



Geotechnical Investigation

Project Address:

64 & 66 Lavender Street and 3, 5 & 7 Middlemiss Street, Lavender Bay, NSW 2060

SSD Number

SSD-86797708

Prepared for:

Central Element Pty Ltd

Prepared by:

Rapid Geo Pty Ltd

Report Number

RG1358-GR-1-1

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Rapid Geo



P: 0403 145 566
E: info@rapidgeo.com.au
W: www.rapidgeo.com.au
A: PO Box 531 Milsons Point, NSW 1565

Attention: Central Element

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Author Signature



Reviewer Signature



Name Subash Baral

Name Hamid Ashtari

Title Senior Geotechnical Engineer

Title Senior Geotechnical Engineer

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SEARs Declaration

Declaration		
Qualified Professional Name	Adrian Gunn	
Qualified Professional Qualifications	BE (Bachelor of Engineering)	
The undersigned declares that this Geotechnical Investigation Report has been prepared in response to the following SEARs requirements issued for the Project on 30 June 2025 (EIS) and 2 July 2025 (Rezoning Report) for SSD-86797708:		
SEARs item no.	SEARs Issue and Assessment Requirement	Relevant Section of this Report that addresses SEARs Requirement
12. Ground and Groundwater Conditions	- Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site and including soil erosion. - Where required provide a Groundwater Impact Assessment in accordance with relevant Groundwater Guidelines. If the proposed development is on land identified as having high salinity or acid sulfate soil potential in an EPI provide a Salinity Management Plan or Acid Sulfate Soil Management Plan that includes appropriate management measures and strategies.	Whole Report
Signed		
Dated	18 March 2026	

1. INTRODUCTION

This report presents the findings of a geotechnical investigation carried out for Central Element (CE) regarding the proposed residential development at 3-7 Middlemiss Street and 64-66 Lavender Street, Lavender Bay, NSW. The investigation was commissioned by CE in accordance with the Rapid Geo fee proposal (Ref: RG1358) dated 7 August 2025.

The project involves the demolition of existing structures and the construction of a high-density residential development comprising two towers (21 and 31 storeys) situated above five (5) basement levels. The investigation was undertaken to assess subsurface conditions and provide the geotechnical data necessary to assist in the design and construction of the proposed development.

The primary objectives of the investigation were to obtain detailed information on the site's subsurface profile through the progression of five (5) boreholes and to determine the engineering characteristics of the encountered soil and rock units. The scope of work comprised field drilling and sampling, laboratory testing of selected samples, and subsequent geotechnical interpretation and assessment of the results.

This report presents a summary of the data obtained, along with an interpretation and analysis of the prevailing ground conditions. The outcomes of this investigation form the basis for recommendations concerning various aspects of the proposed development, including earthworks, excavation stability, shoring requirements, groundwater management, and foundation design.

The following project information was provided to Rapid Geo to assist in the preparation of this report:

- Architectural Drawings, Concept architectural drawings prepared by SJB, Job number 6419 dated 6 November 2025, detailing the proposed development layout.
- Secretary's Environmental Assessment Requirements (SEARs), Application No. SSD-86797708, dated 2 July 2025, issued by the Department of Planning, Housing and Infrastructure.
- Planning Certificate, Certificate No. 7831/02, dated 11 April 2025, issued by North Sydney Council regarding 5 Middlemiss Street, Lavender Bay.

2. SCOPE OF WORKS

Following a Before You Dig Australia (BYDA) search and onsite service location conducted by a specialist subcontractor, the field investigation was carried out between 20 November 2025 and 3 December 2025. All fieldwork was coordinated by Rapid Geo (RG) and conducted in general accordance with AS 1726:2017 – Geotechnical Site Investigations. The fieldwork completed during the investigation comprised:

- A site walkover assessment to confirm expected topography and geology, and to assess existing site conditions such as geomorphological features, soil/rock exposures, surface drainage, and vegetation.
- Drilling and logging of five (5) boreholes (BH01 to BH05) at locations nominated by Rapid Geo in consultation with the client, Central Element.
- The boreholes were advanced using a combination of a track-mounted Hanjin D&B 80 drill rig and a modular tight-access rig. Initial drilling proceeded using solid-flight augers to practical refusal, after which the boreholes were advanced into the underlying rock using NMLC coring techniques to a depth of 21.1 m (BH3) below ground level (BGL). Engineering logs of the boreholes are provided in **Attachment B**.

- Collection of disturbed soil samples and cored rock samples for laboratory testing and future reference.
- Recording of standing groundwater levels or seepage observed during and upon the completion of drilling.
- Installation of groundwater monitoring wells at two (2) borehole locations to facilitate ongoing level monitoring.
- The approximate locations of the investigation sites referred to above are shown on the Site Plan (**Figure A1, Attachment A**).

3. SITE DESCRIPTION

The subject site is located at 3-7 Middlemiss Street and 64-66 Lavender Street, Lavender Bay, NSW 2060, within the North Sydney Council Local Government Area (LGA).

The site comprises five (5) distinct strata lots (SP 538, SP 52428, SP 52429, SP 70601, and Lot 4 in DP 19368) with a combined total site area of approximately 2,305 m². The property is irregularly shaped and is bounded by Lavender Street to the south, Middlemiss Street to the north, Arthur Lane to the west, and existing residential and commercial properties to the east. The site is situated within a high-density mixed-use precinct and is currently occupied by a series of residential flat buildings and commercial terraces ranging from two to four storeys in height. The site exhibits a gentle gradient, falling approximately 2 metres from the northern boundary (approx. RL 36 m AHD) down to the southern boundary (approx. RL 34 m AHD). This slope generally directs surface drainage towards the south.

The external areas of the site comprise a combination of hardstand surfaces and landscaping. The northern and western portions (accessed via Middlemiss Street and Arthur Lane) feature concrete driveways and paved courtyards. Access to the investigation locations was constrained by the existing site layout, narrow driveways, and overhead obstructions. These constraints necessitated the use of portable and tight-access drilling equipment for the field investigation. The key features of the sites are detailed below, and **Figure 1** illustrates the site locality with the approximate location of the proposed development.

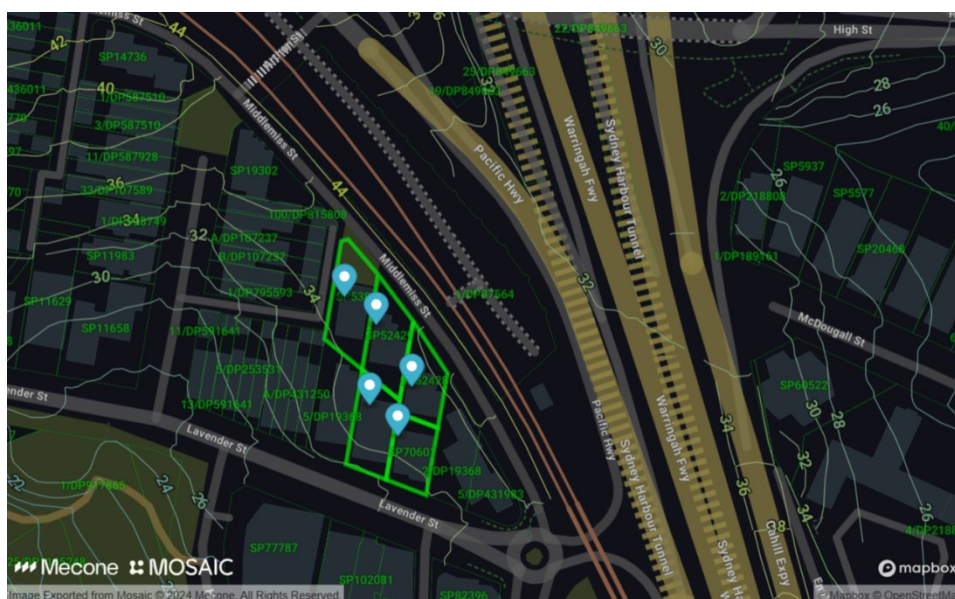


Figure 1 – A Plan View of Site (Source: Mecone Mosaic)

4. GEOLOGICAL INFORMATION

The site is located within the Sydney Basin and is underlain by Middle Triassic sedimentary sequences. The local geology is defined by the Hawkesbury Sandstone, a major stratigraphic unit which dates to the Middle Triassic period with an estimated age range of 247.2 to 242.0 million years (Ma). The site-specific lithology comprises medium- to coarse-grained quartz sandstone exhibiting small- to large-scale, high-angle cross-bedding. The sandstone sequence is typically interspersed with minor shale and laminite lenses, which characterize the depositional environment of this unit.

Figure 2 below provides an excerpt from the Minview geological mapping database.



Figure 2 – Geological Features (Source: Minview Website)

5. SUBSURFACE GROUND CONDITIONS

5.1 Encountered Subsurface Conditions

Subsurface soil profiles encountered in the boreholes are generalised in the table below. Reference should be made to the borehole logs presented in **Attachment B** for a more detailed description of the soils encountered at a particular location. **Table 1** provides generalised material unit descriptions; **Table 2** provides the depth ranges from the existing surface level at the time of investigation.

Table 1: Summary of Subsurface Materials

Unit No	Materials	Consistency / Strength	Description
1	FILL / TOPSOIL / PAVEMENT	Consistency: Very Loose to Loose	Topsoil, Fill, and Pavement: Comprising Asphalt pavement (BH2) or Silty Sand/Silty Gravelly Sand; poorly graded, fine to medium-grained, dark grey to grey, with fine to coarse gravel. Generally dry.
2	SANDSTONE (Class V)	Strength: Very Low Strength	Extremely Weathered Sandstone: Grey, orange-brown, fine to medium-grained. Rock structure is present but strength is very low, often approaching soil properties.
3	SANDSTONE (Class IV)	Strength: Low Strength	Highly Weathered Sandstone: Light grey to grey, fine to medium-grained. Includes interbedded shale and dark brown laminations.
4	SANDSTONE (Class III)	Strength: Medium Strength	Moderately Weathered Sandstone: Light grey, pale brown, fine to medium-grained. Contains dark grey laminations and occasional iron indurated bands.
5	SANDSTONE (Class II / I)	Strength: High to Very High Strength	Slightly Weathered to Fresh Sandstone: Grey to red-brown, medium-grained. Features iron indurated bands and distinct bedding; high integrity rock mass.

5.2 Geotechnical Model

The summary geotechnical model for this site is presented in **Table 3** below.

Table 2: Subsurface Conditions

	Borehole ID	Material (Consistency / Class)				
		Fill +Topsoil	Rock			
		1	2	3	4	5
		Very Loose to Loose	Class V	Class IV	Class III	Class II / I
Depth(m)	BH1	0.0-0.25	-	0.25-2.1 6.5-7.0	2.1 – 6.5 7.0-13.0	> 13.0
	BH2	0.0-0.25	-	0.25-0.6 & 3.4-3.7	0.6-3.4 3.7-6.8 9.45-10.1 12.2-15.7	6.8-9.45 10.1-12.2 & >15.7
	BH3	0.0-2.0	2.0-3.55	3.55-4.85	4.85-7.45 8.4-10.63 10.9-16.8	> 16.8
	BH4	0.0-0.3	-	0.3-1.5 1.6-1.85	>1.85*	-
	BH5	0.0-0.9	0.9-2.0 2.2-2.56 2.68-3.4	-	3.4-10.1	10.1-15.45 & 15.6>

* Note: Trial Borehole

The subsurface ground conditions encountered in the boreholes are summarised in detailed logs provided in **Attachment B**. The boreholes' location is enclosed in **Attachment A**.

5.3 Groundwater Conditions

Groundwater was not observed in boreholes BH01, BH02, BH04 or BH05, which were generally described as "dry" on completion of drilling. Standing water was encountered in BH03 at a depth of about 2.0 m below ground level (BGL) during drilling, which is interpreted as a localised perched groundwater table, likely impounded at the interface between the fill/residual soil profile and the underlying rock, or within shallow defects in the upper rock mass. A persistent, site-wide groundwater

table was not encountered within the investigated depth range; however, these observations represent conditions at the time of the fieldwork only. Ephemeral perched groundwater is expected to develop at the soil–rock interface and within defects, joints and bedding planes in the underlying sandstone, particularly following periods of heavy or prolonged rainfall.

Within the Hawkesbury Sandstone underlying the site, groundwater flow is predominantly controlled by secondary permeability associated with fractures. Hydraulic conductivity typically decreases with depth and is primarily governed by the spacing, aperture and connectivity of defects such as joints and laminations; experience from deep excavations in similar Sydney sandstone formations indicates that, although the overall rock mass permeability is generally low, localised inflows can occur where open fractures or weathered zones are intersected.

Groundwater monitoring wells have been installed at three borehole locations (standpipes). At the time of issuing this report, long-term groundwater monitoring data were not available for interpretation. Standpipe readings should be reviewed once an adequate baseline dataset has been established and shall be incorporated into the detailed design of shoring, seepage control and (if required) dewatering systems.

6. LABORATORY TESTING

Samples of representative strata were tested in our NATA-accredited laboratory for geotechnical testing and Eurofins for environmental testing in order to characterise the engineering properties of encountered soil. The following testing regime was carried out:

- Point Load Test
- Soil Aggressivity and Salinity

A summary of laboratory test results is provided below, and laboratory test certificates are included in **Attachment C**. Geotechnical laboratory testing was carried out in accordance with *'Australian Standard AS1289 Laboratory testing for Engineering purposes'*.

6.1 Point Load Test

To assess the strength of the underlying bedrock in borehole BH01 to BH05, representative rock core samples were extracted from borehole and sent to Rapid Geo Pty Ltd for NATA-accredited Point Load Strength Index ($Is_{(50)}$) analysis.

It's important to note that no diametral tests were conducted on the rock samples. Instead, only axial load tests were performed to assess the strength of the bedrock. Point load tests were conducted on each rock core at approximately 1m intervals, with axial loading applied to the core samples. The failure loads for each test were recorded.

Since foundations load the bedrock in a manner similar to the axial loaded point load tests, greater importance is assigned to these results. A summarised presentation of the test results can be found in **Table 3**. The Unconfined Compressive Strength (UCS) has been estimated from the axial $Is_{(50)}$ using a factor of 20. This factor is a commonly adopted preliminary estimate for Hawkesbury Sandstone; however, it should be used with caution as the actual correlation can be variable. For the purposes of detailed design, the sensitivity of foundation and retention systems to the potential range of UCS values should be considered.

Table 3: Point Load Test Results

Borehole ID	Depth (m)	Axial Is_{50} (MPa)	Estimated Axial UCS (MPa)	Rock Strength Classification*
BH01	0.55	1.08	21.6	H
	1.59	0.72	14.4	M
	2.62	0.34	6.8	M
	3.6	0.61	12.2	M
	4.57	0.7	14	M
	5.58	0.93	18.6	M
	6.65	0.06	1.2	VL
	7.6	0.56	11.2	M
	8.63	3.5	70	VH
	9.57	0.8	16	M
	10.55	0.78	15.6	M
	11.5	0.71	14.2	M
	12.54	0.91	18.2	M
	13.54	1.14	22.8	H
	14.5	1.11	22.2	H
	15.6	1.14	22.8	H
	16.5	1.12	22.4	H
	17.48	1.36	27.2	H
	18.5	0.79	15.8	M
	19.5	1.58	31.6	H
BH02	0.71	0.53	10.6	M
	1.56	0.87	17.4	M
	2.56	0.87	17.4	M
	3.5	0.02	0.4	SOIL
	4.85	0.63	12.6	M
	5.61	0.62	12.4	M
	6.48	0.7	14	M
	7.5	1.42	28.4	H
	8.5	1.54	30.8	H
	9.5	0.65	13	M
	10.49	1.59	31.8	H
	11.5	1.37	27.4	H
	12.5	0.76	15.2	M
	13.5	1	20	M
	14.65	0.8	16	M
	15.5	0.93	18.6	M
	16.5	1.08	21.6	H
	17.5	0.94	18.8	M
	18.5	1.12	22.4	H
	19.6	1.84	36.8	H
BH03	3.63	0.05	1	VL
	4.64	0.13	2.6	L
	5.65	0.52	10.4	M
	6.6	0.7	14	M
	7.6	0.14	2.8	L

Borehole ID	Depth (m)	Axial I_{S50} (MPa)	Estimated Axial UCS (MPa)	Rock Strength Classification*
	8.57	0.59	11.8	M
	9.57	0.59	11.8	M
	10.5	0.41	8.2	M
	11.58	1.98	39.6	H
	12.63	1.03	20.6	H
	13.47	1.33	26.6	H
	14.5	0.68	13.6	M
	15.45	0.89	17.8	M
	16.45	0.82	16.4	M
	17.46	1.2	24	H
	18.5	1.32	26.4	H
	19.48	1.25	25	H
	20.48	1.17	23.4	H
BH04	0.7	0.52	10.4	M
	1.63	0.16	3.2	L
	1.8	0.13	2.6	M
	2.25	0.33	6.6	L
BH05	1.42	0.03	0.6	SOIL
	2.54	0.02	0.4	SOIL
	3.45	0.48	9.6	M
	4.5	0.9	18	M
	5.53	0.64	12.8	M
	6.44	0.72	14.4	M
	7.54	1.79	35.8	H
	8.5	0.58	11.6	M
	9.49	0.76	15.2	M
	10.5	1.06	21.2	H
	11.5	0.84	16.8	M
	12.5	2.48	49.6	H
	13.51	1.3	26	H
	14.51	1.31	26.2	H
	15.4	1.53	30.6	H
	16.6	1.23	24.6	H
	17.52	1.8	36	H
	18.43	0.86	17.2	M
	19.52	1.06	21.2	H

*VL=Very Low Strength, L= Low Strength, M=Medium Strength, H=high Strength, VH= Very High Strength

6.2 Preliminary Aggressivity Assessment

Results for soil aggressivity for steel and concrete are summarised in **Table 4** below. Based on the test results of selected representative samples, an exposure classification of '**Moderate**' is the outcome for the limited results from this investigation for concrete and '**Mild**' for steel exposure. It is recommended that the structural designer review this data and data from other reports for this site and nominate suitable protections for soil salinity and aggressivity, and suitable specifications.

Table 4: Summary of the Aggressivity Testing Results

ID	Soil/Water	PH	Chloride (CL-) (mg/kg or ppm)	Sulphate (SO4) (mg/kg or ppm)	Resistivity (ohm.cm)	Aggressivity to Concrete ^[1]	Aggressivity to Steel ^[2]
BH1	Water	6.1	31	22	3700	Mild	Non-aggressive
BH2	Water	5	18	21	6300	Moderate	Non-aggressive
BH3	Water	6	39	41	3100	Mild	Mild
Note: [1] Based on Table 6.4.2 (C) AS2159-2009 Exposure classification for concrete piles – piles in soil [2] Based on Table 6.5.2 (C) AS2159-2009 Exposure classification for steel piles – piles in soil							

6.2.1 Aggressivity to concrete

Laboratory test results indicate that the tested samples classify as “**Moderate**” with respect to concrete piles in soil and “Mild” with respect to steel piles (as per AS 2159-2009 Piling – Design & Installation).

Therefore, for cast-in-place piles and structures with a 50-year design life, the standard requires a minimum concrete strength of 40 MPa and a minimum cover to reinforcement of 65 mm. The cover should be increased to 85 mm for a 100-year design life.

Similarly, for precast and prestressed piles and structures with a 50-year design life, a minimum concrete strength of 50 MPa and a minimum cover to reinforcement of 25 mm is recommended in AS 2159-2009. The cover should be increased to 40 mm for a 100-year design life.

6.2.2 Aggressivity to Steel

Laboratory test results indicate that the soils as tested are classified as “**Mild**” with respect to aggressivity to steel piles (as per AS2159-2009 Piling – Design & Installation).

Corrosion allowance, coating protection systems and cathodic protection should be adopted as per AS2159-2009 and designed for a uniform corrosion allowance of 0.01 – 0.02 mm/year.

7. COMMENTS

7.1 Excavation & Shoring Assessment

The proposed development comprises a five-level basement, necessitating a bulk excavation depth of approximately 15.0 m to 17.0 m below existing ground levels. The subsurface profile generally consists of 2.5 m to 5.0 m of overburden (Fill and Residual Soil) overlying Hawkesbury Sandstone bedrock.

Based on the borehole logs, the excavation will proceed through the soil profile and weathered rock before terminating in medium- to high-strength (Class I/II) sandstone. While the boreholes were generally observed to be dry during drilling (with the exception of perched water in BH03), it is anticipated that seepage will occur along the soil-rock interface and through rock defects during construction.

Given the depth of the excavation and the proximity of adjacent structures and thoroughfares (Lavender Street and Middlemiss Street), unsupported battered slopes are not feasible for the site boundaries. A rigid retention system is required to maintain the stability of the excavation and limit ground movements affecting neighbouring properties. The following shoring systems are considered suitable for the site:

Soldier Piles with Shotcrete Infill: This system is considered the most economical solution for areas where minor ground movement is tolerable and where the rock profile is relatively shallow.

Steel UC sections or reinforced concrete piles are installed at regular centres (typically 2.0 m to 3.0 m) and socketed into the underlying competent sandstone (Class III or better) below the bulk excavation level. The soil and highly weathered rock profile between the piles are retained using reinforced shotcrete infill panels.

Once competent bedrock is encountered, the piles may be terminated (toe-in), and the excavation continued as a vertical rock cut. This lower rock face will require stabilisation using systematic rock bolting and shotcrete to stitch defects and preventing block fall, particularly given the horizontal bedding (0° – 5° dip) and orthogonal jointing noted in the geological assessment.

Contiguous Pile Wall: While a contiguous piled wall is generally over-designed for the high-strength sandstone conditions at this site, it may be required along sensitive boundaries specifically where existing structures are located immediately adjacent to the excavation (zero-lot line) or where the depth of soil/fill is significant.

This system provides higher stiffness and greater water cutoff in the upper soil profile compared to soldier piles, thereby reducing the risk of vibration-induced settlement or decompression of the soil under adjacent footings.

Given the significant depth of the basement (5 levels), cantilevered pile walls will not be sufficient. Lateral restraint will be required to control wall deflections.

Multi-strand temporary ground anchors are recommended to restrain the shoring walls. These anchors will need to extend beyond the site boundaries; therefore, permission from neighbouring landowners and Council or TfNSW (for road reserves) will be required.

Where anchoring permission cannot be obtained, or where anchors would clash with existing subterranean infrastructure, internal bracing (struts/props) or top-down construction methods may be required.

Where excavation progresses below pile toe level and exposes additional vertical rock faces, the support requirements (e.g., pattern bolting, mesh and/or shotcrete thickness) shall be developed and, where necessary, modified based on geotechnical mapping by an engineering geologist and confirmation of defect persistence, orientation and block release potential as excavation proceeds.

The final design of the shoring system should be verified using detailed soil-structure interaction modelling software (such as WALLAP or PLAXIS). The analysis must account for:

- Surcharge loads from adjacent residential/commercial buildings and traffic loads from Lavender and Middlemiss Streets.
- The lower strength and potential defects within the upper weathered rock profile.
- Hydrostatic pressures

7.2 Ground Anchor Design Parameters for Temporary and Permanent Anchors

The design of the basement retention system may require the use of ground anchors to control lateral deflections and provide temporary support during the excavation phase. While the final basement structure will likely rely on the internal floor slabs for permanent lateral support, ground anchors are critical for stability during the construction period.

Ground anchors function by transferring tension forces from the anchor tendon into the surrounding rock mass via bond stress along the grouted bond length. The recommended allowable bond stress

parameters for the various rock classes encountered at the site are summarised in **Table 5**.

Table 5: Recommended Parameters for Ground Anchors

Parameter	Recommended Value
Allowable Bond Stress - Extremely Weathered Sandstone (Class V)	100 kPa
Allowable Bond Stress - Highly Weathered Sandstone (Class IV)	200 kPa
Allowable Bond Stress - Moderately Weathered Sandstone (Class III or better)	400 kPa
Minimum Free (Unbonded) Length	5.0 m or 1.0H* (whichever is greater)
Minimum Proof Load Factor	1.33 × Design Load

*H = Excavation depth below anchor level

The minimum free length for ground anchors should be the greater of 5.0 metres from wall face or 1.0 times vertical depth H from anchor installation point to current excavation level. This ensures the anchor tendon does not intersect the potential failure surface, assumed to extend upward from excavation toe at 35 degrees from horizontal for cohesionless materials. It is assumed that drilled holes are clean and adequately flushed. Ground anchors should be bonded behind a line drawn at 33 degrees in sand and 60 degrees in rock from the base of the shoring wall or the top of free-standing Class III Sandstone or better rock. Lift-off tests should be carried out to confirm anchor capacities.

Ground anchors should be proof loaded to 133% of the design working load and locked off at no higher than 80% of the working load. Under normal circumstances, the building will restrain the basement excavation over the long term, and therefore ground anchors are expected to be temporary only. The use of permanent anchors would require careful attention to corrosion protection. Further advice on design and specification should be sought if permanent anchors are to be employed at this site.

Permission must be obtained from neighbouring landowners prior to installing anchors that extend beyond the site perimeter. Care should be taken to avoid damaging buried services, pipes and potentially neighbouring piled footings during anchor installation. Anchoring should only be carried out by an experienced contractor with demonstrated experience in similar ground conditions.

It is anticipated that the ground anchors will be temporary, with the permanent structure (floor slabs and beams) providing long-term lateral support. If permanent anchors are required (e.g., if the structure cannot support the long-term earth pressures), they must be designed with double corrosion protection (DCP) in accordance with AS 4678 – Earth-Retaining Structures. Temporary anchors must be de-stressed once the internal structure is capable of supporting the lateral loads.

Vertical anchors for uplift support may also be designed using the parameters given in **Table 5**. The designer should verify the cone pull-out failure mechanism by assuming a 90-degree cone for rock.

7.3 Earthworks

7.3.1 General

Earthworks should be undertaken in general accordance with AS3798:2007 ‘Guidelines on Earthworks for Commercial or Residential Developments’.

The designers detailed specification for earthworks should take precedence over these recommendations where appropriate. The following commentaries are applicable:

- Remove any loose surface soils, topsoil, uncontrolled fill and vegetation and unsuitable materials prior to filling.
- Treatment of uncontrolled fill for areas to be overlain by pavement or concourse.
- Proof roll the exposed surface using a minimum 8-tonne roller, fully laden water cart or other approved method. The surface should be rolled, and the passes observed by a geotechnical engineer, or a suitably qualified engineer, or an experienced Geotechnical Inspection and Testing Authority (GITA).
- Any remaining wet, soft, or heaving materials identified during the proof roll should be removed and/or treated as directed by the Geotechnical Engineer.
- Fill, where required, should generally be placed in layers not exceeding 300mm loose thickness (or in accordance with Council specifications, or in accordance with other specific recommendations within this report, whichever is lesser) and compacted to the target compaction prior to placement of the next layer. Thinner layers may be required for a smaller plant. The recommended compaction levels are indicated below, unless superseded by the designer's specifications:
 - General Fill / Pavement Subgrades - 98% standard minimum dry density at $\pm 2\%$ optimum moisture content.
 - Pavement materials - 98% modified minimum dry density ratio at $\pm 2\%$ optimum moisture content.
 - Beneath Structures – 98% standard minimum dry density ratio at $\pm 2\%$ optimum moisture content.
- Filling below structures and pavements should be undertaken under Level 1 AS3798:2007, including a halo zone laterally to encompass the zone of influence of proposed loads.

7.3.2 Reuse of site won materials other than Topsoil

Site-won Topsoil (Unit 1) and any existing fill containing significant organic matter or deleterious inclusions are considered unsuitable for use as structural fill. These materials should be stripped and either stockpiled for potential reuse in landscaping areas (subject to agronomic assessment) or removed from the site as spoil.

All earthworks, including site preparation, placement, and compaction, must be carried out in accordance with AS 3798:2007 – Guidelines on Earthworks for Commercial and Residential Developments. To minimise the risk of differential settlement, fill placement should ensure that horizontal layers remain homogenous. Mixing of distinct material types (e.g., clay and rock) within the same lift should be avoided. Prior to reuse, it is anticipated that all site-won materials will be assessed for contamination by a qualified environmental consultant to confirm their chemical suitability for the proposed land use.

The excavated Sandstone is considered suitable for processing into crushed rock fill. This material is particularly appropriate for use within the subgrade zone of proposed pavement and slab areas.

Where site-won crushed rock is intended for use in pavement subgrades, The material should be crushed and screened to produce a well-graded product with a maximum particle size appropriate for the layer thickness (typically <75 mm). Laboratory California Bearing Ratio (CBR) testing should be conducted on representative samples of the processed material to verify that the achieved CBR meets the minimum design assumptions adopted for the pavement design.

7.4 Geotechnical Advice for Foundations

The following footing types may be considered for the proposed development, subject to consideration of bulk excavations and structural loadings.

- Large diameter bored piers founded within the rock as the dominant footing system for larger structures.
- Shallow pad/strip footings founded on rock may be considered at the location where bulk excavation is likely to intersect underlying shale.

Geotechnical parameters recommended for design of footings are summarised in **Table 6** below.

Table 6: Geotechnical parameters for Foundations

Unit	AEB – Shallow Footings (kPa)	AEB – Bored Piles (kPa)	USF – Bored Piles (kPa)	ASF – Bored Piles (kPa)	UEBC (kPa)
Unit 1 (Fill and Topsoil)		Not Recommended			
Unit 2 (Class V) & Unit 3 (Class IV) Sandstone	1000	1000	100 (50 kPa in uplift tension)	50	2000
Unit 4 (Class III) Sandstone	3500	3500	800 (400 kPa in uplift tension)	400	8,750
Unit 5 Sandstone (Class II/I)	6000	6000	1200 (600 Kpa in uplift tension)	600	15,000
Notes: 1.AEB: Allowable end bearing capacity. USF: Ultimate skin friction in compression. UEBC: Ultimate end bearing capacity 2.The zone of influence of loads from each footing/pile shall not affect any nearby excavation, embankment, retaining wall or buried structure, unless the design of the affected structure allows for additional loads from the footing. 3.Pile length must be minimum 5 x pile diameters to adopt allowable end bearing capacities. 4.Ultimate end bearing capacity is provided unfactored. A geotechnical strength reduction factor of 0.45 (ϕ_g) may be used for pile capacity calculations in accordance with AS2159 Australian Standard Piling Design and Installation. 5.Parameters allow for design assuming settlement of 1% of minimum footing width, or about 10mm, whichever is less 6.Pile and footing excavations shall be cleaned of spoil and moisture softened material prior to pouring concrete. 7.High level footings designed for >150 kPa shall have a minimum depth of 1m where in soil or XW material. This may be optimised by detailed bearing capacity assessment. 8.Rock quality designations and parameters, where relevant, are in accordance with Pells (2019). 9. Parameters for pile skin friction in tension shall only be used for material with a minimum depth of 2m below ground surface.					

Bored piles may require the use of permanent or temporary steel liners as pile excavations may likely encounter groundwater, and concrete pouring should utilise a tremie system.

High-level footings on newly placed controlled fill, placed as per recommendations on this report under Level 1 control in accordance with AS3798-2007 to satisfy a minimum 98% Maximum Dry Density by Standard Compaction, may adopt an allowable bearing capacity of 150 kPa. For any footing founded on controlled fill, controlled fill or suitable natural material shall underlie the lateral spread of the zone of influence of loads from the footing.

All footings must be designed with consideration to the zone of influence of loads, pertaining nearby structures, excavations, buried services, previously backfilled excavations and footings.

Notwithstanding the ranges of allowable bearing capacities detailed in **Table 6** for all encountered strata, it is recommended structures be founded on strata of similar stiffness to limit potential differential settlement.

Bored piers founded as described above can be expected to settle up to about 1% of the pier diameter under allowable bearing pressure when constructed in accordance with good building practices. Similarly, pad and strip footings founded as described above can be expected to settle about 10mm, dependent on footing type and dimensions. These settlement values assume good construction practice, including inspection and verification of bearing strata and base cleanliness by a geotechnical or structural engineer prior to concreting.

The design parameters in provided are based on the assumptions that the base of footing excavations is free of loose or soft soils and water prior to placement of concrete. For bored piers the above ABP values assume a depth to diameter embedment ratio of not less than 5.

Footing/pile excavations should be inspected by a Geotechnical Engineer or Principal Certifying Authority (PCA) during excavation and prior to pouring concrete and constructed with minimal delay following excavation. The Geotechnical Engineer is to confirm that encountered conditions satisfy design assumptions.

7.5 Temporary and Permanent Batter Slopes

Given the significant depth of the proposed basement (approx. 15.0 m to 17.0 m) and the site constraints at the boundaries, it is anticipated that the bulk excavation will be carried out vertically using the shoring systems detailed in section 7.1.

However, where lateral space permits (such as for internal localized excavations, service trenches, or temporary internal ramps), a battered slope approach may be adopted. Excavating vertically in uncontrolled fill, residual soil, or extremely weathered sandstone without support presents significant stability risks and is generally not recommended for depths exceeding 1.5 metres unless approved by a geotechnical engineer.

Table 7 provides recommended maximum batter slopes for temporary and permanent excavations up to 3.0 metres in depth. These guidelines assume that the ground is fully drained (above the groundwater table) and is not subject to surcharge loading.

Table 7: Recommended Maximum Batter Slopes for Excavations up to 3m Deep

Material	Maximum Batter Slope Ratio (H:V)	
	Temporary	Permanent
Unit 1 (Fill and Soil)	2:1	2.5:1*
Units 2 & 3 (VL & L Strength Sandstone)	0.5:1*	1:1*
Units 4 & 5 (M & H Strength Sandstone)	Vertical*	Vertical*

***Note:** Vertical cuts in sandstone are subject to inspection by a geotechnical engineer to identify adverse defects. Systematic rock bolting or shotcreting may still be required.

No heavy loads (including stockpiles, excavators, or construction traffic) should be placed within a horizontal distance from the crest of the batter equal to the depth of the excavation (1H), unless specifically accounted for in the stability assessment.

Permanent batter angles should be considered as preliminary; detailed design should include additional assessment (with potential for support design) by a geotechnical engineer or detailed designer, with provision for drainage and erosion control.

Competent medium-strength to strong sandstone will generally be stable when excavated vertically, provided no adversely oriented joints or other defects are present. Vertical rock faces for internal excavations (e.g. lift pits) should be inspected by an experienced geotechnical engineer or engineering geologist as excavation progresses, at depth intervals not exceeding 1.5 m. These inspections serve to identify the extent of shotcrete face protection required and to check for adverse defects daylighting into the excavation face that may require additional stabilisation measures (such as rock bolts and/or shotcrete).

Where temporary or permanent batters aren't possible or impractical due to space constraints or the presence of existing buildings on neighbouring properties, retaining, or shoring walls may be designed in accordance with the retaining wall parameters identified in **Table 8** below.

Table 8: Recommended Design parameters for Retaining Walls

Material Unit	Unit Weight (kN/m ³)	Poisson's Ratio (ν)	Modulus of Elasticity (E, MPa)	Cohesion (c, kPa)	Friction Angle (φ, degrees)	K _a	K _p	K ₀
Fill/Topsoil (Unit 1)	18	0.3	10	0	25	0.406	2.464	0.577
Class V Rock (Unit 2, Very Low to Low Strength)	22	0.3	100	50	32	0.307	3.255	0.470
Class IV Rock (Unit 3, Low to Medium Strength)	23	0.25	500	200	35	0.271	3.690	0.426
Class III or Better Rock (Unit 4, Medium+ Strength)	24	0.2	2000	500	40	0.217	4.599	0.357

For preliminary sizing only, an equivalent uniform apparent lateral pressure (σ_h) can be calculated as:

$$\sigma_h = 0.65 \times K_a \times \gamma \times H$$

Where:

γ Bulk unit weight of the soil

H Total height of the excavation

The above values do not account for any surcharge loads from adjacent structures, construction equipment, or stockpiled materials. These must be included in the final design. The shoring design must account for hydrostatic pressures below the depth of water table. The effective unit weight of the soil should be used for calculations below the water table. Passive pressures must be factored appropriately (e.g., Factor of Safety 2.0).

7.6 Groundwater Assessment and Management

During the field investigation in November 2025, groundwater was observed only in BH03 at a depth

of 2.0 m below ground level (BGL). All other boreholes (BH01, BH02, BH04, and BH05) were observed to be dry during and upon the completion of drilling.

The observation in BH03 indicates the presence of a shallow perched water table, likely confined to the interface between the fill/residual soil and the underlying extremely weathered sandstone. While the "dry" results in the remaining boreholes suggest the deep, regional groundwater table is likely located below the investigation depth, the absence of water during a short-term investigation does not conclusively demonstrate that the rock mass is free of groundwater. It is anticipated that ephemeral water tables will develop within the soil profile and rock defects following periods of extended rainfall.

7.7 Seismic Design

In accordance with AS 1170.4-2024 ("Earthquake actions in Australia"), the site classification is based on the subsurface profile. The investigation has confirmed a profile of shallow, stiff soils (less than 5.0 m thick) overlying high-quality, competent Sandstone bedrock. Based on this profile, the site is classified as Site Class **Be (Rock)**.

For assessing the earthquake hazard factor, the site is located within a low seismic hazard region. The assigned hazard factor is $Z = 0.08$ for a 500-year return period design earthquake in accordance with AS 1170.4.

7.8 Vibration and Noise Control

The proposed development necessitates a bulk excavation extending approximately 15.0 m to 17.0 m below existing ground levels. This will require the removal of high-strength Hawkesbury Sandstone, including Class III, II, and I units. Excavation of such competent rock typically demands heavy rock-breaking equipment, such as hydraulic impact hammers and rock saws, which are significant sources of ground-borne vibration and transmitted noise. This geotechnical risk is amplified by the site's location within a high-density residential precinct. Particular sensitivity is required regarding the local heritage item located on the site, as older masonry structures are often more susceptible to vibration-induced damage than modern reinforced concrete buildings.

To manage these risks and ensure the protection of adjacent assets, strict control measures must be incorporated into the Construction Management Plan (CMP). Prior to the commencement of any site works, including demolition, comprehensive video-recorded dilapidation surveys must be carried out on all neighbouring properties and public infrastructure. A specialized structural assessment of the heritage item on the northern boundary should be conducted by a qualified heritage structural engineer to establish a baseline of existing defects and structural integrity.

A continuous, real-time vibration monitoring plan must be implemented for the duration of the excavation works. Geophones with automated alarm systems should be installed at critical locations along the site boundaries and specifically attached to the footing or base of the adjacent heritage structure. If vibration limits are exceeded, all works must cease immediately, and the excavation methodology must be reviewed and modified before work recommences. For residential structures, Vibration Peak Particle Velocity (PPV) should generally be limited in accordance with AS 2187.2 and BS 7385-2. Significantly lower, heritage-appropriate limits must be adopted for the northern boundary, typically in accordance with the German Standard DIN 4150-3 (Structural Vibration in Buildings), which recommends limiting PPV to 3 mm/s to 5 mm/s for sensitive heritage structures at low frequencies.

To minimize the transmission of vibration, the excavation sequence should prioritize isolation of the site perimeter from the central rock mass using a rock saw or line-drilling techniques prior to bulk

excavation. This creates a physical air gap that significantly reduces vibration transmission to neighbouring footings. Furthermore, large hydraulic hammers should be restricted to the centre of the site. As excavation approaches the boundaries non-percussive methods such as rock sawing, grinding, or smaller hammers must be employed to maintain compliance with the established vibration limits.

7.9 Spoil Management

The bulk of the material generated from the proposed basement excavation will consist of fill material and Sandstone, ranging from Class V through to Class I. Prior to removal from the site, all excavated spoil must be classified in accordance with the NSW EPA Waste Classification Guidelines: Part 1 – Classifying Waste (2014) to determine the appropriate disposal or reuse pathway.

It is anticipated that the underlying natural sandstone bedrock will be classified as Virgin Excavated Natural Material (VENM), provided it is not cross-contaminated with fill or other waste streams during excavation. VENM is typically suitable for reuse on other sites or disposal at facilities licensed to accept this category of waste. Conversely, the upper profile, comprising fill material, requires careful assessment. Reference should be made to the separate Preliminary Site Investigation (PSI) report (Ref: RG1358-PSI-1-1) prepared for this project, which details the chemical characterisation of the site soils. All material intended for off-site disposal must be transported by a licensed contractor to a waste facility legally authorised to accept the specific waste classification, with waste dockets retained for validation purposes.

8. LIMITATIONS

The findings and recommendations contained within this report are based on the subsurface conditions observed at the specific investigation locations and at the time of the fieldwork. It must be recognised that geotechnical materials are inherently variable, and subsurface conditions may change significantly over short distances.

Should ground conditions, including subsurface stratigraphy and groundwater levels encountered during construction and excavation, differ from those anticipated or presented within this report, it is a condition of this report that Rapid Geo Pty Ltd be contacted immediately. This will allow for a review of the exposed conditions and, if necessary, the amendment of design recommendations to ensure the ongoing safety and stability of the development. Rapid Geo Pty Ltd does not accept any liability for site conditions not observed, accessible, or disclosed during the time of the inspection.

This report, associated documentation, and the information herein have been prepared solely for the specific project details described and for the exclusive use of Central Element (CE). Any reliance assumed by third parties on this report shall be at such parties' own risk. Any ensuing liability resulting from the use of the report by third parties cannot be transferred to Rapid Geo Pty Ltd, its directors, employees, or sub-contractors.

9. ATTACHMENT

Attachment A – Borehole location Plan

Attachment B – Borehole Logs

Attachment C – Laboratory Test Results

Attachment A – Borehole Location Plan



Client Name: Central Element	Feature:	Approximate Borehole Locations Site Boundary
Project Name: Geotechnical Investigation	Figure Number: 1	
Project Address: 3-7 Middlemiss St & 64-66 Lavender St, Lavender Bay NSW	Figures Date: 22/08/2025	
Source: - Site and Site Location Plan	Report Number: - RG1358-GR-1-1	

Rapid Geo

Attachment B – Borehole Logs

UTM	: 56H	Drill Rig	: Modular	Job Number	: RG1358
Easting (m)	: 334400.00	Driller Supplier	: STS Geotechnics	Client	: Central Element
Northing (m)	: 6253810.00	Logged By	: SB	Project	: Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation	: Not Surveyed	Reviewed By	: SB	Location	: 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth	: 19.9 m BGL	Date	: 26/11/2025	Loc Comment	:

Drilling Method	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Consistency	Samples	Testing	Remarks
Auger			Top Soil		SM	Silty Sand (SM): poorly graded, medium grained, dark grey, with fine to coarse sized gravel, dry.				
						Commenced Coring at 0.25 m				

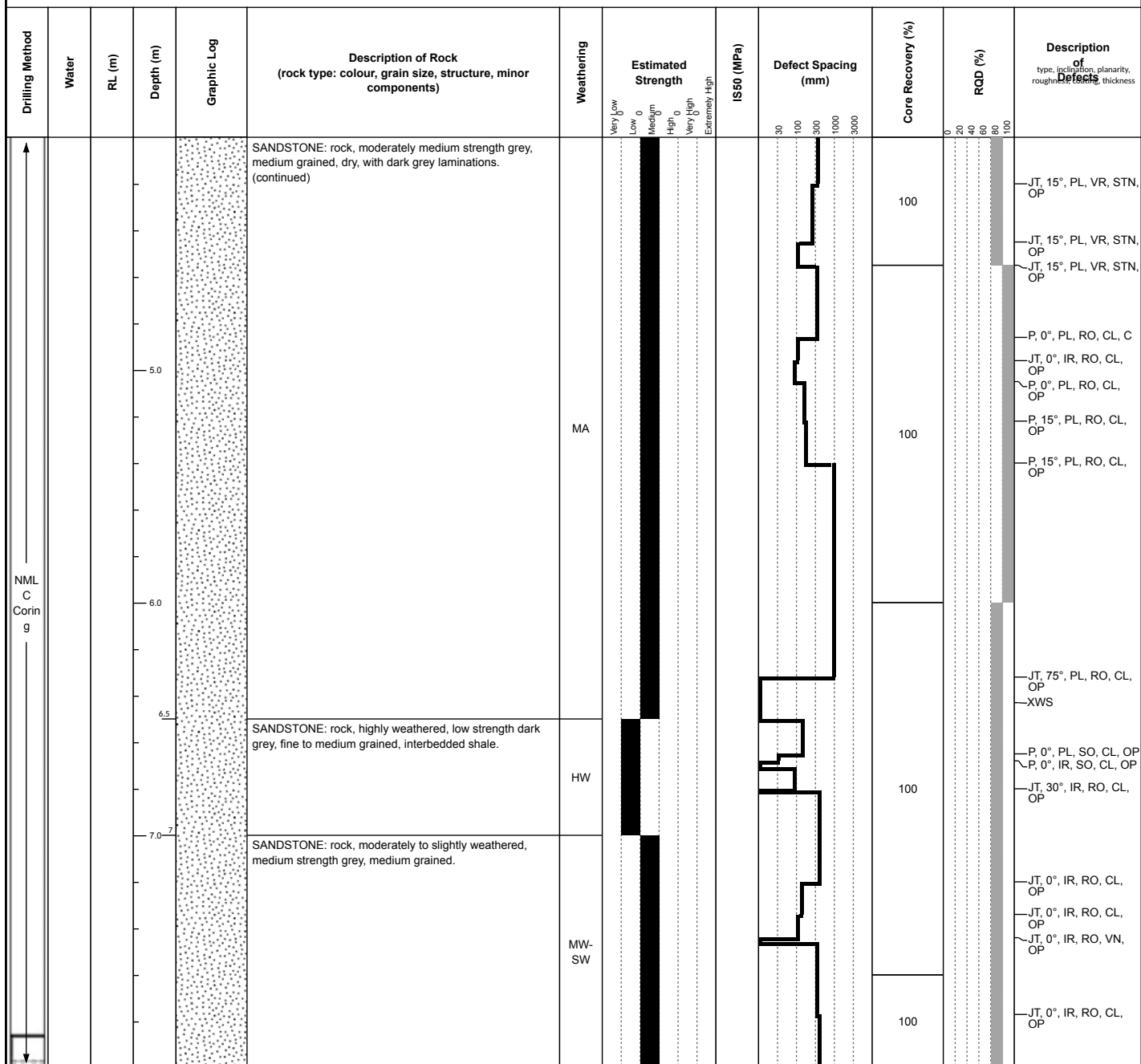
Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334400.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253810.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation : Not Surveyed	Reviewed By : SB	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 19.9 m BGL	Date : 26/11/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects type, inclination, planarity, roughness, colour, thickness
					Commenced Coring at 0.25 m							
			1.0		SANDSTONE: rock, moderately weathered, medium strength light grey, pale brown, medium grained, with occasion dark brown laminations.	MW				100		-P, 90°, PL, RO, CL, OP -JT, 15°, PL, RO, CL, OP -JT, 0°, IR, RO, VN, OP, with threads of rootlets -JT, IR, RO, CL, OP -JT, 0°, IR, RO, CL, OP -JT, 10°, PL, RO, CL, OP -JT, 10°, PL, RO, CL, OP -JT, 10°, PL, RO, CL, OP -JT, 10°, PL, RO, CL, OP -JT, 10°, PL, RO, CL, OP -JT, 0°, IR, RO, STN, OP -JT, 15°, PL, RO, CL, OP -JT, 15°, IR, RO, CL, OP
			2.0									
			2.5		SANDSTONE: rock, moderately medium strength grey, medium grained, dry, with dark grey laminations.	MA				100		-JT, 5°, IR, VR, CL, OP -JT, 5°, PL, RO, CL, OP -P, 0°, IR, RO, CL, C -JT, 5°, PL, RO, CL, OP -JT, 5°, PL, RO, CL, OP
			3.0							100		-P, 0°, PL, RO, CL, OP -JT, 10°, IR, RO, CL, OP -P, 0°, PL, RO, CL, OP -P, 0°, IR, RO, CL, OP

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H Easting (m) : 334400.00 Northing (m) : 6253810.00 Ground Elevation : Not Surveyed Total Depth : 19.9 m BGL	Drill Rig : Modular Driller Supplier : STS Geotechnics Logged By : SB Reviewed By : SB Date : 26/11/2025	Job Number : RG1358 Client : Central Element Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milsom Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW Loc Comment :
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Water	Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.
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UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334400.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253810.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation : Not Surveyed	Reviewed By : SB	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 19.9 m BGL	Date : 26/11/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects type, inclination, planarity, roughness, colour, thickness
NML C Corin g			9.0 9.1 10.0 11.0		SANDSTONE: rock, moderately to slightly weathered, medium strength grey, medium grained. (continued)	MW-SW				100	100	JT, 5°, PL, RO, CL, OP CORELOSS, 5° JT, 0°, RO, CL, OP JT, 5°, PL, RO, CL, OP JT, 5°, PL, RO, CL, OP P, 5°, IR, RO, CL, OP JT, 5°, IR, RO, CL, OP JT, 5°, IR, RO, CL, OP
					SANDSTONE: rock, moderately to slightly weathered, medium to high strength grey, medium grained, with dark grey laminations.	MW-SW						P, 0°, IR, RO, CL, OP P, 0°, IR, RO, CL, OP JT, 45°, PL, RO, CL, OP JT, 5°, PL, RO, CL, OP JT, 0°, IR, RO, CL, OP P, 5°, PL, RO, CL, OP P, 5°, PL, RO, CL, OP
										100		JT, 0°, PL, RO, CL, OP P, 0°, PL, RO, CL, OP P, 0°, PL, RO, CL, OP

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334400.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253810.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation : Not Surveyed	Reviewed By : SB	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 19.9 m BGL	Date : 26/11/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects type, inclination, planarity, roughness, bedding, thickness
NML C Corin g			13.0 14.0 15.0		SANDSTONE: rock, moderately to slightly weathered, medium to high strength grey, medium grained, with dark grey laminations. (continued)	MW-SW	Very Low Low Medium High Very High Extremely High		30 100 300 1000 3000	100 100 100 100	0 20 40 60 80 100	JT, 0°, PL, RO, VN, OP P, 0°, PL, RO, CL, OP P, 0°, PL, RO, CL, OP

Water	Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.
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Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects type, inclination, planarity, roughness, colour, thickness
NML C Corin g			17.0 18.0 19.0		SANDSTONE: rock, moderately to slightly weathered, medium to high strength grey, medium grained, with dark grey laminations. (continued)	MW-SW	Very Low Low Medium High Very High Extremely High		30 100 300 1000 3000	100 100 100	0 20 40 60 80 100	P, 5°, PL, RO, CL, OP JT, 0°, IR, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 10°, PL, RO, VN, OP P, 0°, CV, RO, CL, OP P, 10°, CV, RO, CL, OP P, 10°, CV, RO, CL, OP JT, 5°, RO, CL, OP JT, 5°, IR, RO, CL, OP
BH01 Terminated at 19.9 m												

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.



0403 145 566



Unit 1 / 70 Topham Road,
Smeaton Grange NSW 2567



info@rapidgeo.com.au

Photo description

Client	Central Element		
Location	64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW		
Project name	Geotechnical Investigation - Lavender St & Middlemiss Street, Milson Point		
Project No	RG1358	Scale	Not to Scale
BH No	BH01	BH Depth	CorePhoto



0403 145 566



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Photo description

Client	Central Element		
Location	64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW		
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Project No	RG1358	Scale	Not to Scale
BH No	BH01	BH Depth	CorePhoto

UTM : 56H	Drill Rig : Hanjin D&B 8D	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milsom
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 20/11/2025	Loc Comment :

Drilling Method	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Consistency	Samples	Testing	Remarks
			Non-Soil		Aspha	Non-Soil Asphalt Pavement.				
			Rock		SS	SANDSTONE: rock, highly to moderately weathered, low strength light grey.	L			
						Commenced Coring at 0.6 m				

Water	Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Hanjin D&B 8D	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milsom
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 20/11/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects type, inclination, planarity, roughness, colour, thickness
					Commenced Coring at 0.6 m							
					SANDSTONE: rock, moderately to slightly weathered, medium strength grey, orange - brown, medium grained, with iron indurated bands.			0.53				
			1.0									
			2.0			MW-SW		0.87		100		JT, 15°, PL, RO, STN, OP
			3.0					0.87				XWS
			3.4		As Above light grey, with dark grey laminations.	MW-SW		0.02		100		JT, IR, RO, CL, OP JT, 0°, IR, RO, CL, OP P, 15°, PL, RO, CL, OP P, 15°, PL, RO, CL, OP P, 15°, PL, RO, CL, OP P, 5°, IR, RO, CL, OP
												XWS
												JT, 10°, CV, RO, CL, OP JT, 10°, CV, RO, CL, OP

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Hanjin D&B 8D	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milsom
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 20/11/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects type, inclination, planarity, roughness, colour, thickness
NML C Corin g			5.0		As Above light grey, with dark grey laminations. (continued)	MW-SW	Very Low	0.63	30	100	0	SZ
			6.0				Low	0.62	100	100	0	IS
			6.8		As Above high strength.	MW-SW	Medium	0.7	300	100	0	JT, 5°, IR, RO, CL, OP
			7.0				High	1.42	1000	100	0	JT, 15°, IR, RO, CL, OP
							Very High		3000		0	P, 30°, PL, RO, CL, OP
							Extremely High				0	JT, 0°, IR, RO, CL, OP
											0	JT, 0°, IR, RO, CL, OP
											0	JT, 45°, PL, RO, CL, OP
											0	JT, 10°, PL, RO, VN, OP
											0	JT, 5°, PL, RO, CL, OP
											0	JT, 5°, PL, RO, CL, OP
											0	P, 15°, PL, RO, CL, OP
											0	XWS

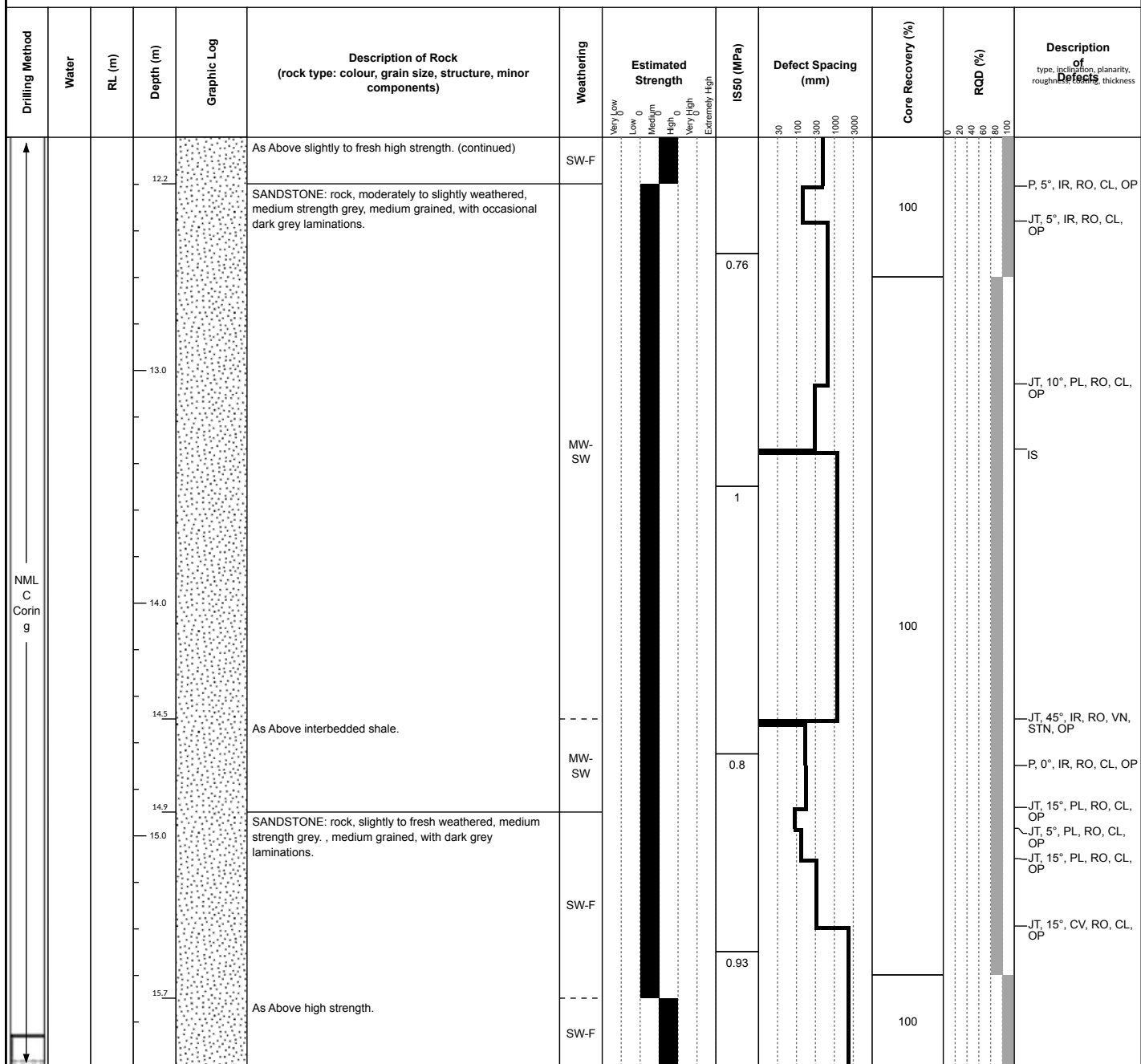
Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Hanjin D&B 8D	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 20/11/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RQD (%)	Description of Defects (type, inclination, planarity, roughness, location, thickness)
NML C Corin g			8		SANDSTONE: rock, slightly weathered, high strength grey, red - brown, medium grained, with iron indurated bands.	SW		1.54		100		JT, 10° PL, RO, STN, OP JT, 10° PL, RO, STN, OP
			9.0									
			9.45		SANDSTONE: rock, moderately to slightly weathered, medium strength grey, medium grained, with occasional iron indurated bands.	MW-SW		0.65			JT, IR, RO, CL, OP JT, 0° IR, RO, CL, OP	
			10.0		As Above slightly to fresh high strength.				1.59		100	
10.1												
			11.0			SW-F		1.37				JT, 0° IR, RO, CL, OP JT, 15° IR, VR, CL, OP

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Hanjin D&B 8D	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milsom
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 20/11/2025	Loc Comment :



Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Hanjin D&B 8D	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 20/11/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RQD (%)	Description of Defects type, inclination, planarity, roughness, colour, thickness
NML C Corin 9			17.0		As Above high strength. (continued)	SW-F						

BH02 Terminated at 20 m

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.



0403 145 566



Unit 1 / 70 Topham Road,
Smeaton Grange NSW 2567



info@rapidgeo.com.au

Photo description

Client	Central Element		
Location	64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW		
Project name	Geotechnical Investigation - Lavender St & Middlemiss Street, Lavender Bay		
Project No	RG1358	Scale	Not to Scale
BH No	BH02	BH Depth	CorePhoto



0403 145 566



Unit 1 / 70 Topham Road,
Smeaton Grange NSW 2567

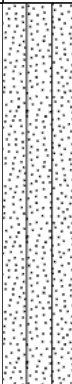
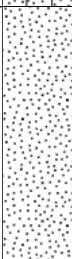


info@rapidgeo.com.au

Photo description

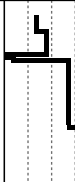
Client	Central Element		
Location	64-66 Lavender Street, 3-7 Middlemiss Street, Milson Point NSW		
Project name	Geotechnical Investigation - Lavender St & Middlemiss Street, Milson Point		
Project No	RG1358	Scale	Not to Scale
BH No	BH02	BH Depth	CorePhoto

UTM	: 56H	Drill Rig	: Hanjin D&B 8D	Job Number	: RG1358
Easting (m)	: 334394.00	Driller Supplier	: STS Geotechnics	Client	: Central Element
Northing (m)	: 6253760.00	Logged By	: SB	Project	: Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation	: Not Surveyed	Reviewed By	: HA	Location	: 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth	: 21.1 m BGL	Date	: 01/12/2025	Loc Comment	:

Drilling Method	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Consistency	Samples	Testing	Remarks
		1.0	Fill		SM	Silty Gravelly Sand (SM): fine to medium grained, medium sized gravel, grey, dark grey, dry.				
		2.0	Rock		SS	SANDSTONE: rock, extremely to highly weathered, very low to low strength grey, yellow, coarse grained.	VL-L			
		3.0				Commenced Coring at 3.35 m				

Water  Standing	Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.
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UTM : 56H Easting (m) : 334394.00 Northing (m) : 6253760.00 Ground Elevation : Not Surveyed Total Depth : 21.1 m BGL	Drill Rig : Hanjin D&B 8D Driller Supplier : STS Geotechnics Logged By : SB Reviewed By : HA Date : 01/12/2025	Job Number : RG1358 Client : Central Element Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW Loc Comment :
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Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RQD (%)	Description of Defects (type, inclination, planarity, roughness, tooling, thickness)
			1.0									
			2.0									
			3.0									
					Commenced Coring at 3.35 m							
NML C Coring			3.55		SANDSTONE: rock, highly weathered, low strength light grey, fine to medium grained. As Above low to medium strength with dark brown laminations.	HW -- HW				100		JT, IR, RO, CL, OP P, 0°, CV, RO, CL, OP JT, 10°, PL, RO, STN, C P, 0°, PL, RO, CL, OP JT, 45°, CV, RO, STN, C

Water  Standing	Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.
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UTM : 56H	Drill Rig : Hanjin D&B 8D	Job Number : RG1358
Easting (m) : 334394.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253760.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milsom
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 21.1 m BGL	Date : 01/12/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RQD (%)	Description of Defects	
NML C Corin 9			4.85 5.0 6.0 7.0 7.45 7.65 7.75		As Above low to medium strength with dark brown laminations. (continued)	HW				100		CS	
													CS
													JT, PL, RO, CL, OP JT, PL, RO, CL, OP JT, 15°, PL, RO, CL, OP
													IS
					SANDSTONE: rock, moderately weathered, medium strength light grey , brown, fine to medium grained, with dark brown laminations and occasional iron indurated bands.	MW				100		JT, 10°, PL, RO, CL, OP JT, 10°, PL, RO, CL, OP JT, 10°, PL, RO, CL, OP JT, 10°, PL, RO, CL, OP JT, 10°, PL, RO, CL, OP	
					As Above highly to moderately low strength light grey , brown, with dark brown laminations and occasional iron indurated bands.	HW-MW				100		JT, 5°, IR, CV, RO, STN, OP JT, 5°, IR, CV, RO, STN, OP	
					Non-Soil Coreloss.							JT, 10°, PL, RO, CL, OP JT, 10°, PL, RO, CL, OP JT, 10°, PL, RO, CL, OP	
					As Above SANDSTONE: rock, highly to moderately weathered, low strength light grey , brown, fine to medium grained, with dark brown laminations and occasional iron	HW-MW				93.33		JT, 0°, PL, RO, CL, OP CORELOSS JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP	

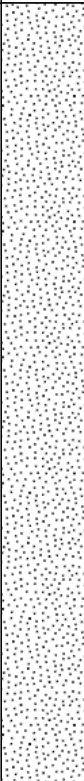
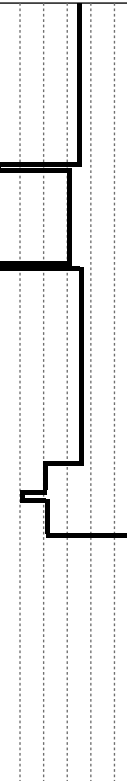
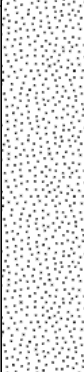
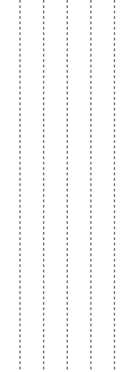
Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
 Standing	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

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Northing (m) : 6253760.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milsom
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 21.1 m BGL	Date : 01/12/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	ISS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RQD (%)	Description of Defects										
NML C Corin g			8.0		SANDSTONE: rock, highly to moderately weathered, low to medium strength red - brown, fine to medium grained, iron indurated bands.	HW-MW				93.33		JT, 0°, PL, RO, STN, OP										
			8.4		SANDSTONE: rock, highly to moderately weathered, low strength grey, fine to medium grained.	HW-MW						JT, 0°, PL, RO, STN, OP										
			9.0		As Above moderately medium strength.	MW									100		JT, 0°, PL, RO, STN, OP					
			10.0														JT, 0°, PL, RO, CL, OP					
			10.1														JT, 15°, PL, RO, CL, OP					
			10.63														JT, 15°, PL, RO, CL, OP					
			10.63		Non-Soil Coreloss.										81.33		JT, 5°, IR, RO, VN, OP					
			10.91		SANDSTONE: rock, moderately to slightly weathered, medium strength grey, fine to medium grained.	MW-SW											JT, 5°, IR, RO, VN, OP					
			11.0		SANDSTONE: rock, slightly weathered, medium to high strength grey, fine to medium grained.	SW														81.33		JT, 5°, IR, RO, VN, OP
			11.05		JT, 15°, PL, RO, CL, OP																	
											JT, 15°, PL, RO, CL, OP											
												JT, 0°, IR, RO, CL, OP										

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
Standing	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

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Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 21.1 m BGL	Date : 01/12/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RQD (%)	Description of Defects (type, inclination, planarity, roughness, colour, thickness)
NML C Corin g			13.0		SANDSTONE: rock, slightly weathered, medium to high strength grey, fine to medium grained. (continued)	SW				100		JT, 0°, IR, RO, VN, OP
			14.0							JT, 0°, IR, RO, VN, OP		
			14.7		SANDSTONE: rock, slightly to fresh weathered, high strength grey, fine to medium grained.	SW-F				100		JT, 0°, PL, RO, CL, OP
		15.0			JT, 0°, PL, RO, CL, OP							
												JT, 0°, PL, RO, CL, OP
												JT, 0°, IR, RO, CL, OP

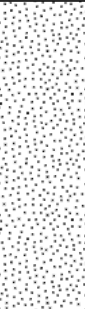
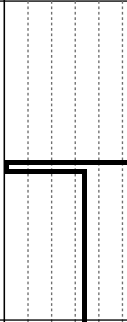
Water  Standing	Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.
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UTM : 56H Easting (m) : 334394.00 Northing (m) : 6253760.00 Ground Elevation : Not Surveyed Total Depth : 21.1 m BGL	Drill Rig : Hanjin D&B 8D Driller Supplier : STS Geotechnics Logged By : SB Reviewed By : HA Date : 01/12/2025	Job Number : RG1358 Client : Central Element Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW Loc Comment :
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Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects (type, inclination, planarity, roughness, colour, thickness)
NML C Corin g			17.0 18.0 19.0		SANDSTONE: rock, slightly to fresh weathered, high strength grey, fine to medium grained. (continued)	SW-F				100 100 100 100		

Water Standing	Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.
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UTM : 56H Easting (m) : 334394.00 Northing (m) : 6253760.00 Ground Elevation : Not Surveyed Total Depth : 21.1 m BGL	Drill Rig : Hanjin D&B 8D Driller Supplier : STS Geotechnics Logged By : SB Reviewed By : HA Date : 01/12/2025	Job Number : RG1358 Client : Central Element Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW Loc Comment :
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Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects (type, inclination, planarity, roughness, tooling, thickness)
			21.0		SANDSTONE: rock, slightly to fresh weathered, high strength grey, fine to medium grained. (continued)	SW-F				100		XWS
					BH03 Terminate at 21.1 m							

Water  Standing	Weathering XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	Altering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	Consistency VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	Density VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	Rock Strength VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	Tests&Results U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.
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0403 145 566



Unit 1 / 70 Topham Road,
Smeaton Grange NSW 2567



info@rapidgeo.com.au

Photo description

Client	Central Element		
Location	64-66 Lavender Street, 3-7 Middlemiss Street, Milson Point NSW		
Project name	Geotechnical Investigation - Lavender St & Middlemiss Street, Milson Point		
Project No	RG1358	Scale	Not to Scale
BH No	BH03	BH Depth	CorePhoto



0403 145 566



Unit 1 / 70 Topham Road,
Smeaton Grange NSW 2567



info@rapidgeo.com.au

Photo description

Client	Central Element		
Location	64-66 Lavender Street, 3-7 Middlemiss Street, Milson Point NSW		
Project name	Geotechnical Investigation - Lavender St & Middlemiss Street, Milson Point		
Project No	RG1358	Scale	Not to Scale
BH No	BH03	BH Depth	CorePhoto

UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334385.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253764.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation : Not Surveyed	Reviewed By : SB	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 2.4 m BGL	Date : 26/11/2025	Loc Comment :

Drilling Method	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Consistency	Samples	Testing	Remarks
Auger			Top Soil		SM	Silty Sand (SM): poorly graded, fine to medium grained, dark grey, with fine to medium sized gravel, dry.				
			Rock		SS	SANDSTONE: rock, moderately weathered, low to medium strength light grey, red -brown, fine to medium grained.	L-MS			
						Commenced Coring at 0.3 m				

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334385.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253764.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milsom
Ground Elevation : Not Surveyed	Reviewed By : SB	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 2.4 m BGL	Date : 26/11/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RQD (%)	Description of Defects type, inclination, planarity, roughness, colour, thickness
					Commenced Coring at 0.3 m							
NML C Coring			1.0									

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.



0403 145 566



Unit 1 / 70 Topham Road,
Smeaton Grange NSW 2567



info@rapidgeo.com.au

Photo description

BH4 Core Photo

Client

Central Element

Location

64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW

Project name

Geotechnical Investigation - Lavender St & Middlemiss Street,
Milson Point

Project No

RG1358

Scale

Not to Scale

BH No

BH04

BH Depth

CorePhoto

UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 03/12/2025	Loc Comment :

Drilling Method	Water	Depth (m)	Soil Origin	Graphic Log	Classification Code	Material Description	Consistency	Samples	Testing	Remarks
Auger			Fill		SM	Silty Gravelly Sand (SM): poorly graded, fine to medium grained, medium sized gravel, dark grey, dry.				
						Commenced Coring at 0.9 m				

Water XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	Weathering XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	Altering VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	Consistency VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	Density VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	Rock Strength U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.
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UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 03/12/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RQD (%)	Description of Defects type, inclination, planarity, roughness, colour, thickness
					Commenced Coring at 0.9 m							
			1.0		SANDSTONE: rock, extremely weathered, very low strength grey, orange - brown, medium grained.							JS, 0°, PL, RO, STN, OP
								0.03		86.75		JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 15°, PL, RO, CL, OP JT, 15°, PL, RO, CL, OP
			2.0			XW						CORELOSS, 5° SZ
								0.02				JT, 0°, CV, RO, CL, OP JT, 10°, PL, RO, CL, OP JT, CV, RO, STN, OP JT, PL, RO, CL, OP CORELOSS, 5°
			3.0									JT, 0°, PL, RO, VN, OP JT, 0°, PL, RO, CL, OP JT, 0°, UN, RO, CL, OP JT, 0°, CV, RO, CL, OP JT, 0°, PL, RO, CL, OP
			3.4		As Above moderately to slightly medium strength light grey, with dark grey laminations.	MW-SW		0.48		95.08		JT, 45°, PL, RO, CL, OP JT, 0°, PL, RO, VN, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 03/12/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects
NML C Corin g			5.0		As Above moderately to slightly medium strength light grey, with dark grey laminations. (continued)	MW-SW	Very Low	0.9	30	95.08	0	JT, 30°, PL, RO, CL, OP
			6.0				Low	0.64	100		20	JT, 0°, PL, RO, CL, OP
			6.8				Medium	0.72	300	100	40	JT, 0°, PL, RO, CL, OP
			7.0		As Above medium to high strength with dark grey laminations bedding dipping (0-10).	MW-SW	High	1.79	1000		60	JT, 0°, PL, RO, CL, OP
							Very High		3000		80	JT, 0°, PL, RO, CL, OP
							Extremely High				100	JT, 0°, PL, RO, CL, OP

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milsom
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 03/12/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects type, inclination, planarity, roughness, colour, thickness
NML C Corin g			8.0		SANDSTONE: rock, slightly weathered, high strength grey, red - brown, medium grained, with iron indurated bands.	SW	Very Low		30			JT, 0°, CV, VR, CL, OP
			9.0			SW	Low		100			JT, 0°, PL, VR, CL, OP
			9.45		SANDSTONE: rock, moderately to slightly weathered, medium strength grey, medium grained, with occasional iron indurated bands.	MW-SW	Medium	0.58	300			JT, 0°, PL, RO, CL, OP
			10.0		As Above slightly high strength.	SW	High	0.76	1000	100		JT, 0°, PL, RO, CL, OP
			10.1				Very High		3000			JT, 10°, PL, RO, CL, OP
			11.0			SW	Extremely High	1.06				JT, 0°, PL, VR, CL, OP
								0.03		100		JT, 0°, PL, RO, CL, OP

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milsom
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 03/12/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects type, inclination, planarity, roughness, bedding, thickness
NML C Corin g			13.0		As Above slightly high strength. (continued)		Very Low Low Medium High Very High Extremely High	2.48		100		JT, 0°, PL, VR, STN, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, CL, OP
			14.0			SW		1.3				JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, VR, CL, OP JT, 10°, PL, RO, CL, OP JT, 0°, CV, RO, CL, OP
			15.0					1.31		95		JT, 15°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP
								1.53				JT, 0°, UN, RO, CL, OP JT, 0°, UN, RO, CL, OP CORELOSS
												JT, 0°, PL, VR, CT, OP JT, 0°, CV, RO, CL, OP

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.

UTM : 56H	Drill Rig : Modular	Job Number : RG1358
Easting (m) : 334372.00	Driller Supplier : STS Geotechnics	Client : Central Element
Northing (m) : 6253842.00	Logged By : SB	Project : Geotechnical Investigation - Lavender St & Middlemiss Street, Milson
Ground Elevation : Not Surveyed	Reviewed By : HA	Location : 64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW
Total Depth : 20 m BGL	Date : 03/12/2025	Loc Comment :

Drilling Method	Water	RL (m)	Depth (m)	Graphic Log	Description of Rock (rock type: colour, grain size, structure, minor components)	Weathering	Estimated Strength	IS50 (MPa)	Defect Spacing (mm)	Core Recovery (%)	RCD (%)	Description of Defects type, inclination, planarity, roughness, colour, thickness
NML C Corin g			17.0 18.0 19.0		As Above slightly high strength. (continued)	SW	Very Low Low Medium High Very High Extremely High	1.23 1.8 0.86 1.06	30 100 300 1000 3000	95 100	0 20 40 60 80 100	SS JT, 0°, UN, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 0°, PL, RO, CL, OP JT, 0°, UN, VR, CL, OP JT, 0°, PL, VR, STN, OP JT, 0°, PL, VR, CL, OP SZ
BH05 Terminated at 20 m												

Water	Weathering	Altering	Consistency	Density	Rock Strength	Tests&Results
	XW : Extremely weathered DW : Distinctly weathered HW : Highly weathered MW : Moderately weathered SW : Slightly weathered FR : Fresh	XA : Extremely altered DA : Distinctly altered HA : Highly altered MA : Moderately altered SA : Slightly altered	VS : Very soft S : Soft F : Firm St : Stiff VSt : Very stiff H : Hard FR : Friable Moisture D : Dry M : Moist W : Wet	VL : Very loose L : Loose MD : Medium dense D : Dense VD : Very dense	VLS : Very low LS : Low MS : Medium HS : High VH : Very high XH : Extremely high	U50 : Undisturbed 50mm diam tube. D : Disturbed sample. SPT : Standard Penetration Test, N = number of blows to drive 50mm sampler 300mm with a 63.6kg hammer falling 762mm. PP : Hand penetrometer estimate of unconfined compressive strength, kPa. S : Vane shear value kPa. DCP : Dynamic Cone Penetrometer test.



BH5 Core Photo

Rapid Geo



0403 145 566



Unit 1 / 70 Topham Road,
Smeaton Grange NSW 2567



info@rapidgeo.com.au

Photo description	BH5 Core Photo		
Client	Central Element		
Location	64-66 Lavender Street, 3-7 Middlemiss Street, Lavender Bay, NSW		
Project name	Geotechnical Investigation - Lavender St & Middlemiss Street...		
Project No	RG1358	Scale	Not to Scale
BH No	BH05	BH Depth	0.9-20m

Attachment C– Laboratory Test Results

Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-01
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH01	BH01	BH01
Sample Depth (m)	0.55	1.59	2.62
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	1.00	0.67	0.32
Computed IS (50) (Mpa)	1.08	0.72	0.34
Failure Load (P) (KN)	3.5	2.3	1.1
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	H	M	M
Tested By	PC	PC	PC

Notes:

Approved Signatory:

Collin Scott

Collin Scott

Laboratory Manager

Rapid Geo Pty Ltd

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-02
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH01	BH01	BH01
Sample Depth (m)	4.57	5.58	6.65
Sample Data			
Date Sampled	26/11/25 to 4/12/25	26/11/25 to 4/12/25	26/11/25 to 4/12/25
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.65	0.87	0.06
Computed IS (50) (Mpa)	0.70	0.93	0.06
Failure Load (P) (KN)	2.2	3.0	0.2
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	M	M	VL
Tested By	PC	PC	PC

Notes:

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Laboratory Manager

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-03
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH01	BH01	BH01
Sample Depth (m)	8.63	9.57	10.55
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	5.54	0.74	0.73
Computed IS (50) (Mpa)	3.50	0.80	0.78
Failure Load (P) (KN)	1.8	2.6	2.5
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	VH	M	M
Tested By	PC	PC	PC

Notes:

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-04
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH01	BH01	BH01
Sample Depth (m)	12.54	13.54	14.5
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.84	1.05	1.02
Computed IS (50) (Mpa)	0.91	1.14	1.11
Failure Load (P) (KN)	3.0	3.8	3.7
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	M	H	H
Tested By	PC	PC	PC

Notes:

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Rapid Geo Point Load Report

Job No:	TS1737		Report Date:	11/12/2025	
Client:	Central Element		Report No:	TS1737-PL-05	
Project:	Geotechnical investigation		Date Tested:	10/12/2025	
Location:	64-66 Lavender Street 3-7 Middlemiss St		Checked By:	CS	
Field Data					
Borehole No:	BH01	BH01	BH01	BH01	
Sample Depth (m)	15.5	16.5	17.48	18.5	
Sample Data					
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	
Sampled By	SB	SB	SB	SB	
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client	Sampled by Client	
Material Description	Sandstone	Sandstone	Sandstone	Sandstone	
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1	
Point Load Test (Axial)					
Failure Mode	IR	IR	IR	IR	
Computed IS (Mpa)	0.90	1.05	1.27	0.74	
Computed IS (50) (Mpa)	0.97	1.12	1.36	0.79	
Failure Load (P) (KN)	3.1	3.6	4.3	2.5	
Point Load Test (Diametral)					
Computed IS (Mpa)	N/A	N/A	N/A	N/A	
Computed IS (50) (Mpa)	N/A	N/A	N/A	N/A	
Failure Load (P) (KN)	N/A	N/A	N/A	N/A	
Laboratory Results					
Moisture Content	Dry	Dry	Dry	Dry	
Storage History	Core Box	Core Box	Core Box	Core Box	
Strength	M	H	H	M	
Tested By	PC	PC	PC	PC	

Notes:

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-06
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH01		
Sample Depth (m)	19.5		
Sample Data			
Date Sampled	26/11/25 to 4/12/2025		
Sampled By	SB		
Sampling Method	Sampled by Client		
Material Description	Sandstone		
Test Method	AS 4133.4.1		
Point Load Test (Axial)			
Failure Mode	IR		
Computed IS (Mpa)	1.45		
Computed IS (50) (Mpa)	1.58		
Failure Load (P) (KN)	5.2		
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A		
Computed IS (50) (Mpa)	N/A		
Failure Load (P) (KN)	N/A		
Laboratory Results			
Moisture Content	Dry		
Storage History	Core Box		
Strength	H		
Tested By	PC		

Notes:

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Rapid Geo Point Load Report

Job No:	TS1712		Report Date:	24/11/2025	
Client:	Central Element		Report No:	TS1712-PL-1-20	
Project:	Proposed Residential Development		Date Tested:	24/11/2025	
Location:	64-66 Lavender St, 3-7 Middlemiss St, M		Checked By:	CS	
Field Data					
Borehole No:	BH02	BH02	BH02	BH02	
Sample Depth (m)	0.71	1.56	2.56	3.5	
Sample Data					
Date Sampled	20/11/2025	20/11/2025	20/11/2025	20/11/2025	
Sampled By	SB	SB	SB	SB	
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client	Sampled by Client	
Material Description	Sandstone	Sandstone	Sandstone	Sandstone	
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1	
Point Load Test (Axial)					
Failure Mode	IR	IR	IR	IR	
Computed IS (Mpa)	0.49	0.81	0.81	0.02	
Computed IS (50) (Mpa)	0.53	0.87	0.87	0.02	
Failure Load (P) (KN)	1.8	2.8	2.8	0.1	
Point Load Test (Diametral)					
Computed IS (Mpa)	N/A	N/A	N/A	N/A	
Computed IS (50) (Mpa)	N/A	N/A	N/A	N/A	
Failure Load (P) (KN)	N/A	N/A	N/A	N/A	
Laboratory Results					
Moisture Content	Dry	Dry	Dry	Dry	
Storage History	Core Box	Core Box	Core Box	Core Box	
Strength	M	M	M	Soil	
Tested By	PC	PC	PC	PC	

Notes:

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Rapid Geo Point Load Report

Job No:	TS1712	Report Date:	24/11/2025
Client:	Central Element	Report No:	TS1712-PL-1-20
Project:	Proposed Residential Development	Date Tested:	24/11/2025
Location:	64-66 Lavender St, 3-7 Middlemiss St, M	Checked By:	CS
Field Data			
Borehole No:	BH02	BH02	BH02
Sample Depth (m)	4.85	5.61	6.48
Sample Data			
Date Sampled	20/11/2025	20/11/2025	20/11/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.59	0.58	0.65
Computed IS (50) (Mpa)	0.63	0.62	0.70
Failure Load (P) (KN)	2.0	2.0	2.3
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	M	M	H
Tested By	PC	PC	PC

Notes:

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Rapid Geo Point Load Report

Job No:	TS1712	Report Date:	24/11/2025
Client:	Central Element	Report No:	TS1712-PL-1-20
Project:	Proposed Residential Development	Date Tested:	24/11/2025
Location:	64-66 Lavender St, 3-7 Middlemiss St, M	Checked By:	CS
Field Data			
Borehole No:	BH02	BH02	BH02
Sample Depth (m)	8.5	9.5	10.49
Sample Data			
Date Sampled	20/11/2025	20/11/2025	20/11/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	1.44	0.61	1.48
Computed IS (50) (Mpa)	1.54	0.65	1.59
Failure Load (P) (KN)	4.9	2.1	5.1
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	H	M	H
Tested By	PC	PC	PC

Notes:

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Rapid Geo Point Load Report

Job No:	TS1712	Report Date:	24/11/2025
Client:	Central Element	Report No:	TS1712-PL-1-20
Project:	Proposed Residential Development	Date Tested:	24/11/2025
Location:	64-66 Lavender St, 3-7 Middlemiss St, M	Checked By:	CS
Field Data			
Borehole No:	BH02	BH02	BH02
Sample Depth (m)	12.5	13.5	14.65
Sample Data			
Date Sampled	20/11/2025	20/11/2025	20/11/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.71	0.93	0.74
Computed IS (50) (Mpa)	0.76	1.00	0.80
Failure Load (P) (KN)	2.4	3.2	2.6
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	M	M	M
Tested By	PC	PC	PC

Notes:

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Rapid Geo Point Load Report

Job No:	TS1712	Report Date:	24/11/2025
Client:	Central Element	Report No:	TS1712-PL1-20
Project:	Proposed Residential Development	Date Tested:	24/11/2025
Location:	64-66 Lavender St, 3-7 Middlemiss St, M	Checked By:	CS
Field Data			
Borehole No:	BH02	BH02	BH02
Sample Depth (m)	16.5	17.5	18.5
Sample Data			
Date Sampled	20/11/2025	20/11/2025	20/11/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	1.00	0.87	1.04
Computed IS (50) (Mpa)	1.08	0.94	1.12
Failure Load (P) (KN)	3.5	3.1	3.7
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	H	M	H
Tested By	PC	PC	PC

Notes:

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-07
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH03	BH03	BH03
Sample Depth (m)	3.63	4.64	5.65
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.04	0.12	0.49
Computed IS (50) (Mpa)	0.05	0.13	0.52
Failure Load (P) (KN)	0.2	0.4	1.7
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	VL	L	M
Tested By	PC	PC	PC

Notes:

Approved Signatory:

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Collin Scott

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Rapid Geo Pty Ltd

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-08
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH03	BH03	BH03
Sample Depth (m)	7.6	8.57	9.57
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.13	0.55	0.55
Computed IS (50) (Mpa)	0.14	0.59	0.59
Failure Load (P) (KN)	0.5	1.9	1.9
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	L	M	M
Tested By	PC	PC	PC

Notes:

Approved Signatory:

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Collin Scott

Laboratory Manager

Rapid Geo Pty Ltd

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-09
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH03	BH03	BH03
Sample Depth (m)	11.58	12.63	13.47
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	1.85	0.96	1.24
Computed IS (50) (Mpa)	1.98	1.03	1.33
Failure Load (P) (KN)	6.4	3.3	4.2
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	H	H	M
Tested By	PC	PC	PC

Notes:

Approved Signatory:

Collin Scott

Collin Scott

Laboratory Manager

Rapid Geo Pty Ltd

Name of Testing Laboratory: Rapid Geo Pty Ltd

Address of Testing Laboratory: 10/8-20 Anderson Road - Smeaton Grange

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Review date:

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Authorised by: Adrian Gunn

Version: 1

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-10
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH03	BH03	BH03
Sample Depth (m)	15.45	16.45	17.46
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.83	0.77	1.13
Computed IS (50) (Mpa)	0.89	0.82	1.20
Failure Load (P) (KN)	2.8	2.6	3.8
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	M	M	H
Tested By	PC	PC	PC

Notes:

Approved Signatory:

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-11
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH03	BH03	
Sample Depth (m)	19.48	20.48	
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	
Sampled By	SB	SB	
Sampling Method	Sampled by Client	Sampled by Client	
Material Description	Sandstone	Sandstone	
Test Method	AS 4133.4.1	AS 4133.4.1	
Point Load Test (Axial)			
Failure Mode	IR	IR	
Computed IS (Mpa)	1.17	1.10	
Computed IS (50) (Mpa)	1.25	1.17	
Failure Load (P) (KN)	4.0	3.7	
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	
Computed IS (50) (Mpa)	N/A	N/A	
Failure Load (P) (KN)	N/A	N/A	
Laboratory Results			
Moisture Content	Dry	Dry	
Storage History	Core Box	Core Box	
Strength	H	H	
Tested By	PC	PC	

Notes:

Approved Signatory:

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-12
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH04	BH04	BH04
Sample Depth (m)	0.7	1.63	2.25
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.49	0.15	0.31
Computed IS (50) (Mpa)	0.52	0.16	0.33
Failure Load (P) (KN)	1.7	0.5	1.1
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	M	L	M
Tested By	PC	PC	PC

Notes:

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-13
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH05	BH05	BH05
Sample Depth (m)	1.42	2.54	3.45
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.02	0.02	0.45
Computed IS (50) (Mpa)	0.03	0.02	0.48
Failure Load (P) (KN)	0.1	0.1	1.5
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	Soil	Soil	M
Tested By	PC	PC	PC

Notes:

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-14
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH05	BH05	BH05
Sample Depth (m)	5.53	6.44	7.54
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.60	0.68	1.68
Computed IS (50) (Mpa)	0.64	0.72	1.79
Failure Load (P) (KN)	2.0	2.3	5.6
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	M	M	H
Tested By	PC	PC	PC

Notes:

Approved Signatory:

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-15
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH05	BH05	BH05
Sample Depth (m)	9.49	10.5	11.5
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	0.71	0.99	0.78
Computed IS (50) (Mpa)	0.76	1.06	0.84
Failure Load (P) (KN)	2.4	3.4	2.7
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	M	H	M
Tested By	PC	PC	PC

Notes:

Approved Signatory:

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Rapid Geo Point Load Report

Job No:	TS1737		Report Date:	11/12/2025	
Client:	Central Element		Report No:	TS1737-PL-16	
Project:	Geotechnical investigation		Date Tested:	10/12/2025	
Location:	64-66 Lavender Street 3-7 Middlemiss St		Checked By:	CS	
Field Data					
Borehole No:	BH05	BH05	BH05	BH05	
Sample Depth (m)	13.51	14.51	15.4	16.6	
Sample Data					
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	
Sampled By	SB	SB	SB	SB	
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client	Sampled by Client	
Material Description	Sandstone	Sandstone	Sandstone	Sandstone	
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1	
Point Load Test (Axial)					
Failure Mode	IR	IR	IR	IR	
Computed IS (Mpa)	1.21	1.22	1.42	1.15	
Computed IS (50) (Mpa)	1.30	1.31	1.53	1.23	
Failure Load (P) (KN)	4.1	4.2	4.9	4.0	
Point Load Test (Diametral)					
Computed IS (Mpa)	N/A	N/A	N/A	N/A	
Computed IS (50) (Mpa)	N/A	N/A	N/A	N/A	
Failure Load (P) (KN)	N/A	N/A	N/A	N/A	
Laboratory Results					
Moisture Content	Dry	Dry	Dry	Dry	
Storage History	Core Box	Core Box	Core Box	Core Box	
Strength	H	H	H	H	
Tested By	PC	PC	PC	PC	

Notes:

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Rapid Geo Point Load Report

Job No:	TS1737	Report Date:	11/12/2025
Client:	Central Element	Report No:	TS1737-PL-17
Project:	Geotechnical investigation	Date Tested:	10/12/2025
Location:	64-66 Lavender Street 3-7 Middlemiss St	Checked By:	CS
Field Data			
Borehole No:	BH05	BH05	BH05
Sample Depth (m)	17.52	18.43	19.52
Sample Data			
Date Sampled	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025	26/11/2025 to 4/12/2025
Sampled By	SB	SB	SB
Sampling Method	Sampled by Client	Sampled by Client	Sampled by Client
Material Description	Sandstone	Sandstone	Sandstone
Test Method	AS 4133.4.1	AS 4133.4.1	AS 4133.4.1
Point Load Test (Axial)			
Failure Mode	IR	IR	IR
Computed IS (Mpa)	1.67	0.80	0.99
Computed IS (50) (Mpa)	1.80	0.86	1.06
Failure Load (P) (KN)	5.8	2.8	3.4
Point Load Test (Diametral)			
Computed IS (Mpa)	N/A	N/A	N/A
Computed IS (50) (Mpa)	N/A	N/A	N/A
Failure Load (P) (KN)	N/A	N/A	N/A
Laboratory Results			
Moisture Content	Dry	Dry	Dry
Storage History	Core Box	Core Box	Core Box
Strength	H	M	H
Tested By	PC	PC	PC

Notes:

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Rapid Geo
8 Iris Ave
Coniston
NSW 2500



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Subash Baral**

Report **1303209-W**
 Project name **GEOTECHNICAL INVESTIGATION : LAVENDER BAY**
 Project ID **RG1358**
 Received Date **Dec 10, 2025**

Client Sample ID			BH01/GW01	BH02/GW02	BH03/GW03
Sample Matrix			Water	Water	Water
Eurofins Sample No.			S25-De0034633	S25-De0034634	S25-De0034635
Date Sampled			Dec 09, 2025	Dec 09, 2025	Dec 09, 2025
Test/Reference	LOR	Unit			
Chloride	1	mg/L	31	18	39
Conductivity (at 25 °C)	10	uS/cm	270	160	330
pH (at 25 °C)	0.1	pH Units	6.1	5.0	6.0
Resistivity*	0.01	ohm.m	37	63	31
Sulphate (as SO4)	2	mg/L	22	21	41

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Chloride - Method: LTM-INO-4270 Anions by Ion Chromatography	Sydney	Dec 10, 2025	28 Days
Conductivity (at 25 °C) - Method: LTM-INO-4030 Conductivity	Sydney	Dec 10, 2025	28 Days
pH (at 25 °C) - Method: LTM-GEN-7090 pH in water by ISE	Sydney	Dec 10, 2025	6 Hours
Sulphate (as SO ₄) - Method: In-house method LTM-INO-4270 Sulphate by Ion Chromatograph	Sydney	Dec 10, 2025	28 Days



web: www.eurofins.com.au

email: EnviroSales@eurofinsanz.com

Melbourne
6 Monterey Road
Dandenong South
VIC 3175
+61 3 8564 5000
NATA# 1261
Site# 1254

Geelong
19/8 Lewalan Street
Grovedale
VIC 3216
+61 3 8564 5000
NATA# 1261
Site# 25403

Sydney
179 Magowar Road
Girraween
NSW 2145
+61 2 9900 8400
NATA# 1261
Site# 18217

Canberra
Unit 1,2 Dacre Street
Mitchell
ACT 2911
+61 2 6113 8091
NATA# 1261
Site# 25466

Brisbane
1/21 Smallwood Place
Murarrie
QLD 4172
+61 7 3902 4600
NATA# 1261
Site# 20794 & 2780

Newcastle
1/2 Frost Drive
Mayfield West
NSW 2304
+61 2 4968 8448
NATA# 1261
Site# 25079

Perth
46-48 Banksia Road
Welshpool
WA 6106
+61 8 6253 4444
NATA# 2377
Site# 2370 & 2554

Company Name: Rapid Geo Pty Ltd
Address: 8 Iris Ave
Coniston
NSW 2500

Project Name: GEOTECHNICAL INVESTIGATION : LAVENDER BAY
Project ID: RG1358

Order No.:
Report #: 1303209
Phone: 0414 289 757
Fax:

Received: Dec 10, 2025 1:28 PM
Due: Dec 12, 2025
Priority: 2 Day
Contact Name: Subash Baral

Eurofins Analytical Services Manager : Andrew Black

Sample Detail						Chloride	Conductivity (at 25 °C)	pH (at 25 °C)	Resistivity*	Sulphate (as SO4)
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X
External Laboratory										
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID					
1	BH01/GW01	Dec 09, 2025		Water	S25-De0034633	X	X	X	X	X
2	BH02/GW02	Dec 09, 2025		Water	S25-De0034634	X	X	X	X	X
3	BH03/GW03	Dec 09, 2025		Water	S25-De0034635	X	X	X	X	X
Test Counts						3	3	3	3	3

Internal Quality Control Review and Glossary

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follow guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013. They are included in this QC report where applicable. Additional QC data may be available on request.
2. Unless otherwise stated, all soil/sediment/solid results are reported on a dry weight basis.
3. Unless otherwise stated, all biota/food results are reported on a wet weight basis on the edible portion.
4. For CEC results where the sample's origin is unknown or environmentally contaminated, the results should be used advisedly.
5. Actual LORs are matrix dependent. Quoted LORs may be raised where sample extracts are diluted due to interferences.
6. Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds where annotated.
7. SVOC analysis on waters is performed on homogenised, unfiltered samples unless noted otherwise.
8. Samples were analysed on an 'as received' basis.
9. Information identified in this report with **blue** colour indicates data provided by customers that may have an impact on the results.
10. This report replaces any interim results previously issued.

Holding Times

Please refer to the 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours before sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and despite any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the sampling date; therefore, compliance with these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether, the holding time is seven days; however, for all other VOCs, such as BTEX or C6-10 TRH, the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	ppm: parts per million
µg/L: micrograms per litre	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony Forming Unit	Colour: Pt-Co Units (CU)	

Terms

APHA	American Public Health Association
CEC	Cation Exchange Capacity
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where moisture has been determined on a solid sample, the result is expressed on a dry weight basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples, these are performed on laboratory-certified clean sands and in the case of water samples, these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC represents the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a similar compound to the analyte target is reported as percentage recovery. See below for acceptance criteria.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment; however, free tributyltin was measured, and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 6.0
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should only be used as a guide and may be different when site-specific Sampling Analysis and Quality Plan (SAQP) have been implemented.

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is ≤30%; however, the following acceptance guidelines are equally applicable:

Results <10 times the LOR:	No Limit
Results between 10-20 times the LOR:	RPD must lie between 0-50%
Results >20 times the LOR:	RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range, not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS. SVOCs recoveries 20 – 150%, VOC recoveries 50 – 150%

PFAS field samples containing surrogate recoveries above the QC limit designated in QSM 6.0, where no positive PFAS results have been reported or reviewed, and no data was affected.

QC Data General Comments

1. Where a result is reported as less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown are not data from your samples.
3. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
4. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery, the term "INT" appears against that analyte.
5. For Matrix Spikes and LCS results, a dash "-" in the report means that the specific analyte was not added to the QC sample.
6. Duplicate RPDs are calculated from raw analytical data; thus, it is possible to have two sets of data.

Quality Control Results

Test			Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank									
Chloride			mg/L	< 1			1	Pass	
Conductivity (at 25 °C)			uS/cm	< 10			10	Pass	
Sulphate (as SO4)			mg/L	< 2			2	Pass	
LCS - % Recovery									
Chloride			%	108			70-130	Pass	
Conductivity (at 25 °C)			%	92			70-130	Pass	
Sulphate (as SO4)			%	101			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
				Result 1					
Chloride	N25-De0035068	NCP	%	108			70-130	Pass	
Sulphate (as SO4)	N25-De0035068	NCP	%	105			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
Chloride	S25-De0034633	CP	mg/L	31	31	<1	30%	Pass	
Conductivity (at 25 °C)	S25-De0033282	NCP	uS/cm	22000	22000	<1	30%	Pass	
Resistivity*	S25-De0033282	NCP	ohm.m	0.45	0.45	<1	30%	Pass	
Sulphate (as SO4)	S25-De0034633	CP	mg/L	22	22	1.0	30%	Pass	

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	N/A
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised by:

Nileshni Goundar
Ryan Phillips

Analytical Services Manager
Senior Analyst-Inorganic



Glenn Jackson
Managing Director

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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