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## **Arboricultural Impact Assessment**

### **& Method Statement:**

23 Pinewood Gardens  
Bognor Regis  
West Sussex  
PO21 2XB

### **REPORT PREPARED FOR:**

Mr Tom Barnes  
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### **REPORT PREPARED BY**

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Ref: jwmb/rpt1/23pinewoodgardens/AIAAMS

Date: 9<sup>th</sup> September 2019

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## 1.0 Introduction

### 1.1 Purpose & Use of the Method Statement

- 1.1.1 This impact assessment & method statement report has been prepared for submission to Arun District Council (ADC) to accompany a planning application for a single storey extension with two off-road parking bays at 23 Pinewood Gardens, Bognor Regis, PO21 2XB. This statement is intended to demonstrate the feasibility of construction without harm to the retained tree resource on the site. See material accompanying this report for full scheme details.
- 1.1.2 This document lays down the methodology for any proposed works that may have an effect upon the trees on and adjacent to the site. It is essential within the scope of any contracts related to the development proposals that this method statement is observed and adhered to. It is recommended that this document form part of the work schedule and specification issued to the building contractors and can be used to form part of the contract.
- 1.1.3 Copies of this document should be available for inspection on site. The developer will inform the local planning authority within twenty-four hours if the designated arboriculturist is replaced.

### 1.2 Terms of Reference

- 1.2.1 I am instructed by Mr Tom Barnes to prepare an arboricultural impact assessment & method statement report to accompany a planning application for a proposed development at 23 Pinewood Gardens, Bognor Regis, PO21 2XB with reference to BS5837:2012 Trees in relation to design, demolition & construction-Recommendations (BS5837:2012).

### 1.3 Development Proposals & Impact Assessment

- 1.3.1 See plans at Appendix A and accompanying material for full details of the development proposals.
- 1.3.2 Both surveyed trees will be retained through the course of development. No tree works are required to allow or facilitate development excepting a minor crown lift to the birch (2) to deliver adequate clearance for parked cars.
- 1.3.3 Encroachment into the root protection area (RPA) of the Corsican pine (1) from the proposed extension is minimal and no mitigation is necessary. Similarly, encroachment of the proposed parking into the RPA of the birch (2) is minimal and no mitigation is necessary.
- 1.3.4 There is scope for root damage to tree 1 when removing the existing garage. Accordingly ground protection should be laid where indicated and garage removal must be undertaken with care by appropriately briefed operatives-see section 3.5 for further information.
- 1.3.5 The great majority of site works will take place beyond the RPA of retained trees and canopies. Retained trees will be protected through the course of development by fencing to the specifications recommended by BS5837:2012-see Appendix C for details.

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## 1.4 Sequence of Works

1.4.1 The sequence of works should be as follows:

- laying of service runs as required
- erection of tree protection barrier (TPB) on advised line(s)
- removal of garage and rearrangement of fencing thereafter
- main construction of off-road parking bays & extension
- removal of TPB
- soft landscaping if envisaged

## 1.5 Site Supervision

1.5.1 Site supervision—an individual e.g. the Site Agent, must be nominated to be responsible for all arboricultural matters on site. This person must:

- be present on site for the majority of the time
- be aware of the arboricultural responsibilities
- have the authority to stop any work that is causing, or has the potential to cause, harm to any retained tree
- be responsible for ensuring that all site operatives are aware of their responsibilities toward trees on site and the consequences of the failure to observe these responsibilities
- make immediate contact with the local authority and/or the designated arboriculturist in the event of any tree related problems occurring, whether actual or potential

## 1.6 Site Monitoring

1.6.1 The site agent will be responsible for monitoring all arboricultural works, inspecting protective fencing and monitoring any works within exclusion zones. The designated arboriculturist will be available for site visits on a basis to be agreed between client and planning authority when/if appropriate or required i.e. if required by condition. A record of site visits will be maintained for inspection on site and copies forwarded to the developer/agent and to the local planning authority. A certificate of practical completion should be produced for sites deemed by all parties to merit this.

1.6.2 Principal contact information: 1/. James Bell. Arbortrack Systems Ltd. Arboricultural Consultant  
██████████ 2/. Mr Mark Warwick ADC Arboricultural Officer. ██████████  
██████████ 3/. Mr Chris Moore. Sussex Building Consultancy Ltd. ██████████  
██████████ 4/. Site agent details to be advised. 5/. Mr Tom Barnes ██████████

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## 1.7 Statement Adoption

- 1.7.1 It is recommended that, in due course, acceptance of the recommendations in this report is demonstrated by, for example, the architect specifying in writing to the building contractor that tree care conditions apply in execution of the contract, and by an estimate or written undertaking from the contractor to the architect demonstrating that the practical aspects of observation of such recommendations have been priced in.
- 1.7.2 If conflicts between any part of a tree and the building arise in the course of development these can often be resolved quickly and at little cost if a qualified arboriculturist is consulted promptly. Lack of such care is often apparent quickly and decline and death of such trees can spoil design aims and can of course affect saleability, and reflect poorly on the construction and design personnel involved. Trees that have been the recipients of careful handling during construction add considerably to the appeal and value of the finished development.

## 2.0 Pre-Development Site Preparation

### 2.1 Arboricultural Works

- 2.1.1 See Appendix B for details of tree works required to allow or facilitate development.

### 2.2 Preparation of Surfaces

- 2.2.1 Areas within RPAs potentially requiring ground protection are shown in Appendix A. Ground protection should be fit for purpose as per guidance in BS5837:2012 section 6.2.3.3. The preferred specification is provided by products such as ground guard, dura base or eve trakway, which are widely available and approved by many local authorities. Alternatively, treatments provided by InfraGreen Solutions are available: see [www.infragreen-solutions.com](http://www.infragreen-solutions.com) or see [www.groundprotection.co.uk](http://www.groundprotection.co.uk) or [www.grassform.co.uk/buy/tuff-trak](http://www.grassform.co.uk/buy/tuff-trak).

### 2.3 Installation of Tree Protective Barrier

- 2.3.1 The TPB must be comprised of a vertical and horizontal scaffold framework, braced to resist impacts, with vertical tubes spaced at a maximum level of 3m. On to this weldmesh panels should be securely fixed with wire scaffold clamps: see section 6.2.2 and Figure 2 of BS5837:2012 (Appendix C). Hardboard or marine ply sheets can be used as an alternative to weldmesh panels but these must be firmly fixed to the framework. The location of the TPB is shown in Appendix A.
- 2.3.2 This TPB is to be erected before any construction work commences on site, is to remain 'in situ' undamaged for the duration of all work or each phase, and is only to be removed once all work is completed. If any work other than preparatory tree work is deemed necessary prior to the erection of fencing the designated arboriculturist should be informed to enable his/her presence to oversee the work being carried out.

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- 2.3.3 The only other exception is the completion of soft landscaping but if any excavations, however minor, are to be carried out as part of soft landscaping within RPAs, an arboricultural assessment must be carried out beforehand and any arboricultural protection measures incorporated. The TPB should carry waterproof warning notices denying access within RPAs.
  - 2.3.4 The Tree Protection Plan in Appendix A illustrates where the protective fencing should be located to form the boundary of the Tree Protection Zone (TPZ). The TPZ is an exclusion zone and suitable steps should be taken to prevent access by pedestrians and vehicles and the storage of any works materials and equipment should be located outside of the TPZ.

## 2.4 Pre-Development Site Inspection

- 2.4.1 At the instigation of the client/site agent or ADC, upon erection of the fencing the designated arboriculturist will meet the relevant local authority member on site to check the standard of the work(s). If there are any amendments to the protective fencing these will be agreed at this meeting, confirmed in writing, and undertaken thereafter.

## 3.0 Development Phase

### 3.1 General Precautions

- 3.1.1 No fires shall be made on any part of the site, or within 10m of the furthest extent of the canopy of any tree or group tree to be retained on site or on land adjoining.
- 3.1.2 No spilling or pouring of fuels, oils, solvents or tar shall be made on any part of the site.
- 3.1.3 No materials that are likely to have an adverse effect on tree health such as oil, bitumen or cement will be stored or discharged within 10 metres of the trunk of a tree that is to be retained.
- 3.1.4 No spillage or discharge of wet mortar or concrete shall be made on any part of the site.
- 3.1.5 No storage of materials shall be made within the protective fences.
- 3.1.6 No breaching or moving of the protective fences shall occur without the approval of the designated arboriculturist.
- 3.1.7 Alterations in levels within the tree protection fence areas shall be avoided.

### 3.2 Root Protection Areas

- 3.2.1 The RPA is a desirable zone of protection around the trees' rooting system and these have been marked on the plan in Appendix A. The RPAs will lie within the TPZ and therefore, be fully fenced off (see Appendix A) unless where appropriate ground protection is offered.

### 3.3 Site Access, Accommodation & Storage

- 3.3.1 Many site activities are potentially damaging to trees e.g. material storage, parking, soil compaction and the use of plant machinery. In this latter example particular care is required to ensure that the operational arcs of excavation and lifting machinery, including their loads, do not physically damage trees when in use or in accessing the site.

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### 3.4 Routing & Installation of Services

- 3.4.1 It is assumed that service runs will be extended from the existing dwelling.
- 3.4.2 Where crown interference with mature trees is a possibility, over-ground services will be routed in an alternative direction. In relation to this, any landscaping taking place should accommodate the presence of over-ground services and take mature tree size into account.

### 3.5 Demolition Measures

- 3.5.1 If required access facilitation pruning should be undertaken to prevent injurious contact between demolition plant and the tree(s). Any such pruning should be undertaken in accordance with British Standard 3998:2010 Tree work-Recommendations. It is not evident that any such pruning is required on this site.
- 3.5.2 Demolition/removal of structures (including underground structures) within what would otherwise be an RPA should proceed with due caution to avoid unnecessary damage to trees. Similarly, any hard surfaces within RPAs must be carefully removed by hand, by a skilled operator using hand held tools only. Debris/spoil can be removed through the future extension footprint avoiding the RPA of tree 1 or if the garage is to serve as a site hut or for secure storage and removed after construction of the extension, then there is adequate space (2m) to remove debris between the extension and the fencing. No ground protection is needed between tree 1 and the new extension as the likelihood of roots from tree 1 being present in this area is very low due to now removed trees, which stood between tree 1 & the proposed extension. However, ground protection can be added here if ADC request this.
- 3.5.3 All plant and vehicles engaged in demolition works (removals only) should either operate outside the RPA, or should run on a temporary surface designed to protect the underlying soil structure. The use of vehicles/plant does not appear to be necessary for removal of the garage.
- 3.5.4 Where trees stand adjacent to structures scheduled for demolition, it will be necessary to undertake demolition inwards within the footprint of the existing building (often referred to as “top down, pull back”).
- 3.5.5 If the weather is “dry,” the site should be watered down to reduce dust travelling to adjacent properties. Where levels of dust build-up on trees occurs, it may be necessary to seek the advice of the designated arboriculturist on remedial measures, e.g. hose down the tree(s) immediately following any significant accumulation of dust.
- 3.5.6 If applicable heavy plant used to remove materials should work systematically *away from retained trees*. The aim is to ensure that spoil is removed away from RPAs but it is very important that the original soil levels are not altered.

### 3.6 Changes in Grade

- 3.6.1 The upper layer of top soil (top 60cm) contains the majority of a tree’s roots and if this is disturbed by a change in ground level, serious damage can be caused. On this basis, as a minimum, level changes should be avoided within RPAs.
- 3.6.2 If any significant section of ground level requires raising within RPAs, this should be achieved using coarse, granular material such as pebbles. See section 7.4.4.4 of BS5837:2012.

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- 3.6.3 If ground levels need to be altered within 1.5 metres of any tree trunk prior agreement must be sought and given by the local authority tree officer.

### 3.7 Construction Measures

- 3.7.1 No specialist construction methods are required for the extension footprint or associated infrastructure in terms of trees.

### 3.8 Removal of Tree Protective Barrier

- 3.8.1 The protective fencing may be removed only upon completion of the development phase when all drainage and service runs have been installed and any site machinery has been removed.

### 3.9 Post Construction Landscaping

- 3.9.1 Following the developing phase, some trees may be subject to either landscaping or seeding beneath their canopy but at this stage the protective fencing will have been removed.
- 3.9.2 Any approved landscaping works should avoid the changing of ground levels or deep digging. Mechanised cultivation such as tractor-mounted rotovation must not be used within the RPAs of existing trees.
- 3.9.3 Heavy machinery should not be used in the vicinity of any retained trees.
- 3.9.4 If herbicides are to be used they should be appropriate to their purpose and not in such a way as to damage any retained trees or vegetation.
- 3.9.5 Ideally, retained trees should be within a shrub area as this reduces the chances of compaction and disturbance of root systems.



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## 4.0 Summary of Proposed Methods

### 4.1 Table of Impacts and Mitigation

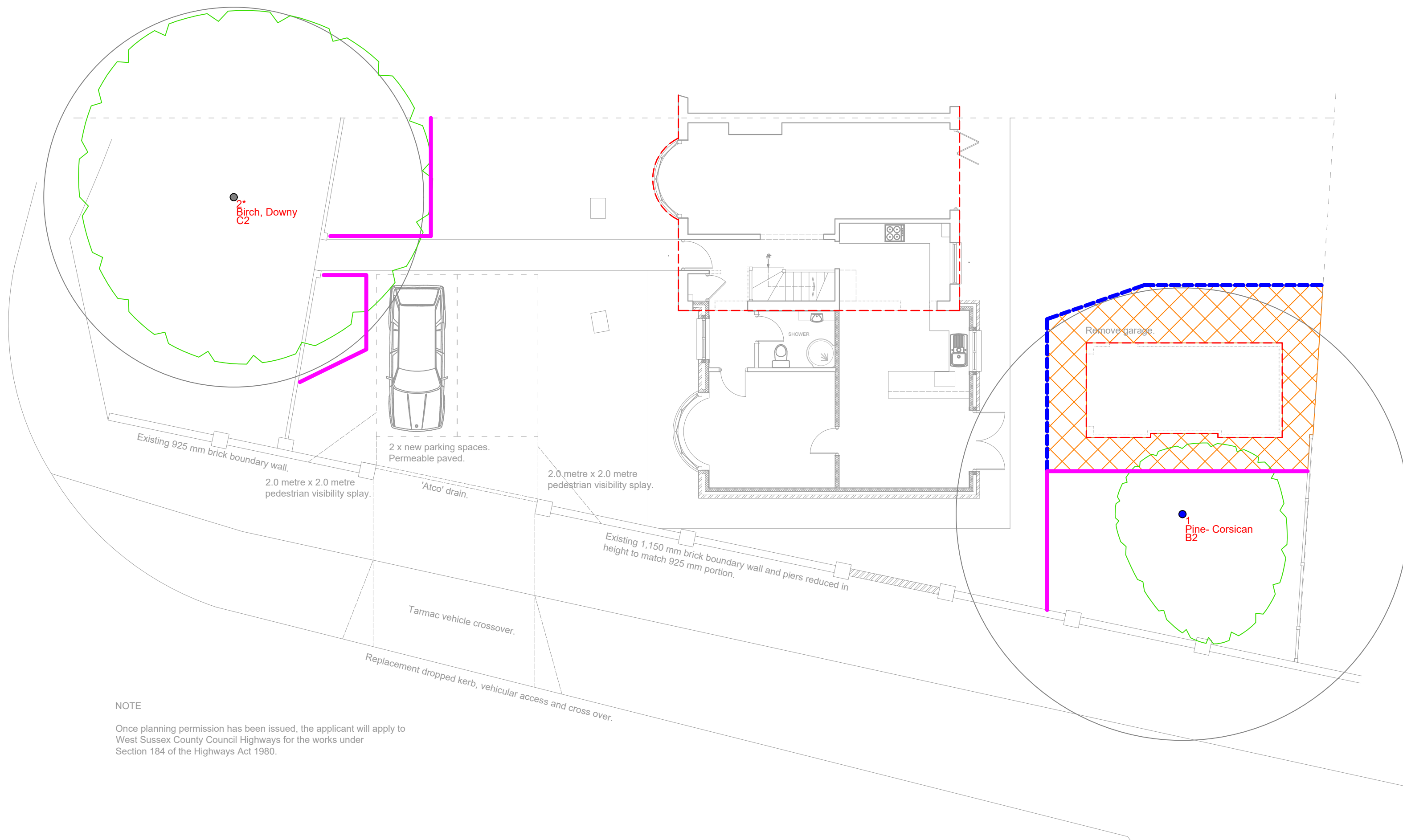
4.1.1 The table below summarises the main areas where trees could become damaged by the proposed development and the methods that need to be adopted in order to prevent such damage:

<b><u>Impact</u></b>	<b><u>Mitigation</u></b>	<b><u>Reference</u></b>	<b><u>Trees Affected</u></b>
Passage of machinery and storage of materials over RPAs	Construction of protective fencing to acceptable standards	Sections 2.3. Fencing spec Appendix C, Tree Protection Plan Appendix A	1 & 2
Removal of garage from within RPA of tree 1	Ground protection	Section 2.2.1	1

## 5.0 Completion

### 5.1 Completion Meeting

- 5.1.1 Following completion of the approved works on site, the designated arboriculturist will meet with a local authority representative and agree upon any remedial works deemed necessary (if any).
- 5.1.2 Any works agreed in the above meeting will be confirmed in writing and should be performed to BS3998:2010.
- 5.1.3 Any work proposed post development should be checked to avoid penalty for performing illegal work on a protected tree.



NOTE

Once planning permission has been issued, the applicant will apply to West Sussex County Council Highways for the works under Section 184 of the Highways Act 1980.

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Site: 23 Pinewood Gardens, Bognor Regis, West Sussex

Drawing Title: Tree Protection Plan 1:100 @ A2

Appendix: A Sept 2019

Key:

- Category A
- Category B
- Category C
- Category U
- Tree Protection Fencing
- Ground Protection
- Category
- Root Protection Area
- Crown Spread
- Tree Number
- Species
- Category
- NOTE: Tree/group numbers marked with an \* have approximate locations.
- Tree protection fencing realigned to this position once garage demolished

Do not scale from this drawing. Please check all dimensions on site and notify us of any discrepancies.  
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**Site:** 23 Pinewood Gardens Bognor Regis

**Date:** 2nd September 2019

## Appendix B

### BS5837:2012 Tree Survey Schedule

Arbortrack Systems Ltd



**Surveyor(s):** James Bell

**Ref:** jwmb/rpt1/23pinewoodgdns/AIAAMS



Tree No.	English Name	Height	Crown Spread				Ground Clearance	Stem Diameter	Protection Radius	Age Class	Growth Vitality	Structural Condition	B.S. Cat	Sub Cat	Useful Life	Comments
			N	S	E	W										
1	Pine- Corsican	14	3	2	4	2	8	560	6.7	Mature	Normal	Good	B	2	20+	Asymmetry (minor) Suppressed by removed tree Southern element of group of 3; 2 trees removed near base with consent of ADC
2	Birch, Downy	13	6	4.5	5	5.5	0.5	470	5.6	Mature	Moderate	Good	C	2	10+	Leaning to N slightly No evidence of root plate lifting Early dieback in upper crown: tips & top; merits a B category barring concerns re useful life expectancy

**Site:** 23 Pinewood Gardens Bognor Regis

**Date:** 2nd September 2019

## Appendix B

### Recommended Tree Works

Arbortrack Systems Ltd

**Surveyor(s):** James Bell

**Ref:** jwmb/rpt1/23pinewoodgdns/AIAAMS



Tree No.	English Name	Height	Stem Diameter	Crown Spread				BS Cat	Sub Cat	Recommended Works		Comments / Reasons
				N	S	E	W					
2	Birch, Downy	13	470	6	4.5	5	5.5	C	2	CL	2m	Leaning to N slightly No evidence of root plate lifting Early dieback in upper crown: tips & top; merits a B category barring concerns re useful ... To facilitate development

## Appendix B

### Notes on Tree Survey Schedule:

- **Height** describes the approximate height of the tree measured in metres from ground level.
- The **Crown Spread** refers to the crown radius in metres from the stem centre and is expressed as an average of **NSEW** aspect if symmetrical.
- **Ground Clearance** is the height in metres of crown clearance above adjacent ground level.
- **Clear Stem Height** is the distance between trunk base and first branch separation measured in metres.
- **Stem Diameter** is the diameter of the stem measured in millimetres at 1.5m from ground level for single stemmed trees. See section 4.6 for detail of treatment for multistems.
- **Protection Radius** is a radial distance in metres measured from the trunk centre.
- **Growth Vitality** - **Normal** growth, **Moderate** (below normal), **Poor** (sparse/weak), **Dead** (dead or dying tree).
- **Structural Condition** - **Good** (no or only minor defects), **Fair** (remediable defects), **Poor** - Major defects present.
- **B.S. Category** refers to (British Standard 5837:2012 Table 1) and refers to tree/group quality and value; 'A' - High, 'B' - Moderate, 'C' - Low, 'U' - Unsuitable for Retention.
- **Sub Cat** refers to the retention criteria values where **1** is mainly **arboricultural** qualities, **2** is mainly **landscape qualities** and **3** is mainly **cultural** values including conservation.
- **Useful Life** is the tree's estimated remaining contribution in years.
- **First Significant Branch (FSB)** is the height of the first significant branch above ground level taken at the trunk separation point.

### Notes on Recommended Tree Works:

- **1, 2,3** Urgent (ASAP), Standard (6-12 months), Non-Urgent (2-3 years)
- **CB** Cut back to boundary/clear from structure
- **CL#** Crown lift to given height in meters
- **CT#%** Crown Thinning by identified %
- **CCL** Crown clean (remove deadwood/crossing & hazardous branches & stubs)
- **CR#%** Crown Reduce by given maximum percentage (of outermost branch & twig length)
- **DWD** Remove deadwood
- **Fell** Fell to ground level
- **FInv** Further Investigation (generally with decay detection equipment)
- **Pol** Pollard or re-pollard
- **Mon** Monitor ongoing condition (annually by staff/owners & every 2-3 years by consultant). Svr Ivy/Clr Bs Sever Ivy/clear base and re-inspect base/stem for concealed defects

## Appendix C Tree Protective Fencing Detail (from BS5837:2012)

Figure 2 Default specification for protective barrier

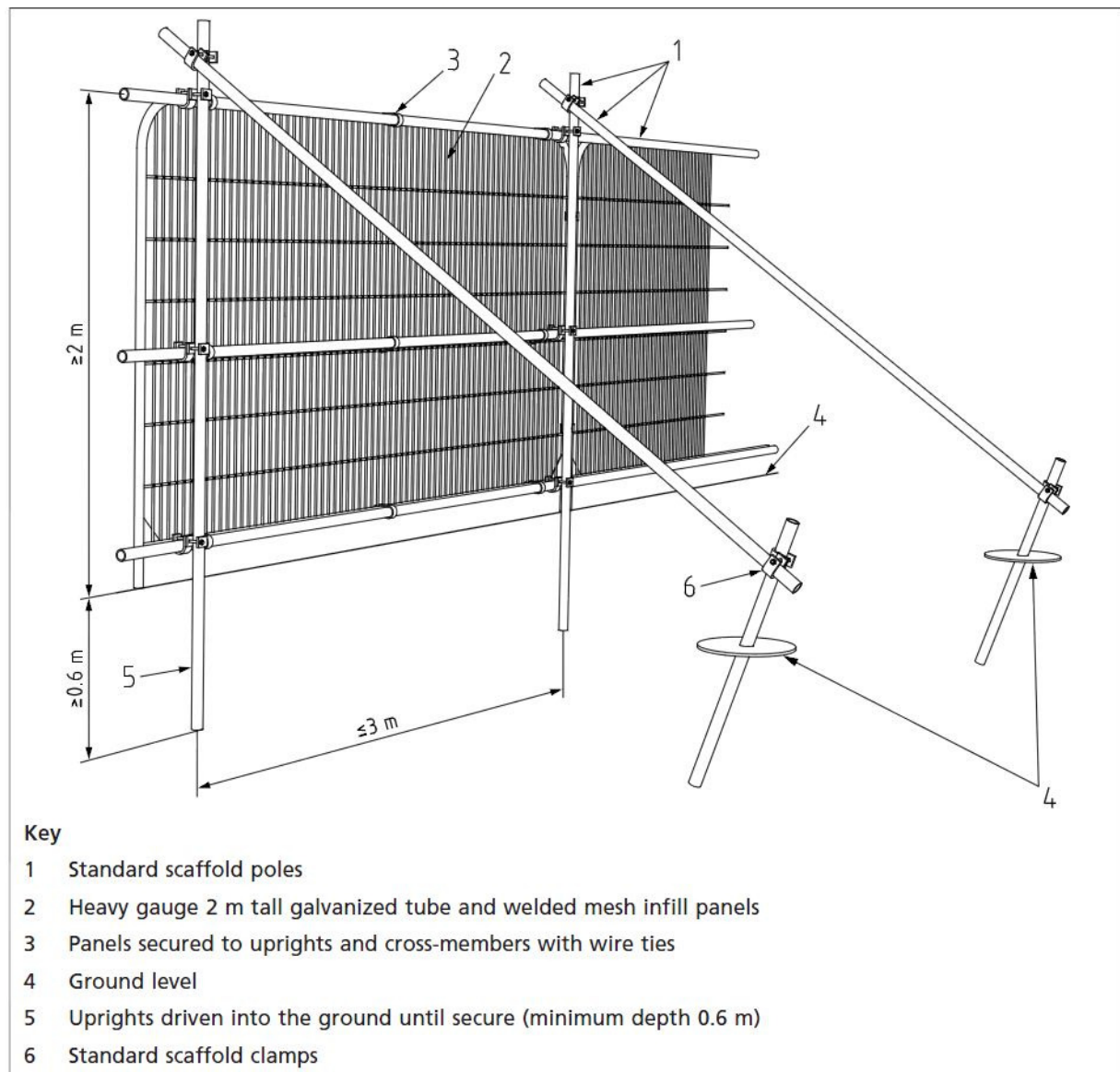
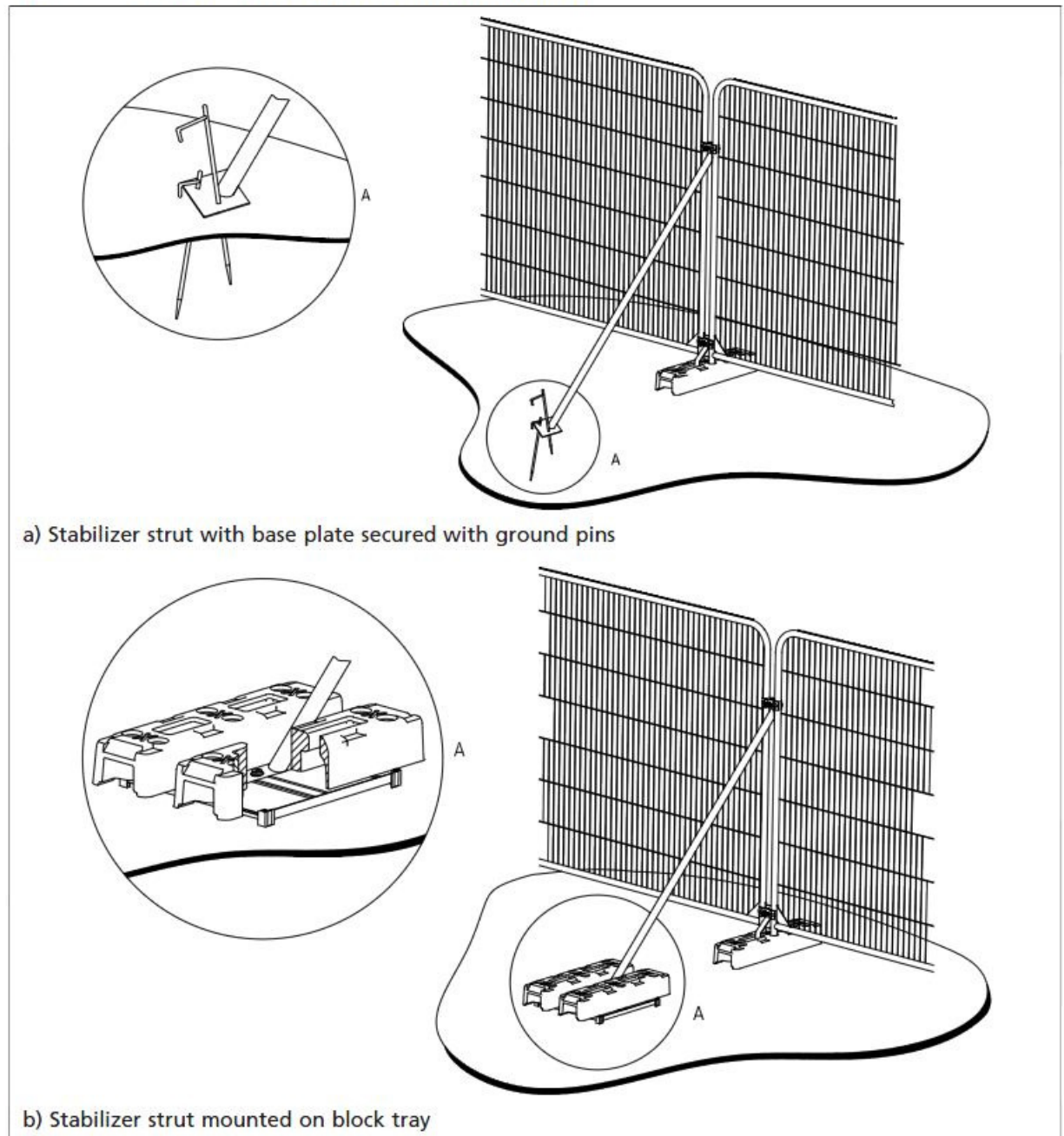


Figure 3 Examples of above-ground stabilizing systems





## Appendix D

### 1.0 Glossary of Terms & Abbreviations

<b>Canker</b>	Disease damaged area of a tree, usually caused by fungus or bacteria.
<b>Co-dominant Stem</b>	A stem which has grown in direct competition to the main stem and which has formed a substantial size influencing the appearance of the tree.
<b>Crown Lift</b>	The removal of the lowest branches, usually to a given height. It allows more residual light and greater clearance underneath for vehicles etc.
<b>Crown reduce</b>	The reduction of a tree's height or spread while preserving its natural shape.
<b>Crown thin</b>	The removal of some of the density of a tree's crown, usually 5-25% allowing more light through its canopy and reducing wind resistance.
<b>Deadwood</b>	The removal of all dead, dying and diseased branches from a tree. Also, wood which is dead.
<b>Dieback</b>	Where branches are beginning to show signs of death usually at the tips in the crown.
<b>Epicormic shoots</b>	Small branches that grow in uncharacteristic clusters around the base or the stem of a tree, usually as a result of bad pruning or some other stress factor.
<b>Formative pruning</b>	The trimming of a tree to remove weaknesses and irregularities which may lead to problems. The formative pruning operation is aimed at reducing the potential for future weaknesses or problems within the tree's crown.
<b>Included bark</b>	Where the bark on two adjoining branches or stems is growing tight together, forming a joint with limited physical strength.
<b>Pollarding</b>	A method of tree management in which the main trunk of the tree is cut at about 4m, and the resulting branches are then cropped on a regular basis.
<b>Remedial pruning</b>	The removal of old stubs, deadwood, epicormic growth, rubbing or crossing branches and other unwanted items from the tree's crown. Sometimes referred to as crown cleaning.
<b>Topping</b>	Topping is a form of pruning that removes terminal growth leaving a 'stub' cut end. Topping causes serious health problems to a tree.

## **2.0 General Guidelines**

- 2.1 All work must be to BS 3998:2010 – Tree work-Recommendations
- 2.2 Staff carrying out the work must be qualified, experienced and ideally be Arboricultural Association approved contractors, and should be covered by adequate public liability insurance.
- 2.3 Any defects seen by a contractor or the client that were not apparent to the consultant must be brought to the consultant's attention immediately.
- 2.4 No liability can be accepted by the consultant in respect of the trees unless the recommendations of this method statement are carried out under the supervision of the designated arboriculturist.
- 2.5 It is advisable to have trees inspected by designated arboriculturist regularly. On this site it is recommended that these inspections are made every year.