Tree Heritage
Arboricultural Contractors and Consultants

Established 1982

Cornhill House
Cornhill Gardens
Leek
ST13 5PZ

TREE SURVEY REPORT

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TREE SURVEY REPORT

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CONTENTS

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1.0 Introduction

1.1 The site consists of an existing house and mature garden with a number of established trees. It is proposed that a detached property be built within the garden. The findings of our survey are listed in the Tree Schedule included as Appendix A to this report.

1.2 The purpose of this report is to be an aid to the design of the layout of the site. It identifies the better trees and specifies necessary protective measures that are required to keep the trees within the development. It may also give recommendations for remedial work that may be desirable in order to keep or improve the quality of the trees.

1.3 The survey complies with British Standard 5837:2005 *Trees in relation to construction – Recommendations*. All significant trees on the site have been inspected including any that may be on the boundary or on adjacent land that may be affected by any development. Included in the schedule of trees are the relevant areas of protection for the trees or the Root Protections Areas(RPAs). The relevant distance from each tree from which construction work should be excluded by the erection of a Protective Barrier is also listed.

1.4 The site visit was on 17th January 2012. Surveyor: Hugh Williams. The weather conditions: Clear with only light rain.

2.0 Limitations of report

2.1 The trees were inspected from ground level only and no invasive tools were used.

2.2 Due to the changing nature of trees the report is valid for a period of 6 months for the condition and 2years for all other data.

2.3 Trees may affect buildings by indirect influence of their roots on the substrate on which structures are built and by direct action on foundations, drains and other underground services. This report does not attempt to address these issues.

2.4 Trees are dynamic structures that can change rapidly and can never be guaranteed 100% safe: even if they were deemed safe on the day of the inspection they can sometimes suffer damage in adverse weather conditions. All trees should be inspected following any bad weather.

3.0 Method

3.1 The survey was undertaken from ground level and includes all individual significant trees shown in position and numbered on the site plan. Low grade or sapling trees may be grouped together as numbered groups eg. G1. Schedule. The following information is collected and given in a schedule, to BS 5837:2005.

- Number
- Tree Species(Common Name)
- Height in metres
- Stem diameter at 1.5 metre above ground (if multi-stemmed then immediately above root flare) in millimetres.
- Crown Spread at compass points NSEW in metres.
- Crown clearance (height of lowest branch above ground) in metres.
- Age Class (Young, Middle-aged, Mature, Over mature and Veteran)
- Physiological Condition (Good, Fair, Poor or Dead).This is an overall assessment of the health of the tree based on leaf size, colour, density, annual growth increments and die-back or dead wood.
- Structural Condition (comments on decay, cavities, disease and other defects and issues that will affect its suitability for retention).
- Recommendations (These are based on the previous two categories and may include pruning or removal amongst other recommendations).
- Estimated Remaining Contribution (in years <10,10>20, 20>40 and 40+)
- Category Grading:

  R= Remove (unsuitable for retention due to its poor condition or less than 10 years contribution.

  A= High quality tree of good form with at least 40 years contribution

  B= Moderate quality tree with 20>40 years contribution

  C= Low quality tree (usually of poor form or condition). Also trees of less the 150mm stem diameter (these may be considered for relocation)

  Subcategory:

  1= mainly Arboricultural Merit

  2= mainly Landscape Merit

  3= mainly Cultural or Conservation Merit

4.0 Trees and Construction: General overview

4.1 Trees are large dynamic organisms that have basic requirements in order to survive. The obvious part of the tree is the trunks and branches with the leaves that are essential for survival and these are easily damaged by machines etc. This damage though is easily avoided and very obvious when it occurs. They have roots that anchor the tree into the ground but also take up moisture and oxygen as well as nutrients from the soil. Most tree roots are in the upper .5 metres of the soil and also extend well beyond the extent of the trees leafy canopy. Roots are easily damaged during any construction process although sometimes the immediate effect is not obvious. The main threats from construction work come from:

a) Compaction of the soil prevents gaseous exchange and prevention of water drainage.
b) Roots being severed or crushed
c) Drainage being affected by alteration of levels and installation of trenches for services
d) Physical damage to branches and trunks
e) Poisoning of trees with contamination from fuel and oils leaks from machinery, run off from concrete mixers or other toxic materials use during construction.

The main consequences of the above in terms of damage are:

i) Compaction kills roots by preventing oxygen and water take-up
ii) Severance can lead to pathogenic fungi invading the tree and in the worst cases; it can also lead to instability.
iii) Loss of vitality caused by the above can dramatically affect the life span of the tree.
iv) Damage to the crown can also lead to disease and instability in the worst cases.

5.0 Protection of the trees that are retained

5.1 BS 5837:2005 is intended to give recommendations to protect the trees during development and ensure their survival following the construction work. To achieve this there are two main considerations. The first is to protect the roots of the trees and the second to protect the upper parts of the tree, the trunk and branches.

5.2 The main tool to achieve the above is to create “Construction Exclusion Zones” around the trees. These are based on the “Root Protection Area” or RPA as calculated using Table 2 of BS 5837:2005. The RPAs for all the trees are included in the survey schedule. In some circumstances, when advised by an Arboriculturalist, and for individual open grown trees only, it may be permissible to off-set the RPA by as much as 20%. It is also possible to vary the RPA from a circle to allow for specific site conditions.

5.3 To achieve an effective “Construction Exclusion Zone” (CEZ) it is necessary to erect a protective barrier along the edge of the RPA’s. The details of this fencing are shown in Figure 2, which is included as an appendix (B) to this report. The barrier should be erected a minimum distance from each tree. This minimum distance is provided as a radius in the Survey Schedule and shown on the plan. It is essential that this barrier is well anchored into the ground to prevent it being moved. It is **not** acceptable to use “Herras” fencing in concrete or rubber feet as this can be too easily moved.

5.4 The Tree Protective Fencing should be installed before any construction work takes place. This includes demolition, site clearance and drainage work.

5.5 Notices should be fixed to the fencing warning personnel not to enter. They should read “Tree Root Protection Area – No Access”.

5.6 In some circumstances, with agreement from the LPA, it may be necessary to work within the RPA. In these circumstances the barrier may need to be realigned and ground protection used even for access on foot. If vehicular access is required then this will have to be specifically designed to prevent compaction and agreed in writing.

5.7 If the LPA agree to work within the RPA then any excavation work would have to be done by hand and usually supervised by the Arboriculturalist. Drives or access roads will also require specific Method Statement and include “No-Dig” construction methods.

5.8 Some operations such as the delivery of large section of buildings or the use of cranes for construction or demolition will need to be carefully organised and supervised to avoid accidental damage to the branches and stems of the retained trees. It may be advisable where damage is inevitable to carryout facilitation pruning to avoid initial conflict. This would have to be agreed by the Arboriculturalist and the LPA.

5.9 Tree should not be used to support notices and under no circumstances should nails, screws or bolts be driven into the trees. Likewise trees should not be used to support cables or lights.

5.10 Care should be taken to avoid the discharge of any material that could contaminate the soil within 15 metres of any tree. This would include: Washings from cement mixers, fuel or oil storage etc. This distance may need to be extended if the ground slopes towards the tree.

6.0 Arboricultural Methods

6.1 The Arboriculturalist or the LA Tree Officer should be consulted if there are any unforeseen issues in relation to any tree on site including any unexpected work within the Root Protection Areas.

6.2 All tree work should be carried out by highly skilled professionals and it is recommended that contractors are selected from the Approved List of Arboricultural Association Contractors. This is obtained from www.trees.org.uk

6.3 All tree work should be carried out to the latest standards based on BS 3998: 2010 ‘Recommendations for Tree Work’.

6.4 It is also advisable to draw up a final Arboricultural Method Statement and Tree Protection Plan to be agreed with the LPA.

7.0 Wildlife and Timing of Operations

7.1 Many animals including bats and birds are given special protection under the Wildlife and Countryside Act 1981(as amended) and the Countryside and Rights of Way Act 2001 amongst other legislation.

7.2 **Bats**. It is an offence to “intentionally or recklessly disturb a bat” or “damage, destroy or block the access to the resting place of any bat”. An assessment of trees on the site for “suitability for bats” is an essential part of the pre-planning stage. If bats are found or even reported to have used the trees for roosts then it is essential that a specialist in this field is contacted for advice. Natural England should be contacted on 0300 060 6000 or through www.naturalengland.org.uk for details of suitable specialists. It may be that a European Protected Species Habitat Regulations Licence is required before work can continue. Following advice it is usual that work to trees with potential for bat roosts is best done from late August to early October. March through to April is also suitable but there may be conflict with nesting birds. (see below)

7.3 **Birds**. It is an offence to disturb, injure or kill any bird whilst it is at or building a nest. This includes damage to or removal of the actual nest whilst it is in use or being built. Tree works that could lead to the above should therefore be avoided during the months of late March through until August.

7.4 To avoid problems with either it would be advisable to programme all necessary site clearance work and tree pruning during August to late October**.**

8.0 Planning Considerations

8.1 Full planning consent that includes any proposed tree works usually overrides the requirement to get specific permission even for trees that are within a Conservation Area or protected by a Tree Preservation Order.

8.2 If work is to be carried out prior to planning consent being sought then it may be necessary to apply for permission separately. In a Conservation Area it is a requirement to give Six Week Written Notice of any intended works. In the case of a TPO an application is required to the LPA on an APP1 form, in this case it may take 8-10 weeks before permission is given. It should be noted that permission is not required from the LPA to remove “Dead, Dying or Dangerous” trees although it is always best to inform the LPA of your intentions and supply suitable evidence to support your actions.

9.0 Overall Considerations for this site

9.1 There are only two high value Category A trees at the Eastern end of the site that pose any significant constraints on the proposed development.

9.2 There are several other trees in Category B or C along the Eastern boundary that also may influence the position of the development and these should be protected during the construction process.

9.3 The remaining trees on the site are all Category C or R trees and should not pose any significant constraints.

9.4 The exact position of the Tree Protection Barriers should be discussed on site with the agreement of the LPA Tree Officer. It is essential that they are erected before any work starts on the site.

Tree Heritage Ltd

H.E.Williams

H. E. Williams

20th February 2012

Table 1 — Cascade chart for tree quality assessment

TREES FOR REMOVAL

Category and definition	Criteria	Identification on plan
Category R Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other R category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning). • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. • Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality. NOTE Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).	DARK RED RGB code: 127-000-000 AutoCAD 246

TREES TO BE CONSIDERED FOR RETENTION

Category and definition	Criteria – Subcategories			Identification on plan
	1 Mainly arboricultural values	2 Mainly landscape values	3 Mainly cultural values, including conservation	
Category A **Those of high quality and value**: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups)	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN RGB code: 000-255-000 AutoCAD 90
Category B **Those trees of moderate quality and value**: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)	Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)	Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality	Trees with clearly identifiable conservation or other cultural benefits	MID BLUE RGB code: 000-000-255 AutoCAD 170
Category C **Those trees of low quality and value**: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm	Trees not qualifying in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit	Trees with very limited conservation or other cultural benefits	GREY RGB code: 91-91-91 AutoCAD 252
	NOTE Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.			

Site: Cornhill Gardens, Leek
Surveyed by: Hugh Williams
Date: 17/02/2012

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APPENDIX A: TREE SURVEY SCHEDULE

KEY:

Measurements	Age Class	Physiological Condition	Category Grading	Symbols
Height - *Metres* Stem Diameter - *Millimetres at 1.5m above ground level* Branch Spread - *Metres (North, South, East and West)* Crown Clearance - *Metres* RPA Radius - *Metres* Estimated Remaining Contribution - *Years*	Y - *Young* MA - *Middle Aged* M - *Mature* OM - *Over-Mature* V - *Veteran*	G - *Good* F - *Fair* P - *Poor* D - *Dead*	A - *High (green)* B - *Moderate (blue)* C - *Low (grey)* R - *Poor/Trees for removal (red)* **Sub-Categories:** 1 - *Mainly Arboricultural value* 2 - *Mainly Landscape value* 3 - *Mainly Cultural value*	< - *Less than* ~ - *Approximately* > - *Greater than*
RPA - *Root protection area (equivalent to a circle with a radius 12x the stem diameter for single stem trees and 10x the basal diameter for trees with more than one stem arising below 1.5m above ground level)*				

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Tree Ref.	Species	Height	Stem Diameter	Branch Spread				Crown Clearance	Age Class	Phys. Condition	Structural Condition	Recommendations	Estimated Remaining Contribution	Category Grading	RPA Radius
				N	S	E	W								
T1	Flowering Cherry (Prunus 'Kanzan')	6	600	3	3	3	3	3	OM	P	Low vitality. Decay present on stem. Dieback in crown. Major deadwood in crown. Low branches over road/footpath.	Remove major deadwood. Crown lift to 3m.	<10	C1	6
T2	Lawson Cypress (Chamaecyparis lawsoniana)	4	140	1.5	1.5	1.5	1.5	2	MA	G		No work required.	20-40	C1	1.68
T3	Crab Apple (Malus sylvestris)	4	150	1	1	0	1.5	2	M	F	Unbalanced crown shape.		10-20	C1	1.8
T4	Locust Tree (Robinia pseudoacacia)	11	250	3	4	0	4	4	MA	F	Unbalanced crown shape.		10-20	C1	3
T5	Locust Tree (Robinia pseudoacacia)	13	480	5	5	6	3	4	OM	P	Low vitality. Declining. Weak fork. Dieback in crown. Major deadwood in crown. Unbalanced crown shape.		<10	R	5.76
T6	Prunus Spp. (Prunus Spp.)	1.5	170	3	3	4	2	0	MA	G			20-40	C1	2.04
T7	Leyland Cypress (X Cupressocyparis leylandii)	14	380	3	3	3	3	4	MA	F			20-40	C1	4.56
T8	Yew (Taxus baccata)	4	120	2	3	1	3	1	Y	P	Major deadwood in crown. Unbalanced crown shape.		20-40	C1	1.2
T9	Leyland Cypress (X Cupressocyparis leylandii)	14	450	2	2	2	2	5	MA	F			10-20	C1	5.4
T10	Lawson Cypress (Chamaecyparis lawsoniana)	4	95	2	2	2	2	0	MA	P	Dieback in crown.		<10	C1	1.14
T11	Noble Fir (Abies procera)	7	250	3	3	3	3	2	Y	F	Poor pruning cuts.		10-20	C1	3

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Tree Ref.	Species	Height	Stem Diameter	Branch Spread				Crown Clearance	Age Class	Phys. Condition	Structural Condition	Recommendations	Estimated Remaining Contribution	Category Grading	RPA Radius
				N	S	E	W								
T12	Lawson Cypress (Chamaecyparis lawsoniana)	9	300	2	2	2	2	0	MA	F	Low vitality. Ivy on stem.		20-40	C1	3.6
T13	Lawson Cypress (Chamaecyparis lawsoniana)	9	260	2	2	2	2	0	MA	F	Low vitality. Ivy on stem.		20-40	C1	3.12
T14	Weeping Ash (Fraxinus excelsior 'Pendula')	12	430	3	6	2	6	2	OM	P	Decay present on stem. Cavity on stem. Unbalanced crown shape.		<10	C1	5.16
T15	Beech (Fagus sylvatica)	18	920	10	10	9	12	3	M	G	Poor pruning cuts. Major deadwood in crown.		>40	A1	11.04
T16	Corsican Pine (Pinus nigra 'maritima')	18	440	4	4	4	4	12	MA	F	Major deadwood in crown.		10-20	B1	5.28
T17	Beech (Fagus sylvatica)	5	260	1	4	2	2	1	MA	P	Poor shape & form. Unbalanced crown shape.		10-20	C1	3.12
T18	Sycamore (Acer pseudoplatanus)	10	325	3	5	4	5	4	MA	F	Spindly habit. Major deadwood in crown. Unbalanced crown shape.		10-20	C1	3.9
T19	Beech (Fagus sylvatica)	18	375	3	5	6	6	3	MA	F	Spindly habit. Unbalanced crown shape.		20-40	C1	4.5
T20	Sycamore (Acer pseudoplatanus)	10	260	2	4	0	5	2	MA	P	Spindly habit. Unbalanced crown shape. Crown distorted due to group pressure. Squirrel damage in crown.		10-20	C1	3.12
T21	Corsican Pine (Pinus nigra 'maritima')	4	220	0	0	0	0	0	OM	D	Dead.		<10	R	2.64
T22	Corsican Pine (Pinus nigra 'maritima')	20	580	3	7	5	6	10	M	F	Poor shape & form. Ivy on stem. Major deadwood in crown. Unbalanced crown shape.		20-40	B1	6.96

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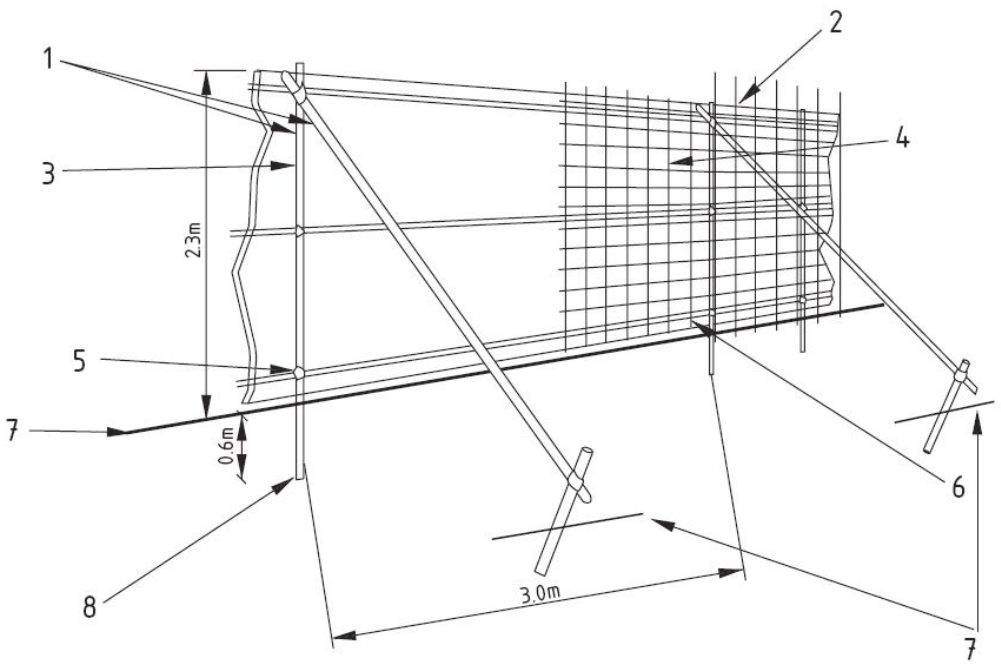
Tree Ref.	Species	Height	Stem Diameter	Branch Spread				Crown Clearance	Age Class	Phys. Condition	Structural Condition	Recommendations	Estimated Remaining Contribution	Category Grading	RPA Radius
				N	S	E	W								
T23	Beech (Fagus sylvatica)	8	300	2	2	2	2	2	MA	F	Low vitality. Spindly habit. Major deadwood in crown. Unbalanced crown shape. Squirrel damage in crown.		10-20	C1	3.6
T24	Sycamore (Acer pseudoplatanus)	11	200	2	2	2	2	4	MA	F	Low vitality. Spindly habit. Ivy on stem. Major deadwood in crown.		10-20	C1	2.4
T25	Sycamore (Acer pseudoplatanus)	17	1000	8	10	5	12	4	M	G	Major deadwood in crown.		>40	A1	10
T26	Beech (Fagus sylvatica)	17	650	7	10	8	9	4	M	G	Major deadwood in crown.		20-40	B1	7.8
T27	Beech (Fagus sylvatica)	19	1100	10	10	10	10	4	M	F	Bacterial canker on stem. Cavity on stem. Major deadwood in crown.	Carry out further inspection. Remove major deadwood.	20-40	B1	13.2
T28	Beech (Fagus sylvatica)	19	670	8	8	8	8	4	M	G	Major deadwood in crown.	Remove major deadwood.	>40	A1	8.04
T29	Sycamore (Acer pseudoplatanus)	16	340	3	3	3	3	6	MA	F	Low vitality. Spindly habit.		10-20	C1	4.08
T30	Sycamore (Acer pseudoplatanus)	16	340	3	3	3	3	6	MA	F	Low vitality. Spindly habit. Ivy on stem.		10-20	C1	4.08
T31	Sycamore (Acer pseudoplatanus)	16	550	6	6	6	6	5	M	G	Ivy on stem. Major deadwood in crown.	Remove major deadwood.	20-40	B1	6.6
T32	Wych Elm (Ulmus glabra)	12	180	3	4	7	0	5	MA	F	Leaning East.		<10	C1	2.16
T33	Yew (Taxus baccata Fastigiata)	4	150	2	4	3	3	1	MA	G			>40	B1	1.5
T34	Blue Atlas Cedar (Cedrus atlantica 'Glauca')	12	260	4	4	4	4	1.5	MA	G	Spindly habit.		>40	C1	3.12
T35	Lawson Cypress (Chamaecyparis lawsoniana)	3	80	0.5	0.5	0.5	0.5	0	MA	F			10-20	C1	0.8
T36	Chinese Juniper (Juniperus chinensis)	4	100	0.75	0.75	0.75	0.75	0.5	MA	F			10-20	C1	1
T37	Lawson Cypress (Chamaecyparis lawsoniana)	4	100	0.75	0.75	0.75	0.75	0	MA	F			10-20	C1	1

Appendix B – Tree Protective Barrier: Figure 2 BS 5837:2005



1 Standard scaffold poles
2 Uprights to be driven into the ground
3 Panels secured to uprights with wire ties and where necessary standard scaffold clamps
4 Weldmesh wired to the uprights and horizontals
5 Standard clamps
6 Wire twisted and secured on inside face of fencing to avoid easy dismantling
7 Ground level
8 Approx. 0.6 m driven into the ground

Figure 2 — Protective barrier

Notes:

1. Do not scale off this drawing. Tree canopy's are symbolic only and are representative of the average spread; this may not represent the true outline. Note that the tree stem may not sit centrally to canopy. The stem is not shown to scale - see schedule.

Rev:	Date:	Status/Amendments:	By:

Key:

- Category A Tree
- Category B Tree
- Category C Tree
- Category R Tree
- Branch Spread
- Tree to be Removed
- Root Protection Area (RPA)
- Root Protective Barrier
- Special Measures

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Client: Mr Waszyl Junaswiz

Project: Cornhill Gardens Leek

Drawing Title: Arboricultural Implications Assessment

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