ARBORICULTURAL REPORT
AND
IMPLICATIONS ASSESSMENT
to BS 5837:2005
at
Worsbrough Hall
Hall Close
Worsbrough Village
Barnsley
South Yorkshire
S70 5LN

Client:
Mr Alan Wyatt
of Worsbrough Hall Developments

Client Address:
Worsbrough Hall Developments
6 Hall Close
Worsbrough
Barnsley
S70 5LN

Client Telephone:
01226 205054

My Ref:
7497/D/AW

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1. Introduction

1.1 Purpose of the Report

1.1.1 A report is needed at Worsbrough Hall, Barnsley, 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 Mr Alan Wyatt of Worsbrough Hall Developments 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.

1.3 Scope of the Report

1.3.1 This report is compiled in accordance with *BS 5837:2005 Trees in relation to construction.*

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 the proposed development and has been considered within the Arboricultural Implication Assessment at **Section 6** and detailed on the plan at **Appendix 7**.

1.4 Survey details

1.4.1 The survey took place during the month of May 2009.

1.4.2 The survey was conducted by Adam Winson BSc (Hons) E Con, ND (Arboriculture).

1.4.3 Inspection was made at ground level. Further investigation, such as climbed inspections or decay detection surveys, may be recommended where appropriate.

1.4.4 Measurements were obtained using clinometers, specialist tapes or electronic distometers. Where this was not possible measurements were estimated.

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2. Site Description

2.1 Land Use

2.1.1 The site is currently an area of rough grassland situated to the west of a group of residential buildings.

2.2 Topography

2.2.1 The site slopes gently down towards the north east, with minor undulations throughout.

2.3 Treescape

2.3.1 The trees on this site have a moderate impact on the local treescape.

2.3.2 Surrounding the site is a mixture of residential and farmland areas, containing many field edge trees and occasional woodland areas.

2.4 Amenity Value

2.4.1 The trees on site collectively provide a reasonable amenity to the surrounding area.

2.5 Age Class Mix

2.5.1 The significant trees surveyed were all mature, with some semi-mature scrub vegetation also noted.

2.6 Species Diversity

2.6.1 Species surveyed include Sycamore, Lime, Oak, Holly, Yew, Birch, Goat Willow and Rhododendron.

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3. Status of the Trees

3.1 A check was made on the 17th of August 2006 with: **Barnsley Metropolitan Borough Council.**

We are informed that there is a Tree Preservation Order in force on this site and that the site is within a Conservation Area.

Before any work is organised, all the necessary steps to get the permission of the Local Planning Authority should be taken.

No work should be done to any trees until this permission has been granted.

3.1 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 attached plan at **Appendix 6** for tree locations.

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5. Discussion

5.1 Tree Condition & Recommended Works

5.1.1 The trees surveyed can be divided into the more significant mature trees (**T1** to **T4** and **T9**) and lower value, semi-mature shrubs and trees (**G5** to **T8**).

5.1.2 The mature Oak (**T3**) is an attractive, large tree. The visual inspection of the upper crown revealed a cavity at an approximate height of 8m (Image 1). The growth form of the crown suggests that many years ago its main stem was torn or damaged at this point, resulting in a cavity and a heavy secondary limb forming the dominant leader, growing from this point towards the west. This has resulted in a slightly unbalanced upper crown. Whilst in its current position this would not cause too much concern, the proposals to remove the adjacent **T2** would expose the tree to a significantly increased chance of wind throw and/or failure of the upper third of the crown. Similarly the increased target value that would occur when the site is developed would lead to the tree becoming unsuitable in its current condition. As such, remedial pruning is recommended to reduce the weight of the upper crown via a selective reduction of 35% with a further 20% crown reduction around the remaining crown to balance the trees form and a 15% crown thin, to remove the dense secondary branches within the crown centre. This reduction work will help reduce the wind resistance of **T3**.

5.1.3 The Lime (**T4**) is an attractive, large tree (Image 2). It is twin-stemmed at 3m with two large, heavy limbs growing upright from this point. The union is tight with partially included bark present from 2m to 3m, with some dirt and vegetation growing from the union. It is possible that this may become a structural weak point in the future. The northern most stem has a long open cavity from approximately 5m to 7m, whilst it is occluding well there appears to be significant decay within the upper section of the cavity. Thus in order to reduce the potential of the tree to structural failure it is recommended to reduce the northern stem by 40% and to reduce the larger southern stem by 30%.

5.1.4 The Lime (**T9**) is situated on adjacent land and forms the last tree in a line of specimens forming a high value amenity feature to the west of the site. Dense epicormic growth prevented a full detailed inspection of the tree yet no major visible defects were noted.

5.1.5 The Sycamore (**T1**) and the Oak (**T2**) are in decline and have a limited long term future. It is understood these trees are to be removed as part of a proposed development.

5.1.6 The other vegetation surveyed (**G5** to **T8**), consists of low value shrubs and trees with little long term prospects. It is understood these trees are to be removed as part of a proposed development.

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6. Arboricultural Implications Assessment (AIA)

6.1 Proposed Development

6.1.1 The proposed development will consist of the construction of several residential dwellings. A proposed drawing has been supplied by the client; this plan can be found at **Appendix 7** and is the basis for which this AIA has been prepared.

6.2 Implications for Existing Trees

6.2.1 **T1**, **T2** and **G5** to **T8** shall require removal, as they are situated so close to the proposed development that protecting them during construction is not practical.

6.2.2 Due to their low value, the removal of **G5** to **T8** will not have a significant negative impact on the surrounding treescape. Indeed, their retention is not considered especially desirable as their removal will allow for suitable soft landscaping of improved quality, which will be more in keeping with a residential development.

6.2.3 The larger trees, **T1** and **T2**, are in a poor and declining condition, thus although there removal may have more of an impact than **G5** to **T8,** this is considered acceptable.

6.3 Protection of Retained Trees

6.3.1 The erection of protective fencing will be the very first job on site following completion of the tree works. The area within the fencing will create the Construction Exclusion Zone (CEZ), and will protect the Root Protection Area (RPA).

6.3.2 It is proposed to construct a garage within the Root Protection Area of **T3**. In order to minimise root damage, the garage must be constructed upon pile foundations instead of the more traditional strip foundation.

6.3.3 It is proposed to construct an access road/drive within the Root Protection Area of **T9**. Special engineering methods and materials will be required in order to minimise root damage and to ensure that the roots are able to access oxygen, water and nutrients once the development is complete.

6.3.4 Boundary walls or other light structures are proposed adjacent to **T3** and **T9.** These structures can be constructed with minimum damage to roots through the use of special engineering methods such as pile foundations rather than the more traditional strip foundations.

6.3.5 Where utilities need to be brought onto the site and then distributed, methodologies on the installation of underground services without damage to tree roots should be considered. All service providers should be consulted prior to commencement of works

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with the aim of minimising the number of service runs on the site.

6.3.6 Pedestrian traffic should be routed so that footpaths and walkways are diverted away from retained trees. Where vehicular traffic will affect trees during construction, temporary protective road surfaces may be installed that will distribute vehicle weight while allowing moisture to reach the tree rooting area. Pedestrian/vehicle ground protection is recommended adjacent to **T3** and **T9**.

6.3.7 It is recommended that the site compound that typically includes the site office, mess facilities, toilets, storage of materials and parking, is located well away from trees and outside of any Root Protection Area. Care should be taken to prevent soil contamination with chemical spillages, including petrol, diesel and oils.

6.3.8 Any issues of shading caused by **T3** and **T4** will be minimised as the trees are deciduous and therefore light penetration will increase in the winter when the sun is lowest. Furthermore the proposed pruning works to the trees will considerably reduce the potential shade cast by the trees (as shown at **Appendix 7**). The remaining trees are located to the north and, therefore, interference with direct sunlight is not an issue. It is considered that the trees are a sufficient distance from proposed dwellings to allow sufficient light to reach windows.

6.3.9 The remaining trees will be unaffected by the development but shall require protection by fencing to BS 5837: 2005 during the development phase.

6.4 Remedial Measures

6.4.1 Part of the proposed development will encroach into the Root Protection Areas of **T3** and **T9**, resulting in possible minor root loss. It would therefore be prudent to apply beneficial *mycorrhiza fungi* to the soils around these trees after the construction phase is complete.

6.4.2 The site offers scope for landscaping and tree planting. Where it has been identified for new planting to take place protective fencing should be erected in order to prevent the compaction of soil.

6.4.3 In order to protect the retained trees during the construction phase the protective barrier needs to be erected. This should be done in an Arboricultural Method Statement (AMS) which will detail all tree works from start to finish.

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7. Conclusions

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

7.2 Pruning works have been recommended in order to improve the suitability of retaining **T3** and **T4** after any development. These are summarised in **Section 6** and detailed at **Appendix 1.**

7.3 There is little room for development within this site without the removal of some poorer quality shrubs and trees (**T1, T2** and **G5** to **T8**) whose value could be replaced as part of a post development landscaping scheme.

7.4 The arboricultural implications of the development have been considered and discussed in **Section 6**.

7.5 Some trees have been recommended for removal in order to facilitate the proposed development. These are discussed in **Section 6** and detailed on the plan at **Appendix 7**.

7.6 Care has been taken at the design stages to ensure that the higher value trees (**T3**, **T4** and **T9**) can be retained and protected from damage.

7.7 The protection of retained trees can be achieved by the creation of a Construction Exclusion Zone based on the Root Protection Area of a tree. The Root Protection Area of each tree or group is marked on the plans at **Appendix 6** and **Appendix 7**.

7.8 The proposed development should be accompanied by an Arboricultural Method Statement (AMS) detailing the specific protection measures necessary for each tree. This should specify fencing standard and positions (the creation of the Construction Exclusion Zone), acceptable construction techniques and necessary tree works.

7.9 Upon instruction JCA Ltd are able to provide a comprehensive Arboricultural Method Statement in order to ensure the continued health of trees throughout the proposed development. We are also able to provide trees planting schemes and organise tree works.

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Appendices

Appendix 1 – Tree Descriptions and Recommendations

Ref No.	Age & Species & *Latin name*	Height (m)	Crown Height (m)	Stem Diameter (cm)	Crown Spread N / W / E / S	Observations	Recommendations	Physio-logical Condition & Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
T1	Mature Sycamore *Acer pseudoplatanus*	22	7	103	N 7 / W 7 / E 10 / S 8	In decline with limited long term value. To be removed as part of proposed development.	Remove	FAIR FAIR	MOD	10-20	**R**
T2	Mature Sessile Oak *Quercus petraea*	22	3	90	N 8 / W 7 / E 8 / S 7	In decline with limited long term value. To be removed as part of proposed development.	Remove	FAIR FAIR	MOD	20-40	**R**
T3	Mature Sessile Oak *Quercus petraea*	21	3	77	N 7 / W 8 / E 8 / S 10	Single-stemmed and vertical with a wide spreading, dense crown. An old torn stem at 8m has resulted in a cavity and a heavy stem growing out to the west.	Crown reduce the upper western section by 35%; Reduce the remaining crown by 20% and Crown thin by 15%	GOOD FAIR	MOD	40+	**B**
T4	Mature Lime *Tilia sp.*	24	1	95	N 5 / W 6 / E 5 / S 6	Single stemmed becoming twin-stemmed at 4m with a tight union and partially included bark. Well developed crown with upright form. Major long cavity on one stem, with mature occluding growth yet significant decay in upper section. No evidence of significant pruning.	Crown reduce the northern stem with the cavity by 40%; Crown reduce the remaining stem by 30%	GOOD FAIR	MOD	10-20	**B**
G5	Semi-mature Holly *Ilex aquifolium*	8	2	Ave 15	See Plan	A group of single stemmed and multi-stemmed, scrappy trees with a limited value.	No action required *Remove / coppice to facilitate development*	GOOD FAIR	LOW	10-20	**C**
T6	Semi-mature Yew *Taxus baccata*	7	2	40 at base	N 0 / W 2 / E 2 / S 3	Multi-stemmed from close to its base. Significantly unbalanced crown which overhangs the wall.	No action required *Remove to facilitate development*	GOOD FAIR	LOW	20-40	**C**
G7	Semi-mature Holly, Rhododendron, Birch *Ilex sp., Rhododendron sp. and Betula sp.*	To 7	2	Ave 20	See Plan	A group of single stemmed and multi-stemmed, scrappy trees and shrubs with a limited value.	No action required *Remove to facilitate development*	GOOD GOOD	LOW	20-40	**C**

Appendix 1 – Tree Descriptions and Recommendations

Ref No.	Age & Species & *Latin name*	Height (m)	Crown Height (m)	Stem Diameter (cm)	Crown Spread N W E S	Observations	Recommendations	Physio-logical Condition & Structural Condition	Amenity Value	Life Expectancy (yrs)	Retention Category
T8	Semi-mature Goat Willow *Salix caprea*	6	2	30 at base	N 3, W 3, E 3, S 3	Multi-stemmed from close to its base with a tight union and partially included bark. Of scrappy form with limited long term value.	No action required *Remove to facilitate development*	GOOD FAIR	LOW	10-20	C
T9	Mature Lime *Tilia sp.*	18	3	Est. 70	N 3.5, W 4, E 5, S 5	Situated on adjacent land. Single stemmed and vertical. Dense epicormic growth prevented detailed inspection yet no major visible defects apparent.	No action required	GOOD FAIR	LOW	10-20	B

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

A2.1.3 *STEM DIAMETER* is measured at 1.5 metres above (higher) ground level. Where the tree is multi-stemmed at this point; the diameter is measured close to ground level, just above the root buttress.

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.

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A2.3 Retention Categories

A2.3.1 ***A (marked green on the plan) = retention most desirable.***

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) = retention desirable.***

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 which could be retained.***

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 ***R (marked in red on the plan) = 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) Removal of other category R 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.

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Appendix 3: General Guidelines

A3.1 All work must be to BS 3998:1989 - '*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 Ltd 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.

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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 – Theoretical rooting area of a tree as defined in BS5837:2005 *Trees in relation to construction.*
Topping	Topping is a form of pruning that removes terminal growth leaving a 'stub' cut end. Topping causes serious health problems to a tree.

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Appendix 5: The Author's Qualifications

Principal Consultant and Managing Director

Jonathan Cocking *FRES PDipArb(RFS) FArborA CBiol MIBiol.* Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 28 years experience in the arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. He has since developed JCA's portfolio of services and its extensive client base. Jonathan is a Chartered Biologist and an expert witness with much experience of litigation work.

Consulting Arboriculturists

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 Lancashire. Toby is a JCA team leader and manages an office of consulting arborists.

Andrew Bagshaw *FD (Arboriculture).* Andrew 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. He is currently working towards a degree in arboriculture at the University of Lancashire.

Adam Winson *BSc (Hons) E Con, ND (Arboriculture).* Prior to working at JCA Adam has worked as a tree surgeon for eight years for a range of private companies and Sydney City Council. Adam achieved a national award for best Dissertation on the subject of Urban Greenspace Management at Sheffield Hallam University. Adam is currently working towards an MSc in Arboriculture at the University of Lancashire.

Robert Godwin *BA (Hons), MArborA.* Robert is a Professional Member of the Arboricultural Association and a Professional Associate of the Institute of Chartered Foresters. He has a degree in Landscape Planning and has several years experience as an arboricultural consultant. Robert is currently working towards an MSc in Arboriculture at the University of Lancashire.

Edward Jowett. *BSc (Hons) Arboriculture* Edward has achieved his BSc at the University of Lancashire. He has had temporary appointments as Tree Officer with local authorities in the Manchester area, joining JCA to further his commercial knowledge and experience.

Graham King *Dip Arb (RFS) FArborA MRAC.* Graham covers the Midlands for JCA. He ran his own arboricultural business from 1980 before gaining his Diploma in 1992 and is a Fellow of the Arboricultural Association.

Simona Ferutta *MSc Forestry and Environmental Sciences.* Simona achieved her MSc in Forestry and Environmental Sciences at the University of Turin, Italy in 1996. She has recently joined JCA after several years in forest, crops and tree care in Italy as a professional.

Arboricultural Technicians

Victoria Black. Victoria has been with JCA for over 5 years building her knowledge of the arboricultural business. She is currently working towards a degree in arboriculture at the University of Lancashire.

Andrew Bussey. Andrew joined JCA having spent 12 years doing tree surgery for various private companies and a local authority. He has various NPTC qualifications and is currently studying for his Arboricultural Technicians Certificate.

Toby Parsons. Toby recently 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 is currently studying for the Arboricultural Technicians Certificate

Administrative Staff

Andrew C Parker, GM, BA (Hons), PGCE, Practice Manager
Catherine Cocking, Accounts Manager
Yasmin Hussain, Administrative Assistant
Simeon Haigh, BSc (Hons) IT Officer
Sue Guest, Administrative Officer
Sally Whitwam, Administrative Assistant
Alec Fielden, CAD Technician

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Appendix 6: Tree Constraints Plan and Images

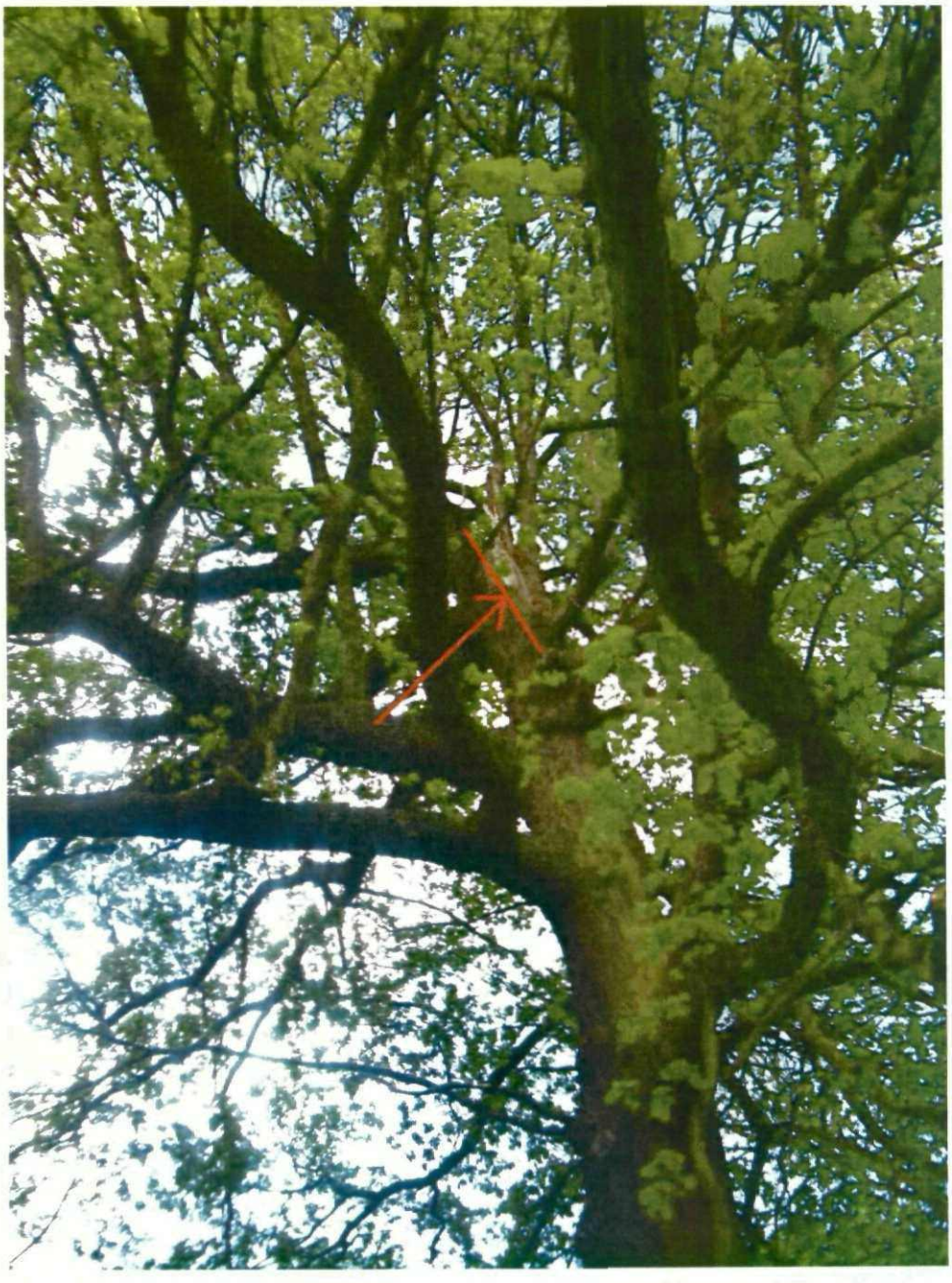


Image 1

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Image 2

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Appendix 6:
Tree Constraints Plan

TITLE:
Worsbrough Hall, Hall Close, Barnsely.
JCA Ref: 7497/(D/AW).

SCALE : 1:500	PAPER SIZE : A3

BRITISH STANDARD 5837:2005: 4.3.1
RETENTION CATEGORIES

Detailed definitions of these categories are at Appendix 3 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 R: 'TREE FOR REMOVAL'
	ROOT PROTECTION AREA
•	CENTRE OF TREE/SHRUB
•	CENTRE OF TREE/SHRUB TO BE REMOVED

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Arboricultural Association Consultant

THE ROOT PROTECTION AREA (RPA) IS THE MINIMUM AREA AROUND A TREE WHICH SHOULD BE LEFT UNDISTURBED IN ORDER TO AVOID DAMAGE TO THE ROOTS OR THE ROOTING ENVIRONMENT.

IF WORK NEEDS TO CARRIED OUT WITHIN THE RPA THEN SPECIALIST SURFACES OR SPECIALIST CONSTRUCTION TECHNIQUES MUST BE CONSIDERED. CARE MUST ALSO BE TAKEN TO AVOID GROUND COMPACTION WITHIN THE RPA AND THE STORAGE OF MATERIALS IS NOT PERMITTED. ANY EXCAVATIONS WHICH ARE REQUIRED WITHIN THE RPA MUST ONLY BE CARRIED OUT BY HAND.

Appendix 7: Proposed Site Plan

TITLE:
Worsbrough Hall, Hall Close, Barnsely.
JCA Ref: 7497/(D/AW)

SCALE : 1:500	PAPER SIZE : A3

BRITISH STANDARD 5837:2005: 4.3.1
RETENTION CATEGORIES
Detailed definitions of these categories are at Appendix 3 of our report. N.B. These categories do not necessarily represent or correspond to recommendations for action made in this report.

	TREE TO BE RETAINED
	TREE TO BE REMOVED TO FACILITATE DEVELOPMENT
•	CENTRE OF TREE TO BE RETAINED
•	CENTRE OF TREE TO BE REMOVED
	ROOT PROTECTION AREA
	PROPOSED DEVELOPMENT

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Arboricultural Association Consultant



MAXIMUM AREA OF THE TREE SHADOW
(morning/midday/evening)

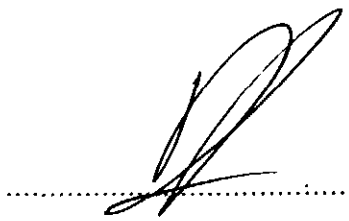
MAXIMUM AREA OF THE TREE SHADOW AFTER PRUNING
(morning/midday/evening)

THE ROOT PROTECTION AREA (RPA) IS THE MINIMUM AREA AROUND A TREE WHICH SHOULD BE LEFT UNDISTURBED, IN ORDER TO AVOID DAMAGE TO THE ROOTS OR THE ROOTING ENVIRONMENT

IF WORK NEEDS TO CARRIED OUT WITHIN THE RPA THEN SPECIALIST SURFACES OR SPECIALIST CONSTRUCTION TECHNIQUES MUST BE CONSIDERED. CARE MUST ALSO BE TAKEN TO AVOID GROUND COMPACTION WITHIN THE RPA AND THE STORAGE OF MATERIALS *IS NOT PERMITTED*. ANY EXCAVATIONS WHICH ARE REQUIRED WITHIN THE RPA MUST ONLY BE CARRIED OUT BY HAND.

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



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Adam Winson BSc (Hons) E Con. ND (Arboriculture).

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

Registered Office:

Unit 80
Bowers Mill
Branch Road
Barkisland
Halifax
HX4 OAD

Tel. 01422 376335
Fax. 01422 376232
Email: jon@jcaac.com

www.jcaac.com

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