



**OAK LODGE, PEN Y LAN, RUABON, WREXHAM,  
LL14 6HW**

**Arboricultural Report, Impact Assessment  
&  
Protection Method Statement**

Consultant: John Crawshaw M.Arbor.A.

Survey Date: Monday, 23 September 2019

Report Date: Friday, 4 October 2019

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## 1. Introduction

### 1.1. Brief

I am instructed to inspect the trees at **OAK LODGE, PEN Y LAN, RUABON, WREXHAM, LL14 6HW** and to provide an arboricultural report and impact assessment for the trees located within and adjacent to the site, as shown on the Tree Constraints Plan enclosed.

### 1.2. Qualifications and experience

I have based this report on my site observations and the provided information, and I have come to conclusions in the light of my experience and qualifications. RFS Cert Arb.

M. Arbor A

### 1.3. Documents and information provided

I was provided with site & proposal plans.

### 1.4. Scope of this report

This report is only concerned with the trees shown on the enclosed plan. Trees with a diameter of less than 75mm and shrub species have not been surveyed in line with BS5837 2012.

### 1.5. Limitations of use and copyright

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## 2. Site Visit/Observations & Data Collection

### 2.1. Site visit

The information within this report was recorded on **Monday, 23 September 2019**.

### 2.2. Site description

The survey site comprises a detached dwelling with extensive gardens, out buildings and garaging, with surfaced pathways and access drive.

### 2.3 Identification and location of the trees

The trees have been identified and are listed within the Tree Survey Schedule. I have plotted the locations of the trees on the plans included. All the relevant information on it is contained within this report and the provided documents. Only the significant trees are included in this report; trees with a diameter of less than 75mm (BS5837 2012) are not included unless their position was felt to be significant. All trees have been allocated a classification. The classification cascade chart can be found below.



2.4. Tree observation. Each tree has been given a classification relevant to BS5837 2012.

| CASCADE CHART FOR TREE QUALITY ASSESSMENT (from British Standard 5837:2012 "Trees in Relation to Design, Demolition and Construction")                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                   |                                                                                                                                        |                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| TREES FOR REMOVAL                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                   |                                                                                                                                        |                                                   |
| Category and Definition                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Criteria                                                                                                                                                                                                                                                          |                                                                                                                                        | Identification on Plan                            |
| Category U<br>Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years | <ul style="list-style-type: none"><li>➤ Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other U category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).</li><li>➤ Trees that are dead or are showing signs of significant, immediate and irreversible overall decline.</li><li>➤ Trees infected with pathogens of significance to the health and/or safety of other trees nearby), or very low quality trees suppressing adjacent trees of better quality.</li></ul> <p>NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7</p> |                                                                                                                                                                                                                                                                   |                                                                                                                                        | DARK RED                                          |
| TREES TO BE CONSIDERED FOR RETENTION                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                   |                                                                                                                                        |                                                   |
| Category and Definition                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Criteria – Subcategories                                                                                                                                                                                                                                          |                                                                                                                                        | Identification on Plan                            |
|                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1. Mainly Arboricultural Qualities                                                                                                                                                                                                                                | 2. Mainly Landscape Qualities                                                                                                          | 3. Mainly Cultural Values, including Conservation |
| Category A<br>Those of high quality with a estimated remaining life expectancy of at least 40 years                                                                | Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features                                                                                                                                                            | Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture). | LIGHT GREEN                                       |
| Category B<br>Those of moderate quality with a estimated remaining life expectancy of at least 20 years                                                            | Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of unsympathetic past management and storm damage) such that they are unlikely to be suitable for retention for beyond 40 years; or lacking the merit for Category A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality | Trees with clearly identifiable conservation or other cultural benefits.                                                               | MID BLUE                                          |
| Category C<br>Those of low quality with an estimated life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.                        | Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits                                                              | Trees with very limited conservation or other cultural benefits.                                                                       | GREY                                              |

### 2.4.1. Tree Survey Schedule

| ID  | Species      | H/T | Stems | Dia<br>mm | Canopy<br>N E S W | First<br>Branch | Crown<br>H/T | Age    | Yrs | Cat | Observations                                                                                          | Recommendations | RPA (r) | RPA (a) |
|-----|--------------|-----|-------|-----------|-------------------|-----------------|--------------|--------|-----|-----|-------------------------------------------------------------------------------------------------------|-----------------|---------|---------|
| T1  | Oak          | 12  | 5     | 1100      | 4 7 7 5           | 3S              | 4            | Mature | 40+ | A   | Good overall condition, some Dieback evident, with medium size deadwood. Within neighbouring property | Remove Doadwood | 13.2    | 547.4   |
| T2  | Yew          | 6   | 5     | 400       | 2 2 2 2           | 3H              | 2            | Mature | 40+ | B   | Good overall condition, within neighbouring property                                                  | None            | 4.8     | 72.4    |
| T3  | Ash          | 5   | 5     | 125       | 1.5 1 1 1         | 2H              | 1            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 1.5     | 7.1     |
| T4  | Field Maple  | 4   | 5     | 150       | 1.5 1.5 1.5 1.5   | 1E              | 1            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 1.8     | 10.2    |
| T5  | Cherry       | 5   | 5     | 175       | 2 2 2 2           | 1H              | 1            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 2.1     | 13.9    |
| T6  | Silver Birch | 4   | 5     | 150       | 2 1.5 2 2         | 1E              | 1            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 1.8     | 10.2    |
| T7  | Silver Birch | 4   | 5     | 175       | 1.5 1.5 1.5 1.5   | 2H              | 1.5          | Young  | 40+ | C   | Good overall condition                                                                                | None            | 2.1     | 13.9    |
| T8  | Cherry       | 4   | 5     | 125       | 1.5 1.5 1.5 1.5   | 1S              | 1            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 1.5     | 7.1     |
| T9  | Cherry       | 4   | 5     | 100       | 1 1 1.5 1         | 1H              | 1            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 1.2     | 4.5     |
| T10 | Pear         | 3   | 5     | 75        | 0.5 0.5 1 0.5     | 2H              | 2            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 0.9     | 2.5     |
| T11 | Pear         | 3   | 5     | 100       | 0.5 0.5 1.5 0.5   | 2H              | 2            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 1.2     | 4.5     |
| T12 | Apple        | 3   | 5     | 75        | 1.5 1.5 1 1.5     | 2S              | 2            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 0.9     | 2.5     |
| T13 | Apple        | 3   | 5     | 75        | 1 1 1 1           | 2H              | 2            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 0.9     | 2.5     |
| T14 | Apple        | 3   | 5     | 75        | 1 1 1 1           | 2S              | 2            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 0.9     | 2.5     |
| T15 | Apple        | 3   | 5     | 75        | 1 1 1 1           | 2H              | 2            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 0.9     | 2.5     |
| T16 | Apple        | 3   | 5     | 75        | 1 1.5 1 1         | 2S              | 2            | Young  | 40+ | C   | Good overall condition                                                                                | None            | 0.9     | 2.5     |

### 2.4.2. Glossary of Terms

**ID:** Identification on position plan

**Name:** Common species name

**H/T:** Current tree height

**Stems:** Single or Multiple stems

**Dia:** Diameter of stem at 1.5m above ground (mm)

**Canopy:** Canopy measurements N,E,S & W

**Crown Height:** Height of lowest part of crown

**First Branch:** Height and direction of first branch

**Age:** Current age

**Yrs:** Approximate years of life remaining

**Cat:** Category of importance in line with current British Standards

**Obs:** Observations

**Recs:** Recommendations

**RPA (r):** Root protection area (approximate area of roots Radius of circle)

**RPA (a):** Root protection area (approximate area of roots Area of circle)

### 2.4.3. Tree Survey Methodology

Trees, tree groups and woodlands have been considered following evaluation into one of four categories (U, A, B, C) based on tree quality as outlined in British Standard 5837 (2012) which has been followed. Categorisation of trees, following the British Standard, gives an indication as to the trees' importance in relation to the site and the local landscape and also, the overall value and quality of the existing tree stock on site. This allows for informed decisions to be made concerning which trees should be removed or retained, should development occur.

For a tree to qualify under any given category it should fall within the scope of that category's definition. In the categories A, B, C which collectively deal with trees that should be a material consideration in the development process, there are three sub-categories which are intended to reflect arboricultural, landscape and cultural values respectively. Category U trees are those which would be lost in the short-term for reasons connected with their poor physiological or structural condition. They are, for this reason, not usually considered in the planning process.

In assigning trees to the A, B or C categories the presence of any serious disease or tree related hazards are taken into account. If the disease is considered fatal and / or irremediable, or likely to require sanitation for the protection of other trees it may be categorised as U, even if they are otherwise of considerable value.

Category (A) - trees whose retention is most desirable and is of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution (a minimum of 40 years) and may comprise:

- Trees which are particularly good examples of their species especially rare or unusual, or essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue);
- Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups); and
- Trees or groups or woodlands of significant conservation, historical, commemorative or other value (e.g. Veteran or wood-pasture trees).

Category (B) - are trees whose retention is considered desirable and are of moderate quality and value. These trees are considered to be in such a condition as to make a significant contribution (a minimum of 20 years) and may comprise:

- Trees that might be included in the high category but because of their numbers or slightly impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage), are downgraded in favour of the best individuals;
- Trees present in numbers such that they form distinct landscape features and attract a higher collective rating than they would as individuals. Individually these trees are not essential components of formal or semi-formal arboricultural features, or trees situated mainly internally to the site and have little visual impact beyond the site; and
- Trees with clearly identifiable conservation or other cultural benefits.

Category (C) - are trees that could be removed to facilitate the development and are considered to be of low quality and value. These trees are in an adequate condition to remain until new planting could be established (a minimum of ten years) or are young trees with a stem diameter below 150mm and may comprise:

- Trees not qualifying in higher categories;
- Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value and or trees offering low or only temporary screening benefit; and

- Trees with very limited conservation or other cultural benefits.

Category (U) - trees for removal are those trees in such a condition that any existing value would be lost within 10 years and which should in the current context be removed for reasons of sound arboricultural management. Trees within this category are:

- Trees that have a serious irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees;
- Trees that are dead or are showing signs of significant, immediate or irreversible overall decline; and
- Trees infected with pathogens of significance to the health and or/safety of other trees nearby trees or very low quality trees suppressing adjacent trees of better quality.

Species has been recorded by common name and recorded as such in the Arboricultural Data schedule. Height has been estimated in meter and stem diameters have been measured at 1.5 metres above ground level and recorded in millimetres. Crown spreads have been measured in half meters and taken to the point of greatest spread unless the crown has presented a pronounced asymmetrical form and therefore measurements have been taken for the four cardinal points. The measurements have always been considered in the following sequence, North, East, South, and West, and therefore appear as such within the Tree Survey Schedule.

In the assessment particular consideration has been given to the following when deciding the most appropriate British Standard Category and Sub-Category allocation:

- a. the health, vigour and condition of each tree;
- b. the presence of any structural defects in each tree and its life expectancy;
- c. the size and form of each tree and its suitability within the context of the proposed scheme; and
- d. the location of each tree relative to existing site features, e.g. its value as a screen or as a skyline feature.

Age class is assessed according to the age class categories referred to in BS 5837.

1. Y: Young trees up to five years of age;
2. SM: Semi-mature, trees less than 1/3 life expectancy;
3. EM: Early mature, trees 1/3 - 2/3 life expectancy;
4. M: Mature trees over 2/3 life expectancy;
5. OM: Over mature - declining or moribund trees of low vigour; and
6. V: Veteran - Characteristics have been noted where a tree exhibits certain characteristic features of veteran trees.

Major defects or diseases and relevant observations have also been recorded under Structural Condition. The assessment for structural condition has included inspection of the following defects:

1. The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay;
2. Soil cracks and any heaving of the soil around the base indicating possible root plate movement;
3. Any abrupt bends in branches and limbs resulting from past pruning, as it may be an indication of internal weakness and decay;
4. Tight or weak 'V' shaped unions and co-dominant stems;
5. Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994);
6. Cavities as a result of limb losses or previous pruning;

7. Broken branches;
8. Storm damage;
9. Canker formations;
10. Loose bark;
11. Damage to roots;
12. Basal, stem or branch / limb cavities;
13. Crown die-back;
14. Abnormal foliage size and colour;
15. Any changes to the timing of normal leaf flush and leaf fall patterns; and
16. Other pathological diseases affecting any part of the tree.
17. Major defects or diseases and relevant observations have also been recorded. Dead wood has been defined as the following:
  18. Twigs and small branch material up to 5cm in diameter;
  19. Minor dead wood 5cm to 10cm in diameter; and
  20. Major dead wood 10cm in diameter and above.

The survey was completed from ground level only, aerial inspection of trees was not undertaken. Investigations as to the internal condition of a tree have not been undertaken. Further investigations of this type can be made and have been recommended where it has been considered necessary, within the report although these investigations are beyond the scope of this report.

Evaluation of the trees condition given within this assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months, in accordance with sound arboricultural practice.

The individual positions of trees and groups of trees recorded in the Tree Survey Schedule. have been shown on the Tree Constraints Plan, in Appendix 2.0. The positions of trees are based on a topographical / land survey supplied by the development and client in dwg. format for the purpose of plotting the trees.

The Root Protection Areas (RPA) to be required by the individual and groups of trees are indicated by the Tree Constraints element of the above plans. The Root Protection Areas are formulated as described below.

Below ground constraints to future development is represented by the area surrounding the tree that contains sufficient rooting volume to ensure survival of the tree, which need protecting in order for the tree to be incorporated into any future scheme, without adverse harm to the tree or structural integrity of buildings. This is referred to as the RPA and is shown as a circle of a given radius.

The circle may be modified in shape to maintain a similar total area depending on the presence of surrounding obstacles. Where groups of trees have been assessed, the RPA has been shown based on the maximum sized tree in any one group and so would automatically exceed the RPA's required for many of the individual specimens within the group. A RPA is equivalent to a circle with a radius 12x the stem diameter for single stem trees and 10x the basal diameter for trees with more than one stem arising less than 1.5 meters above ground level.

### 3. Photographs



T1 Oak



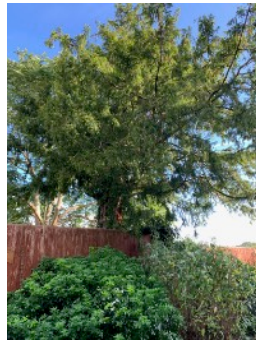
T1 within neighbouring property



Garage and workshop



Concrete foundation



T2 Yew



T's 3, 4 & 5



T's 6 - 9



T's 10 & 11



T's 12 - 16

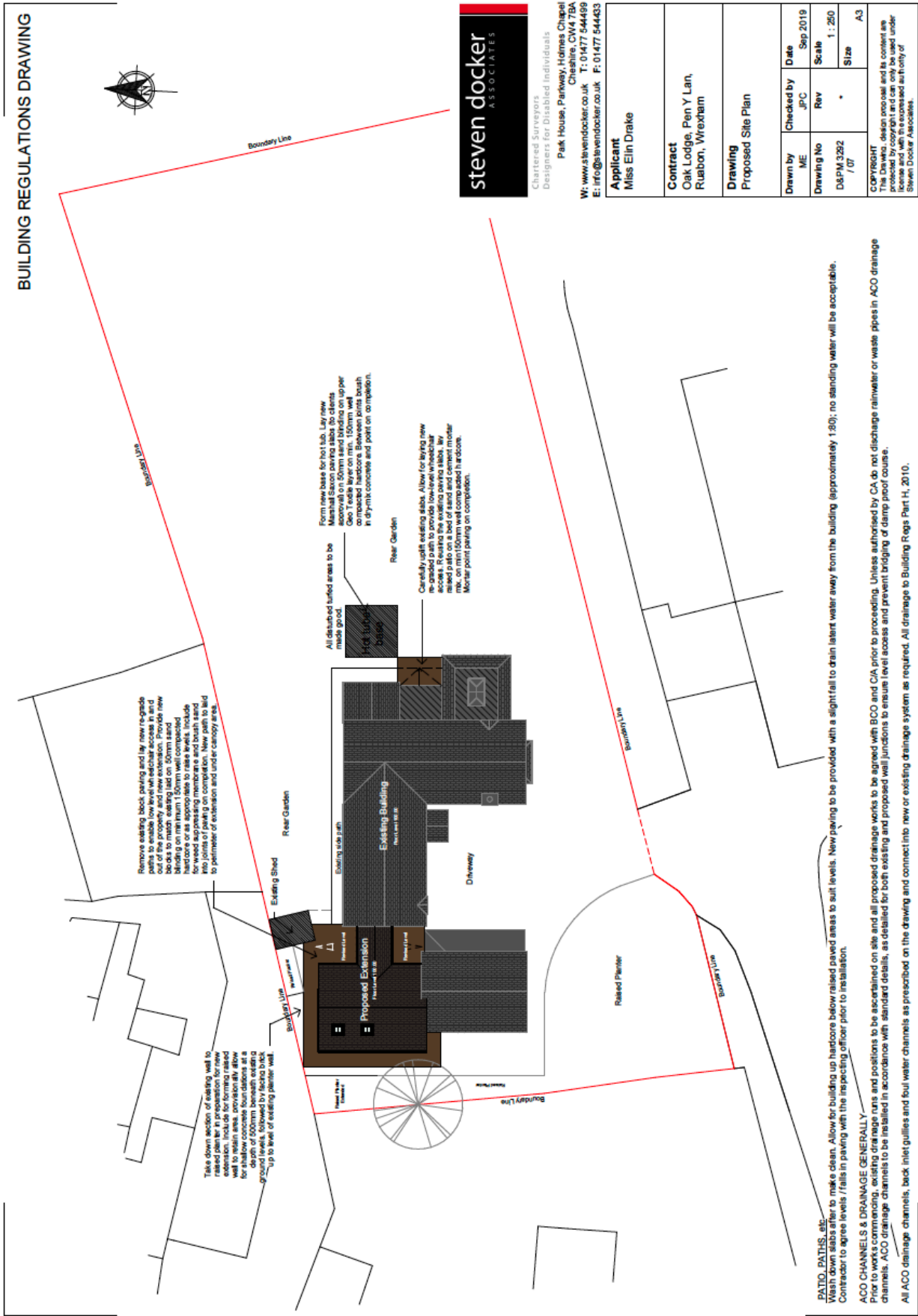
Plan below not to scale as PDF. Please refer to original drawing for scaling



5. Arboricultural Impact Assessment

5.1 Proposals

The proposals are to extend the property as shown on the plan below.



## 5.2 Impact Assessment

In light of the tree constraints set against the proposals, below are the conclusions of the impact assessment upon the trees within this survey.

The proposals (to the dimensions given) have been positioned on the Tree Impact Plan to give an indication of impact to the trees.

### Foundations

The proposed foundations for the new extension will incorporate some of the existing footprint of the workshop, which as a substantial concrete footing. This area will undoubtedly have been excavated to form the foundation and roots may have been compromised as a result. This report assumes that the new proposals will pose no further impact within this area.

The area outside this footing will incur into the RPA of T1. The use of Pile and beam footings are proposed, which will allow greater flexibility and minimise potential impact upon the roots. Piles can be located between significant roots with not requirement to severance or damage.

No trees would require removal and no other tree within this report would be impacted upon.

### Rear Garden

The rear garden designs will have no impact upon the retained trees.

### Deliveries/Contractors Access

The site office, welfare and delivery area can all be positioned outside the RPA's to avoid conflict with the retained trees.

## 6. Arboricultural Method Statement

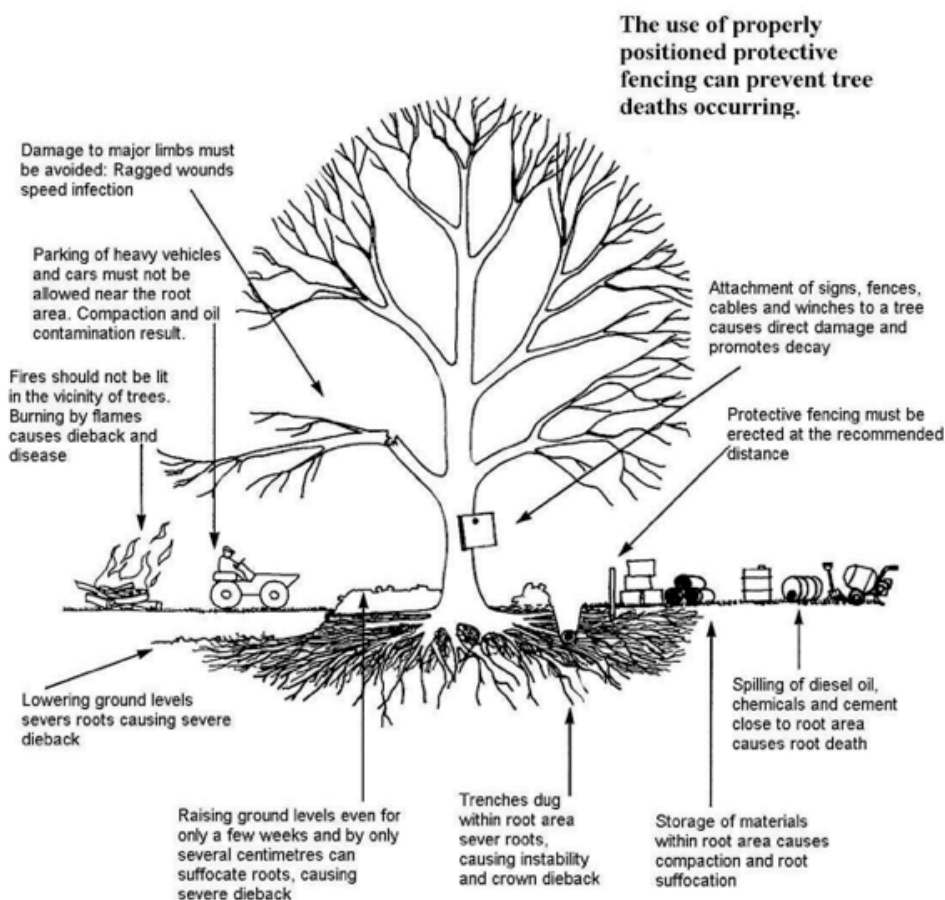
### 6.1 Overview

- ❖ All trees to be retained and protected
- ❖ Protective fencing will be used to protect the trees
- ❖ Existing revetment wall to act as protection
- ❖ Temporary ground protection will allow machinery & working over the RPA of T2
- ❖ Use of Pile & beam footings for new extension
- ❖ Contractor's access & Site office/welfare/storage outside RPA's as shown
- ❖ Unloading of materials away from retained trees
- ❖ No materials, mixing or washing out of tools within the RPA's

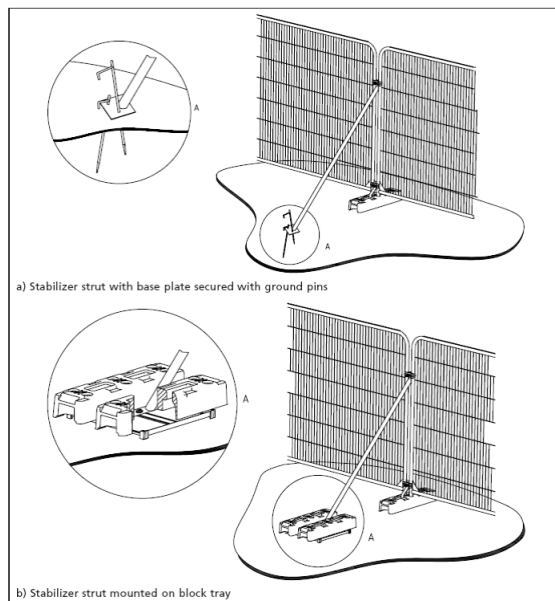
### 6.2 Tree Protection

With reference to the Arboricultural Report and Tree Protection Plan (TPP), particular attention should be given to the trees that are to be retained. The TPP clearly identifies the Root Protection Areas (RPA's) for the tree, which will be retained. This method statement sets out in addition a Construction Exclusion Zone (CEZ) by way of protective hoarding and signage. Protection of the retained trees are paramount to the granting of planning permission, the design of the development and the future health and success of the tree.

### *Common causes of Tree Death*



## Protective Fencing



Warning notices such as above explaining the tree protection measures should be displayed on the fencing.

The protective fencing should remain in place until the completion of the scheme and agreed by the Arboricultural Consultant.

## Example of temporary ground protection



Protective matting can be used directly on the existing hard-standing or on soft ground, set upon a 100mm layer of wood-chip. Wooden scaffold boards or thick hardboard are also acceptable but may become slippery and difficult to use on slopes.

### 6.3 Construction Works Ground protection of RPA's

Extreme care should be taken as not to damage the roots, trunks and branches of any retained trees. It is anticipated that the works will be very close to some trees and care should be taken to maintain the protection measures contained within this report. Should the proposals deviate from the original plans, advice from the Arboriculturalist should be sought and any temporary protection put in place.

The protective fencing will create a Construction Exclusion Zone to protect the RPA's

### **Demolition of Existing features**

Careful demolition of the workshop and shed etc will be undertaken by hand and carefully dismantled near to the retained trees.

### **Piled Foundations**

Mini Piles will be positioned between strategic structural roots and used to support the walls and roof of the structure.

The proposals are far enough away from the main stem of T1 to avoid conflict with main structural roots. If roots of above 25mm dia are encountered during the piling operation, the Arboriculturalist should be consulted and the pile repositioned as to avoid potential damage.

### **Deliveries/Contractors Access**

The site office, welfare and delivery areas will be sited outside the RPA's as shown on the TPP to avoid conflict with the retained trees.

### **Utilities**

Utility runs will connect directly to the existing house & garage and no further excavation within the RPA is required. Details to follow.

### **Concrete & Materials**

Pouring of concrete and the delivery and placement of the heavy masonry blocks should be carried out with extreme care to ensure no spillage or run off into the RPA's.

Reference is also made to materials which could contaminate the soils e.g. concrete mixings, concrete washings and mortar which should not be discharged within 10m of the Root Protection Area or under or within 10m of any other tree or shrub.

Accordingly the materials should not be mixed within the Root Protection Area or on an area sloping towards the tree.

On completion of the works all surplus materials are to be collected and disposed of offsite.

## **6.4 Tree Surgery/Pruning**

There are no proposed requirements for pruning.

## **6.5 Timetable of Works**

| <b>Time Table</b>                                                                                              |
|----------------------------------------------------------------------------------------------------------------|
| Pre-commencement meeting prior to construction works to discuss the tree protection measures.                  |
| Installation of tree protection measures (Fencing)                                                             |
| Tree protection measures to be signed off by either the LPA Arboricultural Officer and Arboriculturalist.      |
| Installation of access routes, compounds and site office                                                       |
| Main construction and hard landscaping works                                                                   |
| Inspection by the LPA Arboriculturalist or appointed Arboriculturalist to agree any issues raised if necessary |
| Aftercare & Monitoring                                                                                         |

## 7. Supervision & Reporting

The Client, Site manager and Arboriculturalist must meet on site before any development activity begins to confirm the protection measures agreed and employed are functional and achieving their purpose.

The Arboriculturalist is to make regular site visits throughout the project, at intervals of not more than 28 days. This may be more frequent at times when operations are more specifically tree related, such as ground preparation, foundation works and close proximity working to stems and limbs.

The Arboriculturalist has responsibility to liaise with the LPA's Arboriculturalist and agree any changes or revisions that may be necessary, before they are implemented. Any changes to the agreed protection measures or procedures are to be agreed in writing by the LPA, recorded and circulated to all parties as an addendum to this method statement.

All site visits, including spot checks will be recorded in writing, noting position and condition of protection measures, any potentially damaging work practices and damage to the trees above and below ground. Photos should be included with the notes and passed to the client and the LPA within 5 working days of the visit.

Below is the supervision and monitoring schedule. Written logs will be sent to the LPA recording each visit within 5 days of each visit.

| Description                                    | Stage                           | Frequency               | Reporting                           | Action                                                                           |
|------------------------------------------------|---------------------------------|-------------------------|-------------------------------------|----------------------------------------------------------------------------------|
| Pre-commencement meeting with relevant parties | Prior to any construction phase | 1 visit                 | Visit Log (written)                 | Amendments to tree protection if required in consultation with LPA               |
| Implementation of tree protection measures     | Prior to any construction phase | 1 visit                 | Visit Log (written)                 | Ensure standards against Tree Protection Plan                                    |
| Main construction phase                        | Throughout                      | 2 visits                | Visit Log (written)                 | Ensure protection measures and report any damage                                 |
| Emergency call out                             | All phases                      | As required             | Visit Log (written) & report to LPA | Deal with emergency tree damage/contravention of Arboricultural Method Statement |
| Site 'sign off' removal of protection measures | Construction completion         | 1 visit                 | Visit Log (written)                 | Sign off Tree protection measures                                                |
| Soft landscaping                               | Soft landscaping                | 1 visit during planting | Visit Log (written)                 | Ensure standards, report issues                                                  |

## 8. Contingency Plans

In the event of unforeseen incidents occurring, that may adversely affect or threaten the welfare or security of the tree, the resident Site Agent/Manager shall inform the Arboricultural Consultant at the earliest opportunity and not more than one working day following the incident.

The Arboricultural Consultant will visit the site to inspect and assess the circumstances and make any appropriate recommendations The Local Planning Authority Tree Officer will be informed by the Arboricultural Consultant of such incidents and

recommendations will be submitted for approval by the Local Planning Authority, initially verbally, and then in writing

A record of any emergency incidents and works shall be maintained by the Arboricultural Consultant

Incidents which may merit such contingency plans include

- ❖ Accidental / unauthorised damage to the limbs, roots or trunk of trees
- ❖ The spillage of chemicals within or adjacent to a Root Protection Area
- ❖ The discharge of toxins / waste within or adjacent to a Root Protection Area
- ❖ The un-scheduled access over the RPA's (post break up of existing surface)

Incidents and breaches of the agreed protection measures will result in a stopping of the operation, review and remediation where necessary. In some extreme cases the whole site may be closed and re-assessed.

## 9. Aftercare & Monitoring

Health, vigour and future development of the root systems, where possible should be encouraged, below are recommendations for maintaining the roots ability to breath, take up water and nutrients and expand if needed.

- ❖ Tree roots should be undisturbed in the existing environment
- ❖ Avoiding and alleviating compaction is highly beneficial
- ❖ A qualified Arboriculturalist should visit the site post development and undertake a health & safety assessment of the retained and newly planted trees to determine any issues arising and to recommend an adjustment or any additional measures he deems suitable to maintain the health a viability of the trees.

## 10. References

British Standards: 5837: 2012 Trees in relation to design, demolition and construction.

British Standards: 8545: 2014 Trees from nursery to independence in the landscape

British Standards: 3998:2010 Tree work - Recommendations

Tree Preservation Orders - A Guide to Good Practice·

APN 1 Driveways close to trees

Diagnosis of ill health in trees - R G Sprouts and T G Winter - Forestry

Principles of tree hazard management - David Lonsdale - Forestry

Commission Publication ISBN 0-11-753355-6

The body language of trees - Claus Mattheck and Helge Breloer - FC Publication ISBN 0-11-753067-0

Arboriculture research and Information note 12 'Tree Root Systems'.

Tree Roots and in the Built Environment John Roberts, Nick Jackson

## 11. Key to Tree Protection Plan.

Trees to be retained - Green, Blue, Grey

Trees to be removed - Red

Root protection areas - Magenta

Protective fencing - Orange

Contractors access and materials storage - Blue

PDF plans within this A4 report may not be to scale and should only be used for reference within the report. Scaled drawings should be taken from the original AutoCad plans.

Plan below not to scale as PDF. Please refer to original drawing for scaling.



## Appendix 1. List of Tree Names

|                    |                                                        |
|--------------------|--------------------------------------------------------|
| Ash                | <a href="#"><i>Fraxinus excelsior</i></a>              |
| Aspen              | <a href="#"><i>Populus tremula</i></a>                 |
| Atlas cedar        | <a href="#"><i>Cedrus atlantica</i></a>                |
| Austrian pine      | <a href="#"><i>Pinus nigra</i></a>                     |
| Bay willow         | <a href="#"><i>Salix pentandra</i></a>                 |
| Beech              | <a href="#"><i>Fagus sylvatica</i></a>                 |
| Bird cherry        | <a href="#"><i>Prunus padus</i></a>                    |
| Black cottonwood   | <a href="#"><i>Populus trichocarpa</i></a>             |
| Black poplar       | <a href="#"><i>Populus nigra</i></a>                   |
| Black walnut       | <a href="#"><i>Juglans nigra</i></a>                   |
| Box                | <a href="#"><i>Buxus sempervirens</i></a>              |
| Caucasian fir      | <a href="#"><i>Abies nordmanniana</i></a>              |
| Cedar of Lebanon   | <a href="#"><i>Cedrus libani</i></a>                   |
| Coast redwood      | <a href="#"><i>Sequoia sempervirens</i></a>            |
| Common alder       | <a href="#"><i>Alnus glutinosa</i></a>                 |
| Common juniper     | <a href="#"><i>Juniperus communis</i></a>              |
| Common lime        | <a href="#"><i>Tilia x vulgaris</i></a>                |
| Common silver fir  | <a href="#"><i>Abies alba</i></a>                      |
| Common walnut      | <a href="#"><i>Juglans regia</i></a>                   |
| Corsican pine      | <a href="#"><i>Pinus nigra</i></a>                     |
| Crab apple         | <a href="#"><i>Malus sylvestris</i></a>                |
| Crack willow       | <a href="#"><i>Salix fragilis</i></a>                  |
| Cricket-bat willow | <a href="#"><i>Salix alba</i>, var <i>caerulea</i></a> |
| Deodar cedar       | <a href="#"><i>Cedrus deodara</i></a>                  |
| Douglas fir        | <a href="#"><i>Pseudotsuga menziesii</i></a>           |
| Downy birch        | <a href="#"><i>Betula pubescens</i></a>                |
| English elm        | <a href="#"><i>Ulmus procera</i></a>                   |
| Eucalypts          | <a href="#"><i>Eucalyptus</i> species</a>              |
| European larch     | <a href="#"><i>Larix decidua</i></a>                   |
| Fig                | <a href="#"><i>Ficus carica</i></a>                    |
| Field maple        | <a href="#"><i>Acer campestre</i></a>                  |
| Giant fir          | <a href="#"><i>Abies grandis</i></a>                   |
| Grey alder         | <a href="#"><i>Alnus glutinosa</i></a>                 |
| Grey poplar        | <a href="#"><i>Populus x canescens</i></a>             |
| Hawthorn           | <a href="#"><i>Crataegus monogyna</i></a>              |
| Hazel              | <a href="#"><i>Corylus avellana</i></a>                |
| Holly              | <a href="#"><i>Ilex aquifolium</i></a>                 |
| Holm oak           | <a href="#"><i>Quercus ilex</i></a>                    |
| Honey Locust       | <a href="#"><i>Gleditsia triacanthos</i></a>           |
| Hornbeam           | <a href="#"><i>Carpinus betulus</i></a>                |
| Horse chestnut     | <a href="#"><i>Aesculus hippocastanum</i></a>          |
| Italian alder      | <a href="#"><i>Alnus cordata</i></a>                   |
| Japanese larch     | <a href="#"><i>Larix kaempferi</i></a>                 |
| Japanese zelkova   | <a href="#"><i>Zelkova serrata</i></a>                 |
| Large-leaved lime  | <a href="#"><i>Tilia platyphyllos</i></a>              |
| Lawson cypress     | <a href="#"><i>Chamaecyparis lawsoniana</i></a>        |
| Lodgepole pine     | <a href="#"><i>Pinus contorta</i></a>                  |

|                      |                                                          |
|----------------------|----------------------------------------------------------|
| Lombardy poplar      | <a href="#"><i>Populus nigra</i> var. <i>italica</i></a> |
| London plane         | <a href="#"><i>Platanus x hispanica</i></a>              |
| Maritime pine        | <a href="#"><i>Pinus pinaster</i></a>                    |
| Midland thorn        | <a href="#"><i>Crataegus laevigata</i></a>               |
| Monkey puzzle        | <a href="#"><i>Araucaria araucana</i></a>                |
| Monterey cypress     | <a href="#"><i>Cupressus macrocarpa</i></a>              |
| Monterey pine        | <a href="#"><i>Pinus radiata</i></a>                     |
| Noble fir            | <a href="#"><i>Abies procera</i></a>                     |
| Norway maple         | <a href="#"><i>Acer platanoides</i></a>                  |
| Norway spruce        | <a href="#"><i>Picea abies</i></a>                       |
| Oriental plane       | <a href="#"><i>Platanus orientalis</i></a>               |
| Pedunculate oak      | <a href="#"><i>Quercus robur</i></a>                     |
| Red alder            | <a href="#"><i>Alnus rubra</i></a>                       |
| Red oak              | <a href="#"><i>Quercus rubra</i></a>                     |
| Robusta poplar       | <a href="#"><i>Populus x robusta</i></a>                 |
| Rowan                | <a href="#"><i>Sorbus aucuparia</i></a>                  |
| Sallow (Goat willow) | <a href="#"><i>Salix caprea</i></a>                      |
| Scots pine           | <a href="#"><i>Pinus sylvestris</i></a>                  |
| Serotina poplar      | <a href="#"><i>Populus serotina</i></a>                  |
| Sessile oak          | <a href="#"><i>Quercus petraea</i></a>                   |
| Silver birch         | <a href="#"><i>Betula pendula</i></a>                    |
| Sitka spruce         | <a href="#"><i>Picea sitchensis</i></a>                  |
| Small-leaved lime    | <a href="#"><i>Tilia cordata</i></a>                     |
| Smooth-leaved elm    | <a href="#"><i>Ulmus carpinifolia</i></a>                |
| Snakebark Maple      | <a href="#"><i>Acer capillipes</i></a>                   |
| Southern beech       | <a href="#"><i>Nothofagus antarctica</i></a>             |
| Swamp cypress        | <a href="#"><i>Taxodium distichum</i></a>                |
| Swedish whitebeam    | <a href="#"><i>Sorbus intermedia</i></a>                 |
| Sweet chestnut       | <a href="#"><i>Castanea sativa</i></a>                   |
| Sycamore             | <a href="#"><i>Acer pseudoplatanus</i></a>               |
| Tree of Heaven       | <a href="#"><i>Ailanthus altissima</i></a>               |
| Turkey oak           | <a href="#"><i>Quercus cerris</i></a>                    |
| Wellingtonia         | <a href="#"><i>Sequoiadendron giganteum</i></a>          |
| Western hemlock      | <a href="#"><i>Tsuga heterophylla</i></a>                |
| Western red cedar    | <a href="#"><i>Thuja plicata</i></a>                     |
| White poplar         | <a href="#"><i>Populus alba</i></a>                      |
| White willow         | <a href="#"><i>Salix alba</i></a>                        |
| Whitebeam            | <a href="#"><i>Sorbus aria</i></a>                       |
| Wild cherry (Gean)   | <a href="#"><i>Prunus avium</i></a>                      |
| Wild service tree    | <a href="#"><i>Sorbus torminalis</i></a>                 |
| Wych elm             | <a href="#"><i>Ulmus glabra</i></a>                      |
| Yew                  | <a href="#"><i>Taxus baccata</i></a>                     |



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