



**TREE SURVEY,
ARBORICULTURAL IMPACT ASSESSMENT,
TREE PROTECTION PLAN &
ARBORICULTURAL METHOD STATEMENT
Rev:1,**

with regard to proposed development at:

1a Mill Lane, Old Marston, Oxford, OX3 0PY,

for:

Mr Nicolas Crombie.

Job no. MJC-22-0213

23rd November 2023.

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1.0 Instruction

- 1.1 MJC Tree Services Limited have been instructed by Mr Nicholas Crombie as follows:

“Re: Development Site Tree Survey & Reports in Accordance With BS5837:2012 at 1a Mill Lane, Old Marston, Oxford, OX3 0PY.

To visit the above site and carry out the following works:

- *To carry out a ground level and visual survey of trees on and adjacent to the site that are identified for survey and assessment under the criterion given in British Standard 5837:2012 ‘Trees in Relation to Design, demolition and Construction – Recommendations’ (BS5837:2012):*
- *To draw up a Tree Constraints Plan and tree survey schedule in accordance with BS5837:2012, using as a base plan the supplied existing site plan:*
- *To discuss the proposed development of the site with the design team and, if necessary, the Local Planning Authority in the light of the identified tree constraints with a view to arriving at a proposed layout and design that is acceptable in arboricultural planning terms:*
- *To draw up an Arboricultural Implications Assessment for the proposed development, using the tree constraints information for reference and a proposed site layout plan (including all access and service plan details) that will need to be supplied, via email, as a .dwg file to the above office before the report can be completed:*
- *To draw up a Tree Protection Plan and Arboricultural Method Statement for the proposed development. To discuss the content of the Statement with the design team and site contractor(s) as necessary to arrive at a workable solution to the tree protection requirements of the site:*
- *To combine these elements into a single report:*
- *To supply the completed report in an electronic format as a .pdf file, with the plans available as .dwg (AutoCAD) files:*
- *To provide general advice regarding the management of the trees in the rear garden for reasons of health and safety, and general sound tree management.”*

2.0 Qualifications and Caveats

- 2.1 The author of this report is a:

- Fellow of the Institute of Chartered Foresters:
- Chartered Arboriculturist:
- Chartered Surveyor:
- Registered Consultant of the Institute of Chartered Foresters.
- Professional Member of the Arboricultural Association:

He also holds the Royal Forestry Society’s Professional Diploma in Arboriculture and has over 29 years’ experience in UK arboriculture. A full CV and CPD record are available as a .pdf file upon request to the above office.

- 2.2 The tree survey was preliminary in nature and was carried out from ground level using visual techniques only. No trees were climbed or internally investigated. Should a more detailed inspection be required then this will be recommended in this report.
- 2.3 Trees are living organisms whose health and condition can change rapidly. The health, condition and safety of trees in high use areas should be checked on a regular basis, preferably at least once every eighteen months. The conclusions and recommendations in this report are based only on the observations made by the author during the tree survey.
- 2.4 This report is for the sole use of the above-named client and refers only to those trees identified within. It may not be reproduced in whole or in part, or sold, lent, hired out or divulged to any third party not directly involved in the subject matter, without our consent. Use by any other person(s) in attempting to apply its contents for any purpose other than stated in this report renders the report invalid for that purpose.
- 2.5 This report is supplied subject to our terms and conditions in force at the time of our instruction by the client.

3.0 Introduction

- 3.1 This report is presented largely in the form of annotated drawings with a tree survey schedule that are intended to be read in the sequence they are presented in the Appendices section of this report, cross referencing as instructed in the in-drawing texts.
- 3.1.1 The reason for this graphical form of presentation is to make its interpretation easier by the greater design team and the demolition/construction team. These teams work in a graphical environment, and if the arboricultural reports involved in the design and development processes are to be easily interpreted by these teams they must also be presented in a graphical format. To do otherwise would create an unhelpful disconnect between the arboricultural information and the design and development teams. It also allows the report and the proposed development to be assessed on site by officers of the Local Planning Authority (LPA) whilst referencing a small number of single page documents, thereby avoiding the need to keep flicking backwards and forwards through a written report whilst holding open a large site drawing.

- 3.1.2 The layout and order of the drawings and schedule are intended to illustrate a logical progression from the existing site (Tree Survey Plan drawing and Tree Survey Schedule – Appendix 1 and Appendix 2), through the proposed development, its impact on the trees in terms of tree works and losses required, the establishment of conflicts with the trees identified to be retained and how these conflicts will be resolved in principle (Arboricultural Impact Assessment drawing – Appendix 3), to the specific tree protection measures and methodologies required (Tree Protection Plan and Arboricultural Method Statement drawing – Appendix 4).
- 3.1.3 The in drawing text is designed to be large enough to be easily read when the drawing is viewed or printed off at the correct scale. If it is not possible to view or print off these drawings at the correct scale, it may not be possible to read the in drawing text. In order to address this possibility, the in drawing text for each of the three drawings is reproduced as a separate block of text immediately following the relevant drawing, and these form Appendices 1A, 3A, and 4A of this report.
- 3.2 The tree works recommended on the Tree Survey Schedule are based on the current context of the site, **they are not tree works or tree felling required as a result of any proposed development.** This is to comply with section 4.4.1.1 of BS5837:2012 that states "*...the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for the development*". **Any and all tree works and tree felling required and proposed as a result of the proposed development are detailed in the Arboricultural Impact Assessment drawing.**

4.0 Summary

- 4.1 It is proposed to extend the existing dwelling on site, to add a covered veranda to that extension, and to repurpose the existing out building whilst maintain the existing volume of the outbuilding, all as illustrated in the Arboricultural Impact Assessment drawing forming Appendix 3 of this report.
- 4.2 For the reasons set out in the Arboricultural Impact Assessment drawing, there are no substantive arboricultural planning reasons for the Local Planning Authority (LPA) to object to the proposed development, providing the tree protection measures suggested in the Arboricultural Impact Assessment drawing and detailed in the Tree Protection Plan & Arboricultural Method Statement drawing are undertaken. In order to ensure that these measures take place, it is likely that, if the LPA grant planning permission for the proposed development, they will make that permission conditional of the following:
- Adherence to the Tree Protection Plan & Arboricultural Method Statement drawing ref. MJC-22-0213-03 rev.0 (see Tree Protection Plan & Arboricultural Method Statement forming Appendix 4 of this report):
 - The pre-commencement drawing up and approval of an underground service and drain plan that avoids the RPA of retained trees.
- 4.2.1 The use of these conditions is reasonable, necessary and commonplace. Therefore, the required use of these conditions should not form a legitimate reason for the LPA to object to the proposed development.

Mark Carter

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5.0 Appendices

Appendix 1

Tree Constraints Plan drawing

Site Specific Tree Constraints Plan Notes

1.0 Introduction

1.1 The tree survey was carried out on the 26th January 2023, and updated on the 10th November 2023 following the receipt of information and photographs from my client.

1.2 The survey was carried out in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' (BS5837:2012).

1.3 The survey was carried out from ground level using visual techniques only. No trees were climbed or internally investigated. Should a more detailed inspection be considered necessary then this will be highlighted in the recommendations section of the tree survey schedule.

1.4 The tree works recommended on the schedule are based on the current context of the site, they are not works required as a result of any proposed development. This is to comply with section 4.4.1.1 of BS5837:2012 that states "...the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for the development". Any tree works required as a result of the proposed development will be listed separately in the Arboricultural Impact Assessment plan (AIA).

2.0 The Trees

2.1 The details of the individual tree survey are provided on the following tree survey schedule.

2.2 The tree constraints have been calculated and are illustrated in accordance with BS5837:2012.

2.3 A number of trees included in the survey were omitted from the supplied site plan, namely tree nos. T3, T4, T6 and T7. The position of these trees has been estimated by eye while the site was on site. This issue is noted in the tree survey schedule. If the position of any of these trees become critical to any proposed development of the site, their position should be confirmed by competent land surveyor and this plan adjusted accordingly.

2.4 Root Protection Areas (RPA)

2.4.1 The indicative and circular RPA of the surveyed trees has been derived by using the calculation provided at section 4.6.1 of BS5837:2012 and are illustrated either by a grey circle in this plan, or as an unshaded RPA for groups and/or woodlands.

2.4.2 The RPAs represent the surface area of the minimum soil rooting volume required by the tree, group or woodland.

2.4.3 Section 4.6.2 of BS5837:2012 states "Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution."

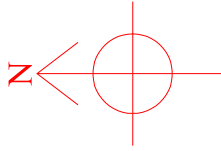
2.4.4 It was not considered likely that any of the pre-existing site conditions within the RPA of the surveyed trees had caused significant asymmetric rooting. Therefore, no modification of the RPA has been made.

2.5 The areas of potentially significant shade illustrated in this plan have been derived following the guidance provided at section 5.2.2 Note 1 of BS5837:2012. This area does not indicate an area where development may not take place, it merely indicates an area where tree shade may have an adverse impact on a proposed development if that part of the development has a need for high levels of direct and natural light e.g. patios and living room windows, and it may also reduce useable amenity space in gardens.

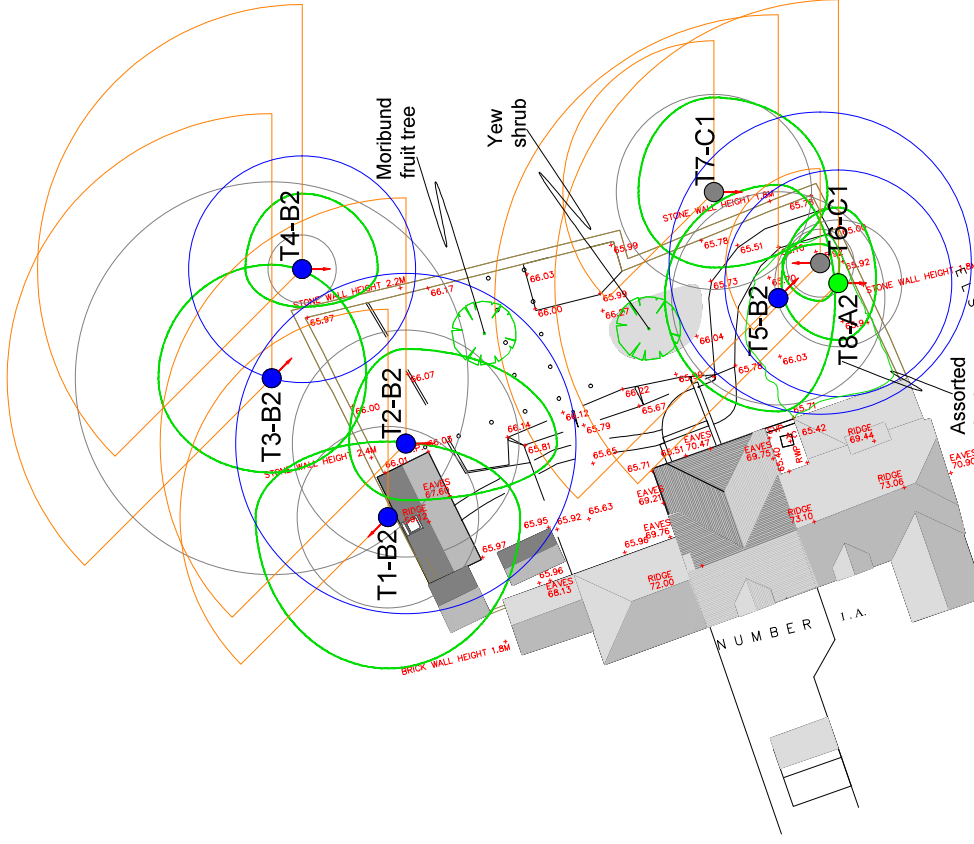
2.6 Some of the surveyed trees were considered to have significant potential for future growth. The potential and estimated mature crown spread of these trees is illustrated by a blue crown spread margin in this plan.

2.7 The online mapping system provided by the Local Planning Authority (LPA) was consulted on the 6th December 2022 in order to check on the protected status of the surveyed trees. This check indicated the following.

2.7.1 None of the surveyed trees are protected by a Tree Preservation Order.



SCALE IN METRES
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MJC TREE SERVICES LIMITED

Site: 1a Mill Lane, Old Marston, Oxford, OX3 0PR.
TREE CONSTRAINTS PLAN
Plan no. MJC-22-0213-01 rev:1

This is based on the Jones.S.M. existing site plan no. 57-021 003, amended by MJC on 10/11/2023. This plan was produced in colour. A monochrome version must not be relied upon.

KEY

- Category U tree
- Category A tree
- Category B tree
- Category C tree
- Crown spread of surveyed trees and shrubs
- Noted trees below the size for inclusion in the tree survey, individual shrubs, see for annotations details
- Estimated crown spread for trees with significant potential for future growth
- Indicative root protection area (RPA)
- Direction of significant branch for individual trees, indicates height i.e. the longer the arrow the higher the branch
- Areas of potentially significant shade constraint for A, B & C based on surveyed heights

SCALE 1:200 © AZ

2.7.2 The site is within a Conservation Area, therefore no works can be carried out on any of the surveyed trees with a stem diameter of 75mm or greater at 1.5m above ground level, i.e. all the individually surveyed trees, without first issuing a written notice of intent to the LPA to respond. The LPA can respond to this notice in one of only four ways.

2.7.2.1 Firstly they can do nothing, in which case after six weeks have elapsed since the LPA received the notice the works can be carried out.

2.7.2.2 Secondly, the LPA can write a letter to the notifier informing them that they have no objection to the notified works, in which case the works can be carried out upon receipt of that letter.

2.7.2.3 Thirdly, the LPA can write a letter to the notifier asking them to withdraw the notice as the LPA has concerns regarding the works, but the notifier is not obliged to do this.

2.7.2.4 Fourthly, and only if the tree qualifies for such protection, the LPA can place the tree under a Tree Preservation Order, in which case an application for the works will need to be made.

2.7.2.5 N.B. The LPA cannot grant permission, be that subject or not to planning conditions, and nor can they refuse permission under the Conservation Area legislation.

2.8 The online Multi Agency Graphical Information for the Countryside (MAGIC) mapping system provided by DEFRA was consulted on the 6th December 2022 in order to check whether any ancient woodlands were present on or close to the site. This check indicated that no ancient woodlands were present on or close to the site.

2.9 The tree survey has not identified any ancient and/or veteran trees on or close to the site.

3.0 The Site

3.1 The site comprised the rear garden of 1a Mill Lane, and extended around the rear of 1b Mill Lane. The garden contained several trees, assorted shrubs, herbaceous beds, a pergola and an outbuilding.

3.2 Surrounding land use was as follows: to the north was a church yard with residential development beyond; to the east was a mix of a church yard and residential development; to the south was a public highway with residential development beyond; to the west was nos. 1a and 1b Mill Lane, with public highway and residential development beyond.

3.3 An online check with the British Geological Survey's Geology of Britain Viewer was made on 27th January 2023.

3.3.1 This check indicated that the soils on site were likely to be made up of the following:

- Bedrock Geology: Oxford Clay Formation and West Walton Formation - Mudstone.
- Superficial deposits: Summertown-radley Sand and Gravel Member - Sand and gravel.

3.3.2 The make up of these soils is complex and they may be prone to significant and persistent volumetric changes in response to moisture content. Therefore, there could be a risk of tree root related subsidence on this site, and this risk must be considered and assessed by a suitably qualified and experienced engineer, and accommodated in any proposed development of the site.

3.3.3 The local topsoil is likely to be mildly acidic in nature, and prone to drought stress during prolonged periods of low rainfall. These factors should be borne in mind when selecting tree and shrub species for planting on this site.

Appendix 1A In drawing text from the Tree Constraints Plan drawing

Site Specific Tree Constraints Plan Notes

1.0 Introduction

- 1.1 The tree survey was carried out on the 26th January 2023, and updated on the 10th November 2023 following the receipt of information and photographs from my client.*
- 1.2 The survey was carried out in accordance with British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations' (BS5837:2012).*
- 1.3 The survey was carried out from ground level using visual techniques only. No trees were climbed or internally investigated. Should a more detailed inspection be considered necessary then this will be highlighted in the recommendations section of the tree survey schedule.*
- 1.4 The tree works recommended on the schedule are based on the current context of the site, they are not works required as a result of any proposed development. This is to comply with section 4.4.1.1 of BS5837:2012 that states "...the tree survey should be completed and made available to designers prior to and/or independently of any specific proposals for the development". Any tree works required as a result of the proposed development will be listed separately in the Arboricultural Impact Assessment plan (AIA).*

2.0 The Trees

- 2.1 The details of the individual tree survey are provided on the following tree survey schedule.*
- 2.2 The tree constraints have been calculated and are illustrated in accordance with BS5837:2012.*
- 2.3 A number of trees included in the survey were omitted from the supplied site plan, namely tree nos. T3, T4, T6 and T7. The position of these trees has been estimated by eye while the author was on site. This issue is noted in the tree survey schedule. If the position of any of these trees become critical to any proposed development of the site, their position should be confirmed by a competent land surveyor and this plan adjusted accordingly.*

2.4 Root Protection Areas (RPA)

2.4.1 *The indicative and circular RPA of the surveyed trees has been derived by using the calculation provided at section 4.6.1 of BS5837:2012 and are illustrated either by a grey circle in this plan, or as an amalgamated RPA for groups and/or woodlands.*

2.4.2 *The RPA's represent the surface area of the **minimum** soil rooting volume required by the tree, group or woodland.*

2.4.3 *Section 4.6.2 of BS5837:2012 states "Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution."*

2.4.4 *It was not considered likely that any of the pre-existing site conditions within the RPA of the surveyed trees had caused significant asymmetric rooting. Therefore, no modification of the RPA has been made.*

2.5 *The areas of potentially significant shade illustrated in this plan have been derived following the guidance provided at section 5.2.2 Note 1 of BS5837:2012. This area does not indicate an area where development may not take place, it merely indicates an area where tree shade may have an adverse impact on a proposed development if that part of the development has a need for high levels of direct and natural light e.g. patios and living room windows, and it may also reduce useable amenity space in gardens.*

2.6 *Some of the surveyed trees were considered to have significant potential for future growth. The potential and estimated mature crown spread of these trees is illustrated by a blue crown spread margin in this plan.*

2.7 *The online mapping system provided by the Local Planning Authority (LPA) was consulted on the 6th December 2022 in order to check on the protected status of the surveyed trees. This check indicated the following.*

2.7.1 *None of the surveyed trees are protected by a Tree Preservation Order.*

2.7.2 *The site is within a Conservation Area, therefore no works can be carried out on any of the surveyed trees with a stem diameter of 75mm or greater at 1.5m above ground level, i.e. all the individually surveyed trees, without first issuing a written notice of intent to carry out those works to the LPA and waiting for the LPA to respond. The LPA can respond to this notice in one of only four ways.*

2.7.2.1 *Firstly they can do nothing, in which case after six weeks have elapsed since the LPA received the notice the works can be carried out.*

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3.2 *Surrounding land use was as follows: to the north was a church yard with residential development beyond: to the east was a mix of a church yard and residential development: to the south was a public highway with residential development beyond: to the west was nos. 1a and 1b Mill lane, with public highway and residential development beyond.*

3.3 *An online check with the British Geological Survey's Geology of Britain Viewer was made on 27th January 2023.*

3.3.1 *This check indicated that the soils on site were likely to be made up of the following:*

- *Bedrock Geology: Oxford Clay Formation and West Walton Formation - Mudstone.*
- *Superficial deposits: Summertown-radley Sand and Gravel Member - Sand and gravel.*

- 3.3.2 *The make up of these soils is complex and they may be prone to significant and persistent volumetric changes in response to moisture content. Therefore, there could be a risk of tree root related subsidence on this site, and this risk must be considered and assessed by a suitably qualified and experienced engineer, and accommodated in any proposed development of the site.*
- 3.3.3 *The local topsoil is likely to be mildly acidic in nature, and prone to drought stress during prolonged periods of low rainfall. These factors should be borne in mind when selecting tree and shrub species for planting on this site.*

Appendix 2

Tree Survey Schedule

TREE SURVEY SCHEDULE

Key:

- **Ht** = Height estimated in metres.
 - **Stem Diam** = Stem or trunk diameter, measured and calculated in accordance with Annex C and section 4.6 of BS5837:2012.
 - **oi** = Measurement taken over ivy, which is likely to produce an exaggerated figure;
 - **cmb** = combined stem diameter value for multi stem trees.
 - **Crown Spread** = Crown spread to the cardinal points in metres, measured by pacing.
 - **1st significant branch ht' & direction** = First significant branch height in metres and direction of growth e.g. N = North.
 - **Crown base ht'** = Minimum distance between surrounding ground level at the trunk base and the base of the main crown, estimated by eye in metres.
 - **Life stage** is chosen from the four following categories;
 - Y = Young;
 - SM = Semi mature;
 - EM = Early mature;
 - M = Mature;
 - OM = Over Mature.
- **General observations** = Particularly of structural and/or physiological condition, significant features and defects, and the effect these may have on the health, stability and safe retention of the tree.
- **Preliminary management recommendations** = any significant works identified as necessary in the current context, irrespective of any proposed development of the site.
- **Rem' cont'** = an estimate, in years, of the remaining period over which the tree can be retained at an acceptable level of risk whilst still providing significant amenity benefits with no significant management intervention.
- **Reten' Cat'** = Desirability for retention category. Refers to BS5837:2012 which categorises trees on development sites into one of four categories – A, B, C or U, A being very good and U meaning that felling is appropriate regardless of any proposals. The suffix 1, 2 or 3 refers to a subcategory relating to tree, landscape or cultural/ecological values respectively.
- **agl** = Above ground level
- **#** = Estimated dimension.
- **typ** = Typical dimension where several are present.
- **n/a** = Not applicable.
- **n/k** = Not known.

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m)				1 st sig' branch ht' (m)	Direc- tion of 1 st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
					N	E	S	W								
T1	Walnut	11#	400# @ base	1#	7#	4#	4#	8#	1#	NW#	5# over site	EM#	<ul style="list-style-type: none"> • The tree was offsite and inaccessible therefore all assessments and measurements used were estimates made by eye and from a distance. • The tree could be glimpsed from some public vantage points and was therefore of some albeit limited public visual amenity value. • The southern crown had recently been lifted and reduced where it overhung the site boundary. • The trunk bifurcated at approximately 1 metre above ground level with a potentially weak fork and it was considered likely that the presence of this structural defect would curtail the ultimate life expectancy of the tree. 	<ul style="list-style-type: none"> • No works recommended as the tree is offsite and beyond the ownership, control and responsibility of my Client. RPA: radius = 4.8 metres; area = 72 square metres. 	20+#	B2#

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m)				1 st sig' branch ht' (m)	Direction of 1 st sig' branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
					N	E	S	W								
T2	Black Pine	13	500	1	3#	5	8	3	5	S	5.5	EM	<ul style="list-style-type: none"> The tree was large enough to be glimpsed from some public vantage points therefore, it was of some public visual amenity value. However, the tree had significant potential for future growth and this future growth would increase the public visibility and public visual amenity value of the tree. The broken out and hanging branch noted in the original tree survey has been removed, along with some deadwood. Several lower branches have been removed in the more distant past, creating a number of branch removal wounds, none of which seemed to be significantly decayed at the time of survey. 	<ul style="list-style-type: none"> Removal the broken out lower branch. RPA: radius = 6.0 metres; area = 113 square metres. 	40+	B2

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m)			1 st sig' branch ht' (m)	Direction of 1 st sig' branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat	
					N	E	S	W								
T3	Poplar	14#	500#	3#	6#	6#	5#	5#	2.2#	SE#	2.5# over site	EM#	<ul style="list-style-type: none"> The tree was offsite and inaccessible therefore all assessments and measurements used were estimates made by eye and from a distance. The tree was not plotted in the supplied topographical survey plan and its position was estimated by eye whilst the author was on site. If the position of this tree becomes critical to any proposed development of the site, the position of this tree should be confirmed by a competent land surveyor and this report amended accordingly. The tree was large enough to be glimpsed from some public vantage points, therefore, it was of some, albeit limited, public visual amenity value. Crown branch form was poor with competing leaders and a potentially weak bifurcation fork at approximately 2 metres above ground level. Given the noted propensity of this genus to the production of weak timber and the shedding of branches when mature (Lonsdale 1999), the very long-term retention of this tree was considered unlikely. 	<ul style="list-style-type: none"> No works recommended as the tree is offsite and beyond the ownership, control and responsibility of my Client. RPA: radius = 6.0 metres; area = 113 square metres. 	20+#	B2#

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m)				1 st sig' branch ht' (m)	Direction of 1 st sig' branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
					N	E	S	W								
T4	Silver Birch	14#	150#	1#	3#	4#	4#	2#	3#	S#	3#	SM#	<ul style="list-style-type: none"> The tree was offsite and inaccessible therefore all assessments and measurements used were estimates made by eye and from a distance. The tree was not plotted in the supplied topographical survey plan and its position was estimated by eye whilst the author was on site. If the position of this tree becomes critical to any proposed development of the site, the position of this tree should be confirmed by a competent land surveyor and this report amended accordingly. The tree could be glimpsed from some public vantage points and was therefore of some, albeit quite limited, public visual amenity value. However, the tree had potential for future growth and this would increase its public visual amenity value in the future. 	<ul style="list-style-type: none"> No works recommended as the tree is offsite and beyond the ownership, control and responsibility of my Client. RPA: radius = 1.8 metres; area = 10 square metres. 	40+#	B2#

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m)				1 st sig' branch ht' (m)	Direction of 1 st sig' branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
					N	E	S	W								
T5	Silver Birch	15	470 oi	1	5	6	3	3	4	SE	4	EM	<ul style="list-style-type: none"> The tree was a significant roadside feature of significant public visual amenity value. However, given the noted short life expectancy of this species in Southern England (Mitchell 1978), the long-term survival of this tree was not anticipated. The crown had recently been lifted and the northern and western crown had recently been reduced. One branch stub was present on the north eastern side of the trunk at approximately 5 metres above ground level. This was decaying the fungal fruiting body of what seemed to be <i>Fomitopsis betulinus</i> or Razor Strop fungus was present. 	<ul style="list-style-type: none"> No works currently identified. RPA: radius = 5.6 metres; area = 100 square metres. 	20+	B2
T7	Purple Plum	8#	350# + 250# = 430 cmb	2#	4#	5#	6#	4#	1#	S#	1.8# over site	M#	<ul style="list-style-type: none"> The tree was offsite and inaccessible therefore all assessments and measurements used were estimates made by eye and from a distance. The tree was not plotted in the supplied topographical survey plan and its position was estimated by eye whilst the author was on site. If the position of this tree becomes critical to any proposed development of the site, the position of this tree should be confirmed by a competent land surveyor and this report amended accordingly. The tree was an attractive roadside feature but this species is not noted for longevity and given the mature state of the tree, its very long-term survival was not anticipated. 	<ul style="list-style-type: none"> No works recommended as the tree is offsite and beyond the ownership, control and responsibility of my Client. RPA: radius = 5.2 metres; area = 84 square metres. 	10+#	C1#

Ref no	Species	Ht (m)	Stem diam (mm)	No. of stems	Crown spread (m)				1 st sig' branch ht' (m)	Dirac-tion of 1 st sig branch	Crown base ht' (m)	Life stage	General observations	Preliminary management recommendations	Rem' cont' (years)	Reten' Cat
					N	E	S	W								
T8	Maidenhair Tree	15	280 oi	1	3	4	2	3	5	S	2	SM	<ul style="list-style-type: none"> The mid and upper crown was remarkably well formed for this species and the tree had significant potential for future growth. Two basal sucker stems have been removed and the crown lifted, which has improved the overall form and potential longevity of the tree. The tree was a significant roadside feature of significant public visual amenity value and this value would increase in the future as the tree grows and enlarges. 	<ul style="list-style-type: none"> No works currently identified. RPA: radius = 3.4 metres; area = 36 square metres. 	40+	A2

Appendix 3

Arboricultural Impact Assessment drawing

Appendix 3A In drawing text from the Arboricultural Impact Assessment drawing

Arboricultural Impact Assessment

1.0 Introduction

- 1.1 It is proposed to extend the existing dwelling on site, to add a covered veranda to that extension, and to repurpose the existing out building whilst maintain the existing volume of the outbuilding.*
- 1.2 In this drawing, the proposed development layout is illustrated in cyan.*
- 1.3 In order to provide context with the existing site, and highlight the proposed development relative to the existing site layout, the existing site layout drawing is also illustrated in pale grey in this drawing.*
- 1.4 The trees, their constraints, the arboricultural impact of the proposed development, and areas where specific tree protection measures are required, are illustrated in accordance with the key.*

2.0 Tree Works.

- 2.1 The proposed development requires the following tree works to be carried out.*
 - 2.1.1 Fell one moribund Fruit tree and one large Yew shrub. This tree and shrub are illustrated with red crown margins in this drawing.*
- 2.2 These tree works are required, and are considered acceptable in arboricultural planning terms, for the following reasons.*
 - 2.2.1 In order to create sufficient room to practically enable the construction process to take place, this tree and shrub need to be removed.*
 - 2.2.2 Shrubs and moribund trees are not a material consideration in the planning application determination process in the same way that trees are. Therefore, the required removal of this tree and shrub should not form a reason for the Local Planning Authority (LPA) to object to the proposed development.*

3.0 Root Protection Areas (RPA).

- 3.1 *The proposed development encroaches over the RPA of trees to be retained. The extent and nature of these encroachments, and the measures required to restrict the arboricultural impact of these encroachments to an acceptable level are detailed below.*
- 3.2 *The proposed access path to the rear of the proposed extension encroaches over the RPA of retained trees in areas where the existing ground comprises soft landscaping, i.e. cultivated beds and grass. This area of encroachment is illustrated in this drawing as the 'Precautionary area 1' area with yellow hexagonal hatching.*
- 3.2.1 *Section 5.3.1 of BS5837:2012 allows for the construction of structures over the RPA of retained trees "where there is an overriding justification and if technical solutions to the construction over the RPA are available that will adequately protect the retained trees".*
- 3.2.2 *It is necessary to maintain a hard surfaced path to the rear of the extension for reasons of access. Given the proximity of the trees and the limited space available in the existing garden, it is inevitable that some encroachment over the RPA will occur if a sensible scale of extension is to be built.*
- 3.2.3 *The RPA coverage of any one tree does not exceed the 20% limit stipulated by section 7.4.2.3 of BS5837:2012. Therefore, the extent of encroachment is acceptable in principle.*
- 3.2.4 *The hard surface in the 'Precautionary Area 1' area will be constructed using a three dimensional cellular confinement sub base installed using a minimum dig (i.e. turf/deleterious layer removal only) technique. Full details of the installation methodology to be used when installing these hard surfaces are provided in the enclosed Tree Protection Plan & Arboricultural Method Statement, and this methodology will ensure adequate protection to the underlying RPA.*
- 3.3 *The proposed access path to the rear of the proposed extension encroaches over the RPA of retained trees in areas where the existing ground comprises an existing hard surface, i.e. the existing access path. This area of encroachment is illustrated in this drawing as the 'Existing hard surface retention area' with black hexagonal hatching.*
- 3.3.1 *In the 'Existing hard surface retention area', the existing hard surface will be retained intact and unexcavated, and will thereby protect the underlying RPA.*

- 3.3.2 *In the 'Existing hard surface retention area' the proposed path will either reuse the existing hard surface, or will be laid on top of the existing hard surface. Either way, the retention of the existing hard surface will adequately protect the underlying RPA.*
- 3.4 *Part of the proposed extension encroaches into the RPA of tree no. T5. This encroachment will result in a loss of RPA for tree no. T5.*
- 3.4.1 *Allowing for a 500mm margin around the footprint of the proposed extension to accommodate necessary excavations for foundations etc., This RPA encroachment will result in the loss of 3.9 square metres of T5's RPA. The total RPA for T5 is 100 square metres. Therefore, this RPA encroachment will result in the loss of less than 4% of the total RPA for T5.*
- 3.4.2 *Tree no. T5 has access to limited amounts of additional soil rooting volume to the west that would be sufficient to compensate for such a small loss of RPA. Therefore, it is reasonable to conclude that the loss of less than 4% of the RPA as a result of the proposed development is acceptable in arboricultural planning terms.*
- 3.5 *No underground service or drain plan has been supplied, however, it is considered that sufficient space exists across the site that is not restricted by the RPA of retained trees for these to be routed around, and therefore avoid conflict with, the RPA of retained trees. The LPA have the power to ensure this occurs by granting permission subject to a condition requiring the pre-commencement submission and approval of an underground service and drain plan.*
- 3.6 *The remaining RPA of retained trees can be adequately protected from the proposed development by the use of tree protection barriers, individual tree protection hoarding, and temporary ground protection (see enclosed Tree Protection Plan & Arboricultural Method Statement for details).*
- 3.7 *The above has demonstrated that the arboricultural impact of the proposed demolition/construction works can be restricted to an acceptable level.*
- 3.7.1 *Full details of the tree protection measures and the construction methodologies required, are provided in the enclosed Tree Protection Plan & Arboricultural Method Statement drawing.*
- 3.7.2 *The LPA can ensure that these tree protection measures and methodologies are carried out by granting planning permission for the proposed development subject to an appropriately worded condition requiring compliance with the enclosed Tree Protection Plan & Arboricultural Method Statement drawing.*

4.0 Future Pressures to Unreasonably Prune or Fell Retained Trees

4.1 *The inappropriate retention of trees within a new development can lead to future conflicts between the residents of the new development and the trees, thereby creating future pressures to unreasonably prune or fell trees that had been retained in the design and development process. Section 5.3.4 d) of BS5837:2012 requires this issue to be considered and avoided at the design stage of a proposed development. In order to comply with this requirement, the following considerations have been made during the design phase.*

4.2 Crown proximity.

4.2.1 *The proposed development layout has maintained an appropriate and adequate clearance between the crown edges of the retained trees and the fabric of the proposed development.*

4.2.1.1 *In the specific case of tree no. T1, the repurposed out building is overhung by the crown. However, this crown overhang is exactly the same as is the case with the existing out building, and as has been demonstrated by the evidence of past crown management of T1, this overhang can be successfully managed, and adequate clearance maintained, through periodic crown pruning. Therefore, it is reasonable to conclude that this overhang will continue to be successfully managed and maintained in the future, and the proximity of T1's crown should not result in any future pressures to unreasonably prune or fell T1.*

4.2.1.2 *In the specific case of tree no. T2, the veranda and a small part of the extension is overhung by the crown. However, adequate clearance under the crown of this tree exists to successfully accommodate the proposed veranda and extension. As tree no. T2 is a Pine, it is unable to grow new foliage and branches from old wood that is devoid of live foliage. Therefore, no new growth will emerge from the trunk and inner parts of the first order branches in the future, and the tree should naturally maintain this adequate clearance over the proposed veranda and extension, and this crown overhang should not result in future pressures to unreasonably prune or fell T2.*

4.2.2 *Parts of the proposed gardens are overhung by existing and potential future crown spreads. However, large areas of these gardens are not overhung, and it is considered that adequate useable amenity space that is not overhung is provided in the proposed gardens. Therefore, crown overhang of the gardens should not create any legitimate pressures to unreasonably prune or fell the retained trees in the future.*

4.3 *Tree shade.*

4.3.1 *At the layout design stage, the indicative shade segment suggested at section 5.2.2 Note 1 of BS5837:2012 was used to assess the impact of shade on the proposed gardens and dwellings.*

4.3.1.1 *This assessment indicated that the proposed extension will experience early morning shade cast by tree nos. T5 and T8. However, for the bulk of the day, this shade will move away from the extension to the east, and this shade will be a brief transitory feature. Therefore, the shade cast by tree nos. T5 and T8 will not have a significant detrimental impact on the living conditions in the proposed extension.*

4.3.1.2 *The proposed gardens will experience shade cast by tree nos. T5 and T8 in the first half of the day. However, in the afternoon and evening, this shade will have moved away to the east. These are the times of day when the gardens are most likely to be used for recreational activities and the expectation of direct sunlight will be at their greatest. Therefore, the impact of shade cast by tree nos. T5 and T8 on the usable amenity space of the proposed gardens was not considered unacceptable.*

4.3.2 *It is worth noting that the trees casting this shade are deciduous and will shed their leaves in autumn, thereby allowing more light to pass through their crowns during the winter months when the sun is at its lowest in the sky. This fact will increase the direct light levels reaching the plots during the winter months.*

4.3.2.1 *The Building Research Establishment (BRE) have published figures on the transparency of different species of trees to light (i.e. how much sunlight light passes through them). As an extreme example (i.e. the species that cast the most dense shade) the BRE states that a Common Oak in full leaf (summer) will still allow 20% of the sunlight through its crown, and when bare branched (winter) this rises to 80%. Therefore, even in the areas shaded by the trees with the densest crowns, at least 20% of the sunlight will reach the ground in summer and 80% will reach the ground in the winter. Invariably these figures will be higher as all trees are not Common Oaks.*

4.3.2.2 *The BRE's assertion regarding the transparency of tree crowns is supported by BS8206 part 2: 2008 'Lighting for Buildings' which states: "Although shading by trees is an attractive alternative to the use of blinds, exclusive reliance on foliage to shade fenestration is unlikely to be satisfactory for working interiors. Furthermore, a tree in leaf will diminish the light available from the sky obscured to between 0.1 and 0.3 of the unobstructed value. In winter the bare branches of a deciduous tree are likely to reduce the skylight to between 0.5 and 0.8 of the unobstructed value from the part of the sky enclosed within the tree's outline. These values are approximate only. They vary with the species and with different members of the same species. They vary also with the path length of the light through the foliage and therefore, in multiple planting, with the depth and composition of the stand." In summary, the BRE are saying that trees are not an effective or reliable source of shading when compared to window blinds.*

4.3.3 *It is also important to avoid over stating the impact of tree shade on natural light levels in gardens. The shade cast by trees impacts only on direct sunlight. Considering only direct sunlight when assessing the natural light levels reaching the ground makes no allowance for diffused natural light. Diffused natural light will still be reaching the ground in the areas shaded by trees as it is derived equally from all parts of the sky, and this source makes up 50% of the total natural light (direct plus diffused light) reaching the ground in southern England (reference: 'Trees, Daylight and Buildings' by Rodney Helliwell, published in the Arboricultural Journal, Volume 30, Number 4, March 2008). Therefore, significant levels of natural light will still be available in the proposed gardens and proposed dwellings, even when they are shaded by the trees.*

4.3.4 *In a time of accelerating climate change with hotter summers, the value of tree shade for alleviating the harshness of direct summer sun is increasing year on year, and it is wrong to consider tree shade as only a negative issue for proposed developments.*

4.3.5 *Taking into consideration the above, the proposed development layout is not impacted to an unacceptable level by tree shade, and this issue will not result in any legitimate pressures to unreasonably prune or fell the retained trees in the future.*

5.0 *Summary.*

5.1 *There are no substantive arboricultural reasons for the Local Planning Authority (LPA) to object to the proposed development, providing the tree protection measures suggested above and detailed in the Tree Protection Plan & Arboricultural Method Statement drawing are undertaken. In order to ensure that these measures take place, it is likely that, if the LPA grant planning permission for the proposed development, they will make that permission conditional of the following:*

5.1.1 *Adherence to the Tree Protection Plan & Arboricultural Method Statement drawing ref. MJC-22-0213-03 rev.1 (see enclosed Tree Protection Plan & Arboricultural Method Statement drawing):*

5.1.2 *The pre-commencement drawing up and approval of an underground service and drain plan that avoids the RPA of retained trees.*

5.2 *The use of these conditions is reasonable, necessary and commonplace. Therefore, the required use of these conditions should not form a legitimate reason for the LPA to object to the proposed development.*

Appendix 4

**Tree Protection Plan & Arboricultural Method Statement
drawing**

Appendix 4A In drawing text from the Tree Protection Plan & Arboricultural Method Statement drawing

Tree Protection Plan & Arboricultural Method Statement.

- 1.0 *The proposed development will be carried out in strict accordance with the following Tree Protection Plan & Arboricultural Method Statement, and in the following sequence of events. This plan and statement will cover the following heads of terms, see separate notes below for the specific tree protection measures and methodologies for each head of terms:*
- 1.0.1 *Appointment of the Responsible Person:*
 - 1.0.2 *Agreement of the arboricultural monitoring timetable:*
 - 1.0.3 *Distribution of Tree Protection Plan and Arboricultural Method Statement:*
 - 1.0.4 *General measures, including access, storage of materials etc.:*
 - 1.0.5 *Tree works:*
 - 1.0.6 *Tree protection barrier erection:*
 - 1.0.7 *Temporary ground protection installation:*
 - 1.0.8 *Individual tree protection hoarding erection:*
 - 1.0.9 *Stump grubbing out:*
 - 1.0.10 *Hard surface construction in the 'Precautionary area 1' areas:*
 - 1.0.11 *Underground service and drain installation:*
 - 1.0.12 *Fencing works in the RPA of retained trees:*
 - 1.0.13 *Soft landscaping in the RPA of retained trees.*
- 1.1 *Appointment of the Responsible Person.*
- 1.1.1 *Before any site works, including site clearance, take place, a person will be made responsible for the correct and full implementation of the plan and statement (the Responsible Person). The Responsible Person will typically be the project manager or site manager, but whoever is appointed they will be responsible for the full and correct implementation of this plan and statement, and will be deemed liable for any failure to correctly and fully implement this plan and statement.*

- 1.1.2 *When appointed, the Responsible Person will inform the Local Planning Authority and the project Arboriculturist of their appointment and will supply both with a full set of contact details.*
- 1.2 *Agreement of the arboricultural monitoring timetable.*
- 1.2.1 *If specifically requested by the Local Planning Authority, before any site works, including site clearance, take place, a site meeting will be held with the Responsible Person, the site/project manager, the Local Planning Authority's Tree Officer and the project Arboriculturist. The purpose of this meeting will be to confirm the tree protection measures required by the Tree Protection Plan & Arboricultural Method Statement, a timetable of ongoing site monitoring and reporting to be carried out by the project Arboriculturist.*
- 1.2.2 *Further arboricultural monitoring and reporting will be carried out by the project Arboriculturist in accordance with the timetable agreed at the above meeting.*
- 1.2.3 *A brief letter report will be produced by the project Arboriculturist following each site visit and a copy of this letter supplied to the Responsible Person and the Local Planning Authority's tree officer.*
- 1.3 *Distribution of the Tree Protection Plan & Arboricultural Method Statement drawing.*
- 1.3.1 *It is the responsibility of the Responsible Person to ensure that all staff and contractors working on the development are aware of and abide by this Tree Protection Plan & Arboricultural Method Statement.*
- 1.3.2 *It is the responsibility of the Responsible Person to ensure that a scale copy of this drawing will be attached to the site office notice board, and that copies of this drawing will always be available for taking out on site as necessary.*
- 1.3.3 *It is the responsibility of the Responsible Person to ensure that reference to this Tree Protection Plan & Arboricultural Method Statement forms part of the standard induction briefing for all personnel coming onto site.*
- 1.4 *General measures, including access, storage of materials etc..*
- 1.4.1 *The following measures and restrictions will apply at all times.*
- 1.4.1.1 *The existing hard surfaces in the 'Existing hard surface retention areas will be retained intact and unexcavated for the entire duration of the construction phase.*

- 1.4.1.1.1 *Any new hard surfaces to laid over the 'Existing hard surface retention areas' will be laid on top of the existing hard surface. If it is necessary, the existing hard surface may be surface dressed to a maximum depth of 50mm in order to provide a key for the new hard surface.*
- 1.4.1.2 *Before any construction works commence and before any construction equipment, vehicles and materials are delivered to site, with the exception of those necessary for the installation of tree protection barriers, individual tree protection hoarding, and temporary ground protection, the tree works will be completed, the tree protection barriers individual tree protection hoarding erected, and the temporary ground protection installed.*
- 1.4.1.3 *All construction traffic access will be via the existing access off Elsfeld Road N.B. This access is extremely narrow and limited, and this means that much of the movement of equipment, materials and spoil on and off the site will need to be carried out by hand.*
- 1.4.1.4 *When any large and/or tall and/or jibbed vehicles/equipment are operating or manoeuvring close to the crowns of trees to be retained, a specific banksperson will be appointed to supervise the movement and ensure that no damage is caused to the crowns of these trees through impact.*
- 1.4.1.5 *All activities usually carried out in the compound area, e.g. the storage of materials and equipment, the mixing of concrete and mortar, the sitting of rest cabins and the site office etc., will take place outside the construction exclusion zones created by the tree protection barriers, the 'Precautionary area 1' areas, and the 'Temporary ground protection areas'.*
- 1.4.1.6 *Any facilities for the storage of oils, fuels or chemicals shall be located outside and down slope from the construction exclusion zones created by the tree protection barriers, the 'Precautionary area 1' areas, and the 'Temporary ground protection areas', in tanks on impervious bases and surrounded by impervious bund walls. The volume of the bund compound shall be at least equivalent to the capacity of the tank plus 10%. If there is a multiple tankage, the compound shall be at least equivalent to the capacity of the largest tank, or the combined capacity of interconnected tanks, plus 10%. All filling points, vents, gauges and sight glasses shall be located within the bund. The drainage system of the bund shall be sealed with no discharge to any watercourse, land or underground strata. Associated pipe-work shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund.*

1.4.1.7 *All underground services and drains will be carefully routed so as to avoid crossing the RPA of all the retained trees.*

1.4.1.8 *No fires will be permitted on site.*

1.5 *Tree Works.*

1.5.1 *Before any construction works commence, and before any construction vehicles, equipment and materials are delivered to site, the following tree works will be carried out.*

1.5.1.1 *Fell one moribund Fruit tree and one large Yew shrub. This tree and shrub are illustrated with red crown margins in this drawing.*

1.5.2 *All tree works will be carried out in accordance with the following stipulations.*

1.5.2.1 *All tree works will be carried out in accordance with BS3998:2010 wherever that Standard is applicable.*

1.5.2.2 *All works will be carried out in accordance with all applicable health & safety and environmental protection legislation.*

1.5.2.3 *All tree works will be carried out in such a way that no unintended collateral harm is caused to trees to be retained.*

1.5.2.4 *All arisings will be disposed of in an approved manner and off site unless otherwise instructed by the client or site manager.*

1.5.2.5 *The resulting stumps may be mechanically grubbed out, but this grubbing out may only take place after the tree protection barriers and individual tree protection hoarding have been erected and the temporary ground protection installed.*

1.6 *Tree protection barrier erection*

1.6.1 *After the tree works are completed, but before any stumps are grubbed out, and before any construction works commence, and before any construction vehicles, equipment and materials, other than only those necessary for the erection of the tree protection barriers, are delivered to site, the tree protection barriers will be erected at the positions illustrated in this drawing.*

1.6.2 *This barrier will comply with the recommendations in BS5837:2012 i.e. as a first choice the barrier design illustrated in this drawing will be used. Where this design of barrier is not feasible the barrier will comply with the following specification.*

1.6.2.1 *The barrier will comprise a minimum 2m tall welded mesh fence panels on rubber or concrete feet secured with ground pins.*

1.6.2.2 *The fence panels should be joined together using a minimum of two anti-tamper couplers, installed so that they can only be removed from inside the fence.*

1.6.2.3 *The distance between the fence couplers should be at least 1m and should be uniform throughout the fence.*

1.6.2.4 *The panels should be supported on the inner side by stabilizer struts, which should normally be attached to a base plate secured with ground pins.*

1.6.2.5 *Where the fencing is to be erected on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray.*

1.6.3 *The barrier will have an A3 size informative/warning notice attached on the construction site side, at approximately 1.6 metres above ground level, and at no more than 6 metre intervals. An example of a suitable notice follows this drawing.*

1.6.4 *No construction access whatsoever will be permitted in the construction exclusion zones formed by the tree protection barriers.*

1.6.5 *The tree protection barriers will be retained in place and intact until all construction activities have been completed and all construction materials, equipment, spoil and vehicles have been removed from the site.*

1.7 *Temporary ground protection installation.*

1.7.1 *After the tree works are completed, but before any stumps are grubbed out, and before any construction works commence and before any construction equipment, vehicles and materials, with the exception of those necessary for the installation of tree protection barriers and temporary ground protection, are delivered to site, the 'Temporary ground protection areas' and the 'Precautionary area 1' area illustrated in this drawing will be covered by temporary ground protection. The type of ground protection to be used will be dependant on the anticipated loads it will need to carry as follows.*

- 1.7.1.1 *For pedestrian movements only, 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. 100 mm depth of woodchip), laid onto a geotextile membrane.*
- 1.7.1.2 *For pedestrian-operated plant up to a gross weight of 2 t, proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane.*
- 1.7.1.3 *For wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*
- 1.7.1.4 *In all cases, the temporary ground protection must avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired.*

1.7.2 *The temporary ground protection will be retained in place and intact until all construction activities have been completed and all construction materials, equipment, spoil and vehicles have been removed from the site.*

1.8 *Individual tree protection hoarding erection.*

1.8.1 *After the tree works are completed, but before any stumps are grubbed out, and before any construction works commence, and before any construction vehicles, equipment and materials are delivered to site, with the exception of those necessary for the installation of tree protection barriers, individual tree protection hoardings and temporary ground protection, the trunk of tree no. T2 will be encased in tree protection hoarding as follows.*

1.8.1.1 *This hoarding will comply with the illustration in this drawing.*

1.8.1.2 *The hoarding will extend to at least 2 metres above ground level, and out to edge of the existing square of bare earth around the base of each tree.*

1.8.1.3 *The hoarding will be custom fitted to each tree so that it does not abrade the bark yet it fits closely with no gaps and covers all the root buttresses and trunk to 2 metres above ground level.*

1.8.1.4 The hoarding will not be attached to the tree by nails, screws or any similar fixings. It will be supported by itself as a rigid structure sitting on the ground and its close fit to the trunk.

1.8.1.5 The hoarding will be retained in place until all construction works are completed and all construction vehicles, equipment, materials and spoil are removed from the site.

1.9 Stump grubbing out.

1.9.1 After the tree protection barriers and individual tree protection hoarding have been erected, and the temporary ground protection installed, the stumps of the felled Fruit tree and Yew shrub may be mechanically grubbed out.

1.9.2 No access into the construction exclusion zones formed by the tree protection barriers will be permitted as part of this work.

1.10 Hard surface construction in the 'Precautionary area 1' area.

1.10.1 The 'Precautionary area 1' area is where a new hard surface encroaches over the Root Protection Area (RPA) of a retained tree, and is illustrated with yellow hexagonal hatching in this drawing. In this area the new hard surface will be constructed as follows.

1.10.1.1 The temporary ground protection covering the 'Precautionary area 1' area will be removed at the last possible moment before the new hard surface is constructed, and by the minimum amount necessary to allow the construction of the hard surface e.g. the temporary ground protection will be largely retained so it is possible for machinery to access the edge of the working area by travelling either over the retained temporary ground protection, or across the newly constructed hard surface.

1.10.1.2 The precise design of this sub base will need to be supplied by either an engineer or the sub base manufacturer, but it must meet the following standards of design, performance and installation.

1.10.1.2.1 The temporary ground protection will be removed. Absolutely no vehicular access or storage of materials will be permitted on the soil surface exposed by the removal of the temporary ground protection.

1.10.1.2.2 If necessary, the surface turf and/or deleterious layer will be removed by hand and using hand tools only, i.e. spades and shovels, to a maximum depth of 50mm.

- 1.10.1.2.3 *The exposed ground surface will be covered by a permeable and pollution control geotextile membrane.*
- 1.10.1.2.4 *In order to create a level surface to work from, the area of the hard surface will be levelled up by adding a blinding layer of sharp sand that is non marine in origin. Grading down of the soil surface will not be permitted.*
- 1.10.1.2.5 *The sub base must be able to indefinitely support the anticipated traffic loads whilst preventing the underlying soil becoming compacted to the point that it impedes tree root growth.*
- 1.10.1.2.6 *The angular fill to be used in the three dimensional cellular confinement sub base must be non marine in origin, between 20 and 40 millimetres in size, contain no fines, and be sufficiently durable to indefinitely support the expected traffic loads without breaking up.*
- 1.10.1.2.7 *In order to provide support to the sub base, timber side boards with retaining timber pegs or kerbs will be used. Examples of such designs are illustrated in this drawing N.B. these examples are illustrative only and are not to be used as a substitute for sub base and kerb designs supplied by a competent engineer or the sub base manufacturer.*
- 1.10.1.2.8 *All vehicular and machinery access to the area of work will either be via the new hard surface i.e. a 'roll out' method of construction, or the retained temporary ground protection, or by another route that does not cross the 'Precautionary area 1' area or the RPA of any retained tree.*
- 1.10.1.2.9 *The new hard surface should be permeable to both air and water throughout its depth.*
- 1.10.1.2.10 *If it is necessary to harmonise the surface level of the new hard surface with the existing abutting hard surfaces, the existing hard surfaces will be built up to meet the new hard surface. If additional edge support is required for this build up, this will take the same form as used for the three dimensional cellular confinement sub base.*

1.11 *Underground service and drain installation.*

- 1.13.1 *All underground services and drains will be carefully routed so as to avoid crossing the RPA of all the retained trees.***

1.12 Fencing works in the Root Protection Area (RPA) of retained trees.

1.12.1 Where fences are to be erected in the RPA of retained trees they will be installed as follows.

1.12.1.1 The fences will be erected as part of the post construction landscaping works. If the tree protection barriers are still in place, pedestrian access to the Construction Exclusion Zones (CEZ) will be permitted as necessary to carry out this fencing work.

1.12.1.2 Post holes will be excavated by hand. If a significant root is encountered i.e. a root over 25mm in diameter, the post hole must be re-positioned so that it avoids the root.

1.12.1.3 Any roots encountered that are less than 25mm in diameter will be carefully cut back to the edge of the excavation using either a sharp pruning saw or a sharp pair of loppers.

1.12.1.4 The post can be secured with either rammed earth or concrete. If concrete is to be used, the post hole must first be lined with an impermeable and continuous membrane to prevent the leaching of toxic compounds into the root zone.

1.12.1.5 Mechanical augers and excavators will not be used within the RPA's.

1.12.1.6 No vehicular access across the RPA will be permitted as part of these works beyond the existing or new hard surfaces.

1.13 Soft landscaping in the Root Protection Area (RPA) of retained trees.

1.13.1 Where soft landscaping works are to be carried out in the RPA of retained trees, they will be carried out as follows.

1.13.1.1 The soft landscaping works will be carried out as part of the post construction soft landscaping works. If the tree protection barriers are still in place, pedestrian access to the Construction Exclusion Zones (CEZ) will be permitted as necessary to carry out these soft landscaping works.

1.13.1.2 Excavations for landscaping works within the RPA will be carefully carried out with hand tools only, and with no cultivations below 300mm. If significant roots are encountered i.e. roots over 25mm in diameter, these will be dug around and left undamaged.

1.13.1.3 Powered cultivators will not be used in the RPA.

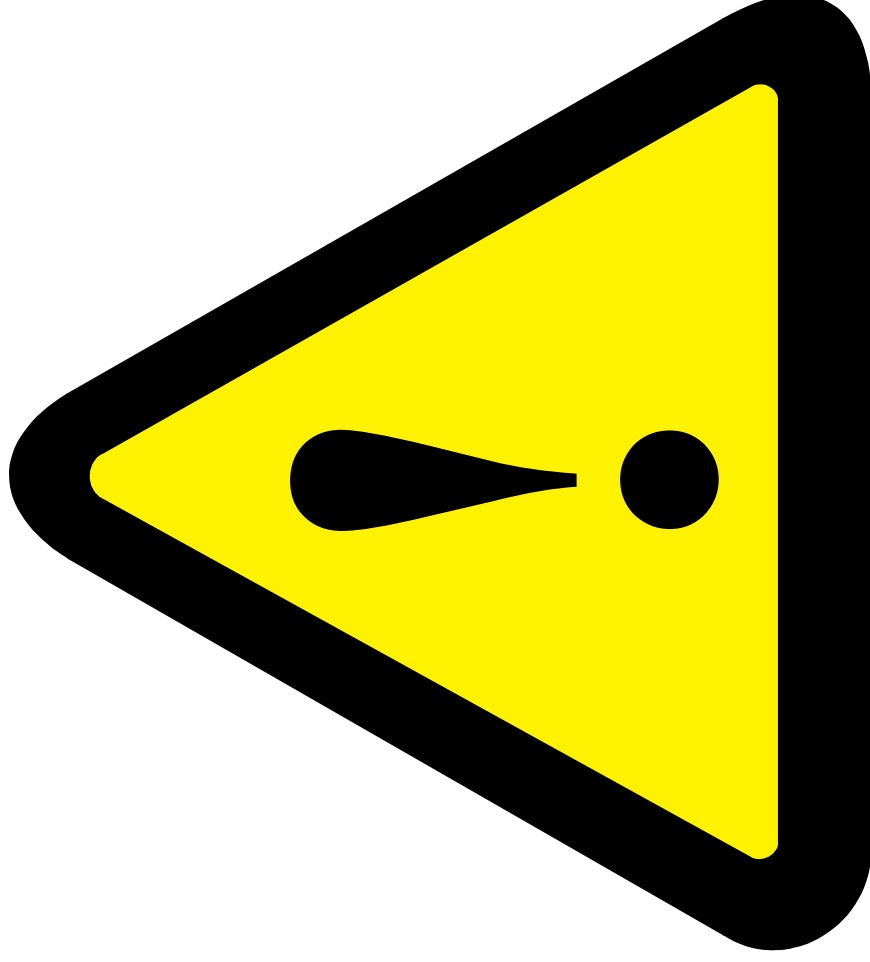
1.13.1.4 No vehicular access across the root protection areas will be permitted as part of these works beyond the existing or new hard surfaces.

Appendix 5

Tree Protection Barrier Sign



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



**TREE PROTECTION AREA
KEEP OUT !**

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

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

Appendix 6

References

- Lonsdale 1999 = Lonsdale, D. (1999) *Principles of Tree Hazard Assessment and Management*. In: Forestry Commission, Department of Transport Local Government Regions; Research for Amenity Trees. TSO, England. p355.
- Mitchell 1978 = Mitchell, A. (1978) *Trees of Britain & Northern Europe* (second edition). In: Collins Field Guide; Harper Collins Publishers, p206.
- BS5837:2012 = British Standard 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'.
- BS3998:2010 = British Standard 3998:2010 'Tree work – Recommendations'.