

ARBORICULTURAL SURVEY
at
7 Rogers Ruff
Northwood
Greater London
HA6 2FD

Client:

360 Globalnet,
on behalf of Direct Line

Client Address:

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

Client Telephone:

0116 4781258

Insured:

Mrs B M Whitehead

Claim Number:

DLG-SN-19-001049

JCA Ref:

15400/ChC

Client Ref:

067361337

JCA Limited

Arboricultural & Ecological Consultants

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1. Introduction

1.1 Purpose of the Report

- 1.1.1 This arboricultural report is required by my client as part of an investigation into subsidence damage at:

7 Rogers Ruff, Northwood, Greater London. HA6 2FD.

1.2 Terms of Reference

- 1.2.1 I am instructed by **360 Globalnet** to visit the site and carry out an arboricultural survey covering all vegetation within likely influencing distance of the subject property.
- 1.2.2 I have been supplied with details of the site investigation, which was carried out by others, and have included the salient points in this report. I have applied this information to my knowledge of trees and the arboricultural data I gathered on site in prescribing recommendations for action.
- 1.2.3 I am to prepare my findings in a detailed report, making specific recommendations as to any arboricultural management required to prevent further damage.

1.3 Scope of the Report

- 1.3.1 In this case the subject property includes a detached residential property with an attached garden.
- 1.3.2 Damage in the form of cracking has occurred primarily to the garage, where this adjoins the main building.
- 1.3.3 The distance between the vegetation surveyed and the buildings 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 the month of November 2019 by **Oliver Tong ND**
Arb TechArborA

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 on this occasion.
- 2.2.2 The measurements were made using instruments including clinometers for tree *HEIGHT*, stem diameter tapes for *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 to 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 falling naturally through precipitation. 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 causes 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 Foundations Types and Depths

- 3.2.1 Please see the attached site plan for an indication of trial pit/borehole locations.
- 3.2.2 **Trial pit/borehole 1** revealed a concrete foundation at a maximum depth of 1100mm.
- 3.2.3 **Trial pit/borehole 2** revealed a concrete foundation at a maximum depth of 1100mm.
- 3.2.4 **Trial pit/borehole 3** revealed a concrete foundation at a maximum depth of 1100mm.

3.3 Soil Types

3.3.1 Trial Pit/Borehole 1:

- The soils *plasticity index* was 41%.
- *Moisture contents* within the soil samples ranged from 23% to 24%.
- The *plastic limit* of the soils found was 30%.
- The *liquid limit* of the soils found was 71%.

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

3.3.2 Trial Pit/Borehole 2:

- The soils *plasticity index* was 36%.
- *Moisture contents* within the soil samples ranged from 22% to 24%.
- The *plastic limit* of the soils found ranged was 28%.
- The *liquid limit* of the soils found ranged was 64%.

These results indicate that the soil found within **Trial Pit/Borehole 2** is of medium shrinkability and that the soil is desiccated.

3.3.3 Trial Pit/Borehole 3:

- No soil analysis is available for **TH3**.

3.4 Root Analysis

- 3.4.1 Microscopic examination of tree root anatomy generally enables the GENUS of roots recovered during the ground investigation to be established. However, it rarely identifies individuals to SPECIES level.
- 3.4.2 Certain species, for instance Willows and Poplars, are indistinguishable by these methods and identification can only be made at FAMILY level.
- 3.4.3 The diameter and the depth of the root can be an indication of its significance.
- 3.4.4 To establish whether the root is alive, iodine is used to test for starch which is stored in some cells of living tree roots but is broken down by micro-organisms upon the death of a root in the soil.
- 3.4.5 Live root samples are normally a prerequisite for establishing, on a balance of probability, which vegetation is the most likely cause of any damage noted.
- 3.4.6 Results of the analysis of root material recovered during the ground investigation are summarised in the table below.

Trial Pit/ B/hole	Sample Depth (m)	Family	Genus
1	1.1 – 2.2	<i>Betulaceae</i>	<i>Caripunus</i> (Hornbeam)
2	1.1 – 2.5	<i>Betulaceae</i>	<i>Carpinus</i> (Hornbeam)
3	U/S/F	<i>Rosaceae</i>	<i>Ilex</i> (Holly)
3	U/S/F	<i>Rosaceae</i>	<i>Prunus</i>

4. Status of the Trees

- 4.1 A check was made in October 2019 with: *Hillingdon Council*.
- 4.2 We are informed that there is an Area Tree Preservation Order in force on this site which affords protective status for all trees surveyed within this report.
- 4.3 Before any work is undertaken to protected trees, consent must first be sought from the local authority via a TPO application. Works to trees cannot be carried out until permission in writing 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 Technical terms are explained in the glossary at **Appendix 2**.
- 5.3 Please refer to the site plan at **Appendix 5** for the locations of the vegetation surveyed and all the relevant site features.

6. Conclusions

- 6.1 Having made a detailed survey of the site and having given due consideration to the other information supplied, I am satisfied that in this case that some subsidence damage has occurred as a result of drying shrinkage caused by vegetation within influencing distance of the property.
- 6.2 We consider the vegetation identified as **T1** and **G3** to be contributing to the damage observed at the subject property. I have therefore recommended that these items of vegetation be removed.
- 6.3 The damage should be monitored following the removal of these trees, to determine whether this has stabilised the situation alone, or whether further vegetation management is considered necessary. Until then, works to **G2** are not justified.
- 6.4 I have summarised all my 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	Hornbeam	Remove and treat the stump to prevent regrowth.	Subject Property	Yes - TPO
G2	Oak & Hornbeam	No action required at present. Monitor the damage following the removal of T1 and G3.	Subject Property	Yes - TPO
G3	Hornbeam, Oak, Aspen, Holly and Laurel	Remove and treat the stumps to prevent regrowth.	No. 26 Linksway	Yes - TPO
T4	Lawson Cypress	No action required at present.	Subject Property	Yes - TPO
T5	Aspen	No action required at present.	Subject Property	Yes - TPO
T6	Hornbeam	No action required at present.	Subject Property	Yes – TPO
T7	Hornbeam	No action required at present.	Subject Property	Yes - TPO

8. General Recommendations and Observations

- 8.1 This report is based upon a visual inspection. JCA Ltd 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 work recommended in this report must be carried out to BS 3998: 2010 - *'Recommendations for Tree Work'*.
- 8.3 All the work as specified in this report 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 Ltd annually.
- 8.5 The property and the damage should be monitored by the project engineer on a regular basis after the recommended tree works are complete.
- 8.6 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.
- 8.7 No liability can be accepted by the consultant in respect of the trees unless the recommendations of this report are carried out under his supervision and within his timescale.
- 8.8 That the project engineer considers the possibility of heave.

Appendices

Tree Ref.	Age Common Name <i>Botanical Name</i>	Height (m)	Diameter (cm)	Spread (m)	Observations	Condition	Vigour	Distance to Property (m)	NHBC Water Demand	Life Expectancy (yrs)	Within Potential Influencing Distance	Root Identification Match	Contributing to Damage	Recommendations
T 1	Mature Hornbeam <i>Carpinus betulus</i>	13	45	12	Located in the rear garden of the subject property. Considered to be contributing towards the current damage.	FAIR	MOD	3	LOW	20+	Yes	Yes	Yes	Remove to ground level and treat the stump to prevent regrowth.
G 2	Early-mature Mixed	15	To 30	See Plan	Species include Oak and Hornbeam. Located to the rear of the subject property on the boundary.	FAIR	MOD	10	LOW to HIGH	20+	Yes	Yes	Potentially	No action required at present. Monitor the damage following the removal of T1 and G3.
G 3	Early-mature Mixed	14	To 30	See Plan	Species include Hornbeam, Aspen, Oak, Holly and Laurel. Located on adjacent land to the east of the subject property close to the boundary. Considered to be contributing towards the current damage.	FAIR	MOD	4	LOW to HIGH	20+	Yes	Yes	Yes	Remove to ground level and treat the stumps to prevent regrowth.
T 4	Early-mature Lawson Cypress <i>Chamaecyparis lawsoniana</i>	18	45	6	Located in the rear garden of the subject property close to the western boundary. Not considered to be contributing towards the current damage.	FAIR	MOD	5	HIGH	20+	Yes	No	No	No action required at present.
T 5	Early-mature Aspen <i>Populus tremula</i>	14	40	10	Located in the rear garden of the subject property close to the north-western boundary. Not considered to be contributing towards the current damage.	FAIR	MOD	15	HIGH	20+	Yes	No	No	No action required at present.
T 6	Early-mature Hornbeam <i>Carpinus betulus</i>	12	60	10	Located to the front of the property close to the southern boundary. Not considered to be contributing towards the current damage.	FAIR	MOD	6	LOW	20+	Yes	Yes	No	No action required at present.
T 7	Early-mature Hornbeam <i>Carpinus betulus</i>	12	60	10	Located to the front of the property close to the southern boundary. Not considered to be contributing towards the current damage.	FAIR	MOD	7	LOW	20+	Yes	Yes	No	No action required at present.

Appendix 2: Glossary of Terms & Abbreviations

Arboriculture	The cultivation of trees in order to produce individual specimens of the greatest ornament, for shelter or any primary purpose other than the production of timber.
Canker	Disease damaged area of a tree, usually caused by a fungus or bacteria.
Co-dominant Stem	A stem which has grown in direct competition to the main stem and which has formed a substantial size influencing the appearance of the tree.
Crown Lift	The removal of the lowest branches, usually to a given height. It allows more residual light and greater clearance underneath for vehicles etc.
Crown reduce	The reduction of a tree's height or spread while preserving its natural shape.
Crown thin	The removal of some of the density of a tree's crown, usually 5-25%, allowing more light through its canopy and reducing wind resistance.
Deadwood	Either dead branches, or a procedure involving the removal of dead, dying and diseased branches.
Dieback	Where branches are beginning to show signs of death usually at the tips in the crown.
Epicormic shoots	Small branches that grow in clusters around a trees base or stem, often as a result of bad pruning or some other stress factor.
Formative pruning	The pruning of a tree to encourage a good growth habit. This will reduce the likelihood of future structural problems.
Included bark	Where the bark on two adjoining branches or stems is growing tight together, forming a joint with limited physical strength.
Pollarding	A method of tree management in which the main trunk of the tree is cut at about 4m, and the resulting re-growth is then removed every few years.
Remedial pruning	The removal of old stubs, deadwood, epicormic growth, rubbing or crossing branches and other unwanted items from the tree's crown. Sometimes referred to as crown cleaning.
Topping	Topping is a form of pruning that removes terminal growth leaving a 'stub' cut end. Topping can cause serious health and structural problems to a tree in the longer term.

Appendix 3: Replacement Planting

- A3.1 Where trees are to be removed because they are considered to be contributing to subsidence, it is often desirable (indeed, it may be mandatory) to plant replacements. Often, trees recommended for removal are unsuitable species for the location and replanting with more appropriate species presents fewer risks for the future.
- A3.2 Appropriately sited, trees will mature in a garden setting with minimal risk to property and can provide substantial benefits in terms of amenity, shelter and environmental health.
- A3.3 Consideration must be given to location and species choice in order to avoid future problems. The position of the tree will be dictated by the characteristics of the species. There is a wide range of species available.

Appendix 4: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking *F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) Farbor.A 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), MARbor.A.* 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.

Consulting Staff: Arboriculture

Toby Parsons *Cert. Arb. (RFS), Tech. Cert. (Arbor.A).* Toby joined JCA after spending 6 years working as a senior climber for various Arboricultural contractors in the East Midlands and the South-West. He has gained the Level 2 Certificate in Arboriculture (RFS) and an Arboricultural Technicians Certificate. Toby is LANTRA certified in Professional Tree Inspection.

Andrew Bussey. Andrew joined JCA having spent 12 years working as a tree surgeon for various private companies and a Local Authority. He has various NPTC qualifications, is QTRA qualified and is currently studying for his Arboricultural Technicians Certificate. Andrew is LANTRA certified in Professional Tree Inspection.

Phil Humeniuk *FdSc (Arboriculture).* Phil joined JCA having spent 3 years working for various tree surgery companies and as a Tree Officer for a Local Authority. He also has several years experience working as a consultant both for JCA and for another consultancy. Phil obtained his foundation degree in Arboriculture at the University of Central Lancashire and has various NPTC's and is LANTRA certified in Professional Tree Inspection.

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.

Charles Cocking *FdSc (Arboriculture), MARbor.A.* Charles joined JCA in January 2014 as an Apprentice 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 now part of our qualified Arboricultural consultancy team.

Paul Hodgson *Cert Arb (RFS), FdSc Arb, MARbor.A.* Paul joined JCA after spending 11 years working in the industry and for various organisations, which included practical tree work, surveying, lecturing at Myerscough College, Arb team leader at Royal Botanic Gardens, Kew, and a number of senior management positions. Paul is a professional member of the Arboricultural Association and a member of the Kew Guild.

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.

Consulting Staff: Ecology

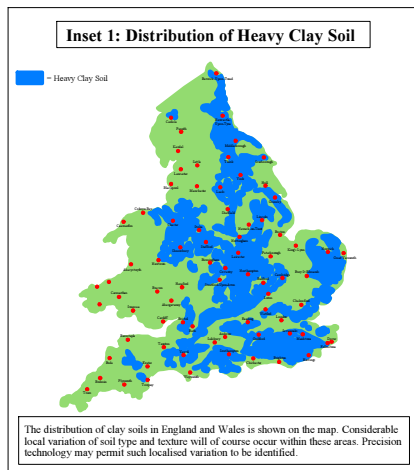
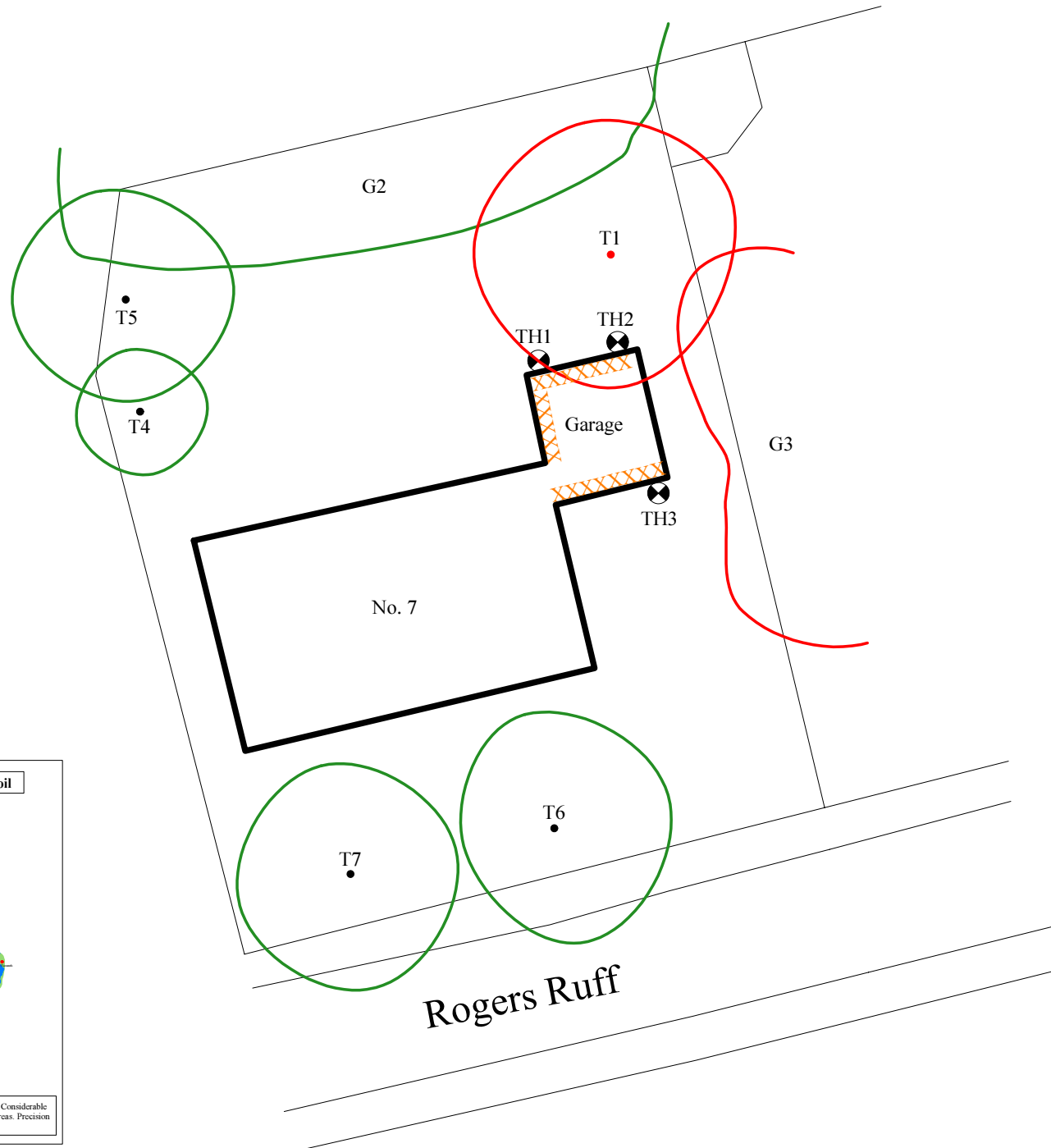
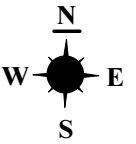
David Bodenham *BSc Ind (Hons) Zoology, MSc Biodiversity and Conservation.* David joined JCA as an addition to the expanding ecology department. An advocate of evidence based conservation, he studied Zoology (Ind) at University and moved onto an MSc in Biodiversity and Conservation where he gained the myriad of skills needed as an ecologist. With over 7 years of experience, David specialises in bat and amphibian ecology.

Amanda Beck *Cert He in Field Ecology.* Amanda joined JCA's ecology department in 2018, previously working as a freelance Ecological Consultant in North Wales and Liverpool and as a trainee Ecologist in South Wales. Amanda has extensive practical experience in surveying for botanical, amphibians, terrestrial and marine mammals along with invertebrate research work. She has practical experience in habitat management and creation and is a CIEEM student member.

Administrative Staff

Sue Guest Administrative Team Leader.
Catherine Cocking Accounts Manager.
Kelly Saunders Accounts Assistant.

Simeon Haigh *BSc (Hons).* IT Director.
Lorraine Spink Administrative Assistant.
Lisa Hampson Marketing Manager.



Appendix 1: Site Plan

ADDRESS: 7 Rogers Ruff, Northwood,
Greater London, HA6 2FD.
JCA REF: 15400/ChC

SCALE 1:200

PAPER SIZE: A4

SURVEYED BY: OT

DRAWN BY: CC

APPROVED BY: AJB

	CANOPY OF TREE/SHRUB GROUP REQUIRING NO ACTION
	CANOPY OF TREE/SHRUB GROUP TO BE MANAGED
	CANOPY OF TREE/SHRUB GROUP TO BE REMOVED
	STEM OF TREE/SHRUB
	STEM OF TREE/SHRUB TO BE REMOVED
	OUTLINE OF SUBJECT PROPERTY
	DAMAGE TO PROPERTY
	BOREHOLE/TRIAL PIT LOCATIONS

JCA Limited
Arboricultural & Forestry Consultants

I 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 my knowledge and belief.

Signed



.....
18th December 2019

Charles Cocking *FdSc (Arboriculture) MA ArborA.*

For and on behalf of **JCA Ltd**

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- Great Crested Newt eDNA Sampling
- Protected Species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- 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)

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