



Confirmed by Planning Committee - 2 July 86
 Authorised by DP - 13 Feb. 86

TOWN AND COUNTRY PLANNING ACTS 1971-74 (AS AMENDED)

LONDON BOROUGH OF HILLINGDON TREE PRESERVATION ORDER NO. 391

In respect of

An area of trees situated on land at 1-15 (odds) inclusive,
 Copse Wood Way, 1, 1A, 2, 3, 4, 6 and 8 Linksway, Northwood

THE MAYOR AND BURGESSES of the LONDON BOROUGH OF HILLINGDON acting by the Council, in this order called "the authority", in pursuance of the powers conferred in that behalf by sections 60 and 61 of the Town and Country Planning Act 1971 (as amended by Section 10(1) of the Town and Country Amenities Act 1974), and subject to the provisions of the Forestry Act, 1967 hereby makes the following Order:-

1. In this Order -

"the Act" means the Town and Country Planning Act 1971; "owner" means the owner in fee simple, either in possession or who has granted a lease or tenancy of which the unexpired portion is less than three years; lessee (including a sub-lessee) or tenant in possession, the unexpired portion of whose lease or tenancy is three years or more; and a mortgagee in possession; and "the Secretary of State" means the Secretary of State for the Environment.

2. Subject to the provisions of this Order and to the exemptions specified in the Second Schedule hereto, no person shall, except with the consent of the authority and in accordance with the conditions, if any, imposed on such consent, cut down, top, lop, uproot, wilfully damage or wilfully destroy or cause or permit the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of any tree specified in the First Schedule hereto or comprised in a group of trees or in a woodland therein specified, the position of which trees, groups of trees and woodlands is defined in the manner indicated in the said First Schedule on the map annexed hereto which map shall, for the purpose of such definition as aforesaid, prevail where any ambiguity arises between it and the specification in the said First Schedule.

3. An application for consent made to the authority under Article 2 of this Order shall be in writing stating the reasons for making the application, and shall by reference if necessary to a plan specify the trees to which the application relates, and the operations for the carrying out of which consent is required.

4. - (1) Where an application for consent is made to the authority under this Order, the authority may grant such consent either unconditionally, or subject to such conditions (including conditions requiring the replacement of any tree by one or more trees on the site or in the immediate vicinity thereof), as the authority may think fit, or may refuse consent:

Provided that where the application relates to any woodland specified in the First Schedule to this Order the authority shall grant consent so far as accords with the principles of good forestry, except where, in the opinion of the authority, it is necessary in the interests of amenity to maintain the special character of the woodland or the woodland character of the area, and shall not impose conditions on such consent requiring replacement or replanting.

Note: If it is desired to fell any of the trees included in this Order, whether included as trees, groups of trees or woodlands, and the trees are trees for the felling of which a licence is required under the Forestry Act 1967, application should be made **not** to the authority for consent under this Order but to the Conservator of Forests for a licence under that Act (section 15(5)).

X 2122 Struct Engg Report...



1.0 Introduction

- 1.1 Pindoria Associates have been appointed to advise on the extent of cracking and the viability structural repairs for an ageing building.

2.0 Scope and Inspection

- 2.1 The survey was undertaken on the 26th March 2021. A number of photographs are appended.
- 2.2 Except where specifically noted, the inspection was limited specifically to a non-intrusive visual inspection of exposed and readily accessible, structural and load-bearing elements of the property.
- 2.3 Except where noted, external works, perimeter walls and fences were not inspected.
- 2.4 In addition, unless specifically noted, the inspection did not cover non-structural items i.e. drainage, electrics, plumbing, damp or timber decay.
- 2.5 This report is for the use of Mr. M Reeves in connection with this appointment and the benefit is not to be extended to any third party without the written permission of Pindoria Associates Ltd.

3.0 Other Investigations and Reports

- 3.1 The following investigations and reports have been made available.
- a) 2006 – Crawfords: Intrusive structural investigation, comprising soil tests, drainage survey, monitoring of cracks.
 - b) 2009 – Planning permission allowing 30% crown reduction of the Oak Tree.
 - c) 2013 – Crawfords: Completion report of the underpinning and structural repairs to the garage.
 - d) 2021 – GHA's: Arboricultural and Planning Integration Report

4.0 Building Form, Structure and Use

- 4.1 The property is a large two storey detached house with a single storey garage to the left of the main house.
- 4.2 The main house comprises two storeys with a gable end to the left and a hipped roof to the right eaves. The garage is single storey with a lean to tiled roof at the front of a flat roof.

PINDORIA ASSOCIATES	213D Station Rd, Harrow HA1 2TP	t 020 8863 8400
Consulting civil & structural engineers		3

3 Copse Wood, Northwood

Structural Engineering Report

Mar-21

- 4.3 The structure of the building is traditional load bearing brick external walls which support tiled roof. The internal walls are loadbearing spine and staircase walls with non-load bearing partitions forming various rooms.

5.0 Soil Conditions and Foundations

- 5.1 Report by Crawfords indicate:
- a) The foundations to the main house are of shallow depth, approximately 600mm deep. Trial holes show root activity at the bearing level of the foundation.
 - b) The soil conditions are described as slightly sandy silty CLAY which is of high plasticity index and is therefore susceptible to changes in moisture contents from extraction of water from tree roots. The clay depth is down to 8m, overlying stable gravelly sand below.

6.0 Vegetation

PLANNING APPLICATION DETAILS

[View Documents](#) [Enter Comment](#) [Back to](#)

Reference	22134/TRE/2008/9
Status	Approval
Proposal	Tree Surgery (crown reduction of 30%) to one Oak tree in Area A1 on Tree Preservation Order 391.
Location	3 COPSE WOOD WAY NORTHWOOD
Ward	NORTHWOOD
Case Officer	John Lawson
Received	21-01-08
Validated	21-01-08
Decision By	17-03-08
Neighbours	Consultation Started : 31-01-08, Comments Due : 21-02-08
Decided	14-04-09
Agent	Marishal Thompson Group (Subsidence Mitigation Unit) Bank Chambers 289 High Street Ewell, Epsom KT17 1SB

Application Form to Carry Out Works on Trees



A1. Applicant Details

Organisation

Marishal Thompson & Co

Name

Title

Forename

Surname

Miss

Kay

Dodds

A1.1 Address Details

Name or flat number

Property number or name

Street

Locality

Town

County

Postal Town

Postcode

6G

Greensfield Court

Alnwick

Northumberland

NE66 2DE

A1.2 Communication Details

Telephone No.

Daytime Telephone No.

Fax No.

Email Address

DX Number

Nat Code

Extn No.

08702416180

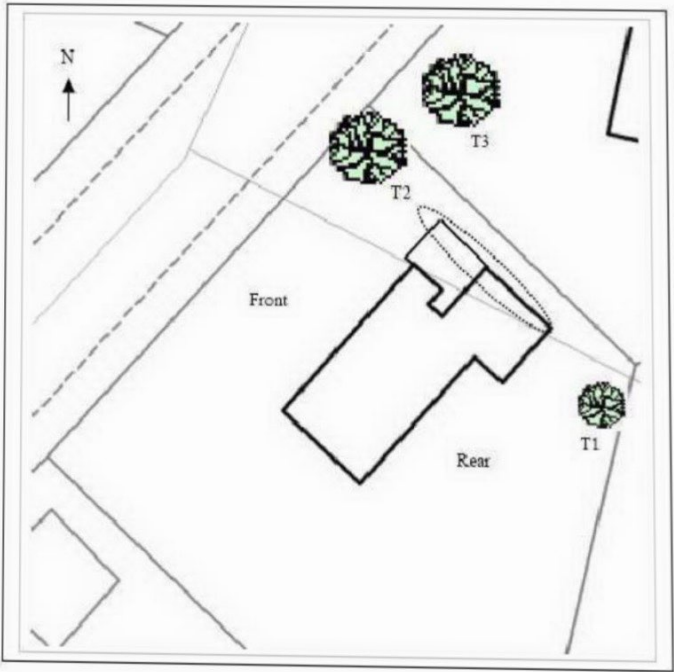
223

kay.dodds@marishalthompson.co.uk

DETAILS OF PROPOSED WORKS

Tree No	Species	Property Address	Proposed Work
T2	Oak (English)	3 Copse Wood Way	Remove

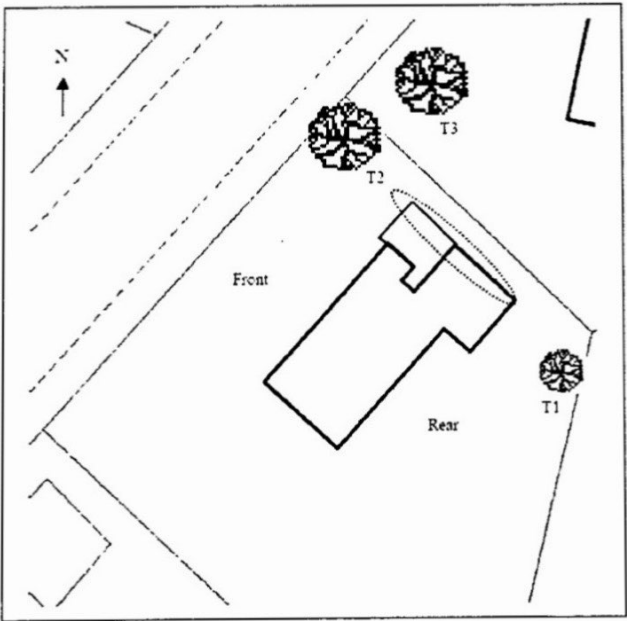
SITE PLAN



DETAILS OF PROPOSED WORKS

Tree No	Species	Property Address	Proposed Work
T2	Oak (English)	3 Copse Wood Way	Remove

SITE PLAN



FAO John Lawson
Hillingdon London Borough
Civic Centre
High Street
Uxbridge
UB8 1UW

17/02/2009

Our Ref: TS15349
Your Ref: 22134/TRE/2008/9
Case Handler: Kay Dodds



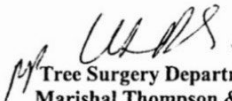
Dear Mr Lawson,

Ref: Vegetation Management
Insured: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

Further to our conversation on 13/02/2009 you confirmed that you would look favourably on an application to reduce the tree. We therefore write to confirm that we wish to amend the proposal in the above application from felling of x1 Oak (Marked as T2 in our application) within Area A1 of TPO 391 to crown reduction of 30%.

We trust the above is sufficient to enable this and look forward to your decision being issued.

Yours sincerely,


Tree Surgery Department
Marishal Thompson & Co.

i.monitoring@crawlco.co.uk

Insured/Occupier

Mrs M Buchannan-Fryer

date	#####
------	-------

Phone

Address 3 Copse Wood Way

Library end date	Dec'08
------------------	--------

01923 821 111

Northwood

Frequency 8 Weeks

07841 887 509 - Partner

Middlese

Postcode HA6 2TP

Next Visit	no further visits planned
------------	---------------------------

Who should be invoiced ?	Northern Rock Insurance
--------------------------	-------------------------

Insurer	
---------	--

Additional instructions / notes

Stud locations

1 Study - Front wall

2 Kitchen - gargae partition

3

4

5

6

[illegible]

John Lawson - 3 Copse Wood Way

From: "Kay Dodds" <kay.dodds@marishalthompson.co.uk>
To: "John Lawson" <JLawson@Hillingdon.Gov.UK>
Date: Wednesday, December 24, 2008 12:14
Subject: 3 Copse Wood Way
Attachments: Monitoring - 3 Copsewood Way (Oct 06).xls; SI Report - 3 Copse Wood Way (06).pdf

Dear Mr Lawson,

Further to your letter dated , please note the engineer has confirmed the following:

1. September 2006 SI info attached.
2. House foundations are same as E/H2 from above SI.
3. The Remote borehole was in the rear garden away from the oak trees. We do not have a precise location.
4. November 2007 SIs do not indicate a significant heave risk.
5. Latest monitoring attached. Last reading 29/10/08. Next reading due by end of December 2008. ✓

No further information is available and at this present time no further SI is to be instructed. Our client has asked for a decision to be made on this basis.

Regards

Kay Dodds
 Tree Surgery Case Handler

Marishal Thompson Group

T: 08702 416 180 ext 223
 F: 08702 414 339
 E: kay.dodds@marishalthompson.co.uk
 W: <http://www.marishalthompson.co.uk>

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Thank you for your cooperation

file:///C:/Documents%20and%20Settings/JohnL/Local%20Settings/Temp/XPgprwise\... 29/12/2008

1 of

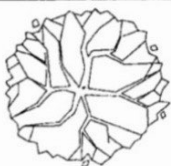
[illegible]

1 of 9

SITE AND DRAINAGE LAYOUT

Site Crew: Wayne

Date: 25-Sep-06



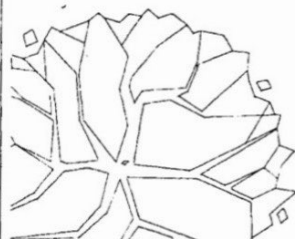
REAR

E/H2 Concrete

Concrete

E/H1

No 3 Copse Wood Way



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

General Comments: Site Layout based on information

Key:
☐ =RWGully
☐ =RWPipe
☒ =FWGully
☒ =W/C or S/V pipe
☐ =Inspection Chamber
☐ =Rodding Eye
☒ =E/H=Exploratory Hole (hand dug pit and/or hand auger) or M/A=Mechanical Auger Hole
☒ =Hedge or Shrub
☒ =Trees
☒ =Boundary line
☒ =Surveyed pipe indicating flow
☒ =Unsurveyed pipe

Address: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

Job No. 29109

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FOUNDATION PIT RECORD

Location: Front Left Hand Side Corner

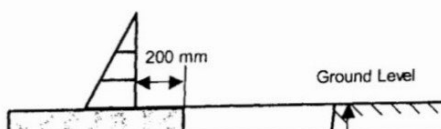
E/H No. 1

Ground Surface : Dry

Weather : Dry

Date: 25-Sep-06

Foundation Cross Section (Not to Scale)



Roots Depth & Dia:

Down to 3.0m

Upto 2mm Diameter

Water Depth Hit & Rise:

Dry

Soil Under Foundation:

MATLAB

FOUNDATION PIT RECORD

MATLAB

Location: **Front Left Hand Side Corner**

Ground Surface : Dry

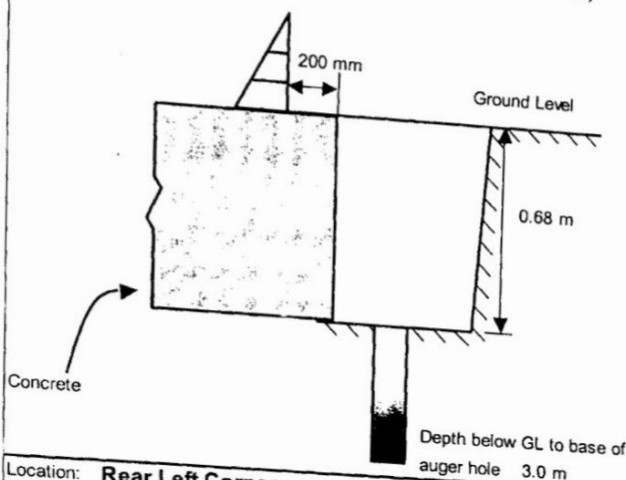
Weather : Dry

E/H No. 1

Date: 25-Sep-06

Foundation Cross Section (Not to Scale)

Roots Depth & Dia:
 Down to 3.0m
 Upto 2mm Diameter
 Water Depth Hit & Rise:
 Dry
 Soil Under Foundation:
 0.68m Soft/firm brown/orange
 CLAY with bands of grey and
 occasional gravel
 3.0m End of Borehole
 (NB Field crew description only)
 Reason for Termination :
 Hole at instructed depth


Location: **Rear Left Corner**

Ground Surface : Dry

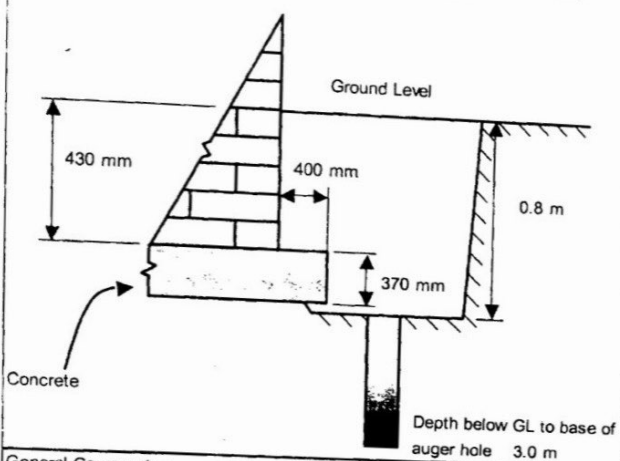
Weather : Dry

E/H No. 2

Date: 25-Sep-06

Foundation Cross Section (Not to Scale)

Roots Depth & Dia:
 Down to 3.0m
 Upto 1mm Diameter
 Water Depth Hit & Rise:
 Depth Hit 1.5m
 Soil Under Foundation:
 0.8m Soft/firm brown/orange
 CLAY with bands of grey and
 occasional gravel
 3.0m End of Borehole
 (NB Field crew description only)
 Reason for Termination :
 Hole at instructed depth



General Comments :

Address: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

Job No. 29109

MATLAB

ROOT IDENTIFICATION

MATLAB

Analysis subcontracted to European Plant Science Laboratory

Sample Origin: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

The sample of roots taken from the above property and received by us on 12 October 2006, has been examined and identification appears to be as follows:

Reference	Depth	Species Identified		Root Diameter	Starch
TH1	0.68-2.5m	<i>Quercus</i> spp.	1	1.5 mm	None Visible
TH2	0.8-3m	<i>Quercus</i> spp.	2	1 mm	None Visible
TH2	0.8-3m	broadleaved species, too juvenile for positive identification	3	<1 mm	None Visible

Comments:

Concrete 3 of 9		Depth below GL to base of auger hole 3.0 m	(NBS Field crew description only)
			Reason for Termination : Hole at instructed depth
General Comments :			
Address: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP			Job No. 29109

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	ROOT IDENTIFICATION				
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TH2	0.8-3m	broadleaved species, too juvenile for positive identification	3	<1 mm	None Visible
Comments:					
1 - Plus 5 others also identified as <i>Quercus</i> spp.					
2 - Plus 3 others also identified as <i>Quercus</i> spp.					
3 - Also in a state of decay (plus 3 others too small).					
<i>Quercus</i> spp. are oaks (both deciduous and evergreen).					
1 species was identified.					
Signed MDM Checked MPD					
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: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP					Job No. 29109

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	OEDOMETER RESULTS DATA	
Swell/Strain Test Method (UKAS accredited)		Test Date: 10-Oct-06
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.		
Limiting dimensions 50mm (diameter) by 17mm (height)		

4 of 9

Address: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

Job No. 29109

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**OEDOMETER RESULTS DATA****Swell/Strain Test Method (UKAS accredited)****Test Date: 10-Oct-06**

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.

Heave Calculation (Not UKAS accredited)

The oedometer strains have been extrapolated for the prediction and calculation of the

free surface heave, and are displayed in the table below, in the right-hand column, labelled "Dd mm".

A shrinkage factor (Sf) of 2 has been applied to the total predicted heave value.

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.

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

Address: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

Job No. 29109

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**OEDOMETER RESULTS DATA**

Borehole No:- 1				
Location	Front Left Corner			
Depth(m)	Specimen No. & Comments		STRAIN	Dd (mm)
1.09	Specimen No. 1A		0.0000	0.0
1.75	Specimen No. 2A		0.0010	0.3
2.25	Specimen No. 3A		0.0060	1.5
2.75	Specimen No. 4A		0.0290	7.3
				0.0

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ose Wood Way, Northwood, Middlesex, HA6 2TP

Job No. 29109

0126606

OEDOMETER RESULTS DATA

[illegible]

Address: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

Job No. 29109

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OEDOMETER RESULTS CHART

Oedometer Strains

—■— Borehole No:- 1

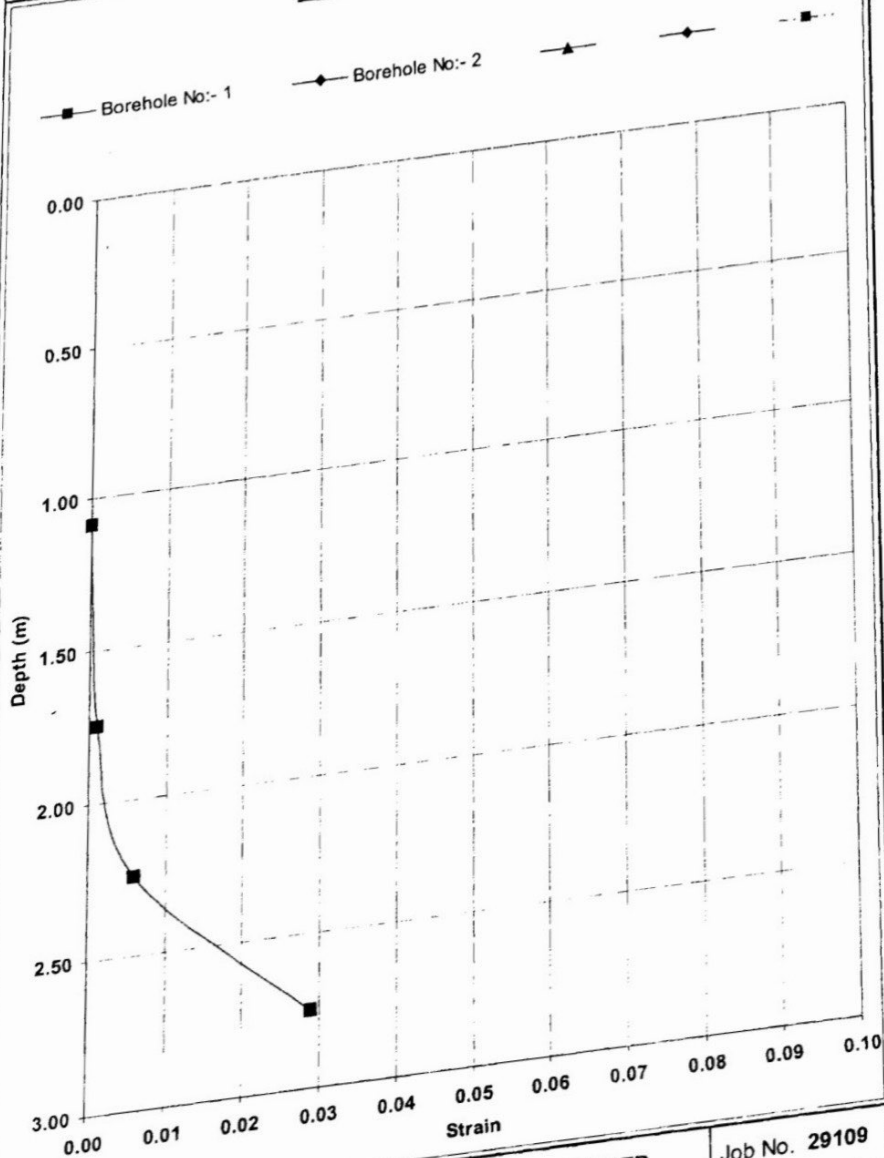
—◆— Borehole No:- 2

— ■ —

0.00

OEDOMETER RESULTS CHART

Oedometer Strains



Address: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

Job No. 29109

0.00 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.10
Strain

7 of 9

3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

Job No. 29109

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Notes relating to Soils Report

Date Soil Samples Received in Laboratory: 26-Sep-06

This Soils Report contains results for 2 borehole(s) on 2 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

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Natural Moisture Content Test Date: 09-Oct-06

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

Atterberg Limits Test Date: N/A

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 sample quantity is critical, the test may be performed using 2 soil discs and quartered filter papers. If this in-house method has been utilised, this is denoted by '(Q)' following Test Date above. The filter paper tests are conducted in a controlled environment within a temperature range of 16°C to 24°C.

Average Suction values (in kPa) are quoted with an appropriate error estimation, as indicated by error bars either side of plotted point. At low suction values, the error bars may be minimal in size.

This average value should not be taken as the absolute magnitude of the soil suction

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

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2093

Address: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

Job No. 29109

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SOILS LABORATORY RESULTS

Opinions and interpolations expressed herein are outside the scope of UKAS accreditation.

JOB No.: 29109

DATE SAMPLER EXTRACTED: 25 Sep 06

CLIENT/INSURED NAME: Buchanan-Fryer

ADDRESS: 3 Copse Wood Way,

Northwood,

Middlesex.

INSURANCE COMPANY Northern Rock REF:-64048795

ENGINEER: Matt Deller REF:-SU0605038

FROM: Crawford & Company,

B.H.No.: 1 of 2 No. Bore Holes

LOCATION: Front Left Corner

REPORT DATE: 16 Oct 06

2093

HA6 2TP							BRIEF SOIL DESCRIPTION
ATTERBERG LIMITS							
DEPTH	M.C.	L.L.	P.L.	P.I.	425um	AV. Filter Paper	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. This test report shall not be reproduced except in full, without prior written approval of Matlab Ltd. Natural Moisture Content Test Date: 09-Oct-06. 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. Atterberg Limits Test Date: N/A. 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 sample quantity is critical, the test may be performed using 2 soil discs and quartered filter papers. If this in-house method has been utilised, this is denoted by '(Q)' following Test Date above. The filter paper tests are conducted in a controlled environment within a temperature range of 16°C to 24°C. Average Suction values (in kPa) are quoted with an appropriate error estimation, as indicated by error bars either side of plotted point. At low suction values, the error bars may be minimal in size. This average value should not be taken as the absolute magnitude of the soil suction. Where possible, suction values should be compared with remote borehole values, to determine relative desiccation. This Report shall not be reproduced except in full, without prior written approval being obtained from the Quality Manager or Director of MAT LAB Ltd. It may contain private, confidential, or privileged information intended for the individual or entity to whom it is addressed. No confidentiality or privilege is waived or lost by any mistransmission.
M. (%)	(%)	(%)	(%)	(%)	M.C.(%) & No.		
1.09	24	-	-	-	-	-	
1.75	22	-	-	-	-	-	
2.25	22	-	-	-	-	-	
2.75	22	-	-	-	-	-	

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SOILS LABORATORY RESULTS

Opinions and interpolations expressed herein are outside the scope of UKAS accreditation.

MAT LAB LTD.. 0121 704 3339.**JOB No.:** 29109**INSURANCE COMPANY** Northern Rock REF: 64048795**DATE SAMPLES EXTRACTED:** 25 Sep 06**ENGINEER:** Matt Deller REF: SU0605038**CLIENT/INSURED NAME:** Buchanan-Fryer**FROM :** Crawford & Company,**ADDRESS:** 3 Copse Wood Way,**B.H. No.:** 1 of 2 No. Bore Holes

Northwood,

LOCATION: Front Left Corner

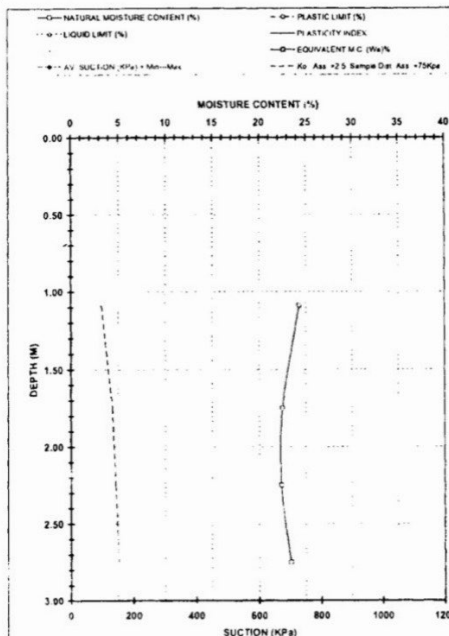
Middlesex.

REPORT DATE: 16 Oct 06

2093

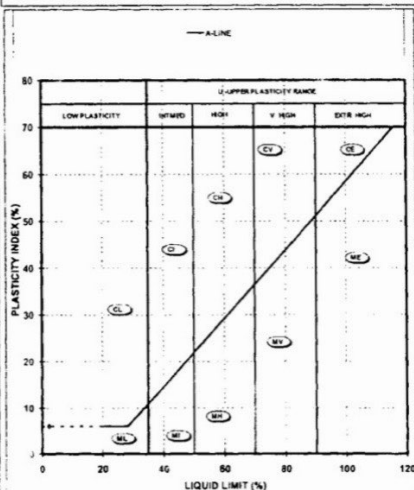
HA6 2TP

ATTERBERG LIMITS							AV. Filter Paper M.C. (%) & No.	BRIEF SOIL DESCRIPTION
DEPTH M.	M.C. (%)	L.L. (%)	P.L. (%)	P.I. (%)	425um (%)			
1.09	24	-	-	-	-	-	-	Soft to medium light brownish-grey CLAY with occasional silt & sand, including small rootlets, dark grey, red & white.
1.75	22	-	-	-	-	-	-	Soft to medium light greyish-brown CLAY with occasional sand & silt, rare silt & sand, brownish-grey, dark grey, red & white.
2.25	22	-	-	-	-	-	-	Fine to medium light greyish-brown CLAY with occasional sand & silt, rare silt & sand, brownish-grey, dark grey, red & white.
2.75	23	-	-	-	-	-	-	Fine to medium light greyish-brown CLAY with occasional light grey silt, rare silt & sand, brownish-grey, dark grey, red & white.



Opinions and Interpretations expressed in the chart above are outside the scope of UKAS accreditation.

The interpretations below are outside of UKAS accreditation.



Page 10 Of 11

SOILS LABORATORY RESULTS

Opinions and interpolations expressed herein are outside the scope of UKAS accreditation.

MAT LAB LTD.. 0121 704 3339.**JOB No.:** 29109**INSURANCE COMPANY** Northern Rock REF: 64048795**DATE SAMPLES EXTRACTED:** 25 Sep 06**ENGINEER:** Matt Deller REF: SU0605038**CLIENT/INSURED NAME:** Buchanan-Fryer**FROM :** Crawford & Company,**ADDRESS:** 3 Copse Wood Way,**B.H. No.:** 2 of 2 No. Bore Holes

Northwood,

LOCATION: Rear Left Corner

Middlesex.

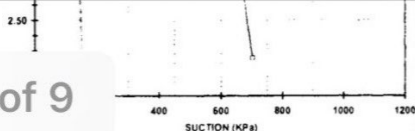
REPORT DATE: 16 Oct 06

2093

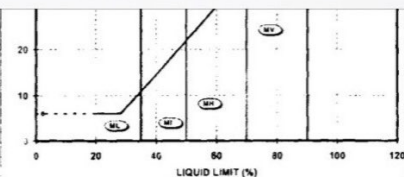
HA6 2TP

ATTERBERG LIMITS							AV. Filter Paper M.C. (%) & No.	BRIEF SOIL DESCRIPTION
DEPTH M.	M.C. (%)	L.L. (%)	P.L. (%)	P.I. (%)	425um (%)			

9 of 9



Opinions and interpretations expressed in the chart above are outside the scope of UKAS accreditation.



Page 10 of 11

SOILS LABORATORY RESULTS

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

JOB No.: 29102

DATE SAMPLES EXTRACTED: 25 Sep 06

CLIENT/INSURER NAME: Buchanan-Fryer

ADDRESS: 3 Copse Wood Way,

Northwood,

Middlesex.

INSURANCE COMPANY Northern Rock REF:-64048795

ENGINEER: Matt Deller REF:-SU0605038

FROM: Crawford & Company,

B.H. No. 2 of 2 No. Bore Holes

LOCATION: Rear Left Corner

REPORT DATE: 16 Oct 06

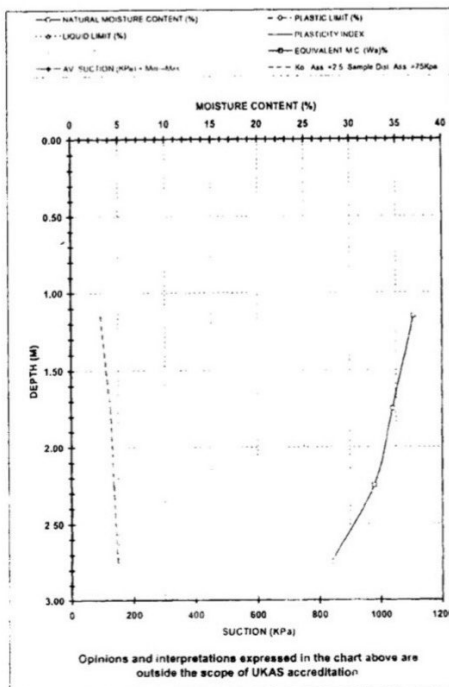
2093

HAS 2TP**ATTERBERG LIMITS**

DEPTH M.	M.C. (%)	L.L. (%)	P.L. (%)	P.I. (%)	425um (%)	AV. Filter Paper M.C. (%) & No.
1.15	37	-	-	-	-	-
1.75	35	-	-	-	-	-
2.25	33	-	-	-	-	-
2.75	28	-	-	-	-	-

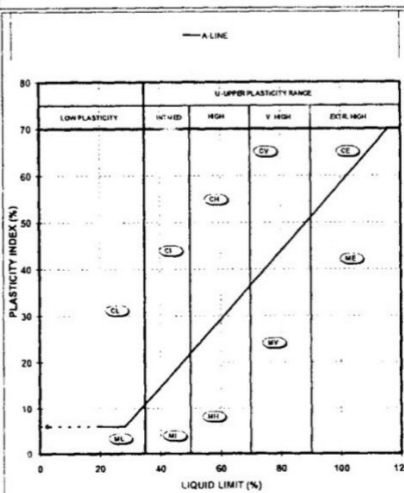
BRIEF SOIL DESCRIPTION

Soft orange-brown CLAY with occasional light grey bandings, silt veinings, rare sand veinings, fine-medium gravel, roots & rootslets.
 Soft orange-brown CLAY with occasional silt veinings, rare light grey veinings, sand veinings, fine-medium gravel & a rootlet.
 Soft orange-brown CLAY with occasional silt veinings, rare light grey veinings, sand veinings, fine-medium gravel & rootlets.
 Soft orange-brown CLAY with occasional silt veinings, rare light grey veinings, sand veinings, fine gravel & a rootlet.



Opinions and interpretations expressed in the chart above are outside the scope of UKAS accreditation.

The interpretations below are outside of UKAS accreditation.



Page 11 of 11

CRAWFORD & COMPANY

Fax 01923471788

20 Oct 2008 11:19

P001/002

1 of 1

FACSIMILE MESSAGE



Date : 20/10/08
To : KAY DODDS.
Fax No : 08702 414 339
From : MATT DEUER
Number of Pages : 2 (inc cover)
Our Ref : SU060508B.
Subject : BUCHANNAN-FEYER -YOUR REF: NL/3108060922/AC

HI KAY

PLEASE FIND ATTACHED PLAN SHOWING LOCATIONS OF TRIAL PITS.

REGARDS,

IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL BACK AS SOON AS POSSIBLE

This message is sent in confidence for the addressee only. The contents are not to be disclosed to anyone other than the addressee. Unauthorised recipients must preserve this confidentiality and should please advise the sender immediately of any error in transmission.

CRAWFORD & COMPANY

Fax 01923 417188

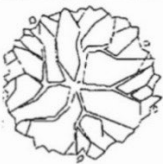
20 Oct 2006 11:19

P002/002

SITE AND DRAINAGE LAYOUT

Crew: Wayne

Date: 25-Sep-06



REAR



E/H2 Concrete

SEPT 06
LOCATIONS

Concrete

E/H1

NOV 06 E/H1 MECHANICAL AUGER
LOCATION ALSO ON FRONT CORNER
OF LH FLANK



FRONT

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

General Comments: Site Layout based on information provided by Crawford & Company.

Key: = RW Gully = RW Pipe = FW Gully = W/C or S/V pipe = Inspection Chamber
 = Rodding Eye = Surveyed pipe indicating flow = Unserved pipe
 = E/H = Exploratory Hole (hand dug pit and/or hand auger) or M/A = Mechanical Auger Hole

MatLab Limited
The Dell
Bickenhill Lane
Catherine - De - Barnes
Solihull, West Midlands
B92 0DE

13/10/2006

Your ref: 250906
Job No: Root121006094452

Dear Sir

Re: Root Identification
Sample Origin: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

The sample of roots taken from the above property and received by us on 12 October 2006, has been examined and identification appears to be as follows:

Reference	Depth	Species Identified		Root Diameter	Starch
TH1	0.68-2.5m	<i>Quercus</i> spp.	1	1.5 mm	None Visible
TH2	0.8-3m	<i>Quercus</i> spp.	2	1 mm	None Visible
TH2	0.8-3m	broadleaved species, too juvenile for positive identification	3	<1 mm	None Visible

Comments:

- 1 - Plus 5 others also identified as *Quercus* spp.
- 2 - Plus 3 others also identified as *Quercus* spp.
- 3 - Also in a state of decay (plus 3 others too small).

Quercus spp. are oaks (both deciduous and evergreen).

1 species was identified.

Signed MDM Checked MPD

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

MatLab Limited
The Dell
Bickenhill Lane
Catherine - De - Barnes
Solihull, West Midlands
B92 0DE

13/11/2007

Your ref: 071107
Job No: Root121107142647

Re: Root Identification
Sample Origin: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

The sample of roots taken from the above property and received by us on 12 November 2007, has been examined and identification appears to be as follows:



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

MatLab Limited
The Dell
Bickenhill Lane
Catherine - De - Barnes
Solihull, West Midlands
B92 0DE

13/11/2007

Your ref: 071107
Job No: Root121107142647

Re: Root Identification
Sample Origin: 3 Copse Wood Way, Northwood, Middlesex, HA6 2TP

The sample of roots taken from the above property and received by us on 12 November 2007, has been examined and identification appears to be as follows:

Reference	Depth	Species Identified		Root Diameter	Starch
TH1	0.15-5m	<i>Quercus</i> spp.	1	5 mm	Abundant

Comments:

1 - Plus 5 others also identified as *Quercus* spp.
Quercus spp. are oaks (both deciduous and evergreen).
1 species was identified.

Signed MDM Checked MPD

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

Crawford

Tech Mgr

Instruction date

Likely end date

Frequency

#####

Dec'08

8 Weeks

Phone

01923 821 111

07841 887 509 - Partner

Customer ref

Customer #	SL10605038
------------	------------

Insured/Occupier

Mrs M Buchannan-Fry

Address

3 Copse Wood Way

Northwood

Middlesex

Postcode

HA6 2TP

Next Visit

Oct-08

Who should be invoiced?

Northern Rock Insurance

Insurer

Additional instructions / notes

Stud locations

1	Study - Front wall
2	Kitchen - gargae partition
3	
4	
5	
6	

<i>Stud nos</i>	<i>Align-ment</i>	<i>Visit Report</i>	22/08/06 22/08/06	17/11/06 17/11/06	14/02/07 14/02/07	03/10/07 03/10/07	12/01/08 12/01/08	22/03/08 22/03/08	13/05/08 14/05/08	03/07/08 07/07/08	29/08/08 30/08/08	- -
1=2	H		78.21	78.08	77.47	77.74	77.71	77.57	77.39	77.37	77.93	-
1=3	D		90.26	90.12	89.93	90.03	90.05	89.86	89.74	89.78	89.99	-
2=3	Check		52.10	52.16	52.00	52.20	52.20	52.11	52.12	52.09	52.11	-
4=5	H	8.40	94.38	94.39	92.88	95.70	94.70	93.65	93.00	94.52	95.79	-
5=6	D	7.30	114.01	114.14	113.15	114.82	114.23	113.61	113.11	113.90	114.63	-
4=6	Check		69.65	69.75	69.87	69.82	69.72	69.77	69.72	69.74	69.69	-
			-	-	-	-	-	-	-	-	-	-
			-	-	-	-	-	-	-	-	-	-
			-	-	-	-	-	-	-	-	-	-
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			-	-	-	-	-	-	-	-	-	-
			-	-	-	-	-	-	-	-	-	-
<i>Customer :</i>			No Commc	No issues	No Commc	No Commc	No Commc	See comm	Requests d	No issues	No issues	
<i>New cracking :</i>			No new cr	None repo	No new cr	No new cr	No new cr	None repo	None repo	None repo	None repo	/ obse
<i>See "current c/w" :</i>												
<i>Calliper nos :</i>			39263	39263	152	555	OO1	oo 2	oo 5	OO7		
<i>Technician :</i>			Client	RS	RS	AL	AN	NG	SG	SB	NG	



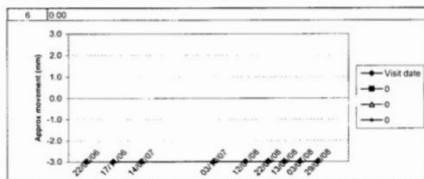
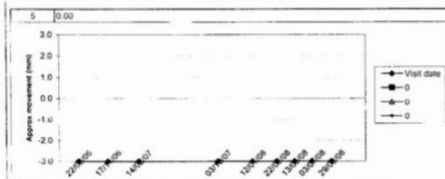
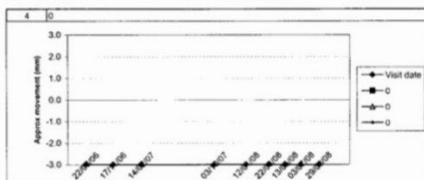
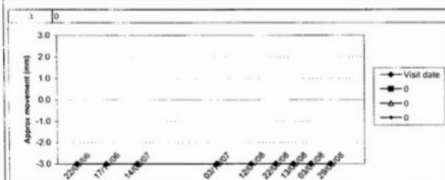
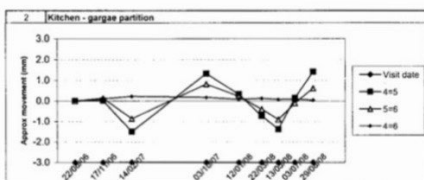
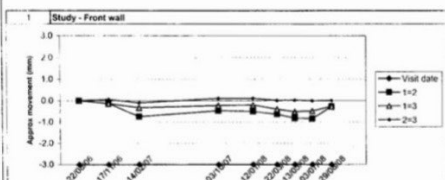
Address: 3 Cope Wood Way
Northwood
Middlesex
Hydcode: HMB 21P

Report date: 30 August 2008
Reference Number: SU0605038
Owner/occupier: Mrs M Buchanan-Fryer
Job status:
Frequency: 3 Visits
Next report due: October 2008

Visit summary:

Customer issues: No issues New cracking: None reported / observed

Additional comments:



Estimate of Ground Movement

Property

3 Copse Wood Way
Northwood
Middlesex
HA6 2

Claim Reference

SU0605038

Date

09 Jun 2008



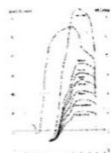
visit our web site at www.crawford.co.uk
This report and information is the property of Crawford & Co. Company and must not be used in accordance with the Terms and
Conditions listed on the web site.
10 St Paul's Square, Birmingham, B3 1CJ

VISCAT - MODELLING CLAY SHRINKAGE

Introduction

The likely effect of the interaction between soils in the area, climate, tree species, height and the distance of the tree to the building have been modelled to derive an estimate of ground movement.

The link between climate and ground movement is well established. We have referred to the published work of Ward¹, The Building Research Establishment², Cheney³ and others to set the upper bound conditions prior to applying a finite difference technique to model ground movement and linked this to our extensive soils database.



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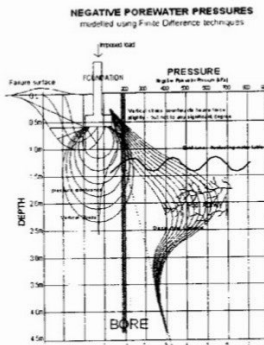


Figure 1
Finite difference technique for modelling ground movement.

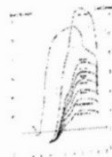
The influence of trees is more difficult to model, and we have adopted a statistical approach, making comparisons with the results of precise level readings. We have the starting point of a tree rank order from The Building Research Establishment (and others) combined with our own empirical dataset, and established a risk value against most of the commonly occurring species.

¹ Ward W.H. (1953) "Soil Movement and Weather" Proc. 3rd Int. Conf. On Soil Mechanics and Foundation Engineering, Vol. 1, pp 477-482
² Driscoll R.M.C. & Cribb M.S. (2001) "Subsidence Damage to Domestic Building" B.R.E.

VISCAT - MODELLING CLAY SHRINKAGE

The model uses the periodic signatures of the various elements – for example the curve of the Soil Moisture Deficit (SMD) values compared with ground movement – and to model the influence of trees we have utilised as a proxy the negative porewater pressure curve of root induced suctions.

The model has been validated against claims data gathered over a two-year period.



The model uses the periodic signatures of the various elements – for example the curve of the Soil Moisture Deficit (SMD) values compared with ground movement – and to model the influence of trees we have utilised as a proxy the negative porewater pressure curve of root induced suctions.

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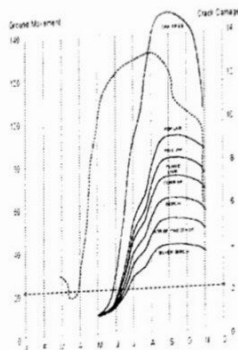
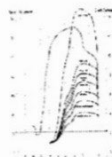


Figure 2
Relationship between climate (SMD – blue line) and ground movement (red lines) for a variety of mature trees, set in rank order of risk.

Much is often made of the difficulty in applying this technique to domestic subsidence and yet the N.H.B.C. tables are in common use and often used to design foundations without investigations. This is a simple extension of this approach. Difficulties are sometimes raised regarding the ‘non-linearity’ of the soil and root interaction due to anisotropy and inherent variability of the factors and yet we see from published (and unpublished) work that statistically, the association is robust.

Cheney J.E. (1989) 'Long Term Heave of a Building Founded on Clay Soil after Tree Removal' Soil Geotechnical Instrumentation - Civil Engineering Projects Nottingham



Below we reproduce the results of work undertaken at The Building Research Establishment following removal of mature poplars from a site underlain by highly shrinkable clay. Levels were taken at varying distances from the tree and we can see a linear pattern to the ground movement.



VISCAT - MODELLING CLAY SHRINKAGE



Below we reproduce the results of work undertaken at The Building Research Establishment following removal of mature poplars from a site underlain by highly shrinkable clay. Levels were taken at varying distances from the tree and we can see a linear pattern to the ground movement.

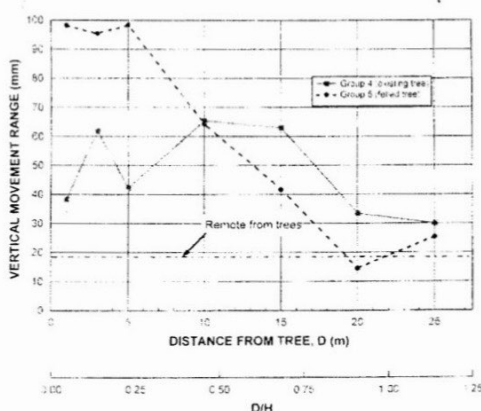


Figure 3

Measurement of ground Movement at Chattenden following removal of some mature Poplar trees, courtesy of B.R.E. The blue broken line represents linear 'recovery' of the soil for a distance almost equal to the height of the trees.

The method is certainly no less reliable than undertaking actual investigations when we consider that the measurement of moisture and their correlation to index properties of clay soils has no substance in published research. Suctions measurements using the filter paper technique are +/- 25% ignoring the fact that soil mineralogy can produce anomalous and misleading results.

VISCAT - MODELLING CLAY SHRINKAGE



Geology

Clay soils are sedimentary deposits (marine or inland) with a fine particle size (less than 0.002mm). Due to their mineralogical composition they suffer volumetric change in direct relation to their moisture content. When they are dry, they shrink. On rehydration the clay

VISCAT - MODELLING CLAY SHRINKAGE



Geology

Clay soils are sedimentary deposits (marine or inland) with a fine particle size (less than 0.002mm). Due to their mineralogical composition they suffer volumetric change in direct relation to their moisture content. When they are dry, they shrink. On rehydration the clay soil will swell again.

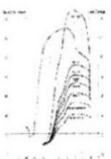
The amount of swell depends on the soil mineralogy and its structure. Clays in this area are categorised as having a very high shrink/swell potential^{1,5}

Sector Data

Average P.L.	22.1 %
Average L.L.	62.8 %
Average P.I.	40.7 %
Estimated Swell	135mm
Tree Species	Oak
Height	18m
Distance	7m
Season	Very Dry Event Year

¹ Driscoll R. (1983) "Influence of Vegetation on Clays" Geotechnique 33:37
⁵ Table 1 Chapter 4 - Para 2.3 of N.H.B.C. Standards 1986

VISCAT - MODELLING CLAY SHRINKAGE



Estimated Swell

To derive an estimate of swell we have relied on statistical validation of our finite difference model which makes the following assumptions.

- 1. That the tree is younger than the house,

VISCAT - MODELLING CLAY SHRINKAGE



Estimated Swell

To derive an estimate of swell we have relied on statistical validation of our finite difference model which makes the following assumptions.

1. That the tree is younger than the house,
2. Where the tree has been pollarded or cut back, the user should enter an estimate of the tree height *prior* to surgery to properly account for the likely root zone.

Output

With the tree at its present height there is a potential for ground movement '7' mtrs distant from the tree of 135mm.

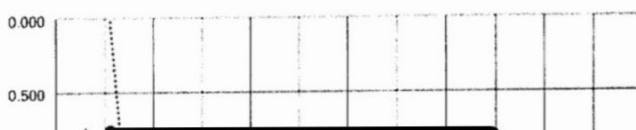
If the tree is allowed to grow unchecked and there is an exceptionally dry summer, this figure increases to 153mm.

VISCAT - MODELLING CLAY SHRINKAGE

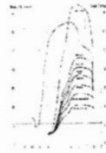


Modelled Moisture Deficiency

(Not to be used for establishing foundation depths)

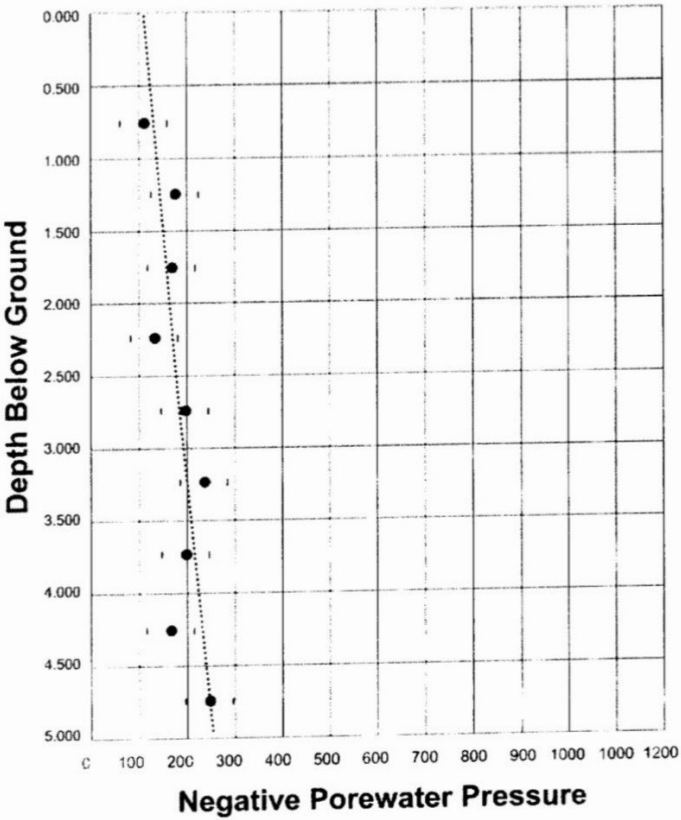


VISCAT - MODELLING CLAY SHRINKAGE



Modelled Moisture Deficiency

(Not to be used for establishing foundation depths)



1 of 4

**HILLINGDON**
LONDON**TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)**
TOWN AND COUNTRY PLANNING(TREES) REGULATIONS 1999**Tree Preservation Order No. 391**

To:
Marishal Thompson Group
6g Greensfield Court
Alnwick
Northumberland
NE66 2DE

Ref: 22134/TRE/2008/9

The Council of the London Borough of Hillingdon as the Local Planning Authority within the meaning of the above-mentioned Act and Orders and Regulations made thereunder give notice that consent is hereby **GRANTED** to carry out the following operation(s) :-

Location : 3 Copse Wood Way, Northwood

Description of operation(s) : Tree Surgery (crown reduction of 30%) to one Oak tree in Area A1 on Tree Preservation Order 391.

Date of receipt: 21 January 2008

Drawing/plan Numbers: Letter dated 17 February 2009 (revised description for tree works) (ref:TS15349), received 19 February 2009.

Consent is however given subject to the conditions listed on the attached schedule:-

**Signed:**

Corporate Director of Planning & Community Services

Date: 14 April 2009

NOTES: Attention is particularly drawn to the attached schedule which sets out the rights of applicants who are aggrieved by the decisions of the Local Planning Authority.

**HILLINGDON**
LONDON**TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)**
TOWN AND COUNTRY PLANNING(TREES) REGULATIONS 1999**Tree Preservation Order No. 391**

Ref: 22134/TRE/2008/9





HILLINGDON
LONDON

**TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)
TOWN AND COUNTRY PLANNING(TREES) REGULATIONS 1999**

Tree Preservation Order No. 391

Ref: 22134/TRE/2008/9

SCHEDULE OF CONDITIONS

- 1 The works hereby permitted shall be carried out within 2 years of the date of this consent.

REASON

To enable the Local Planning Authority to reconsider the appropriateness of the works in the light of any change in circumstances.

- 2 The tree to be pruned shall be crown reduced by a maximum of 30%. This work shall comprise a reduction in both height and spread over the whole crown by shortening or removing peripheral branches in a uniform and systematic manner. Where branches are shortened, they should be cut back to a suitably positioned secondary branch.

Crown reduction shall not be construed as 'lopping' or 'topping' and shall result in a tree of typical form for the species and of balanced appearance. The amount of crown reduction shall be expressed as a percentage of the overall crown of the tree. The works shall be carried out in accordance with the recommendations contained in BS3998: 1989 - "British Standard Recommendations for Tree Work". Climbing irons or 'spikes' shall not be used during the execution of the work.

REASON

In order to protect health of the tree and the visual amenity of the area.

INFORMATIVES:

- 1 You are advised that the tree works should not be carried out without the specific written consent of the owner(s) of the land on which the tree is situated.
- 2 Wildlife and Countryside Act 1981: Note that it is an offence under this act to disturb roosting bats or nesting birds or other species.



HILLINGDON
LONDON

**TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)
TOWN AND COUNTRY PLANNING(TREES) REGULATIONS 1999**

Ref: 22134/TRE/2008/9

Address:

Planning & Community Services
London Borough of Hillingdon
3 North Civic Centre, High Street, Uxbridge UB8 1UW
Tel: 01895 250400 / 250401
www.hillingdon.gov.uk

3 of 4

Pa_

pdectrees

HILLINGDON
LONDON**TOWN AND COUNTRY PLANNING ACT 1990 (AS AMENDED)**
TOWN AND COUNTRY PLANNING(TREES) REGULATIONS 1999

Ref: 22134/TRE/2008/9

Address:

Planning & Community Services
London Borough of Hillingdon
3 North Civic Centre, High Street, Uxbridge UB8 1UW
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