



# AVArboriculture

## **Arboricultural Impact Assessment** To British Standard 5837 (2012)

**Client:** Richard Spray  
**Location:** Westloch, EH45 8QY

**Site Location:**

Westloch  
EH45 8QY

**Commissioned by:**

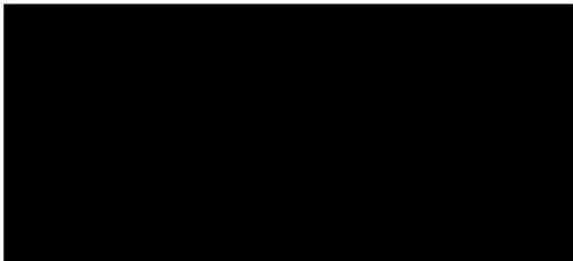
Richard Spray  
Pentland Biomass  
Loanhead  
EH20 9QG

**Prepared by:**

Mike Charkow MA, Cert Arb L4 (ABC), PTI  
Arbor Vitae Arboriculture Ltd  
8 Harbour Place  
Burntisland  
KY3 9DP

Mobile: 07917335066  
Web: [www.avtree.co.uk](http://www.avtree.co.uk)

Signed:

A solid black rectangular box redacting the signature of Michael J Charkow.

Michael J Charkow

Date: 29th December 2022

This report has been prepared exclusively for the use of Richard Spray and their agents, on the basis of information supplied, and no responsibility can be accepted for any actions taken by any third party arising from their interpretation of the information contained in this document. No other party may rely on the report; if they do, it is done at their own risk.

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## 1 Introduction

- 1.1 Reference should be made to the Arboricultural Survey for this site, dated 20th December 2022.
- 1.2 The site is currently an open field. There are trees growing on neighbouring land at the northern end.
- 1.3 There is one category A mature Beech at the northern corner. The other surveyed trees are all category B or C. Many of the trees form an early-mature woodland edge.
- 1.4 It is proposed to construct a timber storage and processing yard within the field. The proposed design will not require any of the trees to be removed.
- 1.5 Two-metre high earthen mounds will be created to form a visual barriers, using earth from within the site.
- 1.6 A new fence will be constructed around the perimeter of the site.
- 1.7 This document evaluates the direct and indirect effects of the proposed design. Where necessary, mitigation measures are outlined.



**Arbor Vitae Arboriculture Ltd**  
 8 Harbour Place | Burntisland | KY3 9DP  
 www.avtree.co.uk | 07917335066

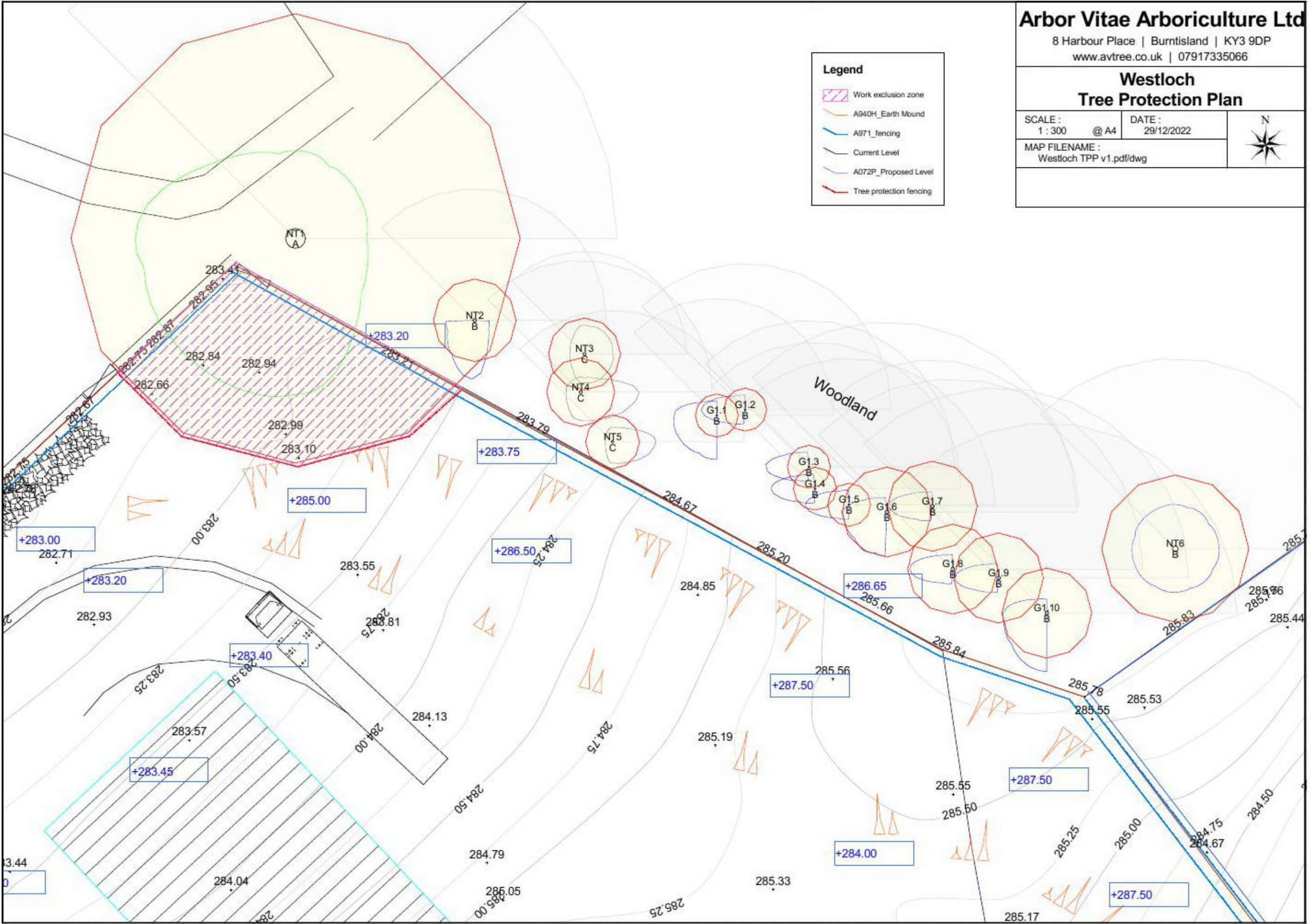
**Westloch  
 Tree Protection Plan**

SCALE : 1 : 300 @ A4 DATE : 29/12/2022  
 MAP FILENAME : Westloch TPP v1.pdf/dwg



**Legend**

- Work exclusion zone
- A940H\_Earth Mound
- A971\_fencing
- Current Level
- A072P\_Proposed Level
- Tree protection fencing





### 3 Evaluation of the Proposed Design

#### 3.1 **Summary**

The woodland to the north is in separate ownership; it will need to be retained and protected from development works.

The tree survey (Charkow, 2022) recommended no works to any of the surveyed trees.

The proposed design will not require the removal of any trees.

#### 3.2 **Soil Compaction**

Tree roots require access to air and water in order to survive and thrive. Soil compaction is one of the major causes of tree dieback and death on construction site. Soil compaction can be caused very quickly and very easily, especially when the ground is wet; even a single pass of a vehicle can cause irreparable damage to the soil structure. In order to preserve the health of the trees, it is extremely important to observe the restrictions outlined below.

#### 3.3 **Root Protection Areas**

In order to protect the trees, no construction works (with one exception: see section 3.6) will be allowed to take place within any root protection area (RPA). This only applies to the mature Beech (NT1), as no other tree's RPA extends within the site.

#### 3.4 **Tree protection barrier**

The tree protection barrier is intended to protect the roots of retained trees from harm as a result of soil-compaction, changes of soil level, trenching, loss of gaseous exchange, chemical damage and fire. It is designed to exclude people, machinery, materials and equipment.

Suitable tree protection fencing will need to be constructed as indicated on the [tree protection plan](#). This fencing will extend from a gate, following the RPA of tree NT1. It need not extend any further as there is an existing fence between the proposed development site and the area where the trees are growing. However, no access should be permitted beyond the existing field boundary fence, which separates the field from the area of trees.

The tree protection fencing should be constructed using a scaffold framework fixed with vertical tubes at 3 metre intervals, and weld-mesh panels (e.g. 'Heras' fencing) secured with wire or scaffold clamps (see BS5837:2012 Figures 2 and 3 in [appendix 4](#)). Should this not be feasible then another suitable barrier should be installed, after consulting with the project arboriculturist or the local planning officer.

The tree protection barrier should be considered an unmovable barrier, and should not be interfered with in any way. The area within the protection fencing, and the



area where the trees are growing, are to be considered work exclusion zones (CEZ).

Should there be any other need move or access the tree protection barrier, the Project Arboriculturist or the Local Authority Arboricultural Planning Officer must first be contacted.

### 3.5 **Earthen Mound**

Raising ground levels can cause root death through asphyxiation, therefore this should not be permitted within an RPA.

The proposed two-metre mound will be sited outwith the RPA of tree NT1. The earth will be relocated from elsewhere on site.

In order to prevent soil compaction, the mound should only be created from the south, with no machinery nor vehicles accessing the land north of the mound.

### 3.6 **New Fencing**

New fencing will be constructed around the site perimeter. The lengths of fencing within the tree's RPA are 10.5 metres (northwest face) and 18 metres (northeast face).

In order to construct 29 metres of fencing in the northern corner, it will be necessary to enter the CEZ. Certain precautions will need to be observed in order to avoid damaging the soil and tree roots

Access within the CEZ should only be permitted to workers on foot. No machinery nor vehicles should enter the CEZ, even if it is only for a very short time: soil compaction can occur after just one pass of a vehicle.

Storage of materials should not be allowed within the CEZ, except for light loads of essential materials and equipment.

Most tree roots are found within the top 30-100 centimetres of soil. Therefore, any excavations have the potential to damage or destroy roots. It will be necessary to excavate post-holes. These holes should be carefully hand-dug, in order to locate spaces between roots. No tree roots of more than 25 millimetres diameter should be damaged.

Cement and concrete are toxic to tree roots, therefore if these materials are to be used within the RPA then they need to be contained so as to prevent seepage into the soil. If concrete is to be used in post-holes, then the holes need to be sleeved. The concrete should not be mixed nor stored within the RPA, and only the necessary amount should be carefully carried to where it is to be used.

In order to minimise damage to the tree's roots, it is recommended that the fence design incorporates large spacing between the posts. One type of design is high-tensile wire fencing, which can incorporate spacing of around 10 metres or more. If

this is used then there should only be a requirement for one corner post and two further posts towards the outer edge of the RPA.

### 3.7 **New Tree Planting**

It is proposed to plant new trees on the earthen mounds, to increase biodiversity and to act as screening.

Trees that can grow to large heights at maturity would cast shading on the existing trees. This may not be an issue for the younger trees, however it could have deleterious effects on the mature Beech. Therefore it is recommended that these new trees should only include species that will grow to a small or medium mature height. This would include many native and high-biodiversity trees such as cherry, apple, blackthorn, hazel, holly, juniper and elder.

In addition to the trees, the mounds could be underplanted with native shrubs and wildflowers, which would create a diversity of forest layers, and an increase in the number and type of wildlife habitats.



## Appendix 1: **Bibliography**

British Standards Institute (2010), *BS 3998 'Recommendations for Tree Work'*, BSI, London.

British Standards Institute (2012), *BS 5837 'Trees in Relation to Design, Demolition and Construction - Recommendations'*, BSI, London.

Charkow, M., *Arboricultural Survey To British Standard 5837 (2012): Westloch, EH45 8QY*, 20th December 2022, Arbor Vitae Arboriculture Ltd.

National House Building Council, *Building Near Trees*, NHBC Standards, September 1999, chapter 4.2.

National Joint Utilities Group, *NJUG Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees*, Volume 4, Issue 2, November 2007.

The National Tree Safety Group (NTSG), *Common sense risk management of trees*, Forestry Commission (December 2011).

Roberts, J., Jackson, N. & Smith, M. (2006), *Tree Roots in the Built Environment*, TSO, London.

Town and Country Planning Act (Scotland) (1997).

## Appendix 2: **The Author's Qualifications and Experience**

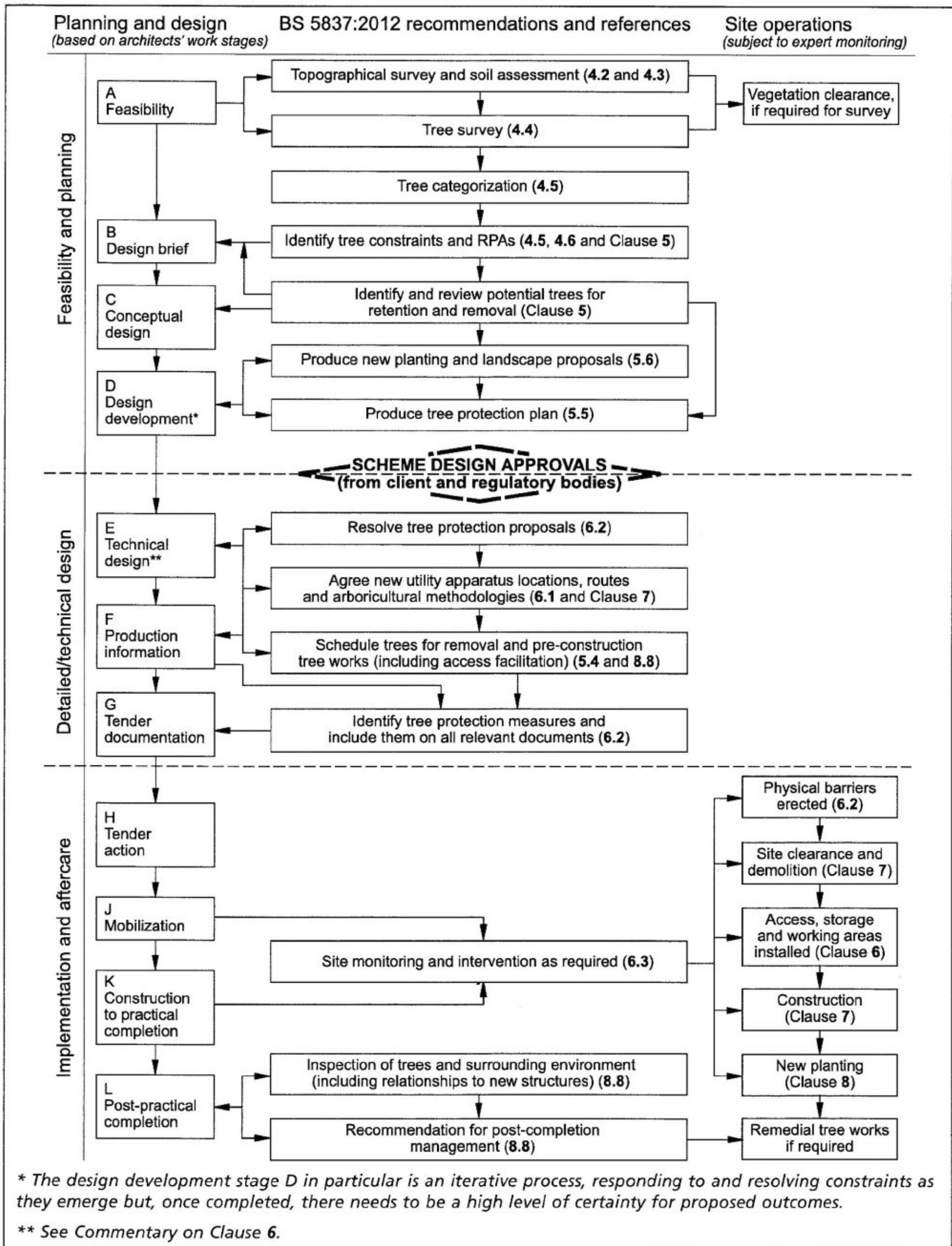
Mike Charkow holds the Arboricultural Association Technicians Award, and also the LANTRA Professional Tree Inspection Certificate. He has been working in the industry since 2004 as both a contracting and consulting arborist.

As part of a continual professional development program, Mike regularly attends professional seminars, conferences, training days and meetings.

He has been accredited by 'Echoes Ecology Ltd' as a competent person to inspect trees for bats and their roosts.

He is a committee member of the Arboricultural Association Scottish Branch.

Appendix 3: **BS5837 Figure 1: Trees in the Planning Process**





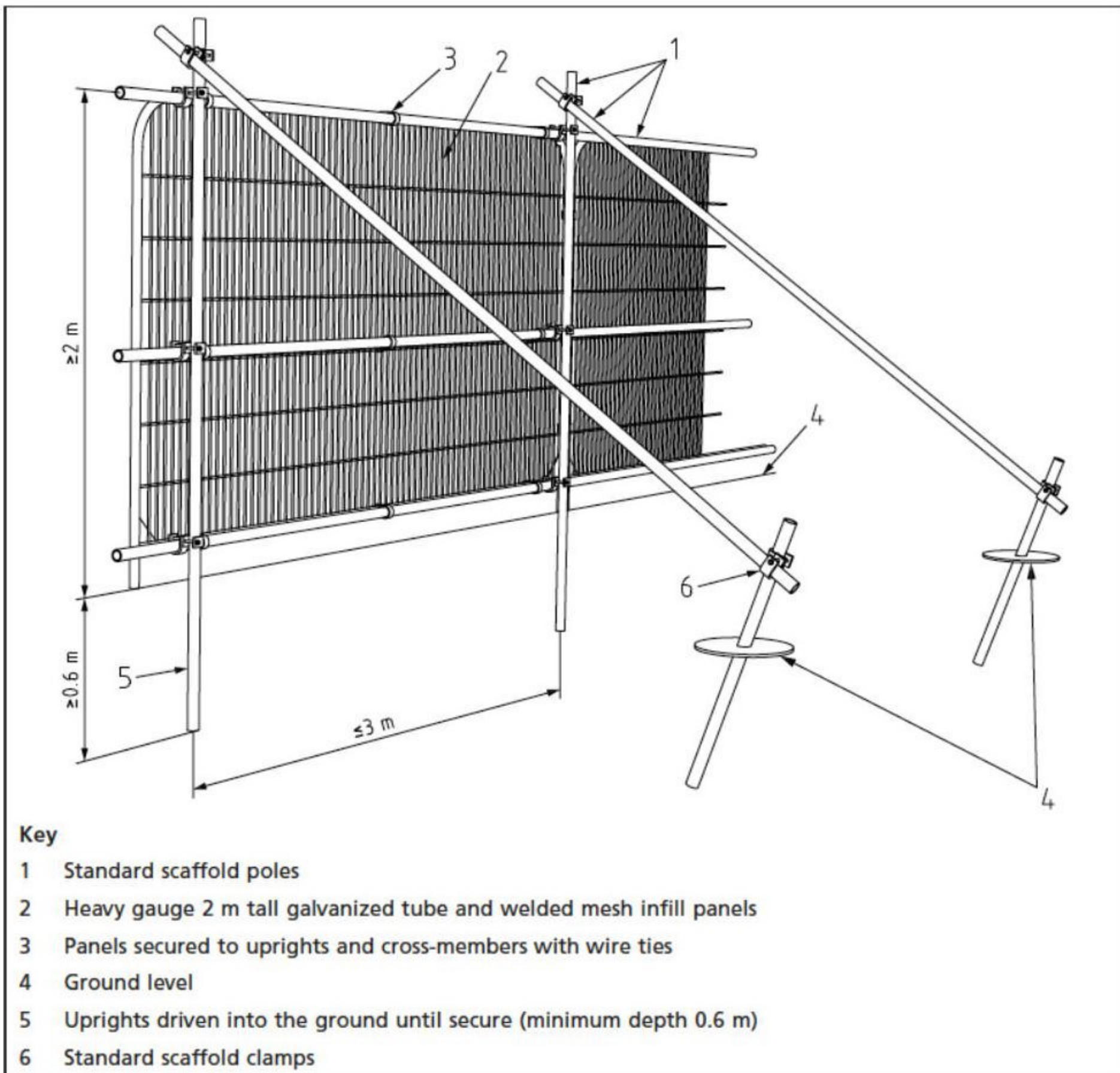
#### Appendix 4: Tree Protection Barrier Specifications

The following descriptions for the installation of tree protective barriers are taken from BS5837 (2012) and should be adhered to.

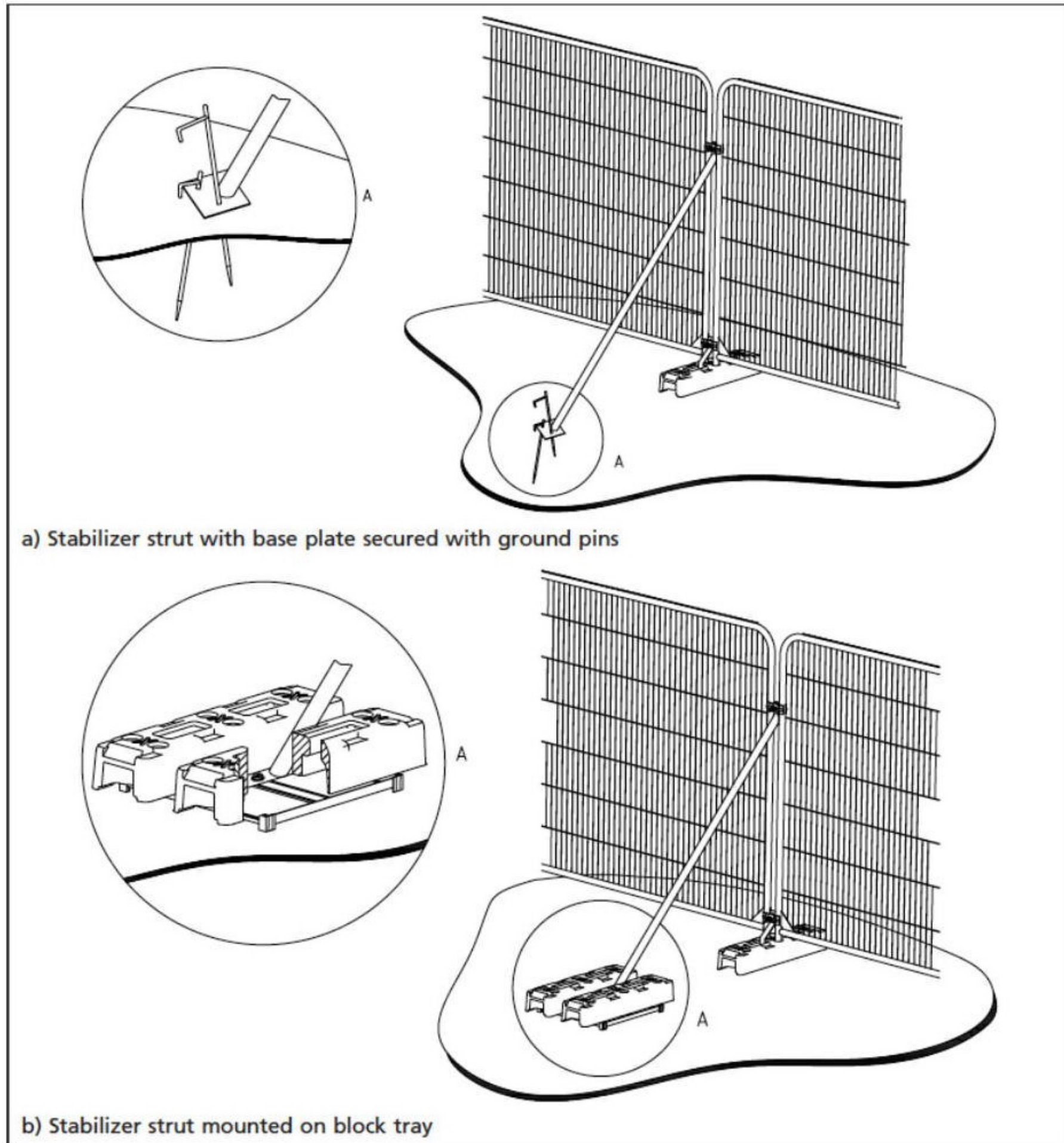
Additionally, weather-proof signage should be attached to the fencing at regular intervals, highlighting the tree protection area. An example is given below:



**Figure 2: Default Specification for Protective Barrier (BS5837: 2015)**







**Figure 3:** Examples of Above-Ground Stabilizing Systems (BS5837: 2015)