

ARBORICULTURAL REPORT
at
38 Beech Mast
Gravesend
Kent
DA13 0SX

Client:

360Globalnet
on behalf of Churchill

Client Address:

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

Client Telephone:

0116 4781258

Insured:

Mr Robert Carleton

Claim Number:

DLG-SN-21-003579

JCA Ref:

19319/AM

Client Ref:

080336373

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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:

38 Beech Mast, Gravesend, Kent, DA13 0SX.

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, if 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 two-storey, mid-terrace house, constructed circa 1975, with an adjoining porch.
- 1.3.2 Damage has occurred to the porch. 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 **November 2022** by **Peter Wilkins BA (Hons) MA ArborA MEnvSc**.

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 foundation at a maximum depth of 500mm below ground level.

3.3 Soil Types

3.3.1 Trial Pit/Borehole 1:

- The soils *plasticity index* ranged from 39% to 54%.
- *Moisture contents* within the soil samples ranged from 23% to 27%.
- The *plastic limit* of the soils ranged from 30% to 33%.
- The *liquid limit* of the soils ranged from 69% to 87%.

These results indicate that the clay soil found within **Trial Pit/Borehole 1** is of medium to high shrinkability and that the soil is desiccated.

3.4 Root Analysis

3.4.1 No root data was supplied in this instance.

4. Status of the Trees

- 4.1 A Tree Preservation Order (TPO) and Conservation Area check was made in **October 2022** with **Gravesend Borough Council**.
- 4.2 We are informed that there is a Blanket Tree Preservation Order (TPO) in force on this site (**Ref. TPO-1953-001**). This TPO covers all the vegetation surveyed for 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 consider the vegetation identified as **T1, T2, T3** and **T6** to be the most likely cause of the damage observed at the subject property. We have therefore recommended that **T1, T2, T3** and **T6** be removed and that the stump of **T3** be treated to prevent regrowth.
- 6.4 We consider the vegetation identified as **T4, T5** and **T7** to be of possible future concern to the subject property, if left unmanaged. We have therefore recommended that **T4, T5** and **T7** be maintained at their current size. These works are only recommended as a precaution and are not considered a priority to resolve the damage observed at the subject property.
- 6.5 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

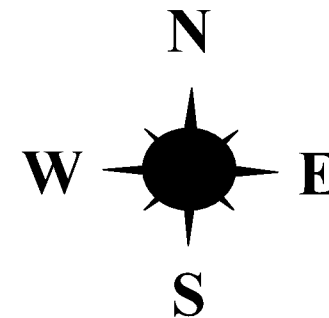
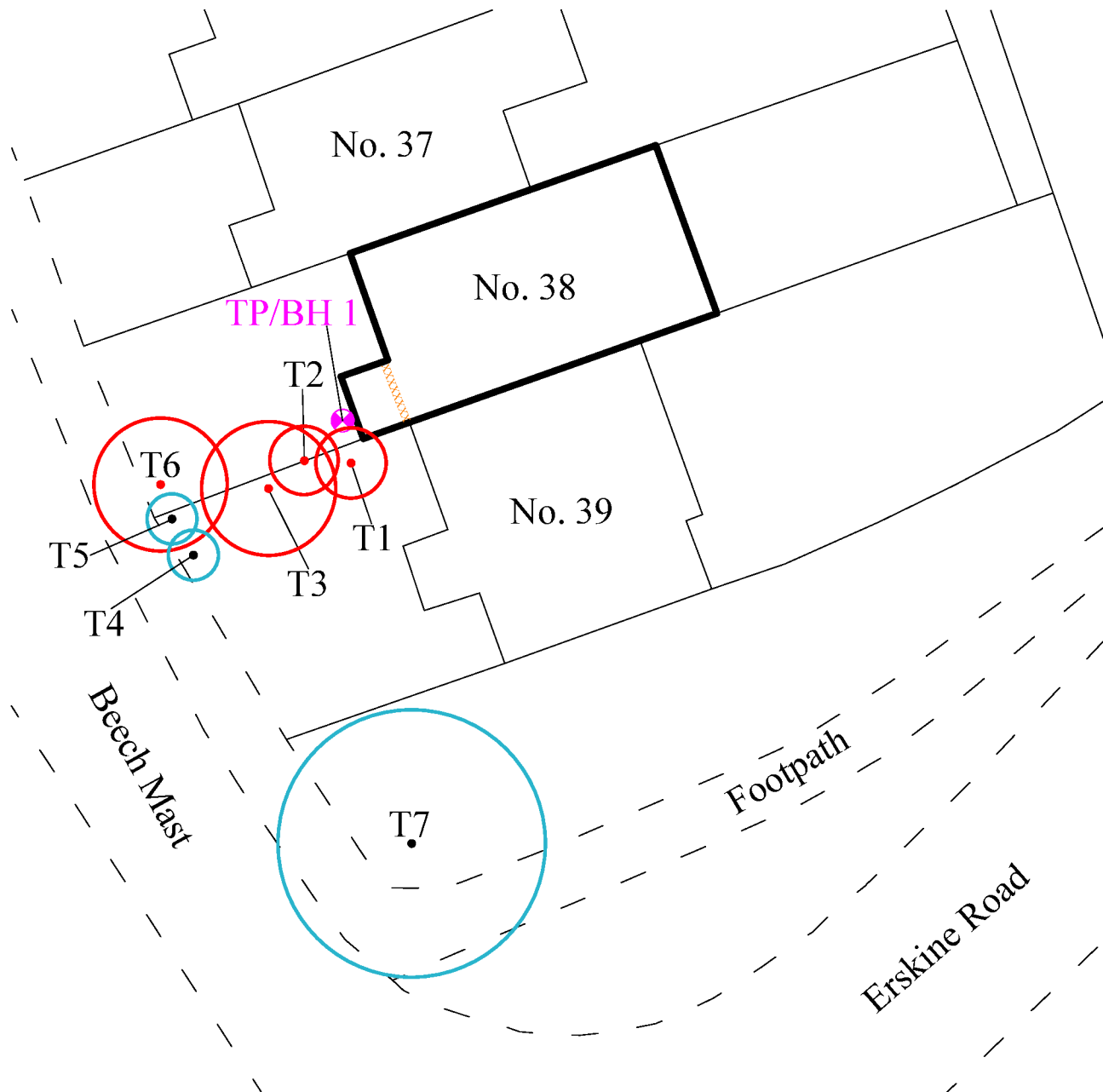
Item	Species	Recommended Action	Location/ Ownership	Planning Restriction
T1	Lawson Cypress	Remove to ground level.	Third Party - 39 Beech Mast	Yes - TPO
T2	Juniper	Remove to ground level.	Ownership Unclear	Yes - TPO
T3	Cherry	Remove to ground level and treat stump to prevent regrowth.	Third Party - 39 Beech Mast	Yes - TPO
T4	Juniper	Maintain at current height and spread.	Third Party - 39 Beech Mast	Yes - TPO
T5	Western Red Cedar	Maintain at current height and spread.	Third Party - 39 Beech Mast	Yes - TPO
T6	Lawson Cypress	Remove to ground level.	Policy Holder	Yes - TPO
T7	Ash	Maintain at current height and spread.	Third Party - Council	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 <i>Botanical Name</i>	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	Contributing to Damage	Vegetation Management Option
T 1	Early-mature Lawson Cypress <i>Chamaecyparis lawsoniana</i>	10	15	2	Third Party - 39 Beech Mast No recent management noted. Estimated age: 10 - 20 years.	GOOD	1	HIGH	40+	Yes	Likely	Remove to ground level.
T 2	Early-mature Juniper <i>Juniperus sp.</i>	4	15	2	Ownership Unclear Situated on the boundary between No. 38 and No. 39 Beech Mast. No recent management noted. Estimated age: 10 - 20 years.	FAIR	2	NO DATA	40+	NO DATA	Likely	Remove to ground level.
T 3	Mature Cherry <i>Prunus sp</i>	9	30	4	Third Party - 39 Beech Mast No recent management noted. Estimated age: 20 - 30 years.	FAIR	3.5	MOD	40+	Yes	Likely	Remove to ground level and treat stump to prevent regrowth.
T 4	Early-mature Juniper <i>Juniperus sp.</i>	2	10	1.5	Third Party - 39 Beech Mast No recent management noted. Estimated age: 10 - 20 years.	FAIR	8	NO DATA	40+	NO DATA	No	Maintain at current height and spread.
T 5	Semi-mature Western Red Cedar <i>Thuja plicata</i>	4	10	1.5	Third Party - 39 Beech Mast No recent management noted. Estimated age: 10 - 20 years.	FAIR	7.5	MOD	40+	Yes	No	Maintain at current height and spread.
T 6	Early-mature Lawson Cypress <i>Chamaecyparis lawsoniana</i>	11	50	4	Policy Holder No recent management noted. Estimated age: 20 - 30 years.	FAIR	7	HIGH	40+	Yes	Likely	Remove to ground level.
T 7	Mature Ash <i>Fraxinus excelsior</i>	18	50	8	Third Party - Council On the verge to the south-west of No. 39 Beech mast. No recent management noted. Estimated Age: 40 - 50 years.	FAIR	13	MOD	20+	Yes	No	Maintain at current height and spread.



Appendix 2: Site Plan

**ADDRESS: 38 Beech Mast,
Gravesend, DA13 0SX.
JCA REF: 19319/AM**

NOT TO SCALE		PAPER SIZE: A4
SURVEYED BY: PW	DRAWN BY: AM	APPROVED BY: CC

	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
	APPROXIMATE LOCATION OF THE DAMAGE
	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.

Ryan Bateman *BSc (Hons), FdSc (Arboriculture), TechArborA.* Ryan joined JCA in 2020 after working as a Lecturer on the Foundation Degree in Arboriculture at Askham Bryan College in York. Ryan has both practical skills, NPTC qualifications and theoretical knowledge and owned his own contracting business prior to, and whilst working as a lecturer.

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.

Matt Large *DipArb LA (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 Daubeney Level 3 Arboriculture / Peter Wilkins BA (Hons) MArborA MEnvSc.* 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.

Administrative Staff

Catherine Cocking Accounts Manager.
Kelly Saunders Accounts Assistant.

Lorraine Spink Administrative Assistant.
Lisa Beedham Marketing Manager.

Appendix 4: Photos



Figure 1. T1, T2, T3 and T6 to be removed to ground level.



*Figure 2. Other side of trees shown in **Figure 1**. T4 and T5 (small trees closest to the pavement) to be maintained at current height and spread.*

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



Andrew McPhaden BSc. (Hons.)

11.11.2022

For and on behalf of **JCA Ltd**

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- Invasive Species Surveys
- Code for Sustainable Homes

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

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