Addressing All Aspects of Arboricultural Consultancy

BS5837 ARBORICULTURAL REPORT,

ARBORICULTURAL IMPACT ASSESSMENT

& METHOD STATEMENT

OUR REFERENCE	**AC.2017.023**
CLIENT	**Mr Andy Murphy of AJ Murphy Surveyors Ltd**
SITE	**106 Priory Road Hampstead, London NW6 3NS**
REPORT BY	**I S Thompson (known as Tom) M. Arbor. A., BSc. (Hons) Arb, MSc. eFor**
DATE	**2nd March 2017**
DATE OF SITE VISIT	**27th February 2017**

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106 Priory Road Hampstead, London NW6 3NS

Application Ref No Unknown **Repairs to a garden wall that is in a poor state of repair and presenting a potential danger to residents**

Report produced by

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

Principal Arboricultural Consultant

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Signed

…….

Date……2nd March 2017……

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APPENDICES

1 TERMS OF REFERENCE

1.1 I have been instructed in writing by Mr Andy Murphy of AJ Murphy Surveyors Ltd with regards to a planning application to be made by himself in respect of the above reconstruction of the garden wall, 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 27th February 2017, in the morning. The weather was wet and overcast but visibility remained adequate. The relative quantitative and qualitative tree data was recorded 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 Murphy 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 based on 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 regarding 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.

1.6 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.
- Plan of the site, showing the proposed works.

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 visit to assess the position of the wall in relation to the trees, the following arboricultural information is provided in support of the application.

2 INTRODUCTION

2.1 Site

2.1.1 The proposed site of the wall is along the current boundary of 106 Priory Road Hampstead, London NW6 3NS, and will be adjacent to several currently unprotected but significant trees. Following the site meeting the measures identified in this reports are designed to minimise any likely impacts of the trees on the new wall and its foundations and any likely impacts of the construction on the trees, see plan AC.2017.023TPP-01 Rev A.

2.2 Trees

2.2.1 The trees are in the rear garden mostly around the perimeter of the small split garden area, close to the damaged wall with some on the adjacent land. They collectively provide a contribution to the appearance and character of Priory Road and soften the views from the surrounding gardens. A schedule of the significant trees, their condition and category of retention is attached as Appendix VII.

2.2.2 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 +/-1.5m. So, the drawing number AC.2017.023 TPP-01 Rev A provides a good representation of the tree location in relation to the site and the proposed and existing wall.

2.2.3 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 VII.

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

2.2.5 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.

2.2.6 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 consist of the careful deconstruction of the existing damaged wall that has become potentially unstable, and then the subsequent building of a replacement wall.

2.4 Issues of Light and Shading

2.4.1 The proposed development is the rebuilding of a wall so shading and loss of light from trees will not be a constraint that needs consideration.

2.5 Description (including levels)

2.5.1 This is currently the rear shared garden of a semi-detached residential dwelling which is located to the west of the site, with the garden area of a block of flats to the rear (west). The site is essentially level, although there is a slight drop between it and the gardens of the flats to the rear.

2.6 Soils

2.6.1 There is no information provided about the soils and there was no on-site investigation undertaken but the British Geological Society (BGS) viewer indicates that the sub soil is London Clay mainly comprising of bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay. It also includes a few thin beds of shells and fine sand partings or pockets of sand, which commonly increase towards the base and towards the top of the formation. There is no information about the drift layer. It was soft and sticky on site as it was a wet day, so there was evidence of a high clay content in the top soil.

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, or to determine if the site is situated within a Conservation Area (CA). It would be necessary to determine whether either of these planning controls are in operation before commencement of any tree works.

3.1.2 Exemptions

There are two exemptions, when this notification or permission is 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 There are only three trees that are proposed for removal as part of this applications. These are T1 and T2, along the side wall, and T6 along the rear wall. T1 a Cherry and T2 a Norway maple are both fairly small trees in poor condition following repeated pruning. T1 has been reduced to topped at 4m, 6m and 7, and has poor form and some large stubs with decay pockets. T2 has been topped at around 4m and has poor form. These are both recommended for removal and replacement once the wall has been completed.

3.2.2 T6 is inside the garden of 106 but growing up against the rear wall and as this is at a higher level than the garden area of the flats, there is the potential for this tree to be destabilised when the remainder of the wall is removed. This is the reason that this is recommended for removal and replacement with a more appropriate species choice. Consequently, there will be an impact to the amenity value of the area, which shall be addressed in Section 17 Replacement Planting.

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

3.3.1 There is proposed construction of foundations within the RPA of retained trees, along the length of the wall. This will be addressed in the Arboricultural Method Statement, Section 10 Construction with the RPA and Section 11, Foundation Design.

3.3.2 There will not be any services installed within any Root Protection Area (RPA). The services will be taken of the existing supply to the main house.

3.3.3 The crowns of all retained trees will remain unaffected by the proposed works. All tree surgery works will be undertaken prior to construction activity and in accordance with the Arboricultural Method Statement Section 12 Remedial Tree Works.

3.3.4 Site access will be from the western end of the site which is the existing entrance and pedestrian access to the rear garden.

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 shall be some replacement planting to mitigate the loss of the trees being removed. This will be detailed in Section 17, Replacement Planting in the Arboricultural Method Statement, and their locations shown on the tree protection plan AC.2017.023 TPP-01 Rev A.

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 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 always 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**
- **Ground protection measures around the RPA of retained trees where work access is required.**
- **Site access**
- **Contractors parking, welfare facilities and storage areas**
- **Demolition**
- **Hard surfaces within the RPA of retained trees**
- **Remedial tree work**
- **Construction within the RPA of retained trees**
- **New planting**

ARBORICULTURAL METHOD STATEMENT

Tree Protection throughout the Duration of Demolition and Construction Works

All the details specified in this method statement will need to be supervised by an Arboricultural Consultant with suitable qualifications and experience.

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 always 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.2017.023 TPP-01 Rev A 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.

2 Ground Protection Measures

2.1 The ground protection measures will be for pedestrian work access only. This will consist of a single thickness of scaffold boards placed either on top of a driven scaffold frame to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100mm minimum depth of woodchip), laid onto a geotextile membrane. Alternatively, Ground Guards or a similarly tested product, as detailed in Appendix VI could be used. This is accordance with BS 5837 (2012) and is to prevent compaction to the underlying soil.

3 Access Details

3.1 All access for construction vehicles will be to the road outside the front of the houses, and any materials shall be hand carried in or craned over the buildings.

4 Contractors car parking

4.1 This will be off-site.

5 Site Huts and Toilets

5.1 The facilities in the upstairs part of 104 will be used for the site office and welfare facilities whilst the construction work is completed.

6 Storage Space

6.1 This will be in the rear garden of 106, as shown on the tree protection plan AC.2017.023 TPP-01 Rev A.

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 consider 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

8.1 Demolition of the existing wall will be undertaken carefully using hand tools only, as the bricks are to be reused where possible. The materials are to be stored away from the root protection areas (RPAs) of any retained trees.

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 will be some wall foundations within the RPA of retained trees, most noticeably T4, T5 and T7, as shown on AC.2017.023 TPP-01 Rev A. This will be achieved with careful excavation using hand tools only. If any significant roots (greater than 25mm in diameter) or dense fibrous matts of roots are encountered, then these shall be retained and bridged over using some form of lintel or reinforced materials.

11 Foundation Designs

11.1 As there is construction in very close proximity to some significant retained trees care will have to be taken with the excavating for the foundations. Any significant roots (greater than 25mm in diameter) or dense fibrous matts of roots that are encountered shall be retained, and some form of bridging over them will be achieved as detailed in Section 10 above. It may be necessary to use mini-piles or screw piles to support some sections of foundations is there are only narrow gaps between the roots.

12 Remedial Tree Works

12.1 Tree works (see schedule at Appendix VII) will be undertaken in one phase, and this will be undertaken prior to any construction or demolition works and prior to the installation of any tree protection measures. All tree works are to be carried out in accordance with BS 3998 (British Standard Recommendations for Tree Work 2010) unless otherwise specified with clear justification for any deviation from the British Standard.

12.2 There are only three trees that are proposed for removal as part of this applications. These are T1 and T2 along the side boundary wall, and T6 along the rear boundary wall.

12.3 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 always 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 Arboricultural Supervision

16.1 Since BS5837 was amended in 2012 site supervision has been identified as a key element of the process of protecting trees during construction. It requires that there is "an auditable system of arboricultural site monitoring. This should extend to arboricultural supervision whenever construction and development activity is to take place within or adjacent to any RPA."

16.2 Site Supervision

16.2.1 A site agent must be nominated to be responsible for all arboricultural matters on site. They must be nominated for each phase of work, if demolition and construction contracts are to be awarded separately. The agent(s) must:

- **Be present on site for the majority of the time**
- **Be aware of the arboricultural responsibilities. This will require a site briefing/meeting between the agent and arboricultural consultant prior to the commencement of each phase of works**
- **Have the authority to stop any work that is causing or has the potential to cause harm to any trees**
- **Be responsible for ensuring that all site operatives are aware of their responsibilities towards trees on the site and the consequences of failure to observe these responsibilities**
- **Make immediate contact with the local authority and/or a retained arboriculturist in the event of any tree related problems occurring, whether actual or potential**
- **Contact details for Arbor Cultural Ltd are provided within this report**
- **Contact details for local authority tree officer are;**

Tree officer	**Gerry Oxford**
Address	**5PS, 4th Floor, Camden Town Hall, Judd Street, London, WC1H 9JE**
Main Switchboard	**0207 974 4444**
Email	gerry.oxford@camden.gov.uk

16.3 Arboricultural Consultant

16.3.1 A suitably qualified arboricultural consultant should be appointed to oversee development works and liaise with the council and the developer and contractors during the construction phase to ensure compliance with these guidelines.

16.3.2 Note: Failure to fulfil planning conditions or breaches of statutory legislation can lead to delays due to "stop notices" and can lead to the prosecution of contractors and company directors.

16.3.3 Adequate site supervision can protect the developer from delays, wasted expense and criminal prosecution.

16.3.4 The arboriculturalist will arrive at the site, check in at the site office and be safely escorted around the site by the site agent, checking the maintenance of tree protection measures. Routine visits will generally be unannounced. However, the arboriculturist will also visit subject to advance notification and agreement to supervise any agreed works within the RPA.

16.3.5 Monitoring will involve a schedule of routine visits. The frequency of these visits will vary depending on the size of the proposed development and the site-specific constraints. For private single residential developments, this will normally involve monthly supervision but for larger sites with multiple structures this could be weekly or fortnightly. This will need to be agreed with the local tree officer.

16.3.6 These visits will include a pre-commencement meeting to ensure that all tree protection measures have been implemented and a sign-off sheet at the end of the development. Each visit will be accompanied by a small report detailing the findings identifying any actions and addressing any issues that have arisen. This is to provide ongoing liaison between the local planning authority (LPA) and all personnel involved in the site development. Any defects requiring rectifying must be notified to the site agent the client and the LPA by email as soon as possible.

16.3.7 Emergency situations will be notified by phone calls. Appropriate records will be kept and made available to the LPA if required to show evidence of the site monitoring. An example of this is shown in Appendix V.

16.3.8 Supervision will not require the arboriculturist to be present throughout all operations, to ensure that all tasks are carried out as per the approved methodology. They will be required at key times during any planned or unplanned incursions into the tree protection areas. This supervision will require the arboriculturist to attend site, if not for the whole task, to ensure that the arboricultural objectives that are met. Where tasks are ongoing, provided that the arboriculturalist is satisfied that the method statement is being followed and after an appropriate briefing the supervision may be reduced to telephone or email contact between the site supervisor and the arboriculturist.

16.4 The critical stages for site supervision are as follows:

I Prior to the start of construction, all tree protection measures as described must be checked as appropriate and signed off by an arboriculturalist. There will be a pre-commencement meeting with all party attendance, including LPA tree officer, to ensure that there are no unresolved issues.

II At predetermined activity related times as specified in Table 1. The tree protection measures as described must be checked as being retained and signed off by an arboriculturalist. All defects to be reported to the client and LPA.

III The potentially damaging activity to the trees must be observed by a suitably qualified arboriculturalist to ensure that the method statements are adhered to and the damage is kept to an absolute minimum. All defects to be reported to the client and LPA.

IV At periodic intervals during the construction process, the tree protection measures must be checked as being retained and signed off. All defects to be reported to the client and LPA.

V At the end of the construction phase, an arboricultural consultant must check that no damage has occurred to the trees and any remedial measures, e.g. de-compaction of soil must be recommended as required and remedial measures undertaken as soon as practicable. The outcome shall be reported to the client and local authority

16.4.1 The site supervision visits will be documented and circulated to the site agent, developer, architect and Local Planning Authority as appropriate. The reports will detail the date of the visit, the operations being supervised and any issues that require action to meet the aims and objectives of this method statement.

Table 1 Site Supervision Programme

	Activity	**Comments**
1	Inspection of all tree protection measures to ensure that it is secure and fit for purpose prior to work commencing. This will need to be signed off by the arboriculturalist.	Report any defects or damage to the client and the LPA and ensure that they are made good.
2	Pre-commencement meeting with all party attendance, including LPA tree officer, to ensure that there are no unresolved issues. This will need to be signed off by the arboriculturalist.	Report any defects or damage to the client and the LPA and ensure that they are made good.
3	Supervision of the hand excavation of the area for the new wall foundations where they extend into the RPA of retained trees. This will need to be signed off by the arboriculturalist.	Report any defects or damage to the client and the LPA and ensure that they are made good.
4	Monthly monitoring of site and tree protection measures. This will need to be signed off by the arboriculturalist.	Report any defects or damage to the client and the LPA and ensure that they are made good.
Final	Completion of work, removal of all tree protection measures and inspection of trees and root zone for any damage. Any compaction of the soil must be rectified with remedial measures and damaged branches taken back to suitable growth points with a clean cut. This will need to be signed off by the arboriculturalist.	Report any defects or damage to the client and the LPA and ensure that they are made good.

17 Replacement Planting

17.1 There shall be some replacement planting implemented to mitigate the loss of three trees. This will be undertaken once the development is completed. All replacement planting will be fully compliant with BS8545 Trees; from the nursery to independence in the landscape, clauses 6-11. They will be planted in the following locations;

- In the rear garden as shown on AC.2017.023 TPP-01 Rev A

17.2 All the replacement trees shall be extra heavy standard with a girth of 14-16cm and of a minimum height 4-4.5m at planting. They will have been formatively pruned to create a good canopy shape, so that only minimal formative pruning will be required once it has been planted. They will have good structural branching, a clear stem to 1.75-2m (except the Irish yew), a good stem taper, and a visible root flare with the planting mark clearly visible. All trees shall comply with BS8545 Trees: from nursery to independence in the landscape; Recommendations, Clauses 6-11. It is recommended to use container grown stock.

17.3 They shall be planted to the planting mark and an irrigation tube will be installed around their rooting systems to allow watering during their establishment and then on-going in any periods of drought (greater than 1 week without significant rainfall).

17.4 Organic mulch shall be placed around the base of the tree to a radius of 0.5m, but ensuring that there is a small gap immediately around the base of the tree of around 100mm.

17.5 They shall be secured with a twin stake system with hessian used to secure the trees between the two stakes. These shall be remove once the tree roots have stabilised, usually after the first growing season that the trees are in the ground.

17.6 Suggested replacement tree species

➢ *Prunus serrula*	Tibetan Cherry	NP1
➢ *Betula utilis* 'Jacquemontii'	Himalayan birch	NP2
➢ *Sorbus aucuparia*	Rowan	NP3

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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

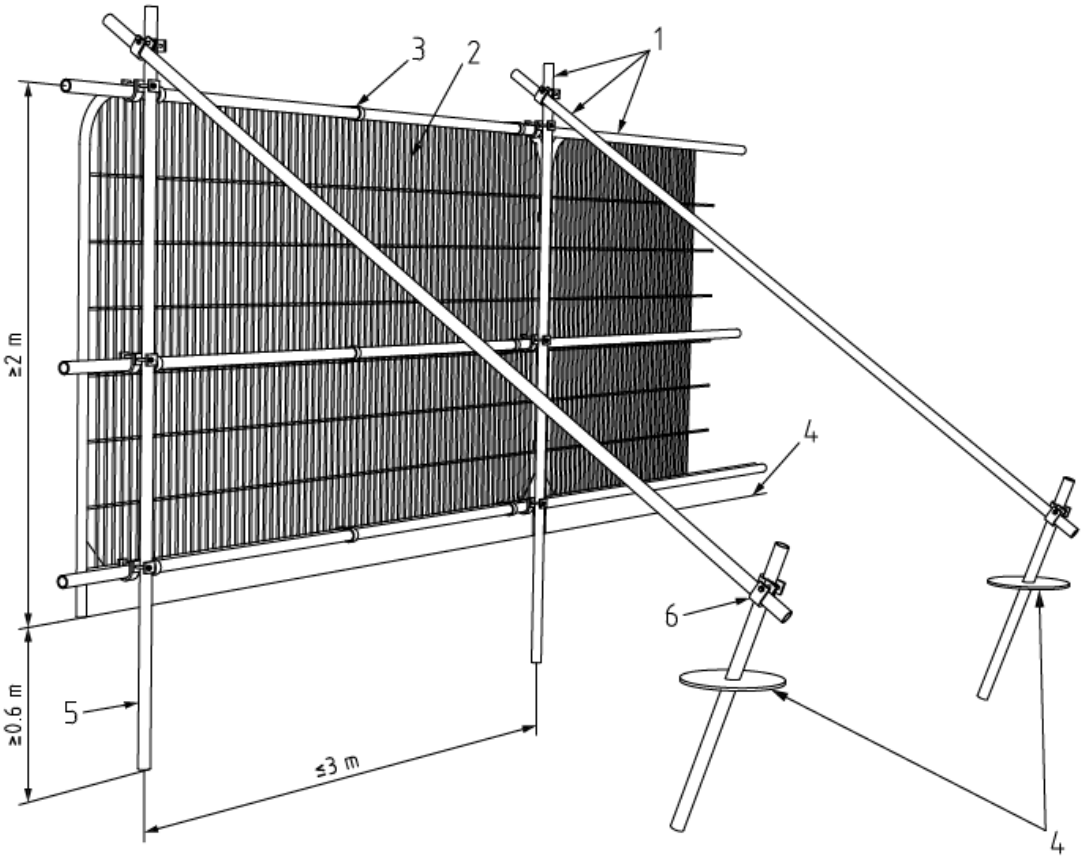
4 SELECTED CONTINUAL PROFESSIONAL DEVELOPMENT

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)

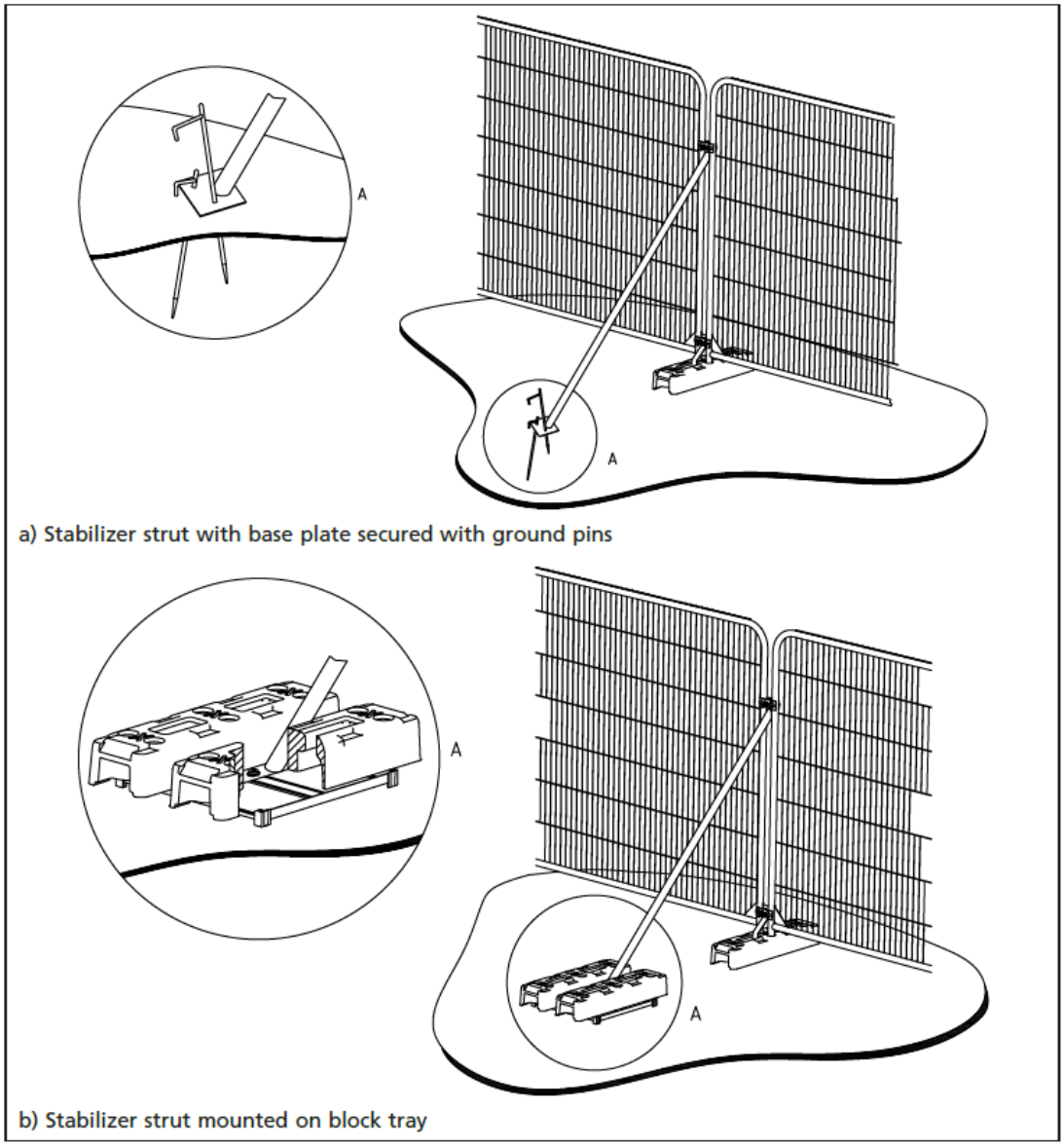


Figure 2 Tree Protection Fencing Design for Hard Surfaced Areas Only (BS5837 2012)

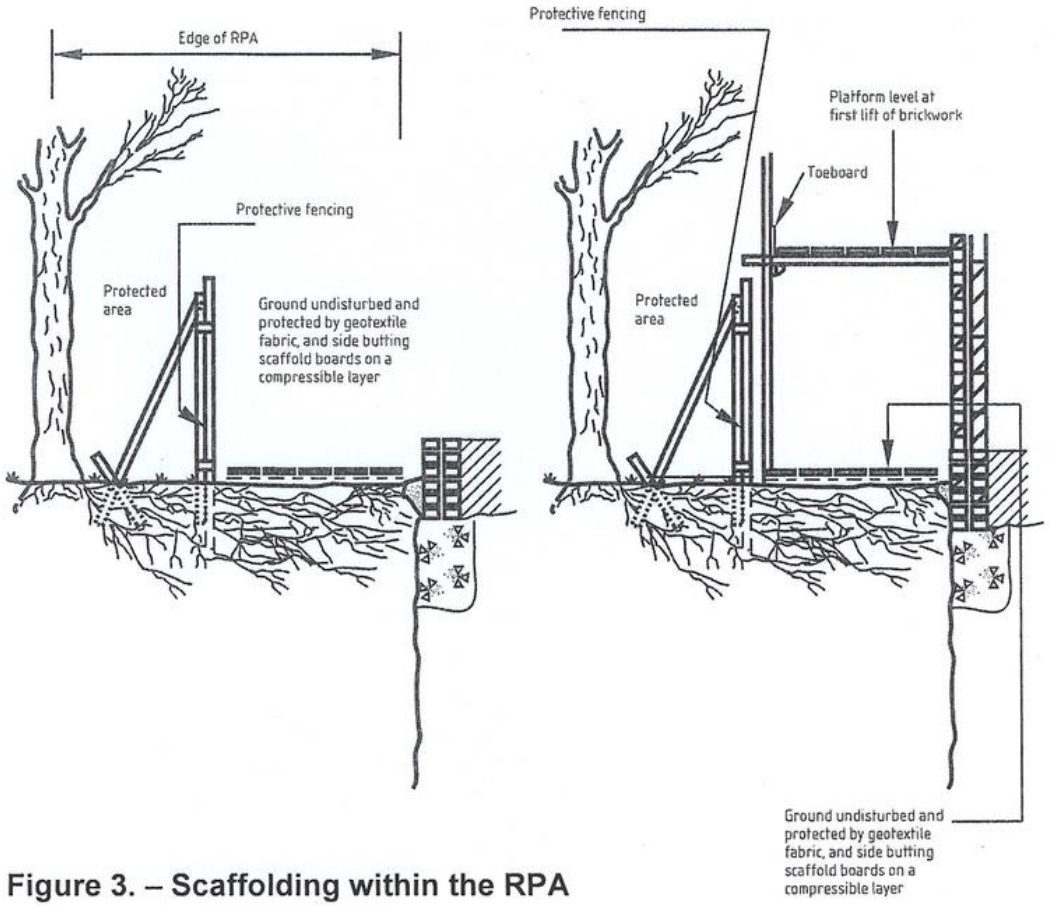


Figure 3. – Scaffolding within the RPA

CONSTRUCTION EXCLUSION ZONE - NO ACCESS

This area has been identified as a tree protection zone, no access is to be permitted.

DO NOT ENTER WITHOUT SPECIFIC INSTRUCTION OR SUPEVISON

Figure 4 Construction Exclusion Zone Signage

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 IMAGES

Image 1 Base of T1, growing against the wall

Image 2 T1, showing various reduction/topping points

Image 3 **Large stubs on T1 with decay pockets**

Image 4 **T2 a maple to left of the wall, showing previous topping, T9 (right) & T4 (rear)**

Image 5 T3 elder on the right and T10 elder on left

Image 6 T4, with three swept stems, growing in the flat gardens

Image 7 T4 a multi stemmed sycamore in the gardens of the flats

Image 8 Looking at T5, T6 and T7 from the flay gardens, showing level change at the wall

Image 9 **Base of T6, showing level change and potential destabilisation once wall removed**

Image 10 **Base of T6, showing level change and potential destabilisation once wall removed**

Image 11 T7 a mature beech tree

Image 12 T8 a small eucalyptus

APPENDIX V ARBORICULTURAL SUPERVISION RECORDING TEMPLATE

Client:		**Planning Ref:**	
Local Authority:		**Date:**	
Site Address			
Proposal:			

Visit Checklist	**Y/N**		**Y/N**
Tree Protection Fencing in place		Tree protection as approved	
Ground Protection in place		Ground Protection as approved	
Tree or Ground protection breached		Trees damaged	
Site Agent briefed by AC			
AC briefed by Site Agent			
LPA informed			
Remedial action required			

Comments

Recommendations

Outcome		
1		
2		
3		
4		
5		

APPENDIX VI 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.

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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

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Arbor Cultural www.arbor-cultural.co.uk

Ground-Guards
MultiTrack

Ground-Guards
MultiTrack Accessories

100% RECYCLED

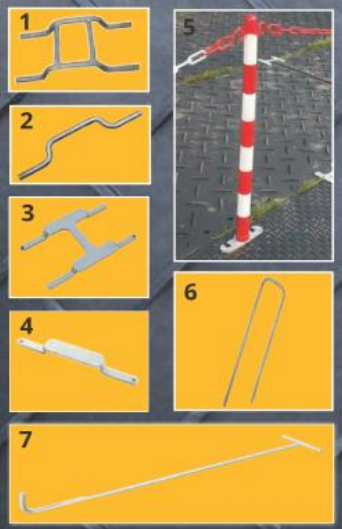
The original and best ground protection mat

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
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Arbor Cultural www.arbor-cultural.co.uk

APPENDIX VII - TREE SURVEY RECORDS

Date of Survey - 27th February 2017

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)
T 1	Cherry, *Prunus avium*	270	1	9	9	2	2	4	6	2	E	EM	20+	C1	U	3	3	3	5	P Good, S Poor	Topped at 4m, 6m and 7m. Very poor form with large stubs with decay pockets	Remove and replace post development	3.3
T 2	Norway maple, *Acer platanoides*	100, 120	2	7	7	4	4	4	4	-	-	SM	40+	C1	U	2	2	2	3	P Good, S Fair	Topped at around 4m. Very poor form	Remove and replace post development	1.8
T 3	Elder, *Sambucus nigra*	<75	5	5	5	2	2	2	2	-	-	EM	20+	C1	C1	2	1	1	3	P Good, S Fair	Multi stemmed shrub	No Action required at this time (NAR)	2.1
T 4	Sycamore, *Acer pseudoplatanus*	360, 220, 360	3	17	17	5	5	5	5	-	-	M	40+	B1	B1	5	8	6	8	P Good, S Fair	Multi stemmed tree with all three stems swept at the base, resulting in an asymmetrical crown and a bias to the south	NAR	6.6
T 5	Sycamore, *Acer pseudoplatanus*	320	1	19	19	8	8	8	8	-	-	EM	40+	B1	B1	2	4	4	3	P Good, S Good	Suppressed by T6 Crown lifted to around 8m.	NAR	3.9

APPENDIX VII - TREE SURVEY RECORDS

Date of Survey - 27th February 2017

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)
T 6	Sycamore, *Acer pseudoplatanus*	360	1	20	20	8	8	8	8	-	-	EM	40+	B1	U	5	5	4	4	P Good, S Fair	~~Crown lifted to around~~ 8m. Growing into and pushing the wall over. Growing on ground slightly higher than the base of the wall, so potentially destabilised when the wall is removed. Minor deadwood	Remove due to potential destabilisation	4.2
T 7	Beech, *Fagus sylvatrica*	670	1	18	18	5	5	5	5	-	-	M	40+	C1	C1	6#	5	7	7	P Good, S Good	Crown lifted to around 5m. Good wound occlusion Minor deadwood	NAR	8.1
T 8	Eucalyptus, *Eucalyptus sp*	70, 80	2	3	3	1	1	1	1	-	-	SM	40+	C1	C1	1	1	2	2	P Good, S Fair	Topped at around 3m. No significant defects	NAR	1.2
T 9	Wattle tree, *Mimosa sp*	<75	1	4	6	1	1	1	1	-	-	SM	40+	C1	C1	1	1	3	3	P Good, S Good	Young plant No significant defects	NAR	N/A
T 10	Elder, *Sambucus nigra*	70, 80	2	6	6	1	1	1	1	-	-	EM	20+	C1	C1	1	1	2	3	P Good, S Fair	Multi stemmed shrub	NAR	1.2