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Our Ref: PSM4375-003L REV 3

9 March 2022

Development Manager
Hale Capital Partners
246 Pacific Highway
Crows Nest NSW 2065
alana.garrick@halecp.com

Attention: Alana Garrick

Dear Alana

RE: 42 RAYMOND AVENUE, MATRAVILLE
RESULTS OF DETAILED GEOTECHNICAL INVESTIGATION

1. Introduction

This letter presents the results of stage 2 geotechnical investigation and the interim geotechnical design advice (IGDA) for the proposed development at 42 Raymond Avenue, Matraville (the Site). The work was undertaken to provide a geotechnical assessment as required in Item 12 of SEAR SSD-31552370 .

The following documents were provided as part of the State Significant Development Application (SSDA):

- Architectural Drawings by SBA Architects:
- Preliminary Civil Drawings by Costin Roe Consulting
- Landscaping Drawings by Geoscapes
- Preliminary Structural Drawings by Costin Roe Consulting
- Environmental Phase 2 report (Ref: J200432 DSI, dated 10 September 2020).

2. Background

Based on the provided documents and the discussion with Hale Capital Partners (HCP), we understand that the proposed development at 42-52 Raymond Avenue involves construction of a two-storey warehouse and distribution centre comprising 19,460 m2 GFA including ancillary office space, landscaping, bicycle and car parking.

The proposal comprises the redevelopment of the site as summarised below:

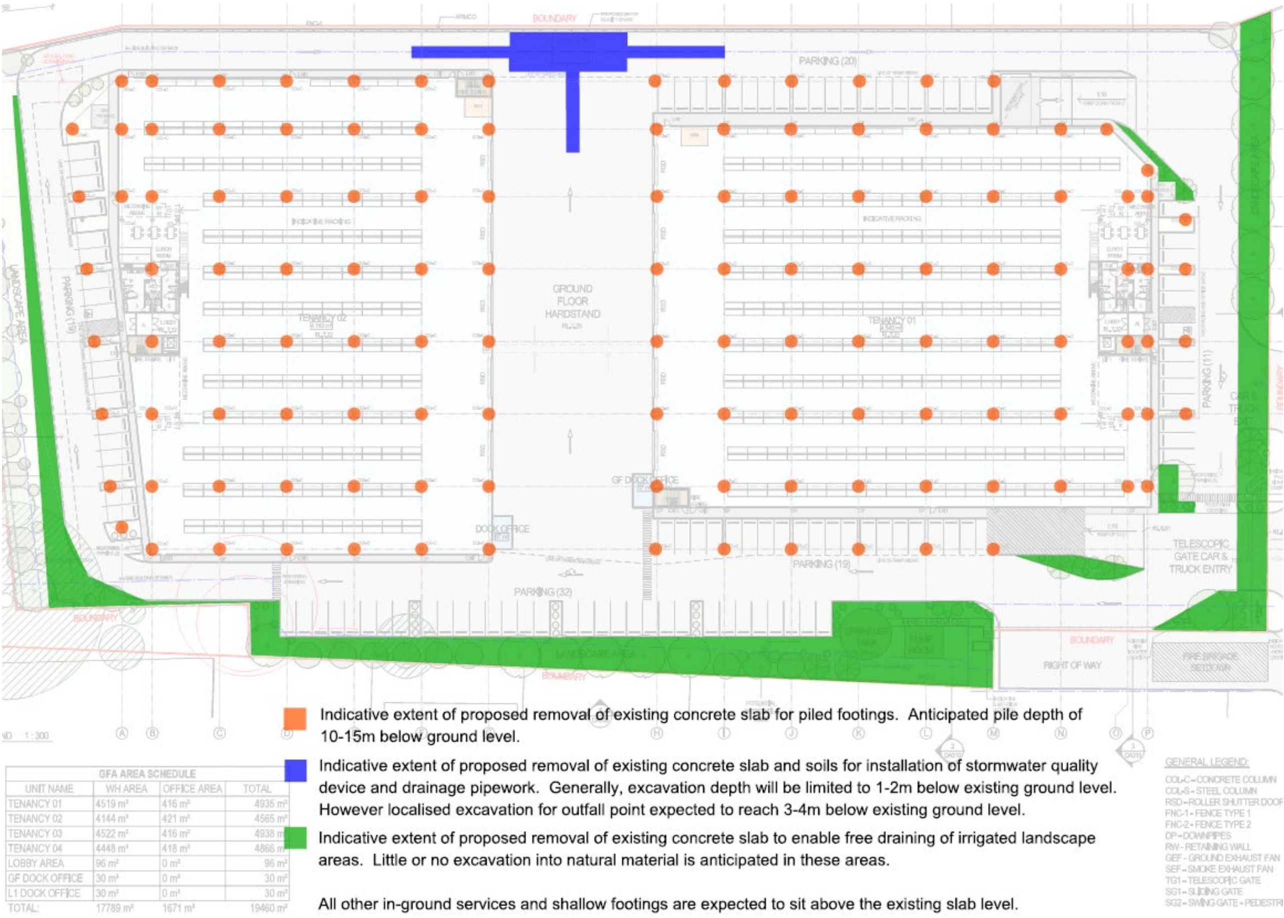
- Construction, fit out and operation of a two-storey warehouse and distribution centre comprising approximately 19,460 m^2 GFA including:
  - 17,789 m^2 of warehouse and distribution GFA; and
  - 1,671 m^2 GFA ancillary office space.
- Provision of 11 bicycle parking spaces and 101 car parking spaces at ground
- Approximately 2,250 m^2 of hard and soft landscaping at ground
- Provision of one additional access crossover from Raymond Avenue

- Provision of internal vehicle access route and loading docks
- Upgrades to existing on-site infrastructure
- Building identification signage
- Operation 24 hours per day seven days per week.

The site is legally described as Lot 1 in Deposited Plan 369888, Lot 32 Sec B Deposited Plan 8313, Lot 1 Deposited Plan 511092 and Lot 2 in Deposited Plan 1082623.

At this stage, the details of the proposed development including earthworks are yet to be finalised. Based on the discussions with HCP, we understand that:

- No significant cuts are proposed (i.e. no basement is being proposed as part of the development).
- Imported fill will be placed over the top of the existing slab.
- Most of the existing slab will be left in place and not removed, with the following exceptions (See Inset 0):
  - Pile footings, there two footing options being raft type footings and soil mix piles – both solutions would not generate spoil. Pile depths are anticipated to be 10 to 15 m below ground level.
  - Stormwater:
    - Removal of slab locally up to approximately 1 to 2 m on the north-western boundary of the site for installation of stormwater quality device and drainage network
    - New connection required to the channel up to approximately 3 to 4 m below existing slab level.
  - Landscaping: Removal required along Raymond Ave boundary, south-western and south-eastern boundary to accommodate landscaping areas.



Inset 0: Indicative extents of removal of existing slabs

3. Geotechnical Investigation

3.1 Fieldwork

The fieldwork was undertaken on 30 March 2021 under the full-time supervision of a PSM Senior Geotechnical Engineer, who performed the following tasks:

- Directed test locations, concrete coring and cone penetration testing (CPT)
- Measured groundwater levels in the standpipe piezometers
- Measured cored slab thicknesses
- Collected samples for soil aggressivity testing.

The test locations were recorded with a hand-held GPS unit with a horizontal accuracy of approximate +/- 5 m. No surveys of the existing ground were provided, RLs of the slab has been assumed to be consistent with the top of boreholes and monitoring wells completed as part of the Environmental Phase 2 Report.

Prior to testing, each location was scanned by an electronic services locator to assess if the locations were free from buried utilities.

Figure 1 presents the site locality plan outlining the site boundary and test locations.

Figures 2 to 7 presents selected general site photos.

3.2 CPTs

A total of eight (8) CPTs from CPT01 to 08 were undertaken on site under. The CPTs were carried out using a 24 tonne truck rig, see Inset 1. All CPTs were undertaken to the depths of between 9.8 m and 10.9 m.

Inset 1: CPT rig used in fieldwork

Appendix A presents the results of CPT.

3.3 Laboratory Testing

3.3.1 Concrete Core Testing

A total of thirteen (13) concrete core specimens were collected on site and sent to a concrete laboratory for the following testing:

- Compressive testing undertaken on eleven (11) core specimens in accordance with AS1012.09 and AS1012.14
- Static concrete modulus of elasticity testing undertaken on four (4) core specimens in accordance with AS1012.17.

Table 1 presents the summary of the thickness of each concrete core and the results of concrete tests.

Table 1 – Summary of the Results of Concrete Testing

Location	Thickness (mm)	Density (kg/m^3)	Compressive Strength (1) (MPa)	Young's Modulus (MPa)
CPT01*	124	-	-	
CPT02	124.5	2,300	38.0	-
CPT03*	130	-	-	-
CPT04	116.0	2,360	45.0	-
CPT05	151.4	2,360	40.5	-
CPT05A	115.5	2,400	42.0	-
CPT06	112.6	2,320	34.0	-
CPT07	126.3	2,180	31.5	21,000
CPT08	175.5	2,400	59.0	41,000
CPT09	93.7	2,420	43.5	-
CPT10	113.3	2,380	36.5	-
CPT11	140.8	2,360	44.0	24,000
CPT12	118.0	2,340	51.5	33,000

Notes:

1 Length to diameter corrected strength.

2 * - not suitable for concrete testing.

Appendix B presents the results of concrete testing.

Appendix C presents the core photos of concrete slab.

3.3.2 Soil Aggressivity Testing

A total of three (3) soil samples were collected at various depths from CPT05A and sent to a geotechnical laboratory for the soil aggressivity testing.

Table 2 presents the summary of the results of aggressivity tests.

Table 2 – Summary of the Results of Soil Aggressivity Testing

Location	Sample Depth (m)	pH	Moisture Content (%)	Chloride (mg/kg)	Soluble Sulphate (mg/kg)
CPT05A	0.15 to 0.25	6.9	5.1	< 10	80
CPT05A	0.25 to 1.0	4.9	1.4	< 10	20
CPT05A	1.0 to 1.5	5.2	1.3	< 10	< 10

Appendix D presents the results of soil aggressivity testing.

4. Site Conditions

4.1 Geological Setting

The 1:100,000 Sydney Geological Map (1991)[1] indicates:

- Quaternary SAND sediments (Qhd): medium to fine grained “marine” sand with podsols.

Inset 2 presents the geological map of the Site.

Inset 2: Geological map of the Site (Qhd hatched in yellow)

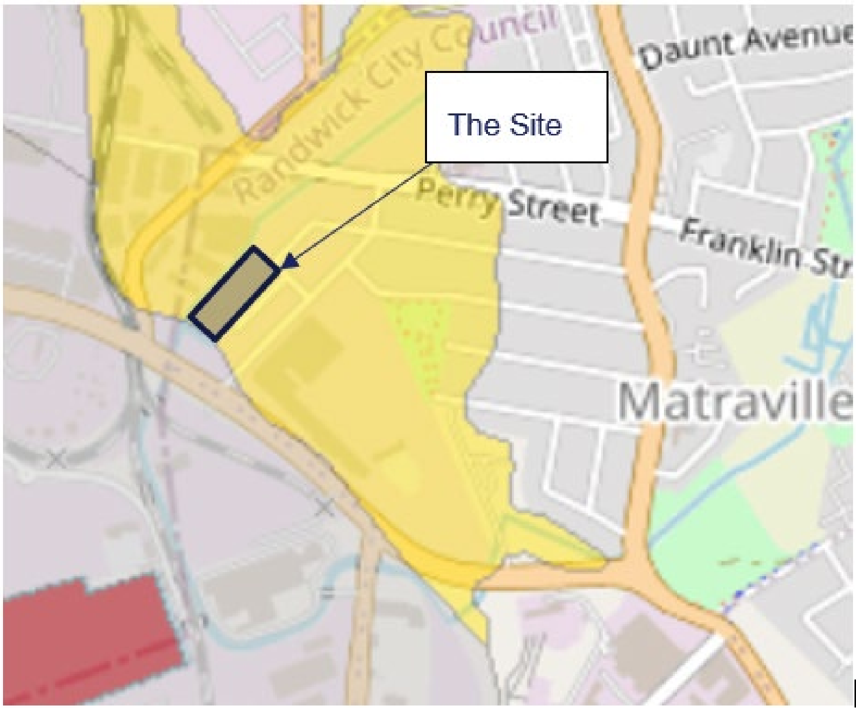
4.2 Acid Sulfate Soil Risk

The 1:25,000 acid sulfate soil risk maps[2] indicates the Site is within the low probability of occurrence zone.

Inset 3 presents the acid sulfate soil risk map of the Site.

[1] Sydney 1:100,000 geological map, https://gmaps.geoscience.nsw.gov.au/100K/Sydney/

[2] Acid sulfate soil risk map, https://www.environment.nsw.gov.au/topics/land-and-soil/soil-degradation/acid-sulfate-soils



Inset 3: Acid sulfate soil risk map of the Site (the low probability of occurrence zone hatched in yellow)

4.3 Surface Conditions

Based on site walkover and a series of available aerial photos, we understand the following:

- An old warehouse had been built on Site for at least 65 years, which appeared to have been demolished in 2020
- The Site is bounded by Sydney Water stormwater retention basin to the south (see Photo 3 of Figure 3), Bunnerong stormwater channel No. 11 to the west (see Photo 4 of Figure 3), Raymond Avenue to the north and some industrial warehouses to the east.
- The Site mainly comprises the following:
  - Approximate an area of 200 m by 100 m concrete slab of the old warehouse. Some cracks and damages were observed on the slab surface, see Photo 5 to 6 of Figure 4. The slab thickness varies within the site and ranges from approximately 100 mm to 175 mm
  - An existing sprinkler tank located at the southeast corner of the Site, see Photo 8 of Figure 6
  - An asphaltic access road running along the eastern boundary from Raymond Avenue
  - An approximate 1V:1H vegetated batter falling towards the Sydney Water basin, see Photo 3 of Figure 3
  - An approximate 1V:2H vegetated batter on top of a retaining wall falling towards Bunnerong stormwater channel No. 11, see Photo 4 of Figure 3.
  - Some trees and vegetations observed along the western and southern boundary.
- Three (3) monitoring wells (MW01, MW02 and MW03) were found on site and still functionable, previously installed by EMM back in 2020, see Photo 9 of Figure 6
- Some voids/sinkholes observed along the crest of batter of Bunnerong stormwater channel No. 11, see Photo 10 of Figure 7.

Inset 4 to Inset 6 presents the aerial photos undertaken from 1955 to 2020.

Inset 4: Aerial photo of the Site undertaken in 1955

Inset 5: Aerial photo of the Site undertaken in 2010

Inset 6: Aerial photo of the Site undertaken in 2020

4.4 Inferred Sub-surface Conditions

The sub-surface profile inferred from the CPTs are summarised in Table 3 below.

Table 3 – Summary of Inferred Subsurface Conditions Encountered in CPTs

Inferred Unit	Inferred Depth to Top of Unit below Ground (m)	Description
CONCRETE SLAB	0	CONCRETE: the thickness of slab measured to range from 94 mm to 175 mm, generally > 110 mm thick. Some cracks and damages were observed on the surface.
FILL	0.09 to 0.17	Variable FILL; inferred to be gravelly SAND, clean SAND and silty SAND.
Loose SAND	0.8 to 1.4	Inferred to be clean SAND and silty SAND, very loose to medium dense density.
Dense SAND	1.4 to 3.0	Inferred to be gravelly SAND, dense to very dense, with occasional thin layers of CLAY and silty CLAY (generally < 0.5 m thick).
BEDROCK	N/E	Not encountered.

Notes:

1 The borehole logs in EMM's environmental report were used to characterise the FILL unit.

BEDROCK was not encountered at the termination depths of between 9.8 m and 10.9 m in the CPTs completed. We expect BEDROCK to be encountered at > 15 m below ground level.

Table 4 presents the summary of the top of inferred geotechnical units encountered in each CPT.

Table 4 – Summary of the Top of Inferred Geotechnical Units Encountered in CPTs

CPT ID	Inferred Depth to Top of Unit below Ground (m)					
	Concrete Slab	Fill	Loose Sand	Dense Sand	Bedrock	EOH (2)
CPT01	0	0.13	1.0	3.0	N/E	9.9
CPT02	0	0.12	1.1	2.5	N/E	10.9
CPT03	0	0.13	1.4	2.9	N/E	9.8
CPT04	0	0.12	0.9	2.3	N/E	9.9
CPT05	0	0.15	1.1	2.4	N/E	9.8
CPT06	0	0.11	0.8	1.8	N/E	10.1
CPT07	0	0.13	1.0	1.4	N/E	10.0
CPT08	0	0.18	0.8	1.9	N/E	10.9

Notes:

1 The borehole logs in EMM's environmental report were used to characterise the FILL unit.

2 EOH: end of hole

3 N/E: not encountered

4.5 Groundwater

We have undertaken groundwater measurement at the monitoring well locations summarised in Table 5, installed by EMM in 2020.

Table 5 – Summary of Measured Groundwater Table Encountered in Boreholes

Borehole ID	Measured Groundwater Table below Ground (m)	
	24 March 2021	30 March 2021
MW01	N/M	3.5
MW02	3.3	3.5
MW03	3.0	3.25

Notes:

1 N/M: Not measured

The groundwater level at the Site will most likely to be affected by rainfall, during the period of heavy rainfall, a rise in water table is to be expected and during the periods of drought a lowering of the standing water table is to be expected.

5. Suitability for Warehouse Development / Geotechnical Risks

Based on our detailed geotechnical investigation, the previous historical use, and the development adjacent to the site, we do not see any geotechnical issues that would preclude the Site to be developed as a multi-level warehouse.

The performance of the existing structures (including those adjacent to the site), in our opinion, provides a good indicator of the expected performance of future developments on the site, which we have assumed to be a similar multi-level warehouse (i.e. non-high bay).

The following geotechnical risks should be considered. These do not include any risks relating to contamination or environmental concerns.

- Existing FILL:

  We note that existing FILL was encountered in the EMM boreholes and our CPTs. The thickness of the existing FILL varies from 0.5 m to 1.0 m. It is inferred to comprise gravelly SAND and SAND with various relative density ranging from very dense to lose within the Site. It is PSM's experience that existing FILL found on brownfield sites can be managed through an effective Bulk Earthworks Specification or be removed.

  The environmental report highlights the potential for contamination of existing FILL. Keeping the existing slab in place could be adopted to avoid dealing with the existing FILL. Please refer to Section 6 regarding earthworks and existing slab.

- Loose SAND:

  Based on the CPT results, it indicates that there is a layer of loose SAND directly underneath the existing FILL, overlying the dense SAND. The thickness of loose SAND varies within the Site ranging from 2.0 m at the southern side to 0.4 m at the northern side. The various thickness of loose SAND may cause ground settlement (e.g. differential).

6. Earthworks

6.1 Minor Earthworks

We envisage that only minor earthworks will be required for the works. PSM recommends that an appropriate earthworks specification be prepared for the site and proposed development. Placement of fill should be carried out in accordance with that specification. The specification would need to be developed giving appropriate consideration to the proposed end use. In general the specification should consider the guidelines in AS 3798 (2007), "Guidelines on earthworks for commercial and residential developments" and at least the following:

- Stripping requirements. Topsoil and vegetation should be stripped prior to any fill being placed
- Subgrade preparation requirements (if any), including keeping the existing slab (See Section 6.2 of this letter)
- Material requirements including a clear definition of suitable and unsuitable material and maximum particle size requirements
- Where imported material is required, they should conform to the definition of "virgin excavated natural material" (VENM) or "excavated natural material" (ENM) as defined by the Protection of the Environment Operations
- Fill placement requirements, including a clear definition of compacted layer thickness. The layer thickness will depend on the available plant. For plant heavier than a 10 t roller typically a maximum layer thickness of 300 mm is adopted
- Compaction requirements. Typically, a dry density ratio of between 98% to 102% SMDD is adopted
- Moisture control requirements. Typically, a field moisture content of between 2% dry and 2% wet of optimum is adopted.
- Inspection and testing requirements
- Responsibilities of the contractor
- Responsibilities of the Geotechnical Inspection and Testing Authority (GITA).

We can assist with the preparation of the Earthworks Specification if requested by HCP.

6.2 Existing Slab

As indicated in Section 3.3.1 and 4.4, we understand that the following conditions on the existing slab:

- The general thickness of concrete slab was measured to range from 110 mm to 175 mm, except one core at CPT09 which is only 94 mm thick
- The corrected compressive strength of the slab ranges from 31 MPa to 59 MPa, with an average of 42 MPa
- The Young's Modulus of the slab ranges from 21 GPa to 41 GPa, with an average of 30 GPa.

We understand that as part of the proposed development the existing grade slabs will be retained at the structural designer's option. There is no geotechnical impediment to retaining the existing slab, however the following shall be considered:

- Any soft spot underneath the concrete slab will be difficult to identify. The earthworks contractor shall consider running an 825 compactor over the concrete pavement when proof-rolling; it may break the pavement if the subgrade is "soft" over significant area. This requirement can be included in the Earthworks Specification.
- Warehouse structure (its entirety) layout should be founded on similar subgrade condition, i.e. either inside or outside the buried slab unless some fill is placed on top of the slab. This is to avoid differential settlement due to "hard" and "soft subgrade or design for this.
- Any pipes and terminated existing buried utilities, e.g. stormwater pits, etc., should be removed and backfilled.

- The main issue with leaving existing slab will be the installation of new services, footing excavation etc. where it may be more difficult due to buried hard layer. This is a construction issue, not geotechnical.

With regards to the minimum fill thickness, we suggest a minimum of 1 m thick of new engineered fill, be placed on top of existing pavement. Thus, footing and services excavation is likely to be within the imported fill. This also help to reduce the impact of founding the warehouse on both hard and soft subgrade.

Plate load testing should be undertaken on the finished pad to confirm the geotechnical design advice.

7. Interim Geotechnical Design Advice (IGDA)

7.1 General

The design advice in the following sections is provided on the basis that:

- The subsurface conditions are as those encountered in the detailed geotechnical investigation in Section 4.4
- We envisage that only minor earthworks will be required for the works, no significant cut and fill are proposed
- The proposed development on site is a lightweight industrial warehouse.

7.2 Site Classification

While the proposed development is out of scope of AS2870-2011 *"Residential slabs and footings"*, we assess that for import fill comprising typical VENM clay fill that is well compacted in accordance with an earthwork specification, the characteristic surface movement, y_s, would be in the range 40 mm to 60 mm and thus would classify the site as Class H1. This assumes the existing slab will be left in-situ and that imported fill comprising clay will be placed to raise the pad level. Further advice should be sought if these assumptions are not satisfied.

The civil and structural engineers should consider likely heave / settlement due to the effect of climatic factors in their designs.

7.3 Corrosivity

Table 4.8.1 of AS3600-2018 "*Concrete Structures*" provides criteria for exposure classification for concrete in sulphate soils based on sulphates in soil and groundwater, and pH of soil. On the basis of the sulphate and pH testing completed, we assess the exposure classification for concrete in sulphate soils to be B1.

Similarly, Table 6.4.2(C) of AS2159-2009, "*Piling – Design and Installation*" provides criteria for exposure classification for concrete piles in soil, and here the exposure classification for concrete piles in soil is mild to moderate.

Table 6.5.2(C) of AS2159:2009, "*Piling – Design and Installation*" provides criteria for exposure classification for steel piles based on resistivity, soil and groundwater pH, and chlorides in soil and groundwater. On the basis of the resistivity, pH and chloride testing completed we assess the exposure classification for steel piles in the soil to be non-aggressive to mild.

7.4 Batters

The following batter slope angles shown in Table 6 above the groundwater level, are recommended for the design of batters up to a nominal 3 m height subject to the following recommendations:

- All batters shall be protected from erosion
- Permanent batters shall be drained
- Temporary batters shall not be left unsupported for more than 1 month without further advice, and inspection by a geotechnical engineer should be undertaken following significant rain events.
- Where loads are imposed or structures/services are located within one batter height of the crest of the batter, further advice should be sought.

If the conditions above cannot be met, further advice should be sought.

Steeper batters may be possible subject to further advice, likely including inspection during construction.

Table 6 – Batter Slope Angles

Inferred Unit	Temporary	Permanent
FILL and SAND units	2.0H:1V	2.5H:1V

Where FILL is not engineered/controlled FILL, batter slope angles will have to be assessed by a geotechnical engineer and should be inspected by a geotechnical engineer following rain events.

7.5 Retaining Structures

The design of retaining structures should account for the requirements of AS4678.

The design of these structures should be based on the following:

- Proposed wall geometry
- Effective soil strength parameters in Table 7
- Water pressure (depending on the type of structure).

Note that design of retention systems may be based on either K_a or K_o earth pressures. Design using active earth pressures provides the minimum lateral earth pressure that must be supported to avoid failure and requires a wall that can rotate or translate to allow the pressures to reduce to these values (vertical and lateral movements up to 2% of height may occur, typical movements will be much less).

Where the design is based on K_o pressures, construction should be carefully controlled to avoid unwanted effects. It should be noted that designing for K_o pressures do not, of themselves, ensure that movement does not occur. Movements are controlled by the construction method, especially sequence.

Both surface and sub-surface drainage needs to be designed and constructed properly to prevent pore water pressures from building up behind the retaining walls or appropriate water pressures must be included in the design.

7.6 Foundations

It is expected that the foundations used as part of the proposed development at the Site would typically include strip, pad, or other shallow footings.

Pad footings can be proportioned on the basis of an allowable bearing pressure (ABP) for centric vertical loads provided in Table 7. Further advice should be sought if the footings are located adjacent to a batter or wall.

We note that an allowable bearing pressure (ABP) is not a soil property. It depends on many factors such as the size of the footings, the embedment depth, the load direction and eccentricity, the stiffness of the footing, the adopted factor of safety (FOS), as well as the soil properties. As footings get bigger or deeper the capacity increases rapidly, and as the load gains eccentricity or becomes inclined, the capacity reduces rapidly.

Settlements can be estimated using the elastic moduli provided in Table 7.

Foundation conditions at the proposed shallow pad footing locations should be inspected by a suitably qualified geotechnical engineer prior to the pouring of concrete.

It is not recommended that footings are founded on existing FILL and loose SAND. A further advice should be sought if required by HCP.

Table 7 – Engineering Parameters of Inferred Geotechnical Units

<table>
<tr><th rowspan="2">Inferred Unit</th><th rowspan="2">Bulk Unit Weight (kN/m^3)</th><th colspan="2">Soil Effective Strength Parameters</th><th rowspan="2">Ultimate Bearing Pressure under Vertical Centric Loading [2] (kPa)</th><th rowspan="2">Allowable Bearing Pressure (ABP) under Vertical Centric Loading [3] (kPa)</th><th colspan="2">Elastic Parameters</th></tr>
<tr><th>c' (kPa)</th><th>φ' (deg)</th><th>Long Term Youngs Modulus (MPa)</th><th>Poisson's Ratio</th></tr>
<tr><td>Engineered FILL (e.g. Imported FILL – well compacted)</td><td>18</td><td>0</td><td>30</td><td>420</td><td>150[1]</td><td>12</td><td>0.3</td></tr>
<tr><td>Existing FILL</td><td>18</td><td>0</td><td>30</td><td colspan="2" rowspan="2">No footing anticipated in these units</td><td>10</td><td>0.3</td></tr>
<tr><td>Loose SAND</td><td>18</td><td>0</td><td>30</td><td>5</td><td>0.3</td></tr>
<tr><td>Dense SAND</td><td>18</td><td>0</td><td>35</td><td>420</td><td>150[1]</td><td>30</td><td>0.3</td></tr>
</table>

1 Pad footings (for ABP of 150 kPa) should have a minimum horizontal dimension of 1 m and a minimum embedment depth of 0.5 m.

2 Ultimate values occur at large settlement (>5% of minimum footing).

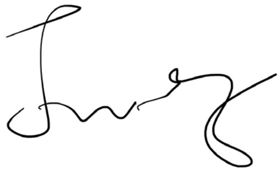
3 ABP is an end bearing pressure to cause settlement of <1% of minimum footing.

8. Other

8.1 Impact Assessment on Sydney Water's Assets

We understand that the western boundary of the Site is bounded by a Sydney Water asset and the southern boundary is bounded by an Opal Paper Mill asset. At this stage, the detailed geometry of the proposed development and the requirement from the asset owners to be complied with are not known to PSM. Depending on the proximity of the proposed development there may be a requirement for assessment of slope stability of the batters adjacent to these external assets.

For and on behalf of
PELLS SULLIVAN MEYNINK



JUNO LIANG
GEOTECHNICAL ENGINEER

RONALD TAN
PRINCIPAL

Encl.	Figure 1	Site locality plan
	Figure 2	Selected site photos (1 of 6)
	Figure 3	Selected site photos (2 of 6)
	Figure 4	Selected site photos (3 of 6)
	Figure 5	Selected site photos (4 of 6)
	Figure 6	Selected site photos (5 of 6)
	Figure 7	Selected site photos (6 of 6)
	Appendix A	Results of CPTs
	Appendix B	Results of concrete core testing
	Appendix C	Concrete core photos
	Appendix D	Results of soil aggressivity testing

Legends:

CPT location

Monitoring well location previously installed by EMM in 2020

Site boundary

Borehole location previously undertaken by EMM in 2020

Notes:
1. The aerial photo was retrieved from Nearmap undertaken in January 2021.
2. The test locations were recorded by using a hand-held GPS device with accuracy of +/- 5 m.
3. All monitoring wells and boreholes were retrieved from EMM's report (ref: J200432 DSI, dated 10 September 2020).

5 0 5 10 15 20m
1 : 1000 FULL SIZE A3

PSM

Hale Capital Partners
42 Raymond Avenue
Matraville NSW

Geotechnical Investigation
Site Locality Plan

PSM4375-003L	FIGURE 1

Photo 1: General site condition near site entry looking towards south

Photo 2: General site condition at southern boundary looking towards north

Hale Capital Partners

42 Raymond Avenue

Matraville NSW

Geotechnical Desktop Study

SELECTED SITE PHOTOS (1 of 6)

PSM4375-003L	**Figure 2**

Photo 3: Sydney Water basin to the south of Site fence, typical 1V:1H batter to the basin

Photo 4: Bunnerong stormwater channel No. 11 to the west of the Site

Hale Capital Partners 42 Raymond Avenue Matraville NSW Geotechnical Desktop Study SELECTED SITE PHOTOS (2 of 6)	
PSM4375-003L	Figure 3

Photo 5: Damages observed on slab surface

Photo 6: Cracks observed on slab surface

Hale Capital Partners **42 Raymond Avenue** **Matraville NSW** **Geotechnical Desktop Study** **SELECTED SITE PHOTOS (3 of 6)**	
PSM4375-003L	**Figure 4**

Photo 7: Approximate 100 mm thick slab observed at the carpark area

Photo 8: Approximate 150 mm thick slab, overlying 200 mm thick gravelley FILL, overlying Sandy FILL near western boundary of the Site

Hale Capital Partners
42 Raymond Avenue
Matraville NSW
Geotechnical Desktop Study
SELECTED SITE PHOTOS (4 of 6)

PSM4375-003L	**Figure 5**

Photo 8: Existing sprinkler tank located at the southeast corner of the Site

Photo 9: Existing monitoring well installed by EMM

Hale Capital Partners **42 Raymond Avenue** **Matraville NSW** **Geotechnical Desktop Study** **SELECTED SITE PHOTOS (5 of 6)**	
PSM4375-003L	**Figure 6**

Photo 10: Existing void observed in sandy FILL layer near the batter of Bunnerong stormwater channel No. 11

Hale Capital Partners 42 Raymond Avenue Matraville NSW Geotechnical Desktop Study SELECTED SITE PHOTOS (6 of 6)	
PSM4375-003L	Figure 7

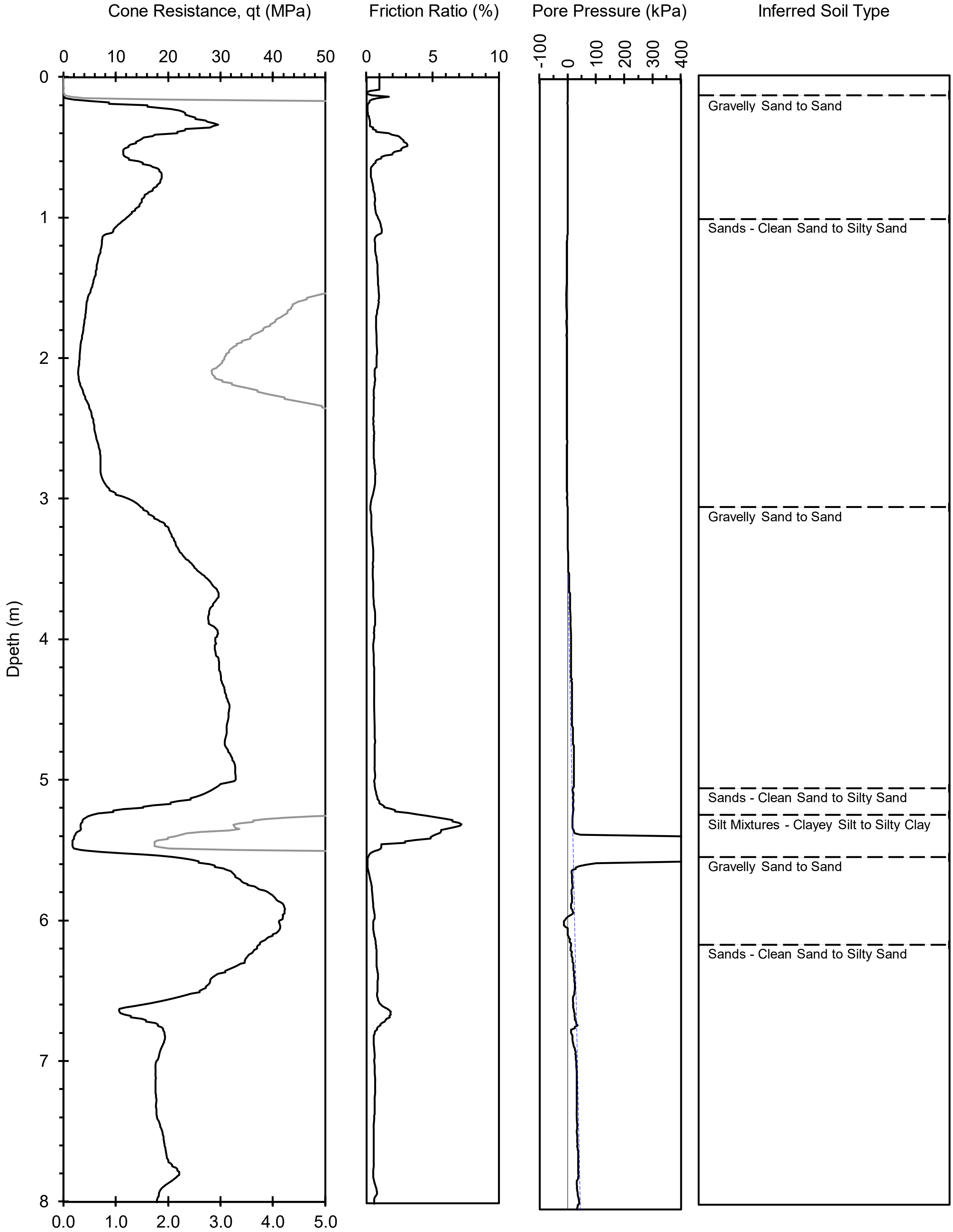
Appendix A
Results of CPTs

Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT01***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

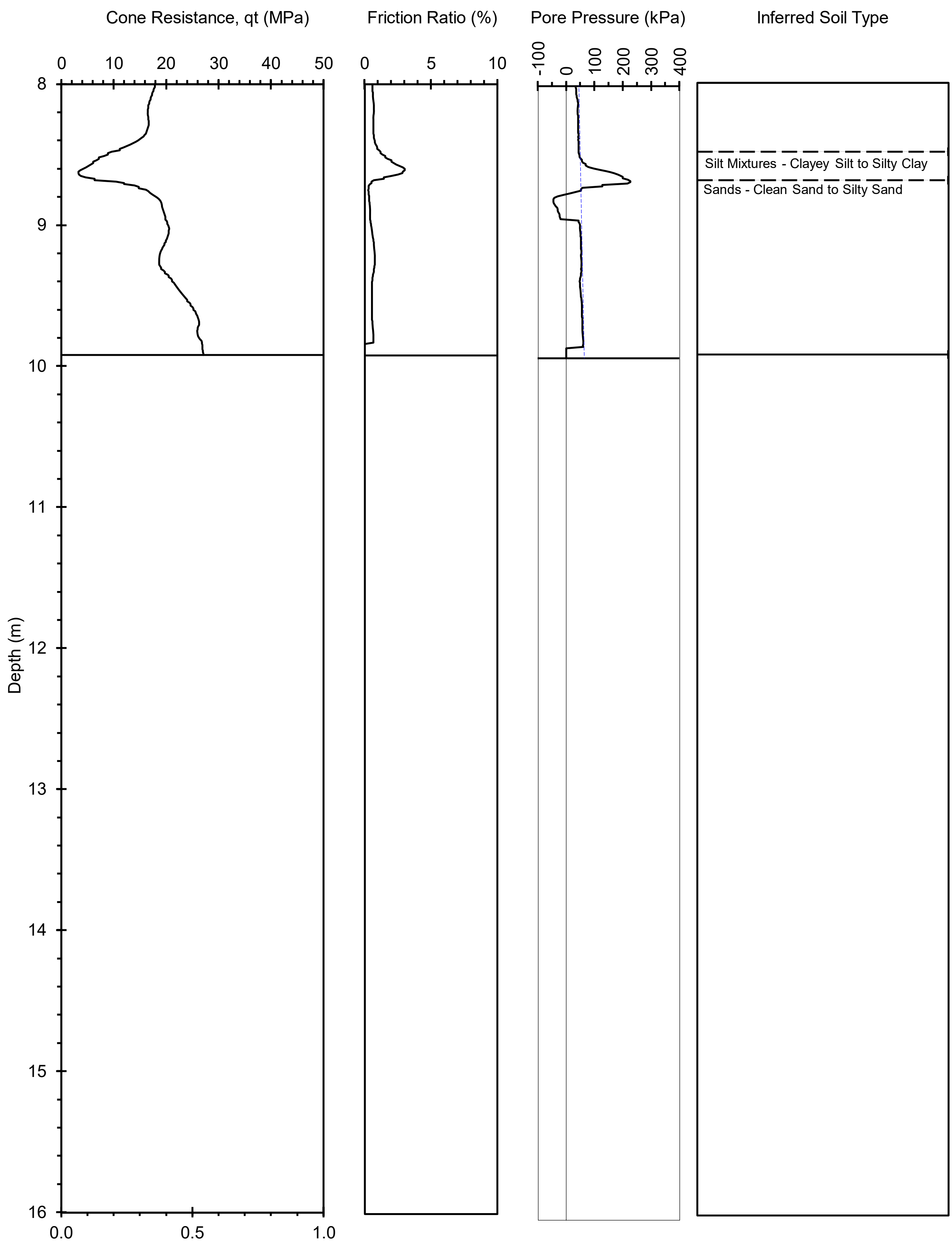
Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335654.95 m E, 6240575.75 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No Survey*	Field work	*DDC*



Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT01***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***
Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335654.95 m E, 6240575.75 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No Survey*	Field work	*DDC*

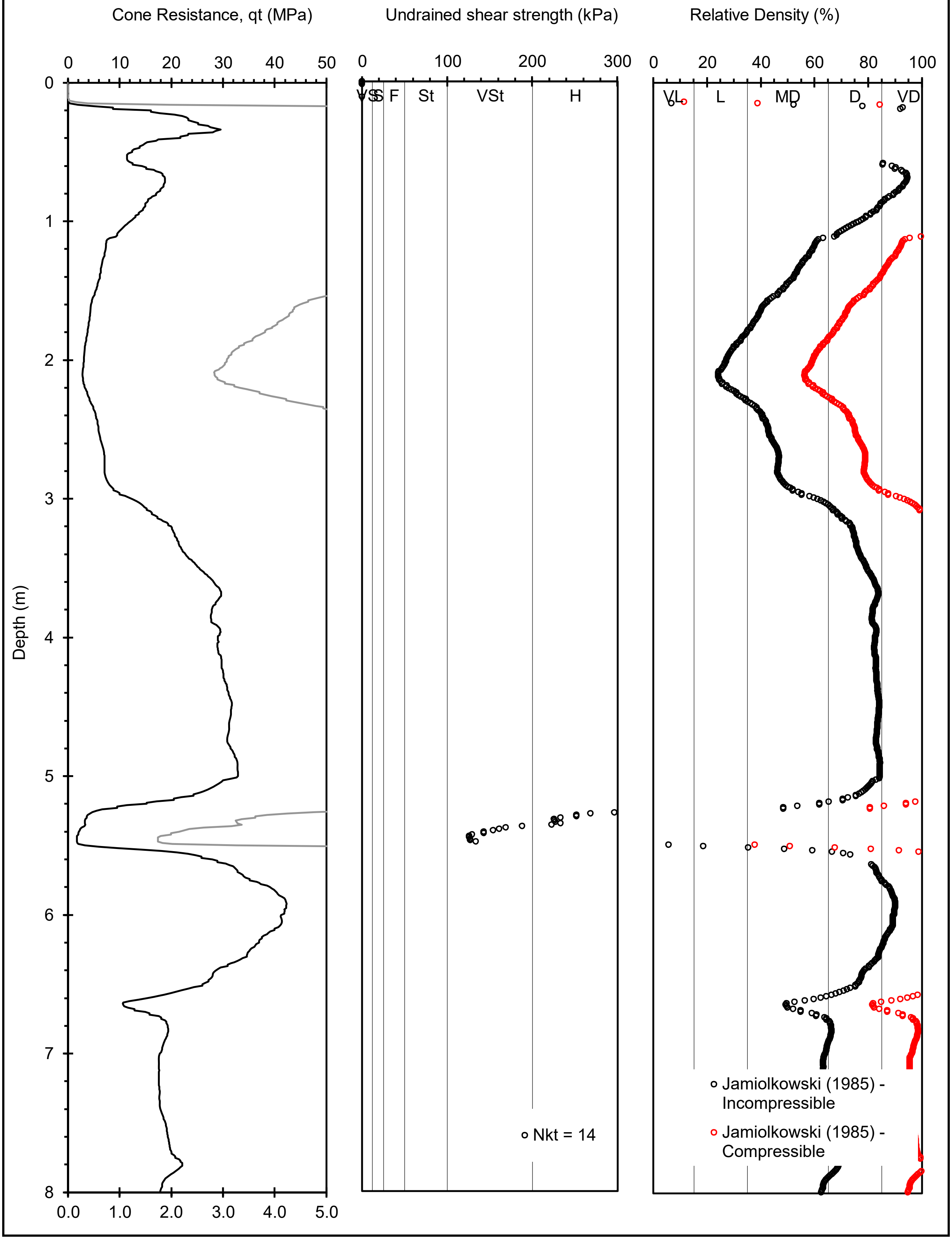


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	PSM4375	Test No.	CPT01
Project	42 Raymond Avenue, Matraville	Page	1 of 2

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335654.95 m E, 6240575.75 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No Survey*	Field work	*DDC*

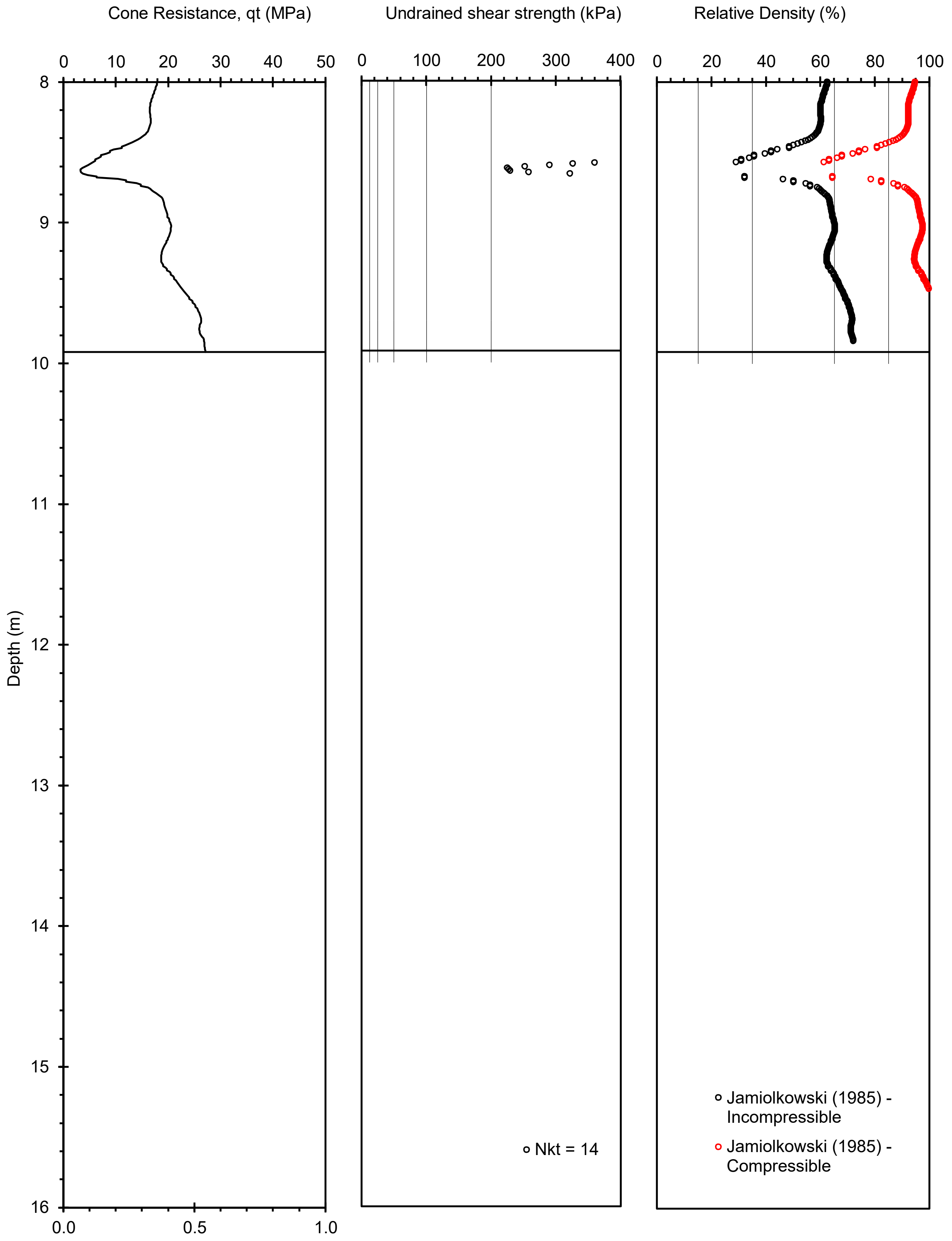


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT01***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335654.95 m E, 6240575.75 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No Survey*	Field work	*DDC*

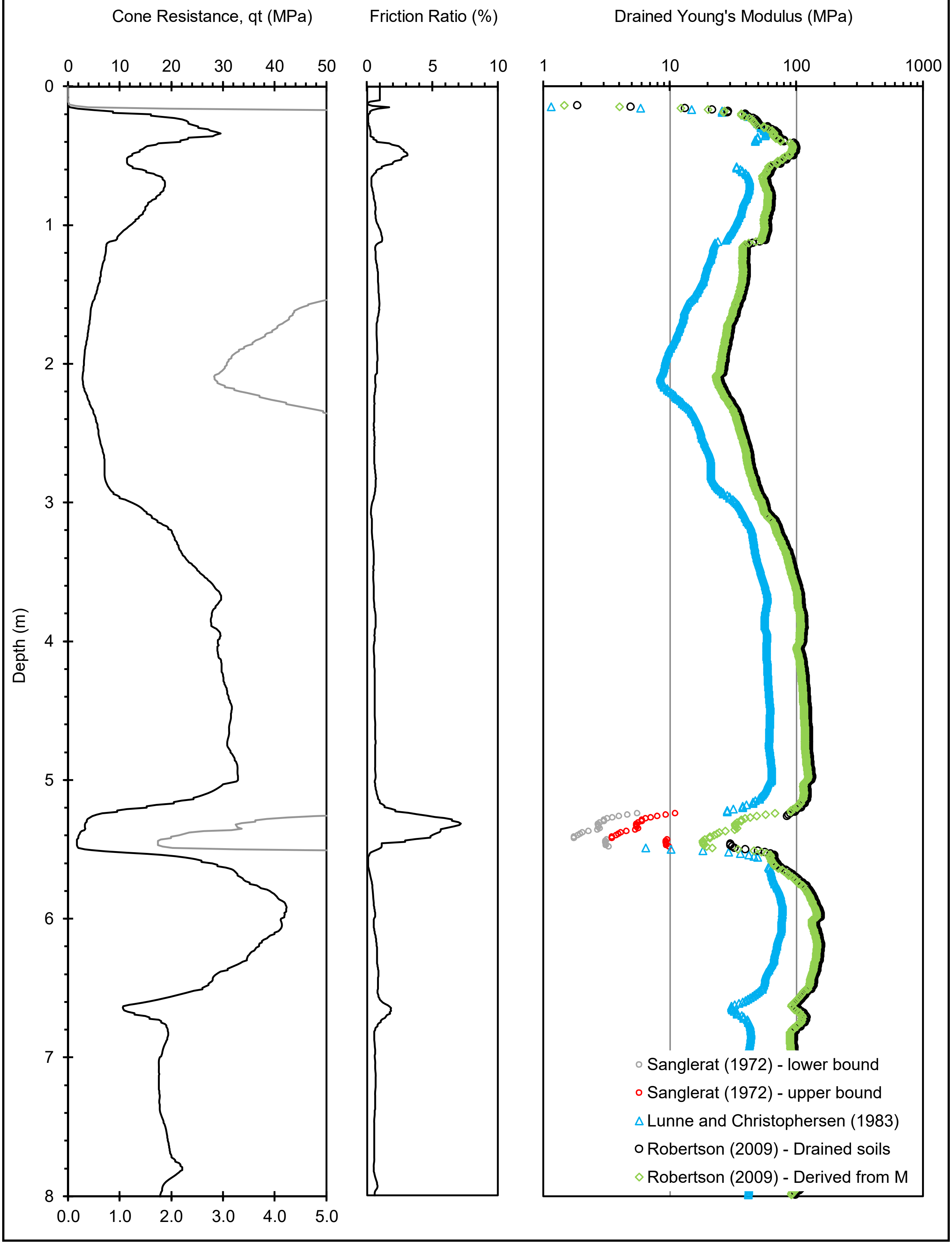


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED MODULUS

Job No.	***PSM4375***	**Test No.**	***CPT01***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335654.95 m E, 6240575.75 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No Survey*	Field work	*DDC*

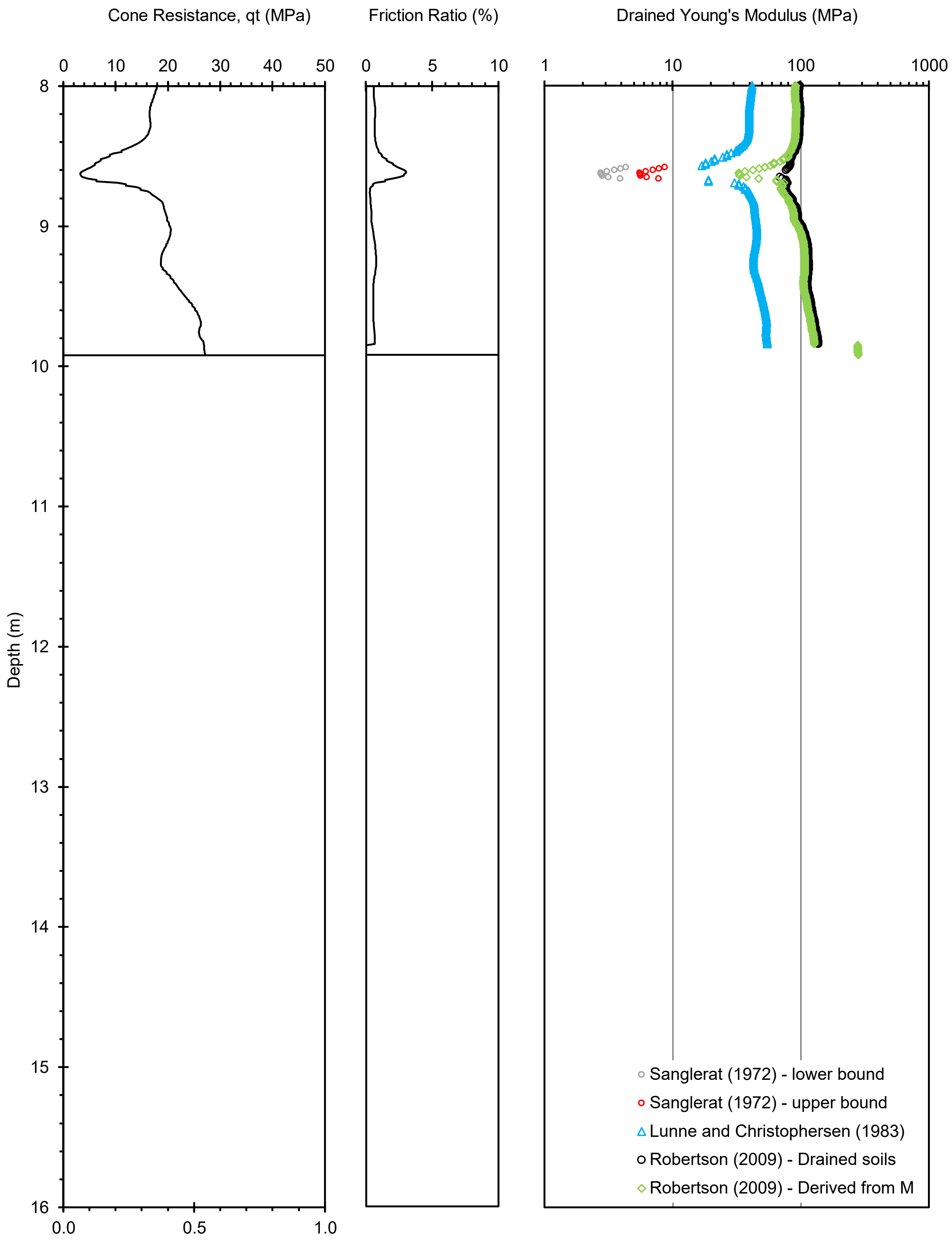


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED MODULUS

Job No.	***PSM4375***	**Test No.**	***CPT01***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335654.95 m E, 6240575.75 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No Survey*	Field work	*DDC*

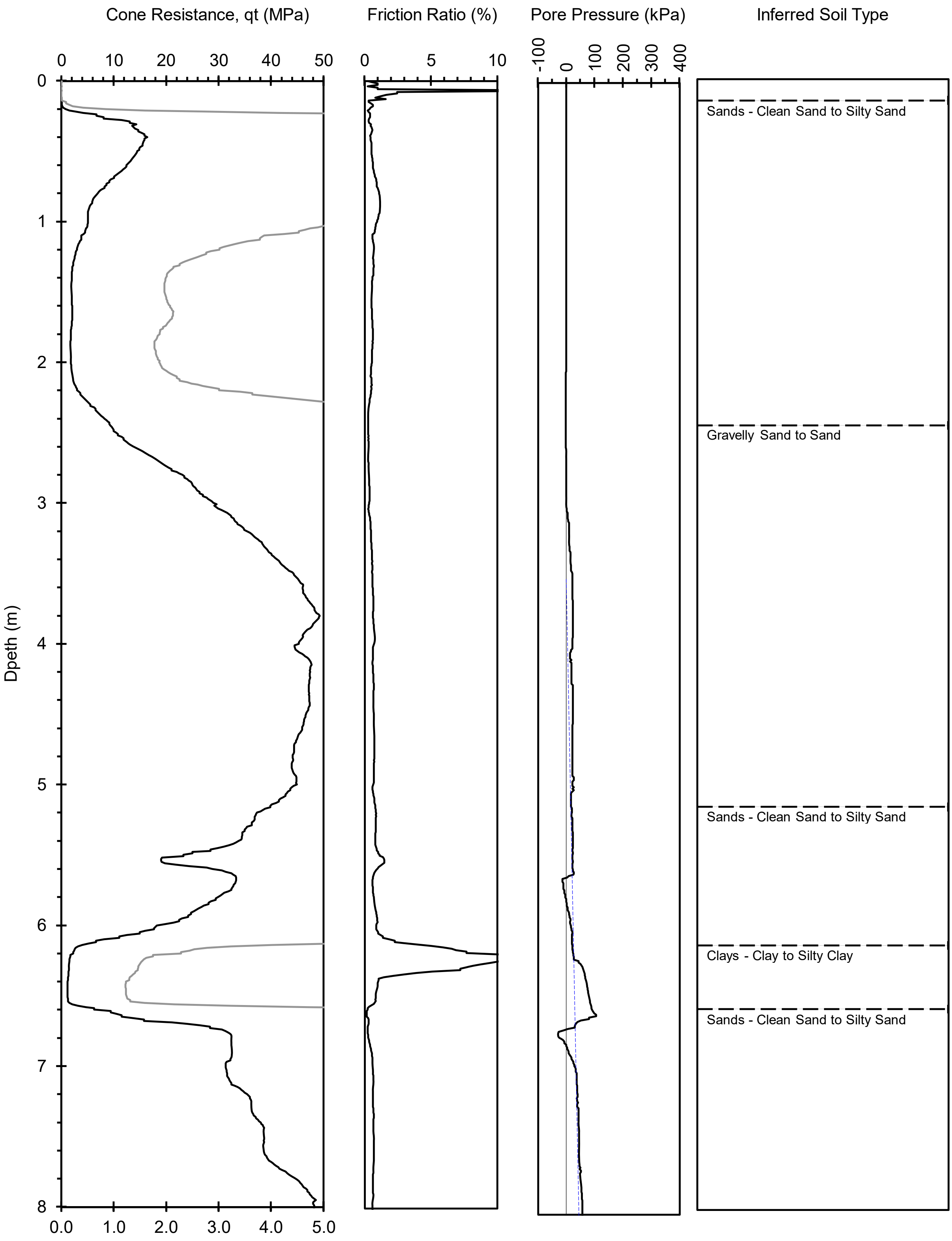


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT02***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335711.03 m E, 6240586.45 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

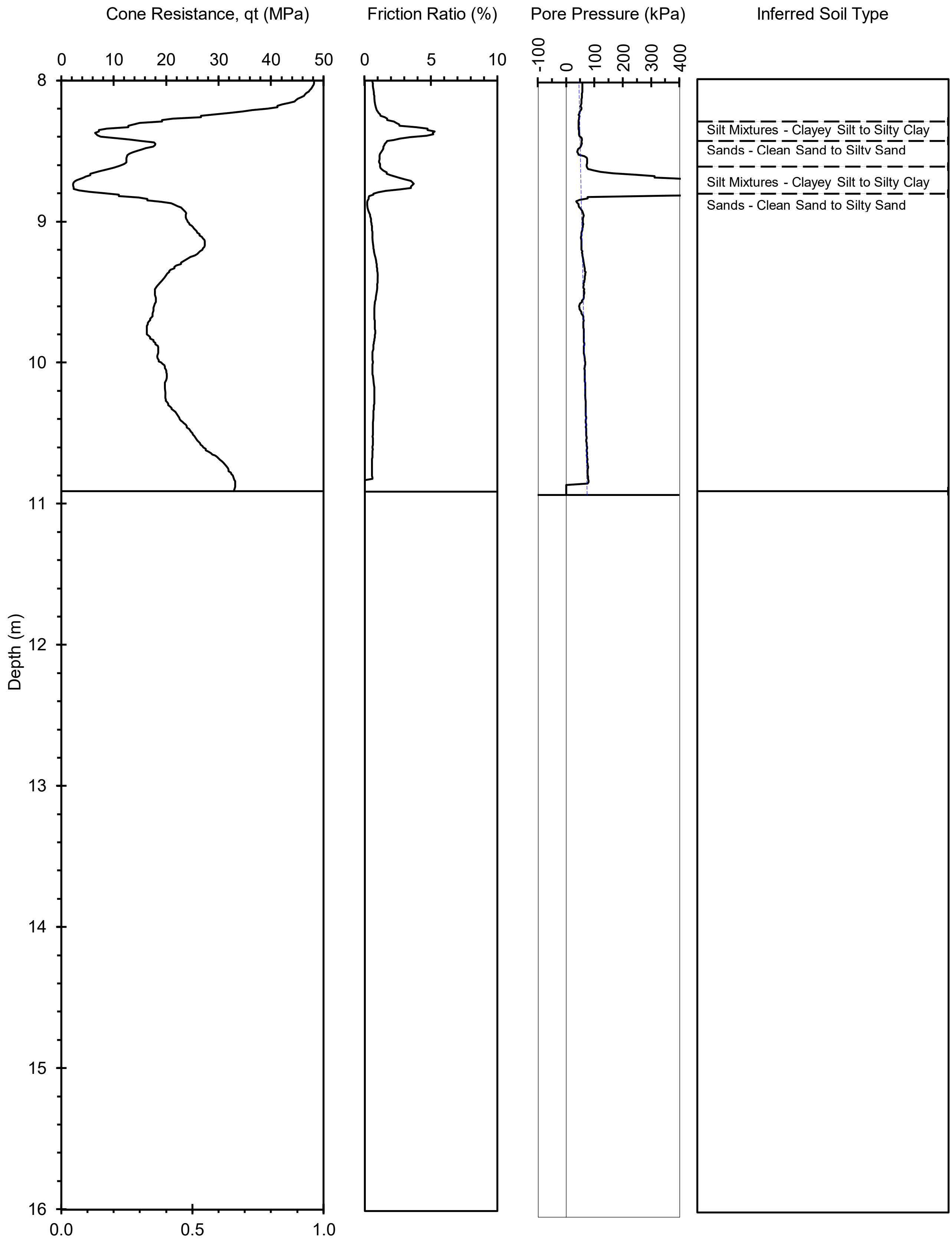


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT02***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335711.03 m E, 6240586.45 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



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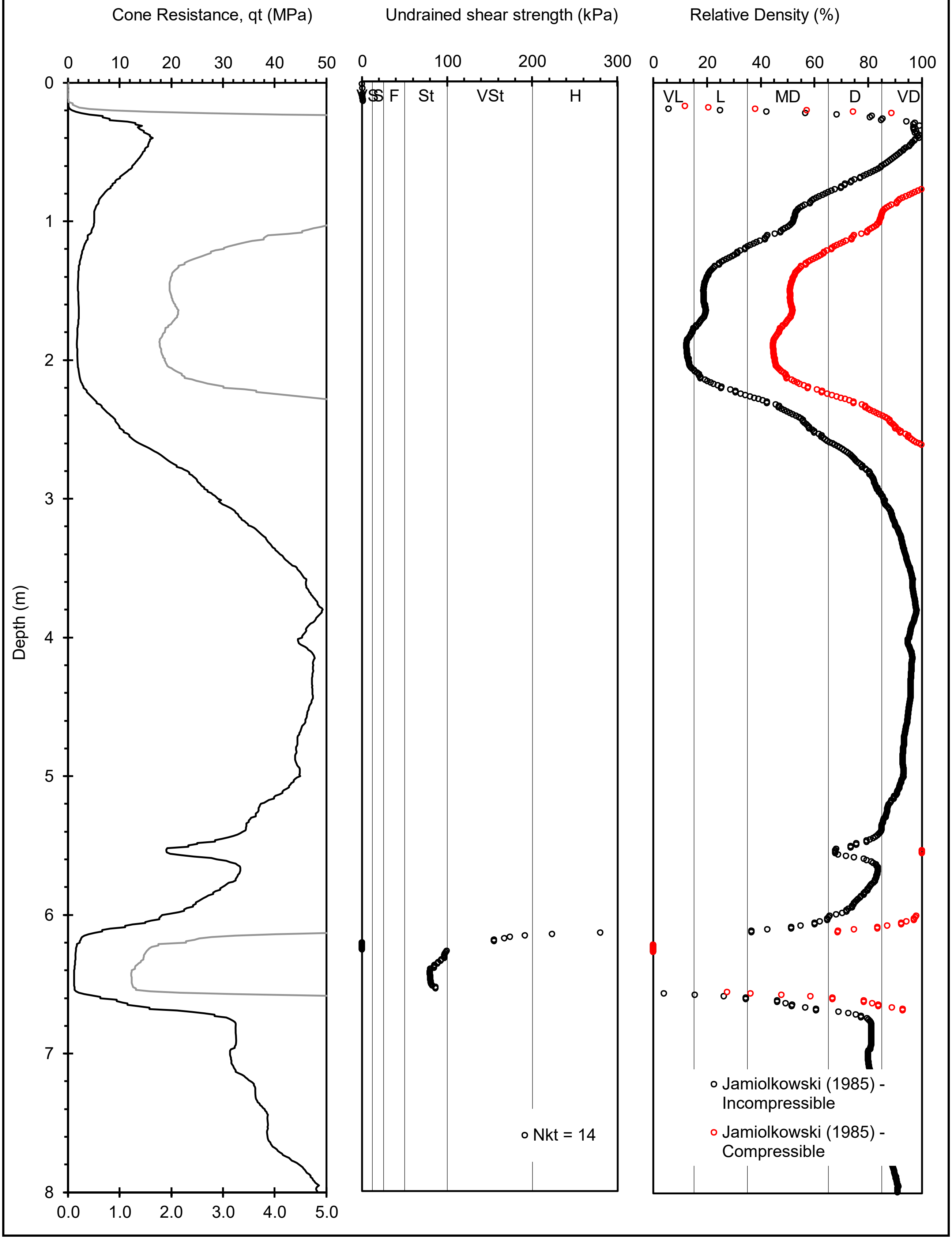
CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	PSM4375	Test No.	CPT02
Project	42 Raymond Avenue, Matraville	Page	1 of 2

Pushing rig	24-tonne truck	Test date	30/03/2021
Location	335711.03 m E, 6240586.45 m N	Cone I.D.	S15CFIIP.S17300
Surface R.L.	No survey	Field work	DDC

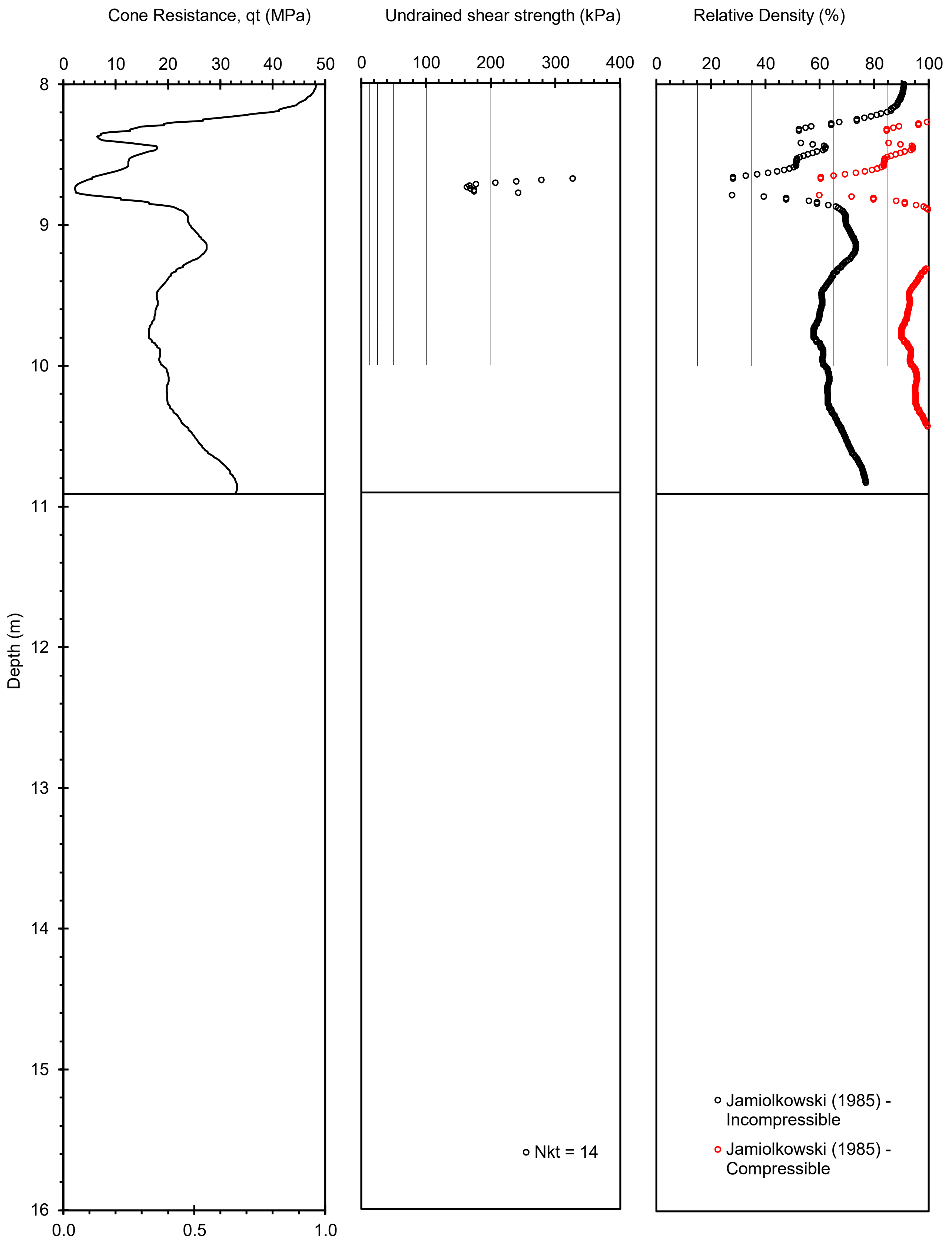


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT02***
Project	***42 Raymond Avenue, Matraville***	**Page**	

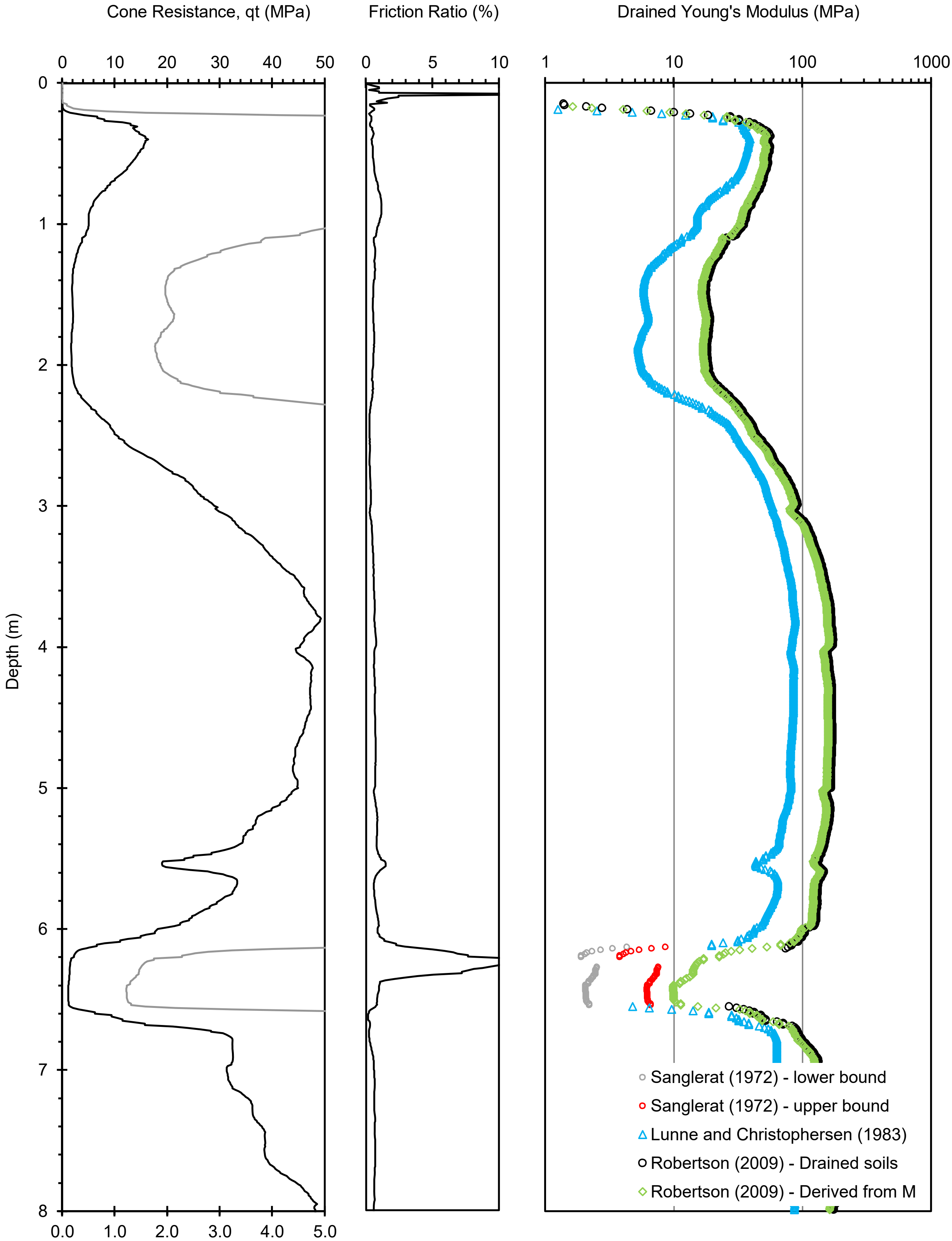
Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335711.03 m E, 6240586.45 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



CONE PENETRATION TEST - INFERRED MODULUS

Job No.	***PSM4375***	**Test No.**	***CPT02***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335711.03 m E, 6240586.45 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



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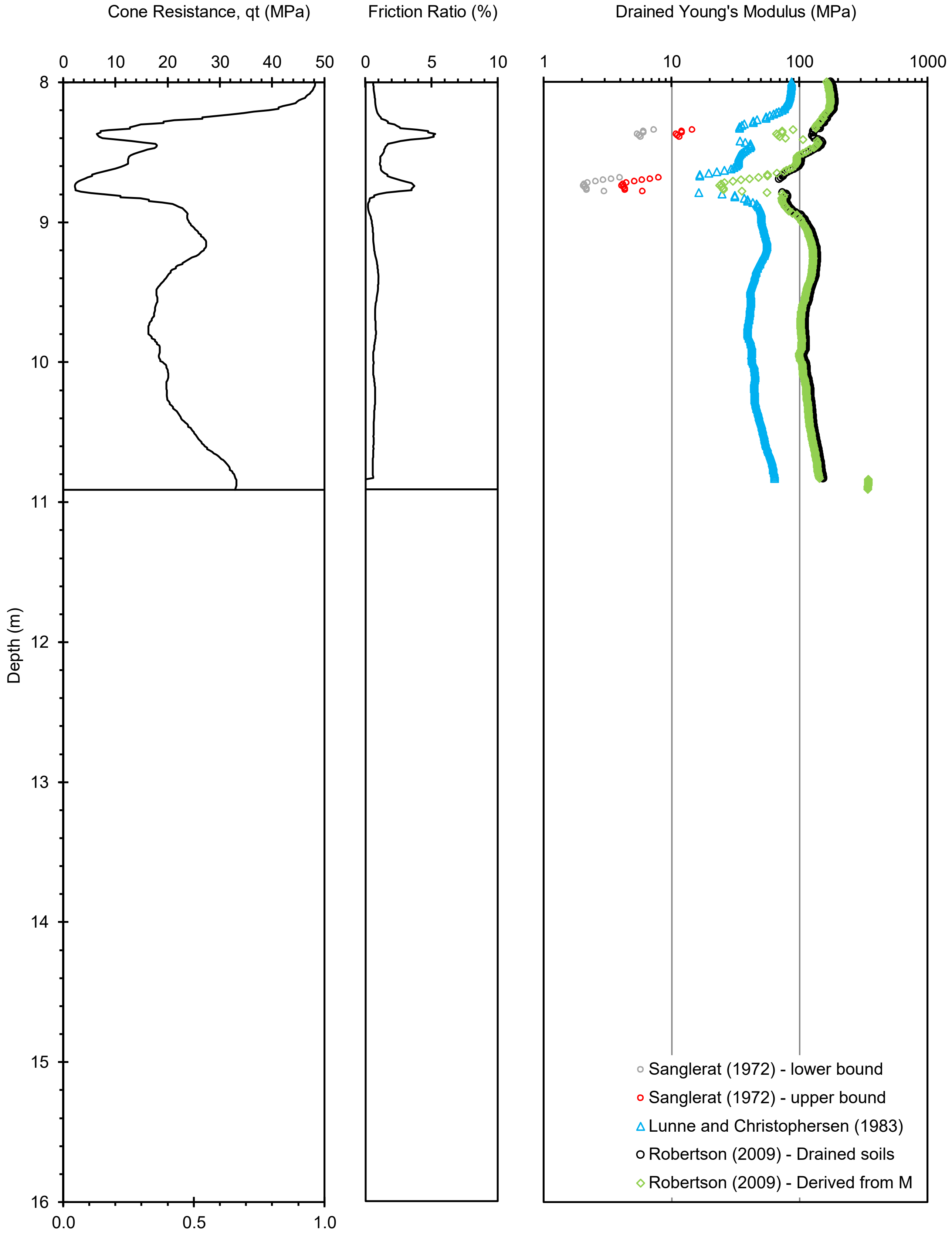
CONE PENETRATION TEST - INFERRED MODULUS

Job No.	PSM4375	Test No.	CPT02
Project	42 Raymond Avenue, Matraville	Page	2 of 2

Pushing rig	24-tonne truck	Test date	30/03/2021
Location	335711.03 m E, 6240586.45 m N	Cone I.D.	S15CFIIP.S17300
Surface R.L.	No survey	Field work	DDC

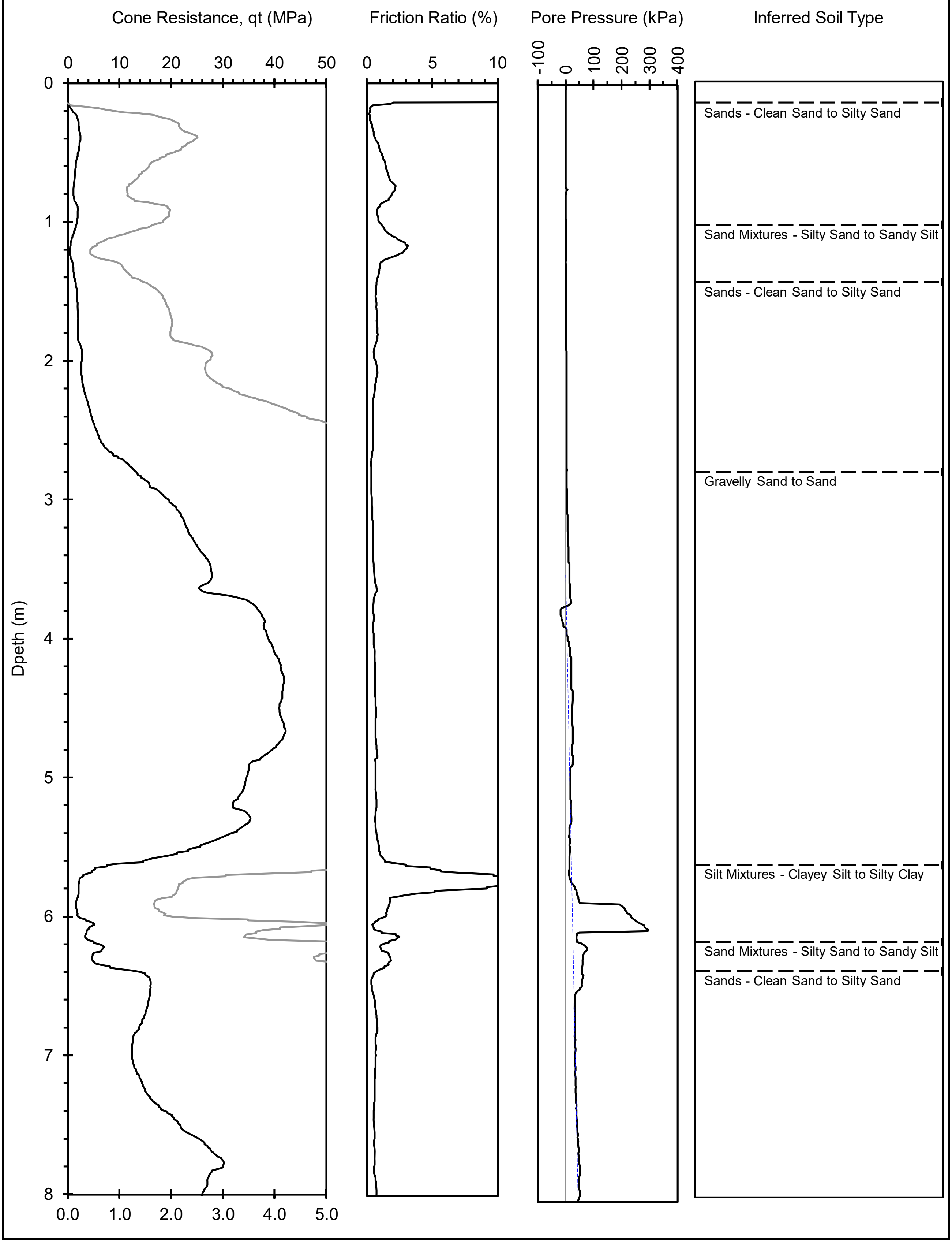


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT03***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335641.67 m E, 6240612.48 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



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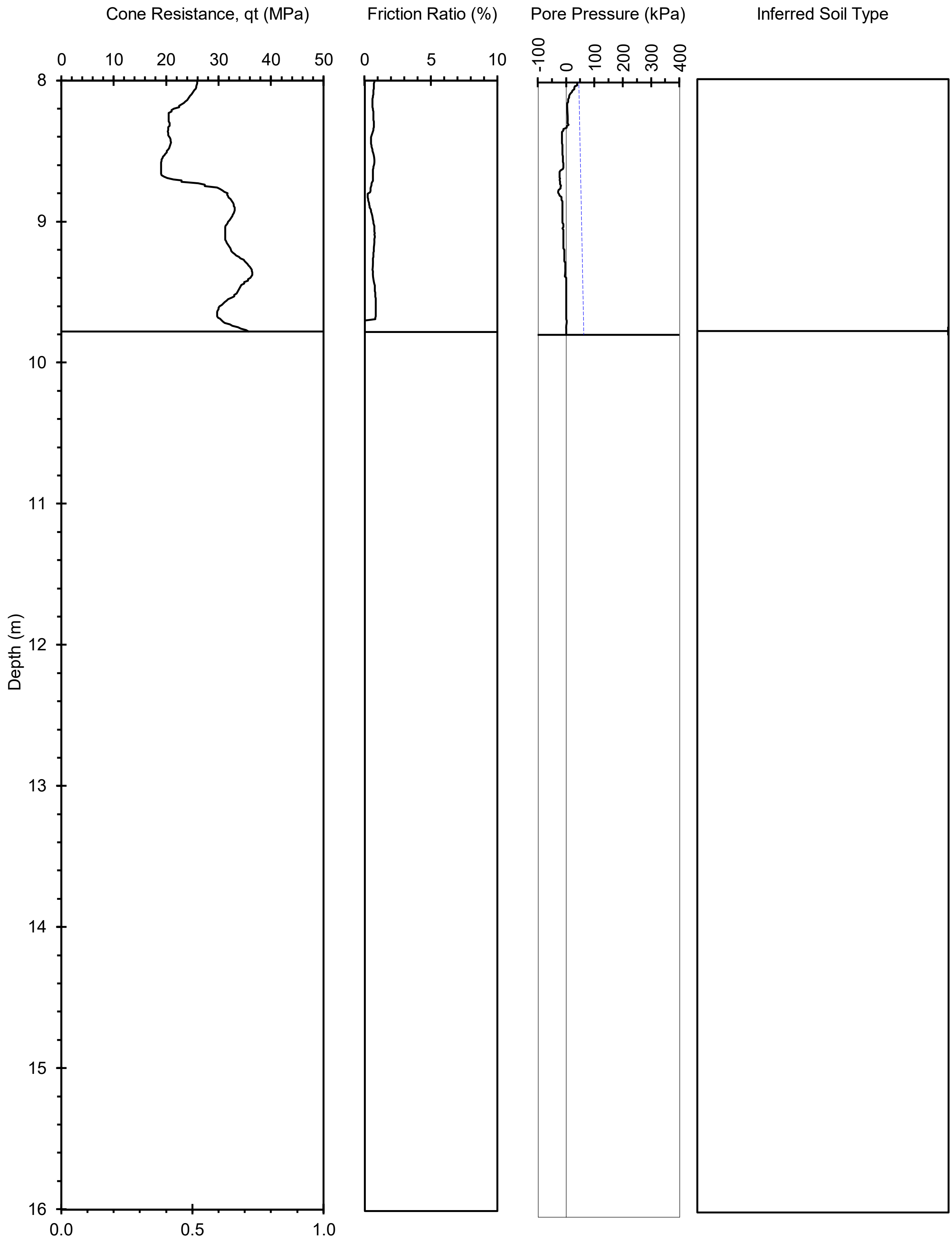
CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT03***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335641.67 m E, 6240612.48 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



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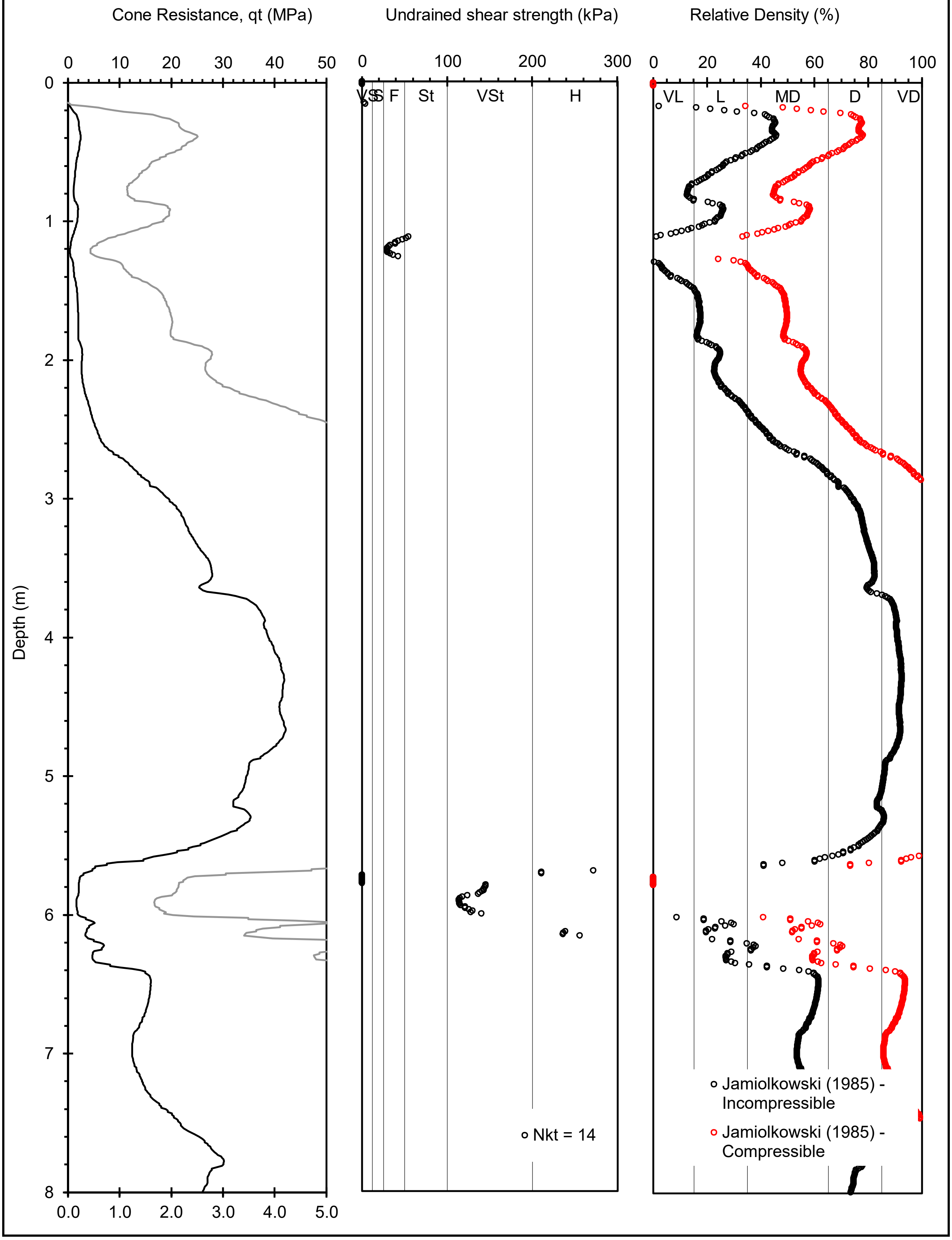
CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT03***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335641.67 m E, 6240612.48 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



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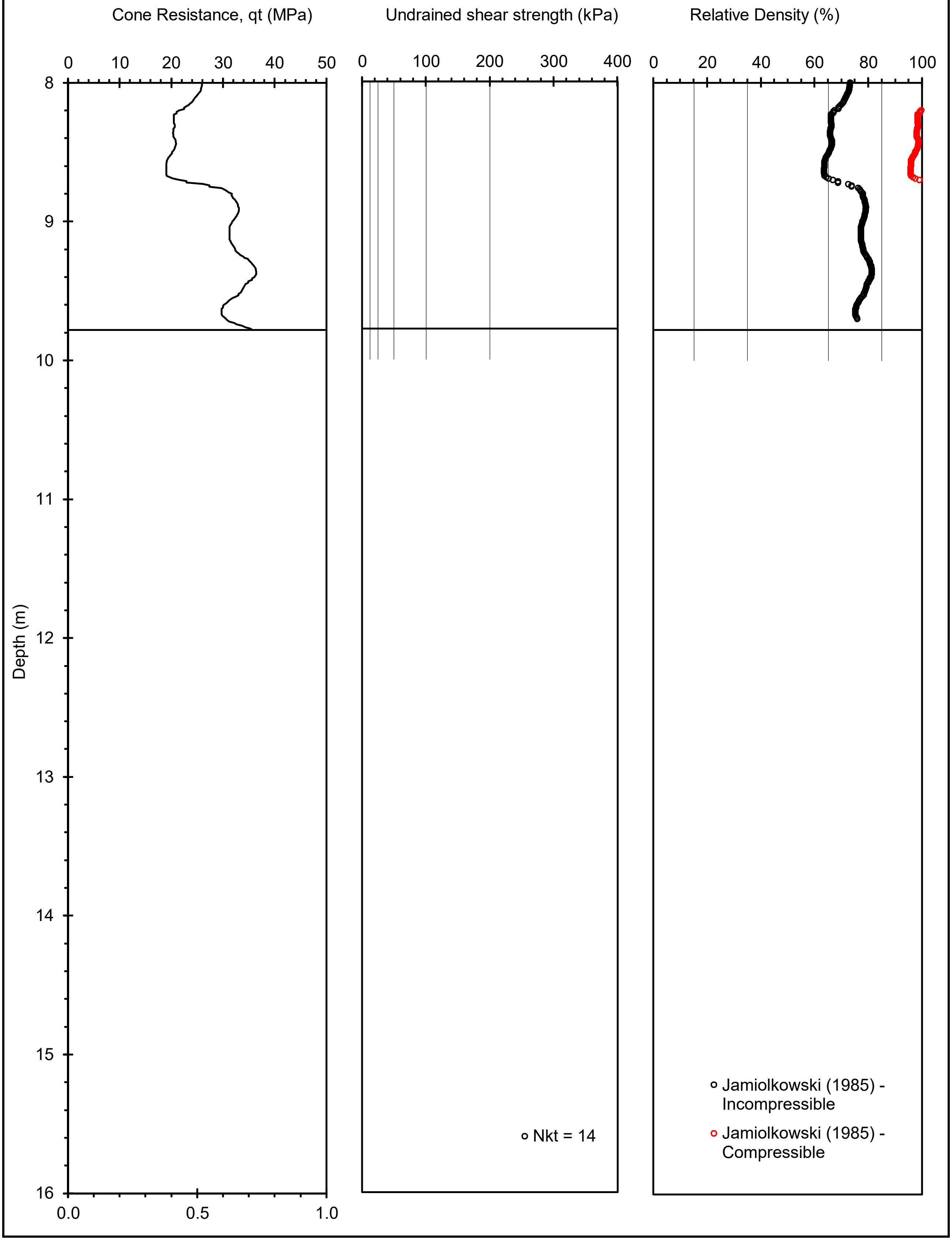
CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT03***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335641.67 m E, 6240612.48 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



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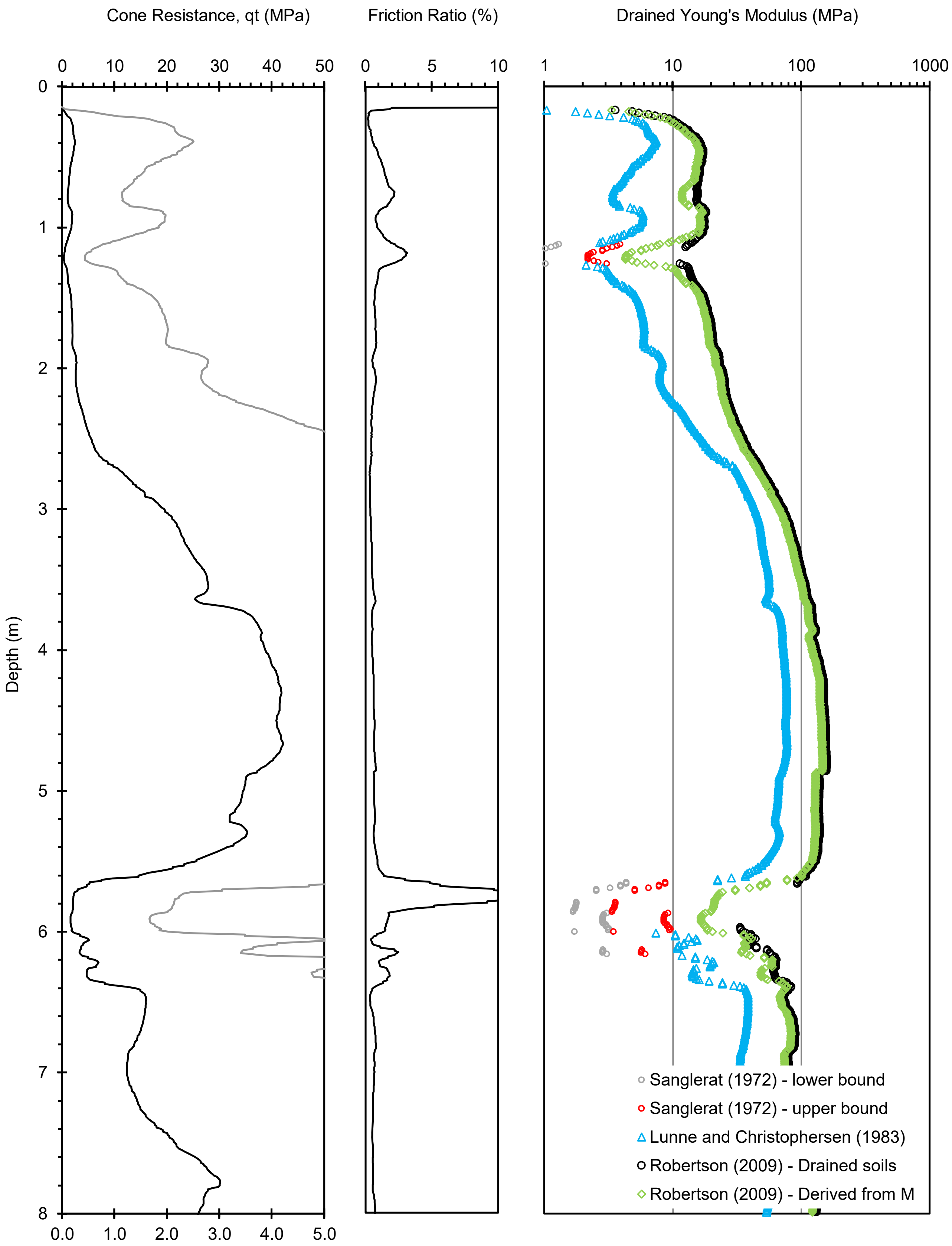
CONE PENETRATION TEST - INFERRED MODULUS

Job No.	*PSM4375*	Test No.	*CPT03*
Project	*42 Raymond Avenue, Matraville*	Page	*1 of 2*

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335641.67 m E, 6240612.48 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



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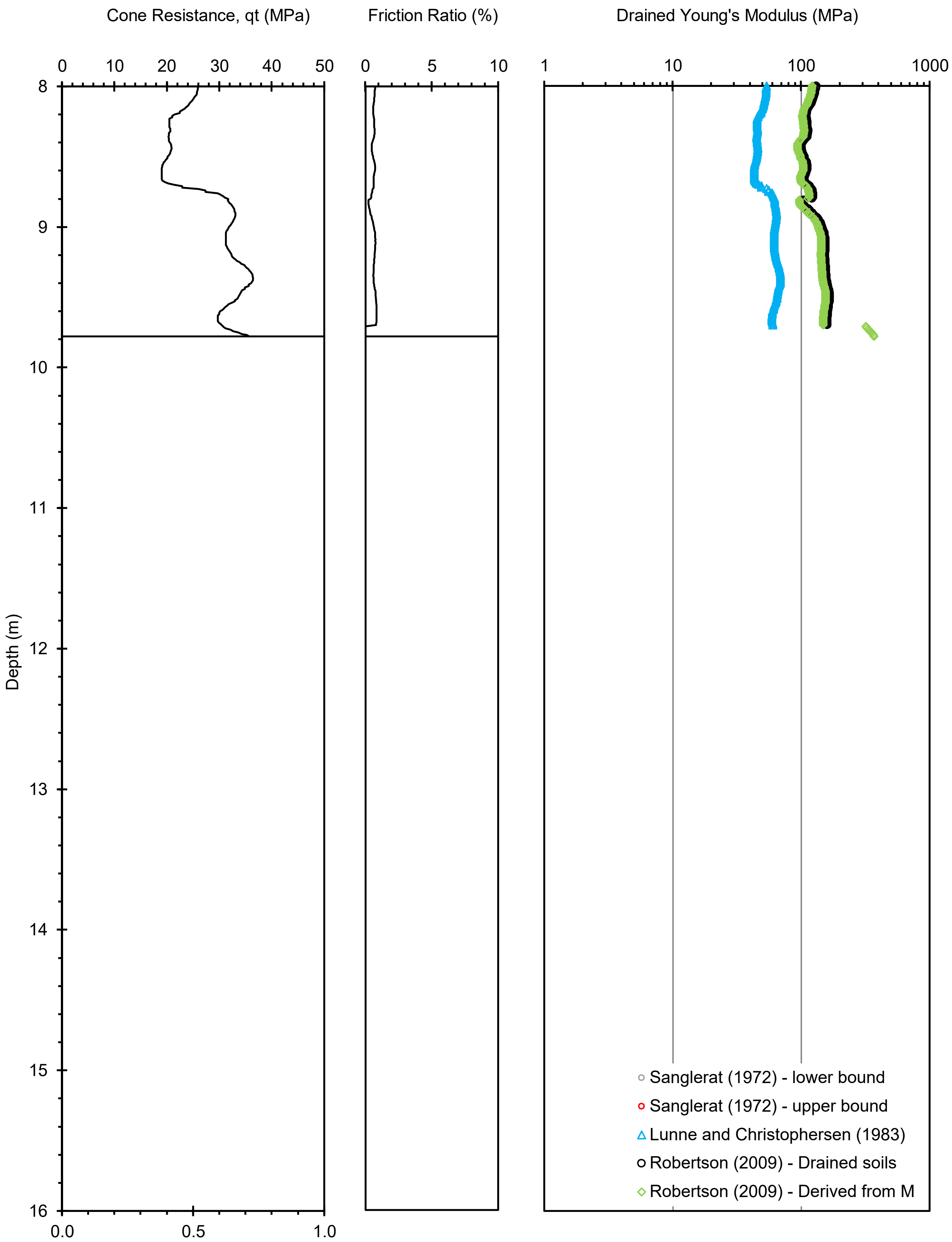
CONE PENETRATION TEST - INFERRED MODULUS

Job No.	PSM4375	Test No.	CPT03
Project	42 Raymond Avenue, Matraville	Page	2 of 2

Pushing rig	24-tonne truck	Test date	30/03/2021
Location	335641.67 m E, 6240612.48 m N	Cone I.D.	S15CFIIP.S17300
Surface R.L.	No survey	Field work	DDC

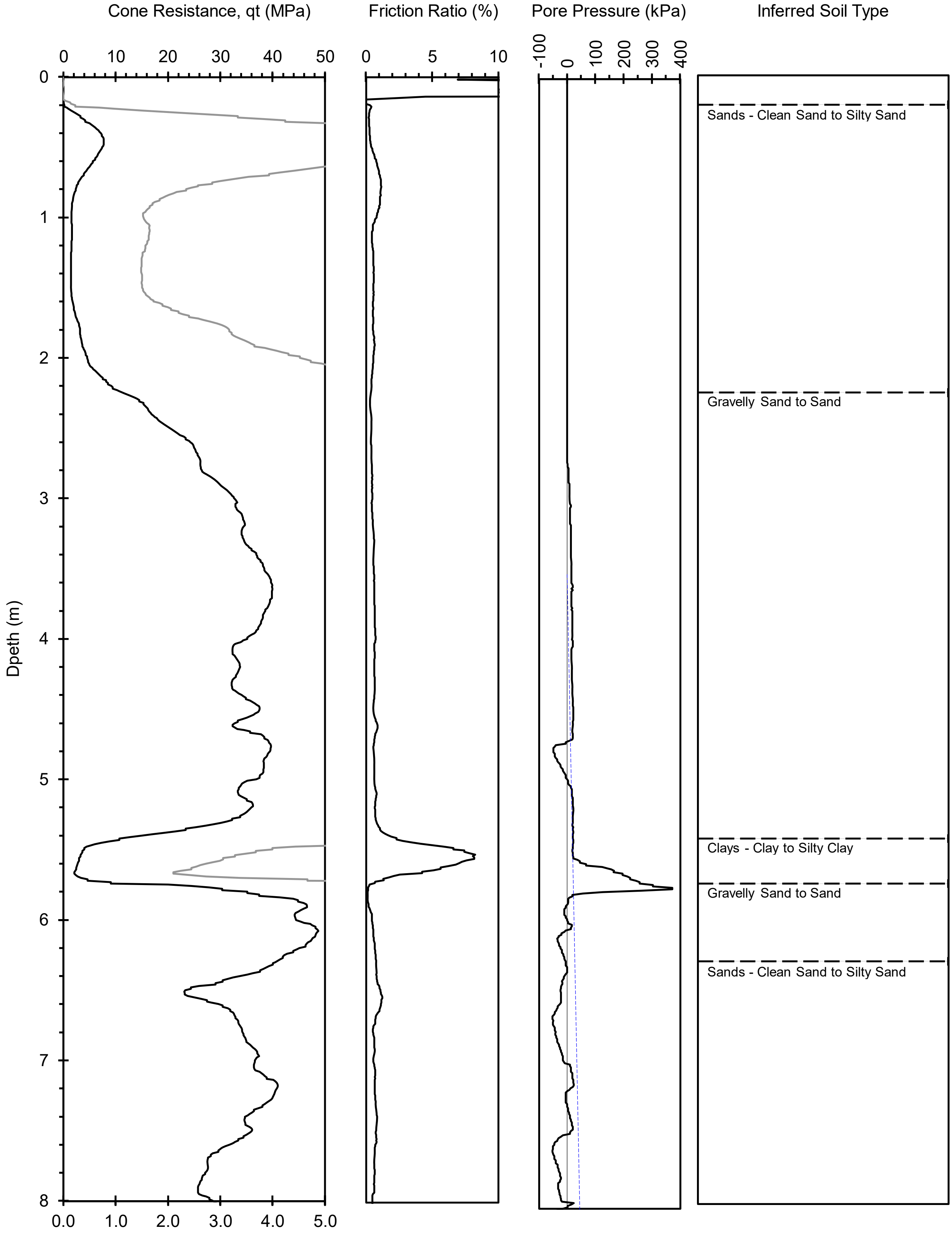


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT04***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

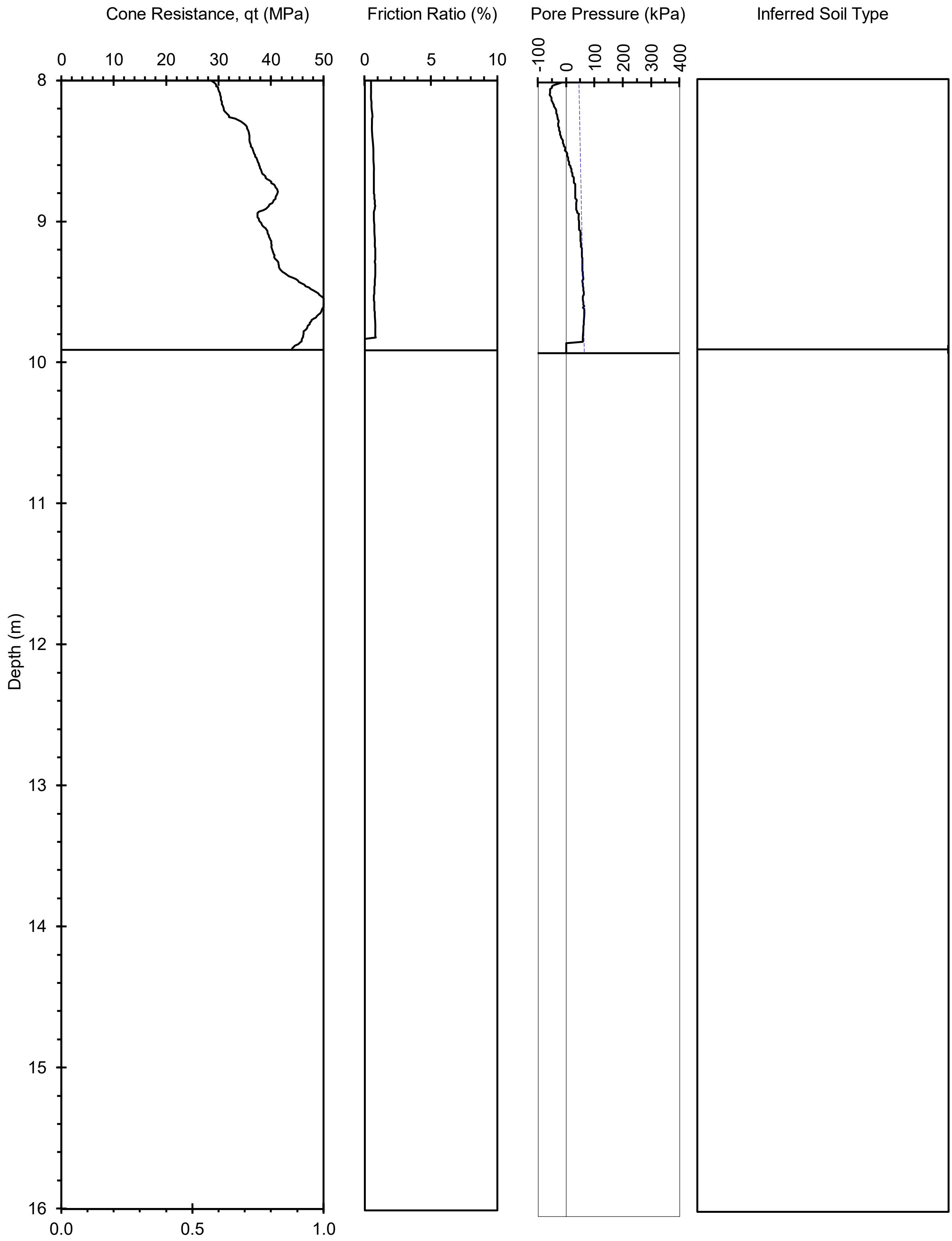
Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335705.2 m E, 6240634.15 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT04***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***
Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335705.2 m E, 6240634.15 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

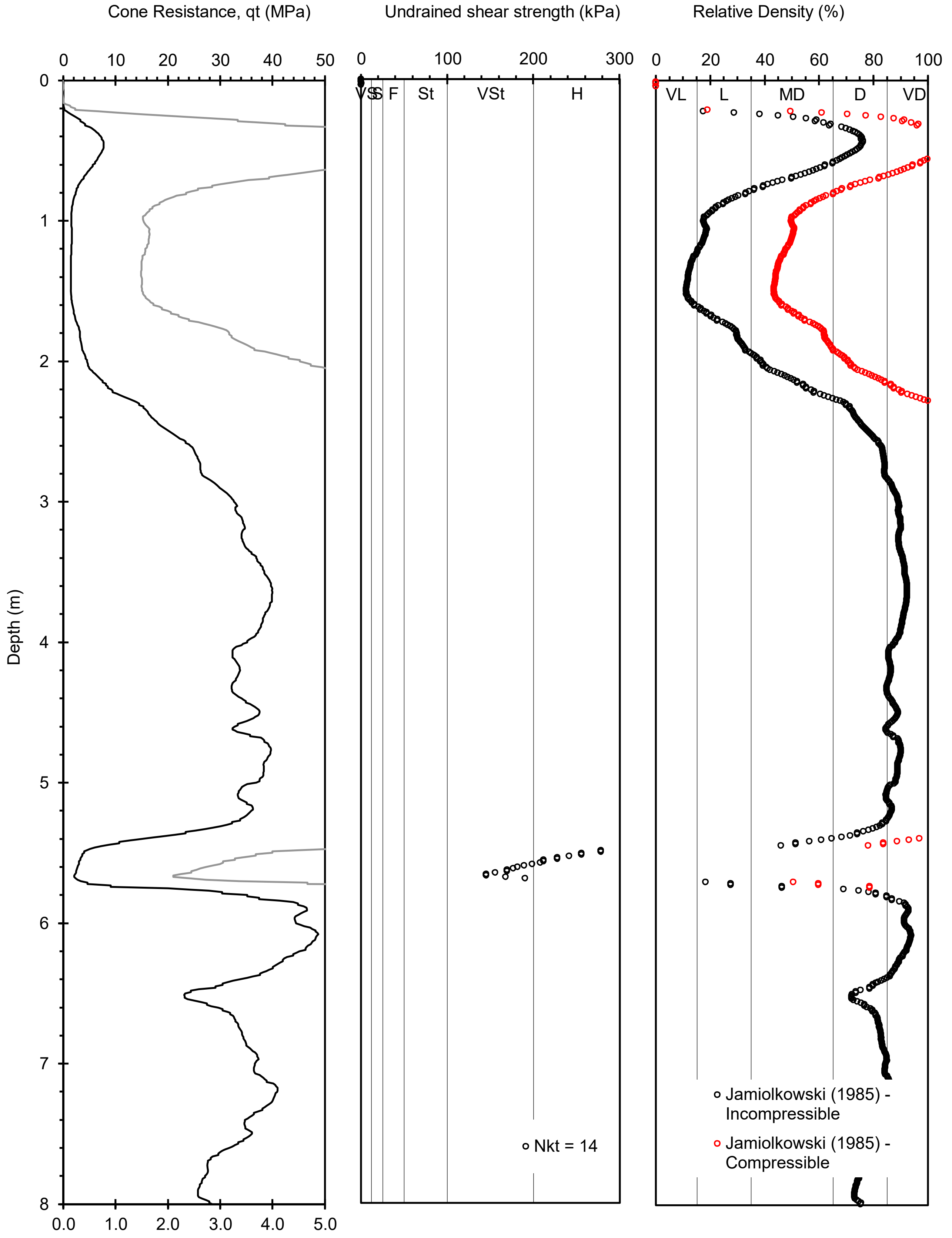


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT04***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 1***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335705.2 m E, 6240634.15 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

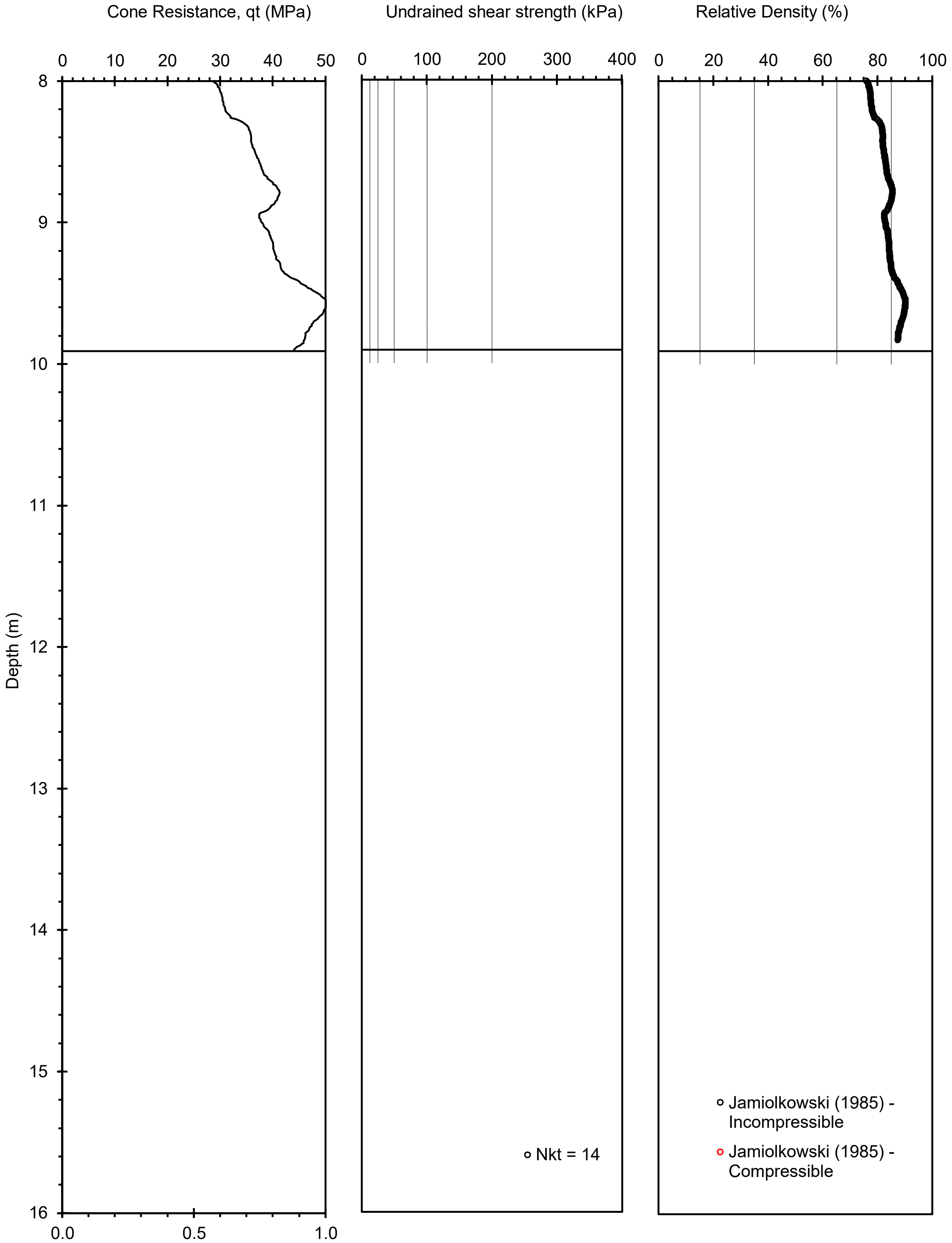


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT04***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335705.2 m E, 6240634.15 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

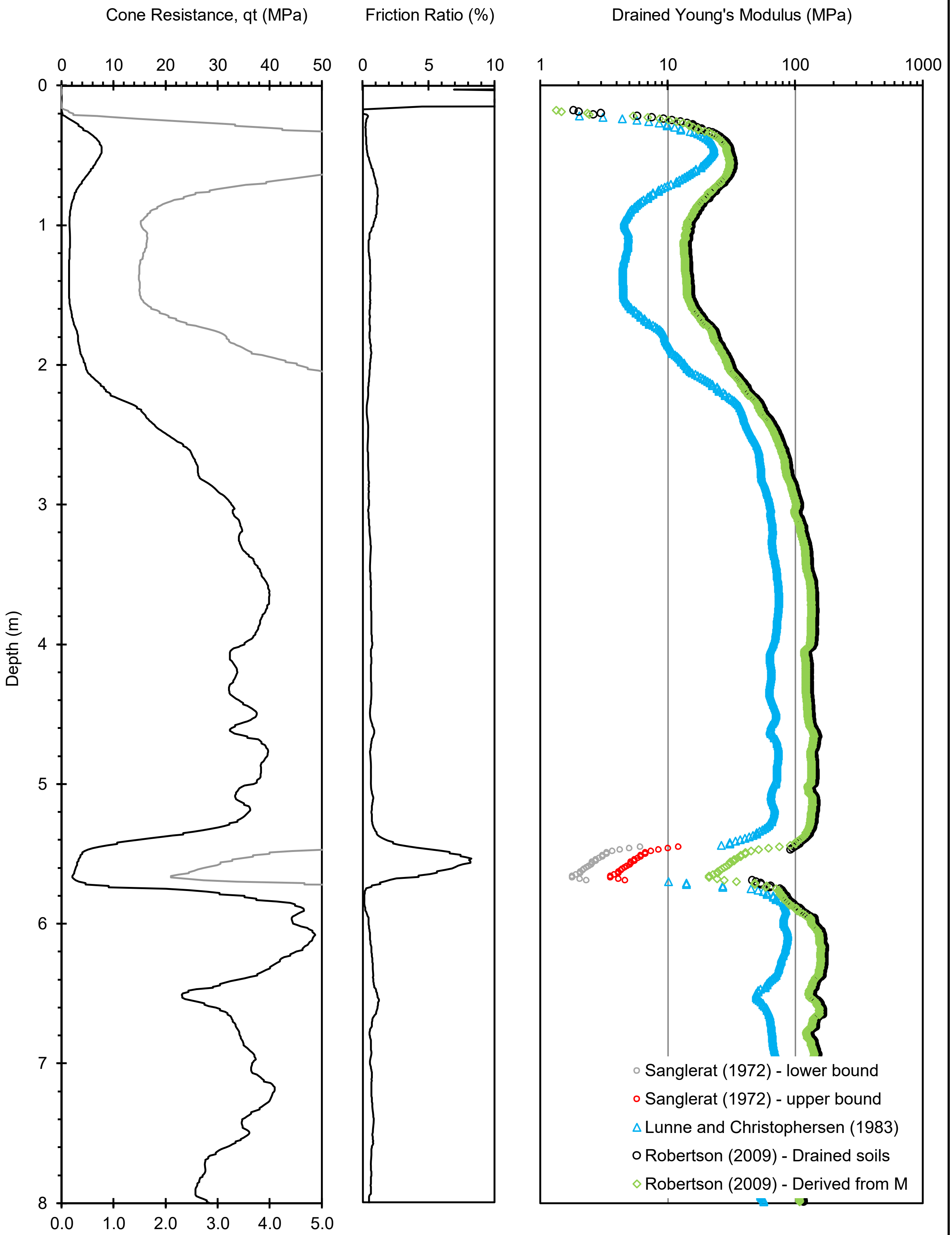


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED MODULUS

Job No.	***PSM4375***	**Test No.**	***CPT04***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335705.2 m E, 6240634.15 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

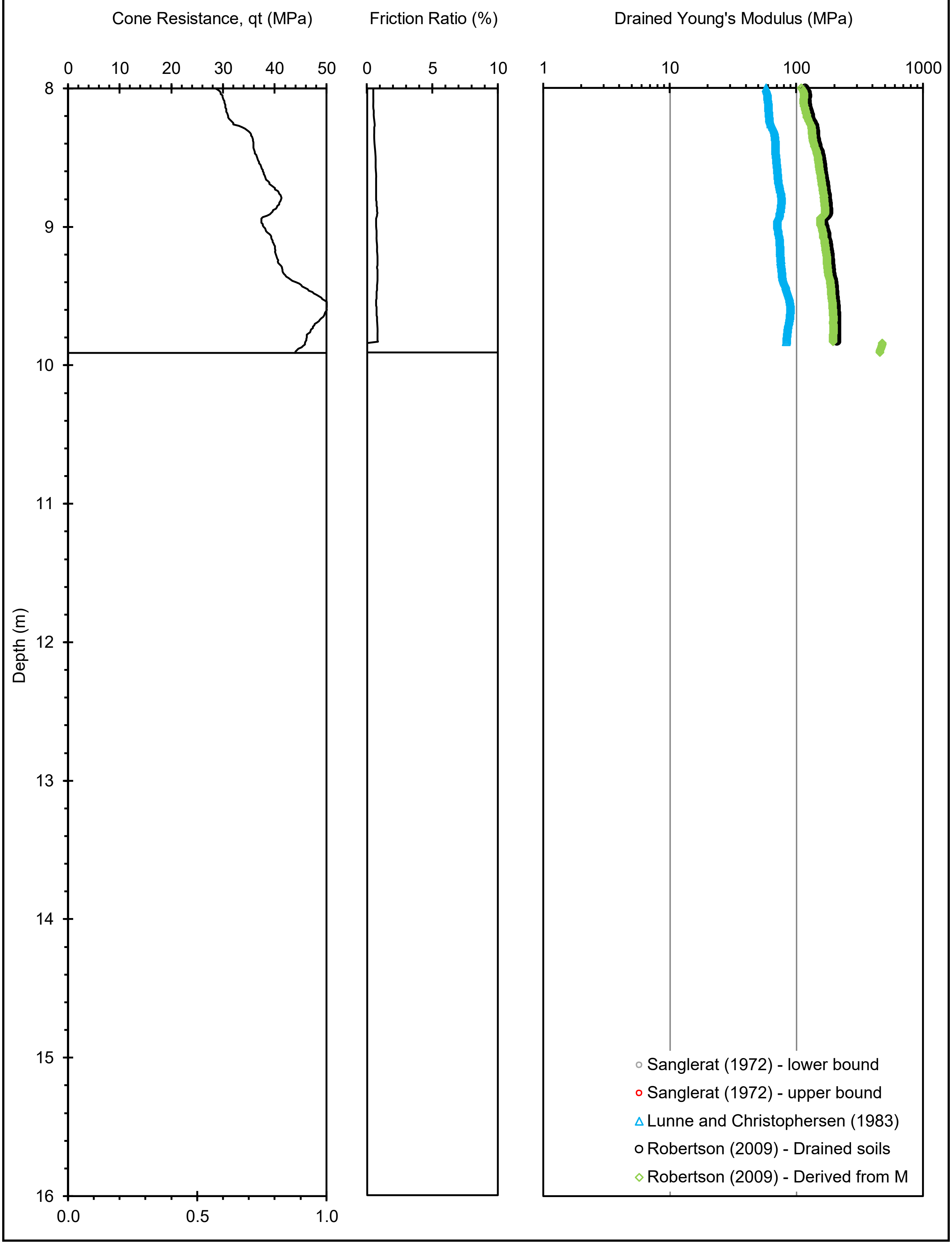


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED MODULUS

Job No.	PSM4375	Test No.	CPT04
Project	42 Raymond Avenue, Matraville	Page	2 of 2

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335705.2 m E, 6240634.15 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

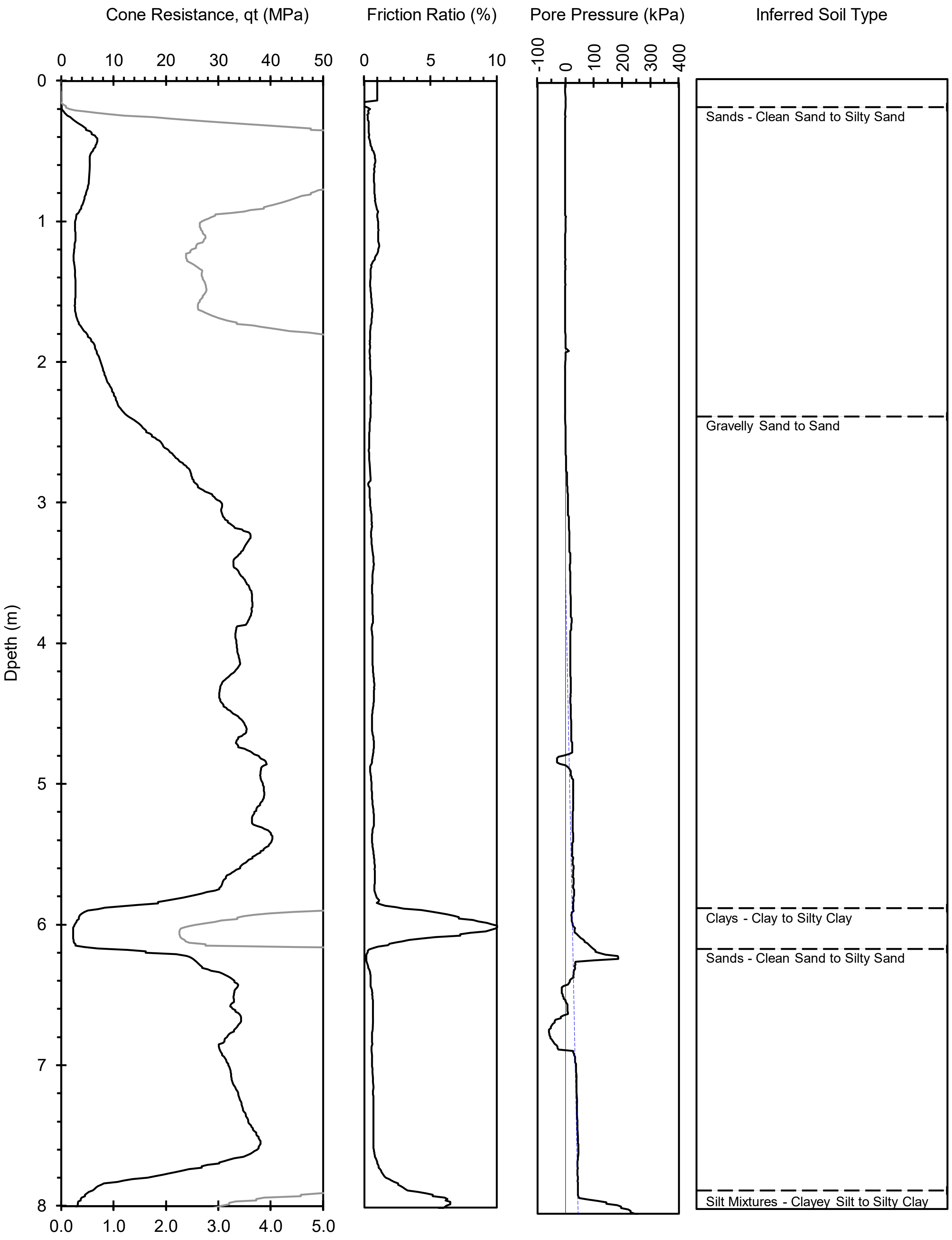


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT05***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335725.29 m E, 6240678.58 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

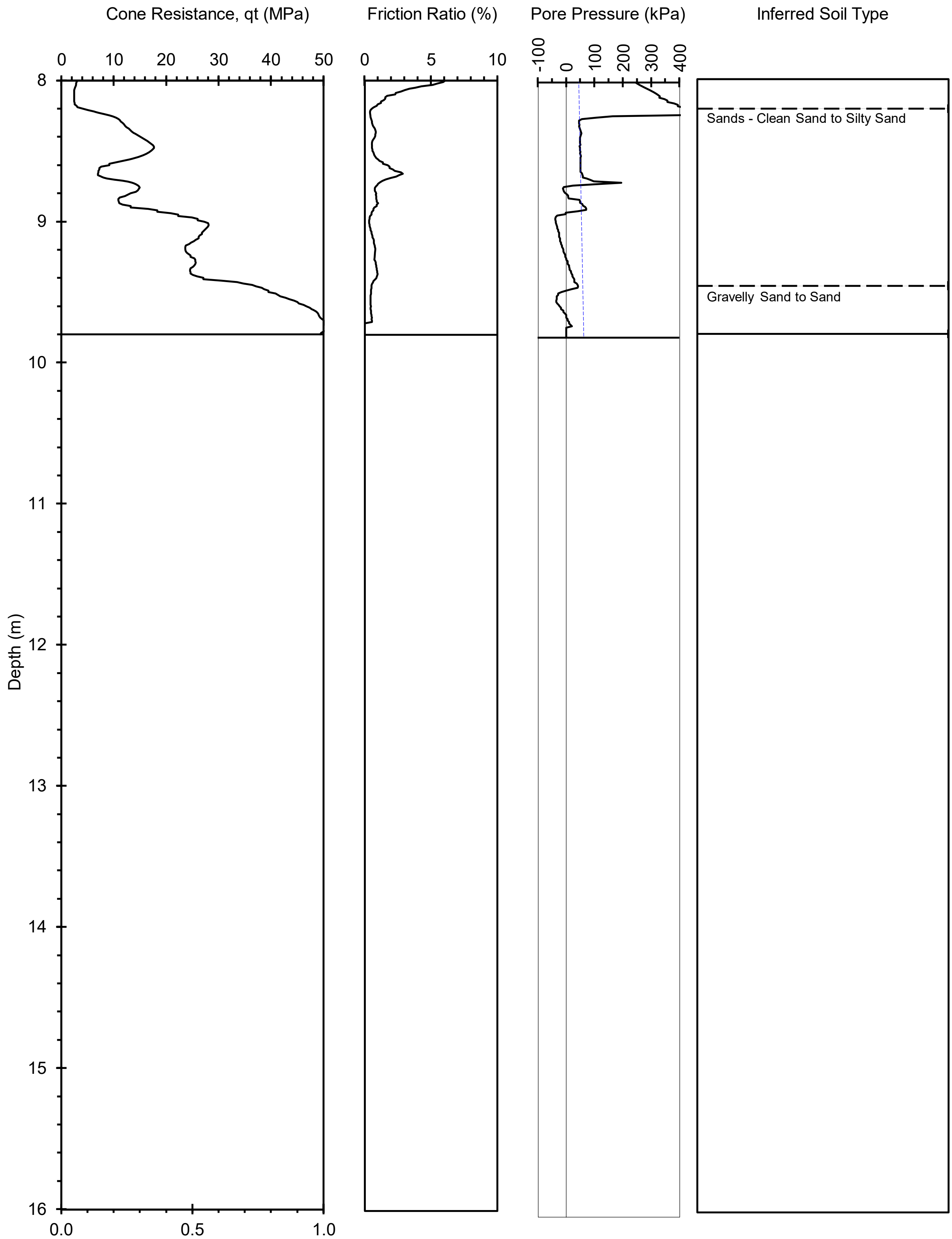


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT05***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335725.29 m E, 6240678.58 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

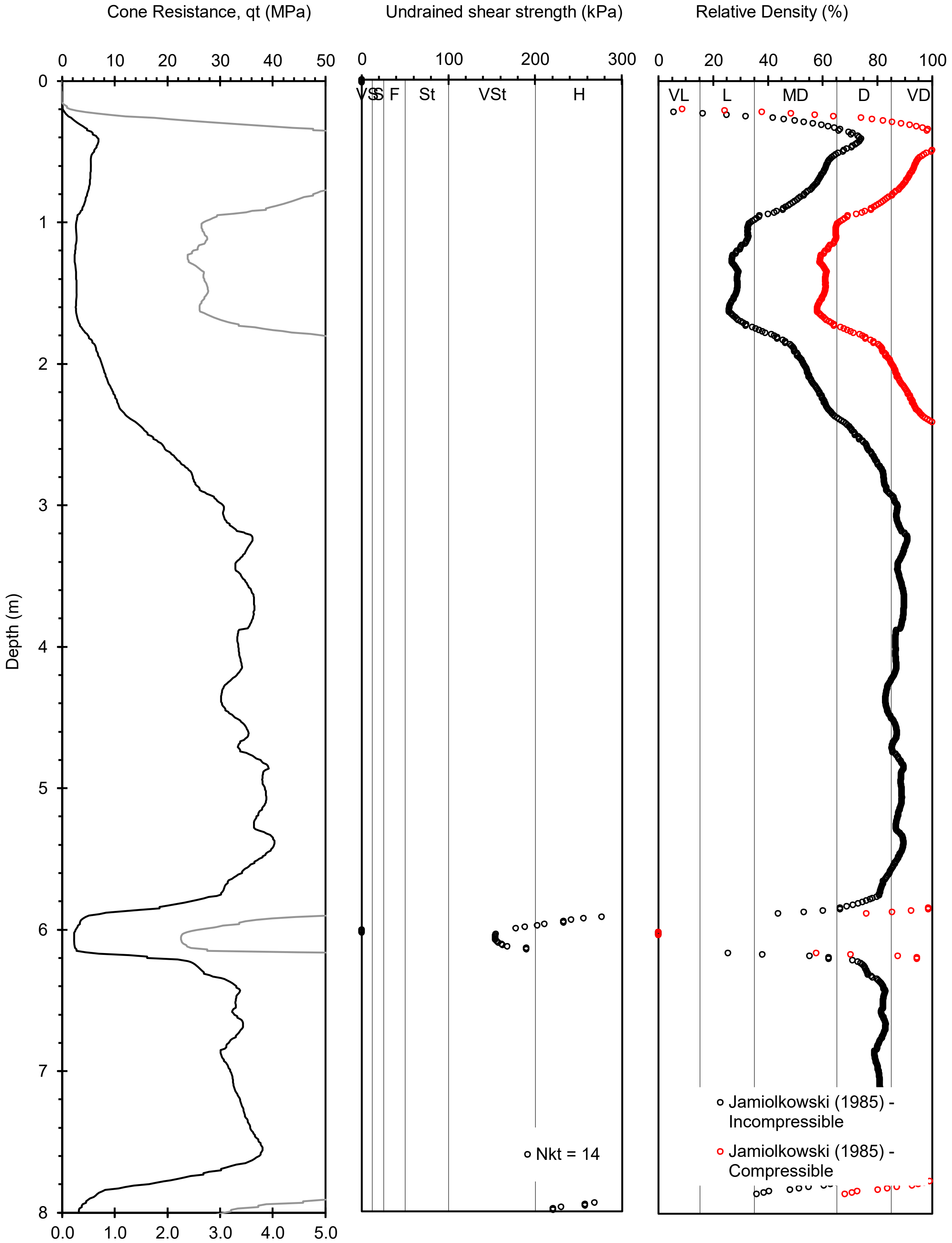


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT05***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335725.29 m E, 6240678.58 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

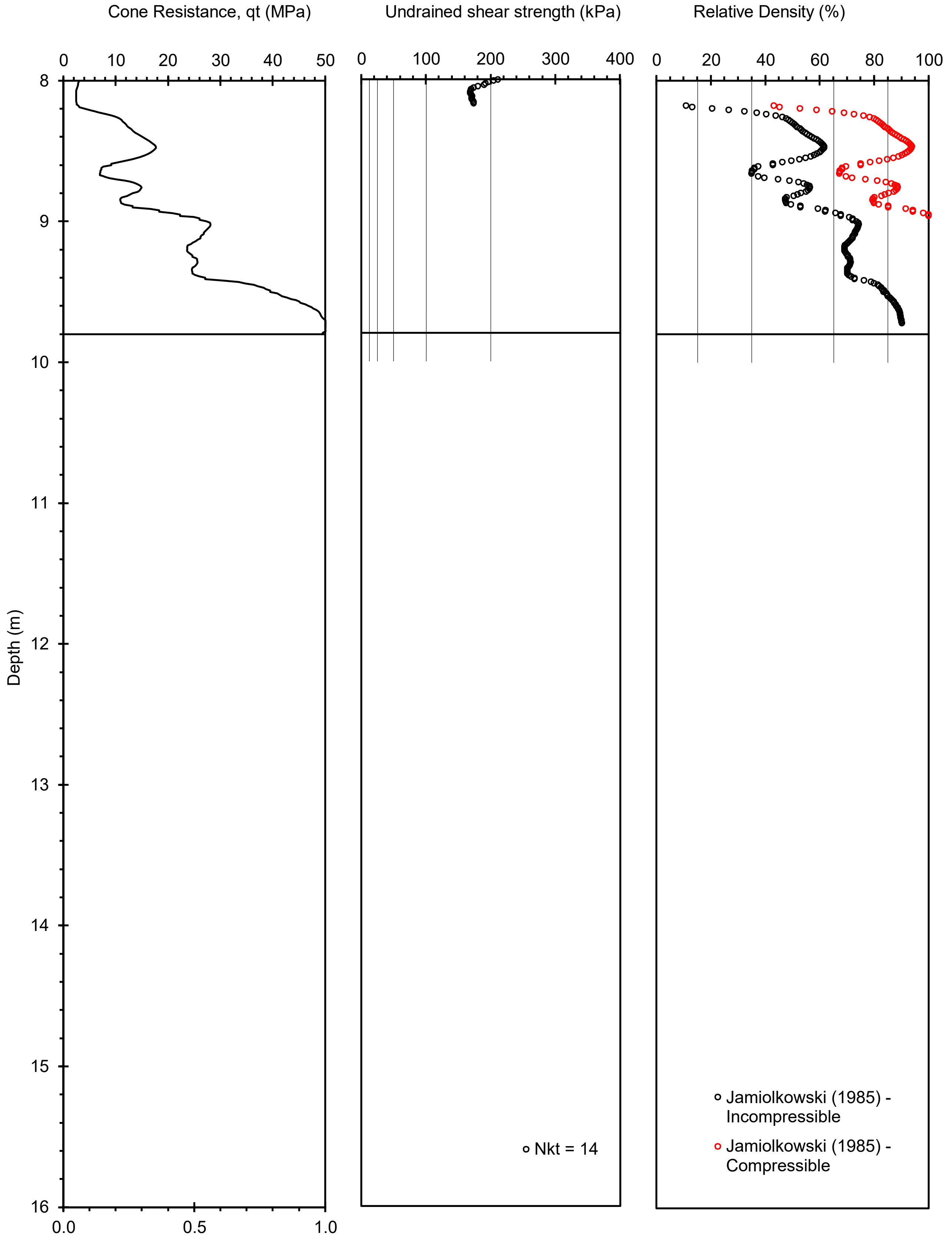


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT05***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

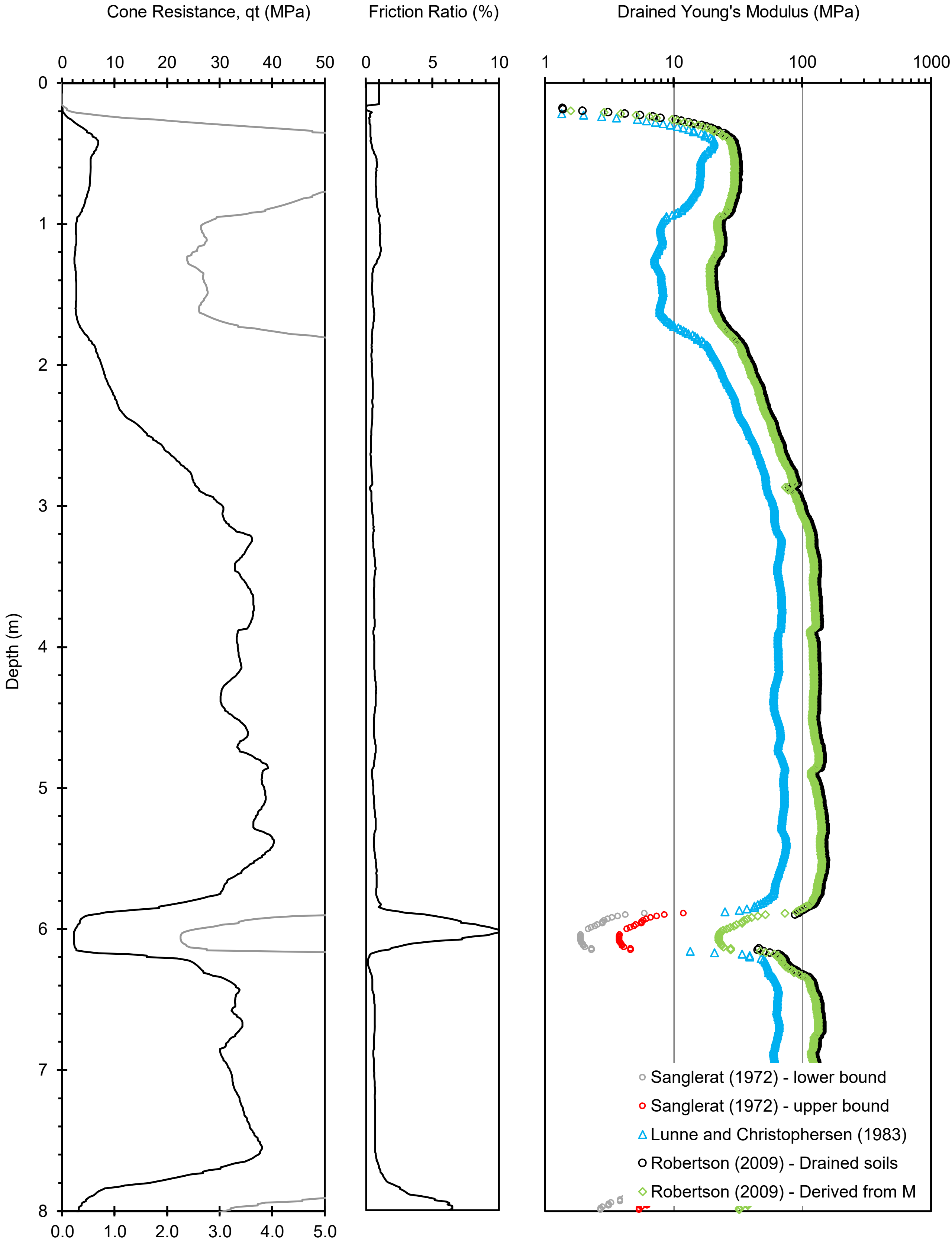
Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335725.29 m E, 6240678.58 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED MODULUS

Job No.	***PSM4375***	**Test No.**	***CPT05***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***
Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335725.29 m E, 6240678.58 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

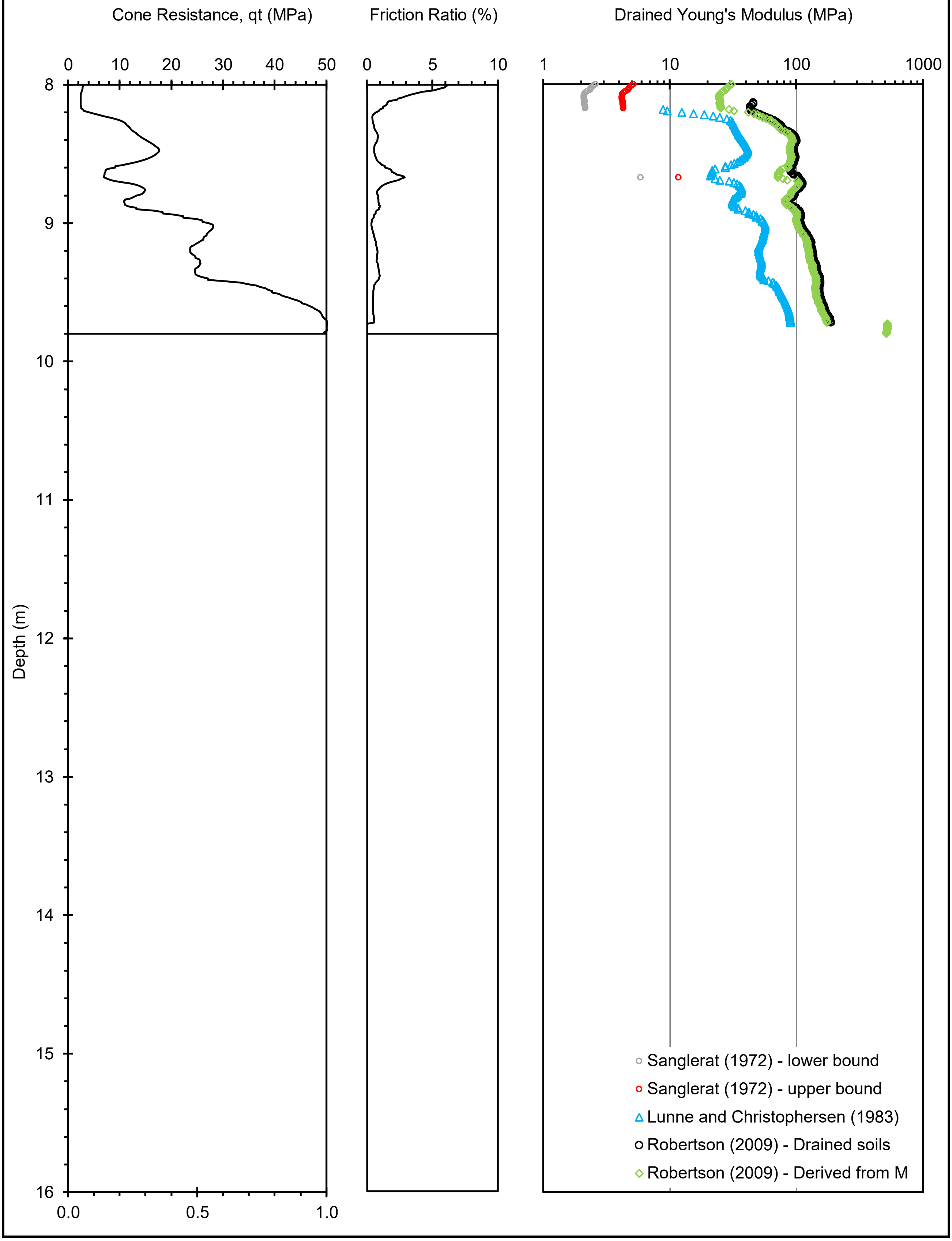


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED MODULUS

Job No.	***PSM4375***	**Test No.**	***CPT05***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335725.29 m E, 6240678.58 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

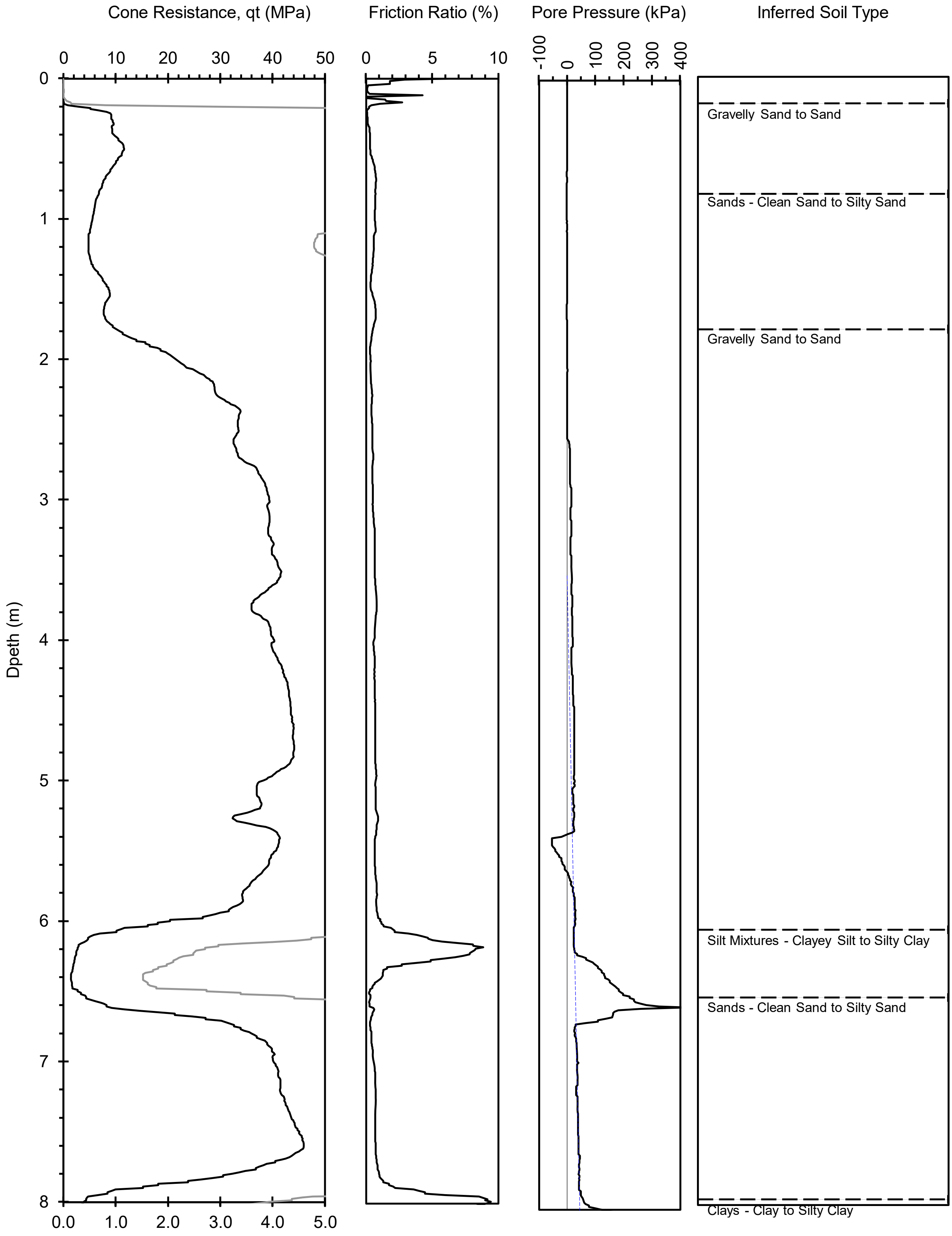


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT06***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335755.96 m E, 6240654.04 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

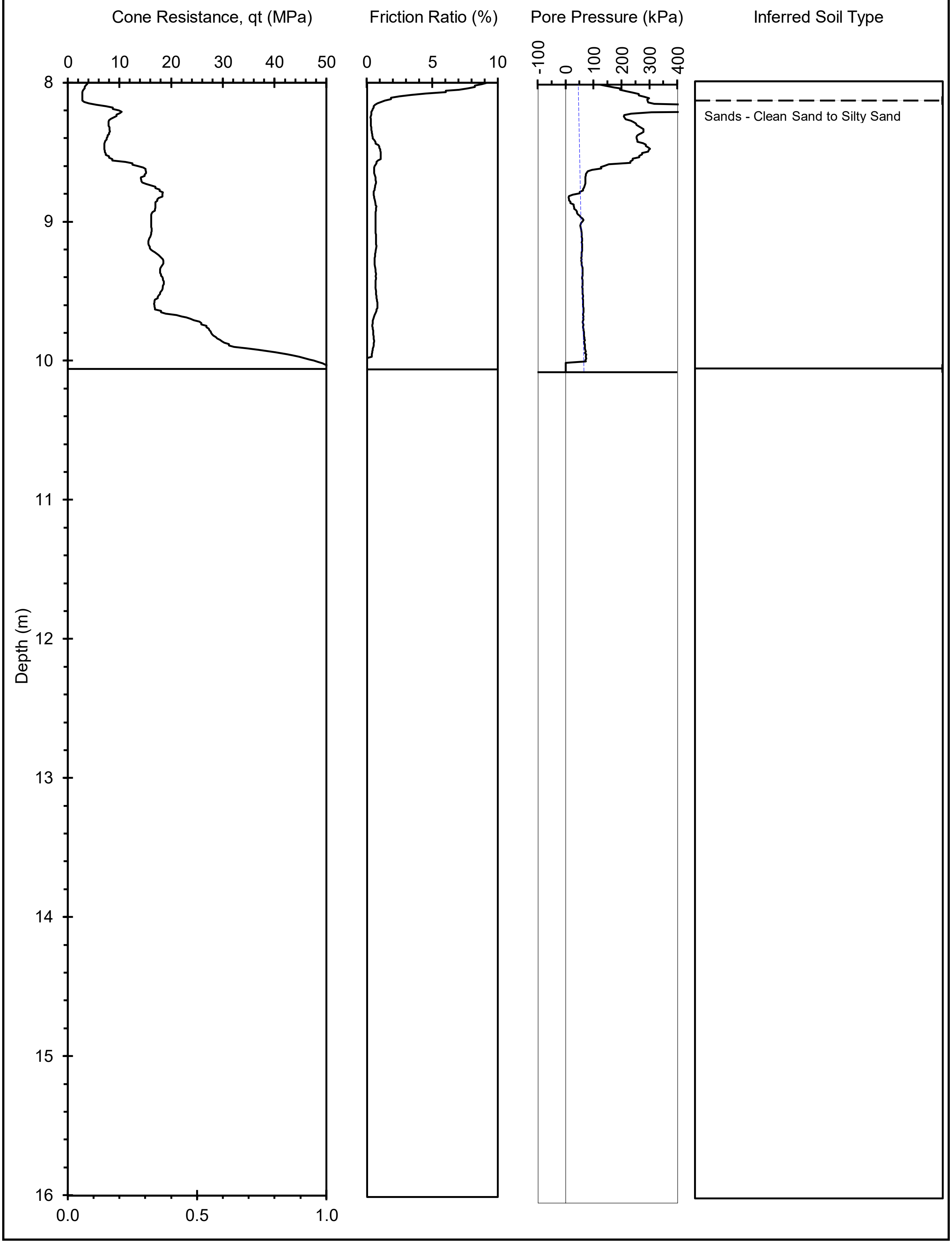


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	PSM4375	Test No.	CPT06
Project	42 Raymond Avenue, Matraville	Page	2 of 2

Pushing rig	24-tonne truck	Test date	30/03/2021
Location	335755.96 m E, 6240654.04 m N	Cone I.D.	S15CFIIP.S17300
Surface R.L.	No survey	Field work	DDC

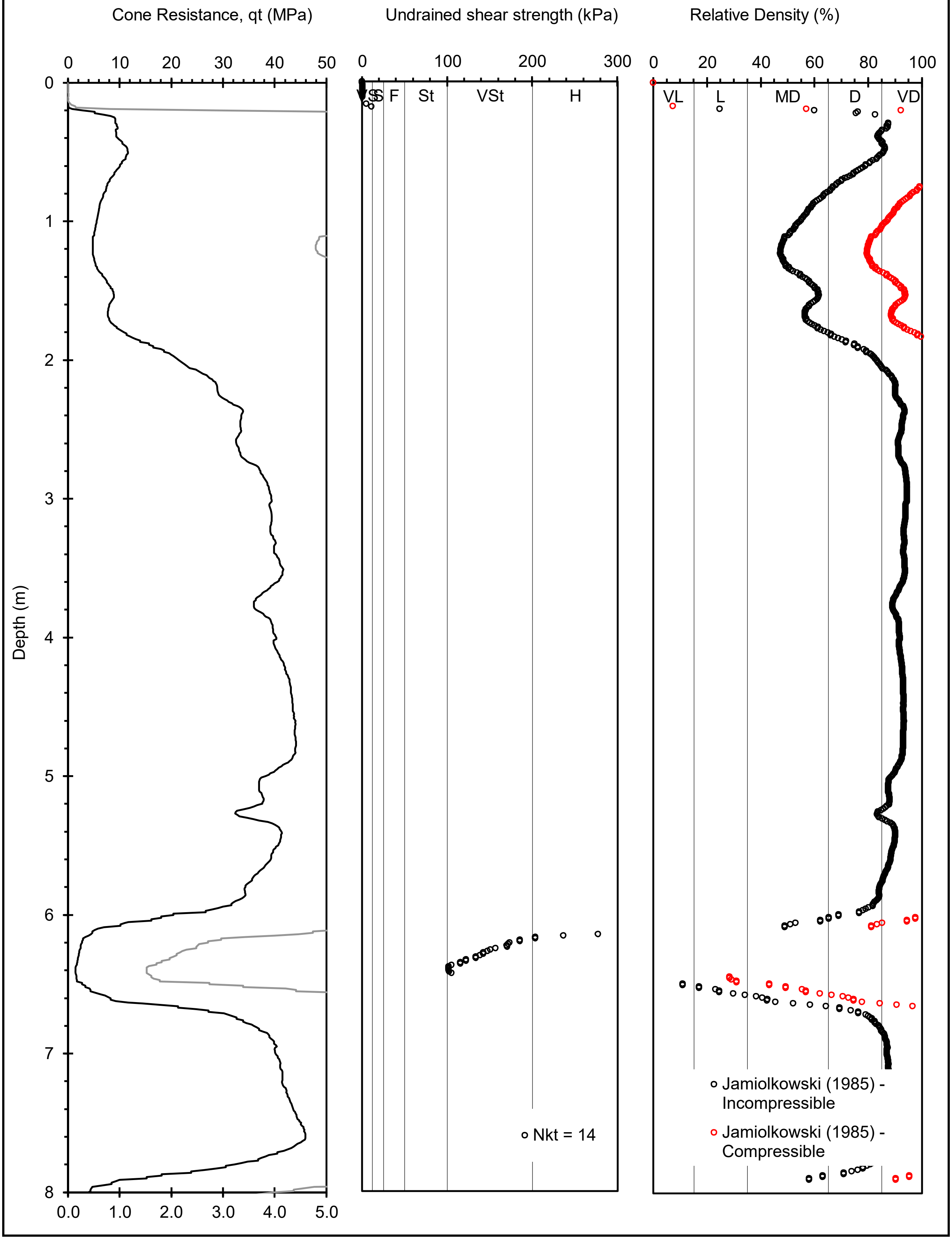


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT06***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335755.96 m E, 6240654.04 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

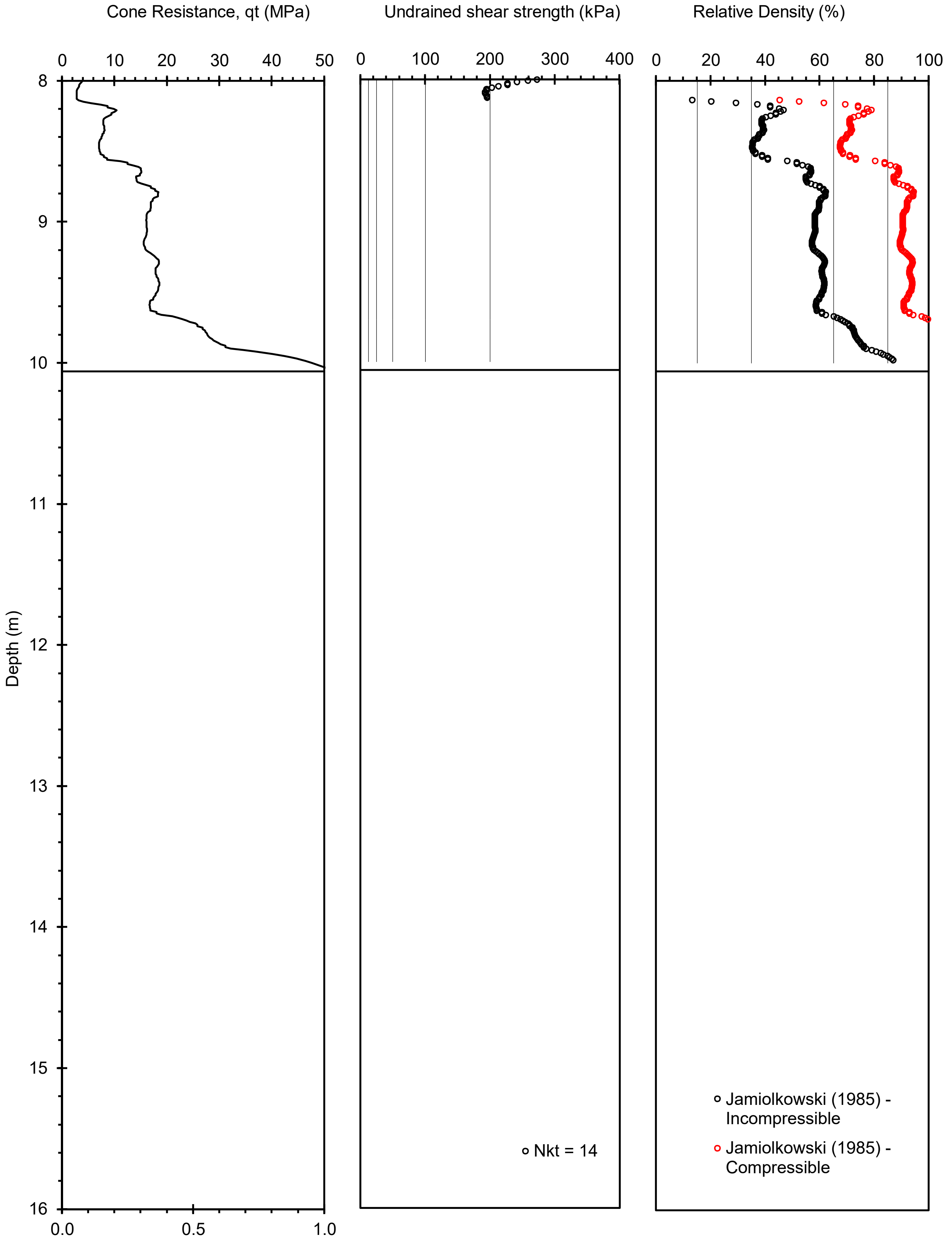


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT06***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335755.96 m E, 6240654.04 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

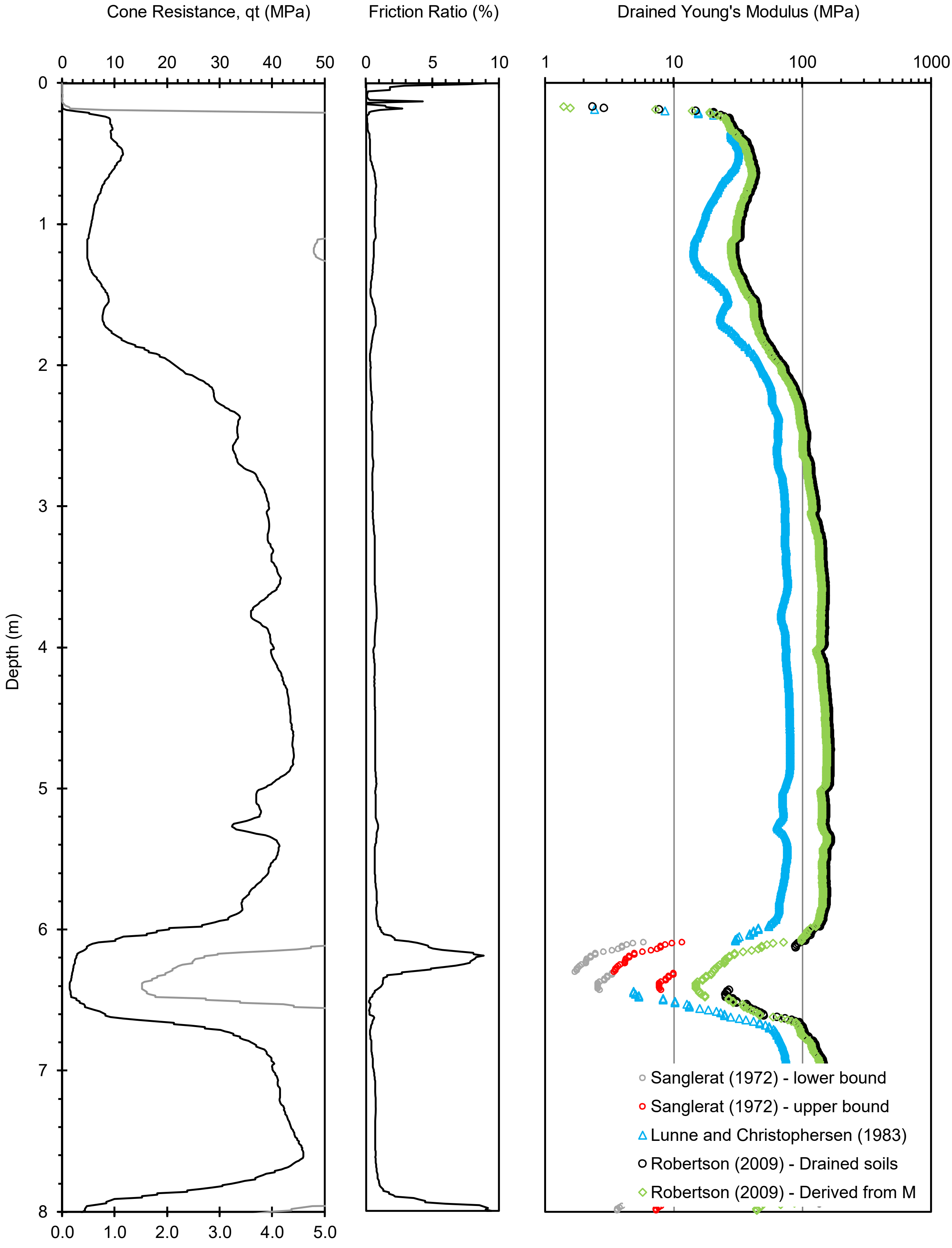


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED MODULUS

Job No.	***PSM4375***	**Test No.**	***CPT06***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

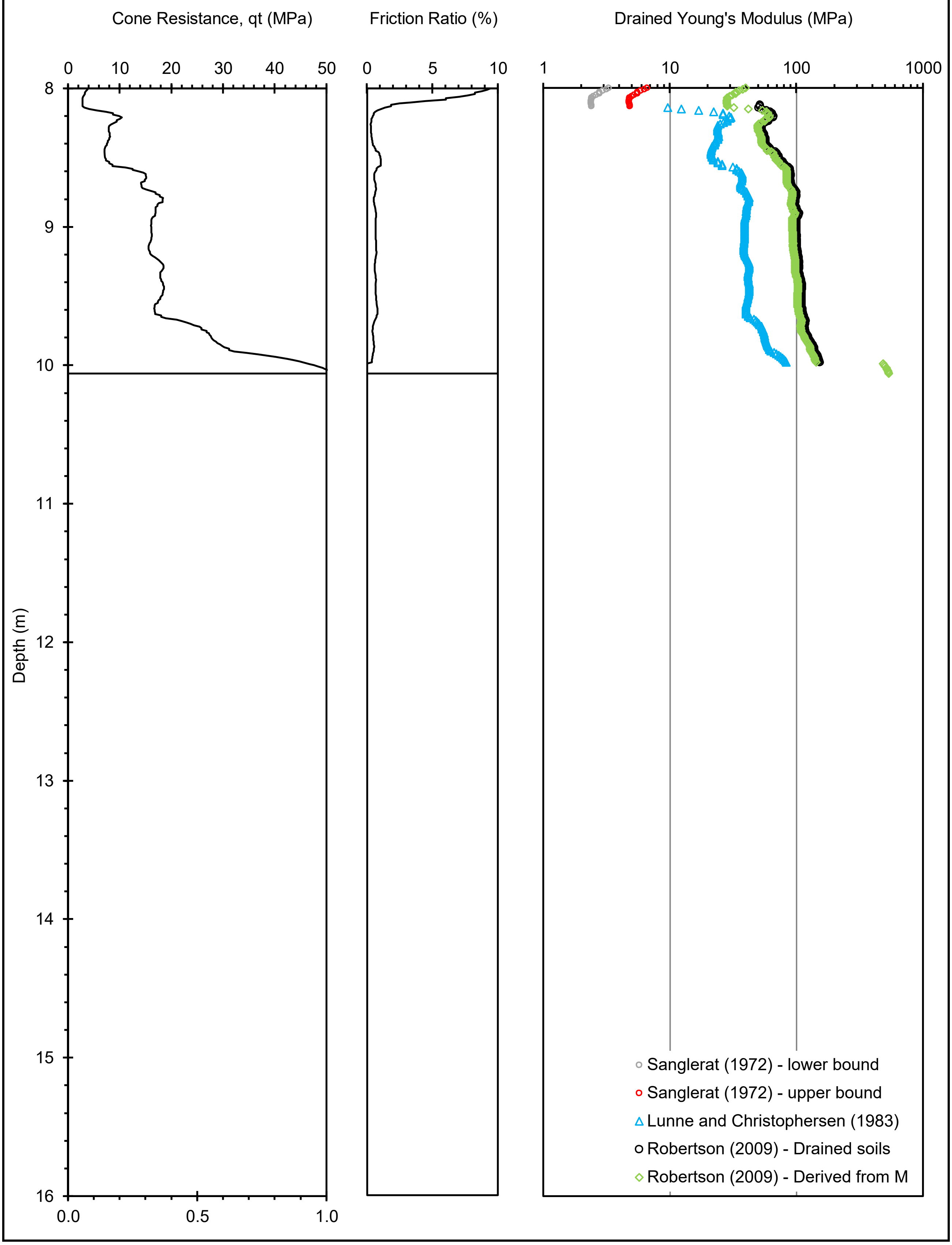
Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335755.96 m E, 6240654.04 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



CONE PENETRATION TEST - INFERRED MODULUS

Job No.	***PSM4375***	**Test No.**	***CPT06***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335755.96 m E, 6240654.04 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

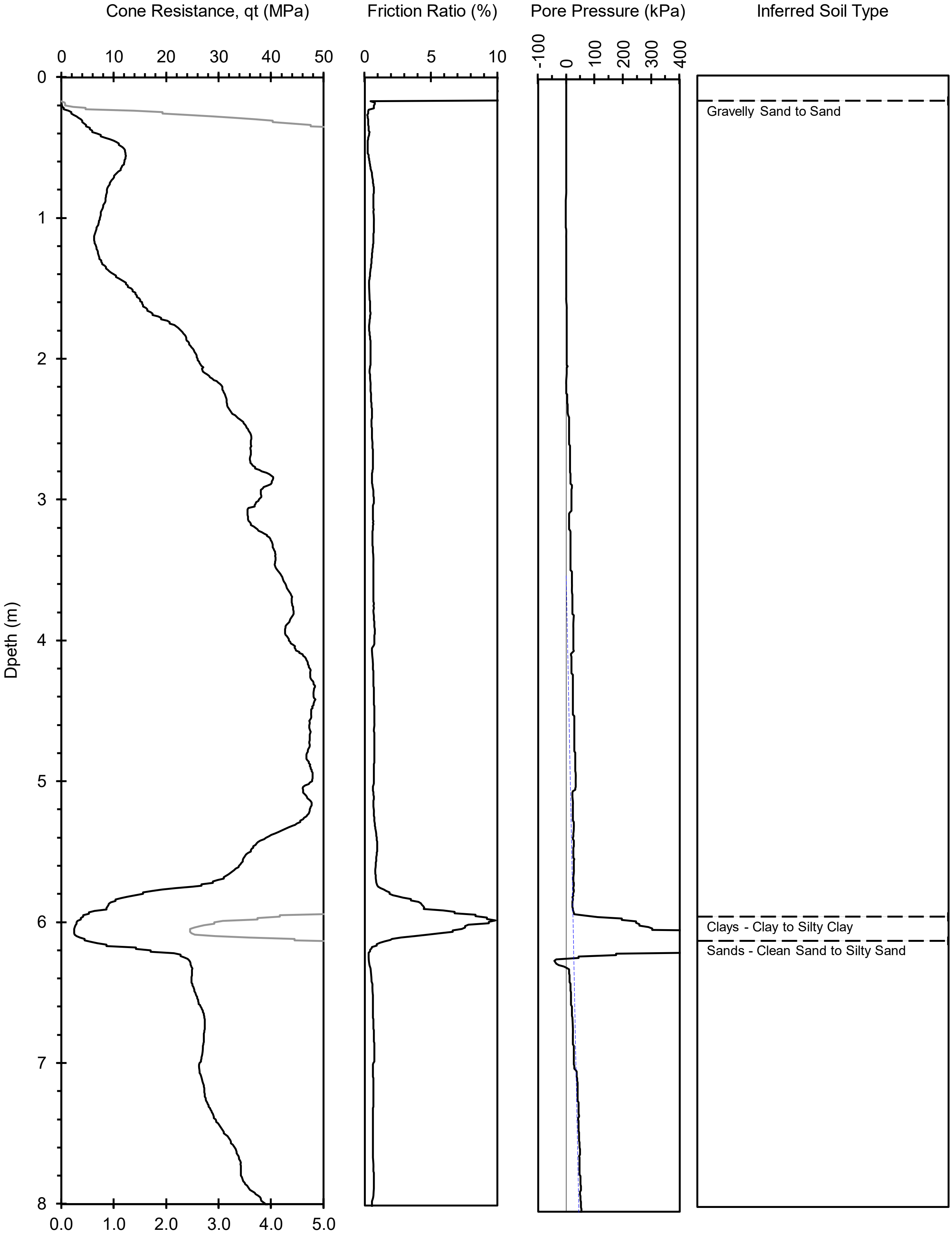


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT07***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335795.58 m E, 6240681.61 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

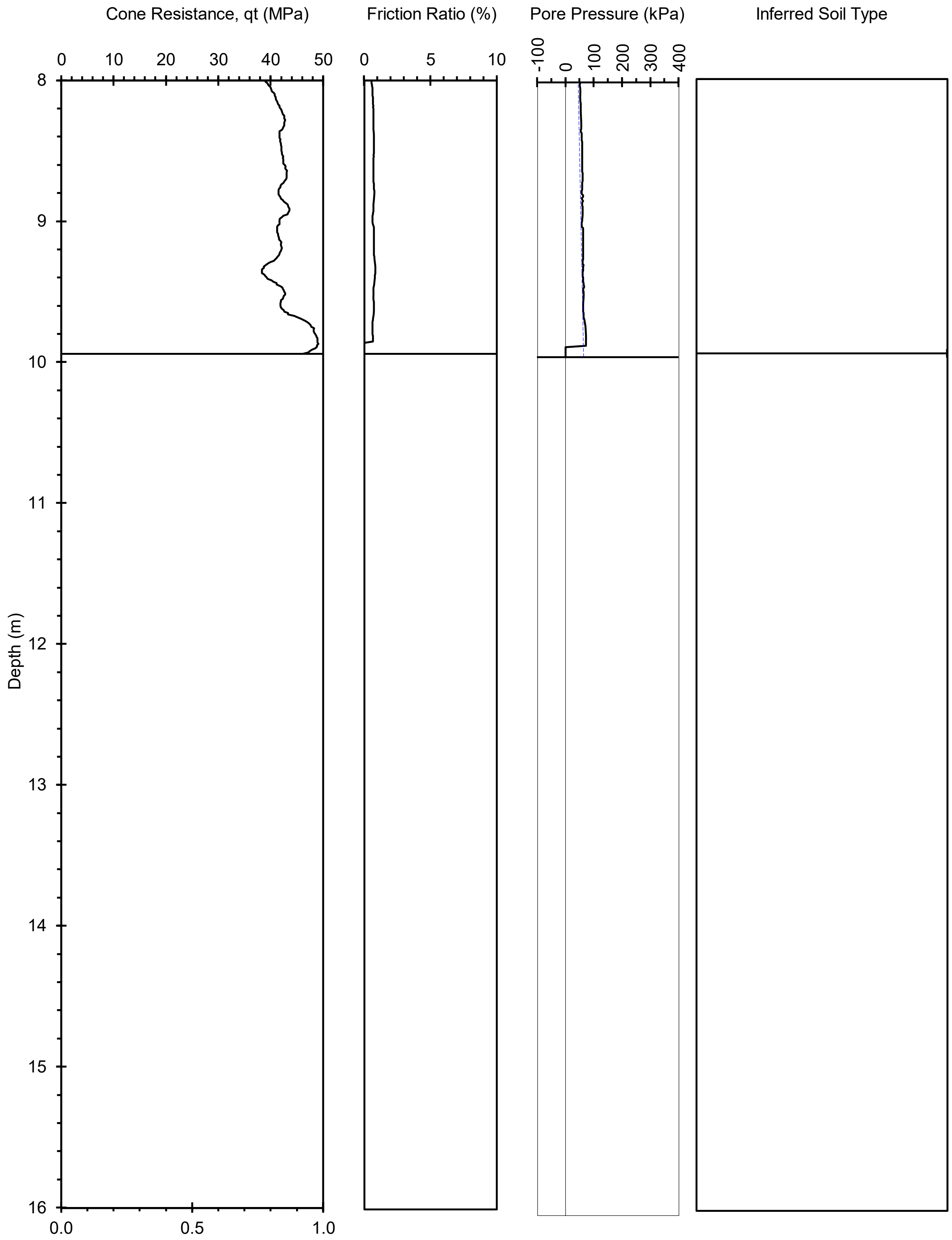


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT07***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335795.58 m E, 6240681.61 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

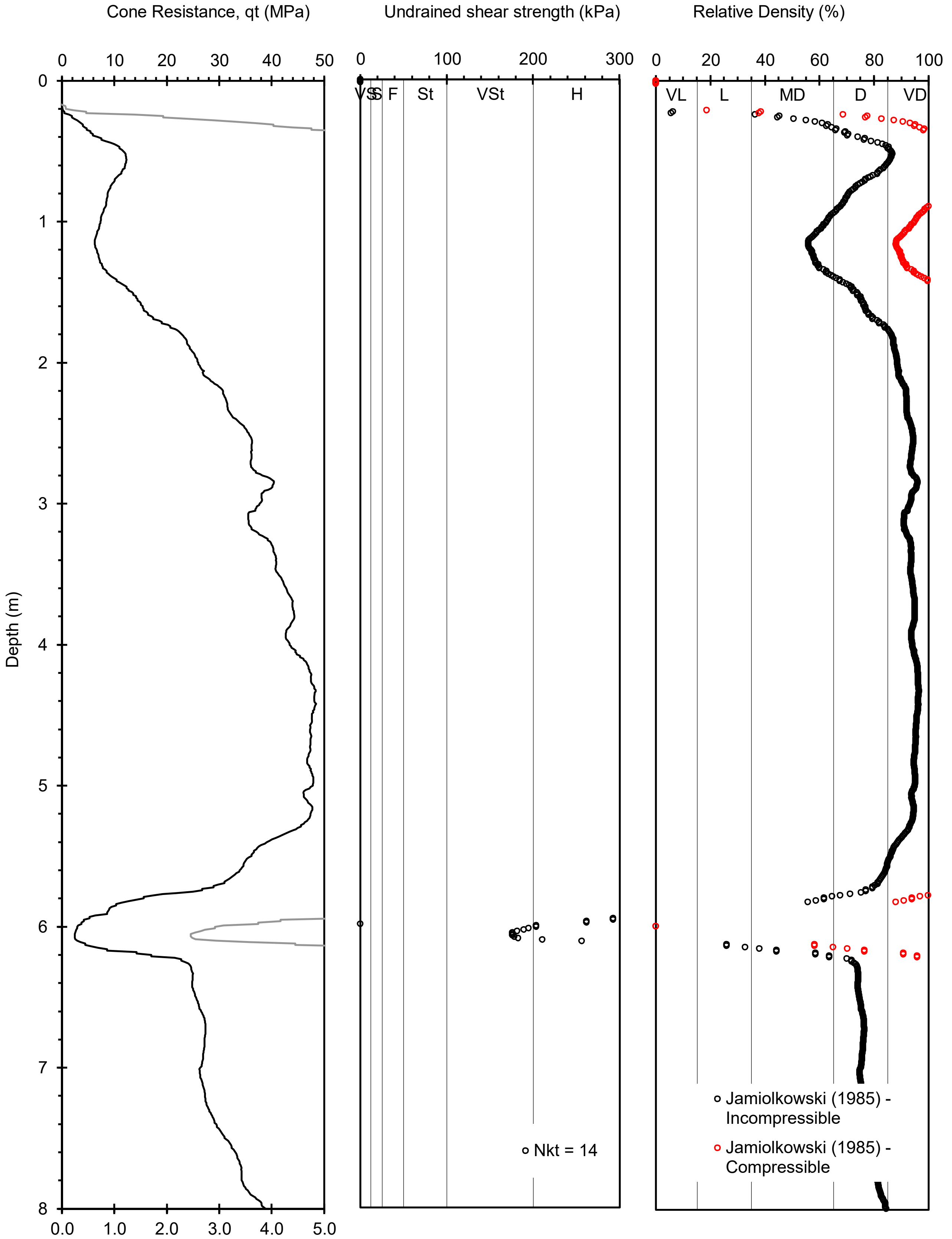


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT07***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335795.58 m E, 6240681.61 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



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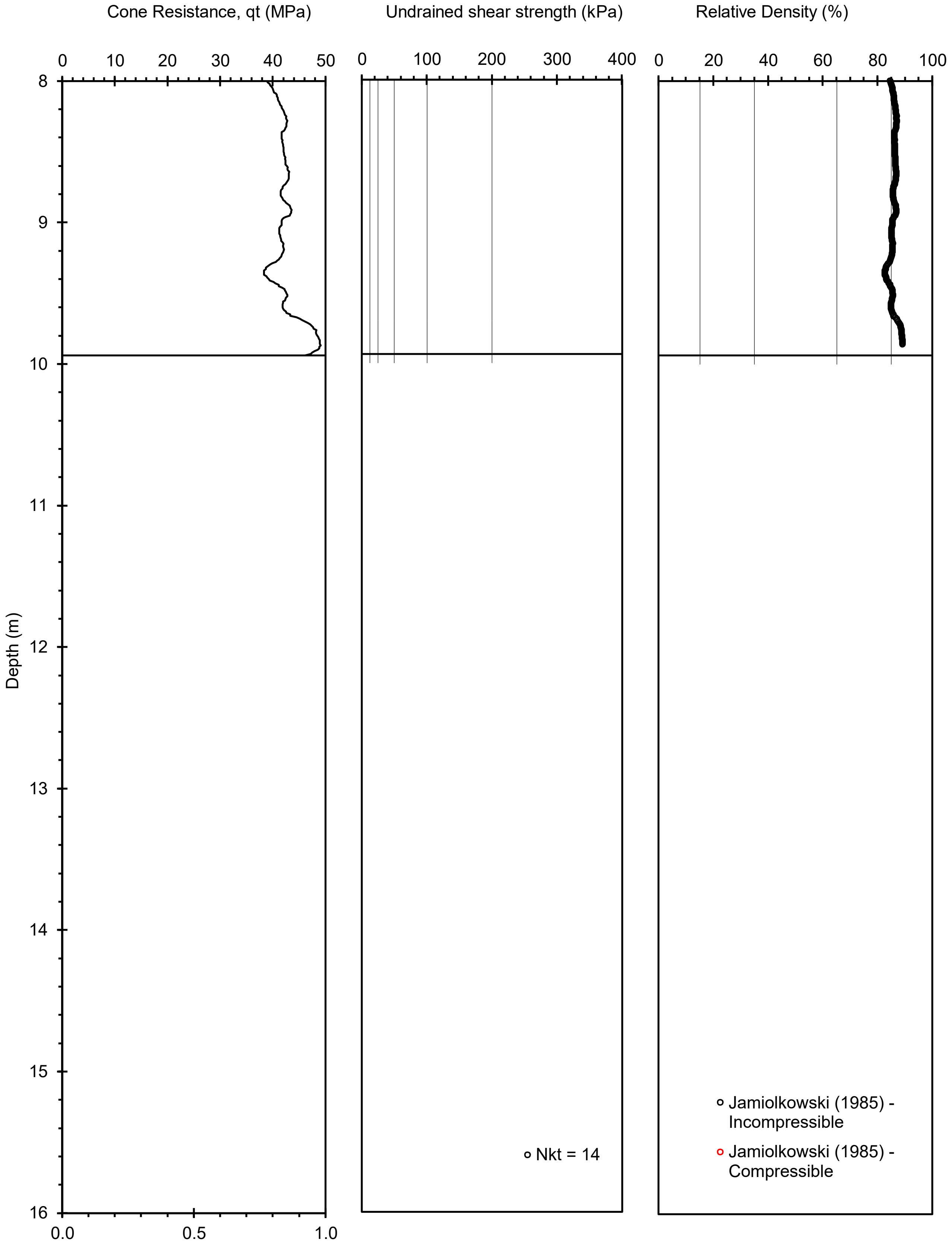
CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT07***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335795.58 m E, 6240681.61 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



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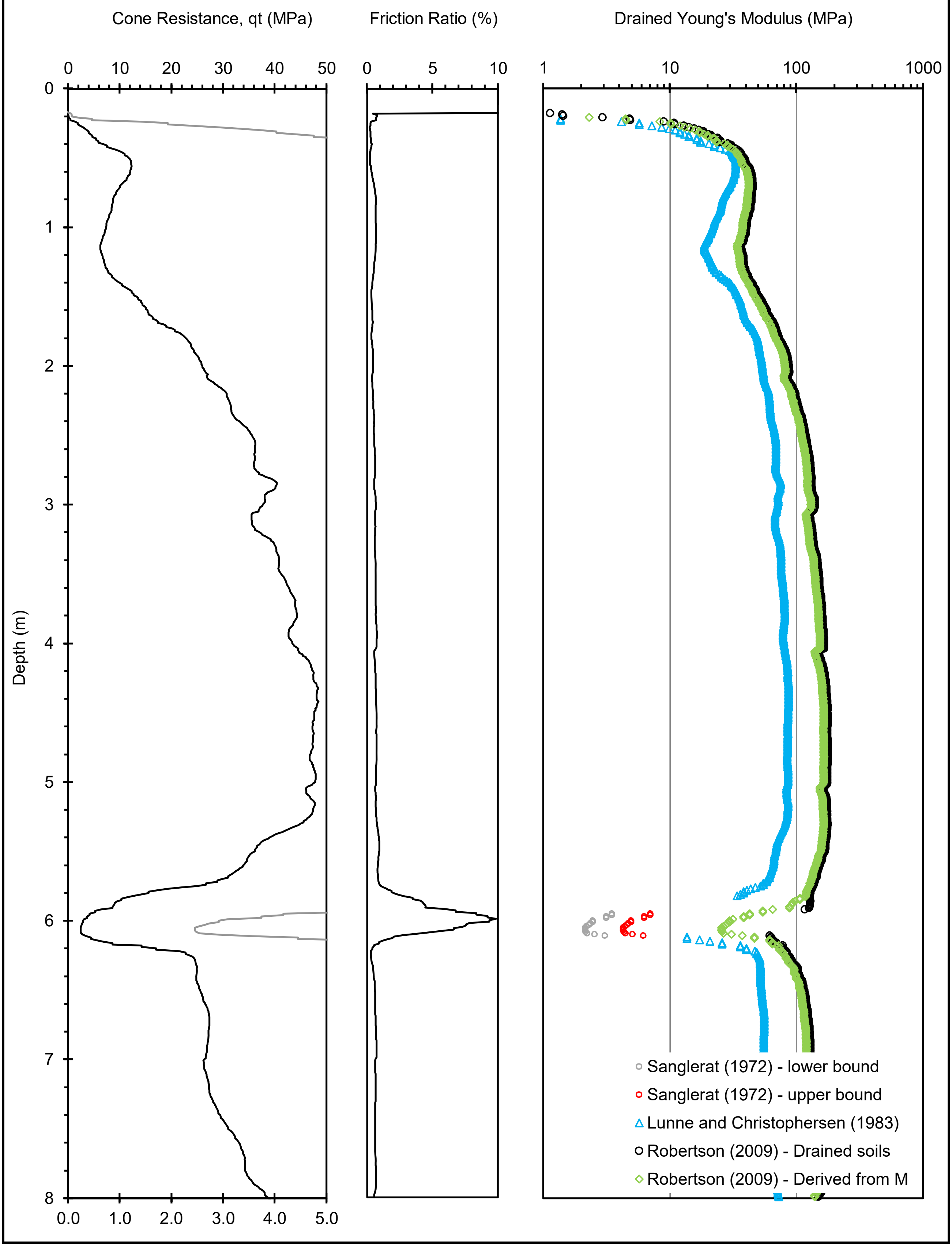
CONE PENETRATION TEST - INFERRED MODULUS

Job No.	***PSM4375***	**Test No.**	***CPT07***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335795.58 m E, 6240681.61 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



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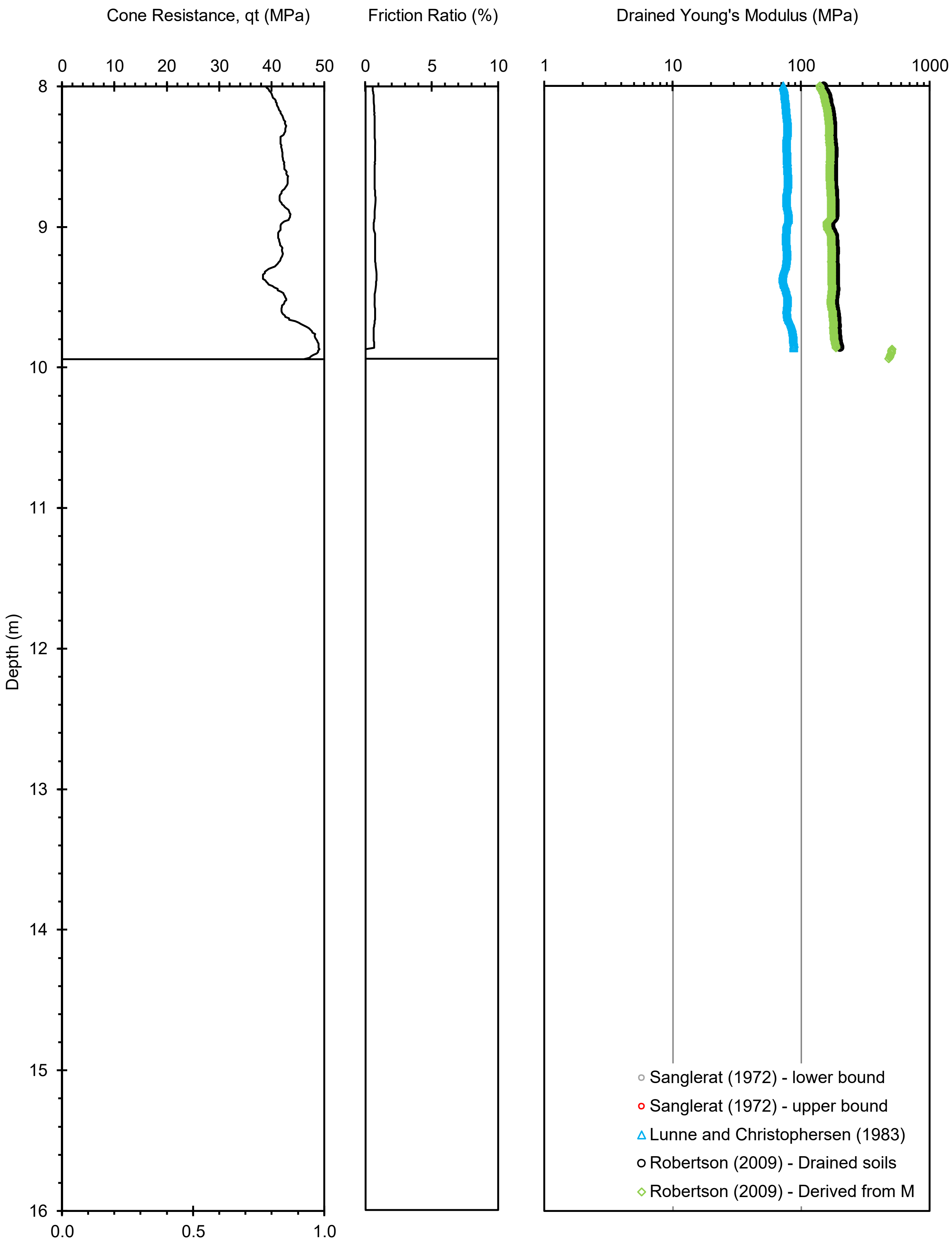
CONE PENETRATION TEST - INFERRED MODULUS

Job No.	PSM4375	Test No.	CPT07
Project	42 Raymond Avenue, Matraville	Page	2 of 2

Pushing rig	24-tonne truck	Test date	30/03/2021
Location	335795.58 m E, 6240681.61 m N	Cone I.D.	S15CFIIP.S17300
Surface R.L.	No survey	Field work	DDC

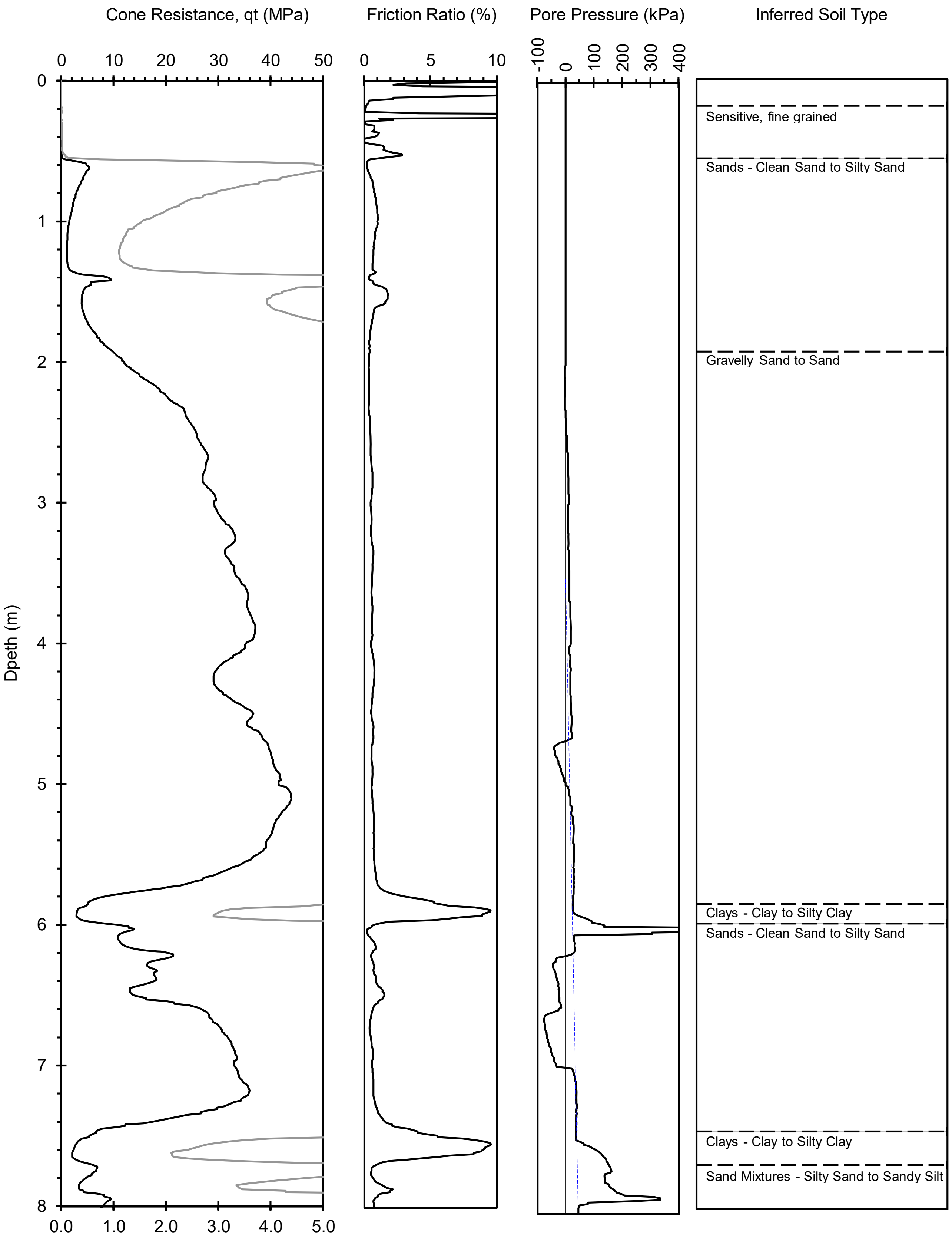


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT08***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335745.34 m E, 6240732.51 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

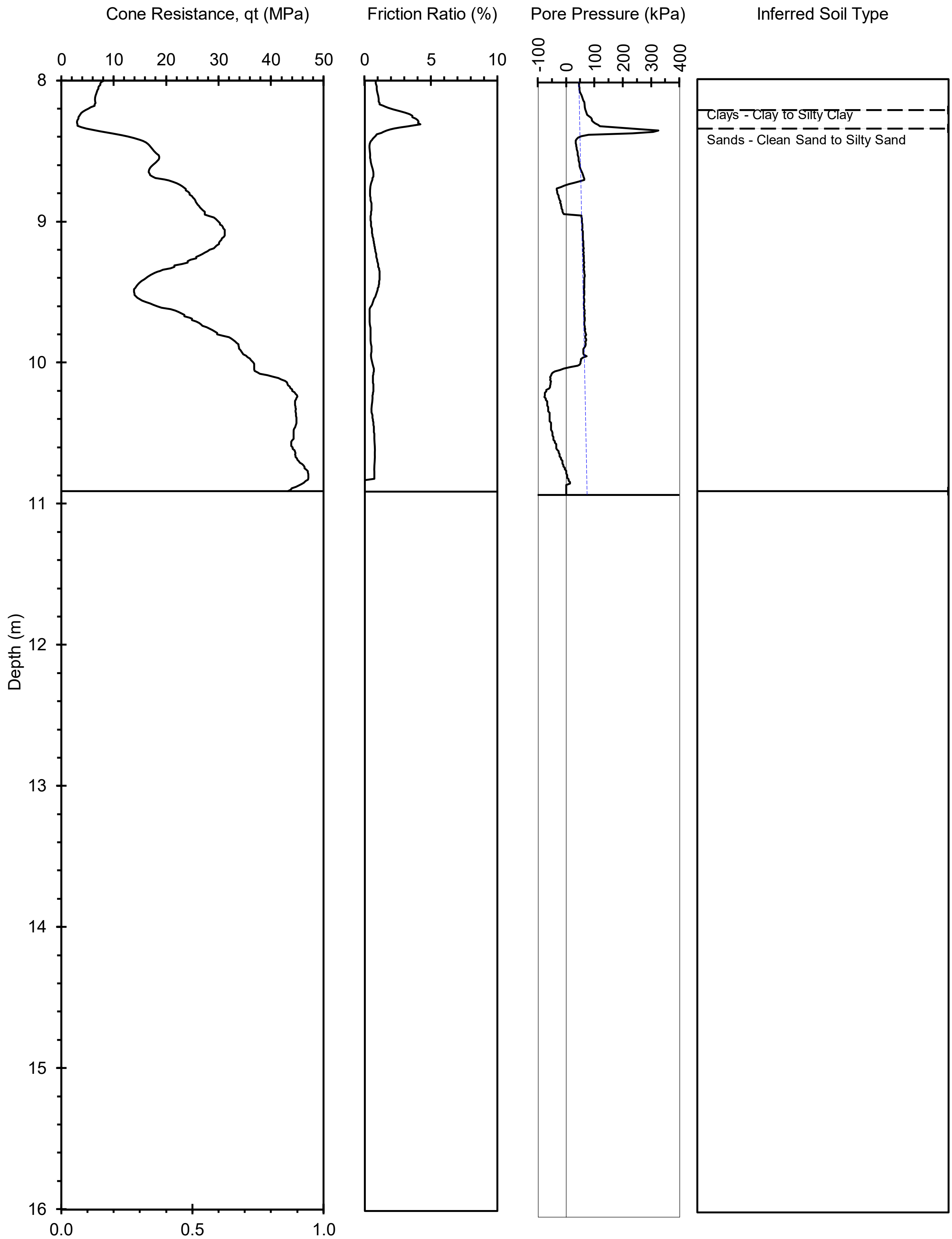


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED SOIL TYPE

Job No.	***PSM4375***	**Test No.**	***CPT08***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335745.34 m E, 6240732.51 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

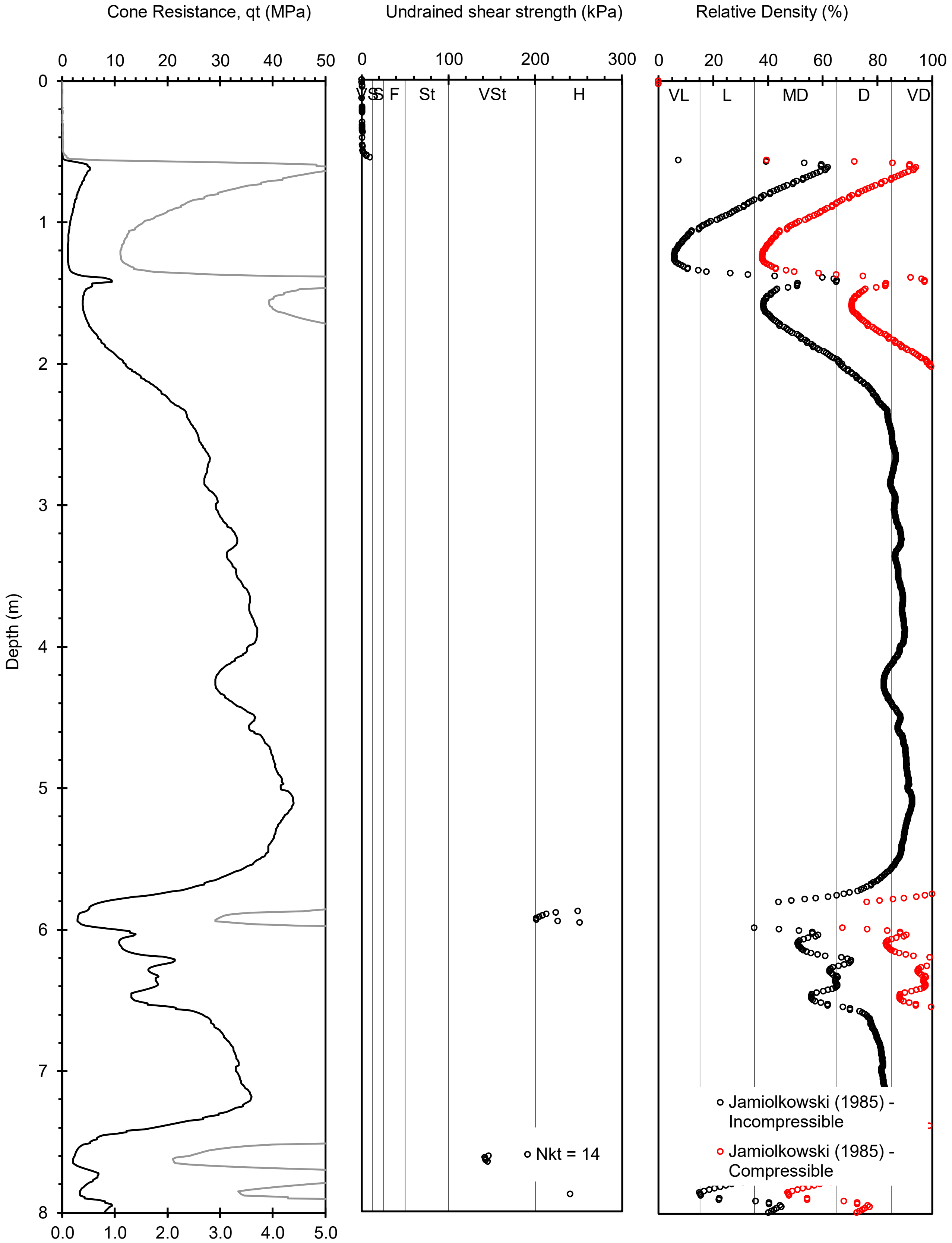


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT08***
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335745.34 m E, 6240732.51 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

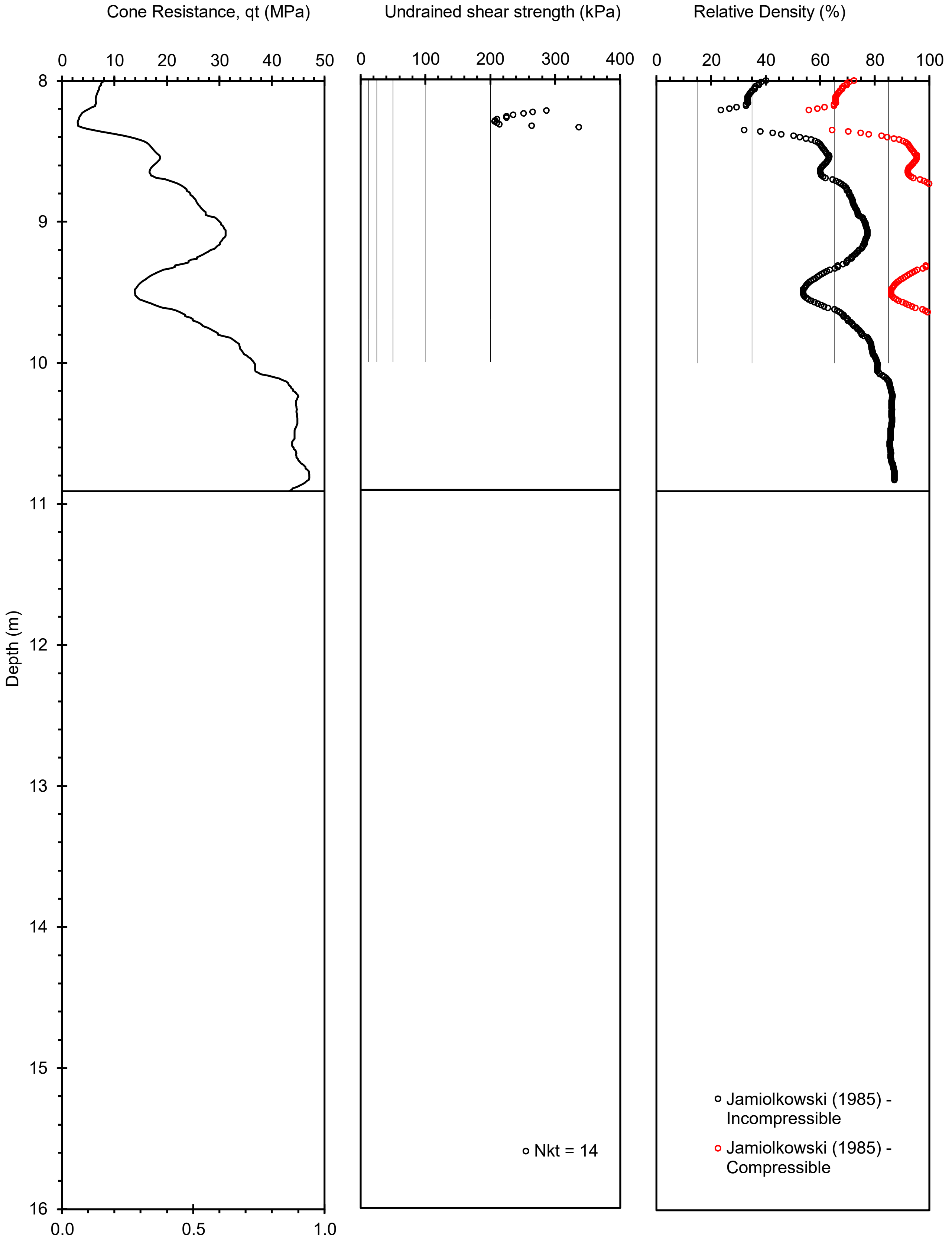


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED STRENGTH

Job No.	***PSM4375***	**Test No.**	***CPT08***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335745.34 m E, 6240732.51 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

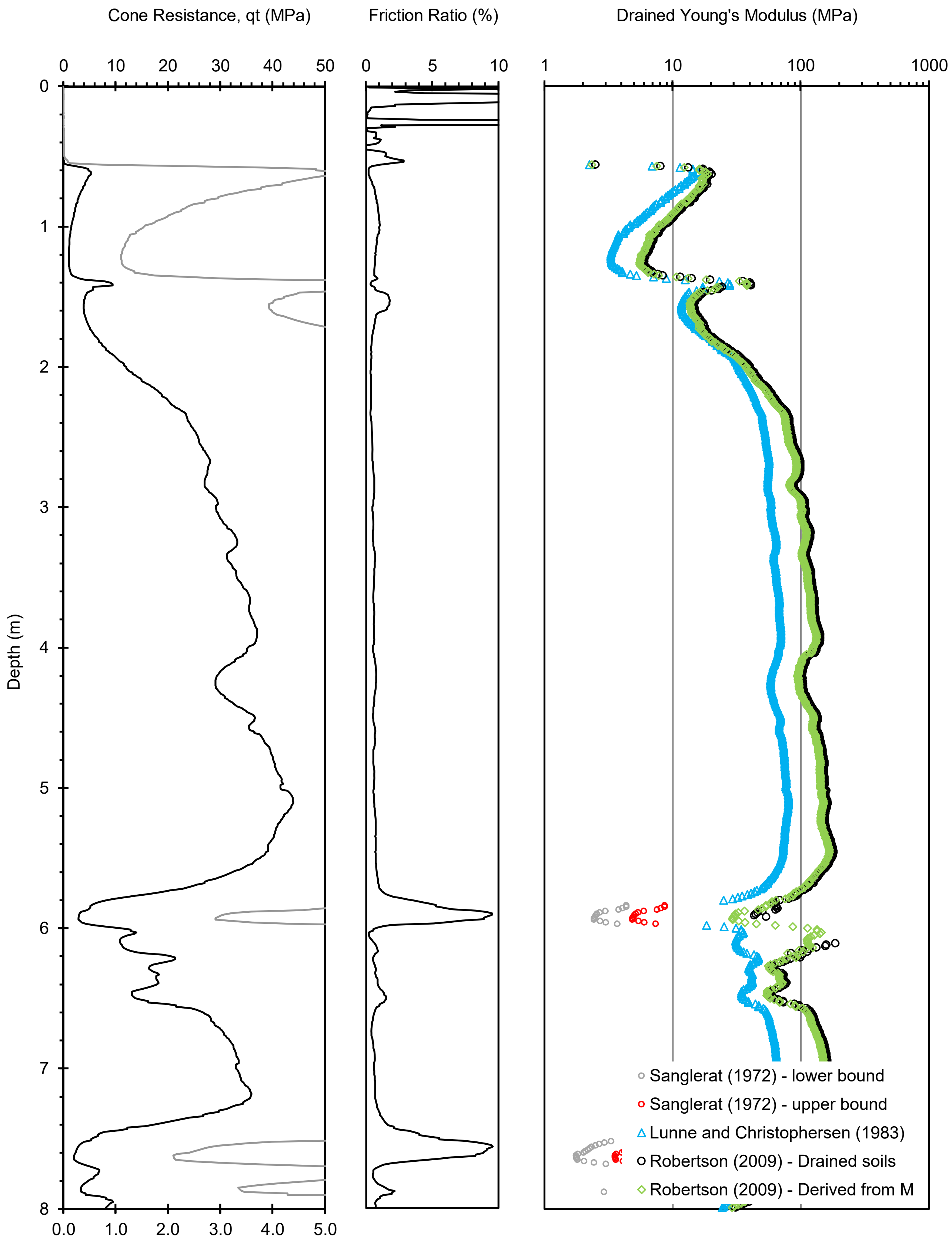


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED MODULUS

Job No.	*PSM4375*	Test No.	*CPT08*
Project	***42 Raymond Avenue, Matraville***	**Page**	***1 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335745.34 m E, 6240732.51 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*

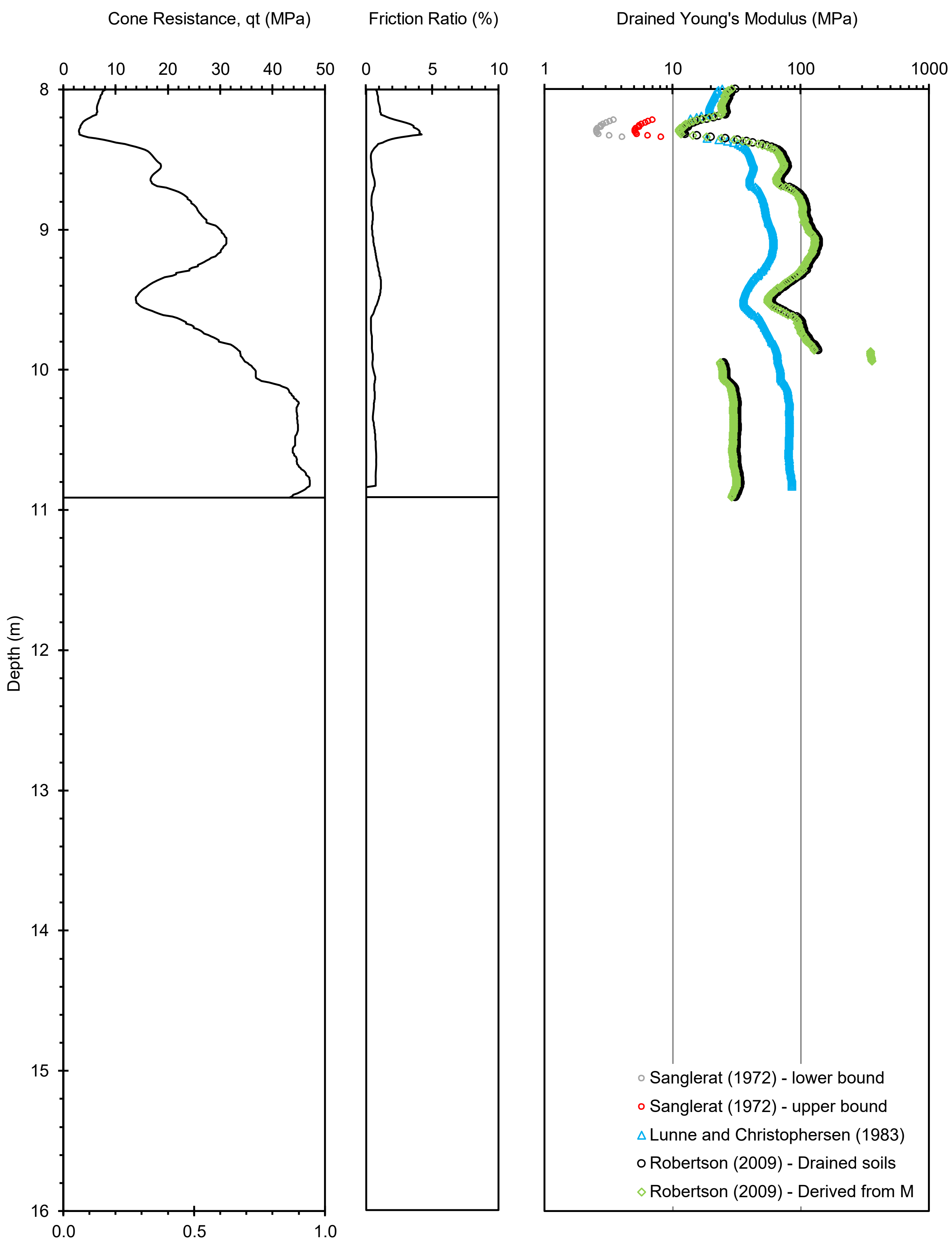


Pells Sullivan Meynink

CONE PENETRATION TEST - INFERRED MODULUS

Job No.	***PSM4375***	**Test No.**	***CPT08***
Project	***42 Raymond Avenue, Matraville***	**Page**	***2 of 2***

Pushing rig	*24-tonne truck*	Test date	*30/03/2021*
Location	*335745.34 m E, 6240732.51 m N*	Cone I.D.	*S15CFIIP.S17300*
Surface R.L.	*No survey*	Field work	*DDC*



Appendix B
Results of concrete core testing

BEMAC LABORATORIES
A Division of Mahaffey Associates Pty Ltd.
ABN 90 001 629 036

Unit 9/108-110 Percival Rd. (PO Box 2162) Smithfield NSW 2164
Ph (02) 9756 4003 Fax (02) 9757 4228
Email: mahaffey@mahaffey.com.au

The results of the tests, and/or measurements included in this document are traceable to Australian standards. Accredited for compliance with ISO/IEC 17025 - Testing

Accreditation No. 1393

NATA ACCREDITED FOR TECHNICAL COMPETENCE

COMPRESSIVE STRENGTH OF CONCRETE CORES

Report No:

Client: PSM
Job Number: 20195
Site: Marrickville
Project: PSM4375

Date Cored:	30/03/21	***Cored By:***	Others	***Cap Type:***	Sulphur
Date Rec'd:	01/04/21	***Test Date:***	15/04/21	***Cond Type:***	Nil
Date Condit'ing Commenced:	-	***Conditioning Period (Days):***	-		

Specimen Identity	***Dimensions (mm)***		***Mass/Unit Volume (kg/m^3)***	***Strength (MPa)***		***Remarks***
	Average Diameter	***Length***		***Uncorrected***	***L/D Corrected***	
CPT 07	108.7	126.3	2180	34.5	31.5	
CPT 08	108.6	175.5	2400	61.0	59.0	
CPT 11	108.8	140.8	2360	47.0	44.0	
CPT 12	108.7	118.0	2340	57.5	51.5	

Comments:	Specimen CPT 08 - Bar number 1 9 Bar Diameter at 156mm before trimmng and 148mm after trimming
	Specimen CPT 08 - Bar number 2 9 Bar Diameter at 141mm before trimmng and 135mm after trimming
	Specimen CPT 11 - Bar number 1 6 Bar Diameter at 127mm before trimmng and 119mm after trimming
	Specimen CPT 12 - Bar number 1 6 Bar Diameter at 100mm before trimmng and 99mm after trimming
	Specimen CPT 12 - Bar number 2 6 Bar Diameter at 105mm before trimmng and 103mm after trimming

Notes:

1. Mass per Unit Volume tested in accordance with AS1012.12.1. Results quoted to the nearest 20kgm^{-3}
2. Compressive strength tested in accordance with AS1012.9 and AS1012.14. Results quoted to the nearest 0.5 MPa.
3. Samples were sulphur capped.
4. Sample Conditioning: Nil
5. AS1012.14 requires that cores for compressive strength be a minimum of 75mm nominal diameter and 1 : 1 length to diameter ratio.
6. This document shall not be reproduced except in full.

Signed : David Wilmshurst

David Wilmshurst
Approved Signatory
Date of Issue: 16/4/2021

Jul-18

BEMAC LABORATORIES
A Division of Mahaffey Associates Pty Ltd.
ABN 90 001 629 036

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Accreditation No. 1393

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

COMPRESSIVE STRENGTH OF CONCRETE CORES

Client: PSM
Job Number: 20195
Site: Marrickville
Project: PSM4375

Date Cored:	30/03/21	**Cored By:**	Others	**Cap Type:**	Sulphur
Date Rec'd:	01/04/21	**Test Date:**	12/04/21	**Cond Type:**	Nil
Date Condit'ing Commenced:	-	**Conditioning Period (Days):**	-		

Specimen Identity	Dimensions (mm)		Mass/Unit Volume (kg/m^3)	Strength (MPa)		Remarks
	Average Diameter	Length		Uncorrected	L/D Corrected	
CPT 02	108.7	124.5	2300	42.0	38.0	
CPT 04	108.7	116.0	2360	50.5	45.0	
CPT 05	108.7	151.4	2360	42.5	40.5	
CPT 05A	108.7	115.5	2400	47.0	42.0	
CPT 06	108.6	112.6	2320	38.5	34.0	
CPT 09	108.8	93.7	2420	53.0	43.5	
CPT 10	108.8	113.3	2380	41.5	36.5	

Comments:

Comments:	Specimen CPT 02 Bar number 1 - 6 dia bar at 104 mm cover before trimming
	Specimen CPT 02 Bar number 1 - 6 dia bar at 102 mm cover after trimming
	Specimen CPT 02 Bar number 2 - 6 dia bar at 98 mm cover before trimming
	Specimen CPT 02 Bar number 2 - 6 dia bar at 96 mm cover after trimming
	Specimen CPT 05 Bar number 1 - 5 dia bar at 105 mm cover before trimming
	Specimen CPT 05 Bar number 1 - 5 dia bar at 104 mm cover after trimming
	Specimen CPT 05A Bar number 1 - 5 dia bar at 77 mm cover before trimming
	Specimen CPT 05A Bar number 1 - 5 dia bar at 75 mm cover after trimming
	Specimen CPT 06 Bar number 1 - 6 dia bar at 73 mm cover before trimming
	Specimen CPT 06 Bar number 1 - 6 dia bar at 71 mm cover after trimming
	Specimen CPT 06 Bar number 2 - 6 dia bar at 40 mm cover before trimming
	Specimen CPT 06 Bar number 2 - 6 dia bar at 39 mm cover after trimming
	Specimen CPT 06 Bar number 3 - 6 dia bar at 40 mm cover before trimming
	Specimen CPT 06 Bar number 3 - 6 dia bar at 39 mm cover after trimming
	Specimen CPT 06 Bar number 4 - 6 dia bar at 68 mm cover before trimming
	Specimen CPT 06 Bar number 4 - 6 dia bar at 67 mm cover after trimming
	Specimen CPT 06 Bar number 5 - 7 dia bar at 63 mm cover before trimming
	Specimen CPT 06 Bar number 5 - 7 dia bar at 62 mm cover after trimming
	Specimen CPT 09 Bar number 1 - 5 dia bar at 57 mm cover before trimming
	Specimen CPT 09 Bar number 1 - 5 dia bar at 56 mm cover after trimming
	Specimen CPT 09 Bar number 2 - 5 dia bar at 53 mm cover before trimming
	Specimen CPT 09 Bar number 2 - 5 dia bar at 52 mm cover after trimming

Notes:

1. Mass per Unit Volume tested in accordance with AS1012.12.1. Results quoted to the nearest $20kgm^{-3}$
2. Compressive strength tested in accordance with AS1012.9 and AS1012.14. Results quoted to the nearest 0.5 MPa.
3. Samples were sulphur capped.
4. Sample Conditioning: Nil
5. AS1012.14 requires that cores for compressive strength be a minimum of 75mm nominal diameter and 1 : 1 length to diameter ratio.
6. This document shall not be reproduced except in full.

Signed : David Wilmshurst

David Wilmshurst
Approved Signatory
Date of Issue: 13/4/2021

Jul-18

BEMAC LABORATORIES
A Division of Mahaffey Associates Pty Ltd. ABN 90 001 629 036
Unit 9/108-110 Percival Rd. (PO Box 2162) Smithfield NSW 2164
Ph (02) 9756 4003 Fax (02) 9757 4228 Email: mahaffey@mahaffey.com.au

Client: PSM | ***Cast Date:*** -

Job Number: 20195 | ***Receipt Date:*** 1/04/21

Project: Marrickville | ***Test Date:*** 13/04/21

Material: Concrete | ***Age (Days):*** -

Specimen Type: Core | ***Sampled by:*** Client

Nominal Size (mm): 109

Test Type: Determination of the Static Chord Modulus of Elasticity and Poission's Ratio

Test Method: AS 1012.17-1997

Air Temperature (^{o} C): 21

Relative Humidity (%): 50

Actual Specimen Compressive Strength (MPa): 31.5

Compressive Stress at Test Load (MPa): 15.4

Sample Identification: CPT 07 | ***Gauge Length (mm):*** 84

Parameter	**Specimen**			
	1	***2***	***3***	***Average***
Young's Modulus (MPa)	21000	-	-	21000
Poisson's Ratio	-	-	-	-
Density (kg/m3)	2180	-	-	2180

Notes:

1) Compressive strength noted above is the average compressive strength of the companion specimens as given on a separate certificate

2) 40% test load was based on the compressive results for CPT 1, 2, 3, 4, 5, 5A, 6, 9, 10

3) Dial gauge(s) were used to determine movement in the axial and transverse directions, as appropriate

David Wilmshurst
Approved Signatory

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A Division of Mahaffey Associates Pty Ltd. ABN 90 001 629 036
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Ph (02) 9756 4003 Fax (02) 9757 4228 Email: mahaffey@mahaffey.com.au

Client: PSM

Cast Date: -

Job Number: 20195

Receipt Date: 1/04/21

Project: Marrickville

Test Date: 13/04/21

Material: Concrete

Age (Days): -

Specimen Type: Core

Sampled by: Client

Nominal Size (mm): 109

Test Type: Determination of the Static Chord Modulus of Elasticity and Poission's Ratio

Test Method: AS 1012.17-1997

Air Temperature (° C): 21

Relative Humidity (%): 50

Actual Specimen Compressive Strength (MPa): 59.0

Compressive Stress at Test Load (MPa): 15.4

Sample Identification: CPT 08

Gauge Length (mm): 117

Parameter	***Specimen***			
	1	***2***	***3***	***Average***
Young's Modulus (MPa)	41000	-	-	41000
Poisson's Ratio	-	-	-	-
Density (kg/m3)	2400	-	-	2400

Notes:

1) Compressive strength noted above is the average compressive strength of the companion specimens as given on a separate certificate

2) 40% test load was based on the compressive results for CPT 1, 2, 3, 4, 5, 5A, 6, 9, 10

3) Dial gauge(s) were used to determine movement in the axial and transverse directions, as appropriate

David Wilmshurst
Approved Signatory

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Ph (02) 9756 4003 Fax (02) 9757 4228 Email: mahaffey@mahaffey.com.au

Client: PSM

Cast Date: -

Job Number: 20195

Receipt Date: 1/04/21

Project: Marrickville

Test Date: 13/04/21

Material: Concrete

Age (Days): -

Specimen Type: Core

Sampled by: Client

Nominal Size (mm): 109

Test Type: Determination of the Static Chord Modulus of Elasticity and Poission's Ratio

Test Method: AS 1012.17-1997

Air Temperature (^{o} C): 21

Relative Humidity (%): 51

Actual Specimen Compressive Strength (MPa): 44.0

Compressive Stress at Test Load (MPa): 15.4

Sample Identification: CPT 11

Gauge Length (mm): 93

Parameter	**Specimen**			
	1	***2***	***3***	***Average***
Young's Modulus (MPa)	24000	-	-	24000
Poisson's Ratio	-	-	-	-
Density (kg/m3)	2360	-	-	2360

Notes:

1) Compressive strength noted above is the average compressive strength of the companion specimens as given on a separate certificate

2) 40% test load was based on the compressive results for CPT 1, 2, 3, 4, 5, 5A, 6, 9, 10

3) Dial gauge(s) were used to determine movement in the axial and transverse directions, as appropriate

David Wilmshurst
Approved Signatory

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Unit 9/108-110 Percival Rd. (PO Box 2162) Smithfield NSW 2164
Ph (02) 9756 4003 Fax (02) 9757 4228 Email: mahaffey@mahaffey.com.au

Client: PSM

Cast Date: -

Job Number: 20195

Receipt Date: 1/04/21

Project: Marrickville

Test Date: 13/04/21

Material: Concrete

Age (Days): -

Specimen Type: Core

Sampled by: Client

Nominal Size (mm): 109

Test Type: Determination of the Static Chord Modulus of Elasticity and Poission's Ratio

Test Method: AS 1012.17-1997

Air Temperature (^{o} C): 22

Relative Humidity (%): 51

Actual Specimen Compressive Strength (MPa): 38.5

Compressive Stress at Test Load (MPa): 15.4

Sample Identification: CPT 12

Gauge Length (mm): 78

Parameter	**Specimen**			
	1	***2***	***3***	***Average***
Young's Modulus (MPa)	33000	-	-	33000
Poisson's Ratio	-	-	-	-
Density (kg/m3)	2340	-	-	2340

Notes:

1) Compressive strength noted above is the average compressive strength of the companion specimens as given on a separate certificate

2) 40% test load was based on the compressive results for CPT 1, 2, 3, 4, 5, 5A, 6, 9, 10

3) Dial gauge(s) were used to determine movement in the axial and transverse directions, as appropriate

David Wilmshurst
Approved Signatory

Appendix C
Concrete core photos

Photo 1: Concrete core CPT01

Hale Capital Partners **42 Raymond Avenue** **Matraville NSW** **Detailed Geotechnical Investigation** **Concrete Core CPT01**	
PSM4375-003L	**Appendix C**

Photo 2: Concrete core CPT02

Hale Capital Partners
42 Raymond Avenue
Matraville NSW
Detailed Geotechnical Investigation
Concrete Core CPT02

PSM

PSM4375-003L	Appendix C

Photo 3: Concrete core CPT03

Hale Capital Partners
42 Raymond Avenue
Matraville NSW
Detailed Geotechnical Investigation
Concrete Core CPT03

PSM4375-003L	**Appendix C**

Photo 4: Concrete core CPT04

Hale Capital Partners 42 Raymond Avenue Matraville NSW Detailed Geotechnical Investigation Concrete Core CPT04	
PSM4375-003L	Appendix C

Photo 5: Concrete core CPT05

Hale Capital Partners
42 Raymond Avenue
Matraville NSW
Detailed Geotechnical Investigation
Concrete Core CPT05

PSM4375-003L	Appendix C

Photo 6: Concrete core CPT05A

Hale Capital Partners **42 Raymond Avenue** **Matraville NSW** **Detailed Geotechnical Investigation** **Concrete Core CPT05A**	
PSM4375-003L	**Appendix C**

Photo 7: Concrete core CPT06

Hale Capital Partners **42 Raymond Avenue** **Matraville NSW** **Detailed Geotechnical Investigation** **Concrete Core CPT06**	
PSM4375-003L	**Appendix C**

Photo 8: Concrete core CPT07

Hale Capital Partners
42 Raymond Avenue
Matraville NSW
Detailed Geotechnical Investigation
Concrete Core CPT07

PSM4375-003L	**Appendix C**

Photo 9: Concrete core CPT08

Hale Capital Partners
42 Raymond Avenue
Matraville NSW
Detailed Geotechnical Investigation
Concrete Core CPT08

PSM4375-003L	**Appendix C**

Photo 10: Concrete core CPT09

Hale Capital Partners **42 Raymond Avenue** **Matraville NSW** **Detailed Geotechnical Investigation** **Concrete Core CPT09**	
PSM4375-003L	**Appendix C**

Photo 11: Concrete core CPT10

Hale Capital Partners
42 Raymond Avenue
Matraville NSW
Detailed Geotechnical Investigation
Concrete Core CPT10

PSM4375-003L	**Appendix C**

Photo 12: Concrete core CPT11

PSM	**Hale Capital Partners** **42 Raymond Avenue** **Matraville NSW** **Detailed Geotechnical Investigation** **Concrete Core CPT11**	
	PSM4375-003L	**Appendix C**

Photo 13: Concrete core CPT12

Hale Capital Partners **42 Raymond Avenue** **Matraville NSW** **Detailed Geotechnical Investigation** **Concrete Core CPT12**	
PSM4375-003L	**Appendix C**

Appendix D
Results of soil aggressivity testing

CERTIFICATE OF ANALYSIS

Work Order	: **ES2111988**	Page	: 1 of 2
Client	: **PELLS SULLIVAN MEYNINK T/A PSM Admin PTY LTD**	Laboratory	: Environmental Division Sydney
Contact	: Juno Liang	Contact	: Customer Services ES
Address	: G3, 56 DELHI ROAD NORTH RYDE NSW, AUSTRALIA 2113	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: PSM4375	Date Samples Received	: 01-Apr-2021 10:44
Order number	: ----	Date Analysis Commenced	: 06-Apr-2021
C-O-C number	: ----	Issue Date	: 12-Apr-2021 16:45
Sampler	: DDC		
Site	: ----		
Quote number	: EN/333		
No. of samples received	: 3		
No. of samples analysed	: 3		

Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Ankit Joshi	Inorganic Chemist	Sydney Inorganics, Smithfield, NSW
Celine Conceicao	Senior Spectroscopist	Sydney Inorganics, Smithfield, NSW

General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	CPT05A 0.15-0.25m	CPT05A 0.25-1.0m	CPT05A 1.0-1.5m	----	----
			Sampling date / time	30-Mar-2021 00:00	30-Mar-2021 00:00	30-Mar-2021 00:00	----	----
Compound	CAS Number	LOR	Unit	ES2111988-001	ES2111988-002	ES2111988-003	--------	--------
				Result	Result	Result	----	----
EA002: pH 1:5 (Soils)								
pH Value	----	0.1	pH Unit	**6.9**	**4.9**	**5.2**	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	**5.1**	**1.4**	**1.3**	----	----
ED040S : Soluble Sulfate by ICPAES								
Sulfate as SO4 2-	14808-79-8	10	mg/kg	**80**	**20**	<10	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	10	mg/kg	<10	<10	<10	----	----