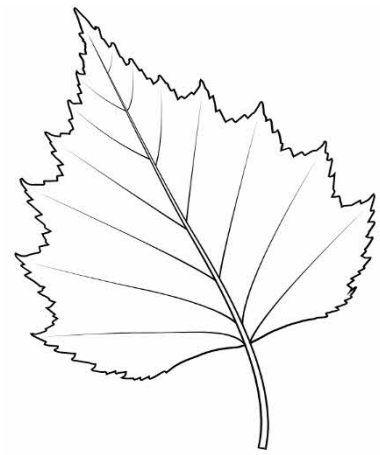
Arboricultural report – trees at proposed cabins site – Empshill Farm, Farmington, Gloucestershire GL54 3ND.

Report dated 9th November 2023



Birch

Independent professional tree woodland and environmental land management – Chartered Foresters, Chartered Surveyors

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Summary – key points in overview

This report is based on and extends an earlier arboricultural assessment at this site prepared in June 2023.

The trees and hedges assessed in this report are located at the edge of a plantation woodland block located just north of the farm complex at Empshill Farm. Tree assessment and reporting has been undertaken to inform proposed siting and subsequent installation of two cabins at the southern edge of the woodland block.

Schedule of trees at Appendix 1(attached) details individual or group assessments and recommendations for the trees and hedges.

The need to manage the trees appropriately to address potential risk issues in relation to their immediate surroundings is discussed.

Recommendations are made for tree management to address risk issues and to facilitate the development layout by selective felling of groups of relatively small-diameter trees showing significant decline and risk profiles due to ash dieback (ash) or environmental stress (spruce).

Recommendations are made for conservation and protection of viable older trees and established hedgerows as valuable biodiversity and landscape features. Proposals are made to protect these features and their Root Protection Areas (RPAs) using the mechanisms outlined in BS5837:2012. Development is excluded from the RPAs of significant trees T1 (field maple) and T2 (ash) and these trees are further safeguarded by specification of protective fencing before and during development at site.

Suggestions are made for supplementary planting of resilient, locally-native tree and shrub species to reinforce existing hedgerow structure and create a robust, attractive and biodiverse setting for future cabin development at the location.

1.0 Introduction

1.1 Terms of Reference

1.1.1 Birch has been commissioned by the Rural Planning Co. to prepare an arboricultural report that considers trees and hedges at Empshill Farm in relation to the proposed siting of two woodland cabins.

Plans were supplied to illustrate proposed layout in relation to the trees at site.

1.1.2 Original site assessment and field survey was carried out on 10th June 2023 by the report author. Qualitative and quantitative tree data were recorded to assess the condition of the trees and digital photos were taken – see Appendix 1 for Tree Schedule and Appendix 3 for selected images.

1.1.3 Note that any references to tree location/position in this report are indicative and descriptive only, with annotation on plan bases supplied by the clients development agents.

1.2 Scope of Works

1.2.1 The assessment of the trees and any other factors are of a preliminary nature. The trees were inspected on the basis of the Visual Tree Assessment (VTA) method as developed by Mattheck and Breloer (1994) and Mattheck (2007). The trees were inspected from ground level with no climbing inspections undertaken. It is not always possible to access every tree and as such some measurements may have to be estimated. No samples have been removed from the site for analysis. The survey does not cover the arrangements that may be required in connection with the removal of existing underground services.

1.2.2 An intrinsic part of tree inspection in relation to development or built environment is the assessment of risk associated with trees in close proximity to persons and property. Most human activities involve a degree of risk with such risks being commonly accepted, if the associated benefits are perceived to be commensurate.

In general, the risk relating to trees tends to increase with the age of the trees concerned, as do the environmental benefits. It will be deemed to be accepted by the client that the formulation of the recommendations for all tree management will be guided by the cost-benefit analysis (in terms of amenity) of the tree work.

1.2.3 This assessment and report does not refer to ecological or protected species elements or issues associated with trees, tree groups or hedges. If required these should be the subject of separate professional assessment and reporting processes for the proposed development.

2.0 The Site

2.1 Overview

2.1.1. The site is a woodland plantation of ash (*Fraxinus excelsior*) and Norway spruce (*Picea abies*), located north of the main farm estate and buildings at Empshill Farm. It is framed to the western and southern/south-eastern edges by a well-established native species hedge with hedgerow trees, mostly ash.

2.2 Soils

2.2.1 Landis (http://www.landis.org.uk/soilscapes/) describes the typical local soil types here as;

Soilscape 3: Shallow lime-rich soils over chalk or limestone Texture: loamy

No specific soil sampling was done as part of this survey.

2.2.2 The description given was obtained from observation of likely soil types. By definition, this information is not comprehensive and therefore any decisions taken with regards the management, usage or construction on site should be based on a specific and detailed soil analysis. This report provides no information on soil shrinkability. It will be necessary for practitioners in other disciplines (e.g. engineers considering foundation design) to obtain this and other relevant data as required.

2.3 Statutory Tree Protection

2.3.1 The Cotswold Planning authority online Tree Preservation Order and Conservation Area search system showed no Tree Preservation Orders or Conservation Areas at this location when accessed on 06.11.2023.

3.0 Tree Survey condition assessment, tree risk management and work recommendations

3.1 The trees were assessed from ground level only. The assessment details for individual tree work recommendations (where considered necessary), are shown in the attached Appendix 1 Schedule of Trees. Tree and hedge images are shown in Appendix 2.

Root Protection Areas (RPAs) for the trees and hedges are included in Appendix 1 Schedule of trees.

3.2 Condition Assessment and Work Recommendations

3.2.1 The site is effectively framed by a chevron or v-shaped hedge layout of about 3-3.5 m. height, comprising a mix of native species including Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Field maple (*Acer campestre*), with occasional Dogwood (*Cornus*) and Elder (*Sambucus nigra*). These hedge sections (shown as H1 and H2) are sound and represent good habitat, landscape and aesthetic features.

These hedge sections H1 and H2 should be retained, protected during any development on site and where gaps occur they can be planted up with matching species.

Within the hedges are groups of poor-quality, small-diameter Ash (*Fraxinus excelsior*) - shown as G1, G2 and G3 - showing clear and advanced symptoms of ash dieback (*Hymenoscyphus fraxineus*).

It is recommended that these ash groups are selectively felled and replaced with more resilient hedgerow tree species such as Small-leaved lime (*Tilia cordata*), Wild cherry (*Prunus avium*), Holly (*Ilex aquifolium*) and Field maple (*Acer campestre*).

At G4 the declining/dead small-diameter spruce (*Picea abies*) and declining ash are not viable for retention in relation to the proposed development.

It is recommended that these trees are felled and replaced with locally-native species of trees and shrubs such as field maple, wild cherry, holly and dogwood, at the outer margins of the small-scale development as part of the soft landscaping for the project.

T1 field maple is located at the southern apex of the hedge chevron – it is sound and a valuable habitat, landscape and aesthetic feature. It should be retained and protected during any development on site.

T2 ash – an overmature hedgerow ash with many old-growth features, some ash dieback symptoms and typical defects for a tree of its age and type. High habitat and landscape value and an owl box (apparently active) on its south facing lower stem.

Retain and protect T2 during development on site and use the recommended supplementary planting in hedgerow sections G2 and G3 to create medium-term 'replacements' for the tree as it continues to age.

3.3 Risk management

3.3.1 The condition and location of declining ash trees in G1, G2 and G3 and multiple spruce/ash in G4 create significant and unacceptable risk issues. They represent hazards in relation to track corridors, woodland paths and well-used farm facilities and the level of pedestrian footfall/vehicle movements in the vicinity. The frequency of exposure to hazards will increase during and after the proposed development, creating additional levels of risk. These risk issues warrant tree removal and replacement with local-native, resilient alternative species.

In addition to professional arboricultural work to address existing tree condition and risk management issues, all trees at the site should in future be subject to annual inspection by a suitably qualified and experienced professional. Higher risk zones such as road, track or path corridors, parking areas etc. should be the focus of particular attention in applied tree risk management work.

4.0 Arboricultural Impact Assessment

4.1 The Proposal

4.1.1 The project involves the construction of two log cabins with external decking and a compact access track and turning/parking area to service the cabins. The cabins have been specifically located to protect the RPAs of existing significant trees T1 (field maple) and T2 (ash).

4.2 Access

4.2.1 Site access is encumbered by the theoretical Root Protection Area (RPA) of the hedge section H1. It will be necessary to install a proprietary temporary load bearing track surface to protect tree roots. Temporary ground protection can be achieved by installing Eve Track Panels or GroundGuards panels (or similar equivalent) over a 150mm layer of bark mulch spread over a geotextile membrane. They shall remain in situ until all construction work is completed.

4.3. Demolition – none required.

4.4 Construction

4.4.1 Construction of foundations or structural supports do not encroach within the Root Protection Area (RPA) of any trees to be retained. From an arboricultural perspective, no specialised construction or foundation techniques will therefore be required to protect tree roots. However, dependent on the soil type, species and topography, trees may have an influence on the soil beyond their calculated RPA. Given the proximity of the proposed construction to the trees to be retained, it is recommended that an engineer is consulted to assess the implications of the tree retention on the required foundation design.

4.4.2 Installation of new hard surfaces encroach within a small portion of the RPA of hedge H1 where the access point enters the site. The surfacing of the access track should be designed and specified to minimise requirement for installation excavation and ensure porosity and gas exchange for adjacent hedge roots. Geoweb® Tree Root Protection System would be suitable, with a clean, granular crushed stone fill to match the underlying geology of the site (limestone).

4.4.3 To facilitate construction of the proposed parking area it is assumed that minimal excavation and soil re-modelling will be necessary. It should be ensured that no soil level change occurs within the RPA of adjacent retained woodland edge trees. The surfacing of the parking area should be designed and specified to minimise requirement for installation excavation and ensure porosity and gas exchange for adjacent tree roots. Geoweb® Tree Root Protection System would be suitable, with a clean, granular crushed stone fill to match the underlying geology of the site (limestone).

4.5 Implications of Sloping Ground

4.5.1 The arboricultural implications of the proposed structures are based on an assumption that level changes will not occur within the RPA of retained trees. On this site, there is a very slight slope and as such it is assumed that minimal "cut and fill" operations will be required. If these works cannot be excluded from the calculated RPA of retained trees, a reappraisal of the **arboricultural implications will be required.**

4.6 Requirement for Tree Barrier Fencing

4.6.1 Prior to the commencement of development and immediately after the completion of the necessary tree surgery and felling work, protective fencing, ground protection will be installed on site. These must be fit for purpose, in full accordance with the requirements of BS 5837:2012 and positioned as shown on the attached drawing TP.

4.7 Compound

4.7.1 No site compound has been identified on development plans – if a compound is installed it must be wholly outside the RPA of any retained trees and hedge.

4.8 Phasing

4.8.1 The proposal involves the integration of a number of aspects that affect tree protection. For this reason, the project must be carefully phased to ensure the highest level of protection for retained trees at all times.

4.9 Monitoring

4.9.1 In accordance with item 6.3 of BS 5837:2012, the site and associated development should be monitored regularly by a competent Arboriculturalist to ensure that the arboricultural aspects of the planning permission are complied with.

4.10 Access Facilitation tree works

4.10.1 Details of specific works are listed in the attached Schedule of trees to permit development. To briefly reiterate, Groups G1, G2, G3 and G4 will require removal by felling.

4.11 Landscape Implications

4.11.1 In addition to trees necessitating removal for risk management purposes, the items listed below require felling to permit the proposed development to proceed:

G1 – small-diameter diseased ash - fell from hedge H1to facilitate construction of the access into site and western section of access track.

G2 – small-diameter diseased ash – fell from hedge H2 southern section

G3 – small-diameter diseased ash – fell from hedge H2 northern section

G4 – small-diameter diseased ash and small diameter dead/dying spruce – fell to facilitate construction of parking/turning areas for cabins and the cabin footprints.

4.11.2 Subsequent to the completion of the development of the cabins project, a two for one tree replacement planting approach is recommended, focusing on planting resilient, locally-native trees in the areas where hedgerow ash with Ash dieback have been removed. Potential species are referred to above at 3.2.1.

4.12 Post Development Implications

4.12.1 No adverse arboricultural implications are considered reasonably foreseeable for the trees that remain provided that the recommendations of this report are complied with in full.

4.12.2 Due to the dynamic nature of trees and their interaction with the environment, their health and structural integrity is liable to change over time. It is therefore recommended that all trees on or adjacent to the site be inspected on an annual basis.

4.12.3 As stated in BS5837:2012, regular maintenance of newly planted trees is of particular importance for at least three years during the critical post-planting period and might, where required by site conditions, planning requirements or legal agreement, be necessary for five years or more. The designer of the new landscaping should therefore, in conjunction with the landscape design proposals, prepare a detailed maintenance schedule covering this period and appropriate arrangements be made for its implementation.

5.0 Design Advice, Arboricultural Method Statement & Tree Protection

5.1 Securing of Tree Structure and Root Protection Areas (RPA)

5.1.1 The trees and hedges to be retained will be protected by excluding wheeled/tracked vehicle movements and development activities (including storage of materials) from within the tree and hedge Root Protection Areas (RPAs). The site project manager should ensure that the access restrictions are discussed, confirmed and recorded as understood by all contractors/machine operators/sub-contractors involved in any future project work on site.

5.1.2 Fencing to the guidelines recommended in BS5837:2012 should be installed before any development work commences on site to protect tree and hedge RPAs. See Appendix 3 for typical protective fencing type and specification.

5.2 On Site Storage of Spoil and other materials

5.2.1 Prior to and during all construction works on site, no spoil or construction materials will be stored within the RPA of any tree or hedge. This is to prevent compaction of the roots of the trees. Any encroachment within this protected area will only be with the prior agreement of the LPA.

5.2.2 Any facilities for the storage of oils, fuels or chemicals shall be sited on impervious bases and surrounded by impervious bund walls and located away from the worksite so that any potential spillage can be contained and soil/water contamination prevented. The volume of the bund compound shall be at least equivalent to the capacity of the tank plus 10%. If there is a multiple tankage, the compound shall be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks, plus 10%. All filling points, vents, gauges and

sight glasses shall be located within the bund. The drainage system of the bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipework shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund.

5.2.3 All material storage facilities and work areas must consider the effects of sloping ground on the movement of potentially harmful liquid spillages towards or into tree or hedge RPAs.

5.3 Levels

5.3.1 No alterations to soil levels within the RPA of retained trees are envisaged. However, if it is necessary for these to occur, appropriate measures must be taken to prevent or minimise any detrimental effects on the affected root systems.

5.3.2 If it is necessary to excavate so close to trees that roots greater than 50mm diameter are likely to be encountered, particular care will be taken to avoid damage. Excavation in these areas will be undertaken by hand or using an air spade, avoiding any damage to the bark. The roots will be surrounded with clean sharp sand, prior to the replacing of any soil or other material in the vicinity.

5.3.3 If it is necessary to raise levels, it is essential that adequate supplies of water and oxygen continue to pass through the soil to the trees' roots. Therefore, where necessary, a granular material will be used which will not inhibit gaseous diffusion. Possible options are clean no-fines gravel, cobbles or, Type 2 road-stone.

5.4 Programme of Works

5.4.1 All necessary tree surgery works, once approved by the LPA, will be carried out prior to any other site works.

5.5 Tree Surgery

5.5.1 Any necessary tree work will be agreed with the LPA and will be carried out in line with BS 3998:2010 *Recommendations for Tree Works*. An appropriately qualified, experienced and insured professional arboricultural contractor should carry out the work. Any alterations to the proposed schedule of works will be agreed with the LPA prior to commencement of works.

5.6 Services

5.6.1 At the time of report writing, no detailed information regarding proposed services were available. However, the following principles should be adhered to when planning for their routing and installation.

5.6.2 It is proposed that all underground service runs will be placed outside the RPA of the trees on or adjacent to the site. Where it is not possible to do this, the proposed length infringing the RPA will be hand dug 'broken trenches' (NJUG 4 paragraph 4) to ensure the maximum protection of the trees' roots. The trenches may also be excavated using an air spade, or trenchless technology can be employed if this methodology is considered appropriate by the relevant service company (thus allowing services to pass below and through the roots without the need for traditional excavation). If it is necessary to cut any small roots as part of any of these processes, they should be severed in such a way as to ensure that the final wound is as small as possible and free from ragged, torn ends.

5.6.3 All service providers (Statutory Authorities) will be consulted prior to commencement of works with the aim of minimising the number of service runs on the site.

5.6.4 All service runs/trenches where they encroach within the RPA of retained trees will be agreed with the LPA prior to commencement of works.

5.7 Reporting and Monitoring Procedures

5.7.1 In accordance with item 6.3 of BS 5837:2012, the site and associated development should be monitored regularly by a competent Arboriculturalist to ensure that the arboricultural aspects of the planning permission (e.g. the installation and maintenance of protective measures and the supervision of specialist working techniques) are implemented. Furthermore, regular contact between the Site Manager and the Arboriculturalist allows them to effectively deal with and advise on any tree related problems that may occur during the development process. This system should be auditable.

6.0 Recommendations

6.1 Full consideration should be given to the tree conservation and protection measures detailed above in 3.0 and 4.0. It may be prudent and necessary to consult a competent arboricultural authority to assess any relevant issues as they potentially arise during further project development and realisation.

6.2 Any tree works proposed as part of this assessment are recommended to mitigate any identified risks to people and property and to conserve trees wherever feasible and appropriate. To this end, should these recommendations be overruled, this survey stands as the opinion of Birch Tree, Woodland and Environmental Land Management and therefore any damage or injury caused by trees recommended by this practice for felling or tree surgery works, to which the proposed schedule of works has been altered or the tree has been requested to be retained by the local planning authority or other institutions or individuals, cannot be the responsibility of this practice. Equally, if tree conservation and protection measures detailed in the report are not followed, this practice will not be responsible for implications or consequences that may result.

6.3 It is recommended that all trees at the site should be the subject of an annual inspection and check for condition and risk management purposes, by a suitably qualified and experienced professional. Higher risk zones such as track or path corridors should be the focus of particular attention in applied tree risk management work.

7.0 Limitations & Qualifications

Tree assessment reports are subject to the following limitations and qualifications.

General exclusions

Unless specifically mentioned, the report will only be concerned with above ground inspections. No below ground inspections will be carried out without the prior confirmation from the client that such works should be undertaken. The validity, accuracy and findings of this report will be directly related to the accuracy of the information made available prior to and during the inspection process. No checking of independent third-party data will be undertaken. Birch will

not be responsible for the recommendations within this report where essential data are not made available or are inaccurate. This report will remain valid for one year from the date of inspection subject to the recommendations specified within being adhered to. It must also be appreciated that recommendations proposed within this report may be superseded by extreme weather, or any other unreasonably foreseeable events. However, if any additional alterations to the property or soil levels are carried out and/or further tree works undertaken other than specified within the report, it will become invalid and a new tree inspection strongly recommended. It will be appreciated, and deemed to be accepted by the client and their insurers, that the formulation of the recommendations for the management of trees will be guided by the following:

1. The need to avoid reasonably foreseeable damage.

2. The arboricultural considerations - tree safety, good arboricultural practice (tree work) and aesthetics. The client and their insurers are deemed to have accepted the limitation placed on the recommendations by the sources quoted in the attached report. Where sources are limited by time constraints or the client, this may lead to an incomplete quantification of the risk.

Assessment and report undertaken by

Jim Waterson MICFor., MRICS

Report dated 9th November 2023

[redacted]

Sources:

BSI (2012) BS5837:2012 *Trees in relation to design, demolition and construction – Recommendations*

BSI (2010) BS3998:2010 *Recommendations for Tree Works*

Lonsdale (1999) *Principles of Tree Hazard Assessment and Management*

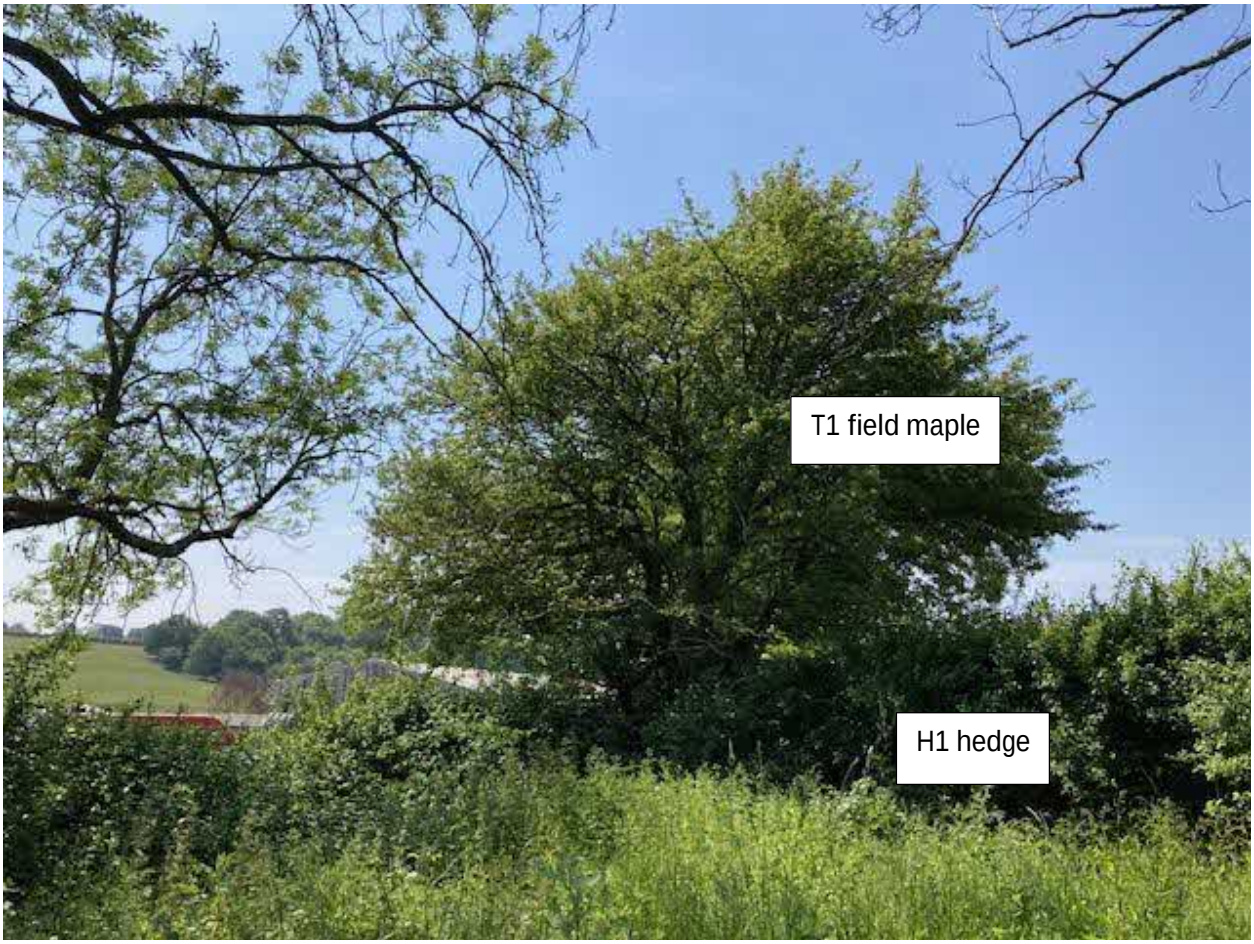
Mattheck and Breloer (1994) *The Body Language of Trees*

Mattheck (2007) *Updated Field Guide for Visual Tree Assessment*

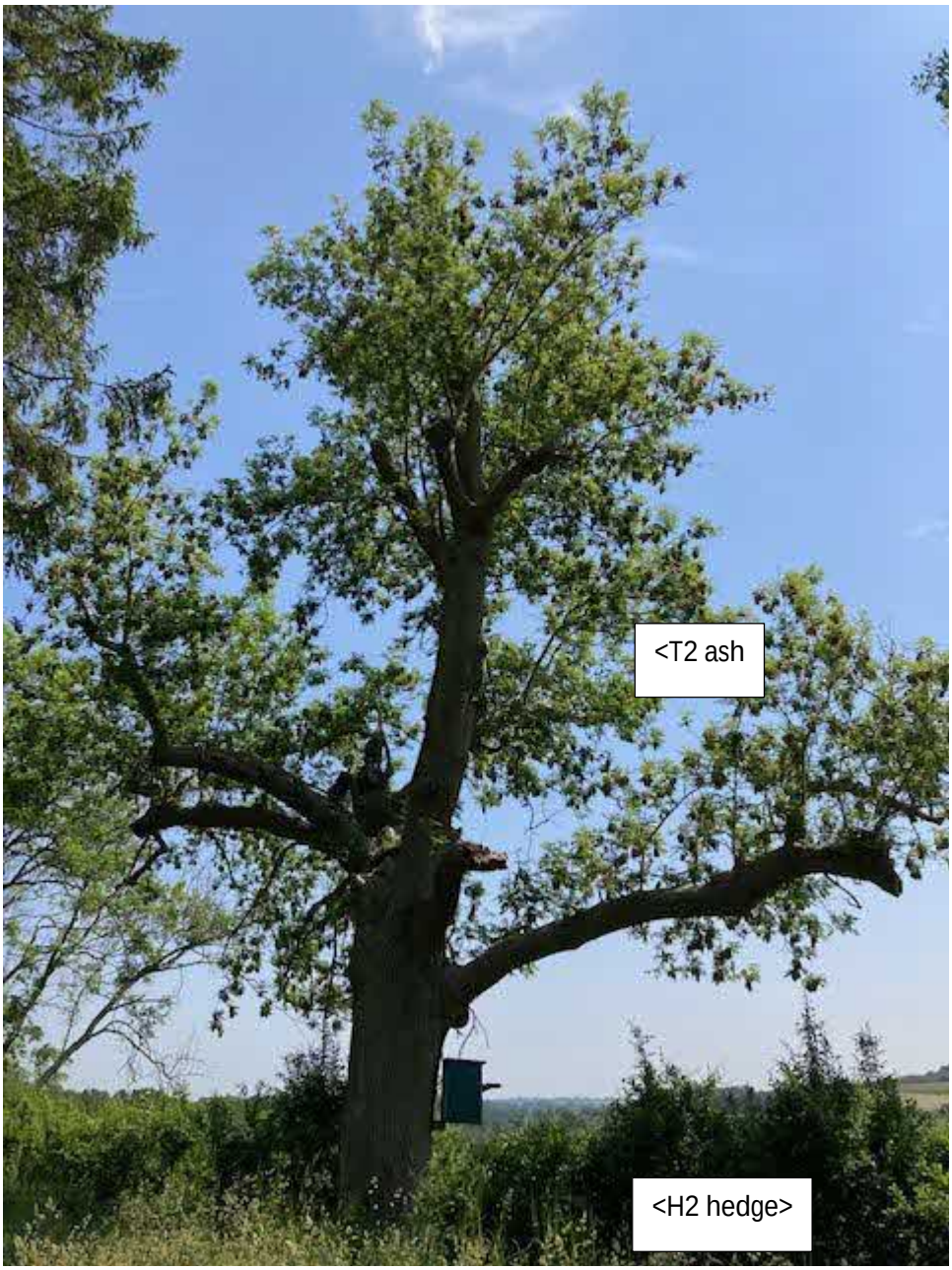
National Tree Safety Group (2011) *Common sense risk management of trees. Guidance on trees and public safety in the UK for owners, managers and advisers.*

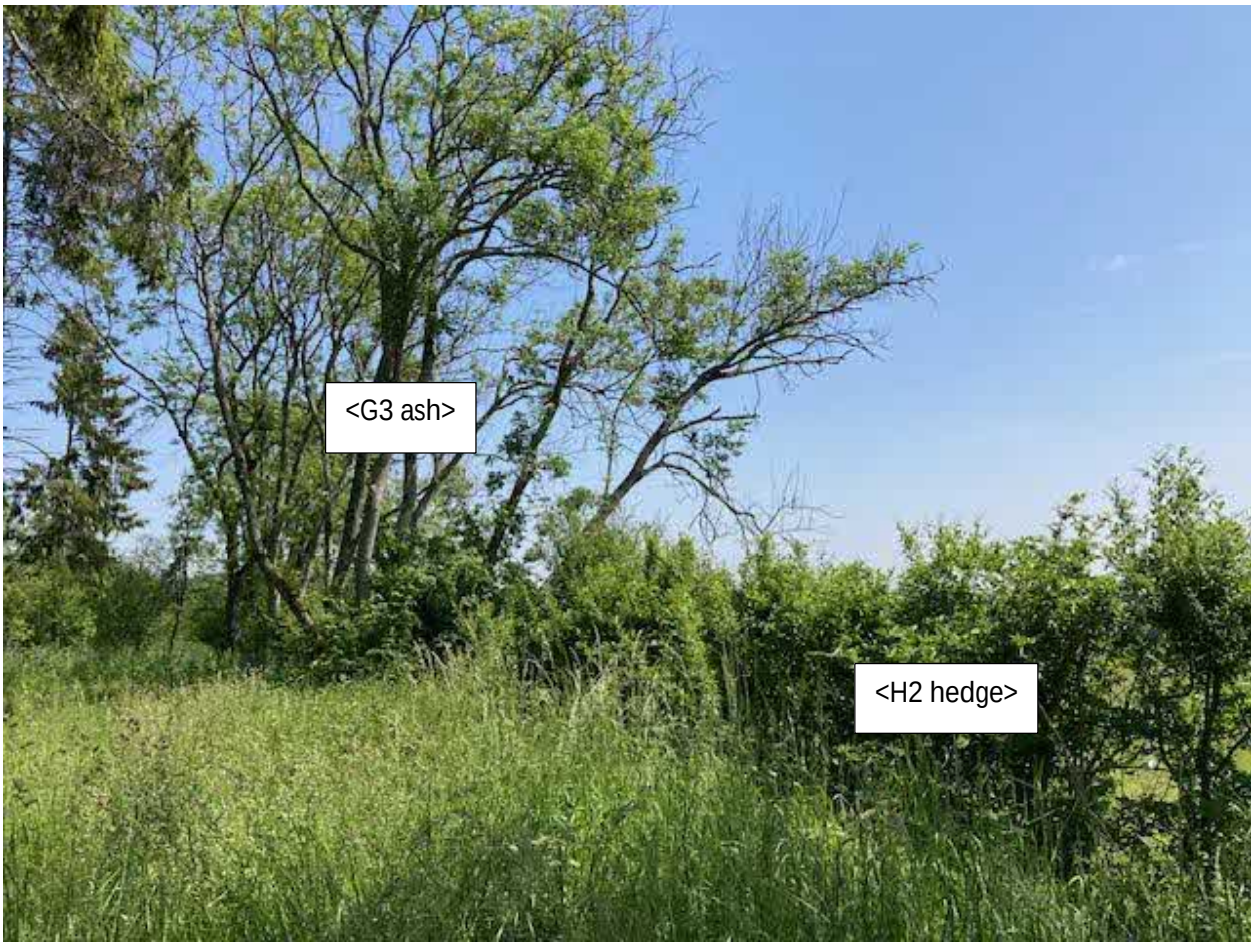
Strouts and Winter (1994) *Diagnosis of ill-health in trees*

Appendix 2 Tree and hedge images – Empshill Farm, Farmington




<G1 ash>
<G4 ash/spruce>
<H1 hedge>


<T2 ash
<H2 hedge>


<G3 ash>
<H2 hedge>


<G4 ash/spruce>


<G4 ash/spruce>

Appendix 3 Fence/barrier specification outlined in section 6.2.2 Figure 2 of BS 5837:2012, illustrated in copy diagram image below and by an example shown in the copy photograph (photo credit PJC Consultancy)