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## PRE-DEVELOPMENT TREE SURVEY (BS5837:2012)

Land adjacent to Telephone Exchange  
Middle Stoke  
Limpley Stoke  
Wiltshire  
BA2 7GF

**Consultant:**

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Arboricultural Consultant

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## 1.0. INTRODUCTION AND SITE DESCRIPTION

**Following instruction by Mr C Foulkes, Dr Stefan Bodnar undertook an arboricultural survey (BS5837:2012) of trees within an area of land adjacent to the Telephone Exchange, Middle Stoke, Limpley Stoke, Wiltshire, BA2 7GE.**

The trees and their relationship to the development footprint assessed within this survey are identified in the Tree Location Plan in Appendix 1, with photographs of the site, showing examples of the trees concerned, included in Appendix 2.

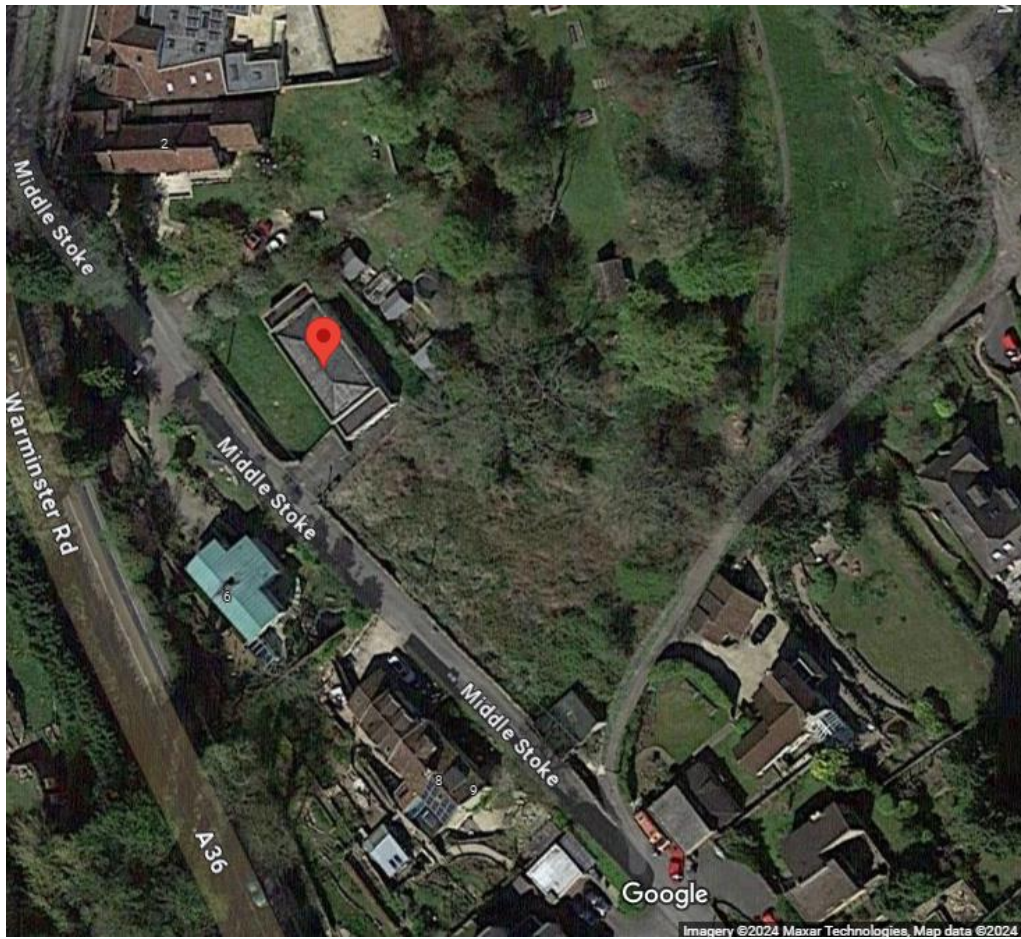
Site plans are shown below in Figure 1. For full details, please refer to the planning application.

BS 5837:2012 includes an assessment of all trees within the development footprint in addition to those near to the site boundary.

It is understood that none of the trees are protected via Tree Preservation Orders or are situated within a Conservation Area. However, it is recommended that the client fully satisfy themselves that this is the case during contact with the Local Planning Authority.

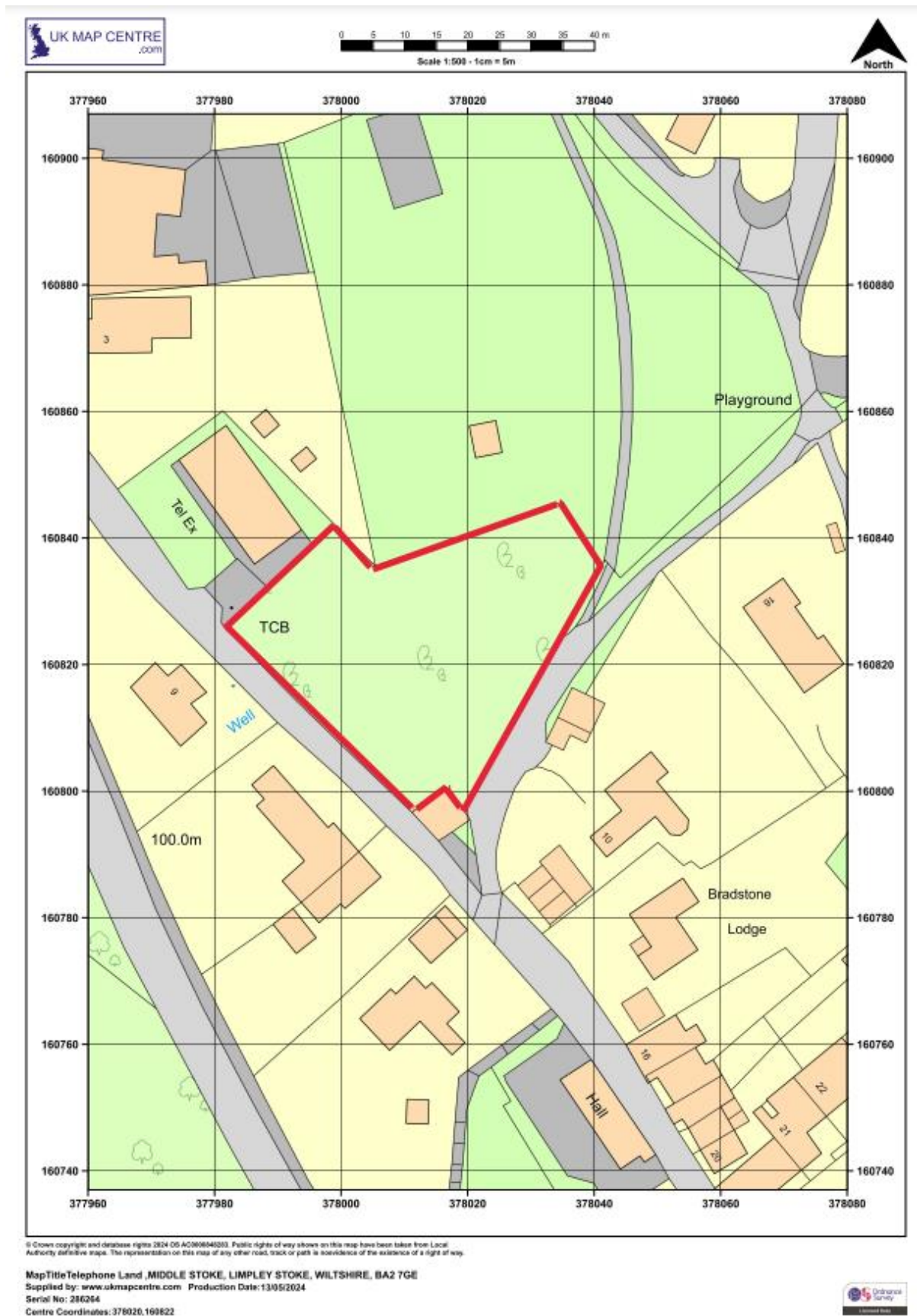
The tree stock comprises a number of large hazel coppices on the edges, mainly self-set sycamore and ash scrub and trees, with one on-site ash tree (mature, but failing) and an off-site tree whose roots fall within the Zone of Influence.

**Figure 1a. Satellite Image of Site**

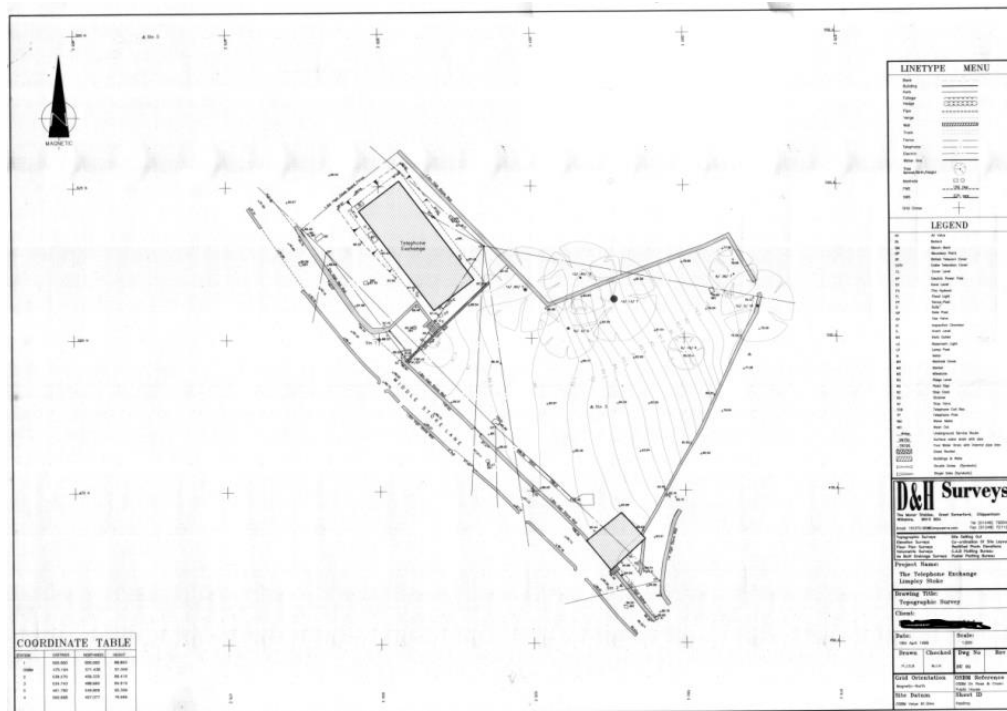


Map data 2024© Google

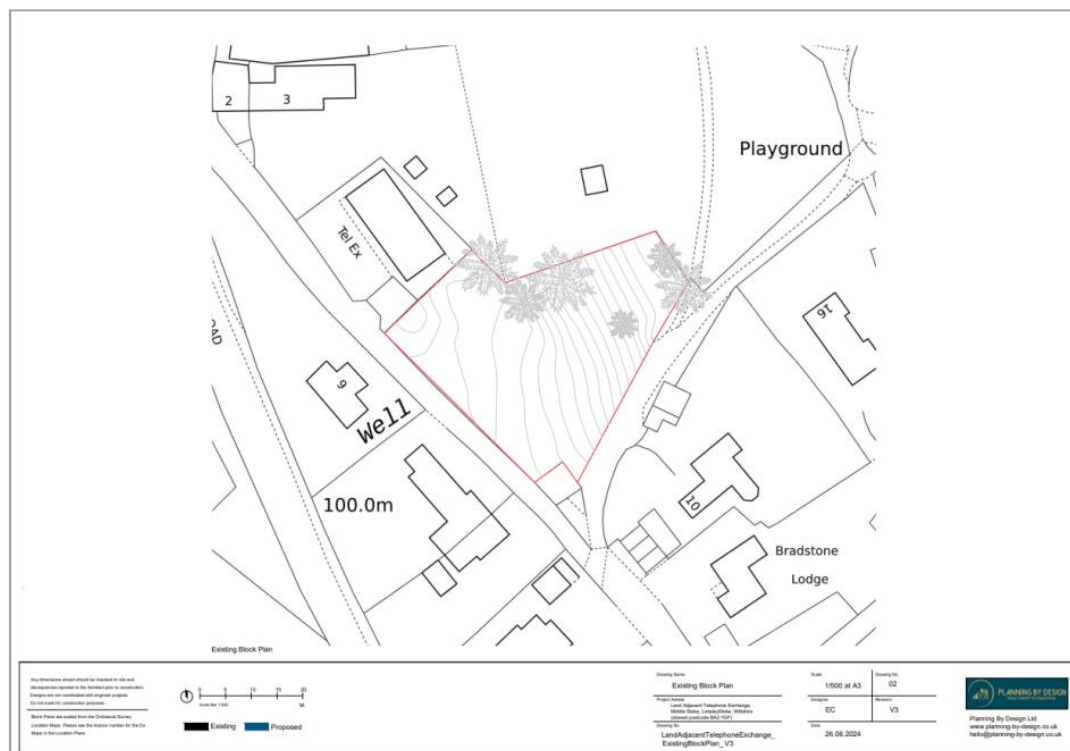
Figure 1b. Site Plan

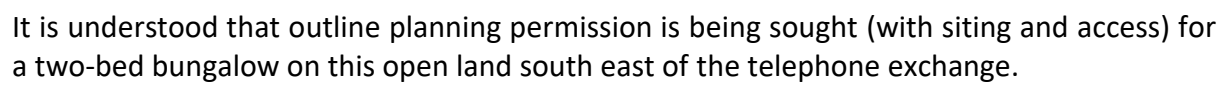


**Figure 1c. Topographical Plan of the Site**



**Figure 1d. Proposed Development Plan**





## **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 BS5837:2012.

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). Additional Certificated BS5837 training (May 2015) obtained 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 1m 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 1.

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 (i.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<sup>2</sup>, which should be left undisturbed around each retained tree. These figures are calculated utilising the formula from BS5837:2012.

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 BS5837:2012 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 systems as an integral component of the sub-base.

The hard surfacing in these areas should be of 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 tree stock comprises a number of large hazel coppices on the edges, mainly self-set sycamore and ash scrub and trees and one on site ash tree (mature, failing), and an off-site tree whose roots fall within the Zone of Influence. In general, A and B category trees or hedges should be retained and carefully protected during any development work with appropriate root protection fencing.

A map detailing the location of trees and their BS5837:2012 determined category can be seen in Appendix 1, 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.

Scientific names for species identified:

| Common name | Scientific name            |
|-------------|----------------------------|
| Ash         | <i>Fraxinus excelsior</i>  |
| Elder       | <i>Sambucus nigra</i>      |
| Field maple | <i>Acer campestre</i>      |
| Hawthorn    | <i>Crataegus monogyna</i>  |
| Hazel       | <i>Corylus avellana</i>    |
| Sycamore    | <i>Acer pseudoplatanus</i> |

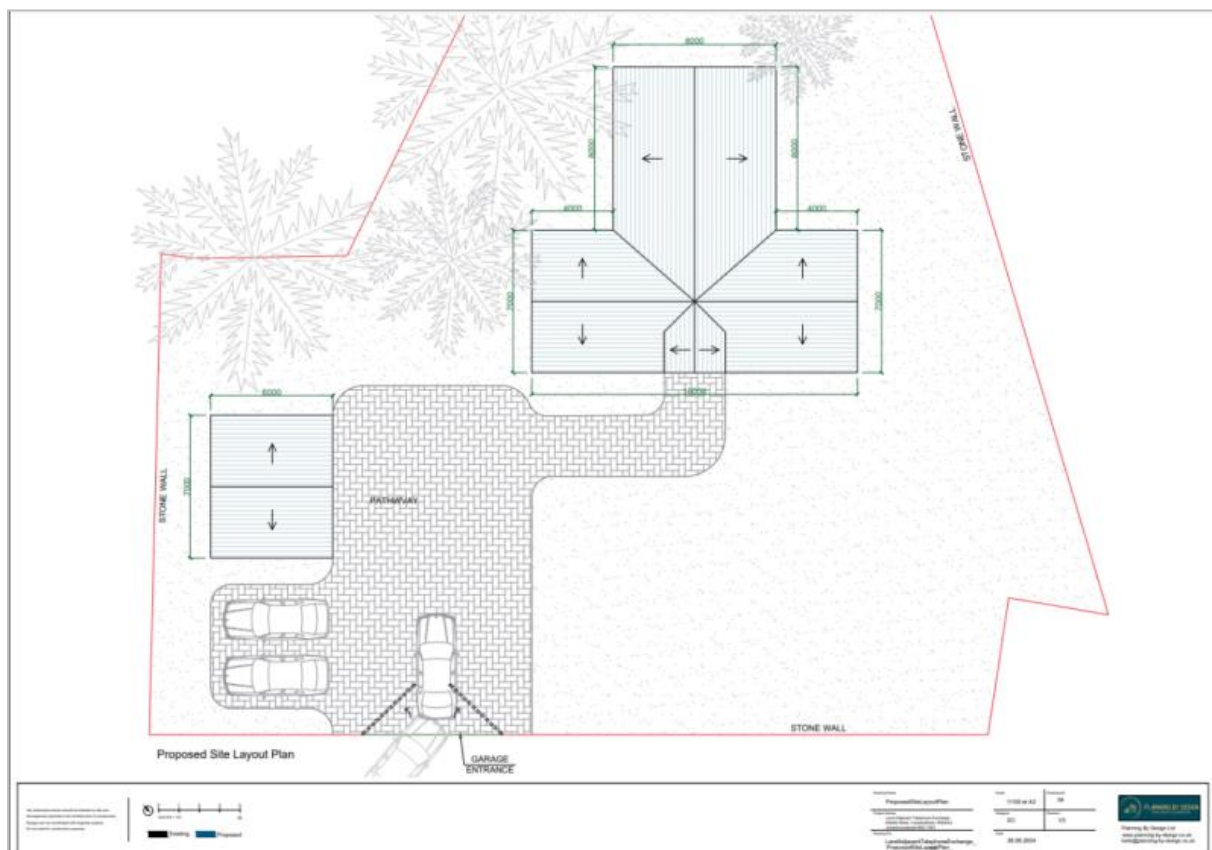
| Tree no. | Species        | Stem diam (mm)       | Crown S (m) | Crown W (m) | Crown E (m) | Crown N (m) | Height (m) | Age Class  | Estimated remaining contribution (years) | Physiological and Structural Condition | Category | Radius of nominal circle (m) | Root Protection area (m <sup>2</sup> ) |
|----------|----------------|----------------------|-------------|-------------|-------------|-------------|------------|------------|------------------------------------------|----------------------------------------|----------|------------------------------|----------------------------------------|
| 1        | Hazel          | Coppice stems to 250 | 10          | 10          | 10          | 10          | 8          | M          | 20+                                      |                                        | B2, B3   | 7.2                          | 263                                    |
| 2        | Ash (off site) | 900                  | 10          | 10          | 10          | 10          | 16         | M          | 20+                                      |                                        | B2       | 10.8                         | 366                                    |
| 3        | Hazel          | Coppice stems to 250 | 4           | 4           | 4           | 4           | 8          | M          | 10-15                                    | Heavy ivy                              | C3       | 5.7                          | 102                                    |
| 4        | Ash            | 300                  | 3           | 3           | 3           | 3           | 4          | Y          | 10-15                                    | Self-set, heavy ivy                    | C1       | 3.6                          | 41                                     |
| 5        | Ash            | 250                  | 2           | 2           | 2           | 2           | 10         | Y          | 10-15                                    | Self-set                               | C1       | 3                            | 28                                     |
| 6        | Sycamore       | 275                  | 4           | 4           | 4           | 4           | 11         | Y          | 10-15                                    | Self-set                               | C1       | 3.3                          | 34                                     |
| 7        | Hazel          | Stems to 200         | 3           | 3           | 3           | 3           | 6          | M          | 20+                                      |                                        | B3       | 5.4                          | 92                                     |
| 8        | Ash            | 900                  | 6           | 6           | 6           | 6           | 18         | Dead/dying | 0-5                                      |                                        | U        | NA                           | NA                                     |
| 9        | Hazel          | Coppice stems to 250 | 10          | 10          | 10          | 10          | 8          | M          | 20+                                      |                                        | B2, B3   | 7.2                          | 263                                    |

## 4.0. ARBORICULTURAL IMPACT ASSESSMENT

### 4.1 Tree Protection

#### 4.1.1 Tree Removal and Retention

The proposed plan for the site is shown below. It is considered that this will require the removal of trees 3, 4, 5, 6 (all C category) and tree 8 (U category) as well as an area of sycamore scrub. All other trees to be retained and protected during the development. It is considered that the 4 retained trees (all of B quality) 1, 2 (offsite), 7 and 9 have RPAs which fall outside the build line proposed.



It is understood that all the higher quality B category site trees will be retained and protected as part of the works proposed. With this plan, the significant trees are retained and protected and the tree impacts are a slight negative. This can be compensated for in the planting scheme that will be proposed for the site.

#### **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 trees' 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, a robust protective barrier is erected.

#### **4.1.4 Suitable Barriers**

The specifications for this barrier should be as per BS5837:2012 (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.

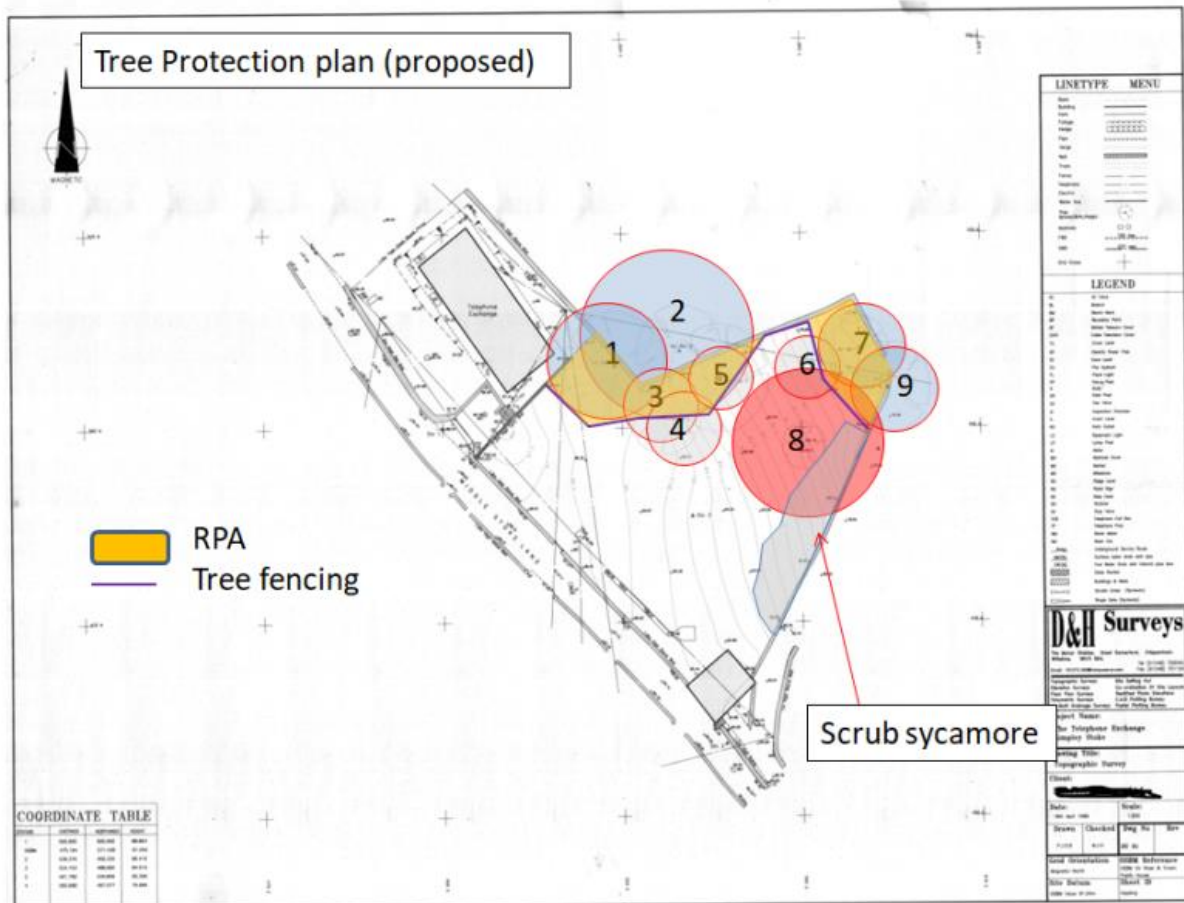
#### **4.1.5 Bird Breeding Season**

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.

## 4.2 Tree Protection & Ground Protection

See below:

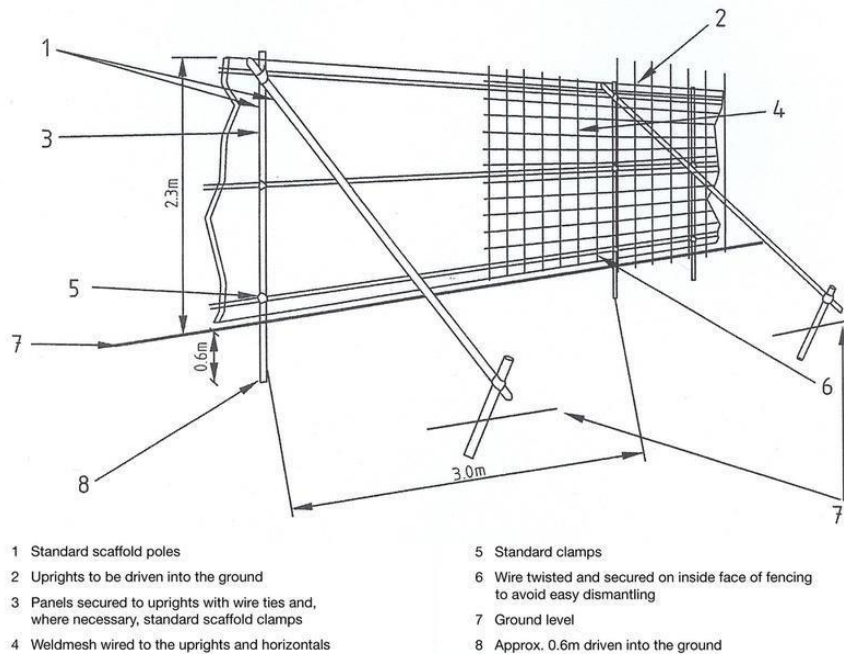
**Figure 2. Tree Protection Plan**



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.



**Figure 3. Example of protection 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.

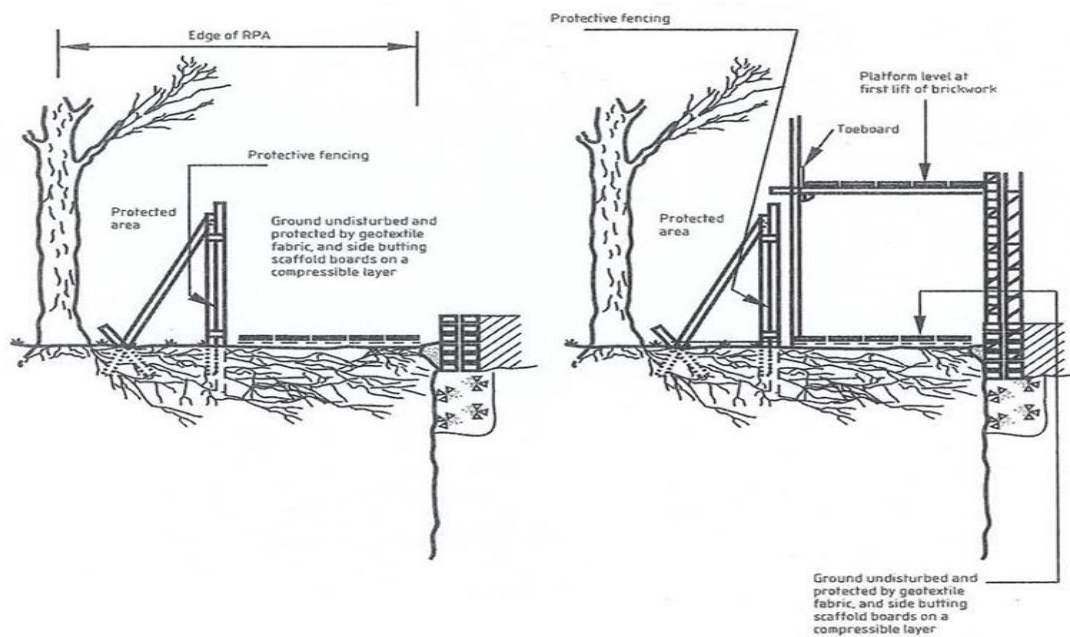
4.2.5 Where the set-back of the tree protection barrier exposes unmade ground to construction damage, temporary ground protection is to be installed as part of the implementation of physical tree protection measures prior to work starting on site.

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. 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**

In compensation for the loss of any of the existing trees, at least an equal number of native trees should 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.. 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.

## APPENDICES

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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**.

## APPENDIX 2: TREE IMAGES



Trees 2-6 Left hand side, 7-9 RHS



Road view: bramble scrub



**Trees 1 and 2 (off-site)**



**Tree 8 and sycamore scrub**