

ARBORICULTURAL REPORT
to BS 5837:2012
at
Gwern-Y-To
Shocklach
Threapwood
Wrexham
SY14 7AZ

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1. Introduction

1.1 Purpose of the Report

- 1.1.1 A report is required at **Gwern-Y-To, Shocklach**, to provide detailed, independent, arboricultural advice on the trees present, in the context of potential development.

1.2 Terms of Reference

- 1.2.1 I am instructed by **Matthews & Goodman LLP** to visit the site and prepare my findings in a report.
- 1.2.2 For this purpose I have been supplied with a topographical survey, Drawing No. **001 104/MG/2635**.

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*.
- 1.3.2 Preliminary recommendations are given with a view to the long-term management of a sustainable tree cover.
- 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 any proposed development is not generally taken into account at this stage.

1.4 Survey Details

- 1.4.1 The survey took place during the month of December 2014 and was conducted by Liam Plummer *BSc (Hons) Ecology*.
- 1.4.2 Inspection was made at ground level. Further investigation, such as climbed inspections or decay detection surveys, may be recommended where appropriate.
- 1.4.3 Measurements were obtained using clinometers, specialist tapes and electronic distometers. Where this was not possible measurements were estimated.

2. Site Description

2.1 Land Use

- 2.1.1 The site currently consists of a derelict cottage and associated buildings, and overgrown garden and grounds.

2.2 Topography

- 2.2.1 The topography of the site is a quite variable, with the old cottage being situated on higher ground and sloping radially downwards to the grounds. To the north and east boundaries lies a small ditch.

2.3 Treescape

- 2.3.1 Surrounding the site is agricultural land, containing field boundary hedgerows and occasional open-grown trees. To the northwest lies a small copse of trees, and old fruit trees were noted in the field to the west of the site.
- 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 a reasonable visual amenity to the surrounding area, limited in some respects due to their distance from the nearest (minor) road. Occasional specimens have a slightly high amenity value.

2.5 Age Class Mix

- 2.5.1 The trees surveyed ranged in age from semi-mature to mature, with most trees on-site being early-mature.

2.6 Species Diversity

- 2.6.1 Species surveyed include Common Ash, Plum sp., Goat Willow, Common Alder, Hawthorn, Orchard Apple, Lombardy Poplar, Blackthorn, Privet and Elder. The predominant species were Common Ash and Hawthorn.

3. Status of the Trees

- 3.1 A check was made on 9th December 2014 with **Wrexham County Borough Council**.
- 3.2 We are informed that there is no Tree Preservation Order in force and that the site is not within a Conservation Area.
- 3.3 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. We are able to arrange this and to organise and supervise professional contractors.

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

5.1 Tree Condition & Recommended Works

- 5.1.1 The tree survey revealed a total of **27** items of vegetation (**19** individual trees, **6** groups of trees and **2** hedges). Of these, **1** tree was identified as retention category 'A', **8** trees, **2** groups and **1** hedge were identified as retention category 'B', **5** trees, **4** groups and **1** hedge were identified as retention category 'C' and **5** trees were identified as retention category 'U'. Please refer to **Appendix 2** for retention category and definition criteria.
- 5.1.2 **T3, T6, T9, T22** and **T27** were identified as retention category 'U'. These are trees that are either dead or have highly limited life expectancies, as detailed at **Appendix 1**.
- In the current context of limited site usage, **T27** is a dead tree that requires removal as a matter of **low priority**, and **T22** is a dead tree that should be felled at the height of the surrounding hedgerow; the dead stump should be left as standing deadwood for ecological value, hidden within the hedge. Please note that should the site usage increase, the priority of this work will likewise increase.
 - **T6** and **T9** should both have branches removed to leave standing stems as 'monoliths' for ecological value, as detailed at **Appendix 1**. Again, this work is currently of **low priority**, but this will increase should current site usage increase.
 - **T3** is a collapsed Willow, posing no health and safety risk, so does not require removal for these reasons; however, it is of retention category 'U' and its removal as part of site improvements may be desired.
- 5.1.3 Significant pruning in the form of pollarding is recommended for **T24**, due to the significant basal decay present and the interference with utilities lines overhead. If felled to around the height of the surrounding hedge, re-growth can be incorporated into the hedge and trimmed along with any usual hedge-maintenance.
- 5.1.4 **T13** is a hollowing veteran Apple tree, worthy of retention due to its ecological and heritage value. As such, no works are recommended, and instead any development should consider giving the (relatively small tree) space to be retained away from targets of high value (e.g. buildings, car parking areas or play areas).
- 5.1.5 **G15**, two mature Lombardy Poplars, are of significant stature and visible from the surrounding roads, and as such are of retention category 'B'. However, they are considered unsuitable in proximity to high usage areas, due to the species propensity to have brittle wood and drop limbs. As such, if development occurs in a similar area to that of the existing cottage, thought should be given to the removal of these two specimens and re-planting with smaller, more suitable species.
- 5.1.6 Tree pruning works are recommended for **T7** and **T26** for the purposes of tree health, as detailed at **Appendix 1**.

- 5.1.7 Tree pruning works for safety purposes are recommended for **T1, T4, T5, G12, T16, T17, G19** and **T25** should site usage increase, as detailed at **Appendix 1**.
- 5.1.8 Hedge-laying, a traditional form of hedgerow management, could be considered for **G12** and **H21**.
- 5.1.9 **T1, T4, T5, T17** and **T25** were noted to have structural or physiological defects, as detailed at **Appendix 1**. 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. As such, it is recommended that these trees be monitored (re-inspected) on an annual basis to assess if their condition is still acceptable.
- 5.1.10 A full detailed inspection of **T8, T10, T17** and **G19** was inhibited by the presence of Ivy, as detailed at **Appendix 1**. Although the trees appeared to be in a reasonable condition, the Ivy may conceal defects that were not apparent to the surveyor. It is therefore advised that the Ivy be removed to allow the trees to be re-inspected for any possible defects. It is also advised that basal epicormic growths are removed from **T17** as these also limited inspection.

5.2 Potential Arboricultural Implications & General Design Advice

- 5.2.1 A proposed plan for development has been sent to JCA, although this is not finalised. The following comments can be made about the site in terms of its tree cover in relation to a potential development, and in reference to the proposals seen.
- 5.2.2 The majority of retention category 'B' trees are situated around the site boundary, can be kept by development focused on the centre of the site.
- 5.2.3 The proposed layout seen by JCA would appear to potential conflict with the retention category 'B' trees of **T13** and **G15**. In this respect, re-design at this stage in the process to incorporate the trees (especially **T13** – see Sections 5.1.4 and 5.1.5 for more details) would be advisable.
- 5.2.4 A previously hard-surfaced entrance is still noticeable on site, and if used as access to the area this will eliminate the need to remove trees for access and reduce root damage through compaction to retained trees.
- 5.2.5 During development the part of the tree most commonly under threat, and most commonly ignored, is the rooting system. When trees are damaged, particularly the roots, their long-term health and stability can be affected. Most development activity can have an impact on the future condition and safety of a tree, and therefore careful planning and management of tree protection should ensure a continued sustainable tree cover with minimal stress to existing trees.

- 5.2.6 In order to ensure that the retained trees on site are properly protected during the development phase, the tree rooting zones are to be considered. For the purpose of development the rooting zone of the tree is known as the Root Protection Area or RPA. The RPA of each tree or group is marked on the Tree Constraints Plan at **Appendix 6** and represents the rooting zone which, where possible, should remain undisturbed. The protection of retained trees can therefore be achieved by erecting a temporary barrier (based on the RPAs), so creating a **Construction Exclusion Zone**.
- 5.2.7 Damage caused by any construction activity such as demolition, soil stripping, and provision of services needs to be considered at the design stage. Care must be taken to avoid damage to tree roots when existing structures such as tarmac surfaces are removed within an RPA.
- 5.2.8 The laying of access roads, driveways, parking areas or any other hard surfaces planned in proximity to retained trees needs to be considered. There are solutions available allowing for the construction of hard surfaces within the RPAs without causing significant damage to the trees.
- 5.2.9 Boundary walls or other light structures can be constructed without damage to roots through the use of piled foundations rather than the more traditional strip foundations.
- 5.2.10 The location of drainage and utilities within the RPA can be achieved if need be, using special techniques and supervision.
- 5.2.11 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.
- 5.2.12 Consideration must be given to movement of both vehicle and pedestrian traffic. If possible traffic should be diverted away from the RPAs. If this is not possible a range of temporary surfaces are available to distribute the weight of traffic and allow the roots to receive moisture and air.
- 5.2.13 Generally, the alteration of ground levels within the RPA is not acceptable and therefore existing ground levels should be retained wherever possible. Should ground levels need to be lowered in areas adjacent to trees or within the RPAs, appropriate measures must be taken to minimise the detrimental effects on the trees and their root systems. With regards to raising levels, it is necessary to maintain adequate supplies of moisture and oxygen through the soil to the tree roots. Therefore, no material must be placed within the RPA without arboricultural advice.
- 5.2.14 The shade that will 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. If required, JCA can provide a shade cast prediction plan.

- 5.2.15 Many development sites contain areas of nature conservation interest. Trees and hedgerows, in particular, 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 Surveys and Bat Surveys where required.
- 5.2.16 Where 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 where required.

6. Conclusions and Recommendations

- 6.1 The trees surveyed were generally found to be in reasonable condition.
- 6.2 The trees are not protected by a Tree Preservation Order or by virtue of them being in a Conservation Area.
- 6.3 **Five** trees have been recommended for removal for arboricultural reasons, as discussed in **Section 5.1.2** and detailed at **Appendix 1**.
- 6.4 **Three** items require pruning works to enhance their long term health, and a further **eight** items require pruning should site usage increase. These are discussed in **Sections 5.1.3, 5.1.6 and 5.1.7** and detailed at **Appendix 1**.
- 6.5 **Five** trees require an annual inspection as they have structural or physiological defects, as discussed in **Section 5.1.9** and detailed at **Appendix 1**.
- 6.6 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 at the design stage to ensure that the retained trees are suitably protected.
- 6.7 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.
- 6.8 In accordance with **Section 6.1 of BS 5837: 2012**, and following the preparation of the **AIA**, an **Arboricultural Method Statement (AMS)** is recommended 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.
- 6.9 It is advised that in accordance with **Section 5.6 of BS 5837: 2012** that a **Tree Planting Scheme** is prepared which will help to ensure that the site retains a sustainable tree cover. A carefully designed **Tree Planting Scheme** will incorporate tree species in harmony with the development whilst seeking to improve the overall age range and species diversity.
- 6.10 In accordance with **Section 6.3 of BS 5837: 2012**, monthly site supervision is likely to be advisable during this development.

Appendices

Appendix 1: Tree Descriptions and Recommendations

Tree Ref.	Age Species Latin Name	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread			Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
						N	W	E							
T 1	Early-mature Common Ash <i>Fraxinus excelsior</i>	18	4.5	4 S	50 (over Ivy) + 33	8 7.5 8		5.5	Bifurcate at 0.5m and slightly leaning, with a slightly unbalanced crown overhanging the boundary. Ivy growing on the eastern stem. Minor included bark at the union with good adaptive growth, and occasional deadwood in the crown. Epicormic growths on branches suggest possible retrenchment.	Monitor annually. Deadwood if site usage increases - low priority .	FAIR	FAIR	MOD	20-40	B
G 2	Semi-mature Plum <i>Prunus sp</i>	to 5	1	0.5 n/a	to 14 at base	See plan - av. 2.5			Inspection limited by difficult access due to rubble and collapsed T3. Two trees behind the dilapidated shed. Typical of the species, with minor deadwood and rubbing branches. Of limited arboricultural value.	No action required.	FAIR	FAIR	LOW	10-20	C
T 3	Mature Goat Willow <i>Salix caprea</i>	4	0	0 n/a	3x #35	#3 0 3		#5	Limited inspection due to nature of collapsed tree and dense bramble growths. Previously trifurcate, stems collapsed and re-growth present. Fungi noted on fallen stems. Settled on the ground and posing no safety risk.	No action necessary, but remove if desired as part of site improvements.	FAIR	POOR	LOW	<10	U
T 4	Early-mature Common Ash <i>Fraxinus excelsior</i>	18	5	5 N	42	N: 8 E: 3 S: 4.5 W: 3 NW: 4			Bifurcate at 8m and slightly leaning (becoming vertical), with a slightly unbalanced crown overhanging the boundary. Significant bulge to the base suspected to be adaptive growth due to the lean, with no evidence of decay noted. Occasional deadwood in the slightly sparse crown.	Monitor annually. Deadwood if site usage increases - low priority .	FAIR	FAIR	MOD	20-40	B
T 5	Early-mature Common Ash <i>Fraxinus excelsior</i>	18	#5	4 SW	30 + 43	6 2 8		5	Bifurcate at 1.3m and vertical, with a slightly unbalanced crown overhanging the boundary. Minor wound noted to the north of the crown, at #10m, occluding well. Deadwood and rubbing branches in the crown, as well as some branch epicormic growths, possibly suggesting retrenchment.	Monitor annually. Deadwood if site usage increases - low priority .	FAIR	FAIR	MOD	20-40	B
T 6	Early-mature Common Ash <i>Fraxinus excelsior</i>	10.5	3	1 S	53	6 1 3		4	Dense Ivy prevented detailed inspection. Previously single-stemmed, suspected to have historically lost the leader (but Ivy prevented this from being confirmed). Majority of the crown is on two side branches. Significant decay noted in the stem, along with <i>Daldinia concentrica</i> fruiting bodies.	Monolith to 3m if site usage increases - low priority .	FAIR	POOR	LOW	<10	U
T 7	Mature Plum <i>Prunus sp</i>	7	2	2 NE	27 + 25	2 1.5 2		3	Bifurcate at the base and slightly leaning, with a slightly unbalanced crown. An old tree, with decay in the stems and at old pruning points (many of which are stubs, showing vigorous re-growth). One branch is broken and hanging. Limited long-term future.	Crown reduce by 1.5m, to promote a smaller inner crown and hopefully allow for retention - low priority .	FAIR	POOR	LOW	<10	C

Tree Ref.	Age Species Latin Name	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
T 8	Early-mature Plum <i>Prunus sp</i>	6.5	1.5	1.3 NE	25	N: 1.5 NE: 5 E: 3 S: 3 SW: 5 W: 3	Ivy prevented detailed inspection. Single-stemmed and vertical with a slightly unbalanced crown. Occasional minor decay pockets noted at old pruning wounds, and occasional minor deadwood in crown. A felled Hawthorn is caught up in a branch to the west.	Remove Ivy and re-inspect. Remove felled Hawthorn from crown. Low priority.	FAIR	FAIR	LOW	10-20	C
T 9	Early-mature Common Alder <i>Alnus glutinosa</i>	2.5	n/a	2 SW	31	n/a	A dead standing stem, with one significant branch broken and still attached, but hanging to ground level to the southwest. Ivy-clad.	Remove hanging branch to leave as standing dead stump low priority.	DEAD	DEAD	DEAD	DEAD	U
T 10	Early-mature Hawthorn <i>Crataegus monogyna</i>	6	3	2.5 n/a	10 + #25 (both over Ivy)	5 #2 2.5 3	Ivy prevented detailed inspection. Bifurcate at the base and vertical, with a slightly unbalanced crown overhanging the boundary. Form is typical of the species.	Remove Ivy and re-inspect.	FAIR	FAIR	LOW	20-40	B
T 11	Early-mature Hawthorn <i>Crataegus monogyna</i>	#6	1.5	1 NW	17 + 20 + 10	3.5 2 #3.5 #2.5	Multiple-stemmed at 1m and slightly leaning, with a slightly unbalanced crown overhanging the boundary. Rubbing branches in the crown, typical of the species.	No action required.	GOOD	FAIR	LOW	20-40	B
G 12	Early-mature Hawthorn <i>Crataegus monogyna</i>	to 6	0	0 n/a	to #20 at base	See plan - av. 4	Line of Hawthorn growing along the bank of the ditch. Occasional dead and fallen stems. Provides a good screen, though no evidence of previous management as a hedge.	Remove dead stems, and lay to form hedge - low priority.	GOOD	FAIR	LOW	20-40	C
T 13	Veteran Orchard Apple <i>Malus domestica</i>	7	1	1 SE	40	2 2.5 3.5 3	Single-stemmed and leaning with a slightly unbalanced crown. Extensive stem decay has led to hollowing all up the stem to a stub where the leader has been removed. Cavity is open to the west of the base, and a bird's nest is visible inside. Old tear-out wound to the north at 2m, with decay linking to that in the stem. The crown is now formed on two lateral branches still remaining. Of ecological and heritage value, and so worthy of retention.	No action required; keep area around the tree clear of potential targets.	FAIR	POOR	LOW	<10	B
G 14	Semi- to early-mature Plum <i>Prunus sp</i>	7	1	0.5 S	to 20	See plan.	Three trees; the most southerly tree is the largest, and has been crown-lifted to give a clean stem (though with stubs from pruning) and a high crown. The other two smaller trees are typical of the species, with rubbing branches and congested crowns. Minor decay present in the stem of the northwest tree, and a torn and hanging branch in the crown.	No action required.	GOOD	FAIR	LOW	10-20	C
G 15	Mature Lombardy Poplar <i>Populus nigra 'Italica'</i>	26	3	1 S	W: 85 E: 72	2 2 2	Two trees, with strongly fastigate forms typical of the species. Western tree is bifurcate at 2m. Both have minor deadwood in the crowns.	No action required.	GOOD	GOOD	MOD	10-20	B

Tree Ref.	Age Species Latin Name	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread			Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
						N	W	E							
T 16	Early-mature Common Ash <i>Fraxinus excelsior</i>	14	2	0 S	22 + 32	5 3 5.5		6.5	Bifurcate at the base; the dominant western stem is vertical, whilst the smaller eastern stem leans. Crown is slightly unbalanced. Occasional deadwood noted, and lower branches to the east have been snapped leaving stubs, presumably by vehicles accessing the site.	Deadwood if site usage increases - low priority.	GOOD	GOOD	MOD	40+	B
T 17	Early-mature Common Ash <i>Fraxinus excelsior</i>	15	1	2.5 n/a	29 + 30 + 42	8.5 7.5 6		6	Ivy and basal epicormic growths limited inspection. Trifurcate at the base, with two stems vertical and one stem leaning north; the crown is slightly unbalanced. Minor included bark at stem unions, and occasional deadwood in the crown. Of relatively poor form, especially in relation to other Ash on site.	Remove Ivy and basal epicormic growths, and re-inspect. Monitor annually. Deadwood if site usage increases - low priority.	GOOD	FAIR	MOD	20-40	C
G 18	Semi-mature Mixed	to 3 (av. 1.5)	0	0 n/a	<15 at base	See plan - av. 1m			A line of scrub, forming an informal hedge. Species include Hawthorn, Blackthorn and Privet. Of limited arboricultural value.	No action required.	GOOD	GOOD	LOW	20-40	C
G 19	Early-mature Mixed	to 19	1.5	1 n/a	to: 20 + 38 + 20	See plan.			Two planted rows running east to west, consisting of Ash trees with interspersed Hawthorn. Ivy prevented detailed inspection of several specimens, and the crowns of the southern row overhang the boundary. The Ash are generally multiple-stemmed, with some minor included bark, though some trees are maiden. Hawthorn are typical of the species, being multiple-stemmed. Occasional dead Hawthorn stems observed, and occasional deadwood in Ash trees.	Remove the Ivy from Ivy-clad stems. Deadwood Ash and remove any hazardous dead Hawthorn stems should site usage increase - low priority.	GOOD	FAIR	MOD	40+	B
T 20	Veteran Hawthorn <i>Crataegus monogyna</i>	7.5	2	2 n/a	86 over Ivy	2 3.5		4	Completely Ivy-clad, limiting inspection. Multiple-stemmed at 2.5m and leaning, with a slightly unbalanced crown overhanging the boundary. One broken and hanging branch to the south (over the boundary). Ivy-removal is not recommended, as it may be (due to the age of the tree) that the stem is decaying and the Ivy is providing stability. Worthy of retention due to unusually large size and age.	No action required.	GOOD	FAIR	LOW	10-20	A
H 21	Semi-mature Hawthorn <i>Crataegus monogyna</i>	to 4 (av. 2)	0	0 n/a	to #20 at base	See plan.			Two rows of hedgerow, with occasional Ash present. The southern row forms part of the southern site boundary. Previously felled.	Consider hedge-laying.	GOOD	FAIR	LOW	20-40	C

Tree Ref.	Age Species Latin Name	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations	Physiological Condition	Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
T 22	Early-mature Unknown	11.5	n/a	0.5 W	2x #30	2.5 2 2 2	A dead tree, bifurcate at 1m and with the crown overhanging the boundary. Ivy and the surrounding H23 limited inspection.	Fell to leave 2m high stump (to be incorporated as standing deadwood in H23) - low priority.	DEAD	DEAD	DEAD	DEAD	U
H 23	Early-mature Mixed	av. 2.5	0	0 n/a	to #45 at base (av. <20)	See plan.	Boundary hedgerow, of predominantly Hawthorn and Blackthorn with occasional Elder and Sycamore. Managed by flailing.	No action required.	GOOD	GOOD	LOW	20-40	B
T 24	Early-mature Common Ash <i>Fraxinus excelsior</i>	9	1.5	2 S	39 + 17	2 5.5 4.5 #5	Ivy and H23 prevented detailed inspection. Bifurcate at the base, with both stems previously topped due to overhead power lines. Significant wound with decay to the west of the base, with a visible open cavity.	Pollard at 2m high, incorporating re-growth in H23 - low priority.	GOOD	POOR	LOW	10-20	C
T 25	Mature Common Alder <i>Alnus glutinosa</i>	#12	4	1.8 NE	39 + 61	4.5 #4 3.5 #3	Bifurcate at 1m and vertical, with a slightly unbalanced crown overhanging the boundary. Significant epicormic growths on the stem, typical of older specimens of the species. The northern stem noted to be dying back, resulting in significant deadwood.	Monitor annually. Deadwood if site usage increases - moderate priority.	FAIR	FAIR	MOD	20-40	B
T 26	Early-mature Hawthorn <i>Crataegus monogyna</i>	7	2	1.5 S	3x av. 15	1 2.5 2 2.5	Trifurcate at the base, with one stem felled at 1m and one stem severed at 1m but with the crown caught up and still hanging in that of the remaining sound stem.	Remove the felled and severed stems at the base, to single out and leave the remaining stem - low priority.	FAIR	POOR	LOW	10-20	C
T 27	Early-mature Willow <i>Salix sp.</i>	12	4	3 n/a	35	3.5 #5 2 4.5	A dead, leaning tree with the crown overhanging the boundary.	Remove - low priority.	DEAD	DEAD	DEAD	DEAD	U

Appendix 2: Explanation of Tree Descriptions

A2.1 Measurements

- A2.1.1 *HEIGHT* of the tree is measured from the stem base in metres. Where the ground has a significant slope the higher ground is selected.
- A2.1.2 *CROWN HEIGHT* is an indication of the average height at which the crown begins. Also recorded is the height of the first significant branch and the direction of growth.
- A2.1.3 *STEM DIAMETER* is measured at 1.5 metres above (higher) ground level. Where the tree is multi-stemmed below a height of 1.5 metres, the diameter is measured at the narrowest point below the fork.
- A2.1.4 *CROWN SPREAD* is measured from the centre of the stem base to the tips of the branches in all four cardinal points.

A2.2 Evaluations

- A2.2.1 *AGE CLASS* of the tree is described as young, semi-mature, early-mature, mature, or over-mature.
- A2.2.2 *PHYSIOLOGICAL CONDITION* is classed as good, fair, poor, or dead. This is an indication of the health of the tree and takes into account vigour, presence of disease and dieback.
- A2.2.3 *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.
- A2.2.4 *LIFE EXPECTANCY* is classed as; less than 10 years, 10-20 years, 20-40 years, or more than 40 years. This is an indication of the number of years before removal of the tree is likely to be required.

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. They may be further sub-divided as follows:

- A1) Particularly good examples; perhaps rare or unusual species, or forming an essential part of arboricultural features e.g. avenues.
- A2) Groups of trees having a significant landscape impact or with excellent screening properties, or those softening the effect of existing structures.
- A3) Those having significant conservation or historical value e.g. veteran trees.

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

These trees are of moderate quality and value with a significant life expectancy. They may be further sub-divided as follows:

- B1) Trees that might be included in the high category but because of their numbers or slightly impaired condition, are downgraded in favour of the better individuals.
- B2) Groups of trees forming distinct landscape features, thereby attracting a higher collective rating than they might as individuals.
- B3) Trees with clearly identifiable conservation or other cultural benefits.

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

These trees are of low quality and value, and are in adequate condition to remain until new planting could be established. They may be further sub-divided as follows:

- C1) Trees not qualifying in higher categories.
- C2) Groups of trees which do not form a distinct landscape feature.
- C3) Trees with very limited conservation or other cultural benefits.

A2.3.4 U (marked in red on the plan) = unsuitable for retention: trees for removal.

These trees are in such a condition that any existing value would be lost within 10 years. This may be due to any of the following:

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

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 work must be to BS 3998: 2010 - '*Recommendations for tree work*'.
- 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 Limited 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. In this instance it is recommended that these inspections are made every year.

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.
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 uncharacteristic clusters around the base or the stem of a tree, usually as a result of bad pruning or some other stress factor.
Formative pruning	The trimming of a tree to remove weaknesses and irregularities which may lead to problems. The formative pruning operation is aimed at reducing the potential for future weaknesses or problems within the tree's crown.
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 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 – The 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 Coordinator

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 was promoted to Technical Coordinator and now oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Consulting Staff: Arboriculture

Andy Bagshaw *FdSc (Arboriculture)*. Andy joined JCA in 2005 having gained several years experience in tree surgery and landscaping. He is trained in aerial rescue and is JCA's principal first aid person. Andy has obtained a foundation degree in Arboriculture at the University of Central Lancashire, is QTRA qualified and is a JCA team leader who manages an office of Consulting Arboriculturists.

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.

Flora Harding *BSc (Hons) Fd.BSc. (Arboriculture and Tree Care)*. Flora has a degree in Rural Resource Development (specialising in Wildlife and Landscape Conservation). She spent her former career working for a local authority and has a licence for QTRA. In 2012, Flora published an article to enable industry based research for the purpose of gaining Chartered Arboriculturist status.

Michelle Ryan *BSc (Hons) Arboriculture*. Michelle has recently joined JCA having previously worked for a Local Authority. She obtained a degree in Arboriculture at the University of Central Lancashire and has various NPTC qualifications. Michelle is seeking to become LANTRA certified in Professional Tree Inspection.

Liam Plummer *BSc (Hons) Ecology*. Liam graduated from Bangor University in Ecology. He has recently joined JCA having worked for the Forestry Commission Scotland and previously in the Arboriculture and Conservation sectors. Liam has various NPTC qualifications and has completed several National Diploma (Arboriculture) units.

Charles Cocking. Charles joined JCA in January 2014 as an Apprentice having previously worked for the company on a part time basis during 2013. In between his roles at JCA, Charles will be studying at Myerscough College, Preston, undertaking a one year RFS course which will be followed up by a further two year course, in order to obtain a Foundation degree in Arboriculture – *FdSc (Arboriculture)*.

Consulting Staff: Ecology

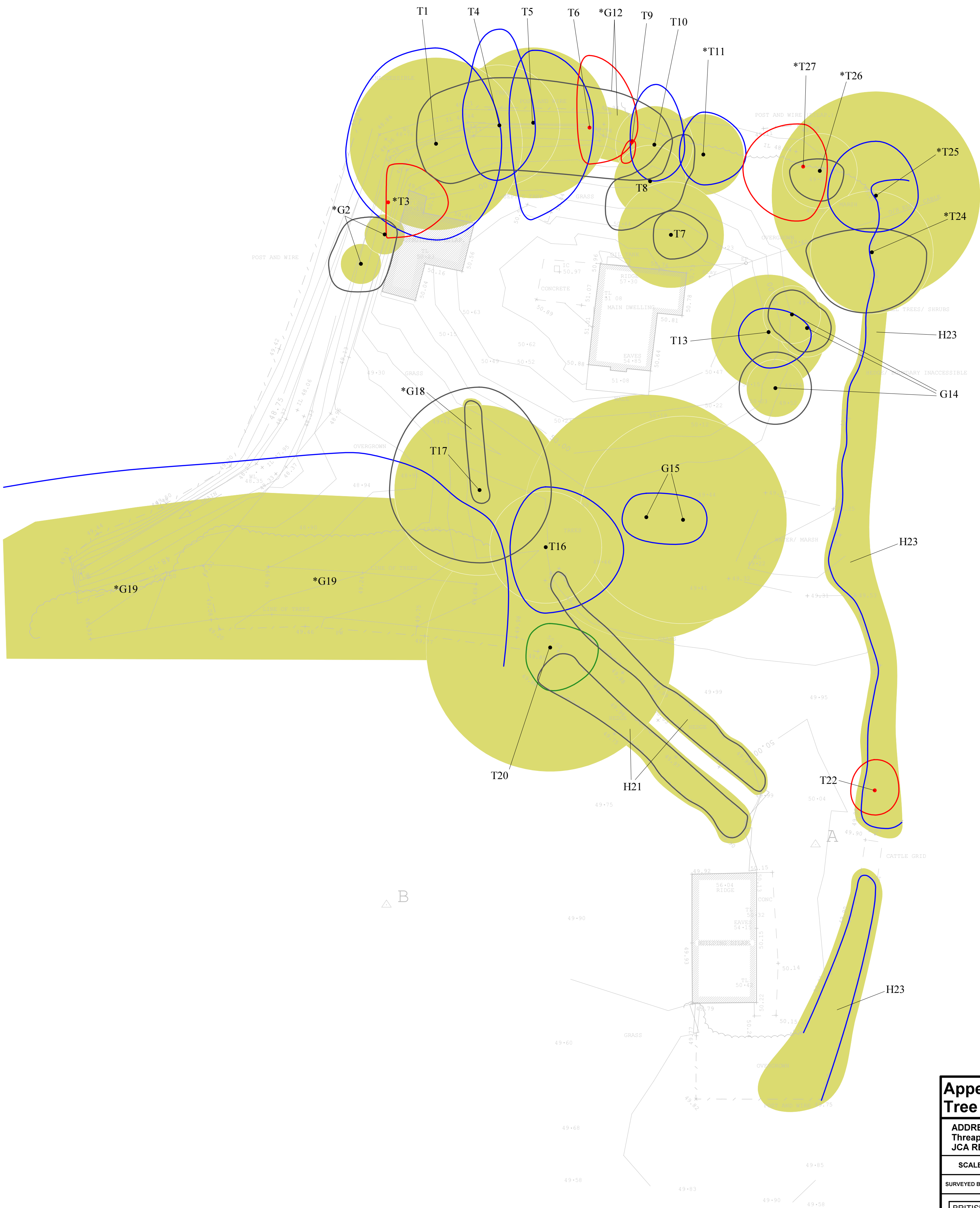
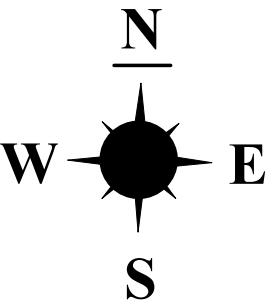
David Ryder. David has recently joined JCA as our in-house ecologist. He brings with him over 8 years experience in the field of ecological consultancy. David holds a Natural England Licence to disturb and handle bats and is currently undergoing assessment for Chartered Institute of Ecology & Environmental Management (CIEEM) membership.

Administrative Staff

Sue Guest Administrative Team Leader.
Simeon Haigh *BSc (Hons)*. IT Officer.
Lorraine Spink Administrative Assistant.

Yasmin Shahzad Administrative Assistant.
Catherine Cocking Accounts Manager.

Appendix 6: Tree Constraints Plan



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.

Appendix 6: Tree Constraints Plan

ADDRESS: Gwern-Y-To, Shocklach,
Threapwood, Wrexham, SY14 7AZ
JCA REF: 11982/LP

SCALE : 1:200 PAPER SIZE : A1

SURVEYED BY: LP DRAWN BY: LP APPROVED BY: SR

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
	TREE STEM NOT PLOTTED ON TOPOGRAPHICAL SURVEY - INDICATIVE POSITION ONLY



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



.....
Liam Plummer *BSc (Hons) Ecology*

9th December 2014

For and on behalf of **JCA Ltd**

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Catherine Cocking
RGN RM

Photo front cover: Sluice at Bowers Mill

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