

Arboricultural Impact Assessment and Method Statement

12 Provost Road London NW3

Client: K & T London Ltd



Sharon Hosegood MIC For F Arbor A BSc (Hons) Tech Cert (Arbor A)

21 May 2012

Our reference DFC 1287

Executive Summary:

This report is in connection with a planning application for landscaping the rear garden of 12 Provost Road, London. I have provided all information in accordance with the British Standard, BS 5837:2012 'Trees in relation to demolition, design and construction –recommendations' (referred to as BS).

The works to provide a sunken garden would cause unacceptable damage to a large ash tree. This tree, although large, is of diminished value due to previous management and it is causing cracking to the wall. It is also rather overbearing for a small garden. A pear tree is in a very poor condition and should be removed for safety reasons irrespective of the application. I propose that the ash tree is removed and replaced, and that the sunken garden is moved slightly away from the trees T1 and T2.

The garden is within Eton Conservation Area and no works to trees should take place without consent.

	Total onsite	Retained	Removed
Category A	-	-	-
Category B	2	2	0
Category C	2	1	1
Category U	1	0	1

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1.0 Scope of client brief:

We have been commissioned by The Berkeley Consultancy on behalf of K & T London Ltd to:

- 1.1 carry out a tree survey on the trees at and adjacent to land at 12 Provost Road, London, in accordance with the principles of BS 5837:2012 'Trees in relation to demolition, design and construction - recommendations'.
- 1.2 analyse the scheme and the impact on trees to be retained.
- 1.3 produce a tree protection plan, which shows the location and specification of the protective fencing in accordance with the British Standard.
- 1.4 provide a tree surgery schedule which includes work to facilitate construction, based on the layout and works to trees due to their condition or previous management.
- 1.5 provide arboricultural method statements in as much detail is as practical at this stage.

2.0 The site:

2.1 Location:

The site is the rear garden of 12 Provost Road, London. It is bordered on the north by Provost Road, on the east by 11 Provost Road and by number 13 on the western aspect. To the south is a building complex off Adelaide Road. Provost Road is relatively wide with large semi-detached houses and The Parish Church of Saint Mark is almost directly opposite the house. The area has moderately high tree population.

2.2 <u>Site description:</u>

The garden is completely enclosed and is a rectangle of 107 square metres. It is laid to lawn, and edged with two areas of bamboo. The most dominant feature is the large ash tree (T3) in the south west corner. The garden boundaries are laid to lawn and shrubs and there is a small shed in the south eastern corner. In the bottom (southern section) of the garden is a circular path laid to slabs.



The trees were surveyed from ground level without detailed investigations on 17 May 2012. The weather was fair. All trees with a trunk diameter of 75mm or above were surveyed. Obvious hedges and shrub masses were identified where appropriate. Information collected is in accordance with recommendations in subsection 4.4.2.5 of BS 5837 and includes species, height, diameter, branch spread, crown clearance, age class, physiological condition, structural condition and remaining contribution. Each tree was then allocated one of four categories (A, B, C or U). Full details of the trees are found at appendix two, the plans at appendix three and photographs are found at appendix six.

3.0 The trees:

3.2 Legislation:

3.2.1 Tree Preservation Orders:

The Town and Country Planning (Tree Preservation)(England) Regulations 2012 The trees are not protected by a Tree Preservation Order (phone call check 21 May 2012).

3.2.2 Conservation Areas:

Planning (Listed Buildings and Conservation Areas) Act 1990

The site is within Eton Conservation Area. This means that before works to trees can take place, six weeks notice is required to be sent to London Borough of Camden. The council can then either raise no objection, or if they consider the work to be detrimental to the visual amenity of the area, they have to serve a Tree Preservation Order. Dead or dangerous trees are exempt, although the council should still be informed.

3.2.3 Ecological considerations:

The Wildlife and Countryside Act 1981, as amended, The Conservation of Habitats and Species Regulations 2010 and the Countryside and Rights of Way Act 2000, provide statutory protection to species of flora and fauna including birds, bats and other species that are associated with trees.

3.2.4 Occupiers Liability 1957 and 1984:

The Occupiers Liability Act (1957 and 1984) places a duty of care to ensure that no reasonably foreseeable harm takes place due to tree defects. Therefore this report includes recommendations within the tree tables for work required for safety reasons. 'Common sense risk management of trees (National Tree Safety Group 2012)' states that 'the owner of the land on which a tree stands, together with any party who has control over the tree's management, owes a duty of care at common law to all people who might be injured by the tree. the duty of care is to take reasonable care to avoid acts or omissions that cause a reasonably foreseeable risk of injury to persons or property.'

3.2.5 Common Law:

This enables pruning back of the crown and root providing the work is reasonable.

3.0 The trees (continued):

3.4 Generally: There are four trees in the rear garden. The largest is T3, an ash and the tree in the worst condition is T4, an old pear tree. The magnolia in the front garden has been recently pruned.

4.0 Proposal:

To create a small sunken circular garden 0.5m deep and remodel the rear garden with top soil to create contours.

5.0 Arboricultural impact assessment and method statements:

The following includes the impact of the development and general tree information. A detailed tree surgery schedule is found at appendix five.

5.1 T1 Magnolia

This young small tree is in good condition. It has not yet realised its full potential and will ultimately become an attractive tree providing softening and screening between gardens. The tree is shown in photograph 1.

Arboricultural impact assessment.

There is no impact from the proposed sunken garden, but the ground is shown to be raised under the canopy. Raising the soil level more than 75mm around trees is harmful as it compresses the soil below and impedes gaseous exchange which is essential for root health. Generally raised soil level around trees results in significant tree decline and in some cases death after a few years. The tree protection plan shows an area hatched yellow where the ground should not be altered. This area should be fenced during works to prevent soil compaction and to prevent the roots and crown being damaged.

5.2 T2 False acacia

This tree is reaching early maturity and has a slender trunk and a high crown. It is a pleasing focal point at the end of the garden (photo 2). Currently it is growing near a shed which will be removed as part of the landscaping.

Arboricultural impact assessment.

I recommend moving the location of the sunken garden west to avoid the root protection area. There should be no ground level changes and the area should be fenced during works.

5.0 Arboricultural impact assessment and method statements:

5.3 <u>T3 Ash</u>

This is a large tree overhanging the garden to the south and west. It was originally triple stemmed, and one of the stems was removed at the base some time ago. The tree has crown lifted in the past, resulting in rather angular branch formations and some of the new growth may be weakly attached. Whilst this structure is not ideal, this does not make the tree dangerous. However, the roots are most likely the cause of the cracking of the boundary wall, which is shown on photo 6. This cracking is significant. The crown of the tree touches the property to the south and it can be seen from the communal parking areas of the building complex off Adelaide Road. It can also be seen from 11 and 13 Provost Road. The tree has been classified as C grade (low value) due to its previous management and the fact that it is cracking the wall. It is a very wide and large tree in proportion to the garden size.

Arboricultural impact assessment.

The sunken area as shown on the architect's plans would result in root severance as most tree roots are in the top metre. The excavation would be 2m from the trunk, and therefore large structural roots are likely to be growing here. Severance of the main roots is likely to lead to loss of physiological function, although it is unlikely to lead to instability as only a small section would be severed, and only on one side. I therefore recommend removing this tree and moving the sunken area slightly westwards. This would enable T1 and T2 to flourish and make room for new planting.

5.4 <u>T4 Pear</u>

This tree is over mature with a large crack in the main branch (see photograph 5) and a significant amount of dead wood. It should be felled for safety reasons irrespective of the application.

5.5 <u>T5 Magnolia</u>

This tree is in the front garden and has recently been pruned. It is in good condition and is the dominant feature in the front garden. Its rooting area is restricted to the south by the basement.

6.0 Conclusions:

- 6.1 I have provided all information required in BS 5837:2012. In considering the longevity and suitability of the tree stock for the small garden, I have decided that the best long term treescape would be to retain T1 and T2 and remove T3. This enables the sunken area to be moved west. The pear tree, T4, is in a very poor condition and should be removed irrespective of the proposal.
- 6.2 Removing the largest tree in the garden to facilitate the sunken area, rather than the two smaller trees may seem controversial, as clearly the ash provides the highest visual amenity at the moment. However, it has been harshly pruned in the past and is most likely causing the cracking of the wall. These are not necessarily sound reasons to fell the tree, but given the overbearing size of the tree for the small garden, the fact that the branches are touching the building and that is would be replaced mean that an application to fell the tree may be justified. The sunken area could not be satisfactorily moved far enough east to avoid main structural roots, therefore keeping T3, but losing T1 and T2 would not solve the problem of unacceptable loss of roots from the ash.
- 6.3 Replacement tree species for the ash should be something which will grow tall, but with a relatively narrow crown. I have made recommendations of sweet gum (*Liquidambar styraciflua*), or red Chinese birch (*Betula albosinensis* 'Fascination') or pillar crab (*Malus tschonoskii*). All of these species add interest and have good autumn colour. The replacement tree could not be larger than 14—16cm girth as it is would not be possible to carry a larger tree through the covered walk way. I have recommended that a fruit tree replaces the ash, but this is a matter for the owner's discretion.

7.0 Recommendations:

- 7.1 That a copy of the report, including the site specific method statements and tree protection plan is kept on site at all times and is part of the site induction and is sent to the owner and the main contractor.
- 7.2 That the tree protection and ground protection to be installed after tree surgery and before commencement of construction, and remains in situ until the end of construction.

7.0 Recommendations:

- 7.3 That no works to trees takes place without the consent of the London Borough of Camden.
- 7.4 That should consent be granted, that a replacement tree is planted in the south west corner as replacement to T3 and subject to a detailed specification and maintenance schedule.
- 7.5 That the tree surgeons method statement carefully considers removing the arisings through the covered walkway and how the stump would be treated, as it would not be possible to grind the stump unless the stump grinder was lifted in by heavy machinery/crane from the car parking area to the south.
- 7.6 That the soil level in the yellow shaded areas on the tree protection plan is not raised.

Sharon Hosegood MICFor F Arbor A BSc (Hons) Tech Cert (Arbor A) Managing Director—DF Clark Bionomique

I have a degree in Geography and Landscape Studies and a distinction in the Arboricultural Association's Technicians Certificate (top student). I am a professional member of the Arboricultural Association and a Chartered Arboriculturalist. I have eleven years experience as a tree and landscape officer. I have been in private practice since 2005 and a director of a multi disciplinary consultancy since 2007.

Arboricultural Impact Assessment

Appendix one – Key to tree survey sheets

The classifications adhere to the principles of the *BS 5837:2012 'Trees in relation to design, demolition and construction—recommendations'.* However, explanations for the terms have been changed to reflect the approach of this company to the practical aspects of categorising

Abbreviation	Definition				
NP	Newly planted				
S	Sapling				
Y	Young. Less than a third life expectancy.				
Em	Early mature				
М	Mature. Shoot growth decurrent. Phase of growth when the tree has effectively reached up to 90% of its ultimate size for the species & location.				
ОМ	Over mature. Trees in senescence. In decline from disease, decay, root death, structural or stability problems resulting primarily from old age.				
v	Veteran Tree. A tree older than typical age for the species and of great ecological, cultural and aesthetic value.				
Height	Height in metres.				
Crown Heightt	htt Crown height (from ground to lowest branch and the tips of the crown)				
NSEW	Crown measurements from trunk to tip in a north, south, east and west direction				
BS Cat	Categorisation under the BS 5837:2012—see over				
Condition	Physiological condition relates to how vigorous the tree is and it's general level of vitality. Any pests or diseases are listed here				
Life Exp	Safe useful life expectancy expressed in years				
RPA	Root protection area. A layout design tool indicating the area surrounding the trees that contains sufficient rooting volume to ensure the survival of the tree. RPR—radius of the circle				
Preliminary recommendations	This section lists work that is recommended irrespective of the proposal, based on tree condi- tion and current land use. This is why it often differs from the tree surgery schedule in the report.				

BS 5837:2012 Tree Categorisation based upon Table 1			
Category	Description		
Α	Trees of High Quality and Value		
Green	A1 - Mainly arboricultural values		
	A2 - Mainly landscape values		
	A3 - Mainly cultural values, including conservation		
В	Trees of Moderate Quality and Value		
Blue	B1 - Mainly arboricultural values		
	B2 - Mainly landscape values		
	B3 - Mainly cultural values, including conservation		
С	Trees with Low Quality and Value		
Grey	C1 - Mainly arboricultural values		
	C2 - Mainly landscape values		
	C3 - Mainly cultural values, including conservation		
U	Trees in such a poor condition (physiological and structural), that any existing value would be lost within 10 years and which should, in the		
Red	current context, be removed for reasons of sound arboricultural management.		

Arboricultural Impact Assessment

Appendix two – Tree survey sheets

DF CLARK BIOMOULE LTD TREE SURVEY TABLE Surveyor: Sharon Hosegood Clent: The Berkeley Consultancy Date: 16 May 2012 Veather: Fair Site: 12 Provest Tree Name Name Name Name Name Stant (nm) Start (nm)	Road, London	Recommendations	Annual monitoring	Annual monitoring	Remove deadwood with a diameter greater than 25mm. Annual monitoring.
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Surveyor: Tree T Magnolia T Ash T Ash	Sharon Hoseç	Botanical Name	Magnolia	Robinia pseudoacacia	excelsior
Tree T 1 T 3	Surveyor:	Common Name	Magnolia	Tree	Ash
		Tree	τ1	Т2	۳. ۲.

Road, London	Recommendations	Fell and grind root	Annual monitoring	
3LE eather: Fair Site: 12 Provost	Comments	Declining. Leaning North-East. Decay present on stem. Cavity on stem. Major bark wounding on stem. Broken branches in crown. Major deadwood in crown. Unbalanced crown shape. This old pear tree has large dead and decaying branches. The remaining foliage (approximately 60%) is vigorous.	This tree dominates the front garden, but provides an attractive feature in front of the house. The lower trunk leans east and at 1m, bends south. It bends again at 2m north giving rise to a broad spreading crown. The crown has been lifted, thinned and more recently reduced. The tree is surrounded by paving slabs. The roots are contained on the southern aspect by the basement well.	
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Sharon Hoseg	Botanical Name	Pyrus communis	Magnolia	
Surveyor:	Common Name	Pear	Magnolia	
	Tree	Т 4	Т5	

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Appendix three –

Tree survey plan DFC 1287 TSP

Tree protection plan DFC 1287 TPP

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Appendix four – Tree protection specification

Design of Weldmesh Type Tree Protection Fence



Figure 2 Default specification for protective barrier

Design of Weldmesh Type Tree Protection Fence

BRITISH STANDARD

BS 5837:2012







Suggested protective fencing warning sign format

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



TREE PROTECTION AREA KEEP OUT !

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

ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE PROJECT ARBORICULTURIST

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Appendix five – Tree surgery schedule

Tree surgery schedule: All tree works to be undertaken in accordance with BS 3998:2010 'Tree works—Recommendations'. All pruning cuts to be made at suitable growing points in line with the principles of 'Natural target pruning'. '

Tree no.	Species	Location	Proposed works	Reason
Τ1	Magnolia	Rear garden of 12 Provost Road	No works	N/a
T2	False acacia	Rear garden of 12 Provost Road	No works	N/a
Т3	Ash	Rear garden of 12 Provost Road	Fell to ground level and grind stump Replace with a new tree	To facilitate redesign of the garden. Tree root encroachment causing cracking of boundary wall.
T4	Pear	Rear garden of 12 Provost Road	Fell to ground level and grind stump and replace	The main branch has a crack and the crown has 40% dead wood.
T5	Magnolia	Front garden of 12 Provost Road	No works as this tree has been recently pruned	n/a

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Appendix six – Photographs



1. Photo of T1 magnolia and T2 false acacia



2. Photo of T2 false acacia and T3 ash.



3. Photo of T3 ash



4. Photo of T4 pear



5. Photo of crack in the main branch of T4



6. Photo of the crack in the wall near T3



7. Photo of T5 magnolia

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Appendix seven – Terms of reference and contact information

Terms of Reference Reference Documents: BS5837:2012 'Trees in relation to design, demolition and construction – recommendations' BS3998:2010 'Tree work – recommendations' 'Tree Roots in the built environment' (DCLG - Jack Roberts, Nick Jackson & Mark Smith) 'Principles of Tree Hazard Assessment and Management' (DTLR—David Lonsdale) The body language of trees' (DTLR Claus Mattheck and Helge Breloer) 'Thinking tools after nature' Claus Mattheck Received information: The following information from Paul McAneary Architects Ltd: PMA161_EX01 Existing Ground Floor.pdf, PMA161_EX04 Existing Rear Garden.pdf, PMA161_GA04

Tree preservation order check with London Borough of Camden on 21 May 2012

Proposed Rear Garden.pdf, PMA161_GA07 Proposed Side e.dwg

Digital plan purchased from Promap

Contacts Table

Name	Company	Position	Telephone number
-	K & T London Ltd	Client	Care of The Berkeley Consultancy
Tommaso Cuni	Paul McAneary Architects Ltd	Senior Architectural Designer	0207 240 0500
William Dick	The Berkeley Consultancy	Partner	0207 495 7861
Sharon Hosegood	DF Clark Bionomique Ltd	Arboricultural consultant	01621 740876 07930 760 104

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Appendix eight – Caveats

Specific Report Caveats:

- 1 At the time of writing this report, the protected tree status is correct. However, this can change. Therefore I advise that the tree contractor makes a further check with the London Borough of Camden just before carrying out any works.
- 2 No internal diagnostic equipment was used other than a sounding mallet and probe and all inspections were from ground level only, with the aid of binoculars where necessary.
- 3 The survey is concerned solely with arboricultural issues.
- 4 Any changes in ground level, or excavations near to tree roots not discussed within this report may change the stability and condition of the trees and a further examination would be required.
- 5 As trees are a dynamic living organism this report is only valid for a period of 12 months, in respect to their health and condition.
- 6 Only trees listed in this report have been examined.

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Appendix nine – generic method statements

Guidance for working within RPAs

1 Removal of surfaces within RPAs

- 1.1 All surfaces including hard surfaces and soft surfaces such as grass, shrub and flower beds etc within tree protection zones (TPZ) must be removed following the methods detailed below to minimise damage to tree roots.
- 1.2 The use of conventional tracked and wheeled machinery causes damage to soil structure from compaction and damage to roots from excavation and must not be used within the TPZ. All areas of hard surfacing requiring removal within a TPZ will be broken up using a hand held pneumatic drill or mounted hydraulic breaker attached to a digger located outside the TPZ. The broken rubble will then be removed by hand.
- The only exception to this is where the hard surface is of such a size as not to be reachable from outside the TPZ. In this situation a rubber tracked mini-digger will be used. The maximum working height of the machine must be less than the lowest branch of any overhanging trees.
- 1.4 The mini-digger will work from the existing hard surface pulling the debris away from the tree/s.
- 1.5 No excavation of existing soil beneath the hard surface will take place.
- 1.6 Immediately after removal of the hard surface, topsoil or sharp sand must be used to cover the soil surface and any roots to prevent drying out.
- 1.7 Soft surfaces such as grass and shrubs, shall be removed by hand, taking as little soil as possible. In certain circumstances such as large areas, and where agreed with the tree officer, mechanical diggers can be used but only when closely supervised by the project arboriculturist.
- Upon completion, the protective fencing must be moved out to the edge of the TPZ or ground protection used if access is required.

2 Demolition of existing buildings and structures

2.1 All structures including buildings, sheds, walls and fences within tree protection zones (TPZ) must be removed following the methods detailed

below to minimise damage to tree roots.

- 2.2 Protective fencing and ground protection **MUST** be in place before demolition begins.
- 2.3 Buildings within RPAs must be demolished by pulling inwards, away from the tree.
- 2.4 Debris fallen within TPZs must be removed by hand.
- 2.5 Removal of foundations within RPAs must be undertaken from within the footprint of the building, away from the tree, with excavation on the tree side of the foundation kept to the strict minimum required to effect removal. This operation should be supervised by the appointed arboriculturist. If trenches left by removal of foundations are not to be reused as part of the development, they must be backfilled with topsoil suitable for root growth, where within RPAs.
- 2.6 All removal of fences, sheds, garden structures, low walls etc, must be undertaken by hand where within TPZs.

3 New hard surfaces within RPAs

- 3.1 Where it has been agreed with the LPA that hard surfaces are acceptable within RPAs of retained trees, these will require designing to be of above ground, no-dig construction to minimise impact on tree roots and soil structure. In addition, finished surfaces of the car parking and paved areas will need to be of porous design to allow water and air passage in and out.
- 3.2 An illustrative example of a cellular confinement no-dig system can be found below. The actual system will need to be designed by a structural engineer to accommodate the loadings anticipated.
- 3.3 The principles to follow are:
 - No excavation other than the removal of existing hard surfaces if required, or the removal of surface vegetation and no more than 50mm of leaf litter, vegetation debris etc.
 - A method to spread and support the load of the hard surface and anticipated usage without causing compaction of the soil structure beneath.
 - The use of a porous sub-base and finishing layer to allow water and air diffusion in and out of the soil.
 - Porosity must be designed to be long-term and not to block with fine particles in the short-term, therefore irregular, no-fines aggregate must be used.
 - The pH of the aggregate must be considered as many conventional road stones have very high pH values which can damage susceptible trees and therefore aggregates with a near neutral pH should be preferred.

- 4 Tree work recommendations: Recommendation for tree works can be found in the tree surgery schedule in Appendix 5. All works shall be in accordance with British Standard BS 3998:2010 'Tree work: Recommendations', or in accordance with current best practice. The use of a competent tree surgery contractor is necessary to comply with this. The main contractor and tree surgery contractor must ensure that any necessary consents have been received from the local authority and that no protected species are harmed whilst carrying out site clearance or tree surgery works. Within TPZs, stumps, shrubs and other vegetation must be removed by hand or using specialised stump grinding machinery to minimise root damage to retained trees. Where poisoning of stumps is specified, this must be carried out by trained and qualified operatives. Only chemicals approved for this purpose and used in accordance with the manufacturer's instructions will be used.
- 5 Site and fuel storage, cement mixing and washing points: All site storage areas, cement mixing and washing points for equipment and vehicles and fuel storage areas should be outside RPAs unless otherwise agreed with the LPA. No discharge of potential contaminants should occur within 10 m of a retained tree stem or where there is a risk of run off into RPAs.



Arboricultural Impact Assessment and Method Statement

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21 May 2012

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