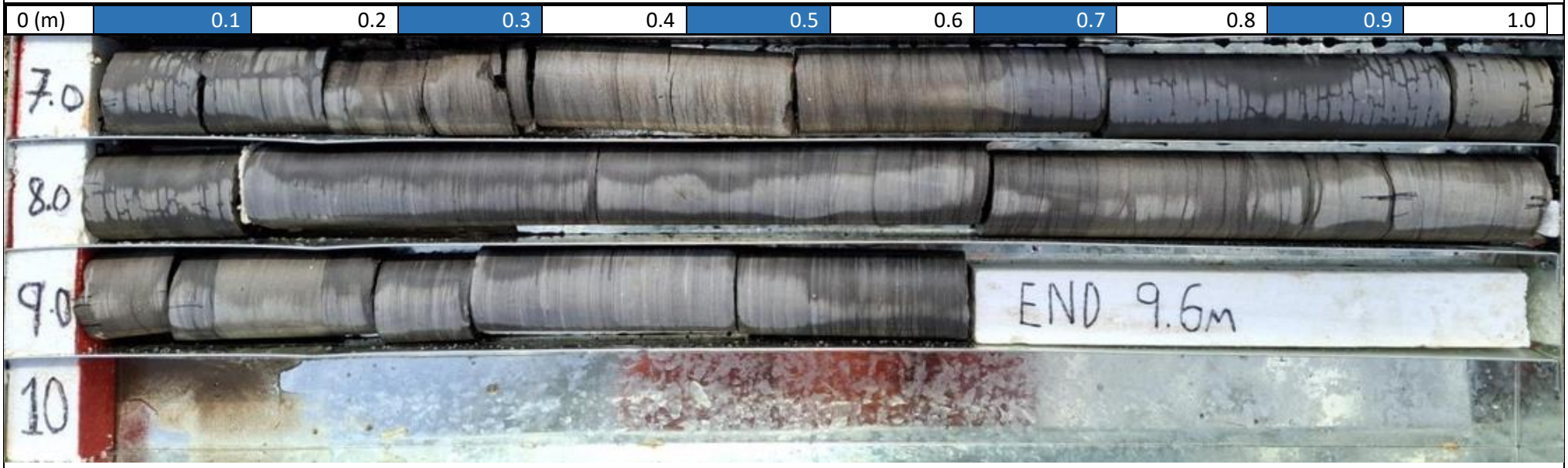
Project : Additional Geotechnical Investigation
Job No. : A201023.0436.01
Borehole : BH 105
Depth : 3.65 m – 7.00 m
Core Photo : No. 1



ADECONSULTINGGROUP SOLUTIONS THROUGH INNOVATION	Client:	SINSW	Borehole No:	BH 105
	Project:	Geotechnical Investigation	Depth:	3.65 m – 7.00 m
	Title:	Core Photograph	Photograph By:	GL
	Location:	110 Wharf Road, Ermington NSW 2114	Date:	06.01.2025

ADE Consulting Group

Project : Additional Geotechnical Investigation
Job No. : A201023.0436.01
Borehole : BH 105
Depth : 7.00 m – 9.60 m
Core Photo : No. 2



ADECONSULTINGGROUP SOLUTIONS THROUGH INNOVATION	Client:	SINSW	Borehole No:	BH 105
	Project:	Geotechnical Investigation	Depth:	7.00 m – 9.60 m
	Title:	Core Photograph	Photograph By:	GL
	Location:	110 Wharf Road, Ermington NSW 2114	Date:	06.01.2025

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH106

FILE / JOB NO : A201023.0436.01
SHEET : 1 OF 3

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321508.3, N: 6256727.8 (AHD) SURFACE ELEVATION : 12.40 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/9/2025 DATE COMPLETED : 1/10/2025 DATE LOGGED : 1/10/2025 LOGGED BY : GL CHECKED BY : JK

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m M AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/V		E	Not Encountered	SPT 7,21/30mm HB N=R	0.0 12.4			0.15m **TOPSOIL/ Silty CLAY**: low to medium plasticity, dark-brown, with organics and trace gravels.	w<PL		TOPSOIL or FILL
							FILL	**FILL/ Silty CLAY**: medium plasticity, pale brown, trace rootlets and shale bands.			FILL
					0.5 11.9			0.50m	w<PL		
							CI-CH	**Silty CLAY**: medium to high plasticity, red-brown mottled grey, trace fine to medium, subangular to angular gravels.		H	RESIDUAL SOIL
		H			1.0 11.4			0.80m **SHALE**: grey mottlled red-brown, with iron indurated bands.	w<PL		EXTREMELY WEATHERED MATERIAL
					1.5 10.9			1.60m			
								Continued as Cored Drill Hole			
					2.0 10.4						
					2.5 9.9						
					3.0 9.4						
					3.5 8.9						
					4.0 8.4						
					4.5 7.9						
					5.0 7.4						

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : BH106

FILE / JOB NO : A201023.0436.01
SHEET : 2 OF 3

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321508.3, N: 6256727.8 (AHD) SURFACE ELEVATION : 12.40 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/9/2025 DATE COMPLETED : 1/10/2025 DATE LOGGED : 1/10/2025 LOGGED BY : GL CHECKED BY : JK

CASING DIAMETER : BARREL (Length) : BIT : BIT CONDITION :

DRILLING					MATERIAL				FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) / DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH UCS=20·$I_{s(50)}$ ● - Axial ○ - Diametral ■ - UCS VL -2 L -6 M -20 H -60 VH -200 EH	NATURAL FRACTURE (mm) 20 40 100 300 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
					0.0							
					0.5							
					1.0							
					1.5							
							1.60m START CORING AT 1.60m					
HQ3			0	Is(50) D=0.150 MPa Is(50) A=0.110 MPa	2.0		**SHALE**: grey-brown, with iron indurated bands.	HW				CZ, 40 mm BP, 20°, clay CT, PR, RF JT, clay VNR, CU, RF SMXW, 30 mm SMXW, 100 mm
		2.60		Is(50) D=0.0200 MPa	2.5							SMXW, 160 mm SMclay, 70 mm BP, 50°, clay VNR, ST, RF BP, 0°, clay VNR, PR, RF BP, 5°, clay CT, IR, RF BP, 0°, clay CT, ST, RF CS, 10 mm
			0	Is(50) A=0.420 MPa	3.0							CS, 20 mm CS, 50 mm CS, 10 mm BP, 0°, CN, PR, RF SMclay, 20 mm BP, 10°, CN, PR, RF BP, 5°, CN, PR, RF BP, 0 - 5°, CN, PR, RF BP, 0°, CN, PR, RF BP, 5°, CN, PR, RF BP, 5°, Fe CN, UN, RF BP, 0°, Fe CN, PR, RF BP, 0°, clay VNR, PR, RF
		3.46			3.5		3.60m					
			71	Is(50) D=0.230 MPa Is(50) A=0.840 MPa	4.0		**INTERBEDDED SANDSTONE AND SHALE**: fine to medium grained sandstone, pale grey to orange-brown with iron indurated bands.	MW				BP, 0°, clay VNR, PR, RF BP, 0°, clay VNR, PR, RF BP, 0°, clay VNR, PR, RF BP, 25°, CN, PR, RF BP, 0°, CN, PR, RF JT, 60°, clay VNR, CU, RF BP, 5°, clay VNR, PR, RF BP, 10 - 20°, CN, PR, RF BP, 5°, CN, UN, RF BP, 60°, CN, UN, RF
					4.5							BP, 0°, CN, PR, RF BP, 5°, CN, PR, RF SMclay, 20 mm
		4.95		Is(50) D=0.250 MPa	5.0							

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : BH106

FILE / JOB NO : A201023.0436.01
SHEET : 3 OF 3

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321508.3, N: 6256727.8 (AHD) SURFACE ELEVATION : 12.40 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/9/2025 DATE COMPLETED : 1/10/2025 DATE LOGGED : 1/10/2025 LOGGED BY : GL CHECKED BY : JK

CASING DIAMETER : BARREL (Length) : BIT : BIT CONDITION :

DRILLING					MATERIAL				FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) / DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH UCS=20·$I_{s(50)}$ ● - Axial ○ - Diametral ■ - UCS VL -2 L -6 M -20 H -60 VH -200 EH	NATURAL FRACTURE (mm) 20 40 100 300 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
HQ3			74	Is(50) A=0.690 MPa	5.0		**INTERBEDDED SANDSTONE AND SHALE**: fine to medium grained sandstone, pale grey to orange-brown with iron indurated bands. *(continued)*	HW				BP, 0°, clay VNR, PR, RF BP, 5°, clay VNR, PR, RF BP, 20°, clay VNR, PR, RF SMclay, 20 mm BP, 10°, clay VNR, PR, RF BP, 5°, clay VNR, PR, RF
				Is(50) D=0.0300 MPa	5.5							
				Is(50) A=0.150 MPa								
					6.0							BP, 10°, clay VNR, UN, RF BP, 5 - 10°, clay VNR, UN, RF BP, 10°, clay CT, IR, RF BP, 5°, clay VNR, PR, RF
		6.54		Is(50) D=0.100 MPa	6.5		6.54m					BP, 0°, CN, UN, RF
			94	Is(50) A=0.550 MPa			**INTERBEDDED SHALE AND SANDSTONE**: fine grained sandstone, pale-grey and grey.	SW				BP, 5°, clay FILLED, PR, RF BP, 5°, CN, PR, RF BP, 10°, clay CT, PR, RF BP, 5°, clay CT, PR, RF SMclay, 50 mm
				7.33m UCS =22.1 MPa	7.0							BP, 10°, clay CT, PR, RF BP, 5°, clay VNR, PR, RF BP, 5°, CN, PR, RF BP, 10°, CN, PR, RF
				Is(50) D=0.530 MPa Is(50) A=0.890 MPa	7.5							BP, 10°, CN, PR, RF BP, 10°, CN, PR, RF
				Is(50) D=0.330 MPa Is(50) A=1.10 MPa	8.0							
		8.20	100									
				8.59m UCS =21.3 MPa	8.5							
					9.0							BP, 5°, CN, PR, RF
				Is(50) D=0.150 MPa Is(50) A=1.22 MPa								BP, 10°, CN, PR, RF BP, 0°, CN, PR, RF JT
		9.60			9.5		9.60m					
							Hole Terminated at 9.60 m Target depth					
					10.0							

See Explanatory Notes for details of abbreviations & basis of descriptions.

ADE Consulting Group

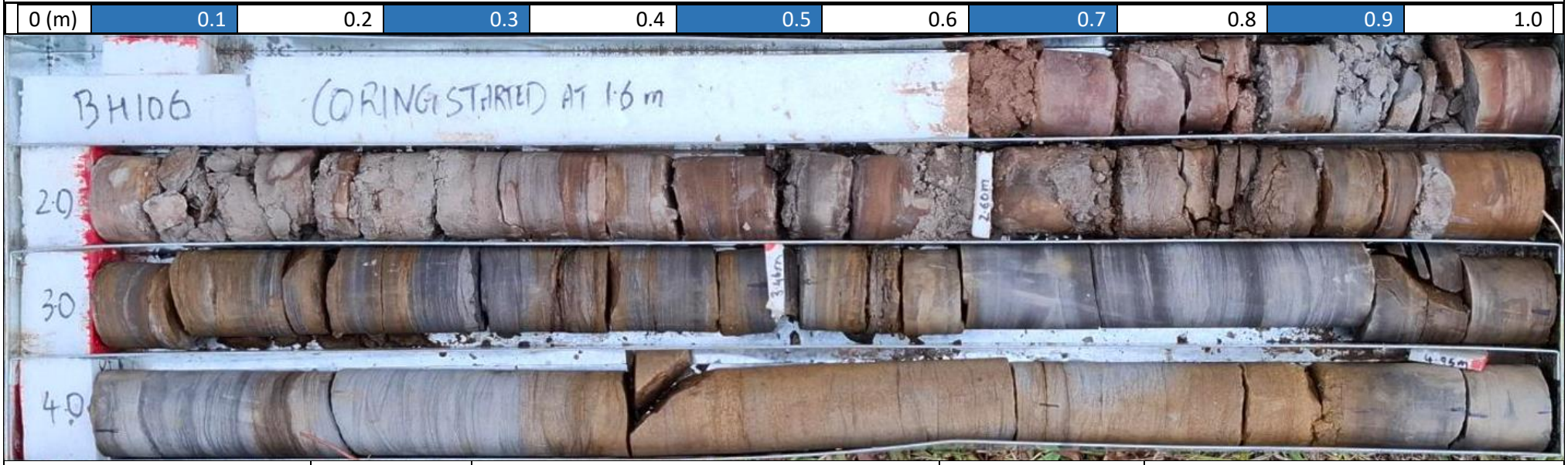
Project : Additional Geotechnical Investigation

Job No. : A201023.0436.01

Borehole : BH 106

Depth : 1.60 m – 5.00 m

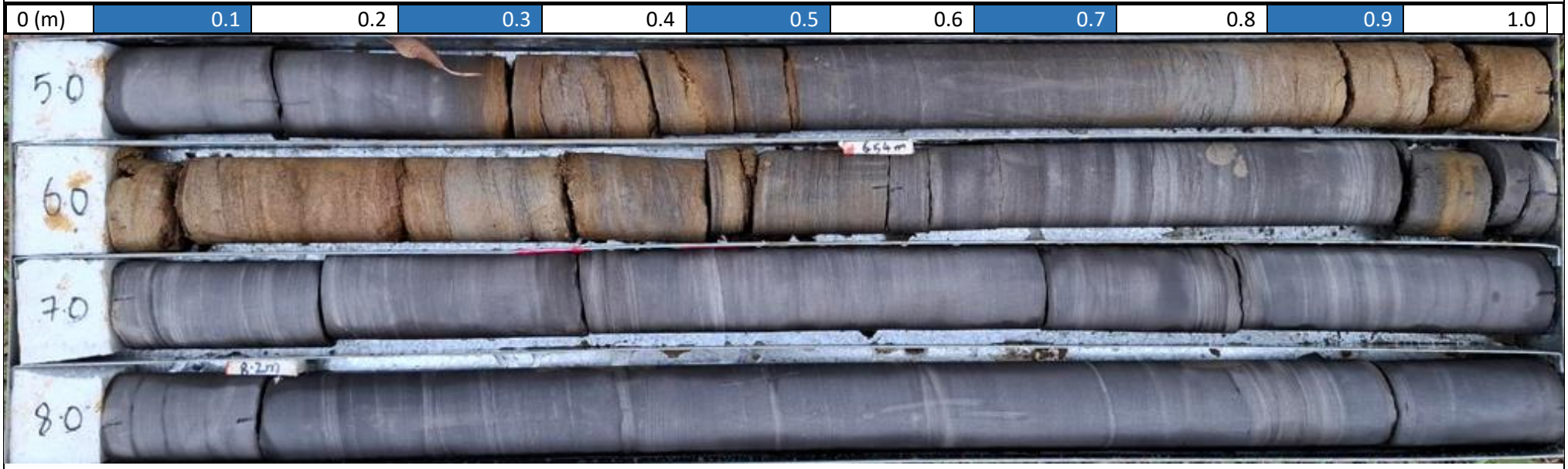
Core Photo : No. 1



ADECONSULTINGGROUP SOLUTIONS THROUGH INNOVATION	Client:	SINSW	Borehole No:	BH 106
	Project:	Geotechnical Investigation	Depth:	1.60 m – 5.00 m
	Title:	Core Photograph	Photograph By:	GL
	Location:	110 Wharf Road, Ermington NSW 2114	Date:	10.01.2025

ADE Consulting Group

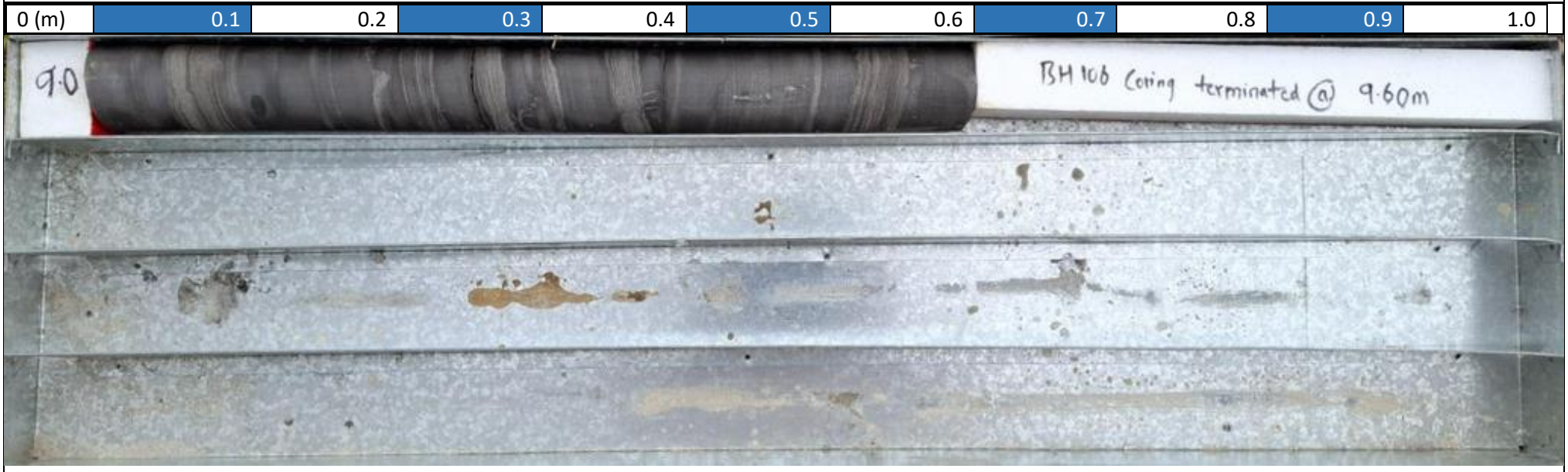
Project : Additional Geotechnical Investigation
Job No. : A201023.0436.01
Borehole : BH 106
Depth : 5.00 m – 9.60 m
Core Photo : No. 2



ADECONSULTINGGROUP SOLUTIONS THROUGH INNOVATION	Client:	SINSW	Borehole No:	BH 106
	Project:	Geotechnical Investigation	Depth:	5.00 m – 9.60 m
	Title:	Core Photograph	Photograph By:	GL
	Location:	110 Wharf Road, Ermington NSW 2114	Date:	10.01.2025

ADE Consulting Group

Project : Additional Geotechnical Investigation
Job No. : A201023.0436.01
Borehole : BH 106
Depth : 9.00 m – 9.60 m
Core Photo : No. 3



ADECONSULTINGGROUP SOLUTIONS THROUGH INNOVATION	Client:	SINSW	Borehole No:	BH 106
	Project:	Geotechnical Investigation	Depth:	9.00 m – 9.60 m
	Title:	Core Photograph	Photograph By:	GL
	Location:	110 Wharf Road, Ermington NSW 2114	Date:	10.01.2025

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH107

FILE / JOB NO : A201023.0436.01
SHEET : 1 OF 4

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321555.9, N: 6256751.3 (AHD) SURFACE ELEVATION : 15.38 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/7/2025 DATE COMPLETED : 1/8/2025 DATE LOGGED : 1/7/2025 LOGGED BY : GL CHECKED BY : JK

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m M AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/V		E	Not Encountered	SPT 7,9,11 N=20	0.0 15.4			**Topsoil / Silty CLAY**: low to medium plasticity, brown, with organics.	w<PL		TOPSOIL or FILL
								0.15m **Fill / Silty CLAY**: medium to high plasticity, brown.	w<PL		FILL
					0.5 14.9			0.50m **Silty CLAY**: medium to high plasticity, pale-grey mottled orange, with shale bands.	w<PL	VSt	RESIDUAL SOIL
					1.0 14.4		CI-CH				
				SPT 7,10/32mm HB N=R	1.5 13.9		CI-CH	1.50m **Silty CLAY**: medium to high plasticity, pale-grey, with ironstone gravel.	w<PL		
					2.0 13.4			1.82m **Silty CLAY**: low plasticity, pale-grey mottled red, with iron stained shale bands.	w<PL	H	EXTREMELY WEATHERED MATERIAL
					2.5 12.9		CL				
					3.0 12.4			3.40m Continued as Cored Drill Hole			
					3.5 11.9						
					4.0 11.4						
					4.5 10.9						
					5.0 10.4						

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : BH107

FILE / JOB NO : A201023.0436.01
SHEET : 2 OF 4

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321555.9, N: 6256751.3 (AHD) SURFACE ELEVATION : 15.38 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/7/2025 DATE COMPLETED : 1/8/2025 DATE LOGGED : 1/7/2025 LOGGED BY : GL CHECKED BY : JK

CASING DIAMETER : BARREL (Length) : BIT : BIT CONDITION :

DRILLING						MATERIAL				FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) / DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH UCS=20·$I_{s(50)}$ ● - Axial ○ - Diametral ■ - UCS VL -2 L -6 M -20 H -60 VH -200 EH	NATURAL FRACTURE (mm) 20 40 100 300 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
					0.0							
					0.5							
					1.0							
					1.5							
					2.0							
					2.5							
					3.0							
							3.40m START CORING AT 3.40m					
HQ3			52		3.5		**SHALE**: grey mottled red and orange.	XW				
					4.0							
					4.5		4.60m					
		4.90		Is(50) D=0.0800 MPa			**Interbedded SHALE and SANDSTONE**: fine grained sandstone, grey, brown.					SM, 30 mm
			66	Is(50) A=0.250 MPa	5.0			HW				BP, 20°, clay VNR, PR, RF

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

ADE CONSULTING GROUP

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

HOLE NO : BH107
FILE / JOB NO : A201023.0436.01
SHEET : 3 OF 4

POSITION : E: 321555.9, N: 6256751.3 (AHD) SURFACE ELEVATION : 15.38 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/7/2025 DATE COMPLETED : 1/8/2025 DATE LOGGED : 1/7/2025 LOGGED BY : GL CHECKED BY : JK

CASING DIAMETER : BARREL (Length) : BIT : BIT CONDITION :

DRILLING						MATERIAL				FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH UCS=20·$I_{s(50)}$ ● - Axial ○ - Diametral ■ - UCS VL -2 L -6 M -20 H -60 VH -200 EH	NATURAL FRACTURE (mm) 20 40 100 300 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
HQ3		6.35	66	Is(50) D=0.100 MPa Is(50) A=0.210 MPa	5.0		**Interbedded SHALE and SANDSTONE**: fine grained sandstone, grey, brown. *(continued)*	HW				BP, 0 - 10°, clay Co, UN, RF BP, 0°, CN, PR, RF JT, 80 - 90°, PR, RF, 250 mm BP, 0°, clay VNR, ST, RF SM, 50 mm
		7.89	75	Is(50) D=0.270 MPa Is(50) A=0.980 MPa	6.35m		**Interbedded SHALE and SANDSTONE**: fine to medium grained sandstone, grey, orange-brown.					JT, clay Fe, RF BP, 30°, CN, PR, RF EWZ, 60 mm SM, 40 mm BP, 5°, clay VNR, PR, RF SM, 100 mm BP, 20°, clay VNR, CU, RF BP, 20°, clay VNR, IR, RF BP, 45°, clay FILLED, PR, RF BP, 45°, clay VNR, PR, RF BP, 30°, clay VNR, PR, RF
		9.41	60	Is(50) D=0.270 MPa Is(50) A=0.420 MPa Is(50) D=0.0500 MPa Is(50) A=0.130 MPa 8.59m UCS =29.9 MPa	7.89m		**INTERBEDDED SANDSTONE and SHALE**: fine grained, pale-grey and grey.	MW				SM, 20 mm EWZ, 250 mm BP, 0°, clay VNR, PR, SM BP, 5°, clay VNR, PR, SM JT, clay VNR, PR, RF BP, 5°, clay VNR, PR, RF BP, 0°, clay VNR, PR, RF BP, 5°, clay VNR, PR, RF SM, 50 mm BP, 5°, CN, PR, RF BP, 0 - 5°, CN, PR, RF BP, 0 - 10°, CN, PR, RF BP, 5°, CN, PR, RF JT
			95	Is(50) D=0.400 MPa Is(50) A=1.03 MPa 9.59m UCS =24 MPa	9.5							JT, CN, UN, RF BP, 5°, CN, PR, RF BP, 0°, CN, PR, RF
					10.0							

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : **BH107**

FILE / JOB NO : A201023.0436.01

SHEET : 4 OF 4

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School

LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321555.9, N: 6256751.3 (AHD) SURFACE ELEVATION : 15.38 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/7/2025 DATE COMPLETED : 1/8/2025 DATE LOGGED : 1/7/2025 LOGGED BY : GL CHECKED BY : JK

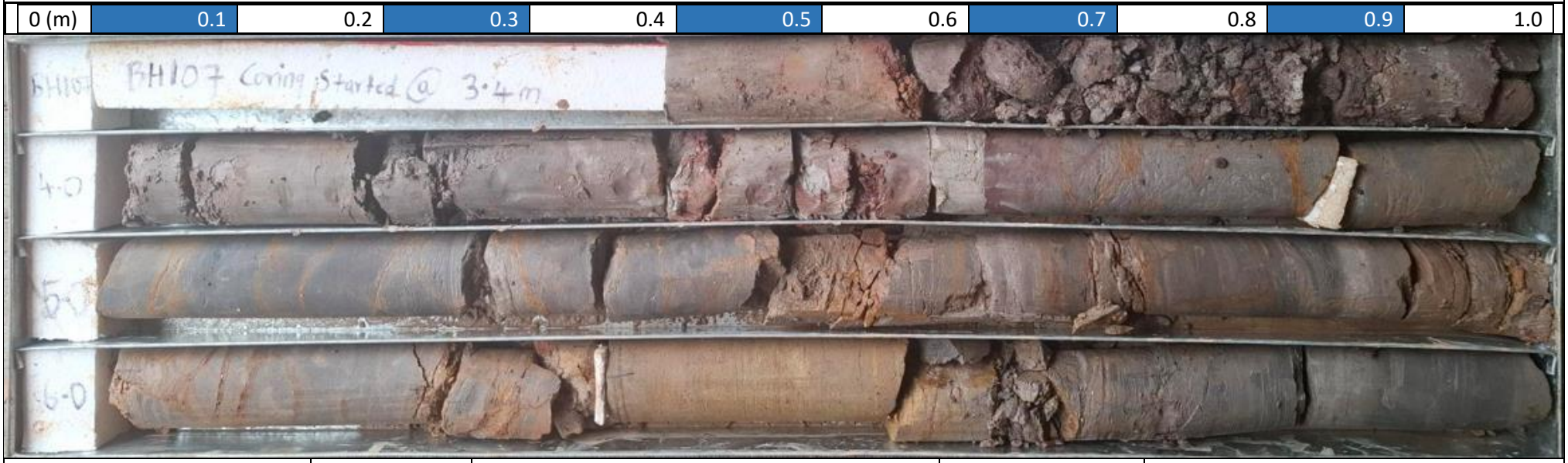
CASING DIAMETER : BARREL (Length) : BIT : BIT CONDITION :

DRILLING						MATERIAL				FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) / DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH UCS=20·$I_{s(50)}$ ● - Axial ○ - Diametral ■ - UCS VL -2 L -6 M -20 H -60 VH -200 EH	NATURAL FRACTURE (mm) 20 40 100 300 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
HQ3		10.74	95	Is(50) D=1.17 MPa Is(50) A=2.93 MPa	10.0		**INTERBEDDED SANDSTONE and SHALE**: fine grained, pale-grey and grey. *(continued)*	MW SW				BP, 5°, CN, PR, RF BP, 10°, CN, UN, RF
		12.28	93		10.5							
					11.0							BP, 5°, CN, PR, RF
				Is(50) D=0.370 MPa Is(50) A=1.26 MPa	11.5							BP, 0°, CN, PR, RF CZ, 40 mm
				Is(50) D=0.520 MPa Is(50) A=1.91 MPa	12.0							BP, 5°, CN, PR, RF
		12.74	100		12.5		12.74m					BP, 10°, CN, IR, RF BP, 5°, clay CT, PR, SM
							Hole Terminated at 12.74 m Target depth					
					13.0							
					13.5							
					14.0							
					14.5							
					15.0							

See Explanatory Notes for details of abbreviations & basis of descriptions.

ADE Consulting Group

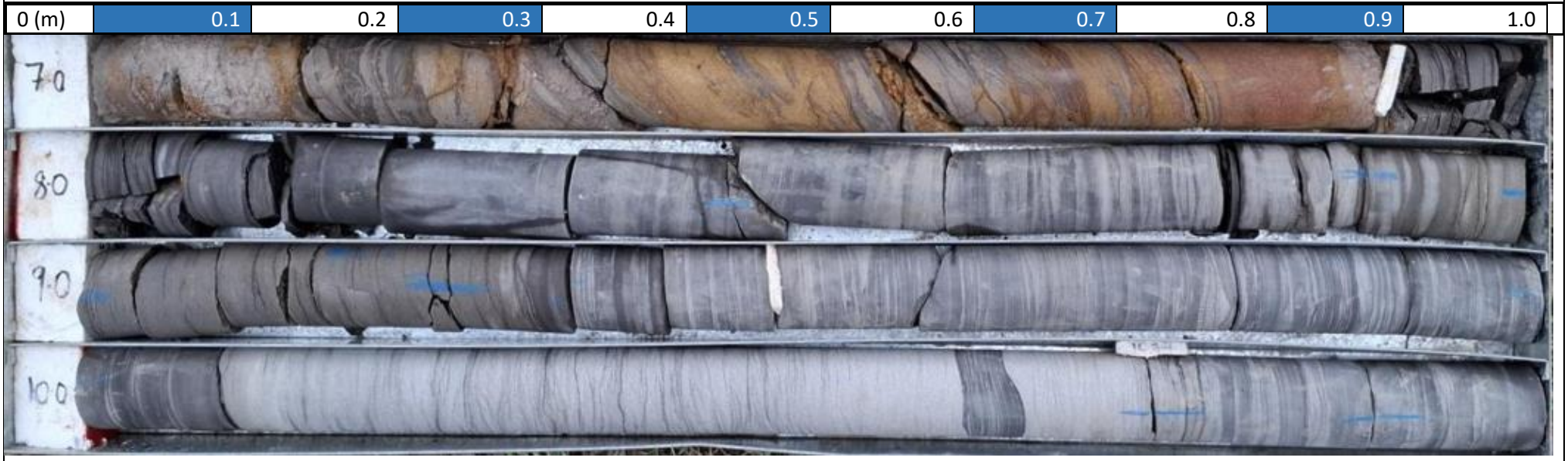
Project : Additional Geotechnical Investigation
Job No. : A201023.0436.01
Borehole : BH 107
Depth : 3.40 m – 7.00 m
Core Photo : No. 1



ADECONSULTINGGROUP SOLUTIONS THROUGH INNOVATION	Client:	SINSW	Borehole No:	BH 107
	Project:	Geotechnical Investigation	Depth:	3.40 m – 7.00 m
	Title:	Core Photograph	Photograph By:	GL
	Location:	110 Wharf Road, Ermington NSW 2114	Date:	9.01.2025

ADE Consulting Group

Project : Additional Geotechnical Investigation
Job No. : A201023.0436.01
Borehole : BH 107
Depth : 7.00 m – 11.00 m
Core Photo : No. 2



ADECONSULTINGGROUP SOLUTIONS THROUGH INNOVATION	Client:	SINSW	Borehole No:	BH 107
	Project:	Geotechnical Investigation	Depth:	7.00 m – 11.00 m
	Title:	Core Photograph	Photograph By:	GL
	Location:	110 Wharf Road, Ermington NSW 2114	Date:	9.01.2025

ADE Consulting Group

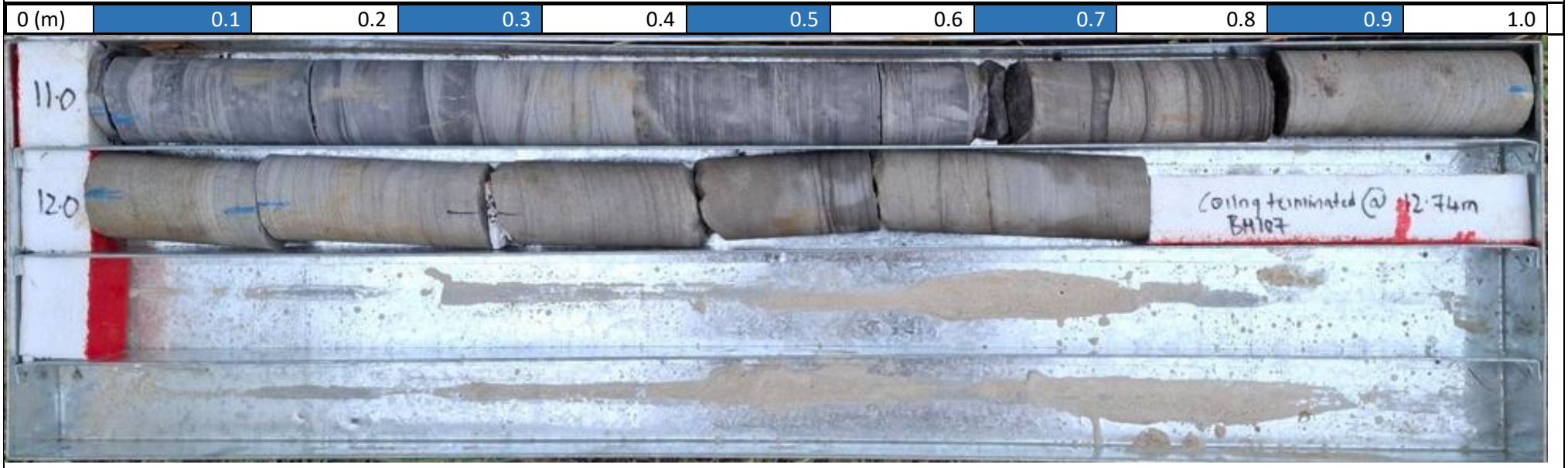
Project : Additional Geotechnical Investigation

Job No. : A201023.0436.01

Borehole : BH 107

Depth : 11.00 m – 12.74 m

Core Photo : No. 3



ADECONSULTINGGROUP SOLUTIONS THROUGH INNOVATION	Client:	SINSW	Borehole No:	BH 107
	Project:	Geotechnical Investigation	Depth:	11.00 m – 12.74 m
	Title:	Core Photograph	Photograph By:	GL
	Location:	110 Wharf Road, Ermington NSW 2114	Date:	09.01.2025

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH108

FILE / JOB NO : A201023.0436.01
SHEET : 1 OF 3

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321609.5, N: 6256755.2 (AHD) SURFACE ELEVATION : 15.51 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/7/2025 DATE COMPLETED : 1/7/2025 DATE LOGGED : 1/7/2025 LOGGED BY : GL CHECKED BY : JK

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m M AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0 15.5			**Topsoil/ Silty CLAY**: low to medium plasticity, dark-brown, with organics.	w<PL		TOPSOIL or FILL
								0.15m			
							FILL	**Fill/ Silty CLAY**: low to medium plasticity, brown, trace gravels, with rootlets.	w<PL		FILL
					0.5 15.0			0.50m			
				SPT 6,8,10 N=18				**Silty CLAY**: medium to high plasticity, red-brown mottled orange, trace fine to coarse subangular gravel and rootlets.			RESIDUAL SOIL
					1.0 14.5		CI-CH		w<PL	St to VSt	
					1.5 14.0			1.50m			
AD/V		E	Not Encountered	SPT 4,9,15 N=24				**Silty CLAY**: medium to high plasticity, pale-grey mottled red-orange.			
					2.0 13.5		CI-CH		w≈PL	VSt	
					2.5 13.0						
					3.0 12.5			3.00m			
				SPT 12,20/27mm HB N=R			CI-CH	**Silty CLAY**: medium to high plasticity, pale-grey, with iron indurated shale bands.	w<PL	H	
								3.27m			
								Continued as Cored Drill Hole			
					3.5 12.0						
					4.0 11.5						
					4.5 11.0						
					5.0 10.5						

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : BH108

FILE / JOB NO : A201023.0436.01
SHEET : 2 OF 3

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321609.5, N: 6256755.2 (AHD) SURFACE ELEVATION : 15.51 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/7/2025 DATE COMPLETED : 1/7/2025 DATE LOGGED : 1/7/2025 LOGGED BY : GL CHECKED BY : JK

CASING DIAMETER : BARREL (Length) : BIT : BIT CONDITION :

DRILLING						MATERIAL				FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH UCS=20·$I_{s(50)}$ ● - Axial ○ - Diametral ■ - UCS (VL -2, L -6, M -20, H -60, VH -200, EH)	NATURAL FRACTURE (mm) (20, 40, 100, 300, 1000)	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
					0.0							
					0.5							
					1.0							
					1.5							
					2.0							
					2.5							
					3.0		3.27m START CORING AT 3.27m					
HQ3			87	Is(50) D=0.180 MPa Is(50) A=0.0100 MPa Is(50) A=0.0200 MPa Is(50)	3.5 4.0 4.5 5.0		**SHALE**: pale-grey mottled red and orange.	XW				BP, 10°, clay CT, PR, RF SM, 30 mm BP, 30°, clay CT, IR, RF BP, 0 - 5°, clay CT, IR, RF

See Explanatory Notes for details of abbreviations & basis of descriptions.

CORED DRILL HOLE LOG

HOLE NO : BH108

FILE / JOB NO : A201023.0436.01
SHEET : 3 OF 3

CLIENT : School Infrastructure NSW PROJECT : Melrose Park Public School
LOCATION : 110 Wharf Road, Ermington NSW 2114

POSITION : E: 321609.5, N: 6256755.2 (AHD) SURFACE ELEVATION : 15.51 (M AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : GEO205 MOUNTING : Track CONTRACTOR : Legion Drilling DRILLER : Alex

DATE STARTED : 1/7/2025 DATE COMPLETED : 1/7/2025 DATE LOGGED : 1/7/2025 LOGGED BY : GL CHECKED BY : JK

CASING DIAMETER : BARREL (Length) : BIT : BIT CONDITION :

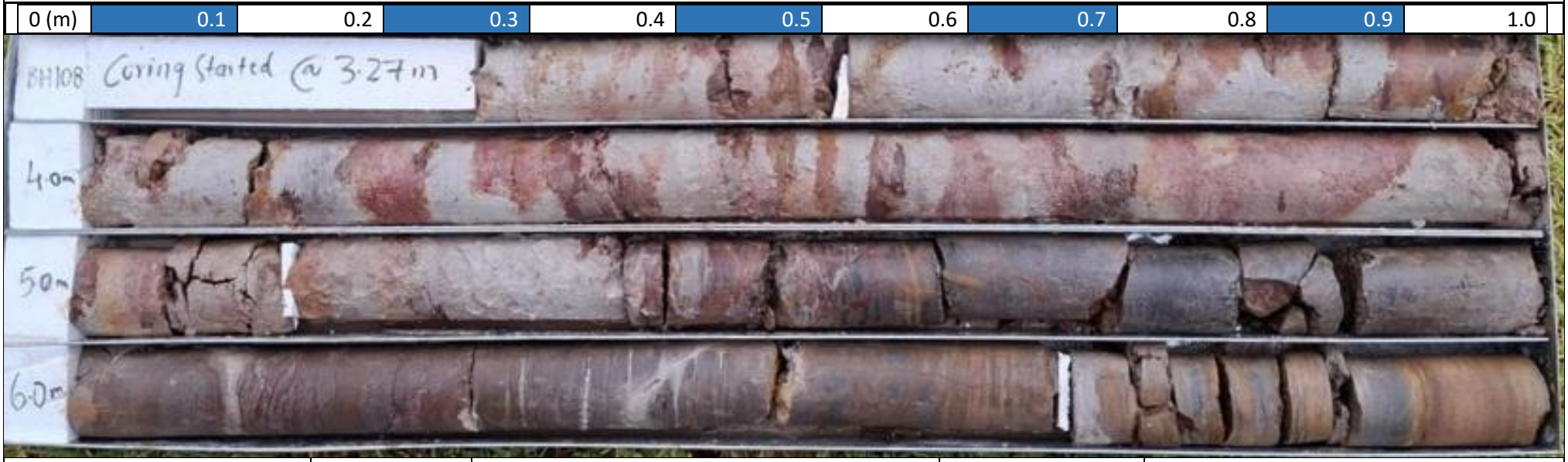
DRILLING						MATERIAL				FRACTURES		
PROGRESS: DRILLING & CASING	PROGRESS: WATER	(CORE LOSS RUN %) / DRILL DEPTH	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	WEATHERING	ESTIMATED STRENGTH UCS=20·$I_{s(50)}$ ● - Axial ○ - Diametral ■ - UCS VL -2 L -6 M -20 H -60 VH -200 EH	NATURAL FRACTURE (mm) 20 40 100 300 1000	VISUAL	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
HQ3		5.14	87	D=0.0100 MPa	5.0		**SHALE**: pale-grey mottled red and orange. *(continued)*	XW				EWZ, 80 mm
			76				5.38m					SM, 120 mm
				Is(50) A=0.0700 MPa Is(50) D=0.0100 MPa	5.5		**SHALE**: grey.	HW				BP, 0°, clay CT, PR, SM BP, 5°, clay CT, IR, RF BP, 10°, clay CT, PR, RF
					6.0							JT, 0 - 5°, clay CT, PR, RF
				Is(50) A=0.260 MPa Is(50) D=0.240 MPa								BP, 5°, clay CT, PR, RF BP, 0°, clay CT, PR, RF
		6.62		6.52m UCS =5.36 MPa	6.5		6.60m					
			58				**INTERBEDDED SANDSTONE AND SHALE**: fine grained, pale-grey and grey.					BP, 0°, clay CT, IR, RF BP, 0°, clay CT, IR, RF BP, 0°, clay CT, PR, RF BP, 0°, clay CT, PR, RF BP, 0°, clay CT, PR, RF
					7.0							SM, 30 mm BP, 0 - 5°, PR, RF SM, clay FILLED, 10 mm
												SM, 20 mm BP, 5°, clay VNR, PR, RF
					7.5		7.70m					BP, 0°, clay VNR, PR, RF
				Is(50) A=0.610 MPa Is(50) D=0.760 MPa			**SANDSTONE**: firm to medium grained, pale-grey, brown with shale lamination dipping 0°-30°.					BP, 30°, clay FILLED, IR, RF BP, 5°, clay VNR, PR, S
		8.17			8.0							BP, 0°, clay VNR, PR, RF BP, 0 - 10°, clay VNR, UN, RF BP, 0 - 10°, clay VNR, UN, RF
			89					MW				BP, 5°, clay VNR, IR, RF
				Is(50) A=1.02 MPa Is(50) D=0.870 MPa	8.5							BP, 5 - 10°, clay VNR, PR, RF SM, 20 mm
					9.0							BP, 10°, CN, PR, RF BP, 10°, clay VNR, PR, RF
				Is(50) A=1.50 MPa Is(50) D=0.410 MPa								BP, 5 - 10°, clay VNR, PR, RF
		9.72			9.5							BP, 5°, clay VNR, UN, RF
			71	9.81m UCS =20.3 MPa								BP, 20°, clay VNR, IR, RF
		10.00			10.0		10.00m					

Hole Terminated at 10.00 m
Target depth

See Explanatory Notes for details of abbreviations & basis of descriptions.

ADE Consulting Group

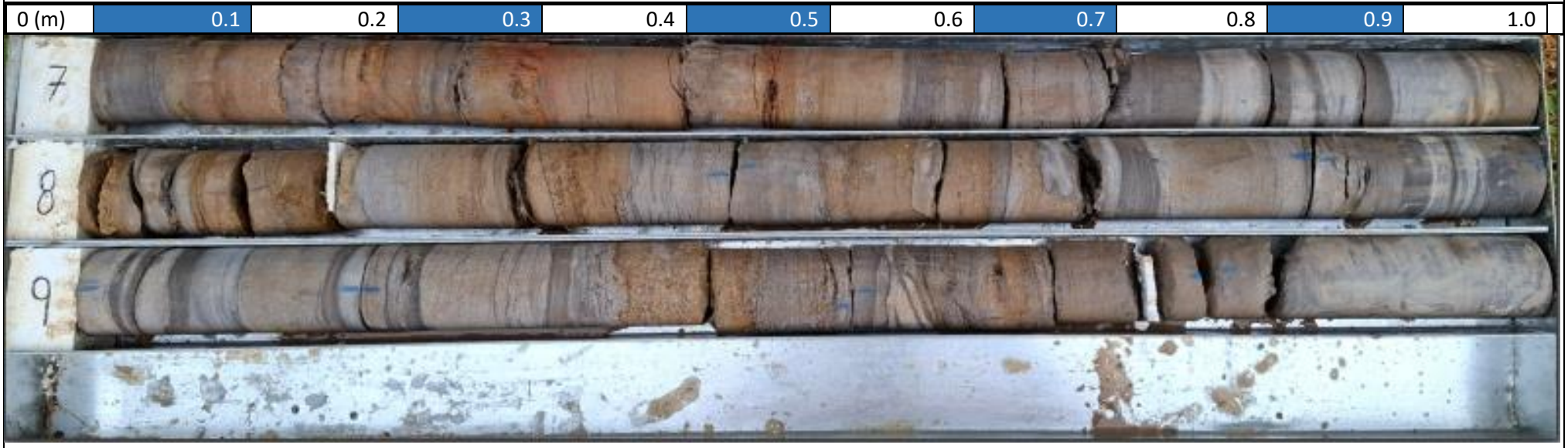
Project : Additional Geotechnical Investigation
Job No. : A201023.0436.01
Borehole : BH 108
Depth : 3.27 m – 7.00 m
Core Photo : No. 1



ADECONSULTINGGROUP SOLUTIONS THROUGH INNOVATION	Client:	SINSW	Borehole No:	BH 108
	Project:	Geotechnical Investigation	Depth:	3.27 m – 7.00 m
	Title:	Core Photograph	Photograph By:	GL
	Location:	110 Wharf Road, Ermington NSW 2114	Date:	07.01.2025

ADE Consulting Group

Project : Additional Geotechnical Investigation
Job No. : A201023.0436.01
Borehole : BH 108
Depth : 7.00 m – 10.0 m
Core Photo : No. 2



ADECONSULTINGGROUP SOLUTIONS THROUGH INNOVATION	Client:	SINSW	Borehole No:	BH 108
	Project:	Geotechnical Investigation	Depth:	7.00 m – 10.00 m
	Title:	Core Photograph	Photograph By:	GL
	Location:	110 Wharf Road, Ermington NSW 2114	Date:	07.01.2025

EXPLANATORY NOTES

Soil and rock descriptions on the logs are generally in accordance with the recommendations of AS1726-2017 Geotechnical Site Investigation.

The order in which descriptions are provided on the logs is as follows:

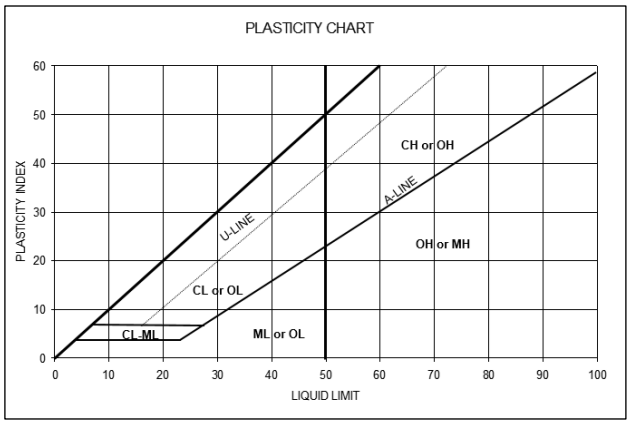
1. SOIL NAME AND GROUP SYMBOLS

Major Divisions		Symbol	Description
COARSE GRAINED SOILS More than 65% of soil excluding oversized fraction is greater than 0.075mm	**GRAVEL** More than 50% of coarse fraction is >2.36mm	GW	Well-graded gravels, gravel-sand mixtures, wide range in grain size and substantial amounts of all intermediate sizes, little or no fines
		GP	Poorly graded gravels, gravel-sand mixtures, predominantly one size or range of sizes with some intermediate sizes missing, little or no fines
		GM	With appreciable amount of non-plastic fines, zero to medium dry strength (gravel-sand-silt mixtures)
		GC	With appreciable amount of plastic fines, medium to high dry strength (gravel-sand-clay mixtures)
	SAND More than 50% of coarse fraction is <2.36mm	SW	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength (Well graded sands, gravelly sands, little or no fines)
		SP	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength (Poorly graded sands and gravelly sands; little or no fines, uniform sands)
		SM	With appreciable amount of non-plastic fines, zero to medium dry strength (silty sands, sand-silt mixtures)
		SC	With appreciable amount of plastic fines, medium to high dry strength (clayey sands, sand-clay mixtures)
FINE GRAINED SOILS More than 35% of soil excluding oversized fraction is less than 0.075mm	Liquid Limit <50%	ML	Inorganic silts of low plasticity (very fine sands, rock flour, sandy clays, silty clays)
		CL, CI	Inorganic clays of low to medium plasticity (gravelly clays, sandy clays, silty clays)
		OL	Organic silts and organic silty clays of low plasticity
	Liquid Limit >50%	MH	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity
		OH	Organic clays of medium to high plasticity
	Highly organic soil	PT	Peat muck and other highly organic soils

2. PARTICLE SIZE CHARACTERISTICS

Fraction	Components	Sub Division	Size (mm)
	Boulders		>200
	Cobbles		63 - 200
Coarse grained soil	Gravel	Coarse	19 - 63
		Medium	6.7 - 19
		Fine	2.36 - 6.7
	Sand	Coarse	0.6 - 2.36
		Medium	0.21 - 0.6
		Fine	0.075 - 0.21
Fine grained soil	Silt		0.002 - 0.075
	Clay		<0.002

3. PLASTICITY PROPERTIES



4. MINOR COMPONENTS

Coarse Grained Soils		Fine Grained Soils	
% Fines	Modifier	% Coarse	Modifier
<5	Omit or use 'trace'	<15	Omit or use 'trace'
5 - 12	Describe as 'with clay/silt' as applicable	15 - 30	Describe as 'with sand/gravel' as applicable
>12	Prefix soil as 'silty/clayey' as applicable	>30	Prefix soil as 'sandy/gravelly' as applicable

5. MOISTURE CONDITION

Field Identification			
Symbol	**Cohesive soils**	**Symbol**	**Granular soils**
w<PL	Hard and friable – Moisture Content of soils is less than the plastic limit	D	No Cohesion, dry to the touch and free running
w=PL	Feels cool, darkened in colour, can be moulded – Moisture Content is equal to plastic limit	M	Feels cool, darkened in colour, no visible water, tends to cohere
w>PL	Feels cool, darkened in colour, usually soft – Moisture Content is greater than plastic limit	W	Feels cool, darkened in colour, tend to cohere, and visible free water. Usually from below water table

Moisture content of cohesive soils shall be described in relation to plastic limit (PL) for the soils with dry of PL (w<PL); near PL (w=PL); and wet of PL (w>PL). Moisture content of non-cohesive (granular) soils shall be described as dry (D), moist (M), wet (w)

6. DENSITY

Term	Very Loose	Loose	Medium Dense	Dense	Very Dense
Symbol	VL	L	MD	D	VD
SPT (N)	0 - 4	4 - 10	10 - 30	30 - 50	>50
DCP	0 - 1	1 - 3	3 - 8	8 - 15	>15
Density Index (%)	<15	15 - 35	35 - 65	65 - 85	>85

7. CONSISTENCY

Term	Very Soft	Soft	Firm	Stiff	Very Stiff	Hard
Symbol	VS	S	F	St	Vst	H
SPT (N)	0 - 2	2 - 4	4 - 8	8 - 15	15 - 30	>30
DCP	0 - 1	1 - 2	2 - 3	3 - 7	7 - 12	>12
Undrained Shear Strength (kPa)	<12	12 - 25	25 - 50	50 - 100	100 - 200	>200

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SOLUTIONS THROUGH INNOVATION

ROCK DESCRIPTION - EXPLANATORY NOTES

1. STRENGTH

Term	Log Symbol	Point Load Index IS_{50} (MPa)	Field Guide
Very Low	VL	0.03 - 0.1	Material crumbles under firm blows with sharp end of pick; can be pealed with a knife; too hard to cut a triaxial sample by hand. SPT will refuse. Pieces up to 3 cm thick can be broken by finger pressure. Sandstone is 'sugary' and friable
Low	L	0.1 - 0.3	Easily scored with a knife; indentations 1 mm to 3 mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150 m long x 40 mm Φ may be broken by hand. Sharp edges of core may be friable and break during handling
Medium	M	0.3 - 1	Readily scored with a knife; piece of core 150 mm long x 50mm Φ can be broken by hand with difficulty
High	H	1 - 3	Can be slightly scratched with a knife. A piece of core 150 mm long x 50 mm Φ cannot be broken by unaided hands but can be broken with a single blow, rock rings under hammer
Very High	VH	3 - 10	Cannot scratch with a knife. Hand specimen breaks with pick after more than one blow, rock rings under hammer
Extremely High	EH	>10	Specimen requires many blows with geo-pick to break through intact material, rock rings under hammer

2. WEATHERING

Classification	Symbol	Description
Residual Soil	RS	Soil derived from the weathering of rock; the mass structure and substance fabric are no longer evident; the soil has not been significantly transported.
Extremely Weathered	XW	Rock is weathered to such an extent that it has 'soil' properties, that is, it either disintegrates or can be remoulded, in water. Fabric of original rock still visible.
Distinctly Weathered	HW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually be iron staining. Porosity may be increased by leaching or may be decreased due to deposition of weathering products in pores. In some environments it is convenient to subdivide into Highly Weathered (HW) and Moderately Weathered (MW), with the degree of alteration typically less for MW.
	MW	
Slightly Weathered	SW	Rock is partially discoloured with staining along joints but shows little or no change of strength from fresh rock.
Fresh Rock	FR	Rock shows no sign of decomposition or staining.

3. COMMON DEFECTS IN ROCK MASS

Type	Symbol	Description
Bedding	Be	A surface or crack across which the rock has little or no tensile strength. Parallel or sub-parallel to layering. May be open or closed.
Joint	Jt	A surface or crack with no apparent shear displacement and across which the rock has little or no tensile strength. May be open or closed.
Shear Zone	Sz	Zone of rock material with roughly parallel near planar, curved or undulating boundaries cut by closely spaced joints, shear surface or other defects. Some of the defects are usually curved and intersect to divide the mass into lenticular or wedge-shaped blocks.
Clay Seam	Cs	Seam of soil material with roughly parallel almost planar boundaries, composed of clay.
Crushed Seam Zone	Cz	Seam of material with roughly parallel almost planar boundaries, composed of disorientated, usually angular fragment of the host rock, which may be more weathered than the host rock.
Infilled Seam	Se	Seam of soil material with distinct roughly parallel planar boundaries formed by the migration of soil into an open cavity or joint and must be defined by colour and USC symbols. Infilled seams less than 1 mm thick may be described as a veneer or coating on a joint surface.
Extremely Weathered Seam / Zone	Ewz	Seam of soil material, often with gradational boundaries. Formed by weathering of the rock material in place.

4. DEFECTS SHAPES AND CHARACTERISTICS

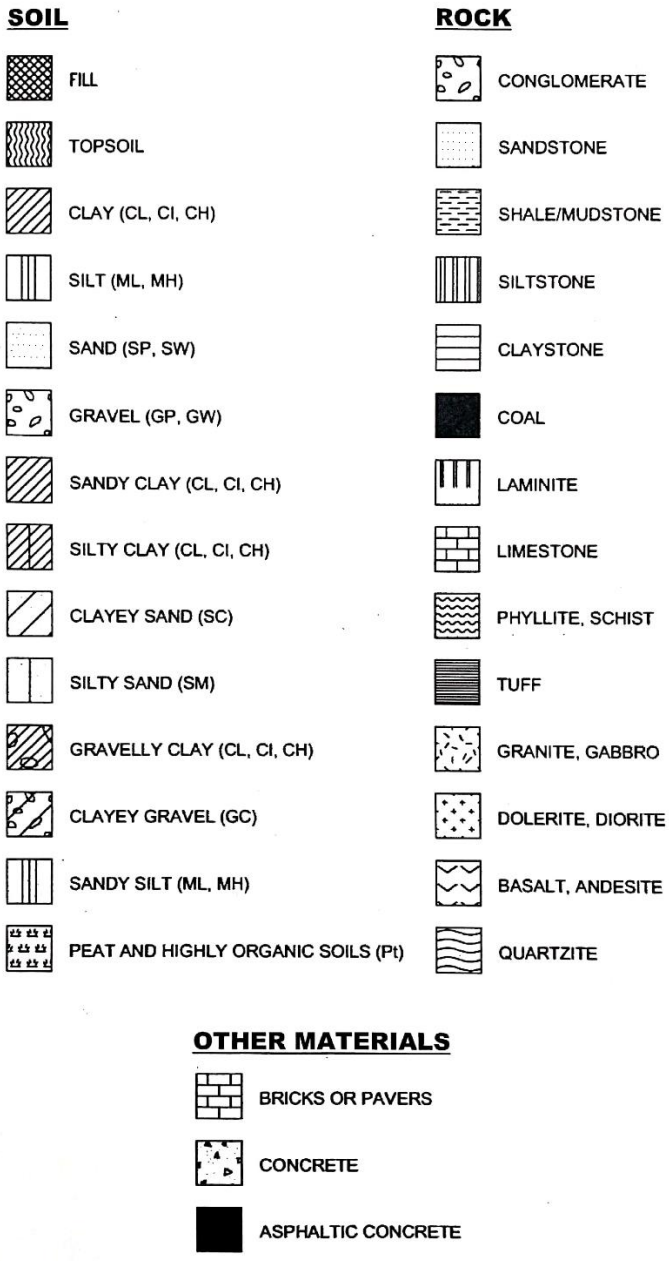
Characteristics	Description
Thickness	Measured in mm normal to the plane of the defect (mm.t).
Inclination	Measured in an exposure as a dip and strike or dip and dip direction. In core measured as an angle from a plane normal to the core axis.
Surface Shape	Described defect surface shape as either: - Planar (Pl) – defect forms a continuous plane without variation in orientation - Curved (Cu) – defect has a gradual change in orientation - Undulating (Un) – a defect has wavy surface - Stepped (St) – a defect has one or more well defined steps. - Irregular (Ir) – a defect with many sharp changes of orientation
Surface Roughness	A description of the defect plane described as: - Rough (Ro)– many small surface irregularities. - Smooth (Sm) – smooth to touch. Few or no surface irregularities. - Polished (Po) – shiny or sheen smooth surface inconsistent with parent rock - Slickensided (Sl) – Grooved or striated surface, usually polished.
Coating	Described defect coating as either: - Clean (Cl) – no visible coating - Stained (St) – no visible coating but surfaces are discoloured - Veneer (Ve) – a visible coating soil or mineral substance, but usually unable to be measured (usually <1 mm), may be called patchy veneer. - Coating (Co) – a visible coating of soil or mineral up to 1mm thick. Thicker soil materials shall be described using appropriate defect terms (e.g. in-filled seam). Thicker rock strength material shall be described as a vein.
Spacing	Measurement of the distance between defects of the same set.

LOG SYMBOLS AND ABREVIATIONS

1. DRILLING AND EXCAVATION METHODS

HA	Hand Auger	**RAB**	Rotary Air Blast	**NMLC**	Diamound Core: 52mm
DT	Diatube Coring	**RC**	Reverse Circulation	**HQ**	Diamound Core: 63mm
NDD	Non-destructive Digging	**PT**	Push Tube	**HMLC**	Diamound Core: 63mm
AD	Auger Driling (ADV: V-Bit; ADT: TC-Bit)	**CT**	Cable Tool Rig	**BH**	Tractor Mounted Backhoe
ADH	Hollow Auger	**JET**	Jetting	**EX**	Tracked Hydraulic Excavator
RD	Rotary blade or drag bit	**WB**	Washbore or Bailer	**EE**	Existing Excavation
RT	Rotary Tricone bit	**NQ**	Diamound Core: 47mm	**HAND**	Excavated by Hand Methods

2. GRAPHIC SYMBOL LEGENDS FOR SOIL AND ROCK



Appendix III – Laboratory Test Results

Material Test Report

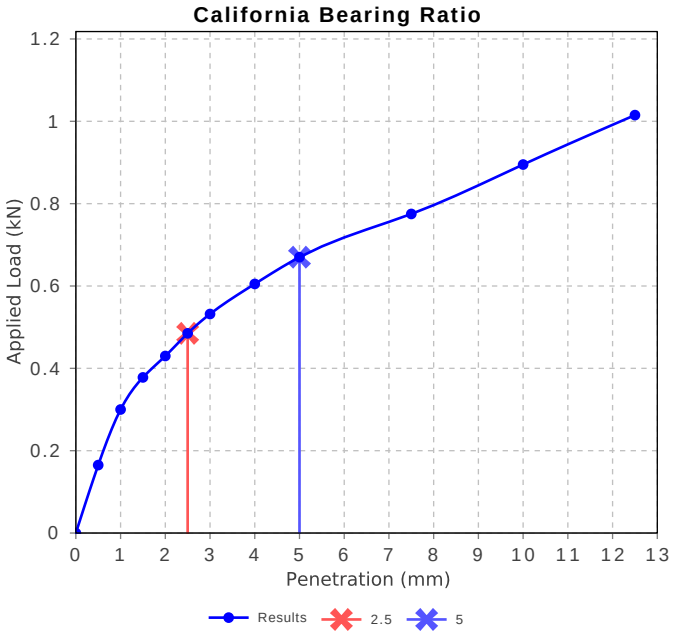
Report Number: **A201023.0436.01-1**
Issue Number: 1
Date Issued: 29/01/2025
Client: SINSW

Project Number: A201023.0436.01
Project Name: Melrose Park Public School
Work Request: 9614
Sample Number: 25-9614A
Client Sample #: BH101-A [0.6-1m]
Date Sampled: 09/01/2025
Dates Tested: 15/01/2025 - 16/01/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Remarks: Reference: A201023.0436.01 4*CBR tests (5 samples)
Sample Location: **Melrose Park Public School, Depth: 0.6-1m**
Material: Silty CLAY: brown

ADE Consulting Group Pty Ltd
Construction and Material Testing Laboratory
Unit 1, 68-72 Asquith Street Silverwater NSW 2128
Phone: (02) 9648 6669
Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Ashwin Tatikonda
CMT manager
NATA Accredited Laboratory Number: 21005

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	AS1289.5.1.1 &2.1.1		
Method used to Determine Plasticity	Visual/ Tactile		
Maximum Dry Density (t/m^3)	1.74		
Optimum Moisture Content (%)	15.5		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	100.0		
Dry Density after Soaking (t/m^3)	1.70		
Field Moisture Content (%)	11.9		
Moisture Content at Placement (%)	15.5		
Moisture Content Top 30mm (%)	20.2		
Moisture Content Rest of Sample (%)	19.6		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	24.0		
Swell (%)	2.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	2.4		



Material Test Report

Report Number: **A201023.0436.01-1**
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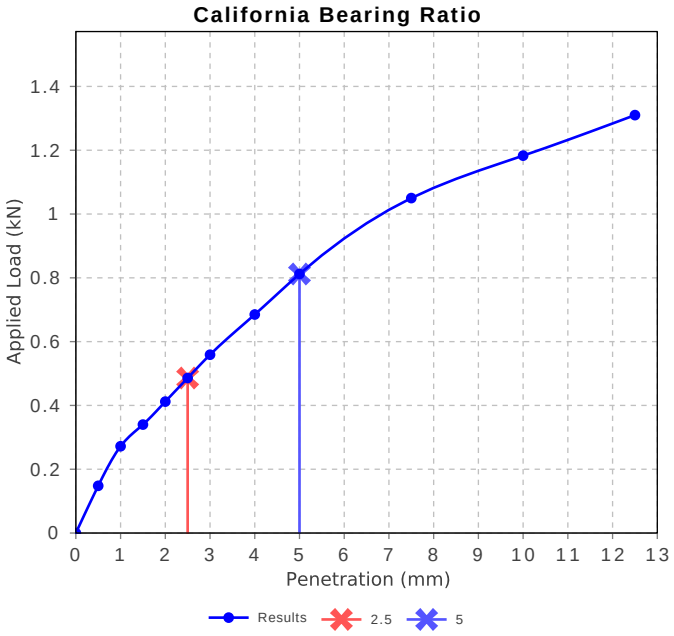
Approved Signatory: Ashwin Tatikonda
CMT manager
NATA Accredited Laboratory Number: 21005

Project Number: A201023.0436.01
Project Name: Melrose Park Public School
Work Request: 9614
Sample Number: 25-9614B
Client Sample #: BH102-A [0.7-1m]
Date Sampled: 09/01/2025
Dates Tested: 15/01/2025 - 16/01/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Remarks: Reference: A201023.0436.01 4*CBR tests (5 samples)
Sample Location: **Melrose Park Public School, Depth: 0.7-1m**
Material: Silty CLAY, BROWN

California Bearing Ratio (AS 1289 6.1.1 & 2.1.1)		Min	Max
CBR taken at	5 mm		
CBR %	**4.0**		
Method of Compactive Effort	Standard		
Method used to Determine MDD	AS1289.5.1.1 &2.1.1		
Method used to Determine Plasticity	Visual/ Tactile		
Maximum Dry Density (t/m^3)	1.67		
Optimum Moisture Content (%)	18.5		
Laboratory Density Ratio (%)	101.0		
Laboratory Moisture Ratio (%)	94.0		
Dry Density after Soaking (t/m^3)	1.66		
Field Moisture Content (%)	14.9		
Moisture Content at Placement (%)	17.4		
Moisture Content Top 30mm (%)	25.8		
Moisture Content Rest of Sample (%)	22.7		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	24.0		
Swell (%)	1.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)			



Material Test Report

Report Number: **A201023.0436.01-1**
Issue Number: 1
Date Issued: 29/01/2025
Client: SINSW

Project Number: A201023.0436.01
Project Name: Melrose Park Public School
Work Request: 9614
Sample Number: 25-9614C
Client Sample #: BH103-A [0.7-1m]
Date Sampled: 09/01/2025
Dates Tested: 15/01/2025 - 16/01/2025
Sampling Method: Sampled by Client
The results apply to the sample as received
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Remarks: Reference: A201023.0436.01 4*CBR tests (5 samples)
Sample Location: **Melrose Park Public School, Depth: 0.7-1m**
Material: Silty CLAY, pale BROWN

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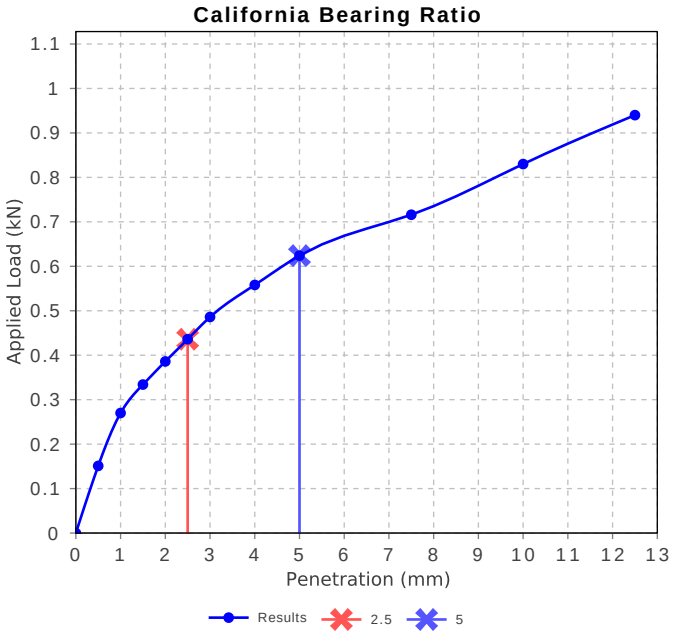
NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: Ashwin Tatikonda
CMT manager
NATA Accredited Laboratory Number: 21005

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	AS1289.5.1.1 &2.1.1		
Method used to Determine Plasticity	Visual/ Tactile		
Maximum Dry Density (t/m^3)	1.64		
Optimum Moisture Content (%)	16.0		
Laboratory Density Ratio (%)	99.5		
Laboratory Moisture Ratio (%)	102.5		
Dry Density after Soaking (t/m^3)	1.58		
Field Moisture Content (%)	13.8		
Moisture Content at Placement (%)	16.4		
Moisture Content Top 30mm (%)	23.3		
Moisture Content Rest of Sample (%)	22.1		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	24.0		
Swell (%)	3.5		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	1		



Material Test Report

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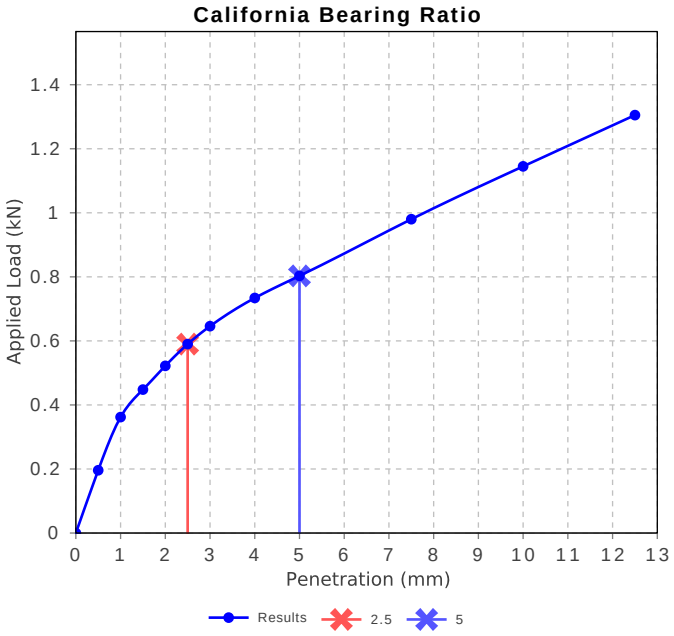
CMT manager
NATA Accredited Laboratory Number: 21005

Project Number: A201023.0436.01
Project Name: Melrose Park Public School
Work Request: 9614
Sample Number: 25-9614D
Client Sample #: BH104-A [0.6-1m]
Date Sampled: 09/01/2025
Dates Tested: 15/01/2025 - 16/01/2025
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Remarks: Reference: A201023.0436.01 4*CBR tests (5 samples)
Sample Location: **Melrose Park Public School, Depth: 0.6-1m**
Material: Silty CLAY, pale BROWN

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	AS1289.5.1.1 &2.1.1		
Method used to Determine Plasticity	Visual/ Tactile		
Maximum Dry Density (t/m^3)	1.64		
Optimum Moisture Content (%)	19.0		
Laboratory Density Ratio (%)	100.0		
Laboratory Moisture Ratio (%)	101.0		
Dry Density after Soaking (t/m^3)	1.61		
Field Moisture Content (%)			
Moisture Content at Placement (%)	19.2		
Moisture Content Top 30mm (%)	29.0		
Moisture Content Rest of Sample (%)	22.6		
Mass Surcharge (kg)	9		
Soaking Period (days)	4		
Curing Hours (h)	24.0		
Swell (%)	2.0		
Oversize Material (mm)	19		
Oversize Material Included	Excluded		
Oversize Material (%)	0		



Job No.	A201023.0436.01	Lot No:	
Client:	School Infrastructure NSW	Date Sampled:	9-Jan-25
Project:	Melrose Park Public School	Sampled By:	AS
Location:	110 Wharf Road, Ermington, NSW, 2114	Checked By:	GL

Sampling Scheme:

Material description:	Silty CLAY
Sample Source:	
Nominal Size:	
Stockpile No.:	
Stockpile Size:	m^3 or t
Location:	

Sketch (Location of samples)

Test method(s): See below Testing Required:

Equipment Used: Balance No.: Divider No.: Sampling Tube No.:

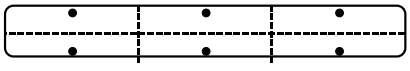
Sampling method used

☐ AS1141.3.1 - 2012	☐ AS1289.1.2.1
☐ 8.1 - Stopped conveyor belt	☐ 6.1 - Quartering
☐ 8.2 - Bins	☐ 6.2 - Stockpiles
☐ 8.3 - Trucks	☐ 6.3 - Windrows
☐ 8.4.2 - Stockpiles (Shovel or scoop)	☐ 6.4(a) - Placed layer of earthworks or pavement (Un-Compacted)
☐ 8.4.3 - Stockpiles (From sides)	☐ 6.4(b) - Placed layer of earthworks or pavement (Compacted)
☐ 8.4.4 - Stockpiles (Sampling tubes)	☐ 6.5.1 - In situ sampling (Hand excavated pit or trench)
☐ 9.2 Aided by power equipment (costeaning)	☐ 6.5.2 - In situ sampling (Hand auger drilling)
☐ 9.3 Aided by power equipment (back-bladed)	☐ 6.5.3 - In situ sampling (Power auger drilling)
☐ 9.4 Aided by power equipment (non back-bladed)	☐ 6.5.4 - In situ sampling (Machine excavated pit or trench)
☐ 10.1 - Placed layer of pavement	☐ 6.6.1 - Face sampling (General)
☐ 10.2 - Heaps or windrows	☐ 6.6.2 - Face sampling (Channel sampling by hand)
	☐ 6.6.3 - Face sampling (Spalls)
	☐ 6.7 - Open-drive samplers

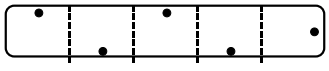
No. of samples required: 4

Sample Numbers:						
	Bulk sample	Bulk sample	Bulk sample		Bulk sample	
	BH101-A [0.6mto1m]	BH102-A [0.7 to 1m]	BH103-A [0.7 to 1m]		BH104-A [0.6 to 0.8m]	
	BH101-B [1mto1.3m]	BH102-B [1mto1.4m]	BH103-B [1 to 1.4m]		BH104-A [0.8 to 1m]	
	BH101-C [1.5mto1.9m]	BH102-C [1.5mto2m]			BH104-B [1 to 1.4m]	
					BH104-C [1.8 to 2m]	
Sample Increments: to form one sample:						

O Average properties



O Variation properties



AS1141.3.1 - 2012 - Sample requirements										
Nominal Size	mm	75	40	28	20	14	10	7	5	<5
Minimum mass per sample increment	kg	10	6	5	4	3	2	2	1	1
Minimum mass per sample (total)	kg	50	30	25	20	15	10	10	5	5
Mass/size of sample required	kg									

Notes:

Do CBR test on the Bulk samples marked with red

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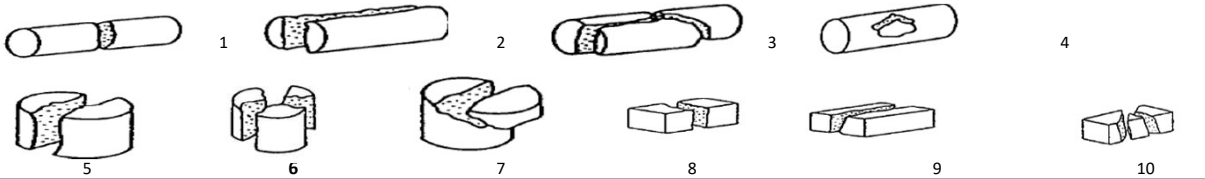
SOLUTIONS THROUGH INNOVATION

POINT LOAD STRENGTH INDEX REPORT

Client:	SINSW	Job No.	A201023.0436.01
Project:	Melrose Park Public School	Report No.	BH105
Location:	110 Wharf Road, Ermington NSW 2114	Date Tested:	10/01/2025
Moisture Content Condition:	Wet	Storage History:	
Date Sampled:	6/01/2025	Sampled by:	GL/AS
Test Procedure:	☑ AS 4133.4.1 Rock strength tests - Determination of point load strength index		
Sampling:			
Preparation:			

Sample No.	Sample Source (m)	Sample Description	Test Type	Average Width (mm)	Platen Separation (mm)	Failure Load (kN)	Point Load Index Is (Mpa)	Point Load Index $Is_{(50)}$ (Mpa)	Failure Modes
1	3.74	SHALE	Diametrical	60.0	50.00	0.02	0.01	0.01	1
	3.79		Axial	60.0	45.90	0.40	0.11	0.12	5
2	4.82	SHALE	Diametrical	60.0	44.10	0.32	0.16	0.16	1
	4.90		Axial	60.0	45.10	0.38	0.11	0.12	7
3	5.30	SHALE	Diametrical	60.0	38.10	0.29	0.20	0.18	1
	5.41		Axial	60.0	40.00	1.50	0.49	0.51	5
4	6.05	SHALE	Diametrical	60.0	50.00	3.50	1.40	1.40	1
	6.89		Axial	60.0	49.00	9.00	2.40	2.63	5
5	7.63	SHALE	Diametrical	60.0	50.00	1.60	0.64	0.64	1
	7.71		Axial	60.0	48.90	4.86	1.30	1.42	5
6	8.83	SHALE	Diametrical	60.0	50.00	3.58	1.43	1.43	1
	8.88		Axial	60.0	50.00	1.40	0.37	0.40	5
7	9.00	SHALE	Diametrical	60.0	50.00	1.00	0.40	0.40	1
	9.05		Axial	60.0	49.00	5.34	1.43	1.56	5



Notes:

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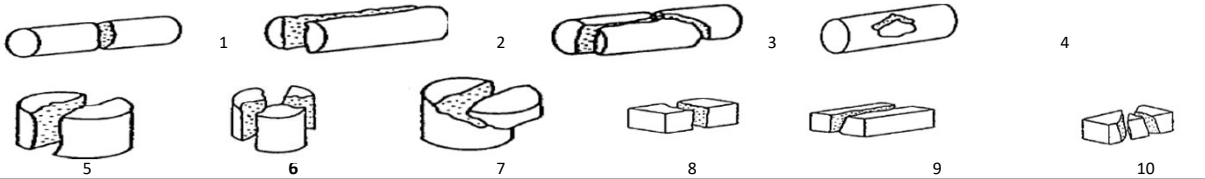
SOLUTIONS THROUGH INNOVATION

POINT LOAD STRENGTH INDEX REPORT

Client:	SINSW	Job No.	A201023.0436.01
Project:	Melrose Park Public School	Report No.	BH106
Location:	110 Wharf Road, Ermington NSW 2114	Date Tested:	14/01/2025
Moisture Content Condition:	Wet	Storage History:	
Date Sampled:	10/01/2025	Sampled by:	GL
Test Procedure:	☑ AS 4133.4.1 Rock strength tests - Determination of point load strength index		
Sampling:			
Preparation:			

Sample No.	Sample Source (m)	Sample Description	Test Type	Average Width (mm)	Platen Separation (mm)	Failure Load (kN)	Point Load Index Is (Mpa)	Point Load Index $Is_{(50)}$ (Mpa)	Failure Modes
1	1.79	SHALE	Diametrical	60.0	59.33	0.48	0.14	0.15	5
	1.93		Axial	60.0	40.00	0.33	0.11	0.11	1
2	2.39	SHALE	Diametrical	60.0	37.55	0.04	0.03	0.02	5
	2.84		Axial	60.0	40.24	1.24	0.40	0.42	1
3	3.60	SHALE	Diametrical	60.0	93.00	1.49	0.17	0.23	1
	3.60		Axial	60.0	42.12	2.55	0.79	0.84	5
4	4.86	SHALE	Diametrical	60.0	82.69	1.37	0.20	0.25	1
			Axial	60.0	34.90	1.82	0.68	0.69	5
5	5.46	SHALE	Diametrical	60.0	132.70	0.34	0.02	0.03	1
	5.69		Axial	60.0	33.18	0.37	0.15	0.15	5
6	6.45	SHALE	Diametrical	60.0	92.38	0.65	0.08	0.10	1
	6.57		Axial	60.0	47.83	1.86	0.51	0.55	5
7	7.57	SHALE	Diametrical	60.0	66.33	2.07	0.47	0.53	1
			Axial	60.0	34.69	2.34	0.88	0.89	5
8	8.00	SHALE	Diametrical	60.0	104.24	2.57	0.24	0.33	1
			Axial	60.0	37.11	3.03	1.07	1.10	5
9	9.26	SHALE	Diametrical	60.0	126.46	1.53	0.10	0.15	1
			Axial	60.0	37.54	3.38	1.18	1.22	5



Notes:

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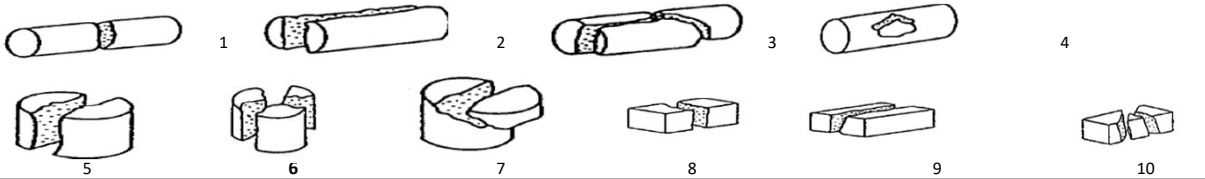
SOLUTIONS THROUGH INNOVATION

POINT LOAD STRENGTH INDEX REPORT

Client:	SINSW	Job No.	A201023.0436.01
Project:	Melrose Park Public School	Report No.	BH107
Location:	110 Wharf Road, Ermington NSW 2114	Date Tested:	14/01/2025
Moisture Content Condition:	Wet	Storage History:	
Date Sampled:	9/01/2025	Sampled by:	GL/AS
Test Procedure:	☑ AS 4133.4.1 Rock strength tests - Determination of point load strength index		
Sampling:			
Preparation:			

Sample No.	Sample Source (m)	Sample Description	Test Type	Average Width (mm)	Platen Separation (mm)	Failure Load (kN)	Point Load Index Is (Mpa)	Point Load Index $Is_{(50)}$ (Mpa)	Failure Modes
1	4.72	SHALE	Diametrical	60.0	124.41	0.85	0.05	0.08	1
			Axial	60.0	51.39	0.87	0.22	0.25	5
2	5.72	SHALE	Diametrical	60.0	67.74	0.40	0.09	0.10	1
			Axial	60.0	37.54	0.59	0.21	0.21	5
3	6.36	SHALE	Diametrical	60.0	93.30	1.80	0.21	0.27	1
			Axial	60.0	43.91	3.08	0.92	0.98	5
4	7.66	SHALE	Diametrical	60.0	80.21	1.39	0.22	0.27	1
			Axial	60.0	41.91	1.27	0.40	0.42	5
5	8.13	SHALE	Diametrical	60.0	65.87	0.19	0.04	0.05	1
			Axial	60.0	37.37	0.37	0.13	0.13	5
6	9.33	SHALE	Diametrical	60.0	62.87	1.43	0.36	0.40	1
			Axial	60.0	35.65	2.74	1.01	1.03	5
7	10.03	SHALE	Diametrical	60.0	101.50	8.77	0.85	1.17	1
			Axial	60.0	42.26	8.94	2.77	2.93	5
8	11.56	SHALE	Diametrical	60.0	75.77	1.75	0.30	0.37	1
			Axial	60.0	43.25	3.91	1.18	1.26	5
9	12.00	SHALE	Diametrical	60.0	117.12	4.90	0.36	0.52	1
			Axial	60.0	46.25	6.25	1.77	1.91	5



Notes:

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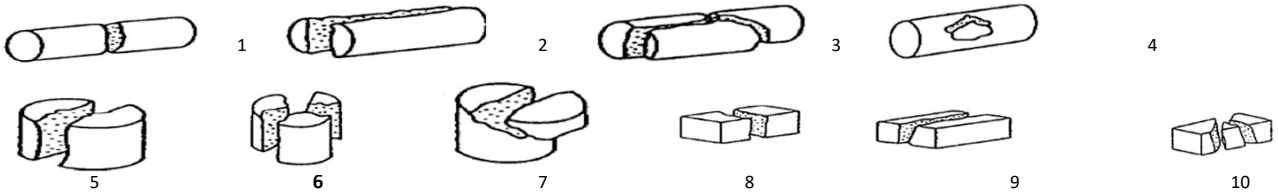
SOLUTIONS THROUGH INNOVATION

POINT LOAD STRENGTH INDEX REPORT

Client:	SINSW	Job No.	A201023.0436.01
Project:	Melrose Park Public School	Report No.	BH108
Location:	110 Wharf Road, Ermington NSW 2114	Date Tested:	10/01/2025
Moisture Content Condition:	Wet	Storage History:	
Date Sampled:	7/01/2025	Sampled by:	GL/AS
Test Procedure:	☑ AS 4133.4.1 Rock strength tests - Determination of point load strength index		
Sampling:			
Preparation:			

Sample No.	Sample Source (m)	Sample Description	Test Type	Average Width (mm)	Platen Separation (mm)	Failure Load (kN)	Point Load Index Is (Mpa)	Point Load Index $Is_{(50)}$ (Mpa)	Failure Modes
1	3.66	SHALE	Diametrical	60.0	55.0	0.03	0.01	0.01	1
	3.92		Axial	60.0	57.9	0.57	0.13	0.15	5
2	4.82	SHALE	Diametrical	60.0	40.1	0.02	0.01	0.01	1
	4.82		Axial	60.0	42.0	0.06	0.02	0.02	1
3	5.51	SHALE	Diametrical	60.0	42.0	0.02	0.01	0.01	1
	5.42		Axial	60.0	48.1	0.22	0.06	0.07	7
4	6.24	SHALE	Diametrical	60.0	55.0	0.70	0.23	0.24	1
	6.17		Axial	60.0	50.0	0.90	0.24	0.26	7
5	7.80	SHALE	Diametrical	60.0	5.1	1.90	73.05	26.15	1
	7.65		Axial	60.0	49.5	2.10	0.56	0.61	5
6	8.50	SHALE	Diametrical	60.0	40.0	1.54	0.96	0.87	1
	8.40		Axial	60.0	49.5	3.50	0.93	1.02	5
7	9.34	SHALE	Diametrical	60.0	55.0	1.20	0.40	0.41	8
	9.27		Axial	60.0	50.0	5.20	1.36	1.50	1



Unconfined Compressive Strength

Client	ADE Consulting Group	**Sample Source**	BH108 6.52-6.68m
Address	6/7 Millennium Ct, Silverwater 2128 NSW	**Sample Description**	Shale
Project	Proposed Extension (A201023 0436 01)	**Report No.**	S102926-UCS
Job No.	S25017-1	**Lab No.**	S102926
Test Procedure	RMS T229 Unconfined compressive strength of rock core to 50 MPa strength		
Test Condition	Unsoaked	**Specimen Curing**	-
Sampling Method	Sampled by Client - results apply to the sample as received	**Date Sampled**	7/01/2025

Corrected Compressive Strength 5.36 MPa *Corrected due to sample length*

Specimen Length:	117.6	mm	Original Moisture Content:	N/A	%
Average Specimen Diameter:	60.8	mm	After Test Moisture Content:	7.4	%
Length to Diameter Ratio:	1.9		Dry Density:	2.26	t/m^3
Failure Type:	Failure influenced by defect		Date Tested:	21/01/2025	

Comments:

Deviation from Standard: Test specimen length to diameter ratio falls outside of standard limitations of 2.0-2.5.

Notes

Accredited for compliance with ISO/IEC 17025 - Testing.

Authorised Signatory:

Chris Lloyd

NATA Accredited Laboratory Number: 14874

Date: 22/01/2025

MACQUARIE GEOTECH

Macquarie Geotechnical
14 Carter St
Lidcombe NSW 2141

Unconfined Compressive Strength

Client	ADE Consulting Group	**Sample Source**	BH108 9.81-10.00m
Address	6/7 Millennium Ct, Silverwater 2128 NSW	**Sample Description**	Shale
Project	Proposed Extension (A201023 0436 01)	**Report No.**	S102927-UCS
Job No.	S25017-1	**Lab No.**	S102927
Test Procedure	RMS T229 Unconfined compressive strength of rock core to 50 MPa strength		
Test Condition	Unsoaked	**Specimen Curing**	-
Sampling Method	Sampled by Client - results apply to the sample as received	**Date Sampled**	7/01/2025

Unconfined Compressive Strength 20.3 MPa

Specimen Length:	143.0	mm	Original Moisture Content:	3.9	%
Average Specimen Diameter:	60.8	mm	After Test Moisture Content:	2.7	%
Length to Diameter Ratio:	2.4		Dry Density:	2.53	t/m^3
Failure Type:	Axial Single		Date Tested:	21/01/2025	

Comments:

Notes

Accredited for compliance with ISO/IEC 17025 - Testing.

Authorised Signatory:

Chris Lloyd

Date: 22/01/2025

NATA Accredited Laboratory Number: 14874

Macquarie Geotechnical
14 Carter St
Lidcombe NSW 2141

Unconfined Compressive Strength

Client	ADE Consulting Group	**Sample Source**	BH107 9.59-9.79m
Address	6/7 Millennium Ct, Silverwater 2128 NSW	**Sample Description**	Shale
Project	Proposed Extension (A201023 0436 01)	**Report No.**	S102928-UCS
Job No.	S25017-1	**Lab No.**	S102928
Test Procedure	RMS T229 Unconfined compressive strength of rock core to 50 MPa strength		
Test Condition	Unsoaked	**Specimen Curing**	-
Sampling Method	Sampled by Client - results apply to the sample as received	**Date Sampled**	9/01/2025

Unconfined Compressive Strength 24 MPa

Specimen Length:	142.8	mm	Original Moisture Content:	2.3	%
Average Specimen Diameter:	60.8	mm	After Test Moisture Content:	2.0	%
Length to Diameter Ratio:	2.3		Dry Density:	2.57	t/m^3
Failure Type:	Axial Multiple		Date Tested:	21/01/2025	

Comments:

Notes

Accredited for compliance with ISO/IEC 17025 - Testing.

Authorised Signatory:

Chris Lloyd

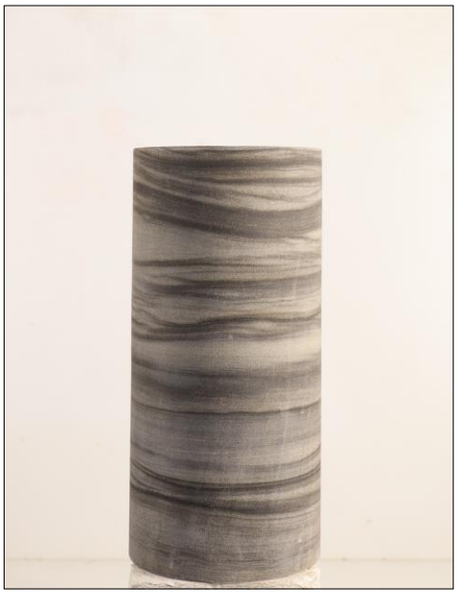
NATA Accredited Laboratory Number: 14874

Date: 22/01/2025

Macquarie Geotechnical
14 Carter St
Lidcombe NSW 2141

Unconfined Compressive Strength

Client	ADE Consulting Group	**Sample Source**	BH107 8.59-8.79m
Address	6/7 Millennium Ct, Silverwater 2128 NSW	**Sample Description**	Shale
Project	Proposed Extension (A201023 0436 01)	**Report No.**	S102929-UCS
Job No.	S25017-1	**Lab No.**	S102929
Test Procedure	RMS T229 Unconfined compressive strength of rock core to 50 MPa strength		
Test Condition	Unsoaked	**Specimen Curing**	-
Sampling Method	Sampled by Client - results apply to the sample as received	**Date Sampled**	9/01/2025



Unconfined Compressive Strength 29.9 MPa

Specimen Length:	143.5	mm	Original Moisture Content:	2.2	%
Average Specimen Diameter:	60.9	mm	After Test Moisture Content:	2.1	%
Length to Diameter Ratio:	2.4		Dry Density:	2.56	t/m^3
Failure Type:	Axial Multiple		Date Tested:	21/01/2025	

Comments:

Notes

Accredited for compliance with ISO/IEC 17025 - Testing.

Authorised Signatory:

Chris Lloyd

NATA Accredited Laboratory Number: 14874

Date: 22/01/2025

Macquarie Geotechnical
14 Carter St
Lidcombe NSW 2141

Unconfined Compressive Strength

Client	ADE Consulting Group	**Sample Source**	BH106 7.33-7.56m
Address	6/7 Millennium Ct, Silverwater 2128 NSW	**Sample Description**	Shale
Project	Proposed Extension (A201023 0436 01)	**Report No.**	S102930-UCS
Job No.	S25017-1	**Lab No.**	S102930
Test Procedure	RMS T229 Unconfined compressive strength of rock core to 50 MPa strength		
Test Condition	Unsoaked	**Specimen Curing**	-
Sampling Method	Sampled by Client - results apply to the sample as received	**Date Sampled**	10/01/2025

Unconfined Compressive Strength 22.1 MPa

Specimen Length:	141.6	mm	Original Moisture Content:	3.1	%
Average Specimen Diameter:	60.7	mm	After Test Moisture Content:	2.6	%
Length to Diameter Ratio:	2.3		Dry Density:	2.53	t/m^3
Failure Type:	Axial Multiple		Date Tested:	21/01/2025	

Comments:

Notes

Accredited for compliance with ISO/IEC 17025 - Testing.

Authorised Signatory:

Chris Lloyd

NATA Accredited Laboratory Number: 14874

Date: 22/01/2025

Macquarie Geotechnical
14 Carter St
Lidcombe NSW 2141

Unconfined Compressive Strength

Client	ADE Consulting Group	**Sample Source**	BH106 8.59-8.77m
Address	6/7 Millennium Ct, Silverwater 2128 NSW	**Sample Description**	Shale
Project	Proposed Extension (A201023 0436 01)	**Report No.**	S102931-UCS
Job No.	S25017-1	**Lab No.**	S102931
Test Procedure	RMS T229 Unconfined compressive strength of rock core to 50 MPa strength		
Test Condition	Unsoaked	**Specimen Curing**	-
Sampling Method	Sampled by Client - results apply to the sample as received	**Date Sampled**	10/01/2025

Unconfined Compressive Strength 21.3 MPa

Specimen Length:	142.3	mm	Original Moisture Content:	2.7	%
Average Specimen Diameter:	60.8	mm	After Test Moisture Content:	2.6	%
Length to Diameter Ratio:	2.3		Dry Density:	2.54	t/m^3
Failure Type:	Axial Multiple		Date Tested:	21/01/2025	

Comments:

Notes

Accredited for compliance with ISO/IEC 17025 - Testing.

Authorised Signatory:

Chris Lloyd

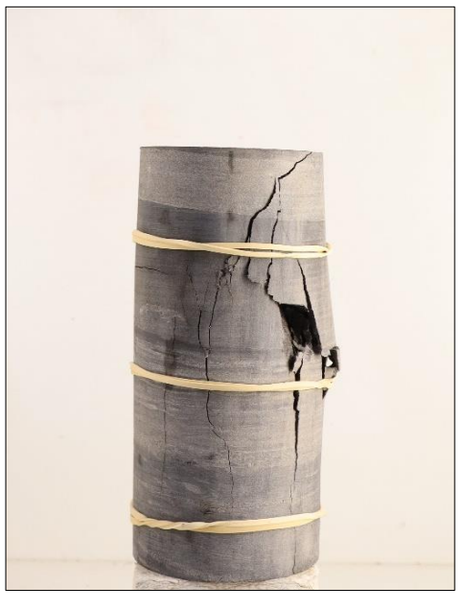
NATA Accredited Laboratory Number: 14874

Date: 22/01/2025

Macquarie Geotechnical
14 Carter St
Lidcombe NSW 2141

Unconfined Compressive Strength

Client	ADE Consulting Group	**Sample Source**	BH105 6.70-6.89m
Address	6/7 Millennium Ct, Silverwater 2128 NSW	**Sample Description**	Shale
Project	Proposed Extension (A201023 0436 01)	**Report No.**	S102932-UCS
Job No.	S25017-1	**Lab No.**	S102932
Test Procedure	RMS T229 Unconfined compressive strength of rock core to 50 MPa strength		
Test Condition	Unsoaked	**Specimen Curing**	-
Sampling Method	Sampled by Client - results apply to the sample as received	**Date Sampled**	6/01/2025



Unconfined Compressive Strength 22 MPa

Specimen Length:	142.8	mm	Original Moisture Content:	2.1	%
Average Specimen Diameter:	60.7	mm	After Test Moisture Content:	2.2	%
Length to Diameter Ratio:	2.4		Dry Density:	2.56	t/m^3
Failure Type:	Axial Multiple		Date Tested:	21/01/2025	

Comments:

Notes

Accredited for compliance with ISO/IEC 17025 - Testing.

Authorised Signatory:

Chris Lloyd

NATA Accredited Laboratory Number: 14874

Date: 22/01/2025

Macquarie Geotechnical
14 Carter St
Lidcombe NSW 2141

Unconfined Compressive Strength

Client	ADE Consulting Group	**Sample Source**	BH105 7.71-7.93m
Address	6/7 Millennium Ct, Silverwater 2128 NSW	**Sample Description**	Shale
Project	Proposed Extension (A201023 0436 01)	**Report No.**	S102933-UCS
Job No.	S25017-1	**Lab No.**	S102933
Test Procedure	RMS T229 Unconfined compressive strength of rock core to 50 MPa strength		
Test Condition	Unsoaked	**Specimen Curing**	-
Sampling Method	Sampled by Client - results apply to the sample as received	**Date Sampled**	6/01/2025

Unconfined Compressive Strength 32 MPa

Specimen Length:	142.3	mm	Original Moisture Content:	1.9	%
Average Specimen Diameter:	60.7	mm	After Test Moisture Content:	2.0	%
Length to Diameter Ratio:	2.3		Dry Density:	2.57	t/m^3
Failure Type:	Axial Multiple		Date Tested:	21/01/2025	

Comments:

Notes

Accredited for compliance with ISO/IEC 17025 - Testing.

Authorised Signatory:

Chris Lloyd

NATA Accredited Laboratory Number: 14874

Date: 22/01/2025

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14 Carter St
Lidcombe NSW 2141

ADECONSULTINGGROUP
SOLUTIONS THROUGH INNOVATION

Further details regarding ADE's Services are available via

info@ade.group www.ade.group

ADE Consulting Group Pty Ltd

Sydney
Unit 6/7 Millennium Court,
Silverwater, NSW 2128

Newcastle
Unit 9/103 Glenwood Drive,
Thornton, NSW 2322

ADE Consulting Group (QLD) Pty Ltd

Brisbane
Unit 10/53 Metroplex Avenue,
Murarrie, QLD 4172

ADE Consulting Group (VIC) Pty Ltd

Melbourne
Unit 4/95 Salmon Street,
Port Melbourne, VIC 3207

T. 1300 796 922| E. info@ade.group