ARBORICULTURAL REPORT AND ARBORICULTURAL IMPACT ASSESSMENT to BS 5837:2012 at Land off Lesmond Crescent Little Houghton Barnsley South Yorkshire S72 0EZ

Client:
John Verity

JCA Ref:
16785/DK

JCA Limited
Arboricultural & Ecological Consultants

Contents

1. Introduction

1.1 Purpose of the Report

1.1.1 This report is required at **Land off Lesmond Crescent, Little Houghton, ba4rnsley** to provide detailed, independent, arboricultural advice on the trees present, in the context of potential development.

1.1.2 The purpose of this report is to assess the impact of the proposals on the existing tree stock and outline mitigation actions, where appropriate, to minimise potential damage to the trees which are to be retained. The report includes an assessment of the existing vegetation, along with recommendations based on the current context of the site; clearly defined from those required to facilitate the development.

1.2 Terms of Reference

1.2.1 JCA Ltd has been instructed by **J&K Builders** to amend our original report reference **15288/DK** with their new proposals.

1.2.2 For this purpose a new site plan has been supplied (**Site Layout - Lesmond Cr**), which forms the basis for the AIA Plan at **Appendix 7**. The site plan, along with all other documents supplied to JCA, is assumed to be correct. No checking of such documents will be undertaken and JCA cannot be held responsible for incorrect data supplied by other parties.

1.3 Scope of the Report

1.3.1 This report is compiled in accordance with *BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'* and is based on an independent and objective assessment of the existing vegetation.

1.3.2 All trees within the site boundary with a stem diameter above 75mm are included.

1.3.3 Where applicable trees outside the site boundary, but close enough to be affected by the proposed development, are included.

1.3.4 The specific design of the proposed development has been considered within the Arboricultural Impact Assessment in **Section 6** and is detailed on the plan at **Appendix 7**.

1.4 Survey Details

1.4.1 The survey took place during the month of September 2019 and was conducted by **Dan Kemp** ***FdSc (Arboriculture)***.

1.4.2 Measurements were obtained using clinometers, specialist tapes or electronic distometers. Where this was not possible, measurements were estimated to the best ability of the surveyor. JCA endeavour to provide accurate information and will always take measurements unless inhibited by restricted access or other mitigating circumstances. Where measurements have been estimated, they are clearly highlighted at **Appendix 1.**

2. Site Description

2.1 Land Use

2.1.1 The site is currently derelict land with extensive bramble and other herbaceous vegetative growth.

2.2 Topography

2.2.1 The site is approximately level.

2.3 Treescape

2.3.1 The areas to the immediate south and west are residential with occasional trees. Farmland extends further south and to the east with some wooded areas, and there is a golf course to the north with many trees.

2.3.2 The hedgerows on the north and east sides of the site from Rotherham Road (along both sides of the unsurfaced track) have a significant impact on the local landscape. The remaining vegetation surveyed has a minor impact on the local treescape.

2.4 Visual Amenity Value

2.4.1 The trees on the site collectively provide a reasonable visual amenity to the surrounding area. The hedgerows provide a high amenity value to parts of the boundary areas of the site.

2.5 Age Class Mix

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

2.6 Species Diversity

2.6.1 Species surveyed include Hawthorn, Holly, Field Maple, Lawson Cypress, Privet, Wild Cherry, Apple and Weeping Willow.

3. Status of the Trees

3.1 A check was made on 3rd September 2019 with ***Barnsley Council.***

3.2 We are informed that there is no Tree Preservation Order (TPO) 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. This is especially relevant as the Local Authority is able to serve a TPO at any time.

4. Tree Descriptions and Recommendations

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

5. Discussion Relating to the Existing Treescape

5.1 Tree Condition & Recommended Works

5.1.1 The tree survey revealed a total of **19** items of vegetation (**14** individual trees and **5** hedges). Of these, **2** trees and **3** hedges were identified as retention category 'B' and **12** trees and **2** hedges were identified as retention category 'C'. Please refer to **Appendix 2** for retention category and definition criteria.

5.2 Removals Irrespective of Development

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

5.3 Remedial Tree Works

5.3.1 On this occasion, no remedial works were deemed necessary at this time. Trees which overhang public footpaths or public highways shall require future maintenance in order to maintain clearance heights for vehicular or pedestrian traffic. These heights should be 5.6m above a road and 2.5m above a footpath.

5.4 Monitoring / Further Investigations

5.4.1 In this case, no specific monitoring (re-inspecting and re-assessing) or further investigation works are considered necessary. However, all trees to be retained within the proposed development should be inspected on a regular basis in the interests of risk management.

6. Arboricultural Impact Assessment (AIA)

6.1 Proposed Development

6.1.1 The proposed development will consist of the construction of 8 detached residential properties with an associated access road and soft landscaping.

6.1.2 Drawing No. **Proposed Siteplan-D.dwg-REV-C-JCA** 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.

6.1.3 All tree works required to accommodate the proposals are included at **Appendix 1,** which lists all works recommended during the initial survey and those required for the development.

6.2 Tree Removals for Development

6.2.1 The trees requiring removal are all retention category 'C' and can be removed without significantly affecting the visual amenity of the surrounding area.

6.2.2 **6** trees require removal to accommodate the proposals. These include **T1**, **T2**, **T3**, **T4**, **T5** and **T6** category 'C' trees.

6.2.3 All the trees requiring removal are retention category 'C' and can be removed without significantly affecting the visual amenity of the surrounding area.

6.2.4 The removal of trees for development can often be mitigated (either partially or entirely) by the replacement of suitable specimens within a planting scheme. Whilst not always necessary, the planting of trees can improve the aesthetic value of the surrounding area and may be conditioned in the usual manner.

6.3 Pruning for Development

6.3.1 The footprint of the proposed driveway passes within the RPA of **T9**, As this is minimal root pruning will be required, under the supervision of an appointed arboriculturist, thus avoiding the need for specifying a no-dig surface. Root pruning will accommodate the proposed structure whilst preventing any 'ripping' damage, a problem commonly associated with mechanical excavations.

6.4 Implications for Retained Trees

6.4.1 The Protective Barrier

6.4.1.1 In order to ensure the effective protection of retained trees during development, a protective barrier will be installed, in accordance with BS5837: 2012 and may comprise of protective fencing and ground protection. This will be the first job on site following the tree removal and pruning works. The fencing should ideally be positioned to protect the entire **Root Protection Area** (**RPA**) of the retained trees, in order to create a **Construction Exclusion Zone** (**CEZ**).

6.4.1.2 Routes for pedestrian and site traffic will be located outside, and diverted away from, the RPAs of the retained trees wherever possible. Where this is not practicable, temporary protective surfaces (ground protection) must be laid over the exposed RPAs to reduce/limit soil compaction. The ground protection must therefore distribute the weight of site vehicles, machinery or pedestrians whilst allowing moisture to reach the tree rooting area beneath. Such surfaces must be constructed in accordance with BS5837: 2012.

6.4.2 Access/Construction of Hard Surfacing

6.4.2.1 Proposed hard surfacing is located within the RPA of one of the retained trees **T9**. Due to the minimal nature of the incursion, it is not considered necessary to install specialised surfaces. Instead, root pruning will be undertaken under the supervision of an appointed arboriculturist to minimise potential damage to tree roots and prevent 'ripping' damage, which is commonly associated with mechanical excavation.

6.4.3 Demolition

6.4.3.1 No demolition activities are required adjacent to retained trees and as such, no mitigation measures are considered necessary.

6.4.4 Construction/ Foundation Design.

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

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

6.4.4.3 Advice should always be sought from a suitably qualified Structural Engineer. The water demand of trees can be an important consideration when determining the appropriate foundation design. Due of this, water demands for the trees identified on this site are included in **Appendix 1**, in accordance with **NHBC chapter 4.2**, for the use of the appointed structural expert.

6.4.5` Utilities

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

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

6.4.6 Site Compound

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

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

6.4.7 Landscaping

6.4.7.1 Proposed fence lines may be constructed within the RPA of a tree if necessary, providing that appropriate considerations are taken with regards to the well-being of the tree. As such, no continual trenching is to be undertaken within the RPA (e.g. for small walls onto which panel fencing is installed). Excavation must be kept to a minimum and therefore only fence designs requiring intermittent posts will be acceptable within the RPA. Fences should also be kept as far away from the main stems of the trees as is reasonably possible.

6.4.7.2 Any patios, garden paths or other hard surfaces within RPAs which may not be shown on the projected layout (**Appendix 7),** and in addition to those mentioned in **Section 6.4.2, (hard surfaces)** may be constructed using no-dig techniques, providing that they do not cover more than 20% of the RPA and are implemented in accordance with BS5837: 2012. Such surfaces are to be kept as far away from the main stems of the trees as is reasonably practicable. If there is any concern of damaging retained trees, further advice should be sought from a qualified Arboriculturalist.

6.4.7.3 No ground level changes are to be undertaken within the RPA of retained trees, unless otherwise stated or agreed with the appointed Arboricultural consultant or the LPA. The requirement to raise/lower ground levels within RPAs should be communicated to these parties at the earliest practical convenience.

6.5 Remedial Measures

6.5.1 In order to protect the retained trees during the construction phase, protective fencing needs to be installed. Protective fencing specifications and on site positioning, along with details of any necessary specialist construction methods can be provided in an Arboricultural Method Statement (AMS).

6.5.2 Part of the proposed development will encroach into the RPAs of retained trees, resulting in possible root loss. It would therefore be prudent to apply appropriate mycorrhiza fungi to the soils around these trees after the construction phase is complete. Certain mycorrhizal fungi form a symbiotic relationship with tree roots. A tree root associated with such mycorrhizae will take up nutrients more effectively and this will therefore help the tree to produce new roots more effectively, so benefitting their recovery.

6.5.3 The site offers scope for landscaping and tree planting. All areas identified for the new planting should also be protected by fencing during the construction phase to prevent the compaction of the soil.

7. Conclusions

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

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

7.3 Some trees require removal in order to facilitate the proposed development. These are discussed in **Section 6.2** and detailed on the plan at **Appendix 7**.

7.4 All development work carried out in close proximity to trees must be executed in a manner sympathetic to their needs. Otherwise, the condition of the trees may deteriorate in the months and years following development, leading to a loss of amenity and resulting in potentially hazardous trees. Care must therefore be taken to ensure that the retained trees are suitably protected.

7.5 In accordance with **Section 6.1** of **BS 5837: 2012**, the next stage on this site should be the preparation of an **Arboricultural Method Statement (AMS)**, to ensure that all the retained trees survive the development process. An **AMS** details which trees are to be removed, which trees are to be retained and any other tree works which are required to facilitate development. The **AMS** will also advise on temporary protective barriers, temporary ground protection, site supervision, location of services and it will detail specialist construction techniques.

7.6 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.

7.7 In accordance with **Section 6.3** of **BS 5837: 2012**, site supervision will be required.

Appendices

Appendix 1: Tree Descriptions and Recommendations

Tree Ref.	Age Common Name *Botanical Name*	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	No. of Stems	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
T 1	Early Mature Holly *Ilex aquifolium*	6 #	2 #	2 # N/A	7 #	10 to 20 #	2.5 # 2.5 # 2.5 # 2.5 #	Vertical multi stemmed trees. Pruned back from west boundary.	*Remove to facilitate development.*	GOOD	GOOD	LOW	LOW	40+	C 1
T 2	Semi Mature Elder *Sambucus nigra*	3 #	1 #	1 # N/A	Multiple	5 to 10 #	1.5 # 1.5 # 1.5 # 1.5 #	Small spreading crown with no dominant leader.	*Remove to facilitate development.*	GOOD	GOOD	LOW	LOW	20+	C 1
T 3	Semi Mature Hawthorn *Crataegus monogyna*	3 #	1 #	1 # N/A	1 #	8 #	1 # 1 # 1 # 1 #	Vertical stem. Vegetation and debris sounding tree.	*Remove to facilitate development.*	GOOD	GOOD	LOW	HIGH	20+	C 1
T 4	Semi Mature Hawthorn *Crataegus monogyna*	3 #	1 #	1 # N/A	1 #	8 #	1.5 # 1.5 # 1.5 # 1.5 #	Small spreading crown with no dominant leader.	*Remove to facilitate development.*	GOOD	GOOD	LOW	HIGH	20+	C 1
T 5	Semi Mature Hawthorn *Crataegus monogyna*	3 #	1 #	1 # N/A	1 #	8 #	1 # 1 # 1 # 1 #	Small spreading crown with no dominant leader.	*Remove to facilitate development.*	GOOD	GOOD	LOW	HIGH	20+	C 1
T 6	Semi Mature Hawthorn *Crataegus monogyna*	2 #	1 #	1 # N/A	1 #	6 #	1.5 # 1.5 # 1.5 # 1.5 #	Small spreading crown with no dominant leader.	*Remove to facilitate development.*	GOOD	GOOD	LOW	HIGH	20+	C 1
T 7	Early Mature Lawson Cypress *Chamaecyparis lawsoniana*	6 #	0.5 #	1 # N/A	Multiple	30 #	1.5 # 1.5 # 1.5 # 1.5 #	A third party tree, limited inspection. Private tree in back garden. Main stem vertical. Low branch union to West.	No recommendations noted. N/A	GOOD	GOOD	LOW	HIGH	40+	C 1
T 8	Early Mature Weeping Willow *Salix babylonica*	9 #	0.5 #	1 # N/A	1 #	40 #	3.5 # 3.5 # 3.5 # 3.5 #	A third party tree, limited inspection. Private tree in back garden. Well established with spreading crown.	No recommendations noted. N/A	GOOD	GOOD	MOD	HIGH	40+	C 1
T 9	Early Mature Lawson Cypress *Chamaecyparis lawsoniana*	8 #	1 #	1 # N/A	1 #	30 #	2 # 2 # 2 # 2 #	A third party tree, limited inspection. Private tree in 1 of 2 gardens. Climber in crown.	*Root pruning required to facilitate development.*	GOOD	GOOD	LOW	HIGH	20+	C 1
H 10	Early Mature Privet *Ligustrum ovalifolium*	1 #	N/A	N/A N/A	N/A	5 to 10 #	See plan	A third party tree, limited inspection. Approximately 10 metres long. Showing evidence of recent hard pruning.	No recommendations noted. N/A	GOOD	FAIR	MOD	NO DATA	20+	C 1
T 11	Early Mature Wild Cherry *Prunus avium*	9 #	3 #	3 # N/A	1 #	40 #	4 # 4 # 4 # 4 #	A third party tree, limited inspection. Main stem divides low down into 2, main stem vertical and secondary stem growing at an angle to the north west.	No recommendations noted. N/A	GOOD	GOOD	LOW	MOD	20+	C 1
T 12	Early Mature Apple (edible) *Malus domestica*	5 #	1 #	1 # N/A	1 #	20 #	1.5 # 1.5 # 1.5 # 1.5 #	A third party tree, limited inspection. Tree in neighbouring garden looks to have good vitality.	No recommendations noted. N/A	GOOD	GOOD	LOW	#N/A	20+	C 1
T 13	Early Mature Apple (edible) *Malus domestica*	4 #	1 #	1 # N/A	1 #	15 x3 #	2 # 2 # 2 # 2 #	A third party tree, limited inspection. Divides into 3 secondary limbs at 0.5m, main stem approx 25cm at base.	No recommendations noted. N/A	GOOD	GOOD	LOW	#N/A	20+	C 1
H 14	Early Mature Hawthorn *Crataegus monogyna*	5 to 6 #	N/A	0 # N/A	N/A	5 to 20 #	2 # 2 # 2 # 2 #	Intermittent field boundary hedge dominated by Hawthorn with Holly, Field Maple and herbaceous ground flora.	No recommendations noted. N/A	GOOD	GOOD	MOD	HIGH	20+	B 1
T 15	Early Mature Field Maple *Acer campestre*	11 #	1 #	1 # N/A	3 #	15, 20, 40 #	2 # 4 # 2 # 4 #	Bank/ditch. Ivy towards top of crown. In hedgeline.	No recommendations noted. N/A	GOOD	GOOD	MOD	MOD	40+	B 1

Tree Ref.	Age Common Name *Botanical Name*	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	No. of Stems	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
T 16	Early Mature Field Maple *Acer campestre*	11 #	4 #	4 # N/A	2 #	35, 25 #	2.5 # 3.5 # 3.5 # 3.5 #	Tree in hedgeline on bank with ditch to the north east. Ivy towards top of crown.	No recommendations noted. N/A	GOOD	GOOD	MOD	MOD	40+	B 1
H 17	Early Mature Hawthorn *Crataegus monogyna*	3 to 6 #	N/A	N/A	N/A	5 to 20 #	N/A	Triple stemmed. Intermittent field boundary hedge with Elder and herbaceous ground flora.	No recommendations noted. N/A	GOOD	GOOD	MOD	HIGH	20+	B 1
H 18	Early Mature Hawthorn *Crataegus monogyna*	4 to 6 #	N/A	N/A	N/A	5 to 20 #	N/A	Intermittent field boundary hedge with Elder. Areas of cutting back to maintain clearance along track.	No recommendations noted. N/A	GOOD	GOOD	MOD	HIGH	20+	B 1
H 19	Early Mature Privet *Ligustrum ovalifolium*	1 to 2 #	N/A	N/A	N/A	1 to 10 #	N/A	Front and side garden boundary hedge. Well maintained.	No recommendations noted. N/A	GOOD	GOOD	MOD	NO DATA	40+	C 1

Appendix 2: Explanation of Tree Descriptions

A2.1 Measurements/ Reference Information

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

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

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

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

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

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

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

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

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

A2.2 Evaluations

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

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

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

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

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

A2.3 Retention Categories

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

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

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

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

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

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

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

1 = Mainly arboricultural qualities.

2 = Mainly landscape qualities.

3 = Mainly cultural values, including conservation value.

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

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

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

These trees are to be removed or managed in a way which reduces their risk of failure, where they have high ecological value, such as in a woodland setting.

Appendix 3: General Guidelines

A3.1 All tree work must be undertaken to BS 3998: 2010 '*Recommendations for tree work'* or other recognised industry practice.

A3.2 Staff carrying out the work must be qualified, experienced and ideally be Arboricultural Association approved contractors. They should be covered by adequate public liability insurance.

A3.3 This report is based upon a visual inspection. The consultant shall not be responsible for events which happen after this time due to factors which were not apparent at the time, and the acceptance of this report constitutes an agreement with the guidelines and the terms listed in this report.

A3.4 Any defects seen by a contractor or the employer that were not apparent to the consultant must be brought to the consultant's attention immediately.

A3.5 No liability can be accepted by JCA in respect of the trees unless the recommendations of this report are carried out under the supervision of JCA and within JCA's timescale.

A3.6 It is advisable to have trees inspected by an arboricultural consultant regularly.

Appendix 4: Glossary of Terms & Abbreviations

Arboriculture The cultivation of trees in order to produce individual specimens of the greatest ornament, for shelter or any primary purpose other than the production of timber.

Canker Disease damaged area of a tree, usually caused by fungus or bacteria affecting the bark.

Co-dominant stem A stem which has grown in direct competition to the main stem and which has formed a substantial size influencing the appearance of the tree.

Crown lift The removal of the lowest branches, usually to a given height. It allows more residual light and greater clearance underneath for vehicles etc.

Crown reduction The reduction of a tree's height and spread while preserving its natural shape.

Crown thin The removal of some of the density of a tree's crown**,** usually 5-15% allowing more light through its canopy and reducing wind resistance.

Deadwood Either dead branches, or a procedure involving the removal of dead, dying and diseased branches.

Dieback Where branches are beginning to show signs of death usually at the tips in the crown.

Epicormic shoots Small branches that grow in clusters around the base of the stem of a tree or within the crown. This is usually as a result of bad pruning or some other stress factor, although can be a natural growth pattern for some species of tree (eg Lime species).

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

Included bark Where the bark on two adjoining branches or stems is growing tight together, forming a joint with limited physical strength.

Pollarding A method of tree management in which the main trunk and principle branches of the tree are cut to the same height, and the resulting branches are then cropped on a regular basis.

Remedial pruning The removal of old stubs, deadwood, epicormic growth, rubbing or crossing branches and other unwanted items from the tree's crown. Sometimes referred to as crown cleaning.

RPA Root Protection Area – Theoretical rooting area of a tree as defined in BS5837:2012 *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.

Appendix 5: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking *F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FArborA CBiol MSB. MICFor.* Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 31 years experience in the Arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. Jonathan has since developed JCA's portfolio of services and its extensive client base. He is a Chartered Biologist, a Chartered Arboriculturalist and an Expert Witness with much experience of litigation work.

Technical Director

Toby Thwaites *BSc (Hons), HND (Arboriculture), MArborA.*. Toby joined JCA in 1998 after graduating in Ecology at the University of Huddersfield and has since graduated in Arboriculture at the University of Central Lancashire. A former JCA team leader and Consulting Arboriculturist, Toby is now Technical Director and oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Consulting Staff: Arboriculture

Toby Parsons *Cert. Arb. (RFS), Tech. Cert. (Arbor A).* Toby joined JCA after spending 6 years working as a senior climber for various Arboricultural contractors in the East Midlands and the South-West. He has gained the Level 2 Certificate in Arboriculture (RFS) and an Arboricultural Technicians Certificate. Toby is LANTRA certified in Professional Tree Inspection.

Andrew Bussey. Andrew joined JCA having spent 12 years working as a tree surgeon for various private companies and a Local Authority. He has various NPTC qualifications, is QTRA qualified and is currently studying for his Arboricultural Technicians Certificate.

Phil Humeniuk *FdSc (Arboriculture).* Phil joined JCA having spent 3 years working for various tree surgery companies and as a Tree Officer for a Local Authority. He also has several years experience working as a consultant both for JCA and for another consultancy. Phil obtained his foundation degree in Arboriculture at the University of Central Lancashire and has various NPTC's and is LANTRA certified in Professional Tree Inspection.

Emily Wilde *FdSc (Arboriculture).* Emily joined JCA having previously worked for various private tree surgery and consultancy companies over the past 8 years. She initially obtained a ND in Forestry & Arboriculture, followed by a FdSc in Arboriculture at Askham Bryan College, York. Emily has various NPTC certificates and is QTRA qualified.

Mick Eltringham *ND (Forestry).* Mick joined JCA after spending 12 years working in the industry for various private companies in the north and south of England. He has also spent the last five years working as a consultant for two canopy research projects in the Amazon Rainforest, working with Oxford University and the University of Arizona. He has various NPTC Qualifications.

Charles Cocking *FdSc (Arboriculture), MArborA.* Charles joined JCA in January 2014 as an Apprentice having previously worked for the company on a part time basis during 2013. Charles obtained his Foundation Degree in Arboriculture at Askham Bryan College, York, and is now part of our qualified Arboricultural consultancy team.

Paul Hodgson *Cert Arb (RFS), FdSc Arb, MArborA*. Paul joined JCA after spending 11 years working in the industry and for various organisations, which included practical tree work, surveying, lecturing at Myerscough College, Arb team leader at Royal Botanic Gardens, Kew, and a number of senior management positions. Paul is a professional member of the Arboricultural Association and a member of the Kew Guild.

Dan Kemp *FdSc (Arboriculture).* Dan joined JCA with nearly 30 years' experience in arboriculture. He worked as a London Tree Officer for 12 years and in several arboricultural and horticultural management posts, specialising particularly in tree risk assessments and tree related subsidence.

Consulting Staff: Ecology

David Bodenham *BSc Ind (Hons) Zoology, MSc Biodiversity and Conservation.* David joined JCA as an addition to the expanding ecology department. An advocate of evidence based conservation, he studied Zoology (Ind) at University and moved onto an MSc in Biodiversity and Conservation where he gained the myriad of skills needed as an ecologist. With over 7 years of experience, David specialises in bat and amphibian ecology.

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

Amanda Beck *Cert He in Field Ecology.* Amanda joined JCA's ecology department in 2018, previously working as a freelance Ecological Consultant in North Wales and Liverpool and as a trainee Ecologist in South Wales. Amanda has extensive practical experience in surveying for botanical, amphibians, terrestrial and marine mammals along with invertebrate research work. She has practical experience in habitat management and creation and is a CIEEM student member.

Joe Earnshaw *BSc (Hons), MSc Biodiversity and Conservation, Student CIEEM Member*. Joe joined JCA's ecology department in 2018. He has a bachelor degree in Animal Management, from Askham Bryan College, York and has further obtained an MSc in Biodiversity and Conservation from the University of Leeds. Joe has expertise in aquatic invasive species identification/control and has practical experience in artificial badger sett and wetland creation. Joe is a member of the West Yorkshire Bat Group and volunteers with the Rivers Trust as part of their river monitoring project.

Administrative Staff

Simeon Haigh *BSc (Hons).* IT Director.
Lorraine Spink Administrative Assistant.
Lisa Hampson Marketing Manager.
Catherine Cocking Accounts Manager.
Kelly Saunders Accounts Assistant.

Appendix 6: Tree Constraints Plan

MIDDLECLIFFE LANE

Shelter

Post

N

W E

S

TCB

Car Park

LB

H19

Plevna House

Shelter

Hillcrest

T15

T16

H14

Unsurfaced Track

T13

T12

T11

T9

H10

T6

H18

T8

T7

T5

T4

T3

T2

T1

SHARED DRIVE

H17

Unsurfaced Track

B 6273

LESMOND CRESCENT

LESMOND CRESCENT

Allotment Gardens

Middlecliffe

THIS PLAN IS TO BE PRINTED IN COLOUR AND READ IN CONJUNCTION WITH THE JCA ARBORICULTURAL REPORT (JCA REF: 16785/DK)

Appendix 7: Arboricultural Implications Plan

ADDRESS: Land off Lesmond Crescent, Little Houghton, Barnsley, S72 0EZ.
JCA REF: 16785/DK

SCALE : 1:500	PAPER SIZE : A2

	TREE TO BE RETAINED
	TREE TO BE REMOVED
	STEM OF TREE TO BE RETAINED
	STEM OF TREE TO BE REMOVED
	ROOT PROTECTION AREA
	ROOT PROTECTION AREA ENCROACHED BY THE PROPOSED DEVELOPMENT
	PROPOSED DEVELOPMENT

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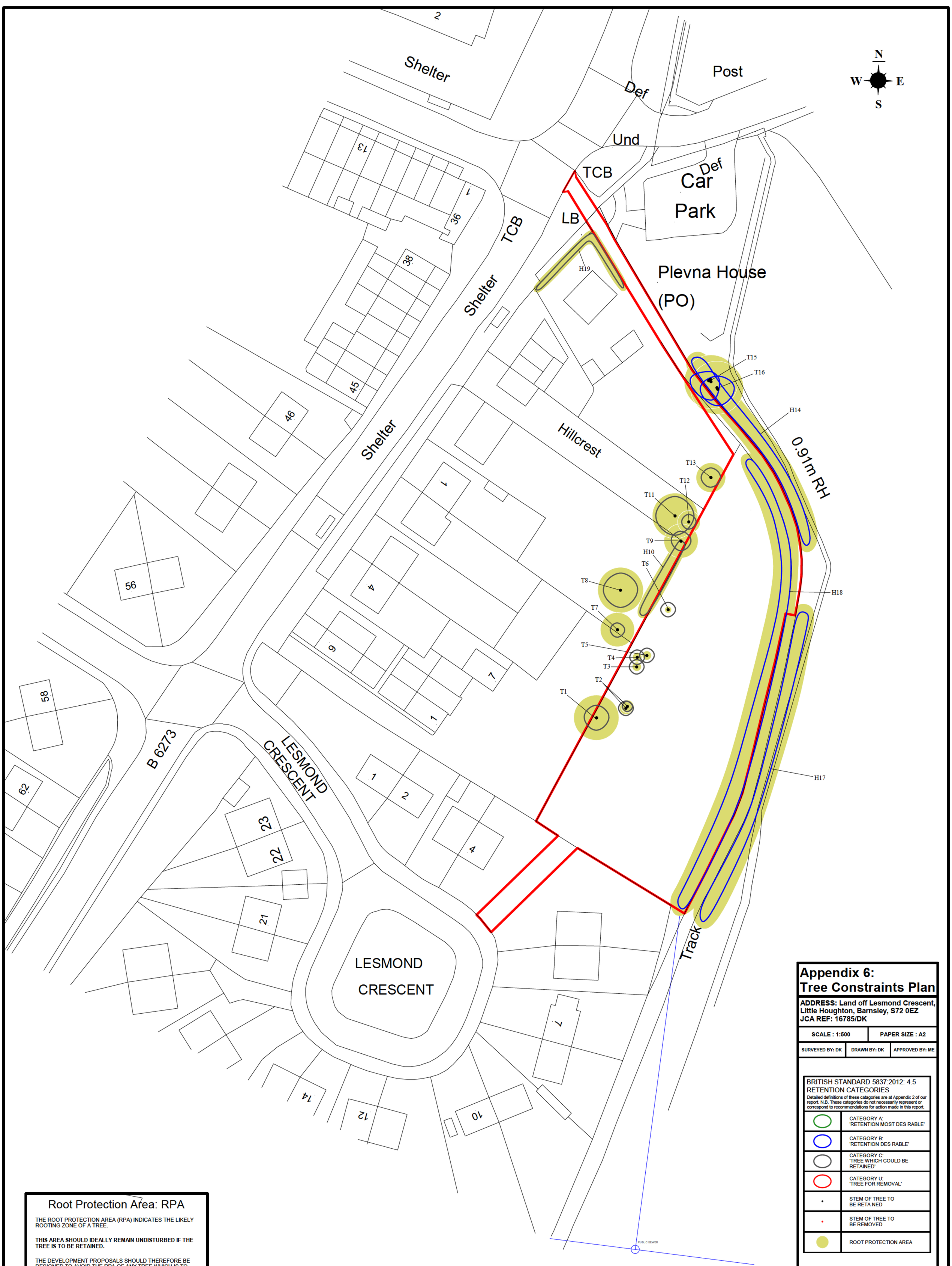
Appendix 7: Arboricultural Implications Plan



Root Protection Area: RPA

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

THIS AREA SHOULD IDEALLY REMAIN UNDISTURBED IF THE TREE IS TO BE RETAINED.

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

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

0 1 5 10 15 20 30 40 50 metres

THIS PLAN IS TO BE PRINTED IN COLOUR AND READ IN CONJUNCTION WITH THE JCA ARBORICULTURAL REPORT (JCA REF: 16785/DK)

Appendix 6: Tree Constraints Plan

ADDRESS: Land off Lesmond Crescent, Little Houghton, Barnsley, S72 0EZ
JCA REF: 16785/DK

SCALE : 1:500	PAPER SIZE : A2	
SURVEYED BY: DK	DRAWN BY: DK	APPROVED BY: ME

BRITISH STANDARD 5837:2012: 4.5 RETENTION CATEGORIES

Detailed definitions of these catagories are at Appendix 2 of our report. N.B. These categories do not necessarily represent or correspond to recommendations for action made in this report.

	CATEGORY A: 'RETENTION MOST DES RABLE'
	CATEGORY B: 'RETENTION DES RABLE'
	CATEGORY C: 'TREE WHICH COULD BE RETAINED'
	CATEGORY U: 'TREE FOR REMOVAL'
•	STEM OF TREE TO BE RETA NED
•	STEM OF TREE TO BE REMOVED
	ROOT PROTECTION AREA

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Arboricultural & Ecological Consultants

I hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact the author.

Signed

.....

Dan Kemp *FdSc (Arboriculture)*.

21st January 2021

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

Registered Office:

Unit 80
Bowers Mill
Branch Road
Barkisland
Halifax
HX4 0AD

[redacted]

www.jcaac.com

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Professional Tree and Ecology Advice nationwide

ARBORICULTURAL SERVICES

Guidance for Architects and Developers

- British Standard 5837 Tree Surveys
- Arboricultural Implication Assessments (AIA)
- Arboricultural Method Statements (AMS)

Advice for Engineers, Loss Adjusters and Insurers

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

Advice for Local Authorities and Social Housing

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

Tree Advice for the Legal Profession

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

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control

ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected Species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)

HEAD QUARTERS:

Unit 80 Bowers Mill,
Branch Road,
Barkisland,
Halifax, HX4 0AD.

[redacted]

Website: www.jcaac.com

Company Reg No. 05005041
VAT No. 686 4674 78