



**Highmead, Lower Tockington Road, Tockington.**

**Arboricultural Report containing:**

- **Arboricultural constraints**
- **Arboricultural impact assessment (AIA)**
- **Tree protection**
- **Arboricultural method statement**



*On behalf of*  
**Ben Rubrum**

*Prepared by:*  
**Chris Wright M.Arbor.A**  
**Arboricultural Consultant**  
**July 2023**

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## 1.0 Instructions/Scope

Silverback Arboricultural Consultancy have been instructed to compile an arboricultural report containing tree survey, tree constraints plan, arboricultural impact assessment, tree protection plan, and arboricultural method statement regarding trees growing at Highmead, Lower Tockington Road, Tockington BS32 4LF. This report is intended to accompany a planning application relating to the construction of a new residential dwelling and garage on the site. This document has been produced to demonstrate that the implications of the proposed development to the existing trees has been fully considered during the detailed design process.

1.1 Recommendations for the safeguarding of trees in close proximity to development are set out in BS5837:2012 Trees in relation to design, demolition and construction – Recommendations. We have therefore carried out the assessment of the trees in accordance with that document.

1.2 Specifically, this report and the accompanying information are supplied to:

- Identify the constraints that trees on and adjacent to the site present to the development of the site to inform the site design process.
- Present information regarding the above ground constraints (crown spreads) and below ground constraints (Root Protection Areas – RPAs), in a Tree Schedule and on a Tree Constraints Plan.
- Assess the impact of the proposed development on the trees on or adjacent to the site and the impact that retained trees will have on the site post development.
- Identify trees to be removed, trees to be retained, and specify measures necessary to protect retained trees during the construction phases of the development.
- Recommend necessary remedial tree works to be undertaken to trees that will be retained prior to commencement of the construction phases of the development.
- Present information regarding the location of protective barriers or fencing and ground protection on a Tree Protection Plan.
- Identify special engineering, excavation or protection measures intended to minimise the impact on retained trees where the site design layout requires a breach of the Root Protection area (RPA).



- Provide an Arboricultural Method Statement for the recommended works detailing measures which should be implemented to protect retained trees during the construction phases of the development.

- 1.3 This report was compiled by Chris Wright *M.Arbor.A.* a professional member of the Arboricultural Association and Certified Lantra Professional Tree Inspector with over 30 years' experience in the industry.
- 1.4 The report is based on a ground level assessment of the trees. Except where stated, all dimensions are estimated. We were not presented with any information on the soil type and no soil samples have been taken. An arboricultural consultant surveyed the site on Tuesday 4<sup>th</sup> July 2023. The weather was bright with good visibility.
- 1.5 Documents Provided
- Topographic survey dwg N° 3162 P002
  - Proposed site layout dwg N° GL-311-43b

## 2.0 Survey Methodology

The survey includes tree and shrubs with a stem diameter over 75mm at 1.5m height, located within the area shown on the plan included in this report.

- 2.1 All inspections were made from ground level with the use of binoculars, sounding hammer, and metal probe where necessary, using the Visual Tree Assessment method (Mattheck & Breloer, 1994). The presence and condition of bark and stem wounds, cavities, decay, fungal fruiting bodies, and any structural defects that could affect the structural integrity of the trees have been noted.
- 2.2 Tree numbers have been noted on the plan. The following details were recorded for each tree and are included in the tree schedule sheets accompanying this report:
- Number:** an identity number for each tree, prefixed with a 'T' which cross references locations shown on the plan with the tree survey sheets. Where several trees, normally of the same species, are located close together and are similar in character and requirements, they have been treated as a Group under a single number, prefixed with a 'G'
- Species:** common name and botanical name in *italics*

**Tree Height:** approximate height in metres

**Stem Diameter:** diameter measured in millimetres, taken at 1.5m above ground. Where the tree is multi-stemmed the diameter is calculated in accordance with BS5837:2012

(# estimated dimensions for off-site or inaccessible trees)

**Crown spread:** approximate spread in metres taken at the four main compass points N, E, S, W

**Crown clearance:** approximate height from ground to lowest part of canopy

**Age class:** Young, Semi Mature, Early Mature, Mature, Over-Mature, Veteran

**Structural condition:** Good, Fair, Poor, Collapsed

**Physiological condition:** Good, Fair, Poor, Diseased, Dead

**Observations:** observations noted during tree inspections

**Preliminary recommendations:** recommended action to ensure the health and safety of the tree.

**Remaining contribution (years):** <10, 10+, 20+, 40+

**BS Cat- category grading in accordance with BS 5837:2012**

**A** - trees of high quality with an estimated remaining life expectancy of at least 40 years.

**B** - trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

**C** - trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

**U** - trees 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.

**BS Sub Cat - sub-category grading in accordance with BS 5837:2012**

1- Mainly arboricultural qualities

2- Mainly landscape qualities

3- Mainly cultural values including conservation

**RPA – Root Protection Area** - measured in metres from the centre of the tree stem.

## 2.3 Presentation of the Data Collected

- Data collected regarding individual trees and groups of trees are presented in the Tree Schedule table in Appendix 1 in accordance with BS5837:2012 Trees in Relation to Construction – Recommendations.
- The data significant to the proposed site layout is also presented on the Tree Constraints Plan (Drawing Number 230711-HM-TCP-NB (appendix 2) and Arboricultural Impact Assessment Plan (Drawing Number 230713-HM-AIA-Rev A- NB (appendix 3).

- All other relevant data are presented within the main body of this report.
- Trees have been allocated an individual tree number. This tree number is used to identify individual trees and/or groups of trees throughout this report, within the Tree Schedule and on all plans presented in the appendices of this report.

### **3.0 Report Limitations**

Trees are living, dynamic organisms that can be affected by external conditions. It is therefore not possible to state with any certainty that a tree is safe.

- 3.1 No internal decay devices or other invasive tools to assess tree condition were used. No soil excavation or root inspection was undertaken.
- 3.2 This report has not considered the effect that trees or vegetation may have on the structural integrity of adjacent buildings or structures.
- 3.3 The survey contained within this report is not a tree safety inspection. It has been carried out to inform the planning process. Where clear and obvious hazards have been observed, these have been addressed in the recommendations contained within the tree schedule sheets (appendix 1). A full assessment of the levels of risk posed by trees would be informed by considering site use together with hazards present within the aerial parts of a tree(s). Changes in site use are likely to occur during, and result from, the proposed development. In the light of these changes, regular tree risk assessments are advised.
- 3.4 Tree condition can change rapidly, the recommendations contained within this report are based on the condition of the tree at the time they were inspected. Any amendments to the design or position of the proposed development will invalidate this report.
- 3.5 While this appraisal is not a tree risk assessment it nonetheless considers observed structural defects of the inspected trees to inform conclusions regarding their retentive worth.

### **4.0 Legal duty**

It is the responsibility of the tree owner to ensure that their tree(s) is in a safe and stable condition, including the effects of root activity, through duty of care in the *Occupiers Liability Act (1957 & 1984)*.

- 4.1 The Wildlife and Countryside Act, 1981 makes it an offence to disturb a nesting bird or recklessly endanger a bat or its roost. Professional advice should be sought, where relevant, before undertaking any recommended works.
- 4.2 We were not made aware of any Tree Preservation Orders or other statutory constraints covering the trees on the site.

## **5.0 Tree and Site Assessment (to be read in conjunction with the survey schedule sheets)**

The proposed development is for the construction of a new residential dwelling and garage on the site. The area proposed for development currently comprises grassed area to the rear of the existing dwelling.

- 5.1 The existing tree stock consists of a mature Norway Maple growing on the northern boundary of the site, and a semi-mature Laburnum to the east. A Lawson Cypress hedge extends along the eastern boundary with a Hornbeam hedge along the southern boundary. There are several young mixed species trees growing in the middle of the site at the eastern end with stem diameters too small to qualify for inclusion in our survey.
- 5.2 Two trees and two hedge groups were surveyed. Of the trees surveyed one tree was categorized **A**, the remaining tree and hedges were categorized **C**. The trees were assessed and categorized in accordance with the Cascading Chart of Tree Quality Assessment contained within BS5837:2012.

## **6.0 Arboricultural Constraints**

Trees have a widely spreading, shallow root system. In most cases, the majority of tree roots are situated within the top 600 mm of soil although some roots may extend down to 2m. Small feeder roots can also be expected to extend beyond the outer edge of the canopy. Roots can therefore be easily damaged by construction activity.

- 6.1 Constraints on the design of the development are presented in the Tree Schedule Sheets (appendix 1) Tree Constraints Plan (appendix 2) and the Arboricultural Impact Assessment Plan (appendix 3). These constraints are also considered in the main body of the report below and recommended remedial works and mitigating measures.

6.2 The Tree Constraints Plan (TCP), (appendix 2), shows the Root Protection Areas (RPAs) for the individual trees identified in the tree schedule tables. This represents the minimum area in m<sup>2</sup> which ideally should be left undisturbed around each tree were it to be retained. The TCP/ AIA also shows a representation of the crown spread of each tree measured in four cardinal directions. The RPA has been calculated in accordance with Section 4.6 of BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.

### 6.3 Trees Identified for Retention and Removal.

It is proposed to retain and protected all existing trees throughout the proposed development.

#### 6.3.1 Trees Outside Site Boundary

There are no trees outside of the site boundary which are impacted by the proposed development.

## 7.0 Arboricultural Impact Assessment

7.1 The position of the proposed dwelling and garage are outside the calculated Root Protection Area (RPA) of existing trees. Any excavation or soil compaction in this area could potentially lead to root severance or damage. This could subsequently lead to a reduction in the trees ability to take up water and nutrients, which may lead to a deterioration in the tree's health.

**Protective fencing, in accordance with BS5837:2012 will be erected to prevent any unauthorised access into the Root Protection Area (RPA) during the development works.**

7.2 The access footpath from the garage to the dwelling slightly encroaches into the nominal Root Protection Area given to G04. Any excavation or soil compaction in this area could potentially lead to root severance or damage.

**The stem diameter of individual trees within the hedge group were too small for inclusion in a BS5837:2012 survey. A nominal RPA was therefore given to the hedge. As the trees are same species it is considered fair to assume they will have formed a unified root plate greatly increasing the rooting area of individual trees. It is therefore considered that the slight encroachment will not have a major impact on the health of longevity of the trees.**





- 7.3 Any encroachment into the Root Protection Area (RPA) of retained trees could lead to ground compaction resulting in root damage.  
**Protective fencing, in accordance with BS5837:2012 will be erected to prevent any unauthorised access into the Root Protection Area (RPA) during the development works.**
- 7.4 Storage and mixing of construction materials could lead to soil compaction and ground contamination through spillage.  
**All storage and mixing of materials will be undertaken outside the Root Protection Area (RPA) of the retained trees. If considered necessary, due to ground levels, a suitable waterproof ground covering with bunds at the edges to prevent leakage will be laid over the storage, mixing area.**
- 7.5 Overhanging and low branches could potentially be damaged during the erection of scaffolding or during the delivery of materials to site.  
**The protective fencing will enclose the branch spreads of the retained trees preventing any potential damage to the tree canopies.**
- 7.6 Drainage and service routes in association with the proposed development have been planned outside the calculated Root Protection Area of any trees proposed for retention.  
**Should this change, installation of drainage or services runs will be in accordance with Section 7.7 (Underground and above-ground utility apparatus) of BS5837:2012.**
- 7.7 **Shading:** - Potential shading of buildings by retained trees can lead to pressure for the pruning or removal of the trees. *BS5837: 2012 par 5.3* states that proposed buildings should be designed to take account existing trees, their ultimate size and density of foliage, and the effect that these will have on the availability of light.  
**There are no shading issues associated with the proposed development.**
- 7.8 **Future growth:** - Future extension growth of branches can result in the continuous whipping of branches against the fabric of a building or damage to the roof tiles. Structures should therefore be located with due consideration for a tree's ultimate growth.  
**The proposed dwelling is at a sufficient distance from the retained trees for there to be no issues.**



## 8.0 Tree Protection

The trees to be retained on site during and after development as listed in Section 6.4 will require both above and below ground protection. Above ground protection may involve remedial tree surgery works. These works, where applicable, are presented in the Tree Schedule Sheets (appendix 1) and are discussed in Section 8.1 below.

8.0.1 Below ground protection measures, based on the root protection areas (RPA), indicated in the Tree Constraints Plan (appendix 2), will involve the erection of tree protection barriers as discussed in Section 8.2. The tree protection fencing is illustrated in Tree Protection Plan (Drawing Number 230713-HM-TPP-NB) (appendix 4)

8.0.2 The potential position of tree roots as indicated in the Arboricultural Impact Assessment Plan (appendix 3) and Tree Protection Plan (appendix 4) are only guidelines based on calculations shown in BS5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

### 8.1 Recommended Remedial Tree Surgery Works

No remedial tree works are considered necessary to facilitate the proposed development.

### 8.2 Tree Protection Fencing

The Tree Protection Plan (appendix 4) indicates the location of the proposed tree protection barriers where appropriate. These barriers will create a Construction Exclusions Zone (CEZ) around the retained trees.

8.2.1 The Construction Exclusion Zones will be erected in accordance with the recommendations in Section 6.2 of BS5837:2012. The specifications for the barriers are presented in Figure 3 from BS5837:2012 (appendix 5).

8.2.2 It is *essential* that tree protection fencing barriers are erected before any site preparation or construction work be commenced. Once erected the protective fencing will be retained and maintained in position for the duration of the development.

8.2.3 Should any construction activity require the repositioning of the tree protection barriers, advice will be sought from Silverback Arboricultural Consultancy and approval requested from the Local Authority Tree Officer before any of the fencing is altered.



## 9.0 Arboricultural Method Statement

This section sets out the basis of the methodology for all works in relation to the proposed development in proximity to trees located within the site boundary.

9.0.1 Copies of the Arboricultural Method Statement document will be available for inspection on site and will form the basis of the management of all works relating to the trees on the site for the Site Agent/Manager following commencement of the project.

## 9.1 Programme of Works

- Erection of protective barriers
- Construction of proposed development

## 9.2 Tree Protection Fencing

BS5837: 2012 recommends the erection of protective fencing around retained trees before development commences. The position of the fencing is calculated using the tree's diameter (DBH) measured at 1.5m up the stem. The area within the fencing is called the Root Protection Area (RPA).

9.2.1 It is proposed to erect the protective fencing as indicated on the Tree Protection Plan (TPP) (appendix 4). This will create a Construction Exclusion Zone (CEZ)

9.2.2 The protective fencing will be constructed in accordance with BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. This will consist of weld mesh panels positioned in rubber feet braced with stabilizer struts secured with ground pins, in accordance with Figure 3 of BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations' (appendix 5).

9.2.3 Once erected the protective fencing will be retained and maintained in position for the duration of the development. If it is necessary to move the protective fencing advice will be sought from Silverback Arboricultural Consultancy and approval requested from the South Gloucestershire Council Tree Officer before any of the fencing is altered.

9.2.4 Weatherproof signage will be attached to the fencing indicating its function as illustrated (appendix 5).

9.2.5 In the CEZ (construction exclusion zone):

- There must be no alteration of ground levels, including soil stripping other than those detailed within this report.
- Any installation of drainage or services will be in accordance with Section 7.7 (Underground and above-ground utility apparatus) of BS5837:2012.
- Oil, bitumen, cement or other harmful materials will not be stored, mixed or discharged within 10m of any retained trees.
- Fires will not be lit beneath or within 10m upwind of tree canopies.

### 9.3 Supervision and Monitoring

The project arboricultural consultant will be employed to oversee operations relating to works close to or within Root Protection Areas of retained trees and to issue a site inspection report of practical completion for the following operations:

- The erection of protective barriers around the retained trees in accordance with TPP (appendix 4)

9.3.1 A record of site visits completed by the project arboriculturalist will be maintained for inspection on site and copies are forwarded to the Local Planning Authority Tree Officer.

9.3.2 This development will be overseen Silverback Arboricultural Consultancy. If there are any alterations to the proposed working methodology necessary, works will be stopped until the arboricultural consultant has been notified and agreement reached with the Local Planning Authority Tree Officer.

## 10.0 Contact Details

### 10.1 Arboricultural Consultant

Chris Wright

Silverback Arboricultural Consultancy

E-mail: [chris@silverbackarb.co.uk](mailto:chris@silverbackarb.co.uk)



## 10.2 Local Authority Tree Officer

Lea Bending

Arboricultural Officer

South Gloucestershire Council

E-mail: [lea.bending@southglos.gov.uk](mailto:lea.bending@southglos.gov.uk)

## 11.0 References

Mattheck, C. and Breloer, H. (1994). The Body Language of Trees: A handbook for failure analysis. Research for Amenity Trees **4**. HMSO, London.

British Standard 5837:2012 - Trees in relation to design, demolition and construction – Recommendations. British Standards Institution, London

British Standard 3998:2010 - Tree Work Recommendations. British Standards Institution, London

## 12.0 Appendices

- Tree schedule sheets
- Tree constraints plan
- Arboricultural impact assessment (AIA)
- Tree protection plan
- BS5837:2012 Trees in relation to construction: Recommendations Protective Fencing Detail
- Protective fencing sign

### **Chris Wright *M.Arbor.A***

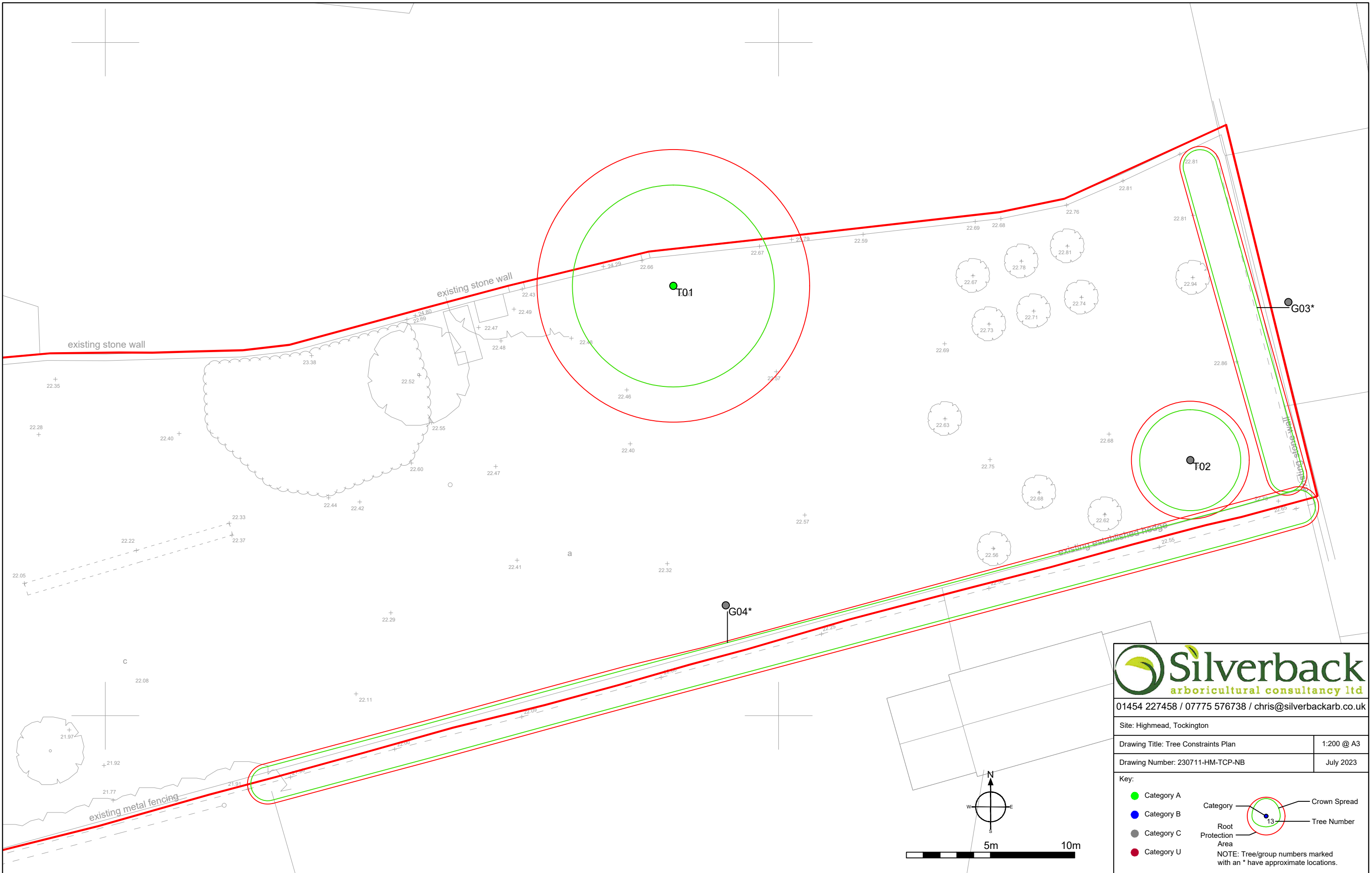
Arboricultural Consultant

Silverback Arboricultural Consultancy

14<sup>th</sup> July 2023

### Arboricultural Survey Highmead, Tockington

Tree Number	Common name	Botanical name	Height (m)	Number of stems	Calculated stem diameter (mm)	Crown Spread (m)				Crown Clearance (m)	Life Stage	Structural Condition	Physiological Condition	Observations	Preliminary Recommendations	Remaining contribution (yrs)	BS Category	Root Protection Area Radius (m) Area m2
						N	E	S	W									
T01	Norway Maple	<i>Acer platanoides</i>	12	4	680	6	6	6	6	2	Mature	Good	Good	Growing 2m south of stone wall No significant defects visible at time of inspection Multi- stemmed from 0.5m Included bark at stem union Minor deadwood in canopy	No action required at the time of inspection.	40+ Years	A3	Radius: 8.1m. Area: 206 sq m.
T02	Common Laburnum	<i>Laburnum anagyroides</i>	8	4	290	3	3	3	3	1	Mature	Fair	Fair	Multi- stemmed from base Major deadwood in canopy Minor decay at base of stem north side	No action required at the time of inspection.	20-40 Years	C2	Radius: 3.5m. Area: 38 sq m.
G03	Lawson Cypress	<i>Chamaecyparis lawsoniana</i>	5	1	100	1	1	1	1	0	Early Mature	Fair	Fair	Lawson Cypress boundary hedgerow No significant defects visible at time of inspection Multi- stemmed from base	No action required at the time of inspection.	20-40 Years	C2	Radius: 1.2m. Area: 5 sq m.
G04	Hornbeam	<i>Carpinus betulus</i>	6	1	100	1	1	1	1	0	Early Mature	Fair	Good	Hornbeam boundary hedgerow No significant defects visible at time of inspection Multi- stemmed from base	No action required at the time of inspection.	20-40 Years	C2	Radius: 1.2m. Area: 5 sq m.



**Silverback**  
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Site: Highmead, Tockington

Drawing Title: Tree Constraints Plan	1:200 @ A3
Drawing Number: 230711-HM-TCP-NB	July 2023

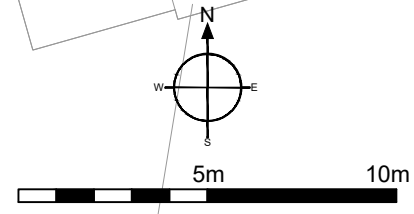
Key:

- Category A
- Category B
- Category C
- Category U

Category ○ Crown Spread

Root Protection Area ○ Tree Number

NOTE: Tree/group numbers marked with an \* have approximate locations.





Key:

- Category A
- Category B
- Category C
- Category U

Category Crown Spread  
Tree Number  
Root Protection Area

NOTE: Tree/group numbers marked with an \* have approximate locations.





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Site: Highmead, Tockington

Drawing Title: Tree Protection Plan	1:200 @ A3
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Drawing Number: 230713-HM-TPP-NB	July 2023
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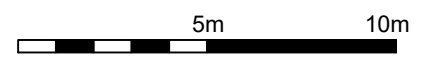
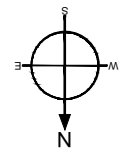
**Key:**

- Category A (Green circle)
- Category B (Blue circle)
- Category C (Grey circle)
- Category U (Red circle)
- Tree Protection Fencing (Magenta line)

**Legend:**

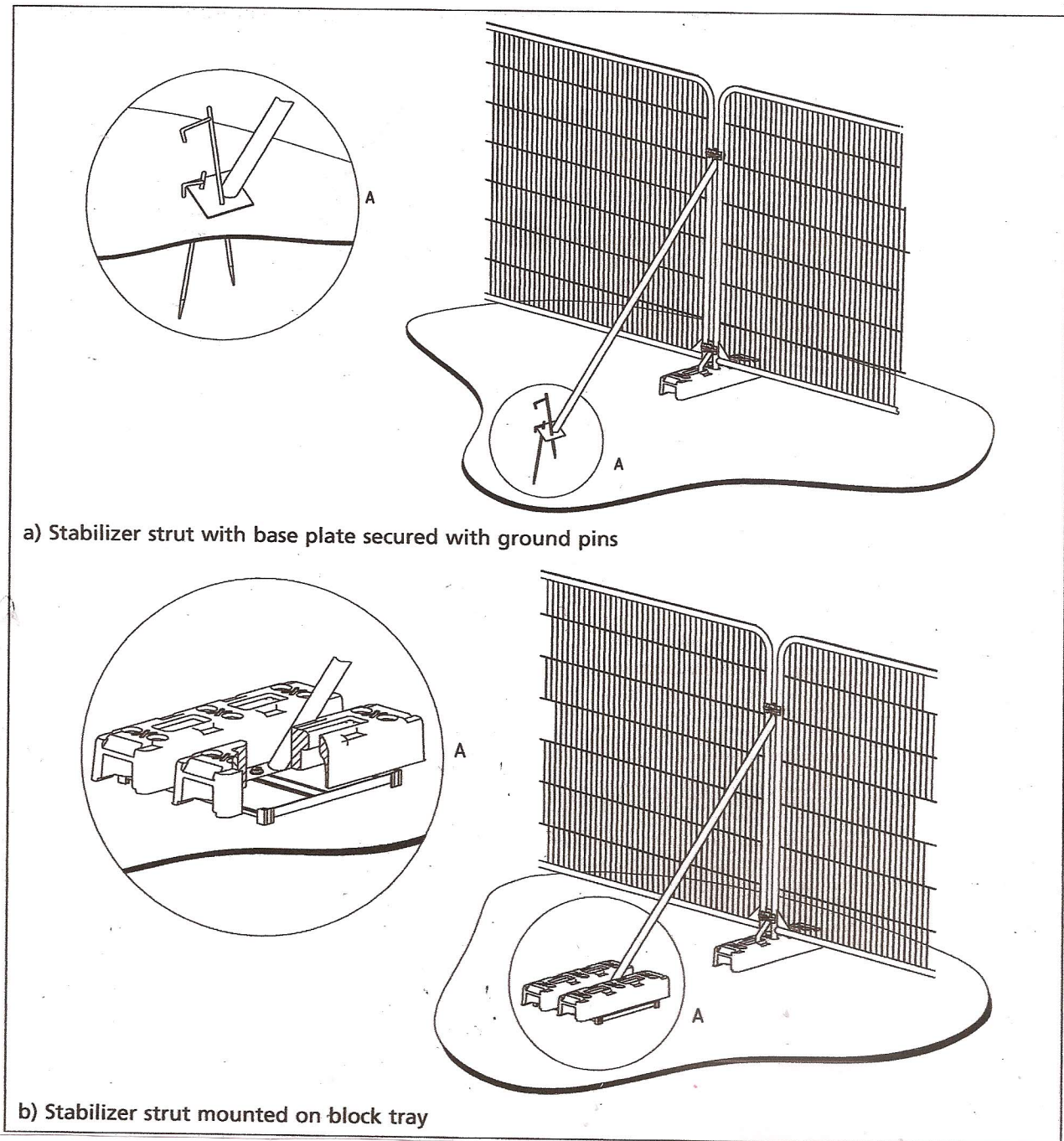
- Category (Green circle)
- Root Protection Area (Red circle)
- Crown Spread (Red circle)
- Tree Number (13)

**NOTE:** Tree/group numbers marked with an \* have approximate locations.



**BS 5837:2012 – TREES IN RELATION TO DESIGN, DEMOLITION AND CONSTRUCTION – RECOMMENDATIONS**

**EXAMPLES OF ABOVE-GROUND STABILIZING SYSTEMS**



**Figure 3 Examples of above-ground stabilizing systems**



**PROTECTIVE FENCING. THIS  
FENCING MUST BE  
MAINTAINED IN ACCORDANCE  
WITH THE APPROVED PLANS  
AND DRAWINGS FOR THIS  
DEVELOPMENT.**



**TREE PROTECTION AREA  
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)  
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY  
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A  
TREE PRESERVATION ORDER.  
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY  
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE  
WITH THE WRITTEN PERMISSION OF THE LOCAL  
PLANNING AUTHORITY**