

Technical Memorandum



To	OIA Group, Impact Property Consultancy Pty Ltd	From	Namal Yapage (Stantec) Senior Principal Geotechnical Engineer Yasmin Chen (Stantec) Geotechnical Engineer
CC		Date	18/05/2026
Project	301352027	Location	3-5 Help Street, Chatswood
Subject	Groundwater inflow estimates and drainage advice for the proposed residential building		
Report Status	Final Rev6	Attachments	Calculation sheet and groundwater measured records

1 Introduction

This report presents an assessment and recommendations by Stantec Australia Pty Ltd (formerly Cardno) for OIA Group (the Client) regarding the groundwater inflow estimates and drainage advice for the proposed residential building at 3-5 Help Street, Chatswood (the Site).

Based on the provided architectural drawings prepared by EMBECE Architects, Rev E, dated 15th May 2026, it is understood that construction activities associated with the proposed development include:

- Demolition of the existing dwellings at 3 and 5 Help Street, Chatswood.
- The construction of one mixed-use high-rise tower. The proposed tower will be on the 3-5 Help Street with 6 levels of basement and 38 levels above basement. Lower ground floor to level 1 will consist of commercial and retail spaces, from level 2 to 33 will be residential apartments.
- It is estimated that the proposed six level basement excavation will reach the Basement 06 (B06) level of 73.640 m AHD.
- A bulk excavation level (BEL) of RL 73.04 m is adopted in the analysis considering allowance for basement slab construction and over-excavation. Hence, total depth of excavation varies approximately between 19.6 m and 25.5m.

A geotechnical investigation has previously been undertaken and reported in the Stantec Geotechnical Investigation Report, dated 19 May 2023 (Report No. Cardno_RPT02_GIR_3-5 Help St_Chatswood Rev2, Project No:301351072). The scope of geotechnical investigations such as depth of boreholes was determined based on three basement level, however, building plans has been changed to six basement levels after geotechnical investigations were completed. This geotechnical investigation forms the basis of the subsurface conditions adopted in this assessment and should be read in conjunction with this report. In addition, shoring design and foundation design may be carried out based on this existing geotechnical information. However, the additional geotechnical investigations as required shall be carried out by the builder/contractor before construction commences as well as geotechnical inspections during the construction shall be carried out to verify the design assumptions.

At the time of this assessment report, the excavation shoring wall design has not been available. Revision 3 of this memorandum (dated 29 May 2024) initially modelled a soldier pile wall with a drained basement configuration. This assessment confirmed that estimated seepage remains below the 3ML/year threshold, qualifying the development for Groundwater Access License exemptions. Following this, Revision 4 (dated 11 February 2025) explored a tanked basement solution with a cut-off wall to align with the specific

post-construction dewatering limitations outlined in the WaterNSW General Terms of Approval (Condition No. GT0115-00001) and Document Reference No. IDAS1155220 dated 25 July 2024.

This Revision 5 update has been prepared to reflect the latest architectural drawings and to re-verify that groundwater inflows remain within the 3ML/year exemption threshold. To ensure the most practical and constructible design outcome for the development, the seepage modelling has been returned to a drained basement configuration. This is supported by a multi-criteria feasibility assessment (Section 3.1) comparing drained and tanked options. It is recognized that adopting a drained solution involves an alternative approach to Condition No. GT0115-00001; as such, this report serves as a technical basis to support ongoing consultation between the project team (Impact Property Consultancy Pty Ltd) and WaterNSW to validate this design pathway.

2 Hydrogeological Model

2.1 Subsurface Conditions

Based on the information provided in Stantec (formerly Cardno) geotechnical investigation report, the subsurface conditions are summarized in Table 1. The groundwater condition has been summarized as follows:

- Groundwater table or seepage was not encountered in any of the boreholes during auger drilling up to 7.08m depth below ground level.
- Groundwater monitoring well was installed on 24th November 2022 at BH1, BH2 and BH3 to the bottom of boreholes. Drilling water was purged out on the same day.
- Site revisit was carried out on 5th December 2022. Standing water was measured at 8.5m in depth for BH1, 8.2m for BH2 and 14.1m for BH3. All wells were then purged out again to determine the seepage rates. No groundwater seepage and recharge were observed on BH1 and BH2 for first 2 hours. Permanent ground water was not encountered by the installed groundwater well to the depth of 18m for BH1 and BH2. Recharged standing water was measured at 21.89m depth (RL70.71m) below ground level at BH3.
- Groundwater level data loggers were installed on 25 Jan 2024. Three months hourly monitoring period was then carried out between 25/01/2024 to 01/05/2024. Groundwater seepage rates are considered as consistent, and the recorded levels are considered in the seepage estimate analysis.

Table 1 Subsurface Condition

Geotechnical Unit	BH1	BH2	BH3
Surface RL (m)	94.4m AHD	92.9m AHD	92.6m AHD
Asphalt & Topsoil (Unit 1)	0 – 0.2m	0 – 0.2m	0 – 0.2m
Residual Soils (Unit 2)	0.2 – 4.0m	0.2 – 4.0m	0.2 – 4.0m
Class V/IV Shale (Unit 3a)	4.0 – 7.28m	4.0 – 7.43m	4.0 – 7.43m
Class III/II Shale (Unit 3b)	7.28 – 15m Termination Depth	7.43 – 15.74m	7.43 -19.51m

Geotechnical Unit	BH1	BH2	BH3
Class II Sandstone (Unit 4a)	-	15.74 – 18.00m Termination Depth	19.51 – 33.96m Termination Depth

Table 2 Design Parameter

Geotechnical Unit	Unit Weight (kN/m ³)	Effective Cohesion c' (kPa)	Angle of Effective Internal Friction ϕ (degree)	Modulus of Elasticity E_s (h) (MPa)	Poisson Ratio ν
Asphalt & Topsoil (Unit 1)	17	2	27	8	0.35
Residual Soils (Unit 2)	18	5	28	20	0.35
Class V/IV Shale (Unit 3a)	24	100	30	300	0.3
Class III/II Shale (Unit 3b)	24	200	32	1200	0.2
Class II Sandstone (Unit 4a)	24	500	36	2000	0.2

2.2 Hydraulic Conductivity Parameters

Additional raising head permeability and lab permeability field tests were carried out at the subject site on 25th Jan 2024, including:

- One additional borehole BH101, taken to 2m, allowing for an undisturbed clay sample collection at 2.5-2.8m for the undisturbed sample permeability soil test.
- One additional borehole BH102, taken to 7m, allowing for an undisturbed clay sample collection at 0.8-1m for the undisturbed sample permeability soil test; also, well installation with screen at 4-7m depth bgl, allowing a field permeability test at the weathered shale (Unit 3a) layer.

Three tests were carried out on each subsurface units. Results and the model adopted permeability parameters are summarised in Table 3 below.

Table 3 Soil Hydraulic Conductivity

BH ID	Test Depth (m)	Lithological Unit	Hydraulic Conductivity Soil Permeability
BH101 BH102 Lab Permeability Test	BH101 2.5-2.8m BH102 0.8-1.0m	Residual Silty Clay	BH101 – 2.5-2.8m: 8E-11 m/sec BH102 – 0.8-1.0m: 4E-10 m/sec (adopted)
BH102 – Well Field Test	BH102 4-7m Field Test	Fractured Shale (Unit 3a)	Field tests completed on 25/01/2024 Test 1: 2.44E-03 m/day (adopted) Test 2: 1.81E-03 m/day

BH ID	Test Depth (m)	Lithological Unit	Hydraulic Conductivity Soil Permeability
			Test 3: 1.92E-03 m/day
BH1 – Well Field Test	9 to 15	Shale Bedrock (Unit 3b)	Field test completed on 5/12/2023: <u>2.9E-3 m/day (3.4E-08 m/sec)</u> Field tests completed on 25/01/2024 Test 2: 5.6E-5 m/day Test 3: 4.9E-5 m/day
BH3 – Well Field Test	21.96 to 33.96	Sandstone Bedrock (Unit 4a)	Field tests completed on 25/01/2024 <u>Test 1: 5.22E-5 m/day (Adopted)</u> Test 2: 4.12E-6 m/day Test 3: 4.82E-6 m/day

2.3 Groundwater Monitoring

Standpipe piezometer wells were installed within three boreholes as part of the Stantec (formerly Cardno) geotechnical investigations 2022 on BH1, BH2 and BH3. Each standpipe was developed by the drilling contractor upon the completion of borehole drilling. The standpipes were installed in accordance with ASTM D5092. A machine slotted 50mm diameter PVC pipe, with the annulus backfilled with a sand filter screen, was installed at the target response depth. Data loggers were installed on 25/01/2024. Installed standpipes and findings are summarised as follows:

Table 4 Summary of Standpipe Response Zone and Measurement

BH ID	Standpipe Installation Depth (mBGL)	Surface RL (m)	Response Zone Material	Screened Interval Depth (m bgl)	Groundwater Measurement Depths (m bgl)	Measurement Date
BH1	15	94.4	Shale Bedrock (Unit 3b)	9 to 15m	12.16m bgl RL 82.24m	30/10/23
					13.82m bgl RL 80.58m	25/01/24
BH2	18	92.9	Shale Bedrock (Unit 3b)	9 to 18m	12.16m bgl RL 80.74m	30/10/23
					12.49m bgl RL 80.41m	25/01/24
BH3	33.96	92.6	Sandstone Bedrock (Unit 4a)	21.96 to 33.96m	18.64m bgl RL 73.98m	30/10/23
					19.34m bgl RL 73.26m	25/01/24
BH102	8	93.0	Fractured Shale (Unit 3a)	4 to 7m	Dry	25/01/24
					Dry	01/05/24

Diver ® and Baro ® Data loggers were installed on BH1, BH2 and BH3 by Stantec for long term groundwater monitoring. Data loggers were hung inside the standpipe by suspending the logger on a 2mm stainless steel

wire rope that is fixed to the well cap. The data loggers have been factory calibrated prior to installation and are set to record absolute water levels every hour.

Table 5 Recorded Groundwater Level (between 25/01/2024 to 01/05/2024)

BH ID	Standpipe Installation Depth (mBGL)	Surface RL (m)	Recorded Groundwater Level	Monitoring Period (in this report submission)
BH1	15	94.4	13.99 m to 13.68 m depth bgl RL 80.41 m to 80.72 m Average: RL 80.55m	25/01/2024 to 01/05/2024
BH2	18	92.9	12.80 m to 12.31m depth bgl RL 80.1 m to 80.59 m Average: RL 80.41m	25/01/2024 to 01/05/2024
BH3	33.96	92.6	19.52 m to 19.23m depth bgl RL 77.08 m to 73.37 m Average: RL 73.21m	25/01/2024 to 01/05/2024

Groundwater level records with bara pressure compensation against rainfall data are summarised as follows and presented in Appendix B.

2.4 Adopted Model

Steady-state groundwater inflows into the basement have been modelled using the commercially available software Seep/W by Geostudio which is a 2D finite element water seepage analysis tool.

The basement excavation has been modelled using two selected representative cross-section as shown in Figure 1. The proposed basement comprising a trapezoidal shape with a length of about 62 m and a maximum width of 44m.

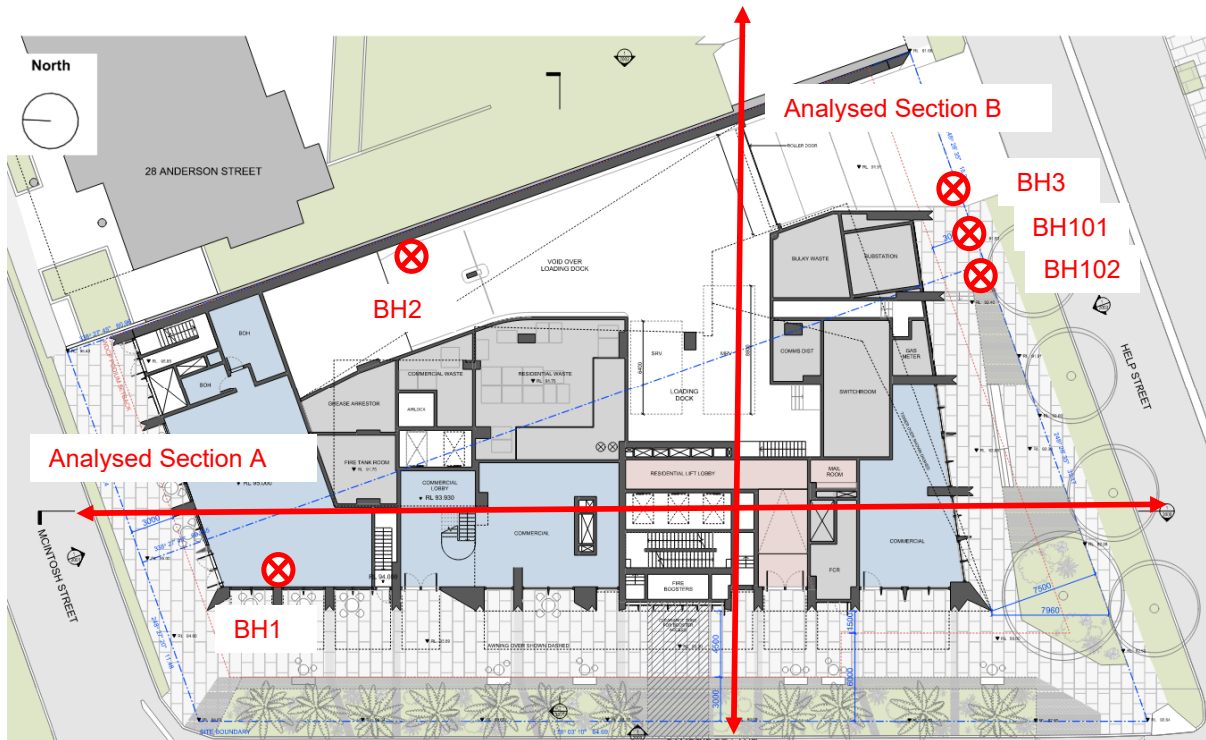
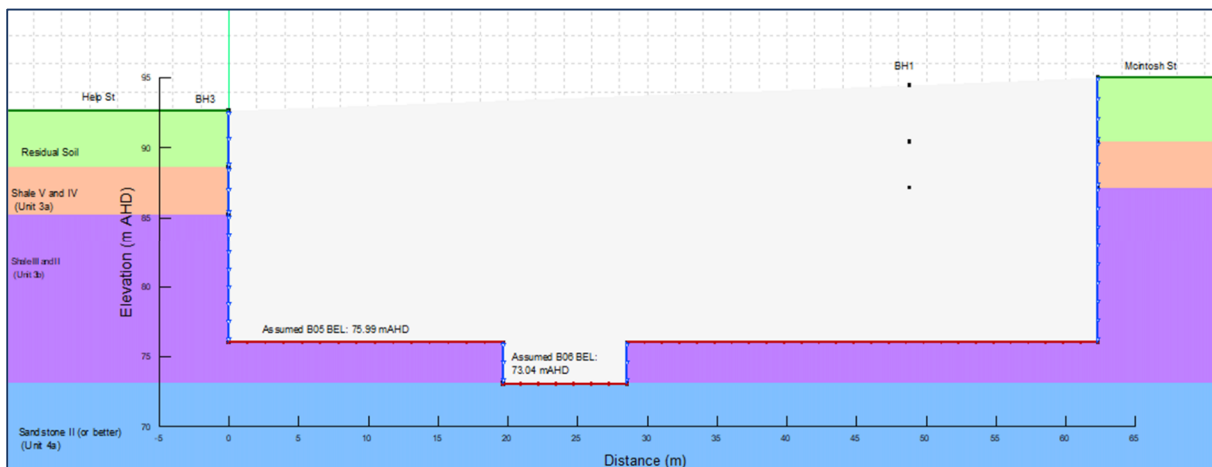


Figure 1 – Site Plan

The ground surrounding the proposed development was modelled as a multi-layered numerical system to represent the subsurface conditions across the site and enable more accurate simulation of vertical groundwater flow components. Details of the adopted soil stratification for the analysed sections are presented in Figure 2. The model boundaries were extended approximately 50 m beyond the excavation limits to minimise boundary effects on the estimated groundwater flow volumes. The adopted extent was determined based on sensitivity analyses.



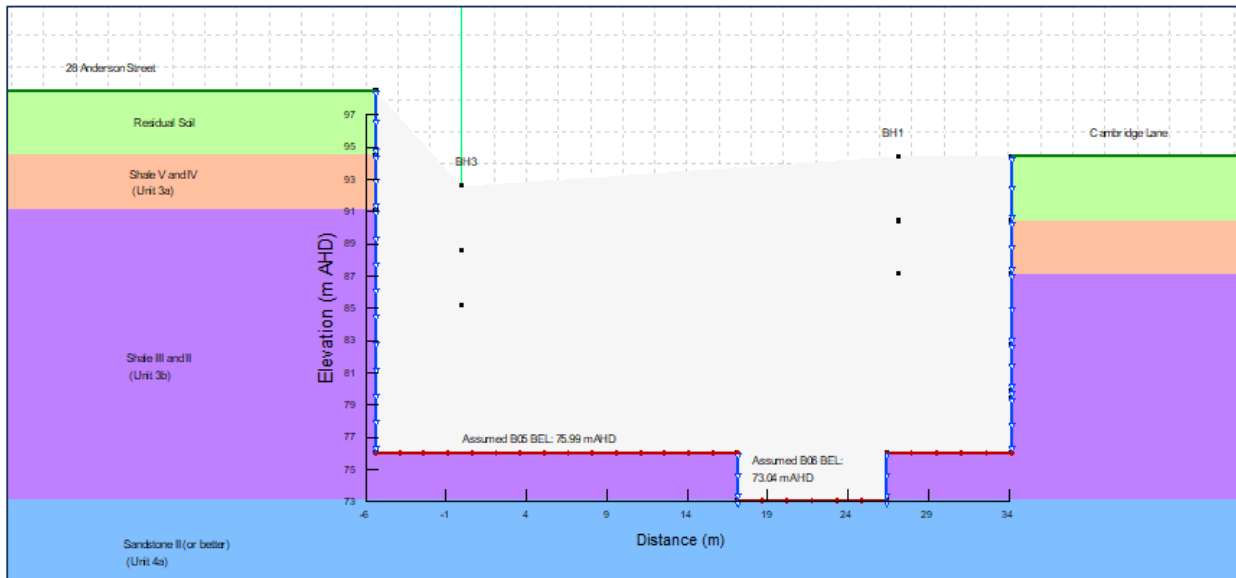


Figure 2 – Model Geometry of Analysed Section A (Top) and Section B (Bottom)

On the basis that groundwater monitoring data, for Section A and Section B, the design ground water is conservatively adopted at RL 84.5m across the whole site, approximately 2.0 m higher than the recorded highest groundwater standing level. Groundwater also runs from north-western corner towards south-eastern corner.

Considering the very low permeability clay layer on the upper zone and monitoring records, the groundwater seepage impacted by the direct site surface runoff is very low. Seepage will be governed by the bedrock discontinuities and defects and subject to regional intense and prolonged rainfall.

2.5 Results

The analysis was run under transient and steady-state conditions for analysed Section and comprised the following:

- **Transient condition:** A transient scenario to estimate the volume of water removed by sump-and-pump in phases of dewatering (i.e. 6-month construction period) in the 'drained' basement during basement excavation construction.
- **Steady-state condition:** Fully drained basement was adopted to estimate the inflows for a long-term condition.

Two sections with different site extents and excavation geometries are modelled to capture spatial variation in groundwater flow behaviour across the project area. The modelling results for analysed section are summarised in tables below.

The Seep/W outputs are attached in Appendix C.

Table 6 Modelling Results by Seep/W – Section A

Elapsed Time	Flow rate (m ³ / sec / m run)	Dewatering Flow Rate – Side Walls			Dewatering Flow Rate – Base		
		L / sec	m ³ / day	Average ML	L / sec	m ³ / day	Average ML
1 days	5.00E-07	1.40E-02	1.21	0.12 (First 6 months)	1.28E-02	1.11	0.07 (First 6 months)
3 days	2.68E-07	9.95E-03	0.86		5.64E-03	0.49	
7 days	2.46E-07	9.31E-03	0.80		5.06E-03	0.44	
14 days	2.35E-07	8.90E-03	0.77		4.83E-03	0.42	
30 days	2.24E-07	8.45E-03	0.73		4.64E-03	0.40	
60 days	2.14E-07	7.98E-03	0.69		4.48E-03	0.39	
90 days	2.08E-07	7.69E-03	0.66		4.38E-03	0.38	
120 days	2.03E-07	7.47E-03	0.65		4.30E-03	0.37	
180 days	1.96E-07	7.15E-03	0.62		4.20E-03	0.36	
Long-term	1.50E-07	5.16E-03	0.45	0.16 Per year	3.35E-03	0.29	0.11 Per year

Table 7 Modelling Results by Seep/W – Section B

Elapsed Time	Flow rate (m ³ / sec / m run)	Dewatering Flow Rate – Side Walls			Dewatering Flow Rate – Base		
		L / sec	m ³ / day	Average ML	L / sec	m ³ / day	Average ML
1 days	4.32E-07	2.20E-02	1.91	0.20 (First 6 months)	1.59E-02	1.37	0.11 (First 6 months)
3 days	2.62E-07	1.57E-02	1.36		8.48E-03	0.73	
7 days	2.43E-07	1.47E-02	1.27		7.82E-03	0.68	
14 days	2.33E-07	1.40E-02	1.21		7.54E-03	0.65	
30 days	2.23E-07	1.32E-02	1.14		7.31E-03	0.63	
60 days	2.14E-07	1.25E-02	1.08		7.10E-03	0.61	
90 days	2.08E-07	1.20E-02	1.04		6.96E-03	0.60	
120 days	2.03E-07	1.16E-02	1.00		6.86E-03	0.59	
180 days	1.97E-07	1.11E-02	0.96		6.72E-03	0.58	
Long-term	1.59E-07	8.70E-03	0.75	0.27 Per year	5.58E-03	0.48	0.18 Per year

Based on the above seepage rates and the size of the proposed excavation, the expected seepage to a drained basement is modelled to be:

- **Short term flows for temporary dewatering during construction will be 0.43 ML over the first 6 months (i.e. 0.12 ML + 0.20 ML + 0.11 ML (max. base flow out of all two models)).**
- **Long term flows during service life of structure will be 0.61 ML/year (i.e. 0.16 ML + 0.27 ML + 0.18 ML (max. base flow out of all two models))**

Projected seepage inflows for a drained basement are below the WaterNSW threshold of 3 ML/year. It is confirmed that this proposed development can be granted the Groundwater Access License exemptions.

During the early stages of the excavation, initial inflow rates will be higher due to the absorbed water within the cohesive soil and fractured rock layers. The water flow will then gradually decrease as the hydraulic gradient around the excavation decreases.

The actual flow rate will only be known once the excavation is completed, and the inflow can be observed and measured. Appropriate planning should be in place to compensate for possible variations and increases in the actual inflow rate. This may include grouting the excavation face and floor if locally fractured rock and high inflows through these fractured zones are observed at the basement excavation face or floor.

In addition, the maximum long-term groundwater seepage is estimated to be approximately 0.61 ML/year, which is considered insignificant. The estimated seepage rate could be further reduced through the implementation of effective waterproofing measures at the bulk excavation levels of Basements 05 and 06, including the basement slabs, which have not been considered as part of this assessment.

3 Assessments

It is assessed that the proposed earthwork will intersect with the underground groundwater table. Groundwater will be limited to minor seepage only during drained basement excavation. Based on the conservative assumptions adopted in this assessment, the tanked basement is not required and not compulsory.

The topography and measured standing groundwater levels indicate that there is a hydraulic gradient, and groundwater inflows (if any) may be predominately from the northern and western basement excavation wall.

Conservative groundwater modelling has been undertaken, and it is predicted that maximum groundwater inflow of near 0.43 ML and 0.61 ML may be expected (nominated 6 months period and long-term period during the service life of the structure).

It is evident from the results of Stantec's seepage analysis that a drained basement is adopted, the volume of water entering the basement is insignificant. Basement slab or any water proofing has not been considered in this assessment. The contractor should make sure that the basement is fully watertight for the design life of the building. The waterproofing of basement should be carefully designed and constructed to avoid any water seepage for unforeseen highwater table elevations such as flood events. In addition, a surface drainage plan should also be prepared to ensure any surface water will drain either away from the building, or to dedicated sumps for pumping off-site for long term conditions.

In the long term, sufficient drainage should be provided around the perimeter of the basement and below the basement slab.

It is noted that this report is prepared by S4.55 modification application only. No builder is yet to be awarded for this project. Dewatering management plan should be prepared by the future builder in order to discharge the seepage water during basement excavation.

Given that the predicted inflow is less than 3 ML/year during construction and long term usage, the proposed excavation is considered as an exemption from a Water Access License from Water NSW but will require a Water Supply Works Approval for construction dewatering.

Groundwater seepage within the assessed area is confined to the bedrock units, where groundwater flow is controlled primarily by discontinuities such as joints, bedding planes, and lithological contacts. The predicted groundwater drawdown is limited to the Shale II and Shale III bedrock units and does not extend into the overlying soil strata. As such, significant consolidation settlement or groundwater-induced impacts on adjacent properties, structures, and nearby receptors are not anticipated. Accordingly, the potential impacts associated with basement excavation and dewatering activities are considered negligible.

Based on both the groundwater modelling assessment and Stantec's previous experience at the Chatswood region (upper north shore), the expected groundwater inflows will be manageable during temporary construction with a typical sump and pump setup which has the capacity to handle the inflows calculated in this assessment.

3.1 Feasibility Assessment – Drained vs Tanked Basement Options

A feasibility assessment has been undertaken to evaluate the most effective basement system for the development, focusing on the optimization of design outcomes through a potential drained basement configuration. This assessment utilizes a qualitative multi-criteria analysis to compare drained and tanked basement systems across key performance indicators, including constructability, programme, construction cost, risk, extent of civil works, and environmental impact. The scoring framework and comparative results are detailed in Tables 8 and 9.

The assessment is supported by updated seepage modelling, which demonstrates that groundwater inflows are predicted to remain below 3 ML/year during both construction and long-term operation. This confirms the project's eligibility for Water Access Licence exemptions. While the current WaterNSW General Terms of Approval (Condition No. GT0115-00001) specifically address dewatering requirements for the construction phase, this assessment explores the technical justification for a permanent drained solution.

A tanked basement represents the initial baseline solution under current terms; however, the drained basement is presented here as the preferred technical approach subject to the ongoing consultation and validation process with WaterNSW.

Table 8 Multi-Criteria Analysis Scoring Definition

CRITERIA	Scoring				
	Most Favourable			Least Favourable	
	5	4	3	2	1
Constructability	Simplistic construction techniques, suitable for broader skilled contractors, standard plant, equipment, and access requirements. Minimal site compound required.			More complex construction techniques, requires specialist contractors, large plant, and equipment. Special access requirements. Large site compound required to facilitate works.	
Programme	Short construction duration with straightforward sequencing and minimal staging requirements.			Extended construction duration due to complex sequencing, staging, or specialised installation requirements.	
Construction Cost	Construction costs associated with standard components and no construction staging design.			Higher construction costs associated with complex construction solutions, and potentially construction staging design. May involve time dependant assessments/analysis or involve temporary works.	
Risks in design and construction	Minimal risk of cost overruns, delays, or redesigns. Site conditions are well understood, and the design is straightforward with low sensitivity to changes or unforeseen issues.			Significant risk of cost overruns, delays or major redesigns. Site conditions are highly constrained, and the design is sensitive to changes or external factors.	

CRITERIA	Scoring				
	Most Favourable			Least Favourable	
	5	4	3	2	1
Extent of civil works	Minimal adjustment in works and extent of works.			Significant civil works required, including major structural elements or infrastructure modifications.	
Environmental Impact	No to minor notable environmental impacts; minimal disturbance to sensitive habitats or species. Impacts, if any, are negligible and fully manageable through routine environmental controls.			Significant to severe, long-term, or irreversible impacts to the environment, including major damage to ecological communities or protected species.	

Table 9 Multi-Criteria Analysis Score

CRITERIA	Drained Basement (Soldier Pile Wall)	Tanked Basement (Secant Pile Wall)	Remarks
Constructability	5	3	The drained basement option adopts a simpler construction methodology, using conventional excavation and drainage systems that can be implemented with standard techniques and equipment. In contrast, the tanked basement requires installation of continuous cut-off walls and integrated waterproofing systems, involving more specialised construction methods, stricter detailing, and increased quality control requirements.
Programme	4	3	The drained basement option provides programme advantages, as temporary dewatering facilitates excavation and reduces construction time and reliance on complex waterproofing systems. Conversely, the tanked basement may extend the construction programme due to additional sequencing requirements, installation of waterproofing systems, and associated inspection and quality assurance processes.
Construction cost	5	2	The drained basement option reduces structural demand by relieving hydrostatic pressure, thereby avoiding the need for thicker base slabs, increased wall reinforcement, number of reinforced concrete piles and potential uplift resistance measures such as tension piles. Waterproofing requirements are also less onerous, relying on drainage systems rather than fully tanked protection. In contrast, the tanked basement option incurs higher construction costs due to the need to resist full hydrostatic pressures, requiring more robust

CRITERIA	Drained Basement (Soldier Pile Wall)	Tanked Basement (Secant Pile Wall)	Remarks
			structural elements including significant number of reinforced concrete piles, stricter crack control, and comprehensive waterproofing systems integrated with the structure.
Risks in design and construction	3	4	The tanked basement option presents lower groundwater-related uncertainty, as it is designed to resist full hydrostatic pressure and minimise groundwater ingress, resulting in a more controlled and predictable long-term performance. In contrast, the drained basement relies on the ongoing performance of drainage systems and is more sensitive to variability in groundwater conditions. This introduces a higher degree of uncertainty in both design assumptions and long-term operation, including potential risks associated with system maintenance, blockage, or changes in groundwater regime over time.
Extent of civil works	4	2	Drained basement requires drainage systems and standard structural elements with limited waterproofing detailing, whereas tanked basement requires extensive watertight structural works and additional cut-off systems to resist groundwater ingress.
Environmental Impact	3	4	Tanked basement minimises long-term groundwater disturbance. Drained basement may induce localised drawdown but predicted inflow (<3 ML/year) indicates limited impact.
Total Score	24	18	

Based on the updated seepage assessment and the qualitative multi-criteria analysis, the drained basement option is considered technically feasible for the proposed development. The assessment demonstrates that the drained basement provides notable advantages in terms of constructability, programme efficiency, reduced construction cost, and reduced extent of civil works when compared with the tanked basement alternative. Importantly, the predicted long-term groundwater inflow is less than 3 ML/year, indicating a relatively low groundwater impact and limited environmental consequence associated with the proposed drainage approach. Furthermore, groundwater seepage and drawdown are anticipated to remain confined within the underlying bedrock units, with negligible impacts on surrounding soil strata, adjacent structures, and nearby receptors. Accordingly, subject to WaterNSW approval and any additional requirements arising from the approval process, the drained basement option is considered a feasible and practical solution for the proposed development.

4 NSW Aquifer Interference Policy Impact Assessment

The assessment has been undertaken in accordance with the requirements of the NSW Aquifer Interference Policy (AIP) and the Water Management Act 2000, which require that proposed activities result in “no more than minimal harm” to groundwater sources and associated receptors.

Based on the regional hydrogeological setting and available site investigation data, the groundwater source underlying the site is classified as a “less productive” groundwater source, as it does not support water

supply works capable of yielding greater than 5 L/s. The groundwater system is further classified as a “Porous Rock or Fractured Rock Water Source” in accordance with the AIP framework.

The impact assessment has been undertaken against the following minimal impact considerations.

4.1 Water Table

The AIP requires that groundwater activities result in:

- no greater than a 10% cumulative variation in the water table at 40 m from any:
 - high priority groundwater dependent ecosystem (GDE); or
 - high priority culturally significant site; and
- no greater than a 2 m cumulative drawdown at any water supply work.

No registered groundwater supply works have been identified within 50 m of the proposed excavation. The groundwater assessment and seepage modelling indicate that predicted drawdown effects beyond 50 m from the excavation are negligible. In addition, groundwater drawdown is expected to remain confined within the underlying bedrock units and is not anticipated to extend into the overlying soil strata.

Accordingly, the proposed works are considered to satisfy the minimal impact considerations for water table impacts under the NSW Aquifer Interference Policy.

4.2 Water Pressure

The AIP requires that groundwater activities result in no greater than a 2 m cumulative pressure head decline at any water supply work.

As no registered groundwater supply works are present within 50 m of the proposed excavation, and the predicted drawdown effects are considered negligible at surrounding receivers, the proposed works are not expected to result in any measurable adverse impacts on groundwater pressure conditions.

Accordingly, the proposed works are considered to satisfy the minimal impact considerations for groundwater pressure impacts under the NSW Aquifer Interference Policy.

4.3 Water Quality

The AIP requires that groundwater activities do not result in a reduction in the beneficial use category of the groundwater source beyond 40 m from the activity.

A Dewatering Management Plan (DMP) will be prepared by the future contractor prior to commencement of dewatering activities. The DMP is expected to include groundwater quality monitoring and management measures to be implemented throughout the construction works in accordance with the relevant approval conditions.

Based on the nature and scale of the proposed works, and subject to implementation of the DMP and associated management measures, the works are not expected to result in any significant deterioration in groundwater quality beyond 40 m from the site.

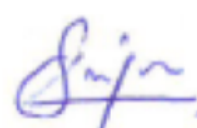
Accordingly, the proposed works are considered to satisfy the minimal impact considerations for groundwater quality under the NSW Aquifer Interference Policy.

4.4 Conclusion

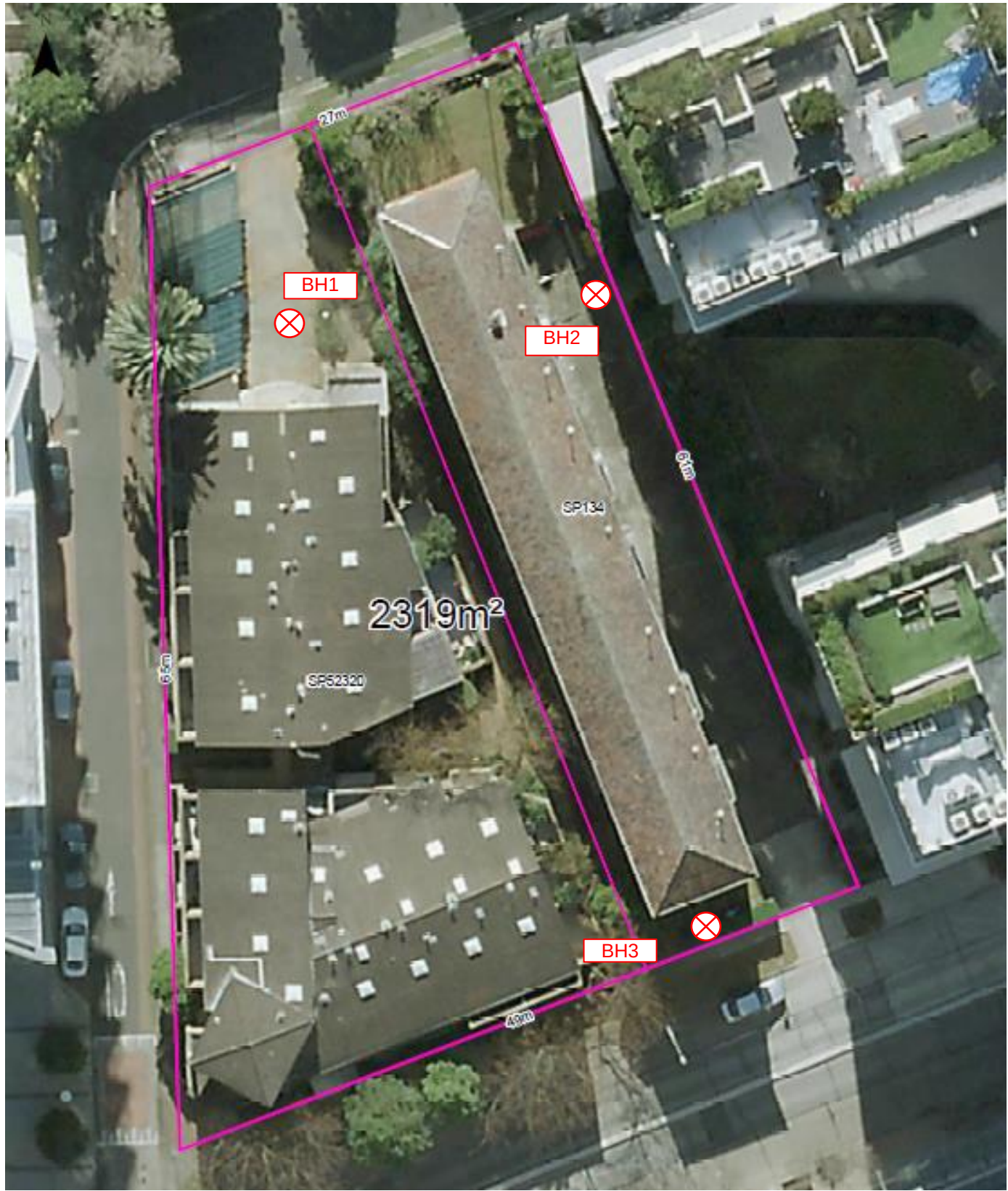
Based on the assessment presented above, the proposed works are considered to meet the Level 1 minimal impact considerations of the NSW Aquifer Interference Policy. Accordingly, the proposed development is expected to result in no more than minimal harm to the groundwater source and surrounding receptors.

Technical Memorandum



To	Prepared by	Reviewed by	Date
Loftex Chatswood Pty Ltd	 Yasmin Chen Geotechnical Engineer Yasmin.chen@stantec.com	 Namal Yapage Senior Principal Geotechnical Engineer Namal.yapage@stantec.com	18/05/2026

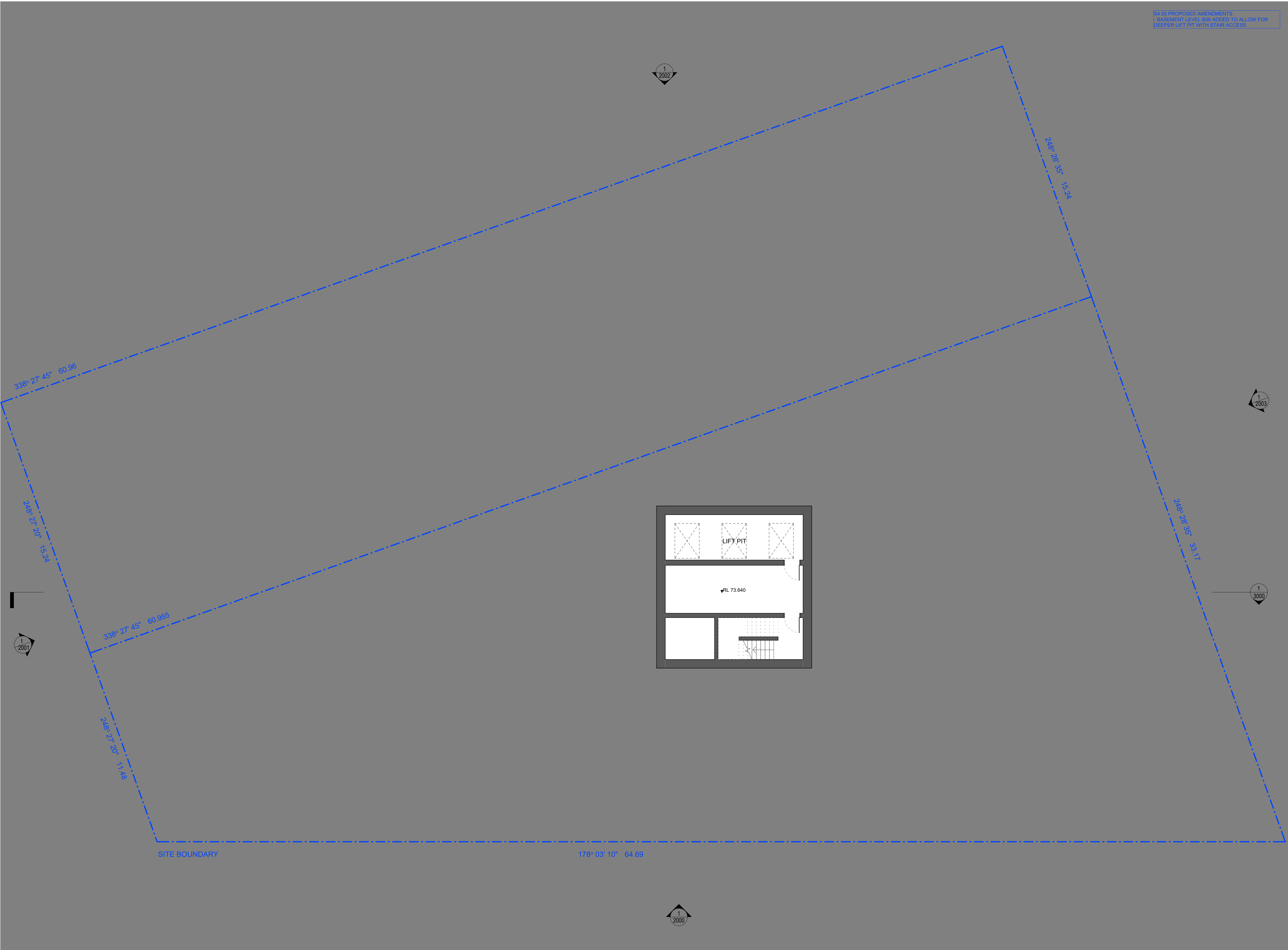
Appendix A – Site Plan



 BOREHOLE AND TEST LOCATION



TITLE: Site Plan 3-5 Help St Chatswood Geotechnical Investigation		
PROJECT NO: 301351072	TEST DATE: 21/12/2022	PREPARED BY: TH



S4.55 PROPOSED AMENDMENTS
- BASEMENT LEVEL B06 ADDRO TO ALLOW FOR
DEEPER LIFT PIT WITH STAIR ACCESS

Iss.	Date	For
-	24.04.2026	For DHPi Review
A	05.05.2026	For S4.55
B	15.05.2026	For S4.55

Legend
SC Storage cage

General Notes
Verify dimensions on site prior to commencement of work. Check existing RL's on site. Advise Architect of any discrepancies before commencement. Allow for adjustments to suit discrepancies. Comply with relevant authorities requirements. Comply with Building Code of Australia requirements. Comply with relevant Australian Standards for materials and construction practice. Comply with Basix Certificate. Do not scale from drawings.

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OIA Group
Dean Huang

Mecone | Planner
Paige Matthews
0402 194 024

CEC | Structure
Amir Esami
0415 544 020

Neuron | Services
Corey Munro
0437 654 141

Common Grounds | Landscape
Alex Georgouras
0404 626 520

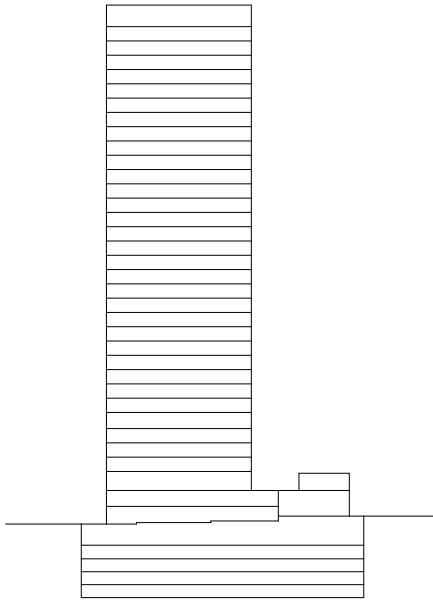
Thermal Environmental | ESD
Arjun Adhikari
0403 636 395

Stantec | Civil
Jackson Bramley
0421 193 028

PDC Consultants | Traffic
Ben Midgley
0413 167 797

Codex | BCA / Access
Seb Howe
0472 564 97

Key Section



Project
Help Street OIA

Project No.
26001

Address
3-5 Help Street Chatswood

Status
FOR S4.55

Drawn **Authorised** **Date Issued**
RW MP 15.05.2026

Drawing
B06 Plan

Drawing No.
SSDA-0900

Scale
1 : 100 @ A1

Issue

B

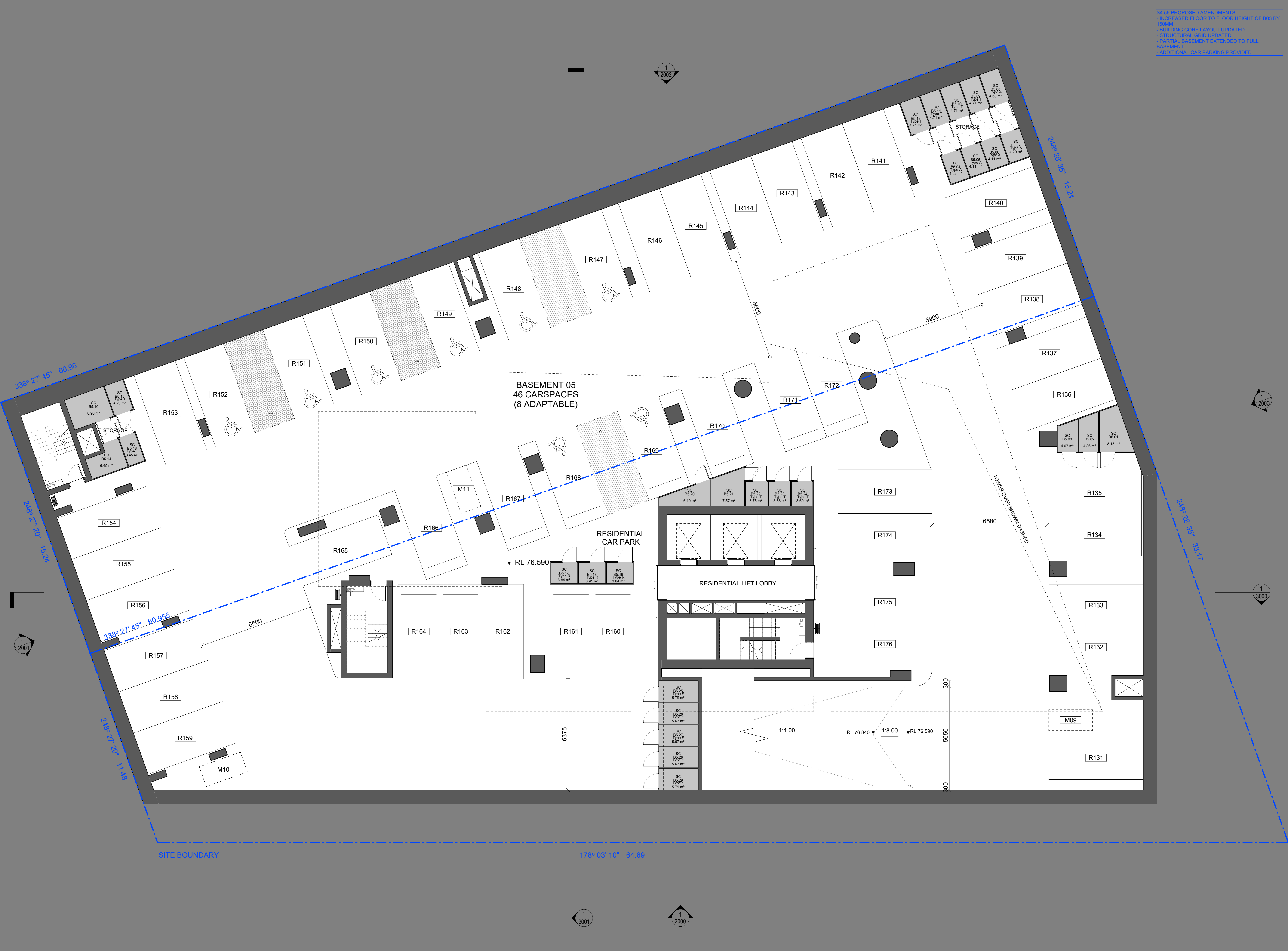
North

0 1000 2000 3000 4000 5000
Scale 1:100 mm

EM BE CE

EMBECE.com.au
+612 9125 0569
Suite 3, 414 Bourke Street
Surry Hills, NSW 2010 Australia

Nominated Architects
Mladen Prnjatovic 7468
Ben Green 7066
Chi Melhem 7754



S4.55 PROPOSED AMENDMENTS
- INCREASED FLOOR TO FLOOR HEIGHT OF B03 BY 150MM
- BUILDING CORE LAYOUT UPDATED
- STRUCTURAL GRID UPDATED
- PARTIAL BASEMENT EXTENDED TO FULL BASEMENT
- ADDITIONAL CAR PARKING PROVIDED

Iss.	Date	For
-	20.12.2024	For SSDA
A	12.02.2025	For SSDA
B	24.04.2026	For DHPI Review
C	05.05.2026	For S4.55
D	15.05.2026	For S4.55

Legend
SC Storage cage

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OIA Group

Dean Huang

Mecone | Planner

Paige Matthews
0402 194 024

CEC | Structure

Anir Esami
0415 544 020

Neuron | Services

Corey Munro
0437 654 141

Common Grounds | Landscape

Alex Georgouras
0404 626 520

Thermal Environmental | ESD

Arjun Adhikari
0403 636 395

Stantec | Civil

Jackson Bramley
0421 193 028

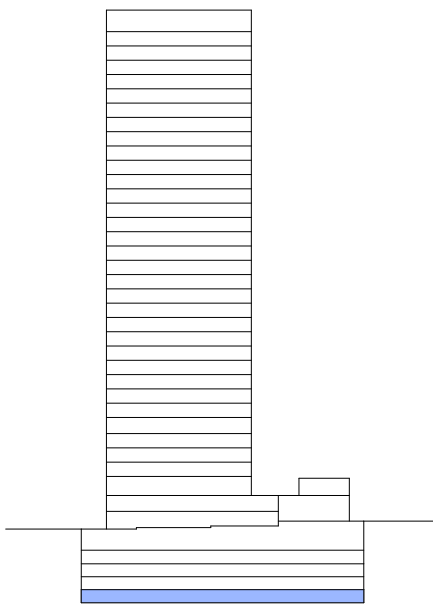
PDC Consultants | Traffic

Ben Midgley
0413 167 797

Codex | BCA / Access

Seb Howe
0472 564 917

Key Section



Project
Help Street OIA

Project No.

26001

Address

3-5 Help Street Chatswood

Status

FOR S4.55

Drawn

RW

Authorised

MP

Date Issued

15.05.2026

Drawing

B05 Plan

Drawing No.

SSDA-1000

Scale

1 : 100 @ A1

Issue

D

North

North

0 1000 2000 3000 4000 5000
Scale 1:100 mm

EM BE CE

EMBECE.com.au
+612 9125 0569
Suite 3, 414 Bourke Street
Surry Hills, NSW 2010 Australia

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Mladen Prnjacovic 7468
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This architectural elevation drawing illustrates the facade of a building on Cambridge Lane. The drawing includes a detailed floor level schedule on the left, a central elevation of the building facade, and a ground-level plan view at the bottom. Key features include:

- Floor Level Schedule (Left):** Lists levels from RL 209.400 m (ROOF) down to RL 73.640 m (B6). Levels L01 to L09 are at 3150 m, L10 to L29 are at 3150 m, and B1 to B6 are at 3000 m.
- Building Elevation (Center):** Shows a multi-story building with a grid of windows. The facade is labeled with 'RESIDENTIAL' and 'COMMERCIAL' areas. A 'WLEP 90m HEIGHT PLANE' is indicated at RL 208.100 m.
- Ground Level Plan (Bottom):** Shows the building's footprint, including 'RESIDENTIAL CAR PARK', 'COMMERCIAL CAR PARK', 'RETAIL', 'COMMERCIAL LOBBY', 'FIRE PUMP ROOM', 'AMENITIES', and 'RAMP'. The plan also shows 'HELP ST' and 'MCINTOSH ST'.
- Site Boundaries:** Indicated by dashed lines and labels 'SITE BOUNDARY'.
- Height Information:** A '26.3m ADDITIONAL HEIGHT' is noted at the top right.

- S4 55 PROPOSED AMENDMENTS
 - FACADE DESIGN UPDATED TO SUIT NEW APARTMENT MIX AND LAYOUT CHANGES
 - FACADE TO COME AND BE COORDINATED WITH MID RISE LEVELS L08-16
 - BALCONIES CONVERTED TO WINTER GARDENS ON LEVELS L24-33
 - LEVEL B06 ADDED TO ALLOW FOR DEEPER LIFT PIT WITH STAIR ACCESS
 - INCREASED FLOOR TO FLOOR HEIGHT OF LEVELS B03-05 150MM PER LEVEL FOR BUILDING SERVICES
 - INCREASED FLOOR TO FLOOR HEIGHT OF LEVEL L16 BY 100MM, L31 BY 200MM AND L32 BY 150MM TO ALLOW FOR BUILDING SERVICES AND STRUCTURE

Iss.	Date	For
-	20.12.2024	For SSDA
A	29.04.2025	For SSDA
B	05.05.2026	For S4.55
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OIA Group

Dean Huang

Mecone | Planner

Paige Matthews
0402 194 024

CEC | Struct

Amir Eslami
0415 544 020

Neuron | Services

Corey Munro
0437 654 141

Common Grounds | Landscape

Alex Georgouras
0404 626 520

Thermal Environmental | ESD

Arjun Adhikari
0403 636 395

Stantec | CIVIL

Jackson Bramley
0421 193 028

PDC Consultants | Traffic

Ben Midgley
0413 167 797

Codex | BCA / Access

Seb Howe
0472 564 97

Project Help Street OIA

Project No.
26001

Address
3-5 Help Street Chatswood

Status
FOR S4.55

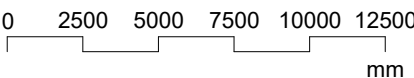
Drawn	Authorised	Date Issued
MD	MP	15.05.2026

Drawing

Section North-South

Drawing No.
SSDA-3000

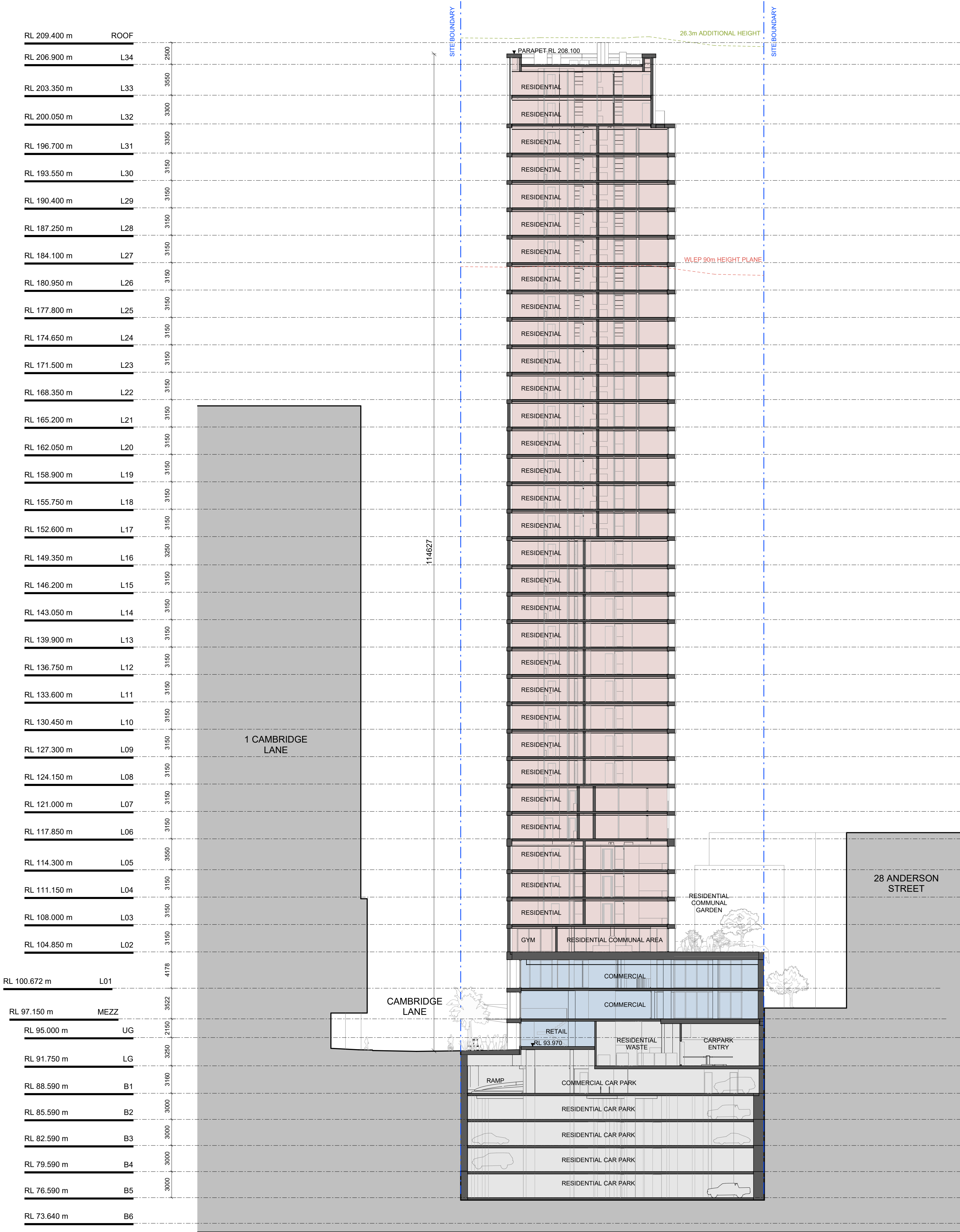
Scale	Issue
1 : 250 @ A1	C



EM BE CE

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+612 9125 0569
Suite 3, 414 Bourke Street
Surry Hills, NSW 2010 Australia

Nominated Architects
Mladen Prnjatovic 7468
Ben Green 7066
Chi Melhem 7754



S4.55 PROPOSED AMENDMENTS
- FACADE DESIGN UPDATED TO SUIT NEW APARTMENT MIX AND LAYOUT CHANGES
- FACADE TO L06 AND L07 COORDINATED WITH MID RISE LEVELS L08-16
- BALCONIES CONVERTED TO WINTER GARDENS ON LEVELS L24-33
- LEVEL B06 ADDED TO ALLOW FOR DEEPER LIFT PIT WITH STAIR ACCESS
- INCREASED FLOOR TO FLOOR HEIGHT OF LEVELS B03-05 150MM PER LEVEL FOR BUILDING SERVICES
- INCREASED FLOOR TO FLOOR HEIGHT OF LEVEL L16 BY 100MM, L31 BY 200MM AND L32 BY 150MM TO ALLOW FOR BUILDING SERVICES AND STRUCTURE

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0402 194 024

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0437 654 141

Common Grounds | Landscape
Alex Georgouras
0404 626 520

Thermal Environmental | ESD
Arjun Adhikari
0403 636 395

Stantec | Civil
Jackson Bramley
0421 193 028

PDC Consultants | Traffic
Ben Midgley
0413 167 797

Codex | BCA / Access
Seb Howe
0472 564 97

Project
Help Street OIA

Project No.
26001

Address
3-5 Help Street Chatswood

Status
FOR S4.55

Drawing
MD

Authorised
MP

Date Issued
15.05.2026

Drawing
Section East-West

Drawing No.
SSDA-3001

Scale
1 : 250 @ A1

Issue
C

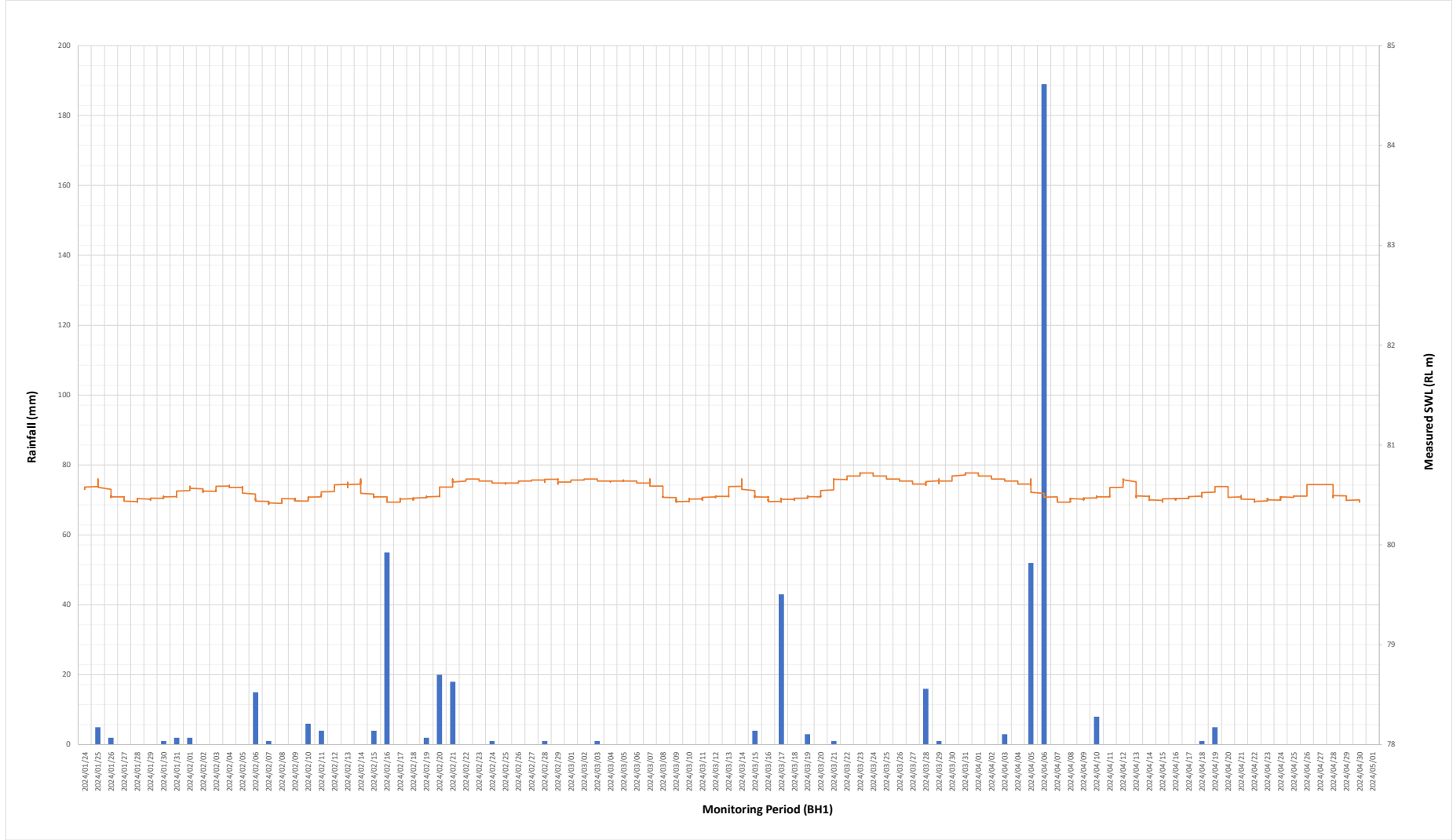
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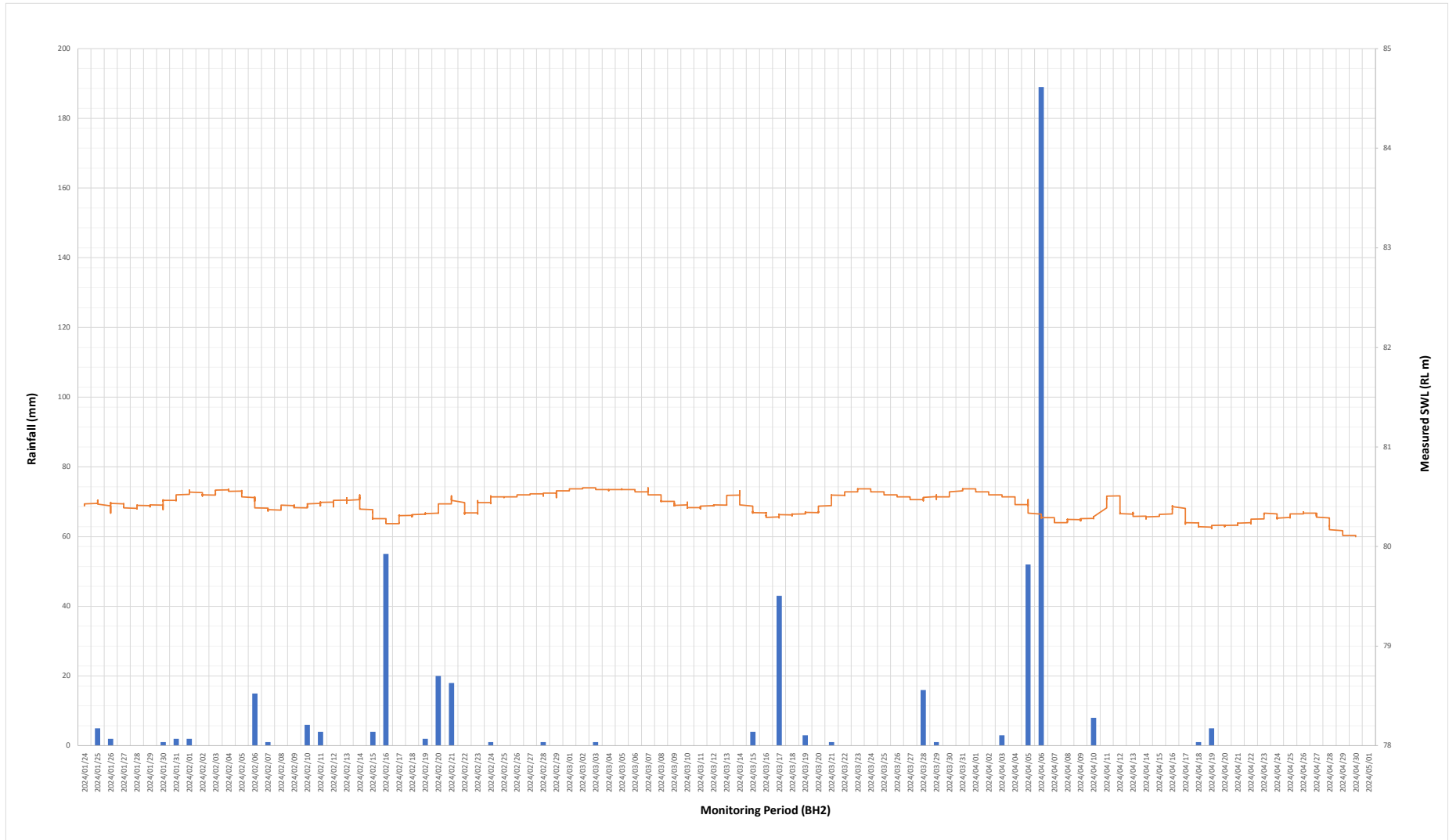
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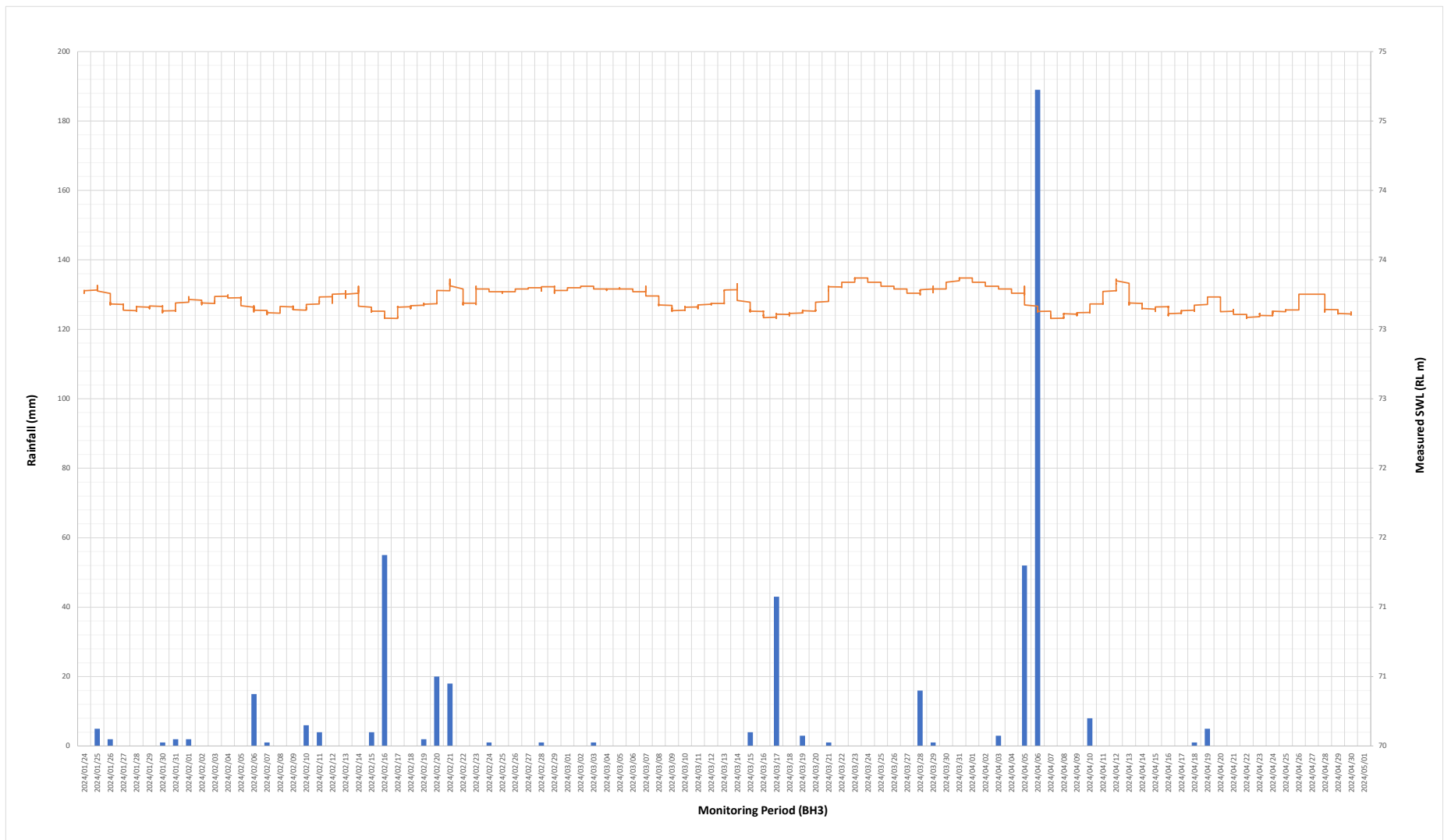
EMBECE.com.au
+612 9125 0569
Suite 3, 414 Bourke Street
Surry Hills, NSW 2010 Australia

Nominated Architects
Mladen Prnjatovic 7468
Ben Green 7066
Chi Melhem 7754

Appendix B – Borehole and Groundwater Measurement Records







Permeability of Soil - Constant Head Method Using a Flexible Wall Permeameter Report

Client	Stantec	Source	3-5H-BH101 2.5-2.8m
Address	Level 9 - The Forum, 203 Pacific Highway, St Leonards, New South Wales 2065	Sample Description	Silty CLAY
Project	3-5 Help St Street Chatswood	Report No	S93918-TP
Job No	S24039-3	Lab No	S93918

Test Procedure AS 1289 6.7.3 Determination of permeability of soil-Constant head method using a flexible wall permeameter

Sampling Sampled by Client - results apply to the sample as received **Date Sampled** 25/01/2024

Preparation Prepared in accordance with the test method **Date Tested** 06-02-24

Test Details

Specimen Type	Undisturbed
Remoulding Details	-
Tested Portion	-
Permeant Type	Sydney Tap Water

Specimen Details

Percent Retained on 37.5 mm Sieve (%)	-
Maximum Dry Density (t/m ³)	-
Optimum Moisture Content (%)	-
Test Moisture Content (%)	20.5
Moisture Ratio (%)	-
Test Dry Density (t/m ³)	1.78
Density Ratio (%)	-
Specimen Length (mm)	49.9
Specimen Diameter (mm)	49.9
Length to Diameter Ratio	1.0

Test Data

Confining Pressure (kPa)	550
Back Pressure (kPa)	500
Mean Effective Stress (kPa)	50
Coefficient of Permeability k(20) (m/second)	8E-11

Notes



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NATA Accredited Laboratory Number: 14874

Authorised Signatory:

Date:

06-02-24

Chris Lloyd

**MACQUARIE
GEO TECH**

Macquarie Geotechnical
14 Carter St
Lidcombe NSW 2141

Permeability of Soil - Constant Head Method Using a Flexible Wall Permeameter Report

Client	Stantec	Source	3-5H-BH102 0.8-1.0m
Address	Level 9 - The Forum, 203 Pacific Highway, St Leonards, New South Wales 2065	Sample Description	Silty CLAY
Project	3-5 Help Street Chatswood	Report No	S93919-TP
Job No	S24039-3	Lab No	S93919

Test Procedure AS 1289 6.7.3 Determination of permeability of soil-Constant head method using a flexible wall permeameter

Sampling Sampled by Client - results apply to the sample as received **Date Sampled** 25/01/2024

Preparation Prepared in accordance with the test method **Date Tested** 06-02-24

Test Details

Specimen Type	Undisturbed
Remoulding Details	-
Tested Portion	-
Permeant Type	Sydney Tap Water

Specimen Details

Percent Retained on 37.5 mm Sieve (%)	-
Maximum Dry Density (t/m ³)	-
Optimum Moisture Content (%)	-
Test Moisture Content (%)	19.4
Moisture Ratio (%)	-
Test Dry Density (t/m ³)	1.72
Density Ratio (%)	-
Specimen Length (mm)	50.3
Specimen Diameter (mm)	50.3
Length to Diameter Ratio	1.0

Test Data

Confining Pressure (kPa)	550
Back Pressure (kPa)	500
Mean Effective Stress (kPa)	50
Coefficient of Permeability k(20) (m/second)	4E-10

Notes



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NATA Accredited Laboratory Number: 14874

Authorised Signatory:

Date:

06-02-24

Chris Lloyd

**MACQUARIE
GEO TECH**

Macquarie Geotechnical
14 Carter St
Lidcombe NSW 2141

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH01

FILE / JOB NO : 301351072

SHEET : 1 OF 3

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331647.190, N: 6259120.800 (56 MGA94)

SURFACE ELEVATION : 94.400 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : TI3

MOUNTING : Track

CONTRACTOR : Stratacore

DRILLER : JS

DATE STARTED : 23/11/22

DATE COMPLETED : 23/11/22

DATE LOGGED : 23/11/22

LOGGED BY : RKC

CHECKED BY : TH

DRILLING						MATERIAL							
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations		
DRILLING & CASING	WATER												
AD/T		0.0m			94.4			0.10m CONCRETE					
								0.20m FILL: SAND: grey, fine to coarse grained sand	M		FILL		
			0.50m					CI-CH	SILTY CLAY: grey, medium to high plasticity, trace sub-rounded to angular gravel, trace rootlets			RESIDUAL SOIL	
			1.00m						SILTY CLAY: brown, grey, medium to high plasticity, trace rootlets	D	F		
			1.50m					CI-CH					
			SPT 3, 5, 5 N=10										
			1.95m										
			2.00m				92.4		2.00m SILTY CLAY: grey, medium to high plasticity, with ironstone gravel				
			2.50m										
			3.00m					CI-CH			St		
			SPT 6, 8, 9 N=17				91.4						
			3.45m										
			4.00m				90.4		4.00m SILTY CLAY: dark grey, medium to high plasticity, with inferred siltstone, extremely weathered to highly weathered gravel			WEATHERED ROCK	
			4.50m							M			
		SPT 8, 25, 25 N=50											
		4.95m			89.4								
		6.00m											
		SPT 16, 20, 23 N=42			88.4								
		6.45m											
					7.0			7.08m Continued as Cored Drill Hole					
					87.4								

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

CARDNO NSW/ACT PTY LTD



CORED DRILL HOLE LOG

HOLE NO : BH01
FILE / JOB NO : 301351072
SHEET : 2 OF 3

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331647.190, N: 6259120.800 (56 MGA94) SURFACE ELEVATION : 94.400 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : TI3 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : JS
DATE STARTED : 23/11/22 DATE COMPLETED : 23/11/22 DATE LOGGED : 23/11/22 LOGGED BY : RKC CHECKED BY : TH
CASING DIAMETER : BARREL (Length) : 3.00 m BIT : Stepped BIT CONDITION : good

DRILLING					MATERIAL					FRACTURES				
PROGRESS		CORE LOSS (% RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● Axial ○ Diametral	NATURAL FRACTURE (mm)	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other			
DRILLING & CASING	WATER													
					0.0 94.4				VL -0.1 L -0.3 M -1.0 H -3.0 VH -10.0 EH	20 40 100 300 1000				
					1.0 93.4									
					2.0 92.4									
					3.0 91.4									
					4.0 90.4									
					5.0 89.4									
					6.0 88.4									
					7.0 87.4									
					7.08 86.4									
					7.26 86.4									
					7.65 86.4									
					7.90 86.4									
					8.0 86.4									

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

CARDNO NSW/ACT PTY LTD



CORED DRILL HOLE LOG

HOLE NO : BH01

FILE / JOB NO : 301351072

SHEET : 3 OF 3

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331647.190, N: 6259120.800 (56 MGA94)

SURFACE ELEVATION : 94.400 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : TI3

MOUNTING : Track

CONTRACTOR : Stratacore

DRILLER : JS

DATE STARTED : 23/11/22

DATE COMPLETED : 23/11/22

DATE LOGGED : 23/11/22

LOGGED BY : RKC

CHECKED BY : TH

CASING DIAMETER :

BARREL (Length) : 3.00 m BIT : Stepped

BIT CONDITION : good

DRILLING				MATERIAL				FRACTURES			
PROGRESS		CORE LOSS RUN (%)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● Axial ○ Diametral	NATURAL FRACTURE (mm)	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER										
		0% LOSS	90	Is(50) d=0.87 a=1.06 MPa	8.0 86.4		SILTSTONE: dark grey, 5% sandstone laminated at 0-5 degrees, grey, fine grained (continued)	SW			8.08: DB 8.13: DB 8.18: DB 8.21: DB 8.26: DB 8.32: BP 0° Clay CT PR S 8.35: DB 8.38-8.41: JT 70° CN PR S 8.44: DB 8.46: BP 0° Fe SN PR S 8.48: DB 8.51: DB 8.53: DB 8.56: DB 8.58: DB 8.61: DB 8.63: BP 0° CN PR S 8.68: DB 8.74: DB 8.77: DB 8.80-8.83: JT 40° CN PR S 8.83-8.87: JT 50° CN IR S 8.87: BP 0° CN PR S 8.92: BP 0° CN PR S 8.95: DB 8.97: DB 9.05: DB 9.10: DB 9.16: DB 9.21: BP 10° CN PR S 9.28-9.33: JT 30 - 90° CN IR S 9.39: DB 9.43: DB 9.49: DB 9.51-9.52: JT 90° CN PR S 9.56: DB 9.58: DB 9.66: DB 9.71: DB 9.74: DB 9.78-9.93: JT 70° CN PR S 10.06: SZ 10.11: SZ 10.23: HB 10.32: HB 10.37: DB 10.39: DB 10.42: DB 10.43-10.51: JT 40 - 90° CN IR S 10.57: DB 10.69: DB 10.75: DB 10.76-10.86: JT 75° CN IR S 10.86-10.89: JT 55° CN PR S 10.95: DB 11.10-11.13: JT 20 - 50° CN UN S 11.22-11.26: JT 30° CN PR S 11.29: DB 11.33: DB 11.41: EWS 11.75-11.79: JT 40° CN PR S 11.85-11.89: JT 50° CN PR S 11.90: BP 0° CN PR S 12.10: BP 10° CN PR S 12.14-12.17: JT 30° Clay FLD IR S 12.20-12.24: JT 30° CN IR S 12.27: DB 12.30: DB 12.32: DB 12.44-12.52: JT 85 - 90° CN IR S 12.56: DB 12.59: DB 12.86: BP 15° CN PR S 12.89-12.95: JT 20 - 50° CN IR S 13.25: DB 13.61: DB 14.09: DB 14.38: DB 14.88: DB
		20% Water LOSS									
		9.00									
		0% LOSS	85	Is(50) d=1.11 a=1.03 MPa	9.0 85.4						
		100% Water LOSS		10.55m UCS =12 MPa 10.67m	10.0 84.4						
		11.40		Is(50) d=0.44 a=1.75 MPa	11.0 83.4						
		0% LOSS	85								
		100% Water LOSS									
		12.00			12.0 82.4						
		0% LOSS	80								
		100% Water LOSS		Is(50) d=0.86 a=0.7 MPa	13.0 81.4			HW SW F			
		15.00		14.52m UCS =16 MPa 14.77m	14.0 80.4						
				Is(50) d=0.38 a=0.89 MPa	15.0 79.4		BOREHOLE BH01 TERMINATED AT 15.00 m Target depth				
					16.0 78.4						

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

CARDNO NSW/ACT PTY LTD





now



TITLE:

Borehole Core Photographs – BH01
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
23/11/2022

INCLINATION:
-90 degree

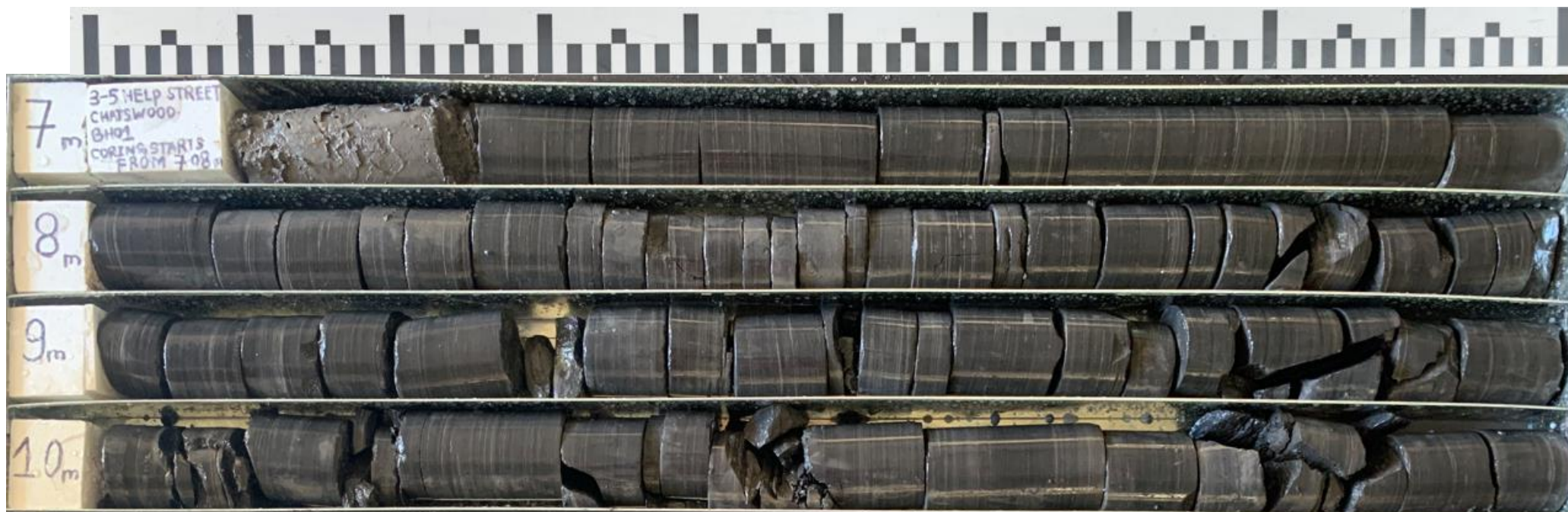
CORED LENGTH: **BOX 1 OF 2**
7.08 – 11m (3.92 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole Core Photographs – BH01
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
23/11/2022

INCLINATION:
-90 degree

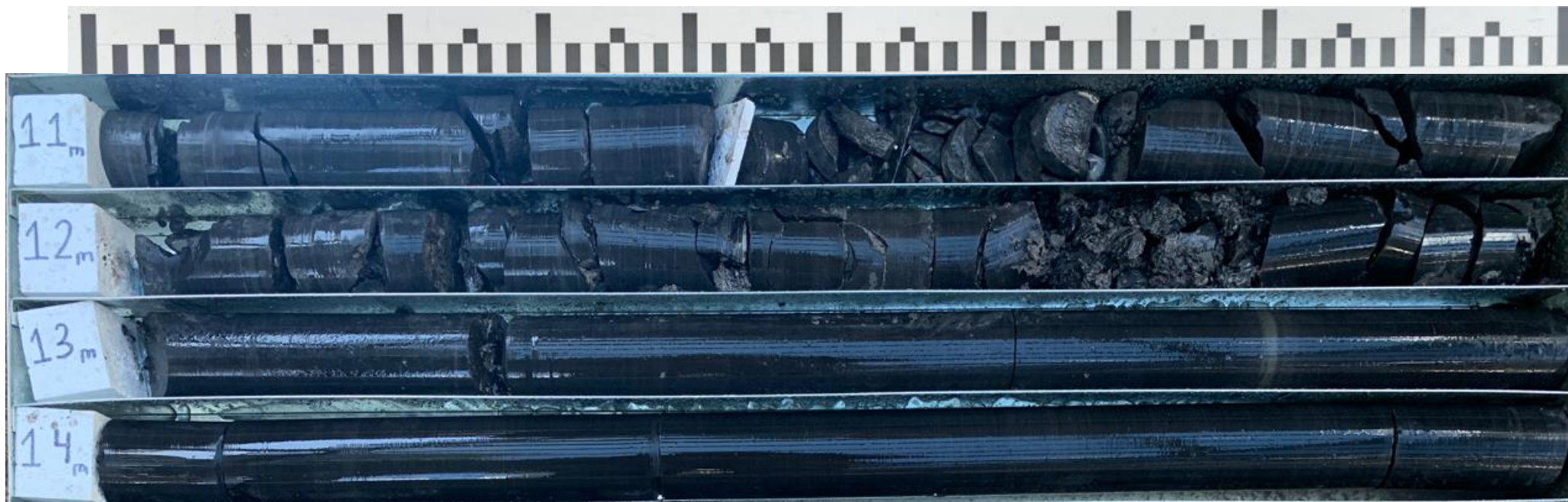
CORED LENGTH: **BOX 2 OF 2**
11.0 – 15.0m (4 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole SPT Photographs – BH01
3-5 Help ST, Chatswood

PROJECT NO:
301351072

TEST DATE:
23/12/2022

INCLINATION:
-90 degree

SPT PHOTO: **1.5-1.95**

DRILL RIG:
T13

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH



HOLE NO : BH02

FILE / JOB NO : 301351072

SHEET : 1 OF 4

ANGLE FROM HORIZONTAL : 90°

DRILLER : JS

CHECKED BY : TH

DRILLING					MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUNDWATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
DRILLING & CASING	WATER										
↑ AD/T ↓		H			0.0 92.9	XXXX		0.10m CONCRETE	D		
		F					CI-CH	0.20m SILTY CLAY: grey, medium to high plasticity SILTY CLAY: grey, medium to high plasticity, with ironstone gravel			RESIDUAL SOIL
				0.50m D							
				1.00m SPT 8, 30/150mm HB N=R 1.30m	1.0 91.9					St	
					2.0 90.9		CI-CH			M	
			H	Not Encountered							
				3.00m SPT 6, 12, 16 N=28	3.0 89.9					VSt	
				3.45m							
					4.0 88.9			4.00m CLAYEY GRAVEL: pale grey to grey, brown, fine to medium gravel, medium to high plasticity clay, inferred as siltstone bedrock			WEATHERED ROCK
				4.50m SPT 14, 25, 26 N=51						D	
			4.95m	5.0 87.9							
							5.55m	Continued as Cored Drill Hole			
					6.0 86.9						
					7.0 85.9						
					8.0 84.9						

See Explanatory Notes for

CORED DRILL HOLE LOG

HOLE NO : BH02
FILE / JOB NO : 301351072
SHEET : 2 OF 4

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331675.964, N: 6259082.994 (56 MGA94) SURFACE ELEVATION : 92.900 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : TI3 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : JS
DATE STARTED : 22/11/22 DATE COMPLETED : 22/11/22 DATE LOGGED : 22/11/22 LOGGED BY : RKC CHECKED BY : TH
CASING DIAMETER : BARREL (Length) : 3.00 m BIT : Stepped BIT CONDITION : good

DRILLING					MATERIAL					FRACTURES				
PROGRESS		CORE LOSS (% RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● Axial ○ Diametral	NATURAL FRACTURE (mm)	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other			
DRILLING & CASING	WATER													
					0.0 92.9									
					1.0 91.9									
					2.0 90.9									
					3.0 89.9									
					4.0 88.9									
					5.0 87.9									
					5.55m		START CORING AT 5.55m							
		0% LOSS	100		5.85m		SILTY CLAY (CI-CH): grey, medium to high plasticity, with fine to coarse grained gravel, with fine to coarse grained sand (WEATHERED ROCK)	EW						
		6.00 5% LOSS	63		6.0 86.9		SILTSTONE: grey, fine grained, bedded at 20 degrees, with 10% sandstone laminated at 20 degrees, fine grained, grey	HW						5.94: HB
					6.43m									6.03: DB
					6.58m		CORE LOSS 0.15m (6.43-6.58)	EW						6.06: DB
					7.0 85.9		SILTSTONE: grey, fine grained, bedded at 20 degrees, with 10% sandstone laminated at 20 degrees, fine grained, grey	EW						6.15: DB
					7.10m									6.23: BP 10° CN PR S
					7.43m		SILTSTONE: grey, fine grained, 5% sandstone laminated at 35 degrees, fine grained, grey	HW						6.23-6.26: SM
					8.0 84.9		SILTSTONE: grey, fine grained, less than 5% sandstone laminated at 0-5 degrees, fine grained, grey	SW						6.57-6.64: SM
														6.67-6.68: SM
														6.71-6.72: SM
														6.77: BP 5° CN PR S
														6.81: BP 5° CN PR S
														6.83-6.85: SM
														6.90: HB
														7.08: BP 10° CN PR S
														7.11: DB
														7.15: BP 10 - 15° CN PR S
														7.18: BP 15° CN IR S
														7.20: DB
														7.23: BP 10° CN PR S
														7.31: BP 10° CN PR S
														7.37-7.42: JT 40° CN PR S
														7.52: DB
														7.59: DB
														7.60-7.66: JT 60° CN PR S

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

CARDNO NSW/ACT PTY LTD



CORED DRILL HOLE LOG

HOLE NO : BH02

FILE / JOB NO : 301351072

SHEET : 4 OF 4

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331675.964, N: 6259082.994 (56 MGA94)

SURFACE ELEVATION : 92.900 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : TI3

MOUNTING : Track

CONTRACTOR : Stratacore

DRILLER : JS

DATE STARTED : 22/11/22

DATE COMPLETED : 22/11/22

DATE LOGGED : 22/11/22

LOGGED BY : RKC

CHECKED BY : TH

CASING DIAMETER :

BARREL (Length) : 3.00 m BIT : Stepped

BIT CONDITION : good

DRILLING					MATERIAL					FRACTURES					
PROGRESS		CORE LOSS (CORE LOSS RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50)					NATURAL FRACTURE (mm)	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER								VL -0.1	L -0.3	M -1.0	H -3.0	VH -10.0		
HQ		0% LOSS	100	Is(50) d=0.99 a=4.72 MPa	16.0 76.9		SANDSTONE: grey, fine to medium grained, with 10% carbonaceous lamination at 0-10 degrees (continued)	F							
					16.70m		INTERLAMINATED SANDSTONE AND SILTSTONE: pale grey to grey, sandstone 50% and siltstone 50% at 0-10 degrees, fine to medium grained sandstone, pale grey and grey siltstone								16.66: DB
					17.0 75.9	17.15m			INTERLAMINATED SANDSTONE AND SILTSTONE: sandstone 70% and siltstone 30% at 0-10 degrees, fine to medium grained sandstone, pale grey and grey siltstone						16.89: DB
		18.00			18.0 74.9		BOREHOLE BH02 TERMINATED AT 18.00 m Target depth								
					19.0 73.9										
					20.0 72.9										
					21.0 71.9										
					22.0 70.9										
					23.0 69.9										
					24.0										

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

CARDNO NSW/ACT PTY LTD





now



TITLE:

Borehole Core Photographs – BH02
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
22/11/2022

INCLINATION:
-90 degree

CORED LENGTH: **BOX 1 OF 4**
5.60 – 9m (3.4 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole Core Photographs – BH02
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
22/11/2022

INCLINATION:
-90 degree

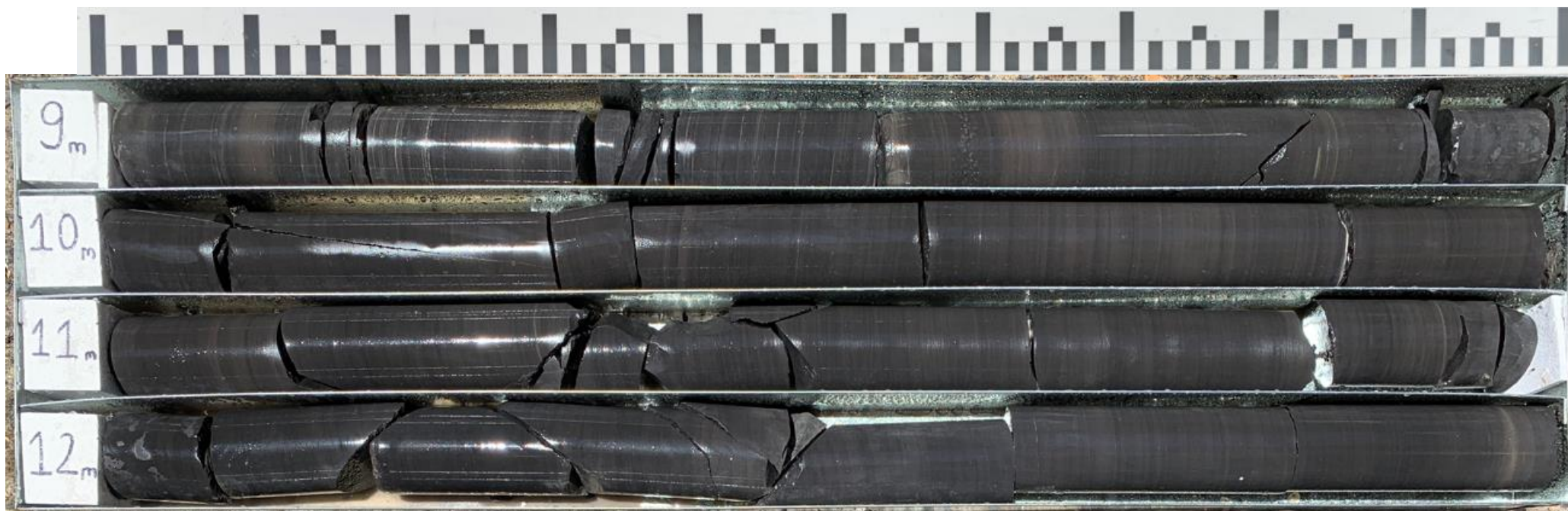
CORED LENGTH: **BOX 2 OF 4**
9 – 13m (4 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole Core Photographs – BH02
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
22/11/2022

INCLINATION:
-90 degree

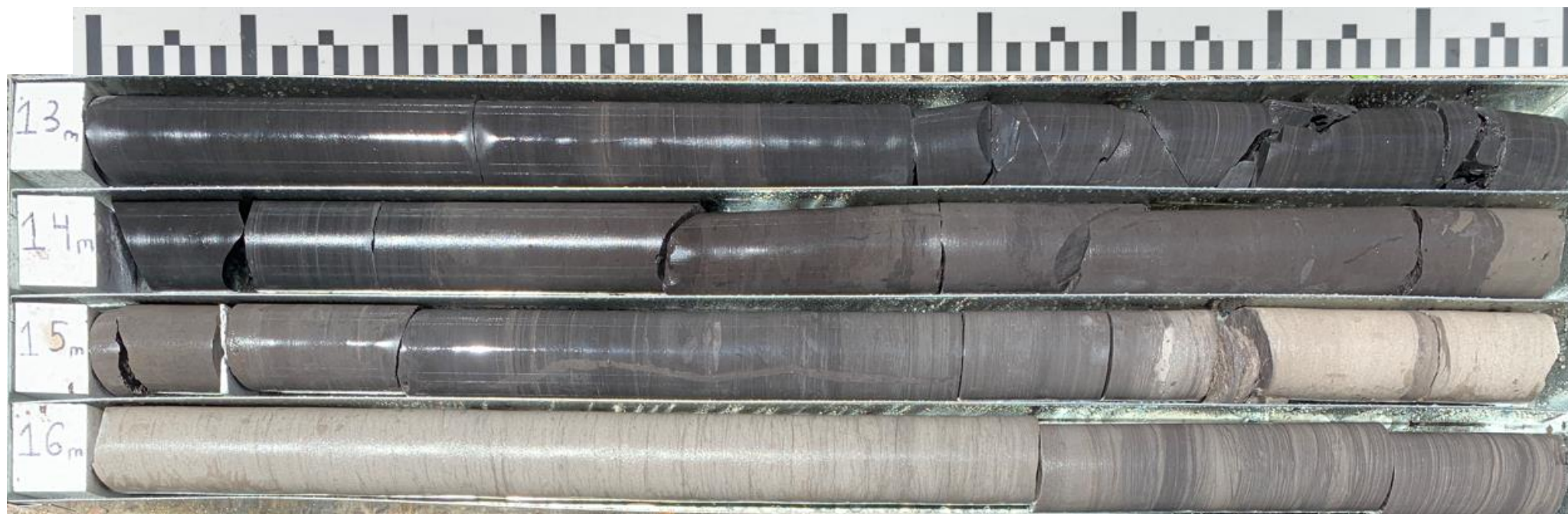
CORED LENGTH: **BOX 3 OF 4**
13– 17m (4 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole Core Photographs – BH02
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
22/11/2022

INCLINATION:
-90 degree

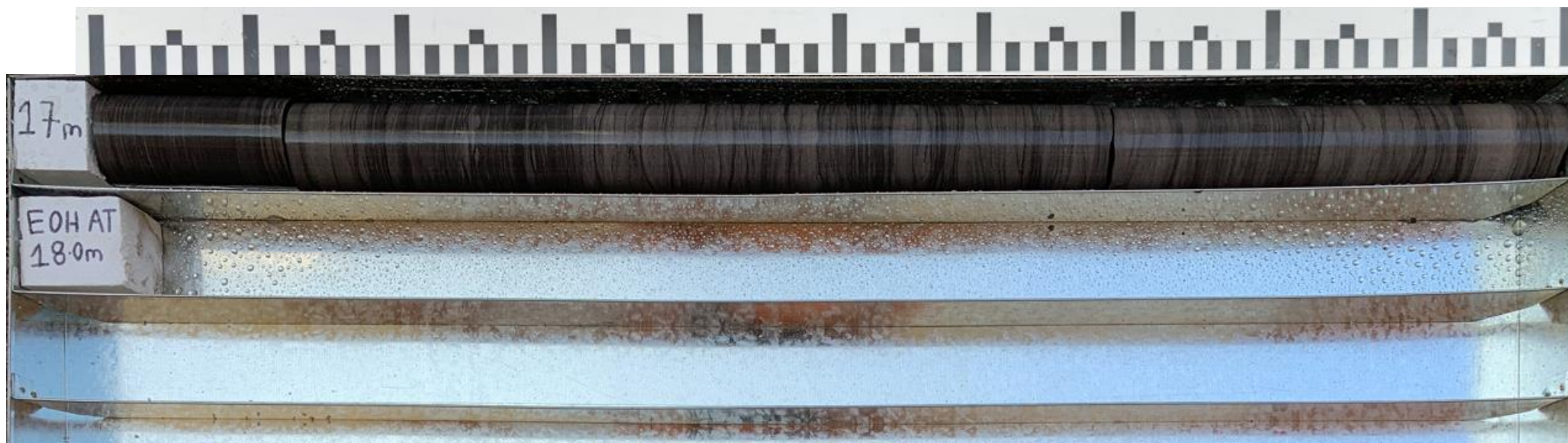
CORED LENGTH: **BOX 4 OF 4**
17– 18m (1 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole SPT Photographs – BH02
3-5 Help ST, Chatswood

PROJECT NO:
301351072

TEST DATE:
22/12/2022

INCLINATION:
-90 degree

SPT PHOTO: **1.0-1.45**

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH03

FILE / JOB NO : 301351072

SHEET : 1 OF 6

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331670.308, N: 6259125.514 (56 MGA94)

SURFACE ELEVATION : 92.600 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : TI3

MOUNTING : Track

CONTRACTOR : Stratacore

DRILLER : JS

DATE STARTED : 21/11/22

DATE COMPLETED : 21/11/22

DATE LOGGED : 21/11/22

LOGGED BY : RKC

CHECKED BY : TH

DRILLING						MATERIAL						
PROGRESS		DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	CLASSIFICATION SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations	
DRILLING & CASING	WATER											
AD/T					0.0 92.6			FILL: SILTY SAND: dark brown, fine to medium grained sand, grass covered	M		TOPSOIL	
							0.20m	SILTY CLAY: pale brown to pale grey, medium to high plasticity			RESIDUAL SOIL	
							0.50m	SILTY CLAY: pale grey, brown and pale brown, medium to high plasticity, trace gravel				
					1.00m SPT 3, 6, 6 N=12	1.0 91.6				St		
					1.45m							
			F			2.0 90.6						
					3.00m SPT 6, 8, 8 N=16	3.0 89.6						
					3.45m					VSt		
				Not Encountered						D		
					4.00m	4.0 88.6			CLAYEY GRAVEL: pale grey and grey, fine to medium gravel, inferred weathered siltstone, very low strength			WEATHERED ROCK
					4.50m SPT 8, 12, 16 N=28	4.5 87.6						
				4.95m	5.0 87.6							
		H		5.50m SPT 16, 20, 25 N=45	5.5 86.6				H			
				5.95m	6.0 86.6							
							6.50m	SILTSTONE: grey, fine grained, named as clayet silt, low to medium plasticity			BEDROCK	
		VH			7.0 85.6		7.10m	Continued as Cored Drill Hole				

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

CARDNO NSW/ACT PTY LTD



CORED DRILL HOLE LOG

HOLE NO : BH03

FILE / JOB NO : 301351072

SHEET : 2 OF 6

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331670.308, N: 6259125.514 (56 MGA94) SURFACE ELEVATION : 92.600 (AHD) ANGLE FROM HORIZONTAL : 90°

RIG TYPE : TI3 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : JS

DATE STARTED : 21/11/22 DATE COMPLETED : 21/11/22 DATE LOGGED : 21/11/22 LOGGED BY : RKC CHECKED BY : TH

CASING DIAMETER : BARREL (Length) : 3.00 m BIT : Stepped BIT CONDITION : Good

DRILLING					MATERIAL				FRACTURES		
PROGRESS		CORE LOSS (% RUN %)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50)	NATURAL FRACTURE (mm)	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
DRILLING & CASING	WATER										
					0.0 92.6						
					1.0 91.6						
					2.0 90.6						
					3.0 89.6						
					4.0 88.6						
					5.0 87.6						
					6.0 86.6						
					7.0 85.6						
					7.10m		START CORING AT 7.10m				
					7.43m		SANDSTONE: grey, fine to medium grained, massive	MW			7.27: DB
							SILTSTONE: grey, bedded at 5-15 degrees, thinly laminated	SW			7.43: BP 0° PR S 7.55: JT 10° PR RF 7.65: BP 0° PR S 7.86: BP 5° PR S
					8.0 84.6						

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

CARDNO NSW/ACT PTY LTD



CORED DRILL HOLE LOG

HOLE NO : BH03

FILE / JOB NO : 301351072

SHEET : 3 OF 6

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331670.308, N: 6259125.514 (56 MGA94)

SURFACE ELEVATION : 92.600 (AHD)

ANGLE FROM HORIZONTAL : 90°

RIG TYPE : TI3

MOUNTING : Track

CONTRACTOR : Stratacore

DRILLER : JS

DATE STARTED : 21/11/22

DATE COMPLETED : 21/11/22

DATE LOGGED : 21/11/22

LOGGED BY : RKC

CHECKED BY : TH

CASING DIAMETER :

BARREL (Length) : 3.00 m BIT : Stepped

BIT CONDITION : Good

DRILLING				MATERIAL				FRACTURES	
PROGRESS	LOSS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION	Weathering	ESTIMATED STRENGTH	NATURAL FRACTURE	ADDITIONAL DATA	
DRILLING & CASING	WATER	DEPTH (m)	GRAPHIC LOG	ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	Is(50) ● Axial ○ Diametral	(mm)	Description, orientation, infilling or coating, shape, roughness, thickness, other	
	Water	0% LOSS	91		F			8.16: JT 45° PR S	
	Water	9.32	90					8.23: BP 10° PR S	
	Water	0% LOSS						8.33: BP 10° PR S	
	Water							8.35: BP 10° PR S	
	Water							8.42: BP 10° PR S	
	Water							8.45: BP 10° PR S	
	Water							8.53: JT 45° IR RF	
	Water							8.58: JT 15° IR RF	
	Water							8.60: HB	
	Water							8.65: JT 10° IR RF	
	Water							8.68: JT 10° IR RF	
	Water							9.16: JT 15° IR RF	
	Water							9.20: JT 15° IR RF	
	Water							9.22: HB	
	Water							9.25: DB	
	Water							9.32: DB	
	Water							9.37: BP 0° PR S	
	Water							9.44: BP 0° PR S	
	Water							9.65: JT 20° PR RF	
	Water							9.75: BP 5° PR S	
	Water							9.84: BP 5° PR S	
	Water							9.90: JT 30° PR S	
	Water							10.23: JT 45° PR RF	
	Water							10.38: JT 45° IR RF	
	Water							10.45: DB	
	Water							10.57: JT 60° PR RF	
	Water							10.68: JT 30° IR RF	
	Water							10.88: DB	
	Water							11.15: JT 45° PR RF	
	Water							11.20: DB	
	Water							11.38: BP 5° PR S	
	Water							11.45: JT 5° PR RF	
	Water							11.50: HB	
	Water							11.70: DB	
	Water							11.84: HB	
	Water							12.06: BP 5° PR S	
	Water							12.28: JT 5° PR RF	
	Water							12.30: JT 5° PR RF	
	Water							12.43: BP 0° PR S	
	Water							12.44: BP 0° PR S	
	Water							12.81: JT 45° PR S	
	Water							13.18: BP 0° PR S	
	Water							13.80: JT 45° PR RF	
	Water							13.95: CS	
	Water							14.06: JT 15° IR RF	
	Water							14.21: HB	
	Water							14.26: BP 40° PR RF	
	Water							14.90: HB	
	Water							15.10: BP 30° PR RF	
	Water							15.24: DB	
	Water							15.26: DB	
	Water							15.60: HB	
	Water							15.96: HB	

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

CARDNO NSW/ACT PTY LTD



CORED DRILL HOLE LOG

HOLE NO : BH03
FILE / JOB NO : 301351072
SHEET : 4 OF 6

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331670.308, N: 6259125.514 (56 MGA94) SURFACE ELEVATION : 92.600 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : TI3 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : JS
DATE STARTED : 21/11/22 DATE COMPLETED : 21/11/22 DATE LOGGED : 21/11/22 LOGGED BY : RKC CHECKED BY : TH
CASING DIAMETER : BARREL (Length) : 3.00 m BIT : Stepped BIT CONDITION : Good

DRILLING				MATERIAL				FRACTURES	
PROGRESS	DRILLING & CASING	WATER	CORE LOSS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION	ESTIMATED STRENGTH	NATURAL FRACTURE	ADDITIONAL DATA
			0% LOSS	95	Is(50) d=0.81 a=2.39 MPa	SANDSTONE: pale grey, fine to medium grained, massive	VL L J M H EH	20 40 100 300 1000	16.05: BP 0° PR S 16.29: JT 5° PR RF 16.31: JT 10° PR RF 16.34: JT 10° IR RF
			18.46 0% LOSS	96	Is(50) d=0.89 a=4.35 MPa UCS =74.8 MPa 18.90m	SILTSTONE: pale grey to grey, bedded at 0-15 degrees, thinly laminated			16.88: DB 17.50: HB 18.10: HB 18.21: BP 10° PR RF 18.46: DB 18.53: HB 18.89: HB 19.07: HB 19.22: HB
			21.57 0% LOSS	98	Is(50) d=0.97 a=1.57 MPa Is(50) d=1.17 a=1.48 MPa Is(50) d=1.51 a=1.77 MPa	SANDSTONE: pale grey, medium to coarse grained, bedded at 10-20 degrees			19.49: JT 5° PR RF 19.51: BP 0° PR S 19.65: HB 19.90: HB 20.06: HB 21.08: HB 21.33: HB 21.57: BP 15° PR RF 21.86: BP 10° PR RF 22.12: DB 23.63: HB 23.66: HB

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

CARDNO NSW/ACT PTY LTD



CORED DRILL HOLE LOG

HOLE NO : BH03
FILE / JOB NO : 301351072
SHEET : 5 OF 6

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331670.308, N: 6259125.514 (56 MGA94) SURFACE ELEVATION : 92.600 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : TI3 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : JS
DATE STARTED : 21/11/22 DATE COMPLETED : 21/11/22 DATE LOGGED : 21/11/22 LOGGED BY : RKC CHECKED BY : TH
CASING DIAMETER : BARREL (Length) : 3.00 m BIT : Stepped BIT CONDITION : Good

DRILLING				MATERIAL				FRACTURES			
DRILLING & CASING	WATER	CORE LOSS (% LOSS)	RQD (%)	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50) ● Axial ○ Diametral	NATURAL FRACTURE (mm)	ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other
		0% LOSS	98		24.0 66.6		SANDSTONE: pale grey, medium to coarse grained, bedded at 10-20 degrees (<i>continued</i>)	F			
		24.77									
		0% LOSS	100	Is(50) d=1.06 a=1.88 MPa	25.0 67.6						24.53: HB 24.63: HB 24.64: DB 24.80: end of run
											25.11: BP 0 - 5° SN PR RF 25.17: BP 0 - 5° CN PR RF
					26.0 66.6						26.07: BP 0 - 5° CN PR RF 26.11: HB
				Is(50) d=1.11 a=1.64 MPa			INTERLAMINATED SANDSTONE AND SILTSTONE: sandstone 50% and siltstone 50% at 0-10 degrees, fine to coarse grained sandstone, pale grey and grey siltstone				26.56: BP 0 - 5° CN PR S 26.59: BP 0 - 5° CN PR S
					26.90m						26.82: DB
					27.0 66.6		SANDSTONE: pale grey, medium to coarse grained, bedded at 10-20 degrees				
				Is(50) d=1.13 a=1.94 MPa							
		27.82									27.82: end of run
		0% LOSS	100		28.0 64.6						
					29.0 63.6						28.71: HB
				Is(50) d=1.77 a=1.37 MPa							
					30.0 62.6						30.05: HB
		30.85									30.85: end of run
		0% LOSS	100	Is(50) d=2.14 a=2.17 MPa	31.0 61.6						
				Is(50) d=2 a=2.07 MPa							31.79: HB
					32.0 60.6						

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

CARDNO NSW/ACT PTY LTD



CORED DRILL HOLE LOG

HOLE NO : BH03
FILE / JOB NO : 301351072
SHEET : 6 OF 6

PROJECT : Proposed Mixed Use Redevelopment GI
LOCATION : 3-5 Help St Chatswood

POSITION : E: 331670.308, N: 6259125.514 (56 MGA94) SURFACE ELEVATION : 92.600 (AHD) ANGLE FROM HORIZONTAL : 90°
RIG TYPE : TI3 MOUNTING : Track CONTRACTOR : Stratacore DRILLER : JS
DATE STARTED : 21/11/22 DATE COMPLETED : 21/11/22 DATE LOGGED : 21/11/22 LOGGED BY : RKC CHECKED BY : TH
CASING DIAMETER : BARREL (Length) : 3.00 m BIT : Stepped BIT CONDITION : Good

DRILLING					MATERIAL					FRACTURES							
PROGRESS		CORE LOSS (CORE LOSS RUN %)	ROD (%)	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	DESCRIPTION ROCK TYPE : Colour, Grain size, Structure (texture, fabric, mineral composition, hardness alteration, cementation, etc as applicable)	Weathering	ESTIMATED STRENGTH Is(50)					NATURAL FRACTURE (mm)		ADDITIONAL DATA (joints, partings, seams, zones, etc) Description, orientation, infilling or coating, shape, roughness, thickness, other	
DRILLING & CASING	WATER								VL -0.1 L -0.3 M -1.0 H -3.0 VH -10.0 EH	VL -0.1 L -0.3 M -1.0 H -3.0 VH -10.0 EH	VL -0.1 L -0.3 M -1.0 H -3.0 VH -10.0 EH	20 40 100 300 1000					
	HQ	0% LOSS	100		32.0 60.6		SANDSTONE: pale grey, medium to coarse grained, bedded at 10-20 degrees (continued)	F							32.11: DB		
					33.0 59.6										32.54: DB 32.65: DB 32.70: DB 32.75: DB 32.86: DB 32.91: DB 33.00: DB		
				Is(50) d=2.06 a=2.11 MPa			33.96m								33.23: DB 33.54: DB 33.68: DB		
		33.96			34.0 58.6		BOREHOLE BH03 TERMINATED AT 33.96 m Target depth										
					35.0 57.6												
					36.0 56.6												
					37.0 55.6												
					38.0 54.6												
					39.0 53.6												

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

CARDNO NSW/ACT PTY LTD





now



TITLE:

Borehole Core Photographs – BH03
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
21/11/2022

INCLINATION:
-90 degree

CORED LENGTH: **BOX 1 OF 7**
7.1– 11m (3.9 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole Core Photographs – BH03
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
21/11/2022

INCLINATION:
-90 degree

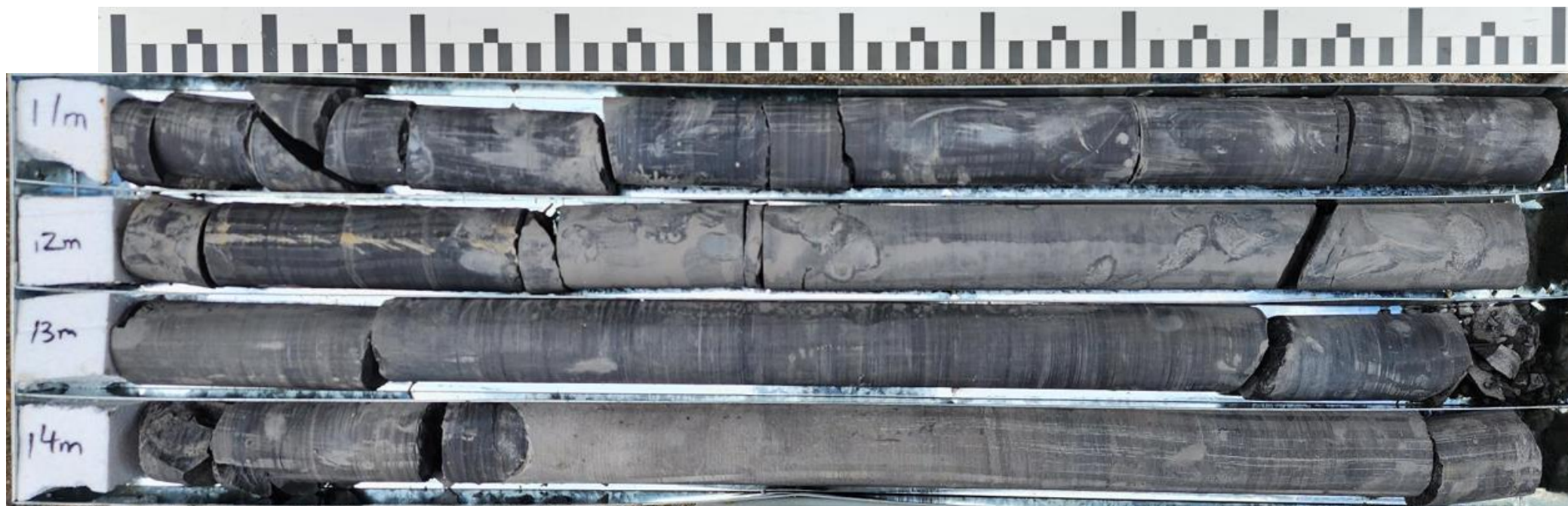
CORED LENGTH: **BOX 2 OF 7**
11– 15m (4 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole Core Photographs – BH03
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
21/11/2022

INCLINATION:
-90 degree

CORED LENGTH: **BOX 3 OF 7**
15– 19m (4 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole Core Photographs – BH03
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
21/11/2022

INCLINATION:
-90 degree

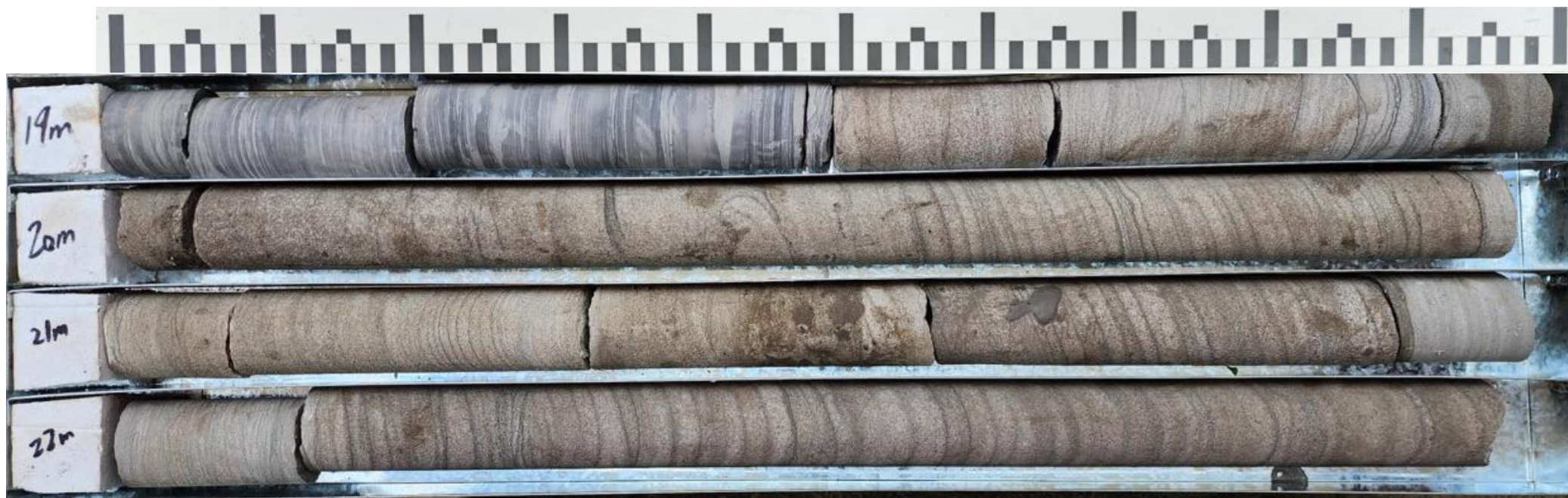
CORED LENGTH: **BOX 4 OF 7**
19– 23m (4 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole Core Photographs – BH03
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
21/11/2022

INCLINATION:
-90 degree

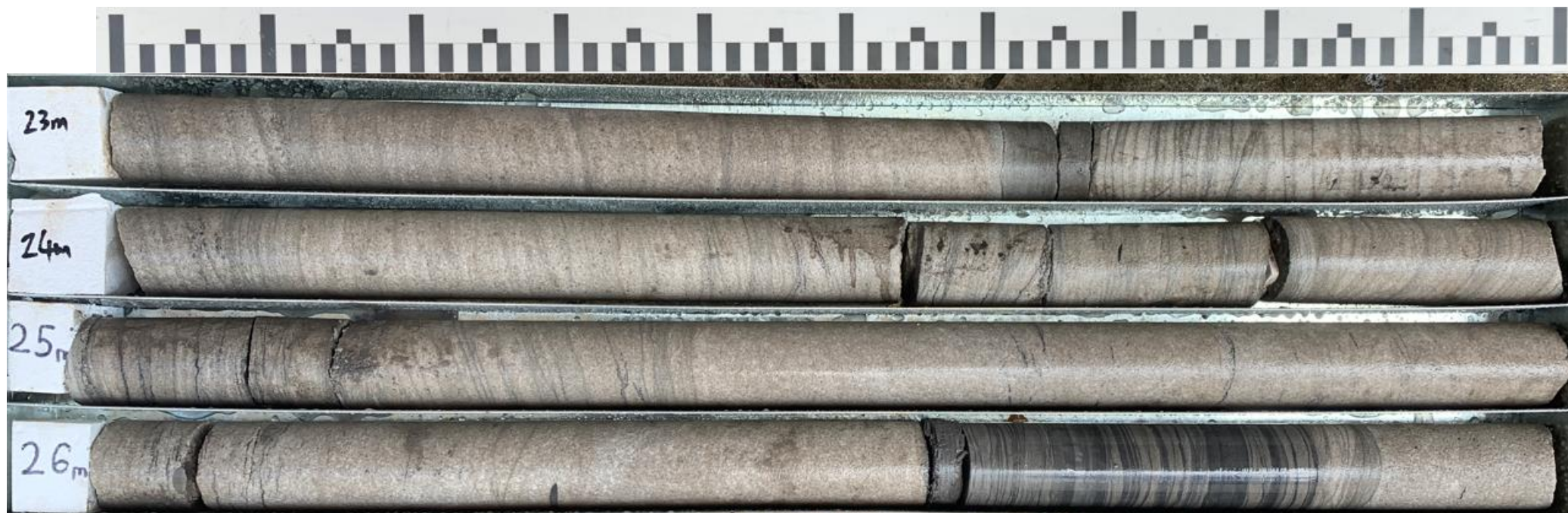
CORED LENGTH: **BOX 5 OF 7**
23– 27m (4 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole Core Photographs – BH03
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
21/11/2022

INCLINATION:
-90 degree

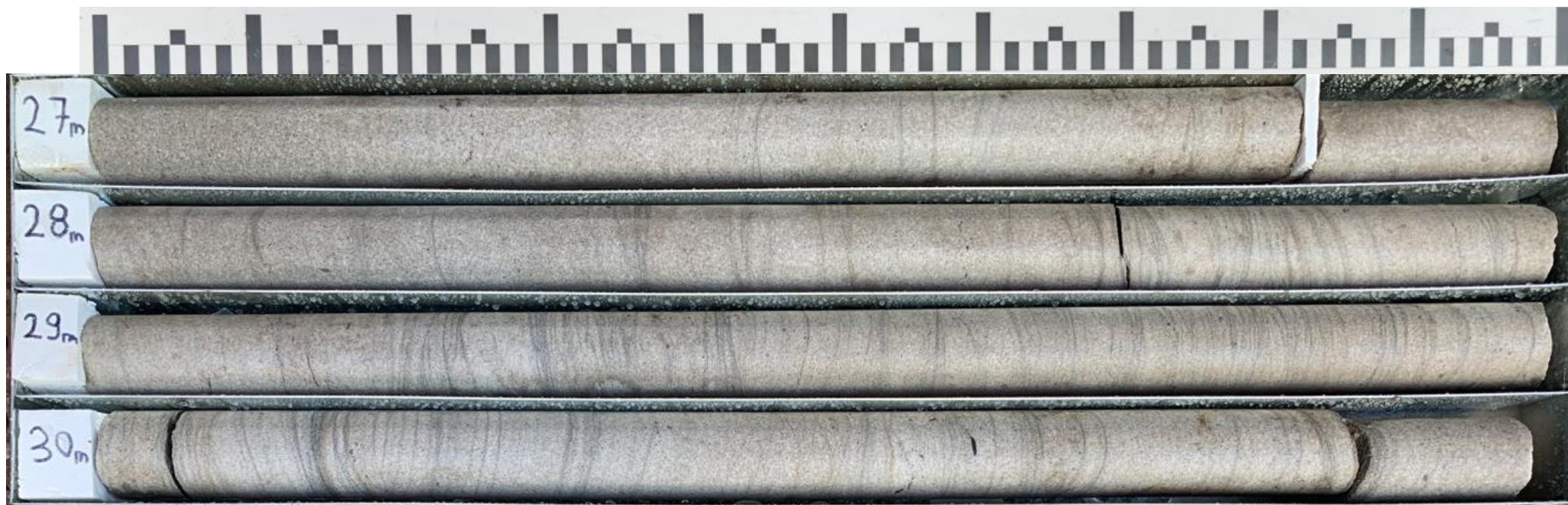
CORED LENGTH: **BOX 6 OF 7**
27– 31m (4 m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

LOGGED BY:
RKC

CHECKED BY:
TH





now



TITLE:

Borehole Core Photographs – BH03
3-5 Help St Chatswood

PROJECT NO:
301351072

TEST DATE:
21/11/2022

INCLINATION:
-90 degree

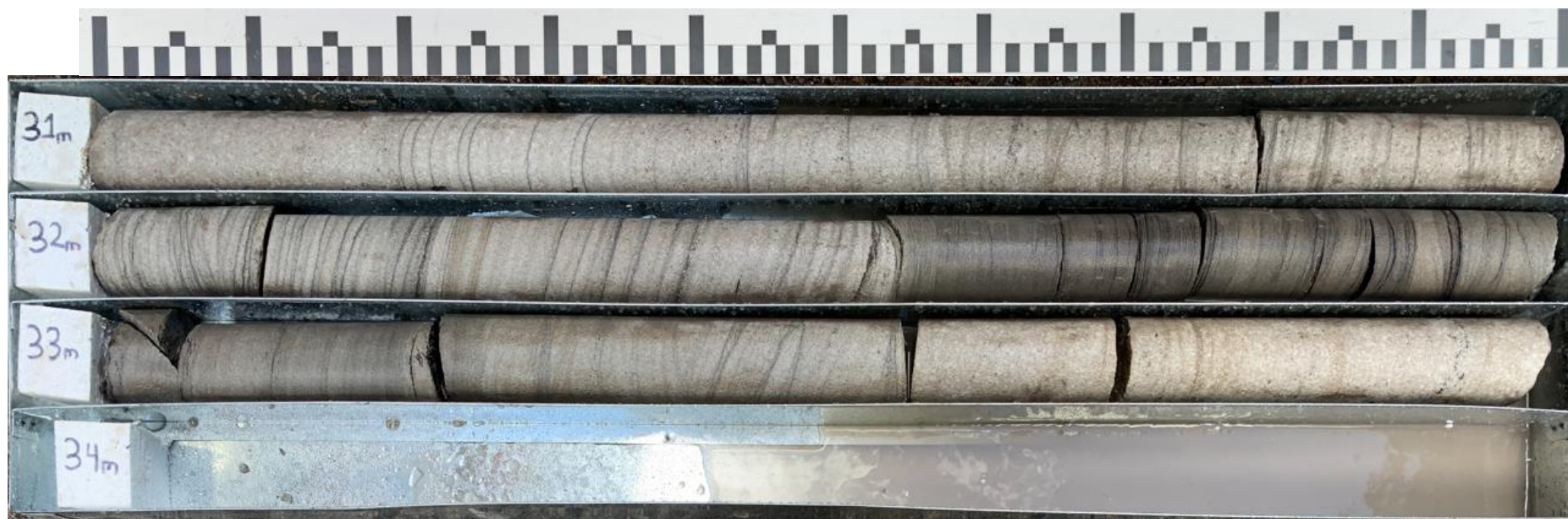
CORED LENGTH: **BOX 7 OF 7**
31– 33.96m (2.96m Length)

DRILL RIG:
TI3

CONTRACTOR:
Stratacore

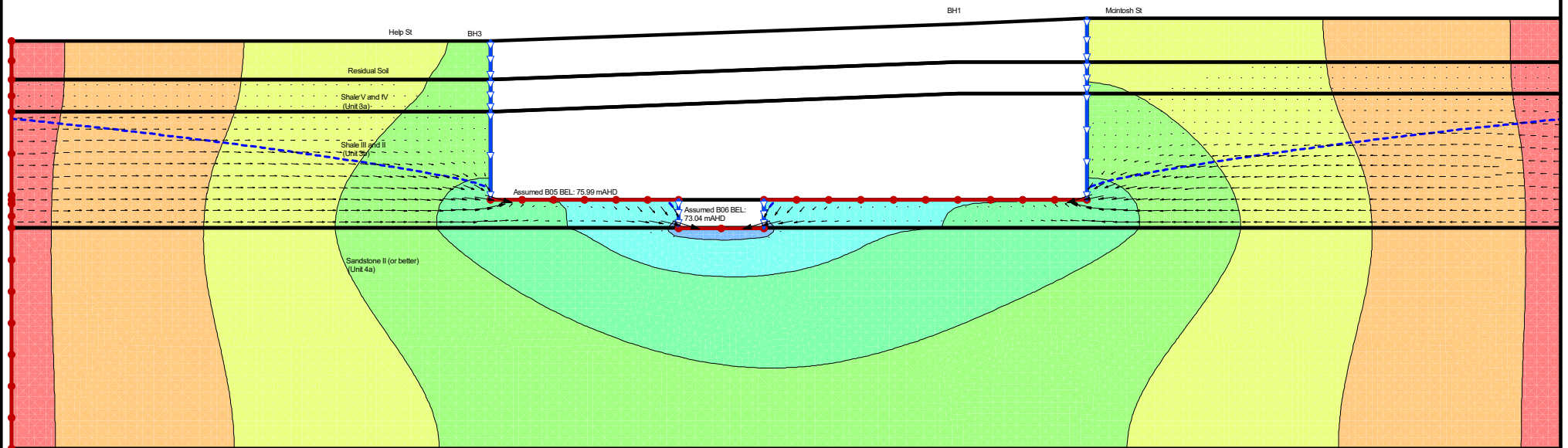
LOGGED BY:
RKC

CHECKED BY:
TH



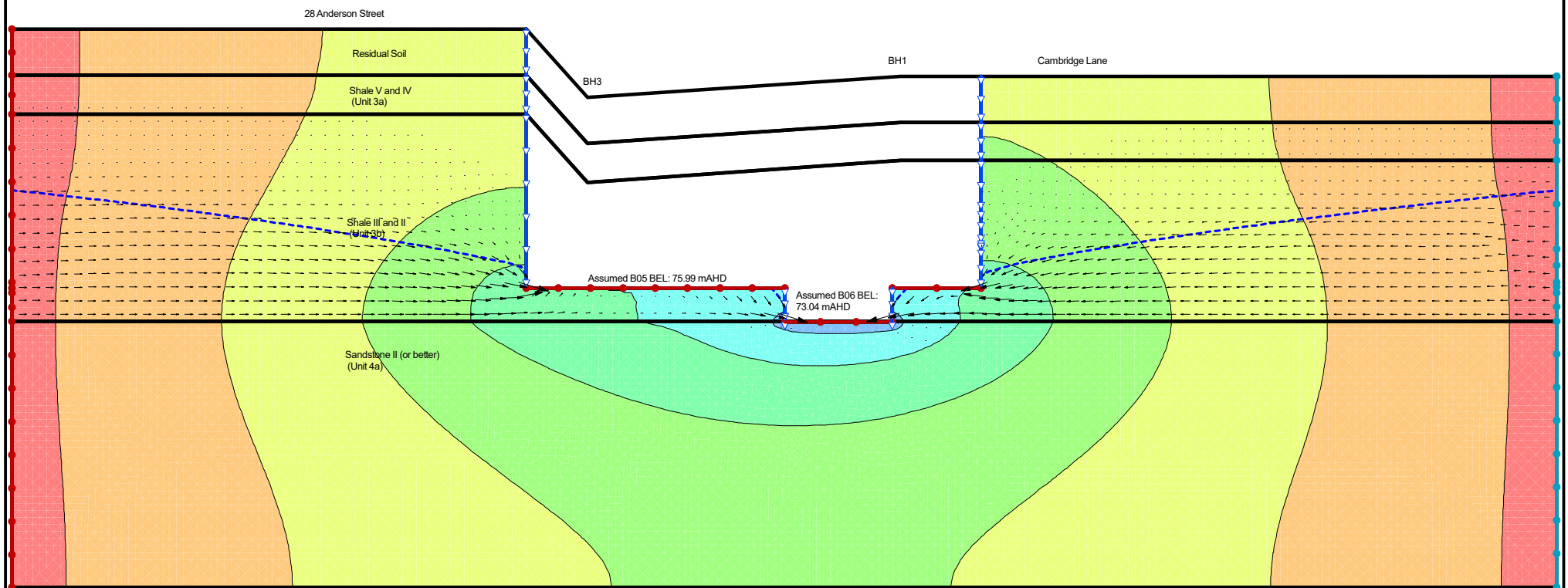
Appendix C – Seep/W Model

Section A



Drained Basement Long Term
Chatswood-Inflow Assessment.a.gsz
01/05/2026
1:610

Section B



Drained Basement Long Term

Chatswood-Inflow Assessment.b.gsz

18/05/2026

1:507.24154