ARBORICULTURAL REPORT
at
90 Hayes Lane
Beckenham
Kent
BR3 6SP

Client:
360Globalnet,
on behalf of Direct Line

Client Address:
Regus House
Herald Way
Pegasus Business Park
Castle Donington
DE74 2TZ

Client Telephone:
0116 4781258

Insured:
Mrs Caroline Millard

Claim Number:
DLG-SN-22-004722

JCA Ref:
18960/ChC

Client Ref:
084239680

JCA Limited
Arboricultural & Ecological Consultants

Contents

1. Introduction

1.1 Purpose of the Report

1.1.1 This arboricultural report is required by our client as part of an investigation into suspected soil shrinkage subsidence damage at:

90 Hayes Lane, Beckenham, Kent, BR3 6SP.

1.2 Terms of Reference

1.2.1 We are instructed by **360Globalnet** to visit the site and carry out an arboricultural survey covering all vegetation within likely influencing distance of the subject property. It has been requested that we only consider vegetation management options for the purpose of this report.

1.2.2 We have been supplied with details of the site investigation, which was carried out by **Drainage Repair Company**, and have included the salient points in this report. We have applied this information to our knowledge of trees and the arboricultural data we gathered on site and prescribed recommendations for current, or future action, where required.

1.2.3 We are to prepare our findings in a detailed report, making specific recommendations as to any arboricultural management which may be required.

1.3 Scope of the Report

1.3.1 The subject property is a detached residential bungalow constructed circa 1970, with an extension to the rear left side.

1.3.2 Damage has occurred to the bungalow and extension. Please see the **360 Globalnet Engineer's Report** for full details of the current damage at the subject property.

1.3.3 The distance between the vegetation surveyed and the building is measured from the closest part of the property.

2. Survey Conditions and Methods

2.1 Date of Inspection and name of Inspector

2.1.1 The site was surveyed during October 2022 by **Charles Cocking** *FdSc (Aboriculture), MArborA.*

2.2 Data Collection Methods

2.2.1 The inspection was carried out at ground level using visual assessment of the tree canopy, stem and rooting area. No digging or drilling was carried out by JCA Ltd.

2.2.2 The measurements were made using instruments including clinometers for tree *HEIGHT*, diameter tapes for *STEM DIAMETER* (measured at 1.5m above ground level) and tape measures or electronic distometers for *CROWN SPREAD* and *DISTANCE TO PROPERTY.*

2.2.3 *AGE CLASS* and *LIFE EXPECTANCY* values are estimated based upon our knowledge of trees and the way they grow. No core sampling was carried out on this occasion.

2.2.4 The term *INFLUENCING DISTANCE* as used in this report is not derived from the NHBC's 'zones of influence' formula. It is merely an estimation of the potential of a tree or shrub to cause damage to the subject property after due consideration of many factors including soil characteristics, specimen size, vigour, species, likely water uptake and distance from the property.

2.2.5 *'NHBC WATER DEMAND'* (low, moderate or high) are categories originated by the National House Building Council. The concept was designed to be used as an aid for determining the correct foundation depths for new build situations where there are existing trees present.

3. Ground Investigation, Soil & Root Analysis

3.1 Introduction

3.1.1 Trees influence soil conditions, and in some soil types root activity can create a soil moisture deficit (S.M.D.), which means that the amount of water being used by the tree and by natural evaporation has exceeded the amount of water entering the ground through precipitation or other means. This deficit can lead to soil shrinkage which in turn can cause a building to move, particularly if its foundations are shallow. The result is *SUBSIDENCE.*

3.1.2 The soil's *PLASTICITY INDEX, PLASTIC LIMIT, MOISTURE CONTENT* and the likely water uptake of the tree/trees in question are key factors in determining whether shrinkage has occurred.

3.1.3 On shrinkable soils, damage to buildings can also occur as a result of tree removal. In such cases, re-hydration of the soil beyond that which would ordinarily occur prior to the removal of vegetation can cause an upwards movement of the ground which is known as *HEAVE.* Trees should not, therefore, be removed without due consideration of likely effects.

3.1.4 The ground investigation and root analysis at this site have been carried out by others. Results of these investigations are briefly summarised below.

3.2 Foundation Types and Depths

3.2.1 Please refer to the site plan at **Appendix 2** for an indication of the trial pit/borehole location.

3.2.2 **Trial pit/borehole 1** revealed a concrete/brick corbel foundation at a maximum depth of 1100mm below ground level.

3.3 Soil Types

3.3.1 **Trial Pit/Borehole 1:**

- The soils *plasticity index* ranged from 45% to 49%.
- *Moisture contents* within the soil samples ranged from 34% to 37%.
- The *plastic limit* of the soil was 25%.
- The *liquid limit* of the soils ranged from 70% to 74%.

The results indicate that the clay soil found within **Trial Pit/Borehole 1** is of high shrinkability and that there is an onset of desiccation.

3.4 Root Analysis

Drainage Repair Company

ROOT IDENTIFICATION

Richardson's Botanical Identifications

Root identification
Vegetation surveys
Tree/Building investigations
Plant taxonomy

Dr Ian B K Richardson
BSc, MSc, PhD, MRSB, FLS
James Richardson
BSc (Hons. Biology)

Enterprise House
49-51 Whiteknights Road
Reading
RG6 7BB

Tel: (0118) 986 9552 *(Direct line)*
E-mail: richardsons@botanical.net
Web: www.botanical.net

The Drainage Repair Company
Suite 15, Leatherline House
71 Narrow Lane
AYLESTONE
Leicester LE2 8NA

Your ref: **Root ID**

Our ref: 85/1607

15/01/2023

Dear Lisa

90 Hayes Lane BR3 6SP

The samples you sent in relation to the above on 14/12/2022 have been examined. Their structures were referable as follows:

TP/BH1, 1.10-1.50m		
5 no.	Examined root: QUERCUS (Oak) or the related CASTANEA (Sweet Chestnut). This was a very IMMATURE sample.	Alive, recently*.
1 no.	Examined root: the family Rosaceae, EITHER the subfamily POMOIDEAE (a group of closely related trees: Malus (Apple), Pyrus (Pear), Crataegus (Hawthorn), Sorbus (Rowan, Whitebeam, Service tree), Mespilus (Medlar), and some shrubs (Pyracantha (Firethorn), Chaenomeles (Japonica), Cydonia (Quince), Amelanchier, Cotoneaster)) OR [the related] PRUNUS (Cherries, Plums and Damsons, Almonds, Peaches and Apricots, Blackthorn/Sloe, as well as the shrubby Cherry-laurel and Portugal-laurel). NO BARK; also in POOR condition.	Dead*.
9 no.	Unfortunately all with insufficient cells for identification.	

Click here for more information: CASTANEA POMOIDEAE PRUNUS QUERCUS

I trust this is of help. Please call us if you have any queries; our Invoice is enclosed.

Yours sincerely

pp

Dr Ian B K Richardson

* Based mainly on the Iodine test for starch. Starch is present in some cells of a living woody root, but is more or less rapidly broken down by soil micro-organisms on death of the root, sometimes before decay is evident. This result need not reflect the state of the parent tree.

* * Try out our web site on www.botanical.net * *

Identified with no information on vegetation, on or off site.

Report commissioned by Drainage Repair Company

Address: **90 HAYES LANE, BECKENHAM, KENT, BR3 6SP**

4. Status of the Trees

4.1 A Tree Preservation Order (TPO) and Conservation Area check was made in September 2022 with **London Borough of Bromley Council**.

4.2 We are informed that there is a Tree Preservation Order (TPO) in force which appears to protect **T3, T4** and **T12**, as identified in this report.

4.3 Before any tree works are undertaken to protected trees, written consent from the Local Authority must first be obtained. An application for tree works form must therefore be completed and submitted to the Local Authority outlining all the proposed works along with a suitable justification. A waiting period of eight weeks is then required.

4.4 ***No work must be done to protected trees until permission has been granted.***

5. Tree Descriptions & Recommendations

5.1 Descriptions of the surveyed vegetation and all recommended work are detailed in the tables at **Appendix 1**.

5.2 Please refer to the site plan at **Appendix 2** for the locations of the vegetation surveyed and all the relevant site features.

6. Discussion

6.1 We have been informed by our client that the damage observed at the property is due to clay shrinkage caused by vegetation.

6.2 Based on this information, having made a detailed survey of the site and having given due consideration to the other information supplied, it is likely that in this case some subsidence damage has occurred as a result of drying shrinkage caused by vegetation within influencing distance of the property.

6.3 We have therefore recommended that **T1, T4, G5** and **T12** be removed to ground level and that the stumps be treated to prevent regrowth.

6.4 As **T1** is owned by the Local Authority, and **T4/T12** are protected by the TPO, the Council will require sufficient proof of the trees being the principal cause. In this case we have evidence of:

- The trees being within influencing distance of the damaged property.
- The soils being confirmed as being shrinkable.
- Roots matching this species found in the Trial Pits below foundation level.
- Cracking damage to the subject property.

The Council may also require the following:

- Monitoring of cracks indicating cyclical movement.

6.5 We consider the vegetation identified as **G2, T3, T6, T7, G8, G10** and **G11** to be of possible future concern to the subject property, if left unmanaged. We have therefore recommended that these items of vegetation be maintained at their current height and spread over the forthcoming years. These works are only recommended as a precaution and are not considered a priority to resolve the damage observed at the subject property.

6.6 We have summarised all our tree specific recommendations in **Section 7** and made general recommendations in **Section 8**. The effect of these recommendations should be to prevent further damage by reducing the moisture uptake close to the problem areas.

7. Summary of Tree Specific Recommendations

Item	Species	Recommended Actions	Location/Ownership	Planning Restriction
T1	Oak	Remove to ground level and treat the stump to prevent regrowth.	Local Authority	No TPO's / No Conservation Area
G2	Leyland Cypress	Maintain at current height and spread.	Third Party - No. 101 Hayes Way	No TPO's / No Conservation Area
T3	Oak	Maintain at current height and spread.	Third Party - No. 101 Hayes Way	Yes - TPO
T4	Oak	Remove to ground level and treat the stump to prevent regrowth.	Third Party - No. 101 Hayes Way	Yes - TPO
G5	Mixed	Remove to ground level and treat the stumps to prevent regrowth.	Third Party - No. 101 Hayes Way	No TPO's / No Conservation Area
T6	Norway Spruce	Maintain at current height and spread.	Third Party - No. 101 Hayes Way	No TPO's / No Conservation Area
T7	Eucalyptus	Maintain at current height and spread.	Third Party - No. 101 Hayes Way	No TPO's / No Conservation Area
G8	Unknown	Maintain at current height and spread	Policy Holder	No TPO's / No Conservation Area
T9	Elder	No action required.	Policy Holder	No TPO's / No Conservation Area
G10	Leyland Cypress	Maintain at current height and spread.	Third Party - No. 97 Hayes Way	No TPO's / No Conservation Area
G11	Mixed	Remove the 4x Ash trees to ground level and treat the stumps to prevent regrowth. Maintain the remaining vegetation at current height and spread.	Third Party - No. 97 Hayes Way	No TPO's / No Conservation Area
T12	Oak	Remove to ground level and treat the stump to prevent regrowth.	Third Party - No. 97 Hayes Way	Yes - TPO

8. General Recommendations and Observations

8.1 This report is based upon a visual inspection. JCA Limited shall not be responsible for events which happen after this time due to factors which were not apparent at the time, and the acceptance of this report constitutes an agreement with the guidelines and the terms listed in this report.

8.2 All tree work must be carried out to BS 3998: 2010 - '*Recommendations for Tree Work'*.

8.3 Any tree work should be carried out by qualified, experienced and skilled arboricultural contractors covered by adequate *public liability and employers liability insurance.* Any defects seen by a contractor or the employer that were not apparent to the consultant must be brought to the consultant's attention immediately.

8.4 The influence of trees on the soil and on buildings may change as they grow, as climate varies or as other changes occur in the local environment. It is therefore advisable to have trees inspected by JCA Limited annually.

8.5 That the project engineer considers all possible solutions which may not involve vegetation works, if there is a wider public or ecological interest in retaining the trees influencing the property.

8.6 The property and the damage should be monitored by the project engineer on a regular basis after the recommended tree works are complete.

8.7 If, after the works have been carried out, there is little improvement, this may mean that the situation cannot be rectified by arboricultural means alone. If this point is reached the situation must be reassessed in conjunction with other experts.

8.8 No liability can be accepted by the consultant in respect of the trees unless the recommendations of this report are carried out under their supervision and within their timescale.

8.9 That the project engineer considers the possibility of heave.

Appendices

Tree Ref.	Age Common Name *Botanical Name*	Height (m)	Stem Diameter (cm)	Canopy Spread (m)	Owner / Occupier Observations	Condition	Distance to Property (m)	NHBC Water Demand	Life Expectancy (yrs)	Within Potential Influencing Distance	Root Identification Match	Contributing to Damage	Vegetation Management Option
T 1	Mature Oak *Quercus robur*	17	69	13	Local Authority Local Authority street tree situated adjacent to Hayes Lane.	GOOD	9	HIGH	40+	Yes	Yes	Likely	Remove to ground level and treat the stump to prevent regrowth.
G 2	Early mature Leyland Cypress *X Cupressocyparis leylandii*	6	Avg. 20	See Plan	Third Party - No. 101 Hayes Way Situated in the rear garden of a neighbouring property on the boundary.	GOOD	5+	HIGH	20+	Yes	No	No	Maintain at current height and spread.
T 3	Mature Oak *Quercus robur*	16	45	11	Third Party - No. 101 Hayes Way Situated in the rear garden of a neighbouring property.	GOOD	13	HIGH	40+	Yes	Yes	Unlikely	Maintain at current height and spread.
T 4	Mature Oak *Quercus robur*	17	#45 45 50	12	Third Party - No. 101 Hayes Way Situated in the rear garden of a neighbouring property.	GOOD	6.5	HIGH	40+	Yes	Yes	Likely	Remove to ground level and treat the stump to prevent regrowth.
G 5	Semi Mature Mixed	To 3.5	<10	See Plan	Third Party - No. 101 Hayes Way Mixed vegetation in the rear garden of a neighbouring property. Species include Hawthorn Pyracantha and other Shrubs.	FAIR	0.3+	HIGH	10+	Yes	Yes	Likely	Remove to ground level and treat the stumps to prevent regrowth.
T 6	Early mature Norway Spruce *Picea abies*	14	28	4	Third Party - No. 101 Hayes Way Situated in the rear garden of a neighbouring property.	GOOD	2	MOD	20+	Yes	No	Unlikely	Maintain at current height and spread.
T 7	Young Eucalyptus *Eucalyptus gunnii*	8	10	2.5	Third Party - No. 101 Hayes Way Situated in the rear garden of a neighbouring property.	GOOD	1	HIGH	20+	Yes	No	Unlikely	Maintain at current height and spread.
G 8	Young Unknown	To 3	Avg. 5	See Plan	Policy Holder Newly planted trees in the rear garden of the subject property. Unable to positively identify the species.	GOOD	4.7	NO DATA	20+	Yes	No	No	Maintain at current height and spread
T 9	Semi Mature Elder *Sambucus nigra*	3.5	5	2.8	Policy Holder Multiple-stemmed tree in the rear garden of the subject property.	FAIR	5.9	LOW	10+	No	No	No	No action required.
G 10	Semi mature Leyland Cypress *X Cupressocyparis leylandii*	6	Avg. 15	See Plan	Third Party - No. 97 Hayes Way Two trees situated in the rear garden of a neighbouring property close to the boundary.	GOOD	7.5	HIGH	20+	Yes	No	No	Maintain at current height and spread.

Tree Ref.	Age Common Name *Botanical Name*	Height (m)	Stem Diameter (cm)	Canopy Spread (m)	Owner / Occupier Observations	Condition	Distance to Property (m)	NHBC Water Demand	Life Expectancy (yrs)	Within Potential Influencing Distance	Root Identification Match	Contributing to Damage	Vegetation Management Option
G 11	Semi mature Mixed	7	<10	See Plan	Third Party - No. 97 Hayes Way Mixed vegetation along the boundary of a neighbouring property. Species include Pyracantha, Elder, Hawthorn and Ash. The Ash trees will cause future issues if retained.	FAIR	0.9+	LOW to HIGH	10+	Yes	No	Unlikely	Remove the 4x Ash trees to ground level and treat the stumps to prevent regrowth. Maintain the remaining vegetation at current height and spread.
T 12	Mature Oak *Quercus robur*	20	70	16	Third Party - No. 97 Hayes Way Situated in the rear garden of a neighbouring property.	GOOD	10.8	HIGH	40+	Yes	Yes	Likely	Remove to ground level and treat the stump to prevent regrowth.

N

W E

S

Hayes Lane

T12

G11

TP/BH1

T1

G10

No. 90

G5

T9

T4

G2

No. 97

G8

T6

T7

T3

No. 99

No. 101

Appendix 2: Site Plan

ADDRESS: 90, Hayes Lane, Beckenham, Kent, BR3 6SP
JCA REF: BR3 6SP

NOT TO SCALE	PAPER SIZE: A3

SURVEYED BY: CC	DRAWN BY: CC	APPROVED BY: AJB

	CANOPY OF TREE/SHRUB/GROUP TO BE RETAINED; NO ACTION REQUIRED
	CANOPY OF TREE/SHRUB/GROUP TO BE RETAINED; CURRENT OR FUTURE MANAGEMENT REQUIRED
	CANOPY OF TREE/SHRUB/GROUP TO BE REMOVED
	STEM OF TREE/SHRUB TO BE RETAINED
	STEM OF TREE/SHRUB TO BE REMOVED
	OUTLINE OF SUBJECT PROPERTY
	BOREHOLE/TRIAL PIT LOCATION

JCA Limited

Arboricultural & Forestry Consultants

Appendix 3: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking *F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FArborA CBiol MSB. MICFor.* Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 31 years' experience in the Arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. Jonathan has since developed JCA's portfolio of services and its extensive client base. He is a Chartered Biologist, a Chartered Arboriculturalist and an Expert Witness with much experience of litigation work.

Technical Director

Toby Thwaites *BSc (Hons), HND (Arboriculture), MArborA.*. Toby joined JCA in 1998 after graduating in Ecology at the University of Huddersfield and has since graduated in Arboriculture at the University of Central Lancashire. A former JCA team leader and Consulting Arboriculturist, Toby is now Technical Director and oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Operations Director

Charles Cocking *FdSc (Arboriculture), MArborA.* Charles joined JCA in January 2014 having previously worked for the company on a part time basis during 2013. Charles obtained his Foundation Degree in Arboriculture at Askham Bryan College, York, and is a Professional Member of the Arboricultural Association. Charles now oversees all internal operations for the company.

Consulting Staff: Arboriculture

Andrew Bussey. Andrew started working in consultancy at JCA in 2006 having spent 12 years working as an arborist for various private companies before joining a Local Authority forestry team. He has various NPTC qualifications, is QTRA qualified and is a LANTRA Accredited Professional Tree Inspector.

Emily Wilde *FdSc (Arboriculture).* Emily joined JCA having previously worked for various private tree surgery and consultancy companies over the past 8 years. She initially obtained a ND in Forestry & Arboriculture, followed by a FdSc in Arboriculture at Askham Bryan College, York. Emily has various NPTC certificates and is QTRA qualified.

Mick Eltringham *ND (Forestry).* Mick joined JCA after spending 12 years working in the industry for various private companies in the north and south of England. He has also spent the last five years working as a consultant for two canopy research projects in the Amazon Rainforest, working with Oxford University and the University of Arizona. He has various NPTC Qualifications.

Dan Kemp *FdSc (Arboriculture).* Dan joined JCA with nearly 30 years' experience in arboriculture. He worked as a London Tree Officer for 12 years and in several arboricultural and horticultural management posts, specialising particularly in tree risk assessments and tree related subsidence.

Luke Wickham *FdSc (Arboriculture and Urban Forestry).* Luke joined JCA in 2021 after obtaining his Foundation Degree in Arboriculture and Urban Forestry at Askham Bryan College. Having previously worked within the industry for the past 4 years, running his own small business and sub-contracting for local firms, Luke brings a sound knowledge and understanding of the practical and academic sides of the industry.

Hazel Irving *FdSc (Arboriculture and Urban Forestry).* Hazel joined JCA in 2022 after obtaining her Foundation Degree in Arboriculture and Urban Forestry at Askham Bryan College. She has previously worked in the horticulture industry, volunteered with the National Trust and Yorkshire Arboretum and completed the 2021 student research internship at the RHS Wisley Plant Health Centre.

Andrew McPhaden *BSc (Hons).* Andrew joined JCA in 2022 having spent 5 years working as an Arborist for various private companies in both the UK and Germany. During his time abroad he obtained the European Tree Worker Certification along with a tree inspector certification from the Forschungsgesellschaft Landschaftsentwicklung Ladschaftsbau. He brings a strong understanding of the practical sides of the industry and holds various NPTC qualifications.

Matt Large *DipArb L4 (ABC) TechArborA.* Matt is based in Northampton and assists JCA by undertaking surveys in the south of the country. He has been involved in the arboricultural sector since 1996 and obtained a Level 4 Diploma in Arboriculture in 2011. Matt is a LANTRA Accredited Professional Tree Inspector.

Jonnie Setterfield *BSc (Hons) MArborA. /* **Richard Daubeny** *Level 3 Arboriculture* / **Peter Wilkins** *BA (Hons) MArborA MIEnvSc.* Jonnie, Richard and Peter are based in the south-east of the UK and assist JCA by undertaking surveys in the south of the country.

We hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact the author.

The contents of this report are true to the best of our knowledge and belief.

Signed

.....

Charles Cocking *FdSc (Arboriculture) MArborA.*

9th April 2023

For and on behalf of ***JCA Ltd***

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Professional Tree and Ecology Advice nationwide

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- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)

HEAD QUARTERS:

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