

# BS 5837:2012 Tree Survey, Arboricultural Impact Assessment, Arboricultural Method Statement & Tree Protection Plan



Vine Cottage  
High Wych Lane  
Sawbridgeworth  
CM21 0JJ

Date: 16<sup>th</sup> June 2023

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# 1. Instruction

Usherwood Arboriculture have been instructed to provide a tree survey, arboricultural impact assessment, method statement and tree protection plan with regards to the proposed demolition of existing garage and shed, with erection of 1.5 storey side extensions at Vine Cottage, High Wych Lane, Sawbridgeworth, CM21 0JJ. The survey has been carried out in accordance with BS5837:2012, Trees in relation to design, demolition and construction-Recommendations.

| Drawing No. | Title                  | Drawn/Written by |
|-------------|------------------------|------------------|
| 0303-0020-P | Existing Location Plan | Aroland Design   |
| 0303-0021-P | Proposed Block Plan    | Aroland Design   |

Table 1. Drawings and documents supplied for consideration within this report

## 2.Executive Summary

This document considers the potential impact of development upon 18 individual trees located on the northern boundary of the application site. A single category C Hawthorn will require removal due to its location beneath the proposed extension footprint, whilst a further 5 trees may incur minor ingress into their notional root protection areas. However, this has been considered in the site's context and provided that recommendations set out within this document are adhered to, there should be minimum disruption to existing retained trees.

## 3.The Site

The application site comprises a detached cottage located on the west side of High Wych Lane. A gravel drive leads to a hardstanding parking area surrounded by trees, shrubs and hedges. The rear garden laid to lawn slopes gently to the west with the subject trees located on the northern boundary and within a boundary hedge comprising Privet, Laurel and occasional hawhorn.

### Soil conditions.

The British Geological Survey, Geology of Britain viewer describes the local bedrock geology as London Clay formation- clay and silt and the superficial geology as Lowestoft Formation- Diamicton. Sedimentary superficial deposits.

### Legal Constraints

Trees can sometimes be the subject of a Tree Preservation Order (TPO) or a property may be situated within a designated conservation area. Both a TPO and conservation area designation require the owner/occupier or those wishing to work on trees to seek the Council's consent or provide written notice prior to carrying out any works. It is a criminal offence to carry out any works to protected trees without the Council's consent. The site is located within the High Wych Conservation Area, however, Usherwood Arboriculture has not carried out a statutory check with regards to tree preservation orders.



Aerial image above, courtesy of Google Maps, showing the application site outlined in red.

## 4. Tree Survey

Trees were assessed in accordance with recommendations and guidelines contained within British Standard 5837:2012 - 'Trees in relation to design, demolition and construction- Recommendations' henceforth referred to as BS5837. The survey was carried out in relation to the condition and quality of trees growing either within or near the boundary of the site. Where details have been omitted including the heights of crown break and the direction of the first major lateral branch, these details were not seen as being relevant to this application. Where access allowed, tree heights were measured with a Haglof electronic clinometer and trunk diameters with a diameter tape measure. Crown spreads were measured with a tape measure at the four cardinal points.

All trees were assessed from the ground utilizing the Visual Tree Assessment method as developed by Mattheck and Breloer (The Body Language of Trees, Research for Amenity Trees No 4 Department of the Environment).

This tree survey should not be treated as a hazard assessment, it has been carried out to inform the planning process with regards to the appropriate retention and protection of trees as visual and ecological assets within the landscape. However, where clear and obvious defects have been observed, the relevant parties have been informed.

## Tree Assessment and Categorization

Tree quality ratings have been assessed in accordance with BS5837's Table 1, Cascade chart for tree quality assessment.

**U** = 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 that have serious, irreparable structural defects, such that their early loss is expected due to collapse or ill health including trees that will become at risk due to the loss of other U category trees).

**A** = Trees of high amenity quality and value in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).

- 1) Trees that are particularly good examples of their species if rare, unusual or essential components of groups or formal or semi-formal arboricultural features.
- 2) Trees, groups of trees or woodland which provide a definite screening or softening effect to the locality in relation to views in or out of the site, or those of particular visual importance.
- 3) Trees groups or woodlands of significant conservation, historical, Commemorative or other value (e.g. veteran tree or wood pasture).

**B** = Trees of moderate quality and amenity value: those in such a condition as to be able to make a significant contribution (a minimum of 20 years is suggested).

- 1) Trees that might be included in the high category but are down-graded because of impaired condition (e.g. remediable defects).
- 2) Trees, groups of trees or woodland that form distinct landscape features but do not form essential components of the landscape.
- 3) Trees with clearly identifiable conservation or other cultural benefits.

**C** = Trees of low quality and amenity value currently in adequate condition to remain until new planting is established (a minimum of 10 years is suggested) or trees under 150 mm stem diameter.

- 1) Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
- 2) Trees presenting groups or woodlands but not with a significantly higher landscape value and or offering low or temporary/transient screening benefit.
- 3) Trees with no conservation or other cultural benefits.

Note: Category C trees are the least suitable for retention, where they would impose a significant constraint on the development their removal for development purposes may be considered acceptable by the LPA.

## 5. Tree Survey Data & Appraisal

This survey concerns 18 individual trees, full details of the survey data can be found in the Tree Survey Schedule at **Appendix 1**. An explanation of Tree Quality category ratings is set out on the previous page.

### Category A individual trees and groups of trees.

No trees have been graded as category A (trees of high quality) as part of this survey.

### Category B individual trees and groups of trees.

9 trees have been graded as category B (trees of moderate quality) as part of this survey.

### Category C individual trees and groups of trees.

9 trees have been graded as category C (trees of low quality) as part of this survey.

### Category U individual trees and groups of trees.

No trees have been graded as category U (trees unsuitable for retention) as part of this survey.

5 tree species were recorded as part of this survey, their common and botanical names are set out within the table below.

| Common Name     | Botanical Name                |
|-----------------|-------------------------------|
| Cherry Plum     | <i>Prunus cerasifera</i>      |
| Common Ash      | <i>Fraxinus excelsior</i>     |
| Common Beech    | <i>Fagus sylvatica</i>        |
| Common Hawthorn | <i>Crataegus monogyna</i>     |
| Horse Chestnut  | <i>Aesculus hippocastanum</i> |

Table 2. Tree species recorded on site and their botanical names.

## T1 Horse chestnut & other front garden trees.



Images above looking north towards the northern site boundary. Existing hard standing parking can be seen in the second picture.

## T5 Beech, looking west.



Images above with T5 Beech in foreground looking west towards shed sited on hardstanding base. Second image of trees T9 onwards on northern boundary.

## Looking east from rear garden.



Images above looking north, northeast towards trees on northern boundary. T14, a category C Hawthorn will be removed in order to construct the proposed rear extension. A small shrub bed which includes some lilac can be seen in the corner of each image.

## 6. Arboricultural Impact Assessment

The Arboricultural Impact Assessment (AIA) sets out the potential risks and threats associated with proposed construction to trees both within and near to an application site and seeks to minimise those risks through the implementation of a sound and recognised methodology set out within an arboricultural method statement.

Construction and development in general can impact trees in a number of ways, the most notable being damage to the tree's root system leading to decline and potential structural instability. BS5837 recognises this and sets out recommendations to minimise damage associated with the effects of soil compaction and root severance.

The proposal to demolish the existing garage and shed, with erection of 1.5 storey side extensions will require the removal of a single category C Hawthorn tree identified within this report as **T14**.

**T14** Hawthorn grows to the south of the linear tree group and can be described as being in generally poor and declining condition and should not be considered a constraint to development.

### **Retained trees-**

The subject trees are all located on the application site's northern boundary, further trees are situated within the wider garden to the south of the existing house, however, the south side of the property will be out of bounds to all construction activities.

The subject trees grow on the site's boundary with open ground and playing fields to the immediate north.

Demolition and construction is confined to the north and west side of the existing property with potential impact upon the root protection areas (RPAs) confined to the following trees.

**T5** Common Beech- Potential root severance in portion of RPA (circa 5%) during removal of existing hard standing and excavation for foundations of side extension

**T9** Common Hawthorn- Potential root severance in portion of RPA (circa 5%) during removal of existing hard standing and excavation for foundations of side extension.

**T11** Cherry Plum- Potential root severance in portion of RPA (circa 5%) during excavation for foundations of side extension.

**T12** Cherry Plum- Potential root severance in portion of RPA (circa 10%) during excavation for foundations of side extension.

**T13** Common Beech- Potential root severance in portion of RPA (circa 7.5%) during excavation for foundations of side extension.



In order to preserve exposed roots, the existing hard standing will be removed by hand or by a small machine working from ground protection with arboricultural supervision.



Image above of existing hard standing located on northern side of house. The shed will be dismantled and hard standing broken up under arboricultural supervision. Any exposed roots will be carefully covered and cut back where they extend into the proposed foundation trench.

**Please note** that root protection areas (RPAs) should not be considered as being precise and generally only amount to approximately half the tree's total root system, in volume, not radius. An educated judgement by a competent arboriculturalist should be made on each individual case, taking the tree's condition and existing surroundings into consideration. In this instance I consider that there is a suitable rooting environment not only within the application site but also within the open space to the immediate north, offering ample space for compensatory root growth following potential severance during excavation operations.

The arboricultural method statement and tree protection plan at **appendix 4** of this document demonstrate a precautionary approach to tree protection throughout all stages of development.

### **Root Protection Areas- General information**

BS 5837 describes the root protection area (RPA) as a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

The **Root Protection Areas (RPA)** have been calculated in accordance with Table D1 of BS5837:2012. Notional RPA's are plotted on the arboricultural impact assessment plan at **appendix 3**. The RPA is defined by the formula in paragraph 4.6 from the British standard

and may be refined by considering current on-site constraints to root activity such as buildings, walls, earthworks, hard paving and services.

### **Root Systems and compaction**

Root systems can easily be damaged during construction works, leading to the sometimes-rapid decline of valuable trees. The biggest problem for trees on or close to construction sites is the compaction of soil caused by inappropriate vehicular movement and storage of materials especially where the site is founded on a compressible clay.

Numerous surveys have shown that a significant proportion of a tree's roots proliferate in the top 600-1000mm of soil. There will of course be roots that may go down to depths of 3 metres or more although these will be in the minority. Roots in the upper soil surface find it far easier to intercept moisture, acquire oxygen and perform gaseous exchange. You also find that as soil depth increases so does its strength or compaction, making it harder for roots to elongate with new extension growth.

Root morphology differs from species to species and is largely dependent on the soil type and ground conditions, however the fine roots responsible for moisture and nutrient uptake can last anything from 10 days to over a year (Eissenstat and Yanai, 1997), with the tree producing new fine roots on a regular basis. The larger and more structural roots are a permanent feature of the tree and convey moisture and nutrients from the soil via the fine roots, into the trunk and canopy. The larger roots are of course responsible for the tree's stability as well as being areas of carbohydrate storage. Younger trees are more able to adapt to change and have more potential energy to explore alternative rooting environments whereas more mature trees are slower to react to a changing soil environment and are adapted to expend their energy on other important functions.

The National Geology of Britain Viewer advises that the local soil comprises a bedrock of London Clay. Therefore the risk of soil compaction is considered to be high. However, the RPAs of all existing and retained trees will be adequately protected with tree protective fencing and ground protection.

### **Root severance**

As mentioned above, the roots are responsible for a number of functions including stability and the transport of water and nutrients. Studies have shown that trees can withstand and recover from the loss of a proportion of their root systems, especially where those roots have been removed in a single direction. This applies specifically to trees **T5, T9, T11, T12 & T13** where roots growing in a southerly direction may be encountered.

## 7. Arboricultural Method Statement (AMS)

The arboricultural method statement sets out a precautionary approach towards tree protection. Any operations including access proposed within the RPA (or crown spread where this is greater) should be described within an arboricultural method statement to demonstrate that the operations can be undertaken with minimal risk of adverse impact to retained trees.

The methodology will provide sufficient protection to the rooting environments of all trees within the vicinity of the proposed construction throughout the duration of works.

### Phase 1-Access facilitation and pre-start tree works.

- Tree Surgery contractor to remove **T14** Hawthorn and shrub group to the west of existing house.
- Project arboriculturalist to set out tree protection locations.

### Phase 2- Installation of protective fencing and ground protection.

- Erect protective barrier fencing in locations shown on the tree protection plan at **appendix 4**. Tree protection positions will have already been marked out by the project arboriculturalist during phase 1. A protective fencing diagram can be found at **appendix 4**. Barriers will consist of a heras type panel inserted into rubber 'elephants feet' and reinforced with a stabilizer strut. Two clamps either end of each section will ensure the area within the fence (CEZ) remains out of bounds to demolition activities throughout the duration of works.



Photos above show protective fencing installed as per BS5837:Fig 3A with rubber feet and stabilizer struts.

### Ground Protection

- Ground protection will be installed upon the RPA of trees **T5, T9, T11, T12 & T13** as shown on the tree protection plan at **appendix 4**.

- Ground protection allows construction to take place in proximity to the protected tree without causing undue damage or disruption to the tree’s rooting environment.

Diagram showing ‘TrakMat’ or 18mm ply board set upon scaffold boards, for pedestrian use only.

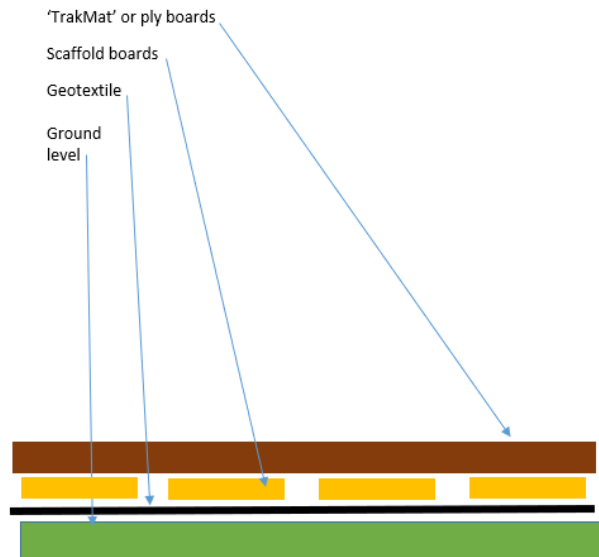


Figure 1 above is an Usherwood Arboriculture detail showing ground protection in section.

- Ground protection will comprise of either a proprietary ground protection mat such as TrakMat or if approved by the Local Planning Authority, closely abutted ply boards of 18mm thickness installed upon scaffold boards and a porous geotextile membrane.
- Note, scaffold boards may be substituted for 150mm depth of woodchip mulch as shown below. Woodchip mulch may be reused elsewhere within the garden following completion of construction.



Images above from a site managed by Usherwood Arboriculture and showing the three stages of ground protection installation.

Image 1 laying of geotextile membrane.

Image 2- hand spreading of 150mm depth of woodchip mulch.

Image 3- Trakmat ground protection mats directly laid upon woodchip mulch.

### Phase 3- Demolition.

- Once tree protection measures are in place, the garage may be demolished in the standard manner without the need for specific arboricultural measures.
- Existing hard standing will be removed with the use of a mechanical breaker or with a breaker attached to a small excavator.
- The excavator will operate from ground protection and under arboricultural supervision.
- Any exposed roots will be covered with sharp sand or damp hessian to reduce the risk of desiccation.

### Phase 4- Excavation for foundations and construction of extensions.

- Where foundations extend into the RPAs of trees **T5, T9, T11, T12 & T13**, the initial 600mm of the foundation trench will be dug by hand and under arboricultural supervision.
- Once below 600mm depth and following the pruning of any encroaching roots, the remainder of the foundation trench will be excavated with a mechanical excavator fitted with a toothless bucket and operating off ground protection.
- Any exposed roots will be carefully cut back to the trench edge and covered with sharp sand or damp hessian.
- The external foundation surface closest to retained and protected trees will be lined with a non-permeable membrane to avoid toxic leachates associated with curing concrete from contaminating the RPA.
- Once above ground, the extensions will be constructed in the standard manner without a requirement for specific arboricultural measures.

If any tree roots are encountered during the excavation process, roots up to 25mm shall be cut back with a sharp pair of by-pass loppers, except where they occur in clumps. Roots occurring in clumps or of 25mm diameter and over should be severed only following consultation with the project arboriculturalist or Local Authority tree officer.

If substantial tree roots are to be left exposed for any length of time, these must be covered with a damp hessian rap to minimize desiccation. Hessian should be removed immediately prior to backfilling with a suitable soil or sharp sand, not builders sand which contains sodium, detrimental to tree roots.

Box 1. Dealing with tree roots found during excavation works.

### **Site supervision and pre-commencement meeting**

- A site supervision schedule is still to be completed, however, this will include all works in proximity to trees **T5, T9, T11, T12 & T13**

### **General measures to be adopted in proximity to trees-**

- All tree protection measures will be set in place prior to commencement of any works relating to the approved planning consent.
- No bonfires on site.
- No materials are to be stored within the confines of the protective fencing (CEZ).
- Storage of materials on soft ground in proximity to any other trees and hedges away from construction is to be avoided.
- No discharging of any products associated with construction near trees or hedges
- No refueling/topping up of hydraulic fluids etc. on plant machinery within or close to the RPA of trees.
- There will be no lowering or raising of soil levels within the root protection areas of retained trees except where specified and agreed by the LPA.
- There will be no excavation or trenching for the installation of services within the root protection areas of retained trees.

## **8. Conclusion**

Provided the measures set out within this document are adhered to, there will be minimal impact upon adjacent boundary trees. Arboricultural supervision plays an important role in the success of any scheme and should be employed in this instance to ensure that due care and attention is observed when excavating in proximity to exposed tree roots.

## **9. Qualifications & Experience**

I have been involved in the horticultural and arboricultural industries for over 35 years, firstly as a contractor and for the last fifteen years as a Local Authority tree officer and consultant. I hold the AA Tech cert arb, and ND Arb (RFS) as well as being a Lantra accredited Professional Tree Inspector. I am also a technical member of the Arboricultural Association and professional member of the Consulting Arborists Society.

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## Appendix 1: Tree Survey Schedule

Trees have been listed on the schedule with both their common and scientific names.

**Tree height** is normally measured and rounded up to the nearest metre for trees above 10 metres in height using a Haglof electronic clinometer.

**Stem or trunk diameters** were measured using a diameter tape in mm at 1.5 metres above ground where access allowed, otherwise diameters have been estimated.

**Crown spread** has been measured in metres from the trunk to the tips of the live lateral branches taken at the four-cardinal points N-E-S-W using a ground tape.

### Age Class

**Young** - Trees in the first fifth of full life expectancy

**Semi-mature** - Trees in the second fifth of full life expectancy

**Early-mature** - Trees in the third fifth of full life expectancy

**Mature** - Trees in the fourth fifth of full life expectancy

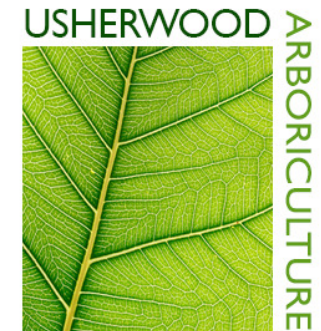
**Post-mature** – Trees having reached full life expectancy and trees in natural decline

**Veteran** - Trees of interest biologically, culturally and aesthetically due to certain features and/or age.

**ERCY**-The estimated remaining contribution in years calculated considering the tree's species, location, current age and physiological and structural condition at the time of the survey.



# BS5837 Survey Data



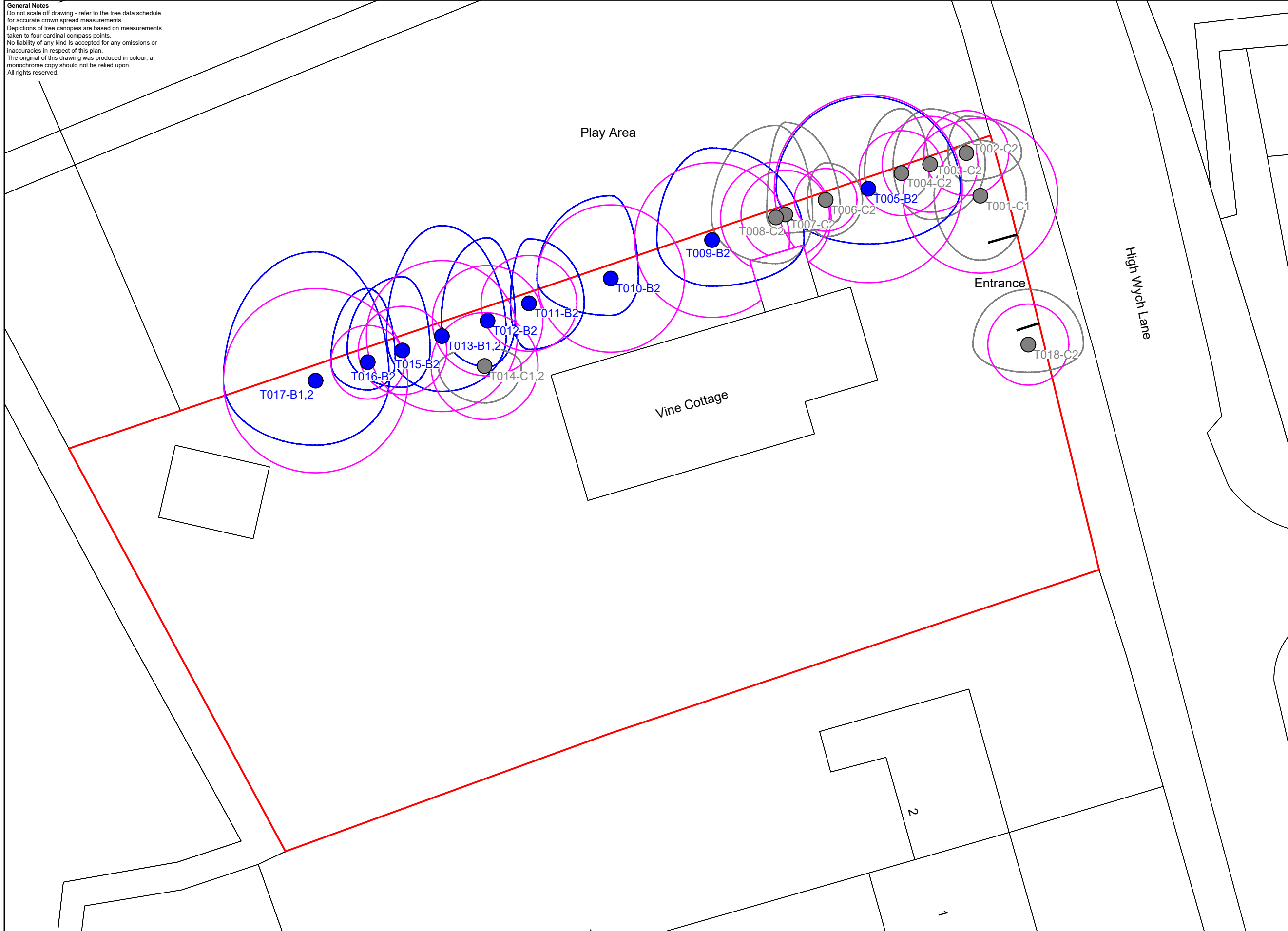
| Ref. | Species                                    | Measurements  | General Observations   | Category   | Recommendations  |
|------|--|---|--|--|--|
| T001 | Horse Chestnut<br>(Aesculus hippocastanum) | Height (m): 6.5<br>Stem Diam(mm): 350<br>Spread (m): 3N, 2.5E, 3.5S, 2.5W<br>Life Stage: Semi Mature<br>Rem. Contrib.: 20+ Years  | Attractive front garden tree with potential to grow much larger.                     | C1<br><br>RPA<br>Radius: 4.2m.<br>Area: 55 sq m. | Protect stem and part of RPA with tree protective fencing.                           |
| T002 | Common Hawthorn<br>(Crataegus monogyna)    | Height (m): 7<br>Stem Diam(mm): 190<br>Spread (m): 2N, 3E, 1.5S, 1W<br>Life Stage: Early Mature<br>Rem. Contrib.: 20+ Years       | Growing in boundary hedgerow, suppressed by more vigorous adjacent trees.            | C2<br><br>RPA<br>Radius: 2.3m.<br>Area: 17 sq m. | Protect stem and majority of RPA with tree protective fencing.                       |
| T003 | Cherry Plum<br>(Prunus cerasifera)         | Height (m): 7.5<br>Stem Diam(mm): 220<br>Spread (m): 3N, 3E, 3S, 2W<br>Life Stage: Mature<br>Rem. Contrib.: 20+ Years             | Ivy-clad tree growing within hedgerow, previously reduced.                           | C2<br><br>RPA<br>Radius: 2.6m.<br>Area: 21 sq m. | Protect stem and majority of RPA with tree protective fencing.                       |
| T004 | Cherry Plum<br>(Prunus cerasifera)         | Height (m): 7.5<br>Stem Diam(mm): 190<br>Spread (m): 3.5N, 1.5E, 1.5S, 2W<br>Life Stage: Early Mature<br>Rem. Contrib.: 20+ Years | Hedgerow tree, leans north, suppressed by adjacent trees.                            | C2<br><br>RPA<br>Radius: 2.3m.<br>Area: 17 sq m. | Protect stem and majority of RPA with tree protective fencing.                       |
| T005 | Common Beech<br>(Fagus sylvatica)          | Height (m): 11<br>Stem Diam(mm): 420<br>Spread (m): 5N, 5E, 3S, 5W<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years        | Growing in hedgerow, Ivy-clad, crown reduced away from existing house on south side. | B2<br><br>RPA<br>Radius: 5.0m.<br>Area: 79 sq m. | Protect stem and majority of RPA with tree protective fencing and ground protection. |

| Ref. | Species                                 | Measurements  | General Observations   | Category   | Recommendations  |
|------|---|---|--|--|--|
| T006 | Common Hawthorn<br>(Crataegus monogyna) | Height (m): 3.5<br>Stem Diam(mm): 140<br>Spread (m): 2N, 2E, 2S, 1W<br>Life Stage: Early Mature<br>Rem. Contrib.: 20+ Years       | Hedgerow tree leans south towards site, heavily cut back.                  | C2<br><br>RPA<br>Radius: 1.7m.<br>Area: 9 sq m.  | Protect stem and RPA with tree protective fencing and ground protection. |
| T007 | Cherry Plum<br>(Prunus cerasifera)      | Height (m): 8<br>Stem Diam(mm): 190<br>Spread (m): 5N, 3E, 1S, 1W<br>Life Stage: Mature<br>Rem. Contrib.: 20+ Years               | Hedgerow tree, 1 of 2 stems individually noted, leans northeast.           | C2<br><br>RPA<br>Radius: 2.3m.<br>Area: 17 sq m. | Protect stem and RPA with tree protective fencing and ground protection. |
| T008 | Cherry Plum<br>(Prunus cerasifera)      | Height (m): 8<br>Stem Diam(mm): 230<br>Spread (m): 5N, 2E, 2.5S, 3.5W<br>Life Stage: Mature<br>Rem. Contrib.: 20+ Years           | hedgerow tree 1 of 2 stems individually noted, leans west.                 | C2<br><br>RPA<br>Radius: 2.8m.<br>Area: 25 sq m. | Protect stem and RPA with tree protective fencing and ground protection. |
| T009 | Common Hawthorn<br>(Crataegus monogyna) | Height (m): 8<br>Stem Diam(mm): 330<br>Spread (m): 5N, 5E, 2.5S, 3W<br>Life Stage: Mature<br>Rem. Contrib.: 20+ Years             | Hedgerow tree, cut back on south side away from existing house.            | B2<br><br>RPA<br>Radius: 4.0m.<br>Area: 50 sq m. | Protect stem and RPA with tree protective fencing and ground protection. |
| T010 | Cherry Plum<br>(Prunus cerasifera)      | Height (m): 8<br>Stem Diam(mm): 330<br>Spread (m): 4.5N, 1.5E, 2S, 4W<br>Life Stage: Mature<br>Rem. Contrib.: 20+ Years           | Hedgerow tree with asymmetric canopy leaning west. Cut back on south side. | B2<br><br>RPA<br>Radius: 4.0m.<br>Area: 50 sq m. | Protect stem and RPA with tree protective fencing and ground protection. |
| T011 | Cherry Plum<br>(Prunus cerasifera)      | Height (m): 8<br>Stem Diam(mm): 220<br>Spread (m): 3.5N, 3E, 2.5S, 1W<br>Life Stage: Early Mature<br>Rem. Contrib.: 20+ Years     | Sparse drawn up suppressed hedgerow tree, asymmetric canopy to northeast.  | B2<br><br>RPA<br>Radius: 2.6m.<br>Area: 21 sq m. | Protect stem and RPA with tree protective fencing and ground protection. |
| T012 | Cherry Plum<br>(Prunus cerasifera)      | Height (m): 8<br>Stem Diam(mm): 250<br>Spread (m): 4.5N, 1.5E, 2.5S, 2.5W<br>Life Stage: Early Mature<br>Rem. Contrib.: 20+ Years | Hedgerow tree, stem leans west, crown weighted to east.                    | B2<br><br>RPA<br>Radius: 3.0m.<br>Area: 28 sq m. | Protect stem and RPA with tree protective fencing and ground protection. |







| Ref. | Species  | Measurements  | General Observations   | Category   | Recommendations  |
|------|--|---|--|--|--|
| T013 | Common Beech<br>( <i>Fagus sylvatica</i> )       | Height (m): 13<br>Stem Diam(mm): 340<br>Spread (m): 6N, 3.5E, 3S, 3W<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years  | Growing in hedgerow, visible surface roots, canopy cut back on south side.           | B1,2<br><br>RPA<br>Radius: 4.1m.<br>Area: 53 sq m. | Protect stem and RPA with tree protective fencing and ground protection. |
| T014 | Common Hawthorn<br>( <i>Crataegus monogyna</i> ) | Height (m): 6<br>3 stems (mm): 130,140,150<br>Spread (m): 1N, 2E, 2S, 2.5W<br>Life Stage: Mature<br>Rem. Contrib.: 10+ Years  | Declining multi-stemmed tree, previously reduced, remove to facilitate construction. | C1,2<br><br>RPA<br>Radius: 2.9m.<br>Area: 26 sq m. | Remove to facilitate construction of rear extension.                     |
| T015 | Cherry Plum<br>( <i>Prunus cerasifera</i> )      | Height (m): 8<br>Stem Diam(mm): 200<br>Spread (m): 4N, 1.5E, 2S, 3W<br>Life Stage: Mature<br>Rem. Contrib.: 20+ Years         | Hedgerow tree cut back on south side, stem leans to west and then self-rights.       | B2<br><br>RPA<br>Radius: 2.4m.<br>Area: 18 sq m.   | Protect stem and RPA with tree protective fencing and ground protection. |
| T016 | Cherry Plum<br>( <i>Prunus cerasifera</i> )      | Height (m): 7<br>Stem Diam(mm): 170<br>Spread (m): 4N, 1.5E, 1.5S, 2W<br>Life Stage: Early Mature<br>Rem. Contrib.: 20+ Years | Suppressed hedgerow tree leans north.  | B2<br><br>RPA<br>Radius: 2.0m.<br>Area: 13 sq m.   | Protect stem and RPA with tree protective fencing and ground protection. |
| T017 | Common Beech<br>( <i>Fagus sylvatica</i> )       | Height (m): 14<br>Stem Diam(mm): 420<br>Spread (m): 7N, 4E, 3.5S, 5W<br>Life Stage: Early Mature<br>Rem. Contrib.: 40+ Years  | Growing in hedgerow, cut back on south side.   | B1,2<br><br>RPA<br>Radius: 5.0m.<br>Area: 79 sq m. | Protect stem and RPA with tree protective fencing and ground protection. |
| T018 | Common Ash<br>( <i>Fraxinus excelsior</i> )      | Height (m): 8<br>Stem Diam(mm): 180<br>Spread (m): 3N, 3E, 1.5S, 3W<br>Life Stage: Semi Mature<br>Rem. Contrib.: 20+ Years    | Co dominant stems, low quality tree.   | C2<br><br>RPA<br>Radius: 2.2m.<br>Area: 15 sq m.   | No protection required.  |

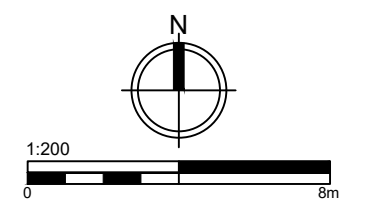
## **Appendix 2: Tree Constraints Plan**


**General Notes**  
 Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.  
 Depictions of tree canopies are based on measurements taken to four cardinal compass points.  
 No liability of any kind is accepted for any omissions or inaccuracies in respect of this plan.  
 The original of this drawing was produced in colour; a monochrome copy should not be relied upon.  
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**Key**

-  **Trees**  
Showing Canopy extents, category colour and tag number (with category).
-  **Category A**  
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
-  **Category B**  
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
-  **Category C**  
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.
-  **Category U**  
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
-  **BS 5837:2012 Root Protection Area**










|   |     |            |            |
|---|-----|------------|------------|
| Drawing Title   |     |            |            |
| <b>Tree Constraints Plan</b>  |     |            |            |
| Client  |     |            |            |
| Aroland Design  |     |            |            |
| Site/Project  |     |            |            |
| Vine Cottage, High Wych Lane,<br>Sawbridgeworth, CM21 0JJ   |     |            |            |
| Scale/Sheet   |     | Date       |            |
| 1:200 - A3  |     | 27/04/2023 |            |
| Drawing No  | Rev | Drawn By   | Checked By |
| UA/TCP/1  | 1   | CS         | LU         |
| © Copyright   |     |            |            |
|  <b>Lawrence Usherwood</b><br>Tel. 01883 340398<br>Mobile 07753 211306<br>Email. lawrence@usherwoodarboriculture.co.uk |     |            |            |

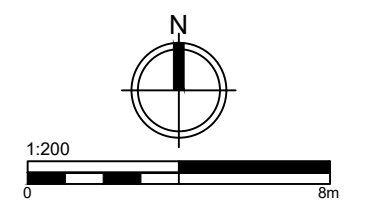
## **Appendix 3: Arboricultural Impact Plan**

**General Notes**  
 Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.  
 Depictions of tree canopies are based on measurements taken to four cardinal compass points.  
 No liability of any kind is accepted for any omissions or inaccuracies in respect of this plan.  
 The original of this drawing was produced in colour; a monochrome copy should not be relied upon.  
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**Key**

-  **Trees**  
Showing Canopy extents, category colour and tag number (with category).
-  **Category A**  
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
-  **Category B**  
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
-  **Category C**  
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.
-  **Category U**  
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
-  **BS 5837:2012 Root Protection Area**
-  **Trees for Removal**

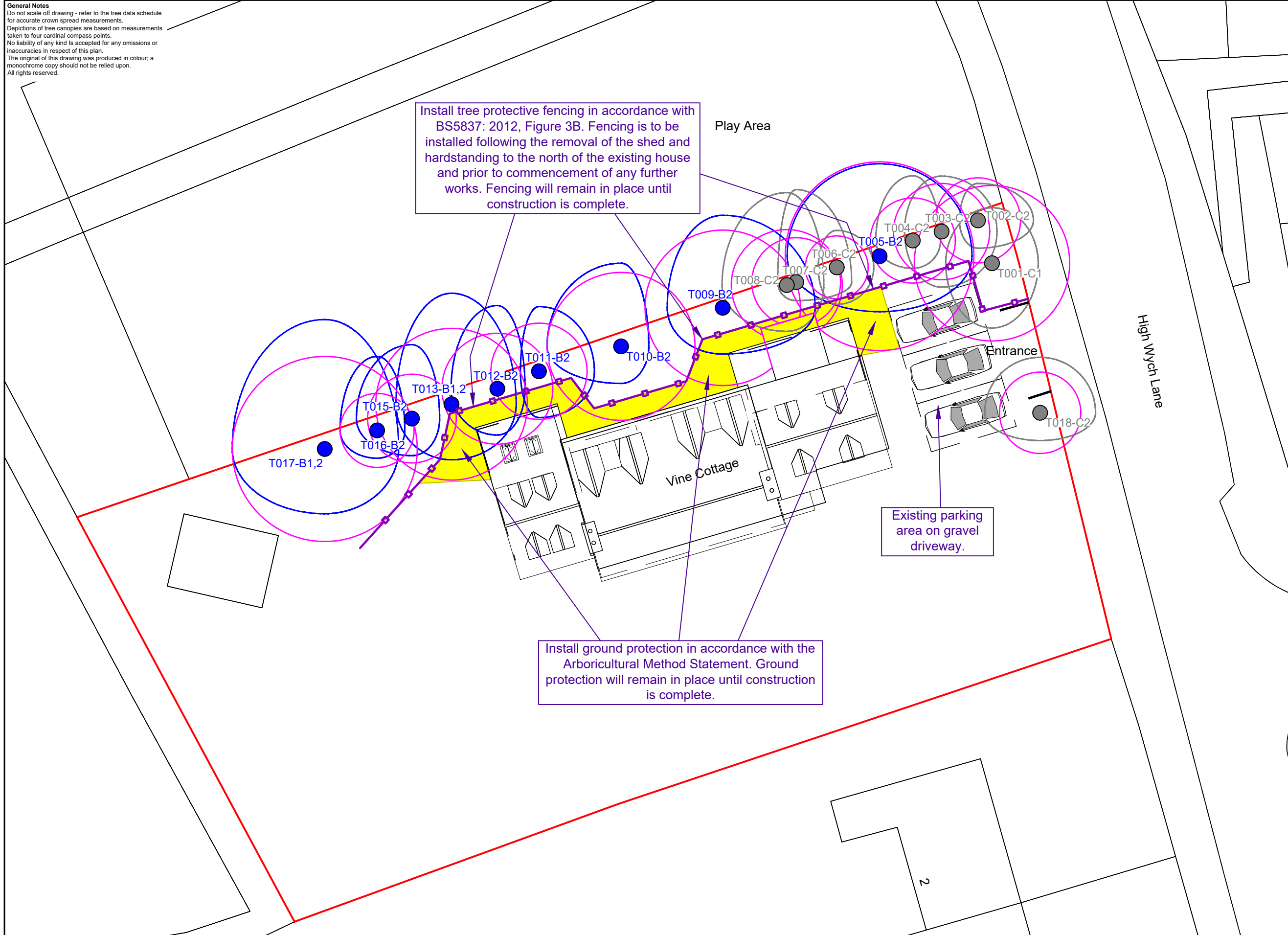


|  |                           |                       |                         |
|--|---------------------------|-----------------------|-------------------------|
| <b>Drawing Title</b><br>Arboricultural Implication Plan  |                           |                       |                         |
| <b>Client</b><br>Aroland Design  |                           |                       |                         |
| <b>Site/Project</b><br>Vine Cottage, High Wych Lane,<br>Sawbridgeworth, CM21 0JJ                               |                           |                       |                         |
| <b>Scale/Sheet</b><br>1:200 - A3   | <b>Date</b><br>16/06/2023 |                       |                         |
| <b>Drawing No</b><br>UA/AIP/1  | <b>Rev</b><br>1           | <b>Drawn By</b><br>CS | <b>Checked By</b><br>LU |
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| Lawrence Usherwood<br>Tel. 01883 340398<br>Mobile 07753 211306<br>Email. lawrence@usherwoodarboriculture.co.uk |                           |                       |                         |

## **Appendix 4: Tree Protection Plan**



**General Notes**  
 Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.  
 Depictions of tree canopies are based on measurements taken to four cardinal compass points.  
 No liability of any kind is accepted for any omissions or inaccuracies in respect of this plan.  
 The original of this drawing was produced in colour; a monochrome copy should not be relied upon.  
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Install tree protective fencing in accordance with BS5837: 2012, Figure 3B. Fencing is to be installed following the removal of the shed and hardstanding to the north of the existing house and prior to commencement of any further works. Fencing will remain in place until construction is complete.

Install ground protection in accordance with the Arboricultural Method Statement. Ground protection will remain in place until construction is complete.

**Key**

- Trees**  
Showing Canopy extents, category colour and tag number (with category).
- Category A**  
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
- Category B**  
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
- Category C**  
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.
- Category U**  
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
- BS 5837:2012 Root Protection Area**
- Tree Protective Fencing**
- Ground Protection**

N

1:200

0 8m

|   |            |                 |                   |
|---|------------|-----------------|-------------------|
| <b>Drawing Title</b>                                      |            |                 |                   |
| <b>Tree Protection Plan</b>                               |            |                 |                   |
| <b>Client</b>   |            |                 |                   |
| Aroland Design  |            |                 |                   |
| <b>Site/Project</b>                                       |            |                 |                   |
| Vine Cottage, High Wych Lane,<br>Sawbridgeworth, CM21 0JJ |            |                 |                   |
| <b>Scale/Sheet</b>  |            | <b>Date</b>     |                   |
| 1:200 - A3  |            | 16/06/2023      |                   |
| <b>Drawing No</b>   | <b>Rev</b> | <b>Drawn By</b> | <b>Checked By</b> |
| UA/TPP/1  | 1          | CS              | LU                |
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## **Appendix 5: Tree Protective Fencing**

Figure 3 Examples of above-ground stabilizing systems

