

**ARBORICULTURAL REPORT
AND
ARBORICULTURAL IMPACT ASSESSMENT
to BS 5837:2012
at
Land Between 73-77 Park Street
Wombwell
Barnsley
South Yorkshire
S73 0HJ**

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1. Introduction

1.1 Purpose of the Report

- 1.1.1 This report is required at **Land Between 73 and 77 Park Street, Wombwell**, to provide detailed, independent, arboricultural advice on the trees present, in the context of potential development.
- 1.1.2 The purpose of this report is to assess the impact of the proposals on the existing tree stock and outline mitigation actions, where appropriate, to minimise potential damage to the trees which are to be retained. The report includes an assessment of the existing vegetation, along with recommendations based on the current context of the site; clearly defined from those required to facilitate the development.

1.2 Terms of Reference

- 1.2.1 JCA Ltd has been instructed by **AR2 Architects Ltd** to survey the trees and prepare the findings in a report.
- 1.2.2 For this purpose a plan of the site showing the site boundary and an indication of tree locations has been provided by the client, this is the basis of the Tree Constraints Plan at **Appendix 6**. Please note that the location of the surveyed vegetation shown on this plan should be treated as indicative only.

1.3 Scope of the Report

- 1.3.1 This report is compiled in accordance with *BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'* and is based on an objective assessment of the existing vegetation.
- 1.3.2 Preliminary recommendations are given with a view to the long-term management of a sustainable tree cover and to uphold the interests of health and safety.
- 1.3.3 All trees within the site boundary with a stem diameter above 75mm are included.
- 1.3.4 Where applicable trees outside the site boundary, but close enough to be affected by the proposed development, are included.
- 1.3.5 The specific design of the proposed development has been considered within the Arboricultural Implication Assessment in **Section 6** and is detailed on the plan at **Appendix 7**.

1.4 Survey Details

- 1.4.1 The survey took place during the month of November 2017 and was conducted by Andrew Bussey.
- 1.4.2 During this survey, all trees were inspected from ground level.
- 1.4.3 Measurements were obtained using clinometers, specialist tapes or electronic distometers. Where this was not possible, measurements were estimated to the best ability of the surveyor. JCA endeavour to provide accurate information and will always take measurements unless inhibited by restricted access or other mitigating circumstances. Where measurements have been estimated, they are clearly highlighted at **Appendix 1**.

2. Site Description

2.1 Land Use

- 2.1.1 The site is currently occupied by an empty plot which is heavily overgrown with trees and shrubs to its north-eastern aspect.

2.2 Topography

- 2.2.1 The slopes gently from the southwest down towards the north-eastern boundary.

2.3 Treescape

- 2.3.1 Surrounding the site is a residential area containing occasional garden trees.
- 2.3.2 Whilst considered to be of poor individual value, the trees on this site have a moderate impact on the local treescape when viewed as a whole.

2.4 Visual Amenity Value

- 2.4.1 Whilst considered to be of poor individual value, the trees on this site collectively provide a reasonable visual amenity to the surrounding area.

2.5 Age Class Mix

- 2.5.1 The trees surveyed ranged in age from semi-mature to mature in age class.

2.6 Species Diversity

- 2.6.1 Species surveyed include Elm sp., Red Horse Chestnut, Wild Cherry, Hawthorn, Poplar sp., Holly, Willow sp. and Common Ash.

3. Status of the Trees

- 3.1 An online check was made on 1st November 2017 with **Barnsley Metropolitan Borough Council**.
- 3.2 We are informed that there is a Woodland Tree Preservation in force on this site which appears to afford protective status to the vegetation detailed as **G5, T6, T7, G8 and G9** within this report.
- 3.3 Before any tree is works are undertaken, 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.

No work must be undertaken on any tree until permission has been granted.

- 3.4 The presence of a Tree Preservation Order (TPO) represents the Local Authority's desire to retain trees within the landscape. As such, trees covered by a TPO are generally more likely to require retention within a proposed scheme and this should be taken into account during the design process. In some cases, the removal of TPO trees may be agreed upon, providing the benefits of the proposed development are deemed greater than the material loss of the trees. The value of existing vegetation is just one factor in the decision making process; all benefits of the proposed development will be taken into consideration in the usual manner.

4. Tree Descriptions and Recommendations

- 4.1 Full details of all individual trees surveyed are recorded in the tables at **Appendix 1**. A full explanation of the tables can be found at **Appendix 2**. Please refer also to the Tree Constraints Plan at **Appendix 6** for tree locations.

5. Discussion Relating to the Existing Treescape

5.1 Tree Condition & Recommended Works

- 5.1.1 The tree survey revealed a total of **9** items of vegetation (**6** individual trees and **3** groups of trees). Of these, **2** trees were identified as retention category 'B', **3** trees and **2** groups were identified as retention category 'C' **1** tree and **1** group were identified as category 'U'. Please refer to **Appendix 2** for retention category and definition criteria.
- 5.1.2 Within the survey, tree works have been identified for reasons of public safety, to ensure the long-term health of the trees or for general maintenance purposes. These recommendations have been made without regard to any proposed layout designs and should be undertaken irrespective of development. For full details of all recommendations, please refer to **Appendix 1**. For an explanation and timescales of the priority ratings, please refer to **Appendix 2 (A2.2.5)**.

5.2 Removals Irrespective of Development

- 5.2.1 **T6** and **G8** were identified as retention category 'U'. These trees require removal as a matter of **low priority** (due to the low current public land use of the site) because they are considered likely to fail or die within the short term.

5.3 Remedial Tree Works

- 5.3.1 On this occasion, no remedial works were deemed necessary at this time.

5.4 Monitoring/Further Investigations

- 5.4.1 **T7** was noted to have structural defects, as detailed at **Appendix 1**. Although this tree was considered to be in an acceptable condition at the time of the inspection, the defects observed may lead to its early demise or render it unsafe in the future. As such, it is recommended that this tree be monitored (re-inspected and assessed) on an annual basis to assess if its condition is still acceptable.
- 5.4.2 In addition, all trees to be retained within the site should be re-inspected on a regular basis, in the interests of risk management.
- 5.4.3 A full detailed inspection of **T1, T2, T3, G5** and **G9** was inhibited by restricted access or by the presence of dense understorey vegetation. For these trees, it is advised that they are re-inspected for any possible defects once dense understorey vegetation has been removed or when access has been made available

6. Arboricultural Implications Assessment (AIA)

6.1 Proposed Development

- 6.1.1 The proposed development will consist of the new-build construction of a Class C2 10-bedroom care facility and occupational therapy cabin in the rear garden.
- 6.1.2 Drawing No. **(100)-03 Rev P1** has been supplied by the client; this plan can be found at **Appendix 7** and is the basis for which this AIA has been prepared.

6.2 Tree Removals for Development

- 6.2.1 As part of the development, all trees within the site boundary are proposed to be removed (**T6** and **T8**, to be removed for arboricultural reasons, and **G5**, **T7** and **G9**, to be removed to facilitate the development) and replaced with new trees within the area shown in brown hatch on the attached plan at **Appendix 7**.
- 6.2.2 This Tree Planting Scheme, which is proposed to be conditioned at the planning application stage, will be approved by the LPA in writing prior to the removal of any trees on site.
- 6.2.3 The existing treescape which is proposed to be removed is considered to have grown beyond good arboricultural management and is wholly comprised of trees which are generally of poor form. Severe defects are present throughout, including deadwood, large broken limbs, decay cavities and long heavy limbs which are likely to fail or collapse given time.
- 6.2.4 It is considered that the existing treescape is beyond recovery by means of remedial pruning or thinning works (many trees would be open to wind-throw once adjacent trees are removed) and that a new protected treescape will be of benefit to the site and the local environment.
- 6.2.5 The proposed Tree Planting Scheme will replace the existing protected woodland and replace it with a fresh and ecologically diverse native treescape which will form an integral part of the canal wildlife corridor to the northeast. Woodland paths and interactive zones are likely to pass within this area.
- 6.2.6 In addition to native trees, ornamental non-native specimens may be chosen where they harmonise with the soft landscaping scheme which will form part of the development proposals. These trees will add interest, in the form of colourful leaves, bark and berries that will have multiple seasonal variations.
- 6.2.7 Please note that all tree works required to accommodate the proposals are included at **Appendix 1**, which lists all works recommended during the initial survey in normal font and those required for the development displayed in *italics*.

6.3 Pruning for Development

- 6.3.1 Where the footprint of the proposed hard standing passes within the RPA of **T3** (as shown in blue on the Arboricultural Implications Plan at **Appendix 7**), root pruning will be required, under the supervision of an appointed arboriculturist. Root pruning will accommodate the proposed structure structures whilst preventing any ‘ripping’ damage, a problem commonly associated with mechanical excavations.

6.4 Implications for Retained Trees

6.4.1 The Protective Barrier

- 6.4.1.1 In order to ensure the effective protection of retained trees (**T1**, **T2** and **T3** which are located off-site) during development, a protective barrier will be installed, in accordance with BS5837: 2012 and may comprise of protective fencing and/or ground protection. This will be the first job on site following the tree removal and pruning works. The fencing should ideally be positioned to protect the entire **Root Protection Area (RPA)** of the retained trees, in order to create a **Construction Exclusion Zone (CEZ)**.
- 6.4.1.2 Routes for pedestrian and site traffic should ideally be located outside, and diverted away from, the RPAs of the retained trees. Where this is not possible, temporary protective surfaces (ground protection) must be laid over the exposed RPAs which will distribute the weight of site vehicles, machinery or pedestrians whilst allowing moisture to reach the tree rooting area beneath. Such surfaces should be constructed in accordance with BS5837: 2012.
- 6.4.1.3 Where ground protection or work is required within the RPA of a retained tree, specialist measures must be adopted during the construction phase to avoid ground compaction and minimise root damage. Such areas are highlighted in blue on the Arboricultural Implications Plan at **Appendix 7**.

6.4.2 Construction of Hard Surfacing

- 6.4.2.1 Proposed hard surfacing is located within the RPA of **T3**. Due to the minimal nature of the incursion, it is not considered necessary to install specialised surfaces. Instead, root pruning will be undertaken under the supervision of an appointed arboriculturist to minimise potential damage to tree roots and prevent 'ripping' damage, which is commonly associated with mechanical excavation.

6.4.3 Demolition

- 6.4.3.1 In this case, no significant demolition activities are required adjacent to retained trees and as such, no mitigation measures are considered necessary.

6.4.4 Construction/ Foundation Design.

- 6.4.4.1 The footprint of the proposed structure does not incur the RPA of retained trees. As such no specialist construction or foundation methods are considered necessary for the sole purpose of preventing damage to trees.

6.4.4.2 Despite this, specialist foundation designs may still be required for other reasons, and advice should always be sought from a suitably qualified structural expert. The water demand of trees can be an important consideration when determining the appropriate foundation design. Because of this, water demands for the trees identified on this site are included at **Appendix 1**, in accordance with **NHBC Chapter 4.2**, for use by the appointed structural expert.

6.4.4.3 **Tree Shade**

6.4.4.4 Any problems of shading in relation to new buildings caused by retained trees (**T1**, **T2**, and **T3** located off-site) are likely to be minimal as the trees are deciduous, and light penetration will increase in the winter when the sun is lowest.

6.4.4.5 **Utilities**

6.4.4.6 Details on service routes are not available at this time. Where utilities need to be brought onto the site, these should be routed away from the RPAs of retained trees. Where this is not possible, methodologies on the installation of underground services without damage to tree roots should be considered.

6.4.4.7 All service providers should be consulted prior to commencement of works with the aim of minimising the number of service runs on the site. Any foreseeable incursions to RPAs should be communicated to the appointed arboricultural consultant and the LPA at the earliest possible time to prevent breach of planning conditions and damage to retained trees.

6.4.5 **Site Compound**

6.4.5.1 The site compound, which typically includes the site office, mess facilities, toilets, storage of materials and parking, must be located away from the trees and outside the RPAs.

6.4.5.2 Care should also be taken to prevent soil contamination with chemical spillages, including petrol, diesel and oils.

6.4.6 **Landscaping**

6.4.6.1 Any proposed fence lines may be constructed within the RPA if necessary, providing that appropriate considerations are made to the protection of the tree. This is providing that no continual trenching is undertaken (e.g. for small walls onto which panel fencing is installed). Excavation must be kept to a minimum and therefore only fence designs requiring intermittent posts will be acceptable within the RPA of retained trees.

- 6.4.6.2 Any patios, garden paths or other hard surfaces within RPAs which may not be shown on the projected layout (**Appendix 7**), and in addition to those mentioned in **Section 6.4.2** (hard surfacing), may be constructed using no-dig techniques, providing that they do not cover more than 20% of the RPA and are implemented in accordance with BS5837: 2012. If there is any concern of damaging retained trees, further advice should be sought from a qualified Arboriculturalist.
- 6.4.6.3 No ground level changes are to be undertaken within the RPA of retained trees, unless otherwise stated or agreed with the appointed Arboricultural consultant or the LPA. The requirement to raise/lower ground levels within RPAs should be communicated to these parties at the earliest practical convenience.

7. Conclusions

- 7.1 A Woodland Tree Preservation Order is in force on this site.
- 7.2 **T6** and **G8** have been recommended for removal for arboricultural reasons, regardless of any proposed development, as discussed in **Section 5.1.2** and detailed at **Appendix 1**.
- 7.3 No remedial works are required under the existing context of the site.
- 7.4 **T7** requires an annual inspection as it has structural defects, as discussed in **Section 5.1.4** and detailed at **Appendix 1**. However, it should be noted that this tree will be subject to removal under the proposals for the site.
- 7.5 The arboricultural implications of the development have been considered and discussed in **Section 6**.
- 7.6 **G5**, **T7** and **G9** require removal in order to facilitate the proposed development, as discussed in **Section 6.2** and detailed on the plan at **Appendix 7**.
- 7.7 A Tree Planting Scheme will be formalised as part of a planning condition. In time, the new trees will mitigate the poor quality trees currently present on site by replacing it with new and diverse tree species.
- 7.8 All development work carried out in close proximity to trees must be executed in a manner sympathetic to their needs. Otherwise, the condition of the trees may deteriorate in the months and years following development, leading to a loss of amenity and resulting in potentially hazardous trees. Care must therefore be taken to ensure that the retained trees are suitably protected.
- 7.9 In accordance with **Section 6.1** of **BS 5837: 2012**, the next stage on this site should be the preparation of an **Arboricultural Method Statement (AMS)**, to ensure that all the retained trees survive the development process. An **AMS** details which trees are to be removed, which trees are to be retained and any other tree works which are required to facilitate development. The **AMS** will also advise on temporary protective barriers, temporary ground protection, site supervision, location of services and it will detail specialist construction techniques.

Appendices

Tree Ref.	Age Common Name <i>Botanical Name</i>	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
T 1	Early-mature Elm sp. <i>Ulmus sp.</i>	17	3	4 n/a	55#	5.5# 5.5# 5.5#	Situated on adjacent land overhanging the road. Single-stemmed and vertical with a balanced crown. Occasional pruning wounds. Not fully inspected due to restricted access.	Gain access and re-inspect. Low	GOOD	GOOD	MOD	HIGH	40+	1 B 2
T 2	Early-mature Red Horse Chestnut <i>Aesculus x carnea</i>	12	3	5 W	42#	4.8# 4.2# 3.5# 4	Situated on adjacent land. Single-stemmed with a slight lean and a reasonably balanced crown. Not fully inspected due to restricted access.	Gain access and re-inspect. Low	GOOD	GOOD	MOD	MOD	40+	1 B 2
T 3	Early-mature Sycamore <i>Acer pseudoplatanus</i>	7	2	2 n/a	50#	1.8# 1.8# 1.8#	Single-stemmed and vertical with a balanced crown. Topped tree. Not fully inspected due to restricted access.	Gain access and re-inspect. <i>Root prune the area shown in blue on the attached plan in order to facilitate the hard standing.</i> Low	GOOD	FAIR	LOW	MOD	10+	1 C 2
T 4	Semi-mature Hawthorn <i>Crataegus monogyna</i>	9	0	0 n/a	30	3.2 3.2 3.2 3.2	Single-stemmed and vertical with a balanced crown. No evidence of significant pruning. No major visible defects.	No action required. <i>Remove to facilitate the proposed development.</i> n/a	GOOD	GOOD	LOW	HIGH	40+	1 C 2
G 5	Semi to early-mature Wild Cherry <i>Prunus avium</i>	To 15	0+	0+ n/a	To 30#	See plan	A dense mass of self-seeded trees of poor individual form. Included bark, decay cavities and deadwood noted. Not fully inspected due to the density of the vegetation.	Remove the vegetation and re-inspect. <i>Remove to facilitate the proposed development.</i> Low	FAIR	FAIR	LOW	MOD	10+	1 C 2
T 6	Early-mature Wild Cherry <i>Prunus avium</i>	16	5	5 n/a	55 & 42	7 5 8 9	Twin-stemmed at ground level with a slightly unbalanced crown and a poor form. Both co-dominant stems have severe leans. Limited long term future.	Remove for arboricultural reasons. Low	FAIR	POOR	LOW	MOD	<10	U
T 7	Early-mature Wild Cherry <i>Prunus avium</i>	16	3	3 E	55 & 55 Ave.	8 8 8 8	Twin-stemmed at ground level with a balanced crown. Included bark present at the stem junction.	Monitor annually. <i>Remove to facilitate the proposed development.</i> Moderate	FAIR	FAIR	LOW	MOD	10+	1 C 2
G 8	Early-mature to mature Poplar sp. <i>Populus sp.</i>	To 25	0+	0+ n/a	To 70#	See plan	A dense group of trees which have multiple defects due to lack of good tree management. Large snapped out tear wounds, broken branch and heavy limbs prone to snapping throughout. Not fully inspected due to the density of the vegetation.	Remove for arboricultural reasons. Low	FAIR	POOR	LOW	MOD	<10	U
G 9	Semi to early-mature Mixed <i>Details in observations</i>	To 20	0+	0+ n/a	To 35#	See plan	A dense mass of self-seeded Poplar sp. of poor individual form. Occasional Hawthorn, Holly, Willow sp. and Common Ash noted. Not fully inspected due to the density of the vegetation.	Remove the vegetation and re-inspect. <i>Remove to facilitate the proposed development.</i> Low	FAIR	FAIR	LOW	MOD TO HIGH	10+	1 C 2

Appendix 2: Explanation of Tree Descriptions

A2.1 Measurements/ Reference Information

A2.1.1 *REF NUMBER*. All items surveyed are allocated a reference number preceded with a letter, identifying the type of vegetation surveyed: T = an individual tree, G = a group of trees or an area of vegetation, W = woodland, H = a hedgerow.

A2.1.2 *SPECIES: COMMON AND BOTANICAL NAME*. The common and botanical names of the species present are noted. If the species is not clear or identifiable, then a general common name and genus will be noted.

A2.1.3 *AGE CLASS* of the tree is described as young, semi-mature, early-mature, mature, over-mature, veteran or dead.

A2.1.4 *HEIGHT* of the tree is measured in metres from the stem base to the top of the crown.

A2.1.5 *CROWN HEIGHT* is an indication of the height above ground level at which the crown begins.

A2.1.6 *STEM DIAMETER* is measured at 1.5 metres above (higher) ground level. Where the tree is multi-stemmed at this point; diameter measurements are taken for each stem. If more than five stems are present, an average stem diameter is taken. If for whatever reason it is not practical to measure multiple-stemmed trees in this way, the diameter is measured close to ground level, just above the root buttress.

A2.1.7 *CROWN SPREAD* is measured from the centre of the stem base to the tips of the branches to all four cardinal points.

A2.1.8 *HEIGHT AND DIRECTION OF LOWEST BRANCH*. The height and direction of the lowest significant branch is noted because of potential issues relating to clearances and the need for tree pruning.

A2.1.9 *NHBC WATER DEMAND*. The water demand of each tree, as listed in NHBC Standards 2010 Chapter 4.2 'Building near trees'. This is included to aid structural engineers, architects and other members of the design team as it determines foundation depth and other considerations with regard to trees.

A2.2 Evaluations

A2.2.1 *PHYSIOLOGICAL CONDITION* is classed as good, fair, poor, or dead. This is an indication of the health and vitality of the tree and takes into account vigour, presence of disease and dieback.

A2.2.2 *STRUCTURAL CONDITION* is classed as good, fair or poor. This is an indication of the structural integrity of the tree and takes into account significant wounds, decay and quality of branch junctions.

A2.2.3 *LIFE EXPECTANCY* is classed as; 0, less than 10 years, 10+ years, 20+ years, or 40 + years. This is an indication of the minimum number of years before removal of the tree is likely to be required.

A2.2.4 *AMENITY VALUE*. A general indication is given in respect to the amenity/landscape value of the tree/group within the surrounding area.

A2.2.5 *PRIORITIES*. A priority rating is given concerning the time periods in which the recommended works should be undertaken. LOW priority works should be undertaken within 12 months of the survey, MOD (moderate) priority works should be undertaken within 6 months and HIGH priority works should be completed as soon as practically possible. If no works are recommended, N/A (not applicable) will be used.

A2.3 Retention Categories

A2.3.1 ***A (marked green on the plan) = Trees of high quality.***

These trees are of high quality and value with a good life expectancy (usually with an estimated remaining life expectancy of 40 years).

A2.3.2 ***B (marked in blue on the plan) = Trees of moderate quality.***

These trees are of moderate quality and value with a reasonable life expectancy (usually with an estimated life expectancy of at least 20 years).

A2.3.3 ***C (marked in grey on the plan) = Trees of low quality.***

These trees are of low quality and value but which are in adequate condition to remain or are young trees with a stem diameter below 15cm (usually with an estimated life expectancy of at least 10 years).

A2.3.4 Trees categorised as retention category 'A', 'B' or 'C' are then justified by being further divided into 3 subcategories:

1 = Mainly arboricultural qualities.

2 = Mainly landscape qualities.

3 = Mainly cultural values, including conservation value.

A2.3.5 U (marked in red on the plan) = Trees usually unsuitable for retention due to poor condition.

These trees are in such a condition that they cannot be realistically retained as living trees in the context of the current land use for longer than 10 years. This may be due to any of the following:

- 1) Failure is likely due to serious, irredeemable, structural defects.
- 2) Removal of other category U trees will render them exposed and unstable.
- 3) They are in serious, overall decline or are dead.
- 4) They are of low quality and suppressing adjacent trees of better quality.
- 5) Diseases are present which may affect the health of adjacent trees.

These trees should be removed or treated in such a way as to make them safe where they have high ecological value, such as in a woodland setting.

Appendix 3: General Guidelines

- A3.1 All tree work must be undertaken to BS 3998: 2010 '*Recommendations for tree work*' or other recognised industry practice.
- A3.2 Staff carrying out the work must be qualified, experienced and ideally be Arboricultural Association approved contractors. They should be covered by adequate public liability insurance.
- A3.3 This report is based upon a visual inspection. The consultant 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.
- A3.4 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.
- A3.5 No liability can be accepted by JCA in respect of the trees unless the recommendations of this report are carried out under the supervision of JCA and within JCA's timescale.
- A3.6 It is advisable to have trees inspected by an arboricultural consultant regularly.

Appendix 4: 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 fungus or bacteria affecting the bark.
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 reduction	The reduction of a tree's height and 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 the base of the stem of a tree or within the crown. This is usually as a result of bad pruning or some other stress factor, although can be a natural growth pattern for some species of tree (eg Lime species).
Included bark	Where the bark on two adjoining branches or stems is growing tight together, forming a joint with limited physical strength.
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.
RPA	Root Protection Area – Theoretical rooting area of a tree as defined in BS5837:2012 <i>Trees in relation to construction</i> .
Topping	Topping is a form of pruning that removes terminal growth leaving a 'stub' cut end. Topping causes serious health problems to a tree.

Appendix 5: 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)*. 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.

Scott Reid *ND (Arboriculture and Forestry)*. Scott joined JCA after working with other consultancy companies in the south of England. He specialises in trees in relation to development and holds a National Diploma, various NPTC qualifications and is currently studying for his Level 4 Diploma in Arboriculture.

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.

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)*. 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.

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.

Jenny Butler *Bsc (Hons) Environmental Science*. Jenny joined JCA's ecology department in 2017, bringing with her a bachelor degree in Environmental Science from Bangor University. Jenny has previously worked as an Environmental Consultant for an Agri-Environment company and as a freelance ecological consultant. Jenny specialises in great crested newt and bat ecology.

Administrative Staff

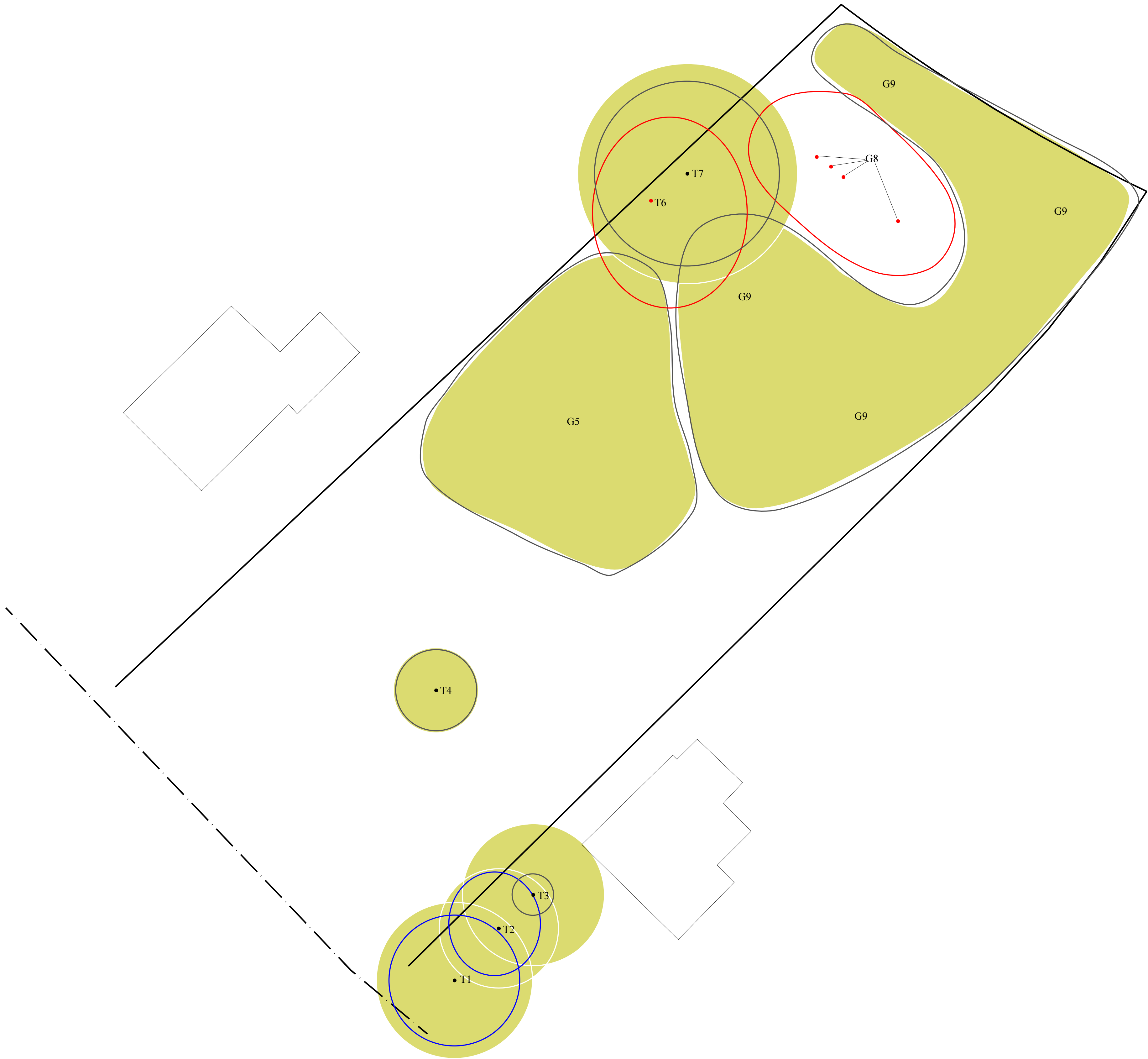
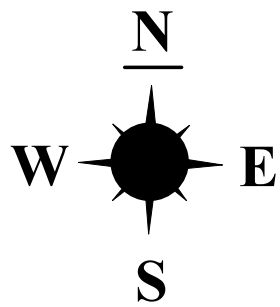
Sue Guest Administrative Team Leader.

Catherine Cocking Accounts Manager.

Lisa Hampson Marketing Manager.

Simeon Haigh *BSc (Hons)*. IT Director.

Lorraine Spink Administrative Assistant.



Root Protection Area: RPA

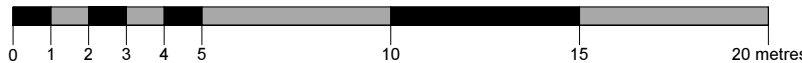
THE ROOT PROTECTION AREA (RPA) INDICATES THE LIKELY ROOTING ZONE OF A TREE. THE RPA SHOULD IDEALLY REMAIN UNDISTURBED IF A TREE IS TO BE RETAINED.

THE DEVELOPMENT PROPOSALS SHOULD THEREFORE BE DESIGNED TO AVOID THE RPA OF ANY TREE WHICH IS TO BE RETAINED.

IF IT IS NECESSARY FOR THE DEVELOPMENT TO ENCROACH INTO THE RPA OF A TREE WHICH IS TO BE RETAINED THEN SPECIALIST CONSTRUCTION TECHNIQUES AND MATERIALS MUST BE CONSIDERED.

NB:

ALL TREE AND GROUP LOCATIONS MUST BE TREATED AS INDICATIVE DUE TO THE LACK OF PROVISION OF TOPOGRAPHICAL INFORMATION.



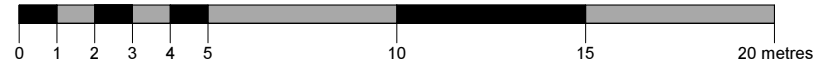
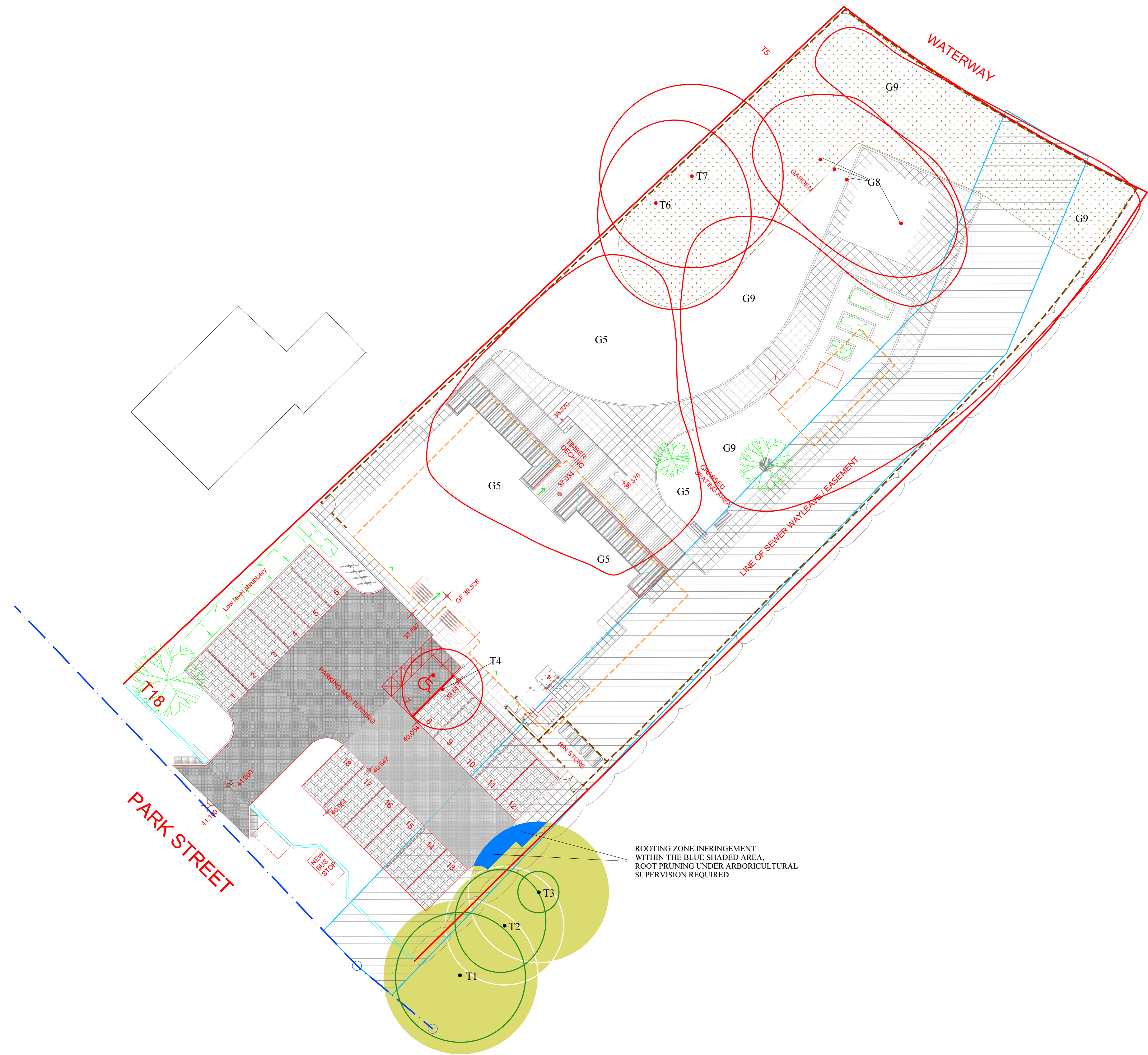
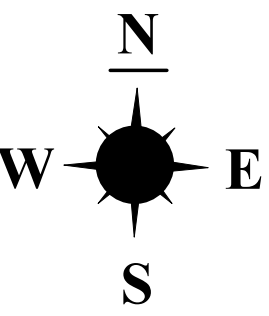
**Appendix 6:
Tree Constraints Plan**

ADDRESS: Land Between 73 & 77 Park Street, Wombwell, Barnsley, South Yorkshire, S73 0HJ. JCA REF: 13824/AJB.

SCALE : 1:200	PAPER SIZE : A1
SURVEYED BY: AJB	DRAWN BY: AJB
APPROVED BY: TP	

BRITISH STANDARD 5837:2012: 4.5 RETENTION CATEGORIES Detailed definitions of these categories are at Appendix 2 of our report. N.B. These categories do not necessarily represent or correspond to recommendations for action made in this report.	
	CATEGORY A: 'RETENTION MOST DESIRABLE'
	CATEGORY B: 'RETENTION DESIRABLE'
	CATEGORY C: 'TREE WHICH COULD BE RETAINED'
	CATEGORY U: 'TREE FOR REMOVAL'
	STEM OF TREE TO BE RETAINED
	STEM OF TREE TO BE REMOVED
	ROOT PROTECTION AREA





Appendix 7: Arboricultural Implications Plan

ADDRESS: Land Between 73 & 77 Park Street, Wombwell, Barnsley, South Yorkshire, S73 0HJ. JCA REF: 13824-A/AJB.

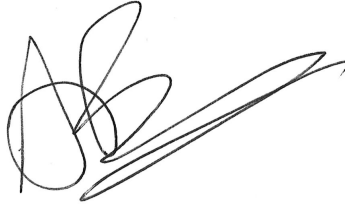
SCALE : 1:200 PAPER SIZE : A1

	TREE TO BE RETAINED
	TREE TO BE REMOVED
	STEM OF TREE TO BE RETAINED
	STEM OF TREE TO BE REMOVED
	ROOT PROTECTION AREA
	ROOT PROTECTION AREA ENCROACHED BY THE PROPOSED HARD STANDING. ROOT PRUNING UNDER ARBORICULTURAL SUPERVISION REQUIRED.
	AREA TO BE SET ASIDE FOR NEW TREE PLANTING IN ORDER TO PROVIDE A REPLACEMENT PROTECTED WOODLAND GROUP/ WILDLIFE CORRIDOR



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.

Signed



.....

Andrew Bussey.

9th November 2017

For and on behalf of **JCA Ltd**

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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)

Tree Advice for the Legal Profession

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

Advice for Engineers, Loss Adjusters and Insurers

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

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Advice for Local Authorities and Social Housing

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

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:

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