

Arboricultural Impact Assessment

To Include

Tree Report

Arboricultural Method Statements

Tree Protection Measures



Proposed Development at:

**Grange Paddock
Ickleton Road, Elmdon CB11 4GR**

OS 2369-22-Doc3


December 2022

Arboricultural Impact Assessment
for
Proposed Development at
Grange Paddock, Ickleton Road, Elmdon CB11 4GR

Written by:		Approved by:	
Signature:		Signature:	
Name:	Karolyn Mowll BSc (Hons) MSGD Cert Arb L4 (ABC)	Name:	Graeme Drummond CMLI FArborA
Title:	Arboricultural Consultant	Title:	Principal Arboricultural Consultant
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Open Spaces Landscape & Arboricultural Consultants Limited is a Registered Practice of the Landscape Institute.

Open Spaces Landscape & Arboricultural Consultants Limited
Head Office:
2 Monument Offices
Hall Farm
Maldon Road
Woodham Mortimer
Essex CM9 6SN
Tel: 
os@open-spaces.co.uk

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Table of Contents

1.0	Foreword	4
2.0	Instructions	8
3.0	Limitations	9
4.0	In General	11
5.0	Findings	12
6.0	Arboricultural Impact Assessment	34
7.0	Arboricultural Method Statements	41
8.0	Tree Protection Measures	50
	Appendix A Site Monitoring Form	55

1.0 FOREWORD

Paragraph 1.1 – 1.2 sets out the purpose of this report and the requirements of the various parties involved with the design and construction of the development including any requirements to carry out any demolition operation.

1.1 **British Standard; BS 5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations (BS 5837:2012)**

i) BS 5837:2012 is normally considered as the lead document when new development is proposed in close proximity to existing trees.

ii) It is stated within the scope of BS 5837:2012 the following:

'This British Standard gives recommendations and guidance on the relationship between trees and design, demolition and construction processes.'

It sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.

The standard is applicable whether or not planning permission is required.'

iii) The British Standard is a recommendation and not a requirement and as such the Local Planning Authority (**LPA**) may or may not adhere fully to its contents.

iv) It is a requirement to include a range of tree related documents as part of the planning application submission. BS 5837:2012 Annex B: 'Trees and the planning system' states:

'The nature and level of detail of information required to enable a local planning authority to properly consider the implications and effects of development proposals varies between stages and in relation to what is proposed. (The following table) Table B1 provides advice to both developers and local authorities on an appropriate amount of information. The term 'minimum detail' is intended to reflect information that local authorities are expected to seek, whilst the term 'additional information' identifies further details that might reasonably be sought, especially where any construction is proposed within the RPA.'

Not all information will be provided by the arboricultural consultant, Architects, Landscape Architects, Engineers, Soil scientist etc. may all need to input suitable information to fulfil the requirements of BS 5837:2012 and to successfully navigate an application through the planning system.

Stage of process	Minimum detail	Additional information
Pre-application	<ul style="list-style-type: none"> • Tree survey 	<ul style="list-style-type: none"> • Tree retention/removal plan (draft)
Planning application	<ul style="list-style-type: none"> • Tree survey (in the absence of pre-application discussions). • Tree retention/removal plan (finalised). • Retained trees and RPA's shown on proposed layout. • Strategic hard and soft landscape design, including species and location of new tree planting. • Arboricultural Impact Assessment. 	<ul style="list-style-type: none"> • Existing and proposed finished levels. • Tree Protection Plan. • Arboricultural Method Statements – heads of terms. • Details of all special engineering within the RPA and other relevant construction details.
Reserved matters/ planning conditions	<ul style="list-style-type: none"> • Alignment of utility apparatus (including drainage), where outside the RPA or where installed using a trenchless method. • Dimensioned tree protection plan. • Arboricultural method statement – detailed. • Schedule of works to retained trees, e.g. access facilitation pruning. • Detailed hard and soft landscape design. 	<ul style="list-style-type: none"> • Arboricultural site monitoring schedule. • Tree and landscape management plan. • Post-construction remedial works. • Landscape maintenance schedule.

Table 1 BS 5837:2012 Table B1 - Delivery of tree-related information into the planning system

- iv) If this document or any other tree related document is approved by the LPA as part of the submission for full planning permission or to fulfil the requirements of a planning condition, non-compliance may lead to an enforcement notice being served. It is therefore essential that this and associated documents are strictly adhered to.

1.2 BS 5837:2012 – General requirements for developers

BS 5837:2012 contains three main areas for the developer to consider.

1.2.1 Feasibility, planning, concept and design

(RIBA work stages A-D)

To support the production of documents, as outlined in table 1, the following may need to be carried out.

- i) Topographic survey to include:
 - Spot levels at the base of trees and throughout the site.
 - Position of all trees within the site with a stem diameter of 75mm or more when measured at 1.5m above ground level.
 - Position of all trees with a stem diameter of 75mm or greater measured at 1.5m above ground level overhanging the site or growing adjacent to the site within a distance up to 12 times their estimated stem diameter.
 - Other relevant landscape features and artefacts.
- ii) Soil assessment to be carried out by a competent person to include: whether the soil is shrinkable, soil structure, composition and ph.
- iii) Tree survey.
- iv) Identifying above and below ground constraints.
- v) Arboricultural impact assessment (**AIA**).
- vi) Tree protection plan (**TPP**).
- vii) Consideration of new planting design and associated landscape operations.

1.2.2 Detailed and technical design

(RIBA work stages E-G)

To support the production of documents, as outlined in table 1, the following may need to be carried out.

- i) Arboricultural method statement (**AMS**) to include the following:
 - Demolition.
 - Permanent hard surfaces.
 - Design recommendations.
 - Edge supports
 - Foundations
 - Subterranean construction.
 - Underground and above-ground utility apparatus.
- ii) Tree protection plan (Detailed).
- iii) Site monitoring requirements.

1.2.3 Site works, landscape operations and management

(RIBA work stages H-L)

To support the production of documents, as outlined in table 1, the following may need to be carried out.

- i) Drainage requirements.
- ii) Topsoil quality and amelioration.
- iii) Soil compaction and remediation measures.
- iv) Use of mulch.
- v) Hard surfaces adjacent to newly planted trees.
- vi) Use of herbicides.
- vii) Tree management schedule.

2.0 INSTRUCTIONS

Open Spaces Landscape and Arboricultural Consultants Limited (**Open Spaces**) have been instructed by BRD Tech Ltd on behalf of the client to produce reports for trees growing within/adjacent to the proposed development site at Grange Paddock, Ickleton Road, Elmdon CB11 4GR. All reports, plans and other tree related documentation will be in accordance with BS 5837:2012.

2.1 The following documents may be provided

2.1.1 Pre application

No pre-application documents provided.

2.1.2 Planning application

- i) Tree survey.
- ii) Retained trees and RPA's shown on proposed layout.
- iii) Arboricultural Impact Assessment.
- iv) Tree protection plan.
- v) Arboricultural method statements.
- vi) Special engineering and other relevant construction details.

2.2 Arboricultural Consultant

This report has been written by Karolyn Mowll BSc(Hons), Cert Arb L4 (ABC), MSGD who holds the ABC Level 4 Diploma in Arboriculture.

3.0 LIMITATIONS

- 3.1 Trees are living organisms whose health and condition can change rapidly. This assessment in accordance with BS 5837:2012 is valid for a period of 2 years from the date of the tree survey. This period of time may be reduced if there is any change to the immediate surroundings of the tree, after any storm or any damage to the tree or if the development deviates from the approved drawings on which this report is based upon.
- 3.2 A tree may be protected in various ways such as by a Tree Preservation Order (**TPO**) or because it is growing within a Conservation Area. The tree may be protected for a period of time (usually not longer than 5 years) by Planning Conditions or there may be a restrictive covenant on the tree. Before any tree work is carried out on a tree or any development actively carried out with the tree's Root Protection Area (**RPA**) or crown, it should be determined whether the tree is protected or not. **It may be a criminal offence to carry out work on a protected tree without consent or agreement of the Local Planning Authority.**
- 3.3 Open Spaces has not contacted any Local Planning Authority to ascertain if any tree growing within or immediately adjacent to the proposed development site is protected by a Tree Preservation Order or is growing within a Conservation Area or is protected by any Planning Condition or Restrictive Covenant.
- 3.4 Trees have been inspected from ground level only. Should a more detailed survey or climbing inspection be required, this will be highlighted within the recommendations.
- 3.5 Where ivy is growing over the tree or any part of it or if the tree is obscured by dense vegetation, fencing etc. or cannot be accessed due to impenetrable vegetation or is growing within neighbouring land, it may not be possible to fully survey the tree. This will be highlighted within the Tree Report. A tree which cannot be fully surveyed may have structural defects, decay or disease which has not been identified.
- 3.6 Where it is not possible to fully access the tree, estimates of key dimensions will be made to include trunk diameter and crown spread.
- 3.7 Trees have been surveyed in accordance with BS 5837:2012 for the purpose of supporting a planning application and for no other purpose.
- 3.8 No information relating to any soil sampling or any soil analysis including the testing of pH levels is included within these reports.
- 3.9 Open Spaces has not carried out any topographical survey, recorded levels or interpolated levels as contours. Levels will not be shown on any plan unless supplied in a suitable format and specifically requested.

- 3.10** No design or specification for any hard or soft landscape feature or soil is included within these reports.
- 3.11** No design of any utility layout is included within these reports and no utility will be shown on any plan.
- 3.12** No shadow calculation has been carried out.
- 3.13** No wildlife, ecological or habitat assessment has been carried out by Open Spaces as part of this tree survey. The client, developer, contractor or anyone else working on or accessing the site must be made aware that flora, fauna and habitats within the site, including bat roosts, nesting birds, badger sets etc. may be legally protected and it may be an offence to disturb, damage, harm or kill protected flora, fauna or habitat. Any Contractor carrying out tree work will need to determine whether any potential bat roost, nesting bird etc. is present and if so, request the required inspection to determine if tree works can proceed without causing disturbance, damage, harm or killing protected flora, fauna or habitat.
- 3.14** **Copyright**
- This report and associated documentation is to be used for its intended purpose only, copyright is retained by Open Spaces. This document is not to be used by any third party without the written agreement of Open Spaces.

4.0 IN GENERAL

- 4.1** Any proposed tree work will be carried out by a competent tree surgeon that holds Public Liability Insurance. All tree work must be carried out to British Standard 3998:2010 (**BS 3998:2010**) Tree Work - Recommendations.
- 4.2** If any tree identified for retention is implicated by the proposed development as identified within the Arboricultural Impact Assessment (**AIA**), suitable Arboricultural Method Statements (**AMS**), as approved by the Local Planning Authority (**LPA**) will be provided.
- 4.3** The RPA is an area which will be protected throughout the whole course of the development as it is this area which, in accordance with BS 5837:2012 is identified as containing the majority of roots needed to sustain the tree and to ensure its long-term viability.
- 4.4** The RPA is normally ascertained by multiplying the diameter of a single trunk tree, measured at 1.5m above ground level, by 12 and for trees with more than one stem, the RPA will be calculated in accordance with paragraph 4.6 of BS 5837:2012. This resulting figure is converted into a radius centred on the middle of the tree's trunk to form a circle. This circle becomes the RPA. The maximum radius for an RPA irrespective of trunk diameter is 15m.
- 4.5** Where it is determined that rooting has occurred asymmetrically, the RPA may be converted into a polygon of an equivalent area.
- 4.6** Trees to be retained will require protecting in accordance with BS 5837:2012 and will be clearly set out within the Arboricultural Method Statements and the Tree Protection Plan.

5.0 FINDINGS

- i) The tree survey was carried out on Thursday 10th November 2022.
- ii) The key explains the main headings within the tree report.

5.1 Key

Tree Ref. No.	Identifies tree on plan.	
Tag No.	Number embossed on a metal disc attached to the tree	
Tree species	Common name.	
Height	Estimated height of tree (m).	
Stem diameter	Diameter of trunk measured at approximately 1.5m above ground level (mm).	
Branch spread	Overall size of crown N, E, S, W (m).	
Height to first branch and orientation	Clear distance between ground level to approximate first significant branch including direction of growth.	
Ht of crown clearance	Clear distance between ground level to approximate height to base of crown.	
Age class	Y	Young: 0-10% of expected life
	SM	Semi-mature: 10-30% of expected life
	M	Mature: 30-80% of expected life
	OM	Over-mature: 80-100% of expected life
	V	Veteran: >100% of expected life
Physiological Condition	General overview of the tree's systems.	
	Good	Above average
	Normal	Average
	Poor	Below average
	Dead	
Estimated remaining contribution	Approximate length of time the tree will provide a contribution in years.	

Category grading	General quality of the tree in relation to its condition and setting including an estimation of the tree’s remaining contribution. Based on BS 5837: 2012
A	High quality and value. (Min of 40yrs value remaining). RPA shown green on Tree Protection Plan, Tree Retention/Removal Plan.
B	Moderate quality and value. (Min of 20yrs value remaining). RPA shown blue on Tree Protection Plan, Tree Retention/Removal Plan.
C	Low quality and value (Min of 10yrs value remaining). RPA shown grey on Tree Protection Plan, Tree Retention/Removal Plan.
U	Less than 10yrs value and therefore could be removed.
1	Mainly arboricultural values
2	Mainly landscape values
3	Mainly cultural/conservation values
Root protection area	Area around the base of the tree to be protected during construction and identified as a radius centred on the tree and as metres squared.
General observations	Physical condition including the presence of defects.
Proposed tree work	Works to be carried out.
#	Indicates that the given measurement has been estimated.

5.2 Tree Report

Set out in accordance with BS 5837:2012

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
G1	---	Blackthorn	3.0	125# Av.	Extent of tree group as shown on Tree Protection Plan				1.5 NESW Av.	2.0	M	Normal – Poor	>10	C1	1.5	---
<p>General Observations</p> <ul style="list-style-type: none"> • Growing to top of bank • Ivy clad therefore unable to fully survey • Trees lean towards south • Overhead cables pass over crowns <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T1	---	Ash	9.5#	330	3.0	3.0	3.5#	2.5	5.0 NESW	5.0	M	Normal	>20	B1	4.2	55
<p>General Observations</p> <ul style="list-style-type: none"> • Growing to top of bank adjacent to driveway entrance • Overhead cables pass through crown • Fork at approximately 2m above ground level • Small amounts of minor deadwood within crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
G2	---	Blackthorn x 2	3.5-4.0	170# Av.	Extent of tree group as shown on Tree Protection Plan				2.0 NESW Av.	3.5	M	Normal	>10	C1	2.1	---
<p>General Observations</p> <ul style="list-style-type: none"> • Growing to top of bank adjacent to driveway entrance • Ivy clad therefore unable to fully survey • Trees lean towards north <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
T2	---	Hawthorn	5.5	600# @ base	1.5	2.0	3.0#	3.5#	1.5 NESW	2.0	M-OM	Normal	>10	C1	7.2	163
<p>General Observations</p> <ul style="list-style-type: none"> • Growing to top of bank • Heavily ivy clad therefore unable to fully survey • Overhead cable passes over crown • Multi-stem at base • Some decay within the heart of the multi-stem arrangement at base • Medium amounts of minor deadwood within crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T3	---	Ash	15.0#	520	6.0	6.0#	5.0#	8.0	2.8 W	2.5	M	Normal	>20	B1	6.3	124
<p>General Observations</p> <ul style="list-style-type: none"> • Growing on bank • Ivy beginning to climb • Fork at approximately 2.8m above ground level • Evidence of historical tree work (crown reduction) within crown • Small amounts of minor sized deadwood within crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T4	264	Ash	15.0#	480	0	5.5#	8.0#	3.0#	2.5 S	5.0#	M	Normal-Poor	>10	C1	6.0	113
<p>General Observations</p> <ul style="list-style-type: none"> • Growing as one of a pair with T5 – tree leans towards south • Evidence of historical tree work within crown • Medium amounts of minor and medium sized deadwood within crown • Overhead cables pass through crown • Lowest branch has a lateral tear, decay, and appears to be dead <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • Remove branch with lateral tear 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
G3	---	Hawthorn, elm, sycamore	3.0-6.0	125# Av.	Extent of tree group as shown on Tree Protection Plan				---	---	M	Normal - Poor	>10	C1	1.5	---
<p>General Observations</p> <ul style="list-style-type: none"> Mixed understorey group growing on bank Some trees are ivy clad, some are in poor condition Overhead cable passes through/over some crowns <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
H1	---	Blackthorn, yew, hawthorn, ivy	0.6-1.5	---	Extent of hedge as shown on Tree Protection Plan				---	0	M	Normal - Poor	---	---	---	---
<p>General Observations</p> <ul style="list-style-type: none"> Visually porous, thin and slightly sporadic hedgerow plants growing to the top of roadside bank <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
T5	274	Ash	15.0#	560	7.0	8.0	5.0#	5.0	4.0 NESW	7.0#	M	Normal - Poor	>10	C1	6.9	150
<p>General Observations</p> <ul style="list-style-type: none"> Growing as one of a pair with T4 Branch tear at 2m above ground level Large amounts of minor and medium sized deadwood within crown Evidence of historical branch removal throughout stem and lower crown with associated cavities <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
G4	---	Sycamore x 4	12.0#	300# Av.	Extent of tree group as shown on Tree Protection Plan				3.0 NESW #	4.0-5.0 Av.	M	Normal	>40	B1	3.6 each stem	---
General Observations <ul style="list-style-type: none"> • Growing to one side of access driveway within a grass bank • Ivy beginning to climb stems Proposed Tree Works <ul style="list-style-type: none"> • --- 																
G5	---	Horse chestnut x 2	7.0-9.0	270# max.	Extent of tree group as shown on Tree Protection Plan				2.5 NESW	3.5	SM	Normal	>40	B1	3.3 each stem	---
General Observations <ul style="list-style-type: none"> • Growing to one side of access driveway within a grass bank • Ivy beginning to climb stems • Old bird nests within canopies Proposed Tree Works <ul style="list-style-type: none"> • --- 																
G6	---	Sycamore x 2	12.0#	360 max.	Extent of tree group as shown on Tree Protection Plan				3.0 NESW	2.5 – 3.0	M	Normal	>40	B1	4.5	---
General Observations <ul style="list-style-type: none"> • Growing to one side of access driveway within a grass bank • Ivy beginning to climb stems Proposed Tree Works <ul style="list-style-type: none"> • --- 																
T6	---	Hawthorn	2.0	100 @ base	0.5	0.5	0.5	0.5	---	1.5	Y	Normal	>10	C1	1.2	5
General Observations <ul style="list-style-type: none"> • Growing adjacent to access track • Poor form – a young tree topped at 1.5m above ground level and sprouting from that point Proposed Tree Works <ul style="list-style-type: none"> • --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
T7	---	Sycamore	12.0#	240 @ base	1.0	3.0	4.5	1.5	3.5 NESW	3.0	SM	Normal	>10	C1	3.0	28
<p>General Observations</p> <ul style="list-style-type: none"> • Growing adjacent to access track • Suppressed by adjacent trees T8 and T9 • Fork at 0.4m above ground level • One co-dominant stem has a vertical split from 1.0-2.0m above ground level <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T8	249	Ash	20.0#	590	2.5#	8.0#	9.0#	6.5#	5.0 S	4.0	M	Normal	>20	B1	7.2	163
<p>General Observations</p> <ul style="list-style-type: none"> • Growing adjacent to access track • Partially ivy clad therefore unable to fully survey • Crown suppressed by adjacent T9 • Medium amounts of minor and minor amounts of medium sized deadwood within crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T9	300	Ash	17.0#	570	4.0#	9.0#	13.0#	3.0#	9.0 NESW	9.0	M	Normal	>10	C1	6.9	150
<p>General Observations</p> <ul style="list-style-type: none"> • Growing adjacent to access track • Fork at 4m above ground level • Vertical split and bark loss to east side of stem to 1.2m above ground level • Tree sounds hollow when tapped with a wooden mallet • Medium amounts of minor and medium sized deadwood within crown • Crown partially suppressed by trees to the north • Over-extended appearance and form to the crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • Remove medium sized deadwood overhanging the access track 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
T10	252	Ash	22.0#	430	5.5#	7.0#	4.0#	4.0#	5.5 W	9.0	M	Normal	>20	B1	5.4	92
<p>General Observations</p> <ul style="list-style-type: none"> • Growing on grass bank • Etiolated form • Medium amounts of minor and minor amounts of medium sized deadwood within crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T11	299	Ash	20#	400	2.5#	1.5#	6.0#	5.0#	7.0 SW	8.0	M	Normal	>20	B1	4.8	72
<p>General Observations</p> <ul style="list-style-type: none"> • Growing on grass bank adjacent to access track • Etiolated form • Bulge at base of stem • Crown predominates toward south • Medium amounts of minor and minor amounts of medium sized deadwood within crown • Ivy beginning to climb • Small, young ash growing immediately adjacent to the base of the tree not surveyed separately <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T12	292	Ash	22.0#	430	2.0#	6.5#	4.0#	6.0#	8.5 W	10.0	M	Normal	>10	C1	5.4	92
<p>General Observations</p> <ul style="list-style-type: none"> • Growing on grass bank immediately adjacent to access track • Etiolated form • Woodpecker holes through main stem to at least 8m above ground level • Small young ash growing adjacent to base not surveyed separately <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
T13	---	Ash	12.0#	460 @ base	9.0#	8.0#	1.5#	2.5#	2.5 S	3.0	M	Normal	>10	C1	5.7	102
<p>General Observations</p> <ul style="list-style-type: none"> • Growing on grass bank • Unidentified bracket fungus at 4m above ground level • Fork at 1.3m above ground level • Tree leans/predominates towards northeast • Minor amounts of minor deadwood within crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T14	---	Ash	22.0#	550	5.0#	8.0#	6.0#	10.0#	8.0 NESW	12.0	M	Normal	>20	B1	6.6	137
<p>General Observations</p> <ul style="list-style-type: none"> • Growing on grass bank • Large amounts of minor and minor amounts of medium sized deadwood within crown • One torn off branch within lower crown • Etiolated form • Ivy beginning to climb <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T15	---	Ash	17.0#	340	2.0#	3.0#	9.0#	5.0#	8.0 NESW	8.0	M	Normal	>10	C1	4.2	55
<p>General Observations</p> <ul style="list-style-type: none"> • Growing adjacent to access track • Large bird's nest within crown • Lopsided crown • Vertical cavity and obvious internal decay at 2.5-3.5m above ground level on main stem • Small amounts of medium sized deadwood within crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
T16	---	Ash	22.0#	690# @ base	6.0#	8.0#	10.0#	8.0#	6.5 W	8.0	M	Normal	>10	C1	8.4	222
<p>General Observations</p> <ul style="list-style-type: none"> • Growing adjacent to access track • Large cavity and adjacent insect boreholes at 1.5-2.0m above ground level • Medium amounts of minor and minor amounts of medium sized deadwood within crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
G7	---	Ash x 3	11.0-20.0#	250# Av.	Extent of tree group as shown on Tree Protection Plan				6.5 W	8.0	M	Normal	>20	B1	3.0	---
<p>General Observations</p> <ul style="list-style-type: none"> • Growing on grass bank • Fair condition group • Medium amounts of minor and medium sized deadwood within group <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
G8	---	Plum x 3, elder x 1	3.0-5.0	175# Av.	Extent of tree group as shown on Tree Protection Plan				---	1.5	M/ OM	Normal	>10	C1	2.1	---
<p>General Observations</p> <ul style="list-style-type: none"> • Slightly scattered group <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T17	---	Sycamore	11.0#	140	4.0#	4.0#	4.0#	4.0#	2.5 S	2.5	SM	Normal	>10	C1	1.8	10
<p>General Observations</p> <ul style="list-style-type: none"> • Growing adjacent to access track • Vertical split to base of sigmoid stem from ground level to 1m above ground level <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
T18	---	Sycamore	11.0#	180	2.0#	2.0#	4.0#	4.0#	2.5 NESW	2.0	SM	Normal	>20	B1	2.4	18
General Observations • --- Proposed Tree Works • ---																
G9	---	Sycamore x 1, field maple x 1	5.0-1.0	180 max.	Extent of tree group as shown on Tree Protection Plan				---	0.5	M	Normal	>10	C1	2.4	---
General Observations • Crown of sycamore suppressed by adjacent tree T19 • Growing adjacent to an informal pedestrian track up into the paddock • Some minor deadwood within crown of sycamore Proposed Tree Works • ---																
T19	---	Sycamore	11.0#	220 430	4.0#	5.0#	8.0#	6.0#	5.0 NESW	6.0	M	Normal	>20	B1	6.0	113
General Observations • Co-dominant stems originate at base • Medium amounts of minor and medium sized deadwood within crown • Growing on a bank adjacent to informal pedestrian track • Dead stump growing to northwest side of tree Proposed Tree Works • ---																
G10	---	Sycamore x 2, field maple x 1	10.0-13.0#	350# Av.	Extent of tree group as shown on Tree Protection Plan				---	1.0	M	Normal	>40	B1	4.2	---
General Observations • Ivy clad trees therefore unable to fully survey • Old bird's nest within field maple Proposed Tree Works • ---																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
T20	---	Sycamore	9.0#	200	2.5#	1.0#	4.0#	1.5#	4.0 S	2.0	M	Normal	<10	U	---	---
<p>General Observations</p> <ul style="list-style-type: none"> Bark loss throughout lower stem and insect boreholes throughout the obvious internal decay column Ivy clad therefore unable to fully survey <p>Proposed Tree Works</p> <ul style="list-style-type: none"> Owner to be made aware of the tree's condition 																
T21	---	Ash	12.0#	220 190	5.0	3.5	2.0	5.0	4.5 NESW	5.0	M	Normal	>20	B1	3.6	41
<p>General Observations</p> <ul style="list-style-type: none"> Growing to one side of informal pedestrian track Co-dominant stems originate at base Ivy clad therefore unable to fully survey <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
G11	---	Sycamore, hawthorn, ash	10.0- 13.0#	350# max.	Extent of tree group as shown on Tree Protection Plan				---	2.0	M	Normal	>20	B1	4.2	---
<p>General Observations</p> <ul style="list-style-type: none"> Belt of trees largely in good condition growing to the sides and top of a soiled bank Some trees are growing adjacent to an access track (to the east) and some within H2 – unable to access to survey Generally the trees are mature or semi-mature There are some smaller and some dead trees within the group <p>Proposed Tree Works</p> <ul style="list-style-type: none"> Remove dead trees 																
H2	---	Blackthorn, plum, hawthorn, ivy	1.0- 1.5	---	Extent of group as shown on Tree Protection Plan				---	0	M	Normal	---	---	---	---
<p>General Observations</p> <ul style="list-style-type: none"> --- <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
G12	---	Hawthorn x 3	4.0-5.0	500# Av.	Extent of tree group as shown on Tree Protection Plan				---	2.0	M/OM	Normal	>20	C1	6.0	---
<p>General Observations</p> <ul style="list-style-type: none"> • Three multi-stem trees growing near the top of a steep bank • Unable to access to fully survey due to topography and scrub at base <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T22	---	Ash	8.5	220	3.0#	3.0#	3.0#	3.0#	2.0 NESW	1.5	SM	Normal	>40	B1	2.7	23
<p>General Observations</p> <ul style="list-style-type: none"> • Growing to the top of a bank – unable to access to fully survey • Kink to stem <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T23	---	Larch	10.0	275#	3.0#	3.0#	2.5#	2.0#	2.0# NESW	2.0	M	Normal	>10	C1	3.3	34
<p>General Observations</p> <ul style="list-style-type: none"> • Unable to access to survey due to bramble and nettles <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
T24	---	Hawthorn	5.5	600# @ base	3.0#	3.0#	2.0#	3.0#	2.0 NESW	1.5	OM	Normal	>20	C1	7.2	163
<p>General Observations</p> <ul style="list-style-type: none"> • Co-dominant stems originate at base • Ivy clad therefore unable to fully survey • Unable to access to fully survey due to topography and brambles at base <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
H3	---	Blackthorn, ivy, plum, bramble	1.0-2.5	---	Extent of hedge as shown on Tree Protection Plan				---	0	M	Normal	---	---	---	---
General Observations <ul style="list-style-type: none"> Sporadic in places Proposed Tree Works <ul style="list-style-type: none"> --- 																
G13	---	Ash x 1, hawthorn x 1	6.0-8.0	350# @ base	Extent of tree group as shown on Tree Protection Plan				---	0	M	Normal	>20	B1/C1	4.2	---
General Observations <ul style="list-style-type: none"> Estimated position of hawthorn Growing on a bank - unable to access to survey Hawthorn is C category Proposed Tree Works <ul style="list-style-type: none"> --- 																
G14	---	Ash, hawthorn, plum	5.0-14.0#	500# Av. @ base	Extent of tree group as shown on Tree Protection Plan				---	---	M/OM	Normal	>20	B1/C1	6.0	---
General Observations <ul style="list-style-type: none"> Growing near the top of a steep bank – unable to access to fully survey Ash is B category Hawthorns are likely to be multi-stemmed Proposed Tree Works <ul style="list-style-type: none"> --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
G15	---	Hawthorn x 2, ash x 1	8.0-14.0	600# Av.	Extent of tree group as shown on Tree Protection Plan				---	---	M/OM	Normal	>10	C1/B1	7.2	---
<p>General Observations</p> <ul style="list-style-type: none"> Trees are growing on a steep bank therefore unable to access to fully survey Hawthorn are C category All trees are heavily ivy clad <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
G16	---	Hawthorn x 1, plum x 1	3.0-4.0	200# Av.	Extent of tree group as shown on Tree Protection Plan				---	---	M	Normal	>10	C1	2.4	---
<p>General Observations</p> <ul style="list-style-type: none"> Growing near the base of slope <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
G17	---	Plum, hawthorn	3.0-5.0	130# Av.	Extent of tree group as shown on Tree Protection Plan				---	1.5	M	Normal	>10	C1	1.8	---
<p>General Observations</p> <ul style="list-style-type: none"> Ivy clad therefore unable to fully survey <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
G18	---	Plum x 3	4.5-5.0	350# max. @ base	Extent of tree group as shown on Tree Protection Plan				---	1.5	M	Normal	>10	C1	4.2	---
<p>General Observations</p> <ul style="list-style-type: none"> Bird's nest in crown of larger tree Overhead cables pass through crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
G19	---	Ash x 2	7.0-8.0	200# max.	Extent of tree group as shown on Tree Protection Plan				---	2.5	SM	Normal	>20	B1	2.4	---
<p>General Observations</p> <ul style="list-style-type: none"> Growing adjacent to/within H3 therefore unable to fully survey Overhead cable passes through crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
H4	---	Hawthorn	0.5-1.5	---	Extent of hedge as shown on Tree Protection Plan				---	0	SM	Normal	---	---	---	---
<p>General Observations</p> <ul style="list-style-type: none"> Sporadic roadside hedge Visually porous <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
H5	---	Plum, field maple, hawthorn	1.5-2.0	---	Extent of hedge as shown on Tree Protection Plan				---	0	M	Normal	---	---	---	---
<p>General Observations</p> <ul style="list-style-type: none"> Visually porous in places <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
T25	---	Ash	20.0#	600#	4.5#	3.5#	4.5#	6.0#	7.0 S	9.0	M	Normal	>10	C1	7.2	163
<p>General Observations</p> <ul style="list-style-type: none"> Unable to access to fully survey due to bramble, nettles and general topography Unidentified bracket fungus at approximately 5m above ground level to south side of main stem Evidence of historical storm damage and tree surgery within crown Woodpecker holes in one major branch at approximately 10m above ground level <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
T26	---	Ash	9.0#	425#	3.0#	3.0#	2.0#	3.0#	3.0 NESW	2.5	M	Normal	>20	C1	5.1	81
<p>General Observations</p> <ul style="list-style-type: none"> Ivy clad therefore unable to fully survey Fork at approximately 3m above ground level Hawthorn growing approximately 2.5m to the south of the tree is dead (un-surveyed) <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
T27	---	Ash	20.0#	425#	5.5#	5.5#	1.0#	2.0#	10.0 NESW	9.0	M	Normal	>10	C1	5.1	81
<p>General Observations</p> <ul style="list-style-type: none"> Unable to access to survey Fork at approximately 9m above ground level Bracket fungus at approximately 9m above ground level on main stem Storm damage evident within crown Medium amounts of minor and medium sized deadwood within crown Apparently dead hawthorn growing some 2m to the east of the stem (un-surveyed) <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
T28	244	Ash	20.0#	580	6.0#	9.0#	7.5#	4.5#	9.0 NESW	11.0	M	Normal	>10	C1	7.2	163
<p>General Observations</p> <ul style="list-style-type: none"> Cavity at old branch removal point at 3m above ground level Woodpecker holes to 4m above ground level Historical storm damage within crown with torn branch ends <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
G20	---	Sycamore x 2	6.0-15.0#	350# Av.	Extent of tree group as shown on Tree Protection Plan				2.5 NESW	2.5	M	Normal	>20	B1	4.2	---
<p>General Observations</p> <ul style="list-style-type: none"> Partially ivy clad therefore unable to fully survey One tree has co-dominant stems originates at 0.5m above ground level A dead adjacent tree rests within the canopy of the southern-most tree (un-surveyed) <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
T29	275	Ash	20.0#	700	6.0#	7.0#	5.0#	7.0#	7.0 S	8.0	OM	Poor	<10	U	---	---
<p>General Observations</p> <ul style="list-style-type: none"> Evidence of historical tree surgery within crown Overhead cable passes below crown Woodpecker holes at approximately 10m above ground level Large amounts of all sizes of deadwood within crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> 																
T30	---	Ash	11.0#	800# @ base	4.0#	7.0#	3.0#	3.0#	3.0 NESW	2.0	M	Normal	>10	C1	9.6	290
<p>General Observations</p> <ul style="list-style-type: none"> Multi-stem at base Large amounts of storm damages/branch reduction within lower crown Overhead cables pass through crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
T31	---	Ash	12.0#	410	2.5#	6.0#	6.0#	2.0#	5.0 SW	5.0	M	Poor	<10	U	---	---
<p>General Observations</p> <ul style="list-style-type: none"> Decay point at approximately 3.5m above ground level – two points of ruptured bark below this point Lopsided crown Overhead cables pass through crown Large amounts of minor and medium sized deadwood within crown Scanty crown and leaf cover <p>Proposed Tree Works</p> <ul style="list-style-type: none"> Owner to be made aware of the tree's condition 																
T32	---	Sycamore	15.0#	330	4.0#	4.0#	4.0#	4.0#	6.0 NESW	2.5	M	Normal	>40	B1	4.2	55
<p>General Observations</p> <ul style="list-style-type: none"> Ivy beginning to climb <p>Proposed Tree Works</p> <ul style="list-style-type: none"> --- 																
T33	260	Ash	20.0#	650	8.0#	11.0#	11.0#	8.0#	6.5 E	8.0	M	Poor	<10	U	---	---
<p>General Observations</p> <ul style="list-style-type: none"> Fork at 6m above ground level Large unidentified (old) bracket fungus at 1m above ground level and at 1.3m above ground level Medium amounts of all sizes of deadwood within crown Tree sounds hollow when tapped with a wooden mallet Overhead cables pass through crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> Owner to be made aware of tree's condition 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
T34	---	Ash	19.0#	570	6.0#	6.5#	6.5#	5.0#	3.5 NESW	2.5	M	Normal	>20	B1	6.9	150
<p>General Observations</p> <ul style="list-style-type: none"> • Growing adjacent to driveway entrance • Deep, open excavation approximately 2m to the west side of the stem • Ivy clad therefore unable to fully survey • Decay within torn branch end at 2.5m above ground level • Overhead cables pass through crown • Medium amounts of minor and small amounts of medium sized deadwood within crown <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
G21	---	Oak x 1, plum x 1	3.0-12.0	375# max.	Extent of tree group as shown on Tree Protection Plan				---	---	M	Normal	>40	B1	4.5	---
<p>General Observations</p> <ul style="list-style-type: none"> • --- <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																
G22	---	Mountain ash, field maple, horse chestnut, Norway maple, hornbeam, birch, hawthorn, cherry	3.0-7.0	125# Av.	Extent of tree group as shown on Tree Protection Plan				---	1.0	Y/SM	Normal	>20	B1	1.5	---
<p>General Observations</p> <ul style="list-style-type: none"> • Young, planted group enclosed from the paddock by a post and rail fence • Many trees within the group are young and below the British Standard stem diameter <p>Proposed Tree Works</p> <ul style="list-style-type: none"> • --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
H6	---	Field maple, hawthorn, dogwood, hazel	2.0	---	Extent of hedge as shown on Tree Protection Plan				---	0	M	Normal	---	---	---	---
General Observations <ul style="list-style-type: none"> Managed field hedge One or two small horse chestnut trees planted within hedge (un-surveyed) Proposed Tree Works <ul style="list-style-type: none"> --- 																
H7	---	Field maple, hawthorn, hazel, dogwood	2.0	---	Extent of hedge as shown on Tree Protection Plan				---	0	M	Normal	---	---	---	---
General Observations <ul style="list-style-type: none"> Managed field hedge Proposed Tree Works <ul style="list-style-type: none"> --- 																
H8	---	Hawthorn, hazel	1.0	---	Extent of hedge as shown on Tree Protection Plan				---	0	M	Normal	---	---	---	---
General Observations <ul style="list-style-type: none"> Managed field hedge Proposed Tree Works <ul style="list-style-type: none"> --- 																
H9	---	Hawthorn, bramble	2.5	---	Extent of hedge as shown on Tree Protection Plan				---	0	M	Normal	---	---	---	---
General Observations <ul style="list-style-type: none"> Single field maple emerged at western end (un-surveyed) Proposed Tree Works <ul style="list-style-type: none"> --- 																

Tree Ref. No.	Tag No.	Tree Species	Height (m)	Stem Diameter (mm)	Branch Spread (m)				Height to First Branch and orientation (m)	Height of Crown Clearance (m)	Age class	Physiological Condition	Estimated remaining contribution	Category Grading	Root Protection Area (radius m)	Root Protection Area (m2)
					N	E	S	W								
P1	---	Hazel, field maple, poplar, Norway maple, Leyland cypress, cherry, fir	5.0-12.0#	175# Av.	Extent of plantation group as shown on Tree Protection Plan				---	0.5	Y/SM	Normal	>40	B1	2.1	---
General Observations <ul style="list-style-type: none"> Relatively young plantation of mixed species trees Some trees within the plantation are below the British Standard stem diameter Proposed Tree Works <ul style="list-style-type: none"> --- 																
P2	---	Hazel, field maple, Norway maple, oak, dogwood, poplar, fir, birch	5.0-12.0#	200# Av.	Extent of plantation group as shown on Tree Protection Plan				---	0.5	Y/SM	Normal	>40	B1	2.4	---
General Observations <ul style="list-style-type: none"> Relatively young plantation of mixed species trees Some trees within the plantation are below the British Standard stem diameter Proposed Tree Works <ul style="list-style-type: none"> --- 																
H10	---	Field maple, hawthorn, sycamore, blackthorn, ivy, dogwood	2.0-3.0	---	Extent of hedge as shown on Tree Protection Plan				---	0	M	Normal	---	---	---	---
General Observations <ul style="list-style-type: none"> Growing to the top of a bank Managed field hedge Slightly visually porous in places but generally providing a dense screen Proposed Tree Works <ul style="list-style-type: none"> --- 																

Table 2 Tree Report

6.0 ARBORICULTURAL IMPACT ASSESSMENT

Evaluation of the direct and indirect effects of the proposed design and where necessary to propose mitigation. The following headings have been taken directly from BS 5837:2012.

6.1 Constraints posed by existing trees

6.1.1 Current and ultimate height and spread of the trees.

Refer to table 3.

6.1.2 Species characteristics

Key

Species	Common name
Characteristics	General tree characteristics.
Water demand	Water demand as described within NHBC Chapter 4.2 Building near trees.
	L Low
	M Moderate
	H High
Ultimate tree height	Maximum height the tree is expected to grow to when fully mature.
Ultimate tree spread	Maximum crown spread the tree is expected to grow to when fully mature.
Deciduous/Evergreen	D Deciduous
	E Evergreen

Species	Characteristic	Water Demand	Ultimate tree height (m)	Ultimate crown spread (m)	Deciduous evergreen
Ash		M	23	15	D
Birch	<ul style="list-style-type: none"> Short lived tree (<100 yrs) 	L	14	10	D
Blackthorn	<ul style="list-style-type: none"> Thorny branches 	M	8	10	D

Species	Characteristic	Water Demand	Ultimate tree height (m)	Ultimate crown spread (m)	Deciduous evergreen
Cypress (Leyland)	<ul style="list-style-type: none"> • AYR Dense foliage • Potential neighbourly dispute tree 	H	20	8	E
Cherry (Wild)	<ul style="list-style-type: none"> • Shallow rooting 	M	17	10	D
Douglas Fir		M	20	10	E
Elder	<ul style="list-style-type: none"> • Fruit fall 	L	10	5	D
Elm (English)	<ul style="list-style-type: none"> • Produces suckering shoots 	H	24	5	D
Fir		-	18	8	E
Hawthorn	<ul style="list-style-type: none"> • Thorny branches 	H	10	8	D
Hazel		L	8	5	D
Holly	<ul style="list-style-type: none"> • AYR Dense foliage • Thorny leaves 	L	12	5	E
Hornbeam		L	17	12	D
Horse chestnut	<ul style="list-style-type: none"> • Fruit fall 	M	20	20	D
Larch		M	20	10	E
Maple (Field)		M	15	10	D
Maple (Norway)		M	8	15	D
Mountain Ash	<ul style="list-style-type: none"> • Short lived tree (<100 yrs) 	M	11	8	D
Oak (English)	<ul style="list-style-type: none"> • Fruit fall 	H	20	20	D
Plum	<ul style="list-style-type: none"> • Fruit fall • Produces suckering shoots 	M	10	8	D
Poplar (Hybrid Black)	<ul style="list-style-type: none"> • Known to cause subsidence 	H	28	15	D
Sycamore	<ul style="list-style-type: none"> • Susceptible to honeydew 	M	22	15	D

Table 3 Tree Characteristics

6.2 Factors taken into account during the design process

6.2.1 Presence of Tree Preservation Orders

Refer to paragraph 3.3.

6.2.2 Potential incompatibilities between the layout and trees proposed for retention.

The proposed access road will require the removal of trees, both within the footprint of the road and, where cutting through banks, where retaining structures or grading will be required. Where such retention and/or grading works results in a minor incursion into the extremities of the RPAs of adjacent trees, and these are otherwise growing within open ground, it is proposed to retain these trees and construct the retention / roadway as if there were no incursion.

6.2.3 The working and access space needed for the construction of the proposed development.

Suitable working and access space is available for the construction of the proposed development, refer to the Tree Protection Plan and approved site layout plans.

6.2.4 The effect that construction requirements might have on the amenity value of trees, both on and near the site, including the effects of pruning to facilitate access and working space.

i) As ‘amenity’ has not been defined either within BS 5837:2012 or the current TPO legislation, it can, therefore, only be defined as part of a subjective opinion. In the opinion of Open Spaces ‘amenity’ has been defined as ‘something which is enjoyed by members of the public’ and therefore a substantial part of the tree must be able to be seen from a public place. From this statement, many of the trees can be seen from a Public Right of Way (PRoW) and therefore these trees have amenity value.

ii) The requirements for construction will affect the amenity value of trees growing on the site in the following ways

- Trees will be removed.

#

iii) It is intended that all retained trees are protected throughout the duration of the development and in a manner which will allow the agreed development to take place, refer to paragraph 8.0.

6.2.5 The requirement to protect the overhanging canopies of trees where they could be damaged by machinery, vehicles, barriers or scaffolding, where it will be necessary to increase the extent of the tree protection barriers to contain the canopy.

Where feasible, tree protection barriers are proposed, as a minimum, to the edge of the retained tree’s canopy or edge of the RPA, whichever is greatest. Refer to the Tree Protection Plan for precise details. Where construction works or other related activities are necessary within the crown spread of a retained tree, mitigation as set out below is proposed or the construction activity poses no threat to the overhanging canopy.

6.2.6 Infrastructure requirements in relation to trees, e.g. easements for underground or above-ground apparatus: highway safety and visibility splays: and other infrastructure provisions, such as substations, refuse stores, lighting, signage, solar collectors, satellite dishes and CCTV sightlines:

Refer to layout drawings.

6.2.7 The proposed end use of the space adjacent to retained trees.

- Hard paving surfaces for pedestrians.
- Hard paving surfaces for vehicles.
- Residential houses.
- Garden areas.

6.2.8 The potential for new planting to provide mitigation for any tree losses.

There is potential for new tree planting.

6.2.9 The proximity of structures to trees.

Refer to tree protection plan.

6.3 Additional elements to be included within the Arboricultural Impact Assessment

6.3.1 The tree survey

Refer to paragraph 5.2.

6.3.2 Trees selected for retention.

The following trees will be retained:

T4, T5, G3, G4, G7, G9, G10, T15, T16, G11 (partial), G12-G21, T17, T18, T20-T33, P1, P2.

The following hedges will be retained:

H1 (partial), H2, H3, H4 (partial), H5, H6, H7 (partial – fragment only), H8, H9, H10.

Refer to Tree Protection Plan.

6.3.3 Trees to be removed

The following trees will be removed:

T1-T3, G1, G2, G5, G6, T6-T14, G11 (partial), T19, T34, G22.

The following hedges will be removed:

H1 (partial), H4 (partial), H7 (partial – majority).

Refer to Tree Protection Plan.

6.3.4 Trees to be pruned.

The following tree works will be carried out:

Tree Nr.	Tree Works
T4	<ul style="list-style-type: none"> Remove the branch with the lateral tear

Refer to Tree Protection Plan and the tree report.

6.3.5 Areas designated for structural landscaping that needs to be protected from construction operations.

Refer to layout drawings.

6.3.6 Evaluation of impact of proposed tree losses.

There will be high impact from the loss of the trees to the front of the site (T1, T2, T3, G1, G2, T34).

There will be moderate to high impact from the loss of the trees growing internal to the site to the sides of the existing and proposed access track. Currently they contribute to the overall backdrop, however, they would be more visible from the road once the road frontage trees are removed.

There will be moderate impact from the loss of G22 within the upper paddock area as this is visible from a distance, being on higher ground.

Tree Category	Tree Reference No.
A	---
B	T1, T3, G5, G6, G11 (partial), T8, T10, T11, T14, T19, T34, G22.
C	T2, G1, G2, T6, T7, T9, T12, T13.
U	---

6.3.7 Evaluation of tree constraints and draft tree protection plan.

Refer to paragraph 6.2.2.

6.3.8 Issues to be addressed in the AMS. (Where necessary in conjunction with input from other specialists)

- a) Site construction access.
- b) The intensity and nature of the construction activity.
- c) Contractors car parking.
- d) Phasing of construction works
- e) The space needed for foundation excavations and construction works.
- f) The availability of special construction techniques to include:
 - Demolition of buildings or structures.
 - Removing existing hard surfaces.
 - Excavating trenches to determine the presence of roots.
 - Constructing foundations
 - Constructing Hard Standing/Roadways/Pathways etc.
 - Constructing external walls
 - Constructing retaining walls
 - Erecting fencing, railings and gates.
 - Decompacting underlying soils
 - Laying below ground utilities.
 - Root barriers
- g) Location and space needed for all temporary and permanent apparatus and service runs.
- h) Changes in ground level including the location of retaining walls, steps and their foundations.
- i) Working space for cranes, plant, scaffolding and access during works.
- j) Space for site huts, temporary toilet facilities (including their drainage) and other temporary structures.
- k) The type and extent of landscape works which will be needed within the protected areas and the effects these will have on the root system.

- l) Space for storing materials, spoil and fuel and the mixing of cements and concrete.
- m) The effects of slope on the movement of potentially harmful liquid spillages towards or into protected areas.
- n) Preparatory works for new landscaping.
- o) Auditable system of arboricultural site monitoring.
- p) List of contact details for the relevant parties.

7.0 ARBORICULTURAL METHOD STATEMENTS

7.1 Site construction access.

Access to the site will be from the adjacent road via existing hard surfaces / roadways and temporary ground protection.

7.2 The intensity and nature of the construction activity.

It is intended to carry out the following operations to complete the agreed development:

- Erection of tree protection methods.
- Carry out site clearance operations.
- Carry out demolition works.
- Set up or identify site facilities, site hut, toilet facilities, storage areas and mixing areas as required. The order will rely on the sequence of works.
- Carry out development to include:
 - Construction works
 - Drainage works
 - Installation of underground services
 - Ground works
- Remove tree protection measures.
- Carry out, where required, soil de-compaction within the RPA of retained trees.
- Where required, implement soft landscaping works.

7.3 Contractors car parking.

No car parking will occur within the RPA of any retained tree other than on existing hard surfaces, roads or temporary ground protection.

7.4 Phasing of construction works

Refer to the Contractor's time frame for construction works.

7.5 The space needed for foundation excavations and construction works.

- i) Refer to construction/layout drawings.
- ii) Where vehicular or plant access is required within the RPA or any personnel required to work within the RPA, temporary ground protection will be used to work off. Refer to paragraph 8.3.

7.6 The availability of special construction techniques to include:

7.6.1 Demolition of Buildings or Structures

There is no proposal to carry out any demolition works within or in close proximity to the RPA of a retained tree.

7.6.2 Removing Existing Hard Surfaces

If any existing hard surface requires removal, it can be pulled out with either of the following methodologies:

- i) Remove wearing course and any base or sub-base with the use of hand tools only.
- ii) Remove wearing course and any base or sub-base with the use of a wide, non-toothed bucket attached to an extending arm of an excavator. The excavator must work either off the hard surface and gently scrape any construction material (not soil or turf) towards itself, or, if the excavator is sited outside of the RPA, it may operate as normal but must not excavate into any soils with the RPA.
- iii) All removed materials will be stored or placed outside of the RPA of any retained tree or, if stored or placed within the RPA of any retained tree, on ground protection suitable to carry the load of any spoil or vehicle without compacting the underlying soils.

7.6.3 Excavating Trenches to Determine the Presence of Tree Roots

If an exploratory trench is required to determine the presence of tree roots, it is to be excavated in accordance with the following:

- i) All trenching to be carried out with the use of hand tools only. On no account, will any mechanical or powered excavator be used. An air spade approved for such works may be used.
- ii) Trenches to be excavated to a minimum depth of 600mm.
- iii) Refer to paragraph 7.15 which must be complied with if any root greater than 25mm in diameter is encountered.

7.6.4 Constructing Foundations of Buildings

There is no proposal to construct any foundation within the RPA of any retained tree.

7.6.5 Constructing Hard Standing/Roadways/Pathways etc.

There is no proposal to construct any hard standing, roadway or pathway within the RPA of any retained tree.

7.6.6 Constructing External Walls

There is no proposal to construct any external wall within the RPA of any retained tree.

7.6.7 Constructing Retaining Walls

There is no proposal to construct any retaining wall within the RPA of any retained tree save for minor incursions into the extremities of RPAs of T21, and two trees at the end of the retained part of G11. Refer also to paragraph 6.2.2.

7.6.8 Erecting Fencing, Railings, Gates or Bollards

Should the need arise to erect any fencing, railing, gate or bollard within the RPA of any retained tree, the following methodology will be followed:

- i) Trial holes to determine the presence of tree roots to be hand dug to a depth of 600mm at the location of each post or bollard. Roots with a diameter greater than 25mm to be cut in accordance with paragraph 7.15. Roots with a diameter greater than 50mm will require the agreement of the LPA prior to removal or will require the post to be moved thereby missing the tree root altogether, refer to paragraph 7.15.
- ii) All fencing/railing works within the RPA of retained trees to be carried out by working off suitable temporary ground protection or running boards laid adjacent to the line of the fencing or railing.
- iii) All removed materials will be stored or placed outside of the RPA of any retained tree or, if stored or placed within the RPA of any retained tree, on temporary ground protection suitable to carry the load of any spoil or vehicle without compacting the underlying soils.
- iv) No mixing of any concrete or storage of any material to occur within the RPA of any retained tree.
- v) A non-permeable lining sheet will be placed into the open hole or adjacent to any soil prior to the pouring of any concrete to ensure that wet concrete does not come into contact with any tree root.
- vi) All excavated post holes within the RPA of a retained tree will be lined with an impermeable flexible membrane prior to pouring any concrete or cement based product to prevent leaching of any material into the rooting zone.

7.6.9 Laying Below Ground Utilities.

Should there become a need to install any underground cable or other service within the RPA of a retained tree, the guidelines as set out within BS 5837:2012 (paragraph 7.7) will be adhered to. Refer also to paragraph 7.7 of this report. In general, the following must be adhered to:

- Below ground services to be contained within a single duct.
- Inspection chambers will be sited outside of the RPA.

- For shallow service runs, excavating of trenches to be in accordance with paragraph 7.15.
- For all other services refer to BS 5837:2012 Table 3.

7.6.10 Root Barriers

There is no intention to install any root barrier.

Should there become a need to install a root barrier, it will be installed in the location(s) shown on the layout drawings, in accordance with the manufacturer's/suppliers instructions.

7.7 Location and space needed for all temporary and permanent apparatus and service runs.

Refer to site layout drawings for location of service runs, gulleys, drains, pipes, cables, cabinets, below ground boxes, etc. within the RPA of retained trees.

7.8 Changes in ground level including the location of retaining walls, steps and their foundations.

There will be no unapproved alteration of the existing ground (soil) level within the RPA of any retained tree by either the addition or removal of material. It is acceptable to grade soil from existing levels to the upper limit of no-dig constructed hard surfaces.

7.9 Working space for cranes, plant, scaffolding and access during works.

If there is a requirement to use any crane, plant or scaffolding within the RPA of any retained tree, they will work off existing road and/or other hard surfaces or off temporary ground protection.

7.10 Space for site huts, temporary toilet facilities (including their drainage) and other temporary structures.

7.10.1 Site hut

No site hut will be set up within the exposed RPA of any retained tree unless the following is strictly adhered to:

- i) The site hut is set onto a suitably hard surface which will not result in compaction of the underlying soil.
- ii) The site hut is set onto wooden bearers approximately 250 x 250 x 2000mm which have been laid approximately 2m apart. The bearers will be laid on 25-50mm bed of sharp sand over a geotextile membrane to take up any undulation within the existing surface. The bearers will take the full weight of the site hut and the site hut will have no direct contact with the ground.
- iii) With the approval of the LPA, the site hut may form part of the tree protection fencing.

- iv) No part of the site hut will damage any root or branch.

7.10.2 Site Toilet

Site toilet will be set up outside the exposed RPA of any retained tree unless placed on temporary ground protection. No pipe or pit will be laid or excavated within the RPA of a retained tree.

7.11 The type and extent of landscape works which will be needed within the protected areas and the effects these will have on the root system.

Refer to the approved layout plan.

7.12 Space for storing materials, spoil and fuel and the mixing of cements and concrete.

- i) All materials spoil and fuel storage will be outside of the RPA of any retained tree.
- ii) The mixing of cement and concrete will occur within an area to be designated but outside of the RPA of any retained tree.
- iii) If, during the course of the works, it becomes necessary to store material, or mix cement or concrete within the RPA of a retained tree, the following will be adhered to:
 - a) No material will have direct contact with the ground
 - b) All storage/mixing will be carried out on suitable ground plates – Refer to paragraph 8.3.

7.13 The effects of slope on the movement of potentially harmful liquid spillages towards or into protected areas.

- i) If there is any doubt that spillage of any material, liquid or chemical may occur, dams or similar will be erected prior to the start of the operation.
- ii) Dams will be formed from sand bags.
- iii) Any liquid spillage will, in the first instance be soaked up with sand or other suitable material to prevent it spreading and to make its removal less complicated.
- iv) The spilt liquid, sand etc. will be removed from the RPA as quick and timely manner.
- v) The site Forman will notify the arboricultural consultant at the first opportunity and will carry out any remedial works as the arboricultural consultant sees fit.

7.14 De-compacting Underlying Soils

- i) On completion of construction works, but prior to soft landscape works, any area of the RPA which has suffered compaction, will be de-compacted using a high-pressure device. The lance of the device to be inserted into the ground to a minimum depth of 300mm. The de-compacting to be carried out by an approved contractor who has experience in carrying out such works.
- ii) If any area within the RPA is compacted during the construction phase and cannot be de-compacted at the end of works, e.g. surfaces, driveways, paths etc. the underlying soil will be de-compacted immediately prior to any surface being laid over.

7.15 Roots cut during the works

- i) There is no pre-intention to cut or sever any root of any tree to be retained.
- ii) If, during the approved works any root from any tree to be retained requires removal, it will be paired back ideally to a suitable side shoot with a clean sharp knife, bypass secateurs or pruning saw.
- iii) Any root to be removed greater than 25mm in diameter or any root less than 25mm in diameter but occurring in clumps will require the agreement of the Arboricultural Consultant.
- iv) If, during the course of the approved works, it is necessary to expose any root greater than 25mm in diameter, clump of roots or any other root which is to be retained, the following procedure will be carried out at the first opportunity:
 - All works to be carried out using hand tools only. On no account, will machinery be used to carry out any excavation, back-filling or compaction work. On no account, will any vehicle drive onto any exposed part of the RPA.
 - All damaged and exposed roots within the excavated pits or trenches must be pared back, ideally to a side shoot. Sharp cutting implements must be used such as a clean sharp knife, bypass secateurs or pruning saw.
 - Prior to back-filling, cover all exposed roots with Hessian sacking to prevent freezing and desiccation of the roots. Remove this sacking immediately prior to back-filling.
 - Back-fill the open excavated pit or trench with an open structured top soil containing clean grit (builder's sand or other fine sands must not be used). Ensure that no air pockets are created during this process and allow for natural settlement of the soil.
 - It will be necessary to top up after settlement has occurred to ensure that surface water can run off without collecting in the depression caused by settlement.

- If any wet concrete or other noxious substance is laid or poured onto or immediately adjacent to any tree root, the root will be covered with a waterproof vapour barrier or the concrete or other works isolated from the adjacent soil with an impermeable plastic barrier or sheet.

7.16 Preparatory works for new landscaping.

- i) Cultivation of any proposed shrub bed within the RPA of any tree to be retained will be carried out using hand tools only.
- ii) All planting works within the RPA of retained trees will be carried out by hand.
- iii) Sub-soil areas will be broken up to a depth of 100mm by hand prior to spreading of top soil.
- iv) Top soil may be spread over proposed soft landscape areas (previously covered by the concrete or other hard surface) and be graded to adjacent levels.

7.17 Auditable system of arboricultural site monitoring.

- i) Open Spaces Landscape and Arboricultural Consultants Limited Tel: 01277 356511 is the main point of contact for all arboricultural issues.
- ii) The site may be monitored for arboricultural related matters (this may be conditioned by the LPA).
- iii) The Arboricultural Consultant should be consulted and required to attend site in relation to any of the following operations:
 - Installation of tree protection measures including both protective barriers and temporary ground protection prior to the start of any site works. With the agreement of the arboricultural consultant and in accordance with this document, site clearance may be carried out prior to the installation of tree protection measures.
 - Moving of any tree protection barrier or temporary ground protection.
 - Opening up the construction exclusion zone to carry out approved works.
 - Cutting of any root greater than 25mm diameter.
 - Prior to carrying out tree surgery which is not included within the approved documentation.
 - Immediately after any tree is damaged by any contractor, machinery, plant, vehicle or storm.
- iv) As part of the auditable system, the arboricultural consultant will maintain a record of all tree monitoring visits including any advice given, if required the monitoring records will be forwarded to the LPA.

- v) Refer to Appendix A for a copy of the site monitoring form.
- vi) The contractor/Supervisor is required to comply with the following:
 - Have regard to retained trees at all times.
 - Install tree protection measures in accordance with the 'Tree Protection Plan' (TPP) and 'Arboricultural Method Statements'.
 - Retain a copy of the TPP and AMS in the site office at all times.
 - Make available a copy of the TPP and AMS to all site workers and visitors as required.
 - Inform all site workers and visitors their responsibilities in relation to protected trees.
 - Carry out pre-commencement site meeting with the 'Appointed Arboricultural Consultant' (**AAC**).
 - Check the tree protection fencing and temporary ground protection daily to ensure that they are sited in full compliance with the TPP and AMS. If there is any deviation from the TPP and/or AMS, the Site Supervisor will re-align each.
 - Inform the AAC, in accordance with the AMS, if any additional site monitoring/inspection visits are required.
 - Carry out all site works in accordance with the TPP and AMS.

7.18 List of contact details for the relevant parties.

Job Position	Name	Company	Address	Contact Nr.
Client		Rocol Estates Ltd	Lake House Market Hill Royston SG8 9JN	---
Architect	Mr T Coombs	BRD Tech Ltd	1a Church Street Sawbridgeworth CM21 9AB	01279 600110
Arboricultural Consultant	Karolyn Mowll	Open Spaces Landscape and Arboricultural Consultants Ltd	2 Monument Offices Hall Farm Maldon Road Woodham Mortimer Essex CM9 6SN	01277 356511 km@open- spaces.co.uk
LPA Tree Officer		Epping Forest District Council	Civic Offices High Street Epping Essex CM16 4BZ	01992 564000
LPA Tree Officer	---	Uttlesford District Council	Council Offices London Road Saffron Walden Essex CB11 4ER	01799 510510

Table 4 Contact details

8.0 TREE PROTECTION MEASURES

8.1 Construction Exclusion Zone

- i) It is a requirement within BS 5837:2012, that an area identified as the Root Protection Area (**RPA**) together with an area comprising of the whole of the tree's canopy is protected during the course of the development. This area is called the Construction Exclusion Zone (**CEZ**) and will be protected from entry by pedestrians, vehicles, plant and other machinery with suitable rigid barriers unless prior agreement with the LPA is agreed.
- ii) The CEZ is identified on the tree protection plan and may extend beyond the RPA and/or canopy of any retained tree.
- iii) The CEZ may also extend beyond the area required to protect trees and their RPA's to areas of existing and proposed soft landscaping to ensure that these areas are afforded protection during the course of the works.
- iv) The Main Contractor, Site Supervisor and anyone working on the site is to be informed of the required methodology to protect trees with rigid barriers as set out within this document. If there is any concern the Arboricultural Consultant will be informed and in accordance with paragraph 7.17, will visit the site to make, if required, recommendations to ensure the site complies with planning conditions, BS 5837:2012 and good arboricultural practice. In any event, the Arboricultural Consultant is required to carry out monitoring visits in accordance with paragraph 7.17.
- v) The approved 'Tree Protection Plan' is to be forwarded to the Main Contractor and Site Supervisor for their reference. A copy should be made available to all site workers.
- vi) No vehicles will be driven over or pedestrians pass over the exposed RPA of any retained tree. If vehicles/pedestrians are required to cross the exposed RPA of any retained tree, suitable tree protection measures will have been put in place and approved by the arboricultural consultant. Such measures will include temporary ground protection which can support the load of all vehicles accessing that part of the site. Refer to paragraph 8.3.
- vii) No equipment or materials to be stored or mixed within the RPA unless conforming to this Method Statement. All works are to be carried out using hand tools only or as specified within this Method Statement.
- viii) Any alteration in soil level within the RPA must be agreed with the LPA. Normally, no change in soil levels will be acceptable.
- ix) Protective barriers or temporary ground protection will be removed to allow approved construction operations within the CEZ to go ahead. On completion, the tree protection barriers will be replaced or where appropriate placed to the edge of any new hard surface, constructed in such a way as to prevent compaction of the underlying soils.

- x) If appropriate and with the agreement of the Arboricultural Consultant and/or the LPA, pre commencement tree works may be carried out prior to the erection of tree protection measures.

8.2 Tree Protection Barriers (TPB)

- i) Tree protection barriers in accordance with paragraph 8.2 (iii) and figure 2 will be installed at the commencement of any works on site and will remain for the duration of works, excluding soft landscaping. The Main Contractor will be responsible for supplying all materials, erection and removal of all tree protection barriers.
- ii) BS 5837:2012 states the default specification for rigid barriers should consist of the following. Refer also to figure 1.
- Vertical and horizontal scaffold framework which is well braced to resist impacts.
 - The vertical tubes to be spaced at a maximum interval of 3m and driven securely into the ground.
 - Weld-mesh panels to be securely fixed to the scaffold framework.
 - Vertical poles should avoid underground services and structural roots.
- iii) Where the default specification is not necessitated due to a lower level of risk of incursion into the CEZ, the following specification may be agreed with the Arboricultural Consultant or LPA. Refer also to figure 2.
- 2m tall weld-mesh panels on rubber or concrete feet.
 - A minimum of two anti-tampers couplers per panel to join adjacent panels together. Couplers to be attached so that they can only be removed from within the CEZ.
 - Couplers to be attached 1m apart and uniformly along the barrier.
 - The panels are to be supported on their inner side with stabiliser struts which is attached to a base plate secured with ground pins.
 - Where the barrier is to be set up on a hard surface or where it is not feasible to use ground pins, the stabiliser struts should be mounted on a block tray.
- iv) An all-weather notice should be attached to the barrier with the words: 'CONSTRUCTION EXCLUSION ZONE - NO ACCESS'
- v) Tree protection barriers to be checked daily by the Site Supervisor. If any movement has occurred from that set out on the tree protection plan, the fencing will be re-aligned.

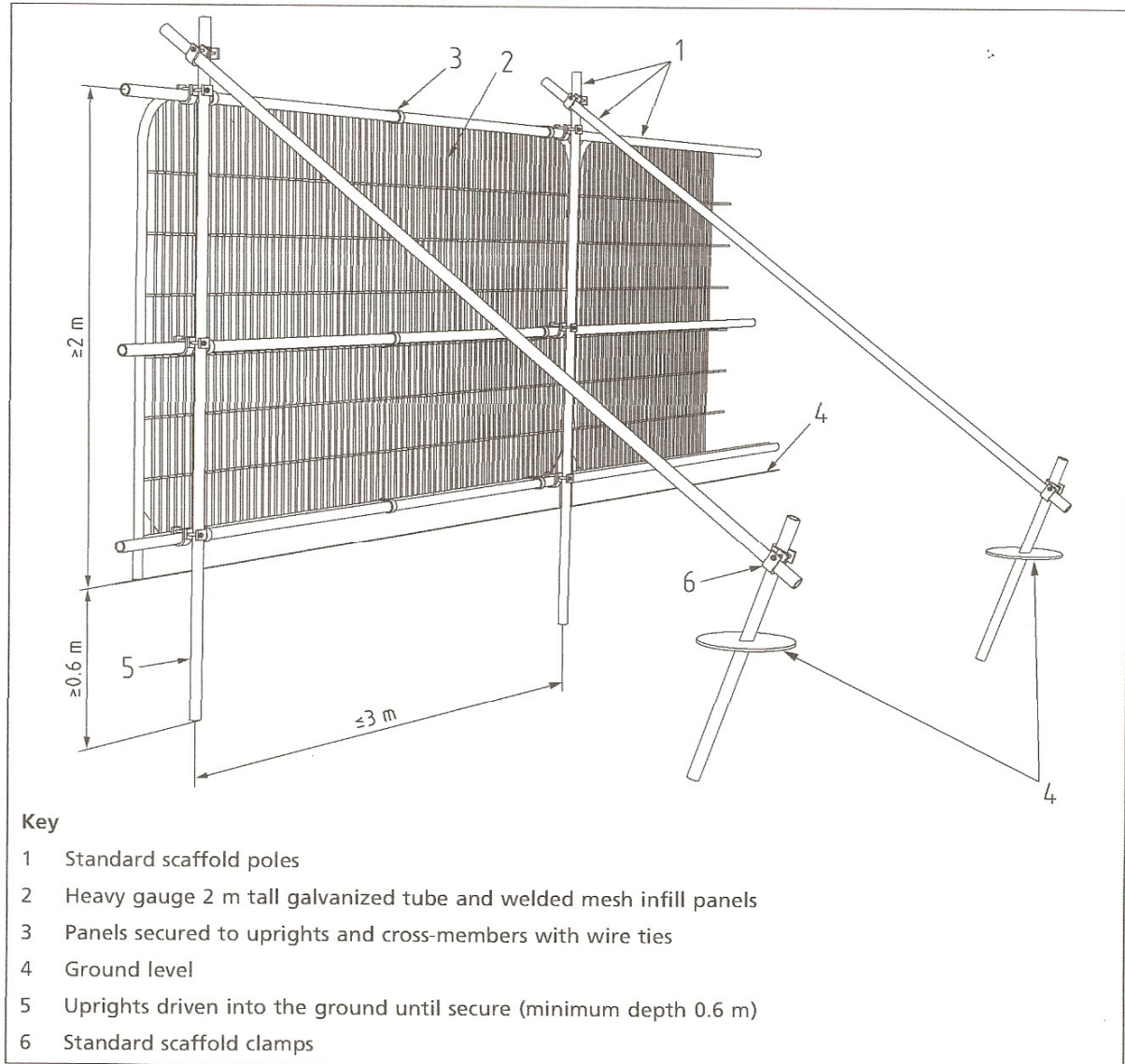


Figure 1.

BS 5837:2012 Default Tree Protection Barrier

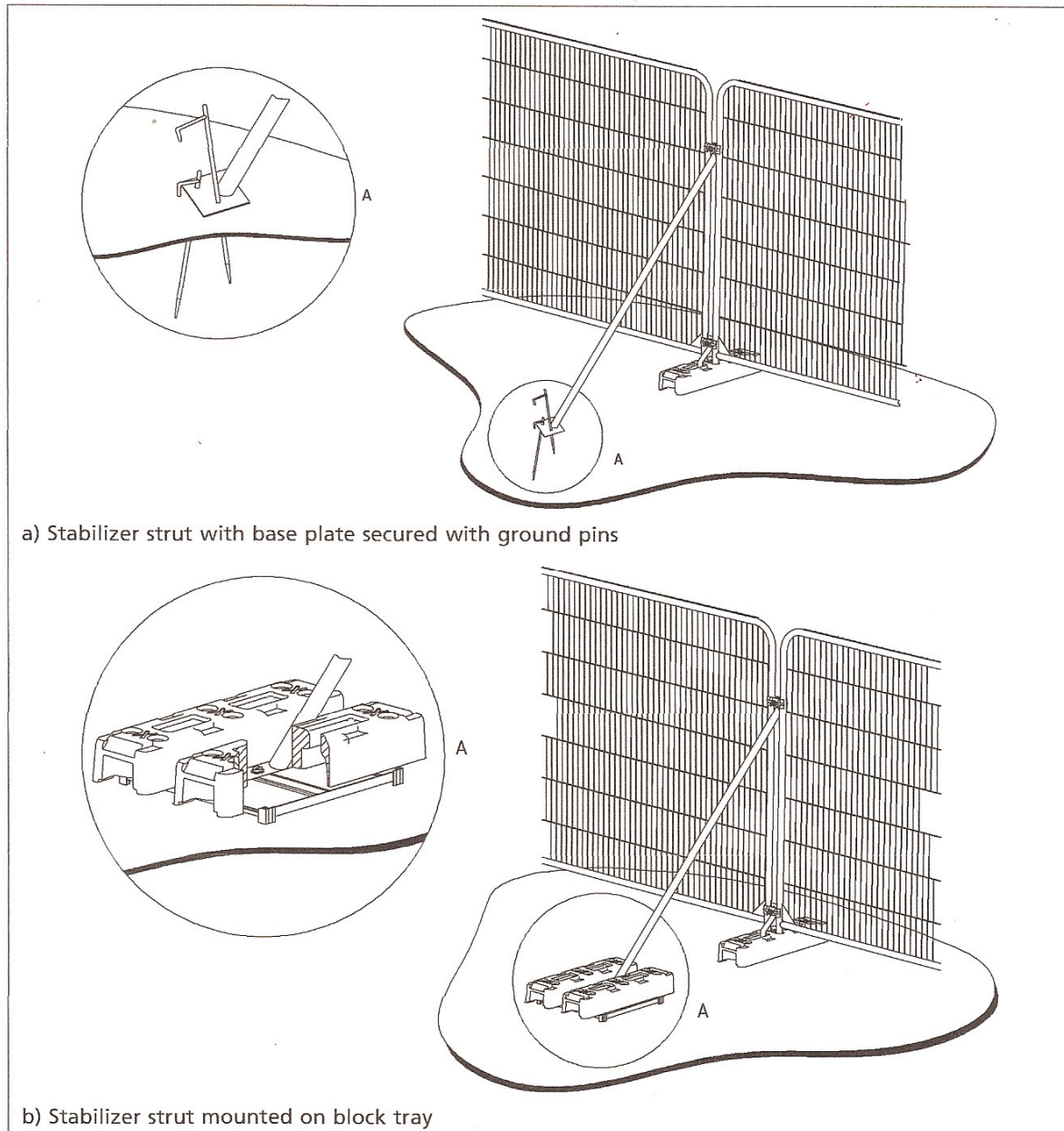


Figure 2.

BS 5837:2012 Alternative Tree Protection Barrier

8.3 Temporary Ground Protection

- i) Where vehicular, plant or pedestrian access is required within the CEZ temporary ground protection will be used.
- ii) Temporary ground protection will withstand the weight of all vehicles and plant accessing that part of the site without distorting or compacting the underlying soil.
- iii) For pedestrian movements:

A single thickness of scaffold boards placed either on top of a driven scaffold frame so, as to form a suspended walkway, or on top of a compression-resistant layer e.g. 100mm depth of woodchip laid over a geotextile membrane.

- iv) For pedestrian operated plant up to a gross weight of 2t:

Proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer e.g. 150mm depth of woodchip laid over a geotextile membrane.

- v) For wheeled or tracked construction traffic exceeding 2t:

A proprietary system or pre-cast reinforced concrete slabs to an engineering specification designed in conjunction with the arboricultural consultant to accommodate the likely loading to which it will be subjected.

- vi) Tree protection barriers to be erected adjacent to and abutting the ground protection if required and in accordance with the tree protection plan.

- vii) Should it be necessary to expose the RPA of a retained tree to carry out any approved works, ground plates will be re-laid over the exposed RPA immediately after the approved works are completed.

- viii) Existing hard surfaces, where appropriate, should be retained as ground protection providing the surface can withstand the weight of all vehicles and plant entering the site without distorting or compacting the underlying soil.

8.4 Bonfires

- i) Bonfires will not be lit if in a position whereby their flames can extend to within 10.0 metres of any foliage, branch, trunk or RPA
- ii) No bonfire will be lit beneath any branch or within 10m of the crown spread.
- iii) The distance between the fire and any part of the tree or its RPA may extend beyond 10m depending on the size of the fire, heat produced and wind direction.
- iv) If a bonfire is lit it will be monitored at all times and suitable water hoses will be set out to dampen down as required or to prevent any spread of fire.

Appendix A Site Monitoring Form

Site Address		Purpose for Visit	Monitoring	
			Other	
Who visited		Arboricultural Consultant		
Job reference		Date of visit		

	Checked	Agree	Comments	Action
Protective Fencing				
Ground protection				
Compaction				
Potential threats to retained trees				
Cutting roots				
Opening CEZ				
Tree surgery				
Damage to retained trees				
Other				