INITIA

GEOTECHNICAL SPECIALISTS

GREENSTONE LAND DEVELOPMENTS LIMITED

STAGE 11, LYNDHURST SUBDIVISION, HASTINGS

GEOTECHNICAL COMPLETION REPORT

INITIA REF P-000828 REV B

JULY 2020

Contents

1. Introduction

Initia Limited (Initia) was engaged by Greenstone Land Developments Limited (Greenstone) to provide geotechnical consultancy services in relation to the Stage 11 of proposed Lyndhurst Subdivision at 574 Lyndhurst Road, Frimley, Hastings[1]. The legal description of the site is LOT 400 DP 541537.

As shown on the Zorn Surveying fill depth plan[2] attached in Appendix A, earthworks including the placement of engineered fill up to 1.5 m depth has been completed for most of the site. Initia has recently carried out a geotechnical site investigation for the Stage 11 area (refer the investigation plan attached in Appendix B).

This report summarises and collates the results of all the investigations and testing associated with the bulk earthworks that have been undertaken to prepare the Stage 11 site for the residential subdivision.

The scope of this report is limited to the following:

- Bulk earthworks for the Stage 11 Lots (Lots 69 and 92 – 103), and
- Geotechnical investigations, assessment, and recommendations for future building design.

This geotechnical completion report has been prepared to accompany a "Statement of Professional Opinion on Suitability of Land for Construction" This is provided in Section 6.

[1] Initia Ltd (28 May 2020). *Proposal for Geotechnical Consultancy Services – Stage 11 & 12, Lyndhurst Subdivision, Hastings.* Ref P-000829.
[2] Zorn Surveying (25 March 2020). *Engineered Fill Survey Depths.* Ref J001255.

2. Background

2.1 General

The site at Lyndhurst has previously been used for as agricultural land with a shed located in the eastern area of Stage 11. The Hawkes Bay expressway is present to the north of Stage 12. A farming block is located on the southern boundary and is occupied by a residential dwelling and sheds.

2.2 Resource Consent

A Resource Consent for the subdivision has been granted. All the previous geotechnical work carried out at the site was undertaken by Resource Development Consultants Limited (RDCL).

RDCL are no longer involved with the project and Initia were engaged by Greenstone to provide on-going geotechnical support and certification for the Stages 11 and 12.

2.3 Previous Geotechnical Reporting

Geotechnical Investigations (5 No. Cone Penetration Tests – CPTs) within the Stage 11 and 12 areas have been previously undertaken by RDCL[3]. Particularly, two of the CPTs were undertaken within the Stage 11 area.

The existing investigation data indicates that the site is typically underlain by interbedded alluvial deposits comprising clays, silts and sands. A shallow dense gravel layer has been identified in certain location across the Lyndhurst subdivision. The CPTs have been unable to penetrate this layer.

2.4 Recent Investigations

On 10 and 11 June 2020, Initia carried out 25 No. CPTs and 13 No. hand auger boreholes within the Stage 11 area to provide Greenstone with a geotechnical completion report for subdivision. This document will provide potential purchasers of each lot with the required geotechnical information to enable a Building Consent Application to be submitted to Hastings District Council.

7 No. of the Initia CPTs were pushed down to the target depth of 15 m below ground level and the other 18 No. CPTs reached refusal due to high cone resistance q_c (greater than 20 MPa) at variable depths of 3 to 9.6 m below ground level.

The Initia test locations are shown on the investigation plan attached in Appendix B and the investigation logs are attached in Appendix C and D. This data combined with the original RDCL investigations forms the basis of this report.

During the recent investigation, the groundwater levels were measured in the CPTs and were generally at approximately 3 m below the surface. We have adopted a design groundwater level of 2.5 m for the purpose of liquefaction analysis.

[3] Resource Development Consultants Limited (12 December 2019). Report on: *Stage 10, Lyndhurst Road Subdivision, Frimley, Hastings – Lots 163 to 178 (Excluding Lot 171).* Project: *Geotechnical Assessment.* Ref R_183970602C_01.

3. Earthworks

The earthworks were undertaken by Santo Drainage & Contracting Ltd and compaction testing was carried out by WSP OPUS (WSP).

3.1 Granular Fill Area

We have been informed from the client that granular materials ("red metal") were used for filling in an area including Lots 69, 94 and 95 within Stage 11. However, we have not been provided with a detailed construction record of filling, but the investigation did record some high ground strengths and these are discussed below.

3.1.1 Lot 69

The hand auger borehole at Lot 69 encountered TOPSOIL overlying very stiff gravelly SILT before the refusal was reached at 0.5 m below ground level.

Initia CPT11 and CPT12 were undertaken within Lot 69. Both CPTs indicated a dense layer of coarse-grained material from 0.5 to 1 m below ground level which is inferred to be the compacted red metal layer.

3.1.2 Lot 94

The hand auger borehole at Lot 94 encountered sandy SILT with trace pumice before the refusal was reached at 0.7 m below ground level.

Initia CPT13 and CPT14 were undertaken within Lot 94. CPT13 indicated a dense layer of coarse-grained material from 0.7 to 1.2 m below ground level which is inferred to be the red metal layer. However, this dense layer was not encountered by CPT14.

3.1.3 Lot 95

The hand auger borehole at Lot 95 encountered SILT with trace sand and gravel before refusal was reached at 0.6 m below ground level.

Initia CPT09 and CPT10 were undertaken within Lot 95. Both CPTs indicated a dense layer of coarse-grained material from approximately 0.5 to 1 m below ground level which is inferred to be the red metal layer.

3.2 Silt Fill Area

We understand that the fill materials placed in Lots 92, 93 and 96 – 103 were dominantly SILT from the Te Aute Road Havelock North Rymans site. The hand auger boreholes at these lots generally encountered stiff to very stiff SILT or sandy SILT beneath a thin layer of topsoil. The maximum depth of these hand auger boreholes was 3 m below ground level.

The Initia CPTs within these lots generally recorded an average q_c of approximately 5 MPa between depths of 0.3 to 1.5 m below ground level, indicating a good level of compaction.

3.3 Compaction Testing

A copy of the compaction test results was provided to Initia for review. We note that WSP did not provide oven dried moisture content for the Nuclear Densometer (NDM) testing. They have relied on the NDM alone. In addition, we have only been provided with a single point compaction result. Accordingly, it is difficult to fully assess the compaction of the engineered fill at the site.

4. Geotechnical Considerations

4.1 General

Recommendations and opinions contained in this report are based on the data provided by numerous sources including RDCL and Initia, using a variety of investigation techniques including:

- CPTs
- Hand auger boreholes

All the tests were undertaken at discrete point locations. Inferences about the nature and continuity of the subsoils away from the test locations are made however it must be appreciated that actual conditions could vary from the assumed model. It is important that Initia be informed immediately if differing ground conditions are encountered during the construction process.

4.2 Overall Site Stability

Due to the generally flat topography of the Stage 11 site, the overall stability of the site is not considered to be an issue. Seismic stability of the ground is addressed in the relevant building zone sections.

4.3 Site seismicity and subsoil class

Based on the previous and recent geotechnical investigations at the site and in the adjacent area, we consider that the site subsoil class should be classified as Class D – Deep or Soft Soil Site, in accordance with NZS1170.5 (2004)[4].

For determination of the design Peak Ground Acceleration (PGA), we have assumed an Importance Level 2 and a 50-year design life for the future developments. These assumptions should be confirmed by the specific project Structural Engineer.

Based on the above assumptions and in accordance with NZS1170.0 (2002)[5], the annual probabilities of exceedance for design earthquakes are 1/500 (500 years return period) and 1/25 (25 years return period) for Ultimate Limit States (ULS) and Serviceability Limit States (SLS) respectively.

Based on the assessment by GNS Science[6], the PGAs and average magnitude of an earthquake contributing to PGA for ULS and SLS design are presented in Table 3-1 below.

Table 4-1 Design PGA and average magnitude of an earthquake contributing to PGA

Limit States	Return Period	PGA	Average Magnitude
ULS	500 years	0.42g	6.5
SLS	25 years	0.14g	6.2

Note: The design PGAs have been based on an Importance Level 2 structure and a 50-year design life.

4.4 Liquefaction susceptibility

The liquefaction susceptibility of the underlying material at the Stage 11 site has been assessed using the results of the Initia 2020 Investigations as well as considering the results and conclusions in RDCL 2019 report.

[4] New Zealand Standard NZ 1170.5:2004 Structural Design Actions: Part 5: Earthquake actions – New Zealand.
[5] New Zealand Standard NZ 1170.0:2002 Structural Design Actions: Part 0: General Principles.
[6] GNS Science (October 2017), Consultancy Report 2015/186: *Assessment of liquefaction risk in the Hawke's Bay.*

A CPT-based liquefaction analysis has been carried out using the computer programme CLiq v.2.3[7] on the recent Initia CPTs. The adopted analysis method is based on the study by Boulanger and Idriss (2014).

The analysis indicates that the liquefaction susceptibility during the SLS design event is low across the site. For the ULS design event, the liquefaction susceptibility is estimated to be moderate to high across the site. The analysis also indicates that up to 160 mm of liquefaction induced settlement may occur in a ULS design earthquake event. However, the 2.5 m crust above groundwater level will likely form a 'cap' to reduce the effects of liquefaction observed at the surface.

The main output from the ULS liquefaction analysis is attached in Appendix E.

4.5 Building Zones

Given the investigated engineered fill conditions with respect to the consequence of potential liquefaction, we have classified the site into two distinct areas based on the results of our geotechnical assessment of all the available data.

1. Building Zone A
2. Building Zone B

We have provided recommendations for each building zone in the following sections. These recommendations are applicable to single level lightweight residential buildings.

4.5.1 Building Zone A – Geotechnical Considerations

General

Building Zone A only refers to the following Lots

- Lot 69
- Lot 95

In general, the recent investigation undertaken in these lots confirmed that a gravel layer was placed and compacted as part of the earthworks. This dense non-liquefiable layer will mitigate the effects of liquefaction withing these lots.

Foundations

Based on presence of compacted gravel layer within Building Zone A, and the results of the recent investigation, we recommend that shallow pad/strip footings may be adopted for single level lightweight residential developments on Lots 69 and 95. The shallow pad/strip footings should be designed with the following bearing capacities, for a maximum foundation size of 1 m width:

- Geotechnical ultimate bearing capacity 300kPa
- ULS factored bearing capacity 150kPa
- Allowable bearing capacity 100kPa

Given the high liquefaction risk at this site, in the event of a ULS earthquake event, we recommend that all foundations (pads) are tied together to limit differential settlements. This also prevents the building from 'pulling apart' in a large earthquake.

Alternatively, a structural raft foundation such as "rib raft" foundation or other propriety system may also be utilised within Building Zone A. We understand that raft foundations have been used extensively in the Lyndhurst Subdivision.

[7] Geologismiki (2020), *CPeT-IT - detailed software package for the interpretation of Cone Penetration Test (CPTu) data.*

4.5.2 Building Zone B – Geotechnical Considerations

General

Building Zone B only refers to the following Lots (total 11 No. Lots)

- Lots 92 – 94
- Lots 96 – 103

In general, the recent hand auger boreholes undertaken in these lots encountered stiff to very stiff SILT or sandy SILT engineered fill beneath a thin layer of topsoil.

Gravel Raft

Given the absence of the compacted gravel fill within Building Zone B, we recommend that the existing ground be undercut by 600 mm and backfilled with imported hardfill and compacted to form a gravel raft beneath the building platform. The horizontal extent of gravel raft should be at least 1 m outside perimeter of the building.

The imported hardfill should be placed and compacted in maximum 200mm layers using a smooth drum roller. The supplier of the hardfill should provide a NZ Heavy Compaction curve for the material which indicates the Maximum Dry Density (MDD). The following testing should be carried out to ensure adequate compaction is being achieved:

- 95 % of MDD
- Clegg Impact values (CIV) greater than 20

Testing should be carried on a 5m grid on every 2nd lift and on the final surface.

Two layers of geogrid should be placed at the base of the excavation and at the mid-height of the gravel raft.

Foundations

Then shallow pad/strip footings may then be adopted on the completed gravel raft for single level lightweight residential developments on Lots 92 – 94 and 96 – 103.

The shallow pad/strip footings on gravel raft should be designed with the following bearing capacities, for a maximum foundation size of 1 m width:

- Geotechnical ultimate bearing capacity 300kPa
- ULS factored bearing capacity 150kPa
- Allowable bearing capacity 100kPa

Given the high liquefaction risk at this site, in the event of a ULS earthquake event, we recommend that all foundations (pads) are tied together to limit differential settlements. This also prevents the building from ‘pulling apart’ in a large earthquake.

Alternatively, a structural raft foundation such as “rib raft” foundation or other propriety system may also be utilised within Building Zone B. As mentioned previously, raft foundations have been used extensively in other stages of the subdivision.

5. Recommendations

The geotechnical investigations have established that the Stage 11 of Lyndhurst is suitable for residential development in accordance with the conclusions and recommendations outlined in this geotechnical completion report.

The main point is that certain Lots fall within building zones with different development recommendations in respect to foundation preparation and design. These lot categories are as follows:

- Building Zone A – Lots 69 and 95;
- Building Zone B – Lots 92 – 94 and 96 – 103.

We recommend that the Hastings District Council adopt this classification when assessing individual Building Consent Applications for the site.

6. Statement of Professional Opinion as to the suitability of land for building development

6.1 Statement

I, Andy Pomfret of Initia Limited, 13/114 St Georges Bay Rd, Parnell, Auckland hearby confirm that:

I am a Professional Engineer experienced in the field of geotechnical engineering and was engaged by the developer, Greenstone Land Developments Limited as the Geotechnical Engineer on the "Stage 11 of Lyndhurst Subdivision, Hastings" project located on Lyndhurst Road, Frimley, Hastings. Refer to the plans contained within Appendix A and Appendix B for the extent of the works covered under this statement.

On the basis of our observations and inspections together with the information provided by others, it is my professional opinion, not to be construed as a guarantee that:

- The earth fill shown on the attached Zorn Surveying Plan (J001255) have been generally placed in compliance with the project specifications.
- The completed earthworks give due regard to land slope stability and foundation consideration providing the recommendations outlined in this Geotechnical Completion Report are followed.

6.2 Unexpected Ground Conditions

Our assessment is based on interpolation between site observations and periodic earthwork control visits by others. Local variations in ground conditions may occur leading to unfavourable ground conditions. It is important that we are contacted in this eventuality, or if any variation of subsoil conditions from those described in this report are found. Design assistance is available as required to accommodate any unforeseen ground conditions present.

7. Applicability

This report has been prepared for the exclusive use of our client, Greenstone Land Developments Limited and Hastings District Council, with respect to the brief provided to us and it may not be relied upon in any other contexts or for any other purpose, or by any person other than our client, without prior written agreement.

We note that only a representative sample of earthworks were reviewed by Initia and therefore we are relying on the contractor's PS3 for compliance with design. No liability is accepted for any omissions represented by those documents. The contractors PS3 is presented in Appendix F. The advice and recommendations presented in this report should not be applied to any other project or used in any other context without prior written approval from Initia Limited.

Report prepared by:

Andy Pomfret
Senior Geotechnical Engineer

Report reviewed by:

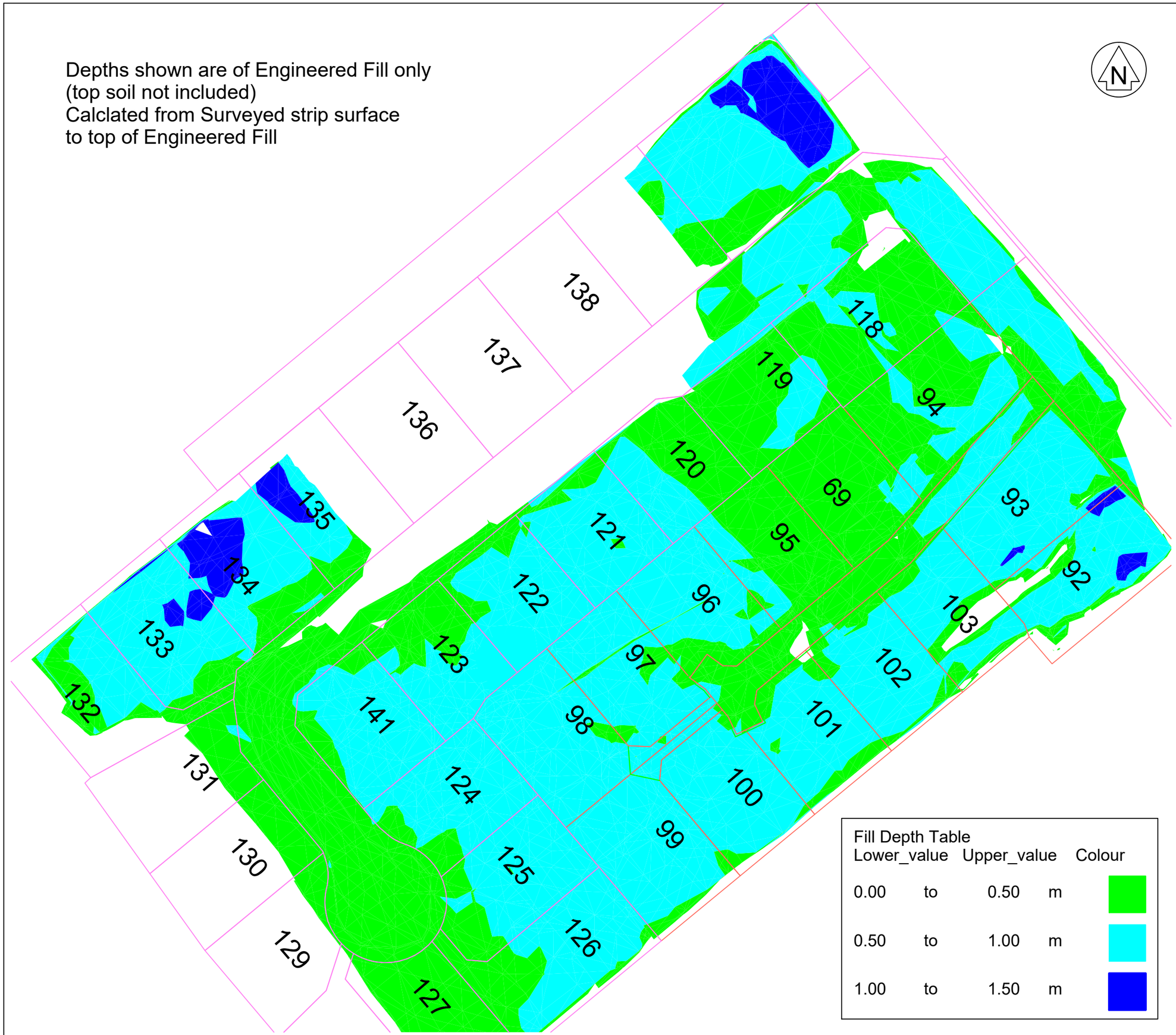
Matt Wansbone
Senior Geotechnical Engineer

Document control record

Report Title		Stage 11, Lyndhurst Subdivision, Hastings GEOTECHNICAL Completion REPORT			
Initia Project Reference		P-000828			
Client		Greenstone Land Developments Limited			
Revision	Date	Revision detail	Author	Reviewer	Approved by
A	20/07/20	Draft for client review	A. Pomfret	M. Wansbone	A. Pomfret
B	21/07/20	Final	A. Pomfret	M. Wansbone	A. Pomfret
Current Revision		B			

Appendix A: Earthworks Plan – As Builts

Depths shown are of Engineered Fill only
(top soil not included)
Calclated from Surveyed strip surface
to top of Engineered Fill



Fill Depth Table

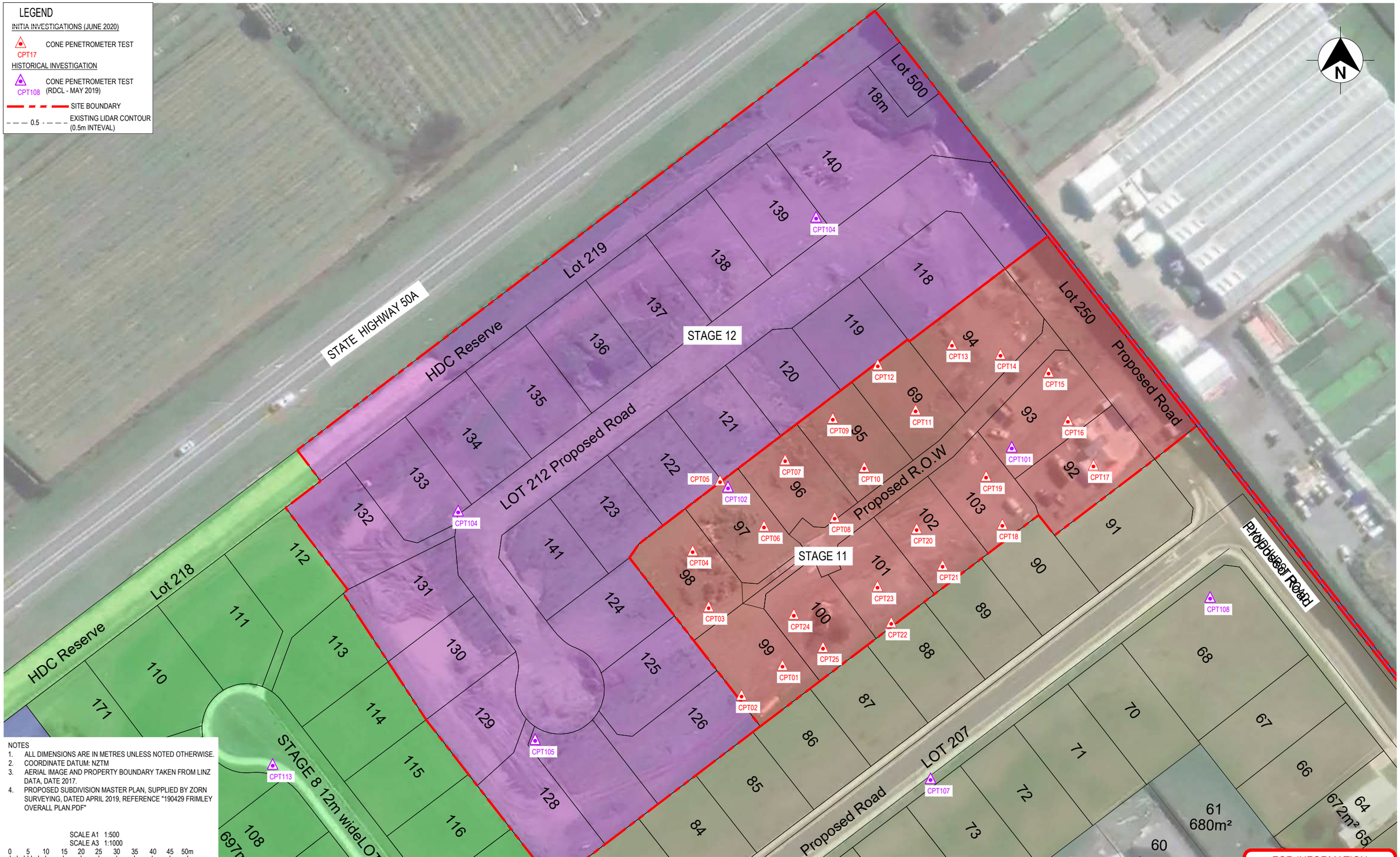
Lower_value		Upper_value		Colour
0.00	to	0.50	m	
0.50	to	1.00	m	
1.00	to	1.50	m	

SANTO CONSTRUCTION
C/O GLDL
ENGINEERED FILL
SURVEYED DEPTHS

DATE : 25/03/2020
SCALE : 1:750 @ A3
DRAWN BY : R.Mac
JOB NO. : J001255
PLAN NO. : EFD

ZORN SURVEYING Ltd
9 Severn Street, Pandora, Napier
PO Box 1006 Napier
Phone 06 835 2360
Web www.zornsurveying.co.nz
Email ryan@zornsurveying.co.nz

Appendix B: Geotechnical Investigation Plan



NOTES
1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATE DATUM: NZTM
3. AERIAL IMAGE AND PROPERTY BOUNDARY TAKEN FROM LINZ DATA, DATE 2017.
4. PROPOSED SUBDIVISION MASTER PLAN, SUPPLIED BY ZORN SURVEYING, DATED APRIL 2019, REFERENCE "190429 FRIMLEY OVERALL PLAN.PDF"

SCALE A1 1:500
SCALE A3 1:1000
0 5 10 15 20 25 30 35 40 45 50m

FOR INFORMATION

Rev	Revision Description	Designed	Drawn	Checked
A	FIRST ISSUE (22/06/2020)	AP	JG	AP

NOT FOR CONSTRUCTION
THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED
APPROVED:
DATE:
Scale AS SHOWN Original Size A3

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GREENSTONE LAND DEVELOPMENTS LIMITED

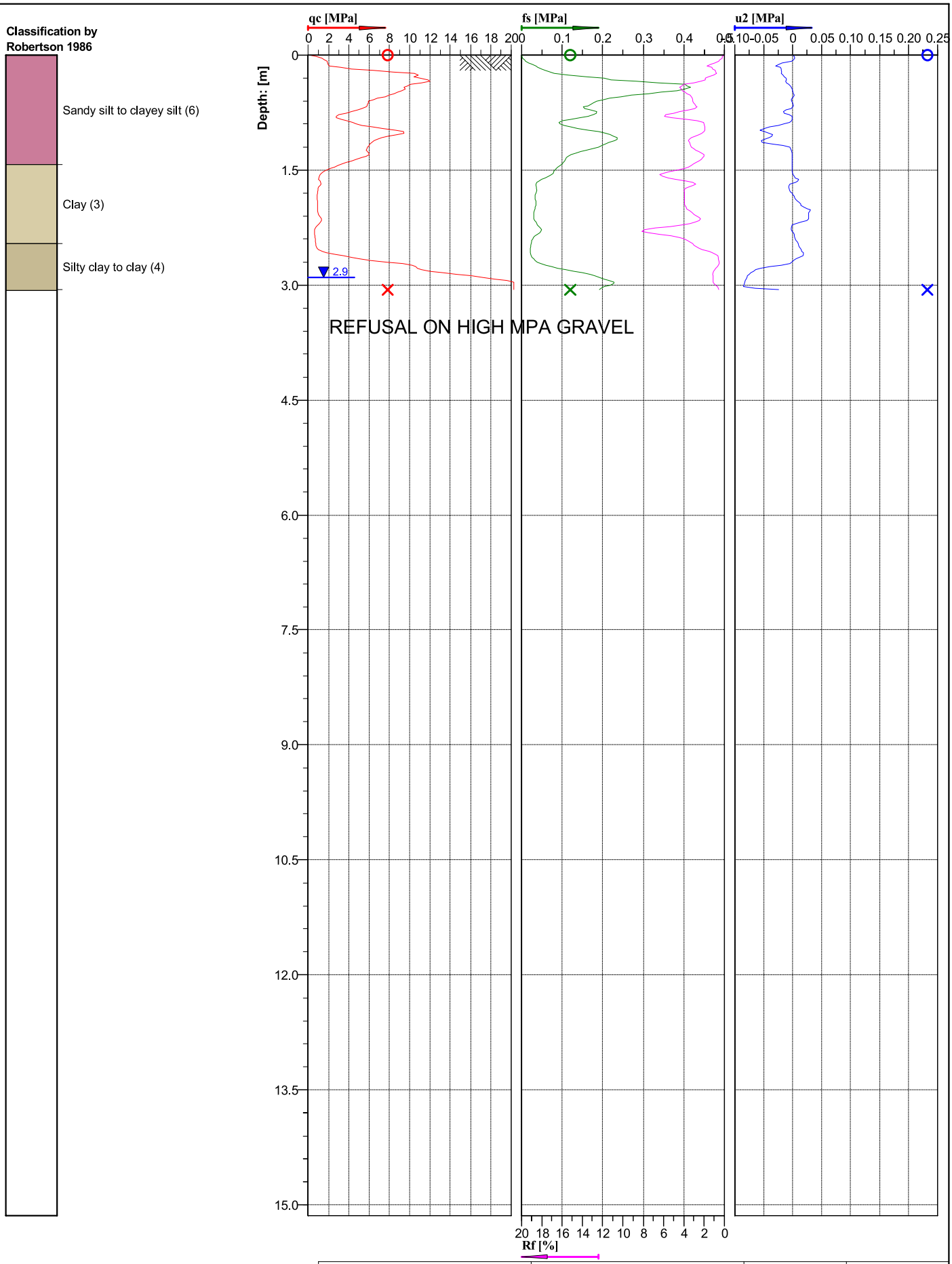
STAGE 11 & 12, LYNDHURST SUBDIVISION, HASTINGS

GEOTECHNICAL INVESTIGATION LOCATION PLAN

Initia Project ref: P000828
Figure Number 828-001
Revision A

C:\USERS\JULIE\INITIA LIMITED\INITIA LIMITED TEAM SITE - PROJECTS\P-000828 - LYNDHURST SUBDIV, HASTINGS\CAD\2. WORKING FILES\828-001.DWG 6/22/2020 1:54 PM

Appendix C: Initia CPT Logs



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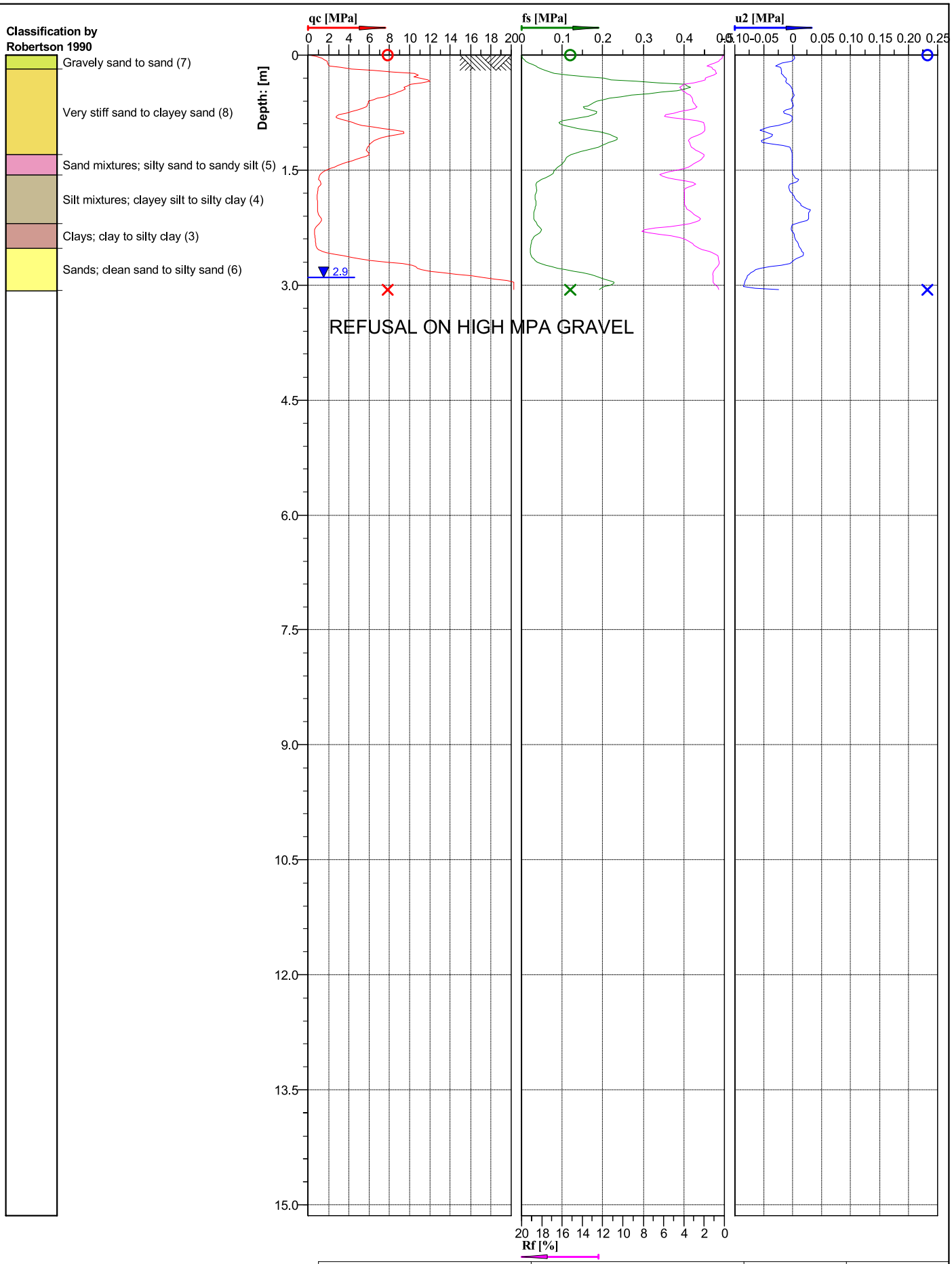

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GEOTECH DRILLING

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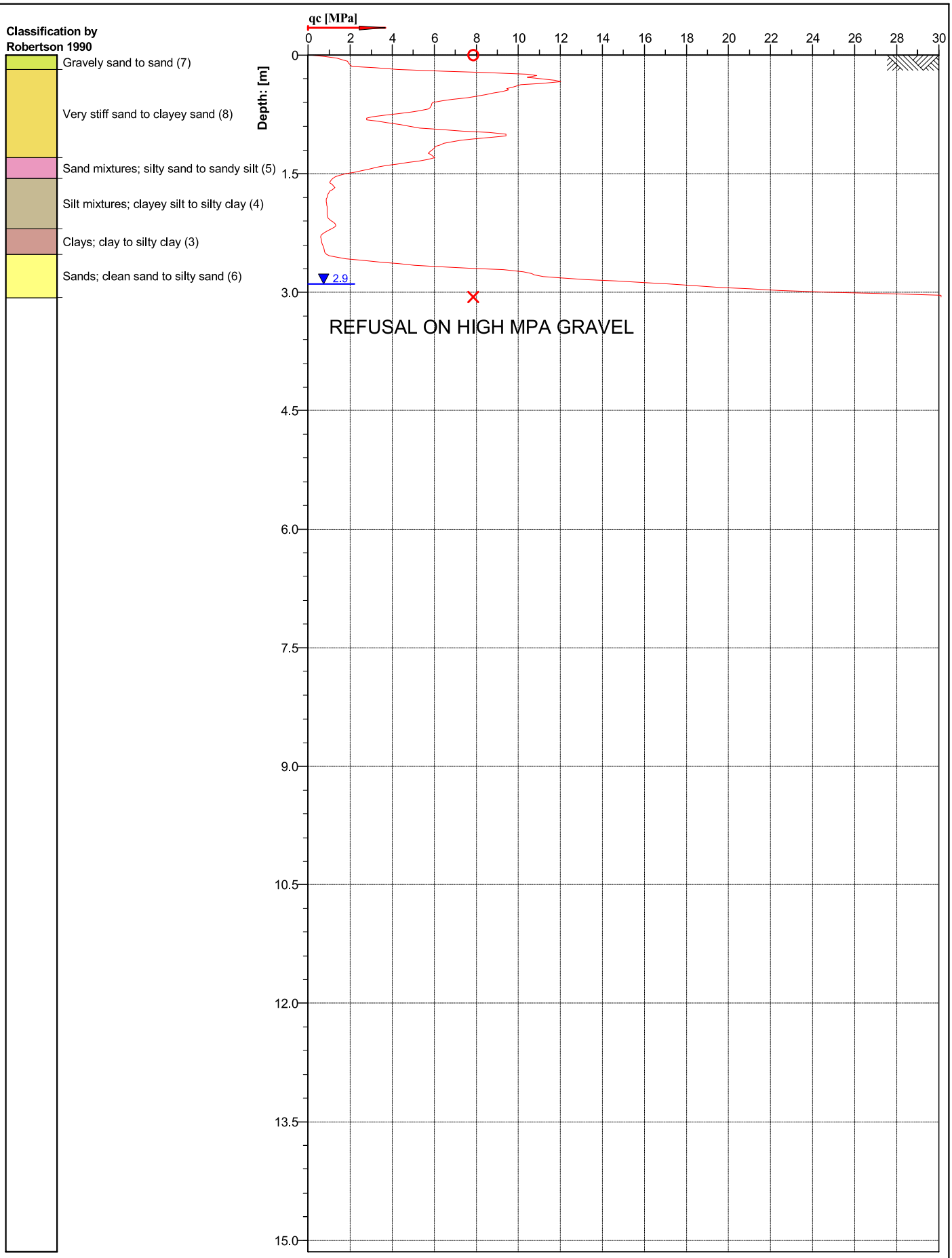

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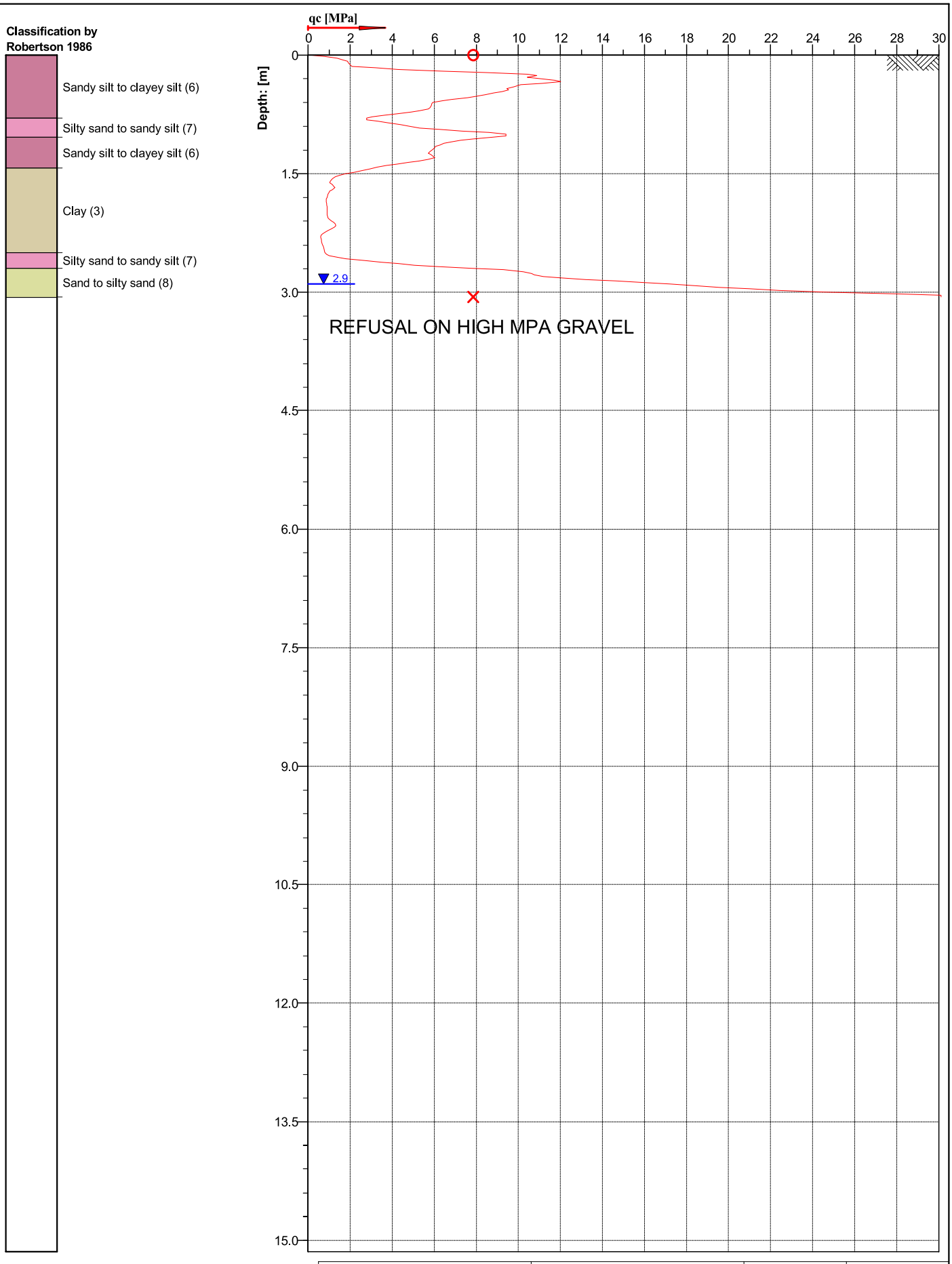

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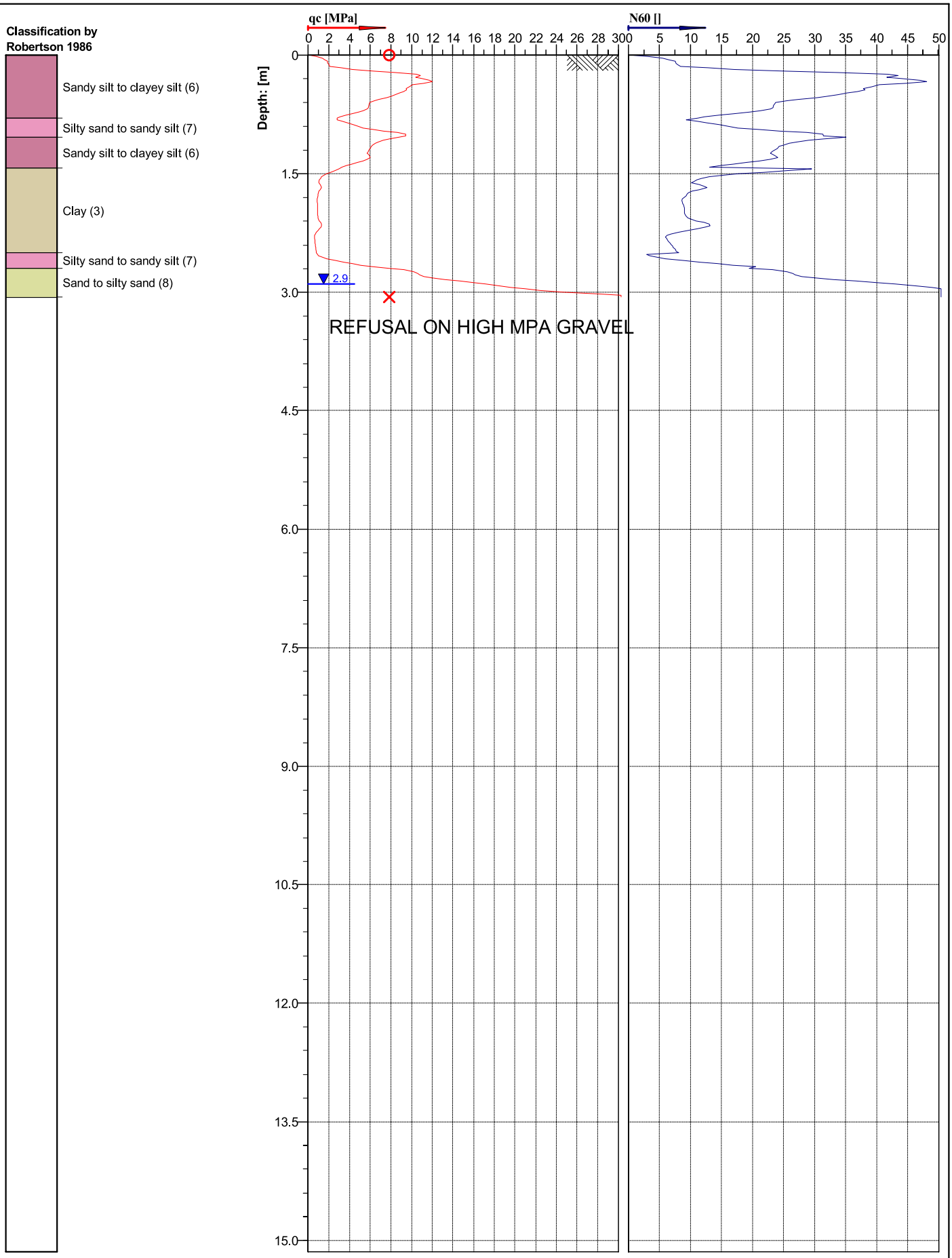

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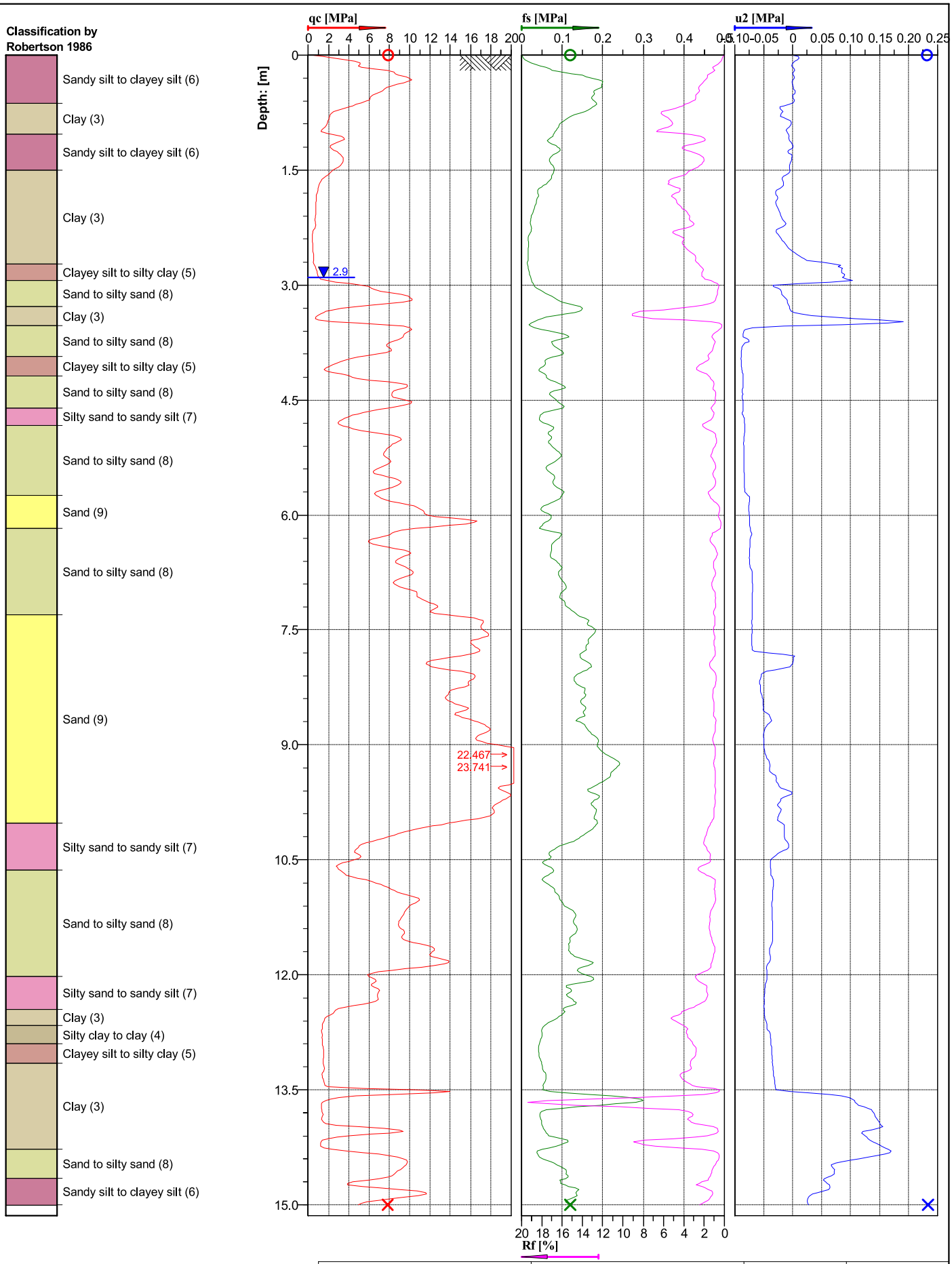

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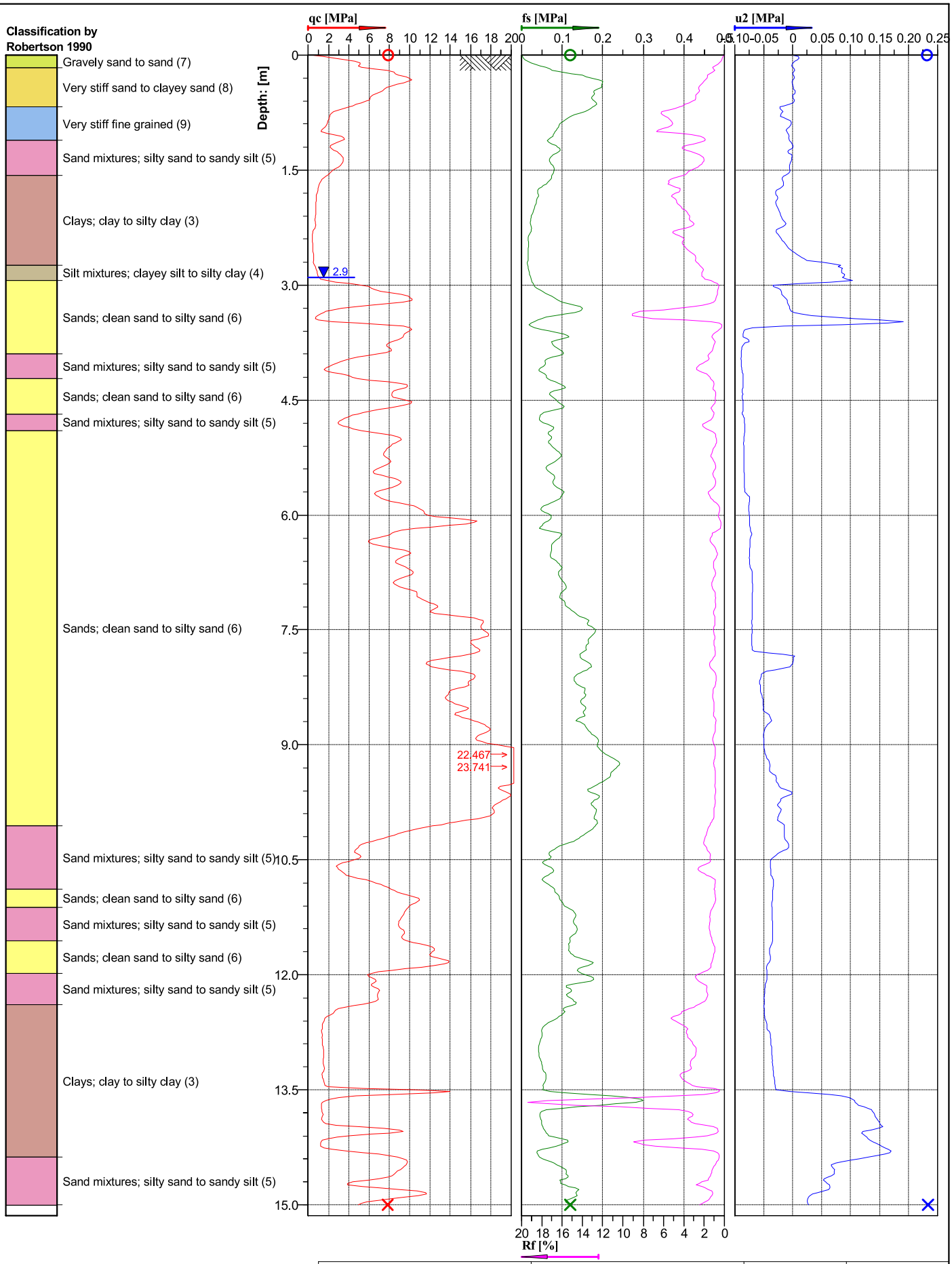

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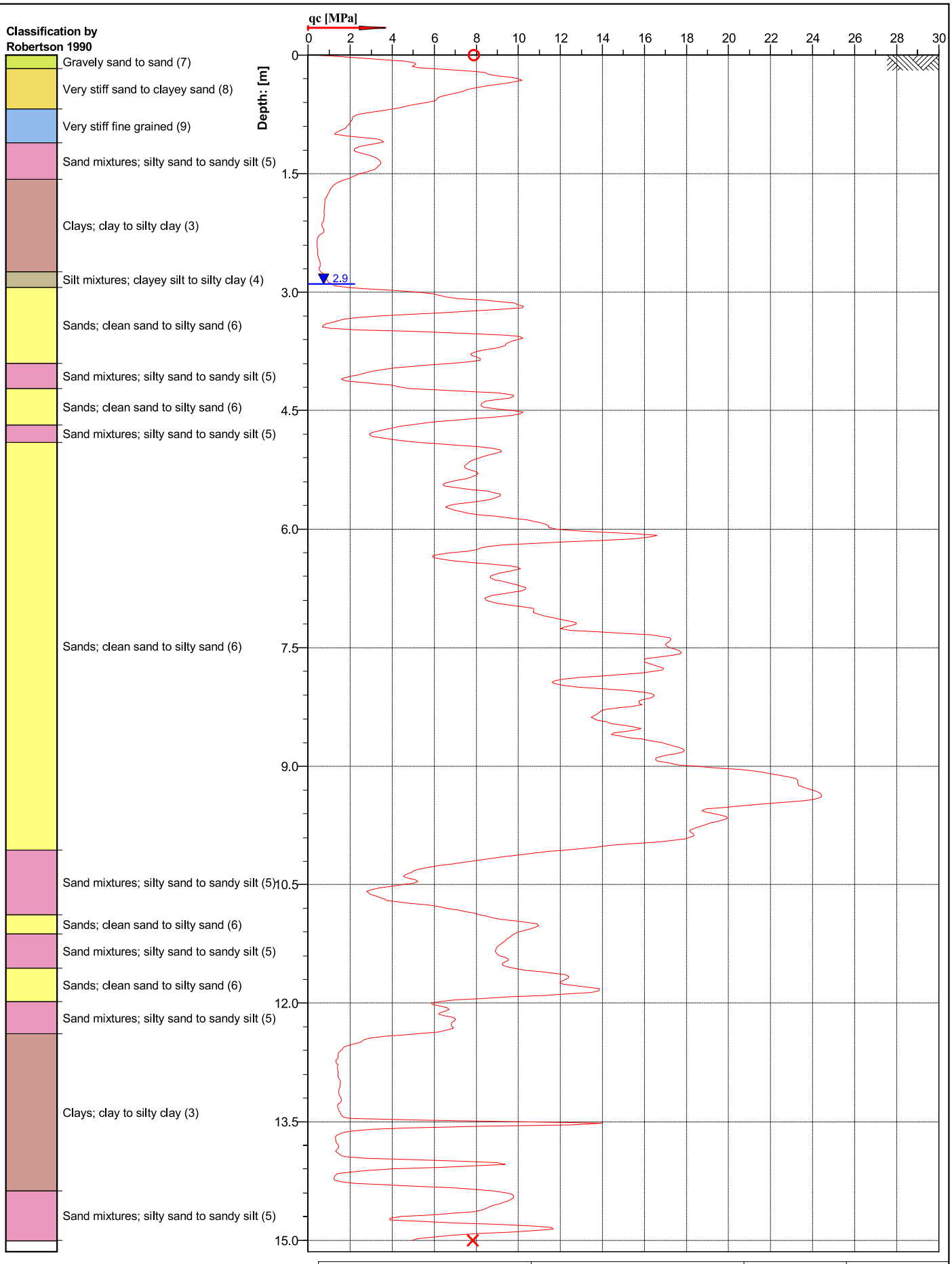

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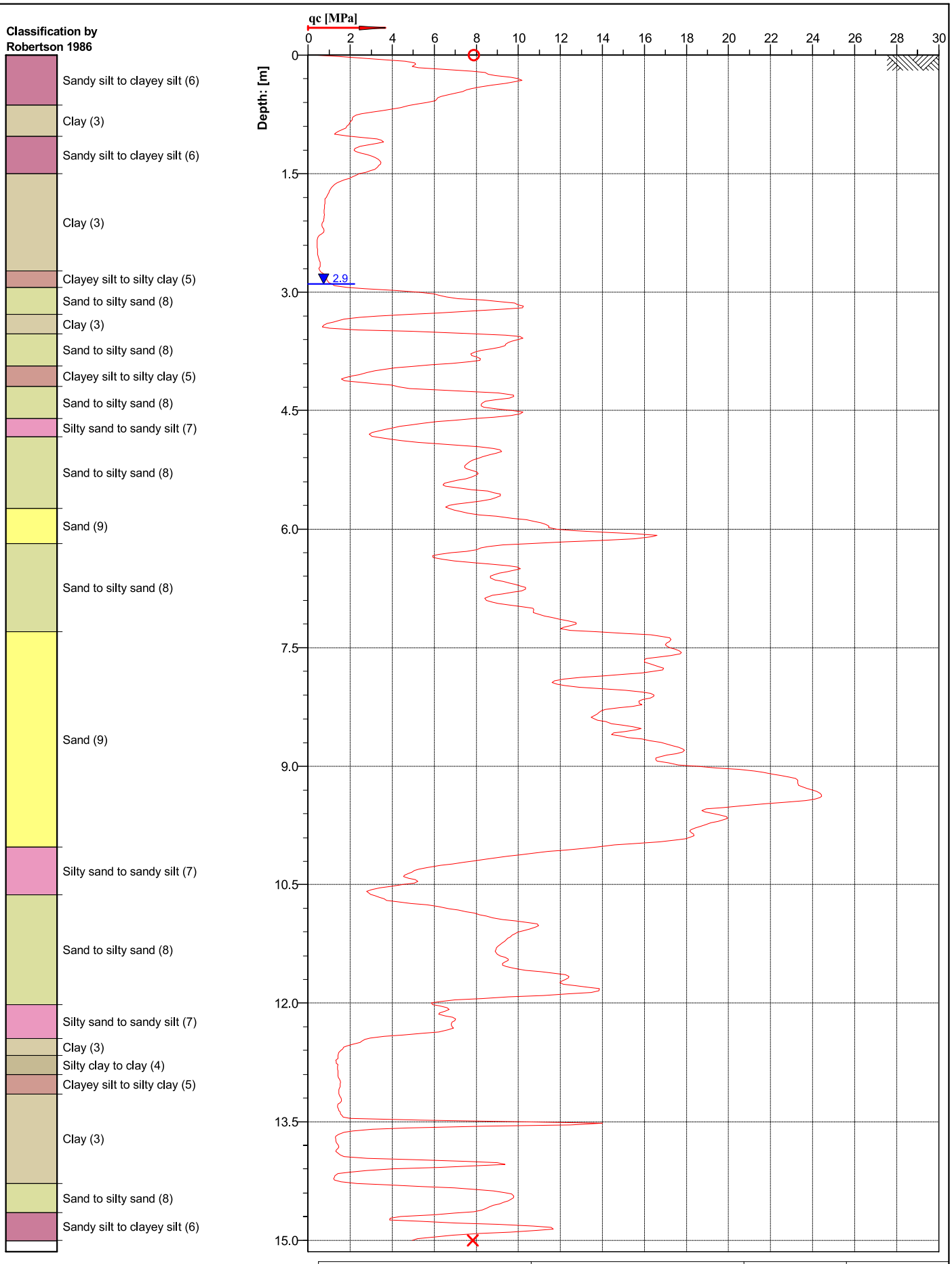

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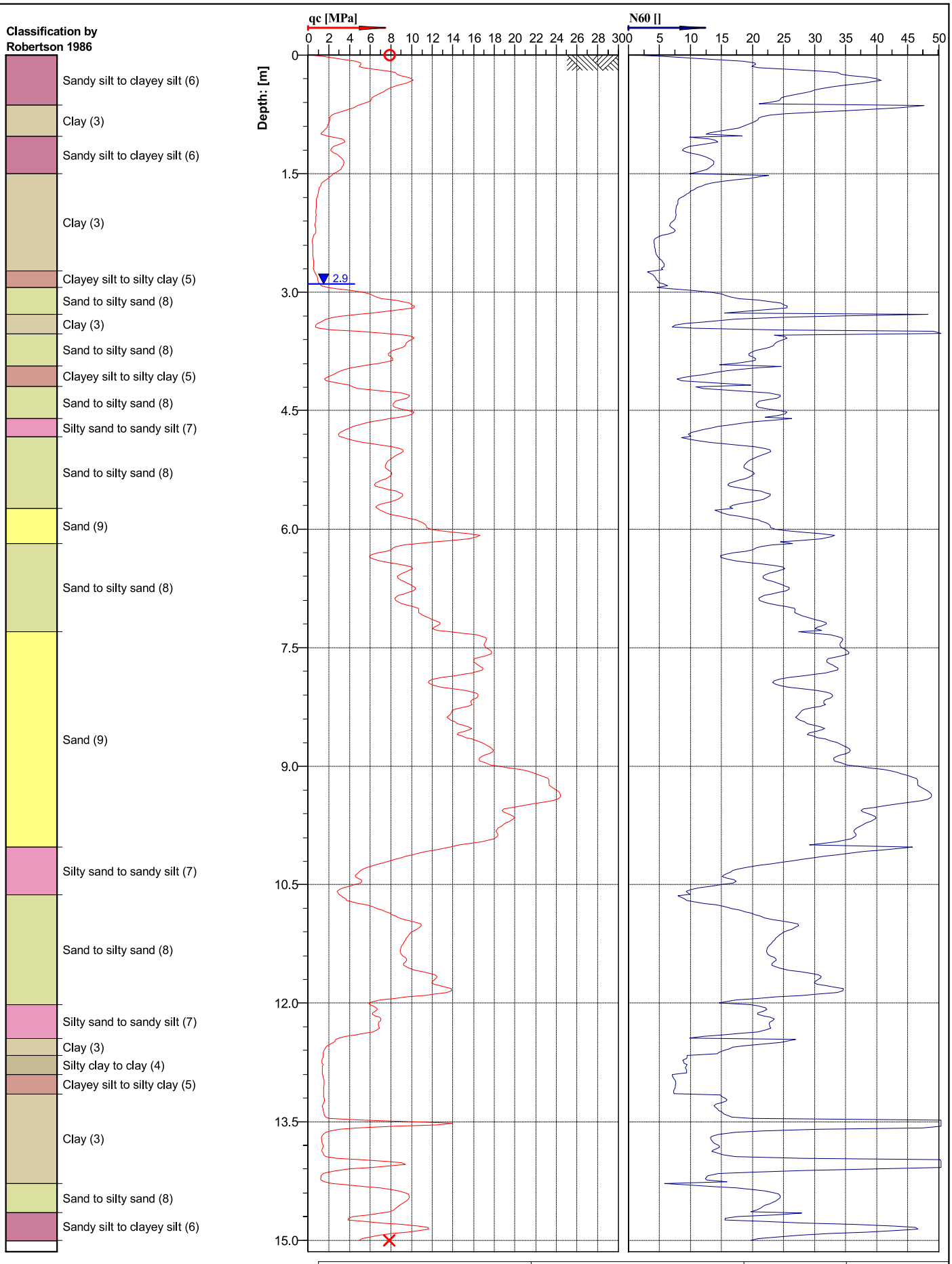

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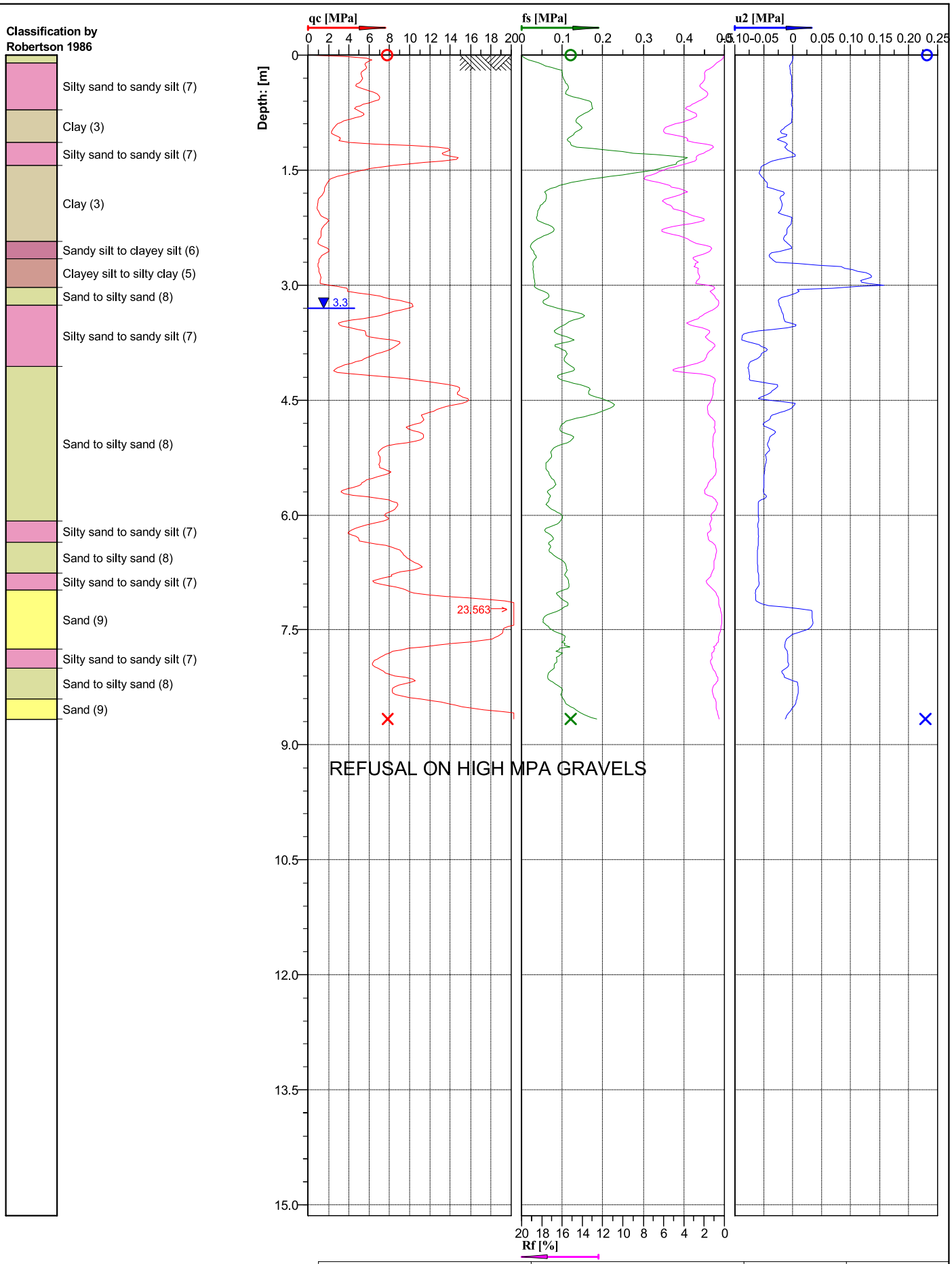

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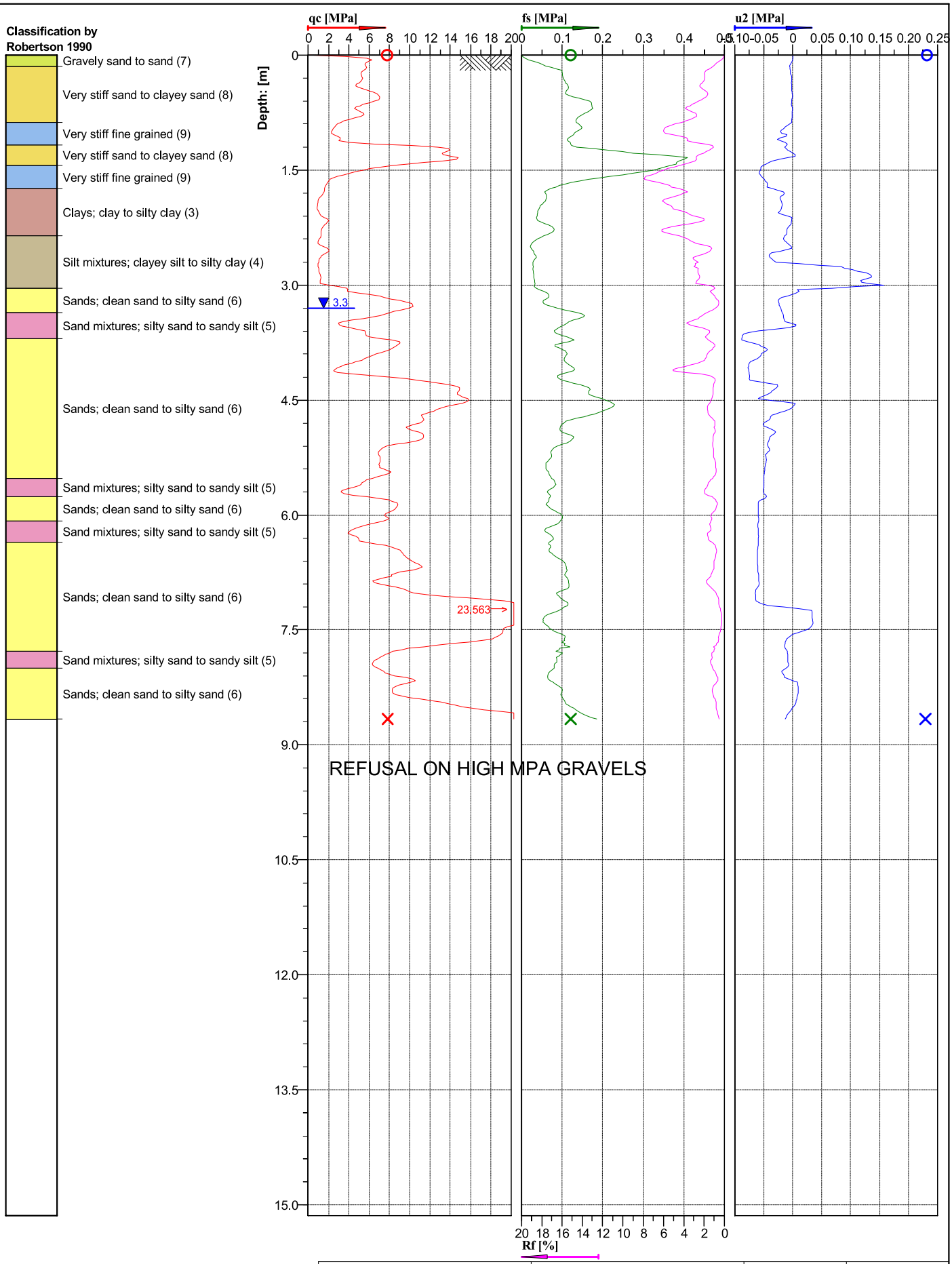
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61550 E 176.82614		File: CPT03.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



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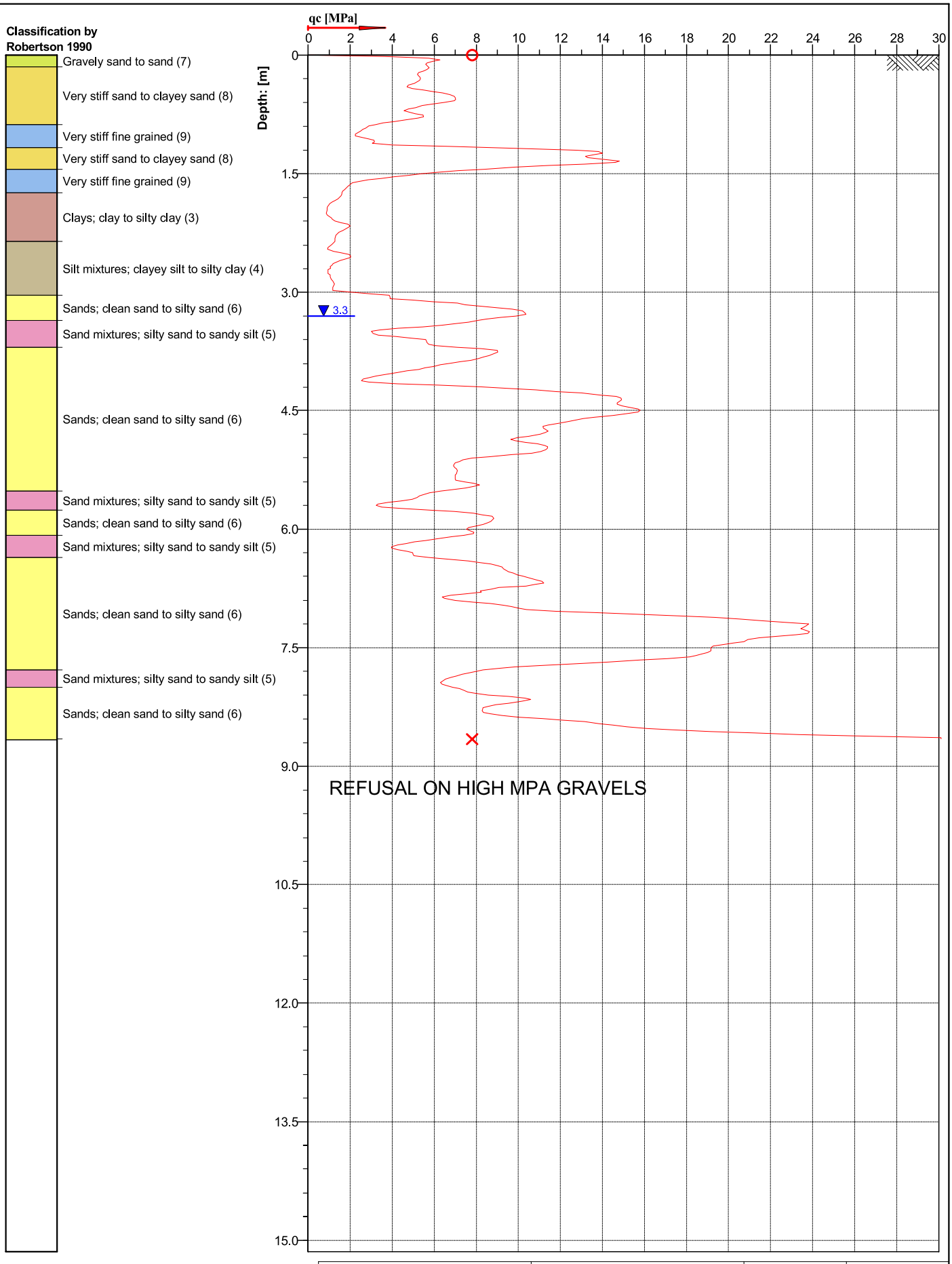
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61550 E 176.82614		File: CPT03.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

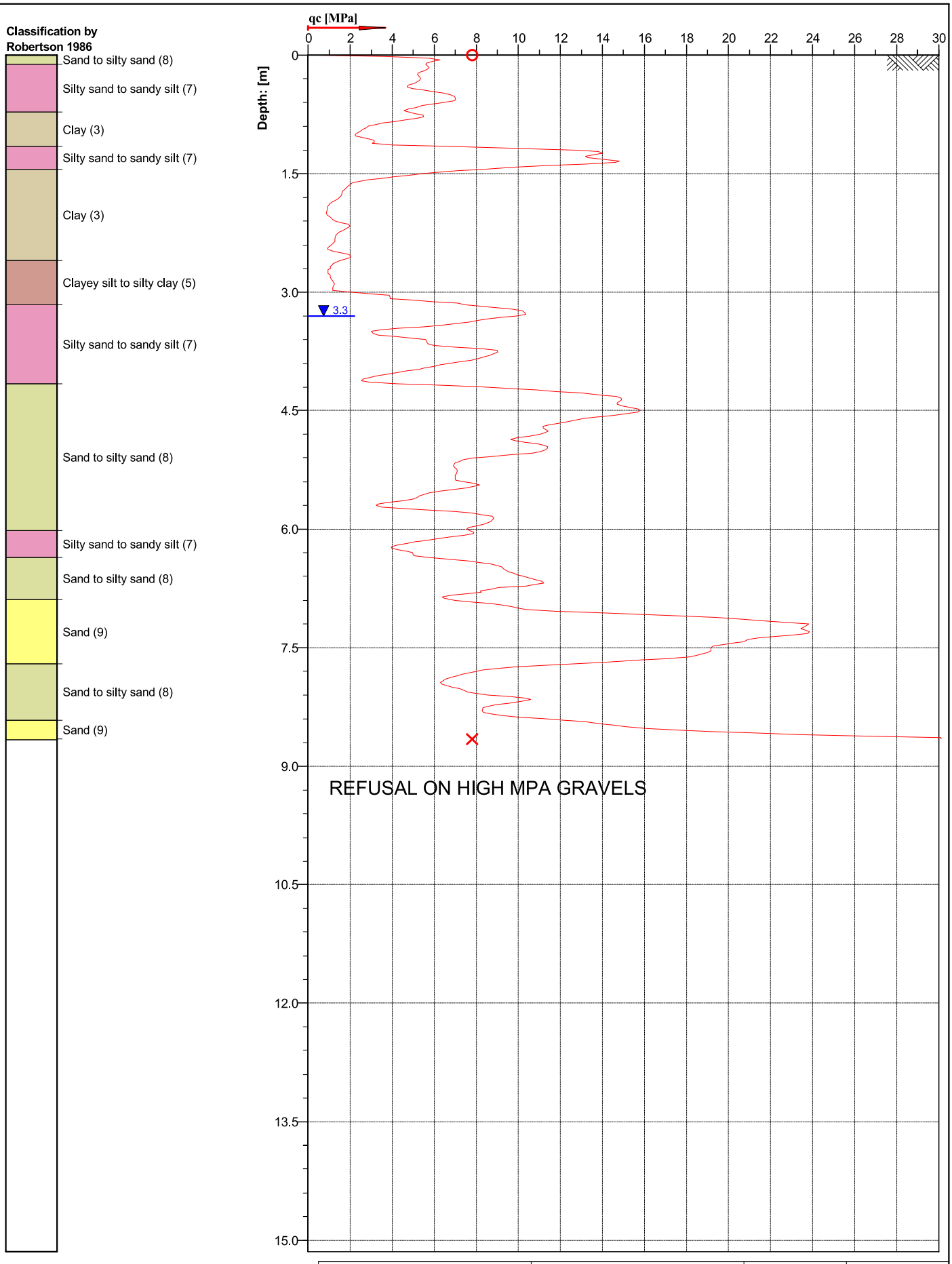


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT03
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61550 E 176.82614		File: CPT03.cpt	

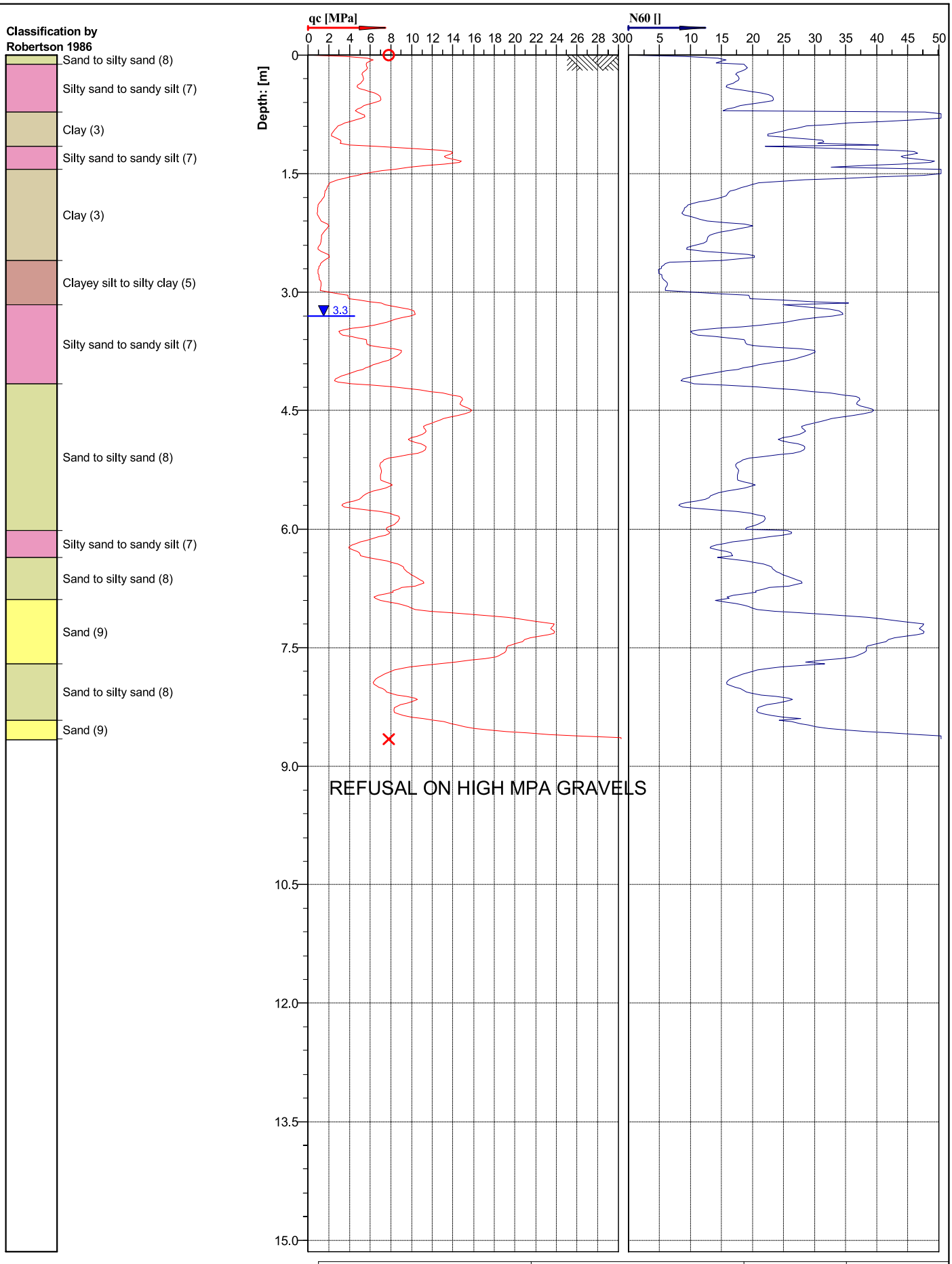


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT03
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61550 E 176.82614		File: CPT03.cpt	

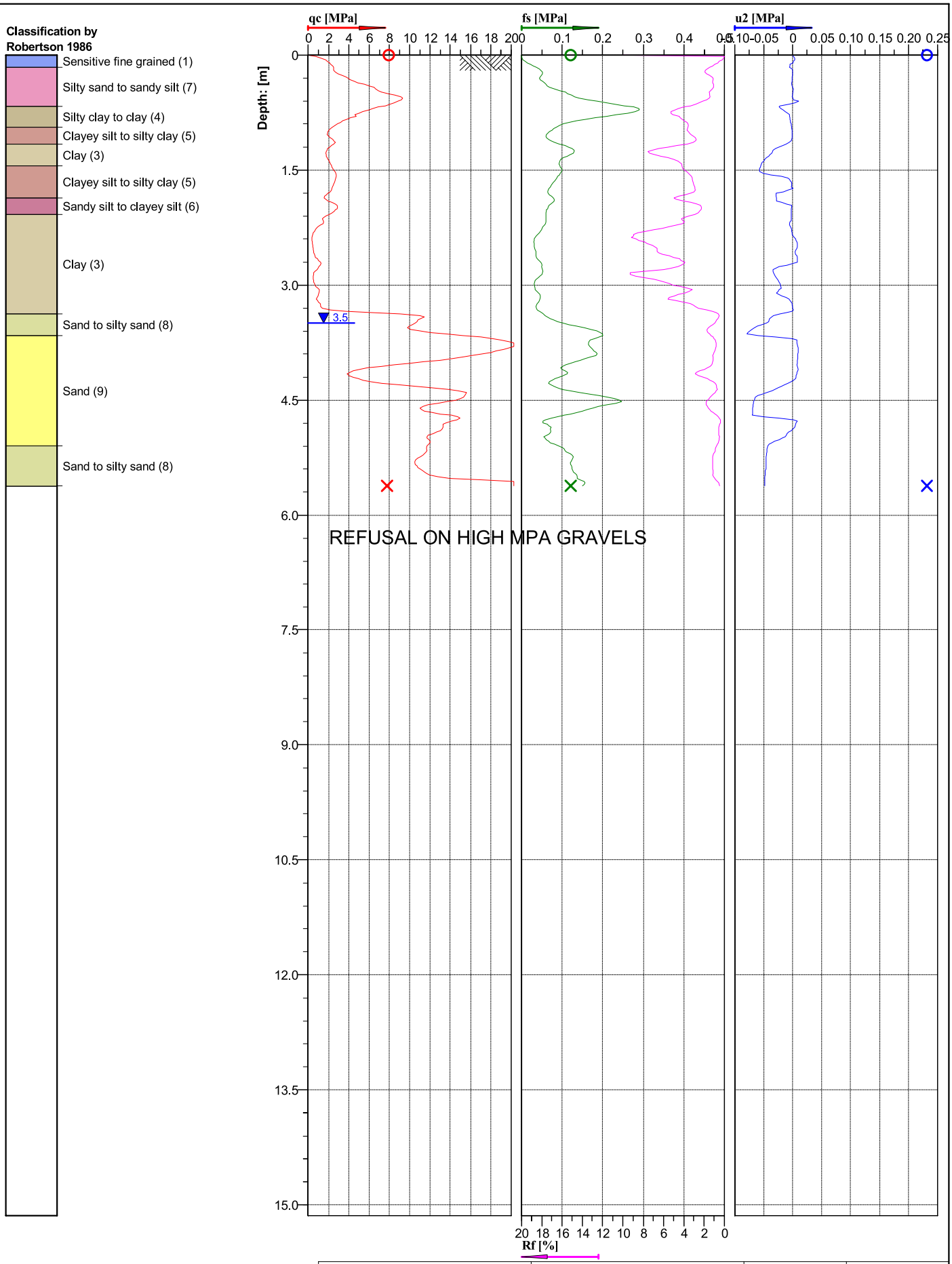


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT03
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61550 E 176.82614		File: CPT03.cpt	



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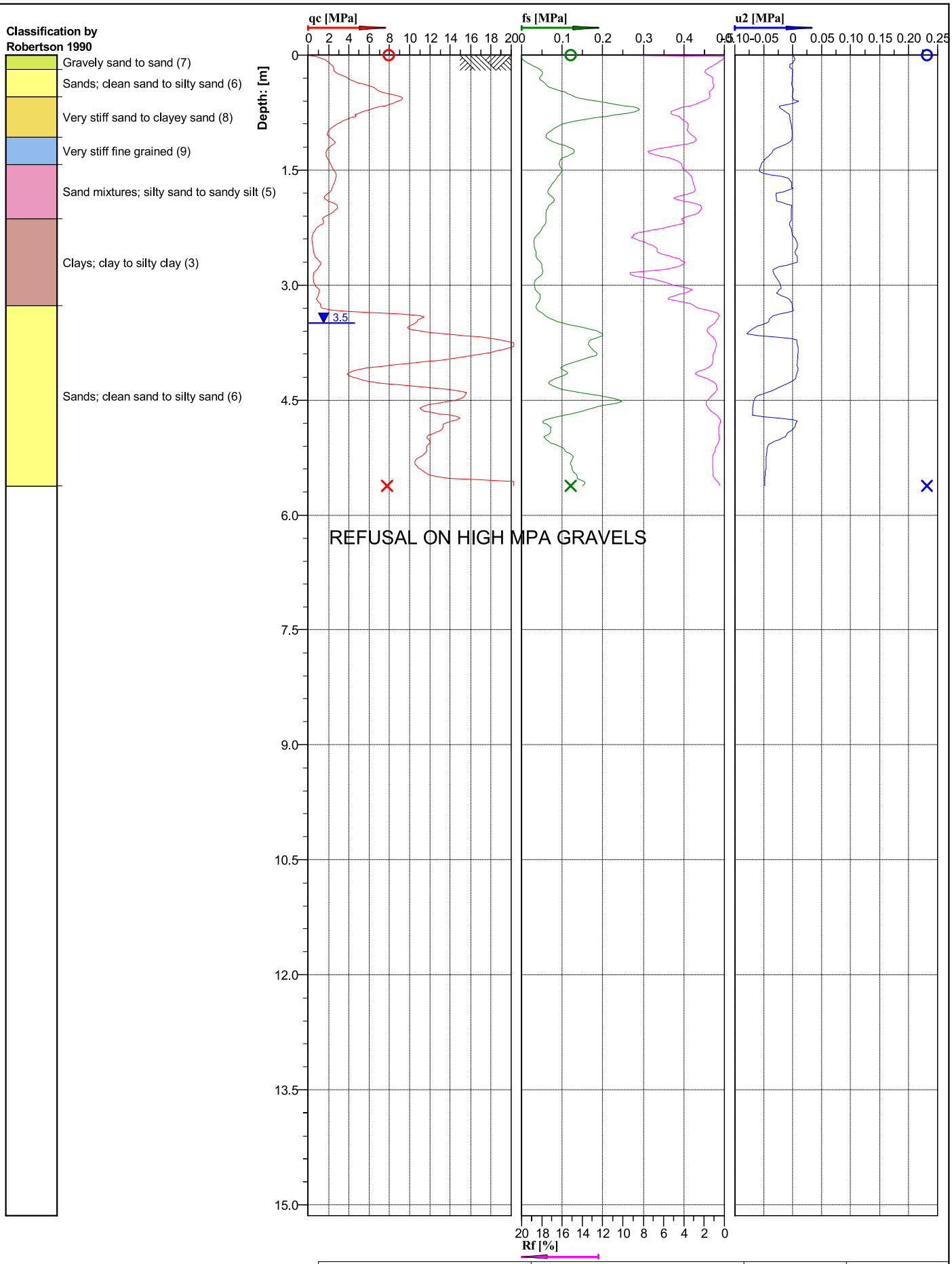
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61536 E 176.82608		File: CPT04.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

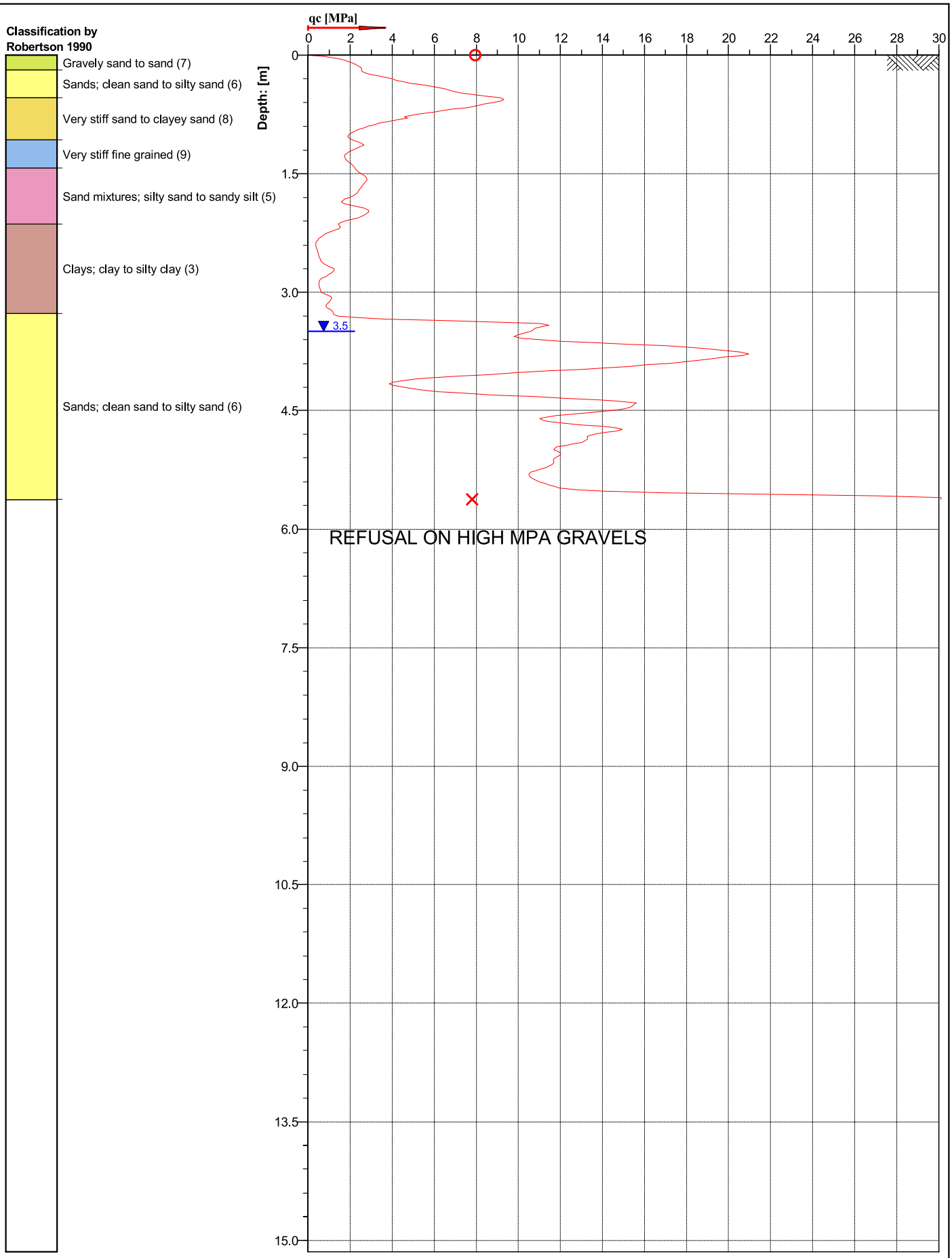


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT04
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61536 E 176.82608		File: CPT04.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

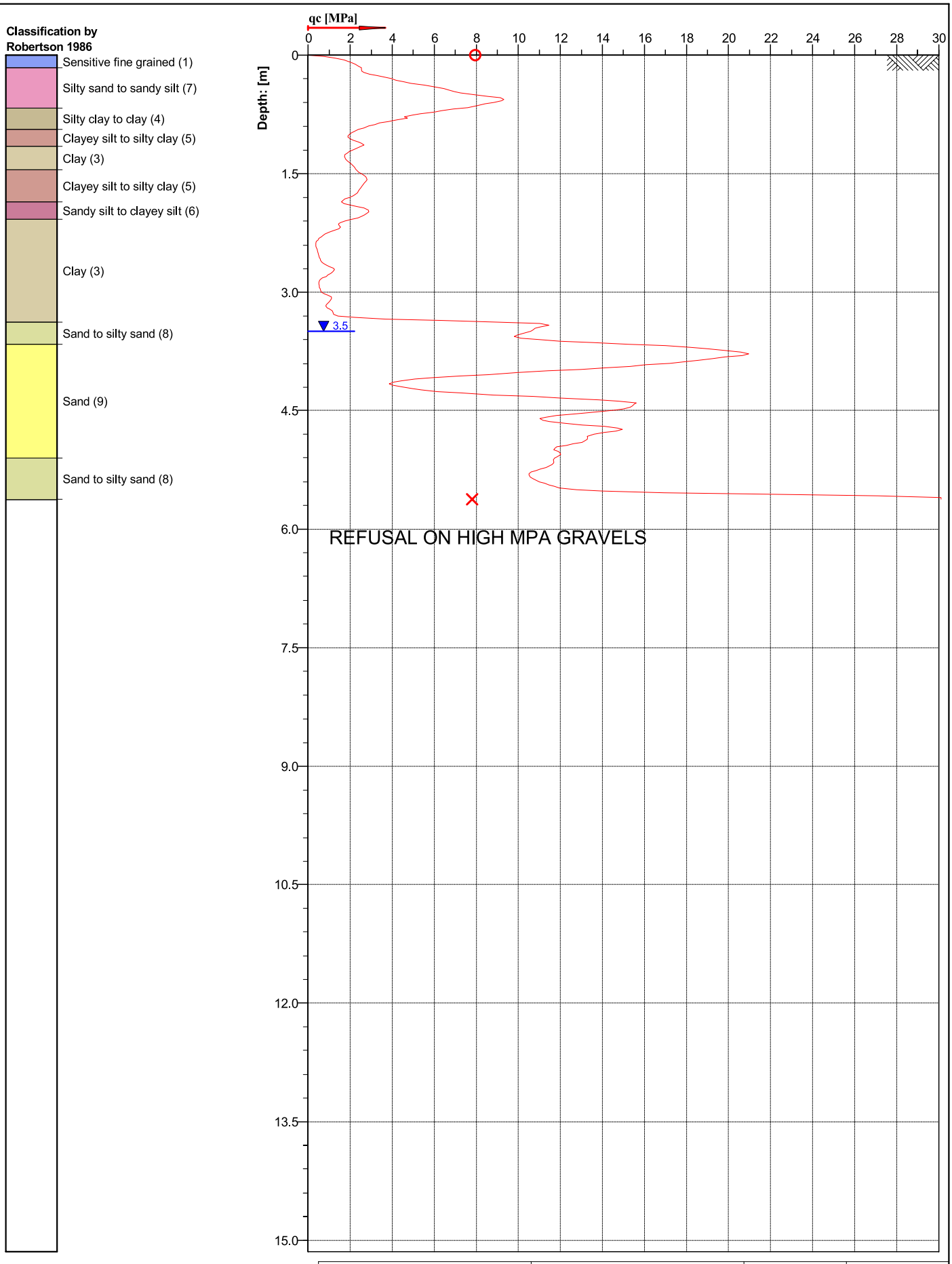


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT04
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61536 E 176.82608		File: CPT04.cpt	

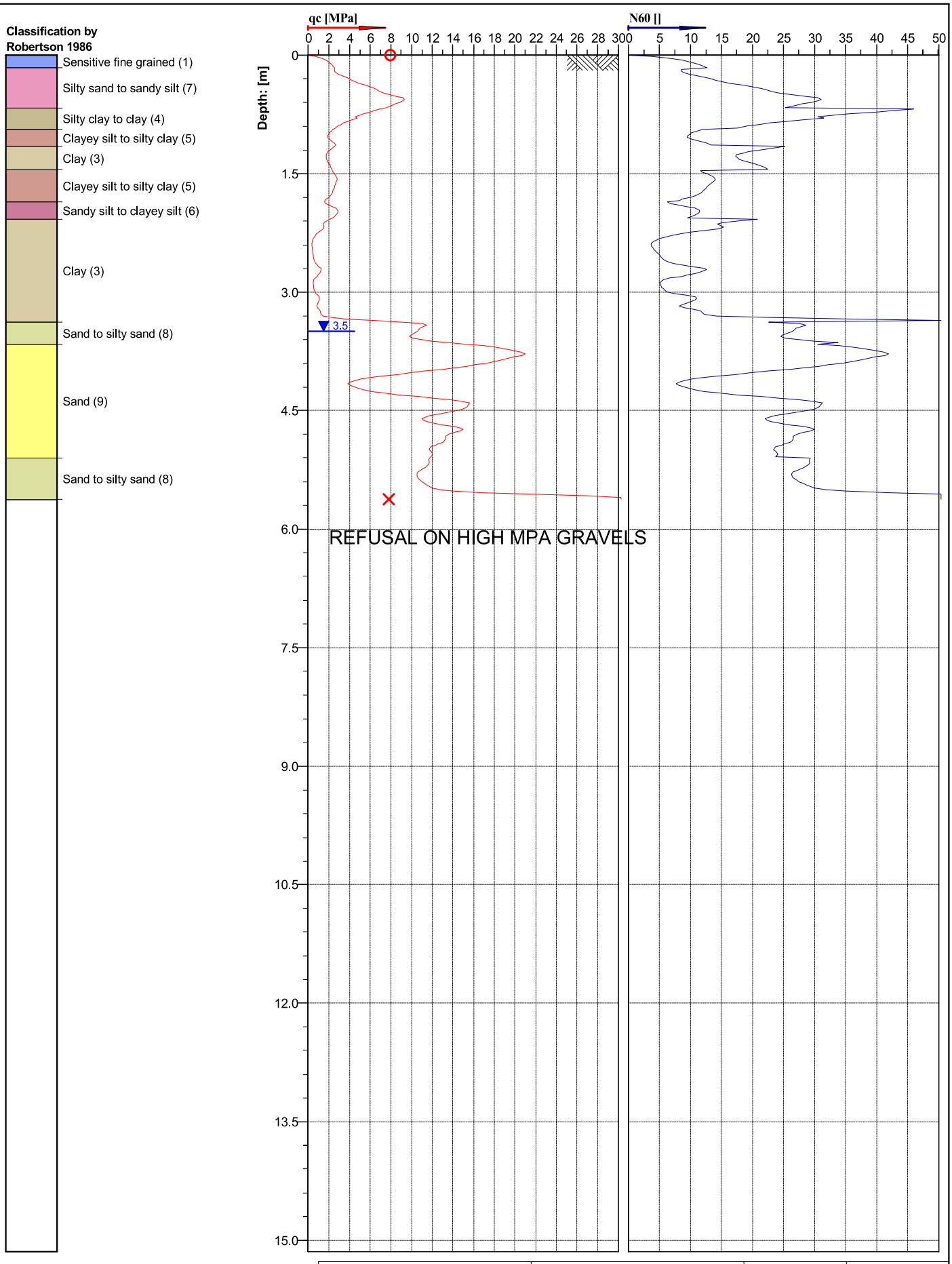


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

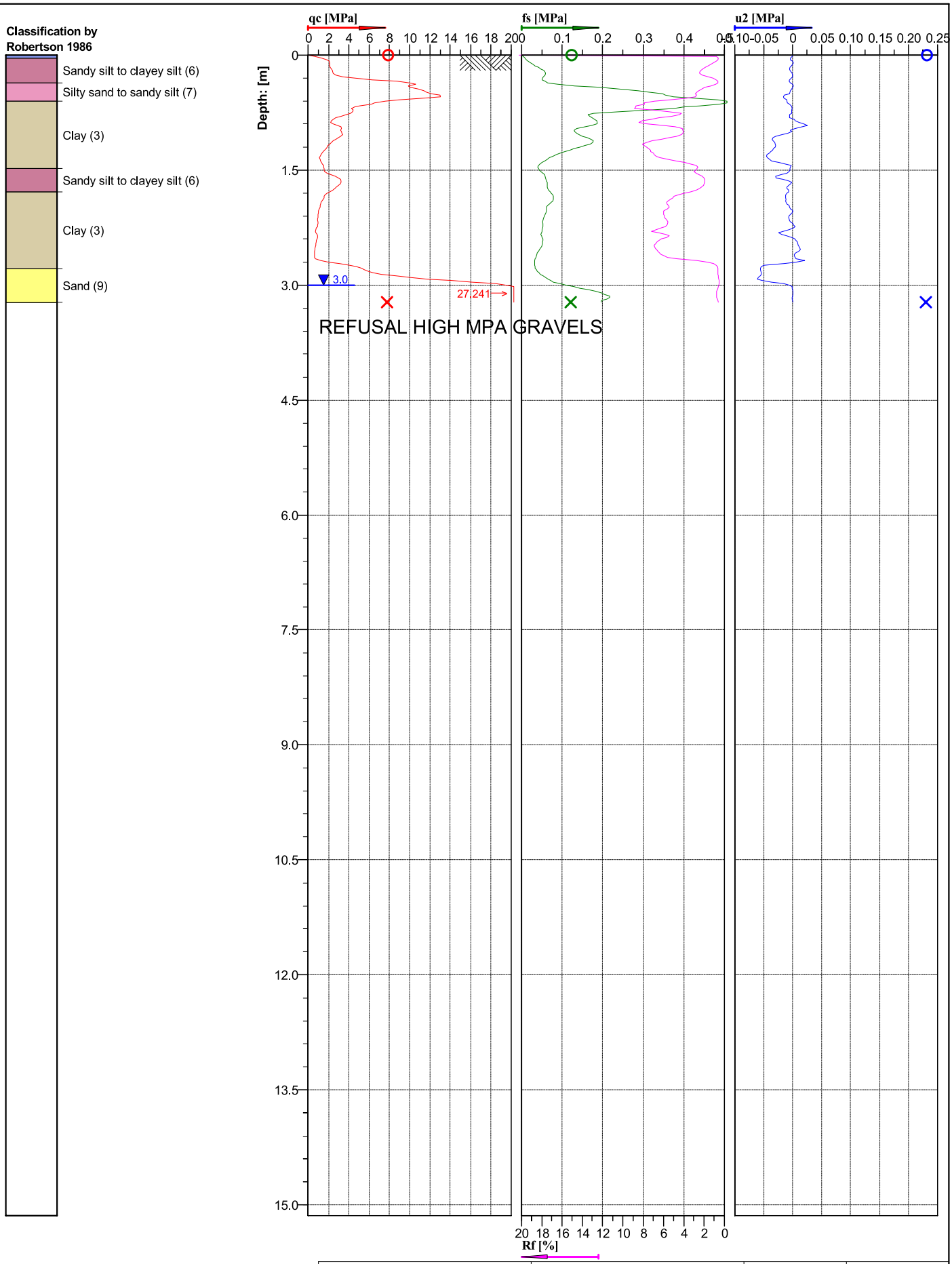
Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT04
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61536 E 176.82608		File: CPT04.cpt	



u2

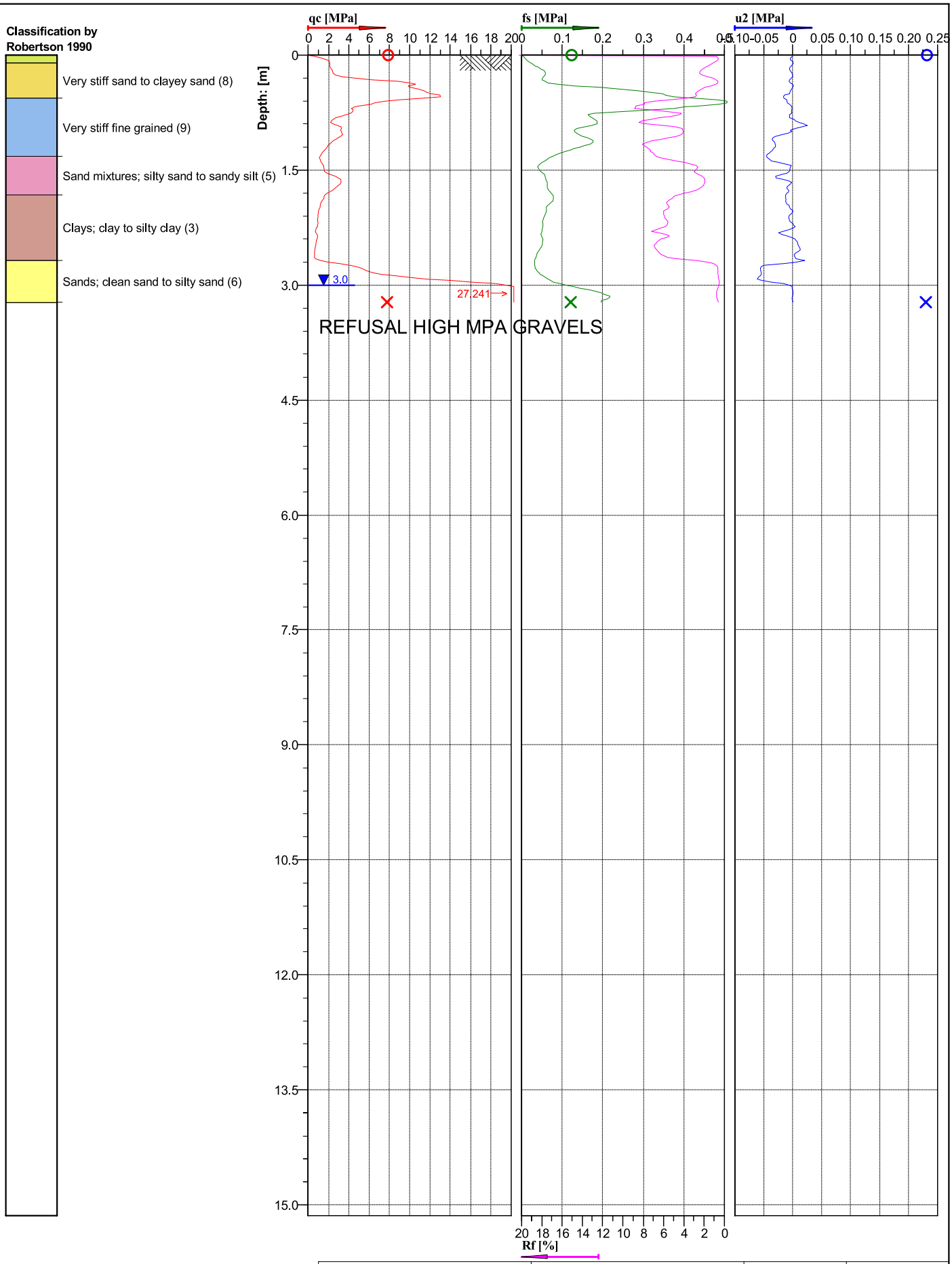
Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT04
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61536 E 176.82608		File: CPT04.cpt	



Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

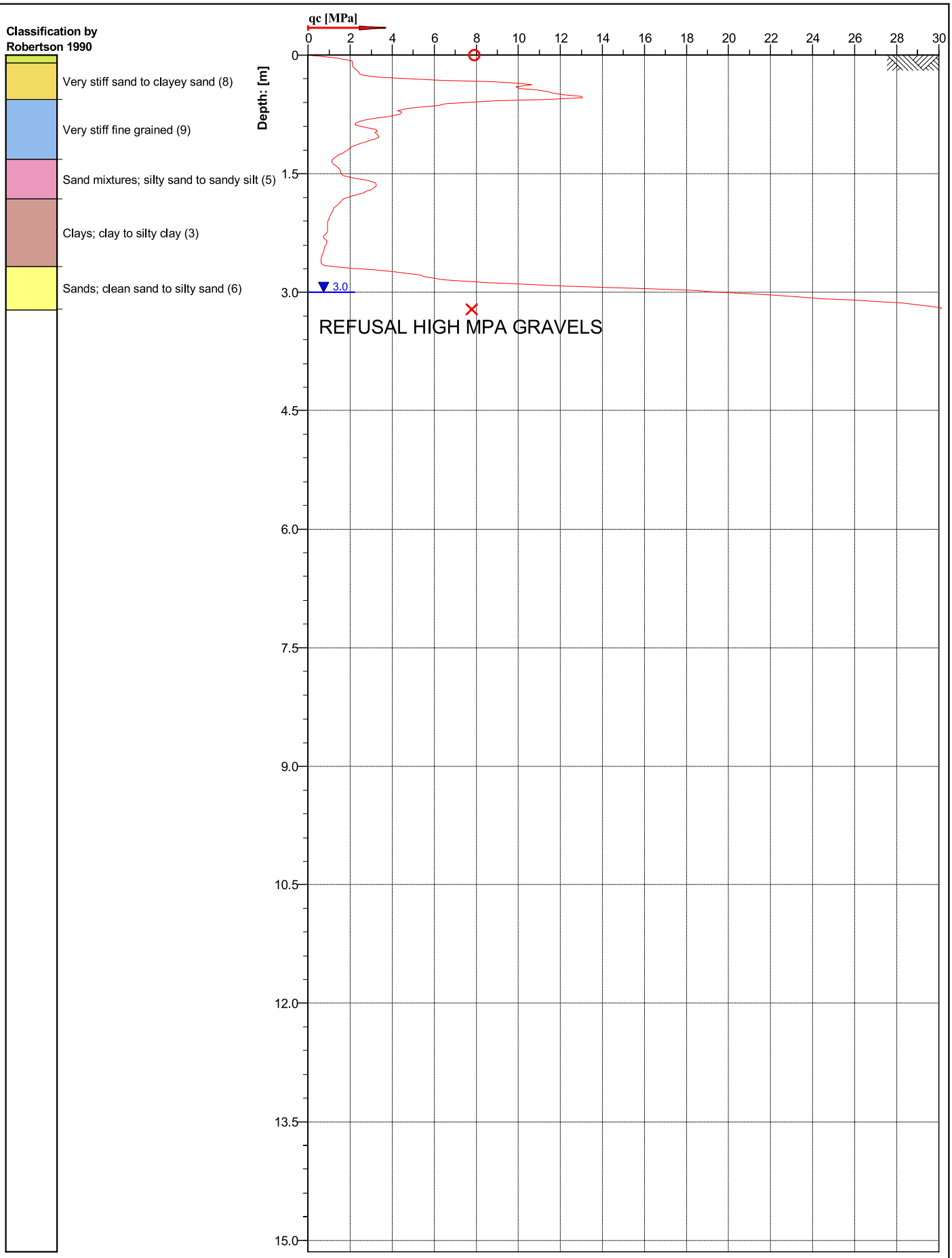
Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT05
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61518 E 176.82616		File: CPT05.cpt	



GEOTECH DRILLING

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT05
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61518 E 176.82616		File: CPT05.cpt	

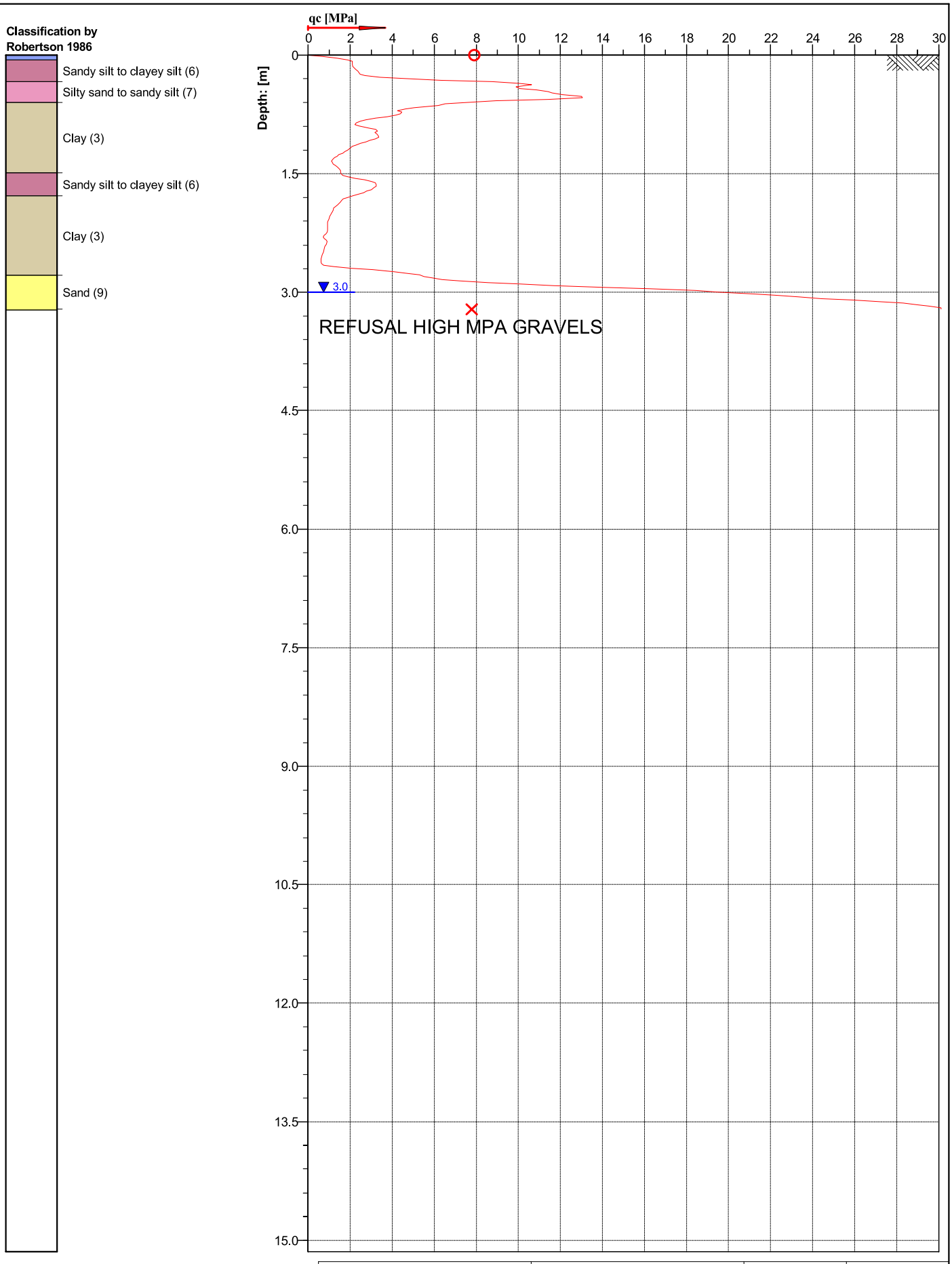


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT05
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61518 E 176.82616		File: CPT05.cpt	

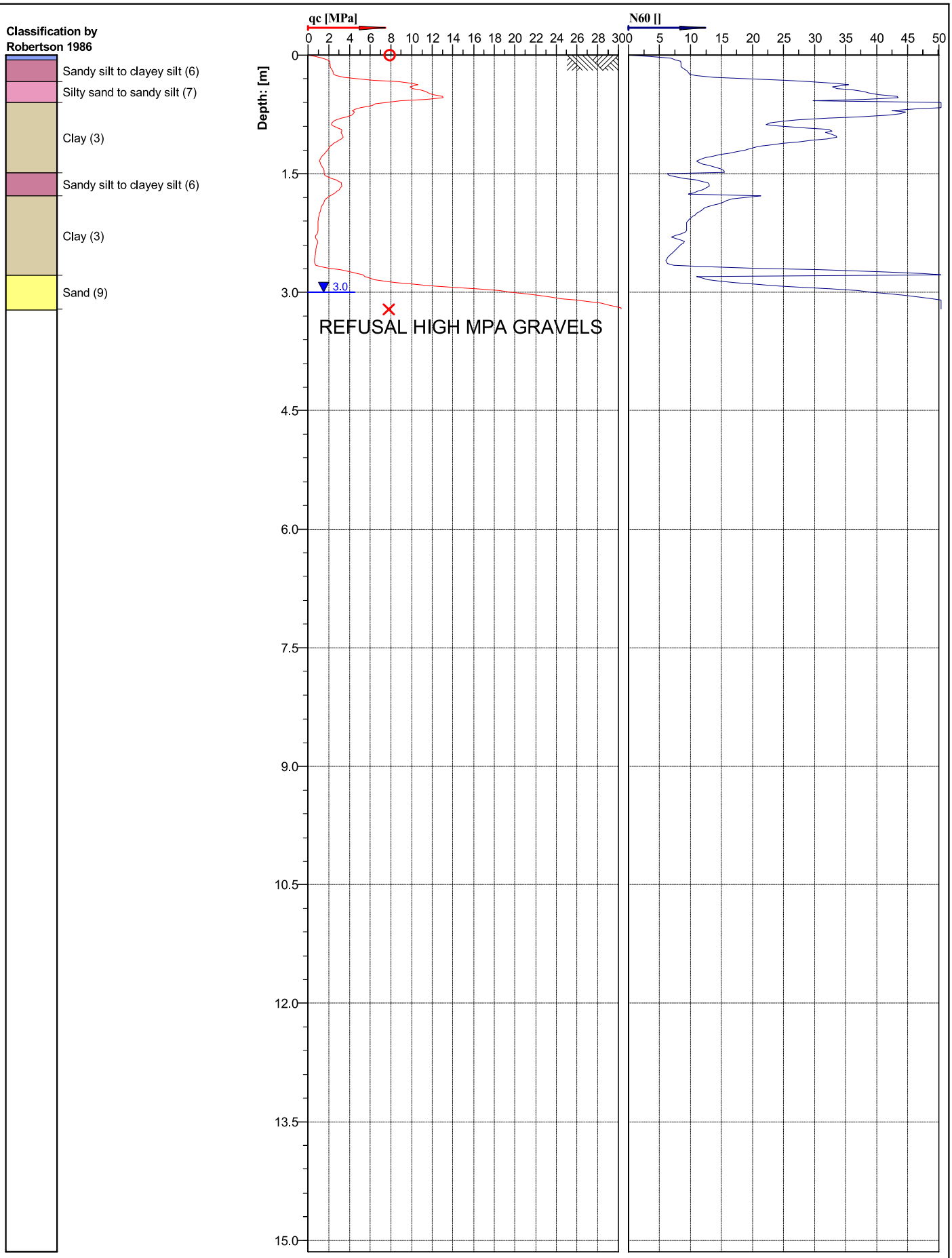


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT05
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61518 E 176.82616		File: CPT05.cpt	

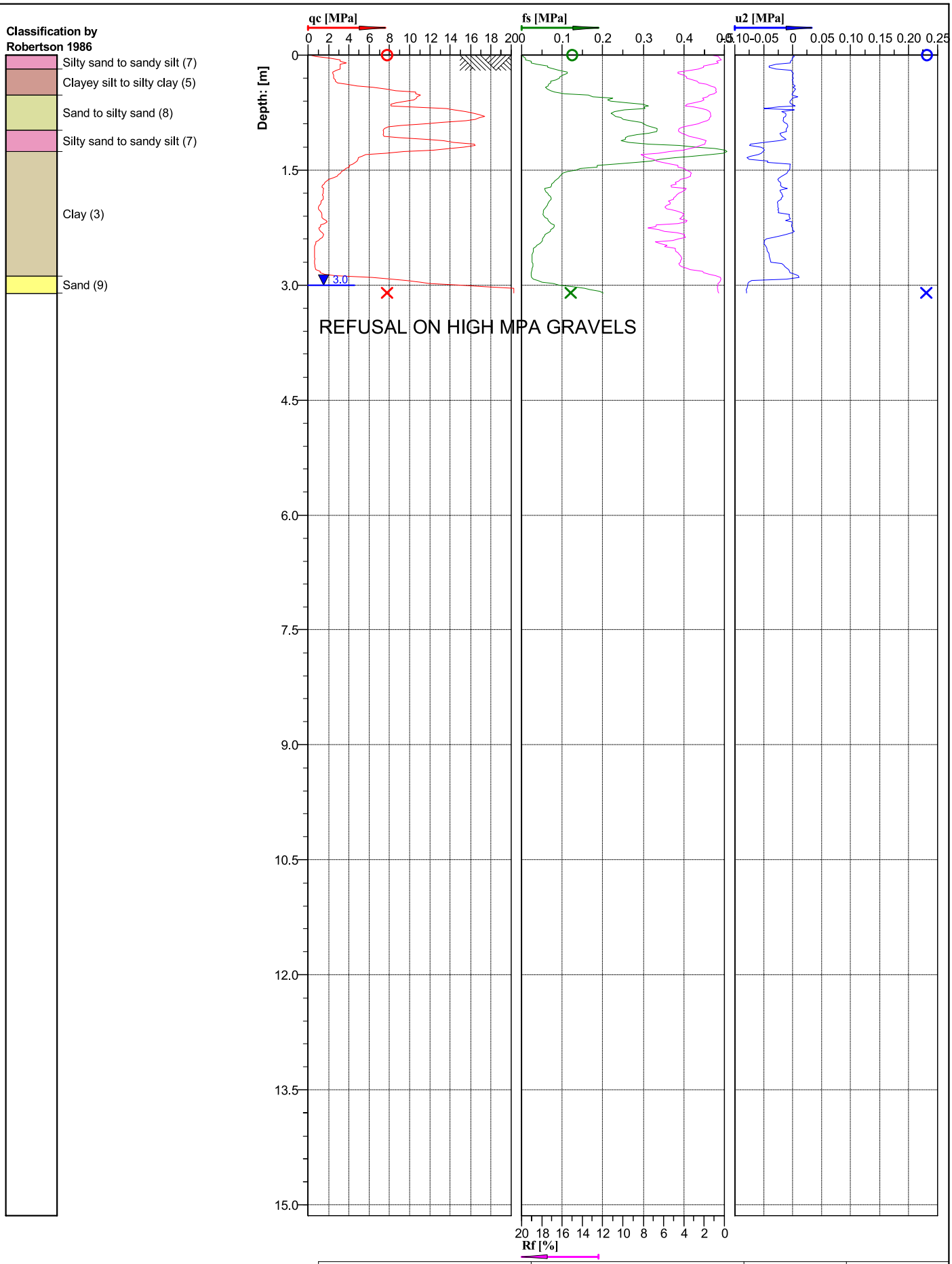


GEOTECH DRILLING

u2

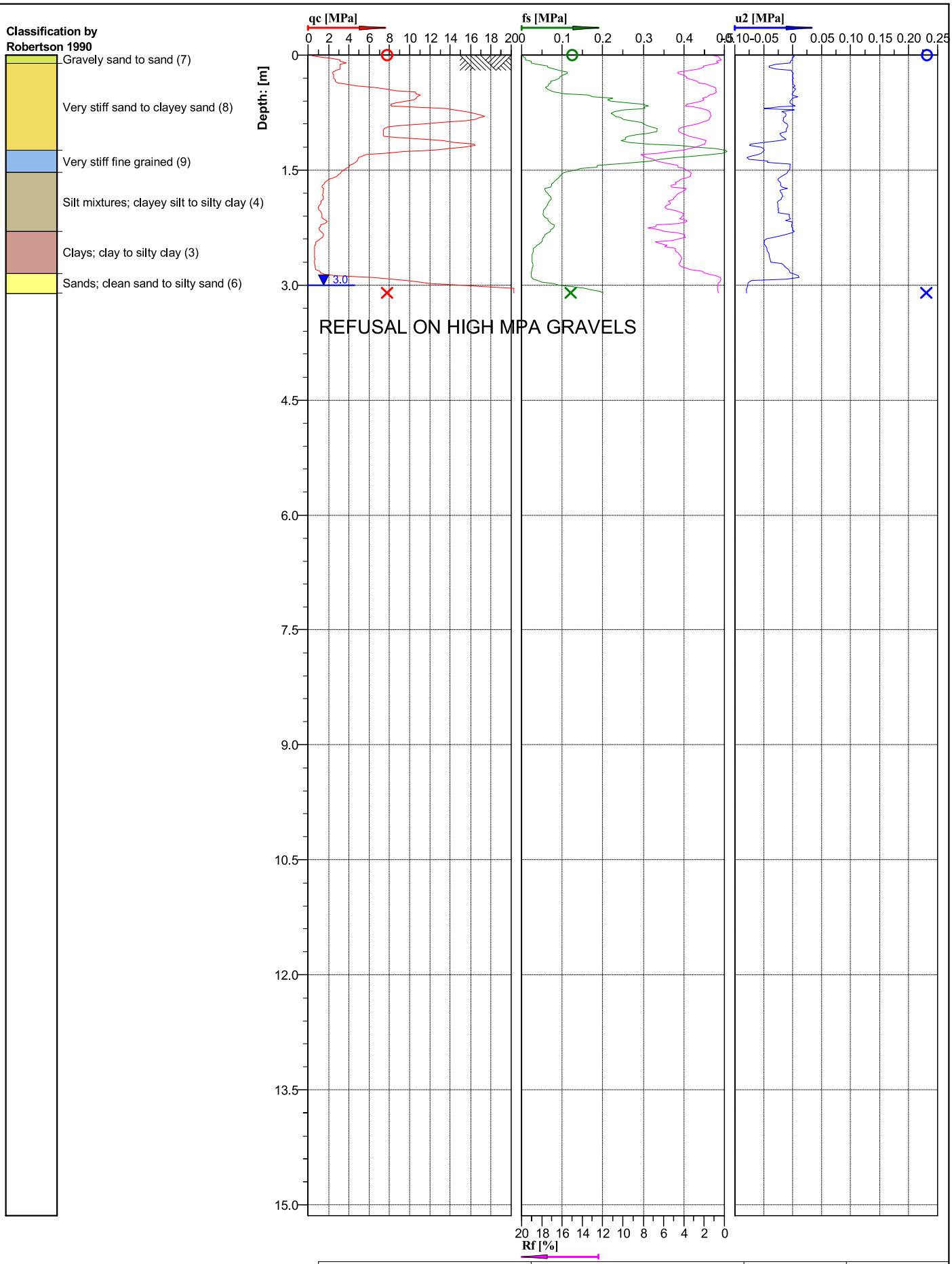
Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT05
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61518 E 176.82616		File: CPT05.cpt	



Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

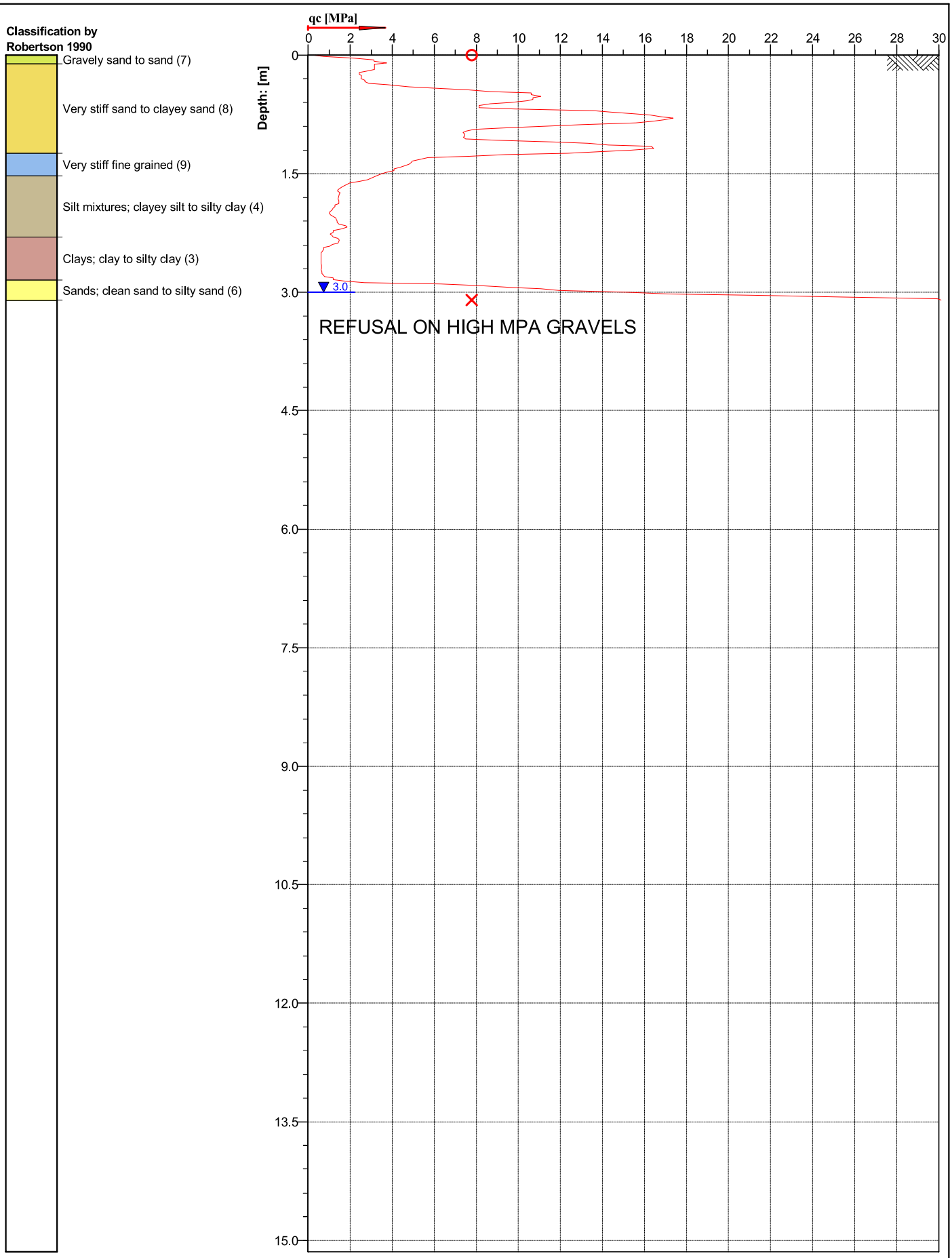
Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT06
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61529 E 176.82631		File: CPT06.cpt	



GEOTECH DRILLING

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT06
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61529 E 176.82631		File: CPT06.cpt	

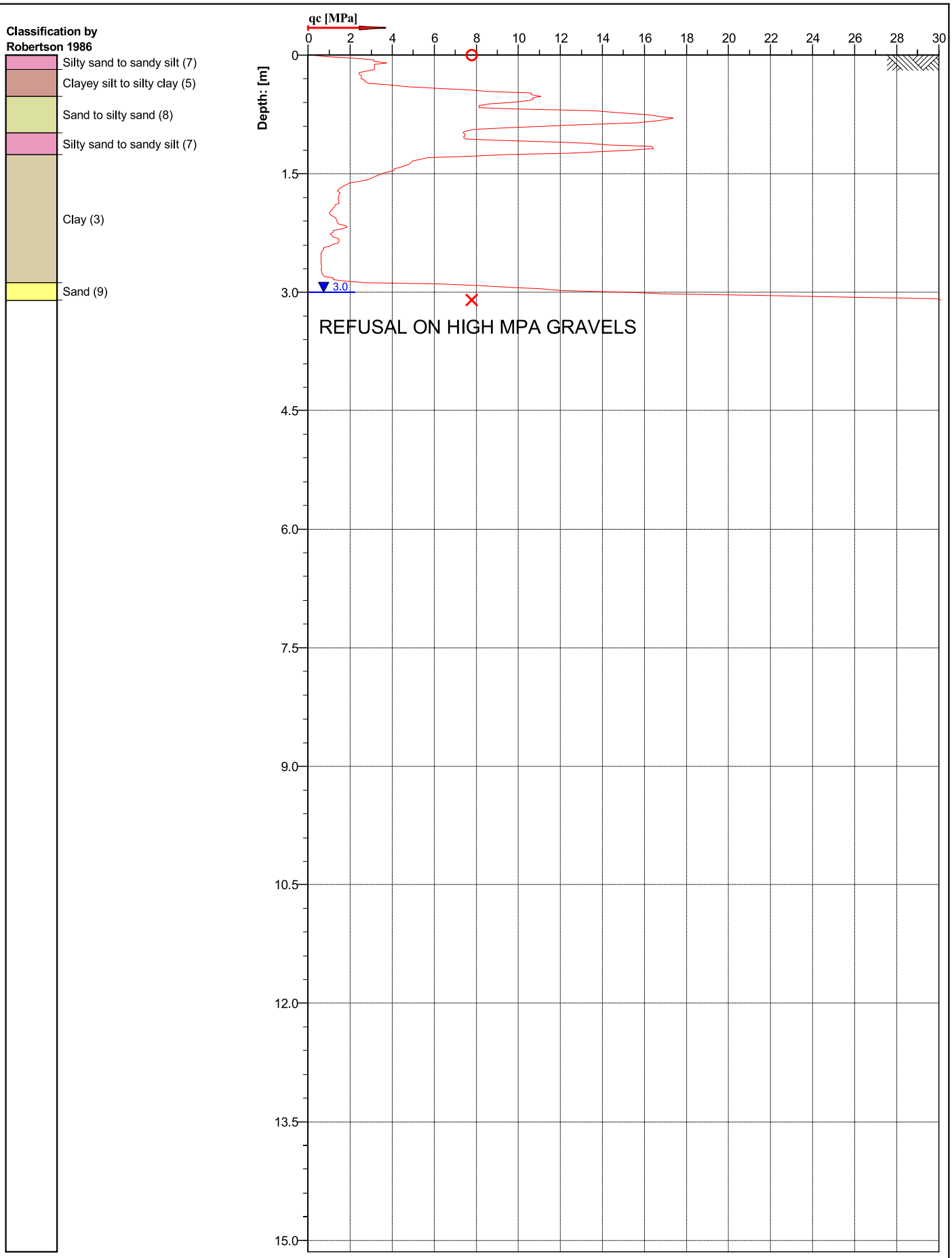


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT06
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61529 E 176.82631		File: CPT06.cpt	

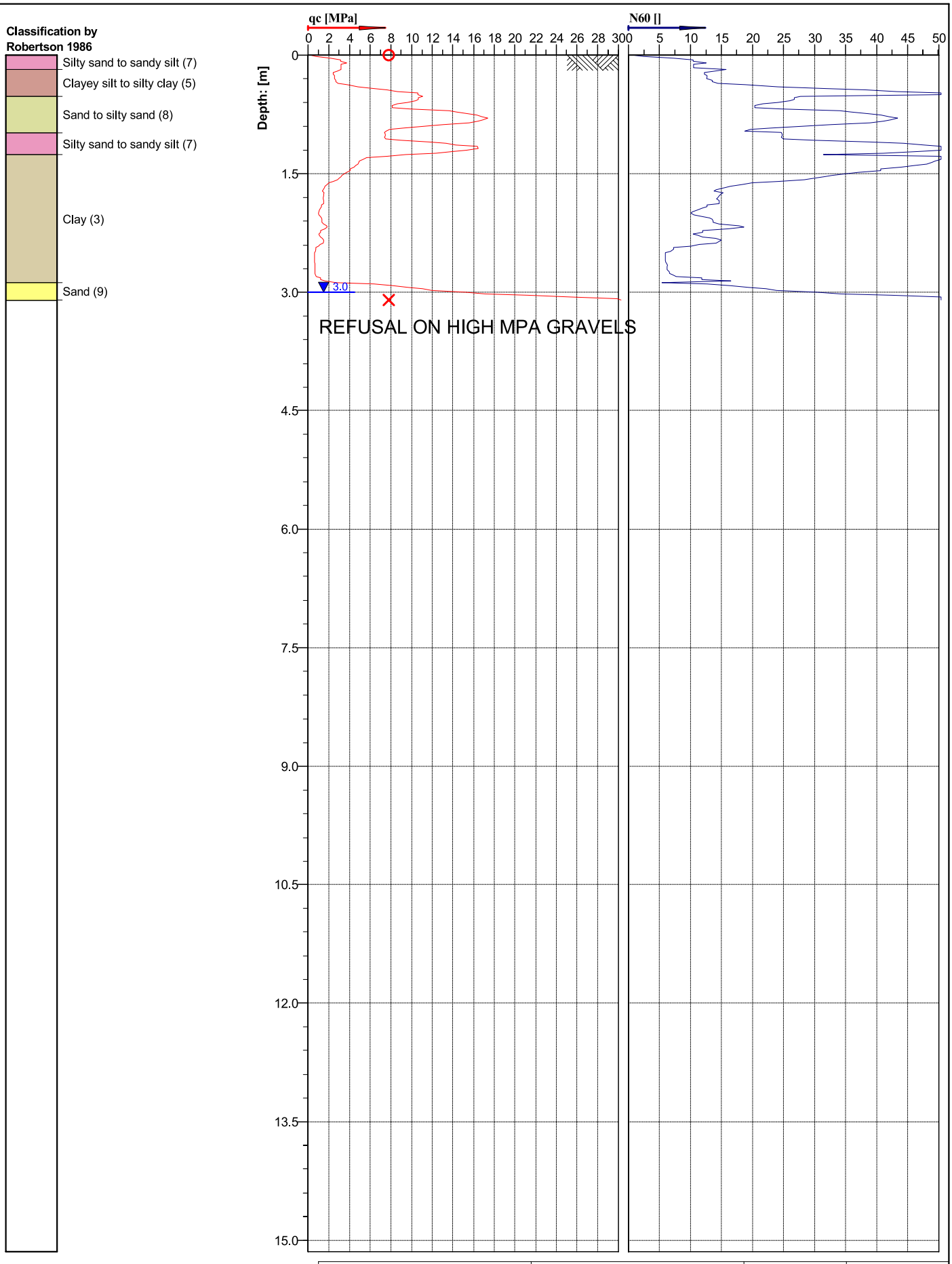


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT06
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61529 E 176.82631		File: CPT06.cpt	



GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT06
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
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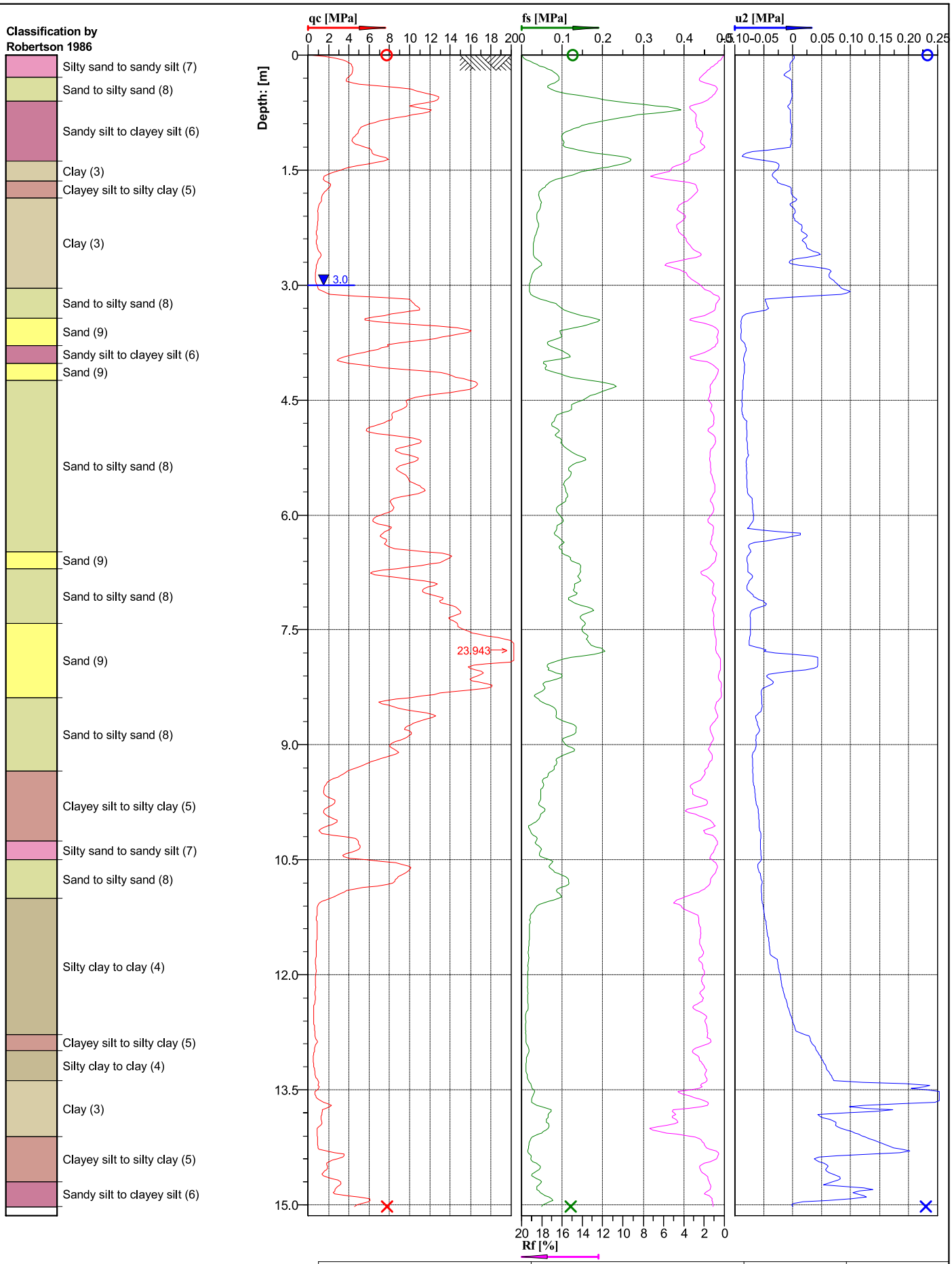

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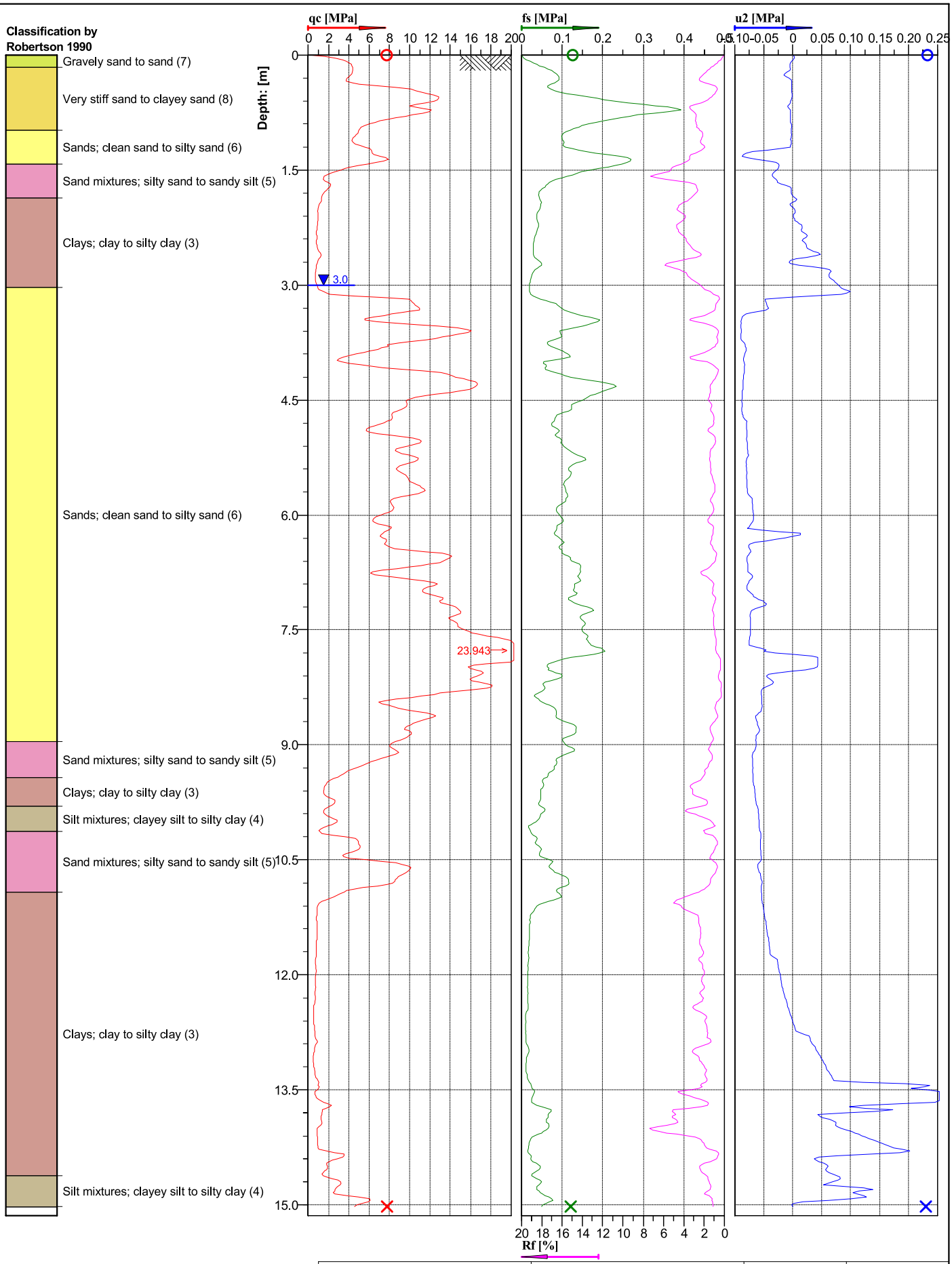
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61512 E 176.82637		File: CPT07.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

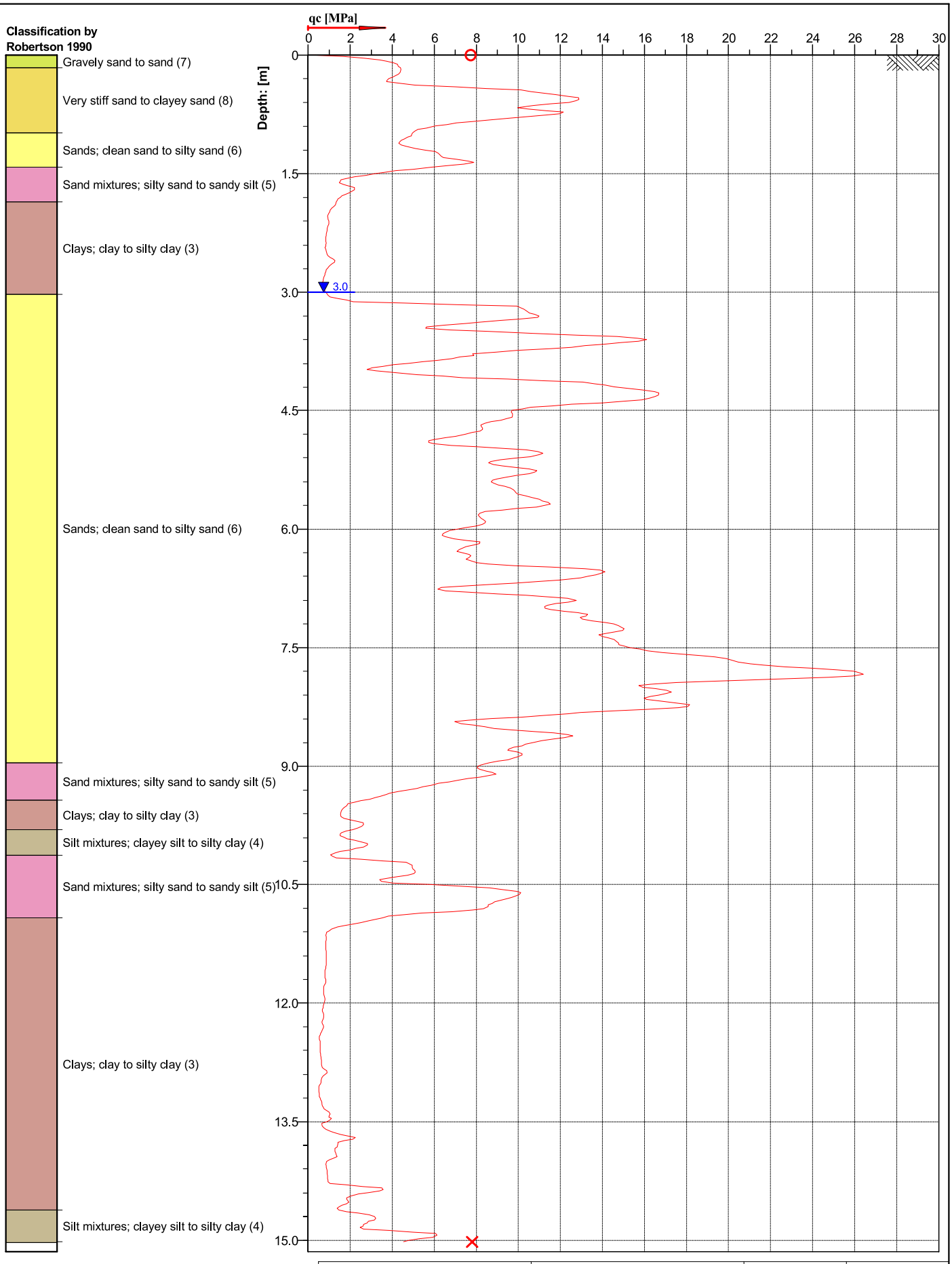


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT07
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61512 E 176.82637		File: CPT07.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT07
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
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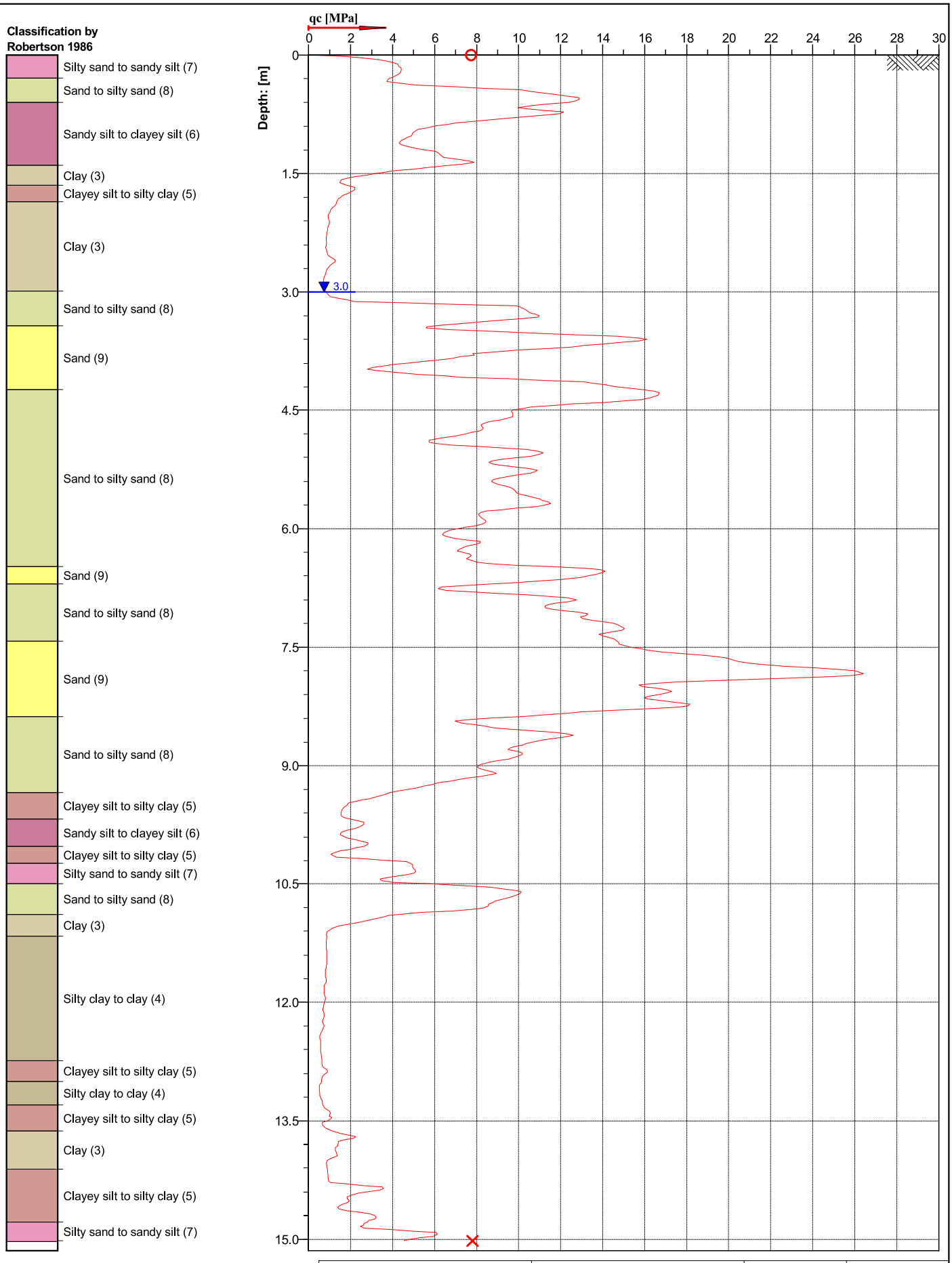
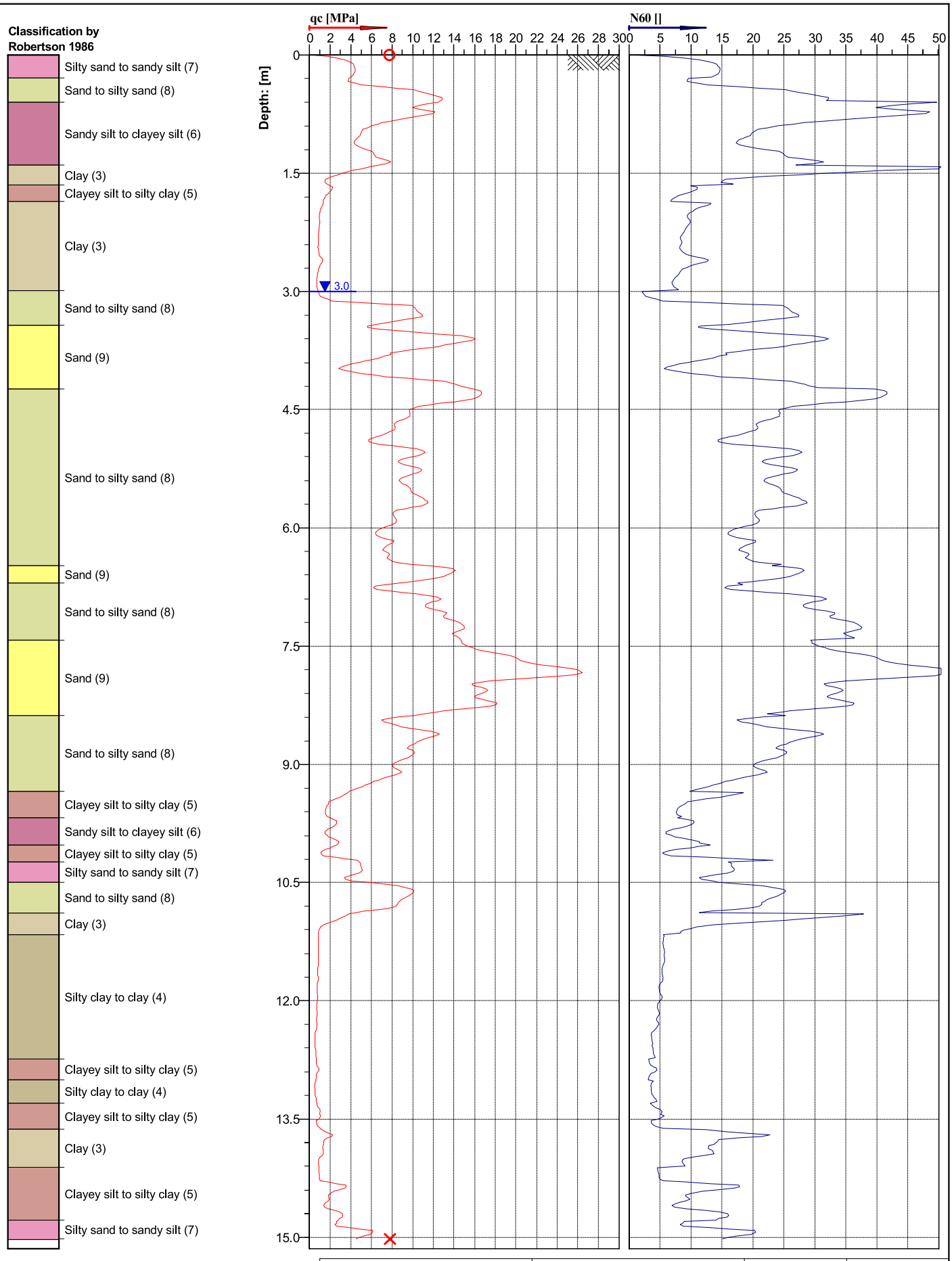


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT07
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61512 E 176.82637		File: CPT07.cpt	

GEOTECH DRILLING



Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT07
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
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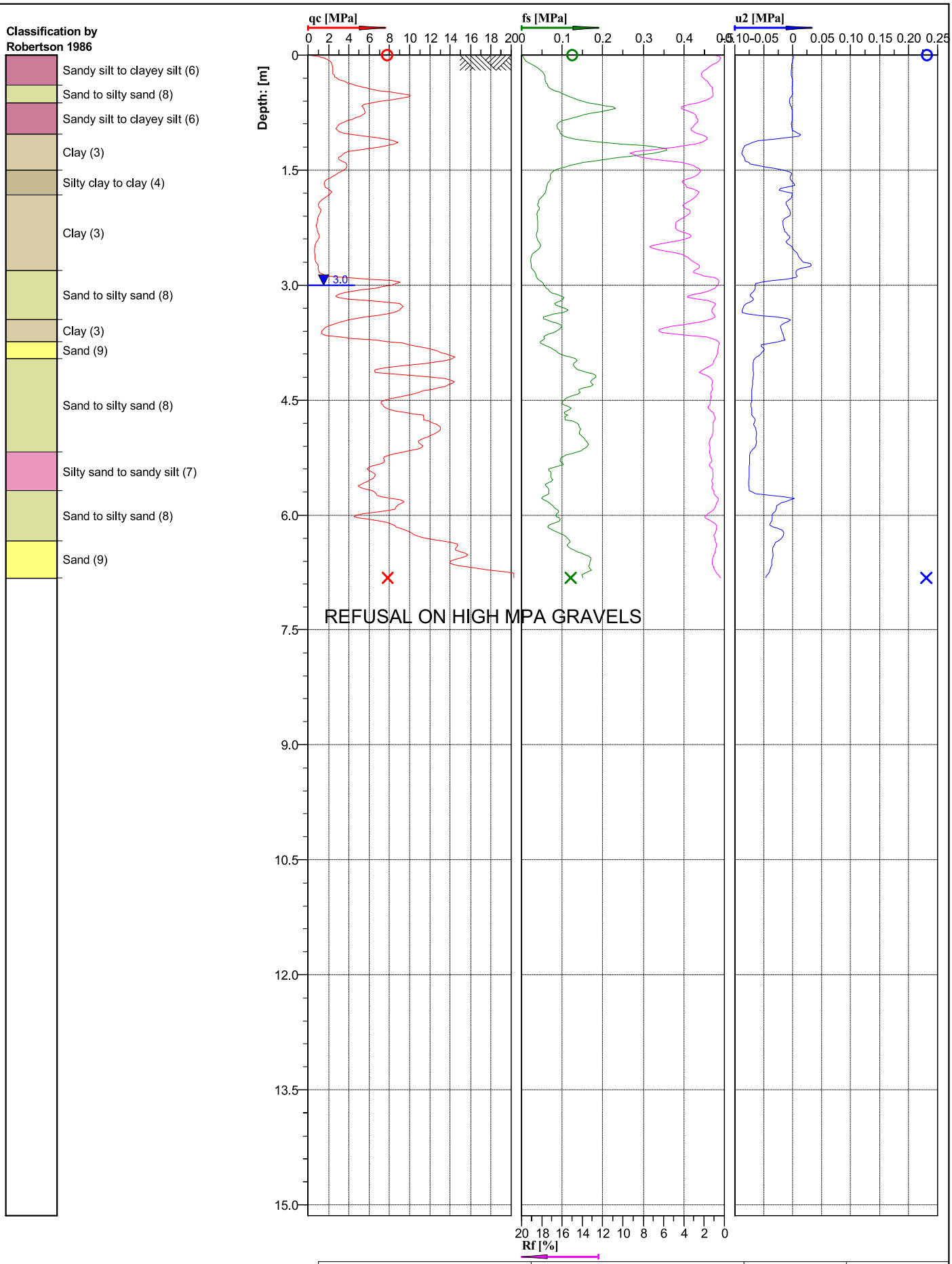
GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

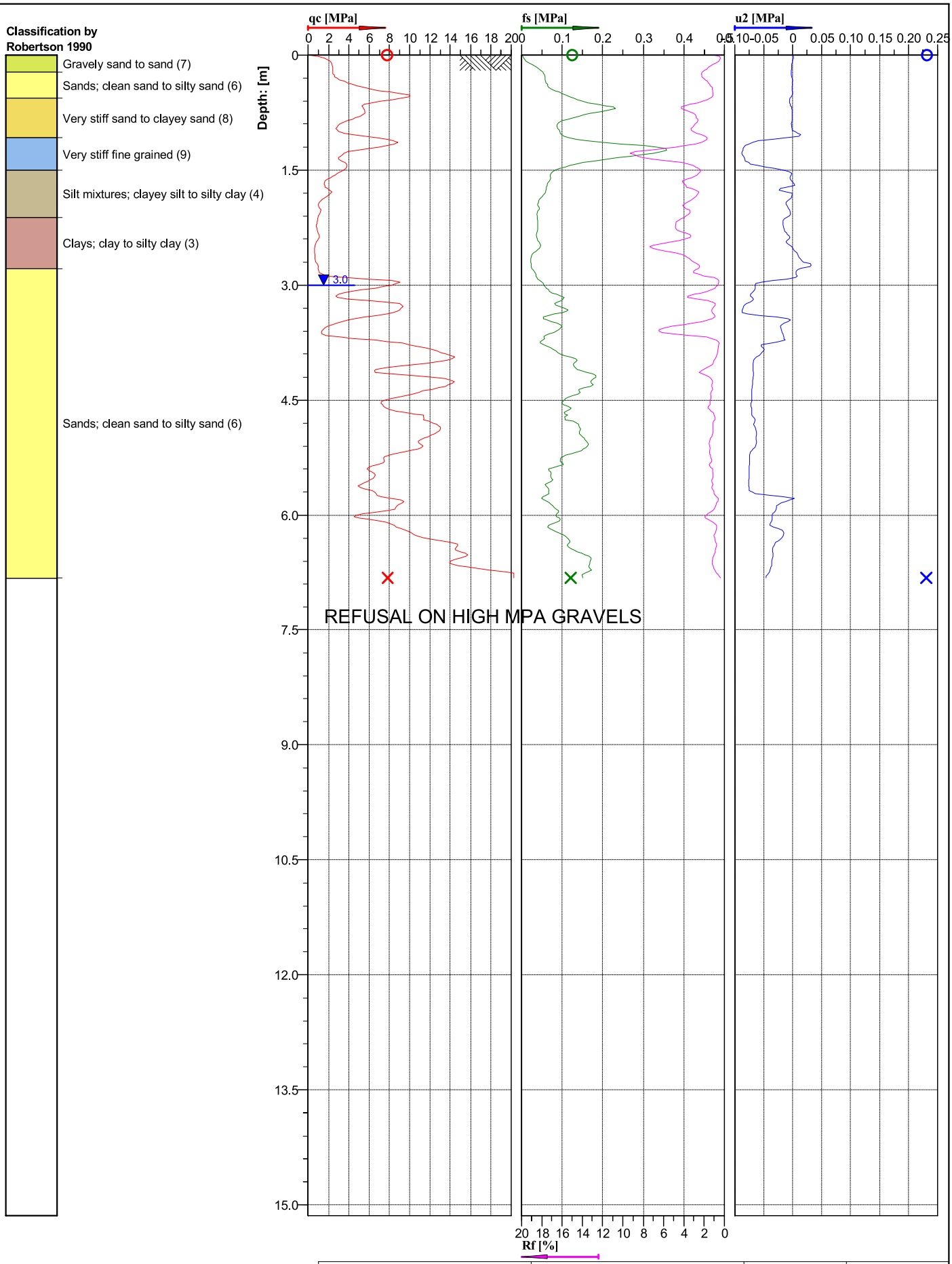


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT08
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61526 E 176.82654		File: CPT08.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

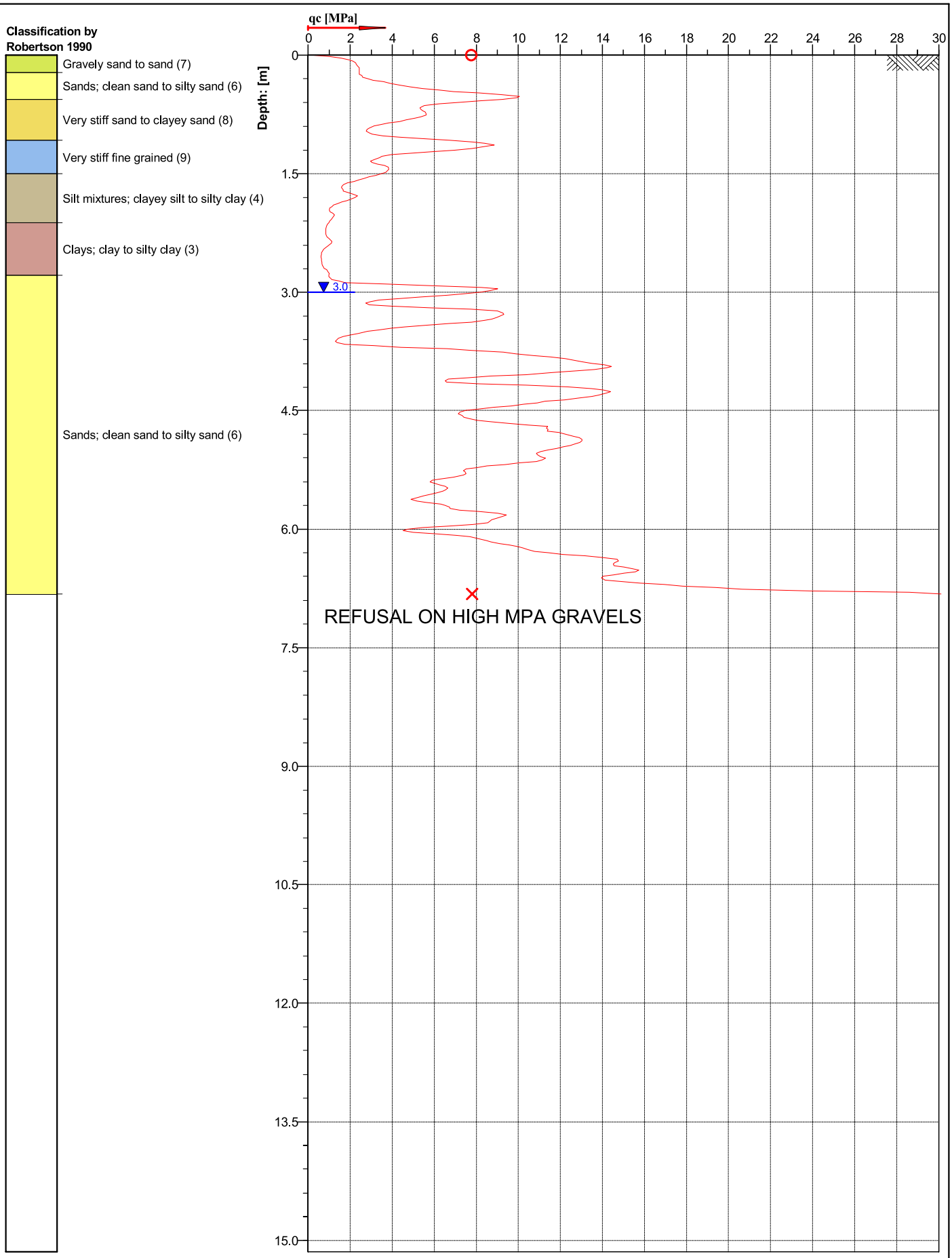


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT08
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61526 E 176.82654		File: CPT08.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT08
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
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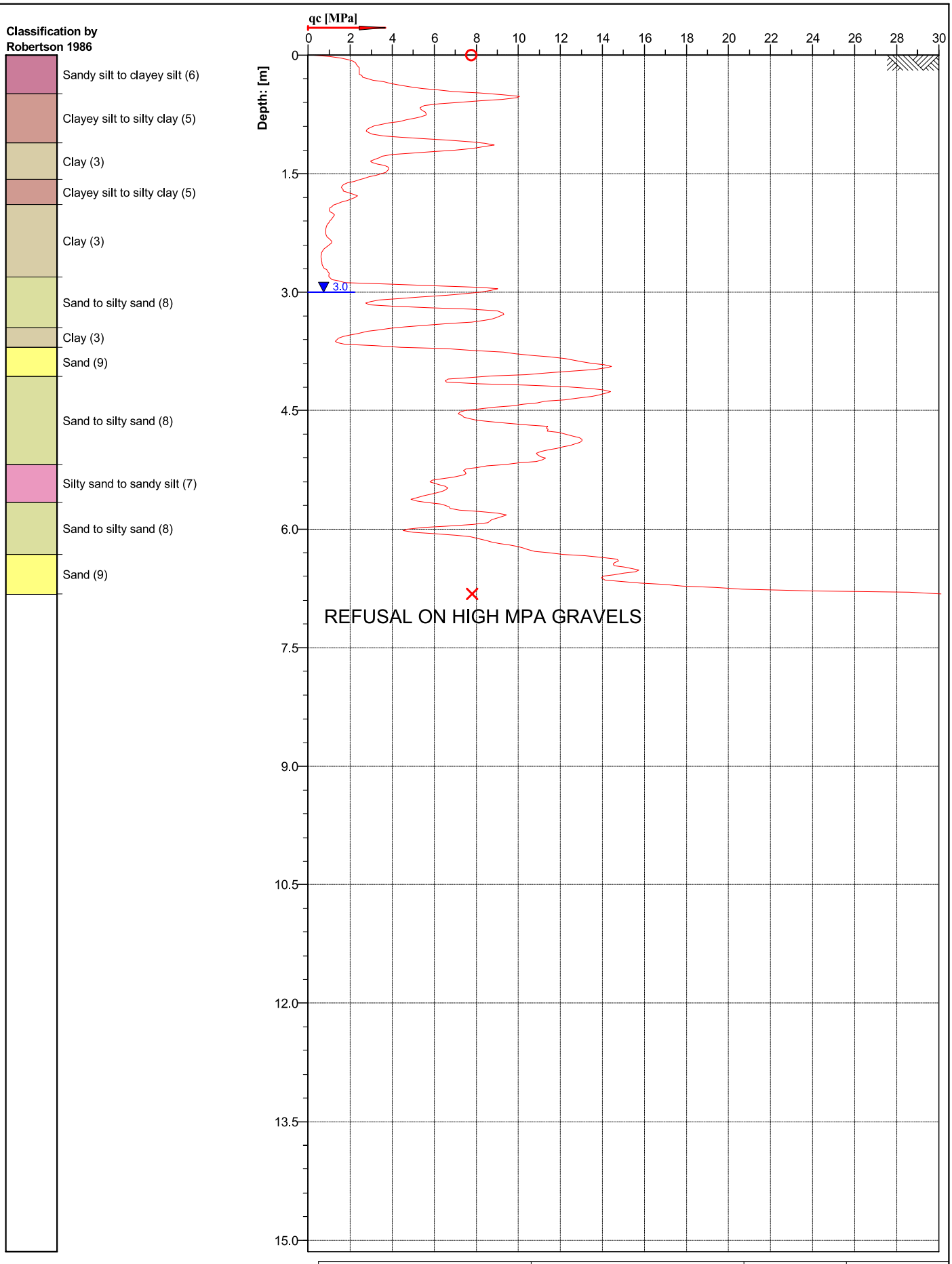

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT08
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
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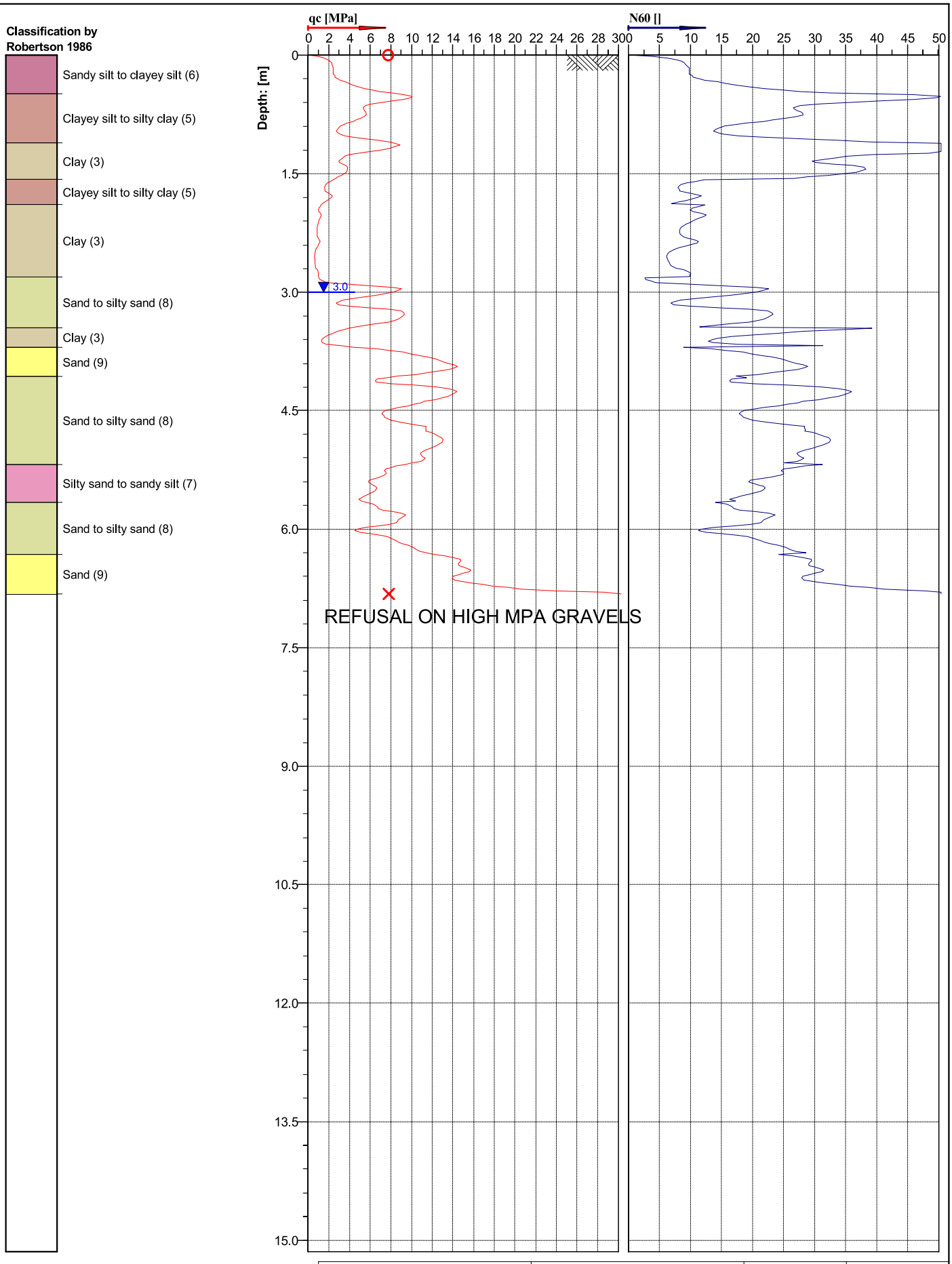
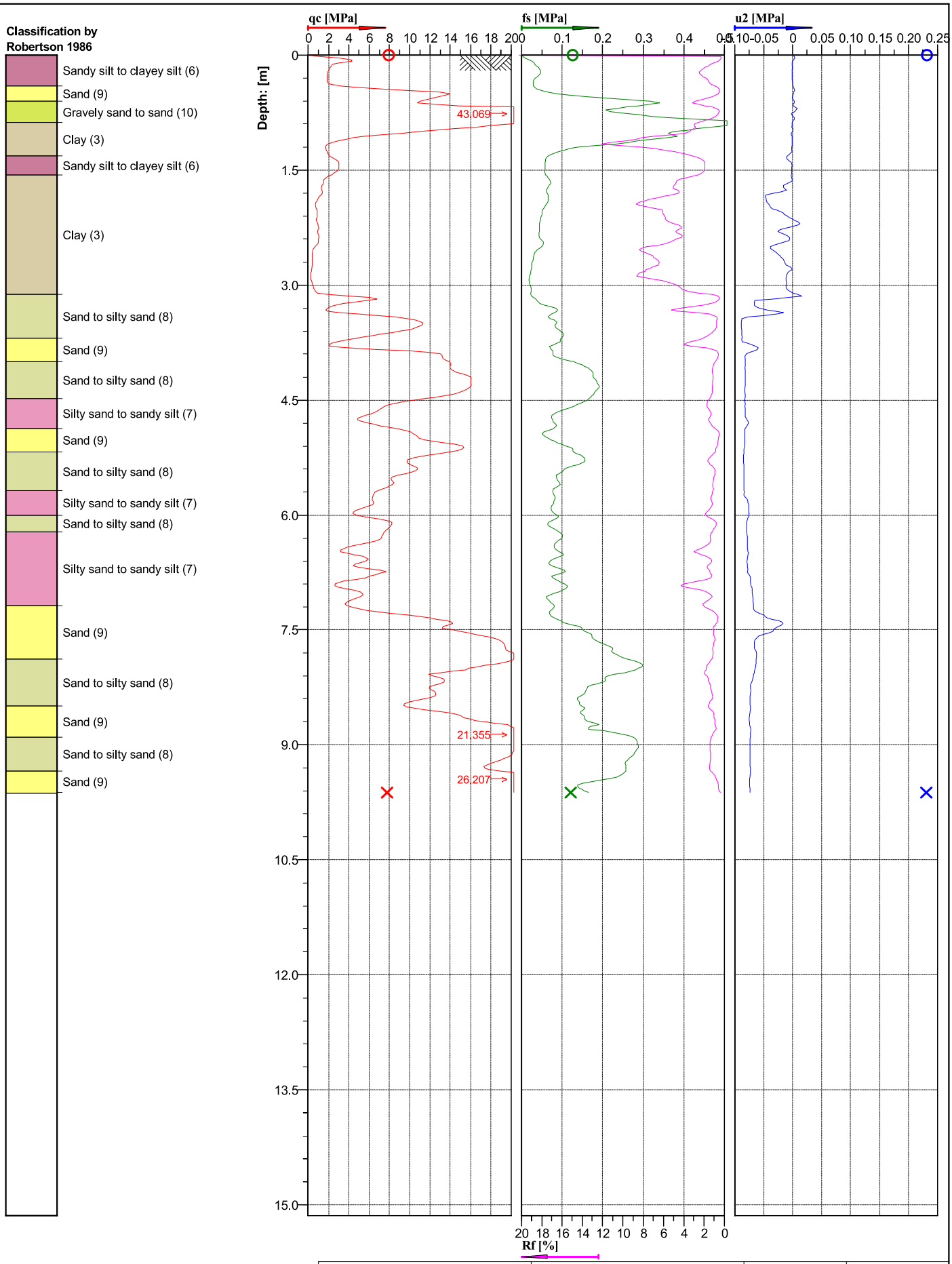


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

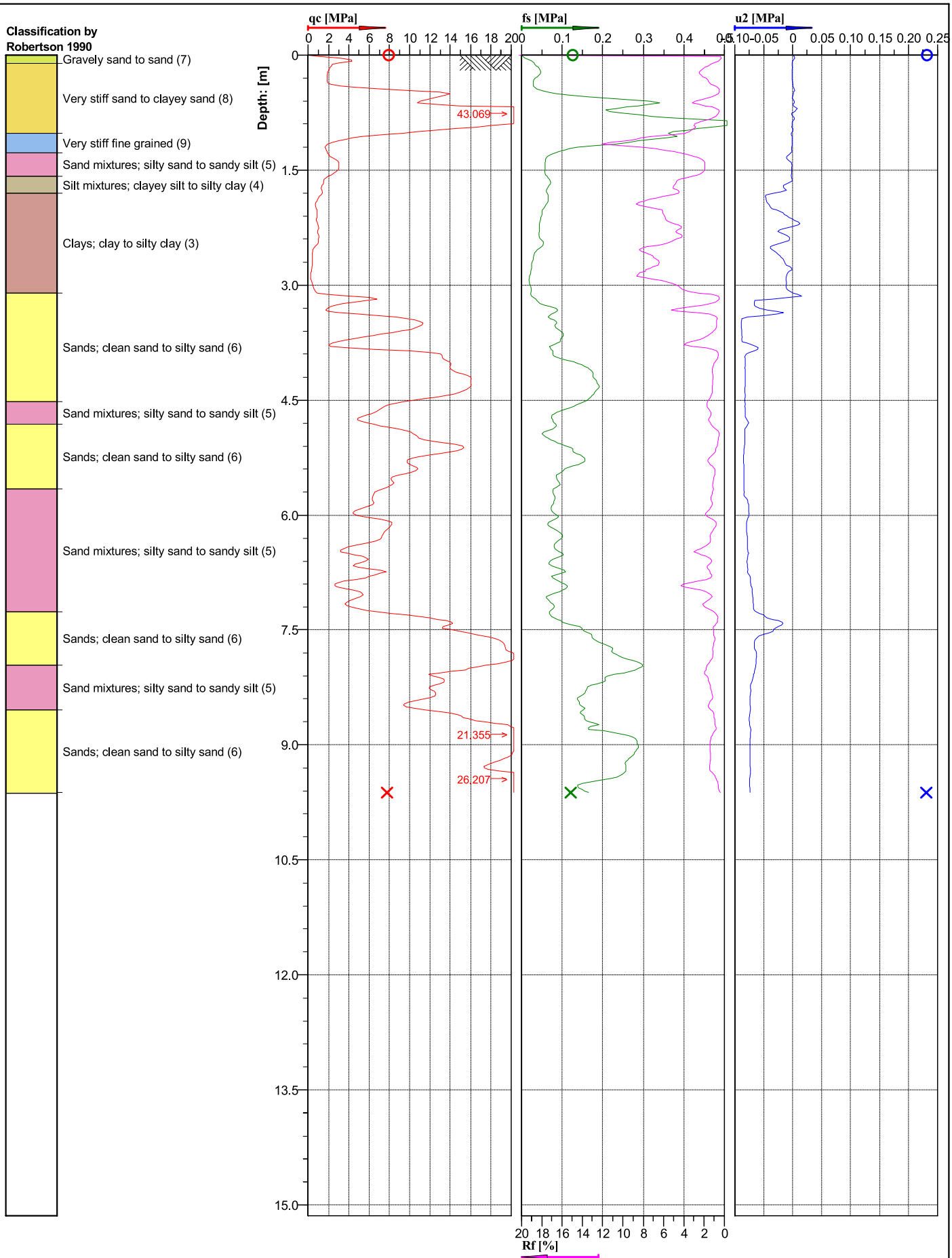
Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT08
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61526 E 176.82654		File: CPT08.cpt	



Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT09
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61501 E 176.82652		File: CPT09.cpt	

GEOTECH DRILLING

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



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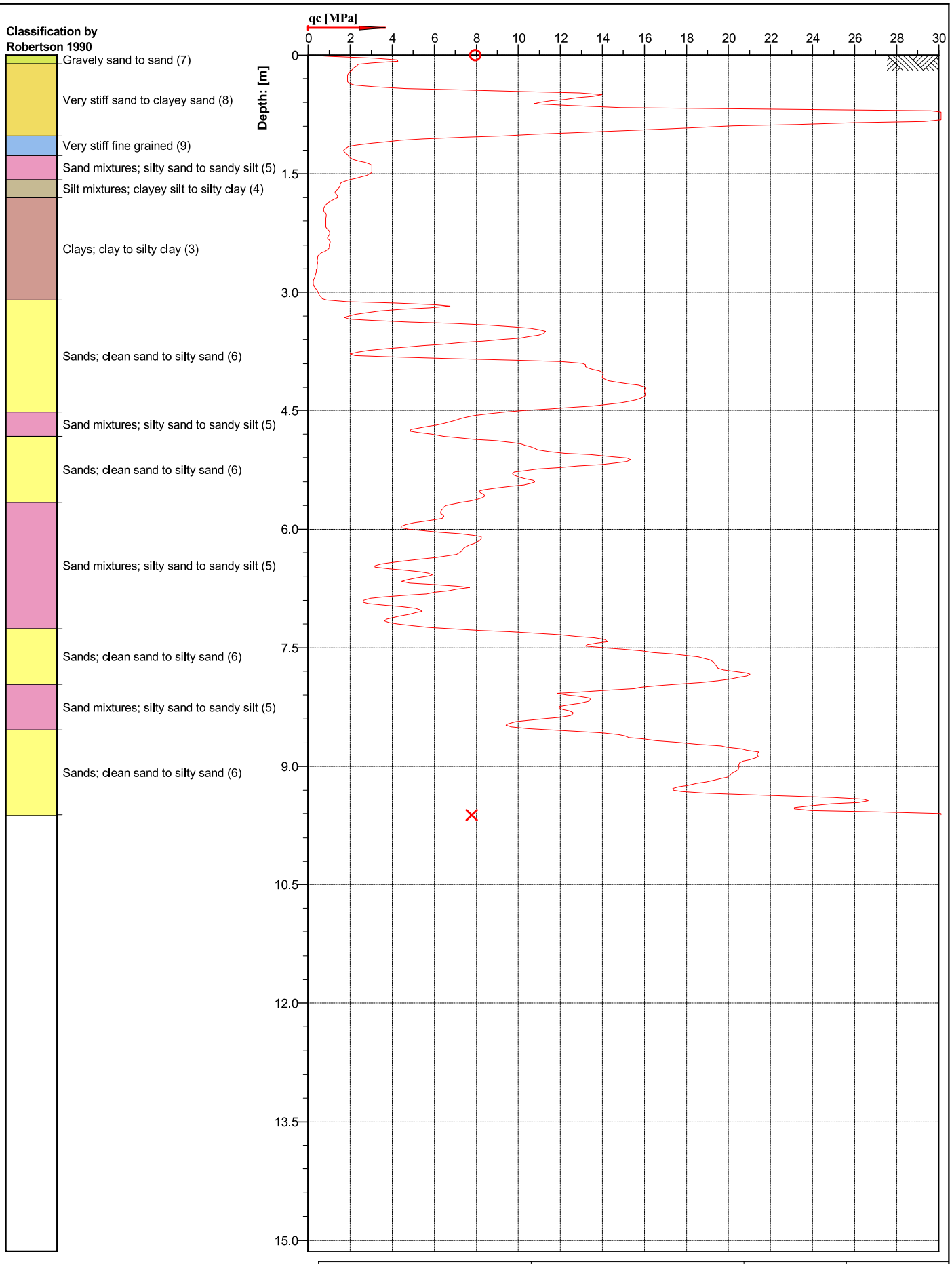
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61501 E 176.82652		File: CPT09.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

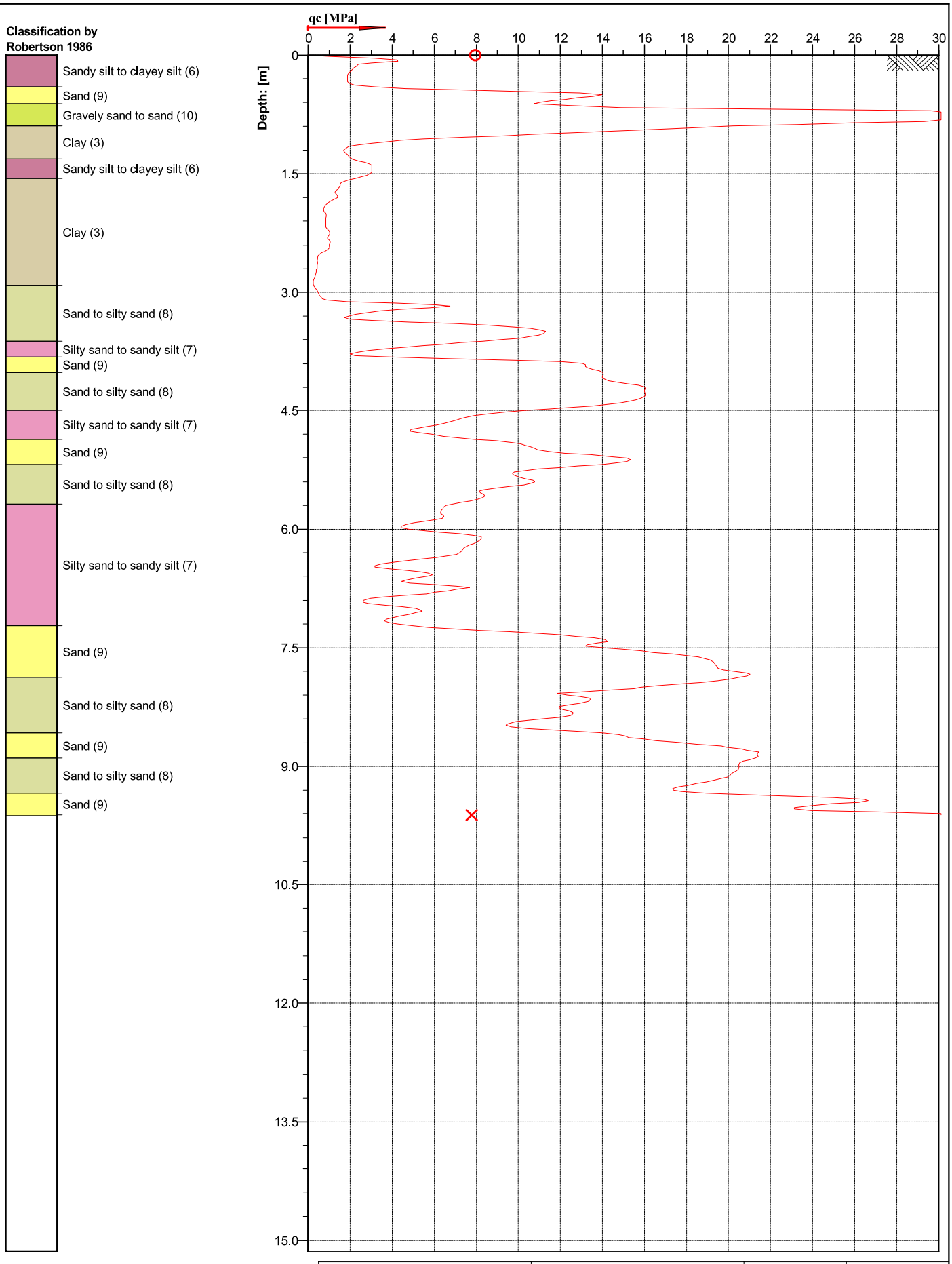


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT09
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61501 E 176.82652		File: CPT09.cpt	

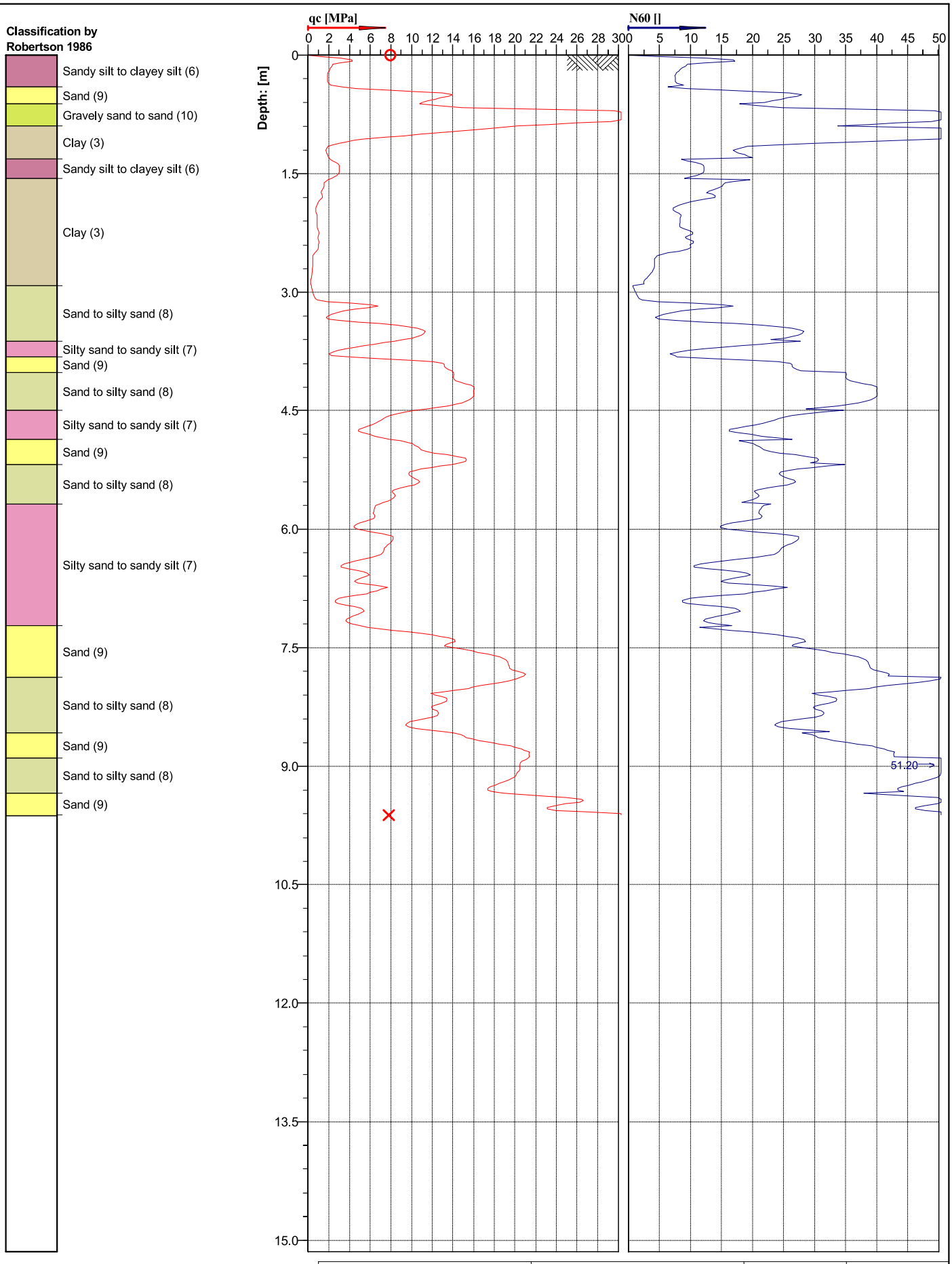


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT09
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61501 E 176.82652		File: CPT09.cpt	

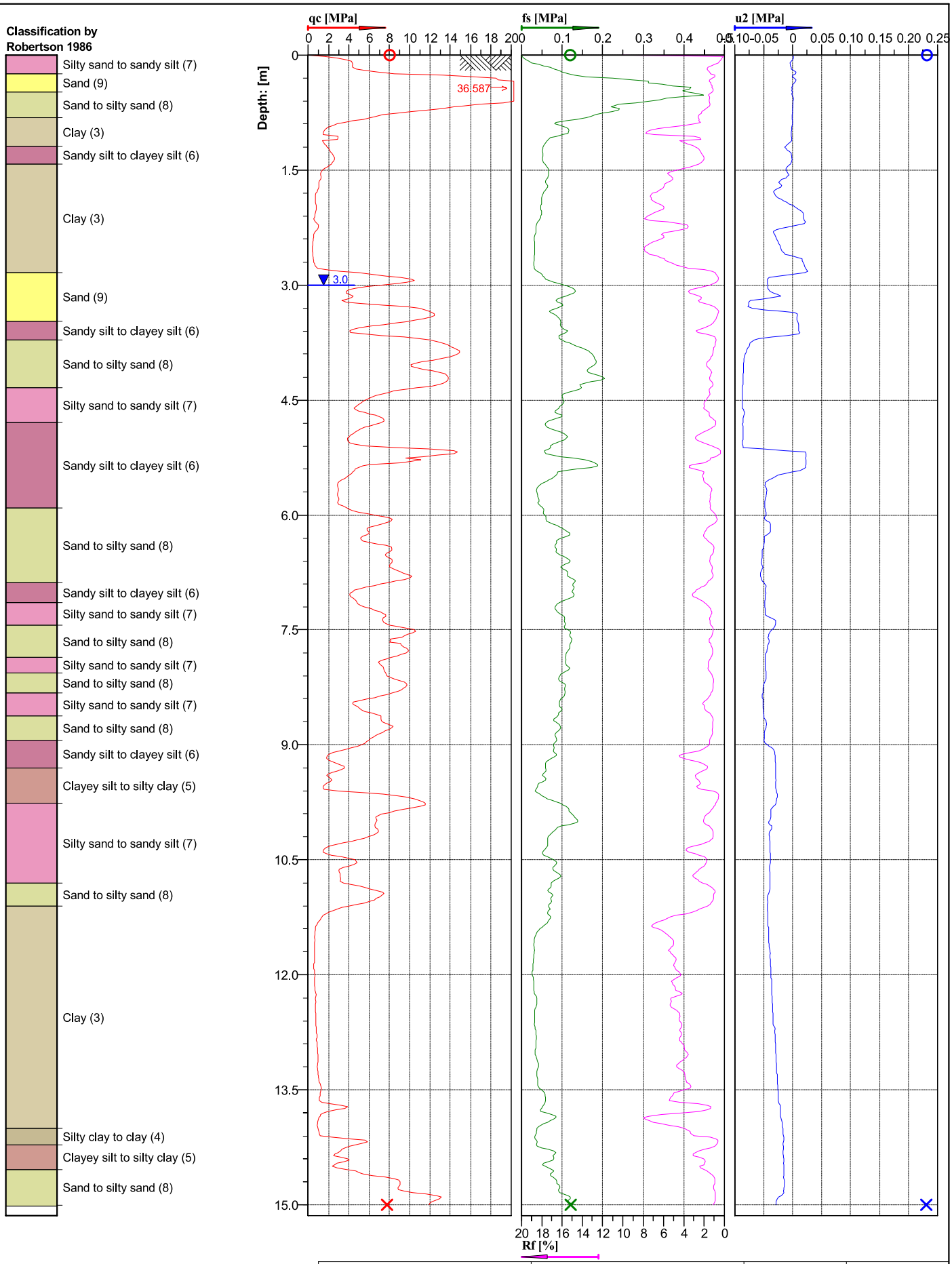


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT09
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61501 E 176.82652		File: CPT09.cpt	

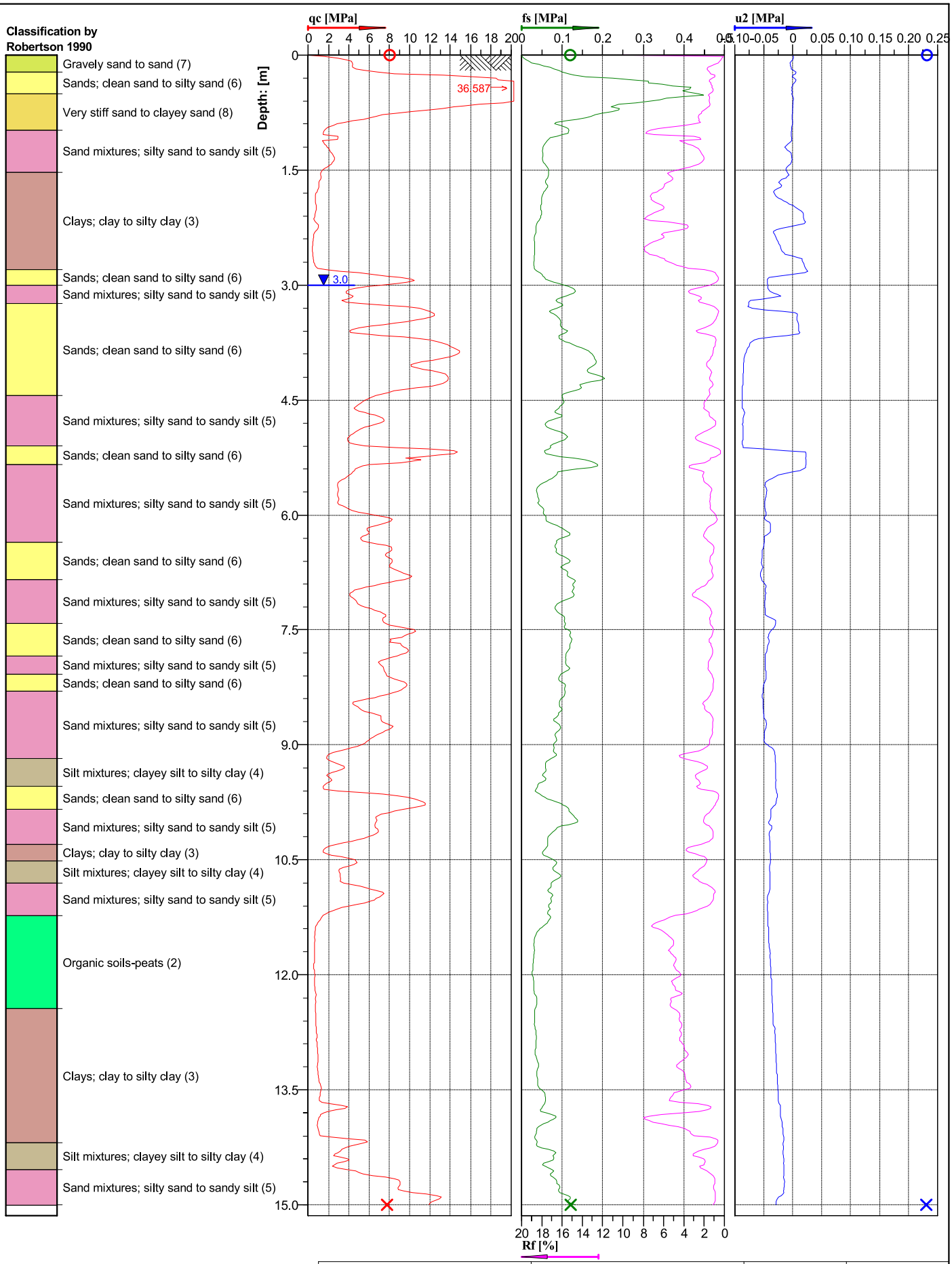


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT10
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61513 E 176.82663		File: CPT10.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

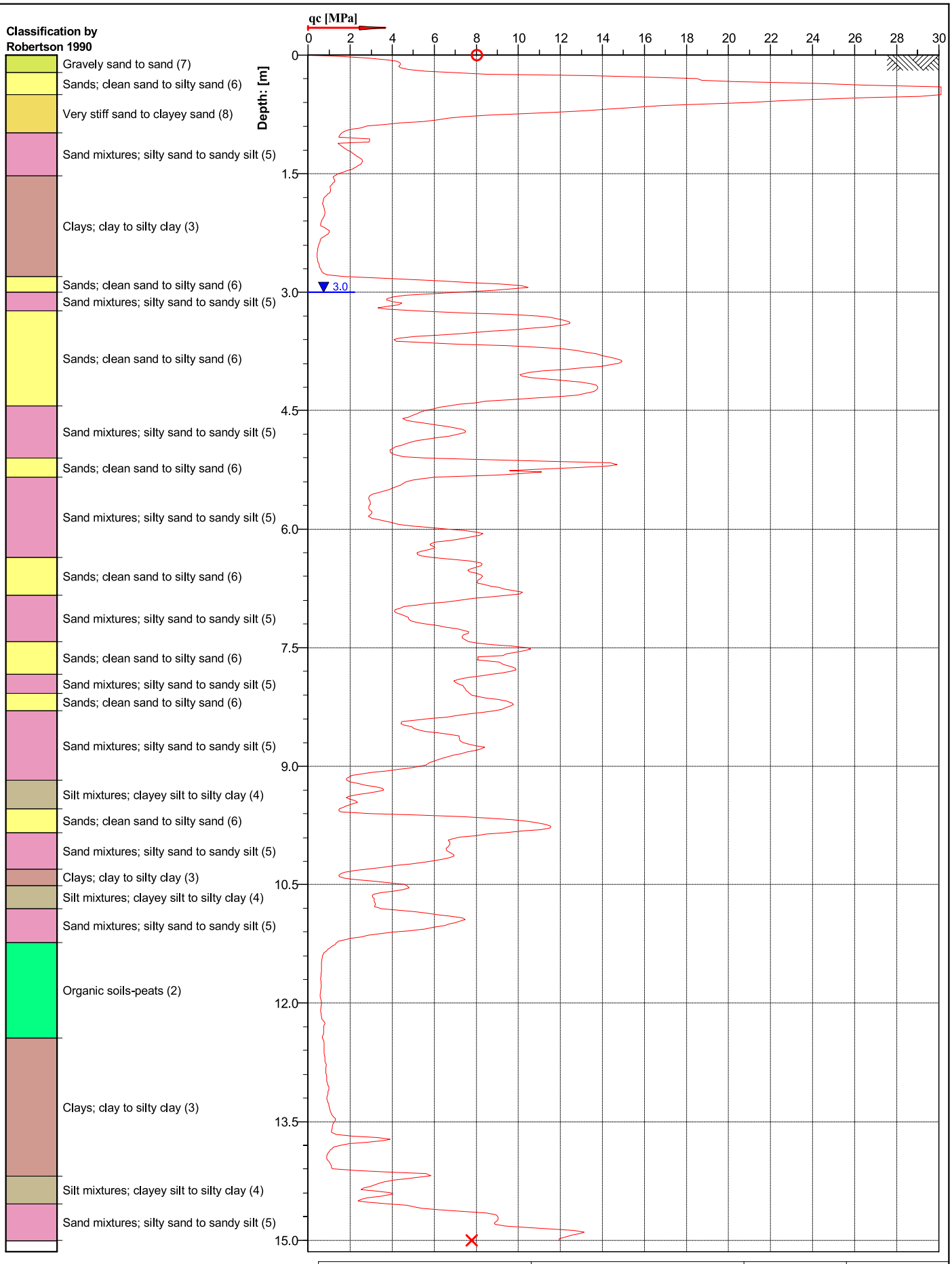


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT10
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61513 E 176.82663		File: CPT10.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

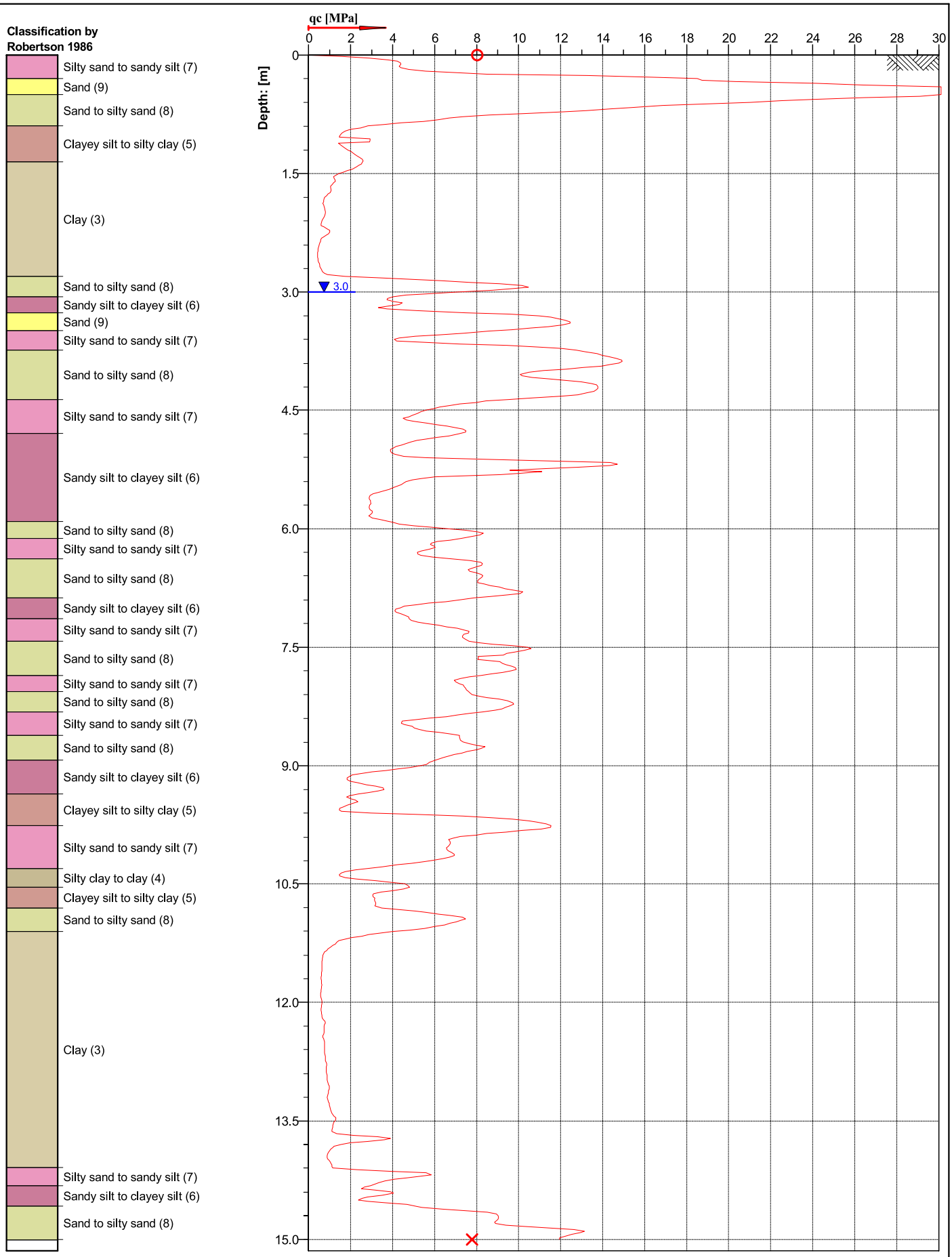


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT10
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61513 E 176.82663		File: CPT10.cpt	

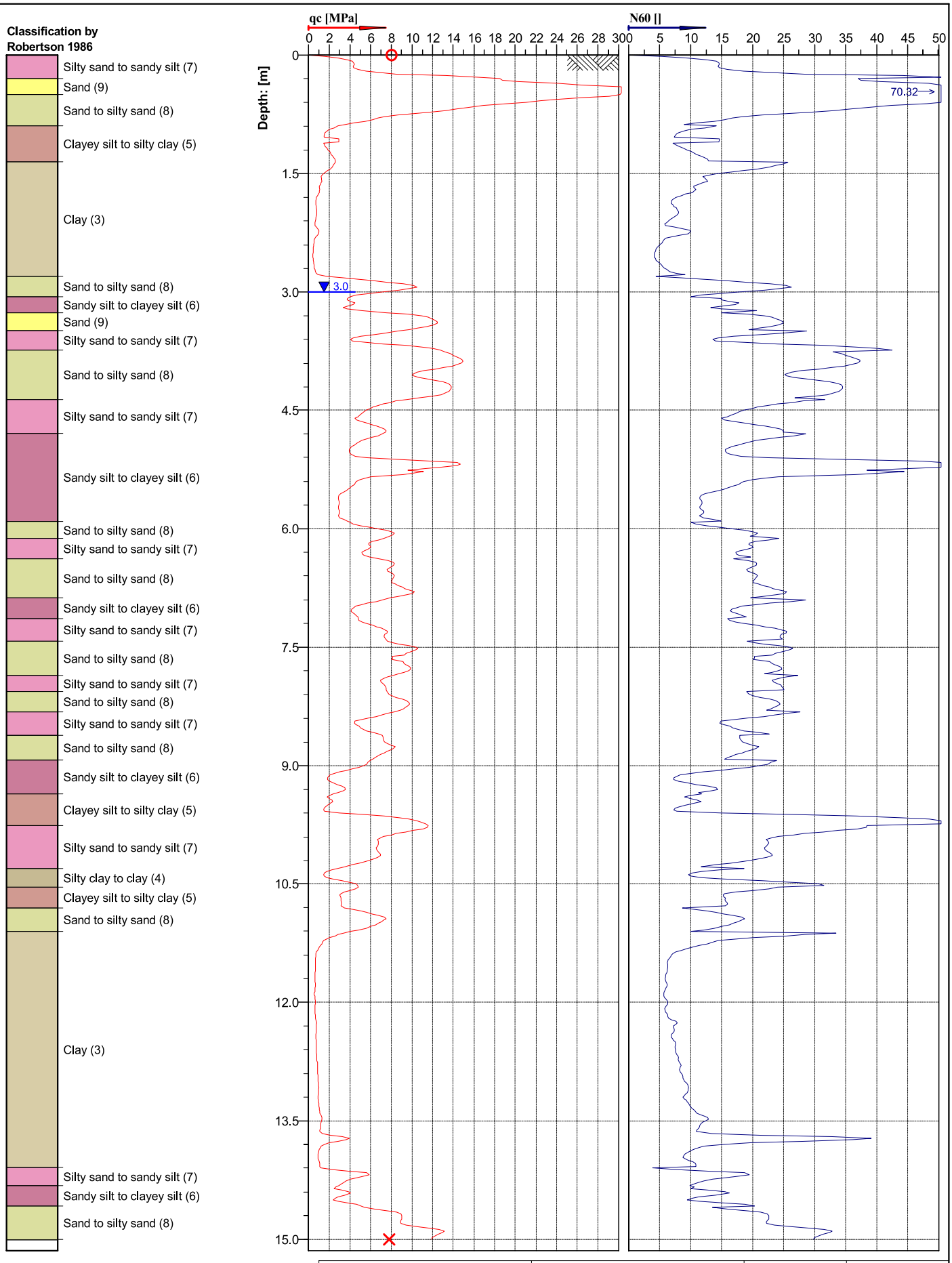


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT10
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61513 E 176.82663		File: CPT10.cpt	

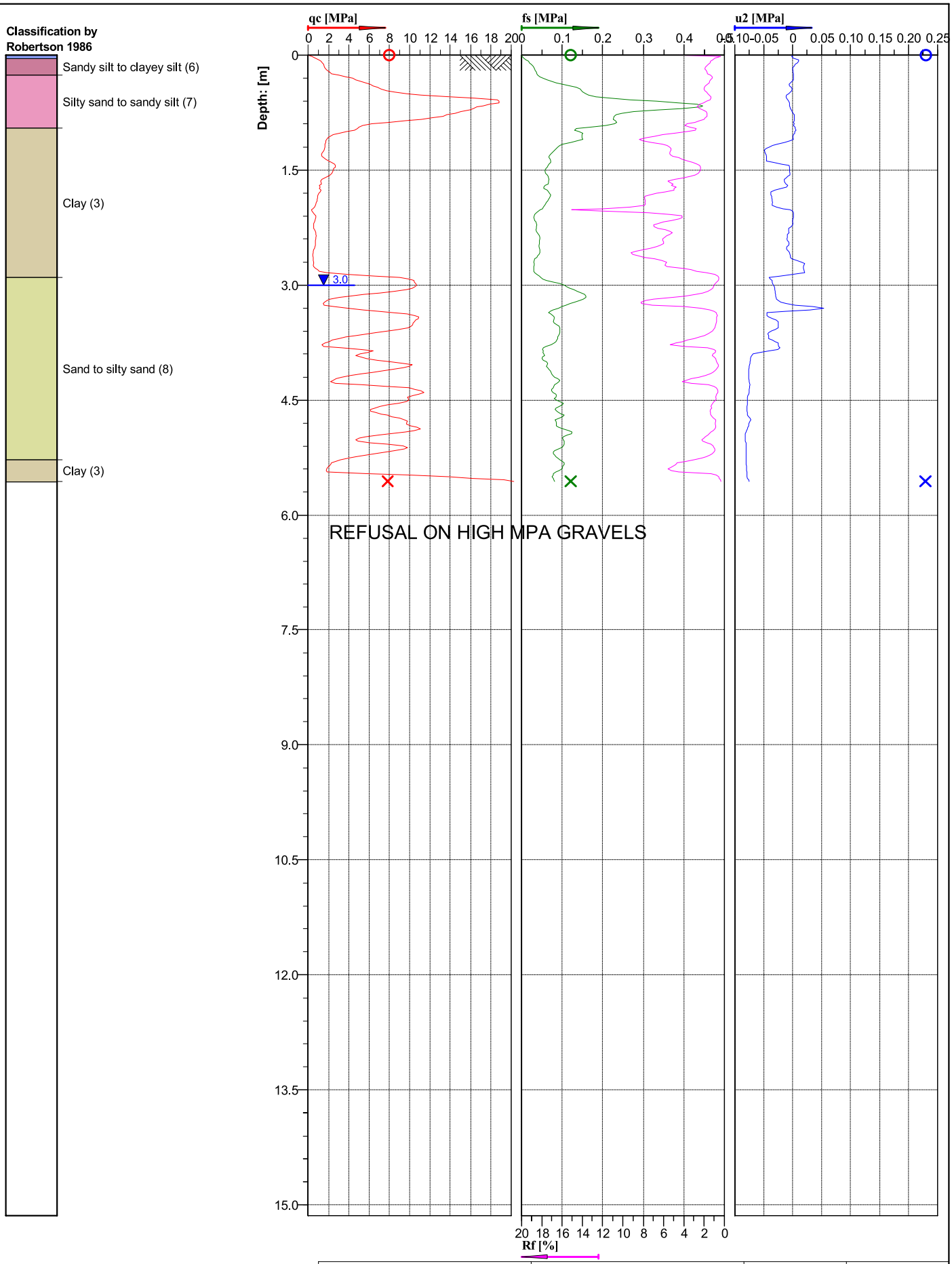
GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT10
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61513 E 176.82663		File: CPT10.cpt	

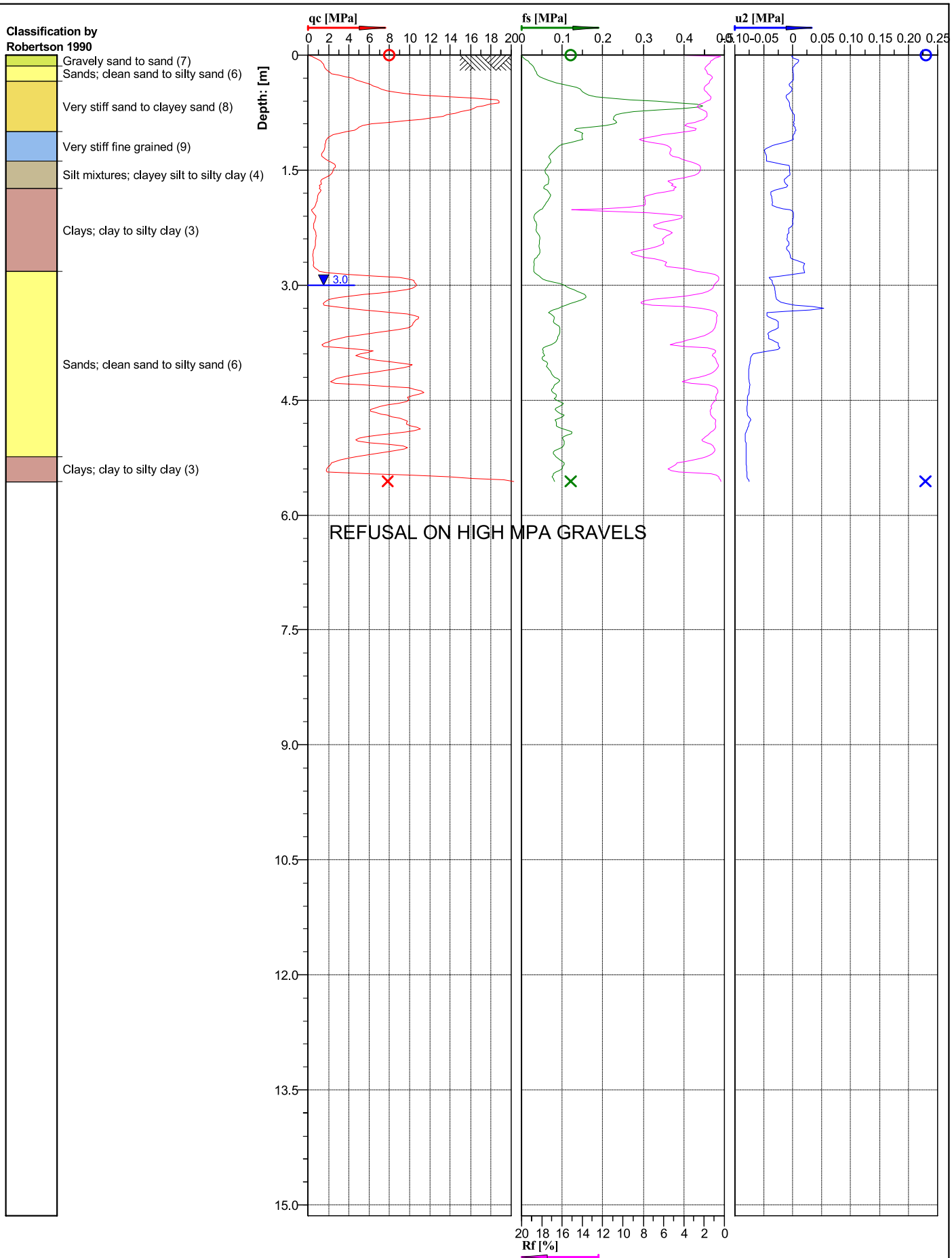


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT11
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61498 E 176.82679		File: CPT11.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

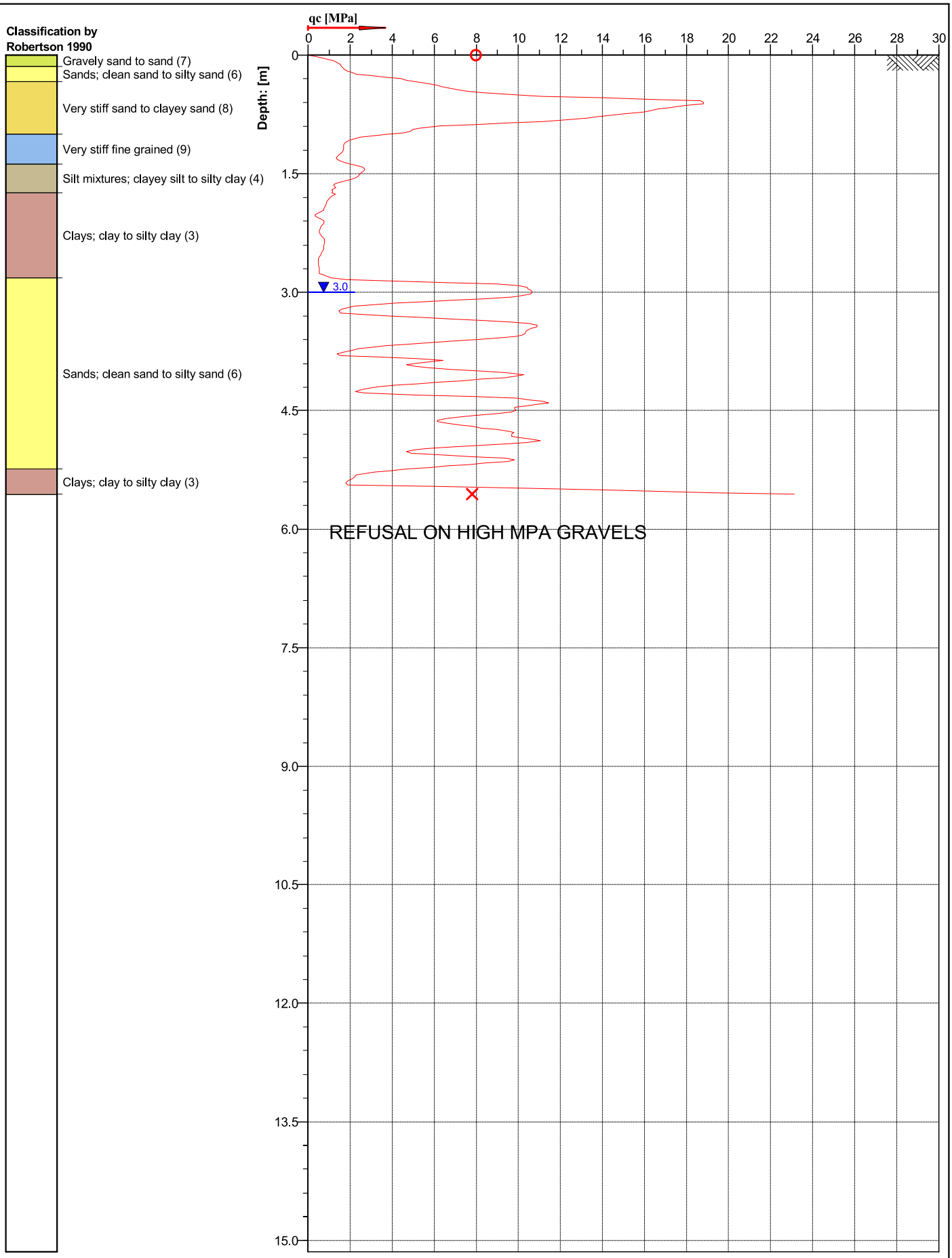


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT11
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61498 E 176.82679		File: CPT11.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

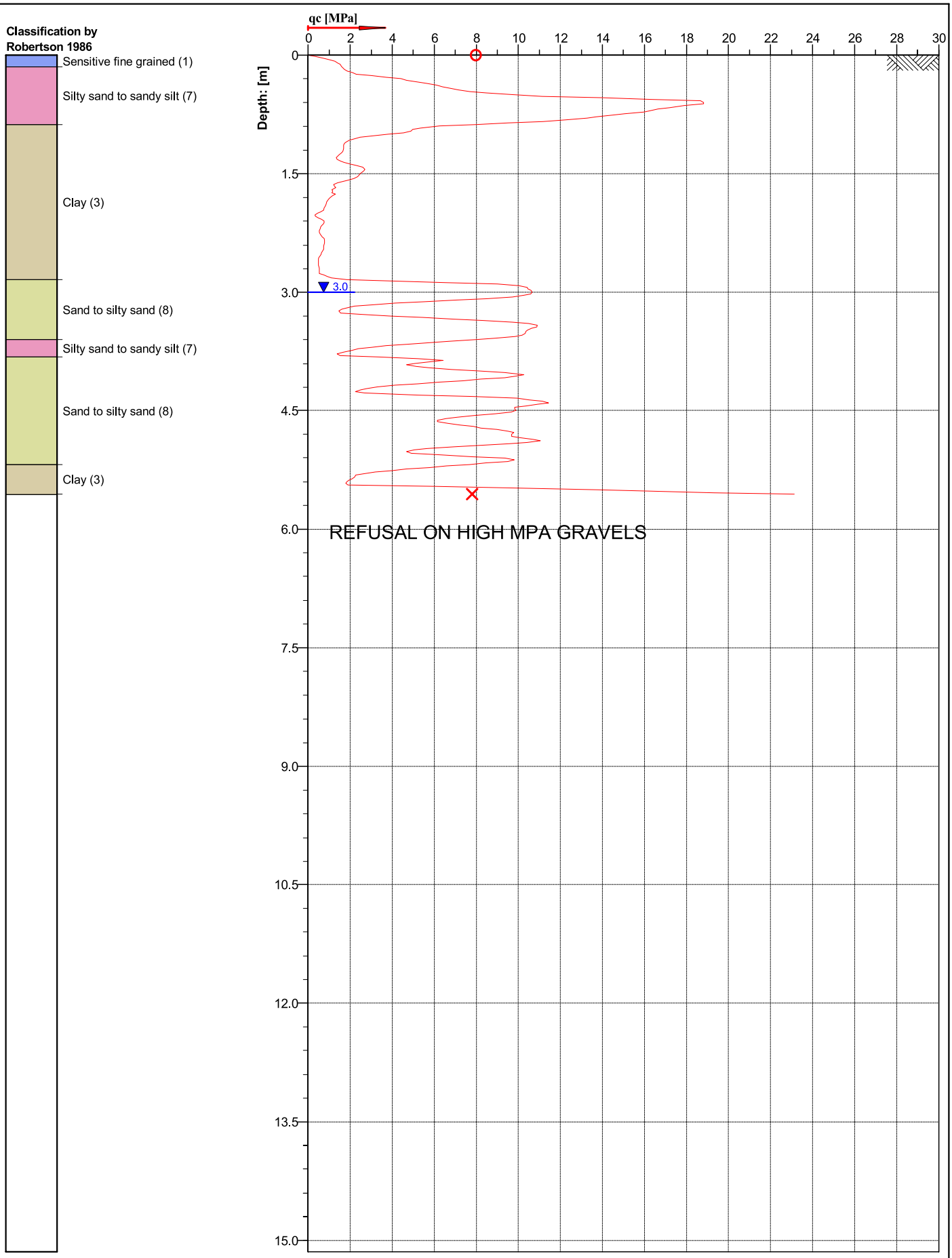


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT11
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61498 E 176.82679		File: CPT11.cpt	

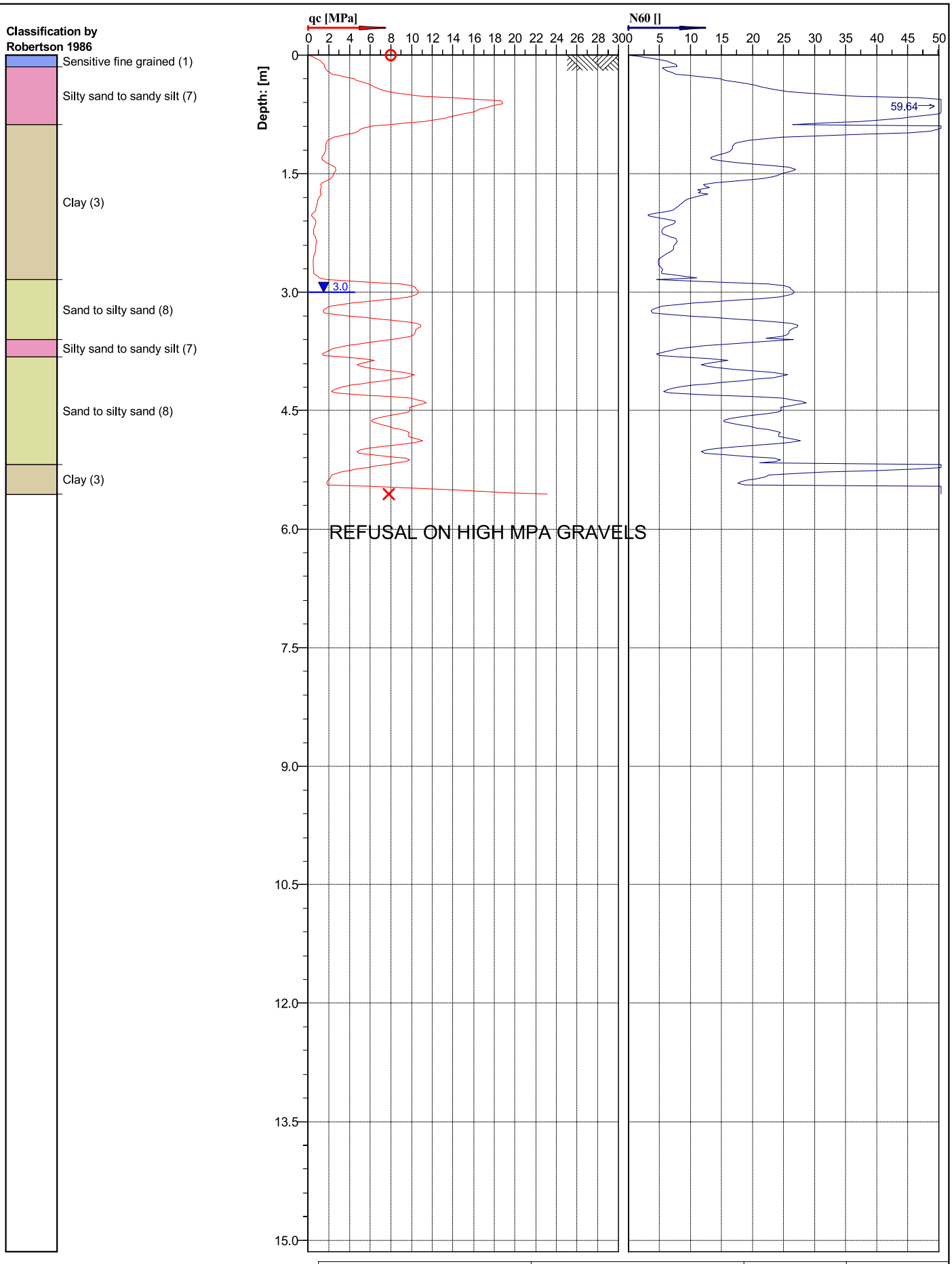


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT11
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61498 E 176.82679		File: CPT11.cpt	

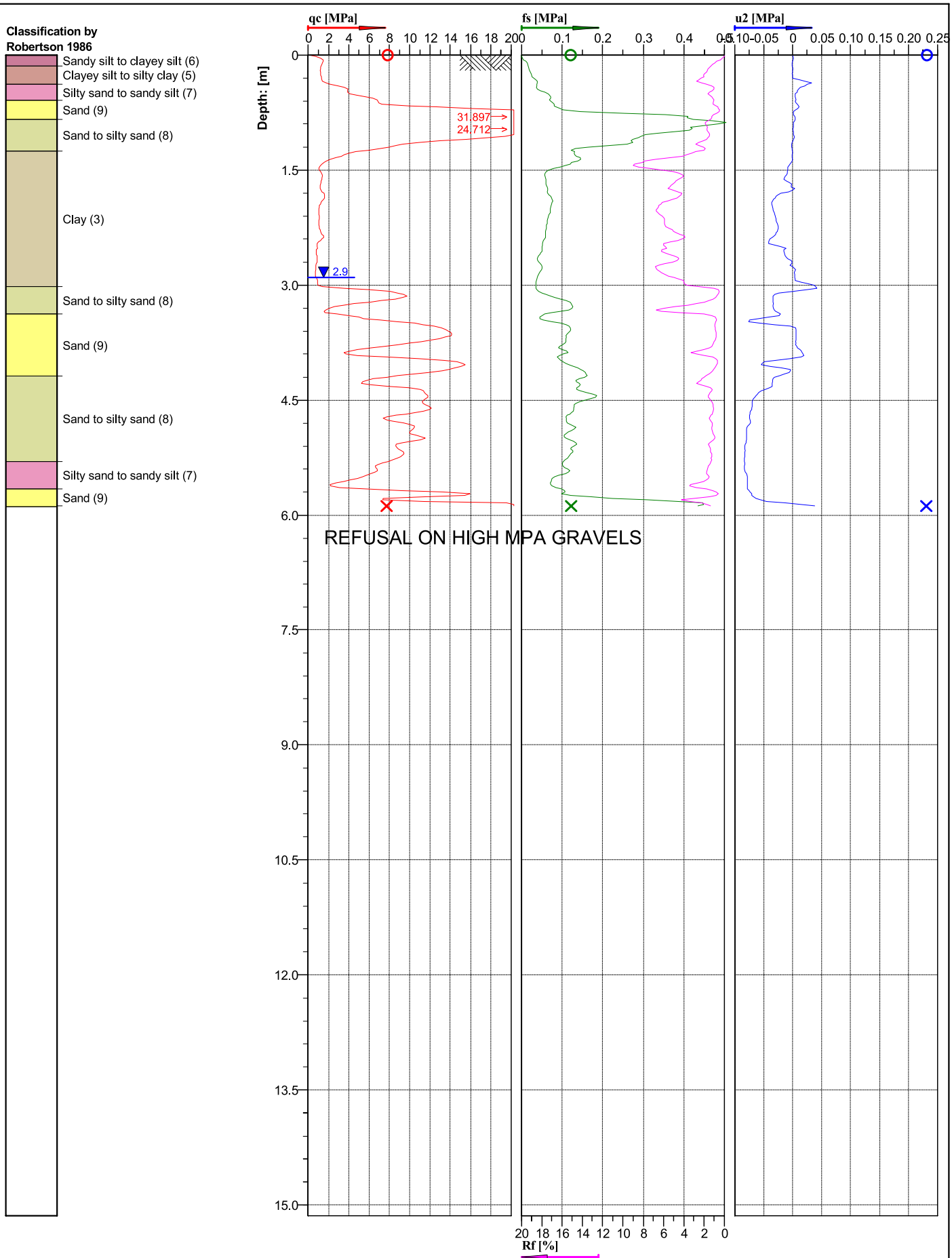


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT11
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61498 E 176.82679		File: CPT11.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

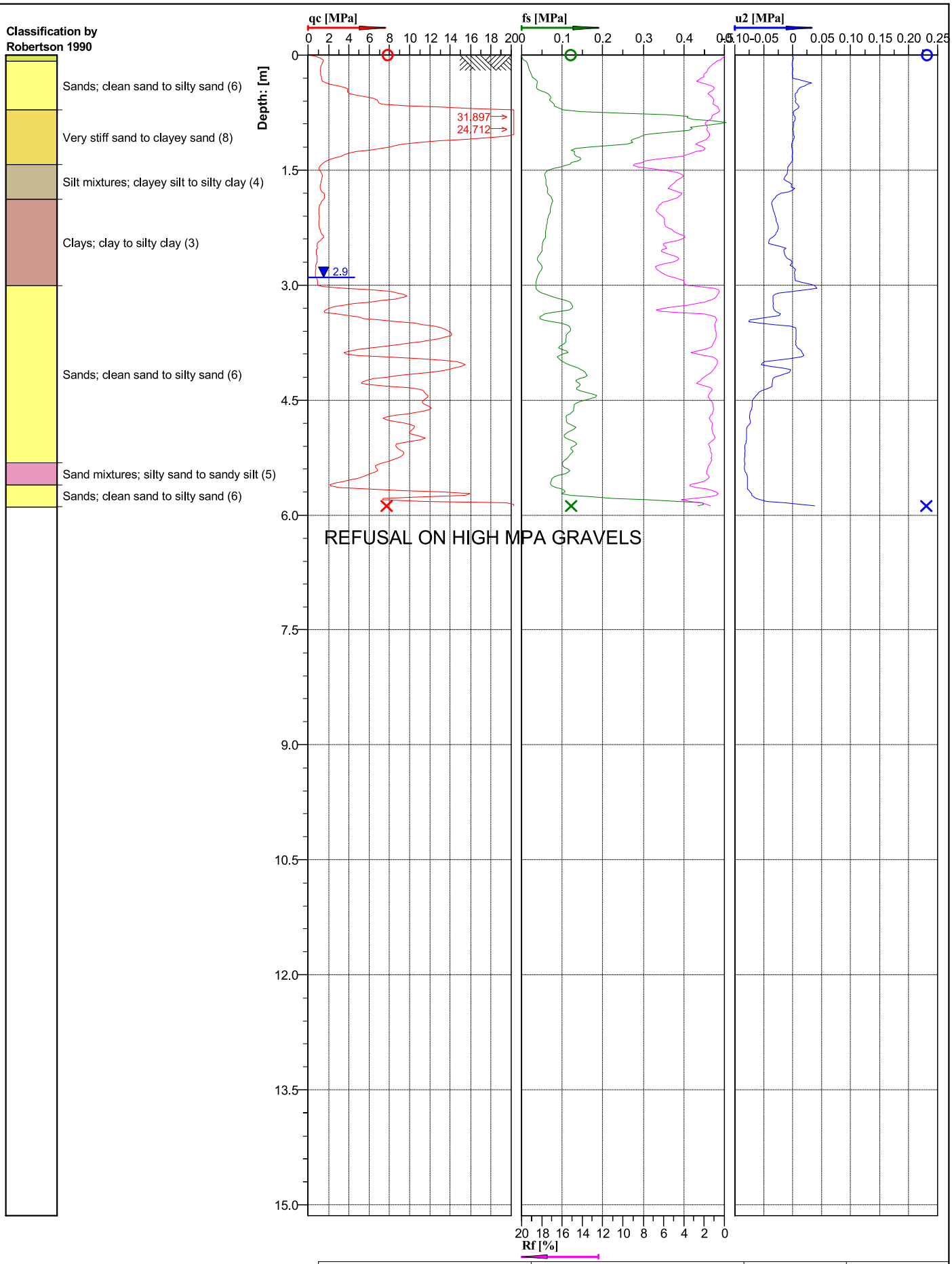


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT12
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61487 E 176.82666		File: CPT12.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

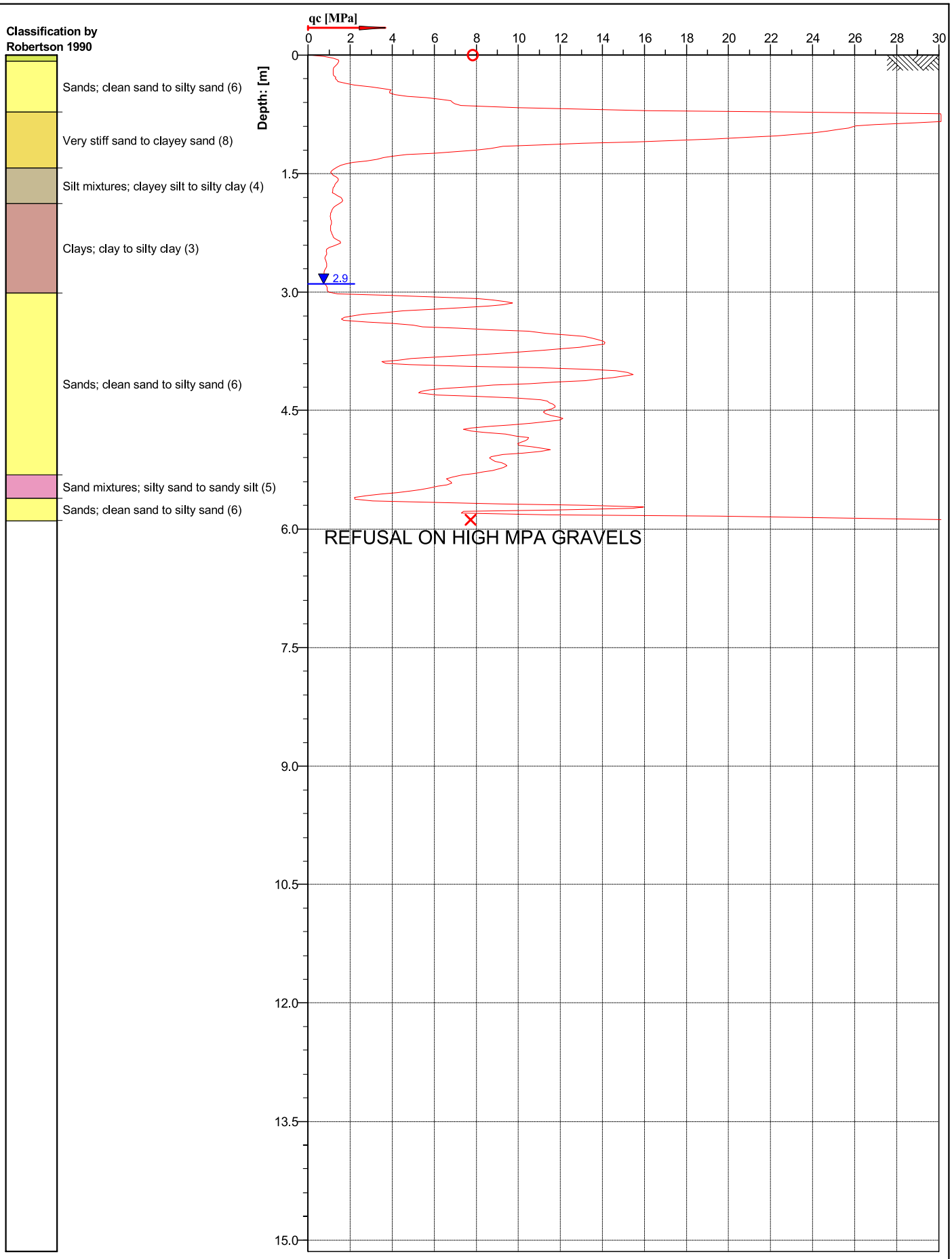


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT12
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61487 E 176.82666		File: CPT12.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT12
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
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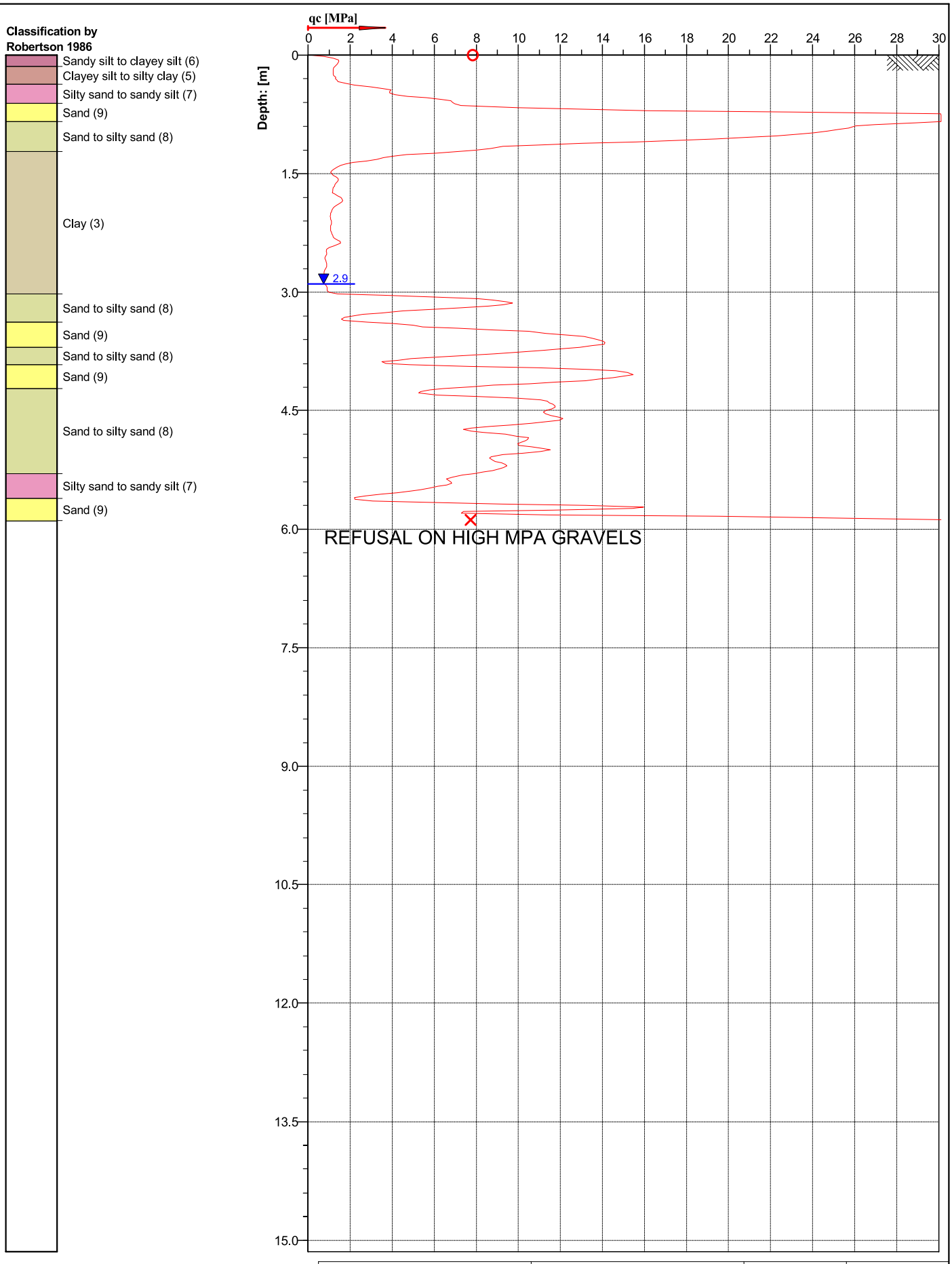
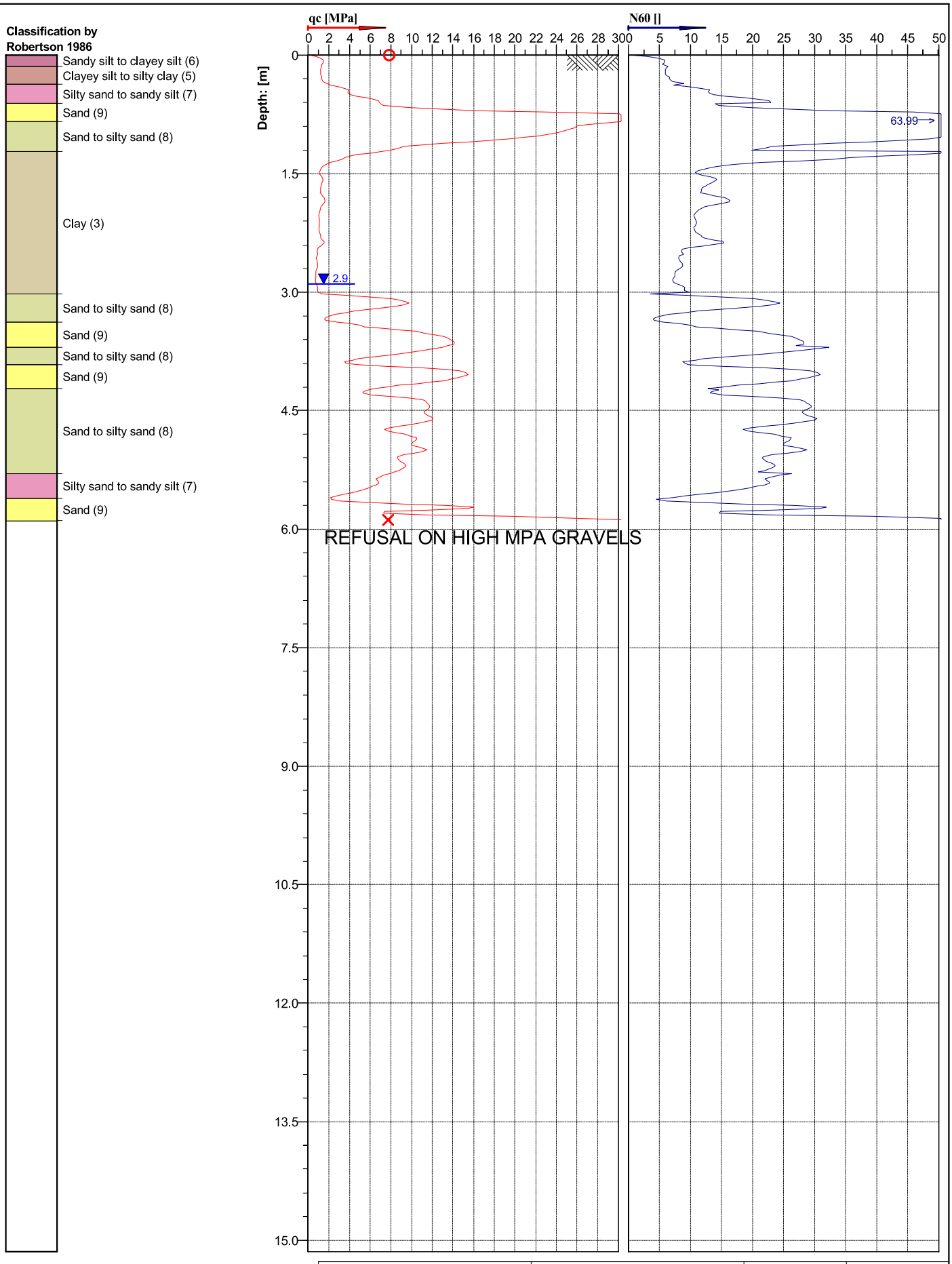


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT12
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61487 E 176.82666		File: CPT12.cpt	

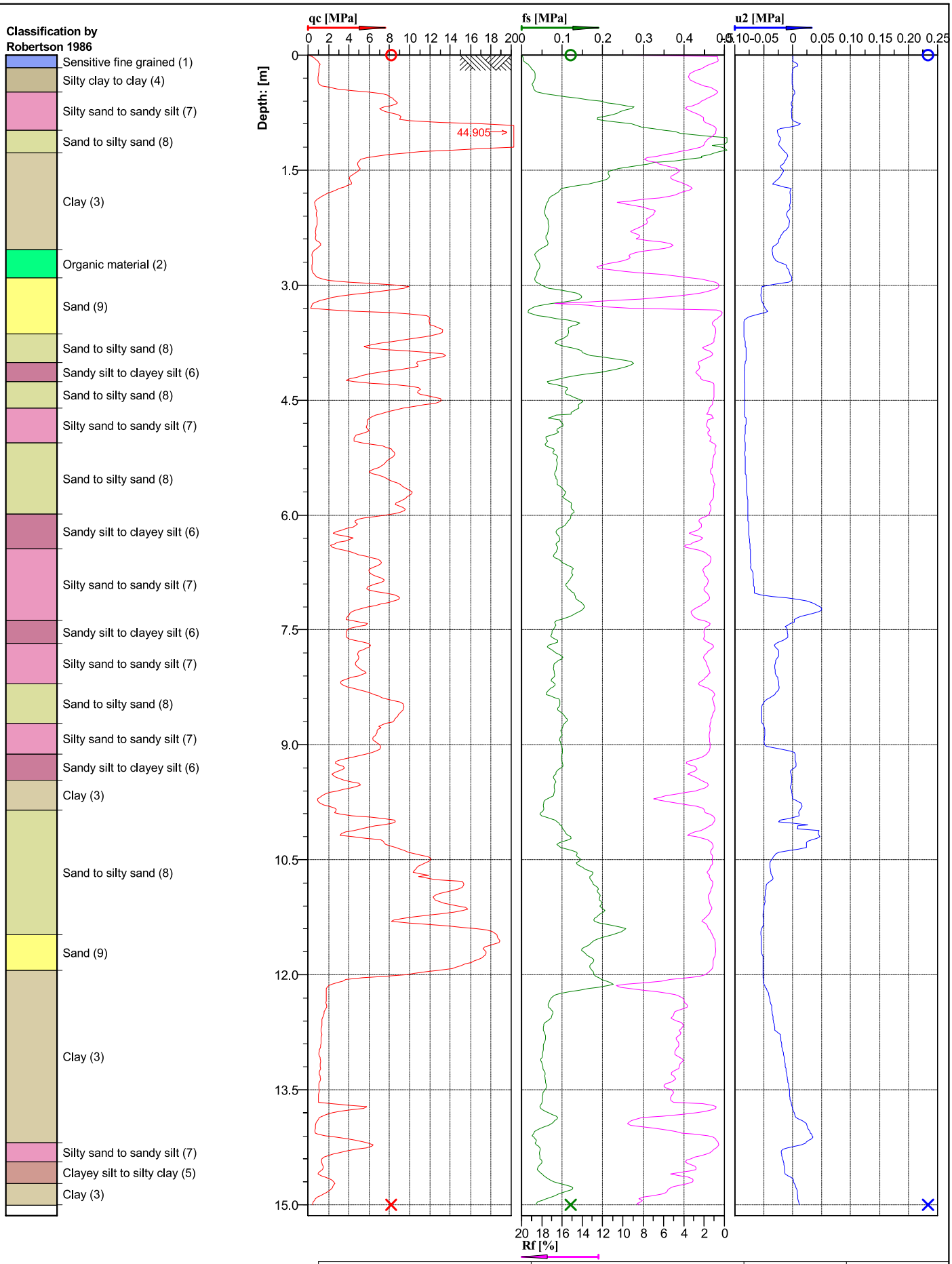


GEOTECH DRILLING

u2

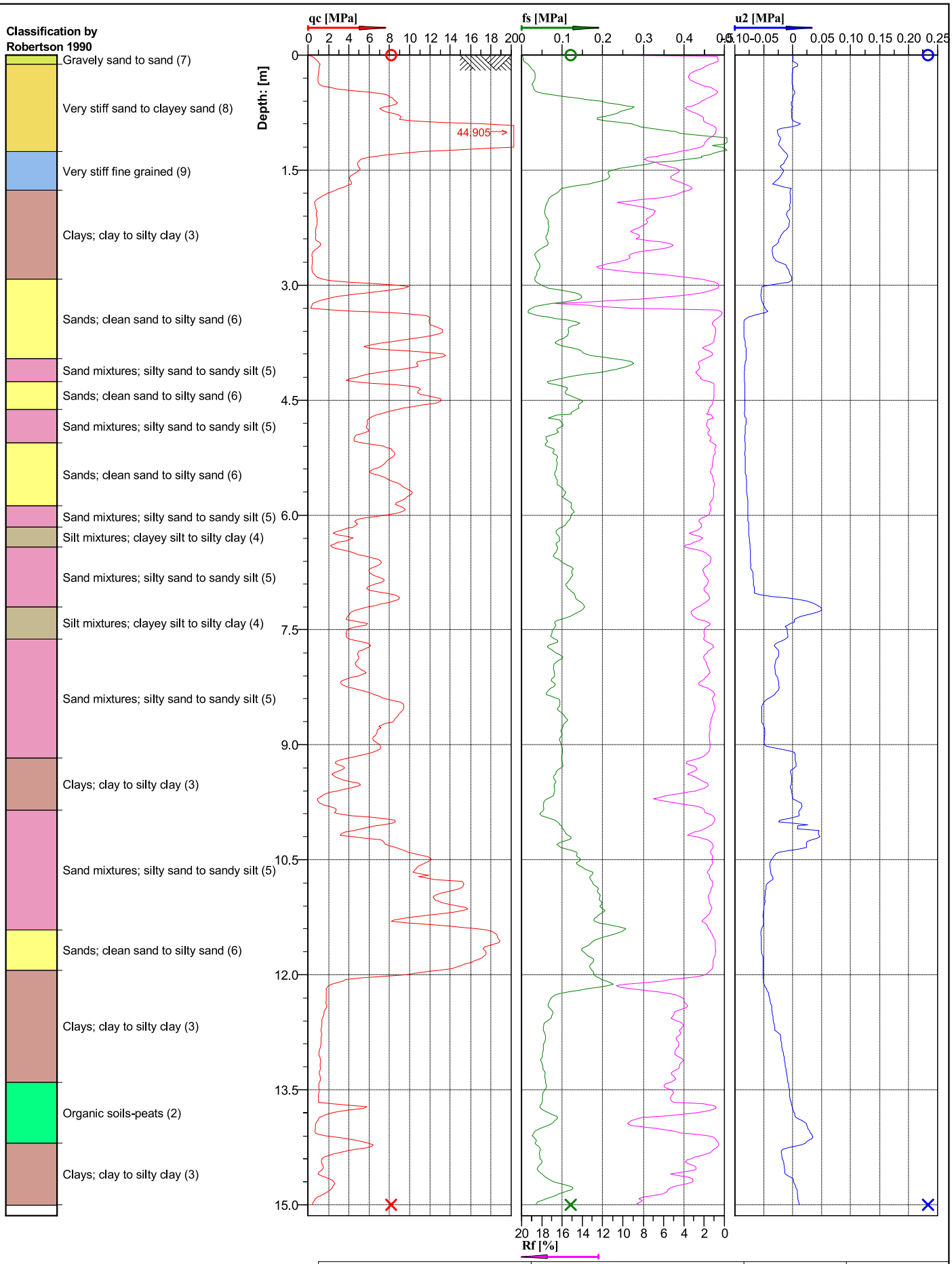
Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT12
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61487 E 176.82666		File: CPT12.cpt	



Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT13
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61481 E 176.82690		File: CPT13.cpt	

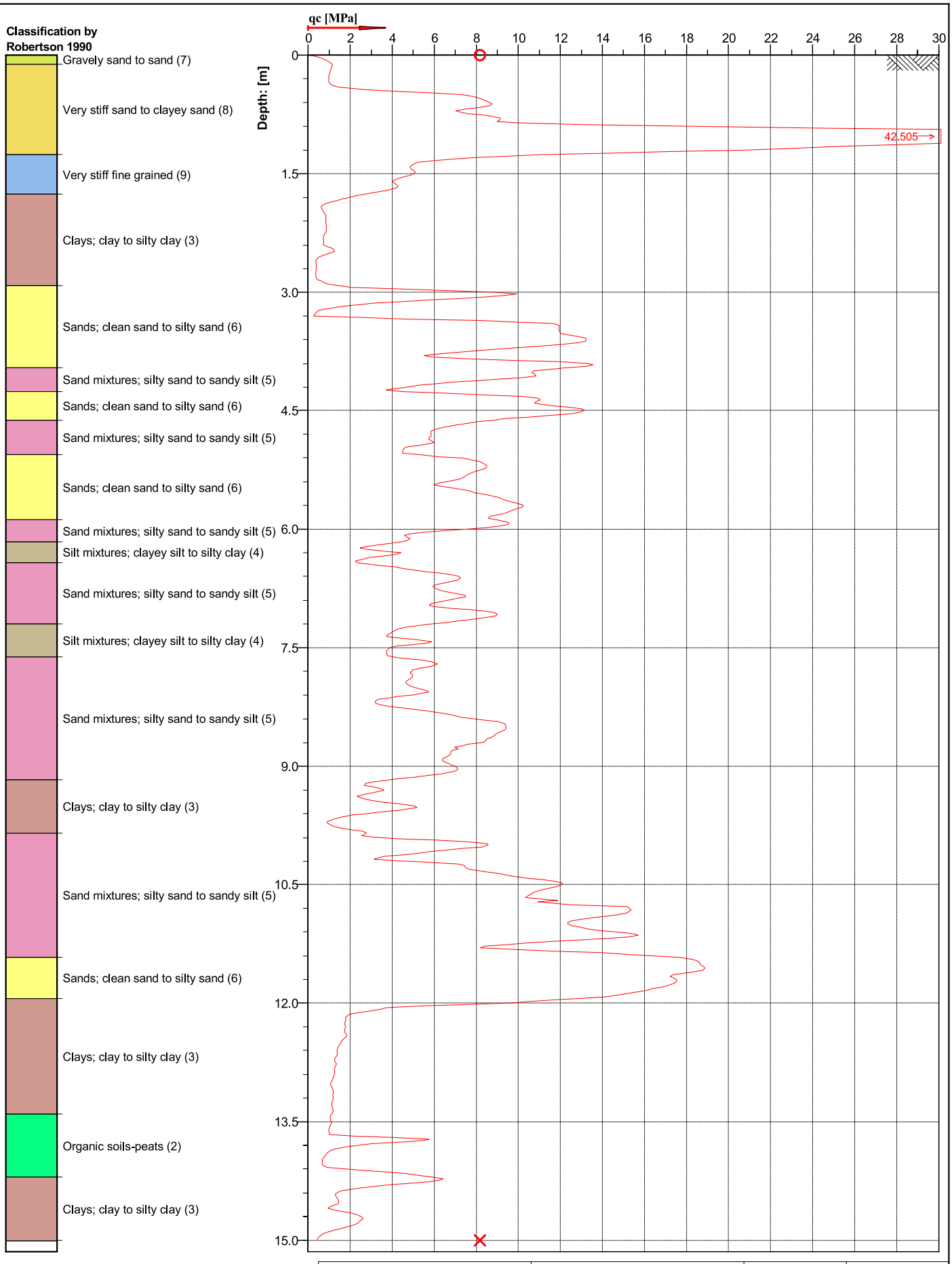


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT13
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61481 E 176.82690		File: CPT13.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

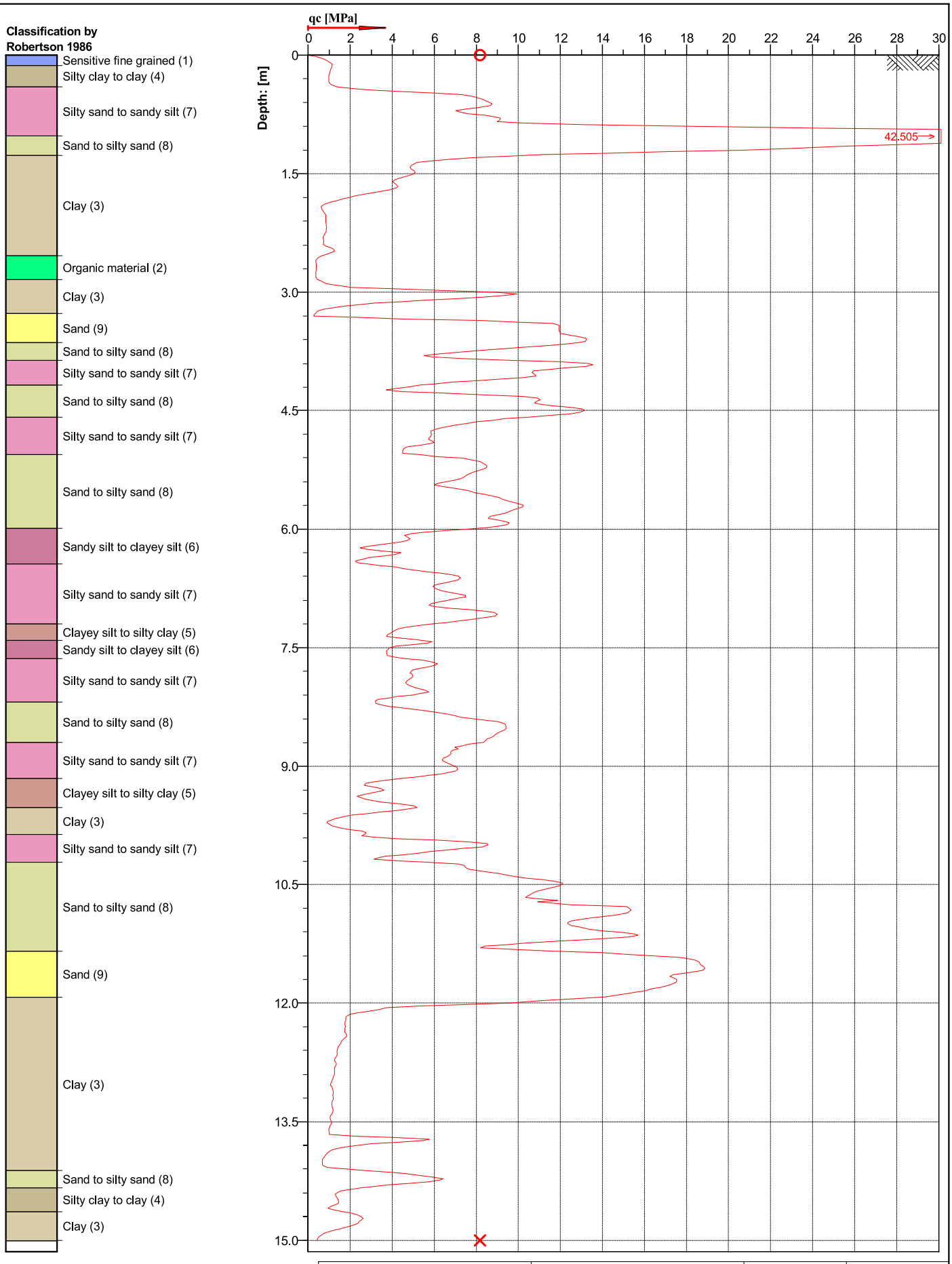


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

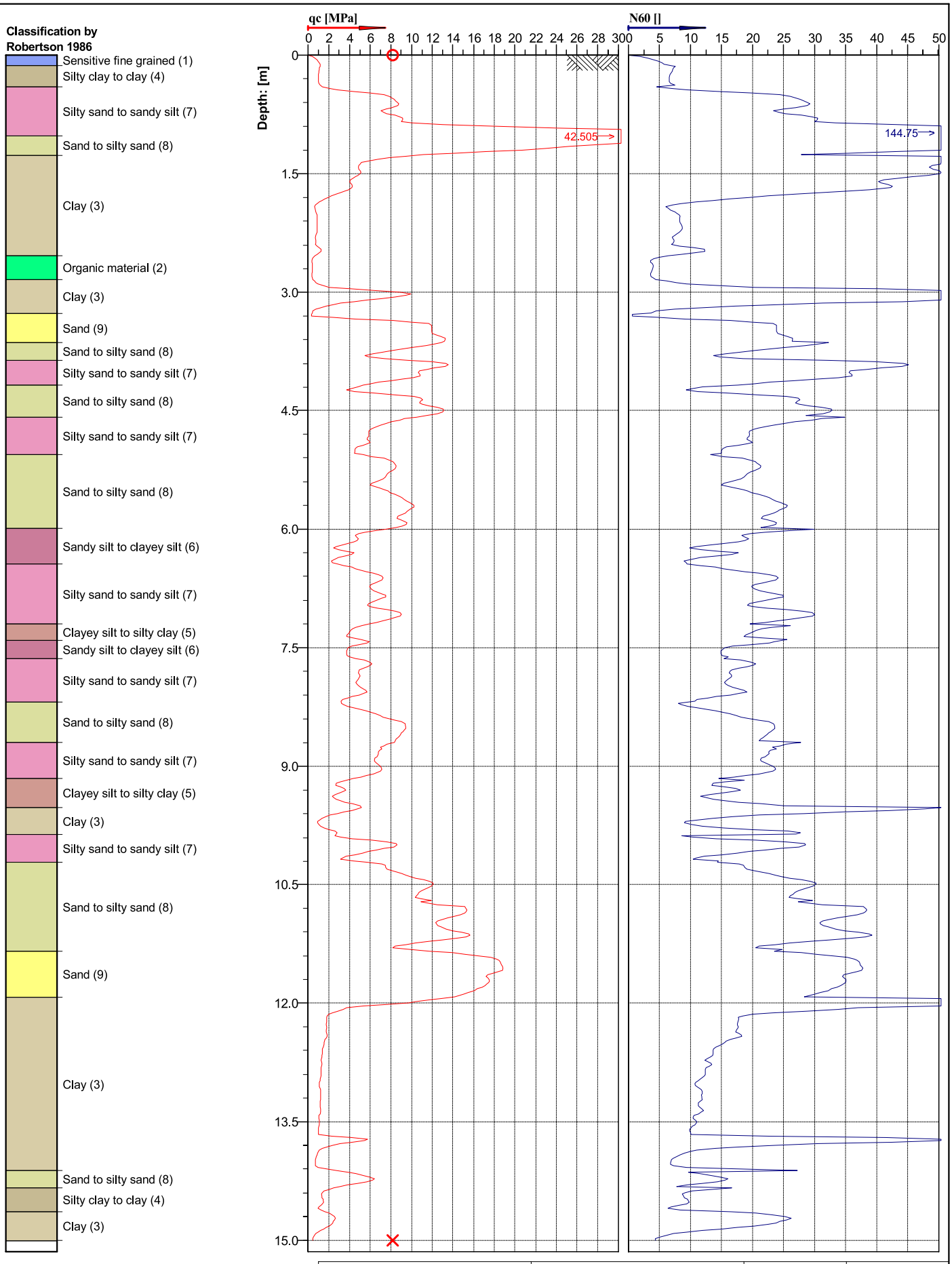
Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT13
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61481 E 176.82690		File: CPT13.cpt	



GEOTECH DRILLING

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT13
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61481 E 176.82690		File: CPT13.cpt	

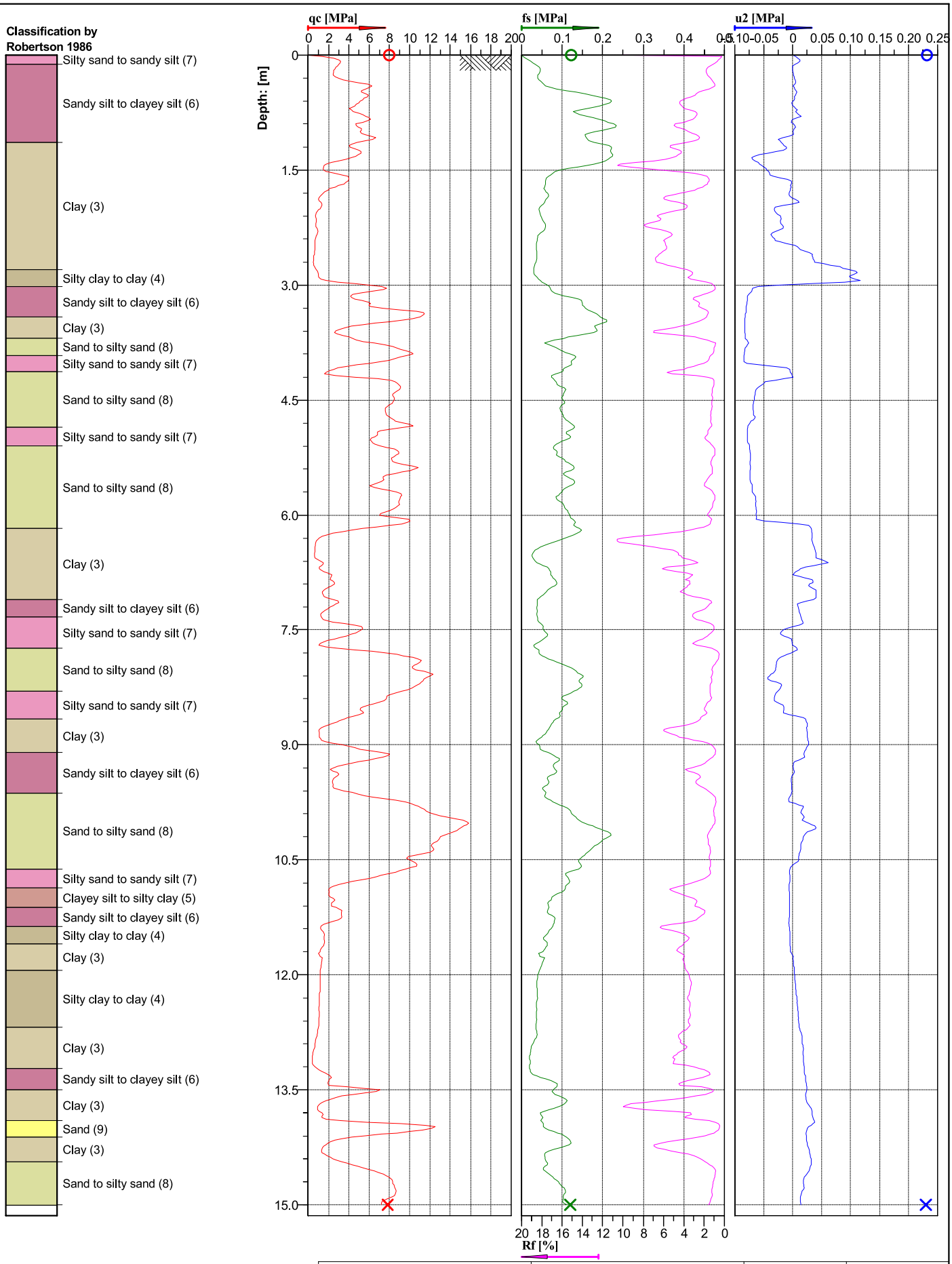


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT13
Project ID:	Client: INITIA	Date: 10/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61481 E 176.82690		File: CPT13.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

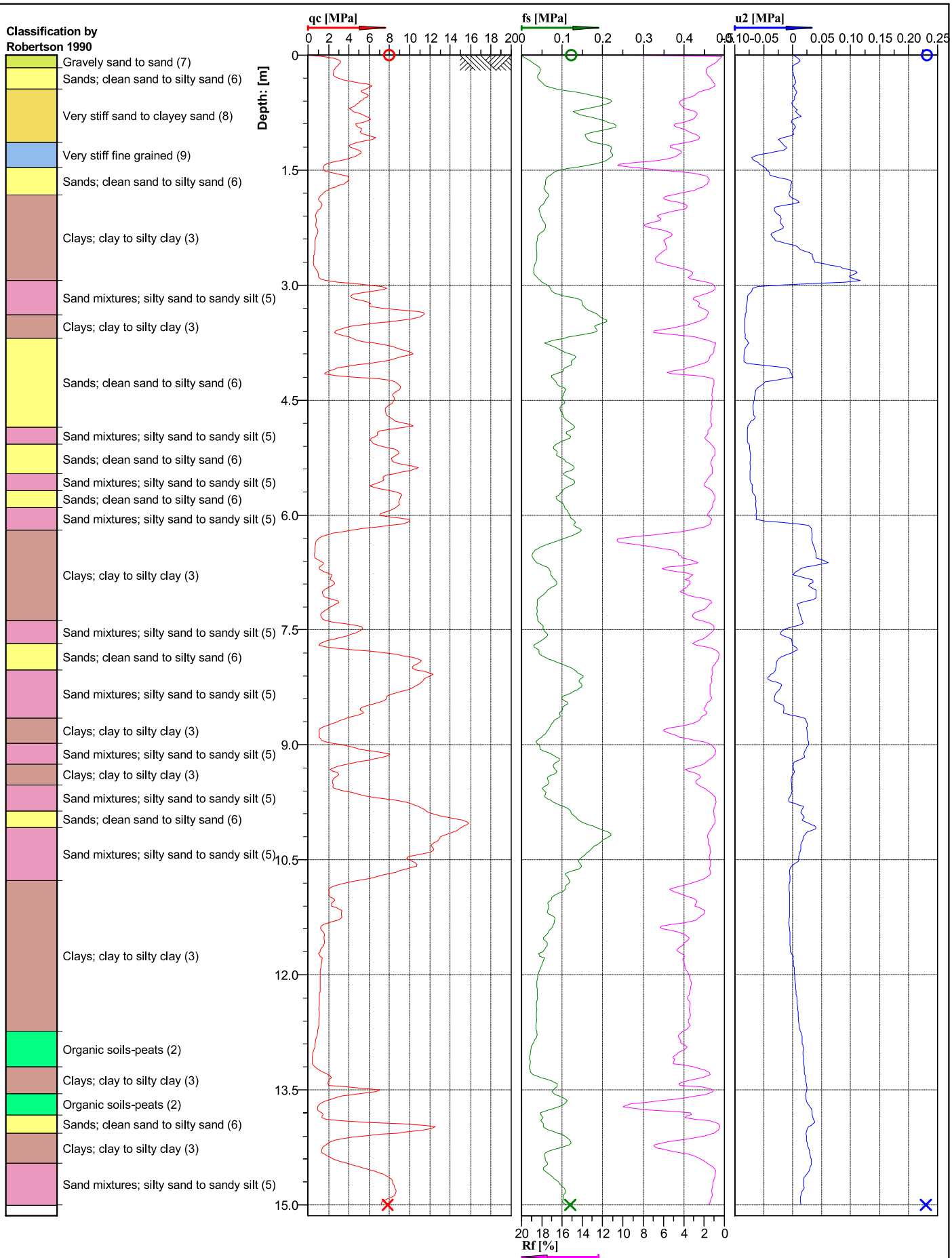


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT14
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61483 E 176.82706		File: CPT14.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

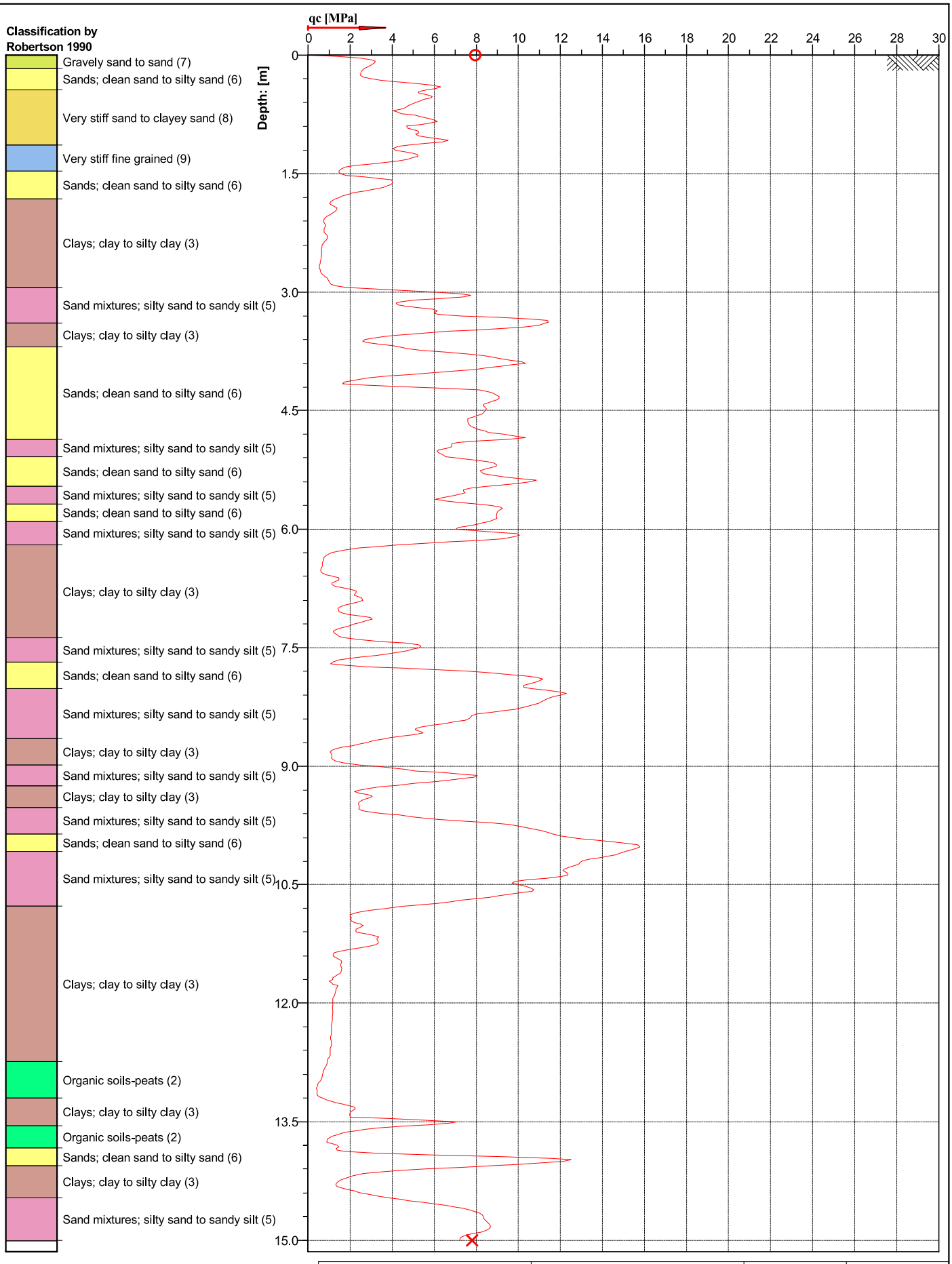


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT14
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61483 E 176.82706		File: CPT14.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

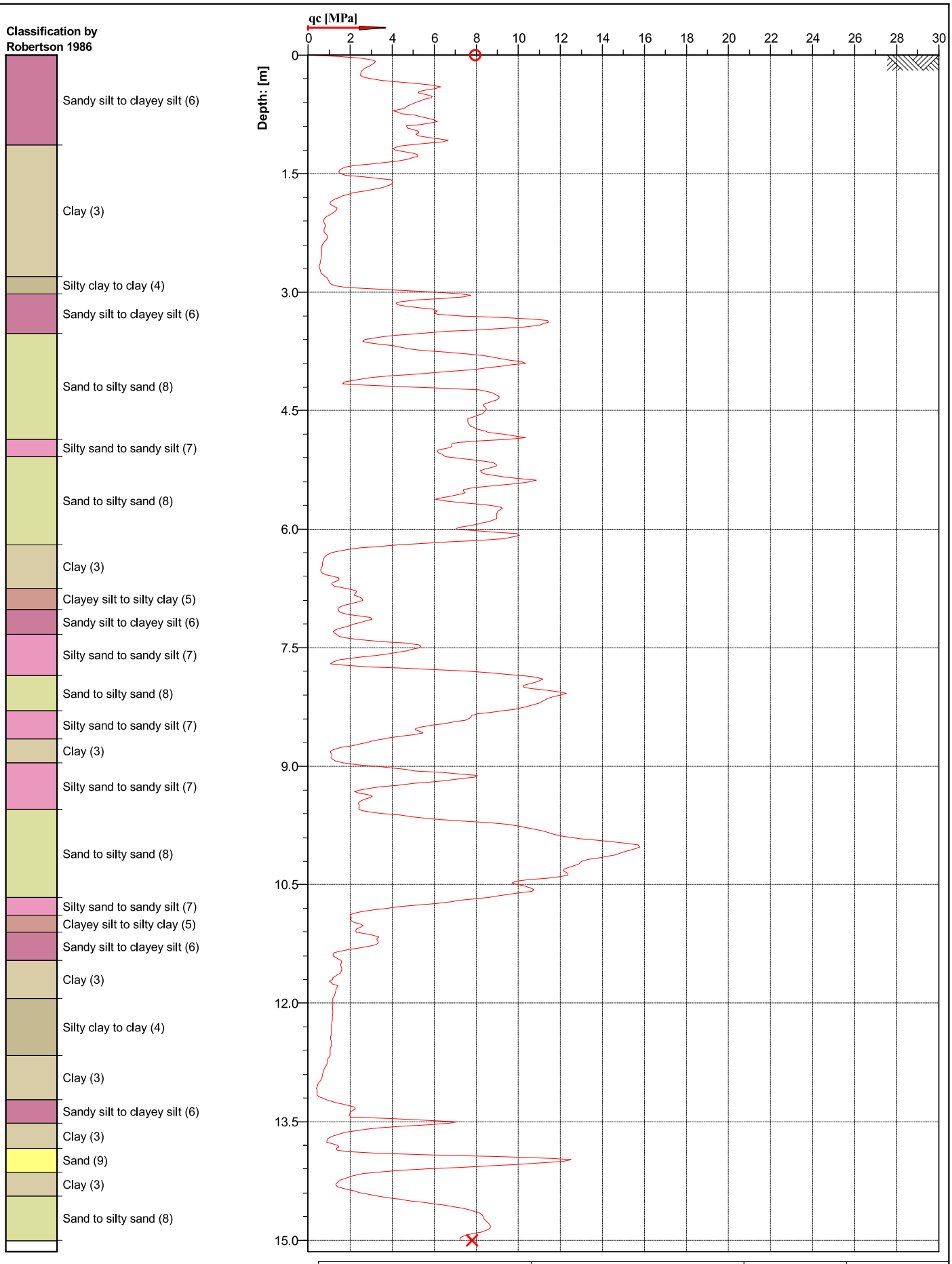


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT14
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61483 E 176.82706		File: CPT14.cpt	

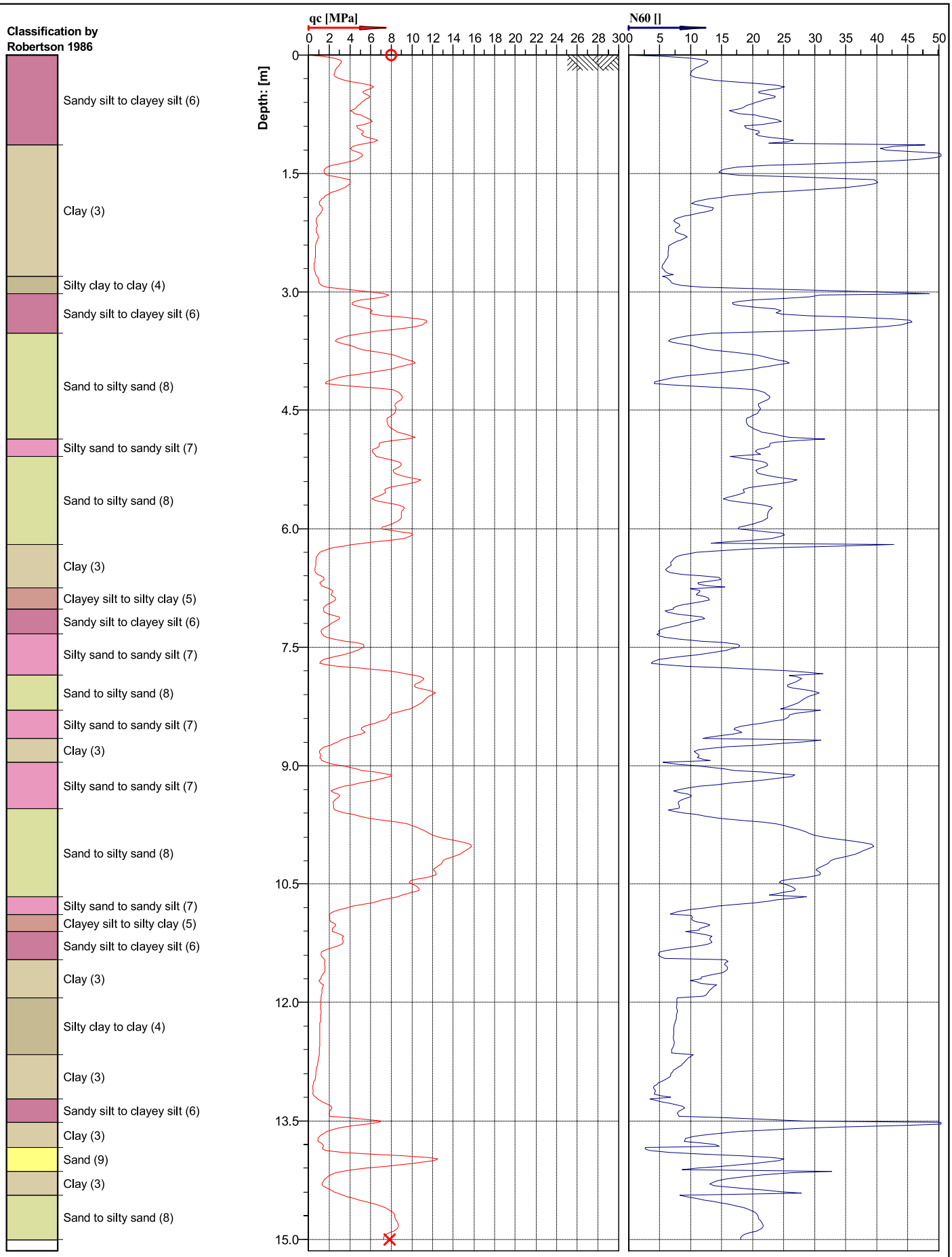


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT14
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61483 E 176.82706		File: CPT14.cpt	



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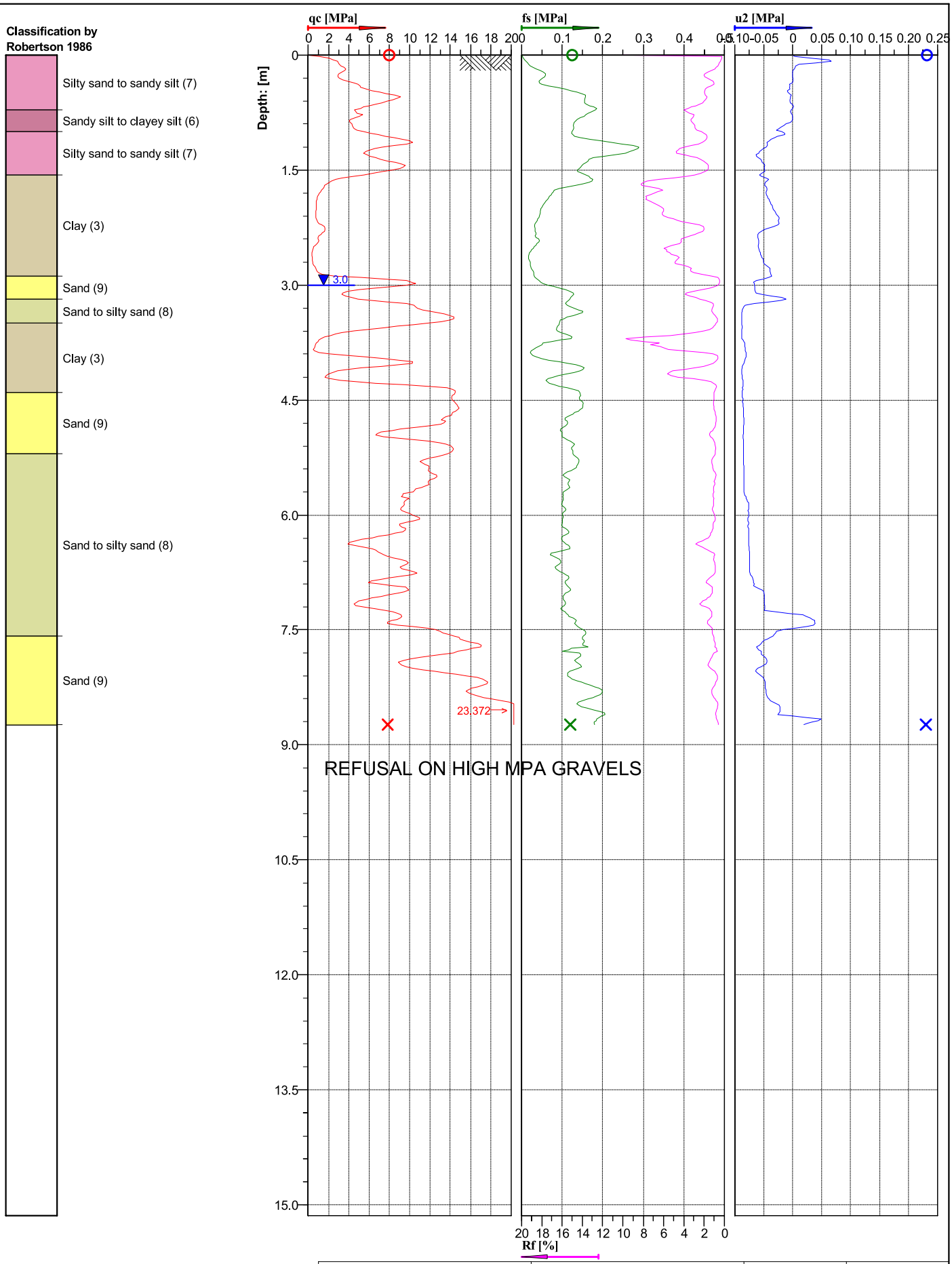
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61483 E 176.82706		File: CPT14.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

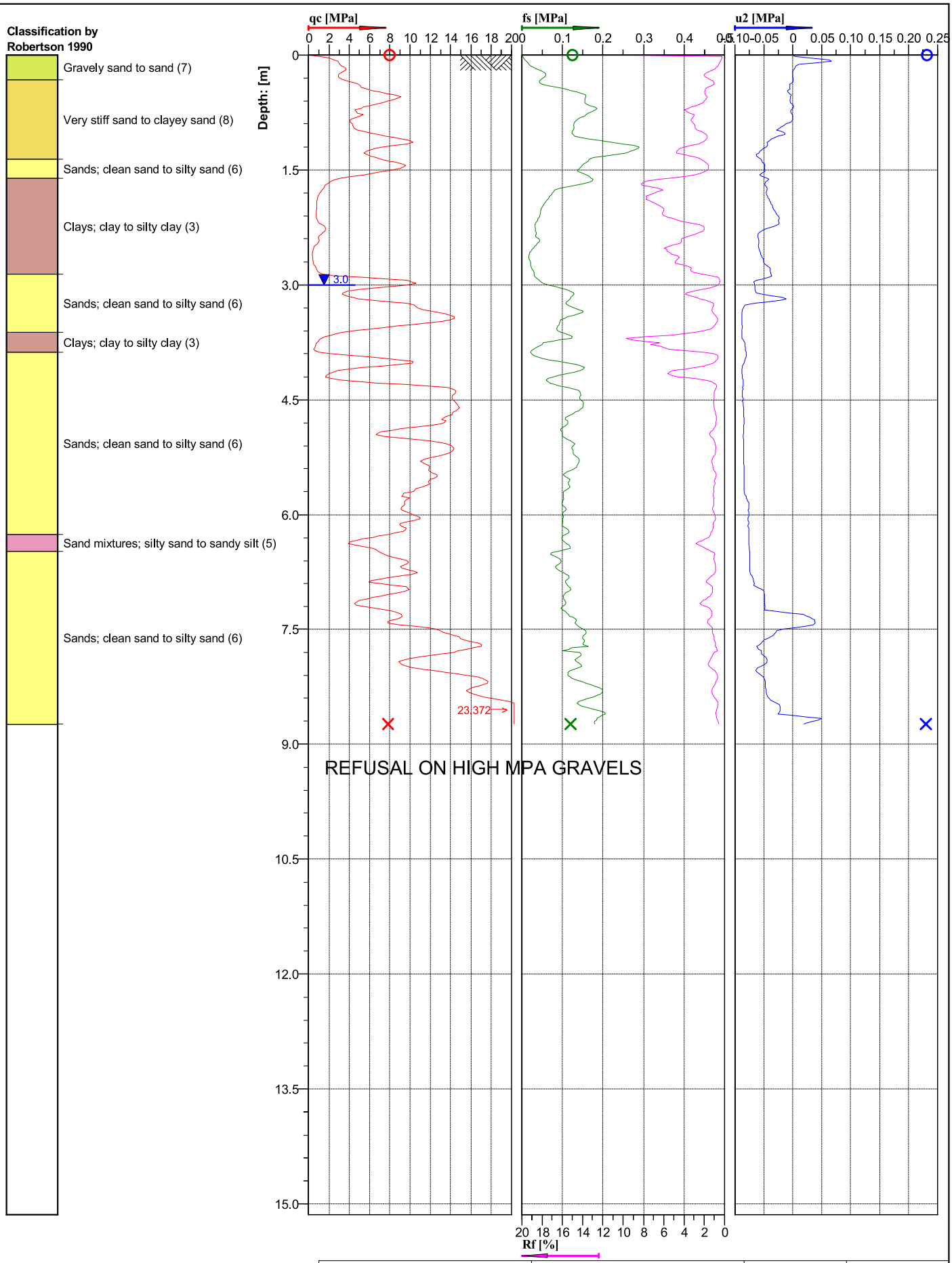


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT15
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61487 E 176.82722		File: CPT15.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



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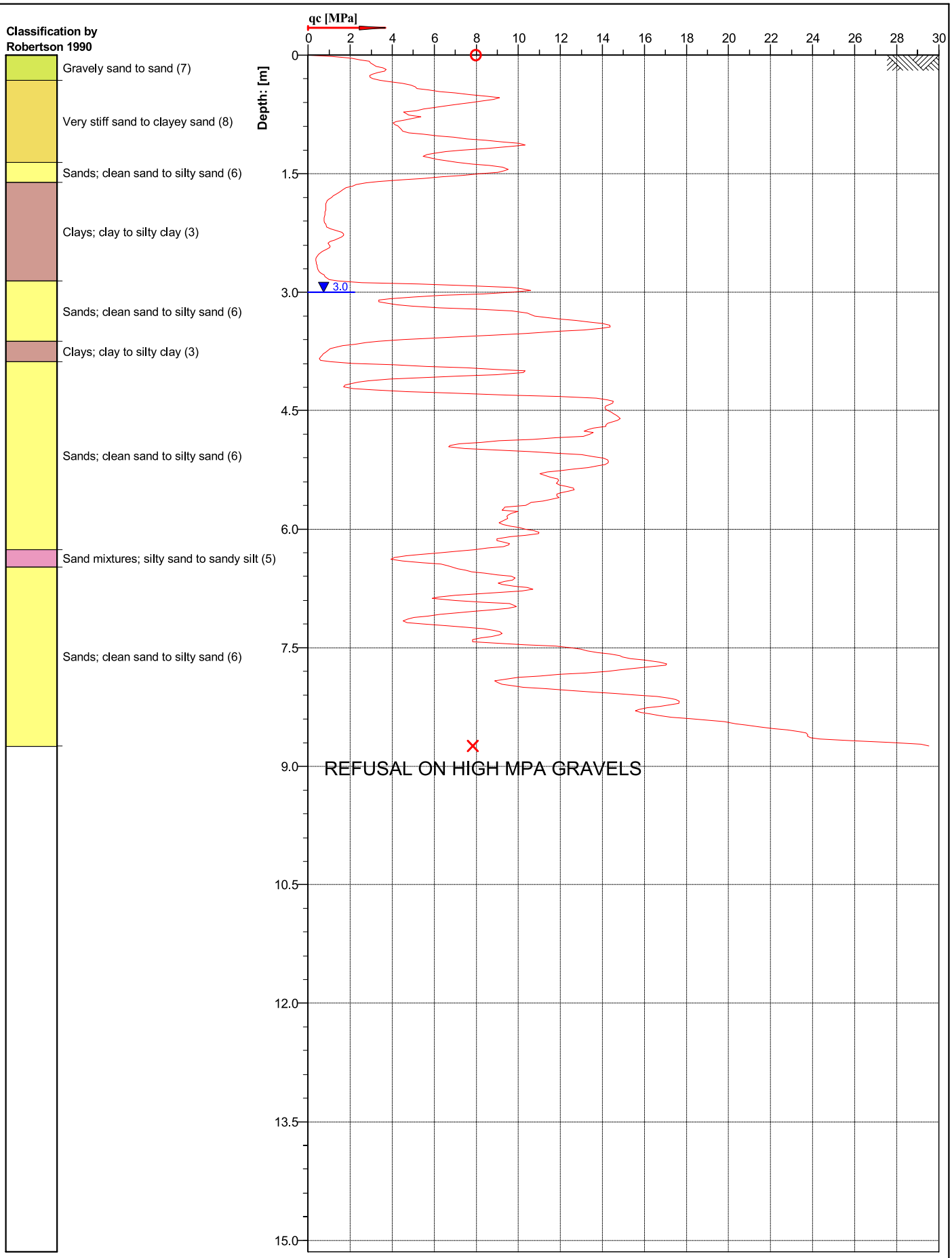
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61487 E 176.82722		File: CPT15.cpt	

GEOTECH DRILLING

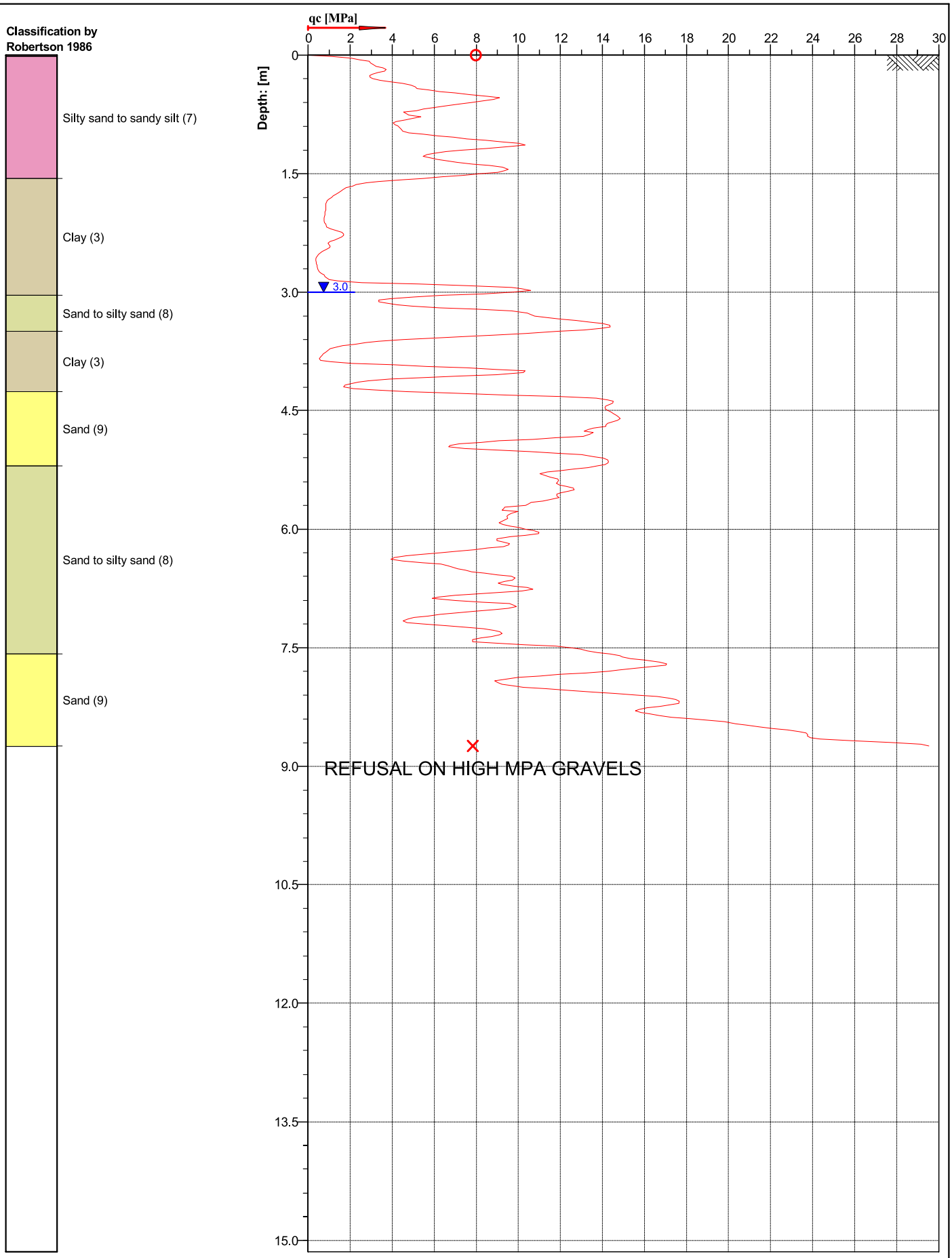
u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT15
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61487 E 176.82722		File: CPT15.cpt	

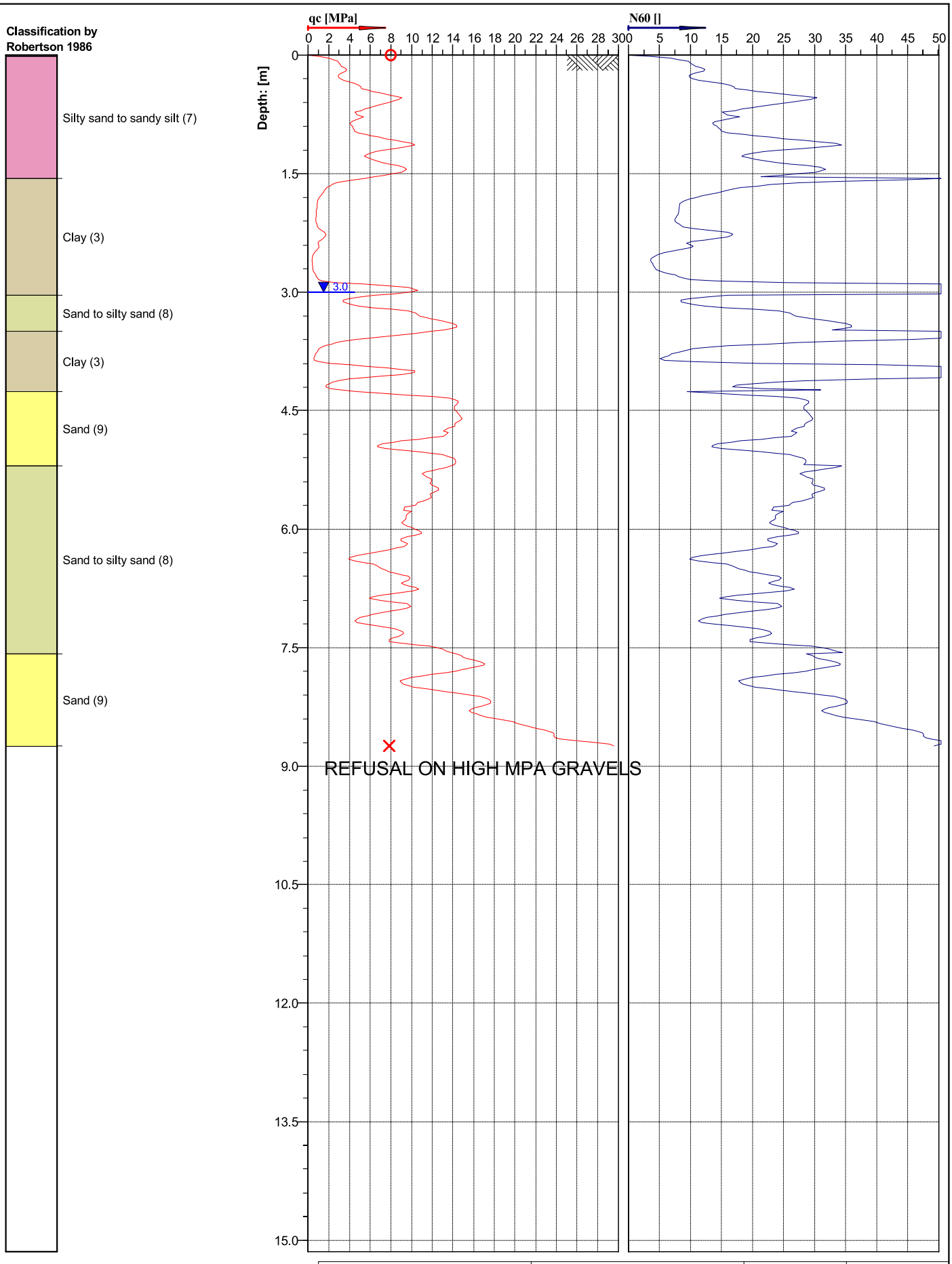


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT15
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61487 E 176.82722		File: CPT15.cpt	

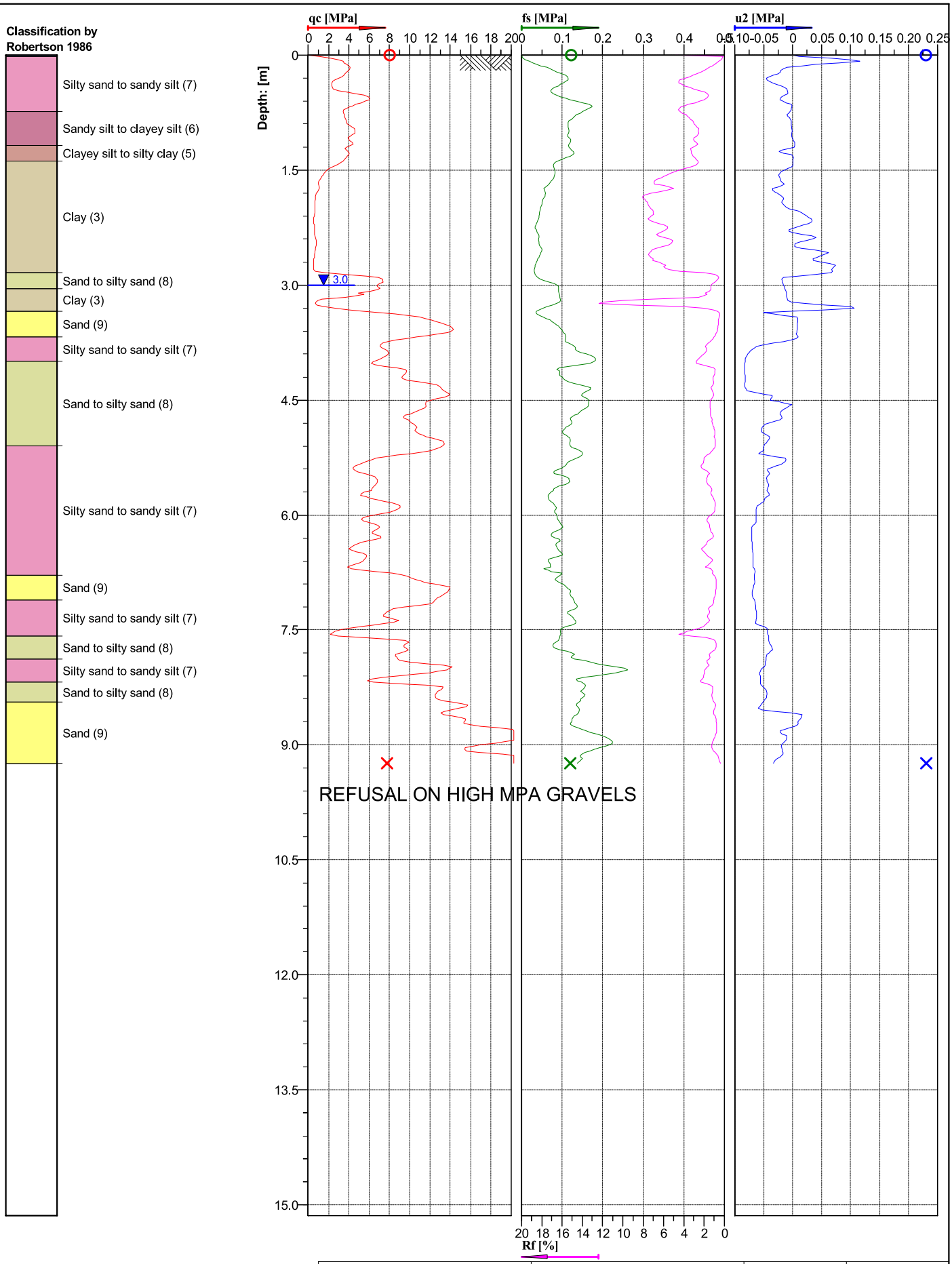


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT15
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61487 E 176.82722		File: CPT15.cpt	



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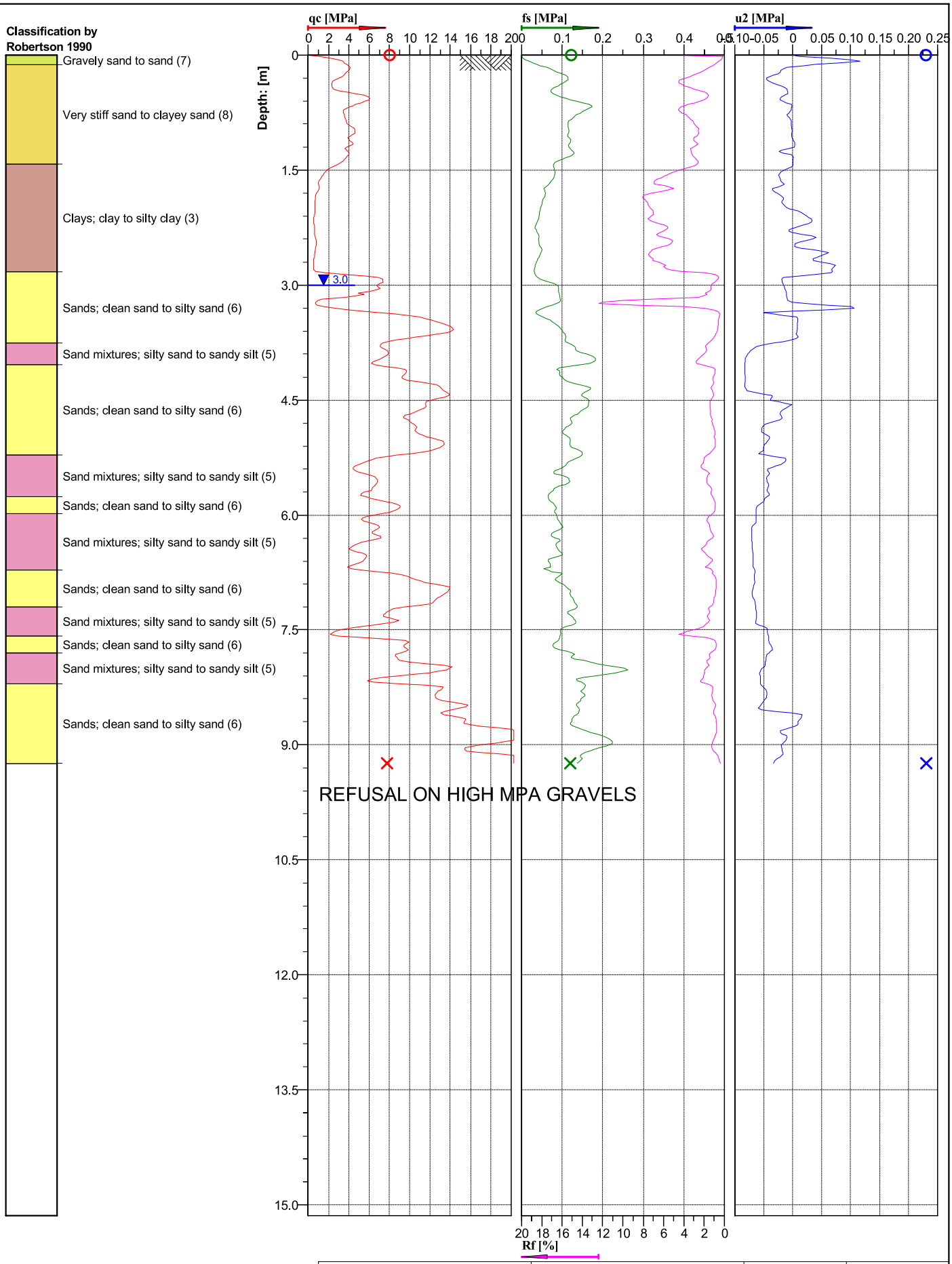
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61499 E 176.82729		File: CPT16.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

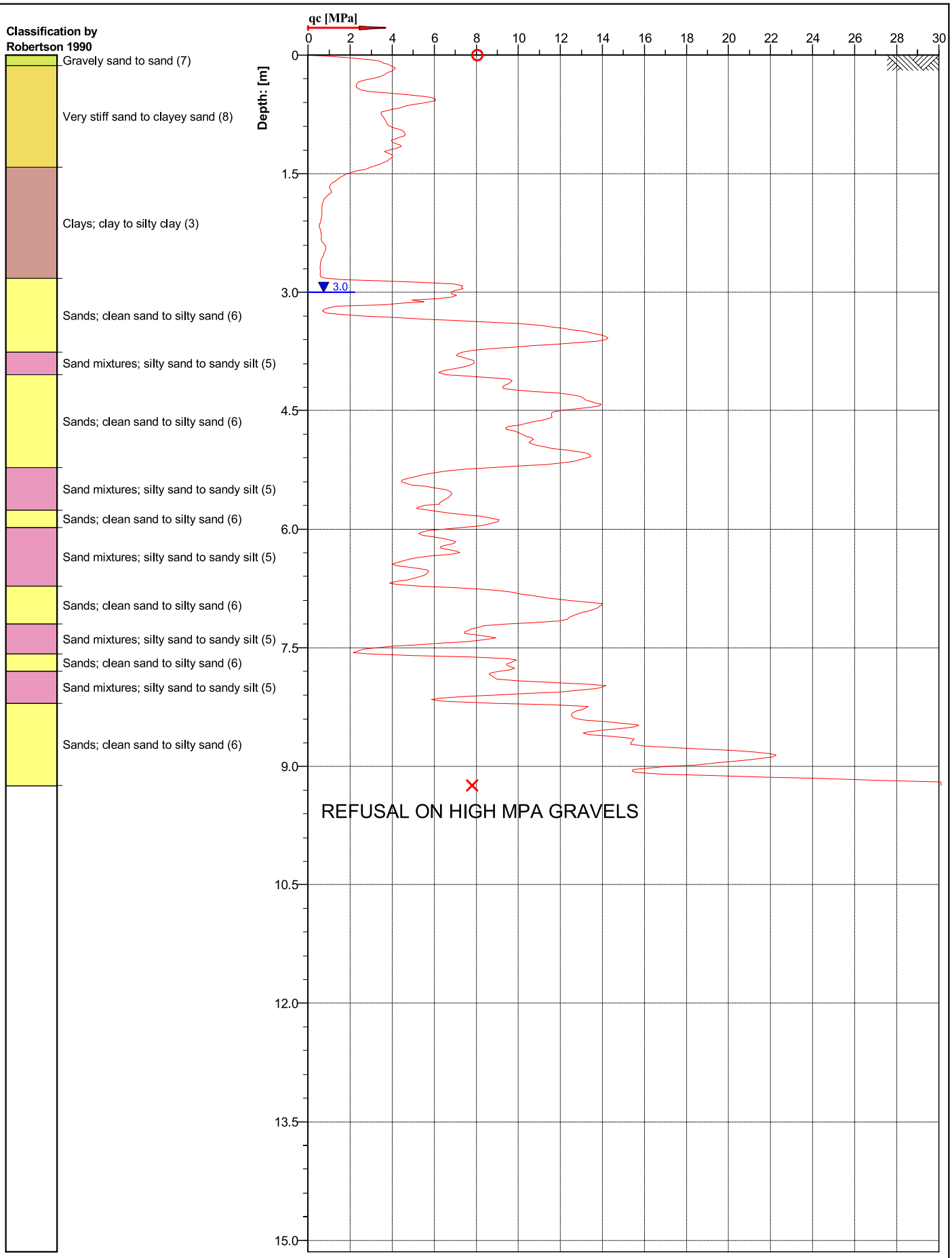


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT16
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61499 E 176.82729		File: CPT16.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

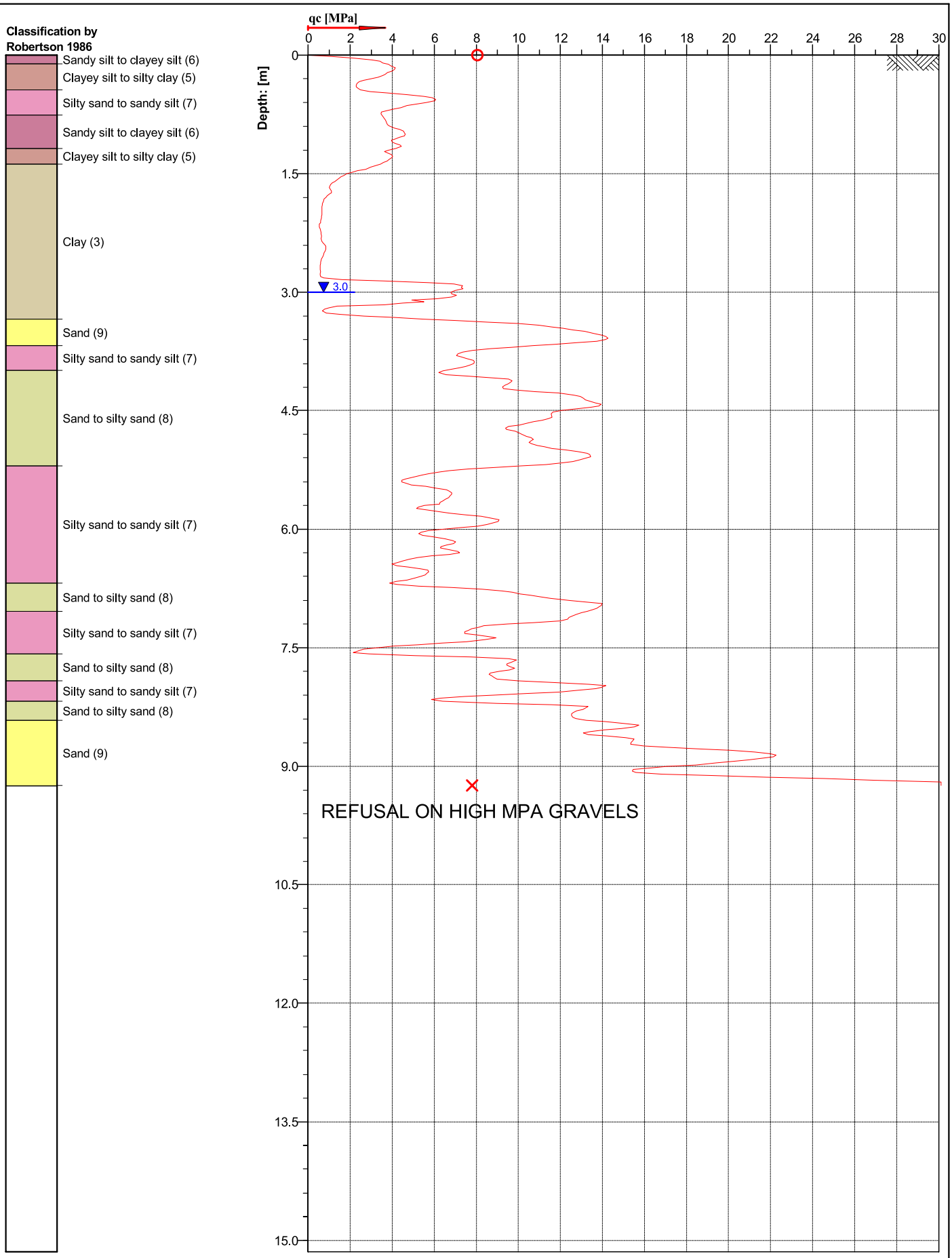


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT16
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61499 E 176.82729		File: CPT16.cpt	

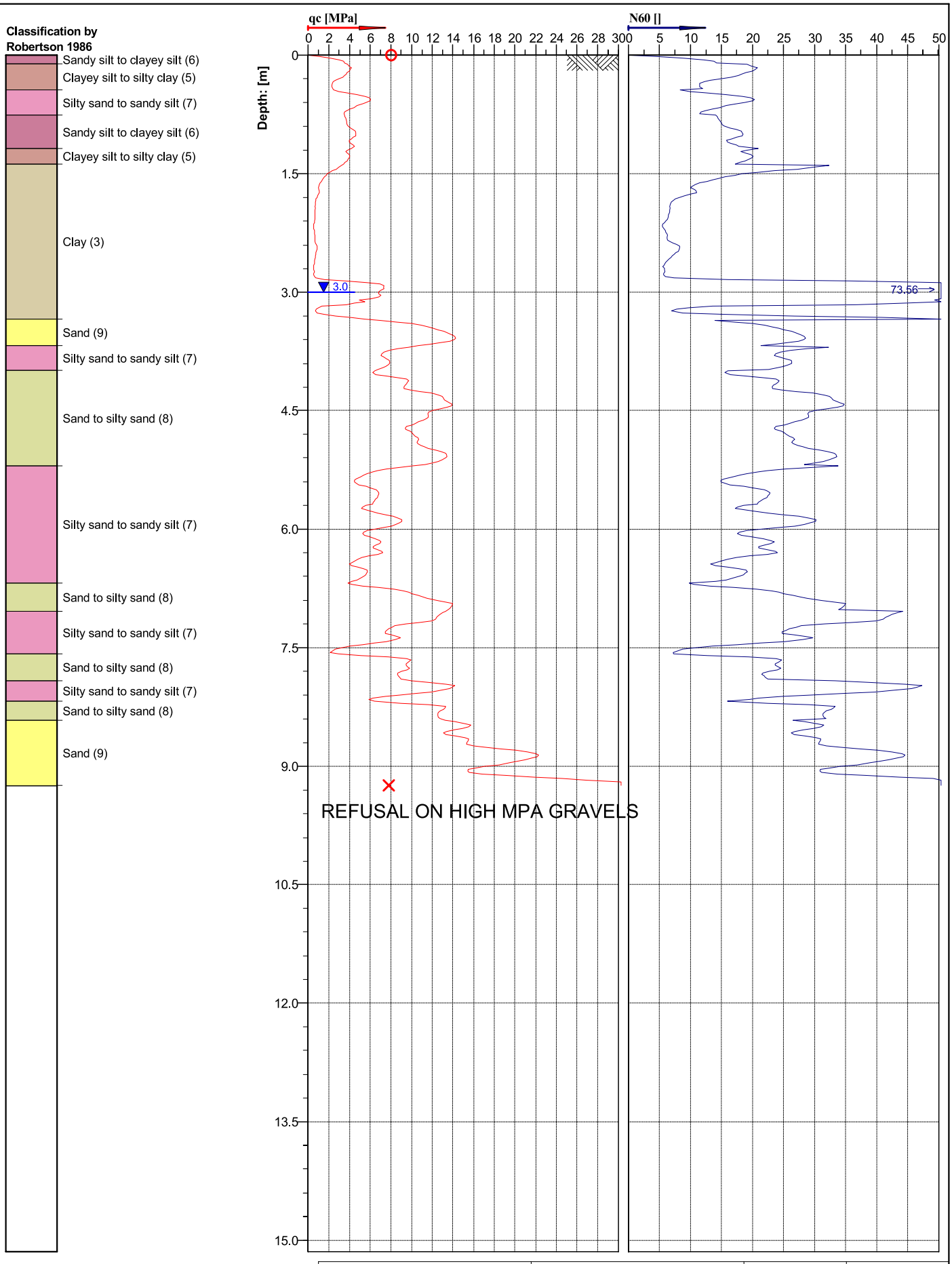


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT16
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61499 E 176.82729		File: CPT16.cpt	

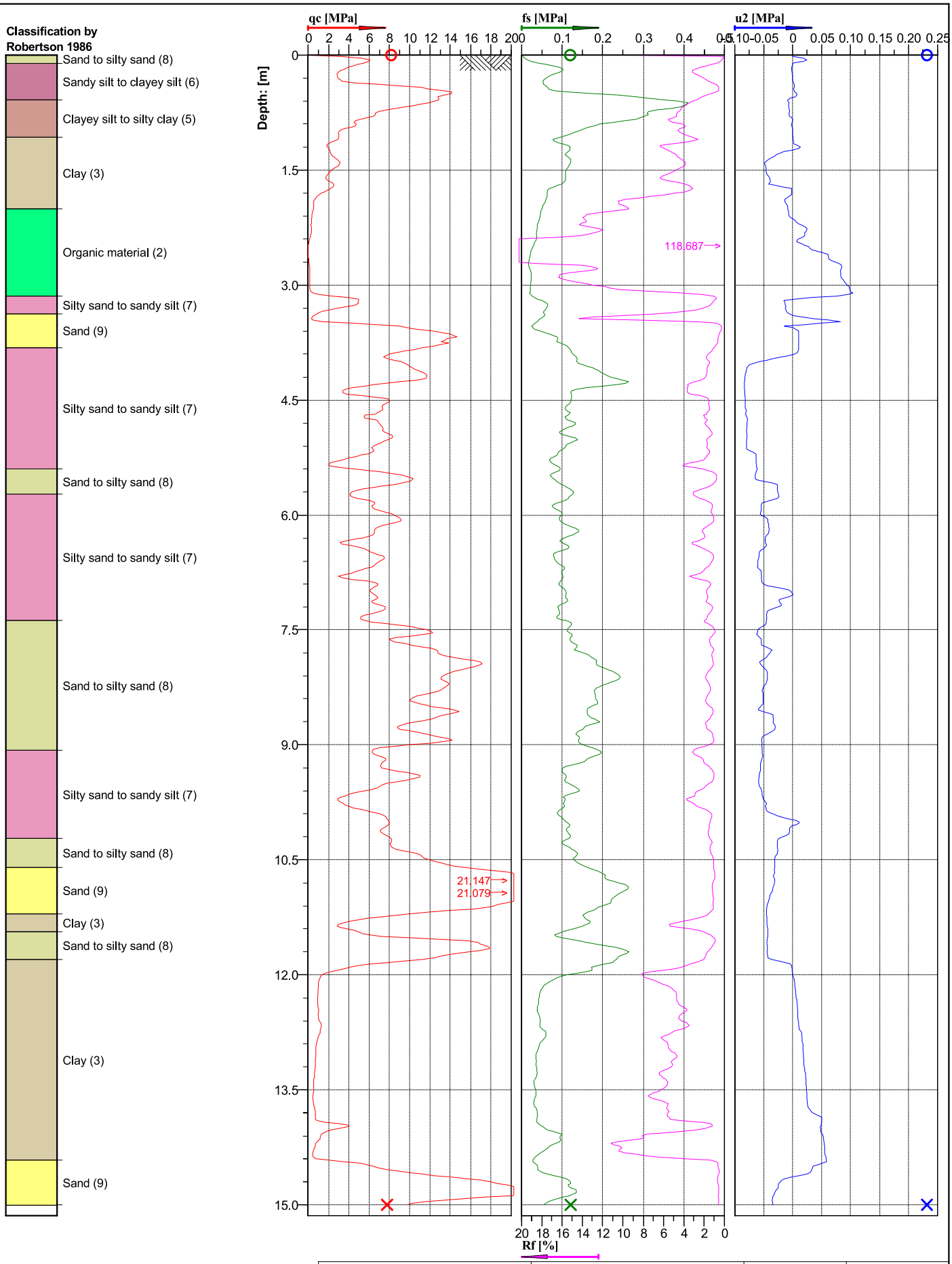


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT16
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61499 E 176.82729		File: CPT16.cpt	

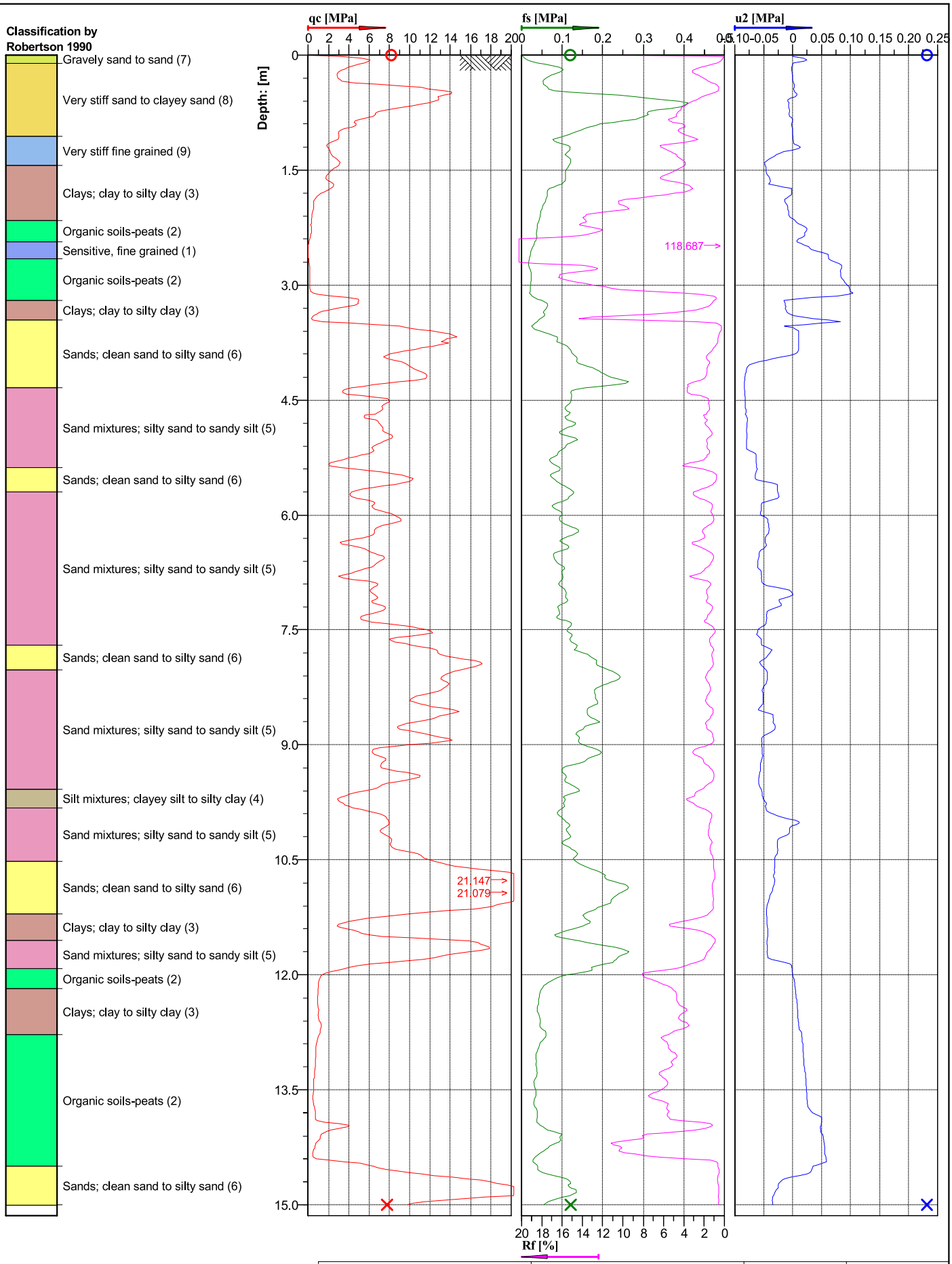


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT17
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61510 E 176.82738		File: CPT17.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

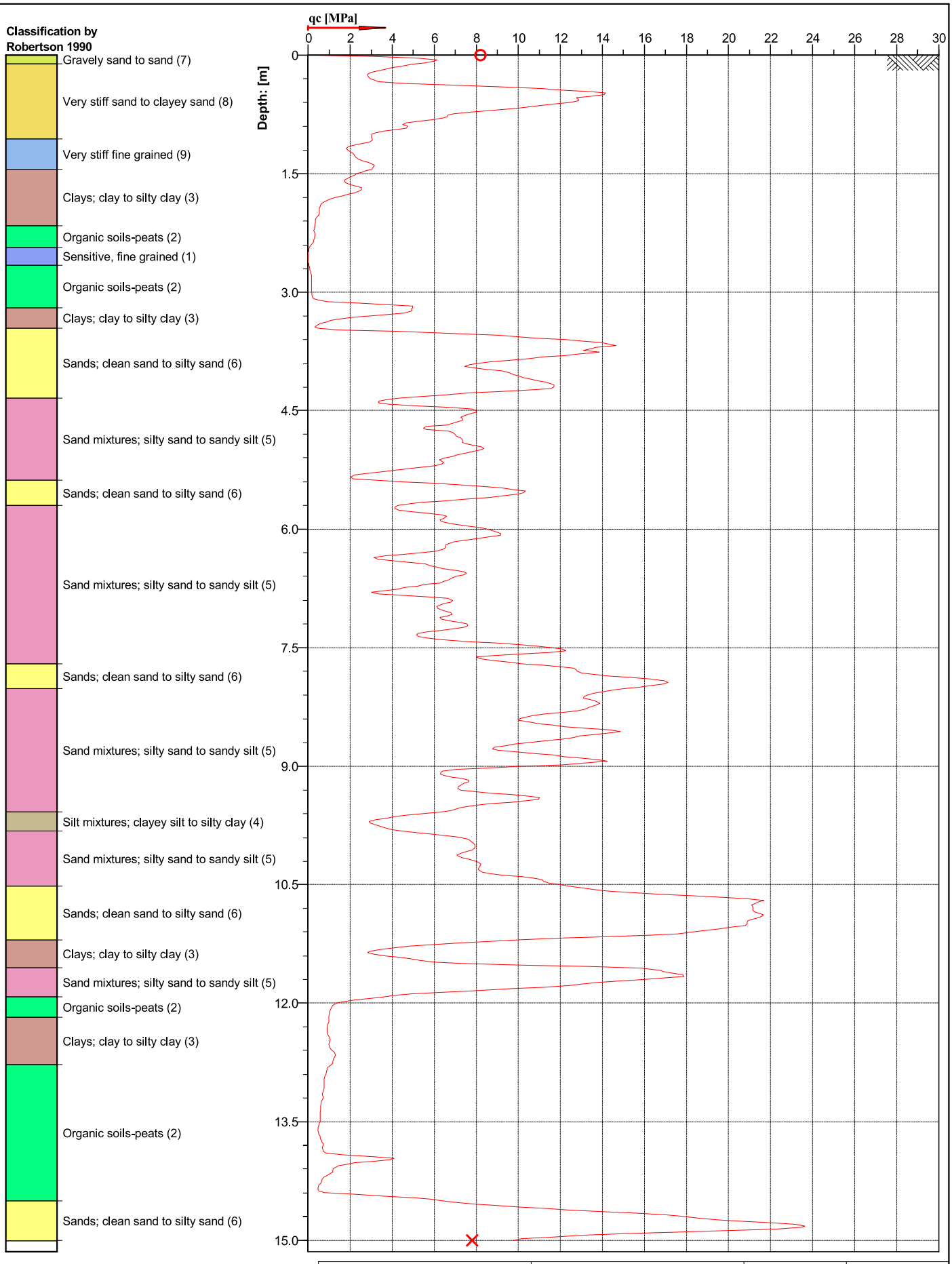


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT17
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61510 E 176.82738		File: CPT17.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

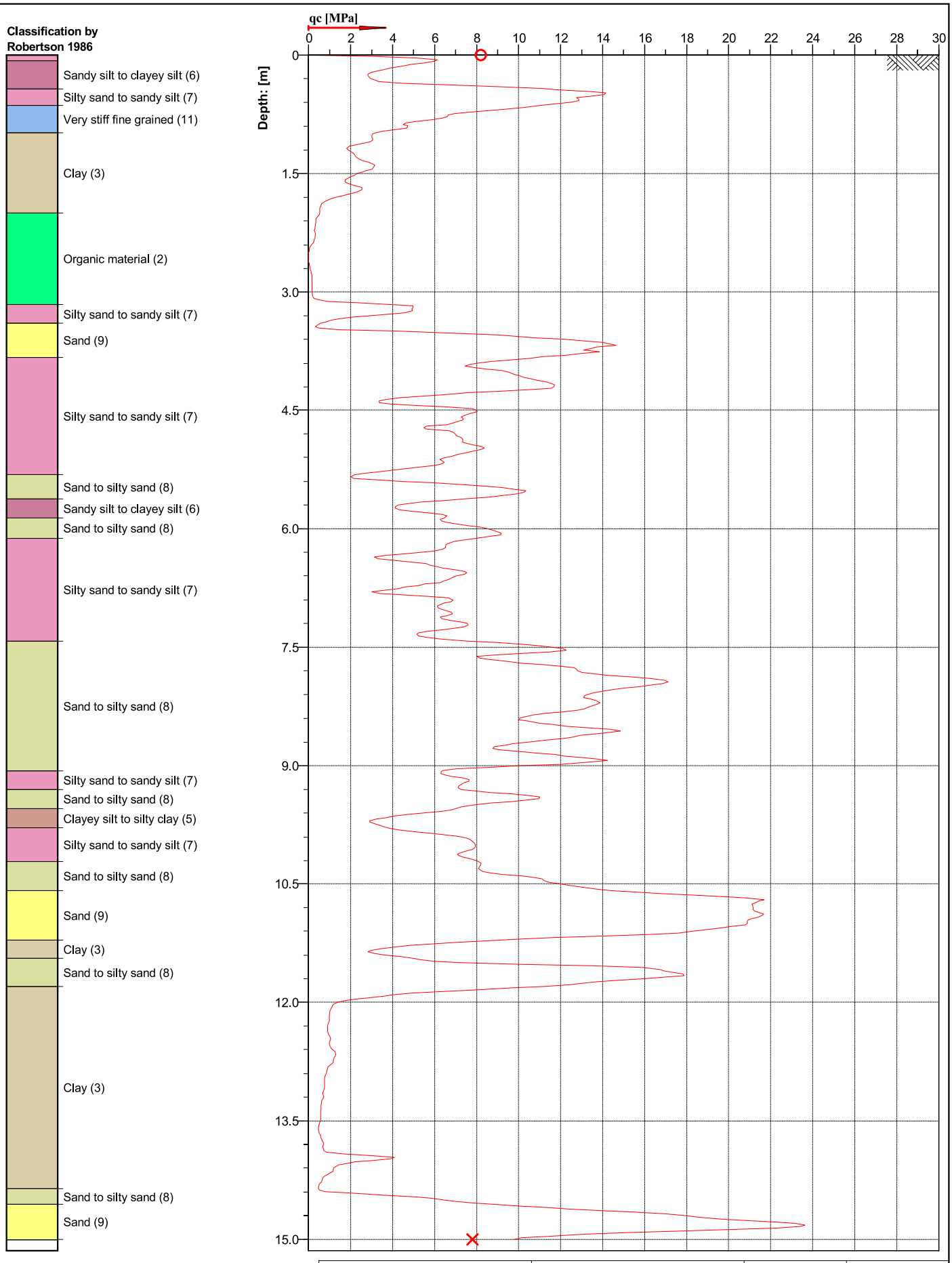


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT17
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61510 E 176.82738		File: CPT17.cpt	

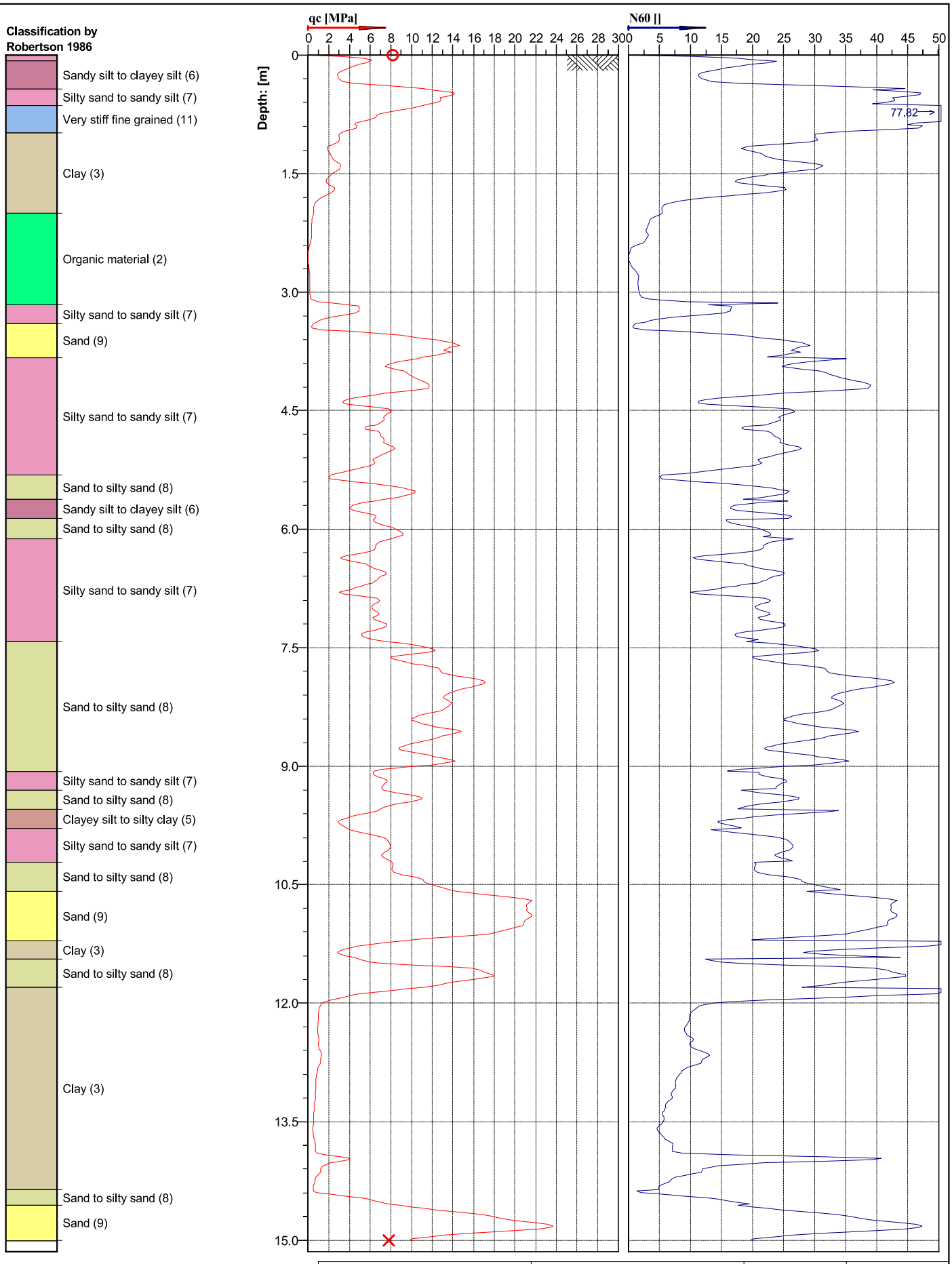


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT17
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61510 E 176.82738		File: CPT17.cpt	

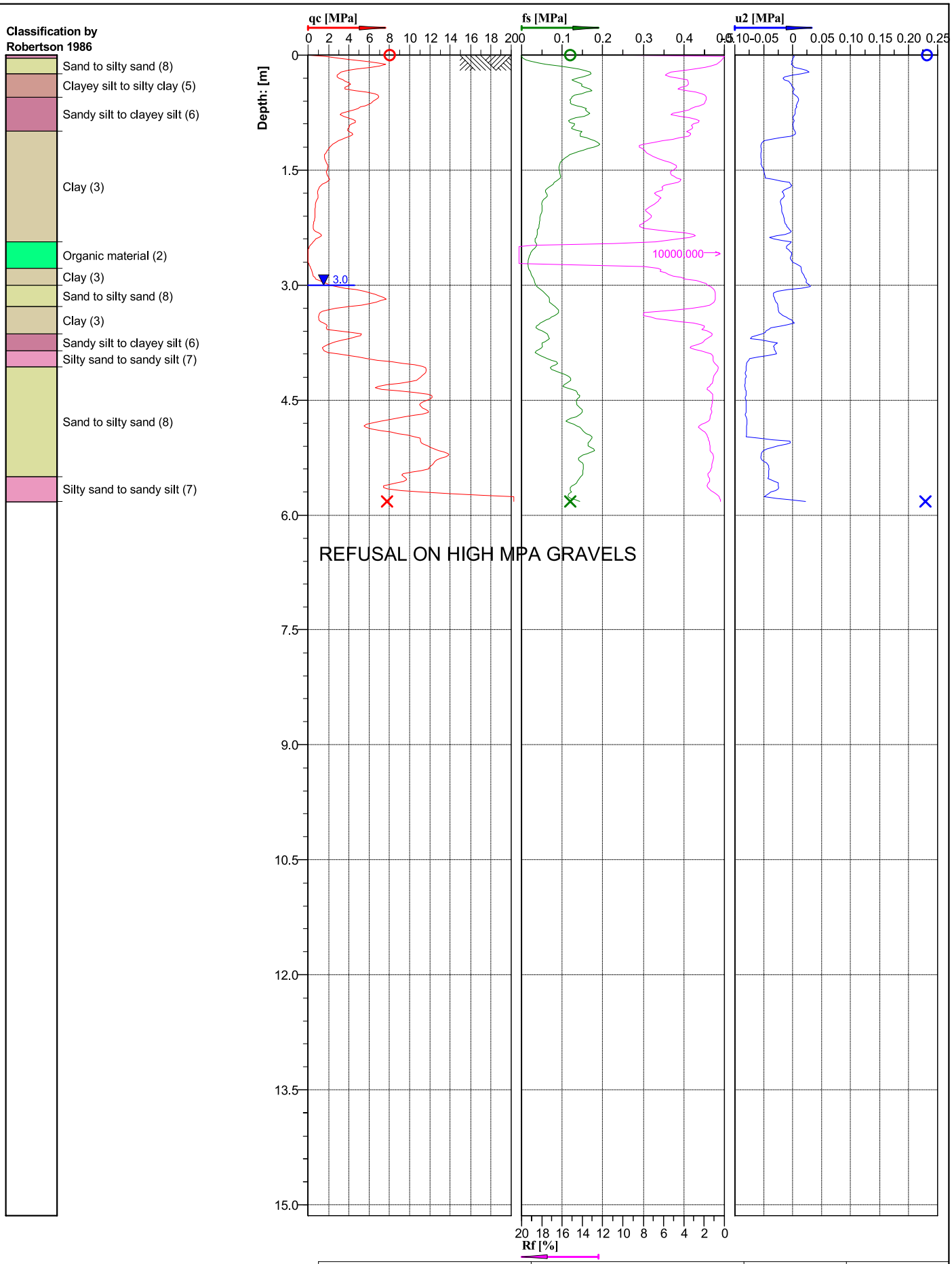


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

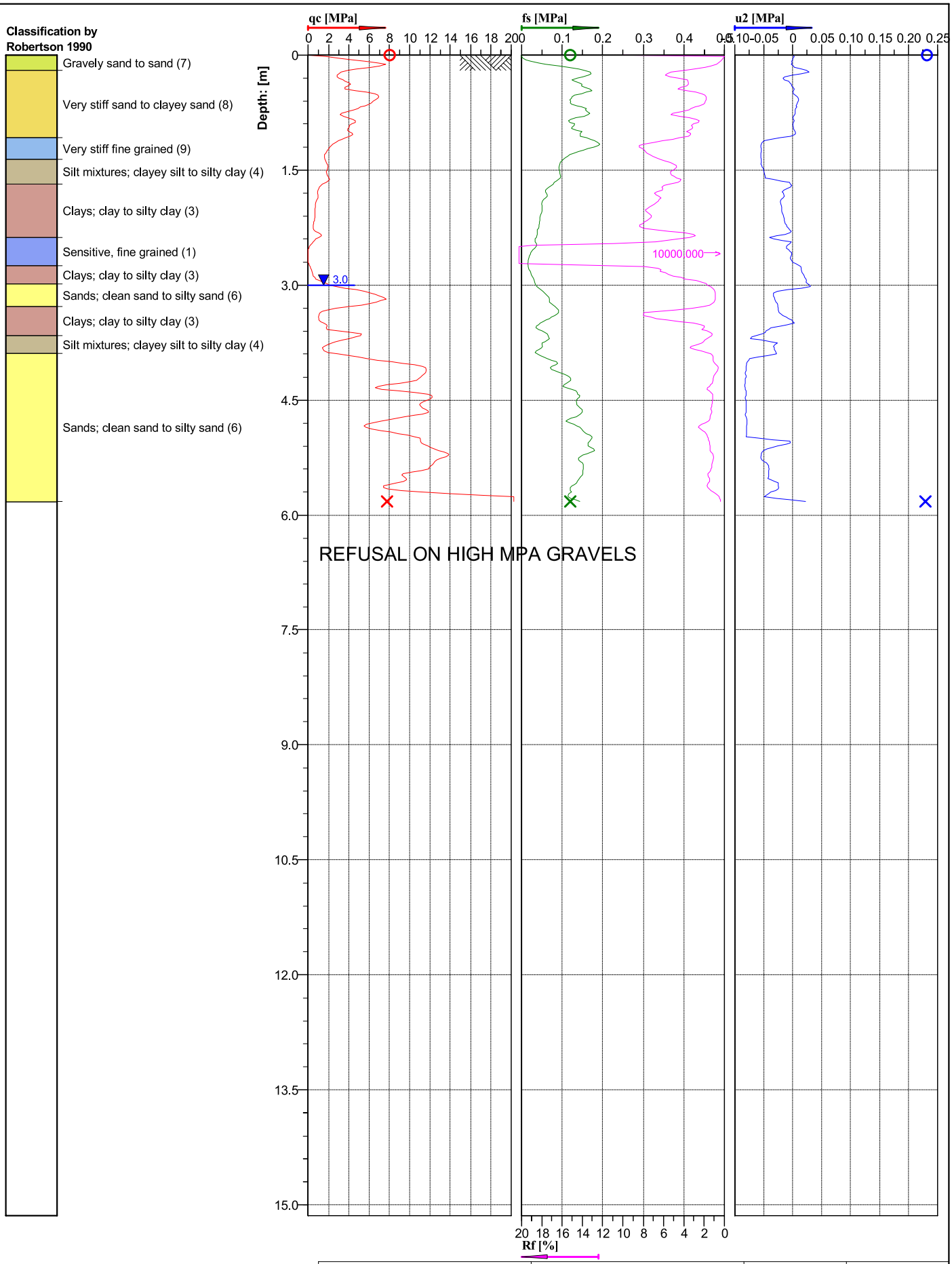
Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT17
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61510 E 176.82738		File: CPT17.cpt	



Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT18
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61526 E 176.82709		File: CPT18.cpt	

GEOTECH DRILLING

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

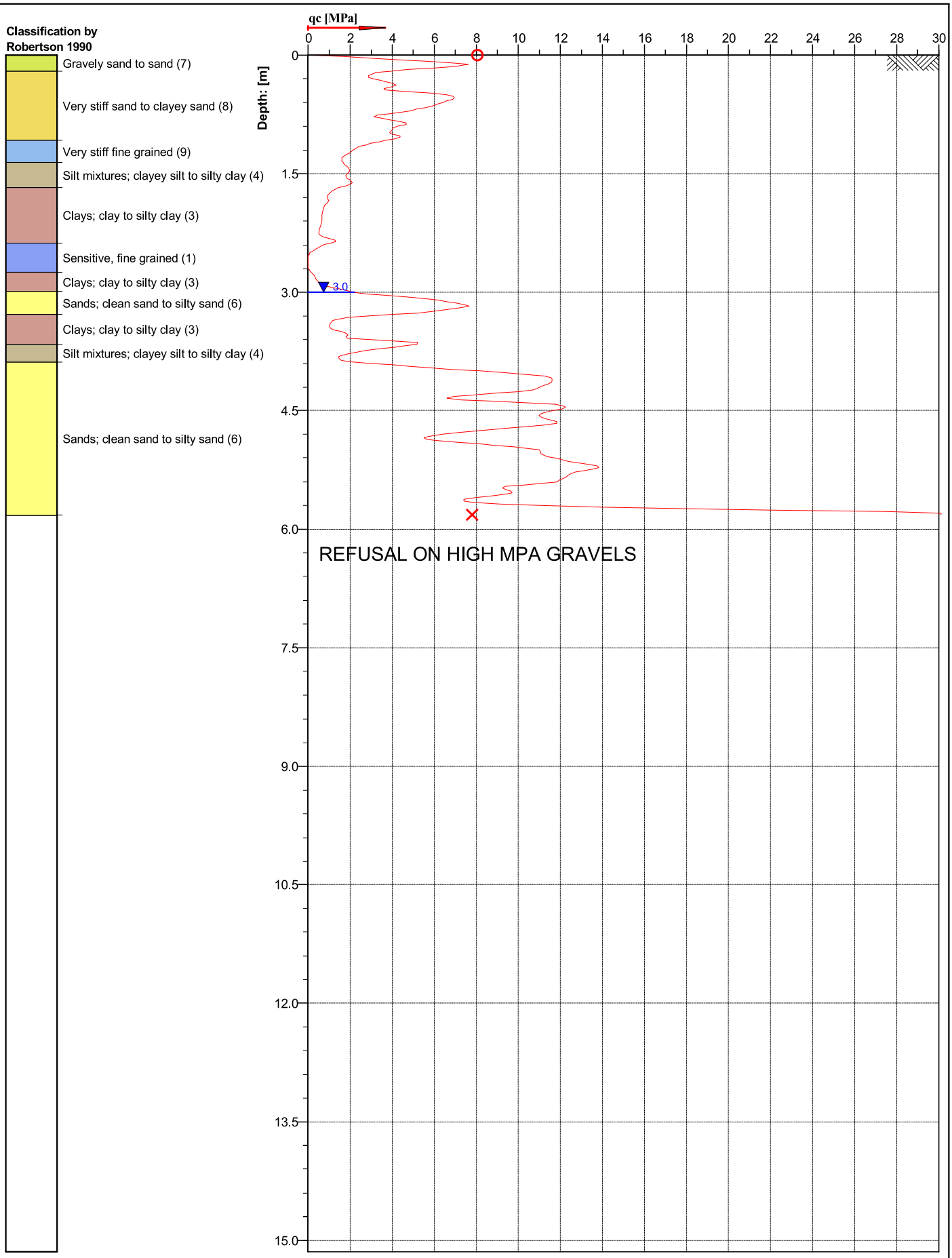


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT18
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61526 E 176.82709		File: CPT18.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

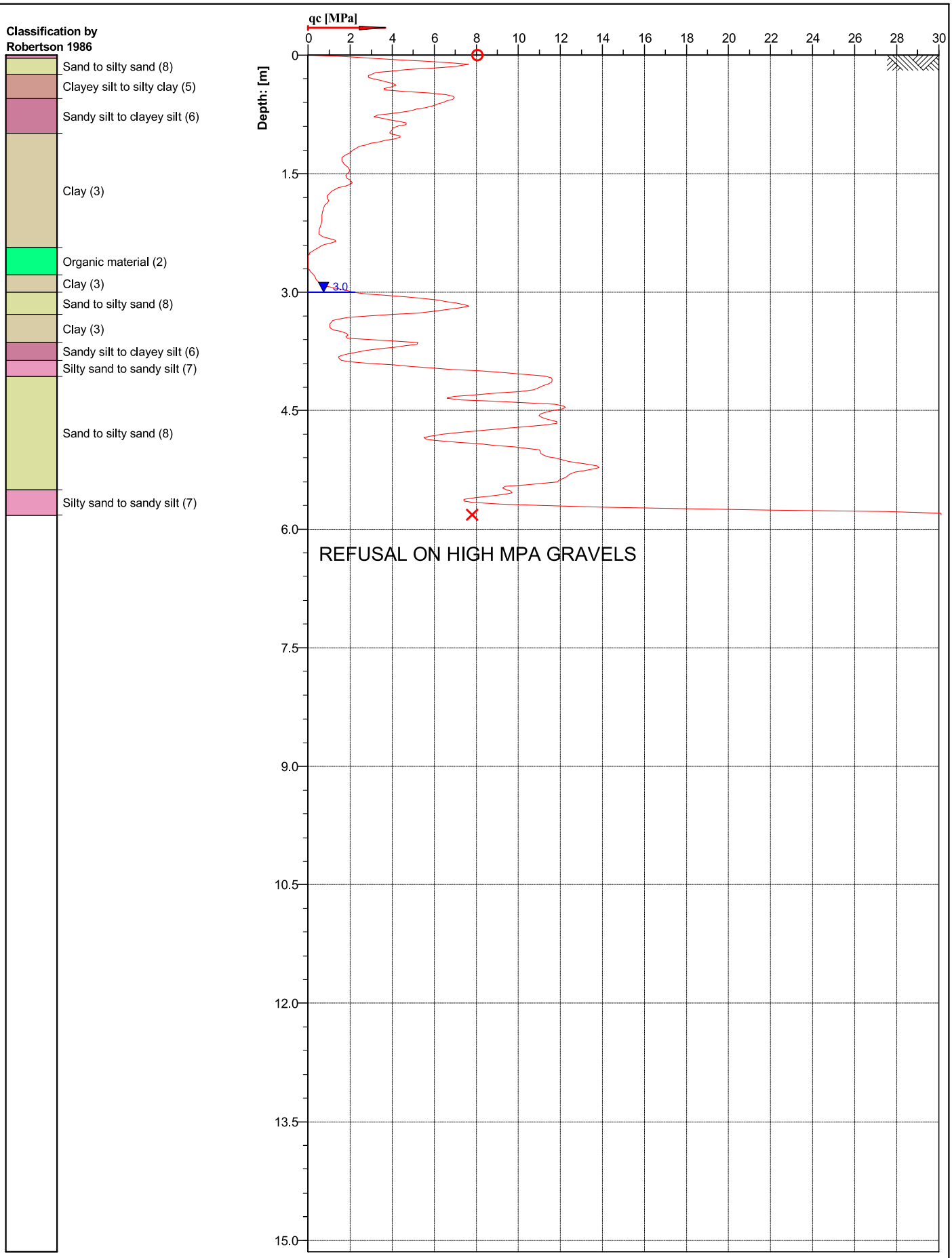


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT18
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61526 E 176.82709		File: CPT18.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

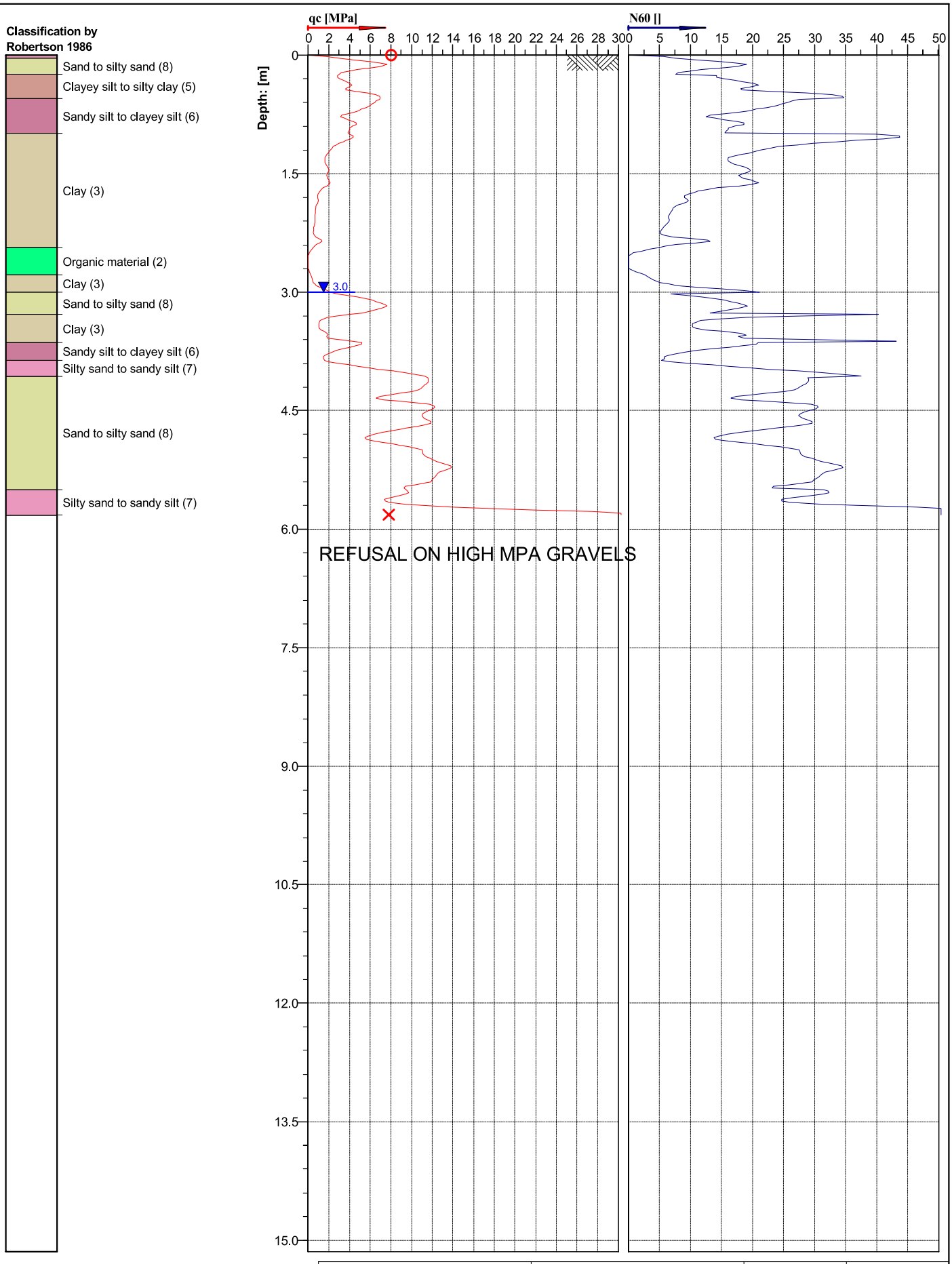


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT18
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61526 E 176.82709		File: CPT18.cpt	

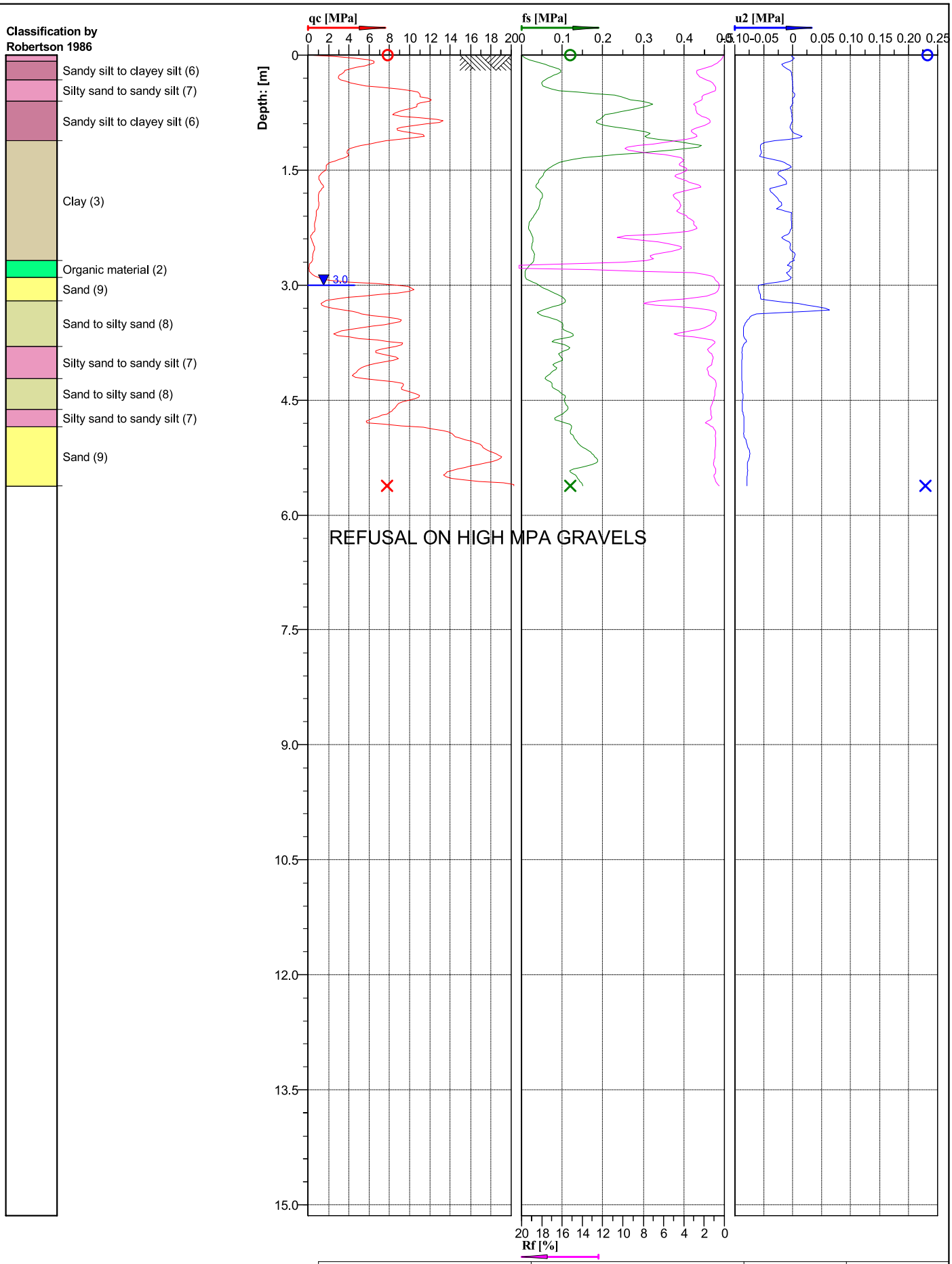


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT18
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61526 E 176.82709		File: CPT18.cpt	

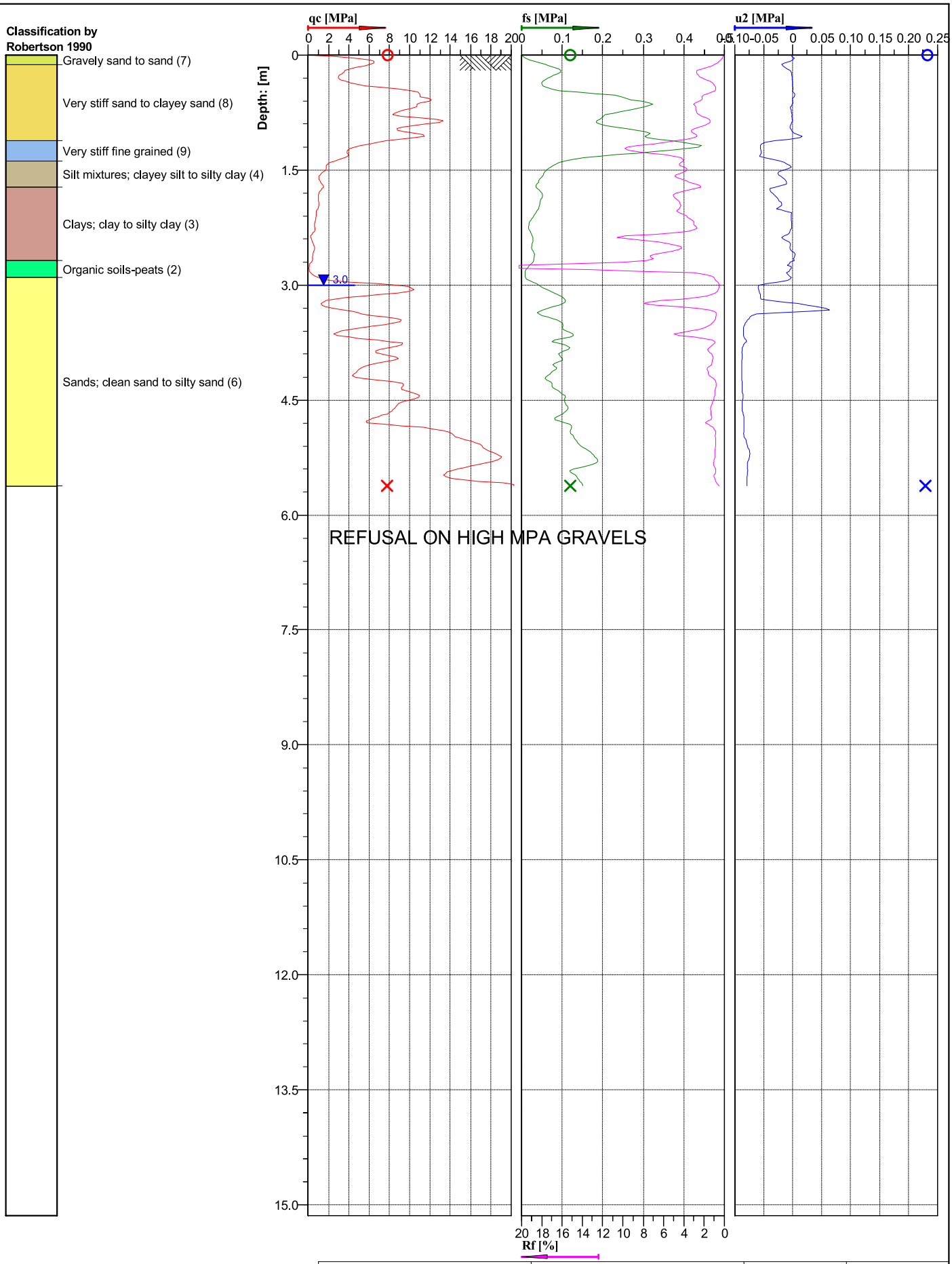


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT19
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61514 E 176.82703		File: CPT19.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

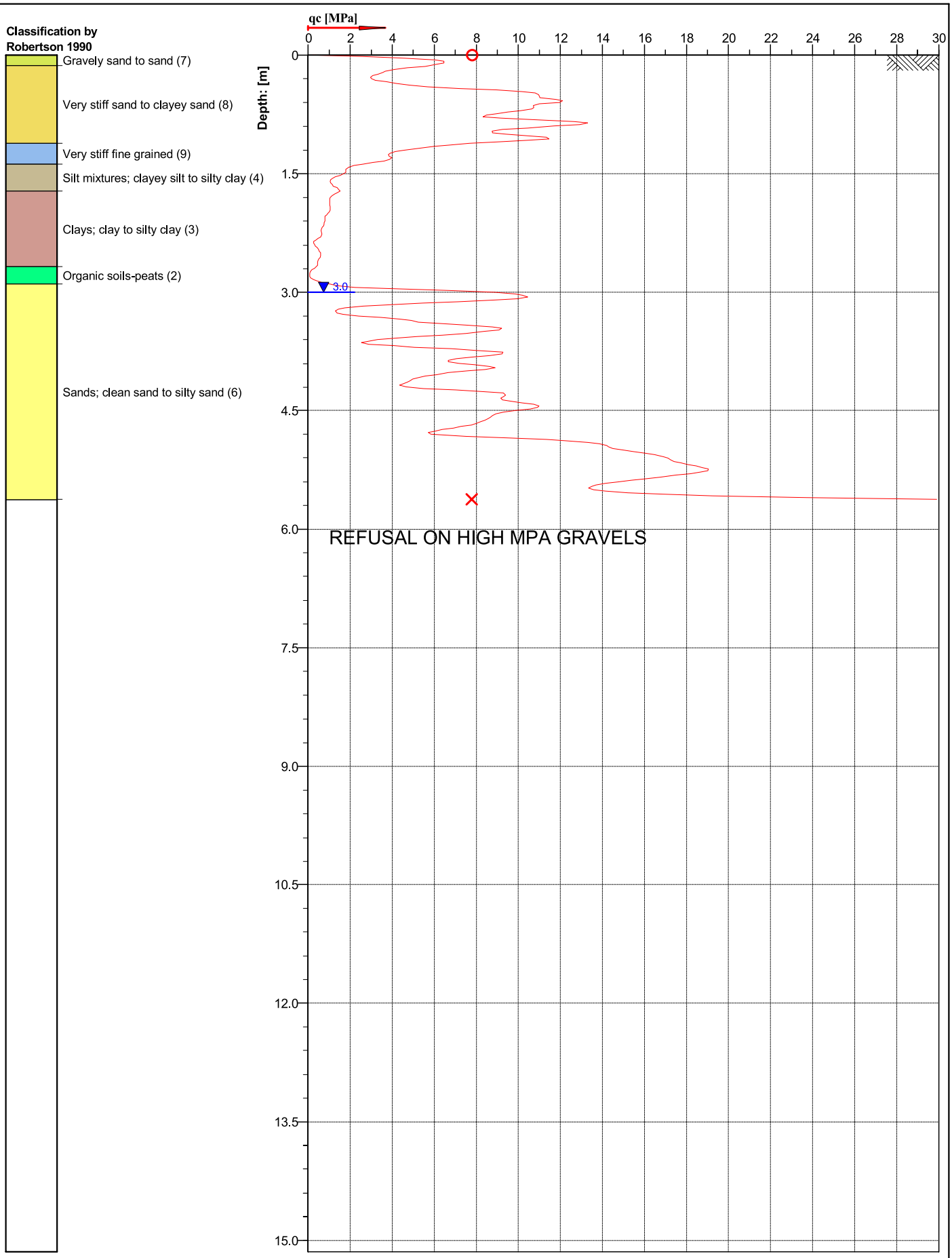


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT19
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61514 E 176.82703		File: CPT19.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

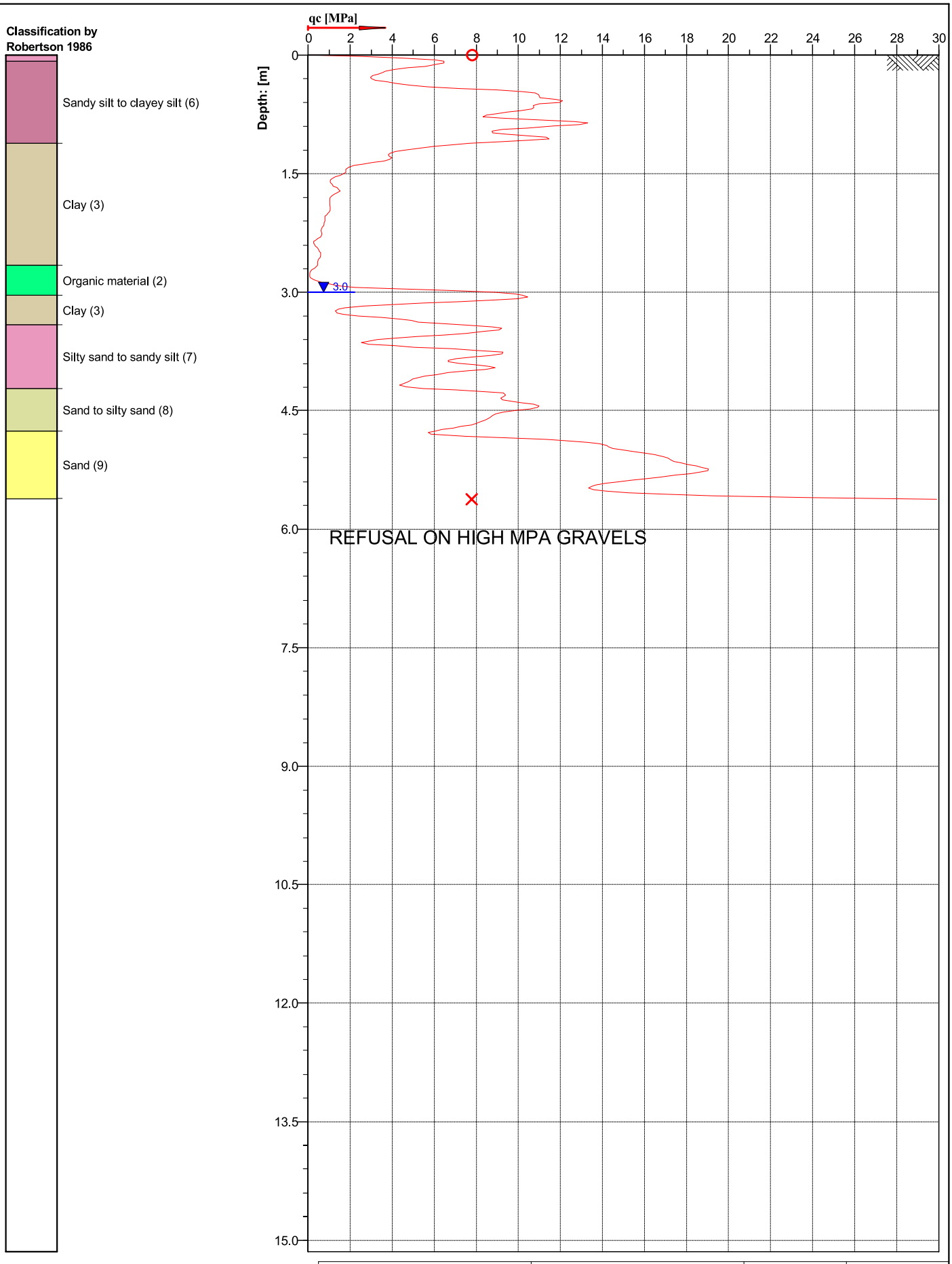


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT19
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61514 E 176.82703		File: CPT19.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

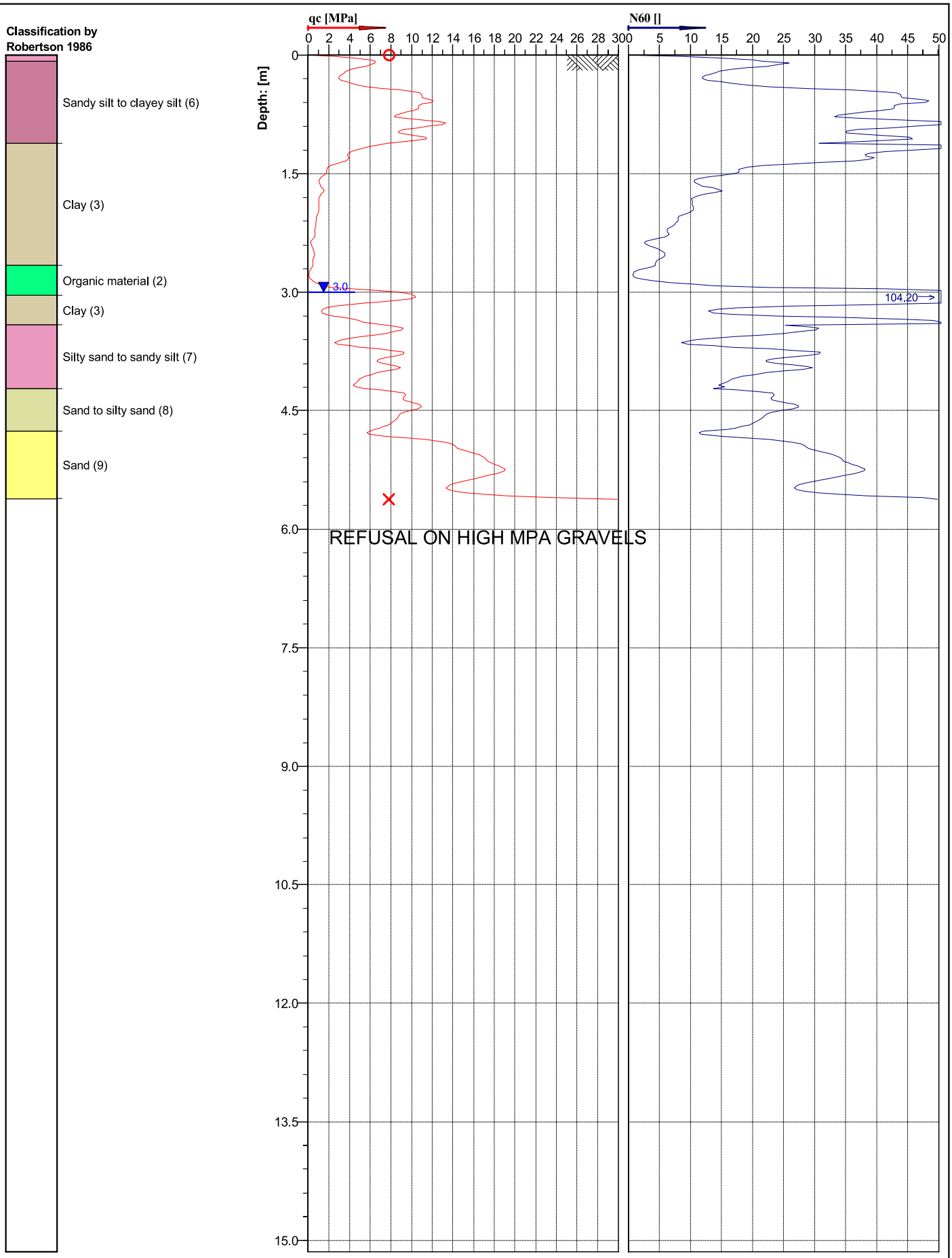


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT19
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61514 E 176.82703		File: CPT19.cpt	

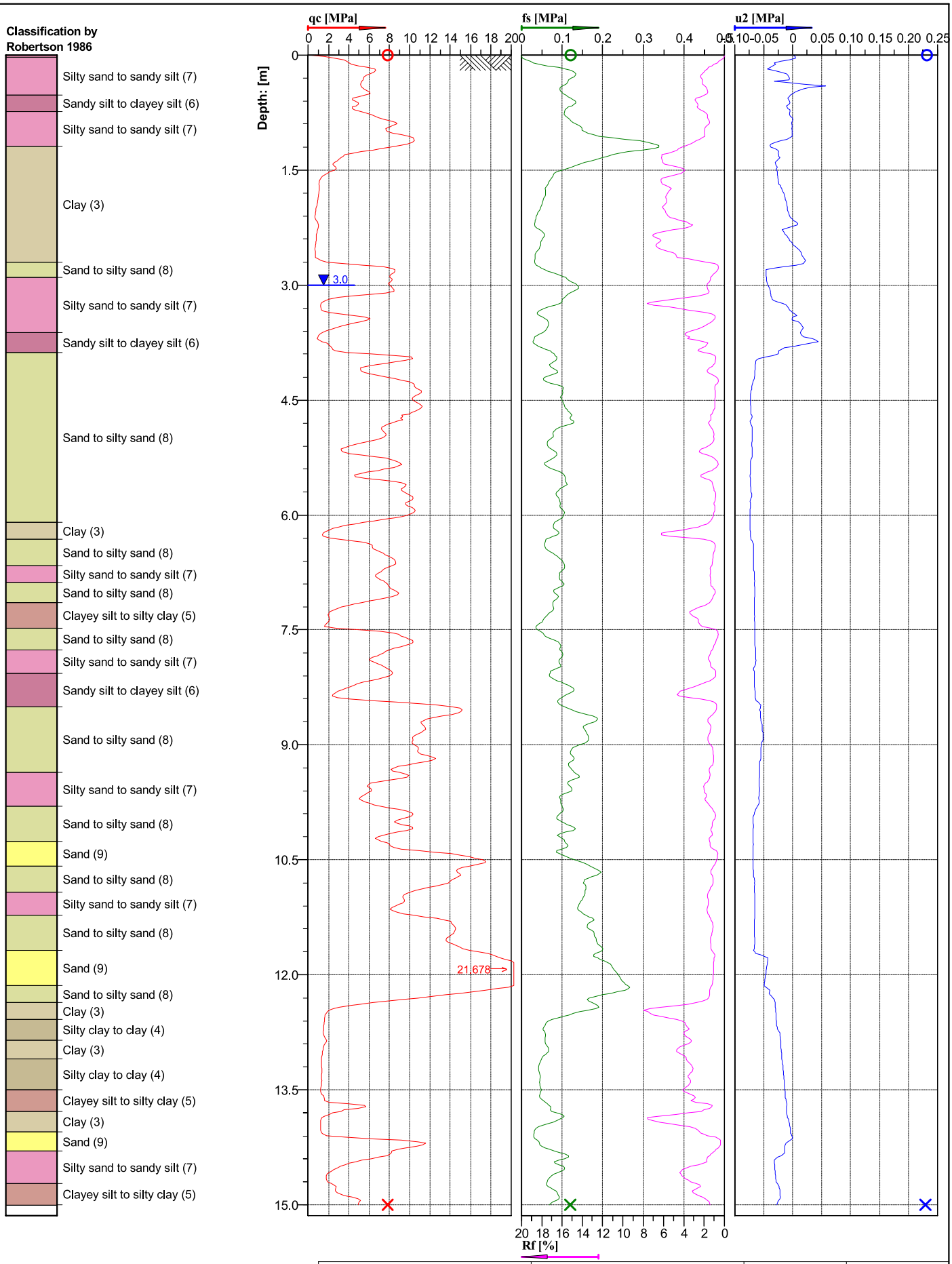


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT19
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61514 E 176.82703		File: CPT19.cpt	

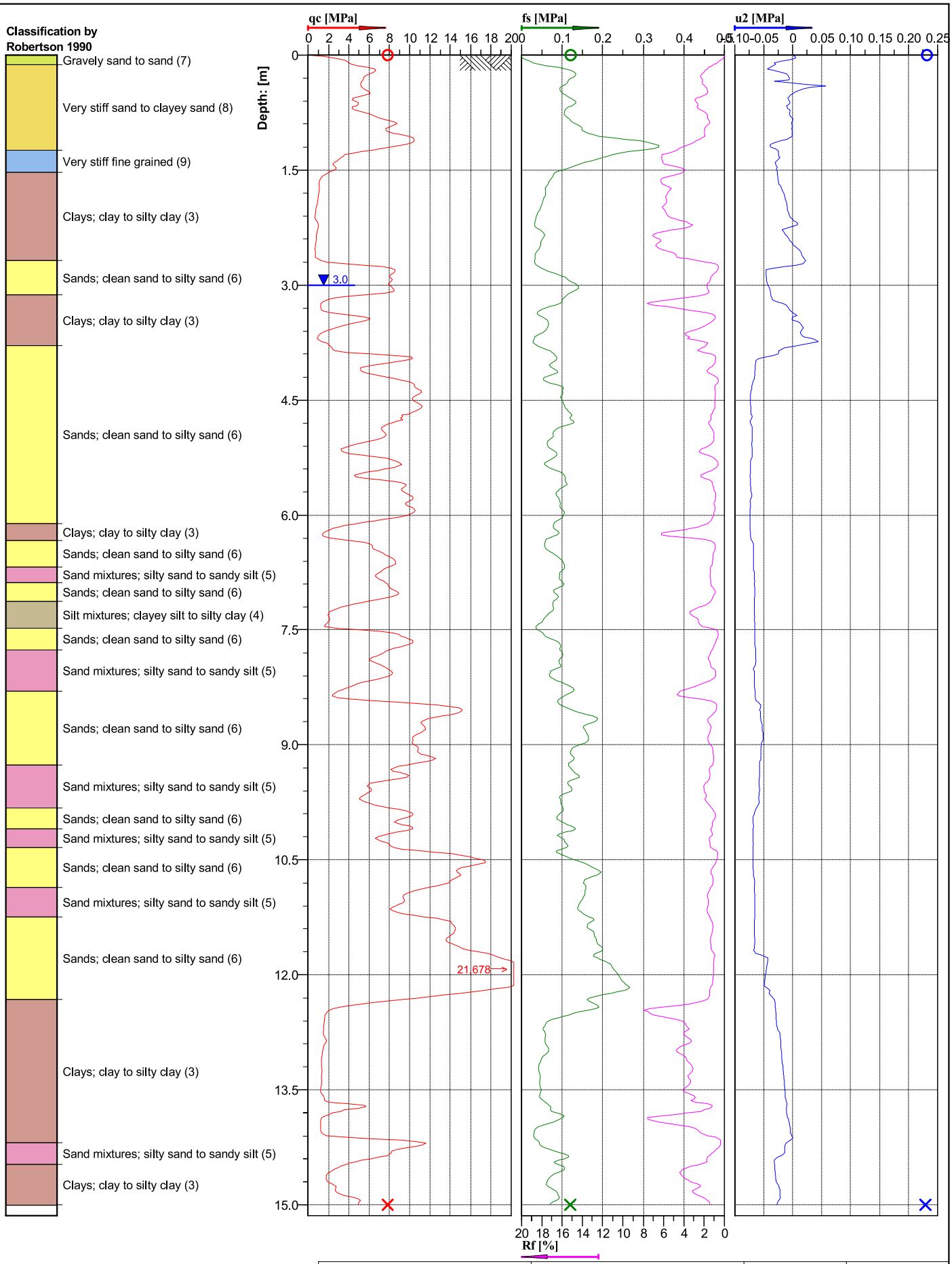


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT20
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61528 E 176.82681		File: CPT20.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

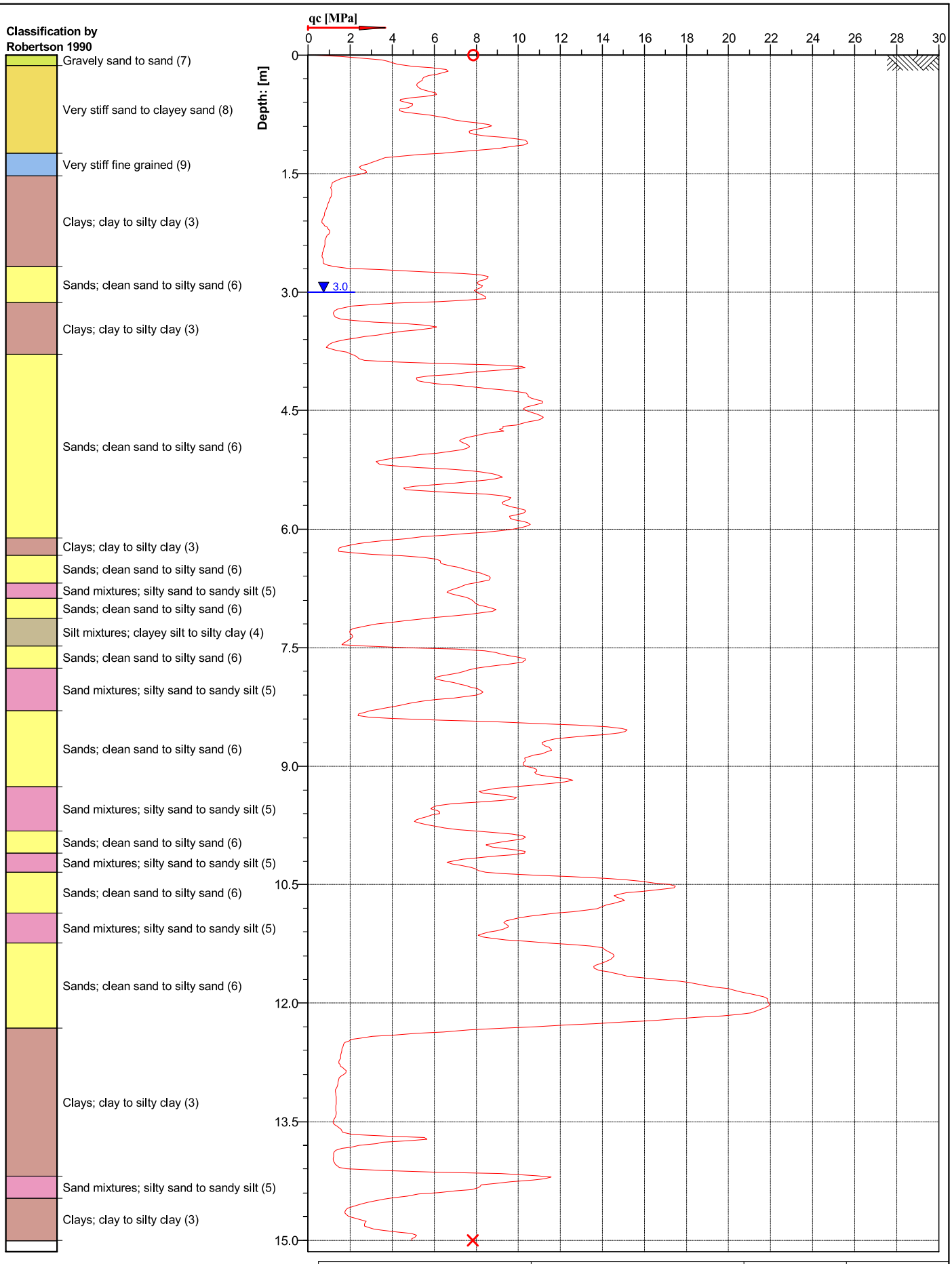


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT20
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61528 E 176.82681		File: CPT20.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

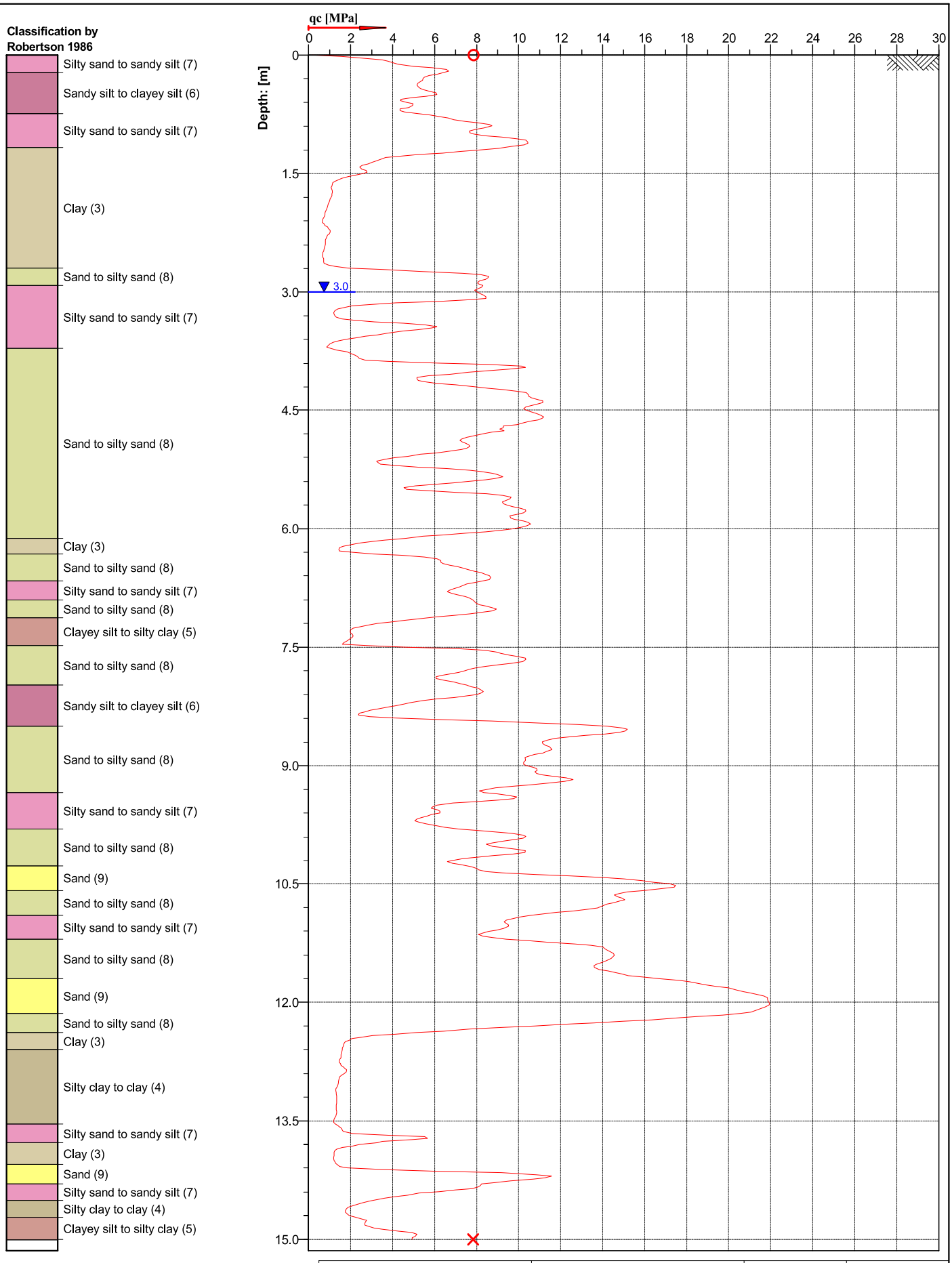


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT20
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61528 E 176.82681		File: CPT20.cpt	



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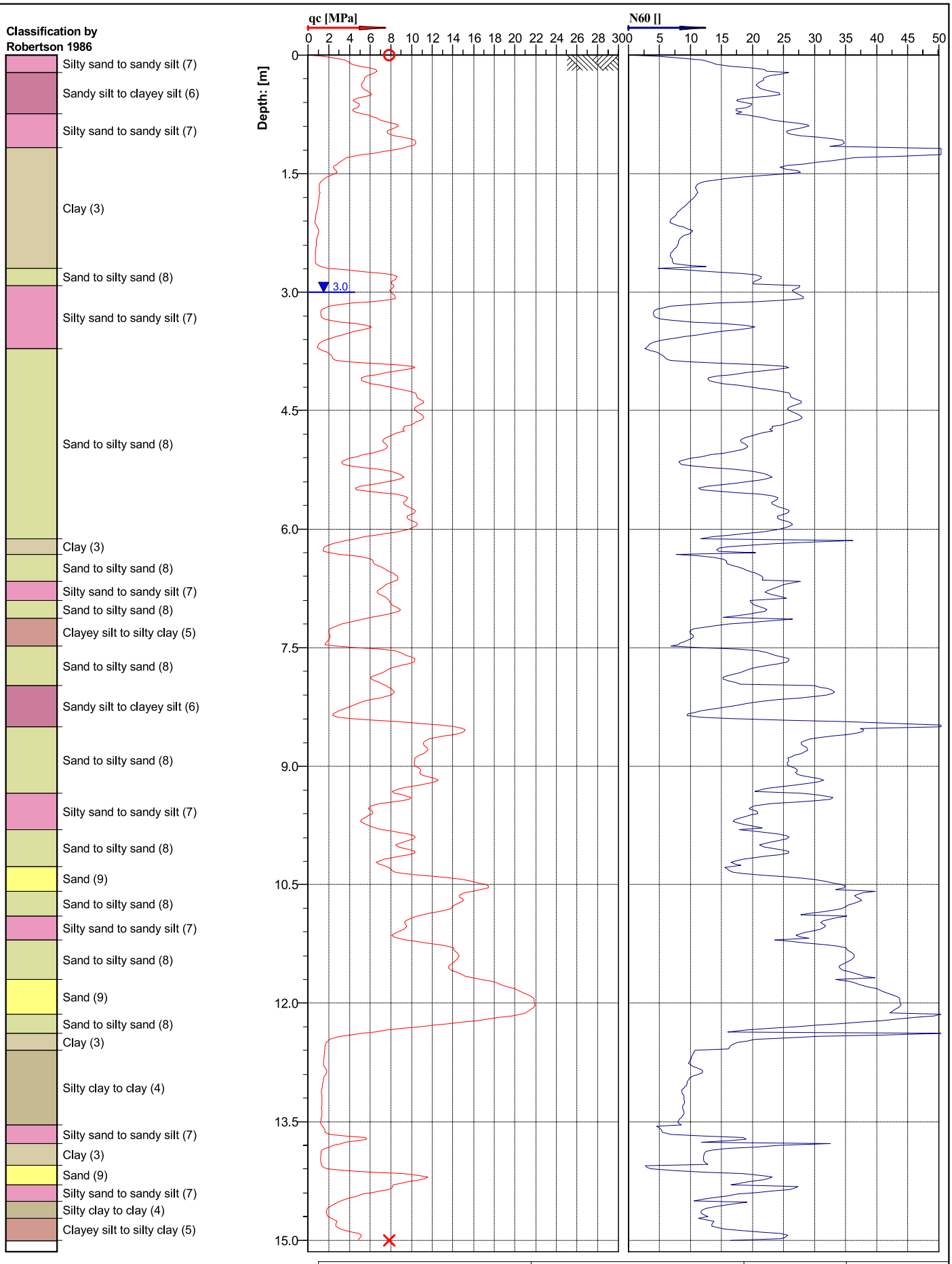
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61528 E 176.82681		File: CPT20.cpt	

GEOTECH DRILLING



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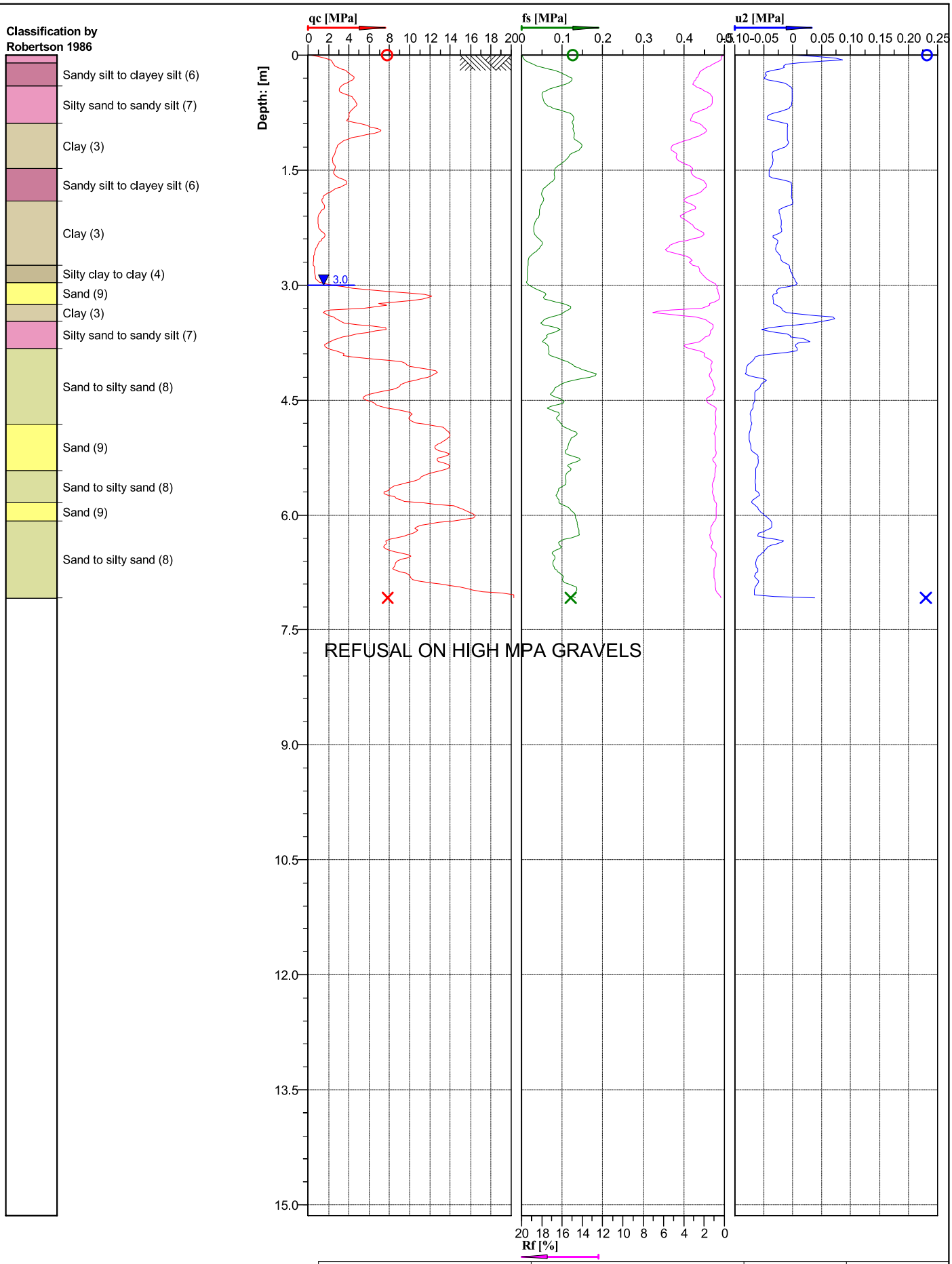
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61528 E 176.82681		File: CPT20.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



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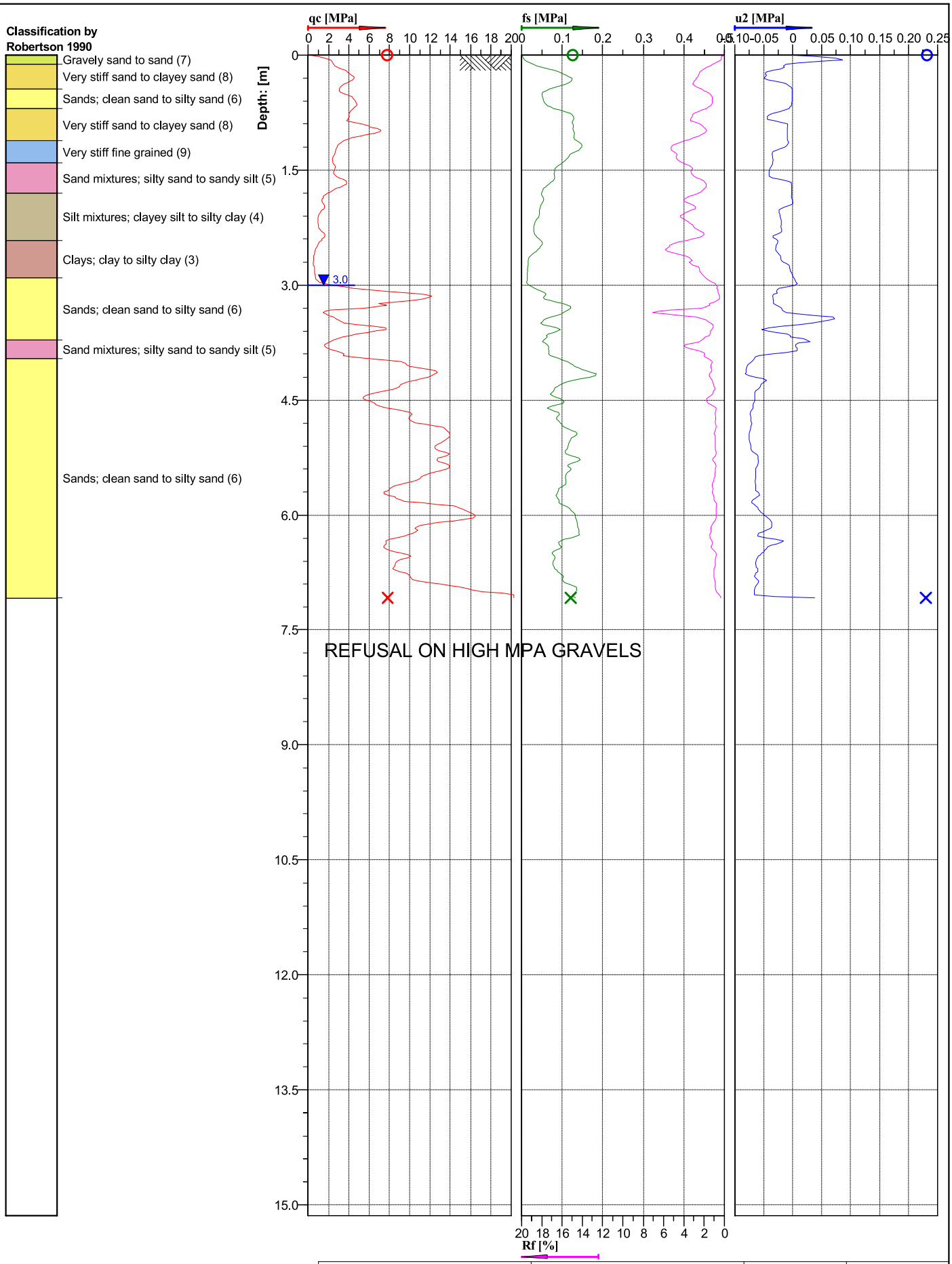
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61537 E 176.82690		File: CPT21.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



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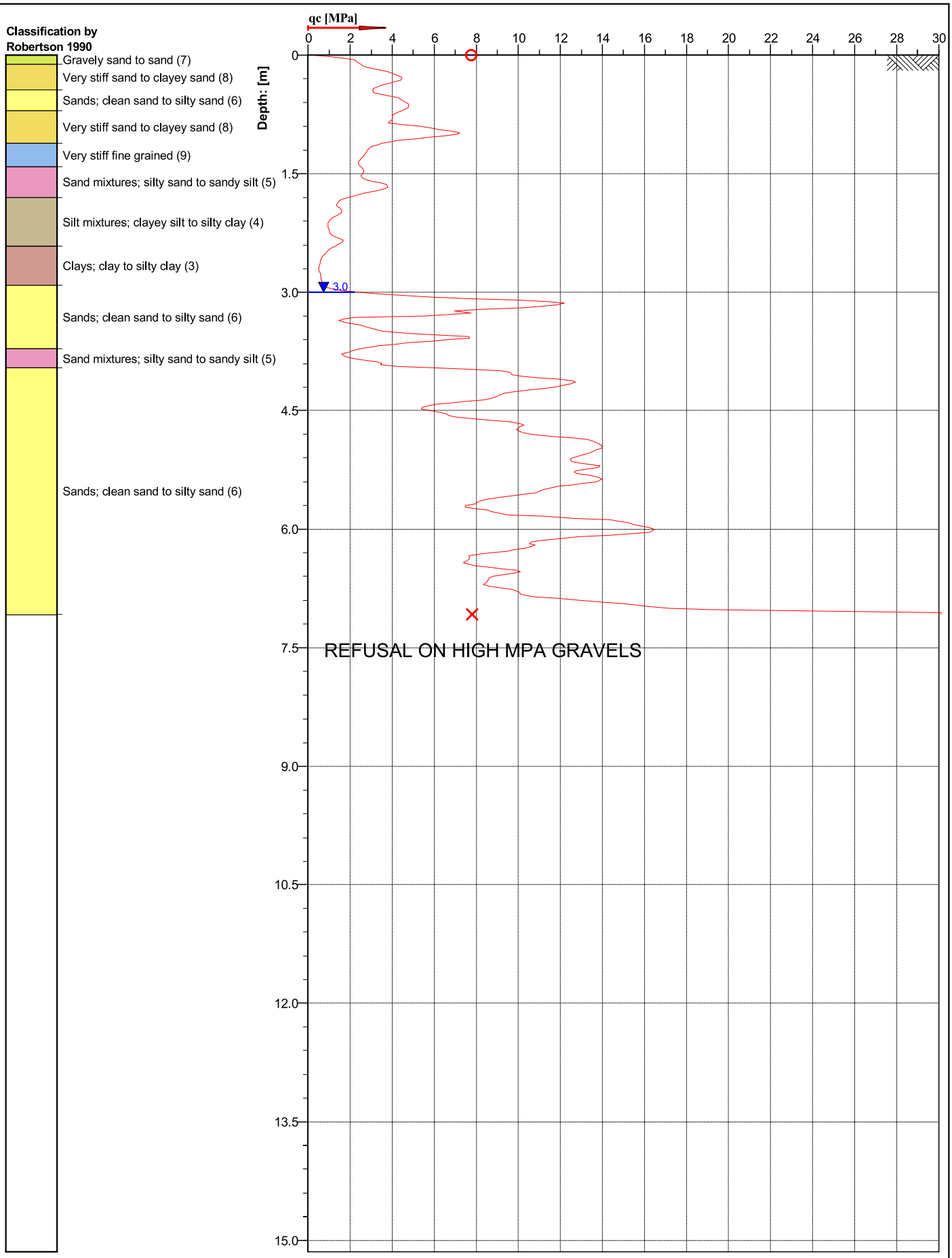
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61537 E 176.82690		File: CPT21.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

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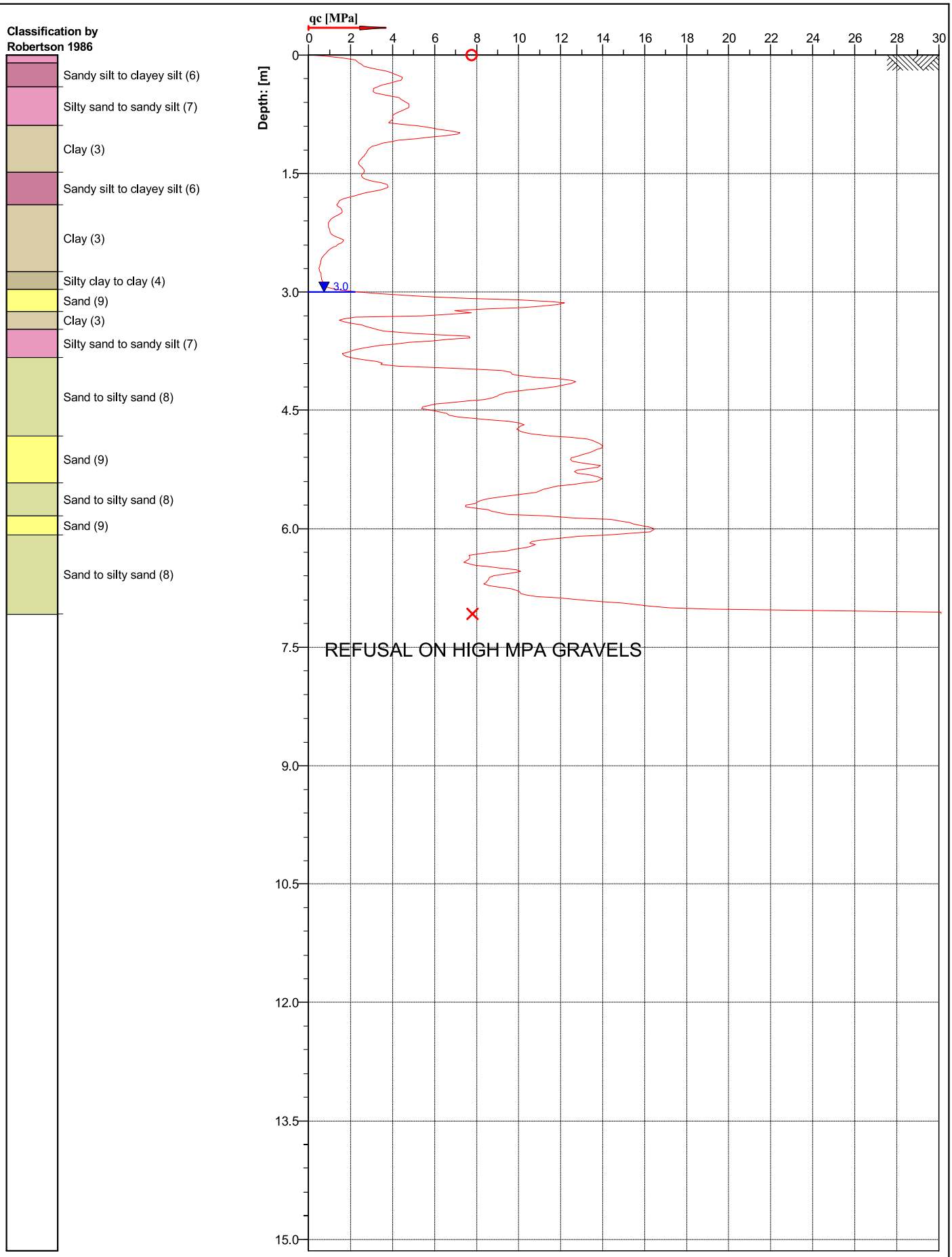
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61537 E 176.82690		File: CPT21.cpt	



GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

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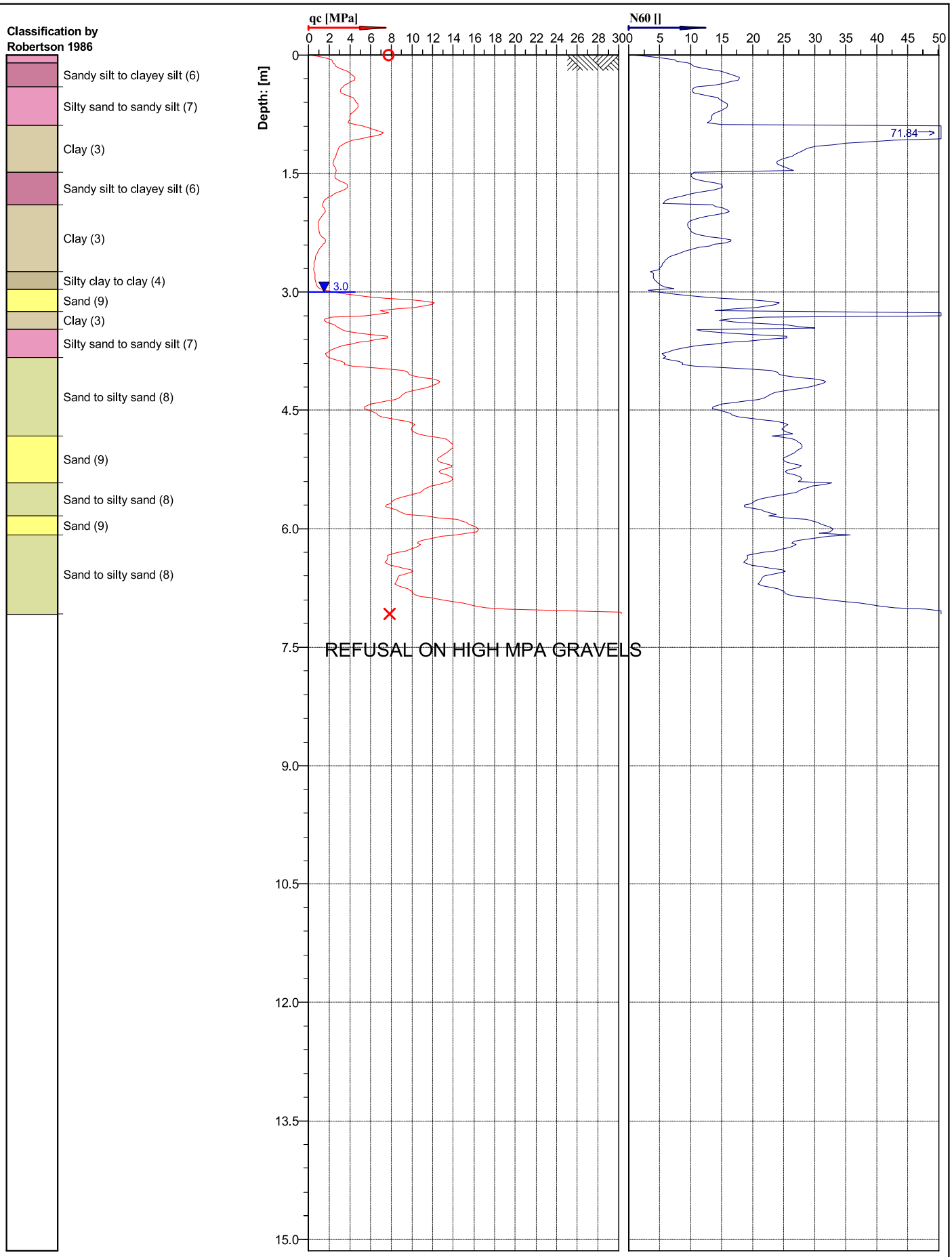
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61537 E 176.82690		File: CPT21.cpt	

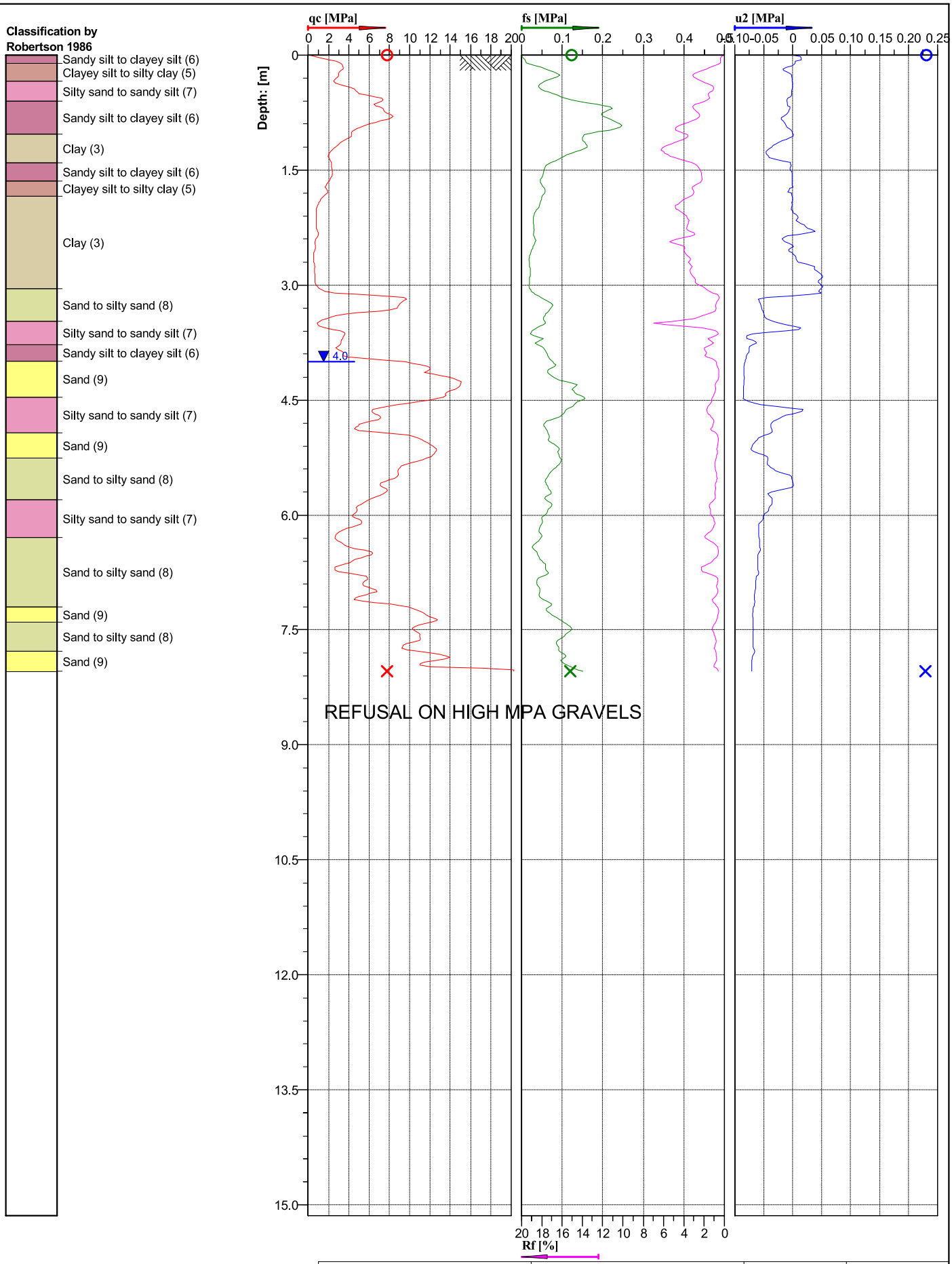


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT21
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61537 E 176.82690		File: CPT21.cpt	

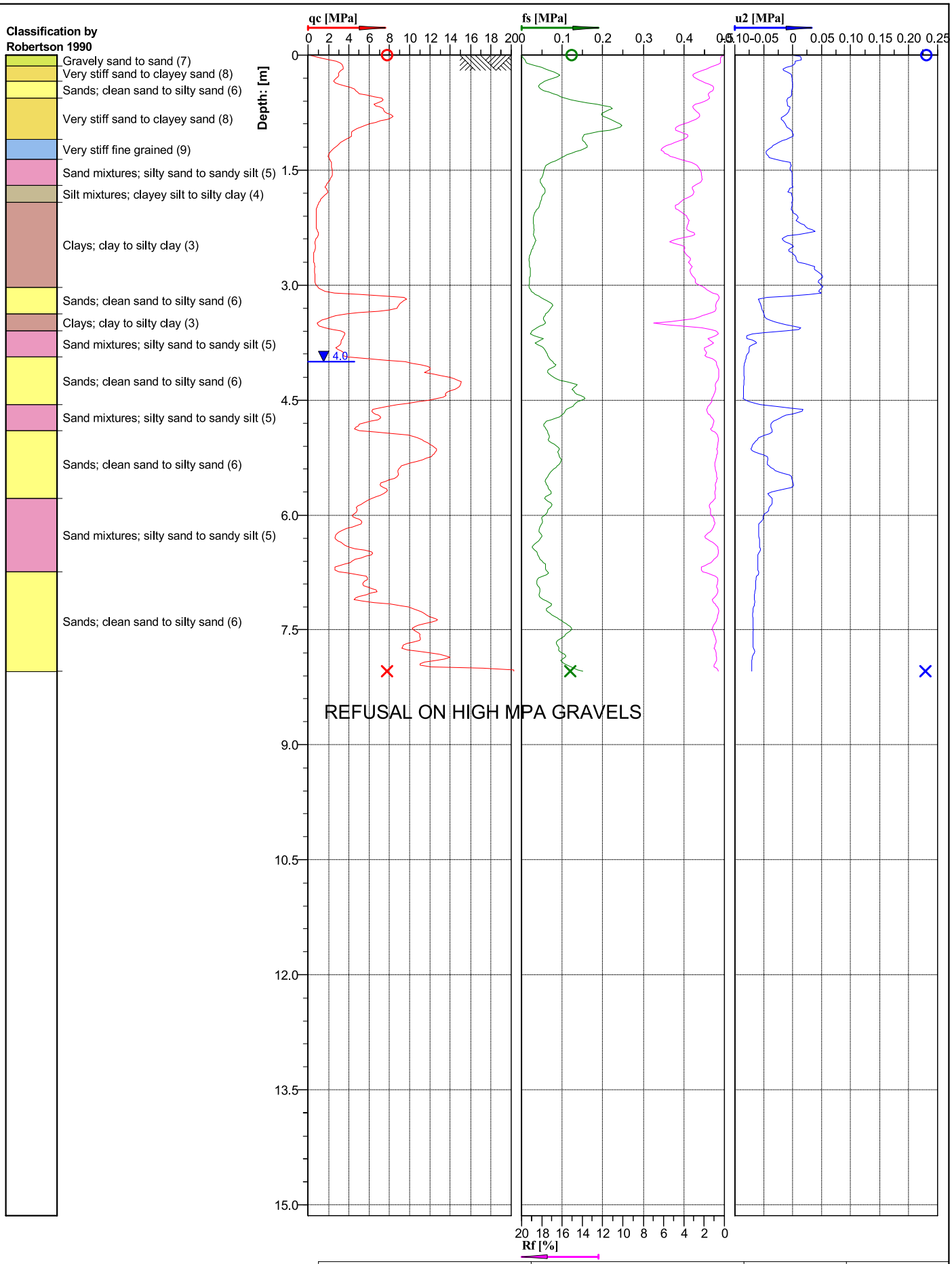


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT22
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61552 E 176.82674		File: CPT22.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

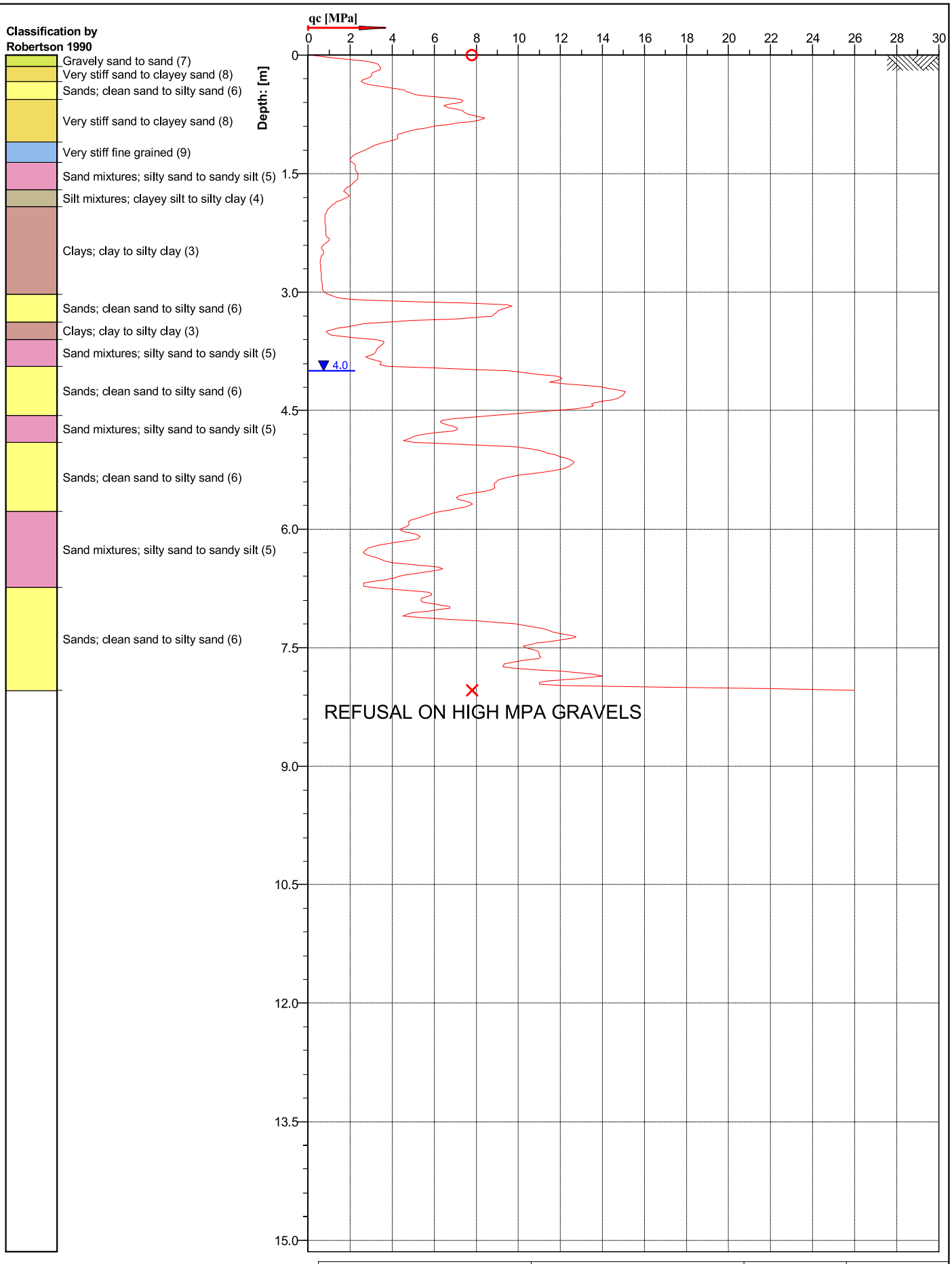


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT22
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61552 E 176.82674		File: CPT22.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

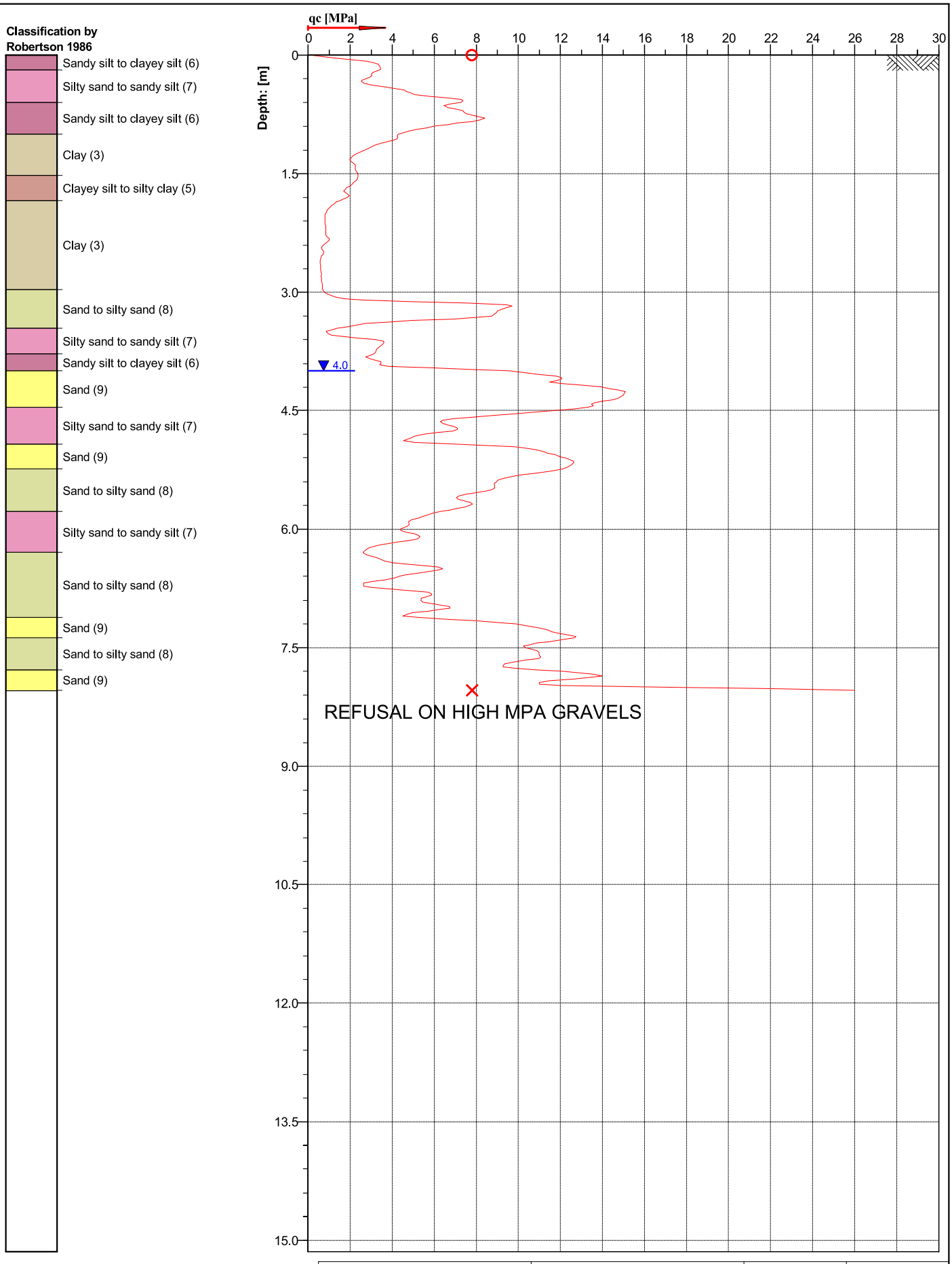


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT22
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61552 E 176.82674		File: CPT22.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

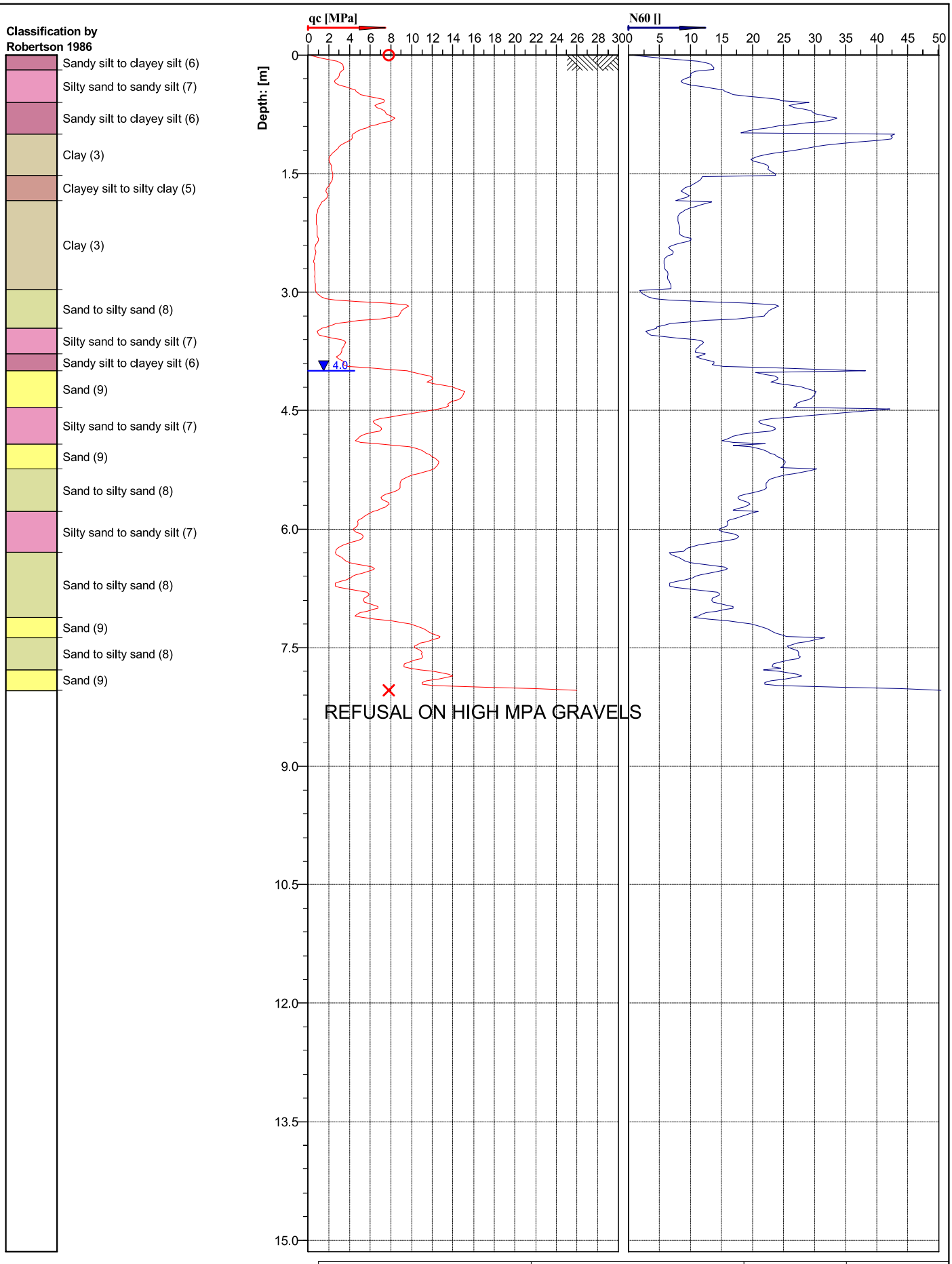


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT22
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61552 E 176.82674		File: CPT22.cpt	

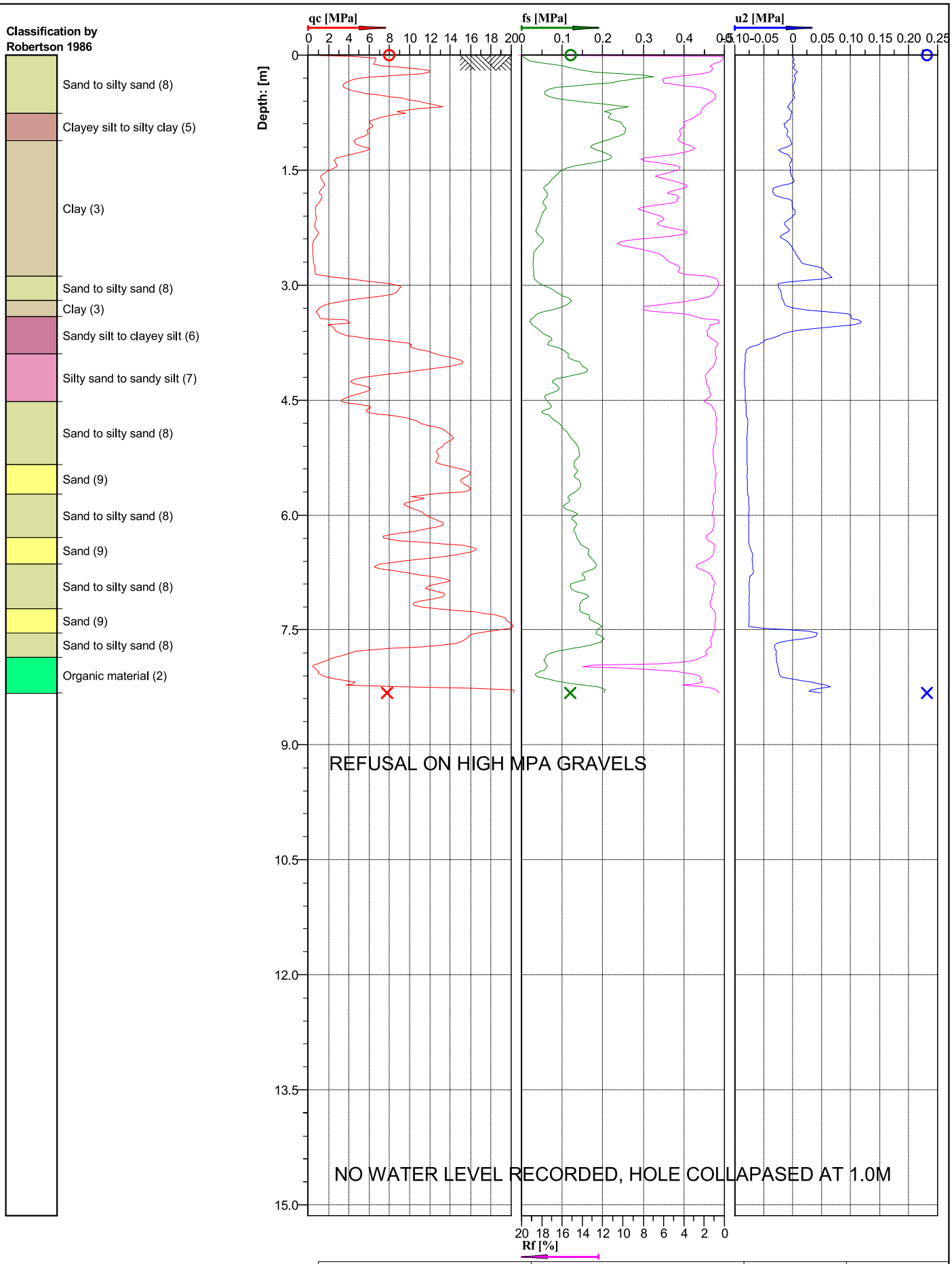


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT22
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61552 E 176.82674		File: CPT22.cpt	



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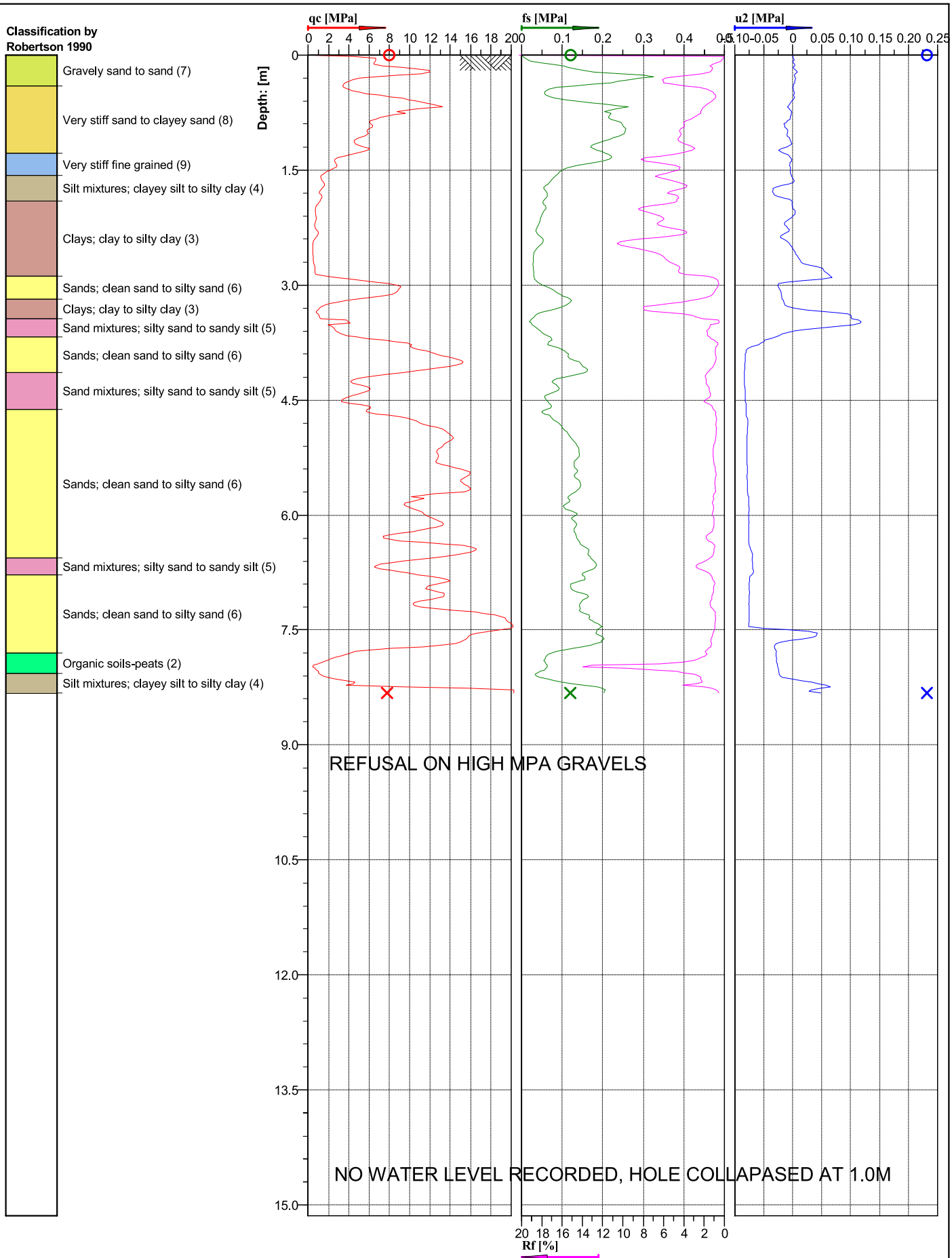
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61543 E 176.82669		File: CPT23.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

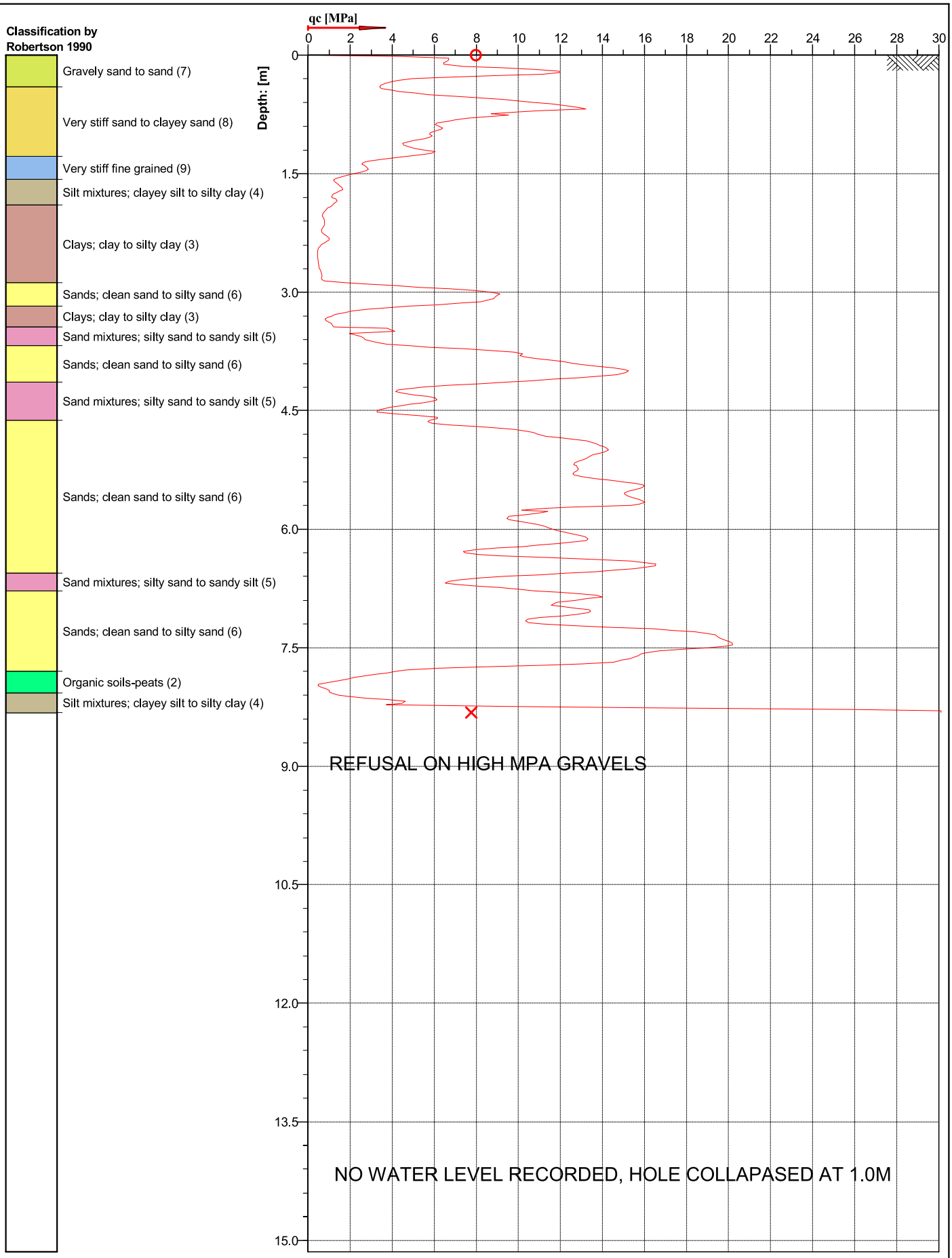


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT23
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61543 E 176.82669		File: CPT23.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

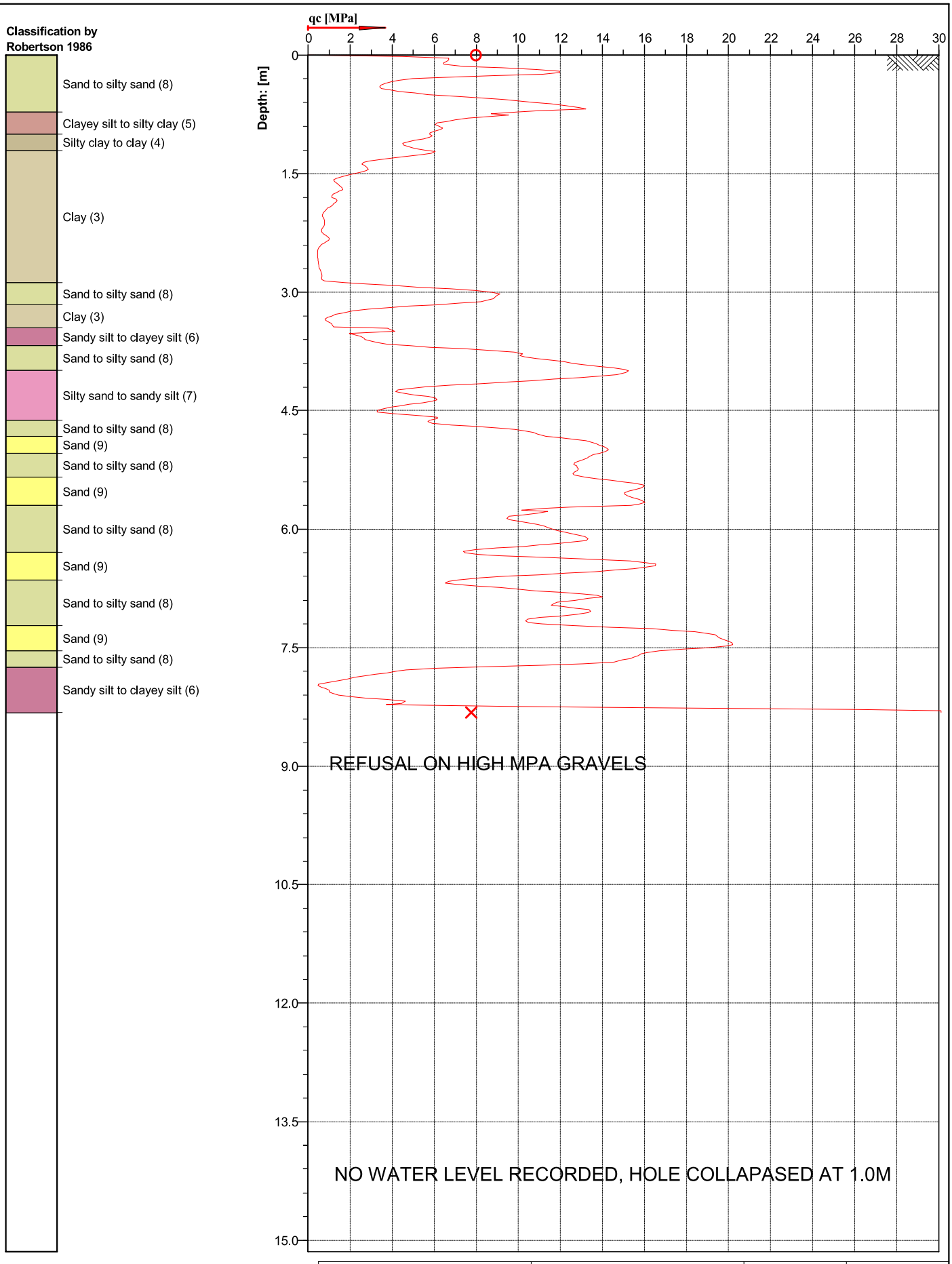


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT23
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61543 E 176.82669		File: CPT23.cpt	



GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT23
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
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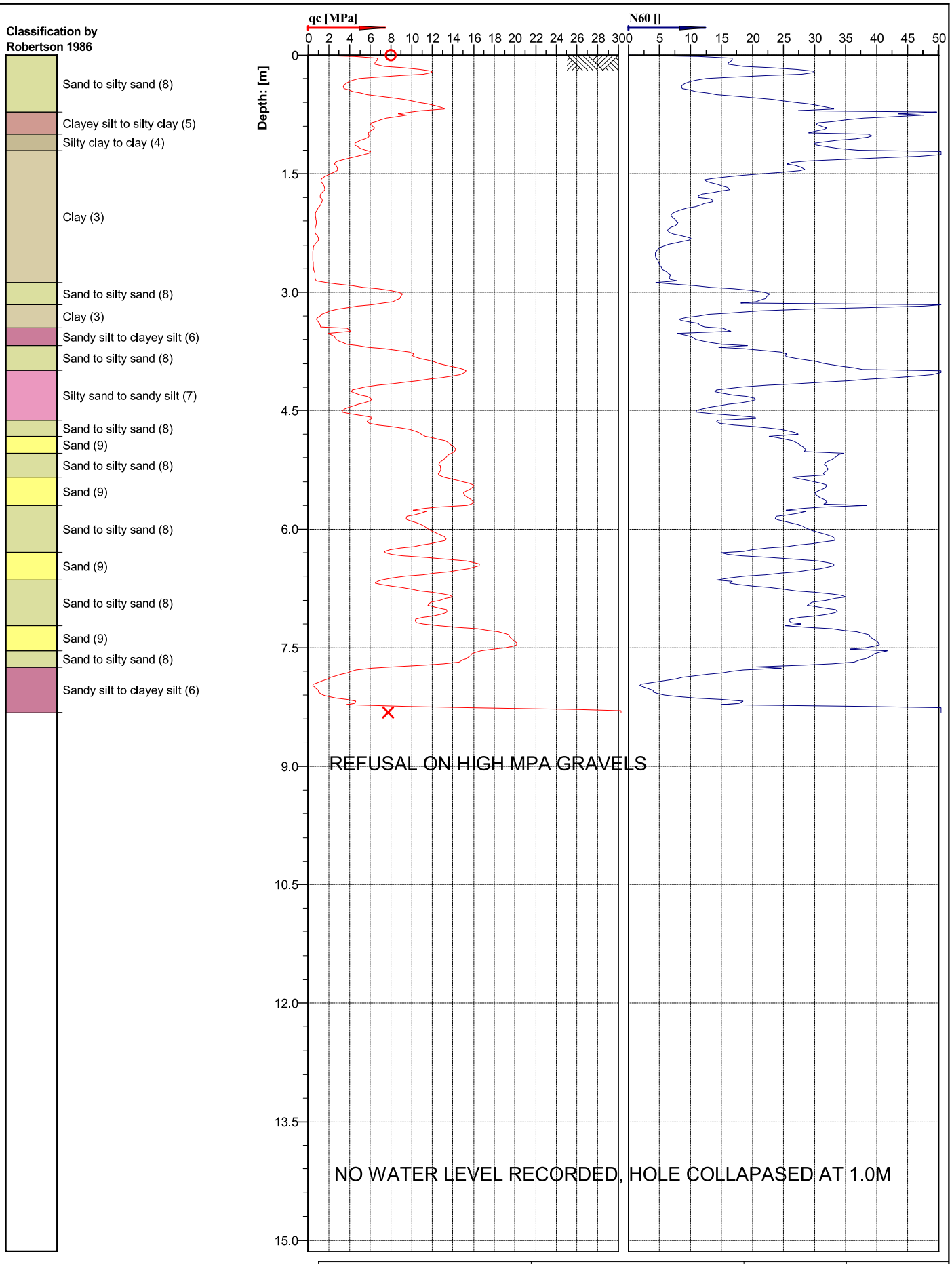
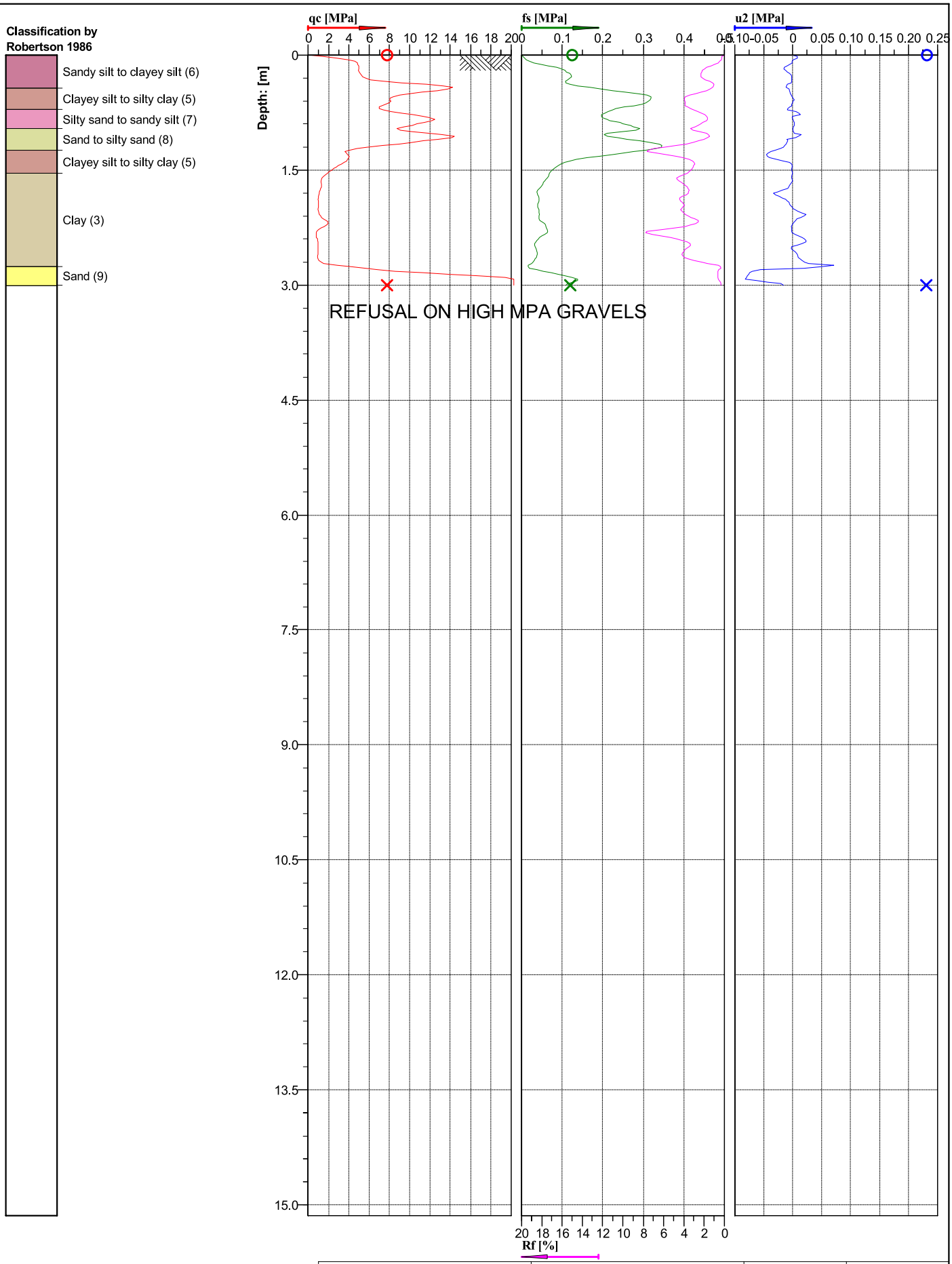


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT23
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61543 E 176.82669		File: CPT23.cpt	

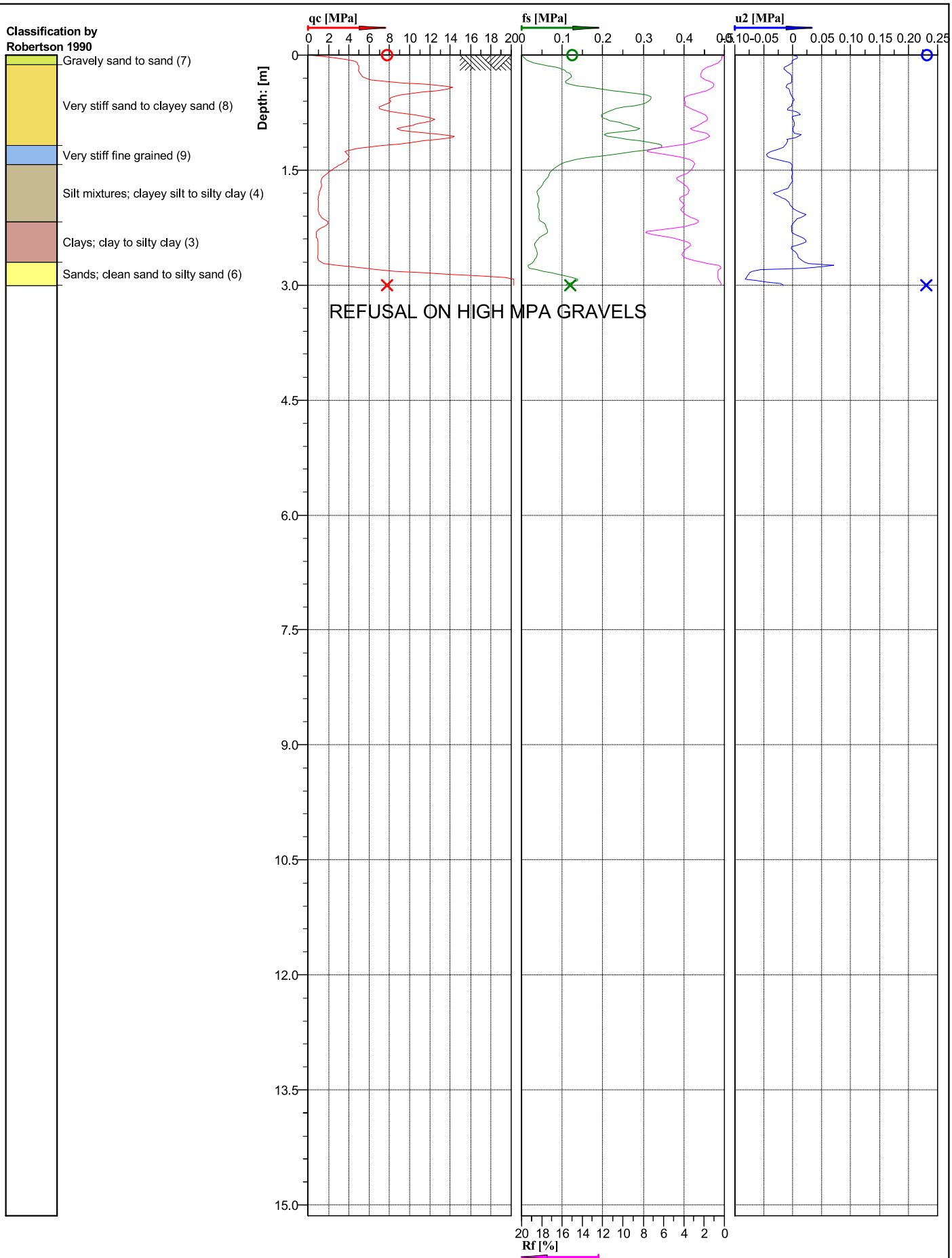


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT24
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61551 E 176.82642		File: CPT24.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

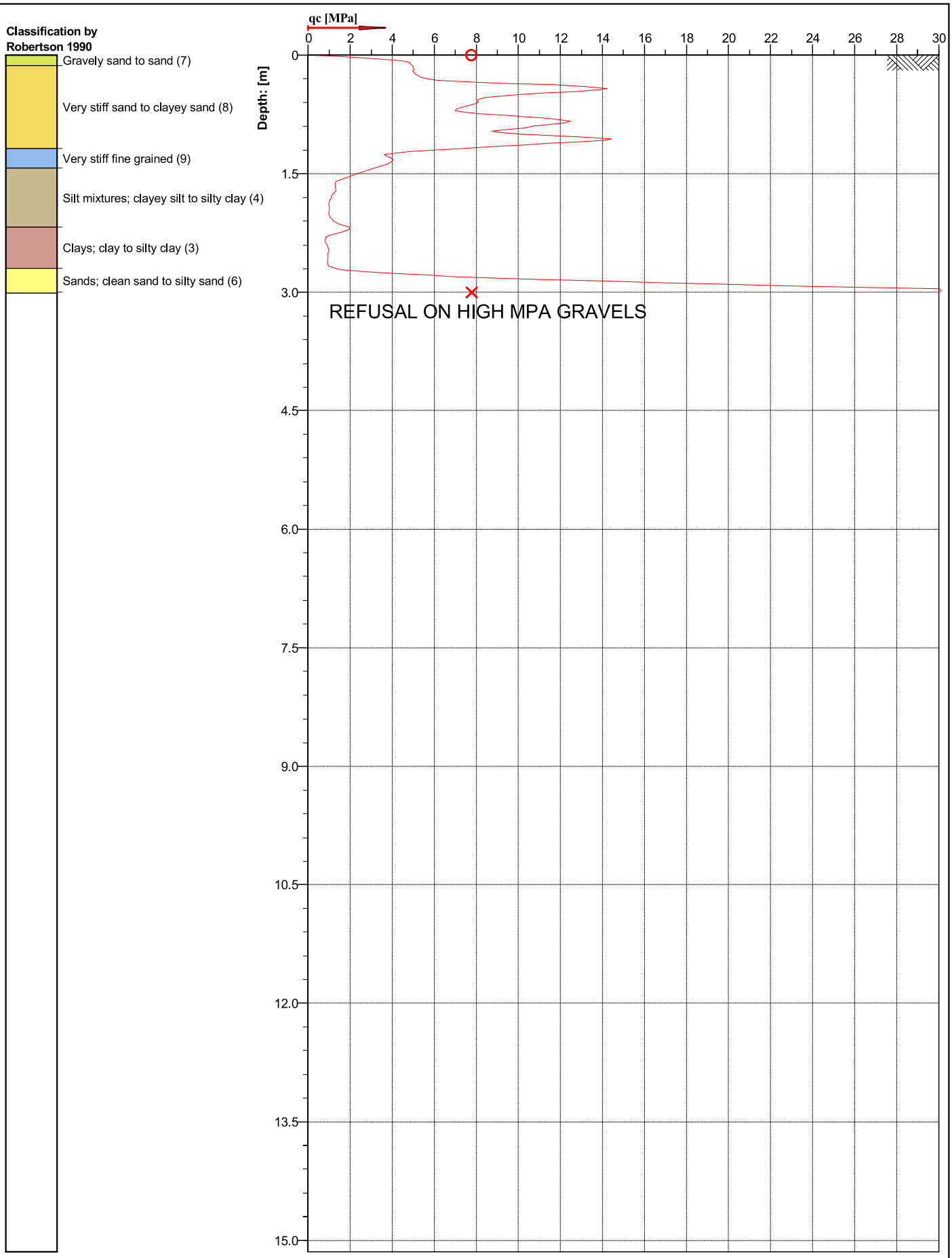


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT24
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61551 E 176.82642		File: CPT24.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

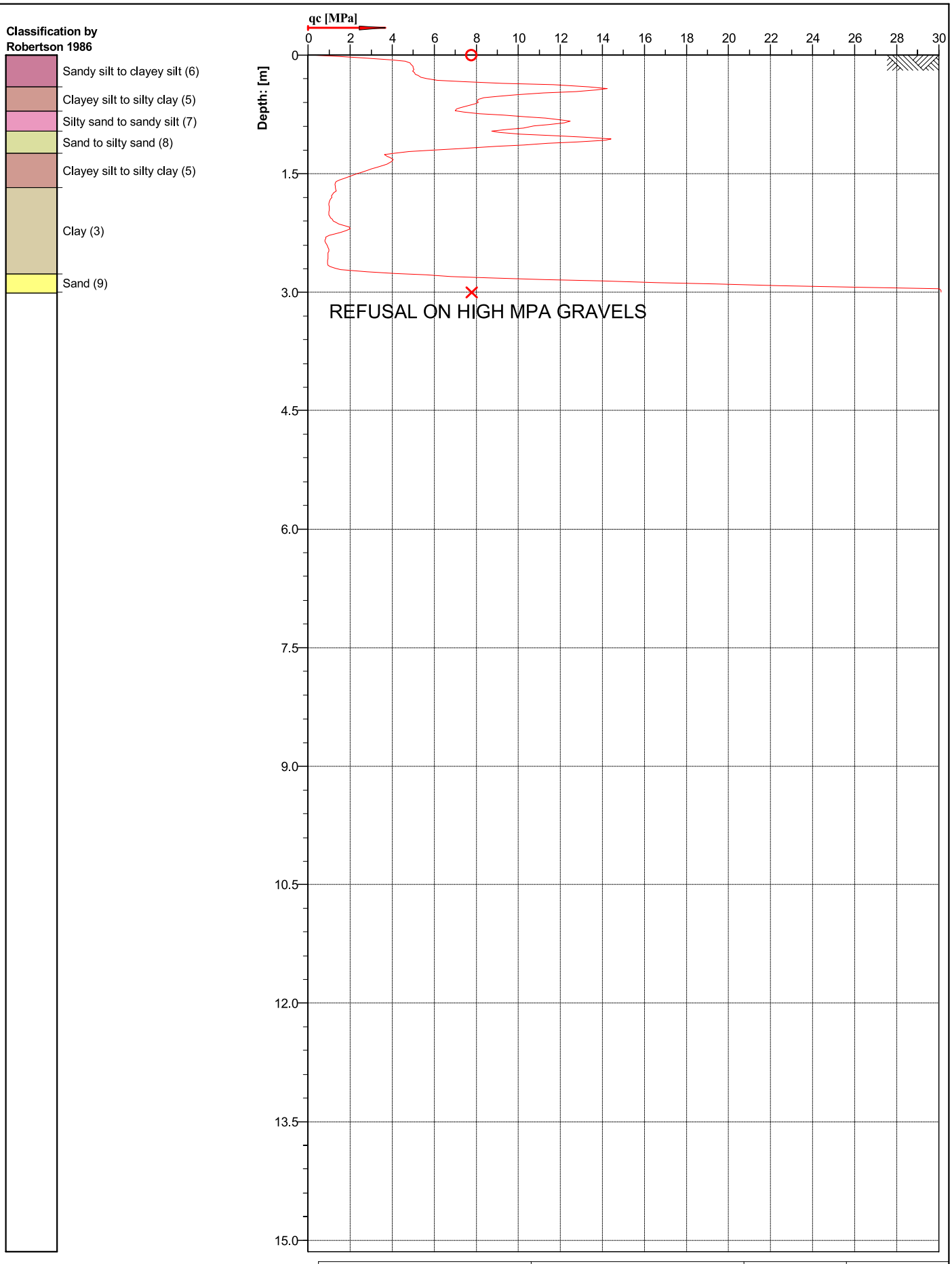


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT24
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61551 E 176.82642		File: CPT24.cpt	

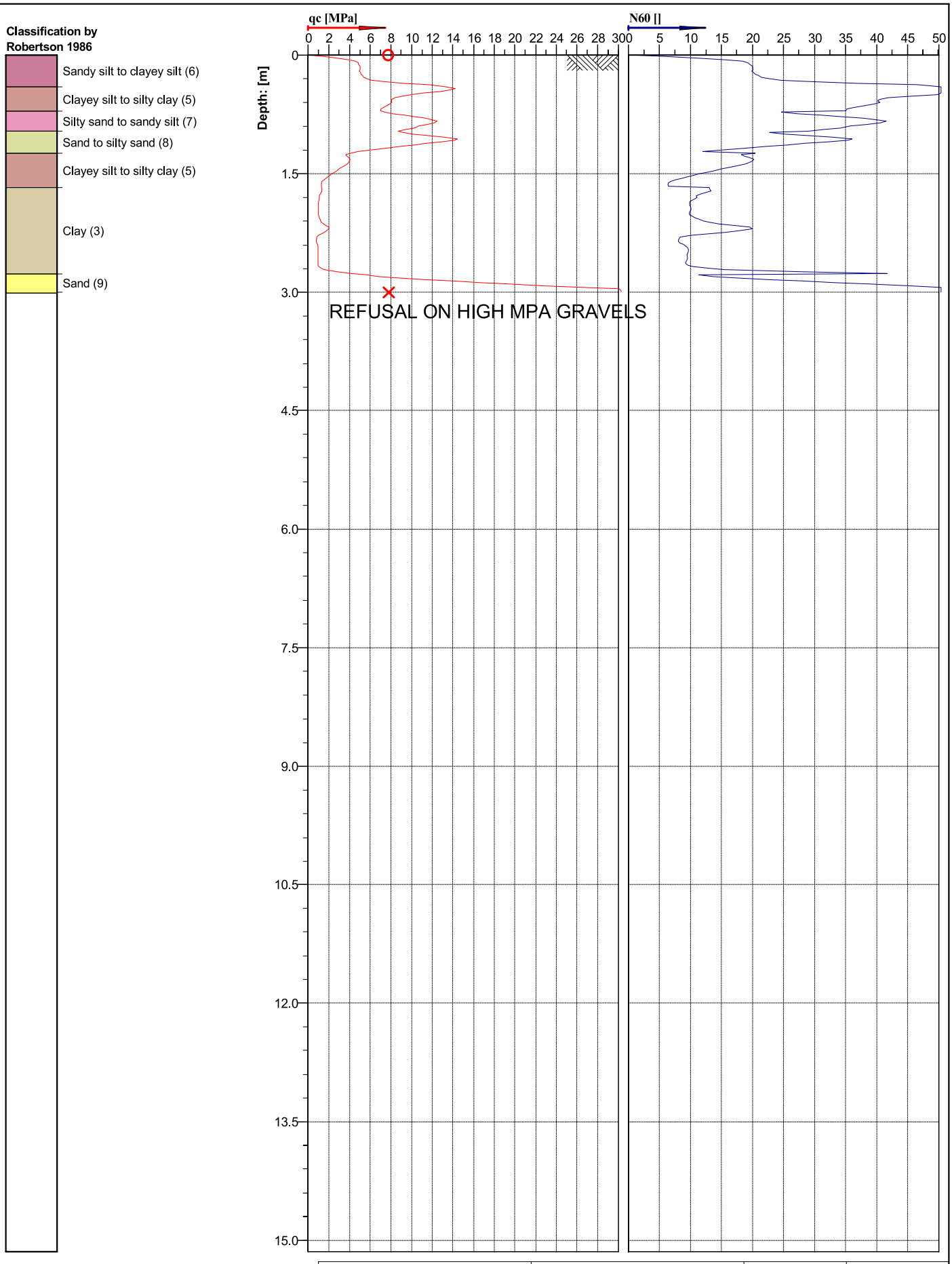


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT24
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61551 E 176.82642		File: CPT24.cpt	

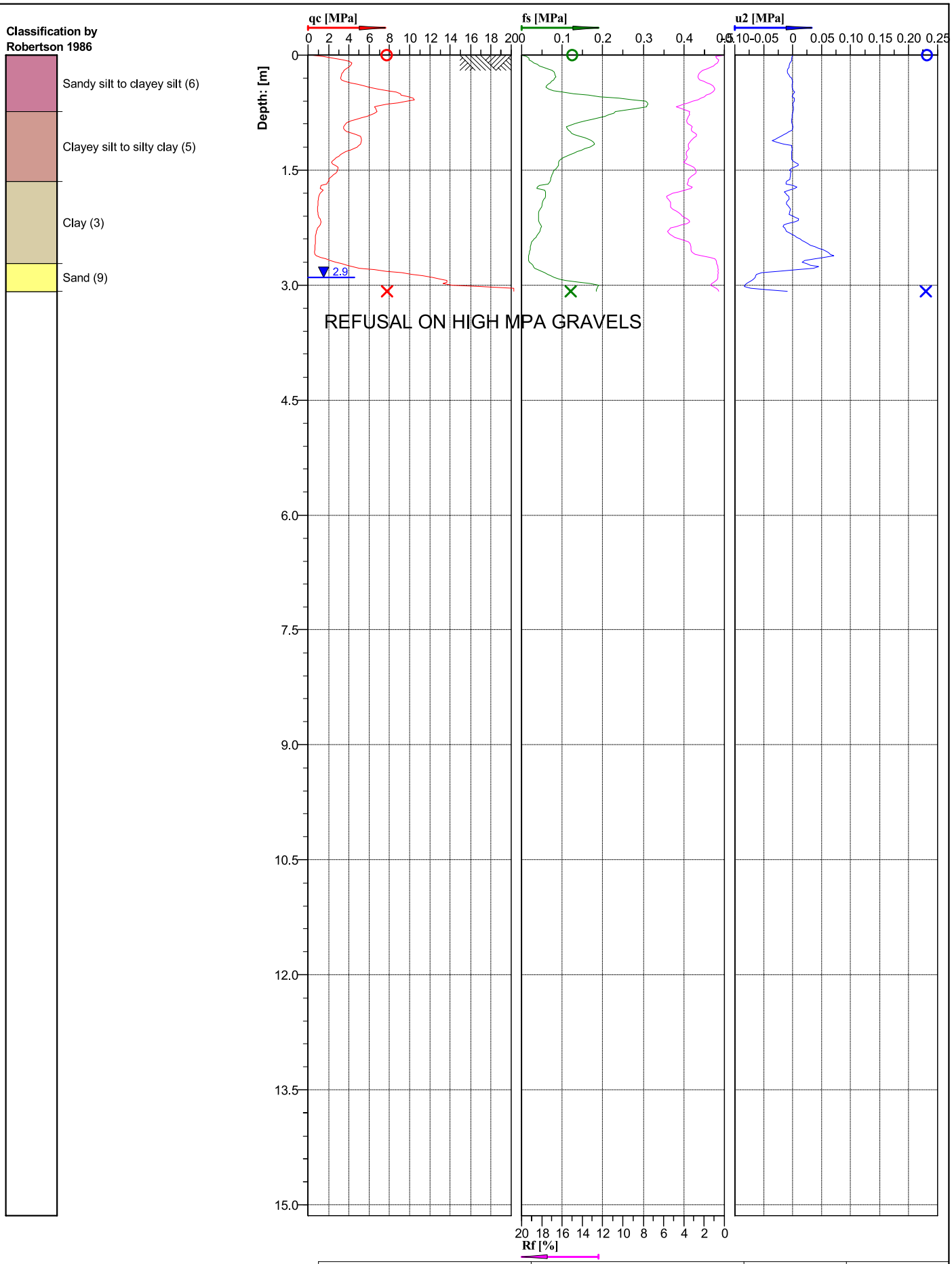


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT24
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61551 E 176.82642		File: CPT24.cpt	

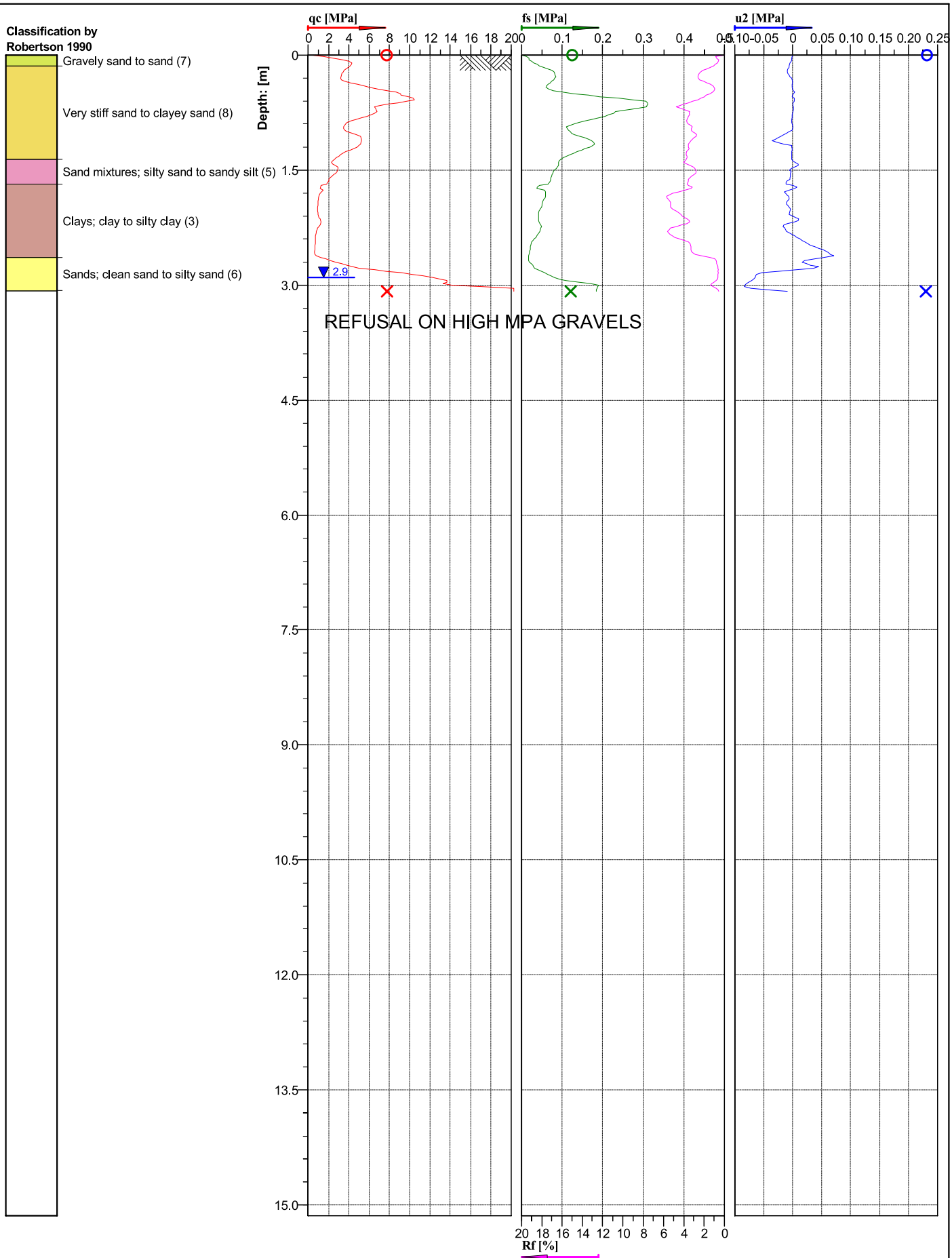


Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT25
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61559 E 176.82652		File: CPT25.cpt	

GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150



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Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 67
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
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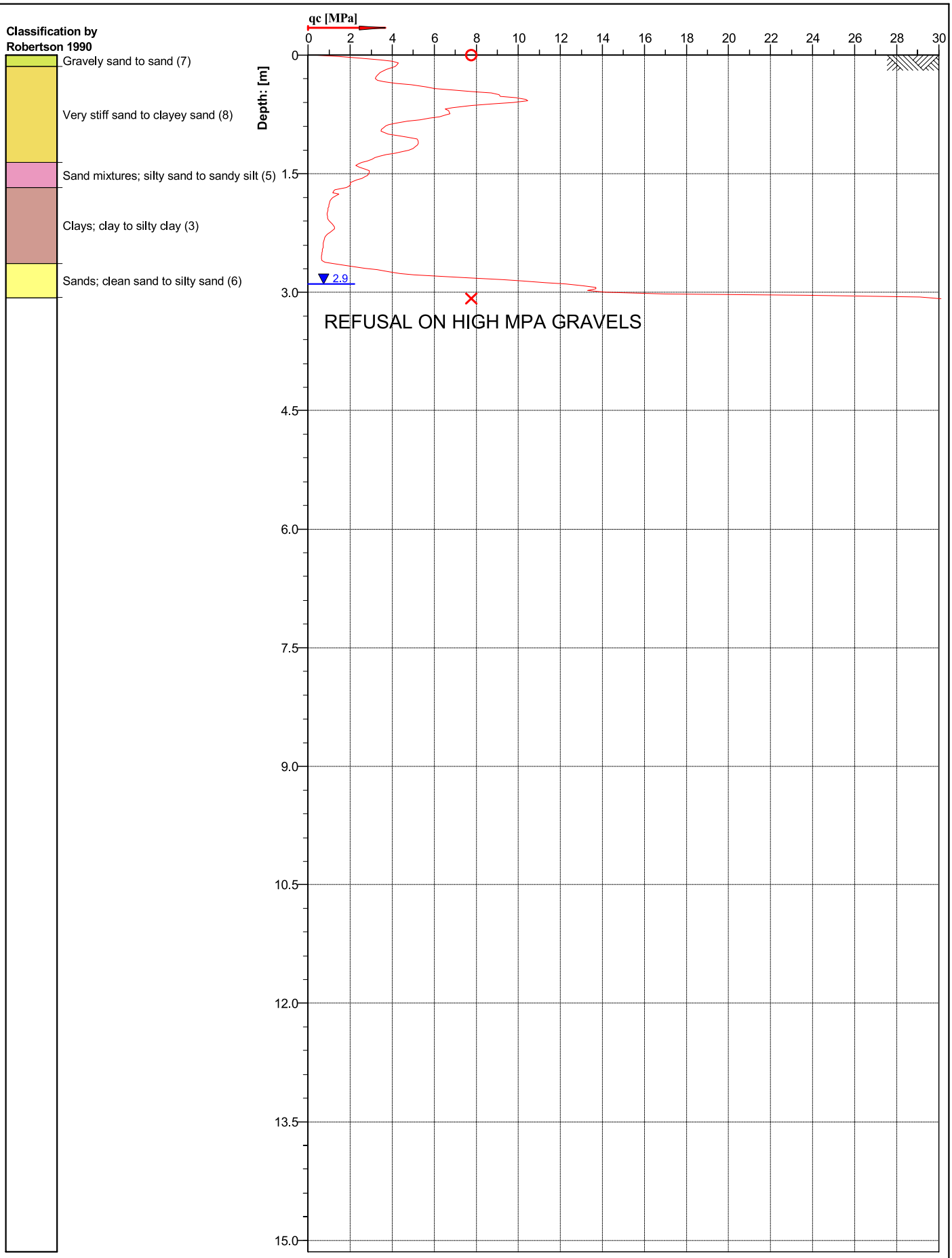
GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

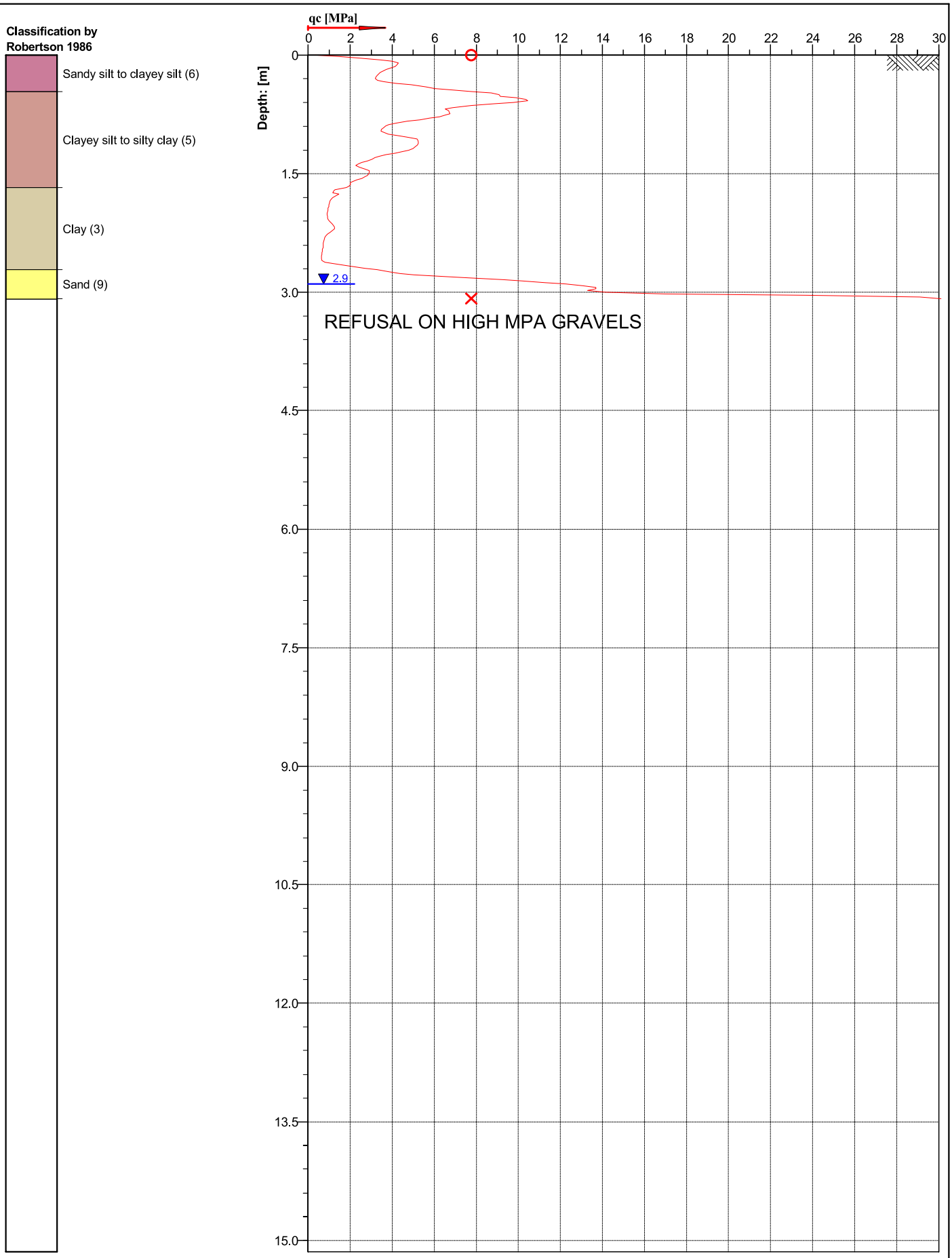


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT25
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61559 E 176.82652		File: CPT25.cpt	

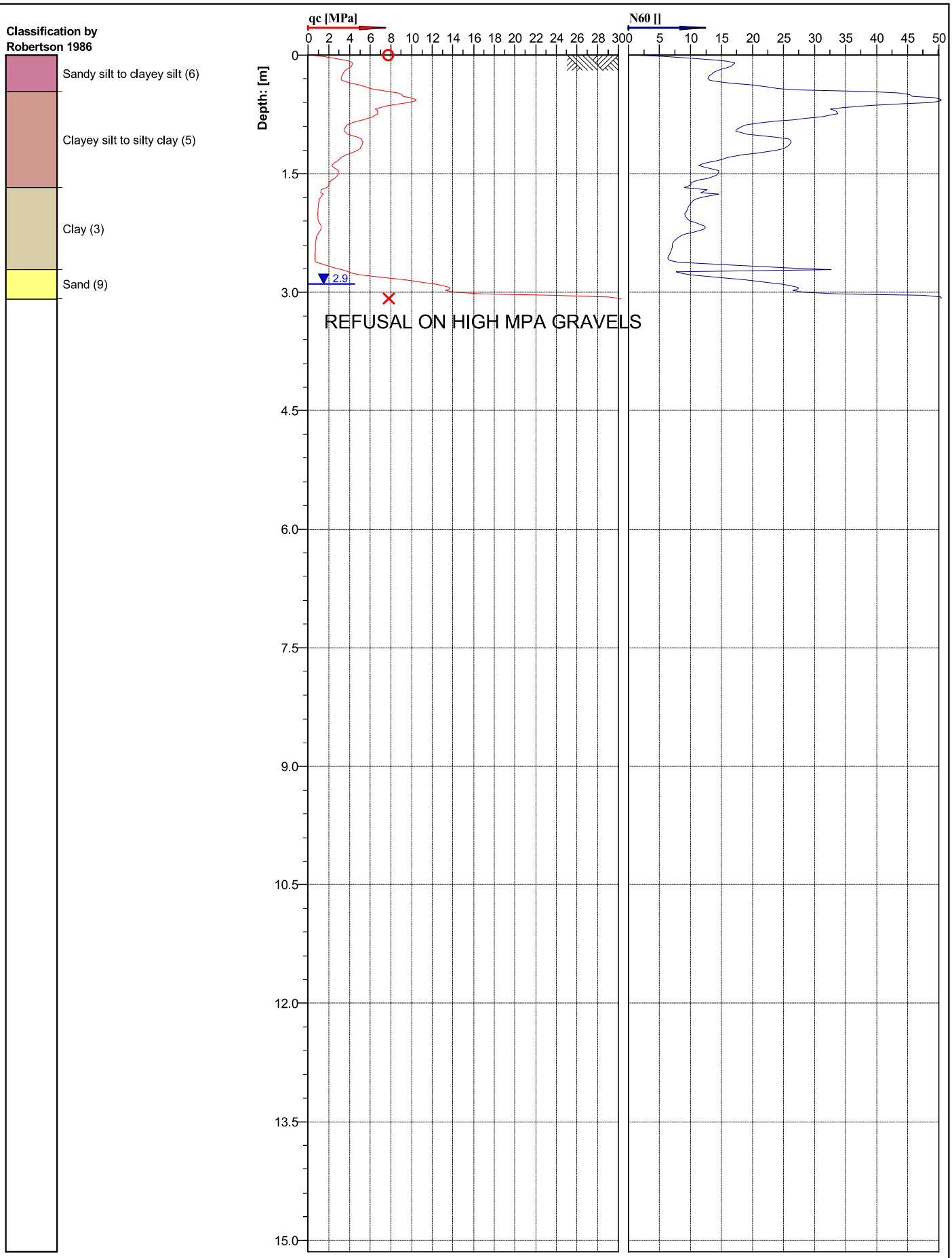


GEOTECH DRILLING

u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT25
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61559 E 176.82652		File: CPT25.cpt	



u2

Cone No: 5332
Tip area [cm2]: 10
Sleeve area [cm2]: 150

Location: HASTINGS	Position: X: 0.00 m, Y: 0.00 m	Ground level: 0.00	Test No.: CPT25
Project ID:	Client: INITIA	Date: 11/06/2020	Scale: 1 : 65
Project: LYNDHURST SUBDIVISION		Page: 1/1	Fig.:
S 39.61559 E 176.82652		File: CPT25.cpt	

Appendix D: Initia Hand Auger Borehole Logs

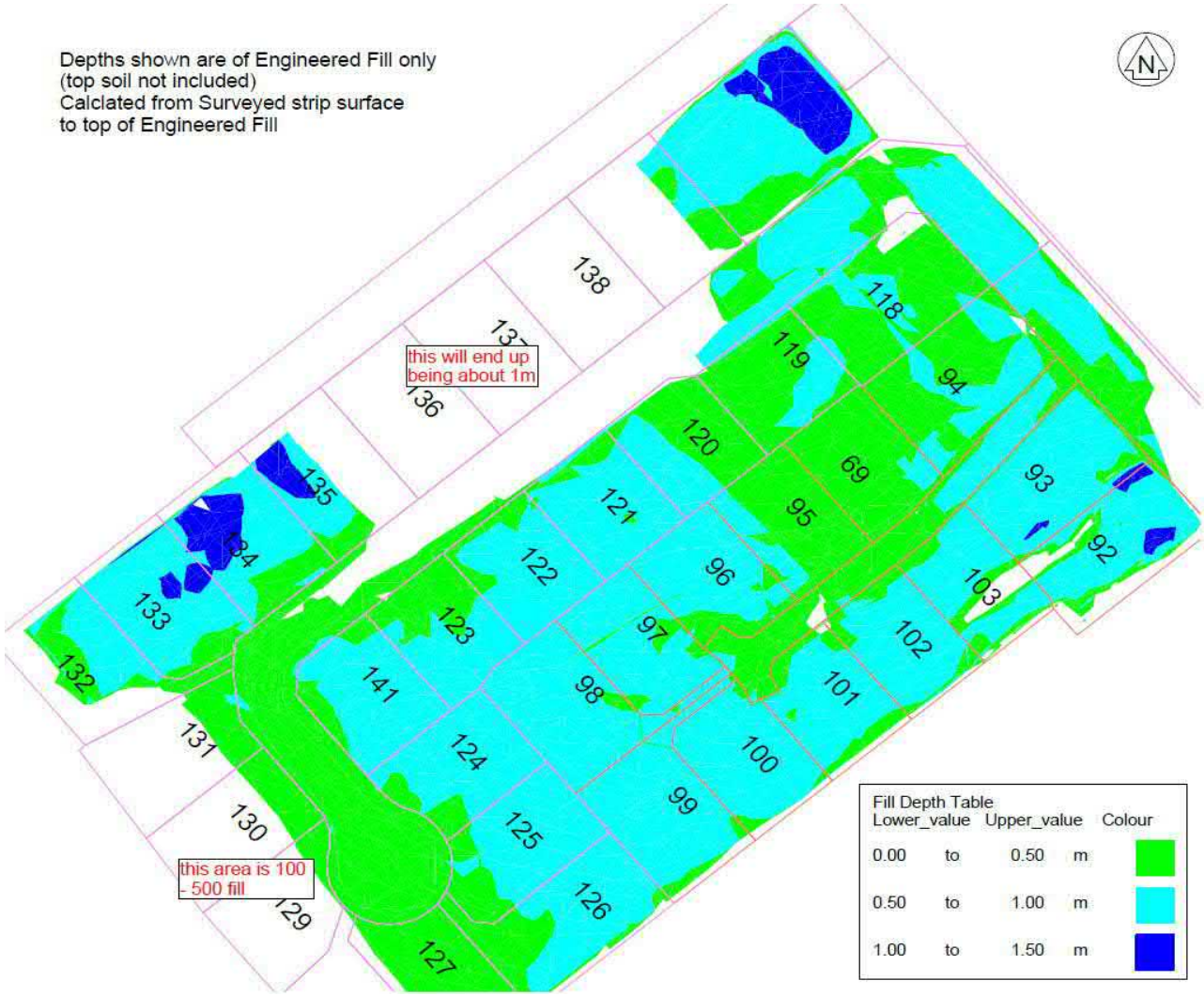
INVESTIGATION REPORT - GROUND TESTING

PROJECT:	Lyndhurst Arbuckle Subdivision, Hastings
CLIENT:	Initia Ltd
ENGINEER:	Initia Ltd
DATE:	10 - 11 June 2020
TESTED BY:	SR/LE
LOCATIONS:	Refer partial site plan below
TEST METHODS:	Hand Auger, Shear Vane

Report Number: CSR20/145

CIVIL SERVICES (HB) LTD
UNIT 9 11 WAKEFIELD STREET P.O. BOX 5011 NAPIER 4145 PHONE 06 843 6996 EMAIL admin@civilservices.co.nz WEBSITE www.civilservices.co.nz

SITE PLAN (by others)



Comments:
Hand auger testing was performed at approximately the middle of each lot. Tests are numbered with the corresponding lot number.

Report written by:	LE	21 June 2020
Report reviewed by:	SR	25 June 2020
Approved for issue:		2 July 2020

Distribution: 1 Initia Ltd
2 Civil Services File

INVESTIGATION REPORT - GROUND TESTING

PROJECT:	Lyndhurst Arbuckle Subdivision, Hastings
CLIENT:	Initia Ltd
ENGINEER:	Initia Ltd
DATE:	10 - 11 June 2020
TESTED BY:	SR/LE
TEST SITES:	Hand Augers 69 & 92
LOCATIONS:	Refer site plan on page 1
TEST METHODS:	Hand Auger, Shear Vane

HAND AUGER 69

Auger Data

Depth (mm)

0

silty TOPSOIL with trace sand - dark brown, stiff, moist

300

gravelly SILT - brown to dark brown, very stiff, moist

500

End of augering at 0.5m - Gravelly/crunchy sound at the end

HAND AUGER 92

Auger Data

Depth (mm)

0

SILT with topsoil trace gravel - brown to dark brown, very stiff, moist

400

End of augering at 0.5m - Gravelly/crunchy sound at the end

Comments:
Yellow numbers indicate undisturbed/residual shear strength readings in kPa (>197 indicates unable to turn shear vane, and >>197 indicates unable to penetrate soil with shear vane). No ground water encountered.

Testing Specifications/Notes:

Test Method for determining the shear strength of a cohesive soil using a hand held shear vane - NZ Geotechnical Society 2001

CIVIL SERVICES (HB) LTD
UNIT 9 11 WAKEFIELD STREET P.O. BOX 5011 NAPIER 4145 PHONE 06 843 6996 EMAIL admin@civilservices.co.nz WEBSITE www.civilservices.co.nz

INVESTIGATION REPORT - GROUND TESTING

PROJECT:	Lyndhurst Arbuckle Subdivision, Hastings
CLIENT:	Initia Ltd
ENGINEER:	Initia Ltd
DATE:	10 - 11 June 2020
TESTED BY:	SR/LE
TEST SITES:	Hand Auger 93
LOCATIONS:	Refer site plan on page 1
TEST METHODS:	Hand Auger, Shear Vane

Report Number: CSR20/145

HAND AUGER 93

Auger Data

Depth (mm)

0

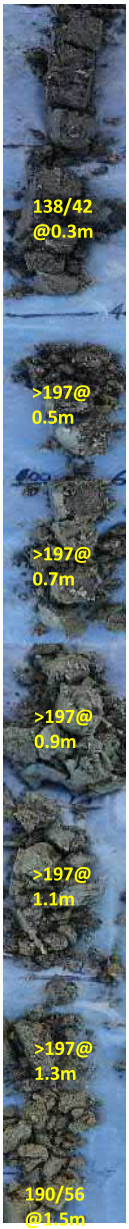
SILT with topsoil trace gravel - dark brown, very stiff, moist

500

fine sandy SILT - brown, very stiff, moist

1000

1500



Depth (mm)

1500

SILT with trace sand - brown with orange streaks, firm to stiff, moist to wet (limited recovery from 2.2m to 2.8m)

2800

End of augering at 2.8m - felt hard pan with auger

Comments:
Yellow numbers indicate undisturbed/residual shear strength readings in kPa (>197 indicates unable to turn shear vane, and >>197 indicates unable to penetrate soil with shear vane). No ground water encountered.

Testing Specifications/Notes:

Test Method for determining the shear strength of a cohesive soil using a hand held shear vane - NZ Geotechnical Society 2001

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INVESTIGATION REPORT - GROUND TESTING

PROJECT: Lyndhurst Arbuckle Subdivision, Hastings
CLIENT: Initia Ltd
ENGINEER: Initia Ltd
DATE: 10 - 11 June 2020
TESTED BY: SR/LE
TEST SITES: Hand Augers 94 & 95
LOCATIONS: Refer site plan on page 1
TEST METHODS: Hand Auger, Shear Vane

Report Number: CSR20/145

HAND AUGER 94

Auger Data

Depth (mm)

0

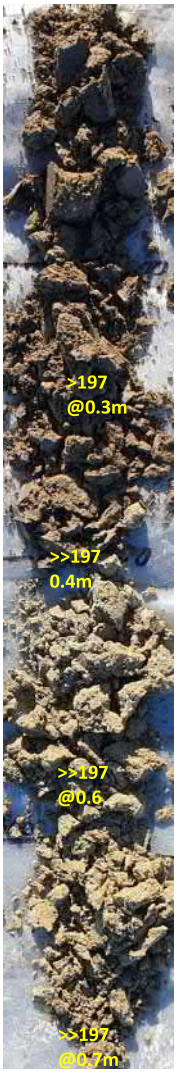
sandy SILT - brown, very stiff, moist

400

sandy SILT with trace pumice - light brown, very stiff, moist

700

End of augering at 0.7m - Gravelly/crunchy sound at the end



HAND AUGER 95

Auger Data

Depth (mm)

0

SILT with trace sand and gravel - dark brown, stiff, moist

400

SILT with trace gravel - brown, very stiff, dry to moist

600

End of augering at 0.6m - Gravelly/crunchy sound at the end

Comments:
Yellow numbers indicate undisturbed/residual shear strength readings in kPa (>197 indicates unable to turn shear vane, and >>197 indicates unable to penetrate soil with shear vane). No ground water encountered.

Testing Specifications/Notes:

Test Method for determining the shear strength of a cohesive soil using a hand held shear vane - NZ Geotechnical Society 2001

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INVESTIGATION REPORT - GROUND TESTING

PROJECT:	Lyndhurst Arbuckle Subdivision, Hastings
CLIENT:	Initia Ltd
ENGINEER:	Initia Ltd
DATE:	10 - 11 June 2020
TESTED BY:	SR/LE
TEST SITES:	Hand Augers 96 & 98
LOCATIONS:	Refer site plan on page 1
TEST METHODS:	Hand Auger, Shear Vane

Report Number: CSR20/145

HAND AUGER 96

Auger Data

Depth (mm)

0

SILT with trace sand and gravel - dark brown, stiff, moist

400

SILT with gravel - brown, very stiff, dry to moist

500

End of augering at 0.5m - Gravelly/crunchy sound at the end

HAND AUGER 98

0

silty TOPSOIL - dark brown, stiff, moist

500

sandy SILT - dark brown, very stiff, moist

600

sandy SILT with trace pumice and gravel - greyish brown,very stiff, moist

800

End of augering at 0.8m- Gravelly/crunchy sound at the end

Comments:
Yellow numbers indicate undisturbed/residual shear strength readings in kPa (>197 indicates unable to turn shear vane, and >>197 indicates unable to penetrate soil with shear vane). No ground water encountered.

Testing Specifications/Notes:

Test Method for determining the shear strength of a cohesive soil using a hand held shear vane - NZ Geotechnical Society 2001

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INVESTIGATION REPORT - GROUND TESTING

PROJECT:	Lyndhurst Arbuckle Subdivision, Hastings
CLIENT:	Initia Ltd
ENGINEER:	Initia Ltd
DATE:	10 - 11 June 2020
TESTED BY:	SR/LE
TEST SITES:	Hand Auger 97
LOCATIONS:	Refer site plan on page 1
TEST METHODS:	Hand Auger, Shear Vane

CIVIL SERVICES (HB) LTD

HAND AUGER 97

Auger Data

Depth (mm)

0

silty TOPSOIL - dark brown, very stiff, moist

400

sandy SILT with pumice trace gravel - greyish brown, stiff to very stiff, moist

1000

1600

Depth (mm)

1600

sandy SILT - brown, firm to stiff, moist to wet (limited recovery from 2.0m to 3.0m)

3000

End of augering at 3.0m

Comments:
Yellow numbers indicate undisturbed/residual shear strength readings in kPa (>197 indicates unable to turn shear vane, and >>197 indicates unable to penetrate soil with shear vane). No ground water encountered.

Testing Specifications/Notes:
NZS 1289.5.6.1:1988 Test Method 2.1.1 Soil moisture content tests - Oven drying method
Test Method for determining the shear strength of a cohesive soil using a hand held shear vane - NZ Geotechnical Society 2001

UNIT 9 11 WAKEFIELD STREET P.O. BOX 5011 NAPIER 4145 PHONE 06 843 6996 EMAIL admin@civilservices.co.nz WEBSITE www.civilservices.co.nz

INVESTIGATION REPORT - GROUND TESTING

PROJECT:	Lyndhurst Arbuckle Subdivision, Hastings
CLIENT:	Initia Ltd
ENGINEER:	Initia Ltd
DATE:	10 - 11 June 2020
TESTED BY:	SR/LE
TEST SITES:	Hand Augers 99 & 100
LOCATIONS:	Refer site plan on page 1
TEST METHODS:	Hand Auger, Shear Vane

Report Number: CSR20/145

HAND AUGER 99

Auger Data

Depth (mm)

0

SILT with topsoil trace gravel - dark brown, very stiff, moist

250

End of augering at 0.25m

Various location tried with hand auger. Even tried to dig up with shovel. Couldn't dig deeper than 200mm

HAND AUGER 100

Auger Data

Depth (mm)

0

silty TOPSOIL with trace gravel - dark brown, very stiff, moist

400

sandy SILT with trace gravel and pumice - greyish light brown, very stiff, dry to moist

650

End of augering at 0.65m - Gravelly/crunchy sound at the end

Comments:
Yellow numbers indicate undisturbed/residual shear strength readings in kPa (>197 indicates unable to turn shear vane, and >>197 indicates unable to penetrate soil with shear vane). No ground water encountered.

Testing Specifications/Notes:

Test Method for determining the shear strength of a cohesive soil using a hand held shear vane - NZ Geotechnical Society 2001

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INVESTIGATION REPORT - GROUND TESTING

PROJECT: Lyndhurst Arbuckle Subdivision, Hastings
CLIENT: Initia Ltd
ENGINEER: Initia Ltd
DATE: 10 - 11 June 2020
TESTED BY: SR/LE
TEST SITES: Hand Augers 101 & 103
LOCATIONS: Refer site plan on page 1
TEST METHODS: Hand Auger, Shear Vane

HAND AUGER 101

Auger Data

Depth (mm)

0

TOPSOIL with trace gravel - dark brown, very stiff, moist

200

silty TOPSOIL with trace gravel - dark brown, very stiff, moist

400

SILT trace gravel and sand - brown, very stiff, moist

700

End of augering at 0.7m - Gravelly/crunchy sound at the end

HAND AUGER 103

Auger Data

Depth (mm)

0

silty TOPSOIL - dark brown, very stiff, moist

400

sandy SILT with trace gravel - brown, very stiff, dry

500

End of augering at 0.5m - Gravelly/crunchy sound at the end

Comments:
Yellow numbers indicate undisturbed/residual shear strength readings in kPa (>197 indicates unable to turn shear vane, and >>197 indicates unable to penetrate soil with shear vane). No ground water encountered.

Testing Specifications/Notes:

Test Method for determining the shear strength of a cohesive soil using a hand held shear vane - NZ Geotechnical Society 2001

CIVIL SERVICES (HB) LTD
UNIT 9 11 WAKEFIELD STREET P.O. BOX 5011 NAPIER 4145 PHONE 06 843 6996 EMAIL admin@civilservices.co.nz WEBSITE www.civilservices.co.nz

INVESTIGATION REPORT - GROUND TESTING

PROJECT:	Lyndhurst Arbuckle Subdivision, Hastings
CLIENT:	Initia Ltd
ENGINEER:	Initia Ltd
DATE:	10 - 11 June 2020
TESTED BY:	SR/LE
TEST SITES:	Hand Auger 102
LOCATIONS:	Refer site plan on page 1
TEST METHODS:	Hand Auger, Shear Vane

Report Number: CSR20/145

HAND AUGER 102

Auger Data

Depth (mm)

0

TOPSOIL with some silt - dark brown, very stiff, moist

400

fine sandy SILT - brown, firm to stiff, moist

1200

1600

Auger Data

Depth (mm)

1600

sandy SILT - brown, firm to stiff, moist to wet (limited recovery from 2.4m to 3.0m)

3000

End of augering at 3.0m

Comments:
Yellow numbers indicate undisturbed/residual shear strength readings in kPa (>197 indicates unable to turn shear vane, and >>197 indicates unable to penetrate soil with shear vane). No ground water encountered.

Testing Specifications/Notes:

Test Method for determining the shear strength of a cohesive soil using a hand held shear vane - NZ Geotechnical Society 2001

CIVIL SERVICES (HB) LTD
UNIT 9 11 WAKEFIELD STREET P.O. BOX 5011 NAPIER 4145 PHONE 06 843 6996 EMAIL admin@civilservices.co.nz WEBSITE www.civilservices.co.nz

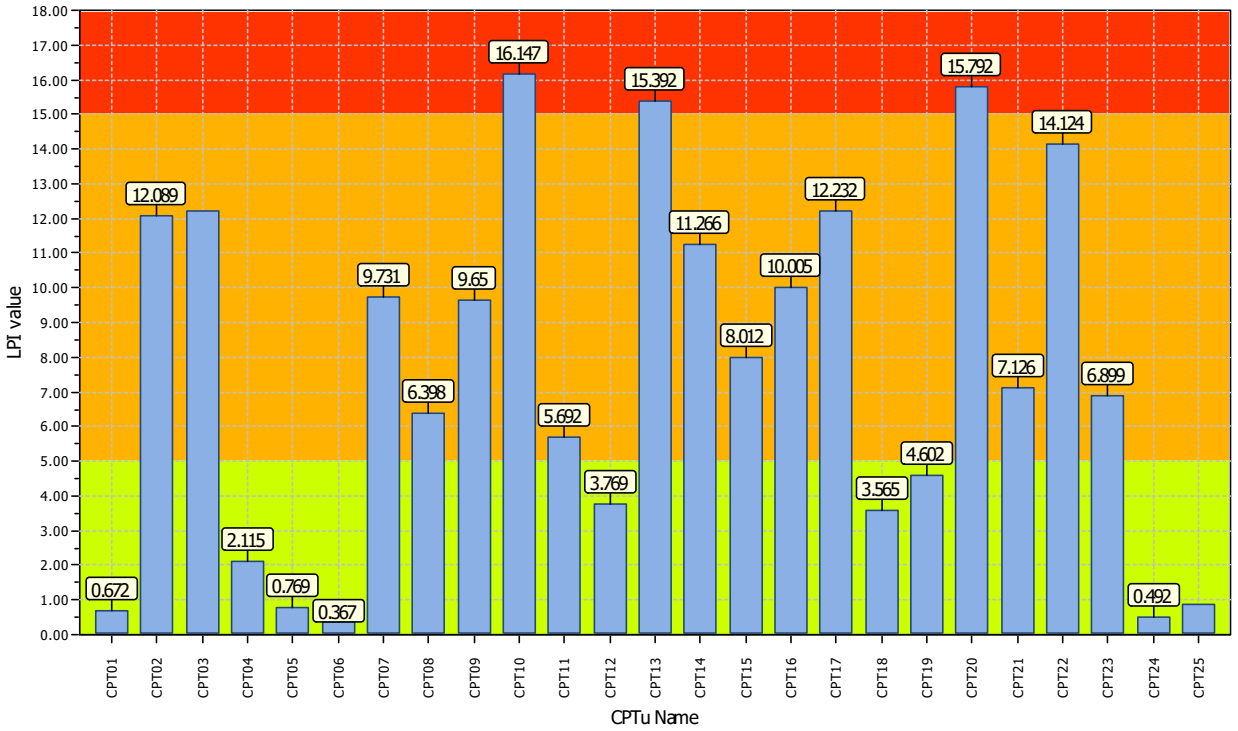
Appendix E: Liquefaction Summary

Initia
Geotechnical Specialists
Unit 13, 114 St Georges Bay Rd, Parnell, 1052
www.Initia.co.nz

Project title : P-000828 Lyndhurst, Hastings

Location : Lyndhurst Road, Frimley, Hastings 4120

Overall Liquefaction Potential Index report



LPI color scheme

- Very high risk
- High risk
- Low risk

Basic statistics

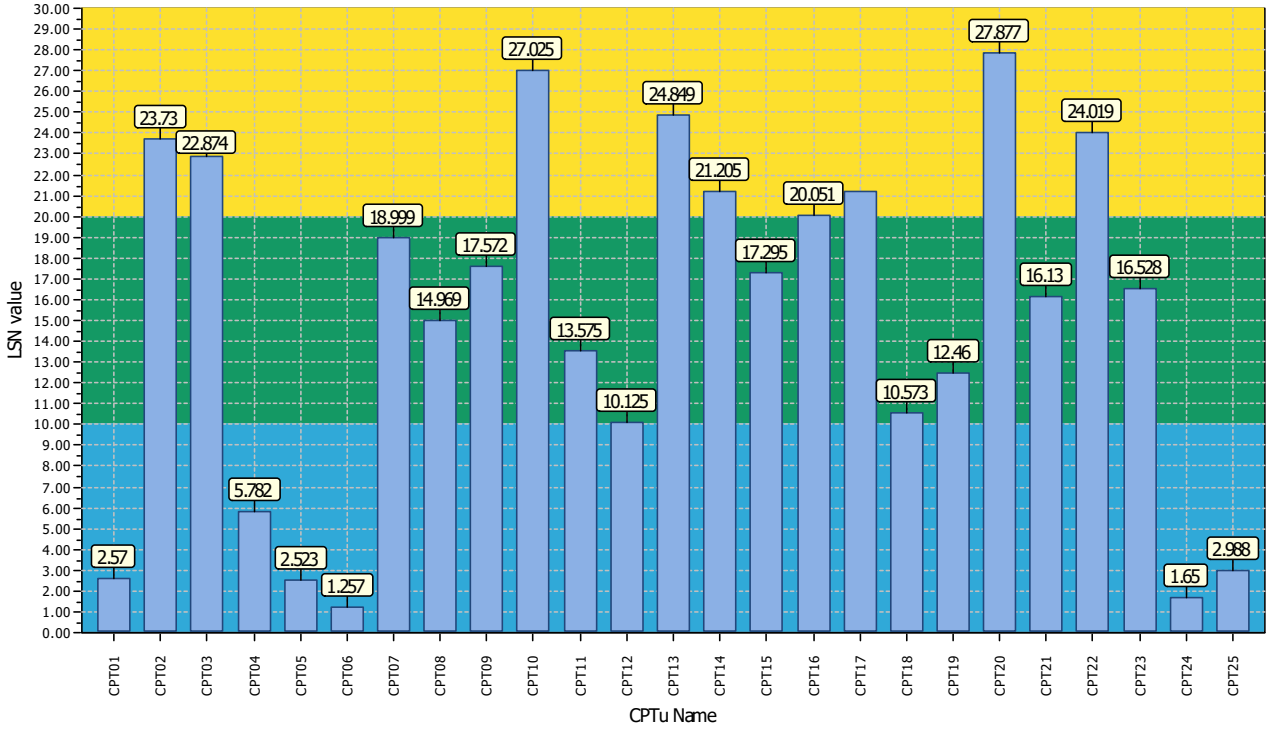
Total CPT number: 25
36% low risk
52% high risk
12% very high risk

Initia
Geotechnical Specialists
Unit 13, 114 St Georges Bay Rd, Parnell, 1052
www.Initia.co.nz

Project title : P-000828 Lyndhurst, Hastings

Location : Lyndhurst Road, Frimley, Hastings 4120

Overall Liquefaction Severity Number report



LSN color scheme

- Severe damage
- Major expression of liquefaction
- Moderate to severe exp. of liquefaction
- Moderate expression of liquefaction
- Minor expression of liquefaction
- Little to no expression of liquefaction

Basic statistics

Total CPT number: 25

24% little liquefaction

40% minor liquefaction

36% moderate liquefaction

0% moderate to major liquefaction

0% major liquefaction

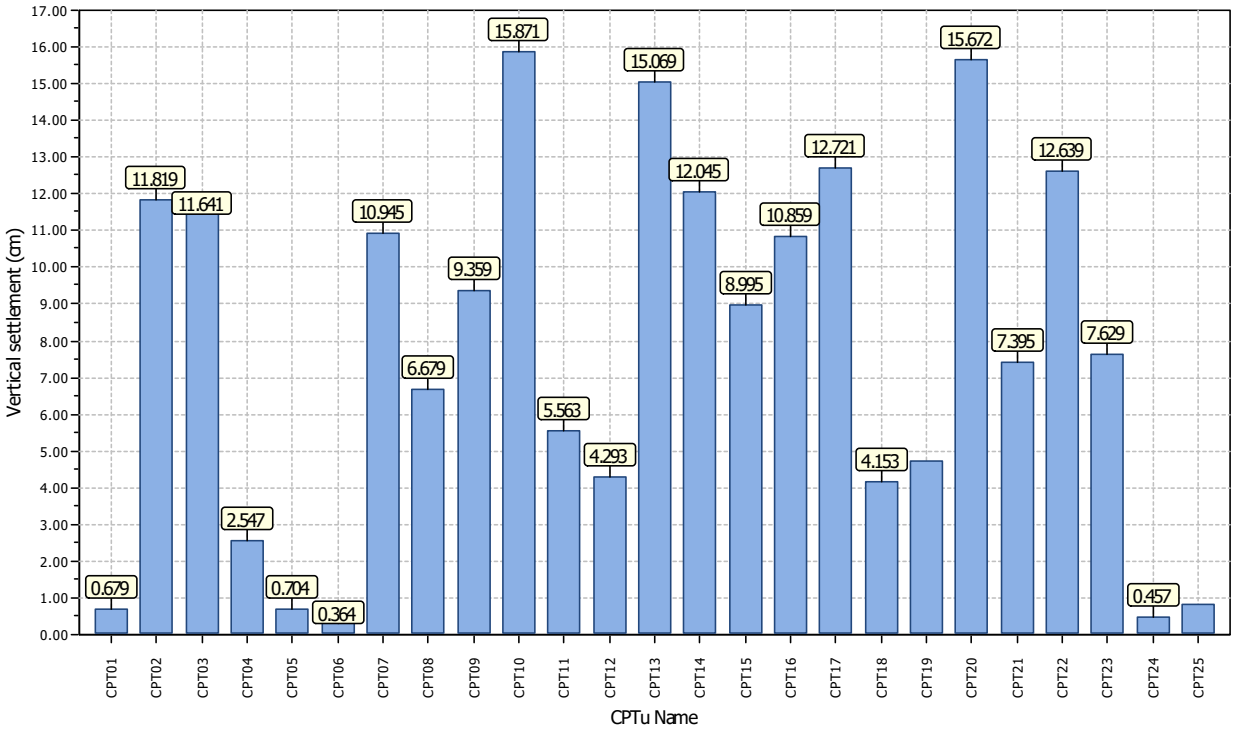
0% severe liquefaction

Initia
Geotechnical Specialists
Unit 13, 114 St Georges Bay Rd, Parnell, 1052
www.Initia.co.nz

Project title : P-000828 Lyndhurst, Hastings

Location : Lyndhurst Road, Frimley, Hastings 4120

Overall vertical settlements report



Appendix F: Earthworks Contractor's PS3

PRODUCER STATEMENT - CONSTRUCTION - 6TH SCHEDULE

CONTRACT: GLDL Stage 11

GREENSTONE RESIDENTIAL DEVELOMENT

Certification of Construction and Completion of Engineering Works

Issued By: Santo Drainage & Excavation Ltd
(Contractor)

To: Greenstone Land Developments Ltd
(Principal/Developer/Owner/Consultant)

To be Supplied to: HASTINGS DISTRICT COUNCIL
(Territorial Authority)

In Respect of: Subdivision Civil Works
(Description of Contract Works)

At: Lyndhurst Road, Frimley, Hastings
(Location and Address)

I Terry Santo a duly authorised representative of
(Full Name of Duty Authorised Agent)
Santo Drainage & Contracting Ltd believe on reasonable grounds that
(Contractor)
has carried out and completed
(Contractor)

[X] All works in accordance with the drawings, specifications and authorised instructions and variations of contract number _____ except the following _____

[ ] Part only as specified in the attached particulars of the works in accordance with the CONTRACT

This certification is furnished to the HDC

Date 5-06-2020

(Signature of Authorised Agent on behalf of)

(Contrator)

Santo Drainage & Contracting Ltd

P O Box 123

Waipukurau
(Address)