ARBORICULTURAL SURVEY
14 Buckfast Avenue
Kirby Cross
Frinton-on-Sea
Essex
CO13 0PU

Client:
360 Globalnet
on behalf of DLG-SN-20-002040

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

Client Telephone:

Insured:
Mrs F Kelman

Claim Number:
074640111

JCA Ref:
16409/AJB

Client Ref:
DLG-SN-20-002040

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 subsidence damage at:

14 Buckfast Avenue, Kirby Cross, Frinton-on-Sea, Essex, CO13 0PU.

1.2 Terms of Reference

1.2.1 We are 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 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 in prescribing recommendations for action.

1.2.3 We are to prepare our 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 The subject property is a semi-detached, single-storey dwelling.

1.3.2 We are informed that damage in the form of cracking has occurred to the area indicated on the attached plan. Please see the **360 Globalnet Engineers 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 the month of November 2020 by Andrew Bussey *LANTRA Accredited PTI.*

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 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 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 refer to the site plan at **Appendix 5** for an indication of trial pit/borehole locations.

3.2.2 **Trial pit/borehole 1** revealed a concrete foundation at a maximum depth of 700mm.

3.2.3 **Trial pit/borehole 2** revealed a concrete foundation at a maximum depth of 700mm.

3.3 Soil Types

3.3.1 **Trial Pit/Borehole 1:**

- The soils *plasticity index* was 37%.
- *Moisture contents* within the soil samples ranged from 25% to 32%.
- The *plastic limit* of the soil was 25%.
- The *liquid limit* of the soil was 62%.

These results indicate that the clay soil found within **Trial Pit/Borehole 1** is of a medium shrinkability and that there is an onset of desiccation in places.

3.3.2 **Trial Pit/Borehole 2:**

- The soils *plasticity index* was 32%.
- *Moisture contents* within the soil samples ranged from 24% to 36%.
- The *plastic limit* of the soils was 24%.
- The *liquid limit* of the soil was 56%.

These results indicate that the clay soil found within **Trial Pit/Borehole 2** is of a medium shrinkability and that there is an onset of desiccation in places.

3.4 Root Analysis

3.4.1 Whilst roots were found to be present within the drainage system, no root data was supplied in this instance.

4. Status of the Trees

4.1 A check was made in 23rd November 2020 with **Essex County Council**.

4.2 We are informed that there is no Tree Preservation Order (TPO) in force and that the property is not situated within a Conservation Area.

4.3 Due to the large potential penalties for illegally carrying out work to protected trees, JCA recommend that a further check is carried out prior to any works being undertaken. This is especially relevant as the Council is able to serve a TPO at any time. We are able to arrange a further check on your behalf.

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

6.2 Whilst tree roots were found in the drainage system, no tree roots were encountered at/below foundation level within Trial Holes 1 and 2. Whilst **T1** and **T2** are high water demand trees which are considered to be within influencing distance of the subject property, they cannot be directly implicated as the cause of the damage.

6.3 We do consider the vegetation identified as **T1** and **T2** to be of possible future concern to the subject property. We have therefore recommended that **T1** and **T2** 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.

6.4 We have summarised all our tree specific recommendations in **Section 7** and made general recommendations in **Section 8**.

7. Summary of Tree Specific Recommendations

Item	Species	Recommended Action	Location	Planning Restriction
T1	English Oak	Maintain at current height and spread over the forthcoming years.	Ownership unknown	Unknown
T2	English Oak	Maintain at current height and spread over the forthcoming years.	Ownership unknown	Unknown

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 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 Limited 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 their supervision and within their timescale.

8.8 That the project engineer considers the possibility of heave.

Appendices

Tree Ref.	Age Common Name *Botanical Name*	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 English Oak *Quercus robur*	14	#90	14	Situated on adjacent land (ownership unknown). Multi-stemmed at 5m with a balanced crown. Limited access and Ivy prevented a detailed inspection.	GOOD	MOD	14	HIGH	40+	Yes	n/a	Potentially	Maintain at current height and spread over the forthcoming years.
T 2	Mature English Oak *Quercus robur*	14	#95	14	Situated on adjacent land (ownership unknown). Multi-stemmed at 5m with a balanced crown. Woodpecker holes present at circa 6 metres. Limited access and Ivy prevented a detailed inspection.	GOOD	MOD	14	HIGH	40+	Yes	n/a	Potentially	Maintain at current height and spread over the forthcoming years.

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) 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.

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.

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), MArborA.* 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.

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.

Robert Hickey *FdSc (Arboriculture), TechArborA.* Robert joined JCA in January 2019 having obtained his foundation degree in Arboriculture at the University of Central Lancashire. He has various NPTC's qualifications and has previously worked for several Arboricultural contractors.

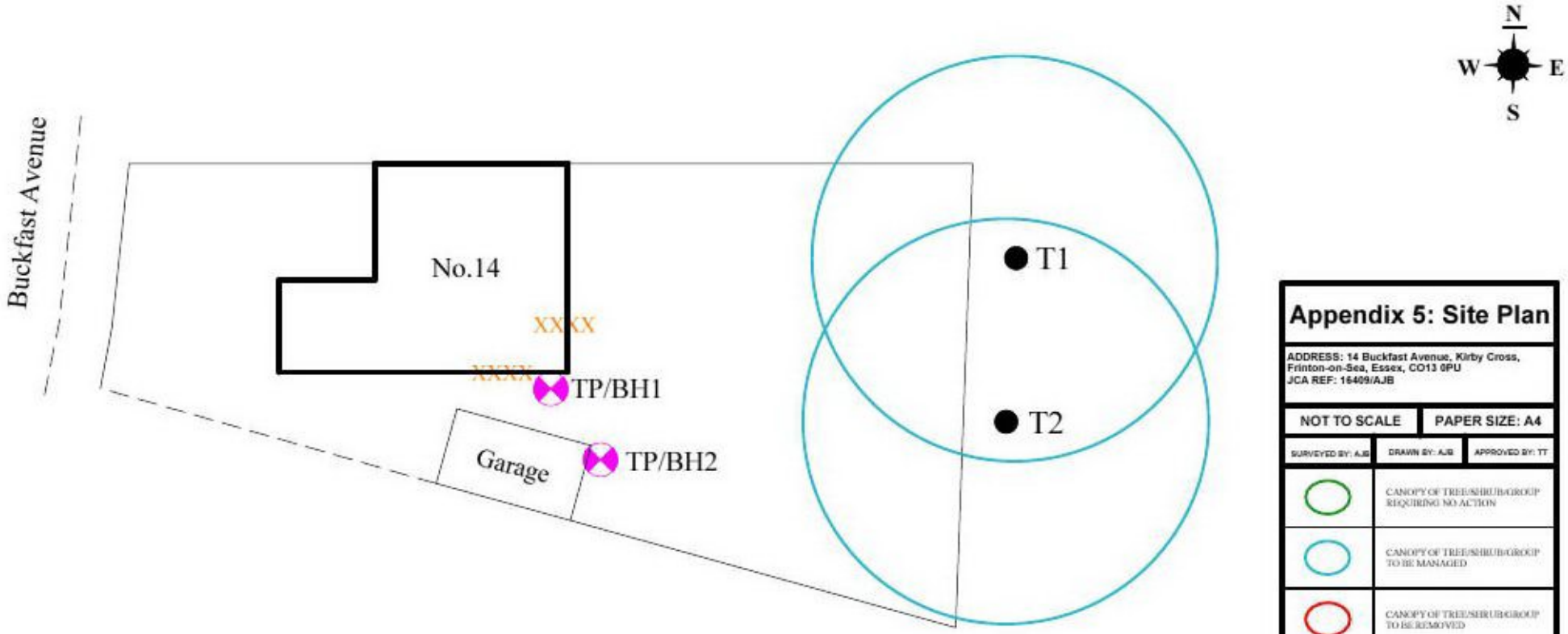
Ryan Bateman BSc (Hons), *FdSc (Arboriculture), TechArborA.* Ryan joined JCA in 2020 after working as a Lecturer on the Foundation Degree in Arboriculture at Askham Bryan College in York. Ryan has both practical skills, NPTC qualifications and theoretical knowledge and owned his own contracting business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

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.

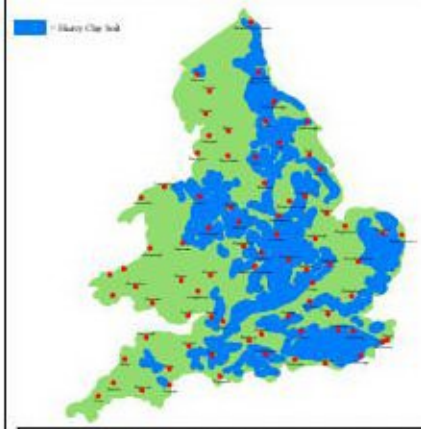
Jonnie Setterfield *BSc (Hons) MArborA.* / **Richard Daubeny** *Level 3 Arboriculture.* Jonnie and Richard are based in the south-east of the UK and assists JCA by undertaking surveys in the south of the country.

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.



Inset 1: Distribution of Heavy Clay Soil



The distribution of clay soils in England and Wales is shown on the map. Considerable local variation of soil type and texture will of course occur within these areas. Precision technology may permit such localised variation to be identified.

Appendix 5: Site Plan

ADDRESS: 14 Buckfast Avenue, Kirby Cross, Frinton-on-Sea, Essex, CO13 0PU
JCA REF: 16409/AJB

NOT TO SCALE	PAPER SIZE: A4

SURVEYED BY: AJB	DRAWN BY: AJB	APPROVED BY: TT

	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
XXXX	APPROXIMATE LOCATION OF THE DAMAGE
	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

[redacted]

.....

25th November 2020

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

Registered Office

Unit 80
Bowers Mill
Branch Road
Barkisland
Halifax
HX4 0AD

[redacted]

Report printed on recycled paper

JCA Ltd. Arboricultural and Ecological Consultants
Professional Tree and Ecology Advice nationwide

ARBORICULTURAL SERVICES

Guidance for Architects and Developers

- British Standard 5837 Tree Surveys
- Arboricultural Implication Assessments (AIA)
- Arboricultural Method Statements (AMS)

Advice for Engineers, Loss Adjusters and Insurers

- Tree Surveys for Subsidence
- Heave Assessment
- Tree Root Identification

Advice for Local Authorities and Social Housing

- Tree Safety Surveys
- Specialist Decay Detection
- Landscape and Orchard Design

Tree Advice for the Legal Profession

- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control

ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- 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)

HEAD QUARTERS:

Unit 80 Bowers Mill,
Branch Road,
Barkisland,
Halifax, HX4 0AD.

[redacted]

Company Reg No. 05005041
VAT No. 686 4674 78