
Specialist Advice

Report on Detailed Geotechnical Investigation

Eastlakes Town Centre

19A Evans Avenue, Eastlakes NSW

**Prepared for Builtcom Constructions Pty
Ltd**

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

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19A Evans Avenue, Eastlakes NSW

1. Introduction

This specialist advice report presents the results of a detailed geotechnical investigation undertaken for the Eastlakes Town Centre development at 19A Evans Avenue, Eastlakes NSW. The work was undertaken in accordance with Douglas Partners Pty Ltd (Douglas) proposal 236760.01.P.003.Rev0 dated 29 October 2025 and the Consultancy Agreement between Built Contracting Pty Ltd (Builtcom) and Douglas (Contract Reference No. 3016/DPPL0003).

It is understood that the proposed development will comprise the construction of a multi-storey mixed-use development with a three-level basement requiring excavations of about 11 to 13 m.

The aim of the detailed investigation was to assess the subsurface conditions across the site to inform the detailed planning and design of the proposed development. The investigation included the drilling of boreholes, cone penetration testing, installation of groundwater monitoring wells, in situ testing and laboratory testing of selected samples. The details of the field work are presented in this report, together with comments and recommendations relevant to the proposed development.

This report must be read in conjunction with all appendices including the notes provided in Appendix A.

2. Site Description and Geology

The site, located at 19 Evans Avenue Eastlakes, has a near-rectangular shape with an approximate area of 18,000 m². The site is bounded by Barber Avenue to the south and east, Evans Avenue to the north and Eastlakes Reserve to the west. The existing buildings on the site had been demolished at the time of this investigation.

The site is located on relatively flat terrain with surface levels across the site varying between about RL 18.5 m and RL 16.5 m, relative to Australian height datum (AHD). Ground levels are the lowest in the south-west and highest in the north-east.

Reference to the Sydney 1:100 000 Geological Series Sheet indicates that the site is underlain by coastal deposits (transgressive dunes) of the Quaternary period overlying Hawkesbury Sandstone at depth. The deposits are marine deposited and aeolian-reworked fine to coarse grained quartz or lithic sand with abundant carbonate, and sporadic humic debris in stabilised dunes. The regional geology has been confirmed by the geotechnical investigations on the site.

3. Previous Investigations

JK Geotechnics (JK) have previously undertaken geotechnical investigations on the site (ref: 25302Vrpt-EASTLAKES dated 14 November 2011 and 25302LTrpt dated 29 September 2020),

including three cone penetration tests (CPT103, CPT104 and CPT105) within the site to a maximum depth of 26.26 m, four cored boreholes (BH301 to BH304) to a maximum depth of 43.20 m and five shallow boreholes (BH106 to BH110). Four groundwater wells were installed in BH301 to BH304.

The approximate locations of the previous CPTs and cored boreholes are shown on Drawing 1 in Appendix B. Engineering logs and interpreted profiles for the previous boreholes and CPTs undertaken by JK Geotechnics on the site are included in Appendix D.

4. Current Field Work

4.1 Field Work Methods

The field work for the current detailed geotechnical investigation included the following:

- CPTs at 13 locations (CPT401 to CPT406, CPT408 to CPT412 and CPT414 to CPT415) to depths of between 22.3 m and 38.8 m on 19 to 21 November 2025. The CPTs were terminated due to cone refusal or excessive rod bowing. Notes describing the CPT method and the interpretation of CPT results are included in Appendix A.
- Drilling of 12 boreholes (BH401 to BH403, BH405 to BH411 and BH413 to BH414) adjacent to the current and previous CPTs using truck-mounted and track-mounted drilling rigs to depths of between 32.1 m and 44.9 m between 27 November 2025 and 8 December 2025. Drilling was undertaken using 110 mm diameter solid flight augers and wash boring techniques through the fill and soils. Once bedrock was suspected/encountered, the boreholes were extended into the rock using NMLC core drilling techniques.
- Installation of groundwater monitoring wells within three shallow boreholes (MW01 and MW03) drilled to 13.0 m depth on 26 September 2025 and 3 October 2025. The wells were screened in the sand between 6.0 m and 13.0 m depth.
- No soil testing or sampling was conducted in the cored boreholes or wells.
- Supervision of the CPTs, and drilling and logging of the boreholes by experienced geotechnical engineers.

This investigation was planned to provide sufficient coverage of the site, to supplement the previous investigations by JK for the detailed design. CPTs and cored boreholes were paired closely so the ground conditions at one location could be accurately interpreted from the CPT for soils and from the borehole for the rock. Results of the previous CPTs and cored boreholes by JK were included in this report. Therefore, some of the testing numbers were skipped. For example, there is no CPT407 next to BH407, as BH407 was located next to the previous CPT104 by JK.

Coordinates and surface levels for all boreholes and CPT locations were determined using a differential Global Positioning System (dGPS) receiver, which has an accuracy of 0.1 m. Coordinates are in GDA2020/MGA Zone 56 format (Geocentric Datum of Australia 2020 base with Map Grid of Australia projection) and levels are relative to Australian Height Datum (AHD). The test locations are shown on Drawing 1 in Appendix B.

4.2 Field Work Results

The subsurface conditions encountered at the boreholes are shown on the engineering logs in Appendix C, together with photographs of the rock core sampled at each borehole. Notes defining descriptive terms and classification methods used in the preparation of the logs are included in Appendix A.

The results of the CPTs are also included in Appendix C. For each CPT test, the inferred soil stratification based on the measured friction ratio and cone tip resistance are shown on each respective results sheet. As noted above, information on the interpretation of CPT results is given in the notes included in Appendix A.

It is noted that the soil descriptions on the borehole logs were derived entirely by correlation with adjacent CPT data.

The general subsurface profile encountered at the boreholes and test locations may be summarised as follows:

- **PAVEMENTS:** Asphaltic concrete (AC) to 0.1 m in MW1 and concrete slab to 0.1 m in MW2; where present, overlying,
- **FILL:** encountered within all boreholes and CPTs to depths of between 1.2 m to 4.2 m. The fill encountered in the boreholes and CPTs appeared to be in a variably compacted condition. It included medium to coarse sand with trace of fine to medium igneous and sandstone gravel. Some concrete gravel was observed in the fill exposed at or near the ground surface during the investigation. We understand that some materials near the ground surface were from materials sieved on the site following the demolition; overlying,
- **SANDY SOIL:** fine to medium grained sand encountered at all borehole and CPT locations to depths of between 13.0 m and 18.5 m. The sand was typically loose to medium dense to depths of between 1.5 m and 5.6 m, grading to dense to very dense sand, with occasional inclusions of medium dense, intermediate layers and thin layers of stiff to hard clay; overlying
- **INTERBEDDED SAND & CLAY:** alternating layers of clay and sand to depths of between 24.3 m and 36.3 m. The clay ranged between stiff and hard consistency and the sand was typically dense and very dense with some medium dense bands; overlying
- **CLAYEY SOIL:** encountered in CPT401, CPT408 (BH408), CPT411, CPT412, CPT414, CPT415 and CPT105. The clayey soil was typically sandy clay and clay to depths of between 24.3 m and 40.3 m. The clay was typically stiff to hard. Thin layers of sand were present within the clay at some locations; overlying
- **SANDSTONE BEDROCK:** typically medium and high strength, medium to coarse grained sandstone. Weathered and/or fractured sandstone with weak seams was encountered within the first few metres of this unit in BH403, BH405, BH406, BH408, BH410, BH411 and BH413. All boreholes were terminated within the sandstone bedrock.

Groundwater was intersected during auger drilling at some boreholes, measured in some of the CPT holes (after withdrawal of the rods) and measured within the groundwater monitoring wells

during the installation. The groundwater observations are summarised in Table 1. It appears the groundwater under the site flows towards the south.

Where free groundwater was not observed during auger drilling of the boreholes, or where hole collapse following CPT rod removal prevented groundwater measurements in the CPTs, the readings are not included in Table 1. It is noted that the use of water for wash boring below auger depths of the borehole prevented observation of groundwater.

Table 1: Groundwater Level Observations (Depth, m and [RL, m AHD])

Location	Ground Surface RL (m AHD)	Depth (m bgl)	RL (m AHD)	Measuring Date
MW01	16.5	2.0	14.5	26 September 2025
MW02	16.2	2.0	14.2	26 September 2025
CPT412	16.0	1.7	14.3	20 November 2025
CPT414	18.3	3.5	14.8	20 November 2025
BH401	16.8	3.5	13.3	3 December 2025
BH402	18.5	3.5	15.0	4 December 2025
BH407	18.0	3.5	14.5	28 November 2025

Notes: BGL = below ground level

5. Laboratory Testing

5.1 Rock

Two specimens of rock core from the boreholes were tested for their uniaxial compressive strength (UCS) together with the Young's Modulus and Poisson's Ratio in an NATA-accredited laboratory. The specimens were cut to a height / diameter ratio of 2.9:1, with compression applied uniaxially at a constant rate until failure of the rock specimen through the rock substance.

The results of the UCS tests, together with the Young's Modulus (secant: 0-50% of UCS) and Poisson's ratio results are presented in Appendix E and are summarised in Table 2.

Table 2: Summary of Laboratory Rock Testing Results

Sample ID	Material Description	UCS ⁽¹⁾ (MPa)	Nearest $IS_{(50)}$ ⁽²⁾ (MPa)	Young's Modulus (Secant: GPa)	Poisson's Ratio	Ratio $UCS:IS_{(50)}$ ^(1,2)
BH405, 29.54-29.79m	Sandstone, high strength	25	1.1	6.0	0.055	23
BH414, 37.51-37.71m	Sandstone, medium to high strength	17	1.1	2.0	0.098	15

Notes: (1) UCS: Uniaxial Compressive Strength.
 (2) $IS_{(50)}$: Axial Point Load Strength Index.

The results of point load strength index testing ($I_{s(50)}$), carried out at regular intervals on rock cores, are shown on the respective borehole logs at the relevant test depths. To obtain inferred UCS values from $I_{s(50)}$ test results, a conversion factor of 20 is typically suggested. Based on the test results presented in Table 2, the rock samples have a UCS: $I_{s(50)}$ ratio similar to the typical conversion factor commonly used. The $I_{s(50)}$ values for the rock typically ranged from 0.2 MPa to 2.4 MPa, indicating that the rock core samples tested are in the range of low strength to high strength (estimated UCS ranging from 4 MPa to 48 MPa).

6. Geotechnical Model

The results of this geotechnical investigation are generally consistent with the results of the previous investigations by JK Geotechnics in 2011 and 2020. Based on the current and previous investigation results the interpreted sequence of subsurface materials may be summarised as follows:

- **Unit 1 – Fill:** typically sand with some igneous and other gravels;
- **Unit 2a – Sandy soil:** Loose to medium dense sand;
- **Unit 2b – Sandy soil:** dense to very dense sand with some medium dense layers and occasional thin layers of silty sand and stiff to hard clay, typically less than 0.3 m thickness;
- **Unit 3 – Interbedded sand & clay:** alternating layers of stiff to hard clay and dense to very dense sand with some medium dense bands;
- **Unit 4 – Clayey soil:** Stiff to hard clays with some layers of sand; and
- **Unit 5 – Sandstone bedrock:** (Unit 5a) weathered and/or fractured sandstone with weak seams (Class IV Sandstone), grading to (Unit 5b) medium and high strength, slightly fractured sandstone (Class II Sandstone or better).

The rock classifications for Unit 5 refer to a system developed by Pells, Douglas et al (1978) which classifies rock on the basis of strength, fracturing and defects. Class V rock is typically very low strength and fractured whereas Class II rock is typically medium to high strength and slightly fractured. Lower classifications may, however, contain strong rock with significant defects, fracturing and/or weak seams.

Table 3A and Table 3B summarise the levels at which different materials were encountered in the boreholes and CPTs in both current and previous investigations. The encountered material levels were summarised using paired data from adjacent borehole and CPT, with the soil levels generally interpreted from CPT data and the rock levels interpreted from the cored boreholes.

Table 3A: Summary of Inferred Material Strata Levels

Stratum	RL (m, AHD) of Top of Stratum							
	BH401/ CPT401	BH402/ CPT402	BH403/ CPT403	BH302/ CPT404	BH405/ CPT405	BH406/ CPT406	BH407/ CPT104	BH408/ CPT408
Unit 1	16.8	18.5	18.6	18.6	18.5	18.6	NE	15.9
Unit 2a	NE	16.3	16.1	16.2	15.5	16.2	18.4	14.4

Stratum	RL (m, AHD) of Top of Stratum							
	BH401/ CPT401	BH402/ CPT402	BH403/ CPT403	BH302/ CPT404	BH405/ CPT405	BH406/ CPT406	BH407/ CPT104	BH408/ CPT408
Unit 2b	15.3	13.8	14.1	14.3	13.5	14.0	14.1	13.1
Unit 3	2.6	2.9	3.9	0.1	2.5	1.6	-0.3	-1.1
Unit 4	-6.2	NE	NE	NE	NE	NE	NE	-9.9
Unit 5a	NE	-5.8	NE	-6.6	-6.4	-6.2	NE	-21.7
Unit 5b	-7.7	-6.8	-6.1	-6.9	-7.3	-6.5	-7.0	-22.1

Notes: NE = not encountered

Table 3B: Summary of Inferred Material Strata Levels (continued)

Stratum	RL (m, AHD) of Top of Stratum							
	BH409/ CPT409	BH410/ CPT410	BH411/ CPT411	BH303/ CPT412	BH413/ CPT103	BH414/ CPT414	BH304/ CPT415	BH301/ CPT105
Unit 1	18.6	18.6	18.3	16.0	NE	18.3	17.6	16.3
Unit 2a	15.4	14.6	15.3	14.8	16.9	14.1	15.1	15.7
Unit 2b	13.0	13.3	13.8	13.5	13.0	13.3	13.6	13.4
Unit 3	0.1	5.1	5.3	2.0	2.5	2.3	3.6	2.1
Unit 4	NE	NE	-4.7	-10.0	NE	-8.9	-8.4	-4.8
Unit 5a	-9.4	-7.9	-6.6	-23.9	-19.3	-13.9	-11.9	-10.3
Unit 5b	-10.4	-9.4	-10.1	-24.7	-21.4	-18.6	-13.0	-12.2

Notes: NE = not encountered

A geotechnical model of the site is given in the Interpreted Geological Cross Sections A-A', B-B', C-C', D-D' and E-E' presented in Drawings 2 to 6, in Appendix B. It is noted that the interpreted geotechnical boundaries are shown for illustration purposes only and may vary substantially from the actual profile. The profile should be considered as accurate only at the borehole and test locations, and should be expected to vary away from the bore/test locations.

Groundwater was measured at depths of between 1.7 m to 3.5 m (RL 13.3 m to 15.0 m AHD) during current field work between September and December 2025. These groundwater measurements are consistent with Douglas' experience in the area and indicate a groundwater flow direction towards the south.

It is noted that groundwater levels will fluctuate with weather and climactic conditions, and may temporarily rise following periods of prolonged rainfall. Previous experience suggests that groundwater levels may rise by 1-2 m following prolonged, heavy rainfall in Botany area. Groundwater levels may also be impacted by human activities such as dewatering.

7. Proposed Development

It is understood that the proposed development will comprise the construction of a multi-storey mixed-use development with a three-level basement requiring excavations of about 11 m – 13 m, to achieve the proposed bulk excavation level at RL 5.4 m. Foundation piles are currently proposed to be socketed in sandstone bedrock.

8. Comments

8.1 Dilapidation Surveys

Dilapidation surveys should be carried out on adjacent buildings, pavements and sensitive services that may be affected by excavations, earthworks and piling. The dilapidation surveys should be undertaken before construction commences in order to document any existing defects, so that any claims for damage due to construction related activities can be accurately assessed. Further comments are provided in Section 8.12, Impacts on Infrastructure, about the possible impact assessments required by Sydney Water and Transport for NSW.

8.2 Excavation Conditions

Excavation across the site is anticipated to be down to 11 m – 13 m depth and is therefore likely to be through fill and sandy soils with occasional clay bands. Excavation of these materials should be readily achievable using conventional earthmoving equipment such as hydraulic excavators.

Excavations are expected to be up to 7-9 m below the groundwater table. For excavation below the groundwater table, temporary dewatering will be required to lower groundwater levels within the basement area. Refer to Section 8.7 Groundwater and Dewatering for more details. It should be noted that even when sands have been dewatered, the excavated material will have high water content due to the remaining interstitial water. It is possible that some of the sands will require pre-treatment such as spreading and drying and/or blending with drier materials to enable them to be readily removed using standard excavator attachments and loaded into dump trucks.

All excavated materials to be disposed off-site must be moved in accordance with the provisions of the current legislation and guidelines including the Waste Classification Guidelines (NSW EPA, 2014).

8.3 Trafficability and Working Platforms

Trafficability on the fill, sandy and clayey soils may be difficult for heavy plant, particularly below the present groundwater table where wet, 'boggy' conditions could be expected even after dewatering. A running layer of good quality granular rockfill material (e.g. DGB, DGS or crushed concrete) could be placed where heavy plant will operate (e.g. for dump trucks) to improve trafficability. The minimum thickness of the running layer will depend on the moisture content, consistency of the material and type/weight of plant, but typically a running layer with thickness of at least 200 mm would be required. The running layer could be incorporated into the design of working platforms to support heavy machinery, such as for piling plant and mobile cranes.

It will be necessary to construct a working platform at the ground surface, and at the bulk excavation level (BEL), for piling plant for the shoring wall and foundation piles as well as for mobile cranes. Typically, good quality crushed rock or crushed concrete could be used. Crushed (rock) material should preferably have maximum particle size less than 70 mm. Geotextiles and geogrids could be incorporated to reduce the required thickness of granular layers for working platforms. Consideration may be given to the incorporation of the working platform into the design of any on-ground slabs for the final basement structure (refer to Section 8.9 Basement Slab).

8.4 Ground Vibrations

During excavation, it will be necessary to use appropriate methods and equipment to keep ground vibration at adjacent buildings, structures and public infrastructure within acceptable limits. The level of acceptable vibration is dependent on various factors including the types of structure, its structural condition, the frequency range of vibration produced by the construction equipment, the natural frequency of the building and the vibration transmitting medium.

Ground vibration can be strongly perceptible to humans at levels above 2.5 mm / s component peak particle velocity (PPVi). This is generally much lower than the vibration levels required to cause structural damage to buildings. The Australian Standard AS2670.2-1990 "Evaluation of human exposure to whole-body vibrations – continuous and shock induced vibrations in buildings (1-80 Hz)" indicates an acceptable daytime limit of 8 mm / s component PPVi for human comfort.

Based on the experience of Douglas and reference to AS2670, it is suggested that a maximum component PPVi of 8 mm / sec (applicable at the foundation level of existing buildings) be provisionally employed at this site to reduce the risk of causing architectural damage to surrounding modern, well-constructed buildings. Separate specific advice should be sought on acceptable vibration levels for buildings and underground utilities nearby, as they may be more stringent.

As the magnitude of vibration transmission is site specific, it is recommended that a vibration trial be undertaken at the commencement of piling/shoring construction and prior to excavation. The trial may indicate that smaller or different types of piling and excavating plant should be used.

8.5 Excavation Support

8.5.1 Batter Slopes

Steep or vertical excavations in fill and soils are not expected to be stable for any period of time. Where space permits, temporary batters could be used to support excavations above the water table, such as for excavation of services trenches or other localised shallow excavations.

Maximum temporary batters of 1.5H:1V (Horizontal:Vertical) are suggested for excavations less than 3 m high in fill and sandy soil, above the water table, and where not subjected to surcharge loads. Where adjacent to existing structures supported on high level footings, an additional preliminary 'set-back' distance of at least 2 m (where the excavation is no deeper than 3 m) should be used in the absence of specific geotechnical advice. An assessment for stability using analytical techniques would be necessary for excavations deeper than 3 m and flatter batters would usually be appropriate. Permanent batters are not expected to be incorporated into the development.

Care should be taken where any loads are planned at the crest of batter slopes (e.g. scaffolding sole boards or machine outriggers). Groundwater inflow and levels can also affect batter stability. A slope stability analysis should be undertaken for batters subjected to surcharge loads on a case-by-case basis following inspection and testing by a geotechnical engineer.

Given the proximity of the basement footprint to site boundaries and the proposed depths of excavation, retaining/shoring walls will be required for the main bulk excavations of the proposed basement.

8.5.2 Retaining/Shoring Walls

The construction of the proposed three-level basements will require dewatering. Care will need to be taken during design and construction to ensure that a suitable structure and construction methodology is adopted.

To reduce the dewatering requirements for construction of the basement, and to limit drawdown outside the basement during internal dewatering, the shoring wall is usually required to act as a horizontal flow barrier which should be relatively impermeable, installed around the full perimeter of the excavation and socketed into a lower permeability cutoff layers such as Unit 4 clayey soils or Unit 5 bedrock beneath the site. Shoring walls installed above these cutoff layers but within intermittent clay layers such as Unit 3 interbedded sand and clay could also assist in reducing the groundwater inflow and drawdown to a limited extent. Groundwater modelling should be carried out to assess the groundwater inflow, drawdown levels and hydraulic failure risks (ie. piping, sand boiling and clay blow-in) based on proposed shoring design and the associated cutoff conditions.

The following retaining/shoring wall options could be considered for the construction of the basement:

- **Secant pile wall:** typically formed by drilling alternate 'soft' grout or concrete piles and then installing 'hard' reinforced concrete piles by cutting into the previously drilled soft piles. This overlap is aimed at ensuring that piles (and wall) are sealed and thus watertight, but even at relatively shallow depths, some misalignment can occur, and hence minor gaps sometimes appear in the wall. The potential for misalignment and therefore seepage and sand loss

through gaps in deep secant pile walls is very high. Drilling of deeper piles and particularly for piles into rock, if required, can result in decompression of the surrounding sands which can result in damage to adjacent buildings, infrastructure or utilities. The use of cased CFA piling techniques may be required to avoid issues associated with decompression near sensitive structures;

- **Diaphragm walls:** may be used as the permanent basement wall. These walls are associated with lower risk of groundwater ingress but are relatively slow to construct and consequently more expensive. Diaphragm walls are constructed using a large grab, which excavates the soil and rock in panels that are temporarily supported by bentonite fluid. Each panel is then cast using concrete tremmied into the bentonite supported excavation, with reinforcement cages installed prior to the concrete being tremmied. The joints between the panels are sealed with a 'waterstop' rubber seal so that a completely water-tight wall is achieved;
- **Deep soil mix (DSM) or cutter soil mix (CSM) wall:** DSM/CSM walls involve blending or mixing of grout with the site soils in situ to form cement-stabilised soil panels with universal column sections "plunged" into the "wet" panel at regular intervals along the wall to provide bending stiffness. However, experience with the DSM/CSM walls has indicated that the mixing consistency, and consequently the permeability and durability of the wall need to be carefully considered, particularly within clayey soils and rock. This option may not achieve an effective seal at the rock interface.
- **Sheet pile wall:** driven sheet piles could also be considered for temporary shoring. However, the installation process can cause significant vibrations, sheet misalignment can occur resulting in soil and groundwater ingress, and shallow refusal and damage to sheet piles might occur in dense to very dense sand. Predrilling may be required through dense sands but adds additional time and costs. Soils in the close proximity of the sheet pile wall alignment will be loosened during the pre-drilling, which could have implications for the lateral deflection performance of the wall.

Sheet piles are also more flexible and therefore usually associated with higher deflections. This can be further exacerbated if sheet damage / buckling / de-clutching occurs during installation, preventing the sheets to perform as a uniform element, significantly impacting its structural properties and leading to major leakage issues.

Sheet piles are generally not preferable for basement excavation deeper than 7 m and close to adjacent structures and public assets for the reasons described above. If a sheet pile wall is proposed, then an experienced piling contractor with demonstrated experience on similar sites (with similar significant retained heights, in sands with a high water table) should be engaged, who should propose a suitable methodology to mitigate these constraints.

The retaining/shoring systems will likely require the use of temporary 'tie-back' ground anchors and/or internal bracing/strutting to provide additional lateral support during construction. Permanent lateral support would normally be provided by floor slabs.

Any Sydney Water asset within the vicinity of temporary ground anchors or the basement should be considered as part of the Specialist Engineering Assessment (SEA) for review by Sydney Water. The Sydney Water Technical Guidelines "*Building over and Adjacent to Pipe Assets*" dated August 2021 provides further information on different cases of building over and adjacent (BOA)

works and on protecting Sydney Water assets from construction plant loadings. The Water Service Coordinator (WSC) should nominate the Sydney Water assets that should be analysed from a geotechnical perspective.

8.5.3 Design for Earth Pressure

Excavation faces retained either temporarily or permanently will be subjected to earth pressures from the ground surface down to the base of the excavation. Table 4 outlines material and strength parameters that could be used for the design of retaining walls/shoring systems.

Table 4: Material and Strength Parameters for Retaining Walls/Shoring

Material	Bulk Density (kN/m ³)	Coefficient of Earth Pressure (Ka)		Ultimate Passive Earth Pressure (K _p)
		Short Term	Long Term	
Unit 1: Fill	18	0.4	0.4	NA
Unit 2a: Loose to medium dense sand	19	0.35	0.35	NA
Unit 2b: Dense to very dense sand	20	0.25	0.25	K _p = 3.5
Unit 3: Interbedded sand and clay	20	0.25	0.3	K _p = 3.0
Unit 4: Stiff to hard clay	20	0.2	0.25	200 kPa
Unit 5a and Unit 5b: Sandstone Bedrock	22	-	-	2000 kPa

Notes: NA = Not Applicable

Retaining/shoring walls with (or without) a single row of ground anchors may be designed by assuming a triangular lateral earth pressure distribution (increasing linearly with depth). The earth pressure coefficient (Ka) values in Table 4 may be used where some wall movement is acceptable. The effects of drained or undrained cohesion for cohesive materials are inherently accounted for in the K values provided in Table 4 and therefore no separate calculation is required.

For braced walls or where two or more rows of anchors are used, the shoring can be designed using a rectangular or trapezoidal earth pressure distribution equal to 6H kPa. This 6H kPa peak pressure should generally be increased by 50% to reduce lateral (inward) wall deflections near sensitive, existing structures and services. The maximum pressure generally acts over the central 60% of the wall height, reducing to zero at the top and base of the retained soil.

Passive lateral resistance for piles embedded into soil below the bulk excavation level (BEL) may be based on the passive pressure coefficient, K_p or maximum passive pressure values, provided in Table 4. A triangular passive earth pressure distribution (increasing linearly with depth) could be assumed when adopting K_p method. Passive resistance should be considered from 0.5 m below BEL due to unconfined sand, disturbance, or accidental over-excavation.

Lateral pressures due to surcharge loads from adjacent structures, roads, sloping ground surfaces and construction machinery should be considered. For 'drained' analysis below the water table, hydrostatic pressure acting on the shoring walls should also be included in the design, while at the same time, allowing for a reduction in unit weight of the soils due to buoyancy.

Detailed design of shoring should preferably be carried out using PLAXIS, WALLAP, FLAC or other widely used computer analysis programs capable of modelling progressive excavation and anchoring and predicting potential lateral movements, stresses and bending moments.

8.6 Ground Anchors

Temporary ground anchors may be required to restrict wall movements during the construction phase, with permanent support of basement retaining walls normally provided by the final structure (i.e. by floor slabs and/or shear walls).

Ground anchors are typically inclined at about 20° to 30° below the horizontal, have a free length equal to or greater than 2 times the height of the anchor above the base of excavation or the height of the anchor above the toe of the shoring wall, whichever is longer, and have a minimum free length of 3 m. A minimum bond length of 3 m should also be used.

Design of temporary anchors within medium dense and dense/very dense sand may be based on a friction angle (ϕ') of 33° and 36°. The buoyant weight of the sand overburden must be considered where anchors extend below the groundwater table. Trial anchors should be used to determine if the value is appropriate and possibly if higher friction angles values are achievable and lift-off tests should be carried out to confirm the anchor capacities during construction. Post-grouted or pressure-grouted anchors could be considered to achieve higher capacities.

Ground movements during anchor installation and use in sand is common, and care should be taken if anchors are installed under existing buildings to minimise disturbance to the foundation materials. The anchors will need to be carefully positioned and possibly inclined at steeper angles to avoid footings for adjacent buildings or existing in-ground services. Sand anchors should be installed and tested only by experienced and reputable specialist anchoring contractors.

After installation, anchors should be proof stressed to a minimum 125% of their nominal working load and locked-off no higher than 80% of the working load. Periodic checks should also be carried out throughout the construction phase to ensure that the lock-off load is maintained and not lost due to creep or other causes.

Where vertical anchors are required (e.g. for crane tower pads, lift shafts, tanked basement slabs), anchor design should consider all potential failure mechanisms within the surrounding sand, including cone pull-out failure mechanisms.

If ground anchors extend into adjacent properties, then permission from the property owners for their installation will generally be required.

In normal circumstances, the building will restrain the basement excavation over the longer 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 on this site.

8.7 Groundwater and Dewatering

Based on Douglas' experience in the area, it is anticipated that groundwater levels can rapidly rise within the sands by up to about 2 m following periods of intense or prolonged rainfall, which would put the groundwater level above the existing ground level across some parts of the site. At this stage, a design groundwater level 2 m above the average measured levels at each location is suggested in the absence of long-term groundwater monitoring, and this level should be further assessed. The measured and potential groundwater levels are above the proposed basement level. Long-term monitoring of water levels using data loggers installed in monitoring wells should be undertaken to assess fluctuations to inform detailed design and planning.

During construction, the groundwater level should be temporarily and progressively lowered to at least 1 m below the BEL to allow machinery to operate and traverse the site. Dewatering would ordinarily be carried out in stages corresponding with excavation lifts, down to the proposed basement level.

It is likely that temporary dewatering could be carried out by pumping water from an array of spearpoint dewatering wells (i.e. wellpoints) around the perimeter of the excavation, installed within the shoring wall perimeter and connected to a main 'header' pipe. The volume of groundwater ingress for temporary dewatering purposes would need to be estimated following long-term groundwater monitoring and inflow analysis. Groundwater quality testing to assess the potential for groundwater disposal off-site to local stormwater or sewer services would also be required. Approval from Sydney Water and local Council is required for disposal of groundwater to their assets.

Review and approval of the temporary dewatering works by WaterNSW and/or the Department of Climate Change, Energy, the Environment and Water (DCCEEW) will be required as part of the planning process. A Water Supply Works Approval will be required, if the proposed development is not a State Significant Development. The site is located within the Botany Sands Groundwater Source District, therefore, temporary dewatering during construction is expected to be exempt from requiring a Water Access License (WAL). A Dewatering Management Plan (DMP) will be required to provide an inflow assessment, inspection and test plan for monitoring of groundwater levels and laboratory testing of groundwater for physical and chemical properties for disposal off-site during the temporary dewatering works.

The dewatering system design should consider the potential for 'drawdown' effects on adjacent properties, as significant lowering of the water table can lead to settlement and damage of nearby structures. Groundwater modelling will be required to assess the effectiveness of the proposed dewatering system and to predict drawdown curves beyond the basement and associated settlements on adjacent properties and infrastructure. Groundwater modelling is to be carried out once details of the shoring and dewatering systems are available.

The shoring design should also consider the potential risks of piping failure, sand boiling and blow-in failure. Piping failure and sand boiling occurs when excess hydrostatic pressure acting on the soils within the excavation becomes equal to the effective weight of the overlying soil. Blow-in occurs when upward water pressure lifts or heaves the soil mass into the excavation, which is critical when clayey soils are located shallow below the bulk excavation level.

Given the likely fluctuations in the groundwater levels and the relatively high permeability of the sands, it is recommended that the permanent basement substructure should be fully watertight

(i.e. 'tanked') to permanently exclude groundwater throughout the project life cycle. Tanked basements are also the preference of DCCEEW. A tanked basement must be designed to resist uplift forces due to the buoyancy of the basement structure below the groundwater table. Tension piles or permanent anchors can be used to provide resistance to uplift pressures if they cannot be offset by the weight of the building.

Consideration may also need to be given to the 'damming' effect resulting from the presence of the basement (below the groundwater table) on the regional groundwater table. For example, it may cause the water table to rise on one side of the basement and drop on the other side, depending on the groundwater flow direction.

8.8 Foundations

8.8.1 Shallow Footings

For lightly loaded structures such as garden bed retaining walls up to 1 m high, light or security camera poles and security bollards, shallow strip or pad footings bearing in (natural) loose or medium dense sand, below the uncontrolled fill, may be feasible.

The allowable base bearing pressure for shallow footings on sand is dependent on the size and embedment depth of the footing, the density of the foundation material and the depth to groundwater. For example, a 0.5 m by 0.5 m pad footing or a 0.5 m wide strip footing, embedded 0.5 m deep in loose or medium dense sand, with a water table at least twice the footing width below the base of the footing, may be designed for a maximum allowable bearing pressure of 100 kPa (loose sand) or 150 kPa (medium dense sand). Bearing pressures will reduce where the base of the footing approaches the water table depth. Very loose, vibration sensitive sand would generally be unsuitable for foundations.

The amount of settlement for shallow footings founded in sand depends upon the load conditions, footing size and foundation material. The expected settlements for pad footings 0.5 m by 0.5 m and 0.5 m deep founded in loose or medium dense sand with bearing pressures of 100 kPa and 150 kPa, respectively, would be 5 - 10 mm.

8.8.2 Piles

It is 'good engineering practice' to support all structures, particularly large, heavily loaded structures, on material with uniform properties to reduce the potential for differential settlement. Piled foundations in sandstone bedrock may be considered for the proposed development.

Continuous Flight Auger (CFA), concrete injected piles could be considered for this site, as could cast in-situ screwed concrete pile types such as Atlas or Omega piles. These types of piles are all associated with relatively low levels of noise and vibration. Screwed cast in-situ concrete piles generally leave a reinforced concrete screw shaped pile and involve lateral displacement of the soil during installation, more efficiently using the in-situ capacity of the soil. Driven piles may also be an option for some parts of this site with sufficient distance to adjacent structures, although specific consideration of the effects of vibration and noise at adjoining properties would be required ahead of adopting this pile type.

Open bored piles will not be appropriate due to the potential for soil collapse and bored piles drilled under bentonite would be required. Casing support would also be required for bored piles, at least down until the top of bedrock or the clay bearing stratum.

The recommended maximum pressures and elastic modulus values for the design of CFA and bored piles subject to axial compression loading, in various materials are presented in Table 5. For tension piles, shaft adhesion values for uplift (tension) may be taken as being equal to 70% of the shaft adhesion values for compression. In addition to traditional 'piston pull-out' or sidewall slip failure mechanisms, the uplift capacity should be checked for 'cone pull-out' failure modes. This should be based on AS4678 - 2002 "Earth-retaining Structures". Both compression and uplift capacities for groups of piles will need to consider interaction between piles, which will generally lead to a lesser capacity than the sum of the capacity of individual piles in the group.

Pile design on this site will be challenging due to the variability of the sand profile and in particular due to the presence of clay layers at varying depths. Piles founded in dense to very dense sand (Unit 2b) can provide support for substantial building loads, however, the strata below the proposed BEL comprises variable layers of sand and clay. The presence of clay bands and weaker layers within the zone of influence of the pile toes will reduce their effective end bearing capacity and also increase settlements. Generally, piles should be founded three to five pile diameters above underlying weaker layers. If pile groups are used, then the zone of influence is increased and therefore the depth to underlying weaker layers below the pile toe needs to be increased further. Therefore, piles to sandstone bedrock might be required and would be associated with lower risk.

Table 5: Recommended Design Parameters for Bored or CFA Piles (in compression)

Material	Maximum Allowable Pressure (Serviceability)		Maximum Ultimate Pressure (Ultimate)		Vertical Young's Modulus E_v (MPa)
	End Bearing (kPa)	Shaft Adhesion (Compression) (kPa)	End Bearing Pressure (kPa)	Shaft Adhesion (Compression) (kPa)	
Unit 2a - Sand (l-md)	Not suitable	Ignore	Not suitable	Ignore	10-60
Unit 2b - Sand (d-vd)	2,000 ⁽²⁾	40	5,000 ^(1,2)	100	120
Unit 4 - Clay (st-h)	Not suitable	Ignore	Not suitable	Ignore	20
Unit 5a - Sandstone (Weathered or fractured, Class IV)	1,000	75	3,000	150	200
Unit 5b - Sandstone (Class II or better)	6,000	600	40,000	1,000	1,500

Notes: l = loose, md = medium dense, d = dense, vd = very dense, st = stiff, vst = very stiff, h = hard

(1) Ultimate end bearing parameters mobilised at large settlements (i.e. >5% of the pile diameter).

(2) Lower bound bearing values are likely for bored piles below the water table in cohesionless soils due to the installation effects and the contribution of the base to the load capacity. The toe of the piles may also be founded on a clay band within the sand. The end bearing should be ignored in this case.

Piles in rock designed using the allowable parameters provided would be expected to experience settlements less than 1% of the pile diameter.

For limit state design, selection of the geotechnical strength reduction factor (ϕ_g) in accordance with Australian piling code AS 2159 – 2009 is based on a series of individual risk ratings (IRR), which are weighted on numerous factors and lead to an average risk rating (ARR). Therefore, it is recommended that an appropriate geotechnical strength reduction factor be calculated by the pile designer. Preliminary design could be based on a ϕ_g of 0.4 and refined as the design progresses. Pile testing would generally be required to adopt higher values of ϕ_g . Settlements may be calculated for assessment of the serviceability limiting state using the elastic modulus values given in Table 5.

Piling should be inspected by a geotechnical engineer to confirm that foundation conditions are suitable for the design parameters. It is noted that CFA piling involves a 'blind' drilling technique and therefore the piling contractor should certify the construction of CFA piles. For CFA piles, the drilling resistance and pile depths can be observed during construction and checked to see if the information correlates with adjacent borehole data, however, additional testing is generally required if this pile type is used. Also, geotechnical inspection of the founding of cased bored piles below the water table is sometimes difficult and imprecise.

8.8.3 Raft Slab

The basement slab level is expected to be underlain by dense and very dense sand with interbedded layers of stiff to hard clay, a stiff to hard clay unit and sandstone bedrock at greater depths. A raft slab foundation may be considered for the development, however, this will be subject to detailed review and analysis of bearing pressures and settlements once specific details of the column layout and slab loadings are known. Given the shallow and variable depth of clay layers beneath the proposed BEL across the site, it is expected that there will be relatively high predicted total and differential settlements for a raft slab and therefore it may not be well suited to this site.

Consideration may be given to the use of a piled raft slab foundation to reduce differential settlement, particularly for the core and heavily loaded columns. Detailed geotechnical analysis and possibly additional investigations will be required for the design and construction of both raft slabs and piled raft slabs.

The feasibility of raft or piled raft slabs will also depend on the structural settlement tolerances.

Preliminary slab design may be based on modulus of subgrade reaction, which is dependent on the size of the slab area subject to loading and the foundation material. Design parameters can be provided once the column details, loads and slab areas are known. Detailed design may require analysis using finite element computer programs to model the soil/structure interaction. Several iterations may be required.

8.9 Basement Slab-on-grade

Dense to very dense, natural sand is expected at the basement slab level. A minimum 150 mm thick layer of good quality crushed rock such as DGB20, DGS20 or high strength sandstone should be compacted over the sand to provide a uniform bearing layer and to confine and compact the underlying sand. This layer may be incorporated into the working platform for large piling rigs.

The preliminary design of the basement slab may be based on a CBR of 15%, however, the design CBR value should be confirmed with CBR tests of the material exposed at BEL.

For a tanked basement, the hydrostatic uplift pressure on the underside of the raft slab/hydraulic slab should be taken as 10 kPa per metre of head above the basement slab invert level. The design groundwater level will be assessed following longer term groundwater monitoring but could be taken as 2 m above current measured levels outlined in Table 1 for preliminary design purposes.

8.10 Earthworks, Subgrade Preparation and Pavements

For hardstand or car park areas, if any, at or near the existing ground surface beyond the proposed basement, the existing uncontrolled fill will require subgrade preparation to provide a uniform bearing layer and reduce the potential for differential settlement. As uncontrolled fill may remain below the engineered fill layer, this subgrade preparation will not eliminate the risk of differential settlement and may require more specific geotechnical assessment.

The following subgrade preparation is recommended in areas of slabs and pavements beyond the proposed basement:

- Remove fill to at least 0.6 m below the design subgrade level, or to the top of natural sand, whichever is shallower;
- Compact the exposed material, then test roll the exposed surface using at least six passes of a minimum 12-tonne roller (where accessible) in non-vibration mode. The final pass should be witnessed by an experienced geotechnical engineer to detect any weak zones;
- Any weak zones identified during test rolling should be rectified as directed by the geotechnical engineer;
- Replacement fill should be free of oversize particles (>100 mm) and deleterious material, and should be placed in loose layers of thickness not greater than 250 mm (dependent upon the size of compaction machinery) and compacted to a dry density ratio of at least 98% relative to Standard compaction, with moisture contents maintained within 2% of Standard optimum moisture content. Compaction should be increased to a dry density ratio of 100% relative to Standard compaction for the upper layer of the subgrade. If the replacement fill used is cohesionless sand, compact to a density index of 75%;
- Moisture conditioning (i.e. drying or wetting) may be required for compaction of fill; and
- All fill should be placed in accordance with AS 3798 – 2007 “Guidelines on earthworks for commercial and residential developments” with earthworks quality control testing undertaken to verify that the required compaction/moisture criteria are achieved.

Based on the predominantly sandy nature of the soils encountered on the site, a preliminary pavement design CBR value of 8% is considered suitable for preliminary design purposes for the sand. CBR values for placed fill will depend on the actual fill material used, which should be confirmed by a geotechnical engineer and laboratory testing during subgrade preparation.

From a geotechnical perspective, the predominantly sand fill is considered to be suitable for re-use as engineered fill, provided that it is free of oversize particles (>100 mm) and deleterious

material. The suitability of re-using site-won fill and natural soil should also be considered from a contamination perspective.

8.11 Seismic Design

Based on the sub-surface conditions encountered and in accordance with the requirements of AS1170.4-2024 Structural Design Actions Part 4 – Earthquake Actions in Australia, the site sub-soil is considered to correlate to Class C_e (shallow soil site). For Sydney, AS 1170.4 nominates a Hazard Factor (z) of 0.08.

8.12 Impacts on Infrastructure

It is understood that sewer main and water main run underground and adjacent the site boundaries. Sydney Water will require a Specialist Engineering Assessment (SEA) to be undertaken for these assets to assess the potential impact of the proposed development on the assets.

9. Limitations

Asbestos has not been detected by observation or by laboratory analysis, either on the surface of the site, or in fill materials at the test locations sampled and analysed. Building demolition materials, such as concrete, brick, tile [list as appropriate to the field work findings], were, however, observed in the fill and / or stockpiles [as appropriate] present on site, and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions or to budget constraints (as discussed above), or to parts of the site being inaccessible and not available for inspection/sampling [where appropriate], or to vegetation preventing visual inspection and reasonable access [where appropriate]. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present. Douglas Partners Pty Ltd (Douglas) has prepared this report for this project at 19A Evans Avenue, Eastlakes NSW in accordance with 236760.01.P.003.Rev0 dated 29 October 2025 and the existing Consultancy Agreement between Built Contracting Pty Ltd (Builtcom) and Douglas.

This report is provided for the exclusive use of Builtcom Constructions Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of Douglas, does so entirely at its own risk and without recourse to Douglas for any loss or damage. In preparing this report Douglas has necessarily relied upon information provided by the client.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable

geological processes and also as a result of human influences. Such changes may occur after Douglas' field testing has been completed.

Douglas' advice is based upon the conditions encountered during this and previous investigations. The accuracy of the advice provided by Douglas in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the geotechnical and groundwater components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

The scope of work for this investigation did not include the assessment of surface or sub-surface materials or groundwater for contaminants, within or adjacent to the site. Should evidence of fill of unknown origin be noted in the report, and in particular the presence of building demolition materials, it should be recognised that there may be some risk that such fill may contain contaminants and hazardous building materials.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. Douglas cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by Douglas. This is because this report has been written as advice and opinion rather than instructions for construction.

This report provides specialist advice only and no part of it is considered a Regulated Design under the Design and Building Practitioner Act 2020 (NSW).

Appendix A

About this Report

Terminology, Symbols and Abbreviations

Soil Descriptions

Rock Descriptions (optional)

Sampling, Testing and Excavation Methodology

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at

the time of construction as are indicated in the report; and

- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

continued next page

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

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Introduction to Terminology, Symbols and Abbreviations

Douglas Partners' reports, investigation logs, and other correspondence may use terminology which has quantitative or qualitative connotations. To remove ambiguity or uncertainty surrounding the use of such terms, the following sets of notes pages may be attached Douglas Partners' reports, depending on the work performed and conditions encountered:

- Soil Descriptions;
- Rock Descriptions; and
- Sampling, insitu testing, and drilling methodologies

In addition to these pages, the following notes generally apply to most documents.

Abbreviation Codes

Site conditions may also be presented in a number of different formats, such as investigation logs, field mapping, or as a written summary. In some of these formats textual or symbolic terminology may be presented using textual abbreviation codes or graphic symbols, and, where commonly used, these are listed alongside the terminology definition. For ease of identification in these note pages, textual codes are presented in these notes in the following style **XW**. Code usage conforms with the following guidelines:

- Textual codes are case insensitive, although herein they are generally presented in upper case; and
- Textual codes are contextual (i.e. the same or similar combinations of characters may be used in different contexts with different meanings (for example `PL` is used for plastic limit in the context of soil moisture condition, as well as in `PL(A)` for point load test result in the testing results column)).

Data Integrity Codes

Subsurface investigation data recorded by Douglas Partners is generally managed in a highly structured database environment, where records "span" between a top and bottom depth interval. Depth interval "gaps" between records are considered to introduce ambiguity, and, where appropriate, our practice guidelines may require contiguous data sets. Recording meaningful data is not always appropriate (for example assigning a "strength" to a concrete pavement) and the following codes may be used to maintain contiguity in such circumstances.

Term	Description	Abbreviation Code
Core loss	No core recovery	KL
Unknown	Information was not available to allow classification of the property. For example, when auguring in loose, saturated sand auger cuttings may not be returned.	UK
No data	Information required to allow classification of the property was not available. For example, if drilling is commenced from the base of a hole predrilled by others	ND
Not Applicable	Derivation of the properties not appropriate or beyond the scope of the investigation. For example, providing a description of the strength of a concrete pavement	NA

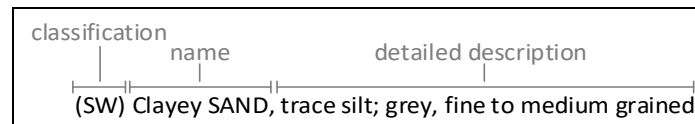
Graphic Symbols

Douglas Partners' logs contain a "graphic" column which provides a pictorial representation of the basic composition of the material. The symbols used are directly representing the material name stated in the adjacent "Description of Strata" column, and as such no specific graphic symbology legend has been provided in these notes.

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Introduction

All materials which are not considered to be “in-situ rock” are described in general accordance with the soil description model of AS 1726-2017 Part 6.1.3, and can be broken down into the following description structure:



The “classification” comprises a two character “group symbol” providing a general summary of dominant soil characteristics. The “name” summarises the particle sizes within the soil which most influence its behaviour. The detailed description presents more information about composition, condition, structure, and origin of the soil.

Classification, naming and description of soils require the relative proportion of particles of different sizes within the whole soil mixture to be considered.

Particle size designation and Behaviour Model

Solid particles within a soil are differentiated on the basis of size.

The engineering behaviour properties of a soil can subsequently be modelled to be either “fine grained” (also known as “cohesive” behaviour) or “coarse grained” (“non cohesive” behaviour), depending on the relative proportion of fine or coarse fractions in the soil mixture.

Particle Size Designation	Particle Size (mm)	Behaviour Model	
		Behaviour	Approximate Dry Mass
Boulder	>200	Excluded from particle behaviour model as “oversize”	
Cobble	63 - 200		
Gravel ¹	2.36 - 63	Coarse	>65%
Sand ¹	0.075 - 2.36		
Silt	0.002 - 0.075	Fine	>35%
Clay	<0.002		

¹ – refer grain size subdivision descriptions below

The behaviour model boundaries defined above are not precise, and the material behaviour should be assumed from the name given to the material (which considers the particle fraction which dominates the behaviour, refer “component proportions” below), rather than strict observance of the proportions of particle sizes. For example, if a material is named a “Sandy CLAY”, this is indicative that the material exhibits fine grained behaviour, even if the dry mass of coarse grained material may exceed 65%.

Component proportions

The relative proportion of the dry mass of each particle size fraction is assessed to be a “primary”, “secondary”, or “minor” component of the soil mixture, depending on its influence over the soil behaviour.

Component Proportion Designation	Definition ¹	Relative Proportion	
		In Fine Grained Soil	In Coarse Grained Soil
Primary	The component (particle size designation, refer above) which dominates the engineering behaviour of the soil	The clay/silt component with the greater proportion	The sand/gravel component with the greater proportion
Secondary	Any component which is not the primary, but is significant to the engineering properties of the soil	Any component with greater than 30% proportion	Any granular component with greater than 30%; or Any fine component with greater than 12%
Minor ²	Present in the soil, but not significant to its engineering properties	All other components	All other components

¹ As defined in AS1726-2017 6.1.4.4

² In the detailed material description, minor components are split into two further sub-categories. Refer “identification of minor components” below.

Composite Materials

In certain situations, a lithology description may describe more than one material, for example, collectively describing a layer of interbedded sand and clay. In such a scenario, the two materials would be described independently, with the names preceded or followed by a statement describing the arrangement by which the materials co-exist. For example, “INTERBEDDED Silty CLAY AND SAND”.

Classification

The soil classification comprises a two character group symbol. The first character identifies the primary component. The second character identifies either the grading or presence of fines in a coarse grained soil, or the plasticity in a fine grained soil. Refer AS1726-2017 6.1.6 for further clarification.

Soil Name

For most soils, the name is derived with the primary component included as the noun (in upper case), preceded by any secondary components stated in an adjective form. In this way, the soil name also describes the general composition and indicates the dominant behaviour of the material.

Component ¹	Prominence in Soil Name
Primary	Noun (eg "CLAY")
Secondary	Adjective modifier (eg "Sandy")
Minor	No influence

¹ – for determination of component proportions, refer component proportions on previous page

For materials which cannot be disaggregated, or which are not comprised of rock or mineral fragments, the names "ORGANIC MATTER" or "ARTIFICIAL MATERIAL" may be used, in accordance with AS1726-2017 Table 14.

Commercial or colloquial names are not used for the soil name where a component derived name is possible (for example "Gravelly SAND" rather than "CRACKER DUST").

Materials of "fill" or "topsoil" origin are generally assigned a name derived from the primary/secondary component (where appropriate). In log descriptions this is preceded by uppercase "FILL" or "TOPSOIL". Origin uncertainty is indicated in the description by the characters (?), with the degree of uncertainty described (using the terms "probably" or "possibly" in the origin column, or at the end of the description).

Identification of minor components

Minor components are identified in the soil description immediately following the soil name. The minor component fraction is usually preceded with a term indicating the relative proportion of the component.

Minor Component Proportion Term	Relative Proportion	
	In Fine Grained Soil	In Coarse Grained Soil
With	All fractions: 15-30%	Clay/silt: 5-12% sand/gravel: 15-30%
Trace	All fractions: 0-15%	Clay/silt: 0-5% sand/gravel: 0-15%

The terms "with" and "trace" generally apply only to gravel or fine particle fractions. Where cobbles/boulders are encountered in minor proportions (generally less than about 12%) the term "occasional" may be used. This term describes the sporadic distribution of the material within the confines of the investigation excavation only, and there may be considerable variation in proportion over a wider area which is difficult to factually characterise due to the relative size of the particles and the investigation methods.

Soil Composition

Plasticity

Descriptive Term	Laboratory liquid limit range	
	Silt	Clay
Non-plastic materials	Not applicable	Not applicable
Low plasticity	≤50	≤35
Medium plasticity	Not applicable	>35 and ≤50
High plasticity	>50	>50

Note, Plasticity descriptions generally describe the plasticity behaviour of the whole of the fine grained soil, not individual fine grained fractions.

Grain Size

Type	Particle size (mm)	
	Coarse	Fine
Gravel	19 - 63	6.7 - 19
	Medium	2.36 - 6.7
	Fine	0.6 - 2.36
Sand	0.21 - 0.6	0.075 - 0.21

Grading

Grading Term	Particle size (mm)
Well	A good representation of all particle sizes
Poorly	An excess or deficiency of particular sizes within the specified range
Uniformly	Essentially of one size
Gap	A deficiency of a particular size or size range within the total range

Note, AS1726-2017 provides terminology for additional attributes not listed here.

Soil Condition

Moisture

The moisture condition of soils is assessed relative to the plastic limit for fine grained soils, while for coarse grained soils it is assessed based on the appearance and feel of the material. The moisture condition of a material is considered to be independent of stratigraphy (although commonly these are related), and this data is presented in its own column on logs.

Applicability	Term	Tactile Assessment	Abbreviation code
Fine	Dry of plastic limit	Hard and friable or powdery	w<PL
	Near plastic limit	Can be moulded	w=PL
	Wet of plastic limit	Water residue remains on hands when handling	w>PL
	Near liquid limit	"oozes" when agitated	w=LL
	Wet of liquid limit	"oozes"	w>LL
Coarse	Dry	Non-cohesive and free running	D
	Moist	Feels cool, darkened in colour, particles may stick together	M
	Wet	Feels cool, darkened in colour, particles may stick together, free water forms when handling	W

The abbreviation code **NDF**, meaning "not-assessable due to drilling fluid use" may also be used.

Note, observations relating to free ground water or drilling fluids are provided independent of soil moisture condition.

Consistency/Density/Compaction/Cementation/Extremely Weathered Material

These concepts give an indication of how the material may respond to applied forces (when considered in conjunction with other attributes of the soil). This behaviour can vary independent of the composition of the material, and on logs these are described in an independent column and are generally mutually exclusive (i.e it is inappropriate to describe both consistency and compaction at the same time). The method by which the behaviour is described depends on the behaviour model and other characteristics of the soil as follows:

- In fine grained soils, the "consistency" describes the ease with which the soil can be remoulded, and is generally correlated against the materials undrained shear strength;
- In granular materials, the relative density describes how tightly packed the particles are, and is generally correlated against the density index;
- In anthropogenically modified materials, the compaction of the material is described qualitatively;
- In cemented soils (both natural and anthropogenic), the cemented "strength" is described qualitatively, relative to the difficulty with which the material is disaggregated; and
- In soils of extremely weathered material origin, the engineering behaviour may be governed by relic rock features, and expected behaviour needs to be assessed based the overall material description.

Quantitative engineering performance of these materials may be determined by laboratory testing or estimated by correlated field tests (for example penetration or shear vane testing). In some cases, performance may be assessed by tactile or other subjective methods, in which case investigation logs will show the estimated value enclosed in round brackets, for example (VS).

Consistency (fine grained soils)

Consistency Term	Tactile Assessment	Undrained Shear Strength (kPa)	Abbreviation Code
Very soft	Extrudes between fingers when squeezed	<12	VS
Soft	Mouldable with light finger pressure	>12 - ≤25	S
Firm	Mouldable with strong finger pressure	>25 - ≤50	F
Stiff	Cannot be moulded by fingers	>50 - ≤100	St
Very stiff	Indented by thumbnail	>100 - ≤200	VSt
Hard	Indented by thumbnail with difficulty	>200	H
Friable	Easily crumbled or broken into small pieces by hand	-	Fr

Relative Density (coarse grained soils)

Relative Density Term	Density Index	Abbreviation Code
Very loose	<15	VL
Loose	>15 - ≤35	L
Medium dense	>35 - ≤65	MD
Dense	>65 - ≤85	D
Very dense	>85	VD

Note, tactile assessment of relative density is difficult, and generally requires penetration testing, hence a tactile assessment guide is not provided.

Soil Descriptions

Terminology
Symbols
Abbreviations

Compaction (anthropogenically modified soil)

Compaction Term	Abbreviation Code
Well compacted	WC
Poorly compacted	PC
Moderately compacted	MC
Variably compacted	VC

Cementation (natural and anthropogenic)

Cementation Term	Abbreviation Code
Moderately cemented	MOD
Weakly cemented	WEK

Extremely Weathered Material

AS1726-2017 considers weathered material to be soil if the unconfined compressive strength is less than 0.6 MPa (i.e. less than very low strength rock). These materials may be identified as “extremely weathered material” in reports and by the abbreviation code **XWM** on log sheets. This identification is not correlated to any specific qualitative or quantitative behaviour, and the engineering properties of this material must therefore be assessed according to engineering principles with reference to any relic rock structure, fabric, or texture described in the description.

Soil Origin

Term	Description	Abbreviation Code
Residual	Derived from in-situ weathering of the underlying rock	RS
Extremely weathered material	Formed from in-situ weathering of geological formations. Has strength of less than ‘very low’ as per as1726 but retains the structure or fabric of the parent rock.	XWM
Alluvial	Deposited by streams and rivers	ALV
Estuarine	Deposited in coastal estuaries	EST
Marine	Deposited in a marine environment	MAR
Lacustrine	Deposited in freshwater lakes	LAC
Aeolian	Carried and deposited by wind	AEO
Colluvial	Soil and rock debris transported down slopes by gravity	COL
Slopewash	Thin layers of soil and rock debris gradually and slowly deposited by gravity and possibly water	SW
Topsoil	Mantle of surface soil, often with high levels of organic material	TOP
Fill	Any material which has been moved by man	FILL
Littoral	Deposited on the lake or seashore	LIT
Unidentifiable	Not able to be identified	UID

Cobbles and Boulders

The presence of particles considered to be “oversize” may be described using one of the following strategies:

- Oversize encountered in a minor proportion (when considered relative to the wider area) are noted in the soil description; or
- Where a significant proportion of oversize is encountered, the cobbles/boulders are described independent of the soil description, in a similar manner to composite soils (described above) but qualified with “MIXTURE OF”.

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Rock Strength

Rock strength is defined by the unconfined compressive strength, and it refers to the strength of the rock substance and not the strength of the overall rock mass, which may be considerably weaker due to defects.

The Point Load Strength Index $I_{s(50)}$ is commonly used to provide an estimate of the rock strength and site specific correlations should be developed to allow UCS values to be determined. The point load strength test procedure is described by Australian Standard AS4133.4.1-2007. The terms used to describe rock strength are as follows:

Strength Term	Unconfined Compressive Strength (MPa)	Point Load Index ¹ $I_{s(50)}$ MPa	Abbreviation Code
Very low	0.6 - 2	0.03 - 0.1	VL
Low	2 - 6	0.1 - 0.3	L
Medium	6 - 20	0.3 - 1.0	M
High	20 - 60	1 - 3	H
Very high	60 - 200	3 - 10	VH
Extremely high	>200	>10	EH

¹ Rock strength classification is based on UCS. The UCS to $I_{s(50)}$ ratio varies significantly for different rock types and specific ratios may be required for each site. The point load Index ranges shown above are as suggested in AS1726 and should not be relied upon without supporting evidence.

The following abbreviation codes are used for soil layers or seams of material “within rock” but for which the equivalent UCS strength is less than 0.6 MPa.

Scenario	Abbreviation Code
The material encountered has an equivalent UCS strength of less than 0.6 MPa, and therefore is considered to be soil (as per Note 1 of Table 20 of AS 1726-2017). The properties of the material encountered over this interval are described in the “Description of Strata” and soil properties columns.	SOIL
The material encountered has an equivalent UCS strength of less than 0.6 MPa, and therefore is considered to be soil (as per Note 1 of Table 20 of AS 1726-2017). The prominence of the material is such that it can be considered to be a seam (as defined in Table 22 of AS1726-2017) and the properties of the material are described in the defect column.	SEAM

Degree of Weathering

The degree of weathering of rock is classified as follows:

Weathering Term	Description	Abbreviation Code
Residual Soil ¹	Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are no longer visible, but the soil has not been significantly transported.	RS
Extremely weathered ¹	Material is weathered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible	XW
Highly weathered	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is significantly changed by weathering. Some primary minerals have weathered to clay minerals. Porosity may be increased by leaching or may be decreased due to deposition of weathering products in pores.	HW
Moderately weathered	The whole of the rock material is discoloured, usually by iron staining or bleaching to the extent that the colour of the original rock is not recognisable but shows little or no change of strength from fresh rock.	MW
Slightly weathered	Rock is partially discoloured with staining or bleaching along joints but shows little or no change of strength from fresh rock.	SW
Fresh	No signs of decomposition or staining.	FR
Note: If HW and MW cannot be differentiated use DW (see below)		
Distinctly weathered	Rock strength usually changed by weathering. The rock may be highly discoloured, usually by iron staining. Porosity may be increased by leaching or may be decreased due to deposition of weathered products in pores.	DW

¹ The parent rock type, of which the residual/extremely weathered material is a derivative, will be stated in the description (where discernible).

Degree of Alteration

The degree of alteration of the rock material (physical or chemical changes caused by hot gasses or liquids at depth) is classified as follows:

Term	Description	Abbreviation Code
Extremely altered	Material is altered to such an extent that it has soil properties. Mass structure and material texture and fabric of original rock are still visible.	XA
Highly altered	The whole of the rock material is discoloured, usually by staining or bleaching to the extent that the colour of the original rock is not recognisable. Rock strength is changed by alteration. Some primary minerals are altered to clay minerals. Porosity may be increased by leaching or may be decreased due to precipitation of secondary materials in pores.	HA
Moderately altered	The whole of the rock material is discoloured, usually by staining or bleaching to the extent that the colour of the original rock is not recognisable but shows little or no change of strength from fresh rock.	MA
Slightly altered	Rock is slightly discoloured but shows little or no change of strength from fresh rock	SA
Note: If HA and MA cannot be differentiated use DA (see below)		
Distinctly altered	Rock strength usually changed by alteration. The rock may be highly discoloured, usually by staining or bleaching. Porosity may be increased by leaching or may be decreased due to precipitation of secondary minerals in pores.	DA

Degree of Fracturing

The following descriptive classification apply to the spacing of natural occurring fractures in the rock mass. It includes bedding plane partings, joints and other defects, but excludes drilling breaks. These terms are generally not required on investigation logs where fracture spacing is presented as a histogram, and where used are presented in an unabbreviated format.

Term	Description
Fragmented	Fragments of <20 mm
Highly Fractured	Core lengths of 20-40 mm with occasional fragments
Fractured	Core lengths of 30-100 mm with occasional shorter and longer sections
Slightly Fractured	Core lengths of 300 mm or longer with occasional sections of 100-300 mm
Unbroken	Core contains very few fractures

Rock Quality Designation

The quality of the cored rock can be measured using the Rock Quality Designation (RQD) index, defined as:

$$RQD \% = \frac{\text{cumulative length of 'sound' core sections} > 100 \text{ mm long}}{\text{total drilled length of section being assessed}}$$

where 'sound' rock is assessed to be rock of low strength or stronger. The RQD applies only to natural fractures. If the core is broken by drilling or handling (i.e., drilling breaks) then the broken pieces are fitted back together and are not included in the calculation of RQD.

Stratification Spacing

These terms may be used to describe the spacing of bedding partings in sedimentary rocks. Where used, these terms are generally presented in an unabbreviated format

Term	Separation of Stratification Planes
Thinly laminated	< 6 mm
Laminated	6 mm to 20 mm
Very thinly bedded	20 mm to 60 mm
Thinly bedded	60 mm to 0.2 m
Medium bedded	0.2 m to 0.6 m
Thickly bedded	0.6 m to 2 m
Very thickly bedded	> 2 m

Rock Descriptions

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Defect Descriptions

Defect Type

Term	Abbreviation Code
Bedding plane	B
Infilled seam	IS
Cleavage	CV
Crushed zone	CZ
Decomposed seam	DS
Fault	F
Joint	JT
Lamination	LAM
Parting	P
Shear zone	SZ
Vein	VN
Drilling/handling break	DB , HB
Fracture	FC

Rock Defect Orientation

Term	Abbreviation Code
Horizontal	H
Vertical	V
Sub-horizontal	SH
Sub-vertical	SV

Rock Defect Coating

Term	Abbreviation Code
Clean	CN
Coating	CT
Healed	HE
Infilled	INF
Stained	SN
Tight	TI
Veneer	VNR

Rock Defect Infill

Term	Abbreviation Code
Calcite	CA
Carbonaceous	CBS
Clay	CLAY
Iron oxide	FE
Manganese	MN

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Rock Defect Shape/Planarity

Term	Abbreviation Code
Curved	CU
Irregular	IR
Planar	PR
Stepped	ST
Undulating	UN

Rock Defect Roughness

Term	Abbreviation Code
Polished	PO
Rough	RF
Slickensided	SL
Smooth	SM
Very rough	VR

Defect Orientation

The inclination of defects is always measured from the perpendicular to the core axis.

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Sampling and Testing

A record of samples retained, and field testing performed is usually shown on a Douglas Partners' log with samples appearing to the left of a depth scale, and selected field and laboratory testing (including results, where relevant) appearing to the right of the scale, as illustrated below:

SAMPLE			DEPTH (m)	TESTING	
SAMPLE REMARKS	TYPE	INTERVAL		TEST TYPE	RESULTS AND REMARKS
	SPT		1.0 1.45	SPT	4,9,11 N=20

Sampling

The type or intended purpose for which a sample was taken is indicated by the following abbreviation codes.

Sample Type	Code
Auger sample	A
Bulk sample	B
Core sample	C
Disturbed sample	D
Sample from SPT test	SPT
Environmental sample	ES
Gas sample	G
Undisturbed tube sample	U ¹
Water sample	W
Piston sample	P
Core sample for unconfined compressive strength testing	UCS
Material Sample	MT

¹ – numeric suffixes indicate tube diameter/width in mm

The above codes only indicate that a sample was retained, and not that testing was scheduled or performed.

Field and Laboratory Testing

A record that field and laboratory testing was performed is indicated by the following abbreviation codes.

Test Type	Code
Pocket penetrometer (kPa)	PP
Photo ionisation detector (ppm)	PID
Standard Penetration Test x/y = x blows for y mm penetration HB = hammer bouncing HW = fell under weight of hammer	SPT
Shear vane (kPa)	V
Unconfined compressive strength, (MPa)	UCS

Field and laboratory testing (continued)

Test Type	Code
Point load test, (MPa), axial (A), diametric (D), irregular (I)	PLT(L)
Dynamic cone penetrometer, followed by blow count penetration increment in mm (cone tip, generally in accordance with AS1289.6.3.2)	DCP/150
Perth sand penetrometer, followed by blow count penetration increment in mm (flat tip, generally in accordance with AS1289.6.3.3)	PSP/150

Groundwater Observations

▷	seepage/inflow
▽	standing or observed water level
NFGWO	no free groundwater observed
OBS	observations obscured by drilling fluids

Drilling or Excavation Methods/Tools

The drilling/excavation methods used to perform the investigation may be shown either in a dedicated column down the left-hand edge of the log, or stated in the log footer. In some circumstances abbreviation codes may be used.

Method	Abbreviation Code
Toothed bucket	TB ¹
Mud/blade bucket	MB ¹
Ripping tyne/ripper	R
Rock breaker/hydraulic hammer	RB
Hand auger	HA ¹
NMLC series coring	NMLC
HMLC series coring	HMLC
NQ coring	NQ3
HQ coring	HQ3
PQ coring	PQ3
Push tube	PT ¹
Rock roller	RR ¹
Solid flight auger. Suffixes: /T = tungsten carbide tip, /V = v-shaped tip	AD ¹
Sonic drilling	SON ¹
Vibrocure	VC ¹
Wash bore (unspecified bit type)	WB ¹
Existing exposure	X
Hand tools (unspecified)	HAND
Predrilled	PD
Diatube	DT ¹
Hollow flight auger	HSA ¹
Vacuum excavation	VE

¹ – numeric suffixes indicate tool diameter/width in mm

Introduction

The Cone Penetration Test (CPT) is a sophisticated soil profiling test carried out in-situ. A special cone shaped probe is used which is connected to a digital data acquisition system. The cone and adjoining sleeve section contain a series of strain gauges and other transducers which continuously monitor and record various soil parameters as the cone penetrates the soils.

The soil parameters measured depend on the type of cone being used, however they always include the following basic measurements

- Cone tip resistance q_c
- Sleeve friction f_s
- Inclination (from vertical) i
- Depth below ground z

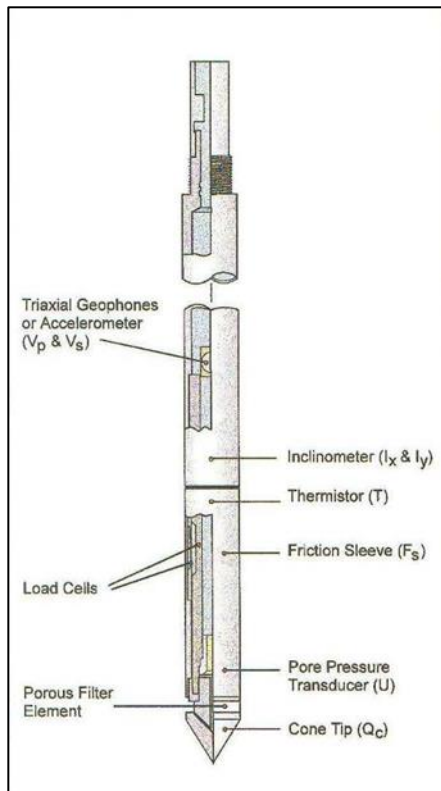


Figure 1: Cone Diagram

The inclinometer in the cone enables the verticality of the test to be confirmed and, if required, the vertical depth can be corrected.

The cone is thrust into the ground at a steady rate of about 20 mm/sec, usually using the hydraulic rams of a purpose built CPT rig, or a drilling rig. The testing is carried out in accordance with the Australian Standard AS1289 Test 6.5.1.



Figure 2: Purpose built CPT rig

The CPT can penetrate most soil types and is particularly suited to alluvial soils, being able to detect fine layering and strength variations. With sufficient thrust the cone can often penetrate a short distance into weathered rock. The cone will usually reach refusal in coarse filling, medium to coarse gravel and on very low strength or better rock. Tests have been successfully completed to more than 60 m.

Types of CPTs

Douglas Partners (and its subsidiary GroundTest) owns and operates the following types of CPT cones:

Type	Measures
Standard	Basic parameters (q_c , f_s , i & z)
Piezocone	Dynamic pore pressure (u) plus basic parameters. Dissipation tests estimate consolidation parameters
Conductivity	Bulk soil electrical conductivity ($\square$) plus basic parameters
Seismic	Shear wave velocity (V_s), compression wave velocity (V_p), plus basic parameters

Strata Interpretation

The CPT parameters can be used to infer the Soil Behaviour Type (SBT), based on normalised values of cone resistance (Q_t) and friction ratio (Fr). These are used in conjunction with soil classification charts, such as the one below (after Robertson 1990)

Cone Penetration testing

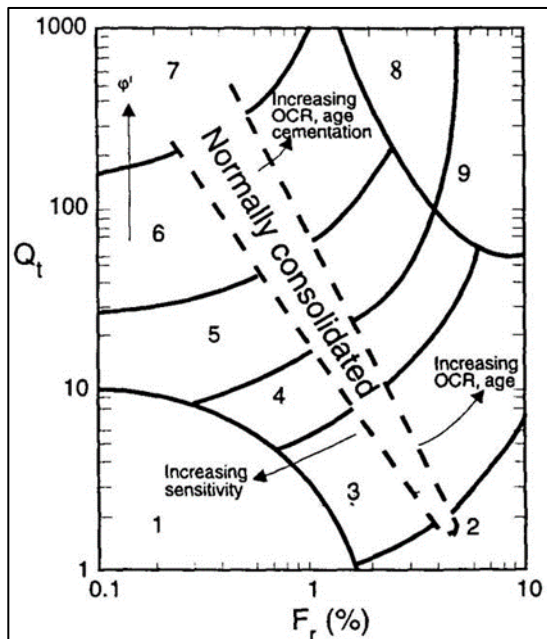


Figure 3: Soil Classification Chart

DP's in-house CPT software provides computer aided interpretation of soil strata, generating soil descriptions and strengths for each layer. The software can also produce plots of estimated soil parameters, including modulus, friction angle, relative density, shear strength and over consolidation ratio.

DP's CPT software helps our engineers quickly evaluate the critical soil layers and then focus on developing practical solutions for the client's project.

Engineering Applications

There are many uses for CPT data. The main applications are briefly introduced below:

Settlement

CPT provides a continuous profile of soil type and strength, providing an excellent basis for settlement analysis. Soil compressibility can be estimated from cone derived moduli, or known consolidation parameters for the critical layers (eg. from laboratory testing). Further, if pore pressure dissipation tests are undertaken using a piezocone, in-situ consolidation coefficients can be estimated to aid analysis.

Pile Capacity

The cone is, in effect, a small scale pile and, therefore, ideal for direct estimation of pile capacity. DP's in-house program ConePile can analyse most pile types and produces pile capacity versus depth plots. The analysis methods are based on proven static theory and empirical studies, taking account of scale effects, pile materials and method of installation.

The results are expressed in limit state format, consistent with the Piling Code AS2159.

Dynamic or Earthquake Analysis

CPT and, in particular, Seismic CPT are suitable for dynamic foundation studies and earthquake response analyses, by profiling the low strain shear modulus G_0 . Techniques have also been developed relating CPT results to the risk of soil liquefaction.

Other Applications

Other applications of CPT include ground improvement monitoring (testing before and after works), salinity and contaminant plume mapping (conductivity cone), preloading studies and verification of strength gain.

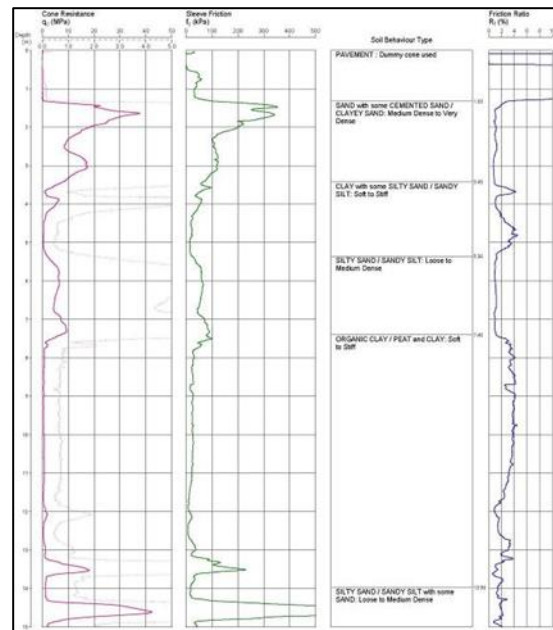


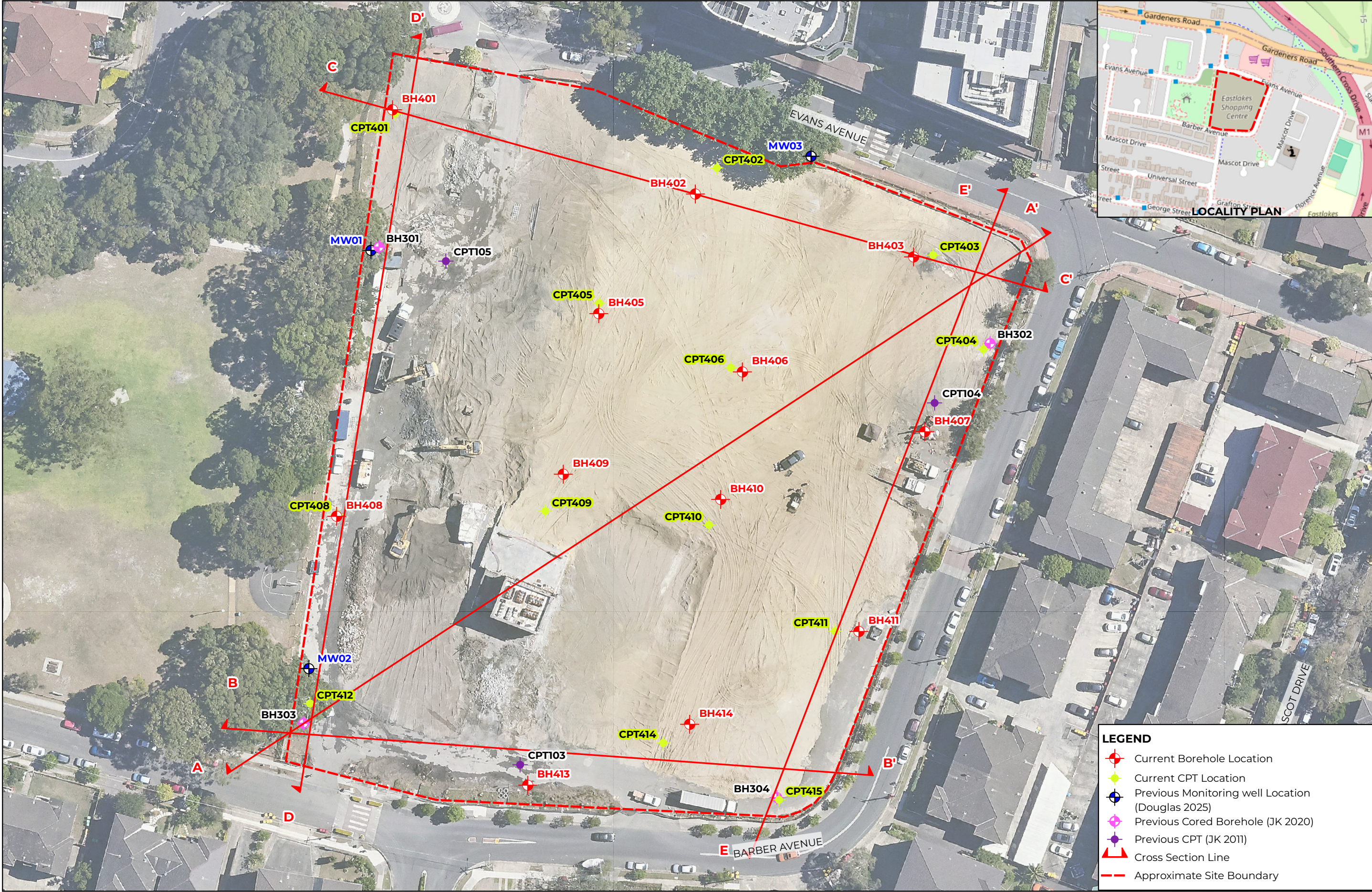
Figure 4: Sample Cone Plot

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Appendix B

Drawings

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- LEGEND**
- Current Borehole Location
 - Current CPT Location
 - Previous Monitoring well Location (Douglas 2025)
 - Previous Cored Borehole (JK 2020)
 - Previous CPT (JK 2011)
 - Cross Section Line
 - Approximate Site Boundary

REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
0	INITIAL ISSUE	28.10.2025	LHS/MN
SCALE: 0 10 20 30 40 m 1:750 @ A3			

Douglas
PARTNERS
OFFICE: SYDNEY
96-98 Hermitage Rd, West Ryde NSW 2114
(02)9809 0666

CLIENT:
Builtcom

NOTE:
1: Basemap from Metromap (Dated 27.11.2025)
1: JK test locations are approximate only.

COORDINATE REFERENCE SYSTEM: GDA2020 / MGA zone 56

PROJECT NAME:
Eastlakes Town Centre

PROJECT ADDRESS:
19A Evans Avenue, Eastlakes

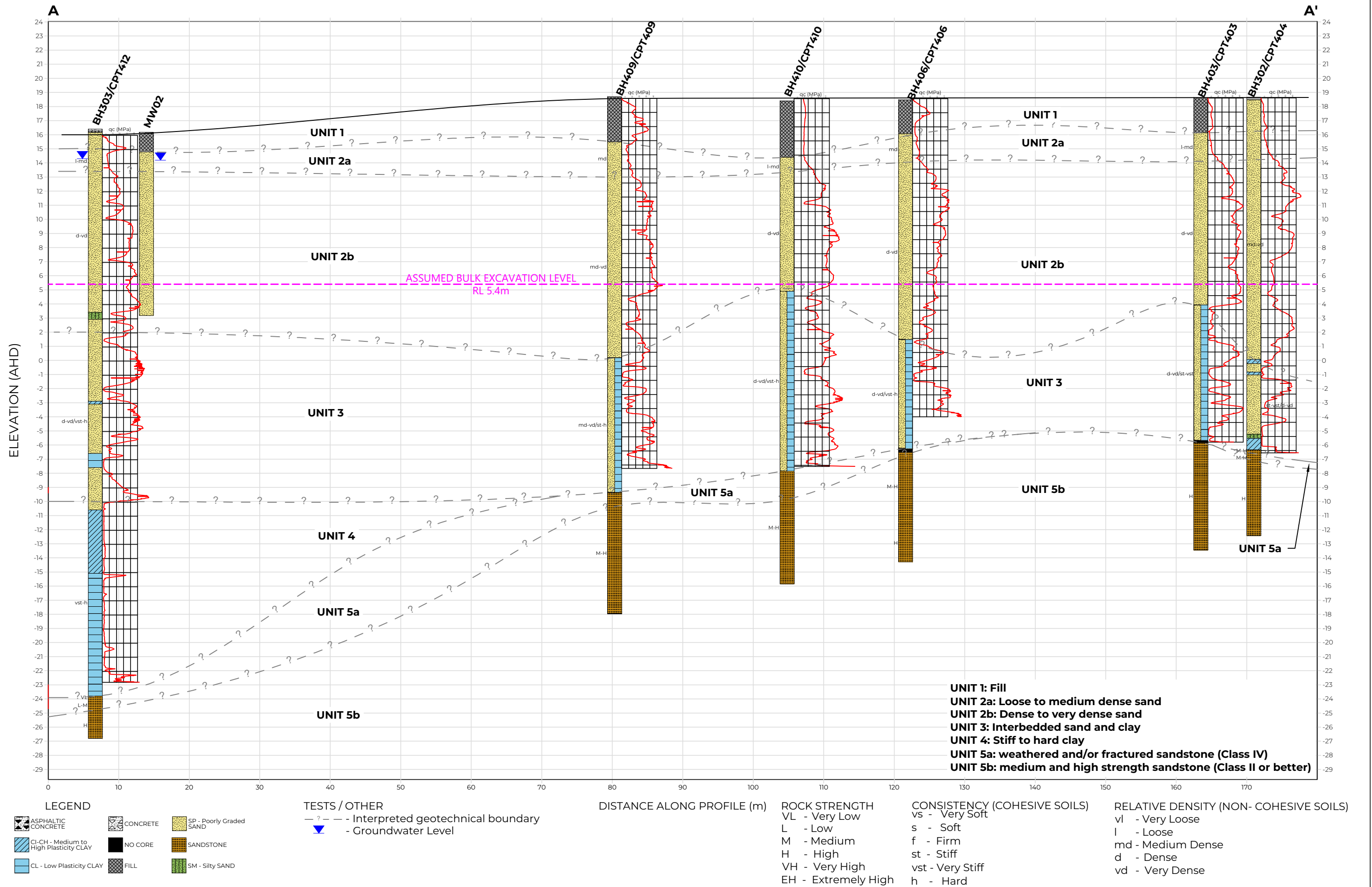
DRAWING TITLE:
Test Location Plan

PROJECT NO:
236760.01

DRAWING NO:
1

REVISION:
0

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REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
0	Initial Issue	30.01.2026	MN

SCALE:

010

Horizontal Scale 1:500
Vertical Exaggeration = 2.0

Douglas
PARTNERS

OFFICE: SYDNEY
96-98 Hermitage Rd, West Ryde NSW 2114
(02) 9809 0666

CLIENT:
Builtcom

NOTES
1. Subsurface conditions are accurate at the borehole locations only.
Variations in subsurface conditions may occur between borehole locations.
Interpreted strata boundaries are approximate and should be used as a guide only.
2. Summary logs only and should be read in conjunction with detailed logs.
3. Horizontal and vertical scales are not equal.
4. Test locations are indicative only.

PROJECT NAME:
Eastlakes Town Centre

PROJECT ADDRESS:
19A Evans Avenue, Eastlakes

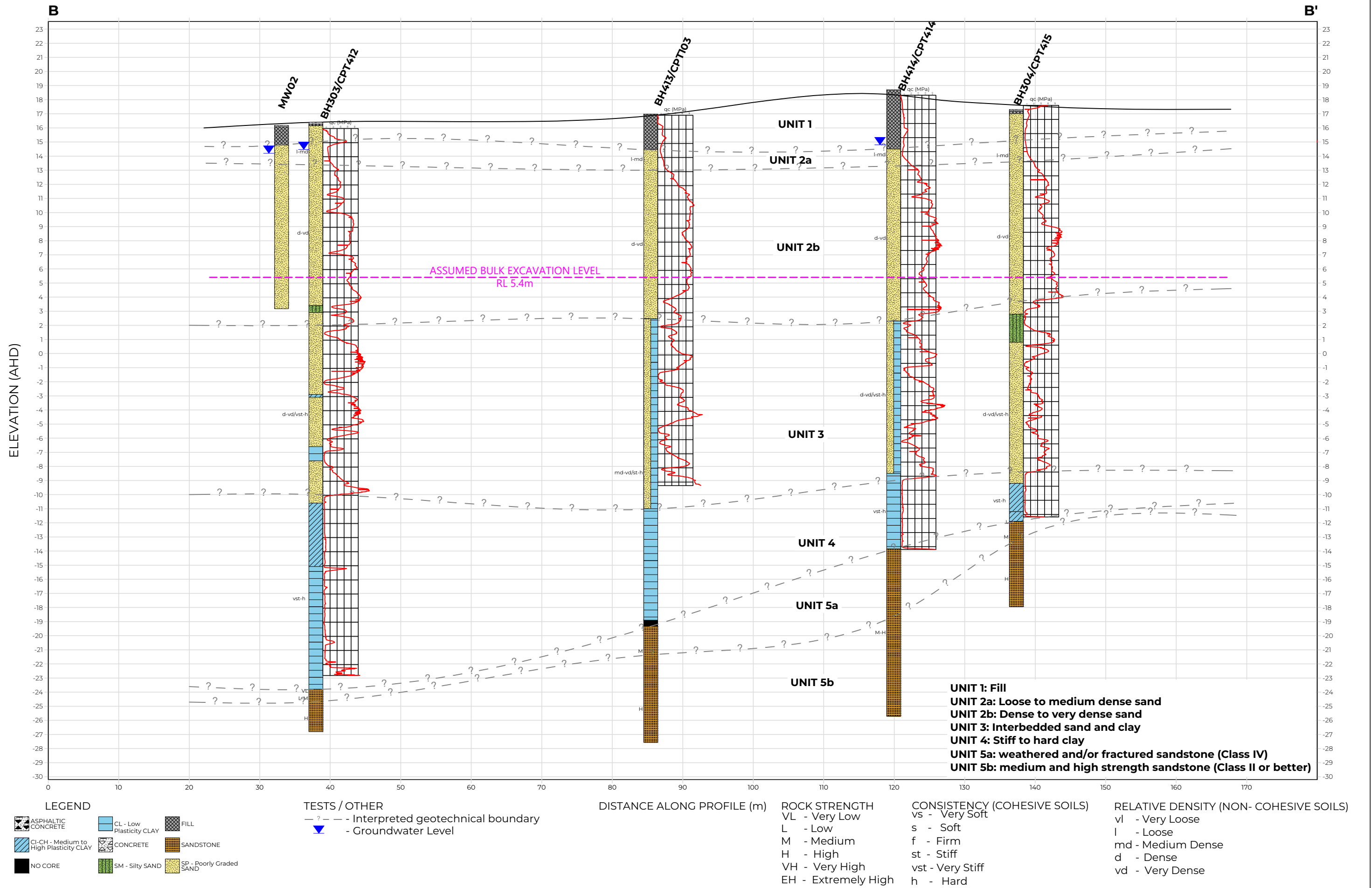
DRAWING TITLE:
**Interpreted Geotechnical
Cross Section A-A'**

PROJECT No:
236760.01

DRAWING No:
2

REVISION:
0

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REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
0	Initial Issue	30.01.2026	MN
SCALE:			
			
Horizontal Scale 1:500 Vertical Exaggeration = 2.0			

Douglas
PARTNERS

OFFICE: SYDNEY
96-98 Hermitage Rd, West Ryde NSW 2114
(02) 9809 0666

CLIENT:

Builtcom

NOTES

- Subsurface conditions are accurate at the borehole locations only. Variations in subsurface conditions may occur between borehole locations. Interpreted strata boundaries are approximate and should be used as a guide only.
- Summary logs only and should be read in conjunction with detailed logs.
- Horizontal and vertical scales are not equal.
- Test locations are indicative only.

PROJECT NAME:

Eastlakes Town Centre

PROJECT ADDRESS:

19A Evans Avenue, Eastlakes

DRAWING TITLE:

**Interpreted Geotechnical
Cross Section B-B'**

PROJECT No:

236760.01

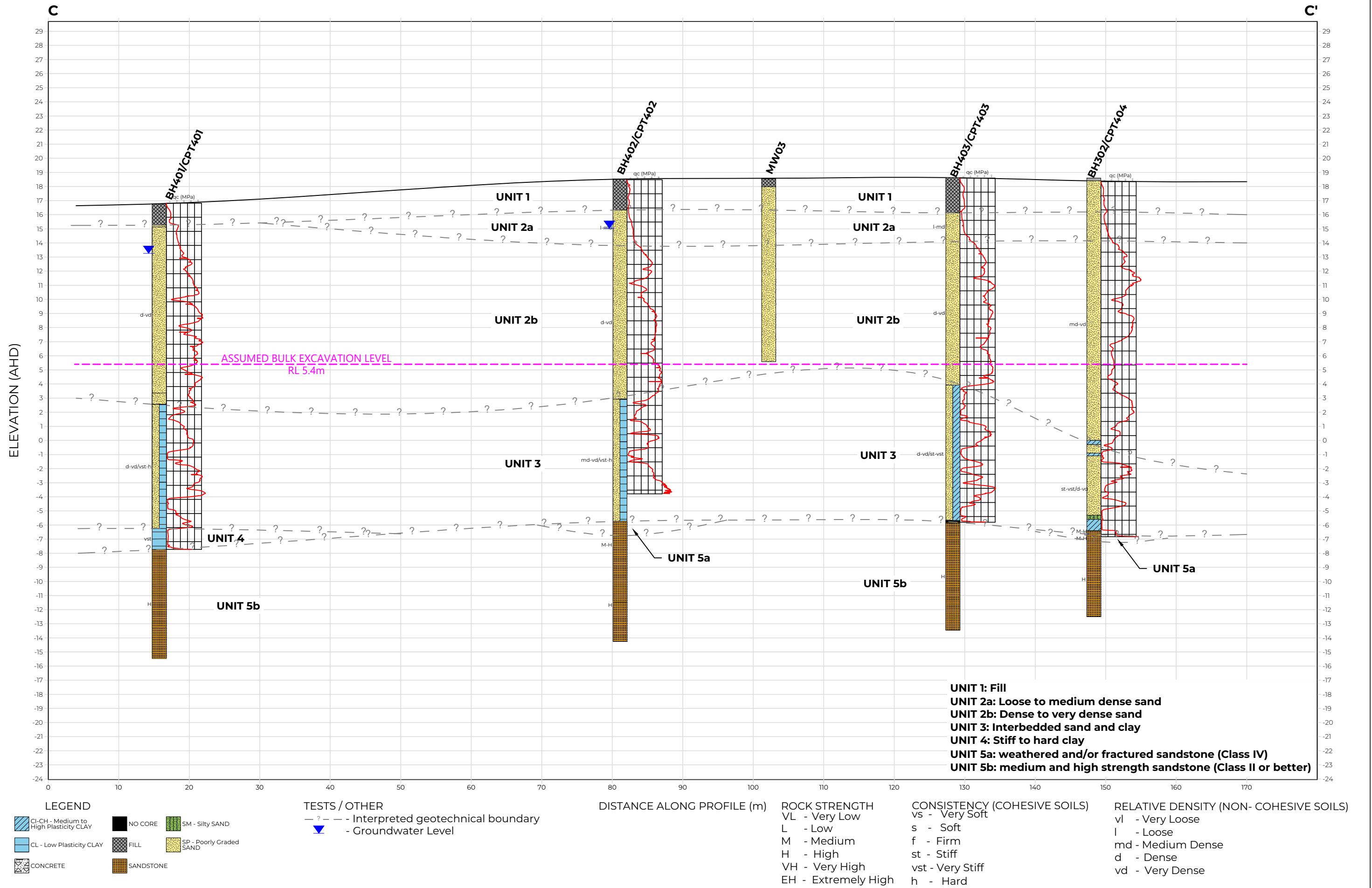
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3

REVISION:

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REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
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SCALE:			
010 Horizontal Scale 1:500 Vertical Exaggeration = 2.0			

OFFICE: SYDNEY
96-98 Hermitage Rd, West Ryde NSW 2114
(02) 9809 0666

CLIENT:

Builtcom

NOTES

1. Subsurface conditions are accurate at the borehole locations only.
Variations in subsurface conditions may occur between borehole locations.
Interpreted strata boundaries are approximate and should be used as a guide only.
2. Summary logs only and should be read in conjunction with detailed logs.
3. Horizontal and vertical scales are not equal.
4. Test locations are indicative only.

PROJECT NAME:

Eastlakes Town Centre

PROJECT ADDRESS:

19A Evans Avenue, Eastlakes

DRAWING TITLE:

Interpreted Geotechnical
Cross Section C-C'

PROJECT No:

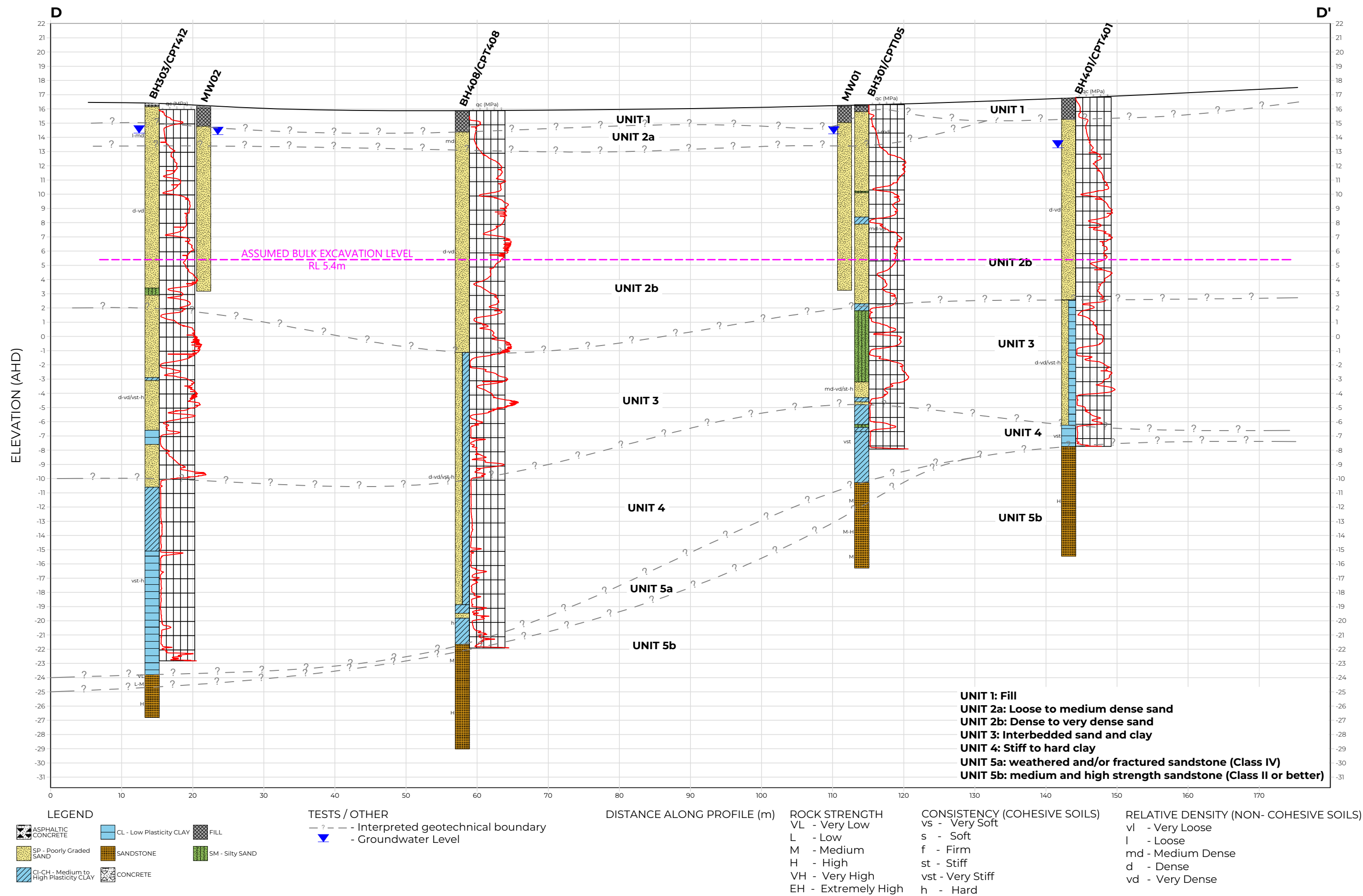
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DRAWING No:

4

REVISION:

0



REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
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SCALE:

Horizontal Scale 1:500
Vertical Scale 1:200

CLIENT:

Builtcom

PROJECT NAME:

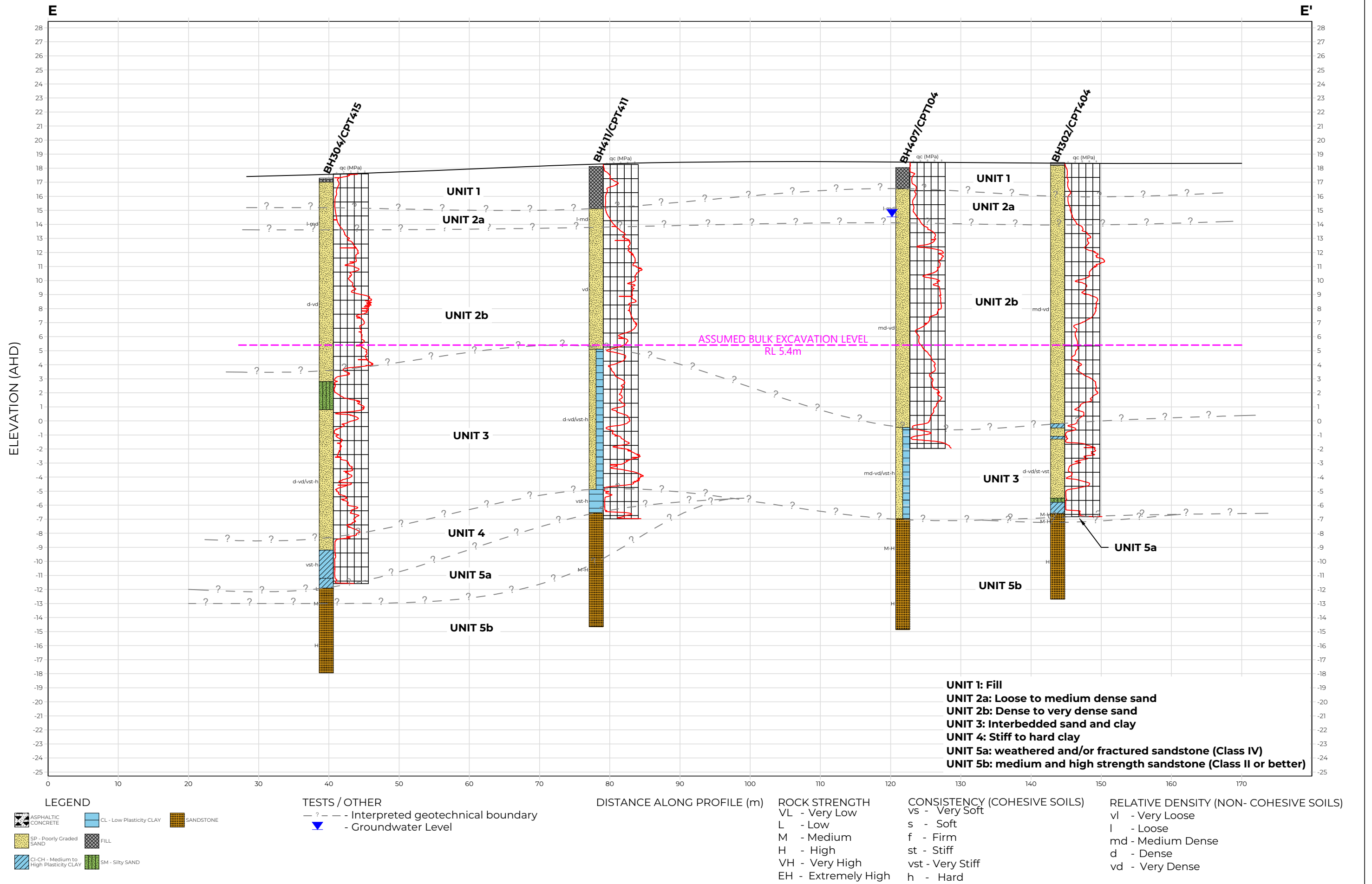
Eastlakes Town Centre

PROJECT ADDRESS:

19A Evans Avenue, Eastlakes

PROJECT No:	236760.01
DRAWING No:	5
REVISION:	0

\\pspsynas02\Project\3236760.01 - EASTLAKES, Eastlakes Town Centre\70 Drawings\72 Out\3236760.01.D002-5 Rev0_Cross Sections.dwg



REV	DESCRIPTION/COMMENT	DATE	DRAWN BY
0	Initial Issue	30.01.2026	MN
SCALE:			
Horizontal Scale 1:500 Vertical Exaggeration = 2.0			

Douglas
PARTNERS
OFFICE: SYDNEY
96-98 Hermitage Rd, West Ryde NSW 2114
(02) 9809 0666

CLIENT:
Builtcom

NOTES
1. Subsurface conditions are accurate at the borehole locations only.
Variations in subsurface conditions may occur between borehole locations.
Interpreted strata boundaries are approximate and should be used as a guide only.
2. Summary logs only and should be read in conjunction with detailed logs.
3. Horizontal and vertical scales are not equal.
4. Test locations are indicative only.

PROJECT NAME:
Eastlakes Town Centre
PROJECT ADDRESS:
19A Evans Avenue, Eastlakes

DRAWING TITLE:
**Interpreted Geotechnical
Cross Section E-E'**

PROJECT No:
236760.01
DRAWING No:
6
REVISION:
0

Appendix C

Borehole Logs and CPT Plots

BOREHOLE LOG

CLIENT: Builtcom
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 16.5 AHD
COORDINATE: E:334618.5, N:6244730.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW01
PROJECT No: 236760.01
DATE: 26/09/25
SHEET: 1 of 2

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
	0.07	ASPHALTIC CONCRETE.		NA	NA	ND										
	1.6	FILL / SAND trace silt trace gravel: dark brown and grey; fine; fine to medium, sandstone gravel.		FILL			D				1					
	1.20	SAND (SP): pale grey; fine to medium.					M				2					
	2										3					
	3										4					
	4										5					
	5					ND					6					
	6			AEO			W				7					
	7										8					
	8										9					
	9															
	10															
	11															
	12															
	13															
	14															
	15															
	16															

26.09/25

▼

Gravel

Bentonite

Concrete

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Explora 140
METHOD: AD/T to 2.5m, then WB to 13m
REMARKS: Gatic cover installed at surface

OPERATOR: Ground Test (SS)

LOGGED: E. Miler
CASING: HW to 2.5m

Refer to explanatory notes for symbol and abbreviation definitions

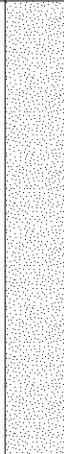
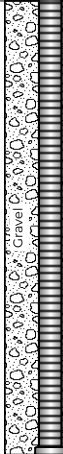


BOREHOLE LOG

CLIENT: Builtcom
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 16.5 AHD
COORDINATE: E:334618.5, N:6244730.5
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW01
PROJECT No: 236760.01
DATE: 26/09/25
SHEET: 2 of 2

CONDITIONS ENCOUNTERED															SAMPLE			TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE				
	6		[CONT] SAND (SP): pale grey; fine to medium.		AEO	ND		W				11								
	11											12								
	5																			
	12		Borehole discontinued at 13.00m depth. Target depth reached.																	
	4																			
	13																			
	3																			
	14																			
	2																			
	15																			
	1																			
	16																			
	0																			
	17																			
	-1																			
	18																			
	-2																			
	19																			
	-3																			

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Explora 140
METHOD: AD/T to 2.5m, then WB to 13m
REMARKS: Gatic cover installed at surface

OPERATOR: Ground Test (SS)

LOGGED: E. Miler
CASING: HW to 2.5m

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 16.2 AHD
COORDINATE: E:334605.6, N:6244643.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW02
PROJECT No: 236760.01
DATE: 26/09/25
SHEET: 1 of 2

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS							
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾ DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE		
▼ 26/09/25	16	0.10	CONCRETE.		NA	NA	NA										
			FILL / SAND trace silt trace gravel: dark brown and grey; fine; fine to medium, sandstone gravel.		FILL		D							1			
	1																
	1.40		SAND (SP): pale grey; fine to medium.				M							2			
	2																
	3																
	4																
	5					ND											
	6				AEO		W										
	7																
8																	
9																	

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Explora 140
METHOD: AD/T to 2.5m, then WB to 13m
REMARKS: Gatic cover installed at surface

OPERATOR: Ground Test (SS)

LOGGED: E. Miler
CASING: HW to 2.5m

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 16.2 AHD
COORDINATE: E:334605.6, N:6244643.6
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW02
PROJECT No: 236760.01
DATE: 26/09/25
SHEET: 2 of 2

CONDITIONS ENCOUNTERED																SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE						
	6		[CONT] SAND (SP): pale grey; fine to medium.																			
	11	5			AEO	ND		W				11										
	12	4										12										
	13																					
	3		Borehole discontinued at 13.00m depth. Target depth reached.																			
	14	2																				
	15	1																				
	16	0																				
	17	-1																				
	18	-2																				
	19	-3																				

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Explora 140
METHOD: AD/T to 2.5m, then WB to 13m
REMARKS: Gatic cover installed at surface

OPERATOR: Ground Test (SS)

LOGGED: E. Miler
CASING: HW to 2.5m

Refer to explanatory notes for symbol and abbreviation definitions

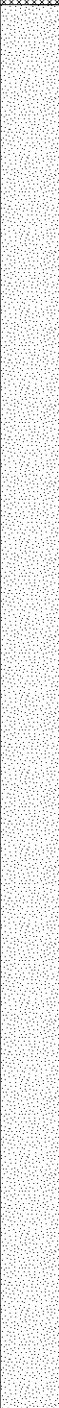


BOREHOLE LOG

CLIENT: Builtcom
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.6 AHD
COORDINATE: E:334710.0, N:6244750.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW03
PROJECT No: 236760.01
DATE: 03/10/25
SHEET: 1 of 2

CONDITIONS ENCOUNTERED																SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)		DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE					
03/10/25 No free groundwater observed whilst augering	0.05		PAVERS.																			
	0.18		FILL / SAND with gravel trace silt: dark brown; fine to coarse; fine gravel. From 0.20m: gravel absent		FILL				M													
	0.60		SAND (SP): pale brown; medium to coarse,										1									
	1																					
	1.17																					
	2													2								
	2.17																					
	3														3							
	3.17																					
	4															4						
	4.17																					
5																5						
5.17																						
6																	6					
6.17																						
7																		7				
7.17																						
8																			8			
8.17																						
9																				9		
9.17																						
NOTES: ^(*) Soil origin is "probable" unless otherwise stated. ^(*) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.																						

PLANT: Comacchio Geo205
METHOD: AD/T to 1m, then WB to 13m
REMARKS: Gatic cover installed at surface

OPERATOR: Ground Test (JJ)

LOGGED: L. Straney
CASING: HWT to 1m

BOREHOLE LOG

CLIENT: Builtcom
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.6 AHD
COORDINATE: E:334710.0, N:6244750.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: MW03
PROJECT No: 236760.01
DATE: 03/10/25
SHEET: 2 of 2

GROUNDWATER		CONDITIONS ENCOUNTERED					SAMPLE			TESTING AND REMARKS				
RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*) DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
		[CONT] SAND (SP): pale brown; medium to coarse,		AEO	ND	NDF								
		Borehole discontinued at 13.00m depth. Target depth reached.												

NOTES: ^(*) Soil origin is "probable" unless otherwise stated. ^(†) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

Generated with CORE-GS by Geroc - Soil Log

PLANT: Comacchio Geo205
METHOD: AD/T to 1m, then WB to 13m
REMARKS: Gatic cover installed at surface

OPERATOR: Ground Test (JJ)

LOGGED: L. Straney
CASING: HWT to 1m

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 16.8 AHD
COORDINATE: E:334623.0, N:6244759.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH401
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 1 of 5

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
03/2/25 ▼	16	1	FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.		FILL			D				1					
	15	2	SAND; medium to coarse.									2					
	14	3						M				3					
	13	4						W				4					
	12	5						ND				5					
	11	6			AEO							6					
	10	7						NDF				7					
	9	8										8					
	8	9										9					
	7																
NOTES: ⁽¹⁾ Soil origin is "probable" unless otherwise stated. ⁽²⁾ Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.																	

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 4.5m, then WB to 24.5m, then NMLC to 32.22m

CASING: HQ to 24.5m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 16.8 AHD
COORDINATE: E:334623.0, N:6244759.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH401
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 2 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
	6		[CONT] SAND; medium to coarse.															
	11																	
	5																	
	12				AEO													
	4																	
	13																	
	3																	
	14																	
	14.20		SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.															
	2																	
	15					ND		NDF										
	1																	
	16																	
	0																	
	17				AEO / MAR													
	18																	
	1																	
	19																	
	2																	
	3																	

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 4.5m, then WB to 24.5m, then NMLC to 32.22m

CASING: HQ to 24.5m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

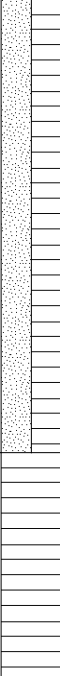
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 16.8 AHD
COORDINATE: E:334623.0, N:6244759.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH401
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 3 of 5

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽¹⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	1.4	21	[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.		AEO / MAR							21		
	1.5	22						ND				22		
	1.6	23.00	CLAY (CL): grey; low plasticity.									23		
	1.7	24			MAR							24		
	1.8	24.50	Continued as rock log									25		
	1.9	26										26		
	1.10	27										27		
	1.11	28										28		
	1.12	29										29		
	1.13													

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 4.5m, then WB to 24.5m, then NMLC to 32.22m

CASING: HQ to 24.5m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 16.8 AHD
COORDINATE: E:334623.0, N:6244759.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH401
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 4 of 5

[illegible]

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 4.5m, then WB to 24.5m, then NMLC to 32.22m

CASING: HO to 24.5m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 16.8 AHD
COORDINATE: E:334623.0, N:6244759.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH401
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 5 of 5

CONDITIONS ENCOUNTERED											SAMPLE			TESTING								
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (Where encountered) SOIL MOISTURE	GRAPHIC	WEATH.		DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
						DS	XW															THW
	30.00		SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.																			
	31																					
	32																					
	32.22		Borehole discontinued at 32.22m depth. Target depth reached.																			

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 4.5m, then WB to 24.5m, then NMLC to 32.22m

CASING: HQ to 24.5m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

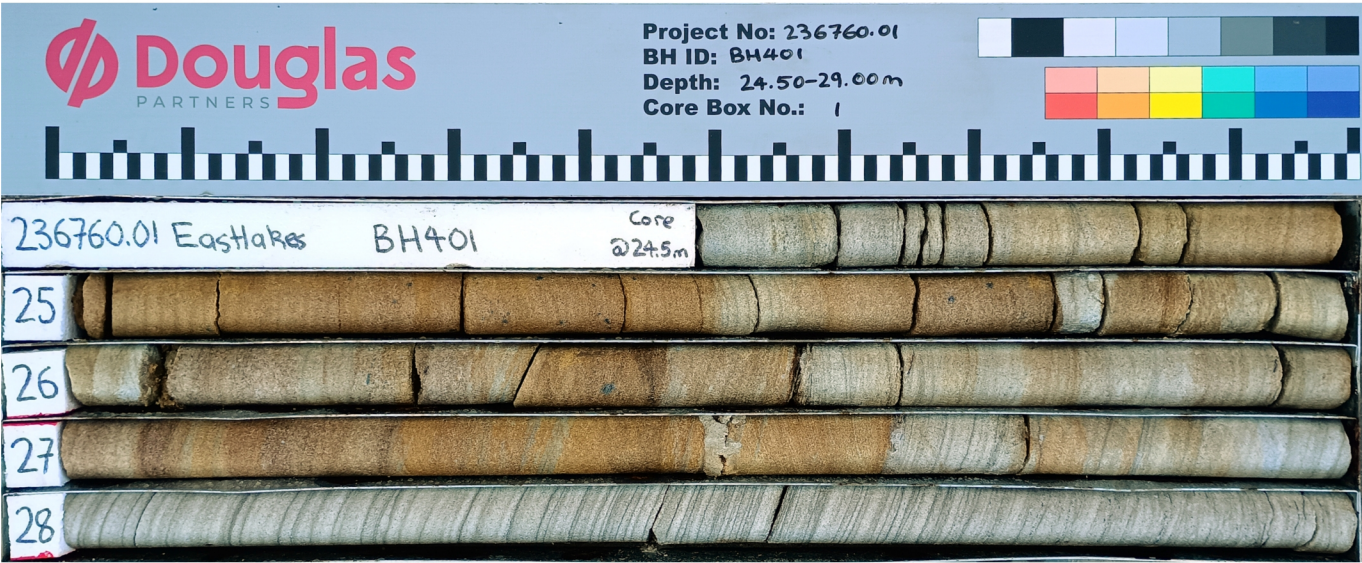


CORE PHOTO LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 16.8 AHD
COORDINATE: E:334623.0, N:6244759.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH401
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 1 of 1



24.50-29.00 m depth



29.00-32.22 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334685.9, N:6244742.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH402
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 1 of 5

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
04/22/25 ▼	18	1	FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.		FILL			D				1					
	17	2													2		
	16	2.20	SAND (SP): pale brown and pale grey; medium to coarse.					M							3		
	15	3													4		
	14	4										W				5	
	13	5														6	
	12	6														7	
	11	7														8	
	10	8														9	
	9	9															

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 4m, then WB to 24.25m, then NMLC to 32.78m

CASING: HQ to 24.25m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

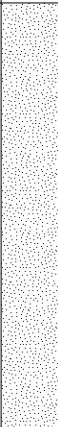
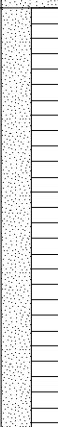
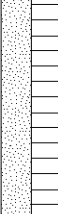


BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334685.9, N:6244742.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH402
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 2 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
		8	[CONT] SAND (SP): pale brown and pale grey; medium to coarse.		AEO							8						
		11										11						
		12										12						
		13										13						
		14	SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.		AEO / MAR							14						
		15										15						
		16										16						
		17										17						
		18										18						
		19										19						
		20										20						

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 4m, then WB to 24.25m, then NMLC to 32.78m

CASING: HQ to 24.25m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

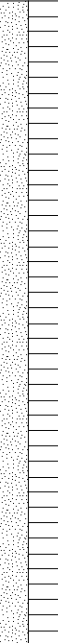
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334685.9, N:6244742.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH402
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 3 of 5

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
RL (m)													
	21	[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /. Continued as rock log		AEO / MAR	ND		NDF				21		
	22										22		
	23										23		
	24										24		
	24.25												
	25										25		
	26										26		
	27										27		
	28										28		
	29										29		

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 4m, then WB to 24.25m, then NMLC to 32.78m

CASING: HQ to 24.25m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334685.9, N:6244742.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH402
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 4 of 5

CONDITIONS ENCOUNTERED														SAMPLE				TESTING					
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (kPa, min. max. d)	SOIL MOISTURE	GRAPHIC	WEATH.						RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
RL (m)	PS					XW	HW	TW	SW	FR	VL												

Generated with CORE-GS by Geroc - Split Soil-Rock Log

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 4m, then WB to 24.25m, then NMLC to 32.78m

CASING: HQ to 24.25m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334685.9, N:6244742.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH402
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 5 of 5

CONDITIONS ENCOUNTERED												SAMPLE			TESTING									
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (where encountered)	SOIL MOISTURE	GRAPHIC	PS XSW THW TAW SWW FR	WEATH. DW	DEPTH (m)	VL L M H VH	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
	30.00		SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.																					
	31																							
	32																							
	33																							
	34		Borehole discontinued at 32.78m depth. Target depth reached.																					
	35																							
	36																							
	37																							
	38																							
	39																							
	40																							
	41																							
NOTES: #Soil origin is "probable" unless otherwise stated.																								

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 4m, then WB to 24.25m, then NMLC to 32.78m

CASING: HQ to 24.25m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

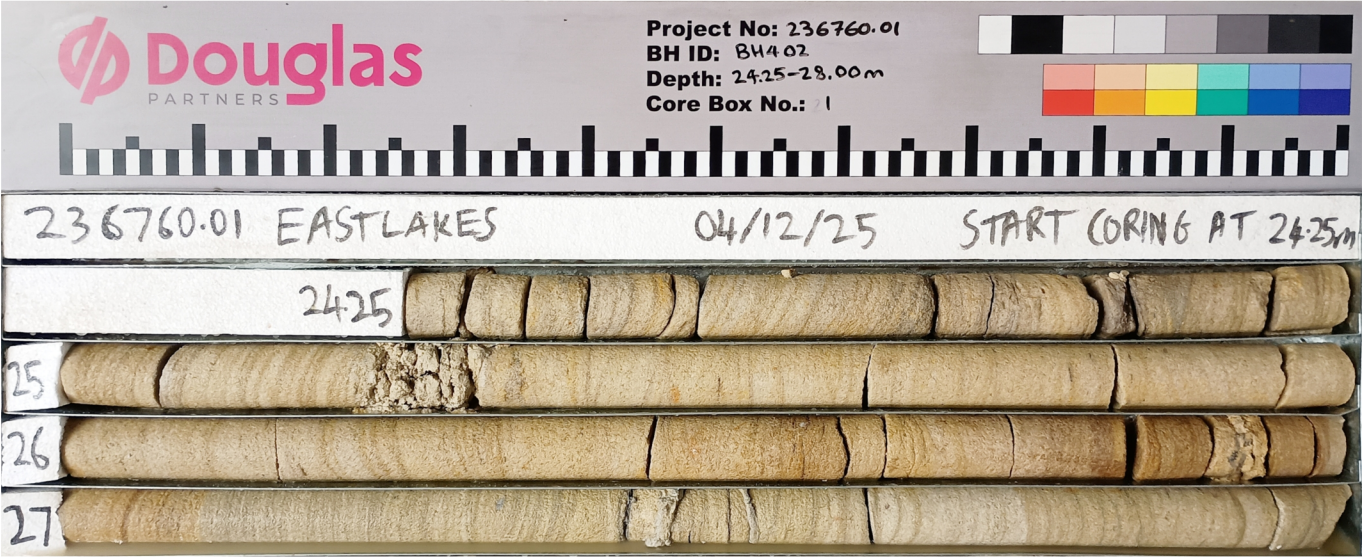


CORE PHOTO LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334685.9, N:6244742.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH402
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 1 of 1



24.25-28.00 m depth



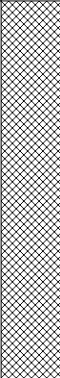
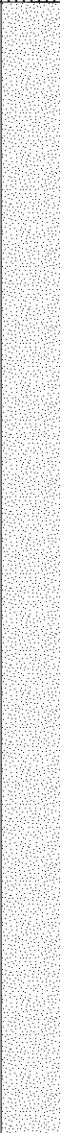
28.00-32.78 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.6 AHD
COORDINATE: E:334731.3, N:6244729.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH403
PROJECT No: 236760.01
DATE: 27/11/25
SHEET: 1 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
27/11/25 No free groundwater observed whilst augering	18	1	FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.		FILL			D				1						
	17	2										2						
	16	2.50	SAND (SP): pale brown and pale grey; medium to coarse.									3						
	15	3										4						
	14	4										5						
	13	5										6						
	12	6										7						
	11	7										8						
	10	8										9						
	9	9																

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hanjin D&B8

OPERATOR: Rockwell

LOGGED: L.Straney

METHOD: AD/T to 2.5m, then WB to 24.3m, then NMLC to 32.09m

CASING: HQ to 24.3m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

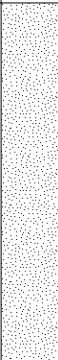
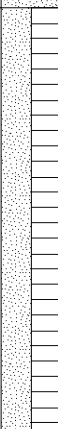
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.6 AHD
COORDINATE: E:334731.3, N:6244729.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH403
PROJECT No: 236760.01
DATE: 27/11/25
SHEET: 2 of 5

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS				
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
		8	[CONT] SAND (SP): pale brown and pale grey; medium to coarse.		AEO							11		
		11										12		
		7										13		
		12										14		
		6										15		
		13	SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.		AEO / MAR	ND	NDF				14			
		5									15			
		14									16			
		4									17			
		14.70									18			
		15									19			
		3									20			
		16									21			
		2									22			
		17									23			
		1									24			
		18									25			
		0	26											
		19	27											
		-1	28											

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hanjin D&B8

OPERATOR: Rockwell

LOGGED: L.Straney

METHOD: AD/T to 2.5m, then WB to 24.3m, then NMLC to 32.09m

CASING: HQ to 24.3m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.6 AHD
COORDINATE: E:334731.3, N:6244729.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH403
PROJECT No: 236760.01
DATE: 27/11/25
SHEET: 3 of 5

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	RL (m)	DEPTH (m)	[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.		AEO / MAR	ND		NDF				21		
	21	21										22		
	22	22										23		
	23	23										24		
	24	24										24.30		
	24.30	24.30	Continued as rock log									25		
	25	25										26		
	26	26										27		
	27	27										28		
	28	28										29		
	29	29												

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hanjin D&B8

OPERATOR: Rockwell

LOGGED: L.Straney

METHOD: AD/T to 2.5m, then WB to 24.3m, then NMLC to 32.09m

CASING: HQ to 24.3m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.6 AHD
COORDINATE: E:334731.3, N:6244729.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH403
PROJECT No: 236760.01
DATE: 27/11/25
SHEET: 4 of 5

CONDITIONS ENCOUNTERED										SAMPLE		
GROUNDWATER										SAMPLE REMARKS	TYPE	INTERVAL
DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS			
RL (m)												
-2												
-21												
-22												
-23												
-24												
-24.47	Continued from soil log CORE LOSS.			24.47					24.51m: EW, 5mm 24.65m: B, 0°, UN, CN, RF			
-25	SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.					92	89		24.91m: EW, 10mm 25.16m: B, 0°, PR, VNR Clay, RF		PLT	PL(A)=1.6MPa
-26					H						PLT	PL(A)=1.5MPa
-27				26.94 27.15					26.60m: EW, 20mm 27.26m: EW, 40mm		PLT	PL(A)=0.76MPa
-28						100	97		28.53m: B, 10°, PR, CN, RF		PLT	PL(A)=1.5MPa
-29									29.12m: EW, 5mm 29.25m: EW, 10mm		PLT	PL(A)=1.5MPa
-30						100	96				PLT	PL(A)=2.1MPa

NOTES: # Soil origin is "probable" unless otherwise stated.

NOTES: (H) Soil origin is "probable" unless otherwise stated.

PLANT: Hanjin D&B8

OPERATOR: Rockwell

LOGGED: L.Straney

METHOD: AD/T to 2.5m, then WB to 24.3m, then NMLC to 32.09m

CASING: HO to 24.3m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.6 AHD
COORDINATE: E:334731.3, N:6244729.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH403
PROJECT No: 236760.01
DATE: 27/11/25
SHEET: 5 of 5

GROUNDWATER		CONDITIONS ENCOUNTERED												SAMPLE			TESTING			
RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (N/mm² undrained @ d) SOIL MOISTURE	GRAPHIC	PS XW L H-W TAW SW FR WEATH.	DEPTH (m)	VL L M H VH EH STRENGTH	RECOVERY (%)	RQD	20 40 60 80 100 300 1000 FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
		[CONT] SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.						100	96		30.31m: EW, 5mm 30.69m: EW, 30mm 30.83m: EW, 10mm				31	PLT	PL(A)=1.4MPa			
		Borehole discontinued at 32.09m depth. Target depth reached.						100	99		32.09m: EW, 10mm				32	PLT	PL(A)=1.6MPa			

Generated with CORE-GS by Geroc - Split Soil-Rock Log

PLANT: Hanjin D&B8

OPERATOR: Rockwell

LOGGED: L.Straney

METHOD: AD/T to 2.5m, then WB to 24.3m, then NMLC to 32.09m

CASING: HO to 24.3m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



CORE PHOTO LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.6 AHD
COORDINATE: E:334731.3, N:6244729.2
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH403
PROJECT No: 236760.01
DATE: 27/11/25
SHEET: 1 of 1



24.30-28.00 m depth



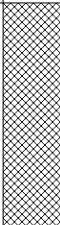
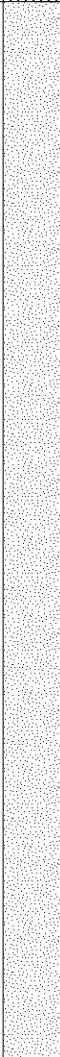
28.00-32.09 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334665.9, N:6244717.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH405
PROJECT No: 236760.01
DATE: 10/12/25
SHEET: 1 of 5

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
10/12/25 No free groundwater observed whilst augering	18	1	FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.		FILL			D				1					
	17	2										2					
	16	3										3					
	15	4	SAND (SP): pale grey; medium to coarse.		AEO		ND	NDF			4						
	14	5									5						
	13	6									6						
	12	7									7						
	11	8									8						
	10	9									9						
	9																

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 2.5m, then WB to 24.9m, then NMLC to 32.9m

CASING: HQ to 24.9m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

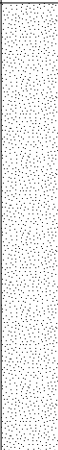
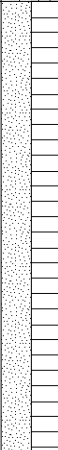
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334665.9, N:6244717.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH405
PROJECT No: 236760.01
DATE: 10/12/25
SHEET: 2 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
	8		[CONT] SAND (SP): pale grey; medium to coarse.		AEO							11							
	11											12							
	7											13							
	12											14							
	6											15							
	13		SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.		AEO / MAR	ND	NDF				16								
	5										17								
	14										18								
	4										19								
	15										20								
	3		NOTES: [#] Soil origin is "probable" unless otherwise stated. [°] Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.																

PLANT: Comacchio 305 **OPERATOR:** Ground Test (LC) **LOGGED:** L. Straney
METHOD: AD/T to 2.5m, then WB to 24.9m, then NMLC to 32.9m **CASING:** HQ to 24.9m
REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334665.9, N:6244717.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH405
PROJECT No: 236760.01
DATE: 10/12/25
SHEET: 3 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
																		
	1-2		[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.															
	21											21						
	1-3																	
	22											22						
	1-4				AEO / MAR			ND										
	23											23						
	1-5																	
	24											24						
	1-6																	
	24.90		Continued as rock log									25						
	1-7																	
	26											26						
	1-8																	
	27											27						
	1-9																	
	28											28						
	1-10																	
	29											29						
	1-11																	

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 2.5m, then WB to 24.9m, then NMLC to 32.9m

CASING: HQ to 24.9m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334665.9, N:6244717.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH405
PROJECT No: 236760.01
DATE: 10/12/25
SHEET: 4 of 5

[illegible]

Generated with CORE-GS by Geroc - Split Soil-Rock Log

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 2.5m, then WB to 24.9m, then NMLC to 32.9m

CASING: HQ to 24.9m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334665.9, N:6244717.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH405
PROJECT No: 236760.01
DATE: 10/12/25
SHEET: 5 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING			
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (Where encountered)	SOIL MOISTURE	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	12	[CONT] SANDSTONE: pale grey, orange-brown and red-brown, medium to coarse grained. Hawkesbury Sandstone.										30.16m: B, 10°, PR, Clay 1mm								
	31											31.11m: B, 0°, PR, Clay 1mm, RF				31	PLT	PL(A)=1.5MPa		
	32					SW		H	100	99		31.80-31.82m: B x2, 0°, PR, CN, VR				32	PLT	PL(A)=1.0MPa		
	33																PLT	PL(A)=1.1MPa		
	33	Borehole discontinued at 32.90m depth. Target depth reached.																		
	34																			
	35																			
	36																			
	37																			
	38																			
	39																			

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 2.5m, then WB to 24.9m, then NMLC to 32.9m

CASING: HQ to 24.9m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



CORE PHOTO LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334665.9, N:6244717.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH405
PROJECT No: 236760.01
DATE: 10/12/25
SHEET: 1 of 1



24.90-29.00 m depth



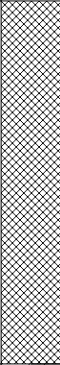
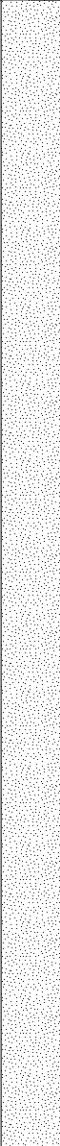
29.00-32.90 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334695.7, N:6244705.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH406
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 1 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS						
03/12/25 No free groundwater observed whilst augering	18	1	FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.		FILL			D				1								
	17	2																		
	16	2.40	SAND (SP): pale brown and pale grey; medium to coarse.		AEO			ND				NDF						3		
	15	4																		
	14	5																		
	13	6																		
	12	7																		
	11	8																		
	10	9																		
	9																			

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 24.7m, then NMLC to 32.75m

CASING: HQ to 24.7m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

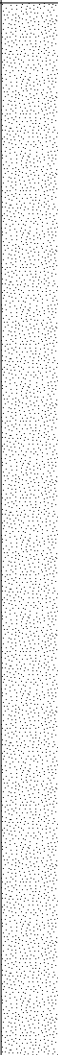
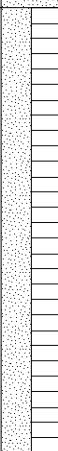
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334695.7, N:6244705.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH406
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 2 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
	8		[CONT] SAND (SP): pale brown and pale grey; medium to coarse.		AEO							11						
	11											12						
	7											13						
	12											14						
	6											15						
	13											16						
	5											17						
	14											18						
	4											19						
	15											20						
	3		INTERBEDDED SAND (SP) AND CLAY (CL): sand; medium to coarse. Clay; low plasticity. /.		AEO / MAR						17							
	16										18							
	2										19							
	17.00										20							
	1										21							
	18											19						
	0																	
	19																	
	-1																	

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 24.7m, then NMLC to 32.75m

CASING: HQ to 24.7m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334695.7, N:6244705.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH406
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 3 of 5

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS				
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
			[CONT] INTERBEDDED SAND (SP) AND CLAY (CL): sand; medium to coarse. Clay; low plasticity. /. 											

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 24.7m, then NMLC to 32.75m

CASING: HQ to 24.7m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334695.7, N:6244705.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH406
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 4 of 5

[illegible]

NOTES: (H) Soil origin is "probable" unless otherwise stated.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 24.7m, then NMLC to 32.75m

CASING: HQ to 24.7m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334695.7, N:6244705.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH406
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 5 of 5

CONDITIONS ENCOUNTERED											SAMPLE			TESTING						
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (N/mm ² & Moisture %)	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
RL (m)																				
12	30.00	SANDSTONE: pale grey and red-brown, medium to coarse grained. Hawkesbury Sandstone.			SW	30.02-30.09	H	100	96		30.02-30.09m: DS					31	PLT	PL(A)=1.6MPa		
	30.55m: B, 10°, PR, CN, RF																			
	31.03m: EW, 20mm																			
	31.25m: EW, 20mm																			
	31.46m: B, 10°, PR, CN, VR																			
13	32										32.27m: B, 10°, PR, VNR Clay, RF				32	PLT	PL(A)=1.8MPa			
	14										32.58m: B, 10°, PR, VNR Clay, RF					PLT	PL(A)=1.2MPa			
		33	Borehole discontinued at 32.75m depth. Target depth reached.																	
		34																		
		35																		
15	36																			
	37																			
	38																			
	39																			
	20																			
16	21																			
	22																			
	23																			
	24																			
	25																			

NOTES: [#]Soil origin is "probable" unless otherwise stated.

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Comacchio 405
METHOD: AD/T to 1.5m, then WB to 24.7m, then NMLC to 32.75m
REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

OPERATOR: Terratest (MM)

LOGGED: L. Straney
CASING: HQ to 24.7m

Refer to explanatory notes for symbol and abbreviation definitions



CORE PHOTO LOG

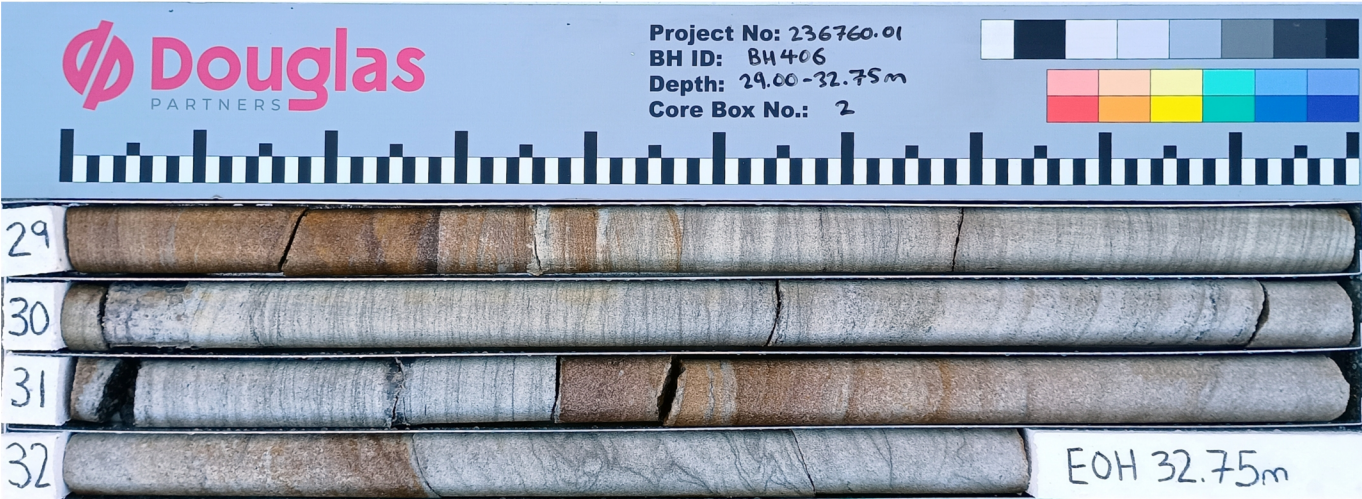
CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.5 AHD
COORDINATE: E:334695.7, N:6244705.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH406
PROJECT No: 236760.01
DATE: 03/12/25
SHEET: 1 of 1



24.70-29.00 m depth



29.00-32.75 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.0 AHD
COORDINATE: E:334733.6, N:6244692.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH407
PROJECT No: 236760.01
DATE: 28/11/25
SHEET: 1 of 5

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
▼ 28/1/25	17	FILL / SAND trace gravel: grey-brown; fine to coarse; fine to medium, igneous gravel.		FILL			D				1						
	1.50	SAND (SP): pale brown and pale grey; medium to coarse.									2						
	16										3						
	15						M				4						
	14						W				5						
	13										6						
	12										7						
	11										8						
	10										9						
	9																

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hanjin D&B8

OPERATOR: Rockwell

LOGGED: L.Straney

METHOD: AD/T to 4.5m, then WB to 25m, then NMLC to 32.88m

CASING: HQ to 25m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

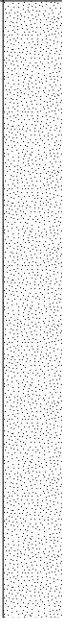
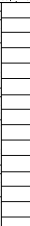
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.0 AHD
COORDINATE: E:334733.6, N:6244692.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH407
PROJECT No: 236760.01
DATE: 28/11/25
SHEET: 2 of 5

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
	8.0	[CONT] SAND (SP): pale brown and pale grey; medium to coarse.		AEO	ND		NDF				11						
	7										11						
	6										12						
	5										13						
	4										14						
	3										15						
	2										16						
	1										17						
	0										18						
	18.50										SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.				AEO / MAR		
	19																

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hanjin D&B8

OPERATOR: Rockwell

LOGGED: L.Straney

METHOD: AD/T to 4.5m, then WB to 25m, then NMLC to 32.88m

CASING: HQ to 25m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.0 AHD
COORDINATE: E:334733.6, N:6244692.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH407
PROJECT No: 236760.01
DATE: 28/11/25
SHEET: 3 of 5

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	
	21	[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /. <												

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hanjin D&B8

OPERATOR: Rockwell

LOGGED: L.Straney

METHOD: AD/T to 4.5m, then WB to 25m, then NMLC to 32.88m

CASING: HQ to 25m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.0 AHD
COORDINATE: E:334733.6, N:6244692.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH407
PROJECT No: 236760.01
DATE: 28/11/25
SHEET: 4 of 5

CONDITIONS ENCOUNTERED											SAMPLE			TESTING					
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (where encountered) SOIL MOISTURE	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	21														21				
	22														22				
	23														23				
	24														24				
	25	Continued from soil log SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.				25.00									25				
	26				FR		M	100	99		25.56m: B, 10°, PR, VNR Clay, RF				26	PLT	PL(A)=1.0MPa		
	27					26.85					26.32m: EW, 10mm				27	PLT	PL(A)=0.90MPa		
	28				FR		M	100	98		27.18m: EW, 10mm				28	PLT	PL(A)=1.1MPa		
	29					29.26	H				29.19m: EW, 10mm 29.26m: EW, 30mm				29	PLT	PL(A)=1.0MPa		
								100	97							PLT	PL(A)=1.6MPa		

NOTES: [#]Soil origin is "probable" unless otherwise stated.

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Hanjin D&B8

OPERATOR: Rockwell

LOGGED: L.Straney

METHOD: AD/T to 4.5m, then WB to 25m, then NMLC to 32.88m

CASING: HQ to 25m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.0 AHD
COORDINATE: E:334733.6, N:6244692.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH407
PROJECT No: 236760.01
DATE: 28/11/25
SHEET: 5 of 5

CONDITIONS ENCOUNTERED											SAMPLE			TESTING					
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (Where encountered)	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	31	[CONT] SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.			FR		H	100	97		30.73m: B, 0°, PR, Clay 1mm, RF 30.95m: B, 0°, PR, Clay 1mm, RF				31	PLT	PL(A)=1.2MPa		
	32										31.80m: B, 0°, UN, CN, RF 32.12m: EW, 5mm				32	PLT	PL(A)=1.7MPa		
	33										32.81m: JT, 60°, PR, CN, RF 32.84m: B, 0°, PR, Clay 1mm, RF					PLT	PL(A)=1.9MPa		
	34																		
	35	Borehole discontinued at 32.88m depth. Target depth reached.																	
	36																		
	37																		
	38																		
	39																		

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Hanjin D&B8

OPERATOR: Rockwell

LOGGED: L.Straney

METHOD: AD/T to 4.5m, then WB to 25m, then NMLC to 32.88m

CASING: HQ to 25m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

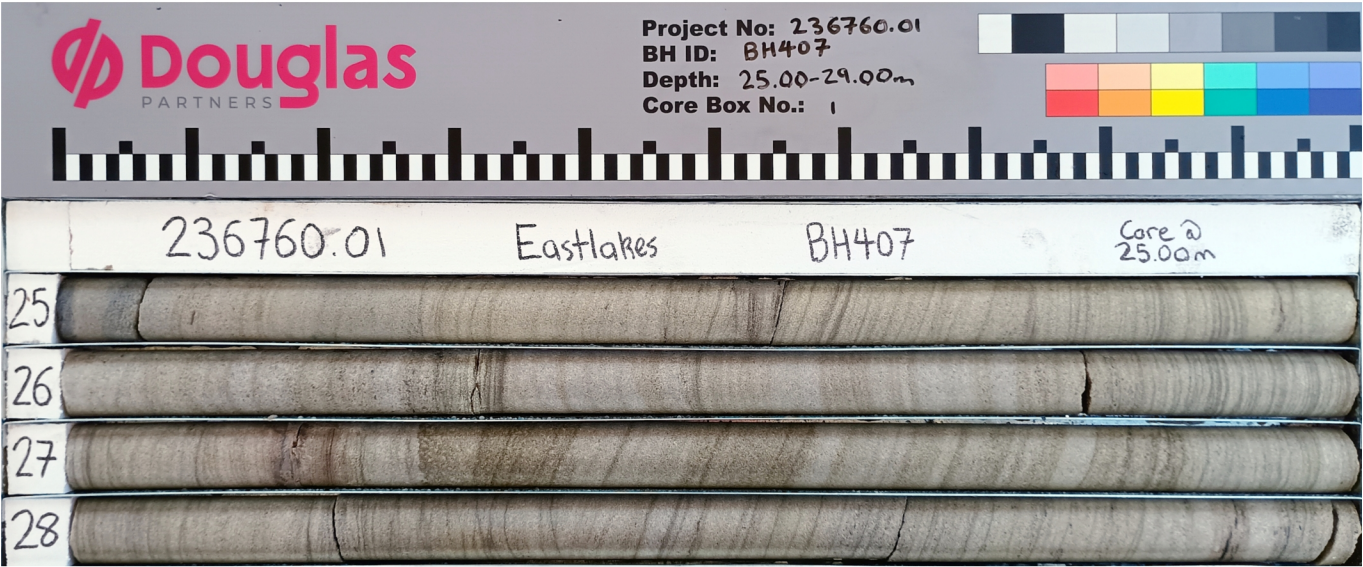


CORE PHOTO LOG

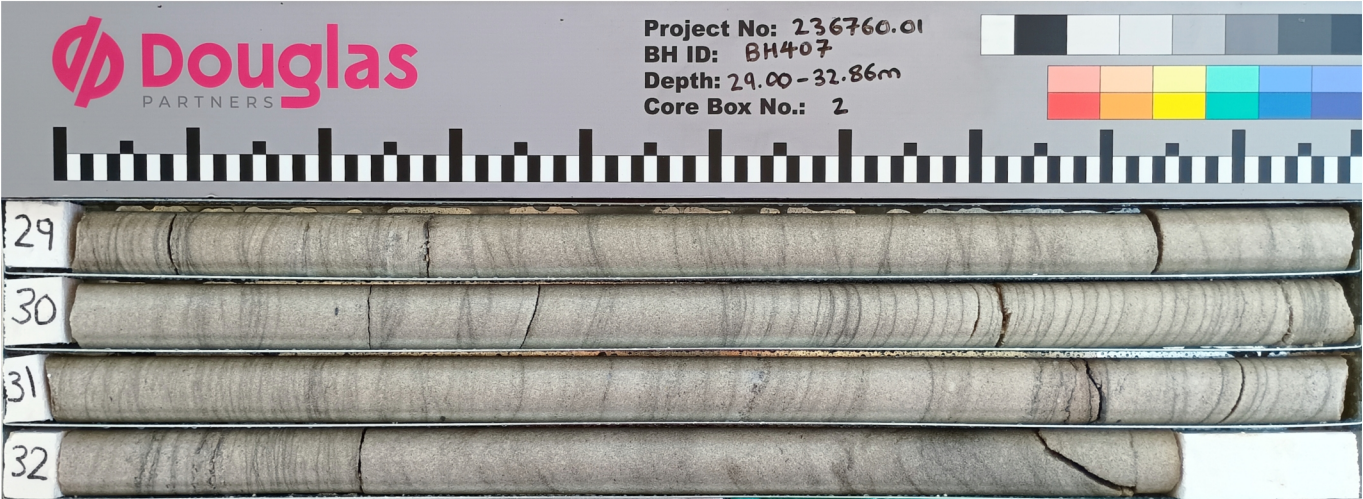
CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.0 AHD
COORDINATE: E:334733.6, N:6244692.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH407
PROJECT No: 236760.01
DATE: 28/11/25
SHEET: 1 of 1



25.00-29.00 m depth



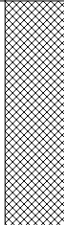
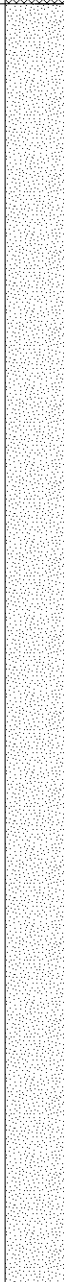
29.00-32.86 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 15.9 AHD
COORDINATE: E:334611.4, N:6244675.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH408
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 1 of 6

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
04/12/25 No free groundwater observed whilst augering	15	1	FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.		FILL			D				1					
	14	2	SAND (SP): pale grey; medium to coarse.									2					
	13	3										3					
	12	4										4					
	11	5					ND					5					
	10	6			AEO			NDF				6					
	9	7										7					
	8	8										8					
	7	9										9					
	6																

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 34.75m, then NMLC to 44.9m

CASING: HQ to 34.75m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

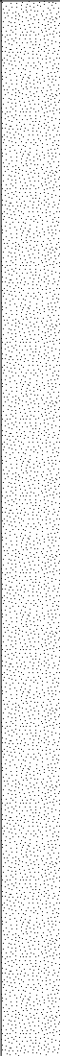
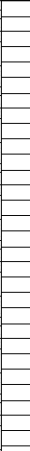
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 15.9 AHD
COORDINATE: E:334611.4, N:6244675.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH408
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 2 of 6

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
																		
		11	[CONT] SAND (SP): pale grey; medium to coarse.		AEO							11						
		12										12						
		13										13						
		14										14						
		15				ND		NDF				15						
		16										16						
		17.00										17						
		18	SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.		AEO / MAR							18						
		19										19						
		20										20						
		21										21						
		22										22						
		23										23						
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		99										99						
		100										100						

NOTES. [Ⓐ]Soil origin is "probable" unless otherwise stated. [Ⓒ]Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hydrapower Scout 4
METHOD: AD/T to 1.5m, then WB to 34.75m, then NMLC to 44.9m
REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

OPERATOR: Ground Test (GM)
CASING: HQ to 34.75m

LOGGED: L. Straney

Refer to explanatory notes for symbol and abbreviation definitions

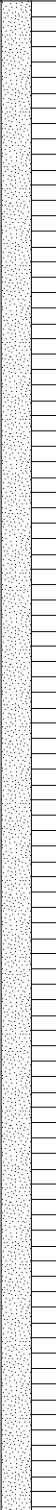


BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 15.9 AHD
COORDINATE: E:334611.4, N:6244675.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH408
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 3 of 6

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY. (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
																		
			[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.															
	15	21										21						
	16	22										22						
	17	23										23						
	18	24										24						
	19	25			AEO / MAR			ND				25						
	20	26						NDF				26						
	21	27										27						
	22	28										28						
	23	29										29						
	24																	

NOTES: ^aSoil origin is "probable" unless otherwise stated. ^bConsistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 34.75m, then NMLC to 44.9m

CASING: HQ to 34.75m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 15.9 AHD
COORDINATE: E:334611.4, N:6244675.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH408
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 4 of 6

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	15	31	[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.											
	16	32			AEO / MAR		ND							
	17	33						NDF						
	18	34												
	19	34.75												
	19	35	Sandy CLAY (CL-CI): pale grey mottled orange-brown; low to medium plasticity; medium to coarse sand.		MAR	St - VSt						35	PP	300kPa
		35.35											PP	150-200kPa
		35.70	SAND (SP) trace clay: pale grey; medium to coarse.		MAR	ND							PP	>600kPa
	20	36	CLAY (CI-CH): pale grey mottled orange-brown; medium to high plasticity; with ironstone bands.									36	PP	200-400kPa
													PP	200kPa
	21	37			RS becoming XWM	St - VSt							PP	250-350kPa
												37	PP	300kPa
		37.25m-37.40m:	medium strength siltstone band											
	22	37.55	Continued as rock log										PP	250-350kPa
	23	38										38		
	24	39										39		

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 34.75m, then NMLC to 44.9m

CASING: HQ to 34.75m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 15.9 AHD
COORDINATE: E:334611.4, N:6244675.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH408
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 5 of 6

CONDITIONS ENCOUNTERED										SAMPLE			TESTING								
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (kPa (100 lbf/ft²))	SOIL MOISTURE	GRAPHIC	PS XW HW MW SW FR	WEATH. D _W	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	31																31				
	32																32				
	33																33				
	34																34				
	35																35				
	36																36				
	37									100	0						37				
	38.00	Continued from soil log SANDSTONE: grey and brown, fine grained. Hawkesbury Sandstone. SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.				MW MW	M	37.55 37.68 37.74 38.02	M	100	70		37.68-37.74m: EW 37.60-37.99m: B x8, 0-5°, PR, SN Fe, RF 37.85m: EW, 30mm 37.90m: B, 0°, PR, Clay 3mm, RF 38.00m: EW, 10mm 38.57m: EW, 40mm				38	PLT	PL(A)=0.64MPa		
	39					FR	M	39.80	H	100	99		39.42-39.43m: B x2, 0°, PR, VNR Clay, RF 39.56m: B, 5°, PR, VNR Clay, RF 39.70m: B, 10°, PR, VNR Clay, RF				39	PLT	PL(A)=0.84MPa		
	40																	PLT	PL(A)=1.3MPa		

NOTES: ¹ Soil origin is "probable" unless otherwise stated.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 34.75m, then NMLC to 44.9m

CASING: HQ to 34.75m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 15.9 AHD
COORDINATE: E:334611.4, N:6244675.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH408
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 6 of 6

CONDITIONS ENCOUNTERED													SAMPLE			TESTING						
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (where encountered)		GRAPHIC	WEATH.		DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
				SW	DW		SW	FR														
			[CONT] SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.																			
	41										100	99						41	PLT	PL(A)=1.2MPa		
	42													41.84m: B, 0°, PR, CN, RF				42	PLT	PL(A)=1.4MPa		
	43																	43	PLT	PL(A)=2.2MPa		
	44										100	100		43.34m: B, 30°, PR, VNR Clay, RF				44	PLT	PL(A)=1.6MPa		
	45													44.15m: B, 0°, PR, VNR Clay, RF					PLT	PL(A)=1.7MPa		
			Borehole discontinued at 44.90m depth. Target depth reached.																			
	46																					
	47																					
	48																					
	49																					

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 34.75m, then NMLC to 44.9m

CASING: HQ to 34.75m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

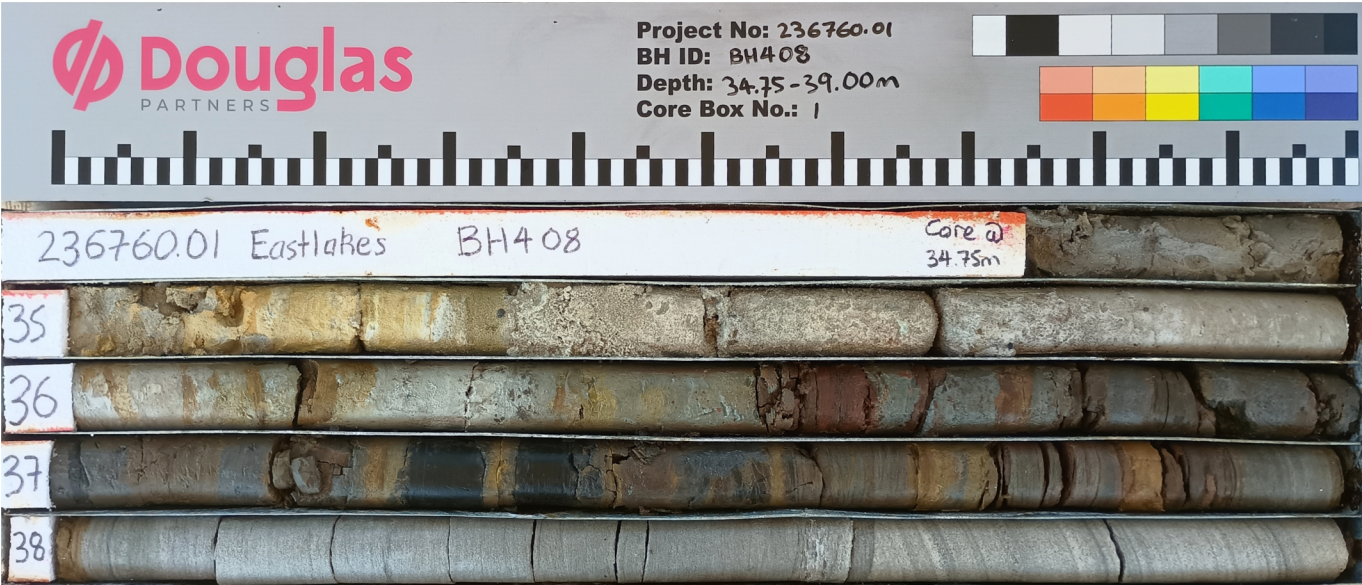
Refer to explanatory notes for symbol and abbreviation definitions

CORE PHOTO LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 15.9 AHD
COORDINATE: E:334611.4, N:6244675.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH408
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 1 of 2



34.75-39.00 m depth



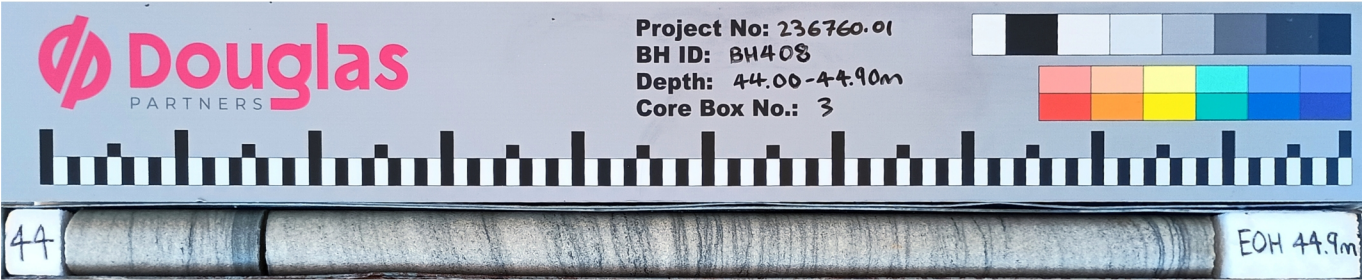
39.00-44.00 m depth

CORE PHOTO LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 15.9 AHD
COORDINATE: E:334611.4, N:6244675.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH408
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 2 of 2



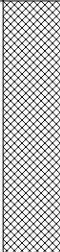
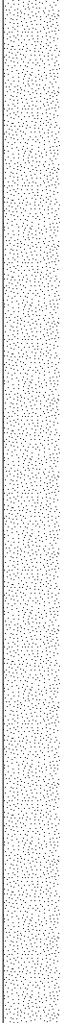
44.00-44.90 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334658.5, N:6244684.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH409
PROJECT No: 236760.01
DATE: 09/12/25
SHEET: 1 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
09/12/25 No free groundwater observed whilst augering	18	1	FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.		FILL			D				1						
	17	2										2						
	16	3										3						
	3.20		SAND (SP): pale grey; medium to coarse.				ND	NDF			4							
	15	4									5							
	14	5									6							
	13	6									7							
	12	7									8							
	11	8									9							
	10	9																
9																		

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 2.5m, then WB to 28.05m, then NMLC to 36.65m

CASING: HQ to 28.05m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

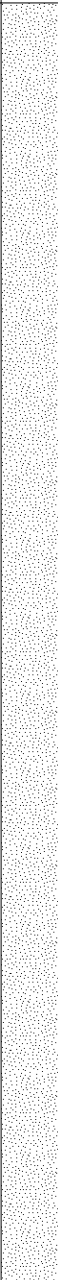
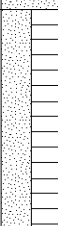
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334658.5, N:6244684.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH409
PROJECT No: 236760.01
DATE: 09/12/25
SHEET: 2 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
		8	[CONT] SAND (SP): pale grey; medium to coarse.		AEO							11							
		11																	
		12																	
		13																	
		14																	
		15																	
		16																	
		17																	
		18																	
		18.50																	
		19	SAND (SP) INTERBEDDED WITH CLAY (CL): sand: pale grey; medium to coarse. Clay: grey; low plasticity. /.		AEO / MAR						19								
		19																	
		19																	

NOTES: [#]Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 2.5m, then WB to 28.05m, then NMLC to 36.65m

CASING: HQ to 28.05m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334658.5, N:6244684.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH409
PROJECT No: 236760.01
DATE: 09/12/25
SHEET: 3 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS		
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
			[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand: pale grey; medium to coarse. Clay: grey; low plasticity. /.																
	2.2	21										21							
	3.3	22										22							
	4.4	23										23							
	5.5	24			AEO / MAR	ND		NDF				24							
	6.6	25										25							
	7.7	26										26							
	8.8	27										27							
	9.9	28										28							
	28.05		Continued as rock log									28							
	10.0	29										29							
	11.1																		

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 2.5m, then WB to 28.05m, then NMLC to 36.65m

CASING: HQ to 28.05m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334658.5, N:6244684.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH409
PROJECT No: 236760.01
DATE: 09/12/25
SHEET: 4 of 5

[illegible]

NOTES: (H) Soil origin is "probable" unless otherwise stated.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 2.5m, then WB to 28.05m, then NMLC to 36.65m

CASING: HQ to 28.05m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Generated with CORE-GS by Geroc - Split Soil-Rock Log

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334658.5, N:6244684.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH409
PROJECT No: 236760.01
DATE: 09/12/25
SHEET: 5 of 5

CONDITIONS ENCOUNTERED											SAMPLE			TESTING						
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (kN/m ² Moisture @)	SOIL MOISTURE	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	31	[CONT] SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.					30.91	M	100	90		30.50m: B, 5°, PR, CN, RF				31	PLT	PL(A)=1.1MPa		
	32						32.30	H	100	97		30.89m: EW, 10mm 31.19m: EW, 10mm 31.24m: B, 0°, PR, Clay 3mm, RF				32	PLT	PL(A)=1.6MPa		
	33															33	PLT	PL(A)=0.68MPa		
	34															34	PLT	PL(A)=0.93MPa		
	35	From 34.50m: Fine grained, grey						M	100	97		35.18m: B, 10°, PR, CN, RF				35	PLT	PL(A)=0.94MPa		
	36											35.44m: EW, 30mm 35.49m: EW, 10mm				36	PLT	PL(A)=0.91MPa		
	37	Borehole discontinued at 36.65m depth. Target depth reached.															PLT	PL(A)=0.60MPa		

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 2.5m, then WB to 28.05m, then NMLC to 36.65m

CASING: HQ to 28.05m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

CORE PHOTO LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334658.5, N:6244684.0
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH409
PROJECT No: 236760.01
DATE: 09/12/25
SHEET: 1 of 1



28.05-32.00 m depth



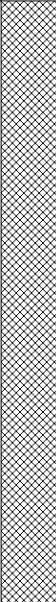
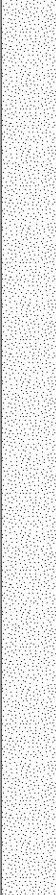
32.00-36.65 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.4 AHD
COORDINATE: E:334691.2, N:6244678.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH410
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 1 of 5

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. (°)	DENSITY (°)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
04/12/25 No free groundwater observed whilst augering	18		FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.					D				1					
	17	1															
	16	2															
	15	3															
	4.00		SAND (SP): pale grey; medium to coarse.				ND	NDF			4						
	14	5															
	13	6															
	12	7															
	11	8															
	10	9															
	9																

NOTES: ^aSoil origin is "probable" unless otherwise stated. ^bConsistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 26.25m, then NMLC to 34.23m

CASING: HQ to 34.23m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

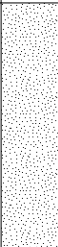
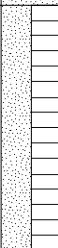
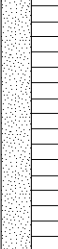


BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.4 AHD
COORDINATE: E:334691.2, N:6244678.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH410
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 2 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
		8	[CONT] SAND (SP): pale grey; medium to coarse.		AEO							8						
		11										11						
		12										12						
		13	SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.			ND		NDF				13						
		14										14						
		15										15						
		16			AEO / MAR							16						
		17										17						
		18										18						
		19										19						

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 26.25m, then NMLC to 34.23m

CASING: HQ to 34.23m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.4 AHD
COORDINATE: E:334691.2, N:6244678.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH410
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 3 of 5

CONDITIONS ENCOUNTERED							SAMPLE			TESTING AND REMARKS				
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	1.2		[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.											
	21											21		
	1.3													
	22											22		
	1.4													
	23				AEO / MAR	ND		NDF				23		
	1.5													
	24											24		
	1.6													
	25											25		
	1.7													
	26											26		
	26.25		Continued as rock log											
	1.8													
	27											27		
	1.9													
	28											28		
	1.10													
	29											29		
	1.11													

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 26.25m, then NMLC to 34.23m

CASING: HQ to 34.23m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.4 AHD
COORDINATE: E:334691.2, N:6244678.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH410
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 4 of 5

[illegible]

NOTES: (4) Soil origin is "probable" unless otherwise stated.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 26.25m, then NMLC to 34.23m

CASING: HQ to 34.23m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.4 AHD
COORDINATE: E:334691.2, N:6244678.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH410
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 5 of 5

GROUNDWATER	CONDITIONS ENCOUNTERED													SAMPLE			TESTING						
	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (kN/m²) (ASTM D1586-01)	SOIL MOISTURE (%)	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE		
	112	31	[CONT] SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.				RS XW HW TW SW FR	VL L M H VH				20 100 300 1000	30.17m: B, 0°, PR, VNR Clay, RF 30.45m: EW, 20mm 30.65-30.70m: EW 31.27m: B, 5°, PR, VNR Clay, RF 31.47m: B, 0°, PR, Clay 3mm, RF 32.56m: B, 5°, IR, VNR Clay, RF 33.65m: B, 20°, PR, VNR Clay, RF 33.80m: B, 10°, PR, VNR Clay, RF 33.86m: JT, 90°, CU, Clay 3mm, RF, (33.82-33.91) 34.08m: JT, 90°, IR, Clay 1mm, RF, (33.94-34.23)										
	113	32						FR			100	97							31	PLT	PL(A)=1.9MPa		
	114	33																	32	PLT	PL(A)=1.4MPa		
	115	34									100	96							33	PLT	PL(A)=1.0MPa		
	116	35	Borehole discontinued at 34.23m depth. Target depth reached.															34	PLT	PL(A)=0.77MPa			
	117	36																					
	118	37																					
	119	38																					
	120	39																					

NOTES: [#]Soil origin is "probable" unless otherwise stated.

Generated with CORE-GS by Geroc - Split Soil-Rock Log

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 26.25m, then NMLC to 34.23m

CASING: HQ to 34.23m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

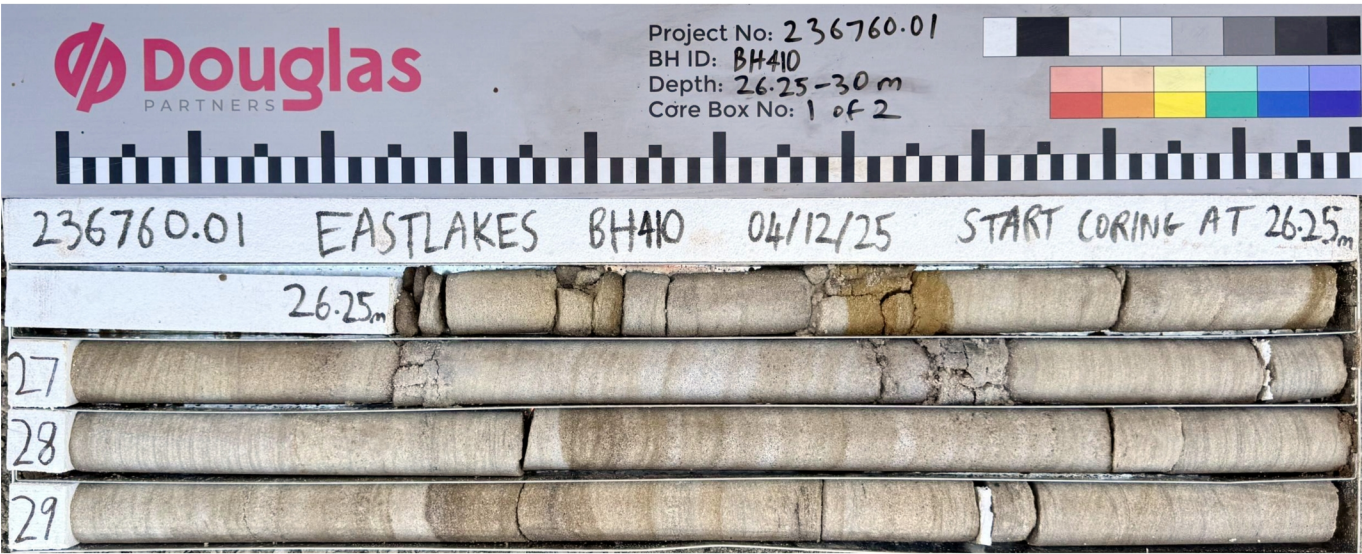


CORE PHOTO LOG

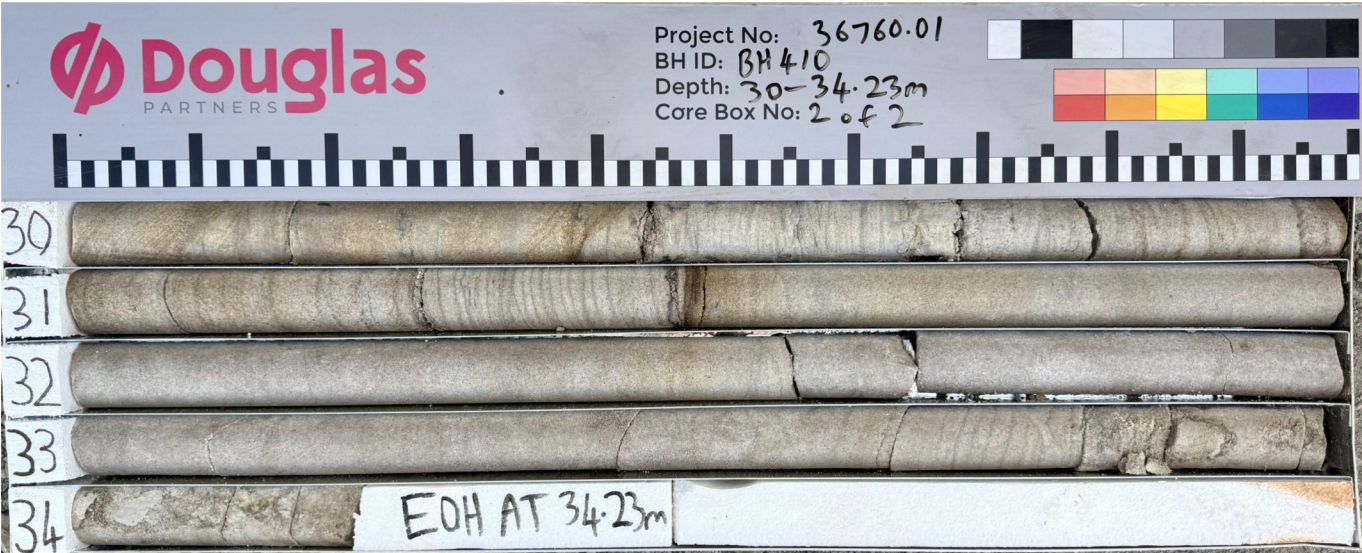
CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.4 AHD
COORDINATE: E:334691.2, N:6244678.8
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH410
PROJECT No: 236760.01
DATE: 04/12/25
SHEET: 1 of 1



26.25-30.00 m depth



30.00-34.23 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.1 AHD
COORDINATE: E:334719.9, N:6244651.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH411
PROJECT No: 236760.01
DATE: 05/12/25
SHEET: 1 of 5

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
05/12/25 No free groundwater observed whilst augering	18		FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.		FILL			D				1					
	17	1										1					
	16	2										2					
	15	3.00	SAND (SP): pale grey; medium to coarse.					ND	NDF			3					
	14	4										4					
	13	5										5					
	12	6										6					
	11	7										7					
	10	8										8					
	9											9					

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 24.65m, then NMLC to 32.75m

CASING: HQ to 24.65m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

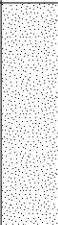
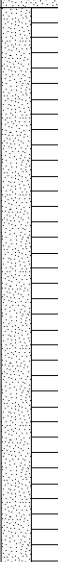


BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.1 AHD
COORDINATE: E:334719.9, N:6244651.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH411
PROJECT No: 236760.01
DATE: 05/12/25
SHEET: 2 of 5

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
																	
	8		[CONT] SAND (SP): pale grey; medium to coarse.		AEO												
	11											11					
	12											12					
	13.00		SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.									13					
	14											14					
	15					ND		NDF				15					
	16				AEO / MAR							16					
	17											17					
	18											18					
	19											19					

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. *Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 24.65m, then NMLC to 32.75m

CASING: HQ to 24.65m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.1 AHD
COORDINATE: E:334719.9, N:6244651.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH411
PROJECT No: 236760.01
DATE: 05/12/25
SHEET: 3 of 5

CONDITIONS ENCOUNTERED										SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	2		[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /. <											

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 24.65m, then NMLC to 32.75m

CASING: HQ to 24.65m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.1 AHD
COORDINATE: E:334719.9, N:6244651.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH411
PROJECT No: 236760.01
DATE: 05/12/25
SHEET: 4 of 5

CONDITIONS ENCOUNTERED														SAMPLE			TESTING					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (where encountered)	SOIL MOISTURE	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE	
	20						RS XW DW NW SW FR															
	21																					
	22																					
	23																					
	24																					
	25		Continued from soil log SANDSTONE: pale grey and brown, medium to coarse grained. Hawkesbury Sandstone.					24.65	M									25	PLT	PL(A)=0.77MPa		
	26							25.25		100	98		25.18m: B, 0°, PR, CN, RF									
	26												25.63m: B, 10°, PR, Clay 1mm, RF				26	PLT	PL(A)=1.3MPa			
	26												25.75m: EW, 20mm									
	26												26.20m: EW, 5mm									
	27									100	100											
	27												27.30m: B, 10°, PR, CN, RF				27	PLT	PL(A)=1.2MPa			
	28							27.62	M				27.69m: B, 0°, PR, VNR Clay, RF									
	28							28.00									28	PLT	PL(A)=0.32MPa			
	28							28.23	SEAM				28.00-28.23m: DS									
	29												28.59m: B, 20°, PR, VNR Clay, RF									
	29												28.75m: B, 20°, PR, VNR Clay, RF				29	PLT	PL(A)=0.72MPa			
	29		29.75m: pale grey					29.75	H				29.40m: B, 20°, PR, VNR Clay, RF									
										100	99							PLT	PL(A)=1.5MPa			
NOTES: #Soil origin is "probable" unless otherwise stated.																						

PLANT: Comacchio 405 **OPERATOR:** Terratest (MM) **LOGGED:** L. Straney
METHOD: AD/T to 1.5m, then WB to 24.65m, then NMLC to 32.75m **CASING:** HQ to 24.65m
REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.1 AHD
COORDINATE: E:334719.9, N:6244651.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH411
PROJECT No: 236760.01
DATE: 05/12/25
SHEET: 5 of 5

CONDITIONS ENCOUNTERED											SAMPLE			TESTING									
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (where encountered)	SOIL MOISTURE	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE		
	12		[CONT] SANDSTONE: pale grey and brown, medium to coarse grained. Hawkesbury Sandstone.				RS XW DW SW FR																
	31														30.25m: JT, 50°, UN, VNR Clay, RF 30.35m: B, 0°, PR, Clay 1mm, RF 30.78m: B, 0°, PR, VNR Clay, RF				31	PLT	PL(A)=0.97MPa		
	32											100	99		31.14m: EW, 20mm				32	PLT	PL(A)=1.5MPa		
	33														32.65m: B, 20°, PR, VNR Clay, RF				PLT	PL(A)=1.1MPa			
	33		Borehole discontinued at 32.75m depth. Target depth reached.																				
	34																						
	35																						
	36																						
	37																						
	38																						
	39																						

NOTES: [#]Soil origin is "probable" unless otherwise stated.

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Comacchio 405

OPERATOR: Terratest (MM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 24.65m, then NMLC to 32.75m

CASING: HQ to 24.65m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

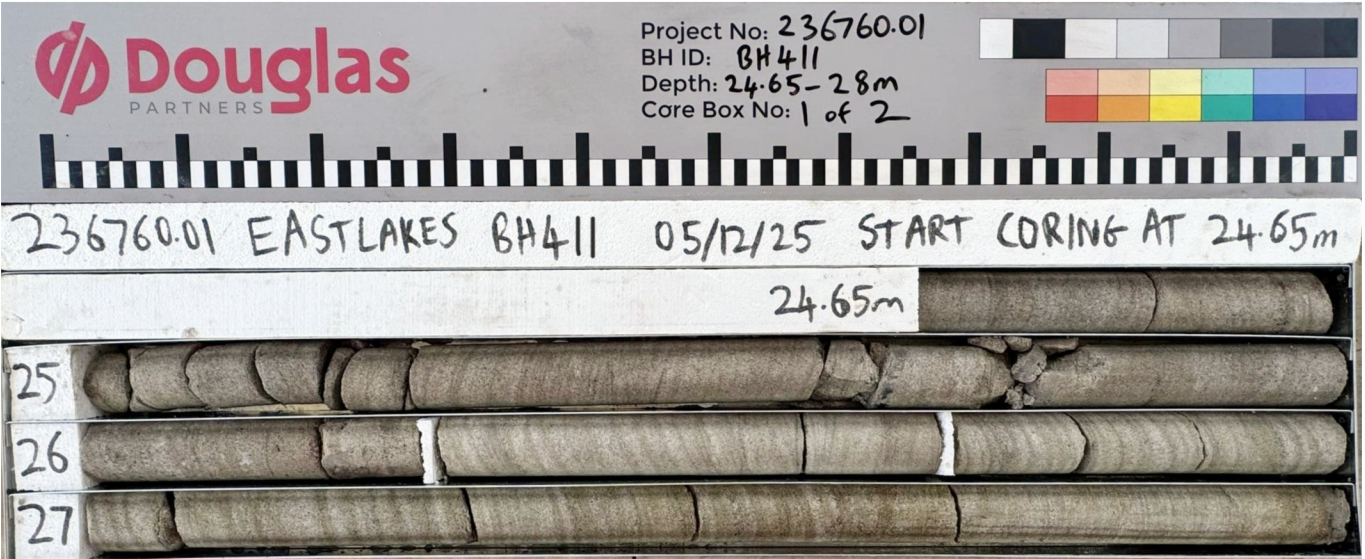


CORE PHOTO LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.1 AHD
COORDINATE: E:334719.9, N:6244651.3
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH411
PROJECT No: 236760.01
DATE: 05/12/25
SHEET: 1 of 1



24.65-28.00 m depth



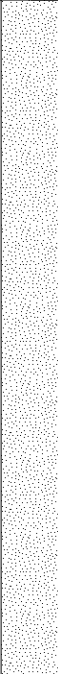
28.00-32.75 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 17.0 AHD
COORDINATE: E:334651.1, N:6244619.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH413
PROJECT No: 236760.01
DATE: 04/12/25 - 05/12/25
SHEET: 1 of 6

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
04/12/25 No free groundwater observed whilst augering	16	1	FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.		FILL			D				1					
	15	2										2					
	14	2.50	SAND (SP): pale grey and pale brown; medium to coarse.				ND	NDF				3					
	13	3										4					
	12	4										5					
	11	5										6					
	10	6										7					
	9	7										8					
	8	8										9					
	7	9															

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 35.87m, then NMLC to 44.54m

CASING: HQ to 35.87m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 17.0 AHD
COORDINATE: E:334651.1, N:6244619.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH413
PROJECT No: 236760.01
DATE: 04/12/25 - 05/12/25
SHEET: 2 of 6

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
			[CONT] SAND (SP): pale grey and pale brown; medium to coarse.															
	6	11										11						
	5	12			AEO							12						
	4	13										13						
	3	14										14						
	14.50																	
	2	15	SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.			ND		NDF				15						
	1	16										16						
	0	17			AEO / MAR							17						
	-1	18										18						
	-2	19										19						
	-3																	

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 35.87m, then NMLC to 44.54m

CASING: HQ to 35.87m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 17.0 AHD
COORDINATE: E:334651.1, N:6244619.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH413
PROJECT No: 236760.01
DATE: 04/12/25 - 05/12/25
SHEET: 3 of 6

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS			
			[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.														
	1.4	21										21					
	1.5	22										22					
	1.6	23										23					
	1.7	24										24					
	1.8	25			AEO / MAR	ND		NDF				25					
	1.9	26										26					
	1.10	27										27					
	1.11	28										28					
	1.12	29										29					
	1.																

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 35.87m, then NMLC to 44.54m

CASING: HQ to 35.87m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 17.0 AHD
COORDINATE: E:334651.1, N:6244619.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH413
PROJECT No: 236760.01
DATE: 04/12/25 - 05/12/25
SHEET: 4 of 6

CONDITIONS ENCOUNTERED								SAMPLE			TESTING AND REMARKS			
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS
	14	31	[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.									31		
	15	32										32		
	16	33				AEO / MAR	ND	NDF				33		
	17	34										34		
	18	35										35		
	19	35.87	Continued as rock log									36		
	20	37										37		
	21	38										38		
	22	39										39		
	23													

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 35.87m, then NMLC to 44.54m

CASING: HQ to 35.87m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 17.0 AHD
COORDINATE: E:334651.1, N:6244619.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH413
PROJECT No: 236760.01
DATE: 04/12/25 - 05/12/25
SHEET: 5 of 6

CONDITIONS ENCOUNTERED										SAMPLE			TESTING								
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (N/mm²) SOIL MOISTURE (%)	GRAPHIC	PS XW HW TW SW FR	WEATH. D _W	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	-14	31															31				
	-15	32															32				
	-16	33															33				
	-17	34															34				
	-18	35															35				
	-19	36	Continued from soil log CORE LOSS.														36				
	36.31		SANDSTONE: pale grey, medium to coarse grained. Hawkesbury Sandstone.					36.31													
	-20	37				FR			M	83	62		37.22m: B, 10°, PR, VNR Clay, RF 37.25m: JT, 75°, PR, CN, RF, (37.22-37.28)				37	PLT	PL(A)=0.39MPa		
	-21	38				XW		37.90				SEAM	37.90-38.19m: EW 38.22-38.27m: EW 38.35m: EW, 10mm 38.41m: EW, 10mm				38	PLT	PL(A)=0.88MPa		
	-22	39				FR			M	100	98		39.53m: B, 0°, PR, Clay 1mm, RF				39	PLT	PL(A)=0.85MPa		
								39.80										PLT	PL(A)=1.3MPa		

NOTES: # Soil origin is "probable" unless otherwise stated.

NOTES: (H) Soil origin is "probable" unless otherwise stated.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 35.87m, then NMLC to 44.54m

CASING: HQ to 35.87m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 17.0 AHD
COORDINATE: E:334651.1, N:6244619.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH413
PROJECT No: 236760.01
DATE: 04/12/25 - 05/12/25
SHEET: 6 of 6

CONDITIONS ENCOUNTERED											SAMPLE			TESTING					
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	SOIL STRENGTH (where encountered)	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
			</																

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Hydrapower Scout 4

OPERATOR: Ground Test (GM)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 35.87m, then NMLC to 44.54m

CASING: HQ to 35.87m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



CORE PHOTO LOG

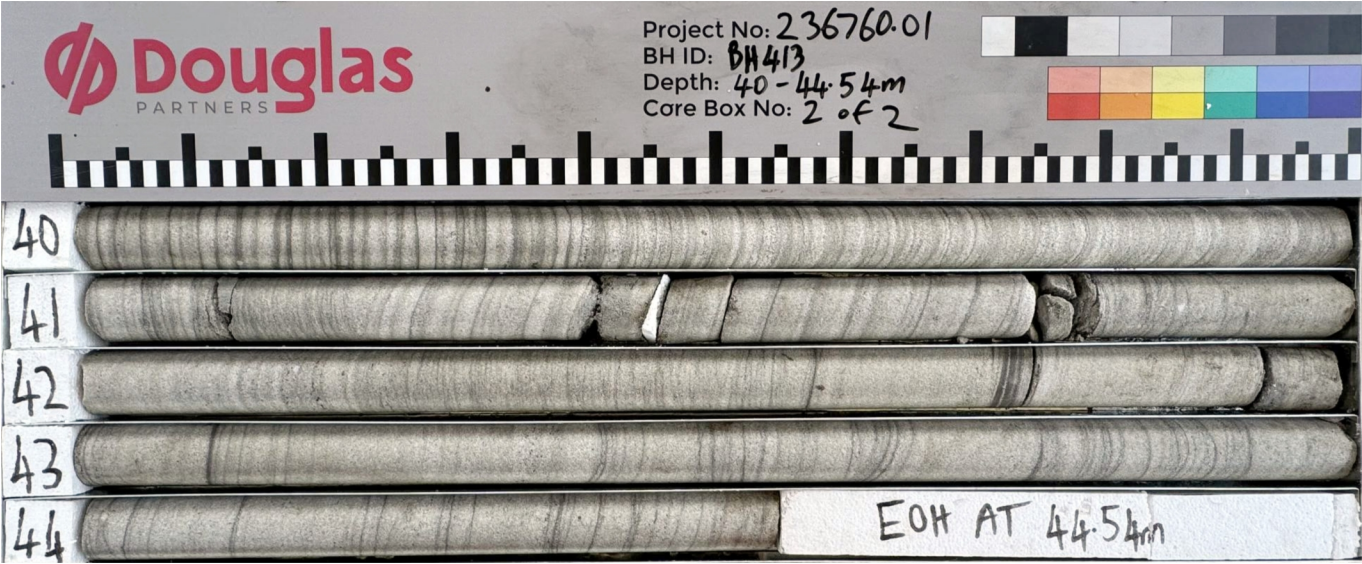
CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 17.0 AHD
COORDINATE: E:334651.1, N:6244619.4
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH413
PROJECT No: 236760.01
DATE: 04/12/25 - 05/12/25
SHEET: 1 of 1



35.87-40.00 m depth



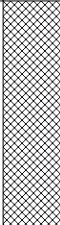
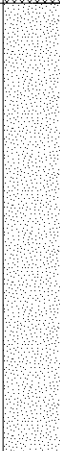
40.00-44.54 m depth

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334684.8, N:6244632.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH414
PROJECT No: 236760.01
DATE: 08/12/25
SHEET: 1 of 6

CONDITIONS ENCOUNTERED													SAMPLE			TESTING AND REMARKS					
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS							
08/12/25 No free groundwater observed whilst augering			FILL / SAND trace gravel: grey-brown; medium to coarse; fine to medium, igneous gravel.		FILL			D				1									
		1										2			3	4	5	6	7	8	9
		2																			
		3																			
		4.20	SAND (SP): pale grey; medium to coarse.		AEO			NDF				5									
		5										6			7	8	9				
		6																			
		7																			
		8																			
		9																			
		10																			
		11																			
		12																			
		13																			
		14																			
		15																			
		16																			
		17																			
		18																			

NOTES: ^(*)Soil origin is "probable" unless otherwise stated. ^(*)Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. %Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 32.55m, then NMLC to 44.4m

CASING: HQ to 32.55m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

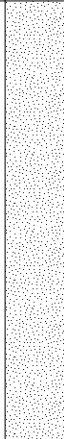
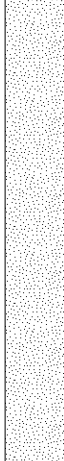
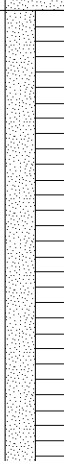
Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334684.8, N:6244632.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH414
PROJECT No: 236760.01
DATE: 08/12/25
SHEET: 2 of 6

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	RL (m)	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ⁽¹⁾	DENSITY. ⁽²⁾	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS				
		8	[CONT] SAND (SP): pale grey; medium to coarse.		AEO							8						
		11										11						
		12										12						
		13										13						
		14				ND		NDF				14						
		15										15						
		16										16						
		17										17						
		18	SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.		AEO / MAR							18						
		19										19						
		20										20						
		21										21						

NOTES: ⁽¹⁾Soil origin is "probable" unless otherwise stated. ⁽²⁾Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 32.55m, then NMLC to 44.4m

CASING: HQ to 32.55m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334684.8, N:6244632.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH414
PROJECT No: 236760.01
DATE: 08/12/25
SHEET: 3 of 6

CONDITIONS ENCOUNTERED														SAMPLE			TESTING AND REMARKS	
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	ORIGIN (#)	CONSIS. ^(*)	DENSITY. ^(*)	MOISTURE	REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS					
RL (m)																		
	21	[CONT] SAND (SP) INTERBEDDED WITH CLAY (CL): sand; medium to coarse. Clay: grey; low plasticity. /.		AEO / MAR	ND		NDF				21							
	22										22							
	23										23							
	24										24							
	25										25							
	26										26							
	27										27							
	27.20	CLAY (CL): grey; low plasticity.		MAR														
	28										28							
	29										29							

NOTES: #Soil origin is "probable" unless otherwise stated. °Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 32.55m, then NMLC to 44.4m

CASING: HQ to 32.55m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334684.8, N:6244632.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH414
PROJECT No: 236760.01
DATE: 08/12/25
SHEET: 4 of 6

[illegible]

NOTES: ^(a) Soil origin is "probable" unless otherwise stated. ^(b) Consistency/Relative density shading is for visual reference only - no correlation between cohesive and granular materials is implied.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 32.55m, then NMLC to 44.4m

CASING: HQ to 32.55m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Generated with CORE-GS by Geroc - Split Soil-Rock Log

Refer to explanatory notes for symbol and abbreviation definitions



BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334684.8, N:6244632.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH414
PROJECT No: 236760.01
DATE: 08/12/25
SHEET: 5 of 6

[illegible]

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 32.55m, then NMLC to 44.4m

CASING: HQ to 32.55m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

BOREHOLE LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334684.8, N:6244632.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH414
PROJECT No: 236760.01
DATE: 08/12/25
SHEET: 6 of 6

CONDITIONS ENCOUNTERED										SAMPLE			TESTING					
GROUNDWATER	DEPTH (m)	DESCRIPTION OF STRATA	GRAPHIC	WEATH.	DEPTH (m)	STRENGTH	RECOVERY (%)	RQD	FRACTURE SPACING (mm)	DEFECTS & REMARKS	SAMPLE REMARKS	TYPE	INTERVAL	DEPTH (m)	TEST TYPE	RESULTS AND REMARKS	BACKFILL	WELL PIPE
	RL (m)			PS XW HW TW SW FR	VL L M H VH EH				20 40 60 80 100									
	40	[CONT] SANDSTONE: pale grey and orange-brown, medium to coarse grained. Hawkesbury Sandstone.			40.05	L				40.04m: B, 0°, PR, VNR Clay, RF					PLT	PL(A)=0.15MPa		
	41	40.05m-40.20m: siltstone bed			40.20	M	100	93		40.18m: EW, 10mm 40.20m: EW, 5mm				41	PLT	PL(A)=0.98MPa		
	42			FR	42.58	H								42	PLT	PL(A)=0.96MPa		
	43					H	100	99		43.27m: EW, 10mm				43	PLT PLT	PL(A)=1.2MPa PL(A)=1.1MPa		
	44													44				
	45	Borehole discontinued at 44.40m depth. Target depth reached.																
	46																	
	47																	
	48																	
	49																	
	50																	
	51																	

NOTES: #Soil origin is "probable" unless otherwise stated.

PLANT: Comacchio 305

OPERATOR: Ground Test (LC)

LOGGED: L. Straney

METHOD: AD/T to 1.5m, then WB to 32.55m, then NMLC to 44.4m

CASING: HQ to 32.55m

REMARKS: Soil strata inferred from wash bore cuttings and adjacent CPT results

Refer to explanatory notes for symbol and abbreviation definitions

CORE PHOTO LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334684.8, N:6244632.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH414
PROJECT No: 236760.01
DATE: 08/12/25
SHEET: 1 of 2



32.55-37.00 m depth



37.00-42.00 m depth

CORE PHOTO LOG

CLIENT: Builtcom Constructions Pty Ltd
PROJECT: Eastlakes Town Centre
LOCATION: 19A Evans Avenue, Eastlakes, NSW

SURFACE LEVEL: 18.7 AHD
COORDINATE: E:334684.8, N:6244632.1
DATUM/GRID: MGA2020 Zone 56
DIP/AZIMUTH: 90°/---°

LOCATION ID: BH414
PROJECT No: 236760.01
DATE: 08/12/25
SHEET: 2 of 2



42.00-44.40 m depth

CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

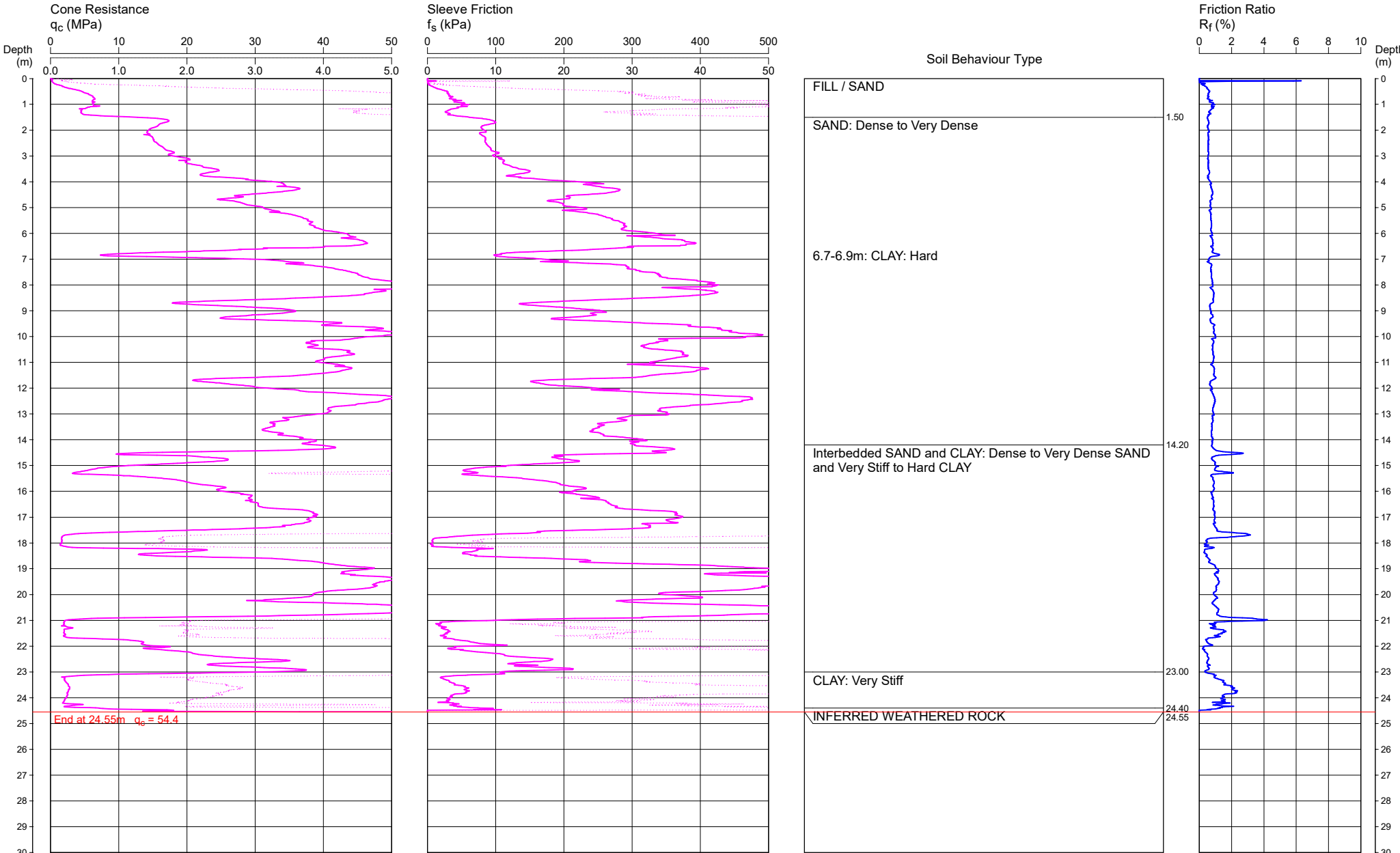
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 16.8m AHD
COORDINATES: 334623.5E 6244758.9N GDA 2020 Zone 56

CPT401

Page 1 of 1

DATE 21/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON INFERRED WEATHERED ROCK. NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF RODS. HOLE COLLAPSED AT 1.7M AFTER WITHDRAWAL OF RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT01.CP5
Cone ID: C22515 Type: C10CFIIP

ConePlot Version 5.9.2
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CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

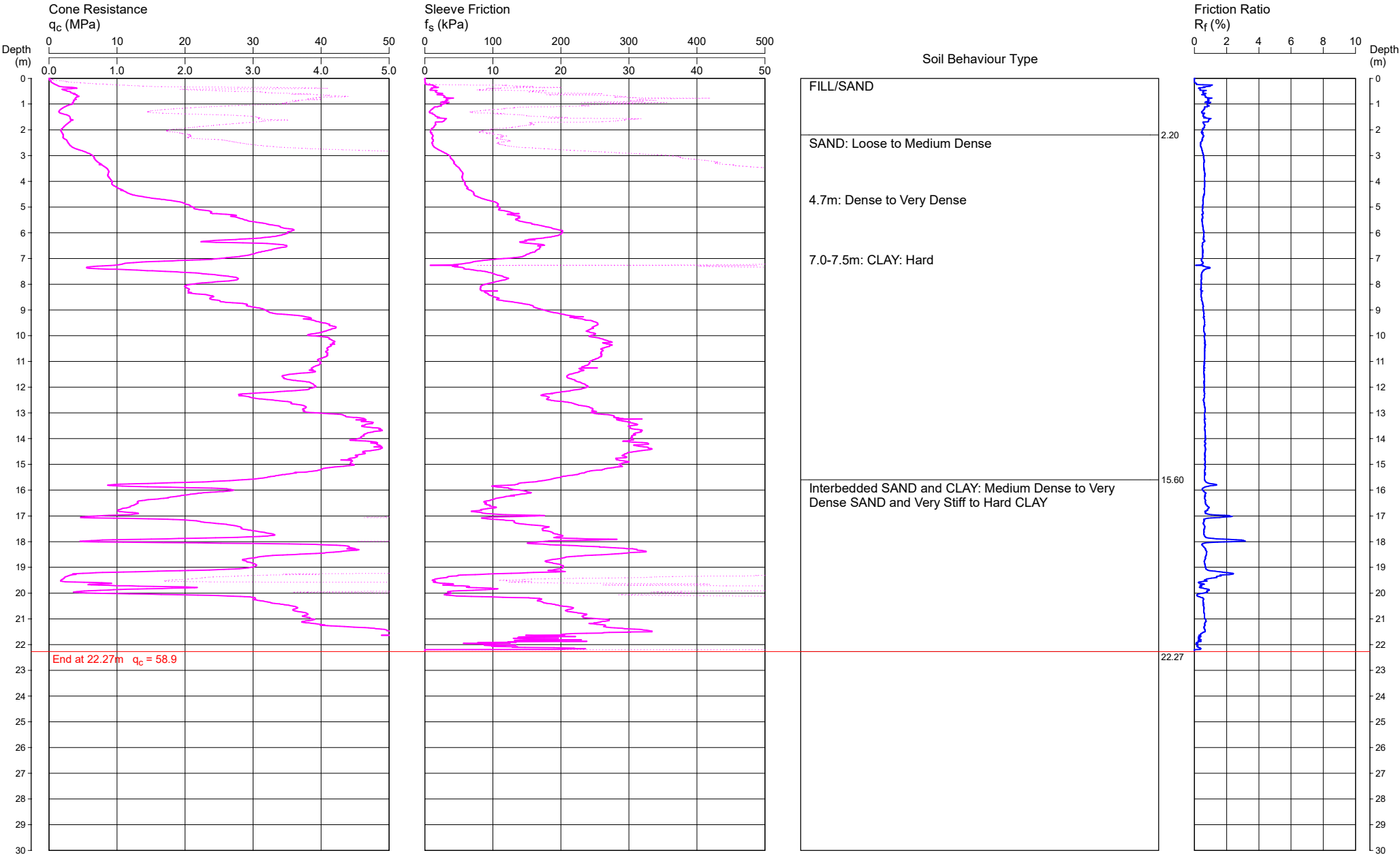
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 18.5m AHD
COORDINATES: 334690.4E 6244747.7N GDA 2020 Zone 56

CPT402

Page 1 of 1

DATE 19/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO EXCESSIVE ROD BOWING.
NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF
RODS. HOLE COLLAPSED AT 3.4M AFTER WITHDRAWAL OF
RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT02.CP5
Cone ID: C251794 Type: C10CFIIP

ConePlot Version 5.9.2
© 2003 Douglas Partners Pty Ltd

CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

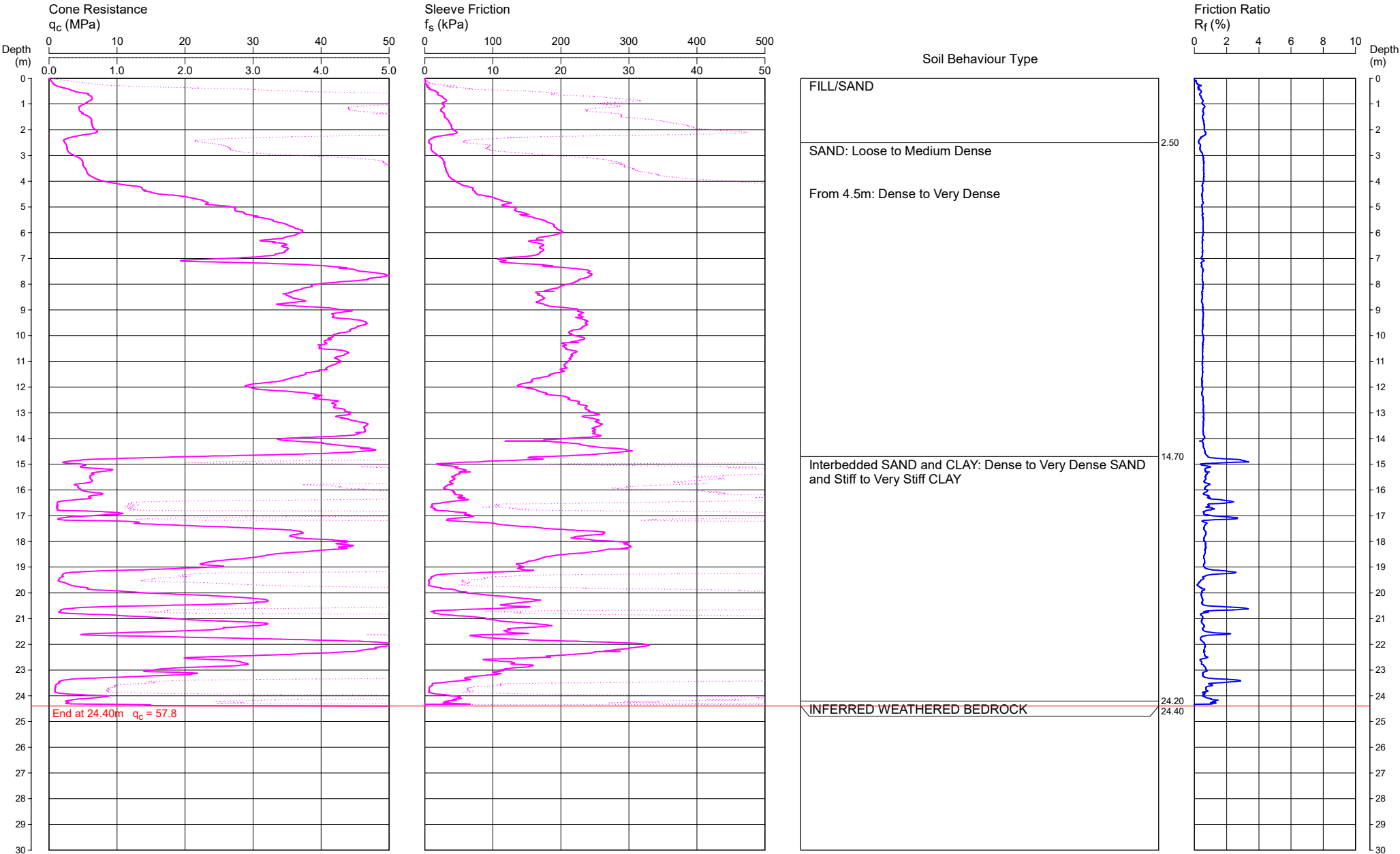
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 18.6m AHD
COORDINATES: 334735.4E 6244729.6N GDA 2020 Zone 56

CPT403

Page 1 of 1

DATE 19/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON INFERRED WEATHERED ROCK. NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF RODS. HOLE COLLAPSED AT 2.4M AFTER WITHDRAWAL OF RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT03.CP5
Cone ID: C251796 Type: C10CFIIP

ConePlot Version 5.9.2
© 2003 Douglas Partners Pty Ltd

CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

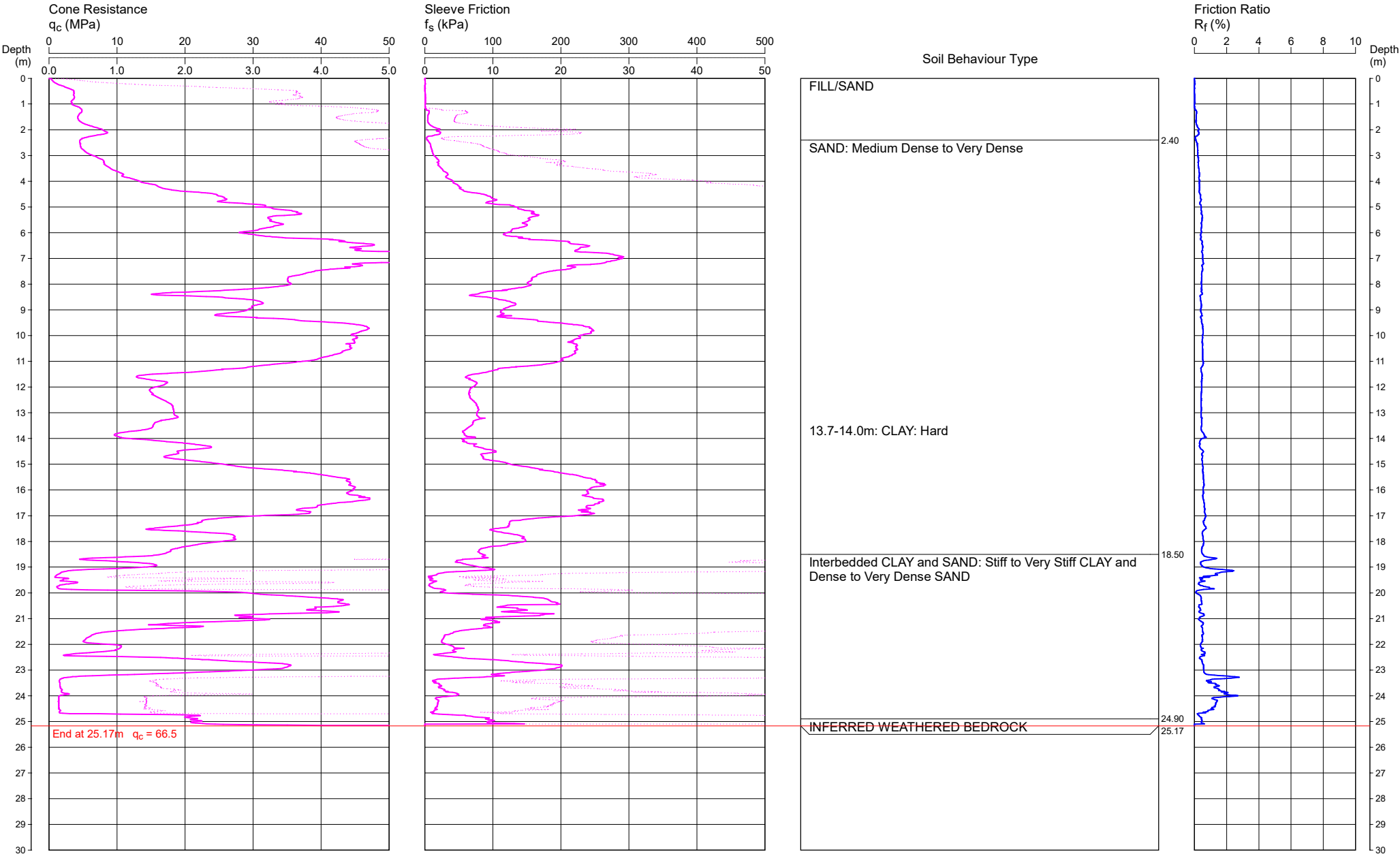
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 18.6m AHD
COORDINATES: 334745.8E 6244710.0N GDA 2020 Zone 56

CPT404

Page 1 of 1

DATE 19/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON INFERRED WEATHERED ROCK. NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF RODS. HOLE COLLAPSED AT 2.6M AFTER WITHDRAWAL OF RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT04.CP5
Cone ID: C251796 Type: C10CFIIP

ConePlot Version 5.9.2
© 2003 Douglas Partners Pty Ltd

CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

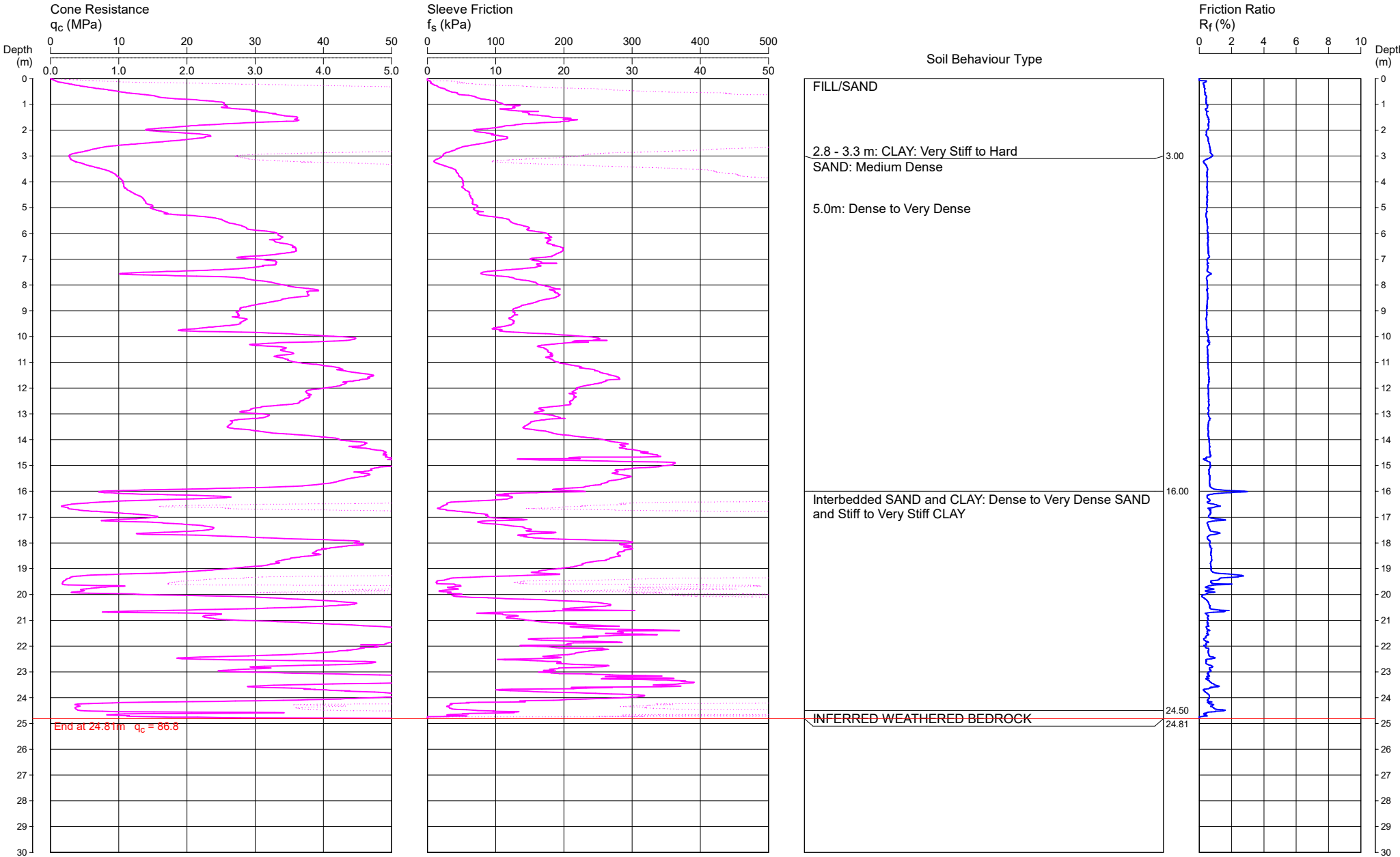
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 18.5m AHD
COORDINATES: 334666.0E 6244719.6N GDA 2020 Zone 56

CPT405

Page 1 of 1

DATE 19/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON (or NEAR) INFERRED WEATHERED ROCK (or FILLING). NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF RODS. HOLE COLLAPSED AT 3.1M AFTER WITHDRAWAL OF RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT05.CP5
Cone ID: C251794 Type: C10CFIIP

ConePlot Version 5.9.2
© 2003 Douglas Partners Pty Ltd

CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

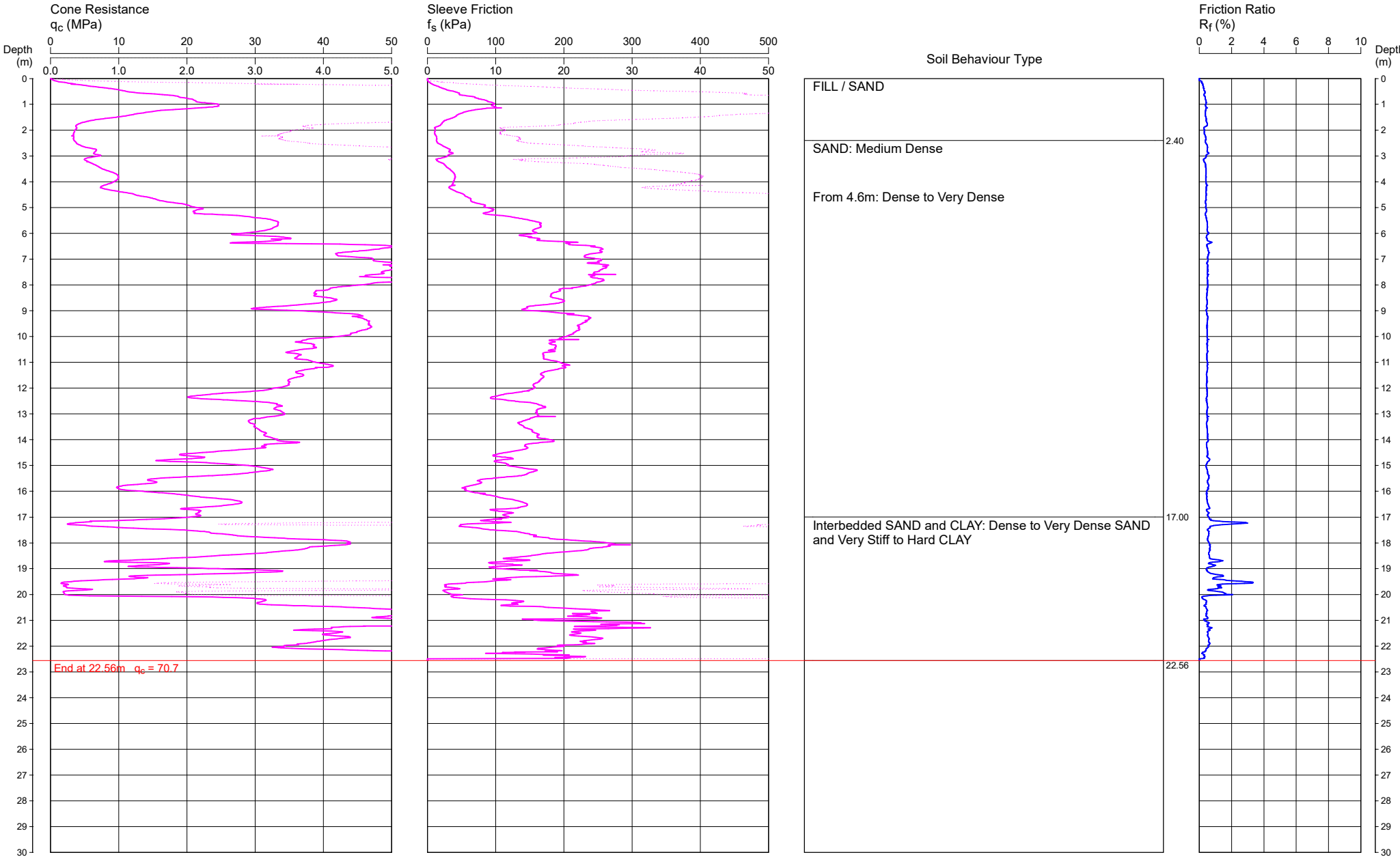
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 18.6m AHD
COORDINATES: 334693.3E 6244706.1N GDA 2020 Zone 56

CPT406

Page 1 of 1

DATE 19/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO EXCESSIVE ROD BOWING.
NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF
RODS. HOLE COLLAPSED AT 3.1M AFTER WITHDRAWAL OF
RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT06.CP5
Cone ID: C251796 Type: C10CFIIP

ConePlot Version 5.9.2
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CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

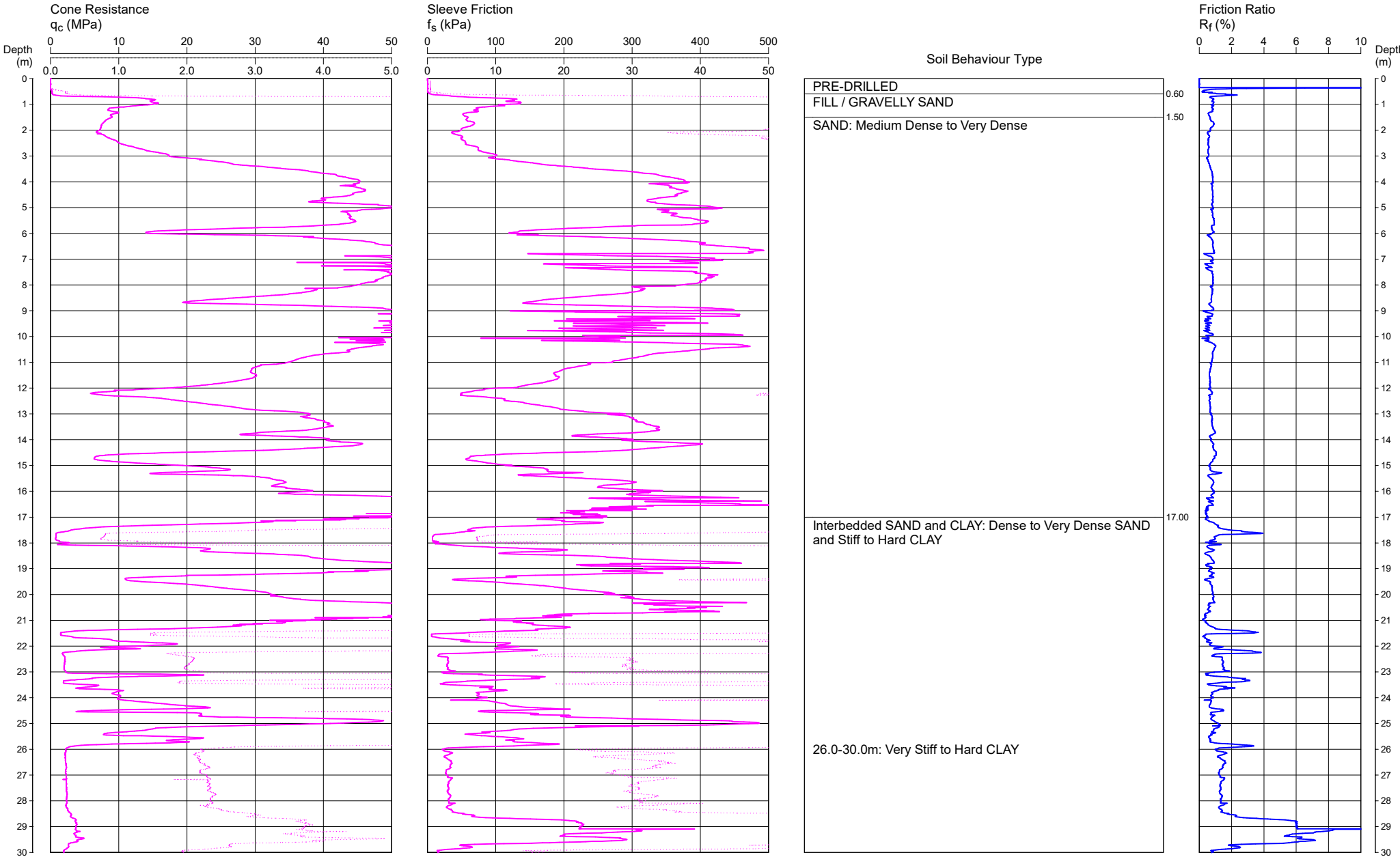
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 15.9m AHD
COORDINATES: 334611.4E 6244675.7N GDA 2020 Zone 56

CPT408

Page 1 of 2

DATE 21/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON (or NEAR) INFERRED WEATHERED ROCK. NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF RODS. HOLE COLLAPSED AT 0.45M AFTER WITHDRAWAL OF RODS. HOLE PRE-DRILLED TO 0.6m

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT08.CP5
Cone ID: C22515 Type: C10CFIIP

ConePlot Version 5.9.2
© 2003 Douglas Partners Pty Ltd

CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

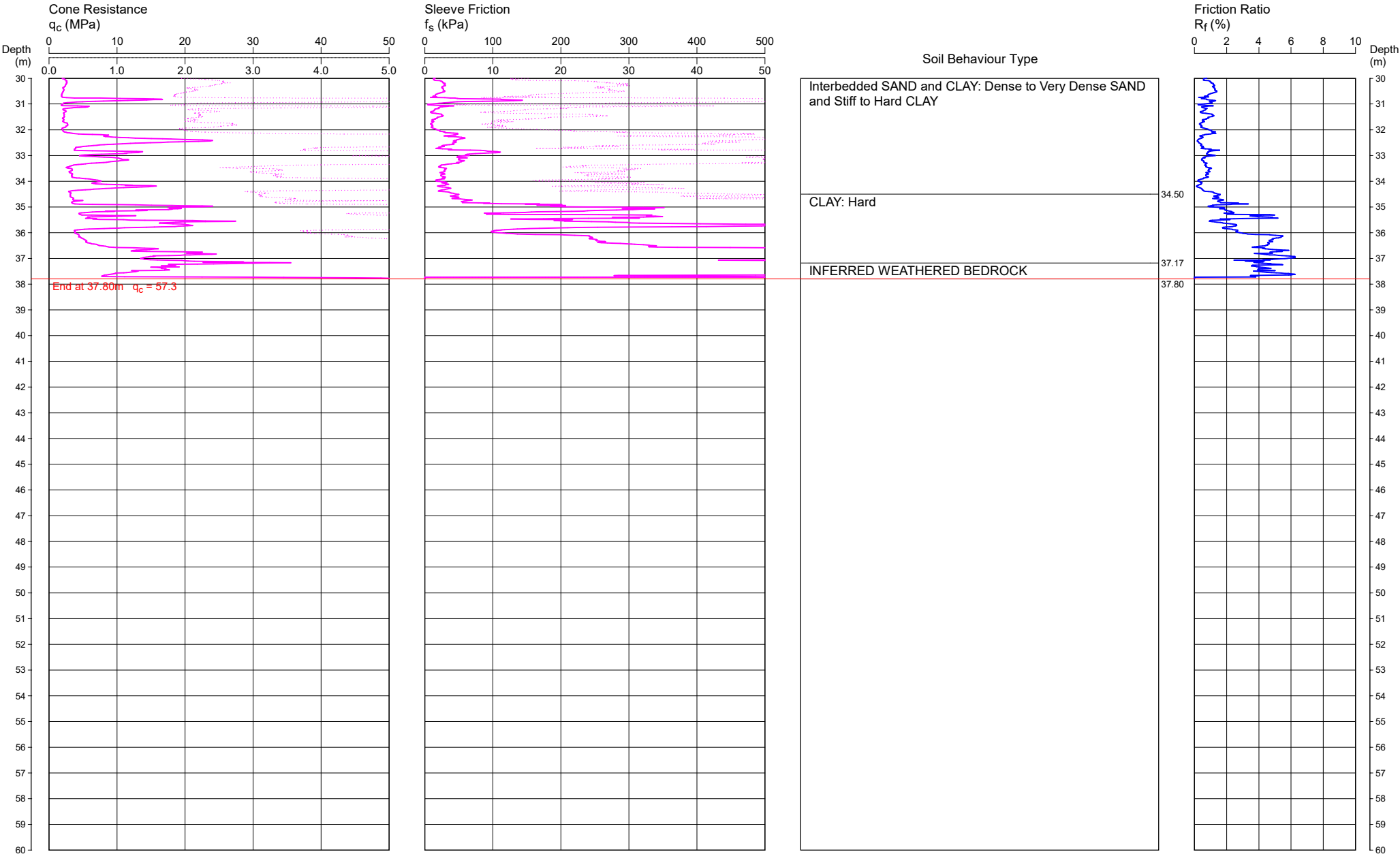
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 15.9m AHD
COORDINATES: 334611.4E 6244675.7N GDA 2020 Zone 56

CPT408

Page 2 of 2

DATE 21/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON (or NEAR) INFERRED WEATHERED ROCK. NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF RODS. HOLE COLLAPSED AT 0.45M AFTER WITHDRAWAL OF RODS. HOLE PRE-DRILLED TO 0.6m

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT08.CP5
Cone ID: C22515 Type: C10CFIIP

ConePlot Version 5.9.2
© 2003 Douglas Partners Pty Ltd

CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

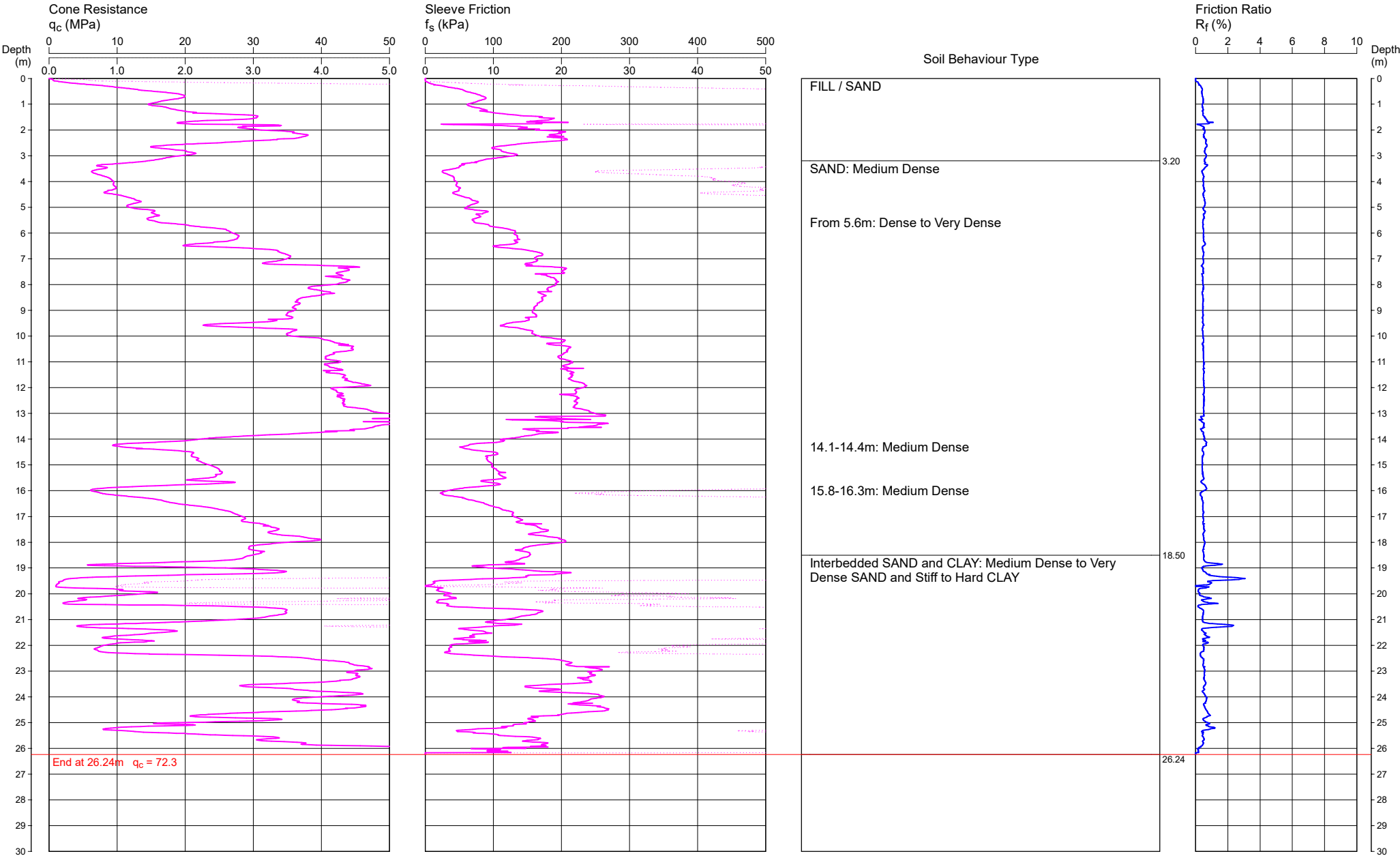
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 18.6m AHD
COORDINATES: 334654.7E 6244676.4N GDA 2020 Zone 56

CPT409

Page 1 of 1

DATE 20/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO EXCESSIVE ROD BOWING.
NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF
RODS. HOLE COLLAPSED AT 3.3M AFTER WITHDRAWAL OF
RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT09.CP5
Cone ID: C241424 Type: C10CFIIP

ConePlot Version 5.9.2
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CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

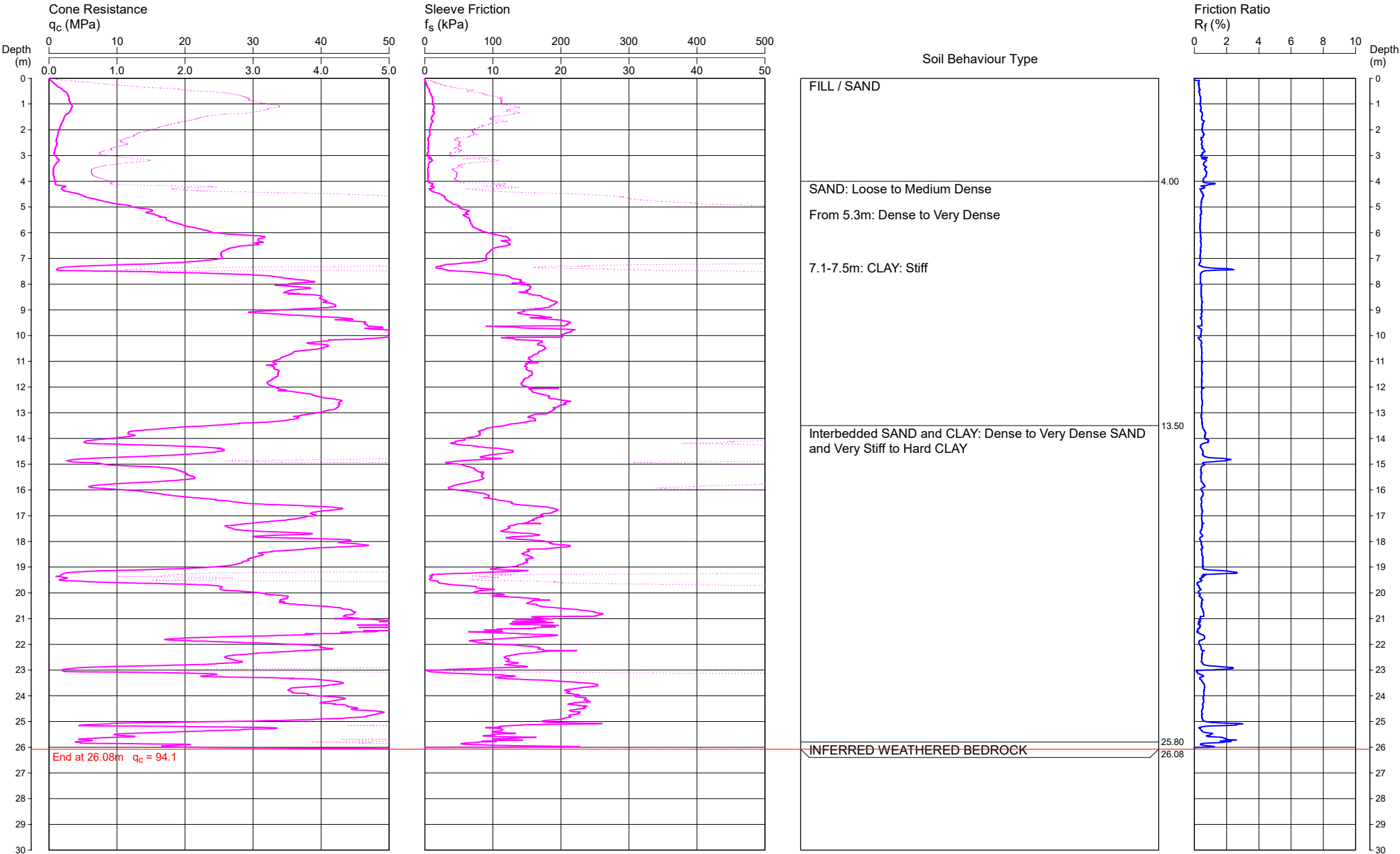
LOCATION: EASTLAKES SHOPPING CENTRE, EAST LAKES
REDUCED LEVEL: 18.6m AHD
COORDINATES: 334688.7E 6244673.5N GDA 2020 Zone 56

CPT410

Page 1 of 1

DATE 20/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON (or NEAR) INFERRED WEATHERED ROCK. NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF RODS. HOLE COLLAPSED AT 3.2M AFTER WITHDRAWAL OF RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT10.CP5
Cone ID: C251796 Type: C10CFIIP

ConePlot Version 5.9.2
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CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

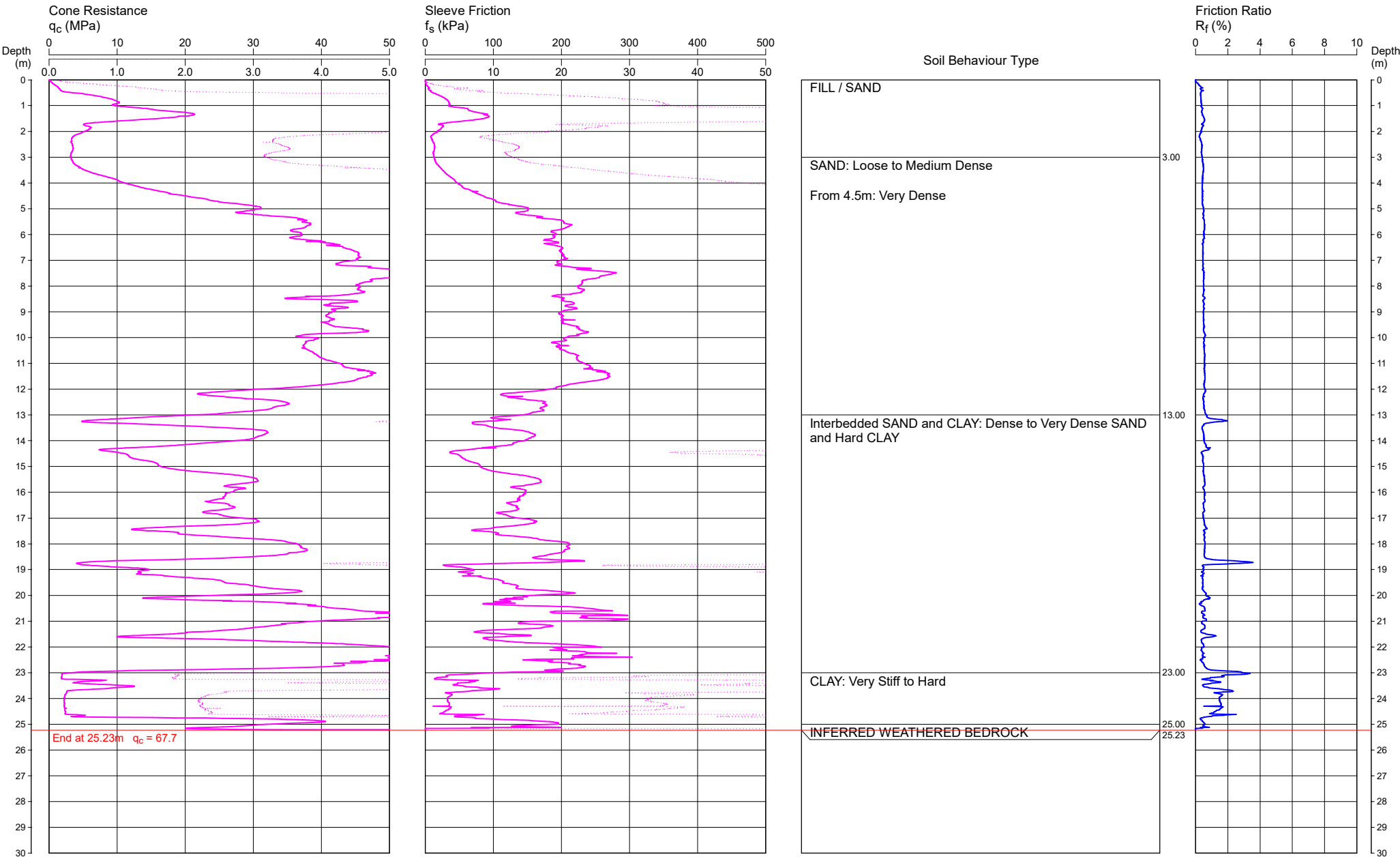
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 18.3m AHD
COORDINATES: 334715.0E 6244651.4N GDA 2020 Zone 56

CPT411

Page 1 of 1

DATE 19/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON (or NEAR) INFERRED WEATHERED ROCK. NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF RODS. HOLE COLLAPSED AT 3M AFTER WITHDRAWAL OF RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT11.CP5
Cone ID: C251796 Type: C10CFIIP

ConePlot Version 5.9.2
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CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 16.0m AHD
COORDINATES: 334605.8E 6244636.4N GDA 2020 Zone 56

CPT412

Page 1 of 2

DATE 20/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON (or NEAR) INFERRED WEATHERED ROCK. GROUNDWATER OBSERVED AT 1.7m AFTER WITHDRAWAL OF RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT12.CP5
Cone ID: C22515 Type: C10CFIIP

ConePlot Version 5.9.2
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CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

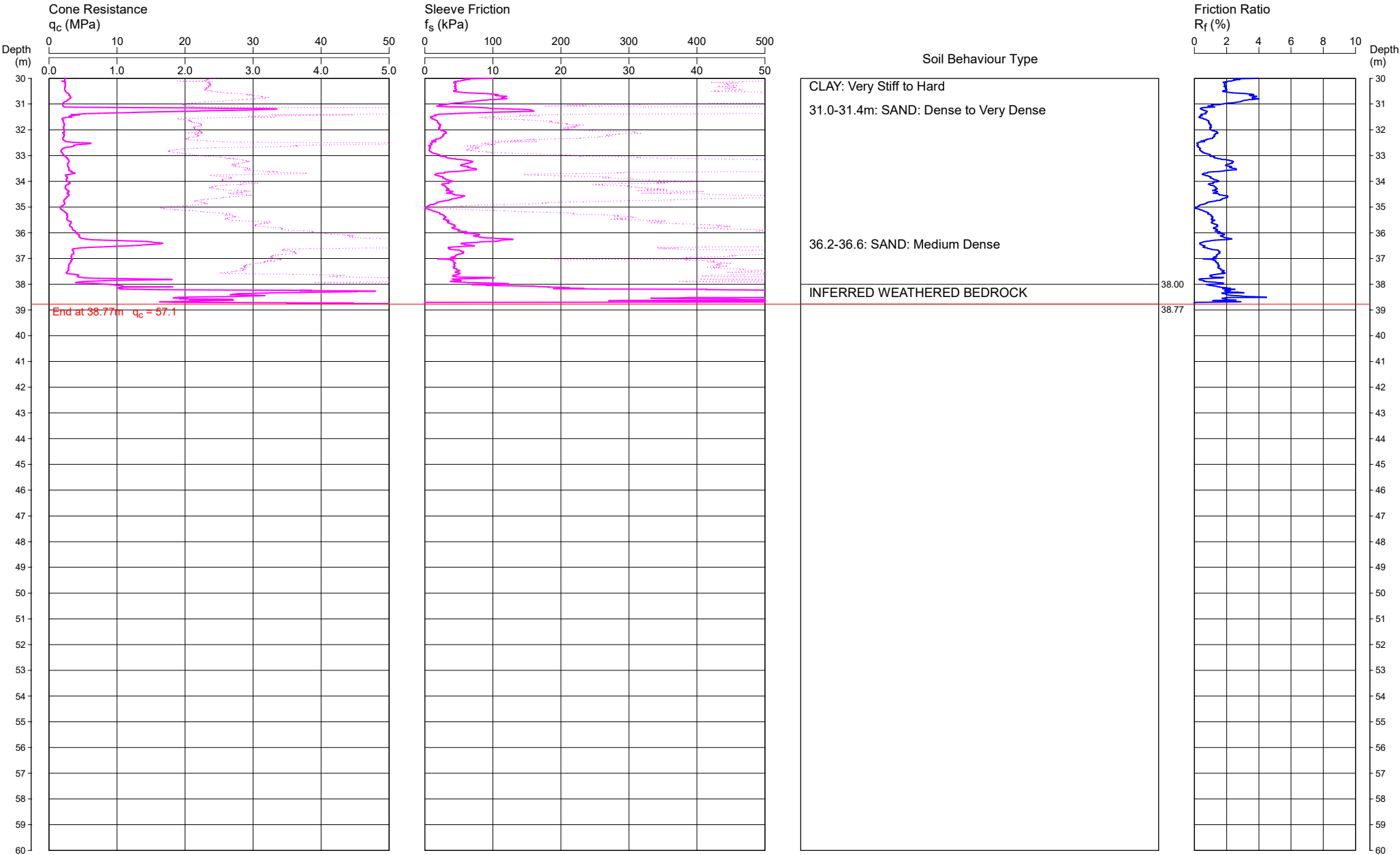
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 16.0m AHD
COORDINATES: 334605.8E 6244636.4N GDA 2020 Zone 56

CPT412

Page 2 of 2

DATE 20/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON (or NEAR) INFERRED WEATHERED ROCK. GROUNDWATER OBSERVED AT 1.7m AFTER WITHDRAWAL OF RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT12.CP5
Cone ID: C22515 Type: C10CFIIP

ConePlot Version 5.9.2
© 2003 Douglas Partners Pty Ltd

CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

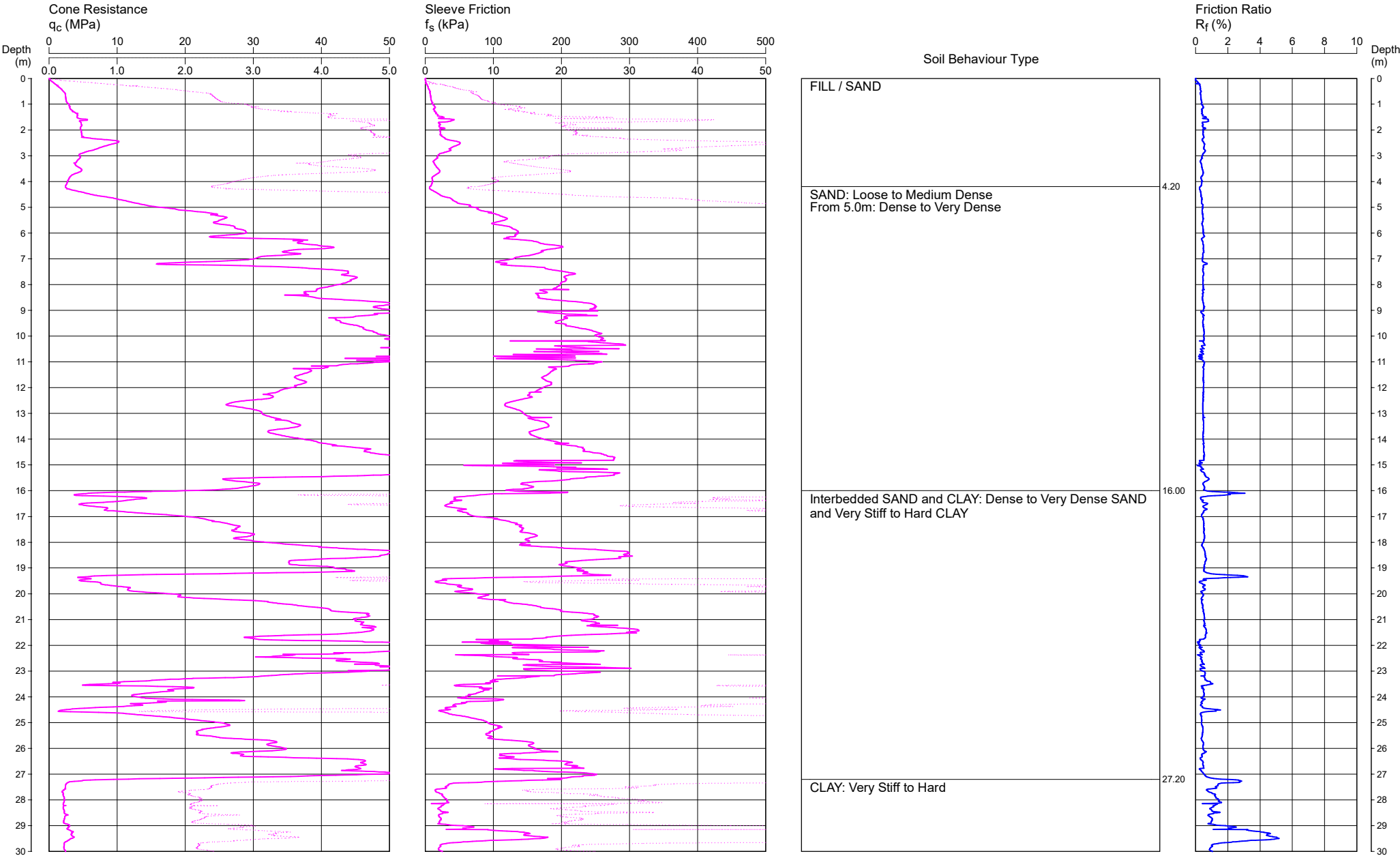
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 18.3m AHD
COORDINATES: 334679.3E 6244628.2N GDA 2020 Zone 56

CPT414

Page 1 of 2

DATE 20/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO REFUSAL ON (or NEAR)
INFERRED WEATHERED ROCK. GROUNDWATER
OBSERVED AT 3.5m AFTER WITHDRAWAL OF RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT14.CP5
Cone ID: C241416 Type: C10CFIIP

ConePlot Version 5.9.2
© 2003 Douglas Partners Pty Ltd

CONE PENETRATION TEST

CLIENT: BUILTCOM PTY LTD
PROJECT: EASTLAKES TOWN CENTRE

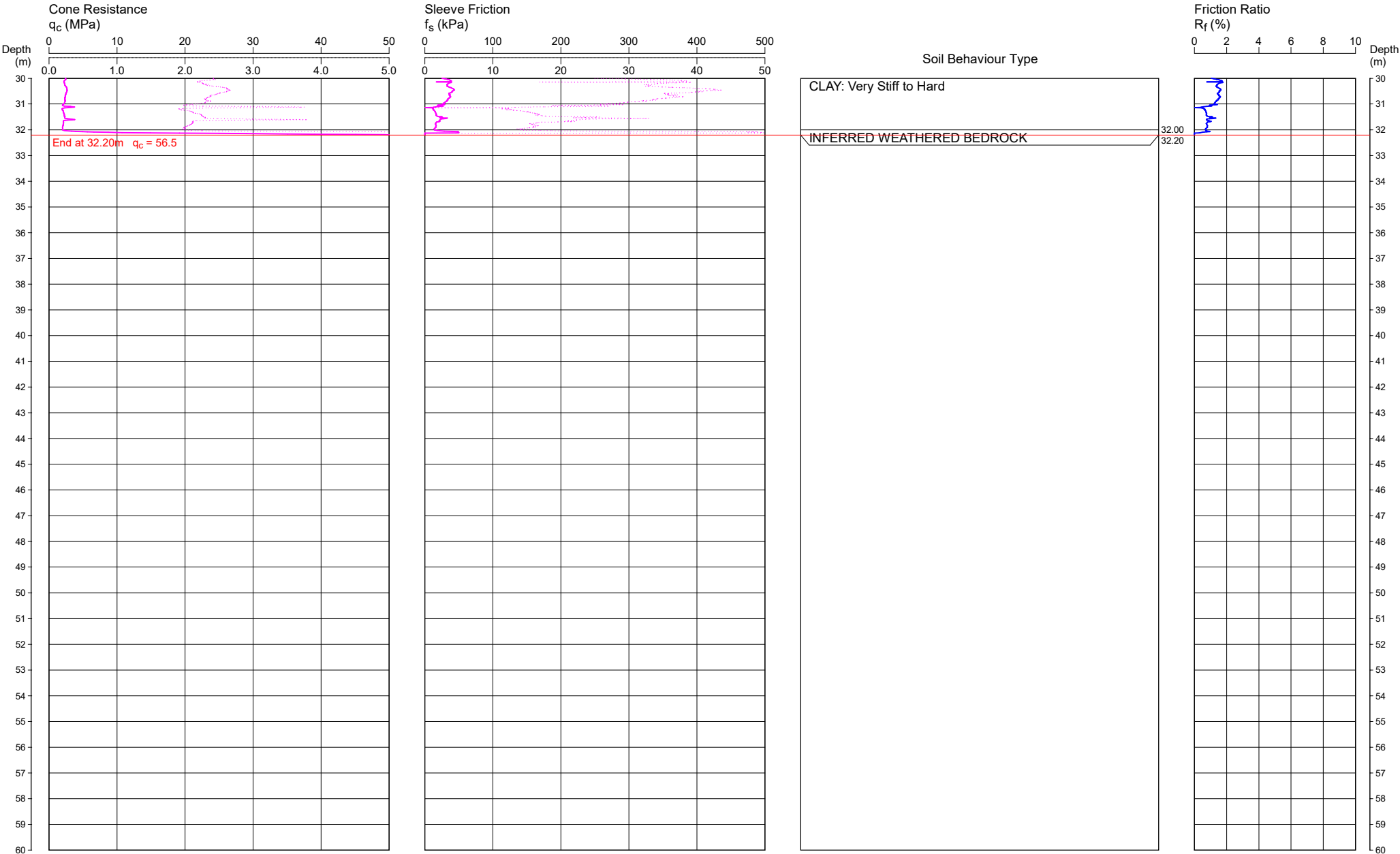
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 18.3m AHD
COORDINATES: 334679.3E 6244628.2N GDA 2020 Zone 56

CPT414

Page 2 of 2

DATE 20/11/2025

PROJECT No: 236760.01



CONE PENETRATION TEST

CLIENT: BUILT.COM PTY LTD

PROJECT: EASTLAKES TOWN CENTRE

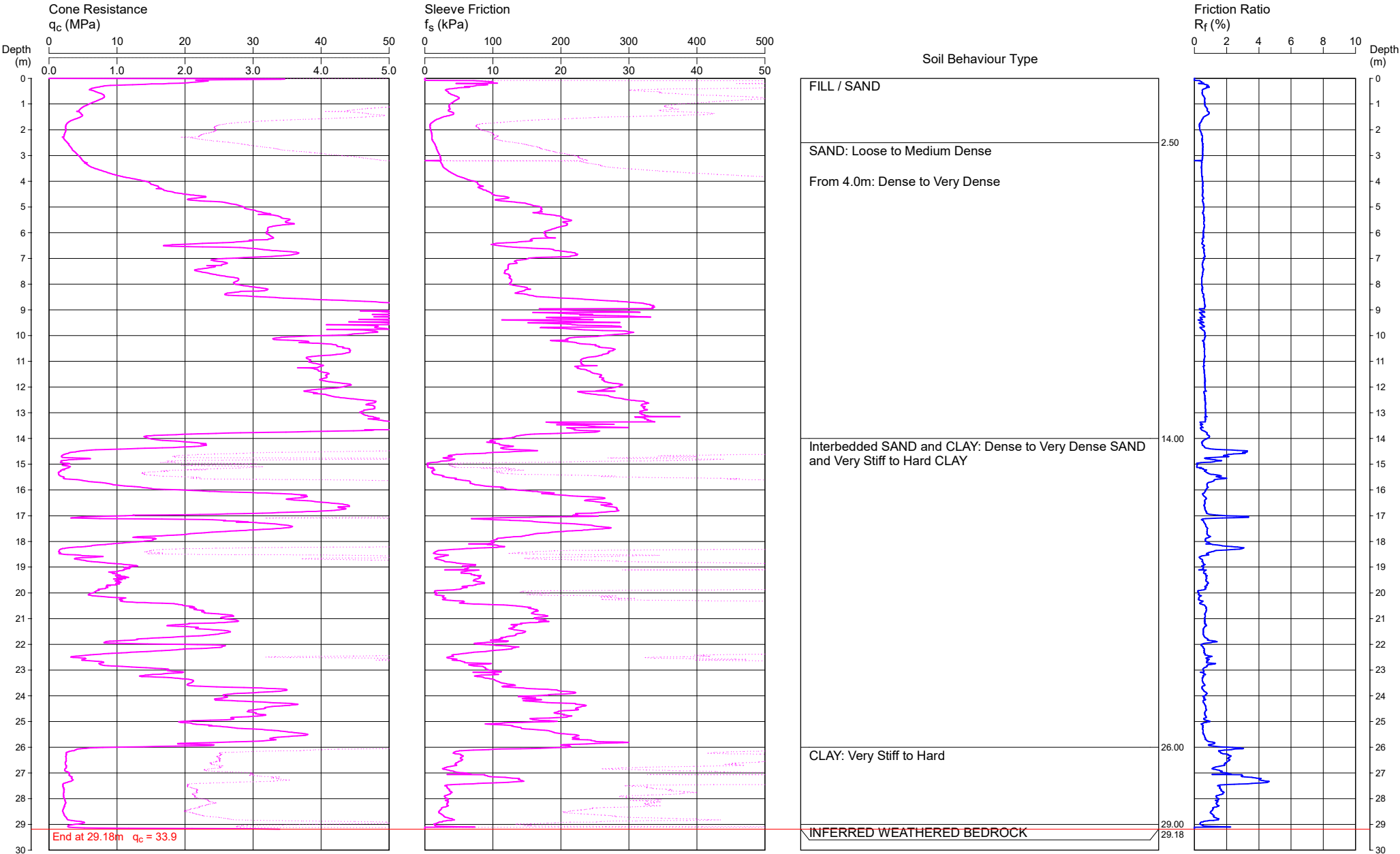
LOCATION: EASTLAKES SHOPPING CENTRE, EASTLAKES
REDUCED LEVEL: 17.6m AHD
COORDINATES: 334703.4E 6244616.4N GDA 2020 Zone 56

CPT415

Page 1 of 1

DATE 20/11/2025

PROJECT No: 236760.01



REMARKS: TEST DISCONTINUED DUE TO BENDING ON (or NEAR) INFERRED WEATHERED ROCK. NO GROUNDWATER OBSERVED AFTER WITHDRAWAL OF RODS. HOLE COLLAPSED AT 2.45M AFTER WITHDRAWAL OF RODS.

File: P:\236760.01 - EASTLAKES, Eastlakes Town Centre\4.0 Field Work\4.2 Testing\4.2.1 CPT Testing\Processed Files\236760.01_CPT15.CP5
Cone ID: C251795 Type: C10CFIIP

ConePlot Version 5.9.2
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Appendix D

Previous Borehole Logs and CPT Plots

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~16.3 m
Date: 12/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
ON 31/8/20 ON 31/8/20 ON 31/8/20 ON 31/8/20 ON 31/8/20 ON 31/8/20 ON 31/8/20 ON 31/8/20 ON 31/8/20 ON 31/8/20						16			-	ASPHALTIC CONCRETE: 80mm.t	M			
							1		SP	FILL: Silty gravelly sand, fine to medium grained, dark grey, fine to coarse grained igneous gravel. SAND: fine to medium grained, light brown.	M			AEOLIAN OVERLYING ALLUVIAL
						15								
						2								
						14								
						3					W			
						13								COMMENCE WASHBORING
						4								SOILS HAVE BEEN LOGGED FROM WATER FLUSH RETURN AND ARE THEREFORE APPROXIMATE ONLY
						12								
						5								
						11								
						6								
						10			SM SP	Silty SAND: fine to medium grained, dark brown. SAND: fine to medium grained, light brown.				

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

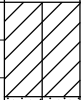
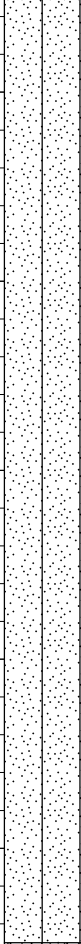
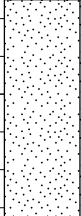
Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~16.3 m
Date: 12/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							9		SP	SAND: fine to medium grained, light brown. <i>(continued)</i>	W			
							8		CI	Silty CLAY: fine to medium plasticity, dark grey.	w>PL			
							8		SP	SAND: fine to medium grained, light brown.	W			
							9							
							7							
							10							
							6							
							11							
							5							
							12							
							4							
							13							
							3							

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~16.3 m
Date: 12/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							2		CI-CH	Silty CLAY: medium to high plasticity, grey.	w>PL			
							15		SM	Silty SAND: fine to medium grained, dark grey.	W			
							16							
							0							
							17							
							-1							
							18							
							-2							
							19							
							-3							
							20		SP	SAND: fine to medium grained, grey and brown.				
							-4							
									CI-CH	Silty CLAY: medium to high plasticity, grey.	w>PL			

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~16.3 m
Date: 12/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							-5		SP CL-CI	SAND: fine to medium grained, grey and brown. <i>(continued)</i> Sandy CLAY: low to medium plasticity, brown.	W w>PL			
							22							
							-6							
									SM	Silty SAND: fine to medium grained, dark grey.	W			
									CI-CH	Silty CLAY: medium to high plasticity, grey.	w>PL			RESIDUAL
							23		CL-CI	Silty sandy CLAY: low to medium plasticity, grey, fine to medium grained sand.				
							-7							
							24							
							-8							
							25							
							-9							
							26							
							-10							
							27			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 6.1m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 3.1m TO 6.1m. CASING 0.1m TO 6.1m. 2mm SAND FILTER PACK 1.4m TO 6.1m. BENTONITE SEAL 0.7m TO 1.4m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
							-11							

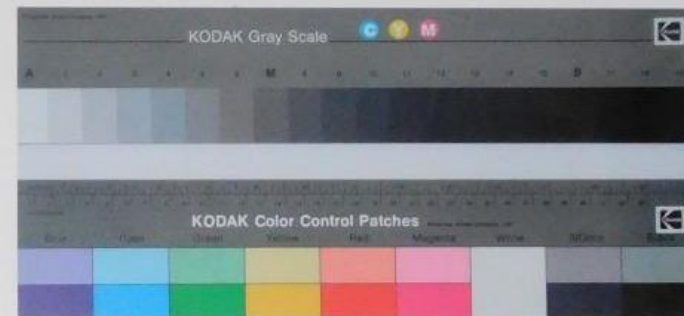
CORED BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Core Size:** NMLC **R.L. Surface:** ~16.3 m
Date: 12/8/20 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** S.D./A.B.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_p(50)$	SPACING (mm)	DEFECT DETAILS		Formation
										DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness	General	
		-10			START CORING AT 26.60m							
					SANDSTONE: fine to medium grained, grey and light brown, bedded at 0-25°.	FR	M			(26.63m) Be, 20°, Un, R, Cn		
					NO CORE 0.30m							
		-11			SANDSTONE: fine to medium grained, grey and light brown, bedded at 0-25°.	FR	M	0.40		(27.01m) XWS, 0°, 20 mm.t (27.11m) J, 60 - 90°, Un, R, Cn (27.19m) XWS, 20°, 60 mm.t		
					Extremely Weathered sandstone: silty sandy CLAY, low plasticity, grey, fine to medium grained sand.	XW	Hd			(27.35m) Be, 25°, P, R, Clay Vn (27.41m) Be, 20°, P, R, Clay Vn (27.48m) Be, 20°, P, R, Clay Vn		
					NO CORE 0.80m							
		-12										
					SANDSTONE: fine to medium grained, light grey and light brown, bedded at 10-20°.	FR	M	0.30		(28.61m) J, 80°, Un, R, Cn		
								0.70		(28.87m) Be, 0°, P, R, Cn (28.94m) Be, 0°, P, R, Clay Vn		
		-13					M - H	0.90		(29.13m) Be, 0°, Un, R, Clay Vn (29.19m) Be, 10°, P, R, Clay Vn		
					as above, but bedded at 0-10°.			1.4		(29.61m) Be, 25°, P, R, Cn		
								0.90		(30.34m) Be, 5°, P, R, Cn		
		-14						0.50		(31.00m) XWS, 0°, 10 mm.t (31.08m) XWS, 0°, 10 mm.t		
							M	0.40		(31.26m) XWS, 0°, 3 mm.t (31.40m) XWS, 10°, 5 mm.t (31.54m) XWS, 5°, 10 mm.t		
		-15						0.90				
					SANDSTONE: fine to medium grained, grey, bedded at 0-5°.					(32.11m) XWS, 0°, 10 mm.t		
		-16										
					END OF BOREHOLE AT 32.60 m							

Job No: 25302LT
Borehole No: BH301
Depth: 26.60_m → 32.60_m



25302LT BH301 START CORING AT 26.60_m

26 26.60_m → NO CORE 0.30_m

27

28 NO CORE 0.80_m

29

30

31

32 END OF BH301 AT 32.60_m

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~18.4 m
Date: 17/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
ON ON 31/8/20 COMPLETION									SP	FILL: Silty sand, fine to medium grained, dark grey.	M			GRASS COVER
							18			SAND: fine to medium grained, light brown.	M			AEOLIAN OVERLYING ALLUVIAL
							1			as above, but light grey.				
							17			SAND: fine to medium grained, light brown.				
							2							
							16							
							3							
							15				W			COMMENCE WASHBORING
							4							SOILS HAVE BEEN LOGGED FROM WATER FLUSH RETURN AND ARE THEREFORE APPROXIMATE ONLY
							14							
							5							
							13							
							6							
							12							

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~18.4 m
Date: 17/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
						11			SP	SAND: fine to medium grained, light brown. <i>(continued)</i>	W			
						8								
						10								
						9								
						9								
						10								
						8								
						11				as above, but orange brown.				
						7				as above, but light brown.				
						12								
						6								
						13				as above, but grey and light grey.				
						5				as above, but light brown.				

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~18.4 m
Date: 17/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							4		SP	SAND: fine to medium grained, dark brown and brown.	W			
							15							
							3							
							16			SAND: fine to medium grained, light brown.				
							2							
							17			as above, but brown.				
							1							
							18							
							0							
									CI-CH	Silty CLAY: medium to high plasticity, dark grey.	w>PL			
							19		SP	SAND: fine to medium grained, brown.	W			
							-1							
									CI-CH	Silty CLAY: medium to high plasticity, dark grey.	w>PL			
							20		SP	SAND: fine to medium grained, light brown.	W			
							-2			SAND: fine to medium grained, light grey.				

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~18.4 m
Date: 17/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							-3		SP	SAND: fine to medium grained, light grey. <i>(continued)</i>	W			
							22							
							-4			as above, but light brown.				
							23							
							-5							
							24		SM	Silty SAND: fine to medium grained, dark brown.				
							-6		CI-CH	Silty CLAY: medium to high plasticity, grey.	w>PL			RESIDUAL
							25			REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 4.87m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 1.87m TO 4.87m. CASING 0.08m TO 4.87m. 2mm SAND FILTER PACK 1.3m TO 1.87m. BENTONITE SEAL 0.4m TO 1.3m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
							-7							
							26							
							-8							
							27							
							-9							

CORED BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Core Size:** NMLC **R.L. Surface:** ~18.4 m
Date: 17/8/20 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** S.D./A.B.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_p(50)$	SPACING (mm)	DEFECT DETAILS		Formation
										Specific	General	
			25		START CORING AT 25.00m							
			-7		SANDSTONE: fine to medium grained, grey and light grey, bedded at 0-20°.	FR	M - H	0.40				
					NO CORE 0.05m	FR	M - H					
			-26		SANDSTONE: fine to medium grained, light grey, bedded at 10-20°.		H	0.60				
			-8					1.6				
					as above, but bedded at sub-horizontally.			0.40				
			-27		SANDSTONE: fine to medium grained, light grey, bedded at 20°.			1.7				
			-9									
					as above, but bedded sub-horizontally.			1.4				
			-28					1.5				
			-10		SANDSTONE: fine to medium grained, light grey, with dark grey laminae, bedded at 0-10°.			0.70				
			-29					1.5				
			-11									
			-30					1.4				
			-12		as above, but bedded at 20°			1.7				
			-31		END OF BOREHOLE AT 31.10 m							
			-13									

JK 9.02.4.LB.GLB Log JK CORED BOREHOLE - MASTER 25302LT EASTLAKES.GPJ <<DrawingFile>> 25/09/2020 09:34 10.01.00.01 Dargal Lab and In Situ Test - DGD Lib JK 9.02.4 2019-05-31 Proj JK 9.01.0 2018-03-20

Job No: 25302LT
Borehole No: BH302
Depth: 25.00m → 31.10m



25302LT BH302 START CORING AT 25.00m

25

NO
CORE
0.05
m

26

27

28

29

30

31

END OF BOREHOLE AT 31.10m

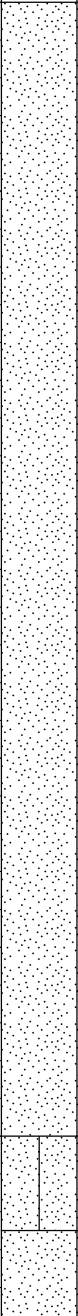
Borehole No.
303
1 / 7

Client: CROWN GROUP														
Project: SHOPPING CENTRE DEVELOPMENT														
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW														
Job No.: 25302LT				Method: SPIRAL AUGER				R.L. Surface: ~16.4 m						
Date: 13/8/20				Datum: AHD										
Plant Type: JK308				Logged/Checked By: S.D./A.B.										
Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
ON 13/8/20 COMPLETION										ASPHALTIC CONCRETE: 130mm.t				
						16		-	SP	FILL: Silty sand, fine to medium grained, dark grey, trace of fine to medium grained igneous gravel. SAND: fine to medium grained, light brown.	M M			AEOLIAN OVERLYING ALLUVIAL
						1								
						15								
						2								
						14								
						3					W			
						13								COMMENCE WASHBORING
						4								SOILS HAVE BEEN LOGGED FROM WATER FLUSH RETURN AND ARE THEREFORE APPROXIMATE ONLY
						12								
						5								
						11								
						6								
						10								

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~16.4 m
Date: 13/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							9		SP	SAND: fine to medium grained, light brown. <i>(continued)</i>	W			
							8							
							8							
							9							
							7							
							10							
							6							
							11							
							5							
							12							
							4							
							13		SM	Silty SAND: fine to medium grained, dark grey and dark brown				
							3		SP	SAND: fine to medium grained, light brown.				

BOREHOLE LOG

Client: CROWN GROUP

Project: SHOPPING CENTRE DEVELOPMENT

Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT

Method: SPIRAL AUGER

R.L. Surface: ~16.4 m

Date: 13/8/20

Datum: AHD

Plant Type: JK308

Logged/Checked By: S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							2		SP	SAND: fine to medium grained, light brown. (continued)	W			
							15							
							1							
							16							
							0							
							17							
							-1							
							18							
							-2							
							19							
							-3		CI-CH	Silty CLAY: medium to high plasticity, dark grey.	w>PL			
									SP	SAND: fine to medium grained, light brown.	W			
							20							
							-4							

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~16.4 m
Date: 13/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							-5		SP	SAND: fine to medium grained, light brown. <i>(continued)</i>	W			
							22							
							-6							
							23		CL	Silty sandy CLAY: low plasticity, grey, fine to medium grained sand.	w>PL			
							-7							
							24		SP	SAND: fine to medium grained, light brown.	W			
							-8							
							25							
							-9							
							26			as above, but grey.				
							-10							
							27		CI-CH	Silty CLAY: medium to high plasticity, grey.	w>PL			RESIDUAL
							-11							

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~16.4 m
Date: 13/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
						-12			CI-CH	Silty CLAY: medium to high plasticity, grey. <i>(continued)</i>	w>PL			
						29								
						-13								
						30								
						-14								
						31								
						-15			CL	Silty sandy CLAY: low plasticity, grey, fine to medium grained sand.				
						32								
						-16								
						33								
						-17								
						34								
						-18								

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

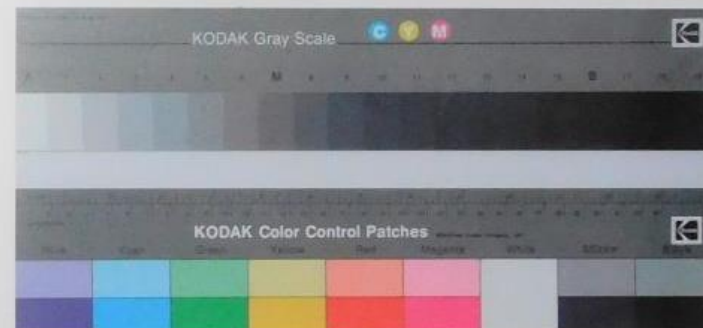
Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~16.4 m
Date: 13/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
						-19			CL	Silty sandy CLAY: low plasticity, grey, fine to medium grained sand. (continued)	w>PL			
						36								
						-20								
						37								
						-21								
						38								
						-22								
						39								
						-23								
						40								
						-24				REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 5.19m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 2.19m TO 5.19m. CASING 0.13m TO 5.19m. 2mm SAND FILTER PACK 1.5m TO 5.19m. BENTONITE SEAL 0.5m TO 1.5m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
						41								
						-25								

JK 9.02.4 LIB.GLB Log JK CORED BOREHOLE - MASTER 253021.TEASTLAKES.GPJ <<DrawingFile>> 25/09/2020 09:34 10.01.00.01 Datgel Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Proj: JK 9.01.0 2018-03-20



Job No: 25302LT
Borehole No: BH303
Depth: 40.20m → 43.20m



25302LT BH 303 START CORING AT 40.20m

40

NO CORE
0.08m

41

42

43

END OF BOREHOLE AT 43.20m

JK Geotechnics

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.3 m
Date: 14/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
ON 31/8/20 COMPLETION							17		-	ASPHALTIC CONCRETE: 100mm.t	M			
									SP	FILL: Silty gravelly sand, fine to medium grained, grey, fine to coarse grained igneous gravel.	M			AEOLIAN OVERLYING ALLUVIAL
							1			SAND: fine to medium grained, light brown.				
										as above, but light grey.				
							16			SAND: fine to medium grained, light brown.				
							2							
							15							
							3							
							14				W			COMMENCE WASHBORING
							4							SOILS HAVE BEEN LOGGED FROM WATER FLUSH RETURN AND ARE THEREFORE APPROXIMATE ONLY
							13							
							5							
							12							
							6							
							11							

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.3 m
Date: 14/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							10		SP	SAND: fine to medium grained, light brown. <i>(continued)</i>	W			
							8							
							9							
							9							
							8							
							10							
							7							
							11							
							6							
							12							
							5							
							13							
							4							

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.3 m
Date: 14/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							3		SP	SAND: fine to medium grained, brown and dark brown, trace of silt.	W			
							15		SM	Silty SAND: fine to medium grained, dark grey and grey.				
							16							
							1		SP	SAND: fine to medium grained, grey.				
							17							
							0							
							18							
							-1							
							19							
							-2							
							20							
							-3							

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.3 m
Date: 14/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
							-4		SP	SAND: fine to medium grained, grey. (continued)	W			
							22							
							-5							
							23							
							-6							
							24							
							-7							
							25							
							-8							
							26							
							-9							
							27		CI-CH	Silty CLAY: medium to high plasticity, grey.	w>PL			RESIDUAL
							-10							

BOREHOLE LOG

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Method:** SPIRAL AUGER **R.L. Surface:** ~17.3 m
Date: 14/8/20 **Datum:** AHD
Plant Type: JK308 **Logged/Checked By:** S.D./A.B.

Groundwater Record	SAMPLES				Field Tests	RL (m AHD)	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel Density	Hand Penetrometer Readings (kPa)	Remarks
	ES	U50	DB	DS										
						-11			CI-CH	Silty CLAY: medium to high plasticity, grey. <i>(continued)</i>	w>PL			
									CI	Silty sandy CLAY: medium plasticity, grey, fine to medium grained sand.				
							29							
						-12				REFER TO CORED BOREHOLE LOG				GROUNDWATER MONITORING WELL INSTALLED TO 6.12m. CLASS 18 MACHINE SLOTTED 50mm DIA. PVC STANDPIPE 3.12m TO 6.12m. CASING 0.12m TO 6.12m. 2mm SAND FILTER PACK 1.5m TO 6.12m. BENTONITE SEAL 1.0m TO 1.5m. BACKFILLED WITH SAND TO THE SURFACE. COMPLETED WITH A CONCRETED GATIC COVER.
							30							
						-13								
							31							
						-14								
							32							
						-15								
							33							
						-16								
							34							
						-17								

CORED BOREHOLE LOG

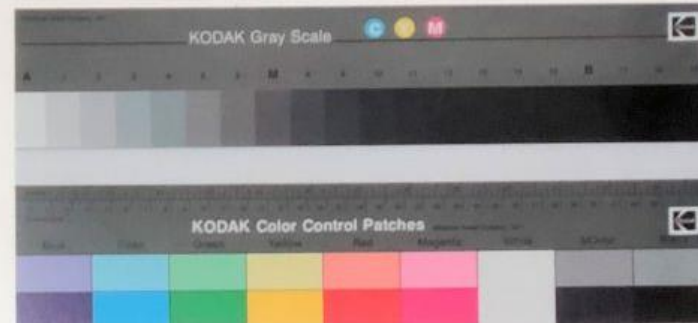
Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT **Core Size:** NMLC **R.L. Surface:** ~17.3 m
Date: 14/8/20 **Inclination:** VERTICAL **Datum:** AHD
Plant Type: JK308 **Bearing:** N/A **Logged/Checked By:** S.D./A.B.

Water Loss/Level	Barrel Lift	RL (m AHD)	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, texture and fabric, features, inclusions and minor components	Weathering	Strength	POINT LOAD STRENGTH INDEX $I_p(50)$	SPACING (mm)	DEFECT DETAILS		Formation
										DESCRIPTION Type, orientation, defect shape and roughness, defect coatings and seams, openness and thickness	General	
					START CORING AT 29.20m							
		-12			SANDSTONE: fine to coarse grained, grey and light grey, with occasional dark grey laminae, bedded at 0-20°.	FR	L M	0.20 0.60	600 200 60 20	(29.22m) Be, 0°, Un, R, Sand FILLED (29.48m) Be, 20°, P, R, Sand FILLED (29.51m) Be, 20°, P, R, Cn		
		-13			NO CORE 0.17m							
		-13			SANDSTONE: fine to medium grained, light grey, with dark grey laminae, bedded sub-horizontally.	FR	M	0.60	600 200 60 20	(30.33m) XWS, 0°, 10 mm.t		
		-14			as above, but bedded at 20°.			0.80		(30.84m) Be, 10°, P, R, Sand FILLED		
		-14			as above, but bedded sub-horizontally.		H	1.2		(31.72m) XWS, 0°, 40 mm.t		
		-15			as above, but bedded at 0-20°.			1.3				
		-15						1.5				
		-16			SANDSTONE: fine to medium grained, light grey, with occasional dark grey laminae, bedded at 10-15°.			1.8				
		-16			as above, but fine to coarse grained.			1.3				
		-17						1.8				
		-17						1.9				
		-18			END OF BOREHOLE AT 35.25 m			1.3				

JK 9.02.4.LB.GLB Log JK CORED BOREHOLE - MASTER 25302LT EASTLAKES.GPJ <<DrawingFile>> 25/09/2020 09:34 10.01.00.01 Dargal Lab and In Situ Tool DGD Lib JK 9.02.4 2019-05-31 Proj JK 9.01.0 2018-03-20

Job No: 25302LT
Borehole No: BH304
Depth: 29.20 m $\rightarrow$ 35.25 m



25302LT BH304 START CORING AT 29.20 m

29

30

NO CORE 0.17 m

31

32

33

34

35

END OF BOREHOLE AT 35.25 m

CPT No.

103

1 / 3

CONE PENETROMETER TEST RESULTS

EASTING: 334649.0419
NORTHING: 6244621.6354

Client: CROWN GROUP

Project: SHOPPING CENTRE DEVELOPMENT

Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT

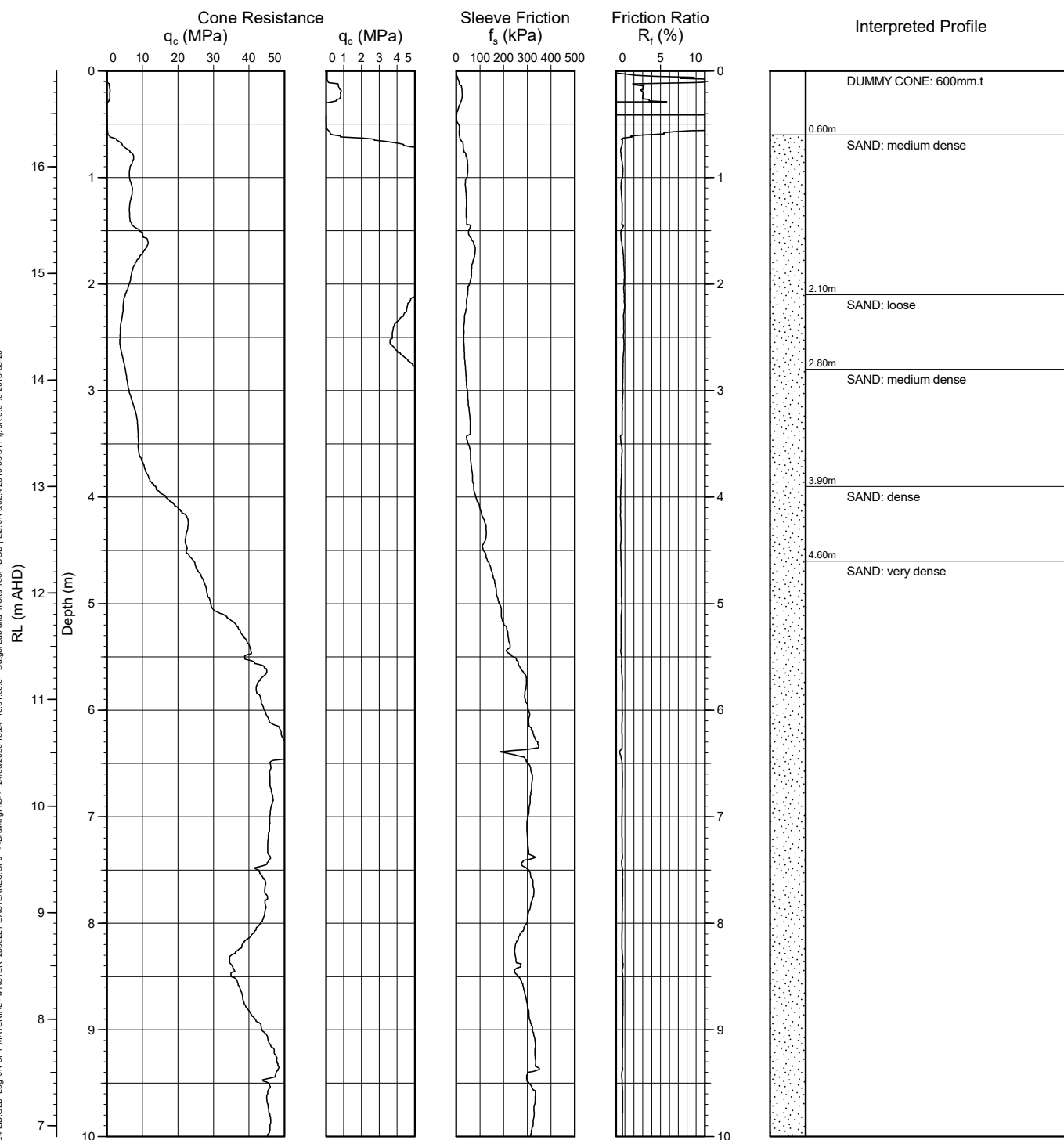
R.L. Surface: ~16.9 m

Data File: 25302V-EASTLAKES

Date: 19/10/11

Datum: AHD

Operator: D.F.



Interpreted by: D.F.
Checked by: F.V.

CPT No.

103

2 / 3

CONE PENETROMETER TEST RESULTS

EASTING: 334649.0419
NORTHING: 6244621.6354

Client: CROWN GROUP

Project: SHOPPING CENTRE DEVELOPMENT

Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT

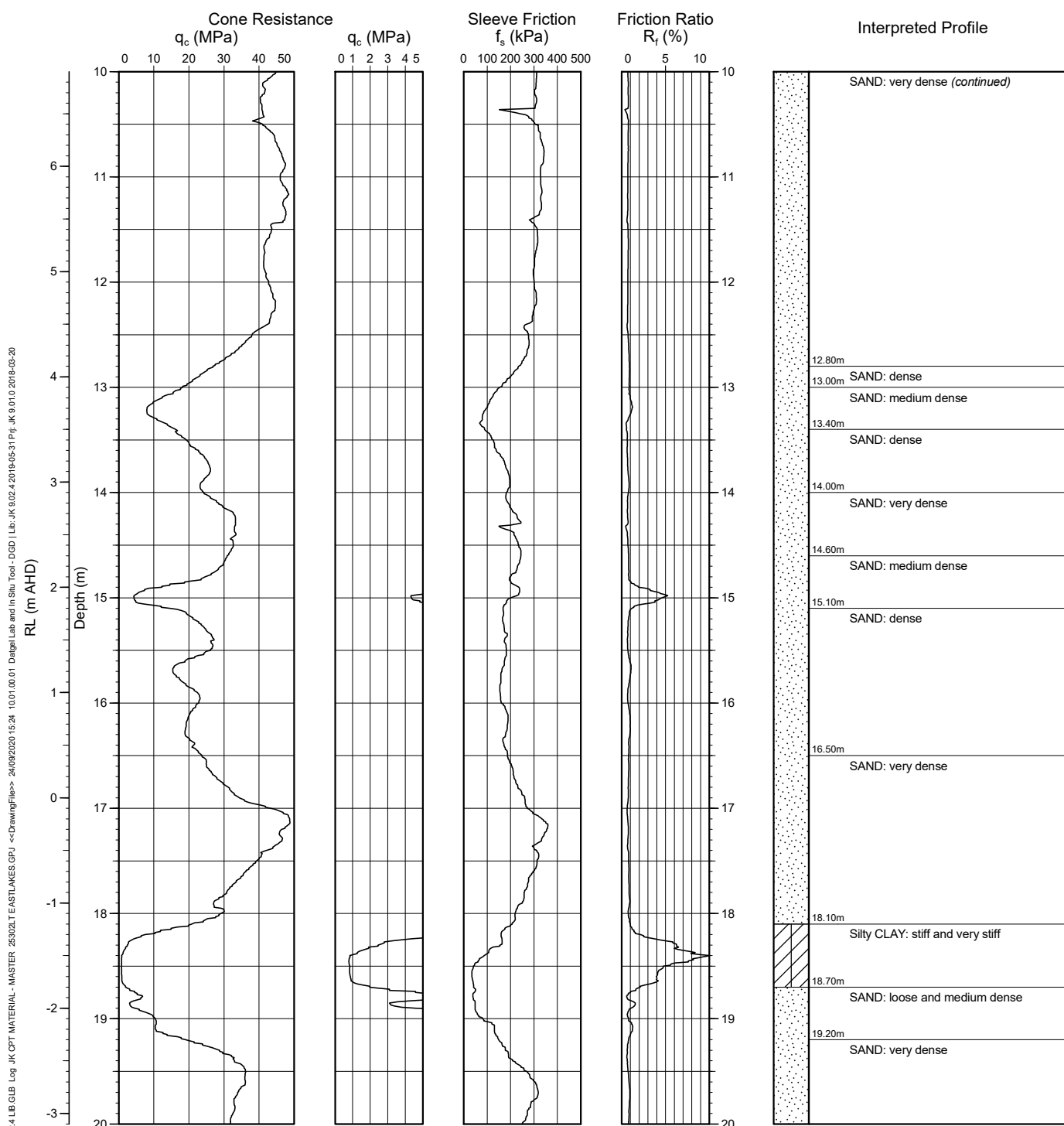
R.L. Surface: ~16.9 m

Data File: 25302V-EASTLAKES

Date: 19/10/11

Datum: AHD

Operator: D.F.



Interpreted by: D.F.
Checked by: F.V.

CONE PENETROMETER TEST RESULTS

EASTING: 334649.0419
NORTHING: 6244621.6354

Client: CROWN GROUP
Project: SHOPPING CENTRE DEVELOPMENT
Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT

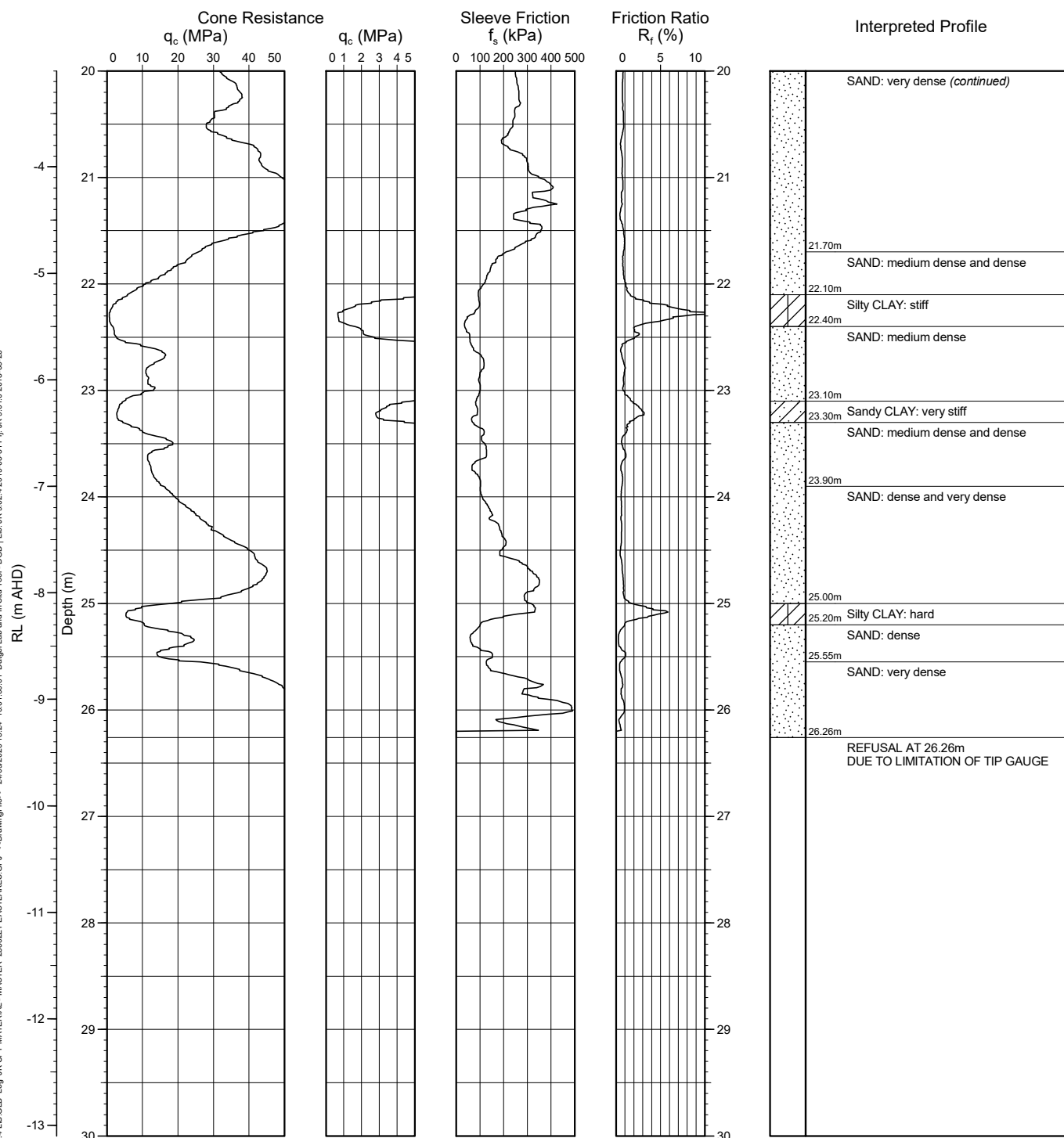
R.L. Surface: ~16.9 m

Data File: 25302V-EASTLAKES

Date: 19/10/11

Datum: AHD

Operator: D.F.



CPT No.

104

1 / 3

EASTING: 334736.7016
NORTHING: 6244698.3983

CONE PENETROMETER TEST RESULTS

Client: CROWN GROUP

Project: SHOPPING CENTRE DEVELOPMENT

Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT

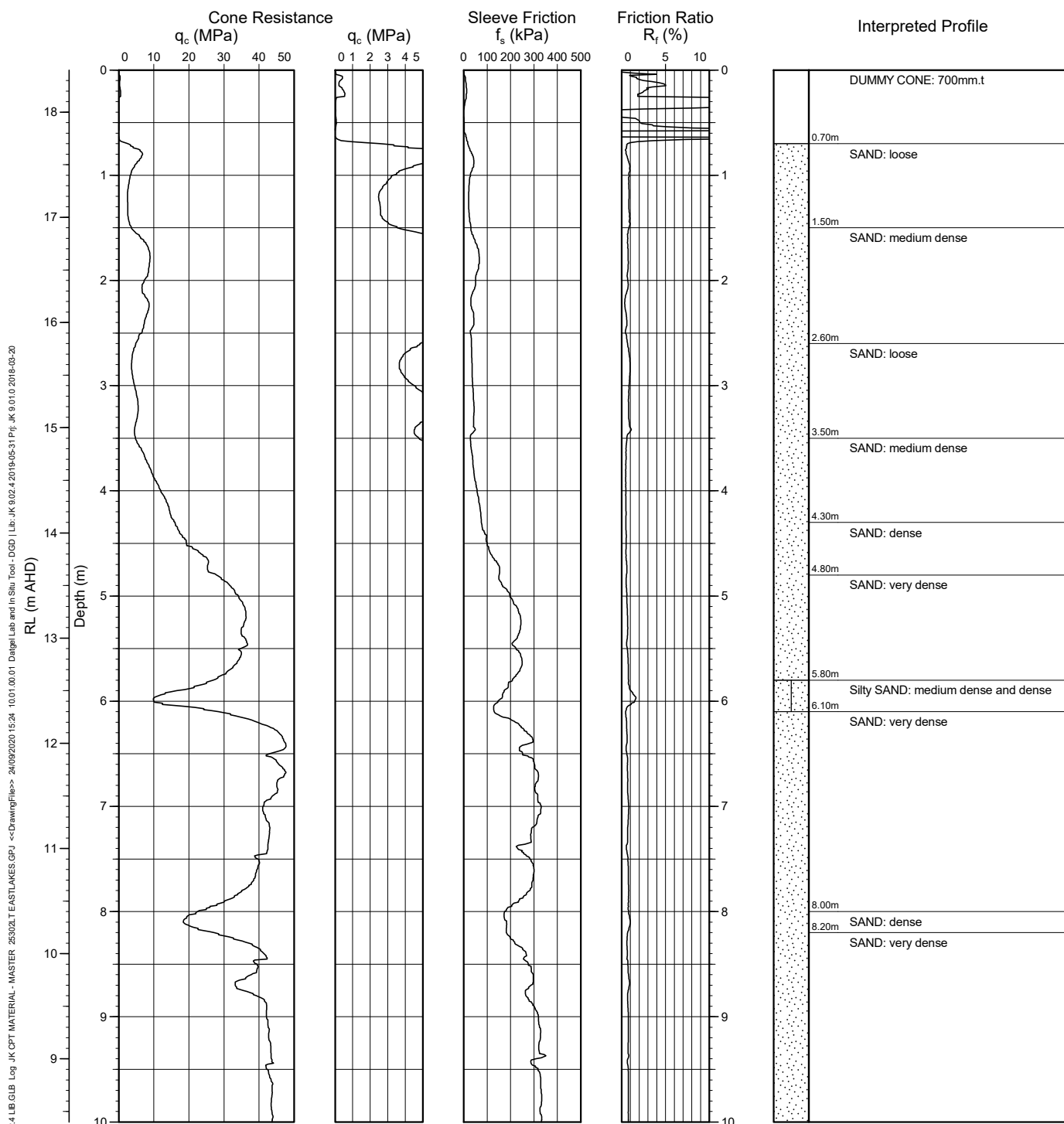
R.L. Surface: ~18.4 m

Data File: 25302V-EASTLAKES

Date: 19/10/11

Datum: AHD

Operator: D.F.



Interpreted by: D.F.
Checked by: F.V.

CPT No.

104

2 / 3

EASTING: 334736.7016
NORTHING: 6244698.3983

CONE PENETROMETER TEST RESULTS

Client: CROWN GROUP

Project: SHOPPING CENTRE DEVELOPMENT

Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT

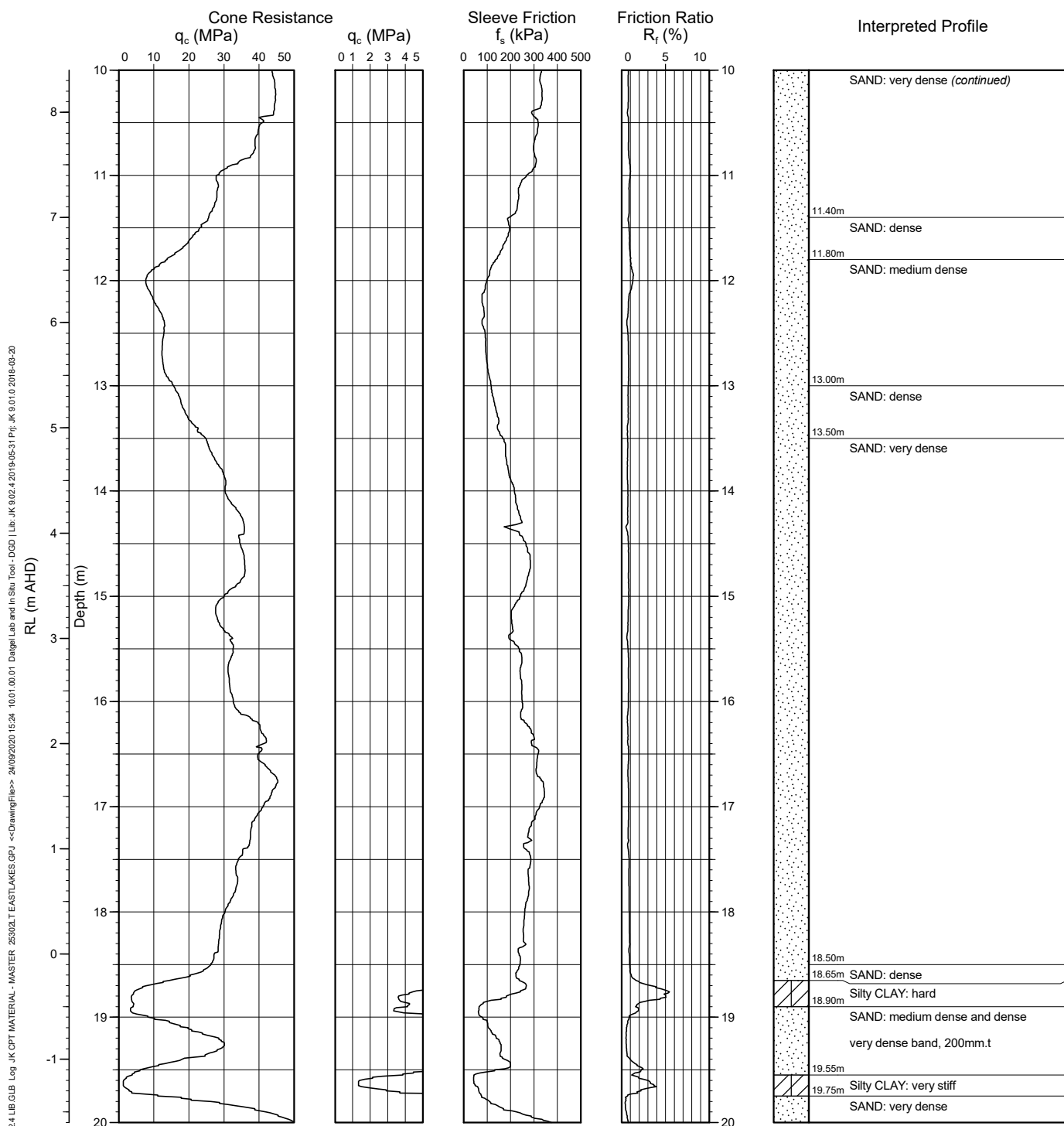
R.L. Surface: ~18.4 m

Data File: 25302V-EASTLAKES

Date: 19/10/11

Datum: AHD

Operator: D.F.



Interpreted by: D.F.
Checked by: F.V.

CONE PENETROMETER TEST RESULTS

EASTING: 334736.7016
NORTHING: 6244698.3983

Client: CROWN GROUP

Project: SHOPPING CENTRE DEVELOPMENT

Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT

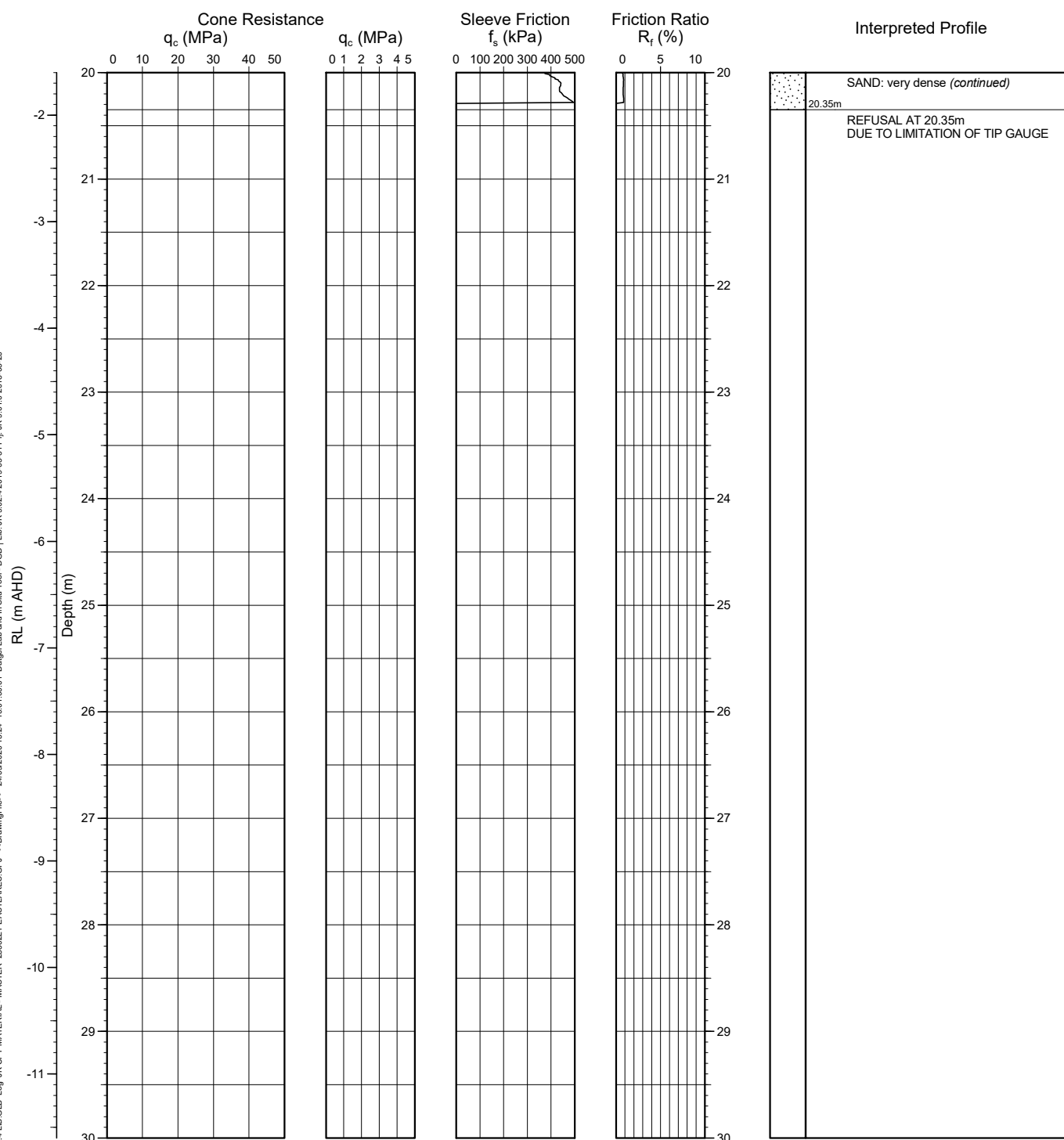
R.L. Surface: ~18.4 m

Data File: 25302V-EASTLAKES

Date: 19/10/11

Datum: AHD

Operator: D.F.



Interpreted by: D.F.
Checked by: F.V.

CONE PENETROMETER TEST RESULTS

EASTING: 334633.5439
NORTHING: 6244727.0942

Client: CROWN GROUP

Project: SHOPPING CENTRE DEVELOPMENT

Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT

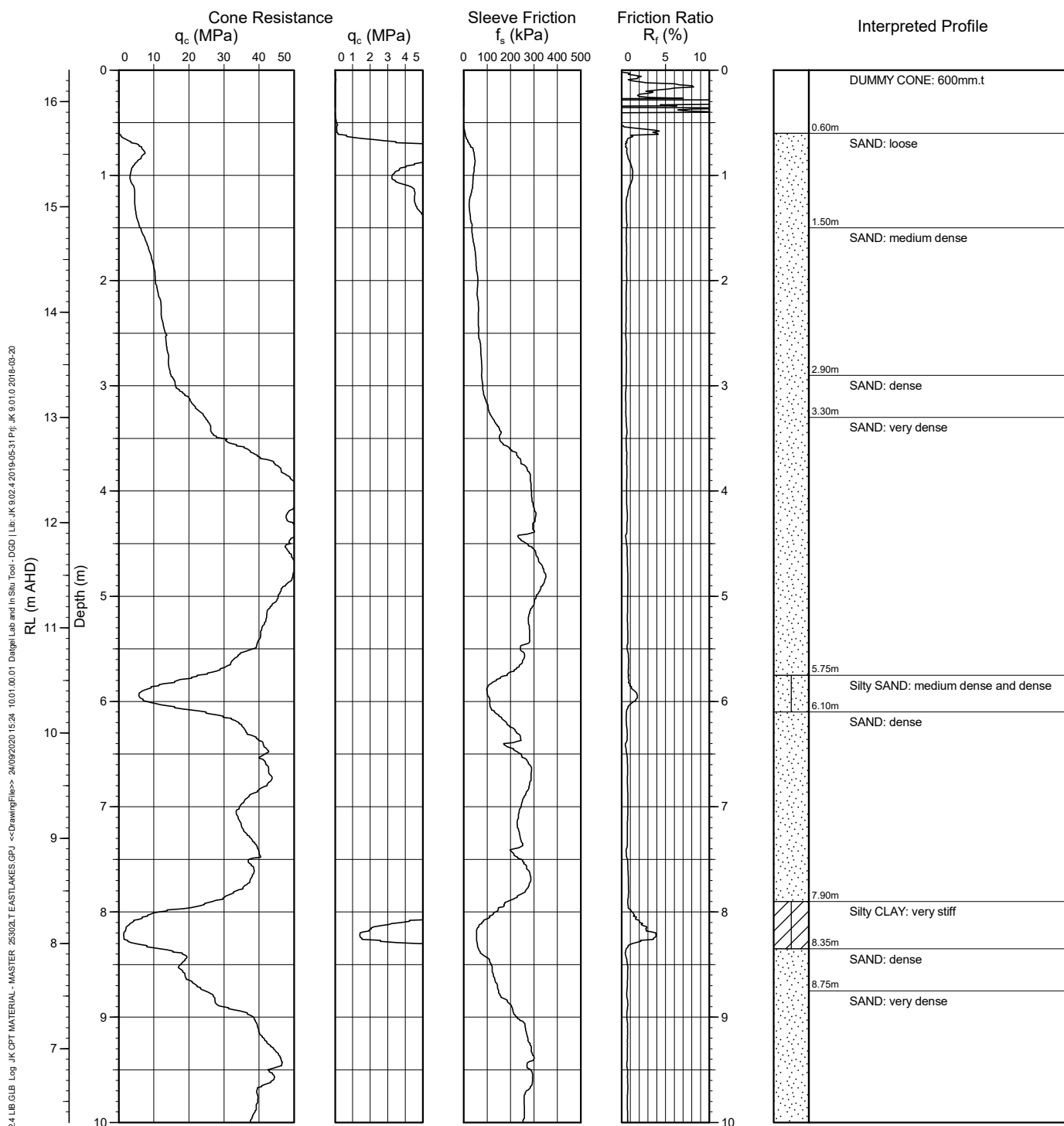
R.L. Surface: ~16.3 m

Data File: 25302V-EASTLAKES

Date: 19/10/11

Datum: AHD

Operator: D.F.



Interpreted by: D.F.
Checked by: F.V.

CPT No.

105

2 / 3

EASTING: 334633.5439
NORTHING: 6244727.0942

CONE PENETROMETER TEST RESULTS

Client: CROWN GROUP

Project: SHOPPING CENTRE DEVELOPMENT

Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT

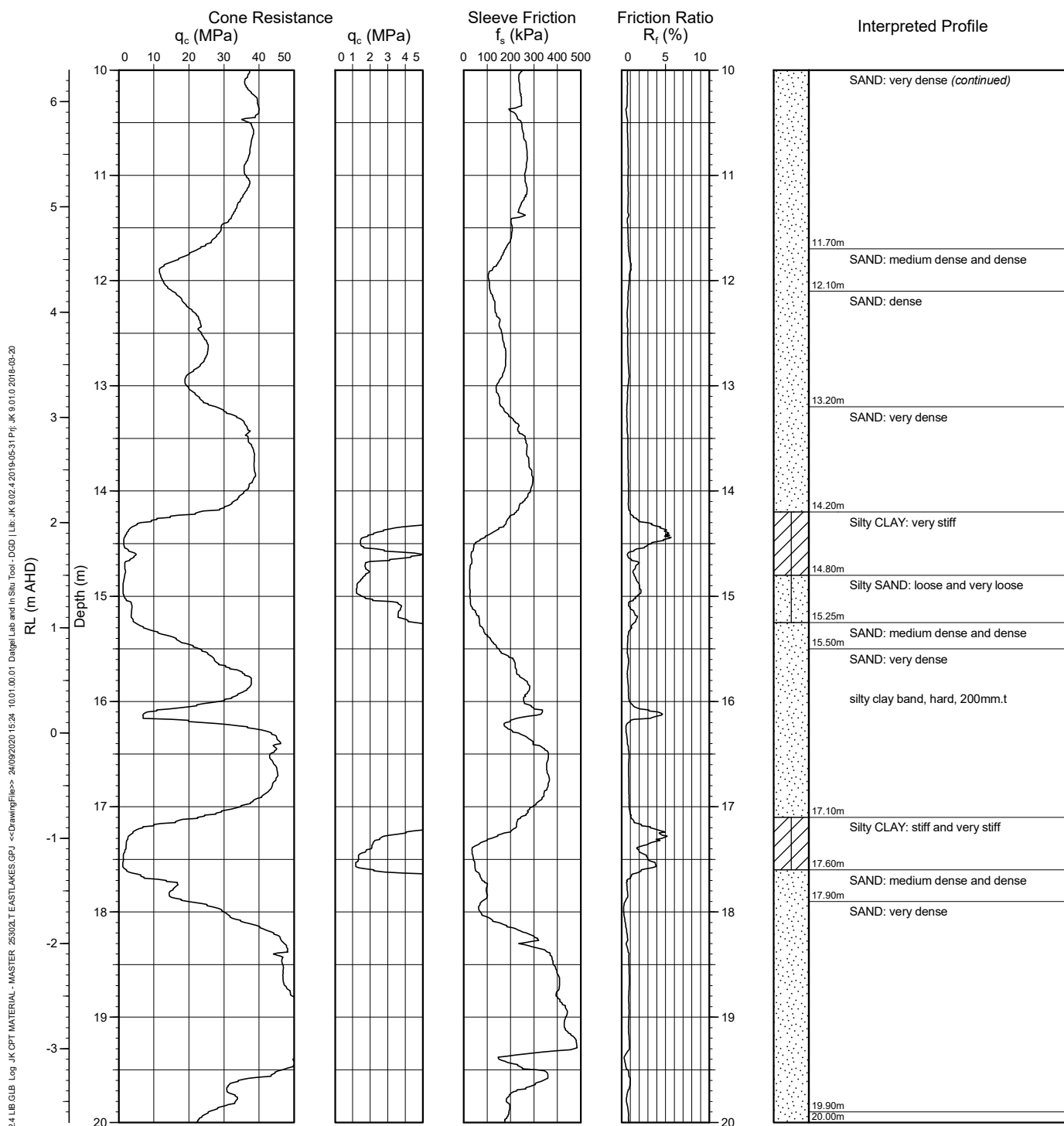
R.L. Surface: ~16.3 m

Data File: 25302V-EASTLAKES

Date: 19/10/11

Datum: AHD

Operator: D.F.



JK 9.02.4 LB GLB Log JK CPT MATERIAL - MASTER 25302LT EASTLAKES.GPJ <<DrawingFile>> 24/09/2020 15:24 10.01.00.01 Digital Lab and In Situ Tool - DGD | Lib: JK 9.02.4 2019-05-31 Proj: JK 9.01.0 2018-03-20

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Interpreted by: D.F.
Checked by: F.V.

CPT No.

105

3 / 3

CONE PENETROMETER TEST RESULTS

EASTING: 334633.5439
NORTHING: 6244727.0942

Client: CROWN GROUP

Project: SHOPPING CENTRE DEVELOPMENT

Location: CNR EVANS AND BARBER AVENUE, EASTLAKES, NSW

Job No.: 25302LT

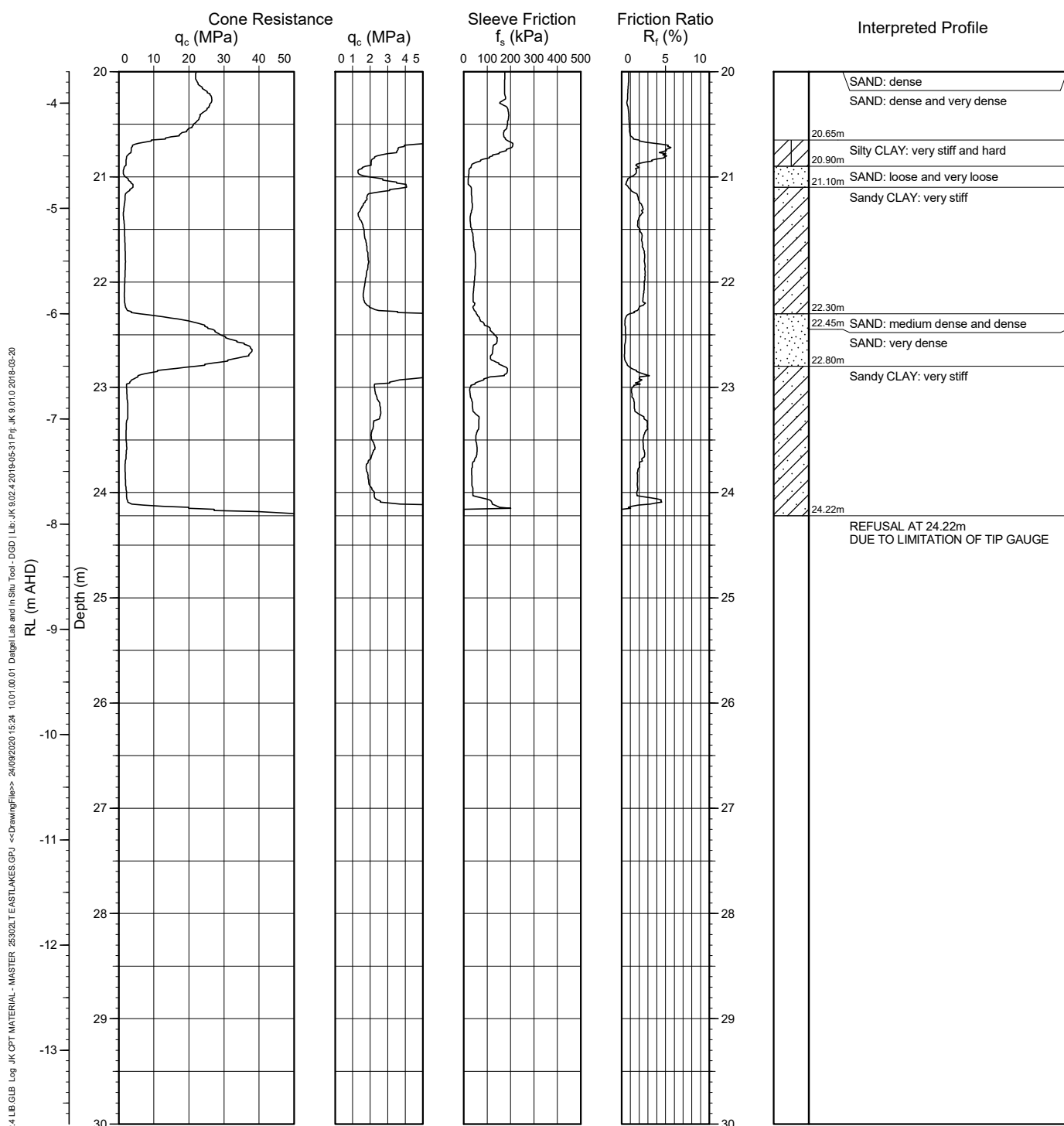
R.L. Surface: ~16.3 m

Data File: 25302V-EASTLAKES

Date: 19/10/11

Datum: AHD

Operator: D.F.

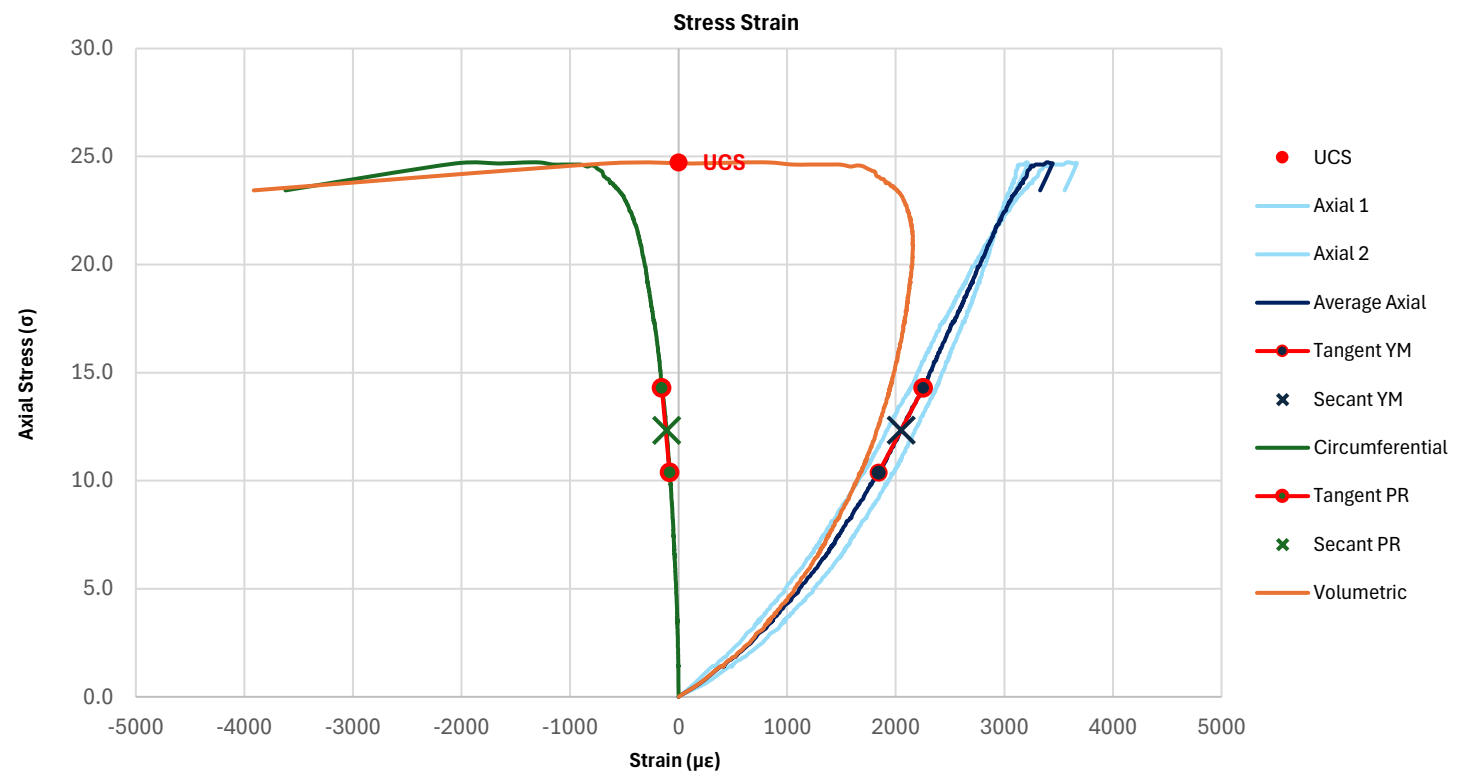


Interpreted by: D.F.
Checked by: F.V.

Appendix E

Laboratory Test Results

Methodology	AS 4133.4.3.2	MG Sample No.	S113420
Client	Douglas Partners	MG Project No.	S26058-1
Address	96 Hermitage Road, West Ryde	Date Sampled	Unknown
Project	Proposed Development (236760 01)	Date Received	19/12/2025
Sample ID	BH405 29.54-29.79m	Date Tested	3/02/2026
Report No.	S113420-AS_RMOD		
Sampling Method	Sampled by Client - results apply to the sample as received		
Preparation Method	Prepared in accordance with the test method		
Sample Description	Sandstone		



Uniaxial Compressive Strength (MPa)	25	Condition of Specimen	As-Received (Moist)
Failure Mode	Single Shear Plane	Storage History	Moisture Preserved
Young's Modulus - Tangent (GPa)	9.5	Specimen Curing	-
Poisson's Ratio - Tangent	0.069		
<i>Tangent values calculated from 42% to 58% of UCS</i>			
Young's Modulus - Secant (GPa)	6.0	Moisture Content - After Test (%)	6.5
Poisson's Ratio - Secant	0.055	Dry Density (g/cm ³)	2.23
<i>Tangent values calculated from 0% to 50% of UCS</i>			
Rate of Displacement (mm/min)	< 0.1	Type of Testing Machine	Matest 2000 kN Compression Machine with Axial / Circumferential Extensometers
Test Duration (min)	4.67		
Average Specimen Diameter (mm)	51.6		
Specimen Height (mm)	149.7		
Length to Diameter Ratio	2.9		



Accredited for compliance with ISO/IEC 17025 - Testing.
NATA Accredited Laboratory Number: 14874
Macquarie Geotechnical Pty Ltd
14 Carter Street, Lidcombe NSW 2141 (Sydney Laboratory)

Authorised Signatory

Jacob Lloyd

Date of Issue

04/02/2026

Results relate only to the samples tested.
This document shall not be reproduced, except in full.

Methodology	AS 4133.4.3.2		
Client	Douglas Partners	MG Sample No.	S113420
Address	96 Hermitage Road, West Ryde	MG Project No.	S26058-1
Project	Proposed Development (236760 01)	Date Sampled	Unknown
Sample ID	BH405 29.54-29.79m	Date Received	19/12/2025
Report No.	S113420-AS_RMOD	Date Tested	3/02/2026
Sampling Method	Sampled by Client - results apply to the sample as received		
Preparation Method	Prepared in accordance with the test method		
Sample Description	Sandstone		



Before Test Photo



After Test Photo

Notes

Accredited for compliance with ISO/IEC 17025 - Testing.
NATA Accredited Laboratory Number: 14874
Macquarie Geotechnical Pty Ltd
14 Carter Street, Lidcombe NSW 2141 (Sydney Laboratory)

Authorised Signatory

Jacob Lloyd

Date of Issue

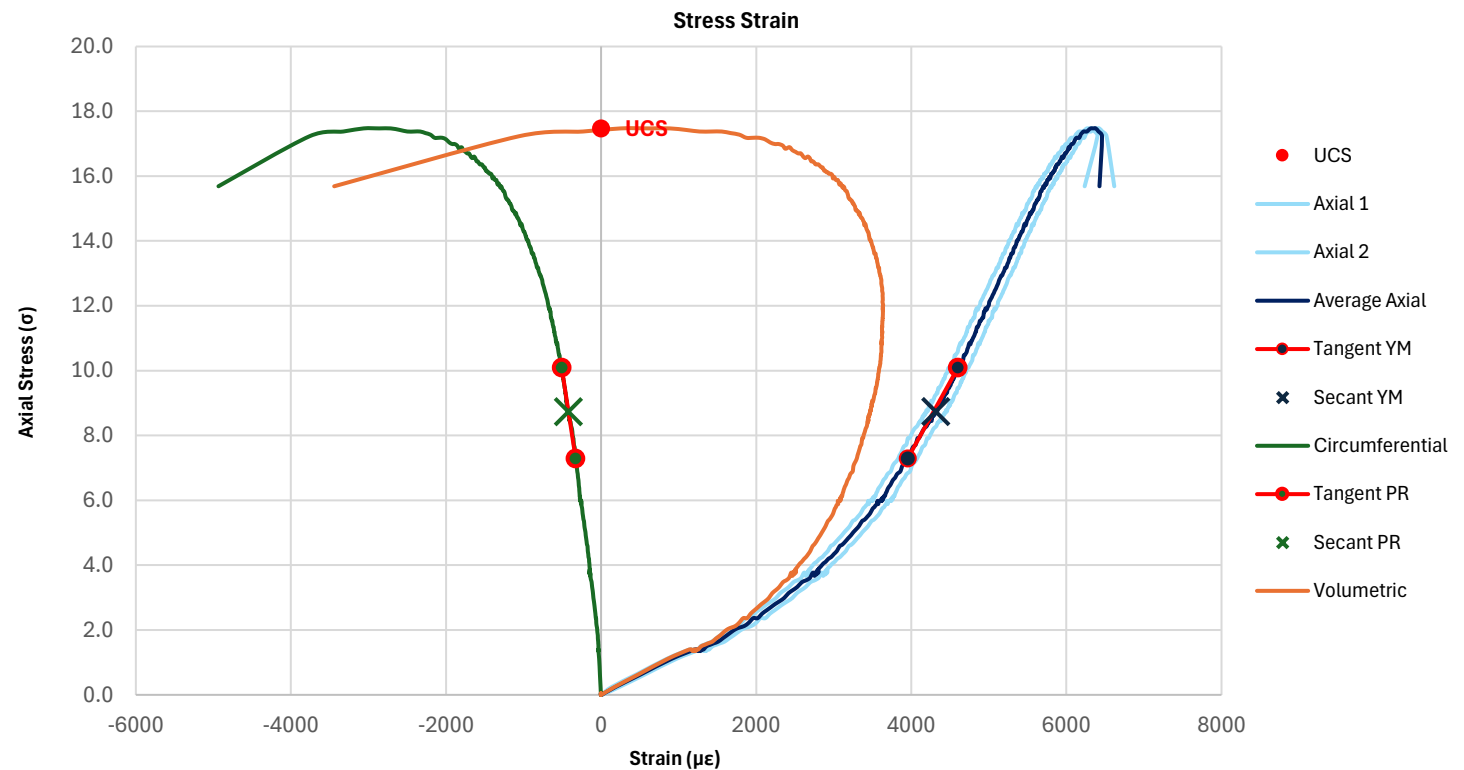
04/02/2026

Results relate only to the samples tested.
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Methodology	AS 4133.4.3.2	MG Sample No.	S113421
Client	Douglas Partners	MG Project No.	S26058-1
Address	96 Hermitage Road, West Ryde	Date Sampled	Unknown
Project	Proposed Development (236760 01)	Date Received	19/12/2025
Sample ID	BH414 37.51-37.71m	Date Tested	3/02/2026
Report No.	S113421-AS_RMOD		

Sampling Method	Sampled by Client - results apply to the sample as received
Preparation Method	Prepared in accordance with the test method

Sample Description Sandstone



Uniaxial Compressive Strength (MPa)	17	Condition of Specimen	As-Received (Moist)
Failure Mode	Single Shear Plane	Storage History	Moisture Preserved
Young's Modulus - Tangent (GPa)	4.3	Specimen Curing	-
Poisson's Ratio - Tangent	0.11		
<i>Tangent values calculated from 42% to 58% of UCS</i>			
Young's Modulus - Secant (GPa)	2.0	Moisture Content - After Test (%)	9.2
Poisson's Ratio - Secant	0.098	Dry Density (g/cm ³)	2.08
<i>Tangent values calculated from 0% to 50% of UCS</i>			
Rate of Displacement (mm/min)	< 0.1	Type of Testing Machine	Matest 2000 kN Compression Machine with Axial / Circumferential Extensometers
Test Duration (min)	3.30		
Average Specimen Diameter (mm)	51.4		
Specimen Height (mm)	148.9		
Length to Diameter Ratio	2.9		



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Jacob Lloyd

Date of Issue

04/02/2026

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Methodology	AS 4133.4.3.2		
Client	Douglas Partners	MG Sample No.	S113421
Address	96 Hermitage Road, West Ryde	MG Project No.	S26058-1
Project	Proposed Development (236760 01)	Date Sampled	Unknown
Sample ID	BH414 37.51-37.71m	Date Received	19/12/2025
Report No.	S113421-AS_RMOD	Date Tested	3/02/2026
Sampling Method	Sampled by Client - results apply to the sample as received		
Preparation Method	Prepared in accordance with the test method		
Sample Description	Sandstone		



Before Test Photo



After Test Photo

Notes



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