Addressing All Aspects of Arboricultural Consultancy

BS5837 ARBORICULTURAL REPORT,

ARBORICULTURAL IMPACT ASSESSMENT

& METHOD STATEMENT

OUR REFERENCE	**AC.2016.016.1**
CLIENT	**Mr Julius Kirchner**
SITE	**Garden Flat of 117 Priory Road, Camden, NW6 3NN**
REPORT BY	**I S Thompson (known as Tom) M.Arbor.A., BSc. (Hons) Arb, MSc. eFor**
DATE	**15th March 2016**
DATE OF SITE VISIT	**22nd February 2016**

ARBOR CULTURAL LTD.

36 CENTRAL AVENUE,

WEST MOLESEY, SURREY, KT8 2QZ

Phone: 0333 577 5523

W: www.arbor-cultural.co.uk

E: admin@arbor-cultural.co.uk

Garden Flat of 117 Priory Road, Camden, NW6 3NN

Application Ref No Unknown **Single storey rear extension to the existing residential lower ground garden flat**

Report produced by

I S Thompson M.Arbor.A., BSc. (Hons) Arb MSc. eFor

Principal Arboricultural Consultant

ARBOR CULTURAL LTD.

36 CENTRAL AVENUE,

WEST MOLESEY, SURREY, KT8 2QZ

Phone: 0333 577 5523

W: www.arbor-cultural.co.uk

E: admin@arbor-cultural.co.uk

Signed

……

Date……15th March 2016……

TABLE OF CONTENTS

APPENDICES

1 TERMS OF REFERENCE

1.1 I have been instructed in writing by Mr Julius Kirchner of Garden Flat of 117 Priory Road, Camden, NW6 3NN with regards to a planning application to be made by himself in respect of the above construction of a rear extension to the existing residential lower ground garden flat and report on the following in accordance with BS 5837 Trees in Relation to Design, Demolition and Construction - Recommendations 2012:

I. Tree survey
II. Arboricultural Impact Assessment
III. Arboricultural Method Statement
IV. Tree Protection Plan

1.2 The site was surveyed by I Thompson (known as Tom) on Monday 22nd February 2016 in the morning. The weather was showery and overcast but visibility remained adequate. The relative quantitative and qualitative tree data was recorded in order to assess the condition of the trees, their value, and any constraints that they pose to the prospective development and where necessary the tree protection measures and construction methods required to ensure their safe retention.

1.3 The tree information recorded relates to the tree condition, age, safe useful life expectancy, location, canopy spread, canopy height and tree height and direction of first significant branch as well as any tree work that is required.

1.4 I have based this report on my site observations and investigations and I have come to conclusions in the light of my qualifications obtained and experience gained whilst working in the field of arboriculture. I have qualifications and practical experience in arboriculture and forestry and list the details in Appendix I.

1.5 LIMITATIONS AND USE OF COPYRIGHT:

1.5.1 All rights in this report are reserved. No part of it may be reproduced or transmitted, in any form or by any means without our written permission. Its contents and format are for the exclusive use of Mr Julius Kirchner and his associates. It may not be sold, lent out or divulged to any third party not directly involved in this situation without the written consent of Arbor Cultural Ltd. This report will remain the intellectual property of Arbor Cultural Ltd. until payment has been received in full.

1.5.2 This report contains all my advice and opinions and any representation and/or statements that have or may have been made which are not specifically and expressly included in this report should not be relied upon and no responsibility is taken for the accuracy of such statements.

1.5.3 The Inspections were carried out on the basis of ground level, Visual Tree Assessment (VTA) examination of external features of each individual tree. Binoculars were used to assess the aerial parts. The report and recommendations relate to the condition of the trees and their relationship to their surroundings at the time of inspection only. All measurements, proportions and assessments of age are approximate.

1.5.4 Visual assessment, in accordance with accepted arboricultural practice, was based on apparent vitality (leaf cover, extension growth), presence of deadwood and die back, fractured and detached limbs, evidence of excessive basal movement and external indications of stem and basal decay likely to affect the structural condition of the tree. No decay detection equipment either invasive or non-invasive was employed.

1.5.5 Trees are living organisms whose health and condition can change rapidly. The conclusions and recommendations in this report are only valid for one year. This report will be invalidated if there are any changes to the site as it stands at present, e.g. building of extensions, excavation works, importing of soils, extreme weather events etc.

1.5.6 The survey findings are of a preliminary nature with regard to assessment of risk of direct damage (by contact) from trees to built structures. No soil samples were taken or trial pits were dug, therefore no risk assessment was carried out with regard to subsidence (indirect damage). No parts of the drainage or service systems were inspected on site as I am not qualified to do so.

1.5.7 If you, or your advisers, have at your disposal any information to suggest that the property is or has been suffering any tree related structural defect, I would ask that you release the information to us. All relevant data is presented within this report together with any recommendations for further analysis, as appropriate.

1.6 A principle aspect of tree inspections in relation to proposed developments is an assessment of the risk posed by trees in proximity to people or property. Generally, tree risk will increase with the age of the trees. The benefits afforded by the trees will also increase with age. The management recommendations will be guided by an analysis of the risk posed by the trees and the benefits afforded by them.

1.7 Documentation

1.7.1 The following documentation was provided when the work was commissioned.

- Letter/Email to confirm commission of the work.
- Plans of the site, Ref 0451- Existing LGF and 0451-LFG 201602219, showing the existing and proposed layout.

1.8 Disclaimer

1.8.1 I have no connection with any of the parties involved in this situation that could influence the opinions expressed in this report.

1.8.2 Following an initial site meeting to establish the position of the extension, the following arboricultural information is provided in support of the application.

2 INTRODUCTION

2.1 Site

2.1.1 The proposed site of the dwellings is within the current boundary of Garden Flat of 117 Priory Road, Camden, NW6 3NN, and will be adjacent to a number of currently unprotected but significant trees. Following the site meeting the following measures identified in this report are designed so as to minimise any likely impacts of the trees on the new structure and its foundations and any likely impacts of the construction on the trees, see plan AC.2016.016 TPP-01 Rev B attached.

2.2 Trees

2.2.1 The trees are located in the front garden along the eastern boundary with the road frontage and at the very end of the rear garden. There are two trees and a shrub in the adjacent gardens. They collectively provide a contribution to the appearance and character of Priory Road and soften the views from the road frontage. A schedule of the significant trees, their condition and category of retention is attached as Appendix VI.

2.2.2 The property and adjacent gardens contain a mix of semi-mature to mature trees with the species including horse chestnut, lime, privet, and plum. The closest retained tree to the proposed extension to the rear is the plum in the adjacent garden at around 13 metres away. The trees to the front of the property are close to the site access route.

2.2.3 An accurate topographical survey of the site was not provided. The tree locations were measured in relation to the site boundaries and other known features and triangulated and are accurate to +/-1m. So the drawing number AC.2016.016 TPP-01 Rev B provides a good representation of the tree location in relation to the site and the proposed and existing building/extension.

2.2.4 The trees have been assessed and categorised in relation to the methodology in Table 1 of BS 5837 (2012) Trees in Relation to Design, Demolition and Construction, as specified in Appendix III. The results are recorded in Appendix VI.

2.2.5 Any trees not included individually in the survey were either in groups or had other trees whose constraints exceeded theirs's in respect to the proposed development and all associated works.

2.2.6 All tree works considered necessary for health and safety reasons or to facilitate the development will be agreed with the Local Planning Authority and undertaken in accordance with the planning conditions attached to the planning consent. They will be undertaken in accordance with British Standard 3998 (2010) Recommendations for Tree Works, unless otherwise specified with clear justification for any deviation from the British Standard. This will be undertaken by an arboricultural contractor approved by the Local Authority Tree Officer.

2.2.7 If at any time additional pruning works are required permission must be sought from the Local Planning Authority first and then carried out in accordance with BS 3998 Recommendations for Tree Works (2010), unless otherwise specified with clear justification for any deviation from the British Standard. This will be undertaken by an arboricultural contractor approved by the Local Authority Tree Officer.

2.3 Proposed Development

2.3.1 The proposed works include the excavation of the area immediately behind the existing building, for the foundations of the proposed extension. The works consist of a single storey extension to the rear (west) of the existing lower ground garden flat.

2.4 Issues of Light and Shading

2.4.1 The proposed position of the new structures will place their nearest point at least 13 metres away from the nearest retained tree (T2 a plum). The new extension is positioned to the east of the trees, but at a distance that does not allow shadows of the trees cast at full mature height upon the buildings. This will allow adequate sunlight to reach all the windows during the summer and winter months.

2.5 Description (including levels)

2.5.1 This is currently a lower ground garden flat of a multi-storey residential dwelling with shared occupancy with a number of apartments in the building. The rear garden extends to the west. The site is essentially level but there is a raised area at the rear of the garden with a slightly increased soil level at the very end, and a raised decking area extending right the way across the garden to a distance of 6-6.5m from the end.

2.6 Soils

2.6.1 There is no information provided about the soils and there was no investigation undertaken.

3 ARBORICULTURAL IMPACT ASSESSMENT

3.1 Presence of Tree Preservation Orders (TPO) or Conservation Area Designation

3.1.1 The Local Planning Authority has not yet been contacted to establish whether any Tree Preservation Order (TPO) covers any of the trees. The site is in the Southhampstead Conservation Area. Notification would be required before commencement of any tree works and if there are any TPOs permission would be required.

3.1.2 Exemptions

There are a number of exemptions when this notification or permission are not required. They are detailed below:

- Removal of an imminent threat to people or property
- Removal of deadwood or dead trees

3.2 Effects on the amenity value of the trees by the development and facilitation pruning

3.2.1 All of the trees are to remain unaffected by the proposed development, consequently there is no detrimental effect to their amenity value.

3.3 Potential incompatibilities between the layout and the trees proposed for retention

3.3.1 No construction of foundations or installation of services is to take place within any Root Protection Area (RPA).

3.3.2 There will be no conflict with the crowns of any retained trees.

3.3.3 Site access will be from the eastern end of the site which is the existing entrance and hard standing pathway.

3.4 Infrastructure requirements – Highway Visibility, Lighting, CCTV, Services

3.4.1 There is no requirement for any tree removal or pruning to create adequate highway visibility. There will be no requirement for street lighting or CCTV visibility or services close to any of the trees.

3.4.2 No services or other infrastructure requirements will have any impact on the retained trees.

3.5 Mitigating tree loss and new planting

3.5.1 There has been no tree loss as a direct result of this planning application so there is no replacement planting proposed as part of this application.

3.6 Proximity of trees to structures

3.6.1 The impact of trees on buildings and vice versa and allowance for future growth have all been considered in the siting of the new buildings and structures. Tree size, future growth, light/shading, leaf and fruit nuisance etc. have received due attention and are not considered to be an issue. This is due to the considerable distance of the retained trees from the development and the protection measures proposed within this report.

3.6.2 At a distance of 13 metres from any of the tree stems it is likely that only a small number of minor roots of less than 5mm diameter will be encountered during foundation construction. Any severance of a small number of minor roots found at 13 metres plus distance from the tree stems will have an insignificant effect on the future growth and health of the retained trees.

3.6.3 The structure has been placed well outside of the RPA's of trees and therefore exceeds the recommendations of BS 5837, however there is a minor incursion into the theoretical RPA of a shrub on the adjacent property. This will be addressed in Section 8 of the Method Statement.

3.6.4 Overall the processes of construction are highly unlikely to have a detrimental effect upon the health of the retained trees assuming recommendations made in this report are adhered to at all times by the contractors e.g. the positioning of a stout fence is placed between the retained trees and all construction activities prior to commencement of any works and for it to remain intact and in position throughout the duration of the construction activities.

3.7 Issues to be addressed by the arboricultural method statement

- **Protective fencing to be established around the retained trees**
- **Site access**
- **Contractors parking, welfare facilities and storage areas**
- **Demolition and Excavation**

ARBORICULTURAL METHOD STATEMENT

Tree Protection throughout the Duration of Demolition and Construction Works

Arboricultural Method Statement includes a Tree Protection Plan to identify:

- Trees to be retained – identified with a dashed line with RPA written within it and green, blue or grey location marker circles and the corresponding A, B or C category label.
- Protective fence positions identifying the Construction Exclusion Zones (CEZ).
- Measurements to identify fence positioning in relation to centre of tree or other known features
- Contractor huts and storage areas

1 Construction Exclusion Zone

1.1 No works will be undertaken within any Construction Exclusion Zone (CEZ). The CEZs are to be afforded protection at all times and will be protected by fencing. A protective fence shall be erected prior to the commencement of any site works e.g. before any materials or machinery are brought on site, development or the stripping of soil commences. The fence shall have signs attached to it stating that this is a Construction Exclusion Zone and that **NO WORKS are Permitted within the fence**, see Image 4 in Appendix II. The tree protection fencing may only be removed following completion of all construction works.

1.2 The fence is required to be sited in accordance with the Tree Protection Plan ref AC.2016.016 TPP-01 Rev B enclosed with this method statement. They must ideally be constructed as per Figure 2 in BS 5837 2012 and be fit for the purpose of excluding any construction activity, (See Appendix II). Any other fence or barrier used must be fit for the purpose.

1.3 All tree protection fencing shall be regarded as sacrosanct and will not be removed or altered without prior written consent of the Local Authority Tree Officer.

1.4 There shall be two sections of fencing for the proposed development. There shall be a small barrier along the edge of the hedge to the front to prevent damage to T1 as equipment and materials are taken on site, and there shall be an addition fencing running at an angle across the garden as shown on AC.23016.016 TPP-01 Rev B, to protect the tree roots from all construction activity.

1.5 If the southern section of the front garden is to be used for the storage of materials and equipment then there shall be trunk protection measures installed around the main stems of T5 and T6. This shall be in accordance with Appendix II.

2 Ground Protection Measures

2.1 The tree protection fencing will extend to the full extent of the RPA of all retained trees, so there is not requirement for any ground protection measures as part of this development.

2.2 If the southern section of the front garden is to be used for the storage of materials and equipment then there shall be adequate ground protection measures installed. These shall consist of either metal road plates or precast reinforced concrete slabs or a proprietary system, to an engineering specification, designed in conjunction with arboricultural advice, to accommodate the likely loading to which they will be subjected. Alternatively ground guards as identified in Appendix V, or a similar product with an adequate certified load carrying capacity may be used. This is in accordance with BS5837 (2012).

3 Access Details

3.1 All access for site activity will be to the north of the existing building through the existing entrance.

4 Contractors car parking

4.1 This will be off-site.

5 Site Huts and Toilets

5.1 This will be on site where possible but outside the CEZs, on ground protection measures in the front garden or off-site in the compound on the road, as shown on AC.2016.016 TPP-01 Rev B.

6 Storage Space

6.1 This will be on site where possible but outside the CEZs, on ground protection measures in the front garden or off-site in the compound on the road, as shown on AC.2016.016 TPP-01 Rev B.

7 Additional Precautions

7.1 No storage of materials or lighting of fires will take place within any construction Exclusion Zone. No mixing or storage of materials will take place up a slope where they may leak into a Construction Exclusion Zone.

7.2 There shall generally be a presumption against burning on site. Where it does occur no fires will be lit within 20 metres of any tree stem and will take into account fire size and wind direction so that, no flames come within 5m of any foliage. Situations where fires are not permitted at all are:

- Where the ground is waterlogged as the heat will transfer through the water and damage tree roots significant distances away.
- During periods of drought, where there are peaty or highly organic soils, as there is a risk of underground fires occurring.

7.3 No notice boards, cables or other services will be attached to any tree.

7.4 Materials which may contaminate the soil will not be discharged within 10m of any tree stem. When undertaking the mixing of any material it is essential that, any slope of the ground does not allow contaminates to run towards a tree root area.

8 Demolition and Excavation

8.1 There shall be no demolition within any of the RPAs of retained trees, so there will not need to be any special measures or precautions undertaken other than the tree protection fencing, which shall be installed prior to any site works commencing.

8.2 There will be some excavation within the theoretical RPA of T4 a C category shrub in the adjacent property. 'There is a wall between the shrub and the proposed excavation. There is also a change in level from one side of the wall to the other, as the shrub is located close to the steps up to the main garden level at 117 Priory Road, resulting in the shrub being higher than the existing level of the applicant's property. Furthermore, the foundations for the wall will act as a barrier to root development from the shrub so its RPA should be off-set to be entirely on the adjacent property.

8.3 It is proposed to excavate the area immediately adjacent to this shrub using hand tools only, to ensure that no significant roots (>25mm) are encountered. In the unlikely event that there are significant roots encountered then the tree officer or an arboricultural consultant shall be consulted to ensure that the severance of these roots will not destabilise or affect the long-term viability of the shrub, before they are severed, with a single clean cut of the smallest possible diameter. The hand-dig excavation, or alternatively borehole samples can be undertaken prior to construction, to determine whether or not there are any significant roots from the shrub present.

8.4 All soil arising from the excavation for the foundations of the proposed extension shall be removed to the front of the site and taken off-site in a skip.

9 Hard Surfaces within the RPA

9.1 There is no construction of any new hard surfaces within the RPA of any retained trees, so there is no requirement for any no-dig surface construction method statements.

10 Construction within the RPA (No-dig)

10.1 There is no construction within the RPA of any retained trees, so there is no requirement for any no-dig construction method statements.

11 Foundation Designs

11.1 As there is no construction of foundations within the RPA of any retained trees there will be no requirement for any alternative foundations.

12 Remedial Tree Works

12.1 There is no tree work proposed as part of this application.

12.2 If at any time additional pruning works are required permission must be sought from the Local Planning Authority first and then carried out in accordance with BS 3998 Recommendations for Tree Works 2010, unless otherwise specified with clear justification for any deviation from the British Standard.

13 Use of Herbicides

13.1 It is not planned to use any herbicide in the proposed development. However, if any is required it shall be systemic, spot applied, and mixed according to manufacturer's recommendations.

14 Contingency Plan

14.1 Water is readily available on site and will be used to flush spilt materials through the soil and avoid contamination to tree roots. At the time of any spillage the main contractor will contact an arboriculturist for advice.

15 Responsibilities

15.1 It will be the responsibility of the main contractor to ensure that the planning conditions attached to planning consent are adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.

15.2 The main contractor will be responsible for contacting the Local Planning Authority at any time issues are raised related to the trees on site.

15.3 The main contractor will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position until completion of **ALL** construction works on the site.

15.4 The fencing, signage and ground protection measures must be maintained in position at all times and shall be checked on a regular basis by an on-site person designated that responsibility.

15.5 The main contractor will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any tree on site or those immediately adjacent to it.

16 Replacement Planting

16.1 As all of the trees are being retained unaffected it is not proposed to plant any replacement trees as part of this planning application. There remains a good canopy cover both in the property and the wider area.

References and Bibliography

Anon, British Standard BS 5837 (2012), “Guide for Trees in Relation to Construction”, British Standards Institute. London.

Anon, British Standard BS 3998 (2010), “Recommendations for Tree Work”, British Standards Institute. London.

DOE, “Tree Preservation Orders - A guide to the law and good practice”, Department of Environment, 1994.

Forbes-Laird, J. (2010) THREATS, Tree Hazard: Risk Evaluation and Treatment System. A method for identifying, recording & managing hazards from trees http://www.flac.uk.com/wp-content/uploads/2010/07/THREATS-GN-June-2010.pdf, Accessed 20/06/2012.

Harris, R.W. (1983) Arboriculture; Care of trees, shrubs and vines in the landscape. Prentice Hall, London

Lonsdale L (1999) Principles of Tree Hazard Assessment and Management HMSO

Mattheck, C. and Breloer, H. (1994) The body language of trees. HMSO 240 pp

Matheny N.P & J.R. Clarke, (1994), “A photographic guide to the Evaluation of hazard trees in urban areas, 2nd Edition, International Society of Arboriculture.

Shigo, A.L., (1986) A new tree biology. Shigo & trees, associates, Durham, New Hampshire, USA, 595 pp

Shigo, A.L. (1991) Modern Arboriculture. Shigo & trees, associates. Durham, New Hampshire, USA, 490pp

Town & Country Planning Act Part VIII (1990). Issued by the Secretary of State for the Environment, HMSO.

APPENDIX I – QUALIFICATIONS AND EXPERIENCE

I S Thompson (known as Tom) BSc (Hons Arb), MSc eFor, M.Arbor.A Cert Arb

1 QUALIFICATIONS

Subjects	Level	Dates
International Society of Arboriculture Certified Arborist	Pass	May – 2012
Professional Tree Inspection Course (LANTRA)	Pass	April - 2011
BSc Hons Arboriculture	(2.1)	2008 - 2009
FdSc Arboriculture	Distinction	2004 - 2007
MSc. Environmental Forestry (MSc eFor)	Pass	2001 - 2002
BSc. Hons Env Science (Conservation Management)	(2.2)	1997 - 2000
Environmental Studies	Access Course	1996 - 1997
Forestry & Practical Environmental Skills	NVQ I & II	1996 – 1997

2 CAREER SUMMARY

Tom Thompson began his career with trees in 1994 completing various practical forestry and environmental courses with BTCV as well as undertaking various voluntary roles within this field whilst studying to gain entry to university. During the completion of a degree in Environmental Science from the University of Surrey he spent six months working on sustainable forestry operations in British Columbia, Canada. He then spent one month on a forest based work camp in Japan before commencing an MSc in Environmental Forestry at the University of Wales Bangor.

He then spent five years working in new woodland creation, firstly for ADAS in the National Forest and then for 18 months with the Forestry Commission in Cobham, Kent. During this time, he began a degree in Arboriculture through Myerscough College.

This course enabled him to make the transition from forestry to arboriculture where he spent 5 years as a tree officer, firstly at St Albans and then more recently at King's Lynn and West Norfolk. He joined Connick Tree Care in May 2012, where he worked as an Arboricultural Consultant for 2 years. He has been the Principal Arboricultural Consultant at Arbor Cultural Ltd. since it was founded in June 2014.

3 AREAS OF EXPERTISE

- Tree hazard risk assessments for tree owners
- Decay assessment and mapping
- Mortgage and Insurance reports to assess the influence of trees on buildings
- Pre-development site surveys and arboricultural implication studies
- Tree management reports to prioritise maintenance programs
- Tree related insurance claims
- Diagnosis of tree disorders
- General arboricultural advice
- Woodland design for conservation

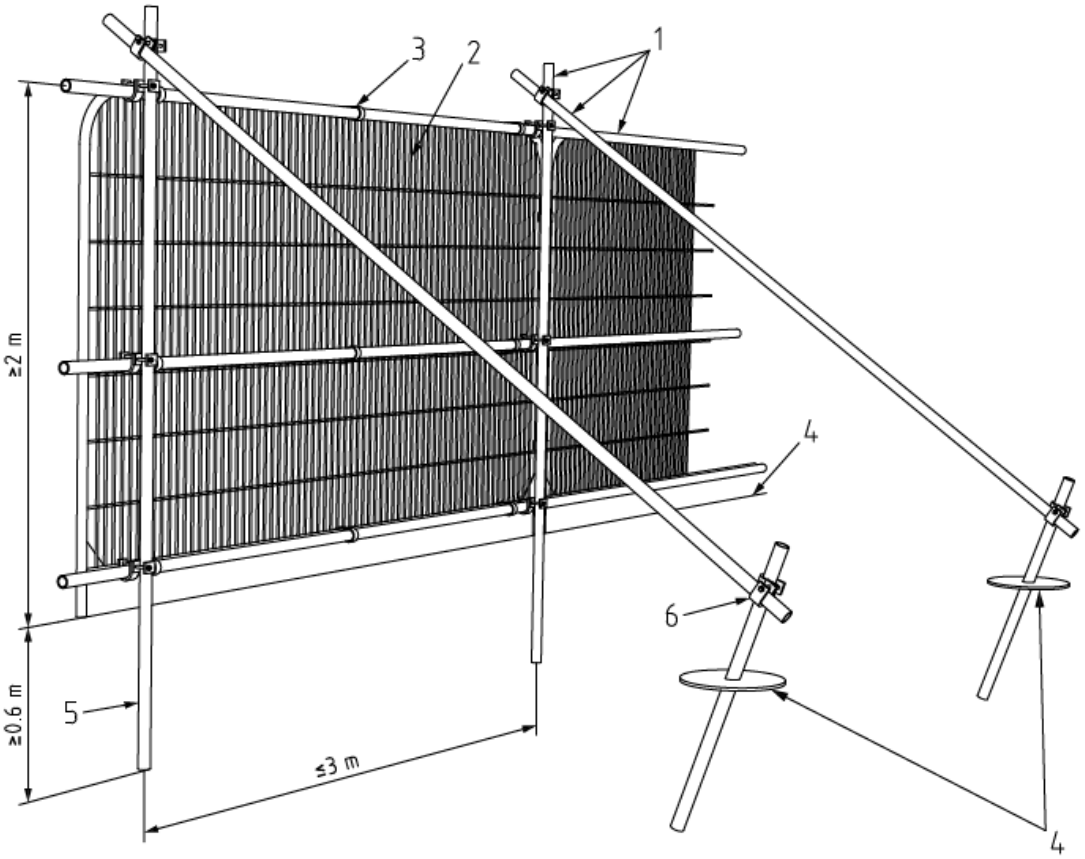
4 SELECTED CONTINUAL PROFESSIONAL DEVELOPMENT

Risk Assessment D Lonsdale & J Barrel	ISA & CSA	June	2013
BS 5837 Training	Tree Life Training	May	2013
Pests and Diseases Road Show	Arboricultural Association	April	2013
Subsidence; Giles Biddle Part 2	Arboricultural Association	April	2013
Arboricultural Consultancy Course	Arboricultural Association	April	2013
Subsidence Seminar		March	2013
BS 5837 2012 & Tree Regs Changes	Arboricultural Association	May	2012
BS 3998 Changes to Standard	London Tree Officers Association	May	2012
Bat Course for Arboriculturalists	AA & Bat Conservation Trust	April	2012
Tree Biomechanics (Germany)	Claus Mattheck	Oct	2011
Designing with Trees	T Kirkham & P Thurman	Sept	2011
Urban Forest–Climate Change, Shade & SUDS	Peter MacDonagh	Sept	2011
Arb Consultancy Report Writing	Consulting Arb Society	July	2011
BS5837 Seminar on new 2011 draft	Arb Association & ICF	June	2011
BS3998 Road show presenting 2010 document	Arb Association	May	2011
New Pests and Diseases Advance	David Rose	Mar	2011
Fungal Management Strategies	Barcham Nursery	Nov	2010
Perfect Roots & Tree Growth	Gary Watson	June	2010
Fungi Recognition and Response	Tree Life Training	May	2010
Visual Tree Assessment	Claus Mattheck	May	2010
Arboriculture in Planning	Arb Solution	April	2010
Trees and the Law Charles Minors	Barcham Nursery	Oct	2009
Tree Related Subsidence	Tree Life Training	Oct	2009
CAVAT as a management tool	NATO	Sept	2009
CAVAT Training	NATO	Sept	2009
THREATS Tree Assessment	JFL Arboriculture	Aug	2009
BS 5837 (Trees in Relation to Construction)	Tree Life Training	Jul	2009
Trees and Hard Surfaces	NATO	June	2009
BS 5837 (Trees in Relation to Construction)	Richard Nicholson	May	2009
Native Woodland Plan Advisor	F C Wales		2002

5. PROFESSIONAL AFFILIATIONS

Arboricultural Association Professional Member	since 2008
International Society of Arboriculture Certified Arborist	since 2012
Consulting Arboriculturalist Society	Since 2013
Royal Forestry Society	since 1999

APPENDIX II SPECIFICATIONS FOR TREE PROTECTION MEASURES



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 1 Default Tree Protection Fencing Design BS5837 (2012)

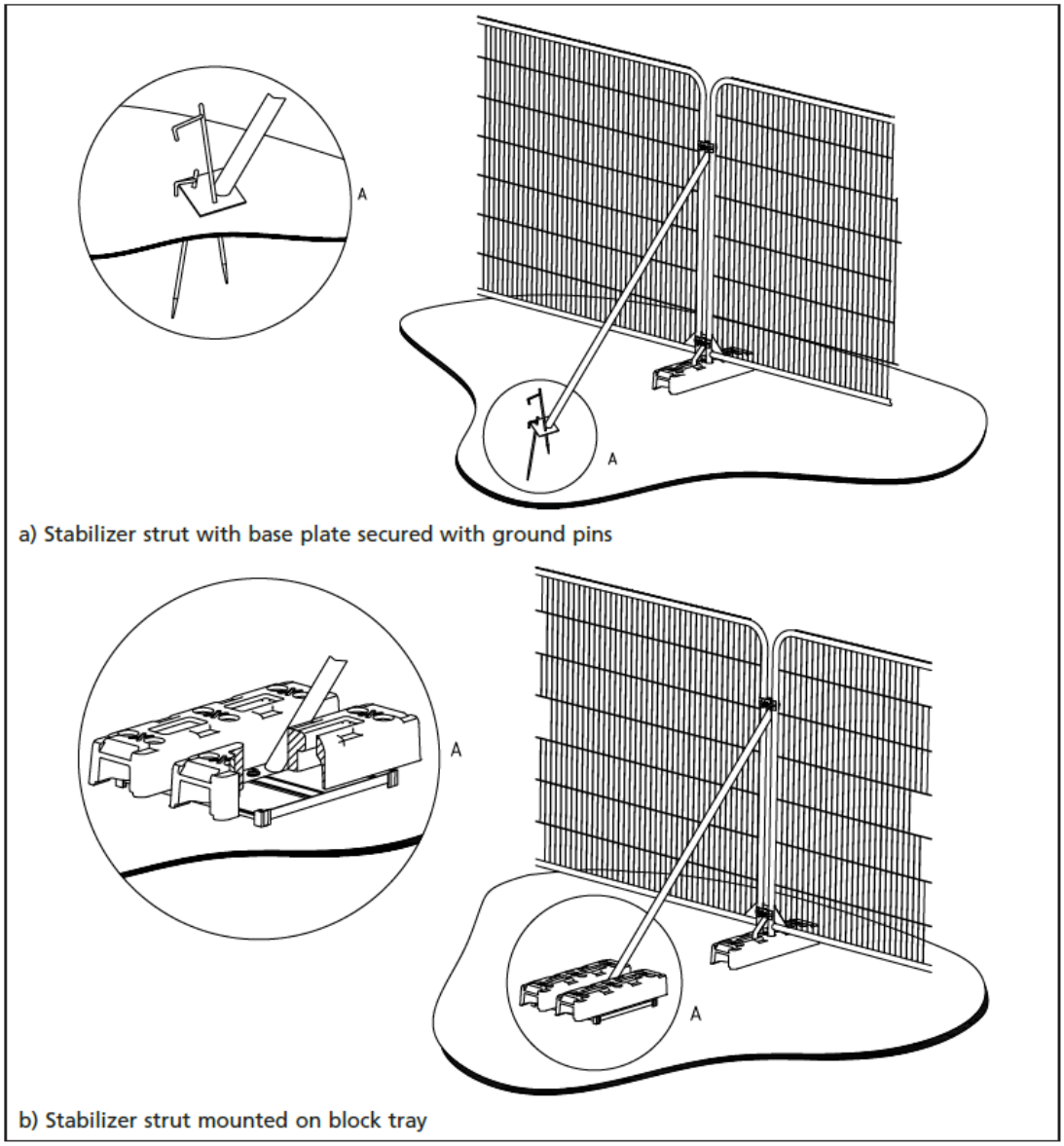


Figure 2 Tree Protection Fencing Design for Hard Surfaced Areas Only (BS5837 2012)

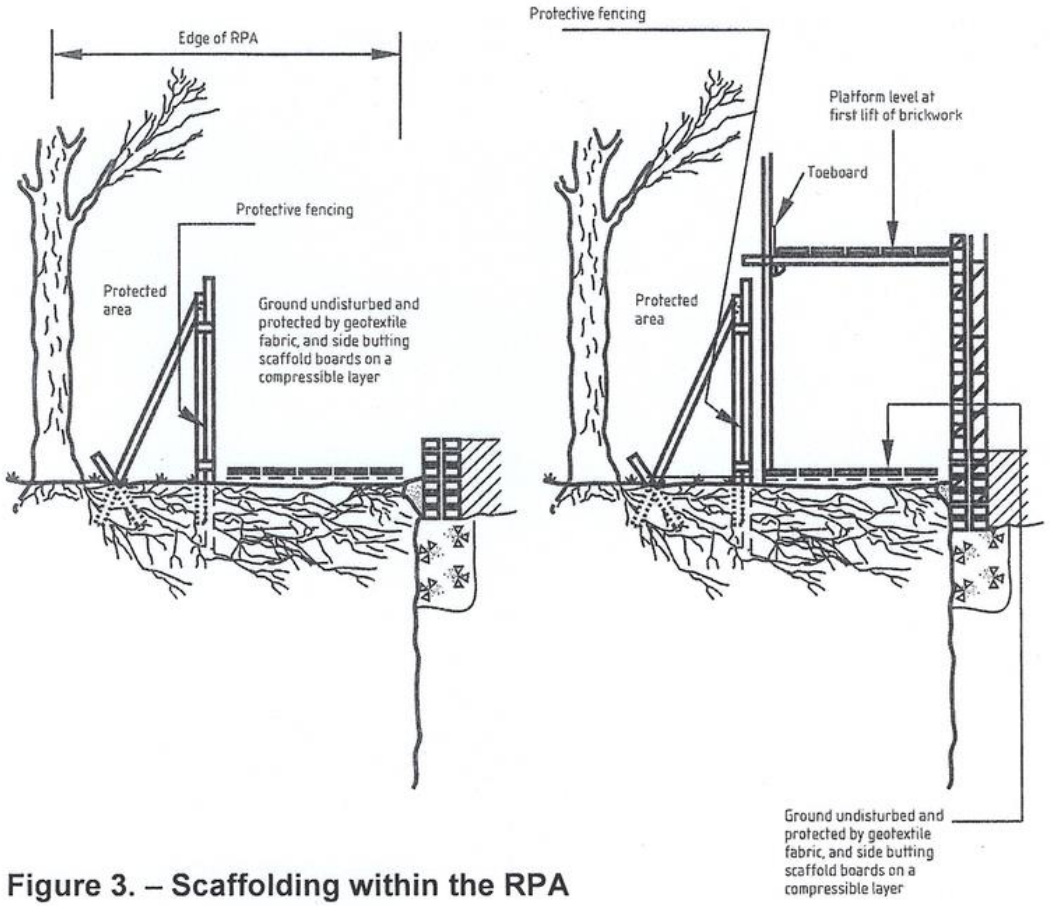


Figure 3. – Scaffolding within the RPA

Figure 4 Construction Exclusion Zone Signage.

TREE STEM PROTECTION MEASURES

The trunk protection measures around T5 and 6 are to be made from sections of hessian covered plastic 50mm HDPE pipe as a series of vertical pieces 2m high, spaced at 75mm apart at 30 cm from top, and 110mm apart at 30 cm from bottom; using section of 25mm HDPE pipe as spacers, threaded on to two strands of multicore stainless 5mm steel cable.

The cables are to be finished as loops using standard u-clamps. The unit is to be fitted around the whole of the tree's girth, and held in place by tying between the terminal loops using polyprop rope. This is shown in Figures 1 and 2 below.

Alternatively, the main stems of T5 and 6 shall be protected by 2.4m tall timber stub hoarding erected in a 1m by 1m box around the tree, using marine grade ply or equivalent strength, and shall be maintained for the duration of the development. This will be secured into the ground and a compressible product such as polystyrene placed between the box and the tree to protect the tree should the box be damaged or knocked.

Figure 5 Tree Trunk Protection Measures

Figure 6 Insulated pipe inside planks, to protect trunks of T5 and T6.

APPENDIX III KEY TO BS5837 TREE SURVEY RECORDS

Tree No.

Tree numbers applied as T1 etc. to each tree are as per the Tree Survey Plan and subsequent drawings, where trees occur as a cohesive group these are suffixed with a G, they are assessed as such, with all size data being given as mean figures unless otherwise stated. Any trees on-site and off-site that are appropriate to be included but are omitted from the topographical survey supplied are included in the schedule, though their positions are shown only indicatively.

The measurement conventions are as follows.

a) Height, crown spread and crown clearance are recorded to the nearest half metre (crown spread is rounded up) for dimensions up to 10 m and the nearest whole metre for dimensions over 10 m.

b) Stem diameter is recorded in millimetres, rounded to the nearest 10 mm (0.01 m).

c) Estimated dimensions (e.g. for off-site or otherwise inaccessible trees where accurate data cannot be recovered) should be clearly identified as such (e.g. suffixed with a "#").

Height (m)

Tree height measured in metres.

Stem Diameter (mm)

Stem diameter in millimetres measured at 1.5m above ground level. Where the stem is divided below 1.5m, measurement is taken as directed by BS 5837 Annex C.

Branch Spread (m)

Radial crown spread in metres, measured for each of the four cardinal points of the compass from the centre of the trunk.

Height of Lowest Branch (m) and direction of growth

Height above ground in metres of the lowest branch and use of the 4 cardinal points of the compass

Life Stage:

Y	**Young**	A recently planted or establishing tree that could be transplanted without specialist equipment, i.e. up to 12-14cm stem diameter.
SM	**Semi-Mature**	An establishing tree which is still exhibiting apical dominance and has significant growth potential.
EM	**Early-Mature**	A tree that has reaching its ultimate potential height and has lost its apical dominance, and whose growth rate is slowing down but will still has potential for a significant increase in stem diameter and crown spread and has a significant safe life expectancy remaining
M	**Mature**	A tree with limited potential for any increase in size but with reasonable safe useful life expectancy.
OM	**Over Mature**	A senescent or moribund specimen with a limited safe useful life expectancy.
V	**Veteran**	A tree of great age for species with important biological, aesthetic, conservation or cultural value. Trees are in a state of decline due to old age.

Condition of Trees

Physiological Condition (P) An assessment of the physiological condition (i.e. health/vitality) of the tree categorised into:

Good	A tree in a healthy condition with no significant problems
Fair	A tree generally in good health with some problems that can be remediated
Poor	A tree in poor health with significant problems that can't be remediated
Dead	A tree without sufficient live material to sustain life

Structural Condition (S) An assessment of the structural/safe condition of the tree categorised into:

Good	A tree in a safe condition with no significant defects.
Fair	A tree in a safe condition at present but with defects or with significant defects that can be remediated.
Poor	A tree with significant defects that can't be remediated

Notes related to both physiological and structural condition follow the categorization in order support the statement and give greater detail on the true quality and value of the tree.

Preliminary Management Recommendations

These may include further investigations for the presence or extent of decay or climbed inspections, ivy removal or pruning works when access is a non-moveable aspect etc. (NB this is not intended to be a specification for tree work and further advice maybe required prior to implementation). Trees assessed as being in apparently immediately hazardous condition will be notified to the client separately as soon as practicable.

Estimated Remaining Life Contribution

This is an estimate of the remaining life contribution in years that the tree or group of trees is expected to have based on species, condition on the site in its current context. The following bands are used:

<10	**Tree is dead or dying and unlikely to contribute beyond 10 years**
10+	**Tree is assessed as being able to contribute to the site for 10+ years**
20+	**Tree is assessed as being able to contribute to the site for 20+ years**
40+	**Tree is assessed as being able to contribute to the site for 40+ years**

Quality and Value Category Grade

U	**Trees that cannot be realistically retained**	**Dark red**
A	**Those trees of HIGH value quality to retain**	**Light green**
B	**Those trees of MODERATE quality to retain**	**Mid blue**
C	**Those trees of LOW quality to retain**	**Grey**

Deadwood Categorisation

Minor Deadwood Less than 50mm in diameter or less than 3m in length

Major Deadwood Greater than 50mm in diameter or greater than 3m in length

APPENDIX IV PHOTOGRAPHS

Image 1 T1 at the rear of the garden

Image 2 Main stem of T1 with ridges and ivy up to around 5m

Image 3 T2 in the adjacent garden to the south

Image 4 T3 in the adjacent garden to the north

Image 5 Base of T1, showing the existing decking area and level change

Image 6 View looking east up the garden with the shrub visible on the left

Image 7 T5 and 6 in the front garden with the existing hard standing visible

Image 8 T7 a privet growing out of the hedge, viewed from the road to the east

Image 9 Existing shed on the decking at the end of the garden, with a stump behind it

Image 10 T7 with a hedge around it, small barrier will be installed along hedge.

APPENDIX V GROUND GUARD SPECIFICATION

APPENDIX VII GROUND GUARDS

Ground-Guards
Introduction

Ground-Guards
FastCover

Driven by passion, consistency and excellence, we strive to provide you with the most innovative and forward-thinking ground protection solutions available today.

Our ground protection mats enable you to construct durable roadways, walkways and pad areas, with the support of our highly experienced team who can assist with bespoke designs to suit your specific requirements, step-by-step installation guidance, and an after-sales care service second-to-none.

The suitability of any trackway solution is largely governed by ground and weather conditions, which can vary dramatically from site to site and month to month, and over which we have no control.

Our clients trust us because we offer practical, step-by-step guidance, site visits (subject to location), and technical support. Our highly trained, experienced and friendly support team are ready to provide you with the expertise you need for the job on hand.

The data below highlights the typical applications for the various products in the Ground- Guards range. Please note that as a further precaution, optimum stability can be achieved by the use of a woven geotextile membrane under the mats.

Remember, cutting corners is a big risk to take. Time is money, and life is irreplaceable. If you are in any doubt whatever as to the requirements for your site, feel free to call one of our team for advice.

Product	Surface	Typically suitable for*
LiteTrack	Multiple surfaces	Pedestrians, cars, light goods vehicles
MultiTrack	Multiple surfaces	Pedestrians, cars, construction plant, heavy goods vehicles
MaxiTrack	Multiple surfaces	Pedestrians, cars, construction plant, heavy goods vehicles
BogMats	Multiple surfaces	Construction plant of all sizes, depending on thickness of mats
FastCover	Grass	Pedestrians, golf buggies
	Crushed Stone	Pedestrians, cars, light goods vehicles
	Concrete	Pedestrians, cars, construction plant, heavy goods vehicles
TrenchGuards	Pavements	Pedestrians, cars

*dependent on ground and weather conditions. If in doubt, please speak to our support team for advice.

Rapid, safe and simple pedestrian ground protection

FastCover is a 1200 x 800mm matting system available in 22mm and 43mm thicknesses. It has interlocking flanged edges, and provides clean, safe and well-protected floors in an incredibly rapid installation time.

It's unique add-on end ramp design minimises the possibility of trip hazards, making it the product of choice for any situation where safety is a high priority.

It's numerous applications include pedestrian walkways, indoor and outdoor event floors, temporary car parks, factory flooring and welfare compounds.

Not only is it a low-hazard product, but each mat has been formed from entirely recycled raw material to reduce impact on the environment.

+44 (0) 113 267 6000 Ground-Guards
info@ground-guards.co.uk www.ground-guards.co.uk

+44 (0) 113 267 6000 Ground-Guards
info@ground-guards.co.uk www.ground-guards.co.uk

Arbor Cultural www.arbor-cultural.co.uk

Ground-Guards
LiteTrack

Ground-Guards
LiteTrack Accessories

100% RECYCLES

The light yet strong ground protection mat

LiteTrack is crafted from a specially recycled LDPE polymer, allowing it to remain flexible enough to follow the contours, yet strong enough to protect your surface.

This cost-conscious system has been created for light vehicles and pedestrian access, making it a great solution for many construction sites and events.

The 2400 x 1200 LiteTrack mats provide the perfect alternative to using plywood, without incurring the expense of a trackway system which may be over-engineered for the job.

With a full range of accessories, LiteTrack is fast becoming the system of choice for contractors, events and local authorities. It's well positioned costing makes it a super investment that will pay dividends for many years to come.

LiteTrack Accessories:

LiteTrack accessories increase efficiency and safety on site. Joiner clips lock the mats together, ground pins reduce slippage on inclines, and HandiHooks make light work of handling.

Many sites are required to segregate between roads and walkways, for protection of pedestrians. Our high-visibility post-and-chain system achieves this rapidly.

SafeStore stillages secure 30 LiteTrack mats in place when not in use. They can be stacked six high, maximising space-saving on site.

1. Double joiner clip
2. Single joiner clip
3. Low profile double joiner clip
4. Low profile single joiner clip
5. Post and chain system
6. Ground anchor pin
7. HandiHook
8. SafeStore stillage

+44 (0) 113 267 6000 Ground-Guards
info@ground-guards.co.uk www.ground-guards.co.uk

+44 (0) 113 267 6000 Ground-Guards
info@ground-guards.co.uk www.ground-guards.co.uk

Arbor Cultural www.arbor-cultural.co.uk

Ground-Guards
MultiTrack

Ground-Guards
MultiTrack Accessories

100% RECYCLED

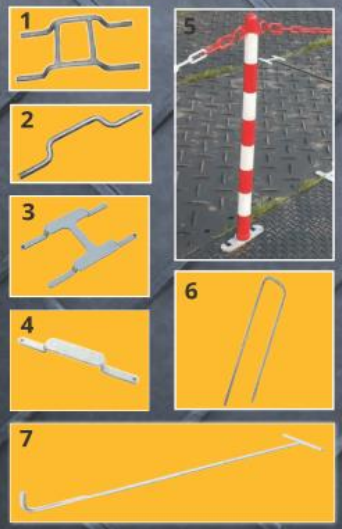
The original and best ground protection mat

MultiTrack's unique HDPE polymer offers virtual indestructibility. At 2400 x 1200mm, it weighs just 39kg making it very easy to handle.

With a great range of accessories, trackways and pad areas are rapid to lay, reducing the need for stone roadways and the expense of reinstating these areas.

The dual purpose finish provides both pedestrian and vehicular tread patterns for the price of one. MultiTrack users find huge benefit over any other system. With up to 120 tonnes UDL (uniformly distributed load), these mats remain in a league of their own.

Please note that weight loadings quoted are entirely subject to ground and weather conditions, both of which are beyond our control. Whilst it is the user's responsibility to ascertain their suitability in each instance, our friendly support team are on hand to guide you at every step of your project.



MultiTrack Accessories

MultiTrack accessories compliment the system, increasing efficiency and safety on site. Joiner clips lock the mats together, ground pins reduce slippage on inclines, and HandiHooks make light work of handling.

Many sites are required to segregate between roads and walkways, for protection of pedestrians. Our high-visibility post-and-chain system achieves this rapidly.

SafeStore stillages secure 25 MultiTrack mats in place when not in use. They can be stacked six high, maximising space-saving on site.

1. Double joiner clip
2. Single joiner clip
3. Low profile double joiner clip
4. Low profile single joiner clip
5. Post and chain system
6. Ground anchor pin
7. HandiHook
8. SafeStore stillage

+44 (0) 113 267 6000 Ground-Guards
info@ground-guards.co.uk www.ground-guards.co.uk

+44 (0) 113 267 6000 Ground-Guards
info@ground-guards.co.uk www.ground-guards.co.uk

Arbor Cultural www.arbor-cultural.co.uk

APPENDIX VI - TREE SURVEY RECORDS

Date of Survey - 22nd February 2016

Tree Id No	Tree Species	Stem Diam (mm)	Stem No	Tree Hgt (m)	Ult Hgt (m)	Crown Height N, E, S, W (m)				FSB Hgt (m)	FSB Dir	Life Stage	Life Exp	BS 5837 Cat Pre	BS 5837 Cat Post	Canopy Spread N, E, S, W (m)				Phys & Struct Condition	Comments	Recommended Work	RPA Annex D (m)
T1	Horse Chestnut, *Aesculus hippocastanum*	790	1	12	12	6	5	6	7	-	-	M	40+	C1	C1	3	10	5#	5#	P Fair S Fair	Ivy to 5m Ridges on lower main stem Previously reduced crown Minor deadwood	No Action required at this time (NAR)	9.6
T2	Plum, *Prunus cerasifera*	200#, 240#	2	6	8	4	4	3	3	-	-	SM	40+	C1	C1	2	5	2#	2	P Fair S Fair	Topped at 6m	NAR	3.6
T3	Unidentified	120#, 150#, 180#	3	8	10	3	3	3	5	-	-	SM	40+	C1	C1	3#	6	3	2#	P Fair, S Good	Asymetrical canopy wit a bias to the east Multi stemmed at the base.	NAR	3.3
T4	Shrub	5 x 50#	1	6	6	2	2	2	2	-	-	EM	40+	C1	C1	3	2	2	2	P Fair S Fair	Topped at 2m and managed as a bush	NAR	1.2
T5	Lime, *Tilia x europaea*	220	1	4	4	4	4	4	4	-	-	EM	40+	C1	C1	1	1	1	1	P Fair S Fair	Recently repollarded at 4m	NAR	2.7
T6	Lime, *Tilia x europaea*	200	1	4	4	4	4	4	4	-	-	EM	40+	C1	C1	1	1	1	1	P Fair S Fair	Recently repollarded at 4m	NAR	2.4
T7	Privet, *Ligustrum ovalifolium*	340	1	5	5	2.5	2.5	2.5	2.5	-	-	EM	40+	C1	C1	2.5	3	3.5	3.5	P Fair, S Good	Crown lifted and reduced to manage at current size Growing in a hedge	NAR	4.2