

## **Elm Park Primary School, Winterbourne**

### **Arboricultural Report containing:**

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



*On behalf of*  
**South Gloucestershire Council Property Services.**

*Prepared by:*  
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**Arboricultural Consultant**  
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## 1.0 Instructions/Scope

- 1.1 Silverback Arboricultural Consultancy have been instructed to compile an arboricultural report containing arboricultural impact assessment, tree protection plan and arboricultural method statement regarding trees growing to the front of Elm Park Primary School, Winterbourne. This report is intended to accompany a planning application relating to the soft and hard landscaping to the west of the new school building. 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.
- 1.2 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
- 1.3 Specifically, this report and the accompanying information are supplied to:
- 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 demolition and construction phases of the development.
- 1.4 This report is based on an arboricultural survey and tree constraints plan compiled by Silverback Arboricultural Consultancy dated September 2019

## 1.5 Documents Provided

- Existing Arboricultural Survey Report
- Proposed site layout dwg N<sup>o</sup> 1952 2101

## 1.6 Presentation of the Data Collected

- The data significant to the proposed site layout is presented on the Arboricultural Impact Assessment Plan. Drawing Number 210108-EPPS-AIA-Rev B-NB (appendix 1).
- 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.

## 2.0 Report Limitations

- 2.1 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.
- 2.2 No internal decay devices, or other invasive tools to assess tree condition, were used. No soil excavation or root inspection was undertaken.
- 2.3 This report has not considered the effect that trees or vegetation may have on the structural integrity of adjacent buildings or structures.
- 2.4 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
- 2.5 While this appraisal is not a tree risk assessment it nonetheless takes into account observed structural defects of the inspected trees in order to inform conclusions with regard to their retentive worth.

### 3.0 Legal duty

- 3.1 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)*.
- 3.2 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.
- 3.3 We were not made aware of any Tree Preservation Orders or other statutory constraints covering the trees on the site.

### 4.0 Tree and Site Assessment

- 4.1 The proposed development is for the installation of hard and soft landscaping to the west of the new school building. The area proposed for development currently comprises the site of the old school building, areas of car parking and existing soft landscaping. The existing trees are predominately ornamental species remaining from the previous landscaping of the site.
- 4.2 There are 28 trees within the proposed development area. Of these trees surveyed six trees were categorized **B**, three trees were categorized **U**, the remaining trees were categorized **C**. The trees were assessed and categorized in accordance with the Cascading Chart of Tree Quality Assessment contained within BS5837:2012.

### 5.0 Arboricultural Constraints

- 5.1 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
- 5.2 Constraints on the design of the development are presented in the Arboricultural Impact Assessment Plan (appendix 1). These constraints are also considered in the main body of the report below and recommended remedial works and mitigating measures.

5.3 The Arboricultural Impact Assessment Plan (AIA), (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 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.

**5.4 Trees Identified for Retention and Removal.**

It is proposed to remove the trees 18 trees as detailed below to facilitate the proposed development. The remaining trees will be retained and protected throughout the proposed works.

Cat B	Cat C	Cat U
T065, T067, T071, T073	T060, T061, T062, T063, T064, T066, G068, T070, T072, T074, T077,	T069, T076, T084
<b>4</b>	<b>11</b>	<b>3</b>

**5.4.1 Mitigation**

It is proposed to mitigate for the loss of these trees by the implementation of a landscaping scheme including replacement trees and shrubs to enhance that landscape and visual amenity of the site. The details and specification for the proposed landscaping will be agreed with the Local Planning Authority.

**5.4.2 Trees Outside Site Boundary**

There are no trees outside of the site boundary, which are affected within the current proposals

**6.0 Arboricultural Impact Assessment**

6.1 With the exception of a shallow conveyance swale, the proposed hard and soft landscaping is outside the calculated Root Protection Area of all trees proposed for retention. 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.**

- 6.2 Existing hard surfacing will need to be removed from within the calculated Root Protection Area of T059 to facilitate the proposed soft landscaping. Any excavation or soil compaction in this area could potentially lead to root severance or damage.  
**The existing hard surfacing will be removed by hand, using hand tools, in accordance with BS5837:2012. On completion new top soil will be laid as part of the landscaping works.**
- 6.3 A shallow trench to form a conveyance swale will need to be constructed within the fringes of the RPA generated by T059. Any excavations within the Root Protection Area (RPA) could lead to root damage or potentially root severance.  
**The existing hard surfacing will be removed and fresh top-soil laid over the area The swale will then be constructed using hand tools to a depth of 200mm in the new soil. The depth of the swale will not exceed the existing formation levels subsequently there will be no potential impact on the tree roots.**
- 6.4 Storage and mixing of construction materials could lead to soil compaction of 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 water proof ground covering with bunds at the edges to prevent leakage will be laid over the storage, mixing area.**
- 6.5 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**
- 6.6 Service runs in association with the proposed project have been planned outside of any Root Protection Area of retained trees.  
**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.**

6.7 **Shading:-** Potential shading of buildings by retained trees can lead to pressure for the pruning or removal or remove of the trees. *BS5837: 2012 par 5.3* states that proposed buildings should be designed to take account of existing trees, their ultimate size and density of foliage, and the effect that these will have on the availability of light.

**There are no potential shading issues associated with the proposed development .**

6.8 **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 layout has been designed to allow sufficient distance around the retained trees for there to be no issues.**

## 7.0 Tree Protection

The trees to be retained on site during and after development as listed in Section 5.4 will require both above and below ground protection. Above ground protection may involve remedial tree surgery works. These works, where applicable are discussed in Section 7.1 below.

7.0.1 Below ground protection measures, based on the root protection areas (RPA), indicated in the Arboricultural Impact Assessment Plan (appendix 1), will involve the erection of tree protection barriers as discussed in Section 7.2. Where the proposed site layout encroaches into the RPAs of retained trees, measures are recommended to minimise the potential damage to the roots and the root environment of the trees in question. The tree protection fencing is illustrated in Tree Protection Plan (Drawing Number 210114-EPPS-TPP-NB&AM) (appendix 2)

7.0.2 The potential position of tree roots as indicated in the Arboricultural Impact Assessment Plan (appendix 1) and Tree Protection Plan (appendix 2) are only guidelines based on calculations shown in *BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'*.

## 7.1 Recommended Remedial Tree Surgery Works

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



## 7.2 Tree Protection Fencing

The Tree Protection Plan (appendix 2) indicates the location of the proposed tree protection barriers where appropriate. These barriers will create a Construction Exclusions Zone (CEZ) around the retained trees

7.2.1 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 3).

7.2.2 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

7.2.3 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.

## 7.3 Damage Limitation-Special Measures

Areas are identified on the Tree Protection Plan (appendix 2) where special measures will be required to minimise the impact of the proposed site layout on the retained trees where the construction works breach the RPAs.

7.3.1 The existing hard surfacing within the calculated Root Protection Area of T059 will be removed by hand using hand tools in accordance with BS5837:2012. All arisings will be stored outside the Root Protection Area of retained tree until they are removed from site.

7.3.2 The conveyance swale through the fringes of the RPA generated by T059 will be constructed by hand, using hand tools in accordance with BS5837:2012.

7.3.3 In the event of any unforeseen circumstances the project arboriculturalist will be informed immediately and will advise on suitable precautionary measures.

## 8.0 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.

- 8.0.1 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.

## 8.1 Programme of Works

- Arboricultural works
- Erection of protective barriers
- Construction of hard and soft landscaping

## 8.2 Arboricultural Works

The work recommendations presented in the Tree Schedule (appendix 1) and the recommendations discussed in Section 9.2.1 set out the proposed works to trees within the development site. These works will be carried out before commencement of other site operations including the erection of protective barriers.

- 8.2.1 The removal of the trees listed in para 5.4 of this report will be undertaken to facilitate the proposed works. The proposed tree works will be undertaken by a professional arboriculturist in accordance with the recommendations contained in BS3998:2010. Tree work-recommendations.

## 8.3 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).

- 8.3.1 To allow access to the site and facilitate the construction it will not be possible to erect the protective fences at recommended distance contained with BS5837:2012. It is proposed to erect the protective fencing as indicated on the Tree Protection Plan (TPP) (appendix 2). This will create a Construction Exclusion Zone (CEZ)

- 8.3.2 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 3.)
- 8.3.3 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.
- 8.3.4 Weatherproof signage should be attached to the fencing indicating its function as illustrated (appendix 4).
- 8.3.5 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 must 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

## 8.4 Supervision and Monitoring

It is recommended that the Arboricultural Consultant is employed to oversee operations relating to works close to or within RPAs 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 3)
- Removal of existing hard surfacing within the RPA of T059
- Construction of conveyance swale within the RPA of T059

- 8.4.1 It is recommended that a record of site visits completed by the project arboriculturalist are maintained for inspection on site and copies are forwarded to the Local Planning Authority Tree Officer.
- 8.4.2 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.

## 9.0 Contact Details

### 9.1 Arboricultural Consultant

Chris Wright

Silverback Arboricultural Consultancy

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### 9.2 Local Authority Tree Officer

Lea Bending

Arboricultural Officer

South Gloucestershire Council

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

## 10.0 References

Mattheck, C. and Breloer, H. (1995). 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

## 11.0 Appendices

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

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20<sup>th</sup> January 2021



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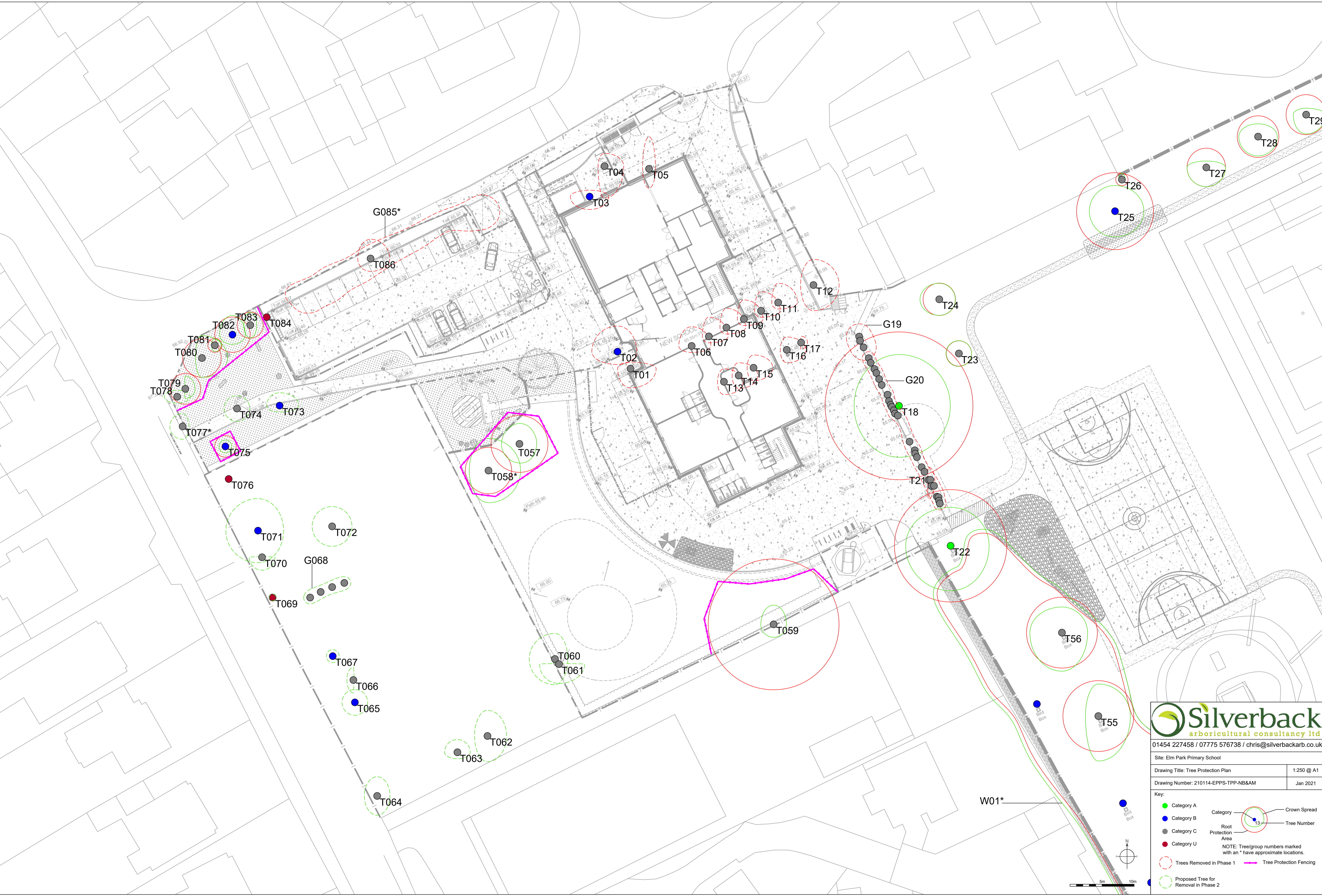
Site: Elm Park Primary School

Drawing Title: Arboricultural Impact Assessment	1:250 @ A1
Drawing Number: 210108-EPPS-AIA-Rev B-NB&AM	Jan 2021

Key:

- Category A (Green dot)
- Category B (Blue dot)
- Category C (Grey dot)
- Category U (Red dot)
- Trees Removed in Phase 1 (Dashed green circle)
- Category (Circle with dot)
- Crown Spread (Outer circle)
- Tree Number (Number inside circle)
- Root Protection Area (Inner circle)

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

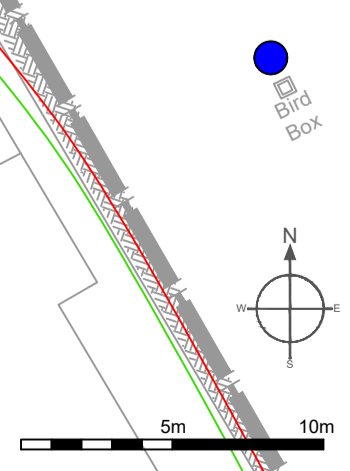


**Key:**

- Category A
- Category B
- Category C
- Category U
- Trees Removed in Phase 1
- Proposed Tree for Removal in Phase 2
- Crown Spread
- Root Protection Area
- Tree Number

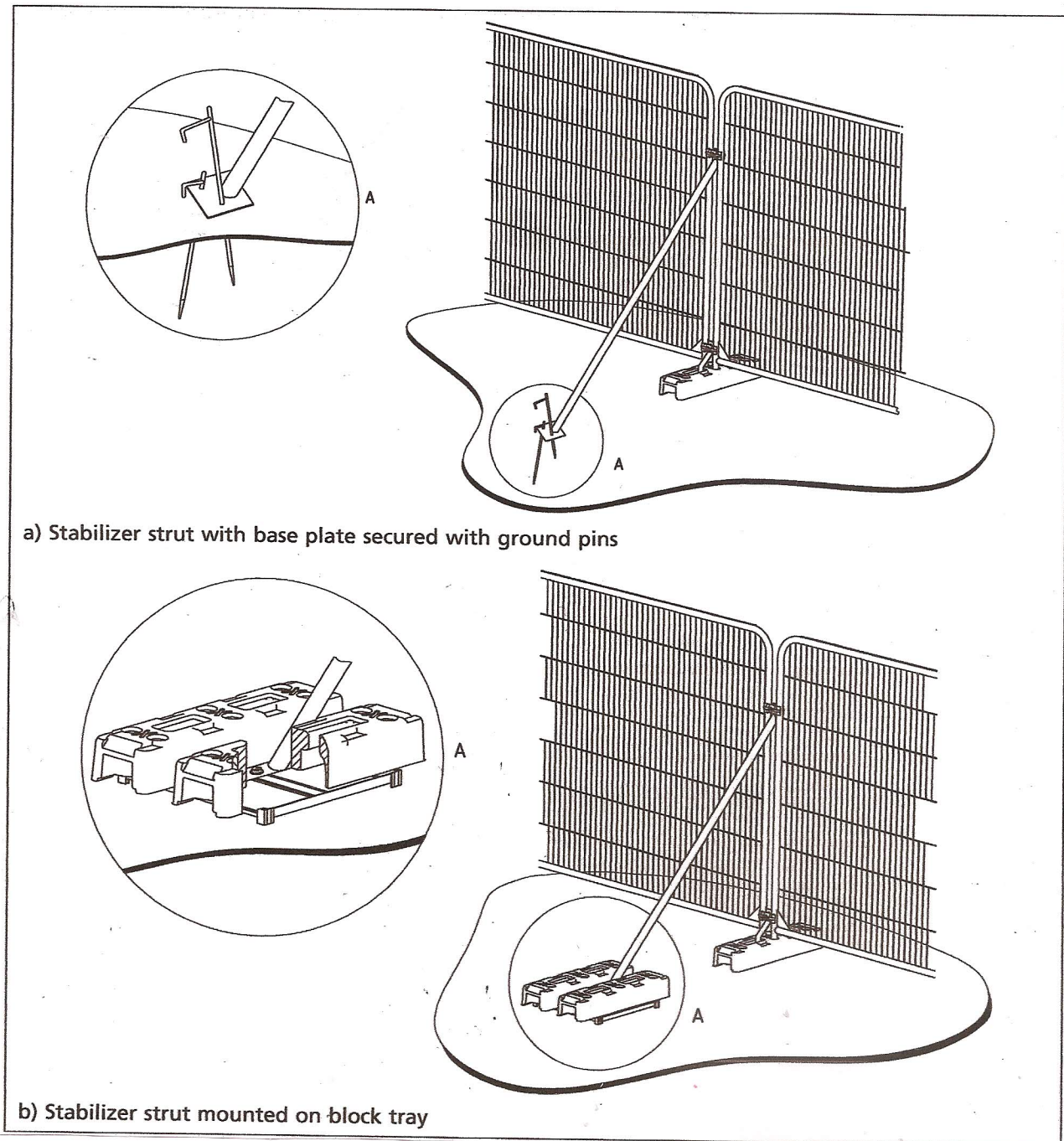
NOTE: Tree/group numbers marked with an \* have approximate locations.

Tree Protection Fencing



**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**