ARBORICULTURAL REPORT
to BS 5837:2012
at
Land on Green Lane
Audlem
Crewe
Cheshire
CW3 0ES

Client:
Audlem Parish Council

Client Address:
1 St Chads Way
Norton in Hales
Market Drayton
TF9 4AW

JCA Ref:
14354/PH

JCA Limited
Arboricultural & Ecological Consultants

Contents

1. Introduction

1.1 Purpose of the Report

1.1.1 This report is required at **Land off Green Lane** in **Audlem** 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 summarise the findings of an arboricultural assessment of the existing vegetation at the above site; conducted in accordance with the guidelines contained within BS5837: 2012 'Trees in relation to design, demolition and construction – Recommendations'.

1.1.3 Where necessary, this report will outline any tree works which are required within the current context of the site. It will also grade the trees in accordance with the British Standard; which will guide the design in terms of which trees should be retained and which trees could be removed.

1.2 Terms of Reference

1.2.1 JCA Ltd has been instructed by **Audlem Parish Council** to survey the site and prepare the findings in a report.

1.2.2 For this purpose, an Ordnance Survey based drawing was purchased which forms the basis for the Tree Constraints Plan at **Appendix 6**. Tree positions have been captured using GPS technology. Whilst not as accurate as a topographical survey, this method is considered to provide a fair representation of the positions of the trees surveyed. Tree positions should, however, be considered indicative on the Tree Constraints Plan.

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 independent and objective assessment of the existing vegetation.

1.3.2 Preliminary recommendations are given with a view to the long-term management of 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 a proposed development have been included.

1.3.5 The specific designs of the proposed development are not generally taken into account at this stage or detailed within this report. This is to be detailed in an Arboricultural Impact Assessment.

1.4 Survey Details

1.4.1 The survey took place during the month of October 2018 and was carried out by

Phil Humeniuk *FdSc (Arboriculture)*.

1.4.2 During this survey, all trees were inspected from ground level. Further investigations, such as a climbed inspection or a decay detection tests, have not been undertaken but may have been recommended where deemed appropriate.

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 an open grassy field formerly used for pasture.

2.2 Topography

2.2.1 The northern half of the site is approximately level, toward the centre of the site and the southern half there are swales and slopes gently down towards the southern boundary.

2.3 Treescape

2.3.1 Surrounding the site is a residential area containing many mature garden and occasional mature street trees.

2.3.2 The trees on this site have a significant impact on the local treescape.

2.4 Visual Amenity Value

2.4.1 The trees on site collectively provide an excellent visual amenity to the surrounding area. The majority of specimens inspected have high amenity value.

2.5 Age Class Mix

2.5.1 The trees surveyed ranged in age from young to mature. However, the trees were predominantly mature.

2.6 Species Diversity

2.6.1 Species surveyed include Common Alder, Common Ash, Elder, Hawthorn, Hornbeam, Sycamore, White Willow and several species of Oak. The predominant species were Oaks.

3. Status of the Trees

3.1 A check was made on 15th October 2018 with ***Cheshire West and Chester Councils online mapping facility:***

3.2 This informed us that a northern portion of the site is located within *Audlem Conservation Area*.

3.3 This affords a level of protection to trees numbered as **T1**, **T2**, **T3**, **T4** & **T5**.

3.4 Before any work is organised, the Local Authority must be informed of the proposed tree works (a "notice of intent") and may wish to afford the trees with further protective status. If, after the required timescale has lapsed and/or the authority does not wish to allocate a Tree Preservation Order (TPO), the works may commence as planned.

3.5 ***No work must be done to any trees until the above process has been completed and the trees have not been allocated with a TPO.***

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 **38** items of vegetation (**31** individual trees and **7** groups of trees). Of these, **22** trees and **1** group were identified as retention category 'A', **9** trees and **4** groups were identified as retention category 'B' and **2** groups as retention category 'C' items. 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. Such recommendations have been made without regard to any projected layout and should be undertaken irrespective of development. These are summarised in the following sections. For full details on all recommendations, please refer to **Appendix 1.** For an explanation of the priority ratings, see **Appendix 2 (A2.2.5).**

5.2 Tree Removals for Arboricultural Purposes

5.2.1 On this occasion, no trees have been identified as category 'U' and as such no trees are recommended for removal in the current context of the site.

5.2.2 Items **T16**, **G17** and **G22** require some drastic reduction work. These require monolithing/pollarding because they pose an imminent health and safety risk.

- **T16** is considered to be unsafe and should be removed as soon as it is reasonably practicable; this work is of **high priority**.

- **G17** (**one** item) has been recommended for pollarding to its main union leaving to prevent them from becoming dangerous or in order to benefit adjacent trees; this work should be undertaken with **moderate priority**.

- **G22** (**one** item) has been recommended for monolithing to 3m. This entails a drastic reduction in height, with the removal of all significant branches and stems above this point. The remaining monolith will potentially remain for many years and, as it decays, it will provide a niche habitat for invertebrates, so providing ecological value. This operation is recommended to be undertaken as a matter of **low priority**.

5.3 Remedial Tree Works

5.3.1 Remedial tree works have been recommended to manage foreseeable risks, to prevent the development of defects or for general maintenance purposes. This is relevant to **T1, T3, T4, T6, T7, T8, T26, T32, T33, T35, T36, T37** and **T38**.

- The work recommended for **T1, T32, T33, T35, T36** and **T37** should be carried out as a matter of ***high*** **priority**.
- The work recommended for **T4, T7** and **T38** should be carried out as a matter of **moderate priority**.
- The work recommended for **T3, T6, T8** and **T26** is of **low priority**.

5.3.2 Those trees which overhang public footpaths or public highways shall require future maintenance in order to maintain clearance heights for vehicular or pedestrian traffic. These heights should be 5.6m above a road and 2.5m above a footpath.

5.4 Monitoring / Further Investigation

5.4.1 On this site re-inspecting and re-assessing regularly is required for the long term health of the mature and veteran trees on site. Further investigations have been recommended for 7 items where a structural or physiological defect has been identified. Although these trees were considered to be in an acceptable condition at the time of the inspection, the defects observed may lead to their early demise or render them unsafe in the future. These trees are detailed at **Appendix 1**, along with the recommended timings for the monitoring (e.g. annually).

5.4.2 In addition, to the above, all trees which are to be retained within the proposed development should be inspected on a regular basis in the interests of risk management.

5.4.3 A full detailed inspection of many of the trees on site was inhibited by the presence of Ivy. For these trees, it is advised that the Ivy is severed at ground level and again at 1m on the stem. This will allow the Ivy higher on the stem and up into the crown to die off with time.

5.5 Existing Site Constraints and General Design Advice

5.5.1 The following is an overview of the constraints on this site to development, along with general design considerations relating to the tree cover. The precise details of a proposed development are not known at present. The specific implications of a proposed design should be assessed within an Arboricultural Implications Assessment (**AIA**).

5.5.2 The retention categories of the trees surveyed are an indication of their overall values. The category of each item is listed at **Appendix 1** and an explanation of the retention categories is included at **Appendix 2**. As a general rule, those trees listed as retention category 'A' or 'B' are the most valuable items and as such the removal of these is likely to be met with resistance by the Local Planning Authority (LPA). Those items listed as retention category 'C' are of lesser value and the removal of these is less likely to be met with resistance by the LPA. Items listed as retention category 'U' are recommended for removal regardless of any proposals and should not present a constraint to construction. The above information should guide the design in terms of which trees are to be removed and which are to be retained. However, it should be noted that the retention of trees is just one consideration in the design process and each development will be taken for its merits.

5.5.3 The vast majority of the trees surveyed are mature specimens, this equates to large rooting areas (RPA) and matching significant crown spreads. Any development proposal should aim to avoid the RPA of the trees on site or build with tree friendly materials.

5.5.4 The location of each tree is plotted on the associated Tree Constraints Plan at **Appendix 6**. This plan identifies the retention category of each tree (Retention A: green canopy, Retention B: blue canopy, Retention C: grey canopy, Retention U: red canopy), the crown spread, and also the associated rooting zone (Root Protection Area or RPA shown in gold). In order to enable the survival of trees shown to be retained within any proposals, both the canopy of the tree and its RPA must be completely avoided wherever possible. This relates to not just the location of new buildings, but also to the location of new areas of hard standing, proposed utility routes and any ground level changes (both excavations and soil piling). Where this is not possible, specialist construction methods and materials will need to be used.

5.5.5 Where information is available, the water demand of each tree is provided at **Appendix 1**, in accordance with NHBC Standards 2014 chapter 4.2. 'Building near trees'. The water demand of trees can affect adjacent structures and this is therefore included to inform foundation design, depth and the proximity of proposed structures to trees.

5.5.6 The majority of trees recommended for retention are situated close to the site boundary. This offers a potential window for development within the centre of the site.

5.5.7 The design should be optimised to retain as many of the higher category specimens (retention category 'B' and 'A') as possible. Many of the lower quality trees (retention category 'C') could be removed and replaced as part of a post development landscaping scheme.

5.5.8 There are a number of high amenity trees within this site. They will enhance any proposed development and care should be taken at the design stage to ensure that these trees are retained.

5.5.9 An entrance to the site already exists offering vehicular access onto the site. If this can be retained it will minimise disturbance to tree roots and avoid unnecessary tree removals.

5.5.10 Retained trees will require adequate protective measures during development. Such measures typically entail temporary protective fencing, installed to the full extent of the RPA. Where this is not entirely possible, ground protection may also comprise part of the protective measures. This includes a compaction reducing construction detail which enables a degree of construction traffic over/within the RPA.

5.5.11 As the RPAs of the trees will require fencing off as a protection measure, this should be brought into consideration when planning such things as access routes and material storage during development. It is accepted that in some cases it is not entirely possible to completely avoid the RPA or canopy lines within a new development. The consulting arboriculturalist should therefore be made aware of any such incursions to make comment and, where possible, advise on mitigation actions. Such details should be contained within an Arboricultural Implications Assessment (**AIA**).

5.5.12 No material storage is permitted within the RPA of retained trees unless confirmed to be acceptable by the consulting arboriculturalist. The exact details and location of protective measures should be included within an Arboricultural Method Statement (**AMS**).

5.5.13 The position of the site compound is a major consideration. It is recommended that this, which typically includes the site office, facilities, toilets, storage of materials and parking, is located away from trees and outside the RPA.

5.5.14 Any shade that may be cast by the retained trees must also be considered. Where buildings are to be positioned within the shade cast area of trees, these should be designed in order to maximise light levels.

5.5.15 Many development sites contain areas of nature conservation interest. Trees and hedgerows, in particular, can provide an important habitat for birds, bats, invertebrates and fungi and appropriate attention needs to be paid to preserving habitats throughout the development process. JCA can provide Ecological and Bat Surveys when required.

5.5.16 If a landscape planting scheme is proposed, consideration must be made at the planning stage as to where this is to be implemented on site. Such locations should be protected in order to prevent soil compaction and/or contamination and should therefore form part of the Construction Exclusion Zone. JCA can provide Tree Planting Schemes when required.

6. Conclusions

6.1 The trees surveyed were generally found to be in good to fair condition.

6.2 **T1**, **T2, T3, T4** and **T5** are protected by virtue of them being located within a Conservation Area.

6.3 **Sixteen** items have been recommended for remedial works. This is to manage their potential risks and for general maintenance purposes. These are discussed in **Section 5.3** and detailed at **Appendix 1**.

6.4 **Seven** trees have been recommended for re-inspecting due to the presence (or suspicion) of physiological or structural defects. These are discussed in **Section 5.4** and detailed at **Appendix 1**.

6.5 Existing site constraints and general design advice has been provided in **Section 5.5**. Upon provision of specific proposals, site-specific advice can be given with regards to the impact on trees. In accordance with **Section 5.4** of **BS 5837: 2012**, the next stage on this site should be the preparation of an **Arboricultural Impact Assessment (AIA)**, which will illustrate and discuss the impact of the proposals on the trees and vice versa, to help to inform good design.

6.6 The data gained during the survey provides an indication of the health of the trees. However, it does not enable a comprehensive assessment of their condition over time. Trees are living organisms which are affected by many factors including weather conditions, diseases/disorders, light levels and human activities. Because of this, this report is only valid for a period of 1 year from the date of issuing. Should an update or revision of this report be required outside of this time period, JCA may require a further site visit to ensure that the condition of the trees has not significantly changed. It is advised that the trees are inspected regularly, in the interests of risk management.

Appendices

Appendix 1: Tree Descriptions and Recommendations

Tree Ref.	Age Common Name *Botanical Name*	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	Veteran English Oak *Quercus robur*	17	5	6 SW	110	9 11 8 10	An excellent specimen. Single stemmed becoming twin-stemmed at 3m. A slightly asymmetric crown displays good vigour and overhangs the boundary, footpath and road. Major branch loss at 4m (south) and 100mm cavity (with good reaction wood) observed at the union. An overhead cable passes near to canopy, moderate sized deadwood observed. Several fungal fruiting brackets of *Inonotus dryadeus* observed at base. Presumed to be a hollowing lower bole.	Begin overall crown reduction process. Reduce in height to 9m and crown reduce via thinning where possible. All pruning work in line with BS:3998. Retaining as many lower limbs as possible. Reinspect in 2 years High	GOOD	FAIR	HIGH	HIGH	40+	A 3
T 2	Mature Turkey Oak *Quercus cerris*	22	6	4 SW	#160	10 11 11 11	An excellent specimen. Single stemmed with a balanced crown overhanging the boundary, footpath and road. Occasional pruning wounds occluding well. Good vigour and no major visible defects.	No action required. n/a	GOOD	GOOD	HIGH	HIGH	40+	1 A 2 3
T 3	Mature Sessile Oak *Quercus petraea*	20	5	6 W	98	10 12 9 11	Single stemmed with a slightly asymmetric crown overhanging the boundary and canal towpath. Good vigour, moderate sized deadwood observed.	Crown clean. Low	GOOD	GOOD	MOD	HIGH	40+	1 A 2 3
T 4	Mature Sessile Oak *Quercus petraea*	19	4	5 W	131	10 10 9 11	Single stemmed with a slightly asymmetric crown overhanging the boundary and canal towpath. Good vigour, occasional deadwood observed. Several fungal fruiting brackets of *Inonotus dryadeus* observed at base.	Crown clean. Reinspect in 2 years Moderate	GOOD	GOOD	HIGH	HIGH	40+	A 1
T 5	Early-mature English Oak *Quercus robur*	10	5	5 W	85	6 7 7 7	Single stemmed with a balanced crown overhanging the boundary and canal towpath. Canopy displaying reduced vigour.	No action required. n/a	FAIR	GOOD	MOD	HIGH	40+	1 B 2 3
T 6	Mature Sessile Oak *Quercus petraea*	17	4	5 n/a	95	8 8 8 8	Single stemmed with a good form and balanced crown. Moderate sized deadwood and several historic broken branches observed with some bat roosting potential in upper canopy. Young fungal fruiting brackets at base of stem north and south.	Crown clean. Reinspect in 2 years Low	FAIR	GOOD	HIGH	HIGH	40+	A 1 3
T 7	Veteran Sessile Oak *Quercus petraea*	17	2	6 NE	110	8 8 8 8	Single stemmed with an asymmetric crown overhanging the boundary and canal towpath. Multiple historic branch failures, major cavity with decay observed at 5m east. Good vigour overall.	Crown clean. Moderate	GOOD	FAIR	HIGH	HIGH	20+	A 3
T 8	Mature Sessile Oak *Quercus petraea*	18	5	6 W	145	11 10 9 11	Single stemmed with good vigour and a balanced crown overhanging the boundary and canal towpath. Occasional deadwood observed. Historic pruning wound at 3m west.	Crown clean. Low	GOOD	GOOD	HIGH	HIGH	40+	1 A 2 3

Tree Ref.	Age Common Name *Botanical Name*	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
G 9	Early-mature Common Hawthorn *Crataegus monogyna*	9	1	2 W	25 avg.	See plan	Inspection was limited due to density of vegetation; in overall good condition. A lapsed boundary hedgerow located on sloping ground. Occasional Elder observed to south of group.	No action required. n/a	GOOD	GOOD	LOW	HIGH	20+	C 1
T 10	Early-mature Sycamore *Acer pseudoplatanus*	14	6	8 W	60	5 7 5 6	Inspection limited due to dense vegetation. Single stemmed with an asymmetric crown overhanging the boundary. No major visible defects.	No action required. n/a	GOOD	FAIR	MOD	MOD	40+	B 2
G 11	Early-mature Group *Details in observations*	12	1	5 W	35 avg.	See plan	Inspection was limited. Linear group of predominantly Sycamore with merging crowns overhanging the boundary. Understorey of young Alder, Hawthorn and Elder noted. Located on sloping ground.	No action required. n/a	GOOD	GOOD	MOD	MOD	40+	B 2
T 12	Veteran English Oak *Quercus robur*	18	4	5 N	#150	10 10 10 9	An excellent specimen with a good form and balanced crown. A wasps nest in the stem at 1m hindered inspection. A dessicated fungal bracket was observed at base; possibly a hollowing stem.	No action required. n/a	GOOD	FAIR	MOD	HIGH	40+	1 A 2 3
T 13	Early-mature Sycamore *Acer pseudoplatanus*	16	5	5 n/a	85	8 8 9 9	Single stemmed with a balanced crown. Multiple historic branch failures in canopy; multiple cavities with bat roosting potential noted. Significant stem break at 11m. Epicormic shoots from ground level to 2m.	No action required. n/a	GOOD	FAIR	LOW	MOD	40+	B 3
G 14	Semi-mature Common Alder *Alnus glutinosa*	6	1	1 n/a	15 avg.	See plan	A small stand of self seeded trees approx. 10 individuals in overall good condition.	No action required. n/a	GOOD	GOOD	LOW	MOD	40+	C 3
T 15	Mature Common Alder *Alnus glutinosa*	68	3	5 NE	68	5 5 8 7	Ivy on stem and into crown hindered inspection; adjacent watercourse. Single stemmed with a dense asymmetric crown. In an acceptable condition at present.	No action required. n/a	GOOD	GOOD	MOD	MOD	40+	B 3
T 16	Mature Common Ash *Fraxinus excelsior*	16	5	5 W	95	3 7 4 4	Limited inspection due to Ivy; adjacent watercourse. Single stemmed with an optimised stem lean west. An asymmetric crown overhangs the road with previous pruning wounds noted roadside.	Pollard to 4.5m. High	FAIR	FAIR	MOD	MOD	10+	B 3
G 17	Mature Common Alder *Alnus glutinosa*	16	4	6 W	Av. 70	See plan	Two in group; adjacent watercourse. Northern specimen has a significant stem lean north-west with an asymmetric crown overhanging the road. Southern specimen, single stemmed with slight crown asymmetry.	Pollard **northern specimen** to main union point/s. Moderate	GOOD	FAIR	MOD	MOD	40+	B 1
T 18	Semi-mature White Willow *Salix alba*	11	2	2 n/a	22 avg.	6 5 5 6	Multi-stemmed from ground level with a balanced crown. Included unions noted yet in an acceptable condition at present.	No action required. n/a	GOOD	FAIR	LOW	HIGH	20+	B 3

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T 19	Early-mature Common Alder *Alnus glutinosa*	16	3	5 SE	65	6 7 7 6	Limited inspection due to location adjacent watercourse. Twin-stemmed at 3m with good vigour and a balanced crown. No major visible defects.	No action required. n/a	GOOD	FAIR	LOW	MOD	40+	B 3
T 20	Early-mature Common Alder *Alnus glutinosa*	12	2	4 N	52	6 6 7 7	Limited inspection due to location; adjacent watercourse. Good vigour and no major visible defects.	No action required. n/a	GOOD	GOOD	LOW	MOD	40+	B 3
T 21	Mature Sycamore *Acer pseudoplatanus*	18	6	6 n/a	87	8 8 8 9	Single stemmed with a good form and balanced crown. Multiple historic branch failures and cavities noted in upper crown. No significant defects.	No action required. n/a	GOOD	GOOD	HIGH	MOD	40+	A 1
G 22	Early mature to mature Common Alder *Alnus glutinosa*	to 15	2	4 SE	45 to 78	See plan	Five in group; adjacent watercourse. Majority multi-stemmed with merging crowns. Occasional cavities, deadwood and tight unions observed. Eastern specimen is single stemmed with a sparse crown (likely in decline).	Reduce **eastern specimen** in height to leave a 3m monolith Low	GOOD	FAIR	LOW	MOD	20+	B 2
G 23	Mature English Oak *Quercus robur*	to 16	4	4 W	Av. 90	See plan	Four in group; all excellent specimens. All four are single stemmed with balanced crowns and minor deadwood. No significant defects observed.	No action required n/a	GOOD	GOOD	HIGH	HIGH	40+	1 A 2 3
T 24	Early mature Sycamore *Acer pseudoplatanus*	14	3	3 n/a	51	6 6 6 7	Single stemmed with a good form and balanced crown. No major visible defects.	No action required n/a	GOOD	GOOD	MOD	MOD	40+	1 B 2
G 25	Early mature Mixed *Details in observations*	to 13	1	1 N	Av. 45	See plan	Ivy hindered inspections. Five in group; crowns merge and display good vigour. Hornbeam, 2 Hawthorn and 2 Sycamore. No significant defects observed.	No action required n/a	GOOD	GOOD	MOD	MOD	40+	B 2
T 26	Mature Sessile Oak *Quercus petraea*	16	5	5 n/a	89	7 8 8 8	Single stemmed with a good form and balanced crown. Upper canopy showing signs of retrenching, profuse epicormics and deadwood noted.	Crown clean Low	FAIR	GOOD	HIGH	HIGH	40+	A 3
T 27	Mature English Oak *Quercus robur*	15	6	7 N	96	8.5 9 8 9	Single stemmed with a good form and balanced crown displaying good vigour. Moderate sized deadwood noted in crown. *Ganoderma* fungal bracket at base (west).	Reinspect in 2 years High	GOOD	GOOD	HIGH	HIGH	40+	A 1 3
T 28	Mature English Oak *Quercus robur*	16	5	6 n/a	87	9 8 8 9	Single stemmed with a slightly asymmetric crown dsiplaying good vigour. Two young unidentifiable fungal fruiting bodies noted at base.	Reinspect in 2 years High	GOOD	GOOD	HIGH	HIGH	40+	A 1 3
T 29	Mature English Oak *Quercus robur*	14	4	4 N	91	6 7 8 8	Single stemmed with an asymmetric crown; swollen lower stem. *Ganoderma resinaceum* fungal bracket observed at base.	Reinspect in 2 years High	GOOD	GOOD	HIGH	HIGH	40+	A 1 3

Tree Ref.	Age Common Name *Botanical Name*	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 30	Mature English Oak *Quercus robur*	15	6	6 W	#90	8 7 8 8.5	Located in boundary hedgerow; single stemmed becoming twin-stemmed at 4m with a balanced crown overhanging the road.	No action required n/a	GOOD	GOOD	HIGH	HIGH	40+	A 1 3
T 31	Mature Sycamore *Acer pseudoplatanus*	16	7	7 E	#95	9 9 9 9	Ivy to stem hindered inspection. Located in boundary hedgerow; single stemmed with a slightly sparse, balanced crown overhanging the road. Cavity noted on stem at 6m (south)	Reinspect in 2 years High	FAIR	FAIR	MOD	MOD	40+	A 1 3
T 32	Mature Sessile Oak *Quercus petraea*	19	4	2 SE	#120	9 #9 10 10	Located in boundary hedgerow; single stemmed with good vigour and a balanced crown overhanging the road. Broken branch observed hung up in canopy over road.	Crown clean High	GOOD	GOOD	HIGH	HIGH	40+	A 3
T 33	Veteran Turkey Oak *Quercus cerris*	22	7	8 E	#160	11 11 12 12	Located in boundary hedgerow; single stemmed with good vigour and a balanced crown overhanging the road. Occasional deadwood noted.	Crown clean High	GOOD	GOOD	HIGH	HIGH	40+	A 1 3
T 34	Mature Sessile Oak *Quercus petraea*	20	6	8 E	#120	9 7 11 5	Located in boundary hedgerow; single stemmed with good vigour and an asymmetric crown overhanging the road. Historic broken branch cavities observed.	No action required n/a	GOOD	GOOD	HIGH	HIGH	40+	1 A 2 3
T 35	Mature English Oak *Quercus robur*	16	4	8 NE	#120	9 8 9 9.5	Ivy limited inspection. Located in boundary hedgerow; single stemmed becoming twin-stemmed at 4.5m with a balanced crown overhanging the road. Deadwood throughout canopy.	Crown clean High	GOOD	GOOD	HIGH	HIGH	40+	A 3
T 36	Mature Sessile Oak *Quercus petraea*	17	6	7 E	#120	9 9 9 9.5	Dead Ivy on stem to 11m. Located in boundary hedgerow; single stemmed with good vigour and a balanced crown overhanging the road. Occasional deadwood.	Crown clean High	GOOD	GOOD	HIGH	HIGH	40+	A 3
T 37	Early mature English Oak *Quercus robur*	15	7	8 W	#70	8 9 9 7	Ivy hindered inspection. Located in boundary hedgerow; single stemmed with good vigour and a balanced crown overhanging the road. Occasional deadwood observed over road.	Crown clean High	GOOD	GOOD	HIGH	HIGH	40+	A 3
T 38	Mature Turkey Oak *Quercus cerris*	22	6	7 NW	#150	12 11 13 10	An excellent specimen. Located in boundary hedgerow; single stemmed becoming three-stemmed at 6m with an extensive canopy overhanging the road. Occasional deadwood noted over road. Split branch (hazard beam) at 8m east.	Remove split limb in line with BS:3998 Moderate	GOOD	GOOD	HIGH	HIGH	40+	1 A 2 3

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; Dead, 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 should 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 therein.

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 on a regular basis.

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 or fruit.

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 5-15% 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).

Formative pruning The pruning of a tree to remove weaknesses and irregularities which may lead to future problems. The formative pruning operation is aimed at reducing the potential for future weaknesses or problems within the tree's crown and to encourage an optimal canopy shape.

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 and principle branches of the tree are cut to the same height, and the resulting branches are then cropped on a regular basis.

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 BS 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations'*.

Topping Topping is a form of pruning that removes terminal growth leaving a 'stub' cut end. Topping can cause 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.

Paul Hodgson *Cert Arb (RFS), FdSc Arb, MArborA*. 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.

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.

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

Appendix 6: Tree Constraints Plan

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W E

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THIS PLAN MUST BE PRINTED IN COLOUR AND READ IN CONJUNCTION WITH THE JCA REPORT (JCA REF: 14354/PH).

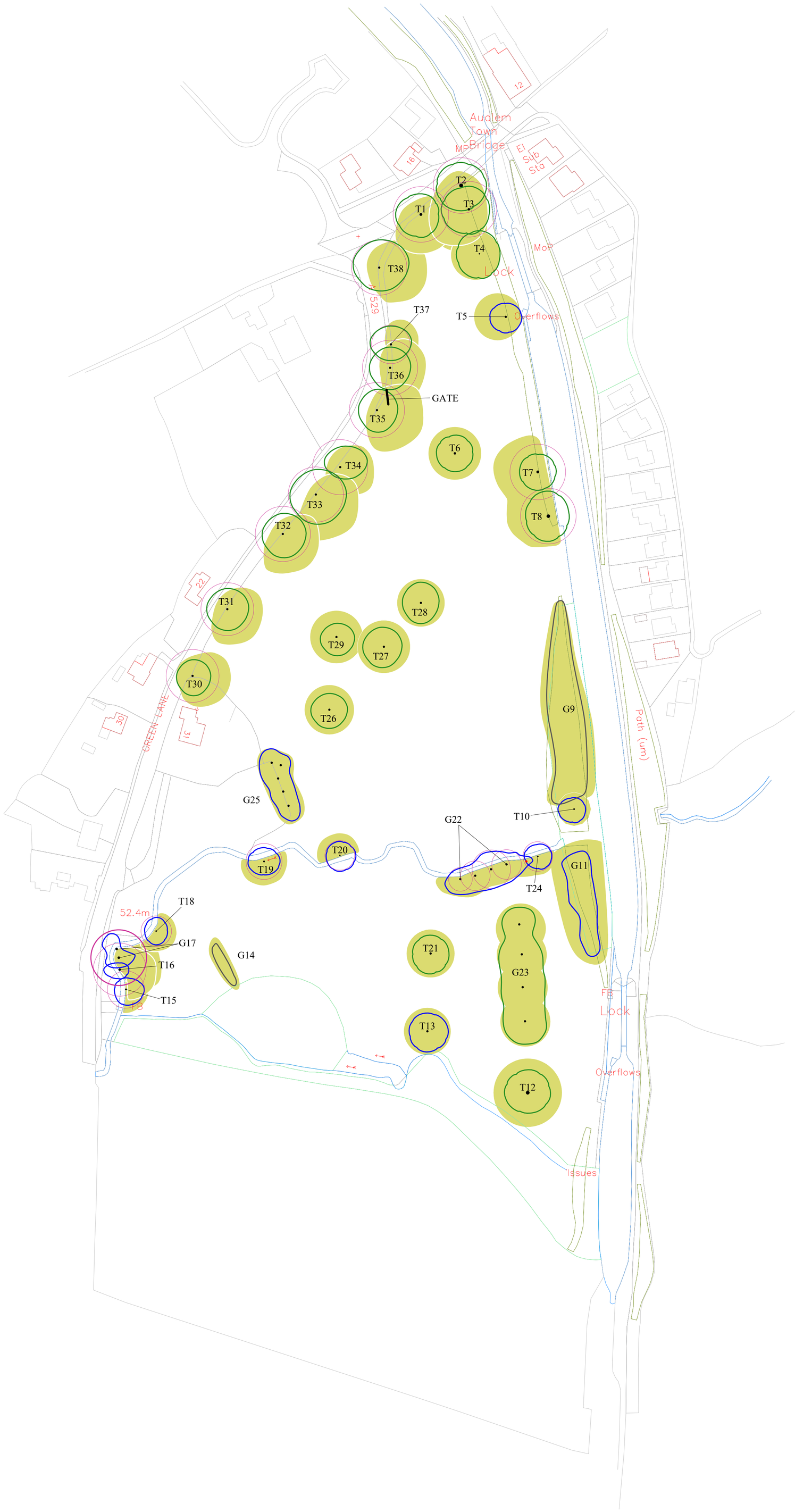
Root Protection Area: RPA

THE ROOT PROTECTION AREA (RPA) INDICATES THE LIKELY ROOTING ZONE OF A TREE.

THIS AREA SHOULD IDEALLY REMAIN UNDISTURBED IF THE 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.



Appendix 6: Tree Constraints Plan

ADDRESS: Land off Green Lane
Audlem, Crewe, CW3 0ES.
JCA REF: 14354/PH

SCALE : 1:1000	PAPER SIZE : A1

SURVEYED BY: PH	DRAWN BY: PH	APPROVED BY: EW

BRITISH STANDARD 5837:2012: 4.5
RETENTION CATEGORIES

Detailed definitions of these catagories 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
	ROOT PROTECTION AREA (PRIOR TO OFF-SETTING)

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.

Signed

P. Humeniuk

.....

Phil Humeniuk *FdSc (Arboriculture)*.

18th October 2018

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

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Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

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- 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)

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