



SITE INVESTIGATION REPORT

Client's Name: [REDACTED]

Address: [REDACTED]

Waterlooville,
Hampshire,
PO8 8PT

Report Date: 20-Mar-12

Job No.: [REDACTED]

(If **_R** suffix appears after Job No.,
this indicates Revision Number)

Insurance Co.: AXA

Claim Ref. No.:

Project Engineer: Tom Walker-Smith

From: Crawford & Company,

Engineers Ref.: [REDACTED]

Contents: Site and Drainage Layout
Foundation Exploratory Hole Records
Penetrometer Plot

Address: Mat Lab Ltd
The Dell
Bickenhill Lane
Catherine-De-Barnes
Solihull
B92 0DE

Phone No.: 0121 704 3339

Fax No.: 0121 704 4675

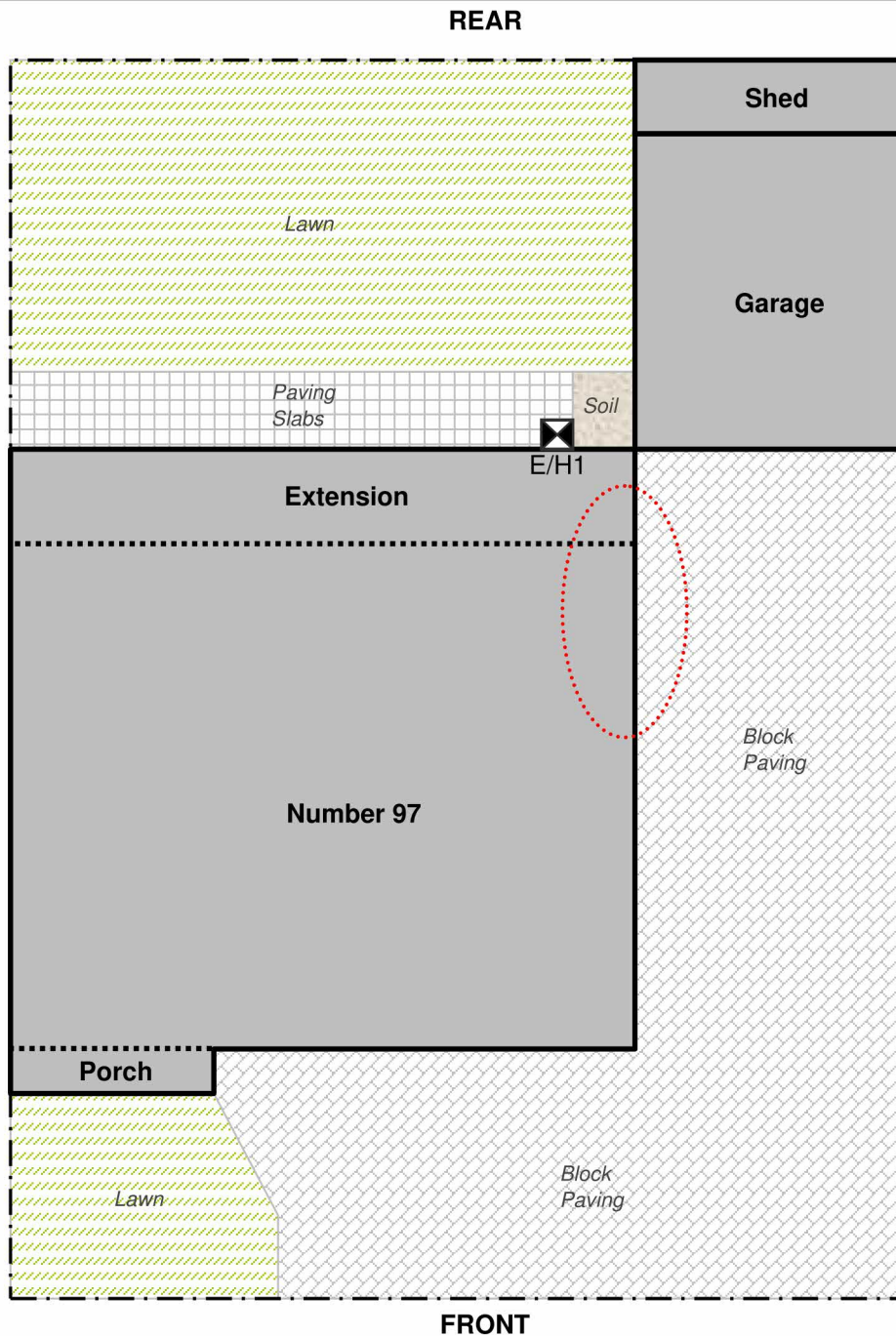
E-mail: post@mat-lab.com

Checked By : **SS**

Date : **20/03/2012**

Site Crew: Colin

Date: 09-Mar-12



(This plan is not to be scaled and is provided to illustrate general layout only)

General Comments:

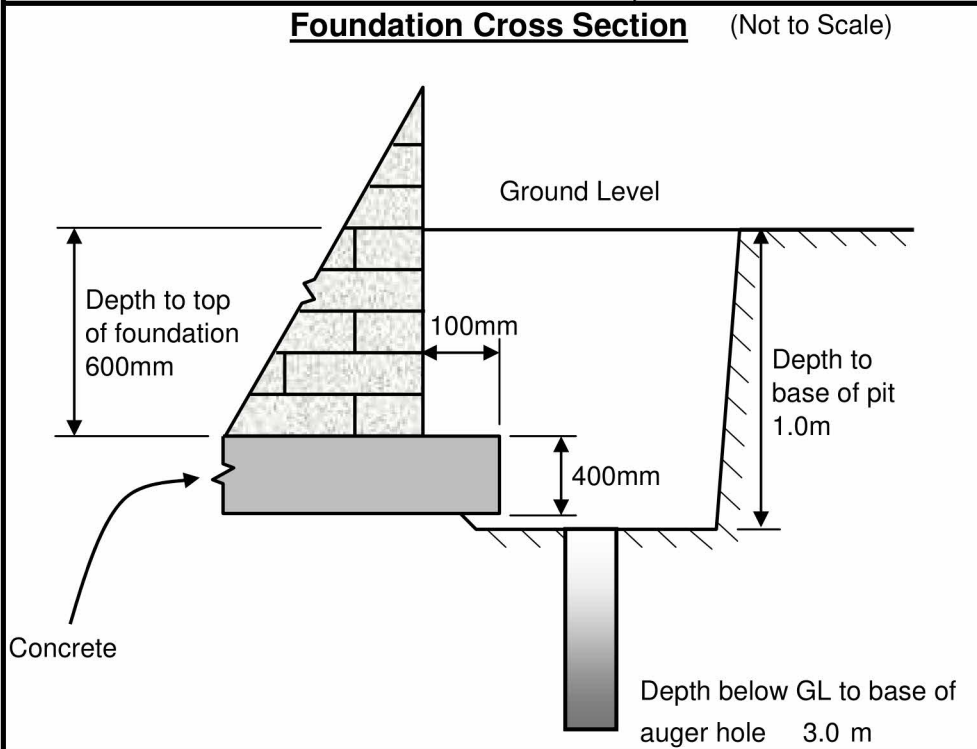
Key :

- =RWGully
- =RWPipe
- =FWGully
- =W/C or S.V. pipe
- =Inspection Chamber
- =Rodding Eye
- =Surveyed pipe indicating flow
- =Unsurveyed pipe
- =E/H=Exploratory Hole (hand dug pit and/or hand auger)
- =Area of Damage
-  =Hedge or Shrub
-  =Trees
- =Boundary line
- =Outlet at 6 o'clock
- =Inlet at 12 o'clock

Address: [REDACTED] Waterlooville, Hampshire, PO8 8PT

Job No. [REDACTED]

Location: Rear Right Hand Corner Of Rear Extension	E/H No. 1
Ground Surface: Dry	Weather: Dry
Date: 09-Mar-12	



Roots Depth & Dia:
Down to 3.0m,
up to 1mm diameter

Water Depth Hit & Rise:
None observed on-site

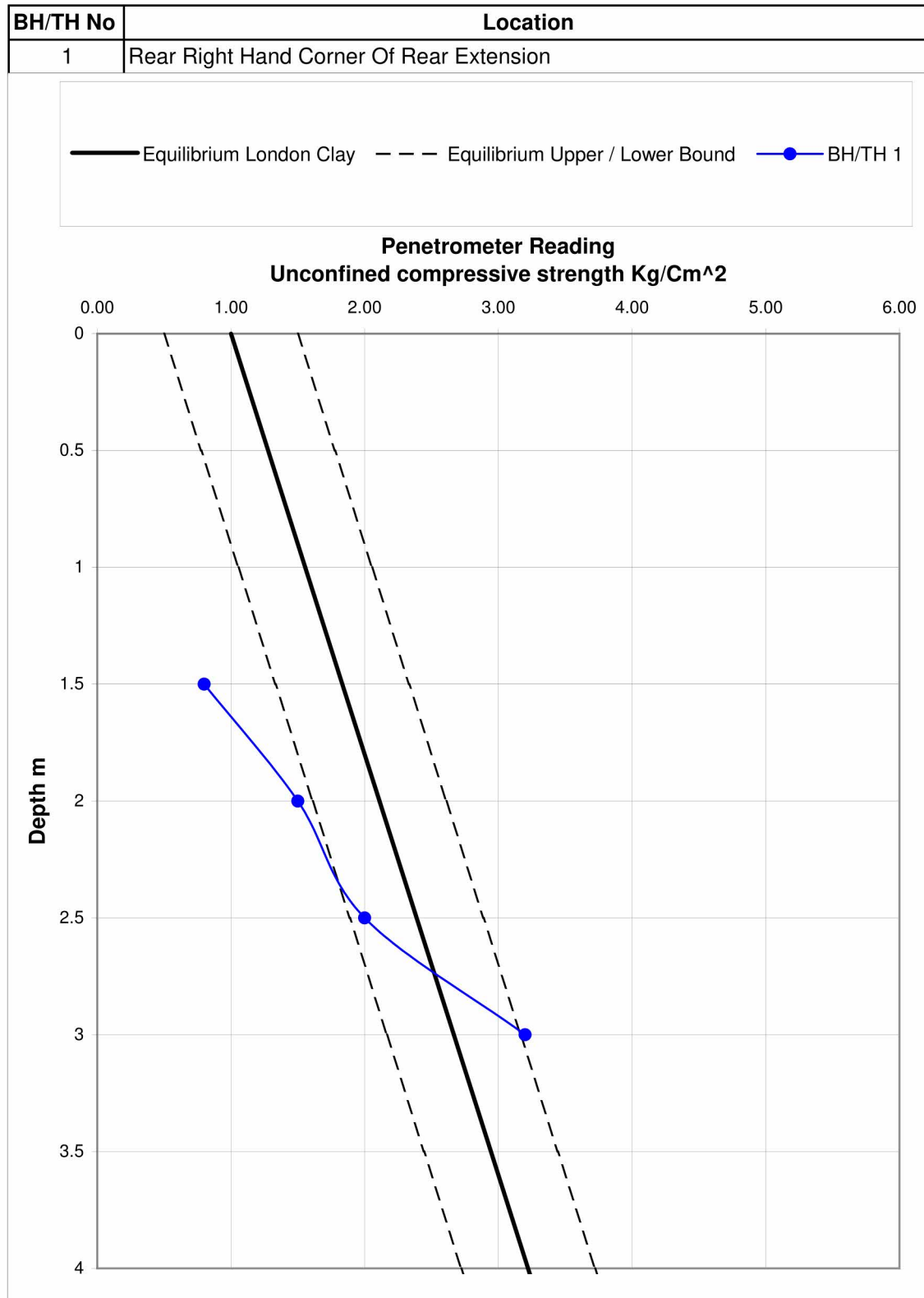
Reason for Termination :
Hole at instructed depth

Depth (m)	Soil Descriptions <i>(NB:Field crew description only)</i>	Test Type	Depth (m)	
			From	To
G.L.				
1.00	Firm brown slightly sandy CLAY	P.P. 0.8	1.500	
2.00	Firm brown/grey CLAY with occasional gravel	P.P. 1.5	2.000	
2.50	Firm/stiff grey/brown CLAY	P.P. 2	2.500	
3.00	End of Borehole	P.P. 3.2	3.000	
Photograph				
				

General Comments :

Key: Mac=Macintosh Probe Blow Count, V(n)=Natural Shear Vane (kN/m²), P.P. = Pocket Penetrometer (Kg/cm²)

Address: [REDACTED] Waterlooville, Hampshire, PO8 8PT	Job No. [REDACTED]
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For the interpretation of the above penetrometer results please refer to :-

- 1) Desiccation in clay soils. BRE Digest. 412. February 1996, Comparisons of strength profiles.
- 2) Pugh R. S., Parnell P. G. and Parkes R. D. A rapid and reliable on-site method of assessing desiccation in clay soils. Proceedings of the Institution of Civil Engineers Geotechnical Engineering, 1995, 113, Jan., 25-30.

Address: [REDACTED] **Waterlooville, Hampshire, PO8 8PT**

Job No. [REDACTED]



LABORATORY REPORT

Client's Name: [REDACTED]

Address: [REDACTED]

Waterlooville,
Hampshire,
PO8 8PT

Report Date: 30-Mar-12

Job No.: [REDACTED]

(If _R suffix appears after Job No.,
this indicates Revision Number)

Insurance Co.: AXA

Claim Ref. No.:

Project Engineer: Tom Walker-Smith

From: Crawford & Company,

Engineers Ref.: [REDACTED]

Contents: Root Analysis
Swell Strain Tests
Moisture Content
Atterberg Limits

Address: Mat Lab Ltd
The Dell
Bickenhill Lane
Catherine-De-Barnes
Solihull B92 0DE
E-mail: post@mat-lab.com

Phone No.: 0121 704 3339 **Fax No.:** 0121 704 4675

Authorised By:

J Crooks - Reports Technician

Date Authorised: 30/03/2012

Analysis subcontracted to European Plant Science Laboratory

Re: Root Identification**Sample Origin:** [REDACTED] Waterloooville, Hampshire, PO8 8PT

The sample of roots taken from the above property and received by us on 20 March 2012, has been examined and identification appears to be as follows:

Reference	Depth	Species Identified		Root Diameter	Starch
BH1 lab	1-3m	either <i>Quercus</i> spp. or <i>Castanea</i> spp.	1	1 mm	None Visible
BH1 lab	1-3m	<i>Hydrangea</i> spp.	2	<1 mm	Moderate

Comments:

- 1 - Three the same; all in a state of decay.
- 2 - Plus 1 other also identified as *Hydrangea* spp.

Quercus spp. are oaks. *Castanea* spp. include sweet chestnut.

Hydrangea spp. are common garden shrubs.

2 species were identified.

Signed MDM

Unless we are otherwise instructed in writing, the above sample material will normally be disposed of 3 years after the date of this report.

Address: [REDACTED], Waterloooville, Hampshire, PO8 8PT

Job No. [REDACTED]

Swell/Strain Test Method

(UKAS accredited)

Test Date: 22-Mar-12

The In-house Procedure MTLB002 is based on "Determination of swelling and collapse characteristics" British Standards 1377:Part 5:1990 Section 4.4, carried out on a disturbed, remoulded sample.

Test specimen has cylindrical dimensions 50mm (diameter) by 17mm (height).

Prior to the introduction of distilled water the specimen is reconsolidated to the approximate in situ vertical effective stress, calculated from the average sample extraction depth using the assumptions below.

Laboratory tests are conducted in a controlled environment within a temperature range of 16°C to 24°C.

Assumptions

Soil Bulk Density (Moist Unit Weight) is equal to 2039 kg / m³. Depth to water table has been assumed as to be below sampling depth. Any possible surcharge stresses due to construction are not considered.

Predicted Free Surface Heave Calculation

(Not UKAS accredited)

An approximated value of 0.010 strain is deducted from the measured oedometer strain to account for remoulding of the sample. Therefore strain in excess of Remoulding Disturbance Line (see Results Chart) is extrapolated for calculation of Predicted Heave per incremental layer displayed in the following table(s), in column labelled "Dd mm". A Shrinkage factor (Sf) of 2 is also applied to each heave value. Heave values per layer are summed as a total for each Borehole (in mm), and then displayed as a range in (in cm).

Predicted Free Surface Heave is calculated over a range defined by the sample depths tested, but not shallower than 0.2m below ground level, the assumed depth of topsoil. Heave inadvertently measured above foundation depth may be discounted by deducting the relevant layer value from the Borehole total.

Please note that the swell predicted is that expected of the ground if it were allowed to fully re-hydrate and come to equilibrium. This is possibly greater than the expected annual variation; due to reasons such as persistent annual deficits, changes in vegetation and annual climatic conditions, amongst others. The predicted total swell can take many years to fully propagate and in some cases this can take up to 25 years, though usually at least 70% happens within the first few years.

Uncertainty of Measurement

The accuracy of the quoted strain measurement in an individual test is deemed to be within +/- 2.5%.

The variation of repeated results on the same sample is determined by the uniformity of sample.

Due to variability in strata changes and sample uniformity, it is more appropriate to consider the Heave Potential by the quoted range (in cm) rather than the precise total (in mm).

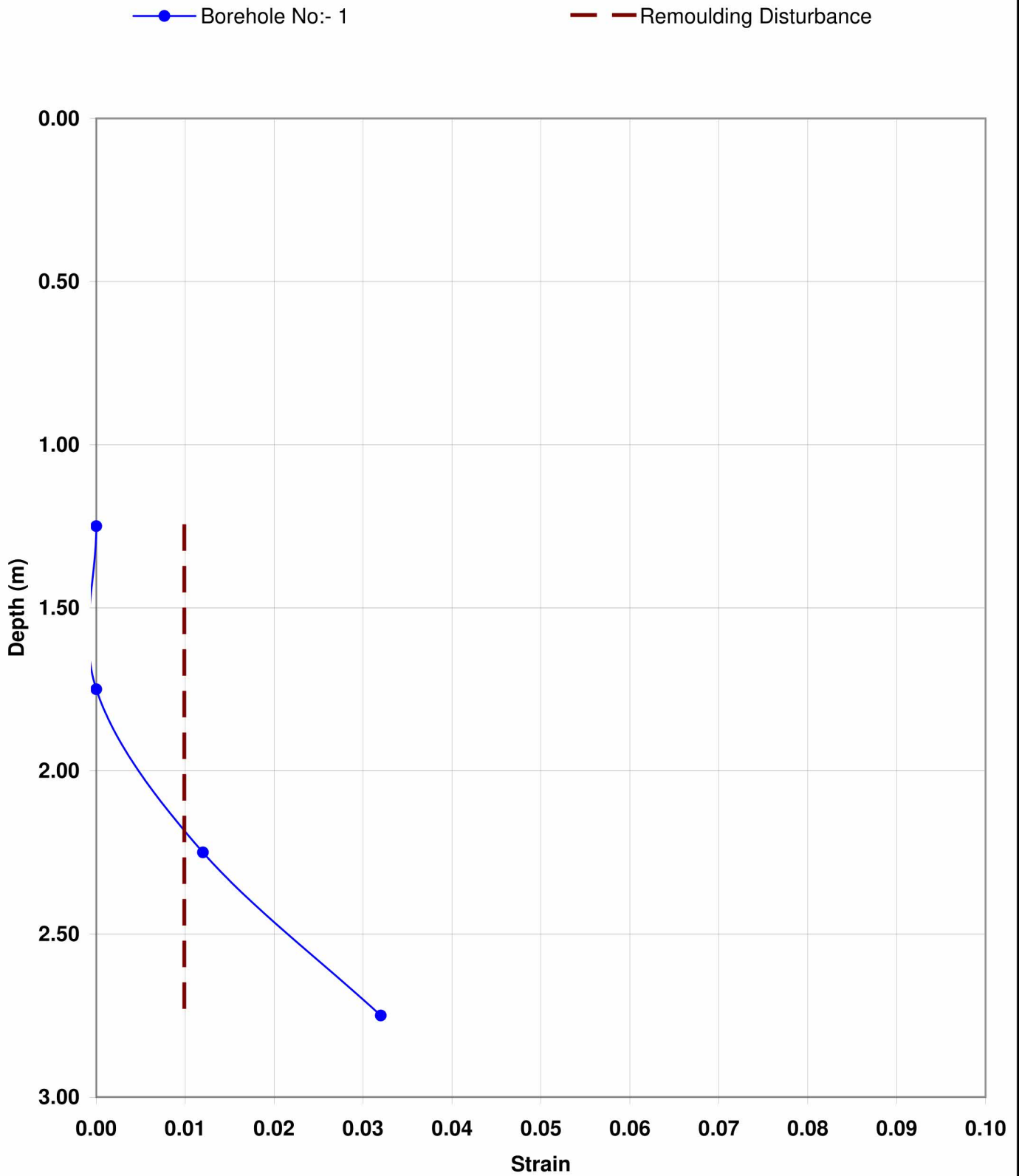
Further information relating to Swell/Strain Test is available on the MAT LAB Website:- www.mat-lab.com

Address: [REDACTED] **Waterlooville, Hampshire, PO8 8PT**

Job No. [REDACTED]

Address: [REDACTED] **Waterlooville, Hampshire, PO8 8PT** Job No. [REDACTED]

Oedometer Strains



Address: [REDACTED] Waterlooville, Hampshire, PO8 8PT

Job No. [REDACTED]

Date Soil Samples Received in Laboratory: 15-Mar-12
Date Testing Requirements Approved: N/A

This Soils Report contains results for 1 borehole(s) on 1 page(s)

General

Soils were prepared in accordance with BS1377:Part 1:1990 Section 7

Laboratory soil sample descriptions in general accordance with BS5930:1999

Where samples are not tested on same date for a particular test type, Test Date quoted refers to the day of testing of final sample

All samples will be disposed of within 1 month of presentation of this report unless otherwise advised

Natural Moisture Content

Test Date: 18-Mar-12

Tested in accordance to BS1377:Part 2:1990 Section 3.2

A sample quantity of 100g is used for fine-grained soils, where available

Where sample quantity is critical, a minimum of 50g may be used, in accordance with BS1377:Part 2:1990

A sample quantity of 300g to 350g is used for medium-grained soils, 3kg is used for coarse-grained soils.

Atterberg Limits

Test Date: 25-Mar-12

Tested in accordance to BS1377:Part 2:1990; Section 4.4 for the Liquid Limit, Section 5 for the determination of the Plastic Limit and Plasticity Index

Suction Tests

Test Date: N/A (Q)*

Suction Test carried out in accordance to the accredited In-house Procedure MTLB001 with reference to the BRE paper IP4/93 (Corrected) 'A Method of Determining the State of Desiccation in Clay Soils'

(Unless otherwise stated the filter paper moisture content was determined after 5 to 10 days contact and the test was prepared from a remoulded disturbed sample in accordance with in-house procedures)

* Where denoted by '(Q)' following Test Date above, the test has been performed using 2 soil discs and quartered filter papers.

The filter paper tests are conducted in a controlled environment within a temperature range of 16oC to 24oC.

Average Suction values (in kPa) calculated using the BRE paper IP4/93 calibration are quoted with the maximum and minimum suction obtained, as indicated by error bars either side of plotted point.

Where possible, suction values should be compared with remote borehole values, to determine relative desiccation.

Each new batch of filter papers used for testing is checked for its consistency against the standard BRE calibration curve using a pressure membrane extractor. The current filter paper batch has been tested and shows good correlation to the BRE curve.

More information is available upon request. Studies on In-house calibrations using a pressure membrane extractor continue.

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Address: [REDACTED] Waterlooville, Hampshire, PO8 8PT

Job No. [REDACTED]

JOB No.:-

DATE SAMPLES EXTRACTED:- 09 Mar 12

CLIENT/INSURED NAME:-

ADDRESS:-

Waterlooville,
Hampshire,

INSURANCE COMPANY AXA REF:-

ENGINEER:-

Tom Walker-Smith

FROM :-

Crawford & Company,

B.H. No. :-

1

LOCATION:-

Rear Right-Hand Corner of Rear Extension.

REPORT DATE:-

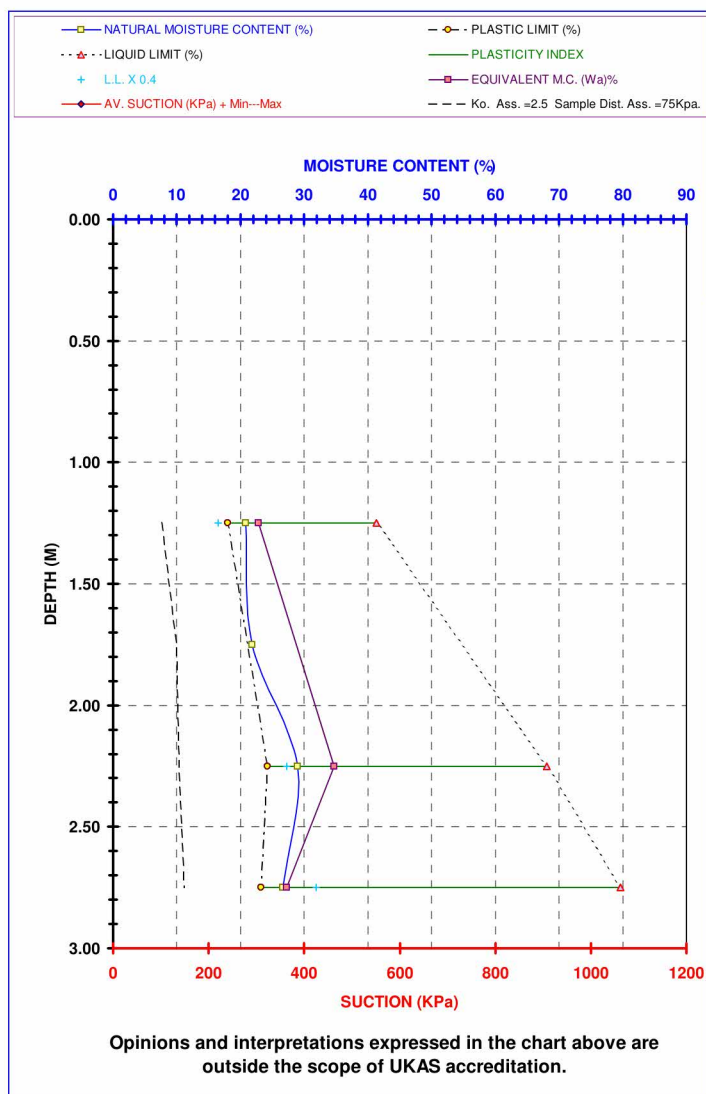
30 Mar 12



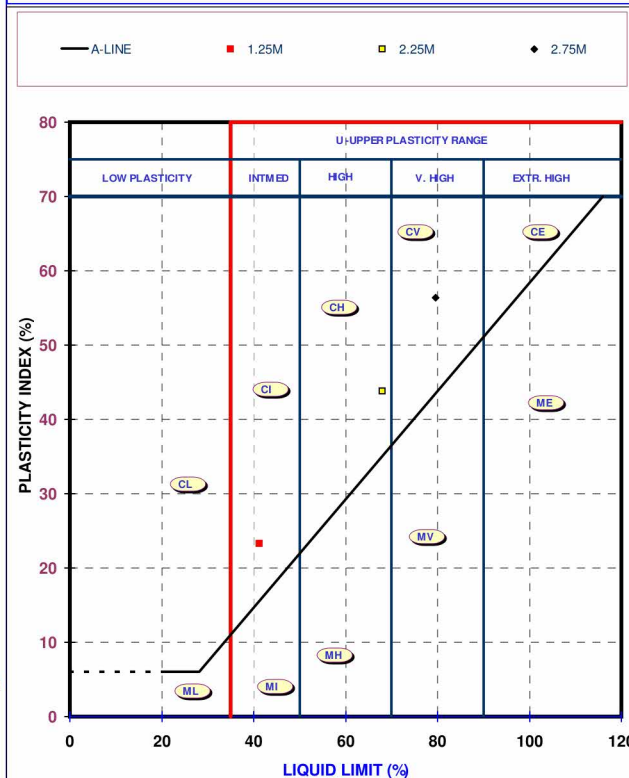
2093

PO8 8PT

ATTERBERG LIMITS.								BRIEF SOIL DESCRIPTION
DEPTH. M.	M.C. (%)	L.L. (%)	P.L. (%)	P.I. (%)	425um (%)	AV. Filter Paper M.C.(%) & No.		
1.25	21	41	18	23	92	-		Firm brown slightly sandy CLAY with occasional grey veinings, rare fine/medium gravel & roots.
1.75	22	-	-	-	-	-		Firm brown slightly sandy CLAY with rare fine/medium gravel, grey veinings & roots.
2.25	29	68	24	44	84	-		Firm brown/grey CLAY with occasional fine/medium gravel, rare sand & roots.
2.75	27	80	23	57	99	-		Firm/stiff grey/brown CLAY with rare sand, fine/medium gravel & roots.



The interpretations below are outside of UKAS accreditation.



Authorised by :-

JC

