# Pre-development Tree Survey BS5837:2012

# Convent Drive

# Stoke Golding

Client: **Paul Cheater**

April 2023, rev June 2024

**Report Author:**

Dr. Stefan Bodnar BSc (Hons) PhD MIEEM

Wallbrook Farm

Allensmore

HR2 9 BE

Tel: 07429 209549

Email: stefan.bodnar01@googlemail.com

## Contents

## 1.0. Introduction and Site Description

Jeff Hayward commissioned Dr. Stefan Bodnar to undertake an arboricultural survey (BS5837: 2012) on trees within a potential development site beside Convent Cottage, Stoke Golding. It follows a similar survey of the site is November 2019, though the situation with trees present has changed substantially in the intervening years.

The trees included within the survey and their relationship to the Development Footprint are identified on the drawing in Appendix 2, the aerial photograph relating to the site and photographs of trees involved are included in Appendix 1, together with examples of the trees concerned.

BS 5837:2012 includes an assessment of all trees within the development footprint in addition to those near to the site boundary. The site assessed is indicated in the location plan of trees (Appendix 2). See site plan below in Figure 1.

The potential development site is a triangle of land running along Convent Drive, Stoke Golding, bordered by mature and semi-mature native trees, including one substantial specimen tree. See satellite image (figure 2) and appendixes below.

It is understood that the on-site trees are protected by an area Tree Preservation Order (TPO), land at St. Martin's Convent, made on 2nd November 2006 and comprising 1 group (G1) comprising 87 trees and 1 group, though the locations of these are not mapped, and some of these trees have subsequently been removed as part of the development of the Convent site some years previously. . However, it is recommended that the client fully satisfy themselves that this is the case during contact with the Local Planning Authority.

**Figure 1. Site location plan**

**Figure 1a) Proposed Plan**

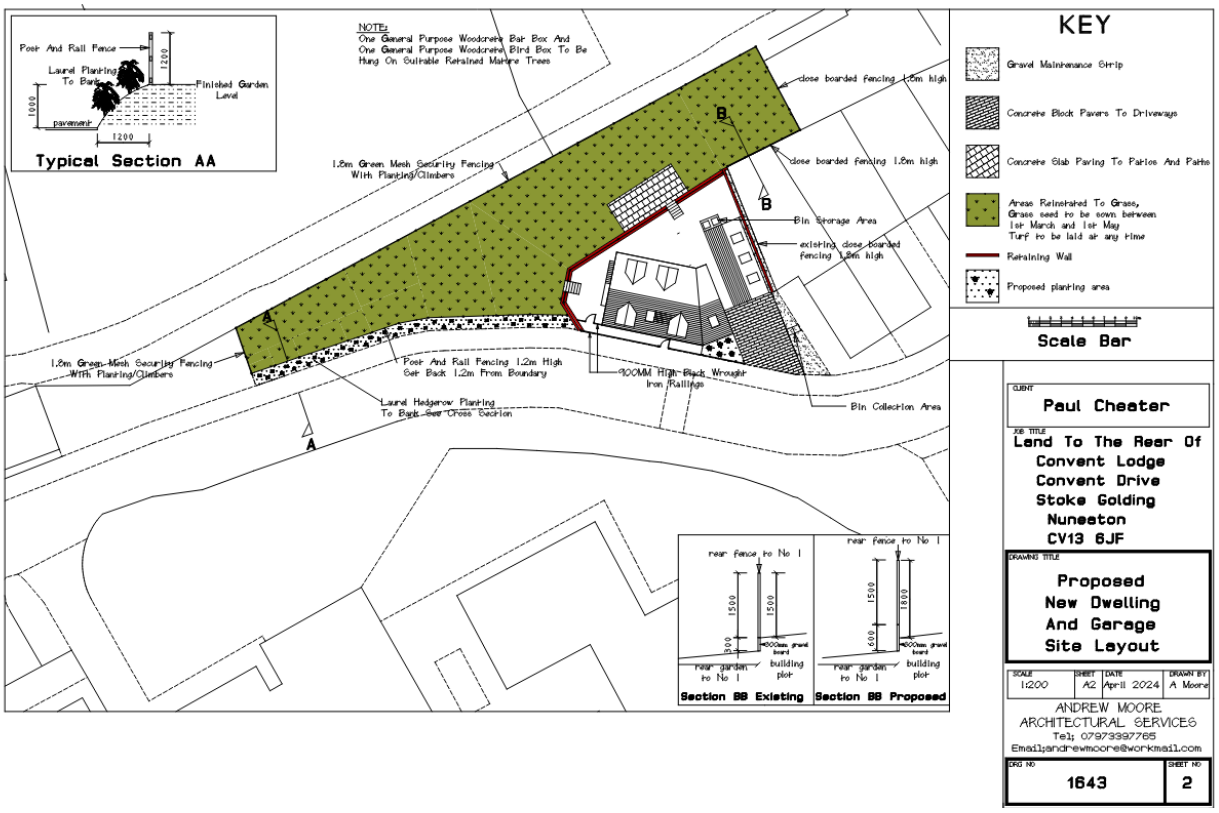
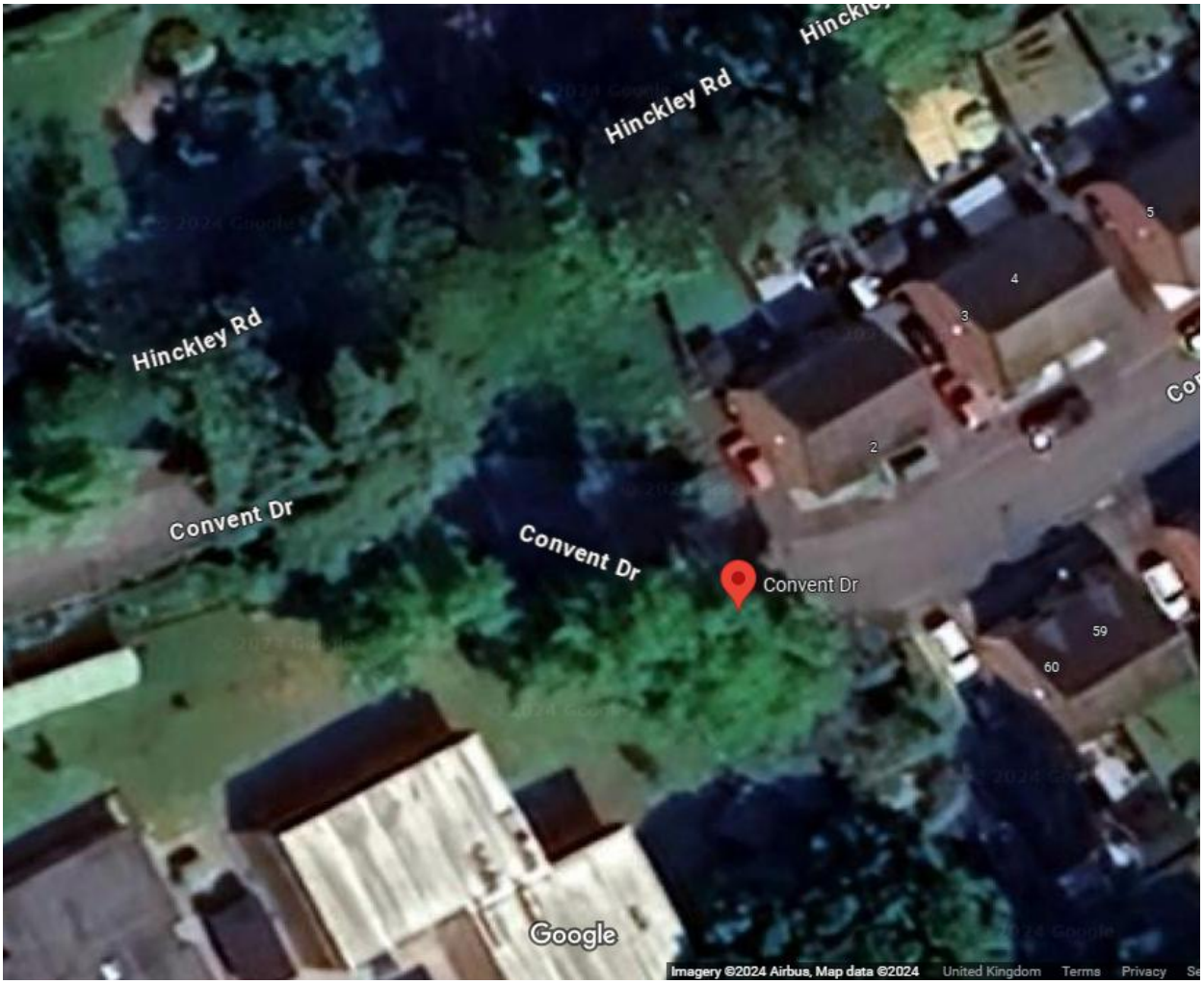


**Figure 2. Satellite image of site**



## 2.0. Arboricultural Survey Methodology

### 2.1 Condition Status

To determine the status of the trees within the site a full arboricultural survey has been undertaken, assessing species and status of all trees present within the footprint of development. The survey has been carried out in accordance with BS 5837 (2012).

The surveyor has extensive experience of arboriculture, through undertaking BS5837 surveys on many sites between 2005 and 2024. Previous to this, he has undertaken Lantra approved courses for arborists, and is competent to the level of a tree officer operating within a Local Authority, being familiar and having used the systems undertaken by tree officers for undertaking safety and condition surveys for Birmingham City Council. Dr. Bodnar possesses numerous ecological qualifications including a full member of CIEEM and a PhD (Community Forestry, 1998). Recent Certificated BS5837 training (May 2015) from Tree Life Arboricultural Consultancy Ltd.

Individual trees above 75mm (diameter at 1.5m above ground level) have had their position confirmed on the survey drawing. The trees were visually assessed and a schedule prepared listing tree number, species, trunk diameter at 1.m above ground level, tree height, crown spread (radius), age, class and estimated remaining years. Any specific observation or recommendations with regard to management were also noted.

A plan drawing indicating the location of each tree assessed is included in Appendix 2.

The condition of each tree was assessed according to the following categories:

**Category A**

Those trees of high quality and value. Significant trees that are structurally sound and can be retained in the long term (i.e., >40 years) or trees that can be retained in the long term following remedial tree surgery. Colour code on the plan: pale green.

**Category B**

Those trees of moderate quality and value. Trees that may live 15-40 years. Trees that may live for more than 40 years, but whose removal may be required in that time frame to allow development of retained trees. Trees that are defective but could be retained in the medium term by remedial tree surgery. Colour code on the plan: mid blue.

**Category C**

Those trees of low quality and value. Trees that can only be retained in the short term (.e, 5-15 years) and that have little landscape impact due to poor form or condition. Trees having a stem diameter of <150mm at 1.5m above ground level that could be replaced. Colour code on the plan: grey.

**Category U**

Unsuitable for retention. Trees that are dead, dying or diseased that will become dangerous in the near future (within years). Colour code on the plan: red.

Categories A, B and C have further sub-categories with regard to the reasons for tree retention:

1: Mainly arboricultural values

2: Mainly landscape values

3: Mainly cultural values, including conservation.

## 2.2 Root Protection Area (RPA)

In order to avoid damage to the roots or rooting environment of retained trees, the RPA has been calculated for each of the category A, B and C trees. This is a minimum area of $m^2$, which should be left undisturbed around each retained tree. These figures are calculated utilising the formula taken from BS 5837 (2012).

During construction works the root protection areas – 'Construction Exclusion Zones' are to be protected by barriers and ground protection in accordance with Section 9.0 of BS 5837:2012 and as specified and indicated on an approved Tree Protection Plan.

Where construction operations (demolition / hard surfacing) are proposed/ permitted within the Root Protection Area precautions should be taken to maintain the condition and health of the root system in accordance with BS5837:2012.

Construction of hard surfacing within the root protection area should be designed to avoid root loss during excavation. The structure of the hard surface should be designed to avoid localised compaction, including the use of three dimensional cellular confinement system as an integral component of the sub-base.

The hard surfacing in these areas should be a permeable and gas-porous nature such as washed gravel or paving slabs and block pavers (with infiltration spaces). Edge supports such as kerb and edgings on foundations and haunchings are not to be used within the RPA. Consideration should be given to the use of pegged timber edging or propriety or steelpaver or edge restraints.

## 3.0 Results

The trees are mainly mature and semi-mature, native and non-native trees located along the northern site boundary, with one significant landscape tree on site. A proportion of the trees such as sycamore, holly and the younger yew trees are self set. Two of the on-site trees have been classified as A category trees, one tree and two groups are B category, with the rest C category trees and six U category trees.

In general, A and B category trees or hedges should be retained and carefully protected during any development work with appropriate root protection fencing. As many C category trees or hedges as possible should be protected and retained, although suitable replacement planting within the scheme area could adequately mitigate for losses of category C trees.

A map detailing the location of trees and their BS 5837 : 2012 determined category can be seen in Appendix 2, all other trees on site are noted as being below 150mm stem diameter and therefore, outside the requirements of BS5837:2012. Trees below 150mm stem diameter but above 75 mm stem diameter are included in the topographical survey of the site. Appendix 1 contains images of all the trees and all significant specimens.

Scientific names for species identified:

| **Common Name** | **Species Name** |
|---|---|
| Scots pine | *Pinus sylvestris* |
| Corsican pine | *Pinus nigra* |
| Common lime | *Tilia x europea* |
| Cedar | *Cedarus sp.* |
| Yew | *Taxus baccata* |
| Sycamore | *Acer pseudoplatanus* |
| Holly | *Ilex aquilifoilum* |
| Ash | *Fraxinus excelsior* |

*Survey as of November2023*

| Tree no. | Species | Stem diam (mm) DBH | Crown S (m) | Crown W (m) | Crown E (m) | Crown N (m) | Height (m) | Age Class | Estimated remaining contribution (years) | Physiological and Structural Condition | Category | Radius of nominal circle (m) | Root Protection area ($m^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Cedar | 900 | 6 | 6 | 6 | 6 | 22 | Mature | 40+ | Excellent and significant landscape specimen | A1, A2 | 10.8 | 366 |
| 3 | Yew | 200 | 3 | 3 | 3 | 3 | 8 | Young | 10-15 | | C2 | 2.4 | 18 |
| 4 | Yew | 250 | 3 | 3 | 3 | 3 | 10 | Early mature | 20+ | | B2 | 3 | 28 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Holly | 150 | 2 | 2 | 2 | 2 | 8 | Young | 15-20 | | C2 | 1.8 | 10 |
| 6 | Yew | 150 | 2 | 2 | 2 | 2 | 5 | Young | 15-20 | | C2 | 1.8 | 10 |
| 7 | Scots pine | 250 | 6 | 0 | 0 | 0 | 12 | Dead/dying | 0-5 | | U | 3 | 28 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | Yew | 330 | 6 | 4 | 4 | 3 | 9 | Early mature | 10-15 | | C2 | 3.9 | 48 |
| 11 | Sycamore | 300 | 4 | 4 | 6 | 4 | 18 | Dead and dying | 0-5 | | U | 3.6 | 41 |
| 12 | Ash | 300 | 4 | 4 | 4 | 4 | 18 | Dead and dying | 0-5 | | U | 3.6 | 41 |
| 13 | Yew | 150 | 2 | 2 | 2 | 2 | 6 | Young | 10-15 | | C2 | 1.8 | 10 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | Sycamore | 375 | 5 | 5 | 5 | 5 | 18 | Early mature | 10-15 | Poor form and vigour | C2 | 4.5 | 64 |
| 15 | Sycamore | 300 | 4 | 4 | 4 | 4 | 18 | Dead and dying | 0-5 | Lacks vigour, crown dead | U | 3.6 | 41 |
| 16 | Sycamore | 400 | 5 | 5 | 5 | 2 | 18 | Early mature | 10-15 | Poor form and vigour | C2 | 4.8 | 72 |
| 17 | Yew | 250 | 3 | 3 | 3 | 3 | 12 | Young | 10-15 | | C2 | 3 | 28 |
| G3 | Corsican pine | 400 | 4 | 4 | 4 | 4 | 22 | Early mature | 20+ | | B2 | 4.8 | 72 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | Holly | 275 | 3 | 3 | 3 | 3 | 14 | Early mature | 10-15 | Ivied | C2 | 3.3 | 34 |
| 20 | Sycamore | 300 | 0 | 1 | 1 | 4 | 15 | Dead and dying | 0-5 | | U | NA | NA |
| 21 | Sycamore | 275 | 3 | 3 | 3 | 3 | 15 | Young | 10-15 | | U | NA | NA |
| 22 | Sycamore | 275 | 3 | 3 | 3 | 3 | 15 | Young | 10-15 | | C2 | 3.3 | 34 |

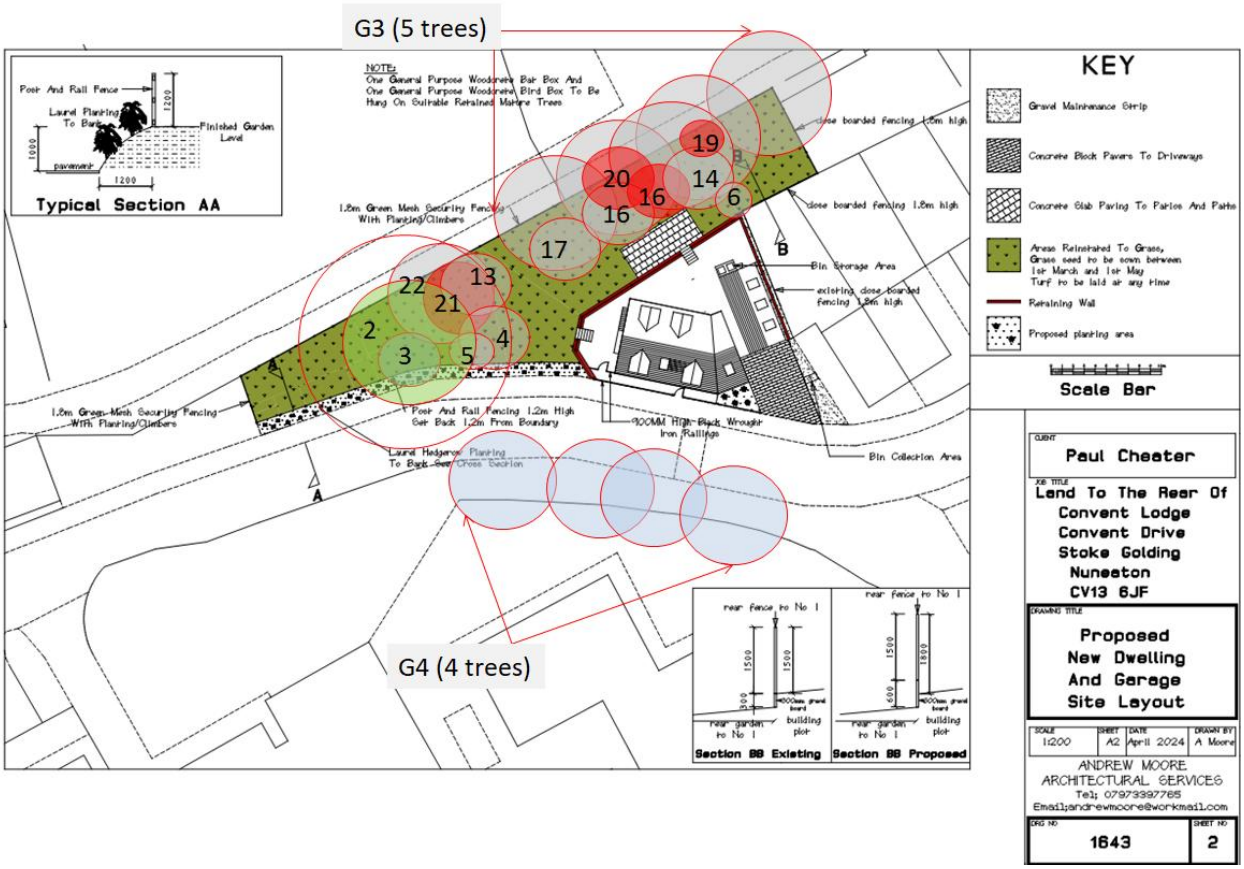
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | Yew | 150 | 3 | 3 | 3 | 3 | 8 | Young | 10-15 | | C2 | 1.8 | 10 |
| G4 | Common lime | 500 | 4 | 4 | 4 | 4 | 17 | Early mature | 20+ | Substantive epicormic growth | B2 | 6 | 113 |

## 4.0 Discussion

### 4.1 Tree Protection:

#### 4.1.1 Tree Removal and Retention:

The constraints in terms of nominal RPAs and trees of quality are shown below:




**The plan below shows the trees of quality within the proposed development area and zone of influence. All other trees are of quality C and less**

**On the northern boundary are 5 Corsican pine, and south of the road 4 Common lime. Tree 2 is the Cedar, with a large nominal RPA.** All tees shown on the plan above are to be retained as part of the development. No Root Protection Zones fall within the development area.

Any development within the area will need to take account of the tree roots. It is considered that a development could be situated within the site provided the nominal RPZs of Trees 2, and group 3 are entirely avoided. Group 4 RPAs do not extend onto the site and lie within the highway.

In addition, it is recommended that all retained trees, are protected during development by tree protection fencing as detailed below in section 4.1.4.

In general, developments should aim to primarily retain and protect trees in the 'A' and 'B' Categories and as many of Group 'C' as can be retained. Although suitable replacement planting, at minimum of a 1:1 ratio with native nectar rich and berry baring native trees, within the scheme area could adequately mitigate for losses of category C trees. To ensure equilibrium between retained trees, any new trees and the new development, the physiological requirements of trees must be carefully considered within the planting layout.

4.1.2 **Avoiding Accidental Damage to Trees:** Trees may be negatively affected by the construction period by both direct and indirect actions, which are often borne out of ignorance as to the tress physiological requirements. Careful site planning and management along with the implementation of robust physical protection measures is necessary to ensure the retention of important trees.

4.1.3 **Soil and Root Protection:** It is essential to safeguard a pre-determined volume of soil around the base of the retained trees to ensure that then ongoing biological functioning of the root system along with the interaction with the soil is not impaired. This requires, that prior to the commencement of development activity on site that a robust protective barrier is erected.

4.1.4 **Suitable Barriers:** The specifications for this barrier should be as per the British Standard 5837 of 2012 (Trees in Relation to Construction – recommendations). In brief, this consists of 2.3m high panels attached to an adequately braced scaffold structure to deter un-authorized dismantling and robust enough to rebut physical impacts from site plant and machinery. In practice Heras weld-mesh type panels perform well when attached to the above mentioned scaffold structure.

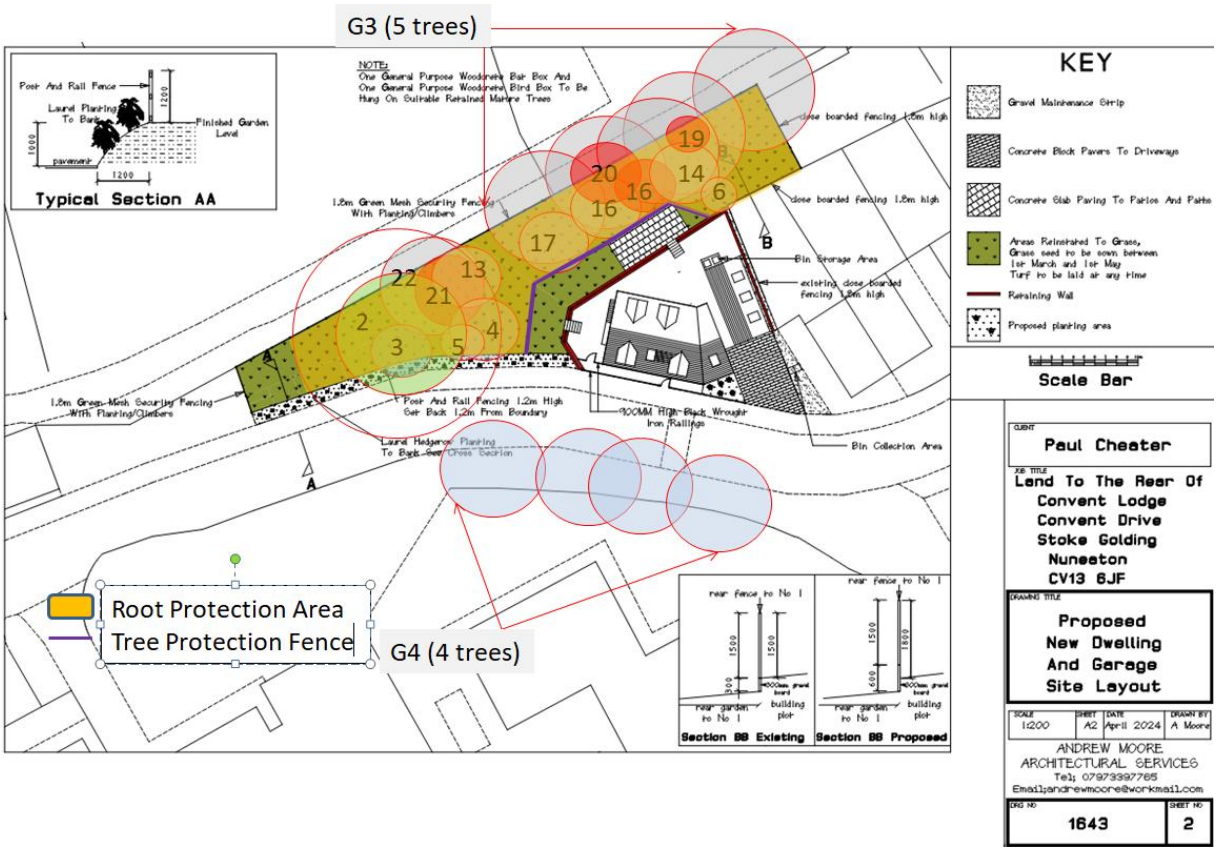
4.1.5 **Bird breeding season:** All site clearance should ideally take place outside of the bird breeding season. Bird breeding season is between mid March and mid July, although certain species can breed outside these months and if breeding birds are found then work should cease and the advice of an ecologist sought. If clearance is undertaken within the bird breeding season then all site features should preferably be checked immediately prior to clearance by a suitably qualified ecologist.

4.1.6 **Shading:** The trees are unlikely to cause any significant issues as all trees are to the north of the plot

### 4.2 Tree Protection & Ground Protection

See below:

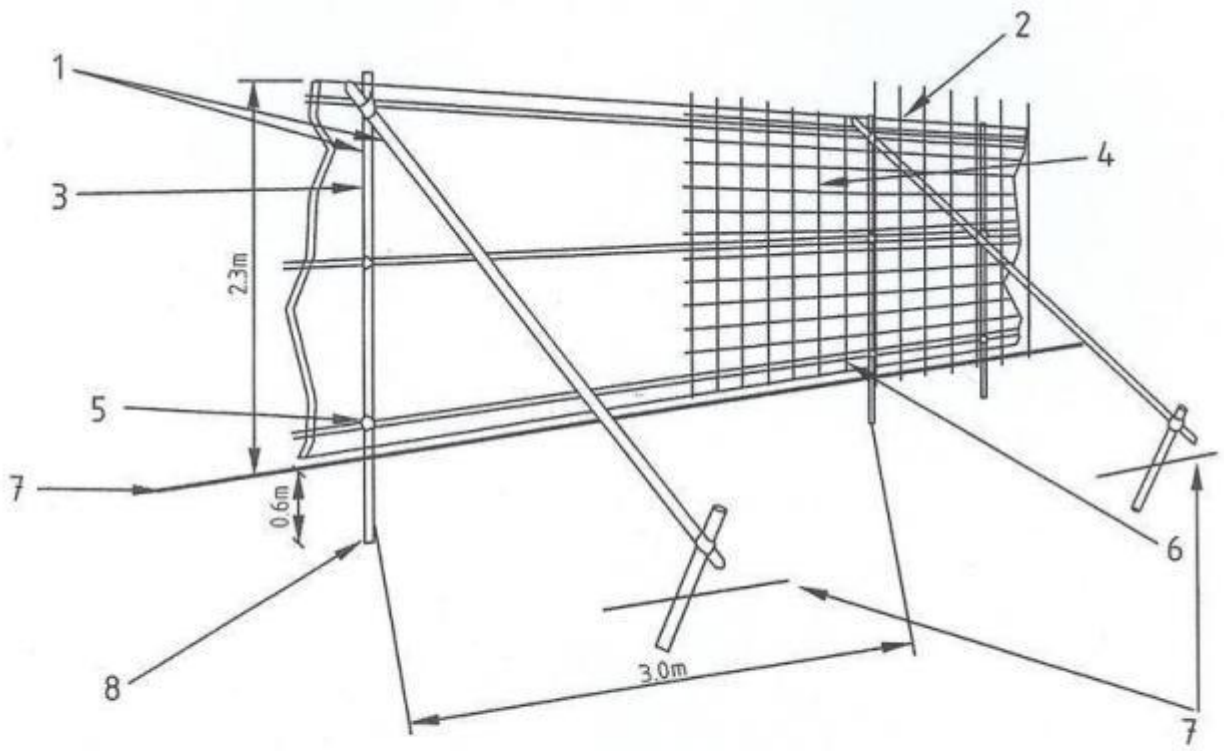
A single run of tree protection fencing covering all the nearby Root protection areas in full:




4.2.1 All trees that are being retained on site are to be protected by barriers and/or ground protection before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers are to be erected to create a construction exclusion zone. The default barrier specification is to be in accordance with BS 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations' as illustrated in Figure 3 below.

4.2.2 The protected area is to be regarded as sacrosanct, and, once installed, barriers and ground protection is not to be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the Local Planning Authority.

4.2.3 All weather tree protection posters (an example is detailed in Figure 4 below) are to be securely fixed to the tree protection fencing in plain view.




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. 0.6m driven into the ground

**Figure 3. Example of protective fencing required for all Root Protection Areas.**


**Figure 4. Example of an all weather tree protection poster.**

4.2.4 Care is to be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification that provides an equal level of protection is to be prepared in conjunction with the project arboriculturist as illustrated within Figure 3 above.

4.2.5 Where the set-back of the tree protection barrier exposes unmade ground to construction damage, temporary ground protection is to be installed as part of the implementation of physical tree protection measures prior to work starting on site.

4.2.6 Temporary ground protection is to be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil. Detail is shown in Figure 5 below: Scaffolding and root protection within the RPA.

a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geotextile membrane.

b) for pedestrian-operated plant up to a gross weight of 2t, proprietary, inter-linked ground protection boards placed on top of a compression resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane.

c) for wheeled or tracked construction traffic exceeding 2t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

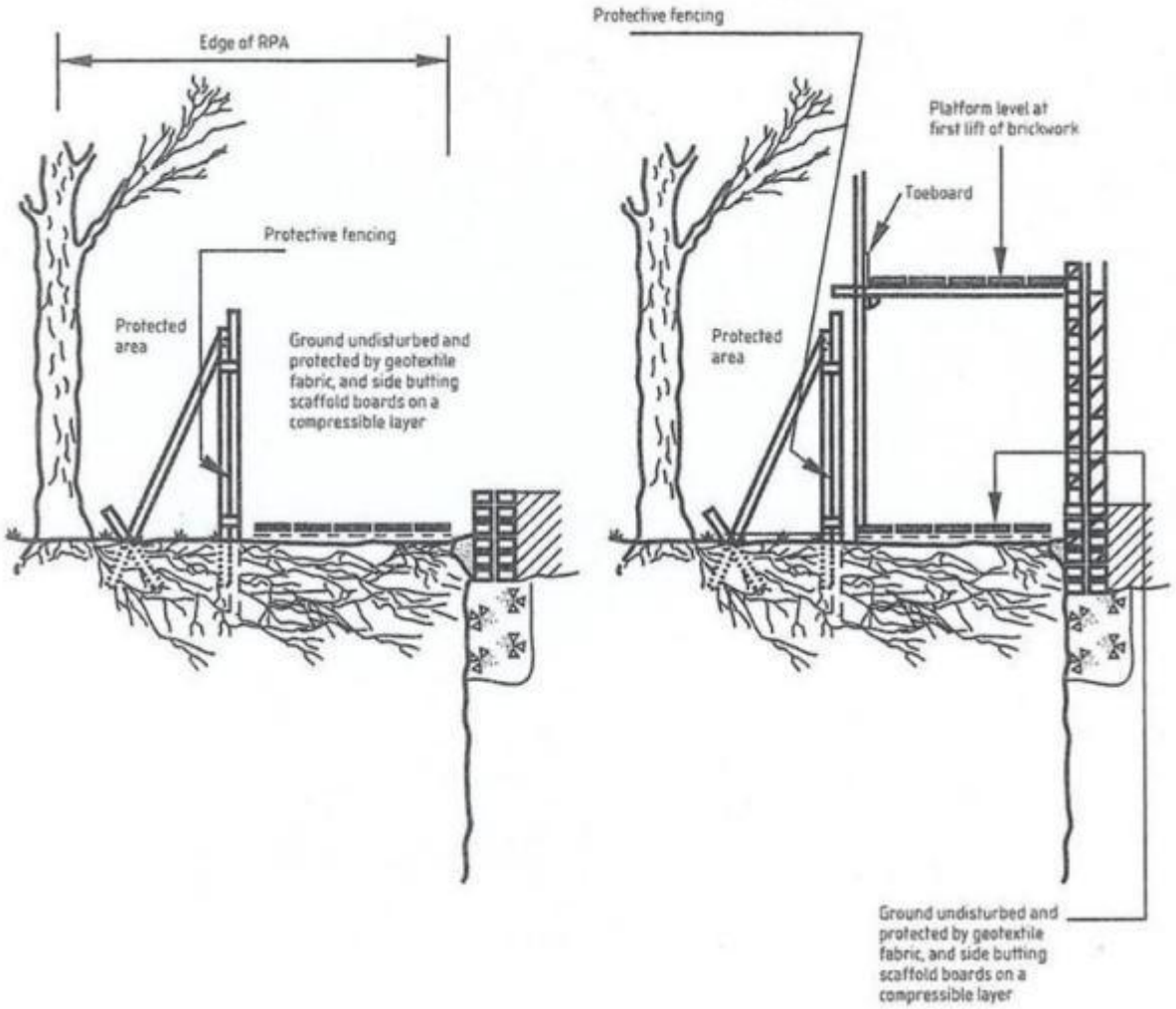



**Figure 5. Scaffolding and root protection within the Root Protection Area.**

### 4.3 Landscape considerations:

Consideration should be given to maintaining tree-lined boundary features, landscape impacts, habitat connectivity and reinforcing site boundaries. Further consideration should be given to the appearance of frontages and screening. The appropriate landscape mitigation and compensation will need to be discussed at the pre- application stage with the appropriate Local Authority Planning Landscape Officer. It is recommended that compensation planting is undertaken and located to enable the landscape value of this area to be reinforced, if any trees with landscape value are to be removed from the site.

**4.4 Mitigation and Compensation:**

For lower quality U and C category trees, compensation for the loss of any of any existing trees should be at least an equal number of native trees, be planted as part of the new development. The trees will be species that have wildlife benefits and are sympathetic both to the existing tree structure and suitable for their likely eventual size limitation, such as hawthorn, elder, rowan, crab apple, and silver birch. All trees will be planted as 9-10cm Light Standards. All appropriate British Standards will be applied in terms of planting specifications. The location of the replacement trees should be determined in a detailed landscape design plan including location and species.

**REPORT ENDS**

## Appendix 1: Images of trees and shrub vegetation

## Appendix 2: Tree Location Plan


**Category A**

Those trees of high quality and value. Significant trees that are structurally sound and can be retained in the longterm (i.e. >40 years) or trees that can be retained in the long term following remedial tree surgery. Colour code on the plan- pale green.

**Category B**

Those trees of moderate quality and value. Trees that may live 15-40 years. Trees that may live for more than 40years, but whose removal may be required in that time frame to allow development of retained trees. Trees that are defective but could be retained in the medium term by remedial tree surgery. Colour code on the plan- mid blue.

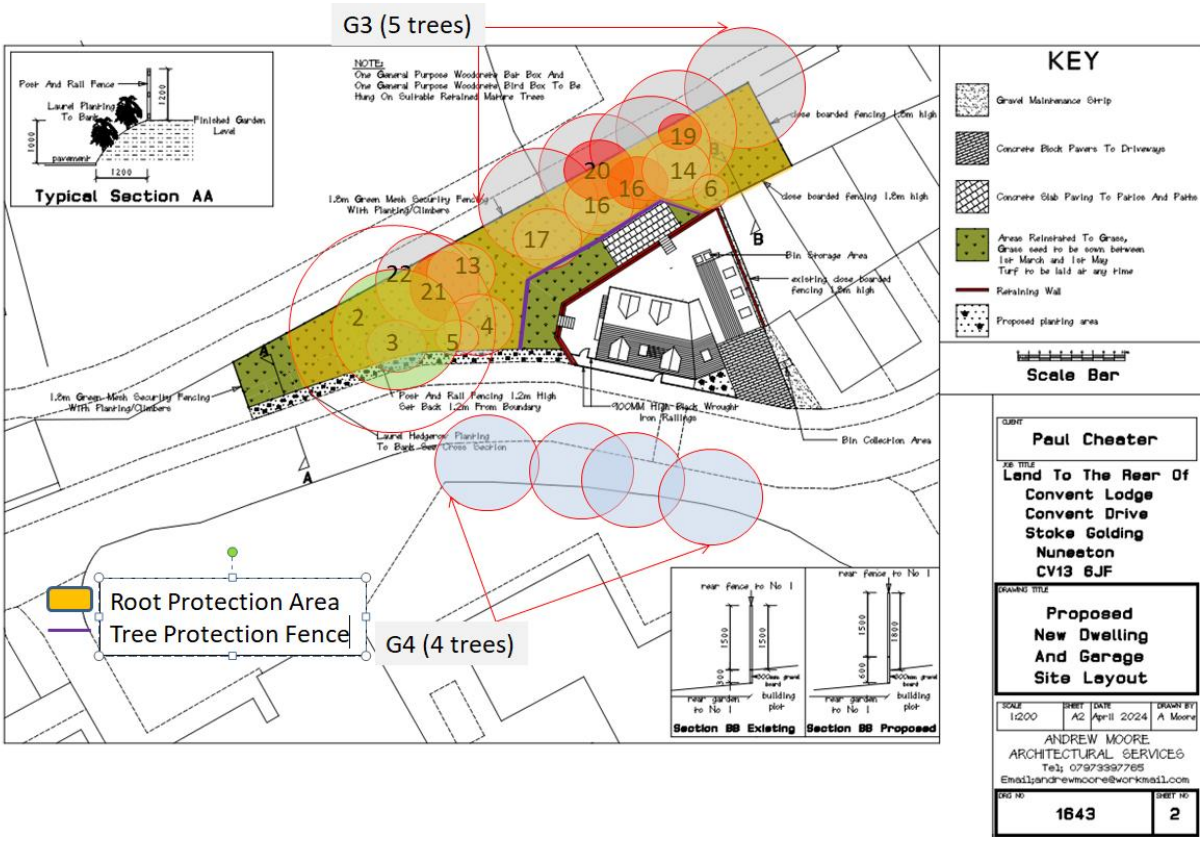
**Category C**

Those trees of low quality and value. Trees that can only be retained in the short term (.e, 5-15 years) and that have little landscape impact due to poor form or condition. Trees having a stem diameter of <150mm at 1.5m above ground level that could be replaced. Colour code on the plan- grey.

**Category U**

Trees that are dead, dying or diseased that will become dangerous in the near future (within years). Colour code onthe plan- red.

## Appendix 3: Tree Protection plan




## Appendix 4: Existing TPO data

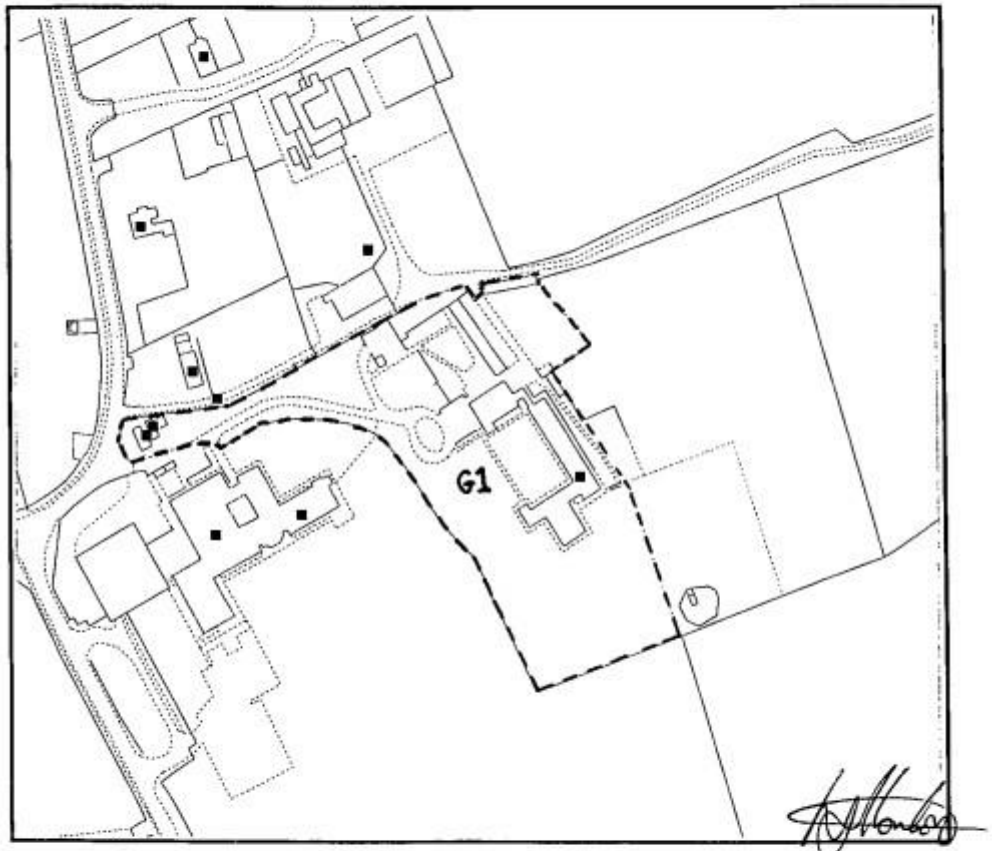
| *Reference on map* | *Description (including number of trees in the group)* | *Situation* |
|---|---|---|
| G1 | 12 x European Lime (Tilia Europeaus<br>1 x Blue Cedar (Cedrus Atlantica)<br>3 x English Oak (Quercus Robur)<br>1 x Red Oak (Quercus Rubra)<br>22 x Sycamore (Acer Pseudoplatanus)<br>3 x Giant Redwood (Sequoiadendron Giganteum)<br>6 x Austrain Pine (Pinus Nigra)<br>1 x Walnut (Juglans Regia)<br>4 x Common Ash (Fraxinus Excelsior)<br>1 x Sweet Chestnut (Castanea Sativa)<br>7 x Horse Chestnut (Aesculus Hippocastanum)<br>2 x Pink Chestnut (Aesculus Carnea Briotti)<br>11 x Common Yew (Taxus Bacata)<br>3 x Holly (Ilex Aquifolium)<br>2 x Insence Cedar (Thija Plicatta)<br>1 x Norway Spruce (Picea Abies)<br>7 x Mountain Ash (Sorbus Aucuparia)<br>Group of Wild Cherry (Prunus Avium)<br>1 x Purple Leaf Plum (Prunus Cerasifera Nigra)<br>1 x Weeping Pear (Pyrus Salicifolia)<br>1 x Blue Spruce (Picea Pungens Glauca | Land at St. Martin's Convent, Dadlington Road, Stoke Golding |

# HINCKLEY AND BOSWORTH BOROUGH COUNCIL

Town and Country Planning Act 1990

**Stoke Golding- St Martin's Convent, Dadlington Road**

Tree Preservation Order 2006




N

Based on the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office. Crown Copyright reserved.

*The Common Seal of the Borough Council of Hinckley & Bosworth was hereunto affixed the* 6th *day of* July *two thousand and* Six *in the presence of:-*

~~*District Secretary*~~

**Scale: 1: 2500**
**Extracts from O.S. Sheet No: SP 4097s**

10398