

60 Long Lane, Ickenham, UXBRIDGE, UB10 8SZ

BS5837 TREE SURVEY, ARBORICULTURAL IMPACT ASSESSMENT AND METHOD STATEMENT



Elizabeth Greenwood CMLI FArborA
ms.ejgreenwood@gmail.com September 2017
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Submitted in 2 pdf files. File 1 of 2
excludes appendices H, I and J

File 1

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1.0 Introduction

1.1. Contacts

Client - **Greengable Homes.** rodney.flood@greengable-homes.com

Architects- Gillett Macleod Partnership - 1 High Road, Old Eastcote, Pinner, Middlesex, HA5 2EW. Tel:02088681333 gmpartnership@yahoo.co.uk

Arboriculturalist and Landscape Architect- Elizabeth Greenwood

Council. - The London Borough of Uxbridge

1.2. Instruction

Instruction was received from Gillett Macleod Partnership to provide an arboricultural method statement to facilitate demolition of the existing building and construction of replacement flats

It is intended to be a working document to be used by the contractor and local authority to ensure the retention of the trees and provide a means of construction for the implementation of this proposed development.

The trees were surveyed 16 August 2017. Plans showing the details as outlined in this method statement are included in the appendix to this report (Appendices H, I and J)

In the case of building within the vicinity of mature trees the owners must be made aware of their responsibility to maintain these trees in a safe condition. Their insurers should be made aware of the implications of the presence of these trees.

The survey is to take the form of a visual assessment of trees recording their measurement, describing their age, amenity, condition and recommending work. Trees have been plotted on plan and full details of survey work are included in the appendices.

Limitations of this tree survey would include the lack of visibility of every tree owing to dense undergrowth and the presence of climbing plants such as ivy. There may be restrictions to the access within the site or from neighbouring land, and, in the case of trees growing on the boundary of the site only one side of the tree may be visible.

1.3 Background

1.3.1 This detached nineteen thirties property is set in an enclosed garden and accessed via a semi circular drive off Long Lane

1.3.2 According to the British Geological Survey the underlying geological formation is of London Clay Formation of clay, silt and sand. Superficial deposits have not been recorded.

- 1.3.3. A level survey has not been undertaken but, from observation, the garden is relatively level. An 8 metre swimming pool is located within the rear garden, now empty, with a residual puddle of water.
- 1.3.4 The garden is overgrown with self set saplings and bramble; overgrown hedging and trees border the rear and part of the front garden.
- 1.3.5 The site is within an Ickenham Conservation Area and as such the Local Authority has an interest in retaining tree cover as part of the character of the area. All trees within this garden of over 75mm in diameter at 1.3 metres in height on their stems are being subject to this legislation.
- 1.3.6 Some of the trees are protected by The London Borough of Uxbridge Tree Preservation Order Number 5 titled Extracts from Tree Preservation Order in respect of land adjoining Milton Road, Pepys Close, Long Lane and Court Road, Ickenham, Uxbridge. . The order dates from 1964 with some of the protected trees no longer present on inspection. The following trees have been listed as protected within this garden.
- T39 Purple leaved plum (present T13)
T40 Purple leaved plum (present but dead)
T41 Monterey Cypress (Not present)
T42 Laburnum (Not present)
T43 Hawthorn (Not present)
T44 Hawthorn (Not present)
- 1.3.7 For any tree surgery or tree removal an application to the local authority should be made and consent received prior to any tree works being carried out. If poor quality trees are to be removed then adequate provision should be made for replacement planting as part of the design proposals.

2.1 Tree Survey Criteria

- 2.1.1 Photographs of many of the trees and full details of this tree survey are included on tree survey sheets. (Appendices A and B) Information recorded complies with BS5837:2012, and is outlined as follows:-
- The species (English names), size and position of the trees within the site.
 - The majority of large shrubs or trees with stem diameter of less than 150 mm have not been surveyed. According to the British Standard Recommendations these trees can be transplanted or replaced.
 - The dimensions of the trees are the height, and the girth measured at 1.5 metre above ground level. The spread is measured at the four points of the compass, and this is represented on plan. The lowest branch on the trunk is measured

from ground level and the crown height is measured from the lowest point of the foliage.

- The maturity is recorded and details of this classification are included on the tree survey sheets. (e.g. Y = young, SM = semi-mature, EM = early mature, M = mature, OM = over-mature);
- A description of the trees' condition includes any visual defects at the time of the survey. As this survey is conducted from ground level not all defects may be visible, and pathogens may not be apparent because of the season of inspection.
- General recommendations for each tree are outlined, which may need to be reviewed once development proposals are finalized.
- Estimated remaining contribution in years in view of the existing site conditions is classified as (less than 10 years; 10 to 20 years, 20 to 40 years or more than 40 years).

2.1.2 Site layout plan has been provided by Gillett Macleod Partnership, Plan reference 17/3124/2. Tree survey information has been added to this plan and several other trees have been measured on site and plotted on this plan. All measurements should be checked on site (Appendix H)

2.1.3 It is important to note that the trees are surveyed and their condition evaluated in the current site conditions. If there is a change in the site conditions and within the root protection area the trees may need to be re-surveyed and their potential longevity re-evaluated. In the event of adverse weather conditions the survey should be repeated. Regardless of the development proposals there should be regular inspection and monitoring of trees at a frequency dependent on their condition and age: as such this tree survey is only valid for a 3 year period from the date of the survey.

2.2. BRITISH STANDARDS: Tree In relation to design, demolition and Construction- recommendations. 5837:2012

2.2.1 **Assessment of the trees' amenity values** The British Standard Recommendations provide an assessment of trees on development sites and outlines four categories in which trees should be placed for assessment purposes. These assessment categories are reproduced in Appendix C, Table 1, "Cascade Chart for Tree Quality Assessment", and simplified as:-

- A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years
- B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years

- C **Trees of low quality**, with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter of below 150mm
- U **Trees which have limited prognosis.** Those in such a conditions that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

2.2.2 These categories are subdivided into three sub groups:-

1. Trees of arboricultural value, good examples of their species or unusual specimens
2. Mainly trees of landscape value, trees which are primarily of visual amenity
3. Trees with mainly conservational value for example veteran trees

2.2.3 The British Standard Recommendations 5837:2012 provide a formula for calculating the Root Protection Area (RPA) required to be protected for existing trees that are to be retained. For single stem trees, this should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter. For trees with more than one stem, one of the two calculation methods below should be used. In all cases, the stem diameter(s) should be measured AT 1.5 metres above ground level or as indicated in Annex C of this standard. The calculated RPA for each tree should be capped to 707 m².

(a) For trees with two to five stems, the combined stem diameter should be calculated as follows:-

Stem diameter 1)² + (stem diameter 2)² ... + (stem diameter 5)²

b) For trees with more than five stems (not illustrated in Annex C), the Combined stem diameter should be calculated as follows:

(Mean stem diameter) 2 × number of stems

2.2.4 Root protection areas are indicated as a radius on plan. In the event of root restrictions from for example deep foundations or a retaining wall, topography, drainage, soil type, soil structure, or soil disturbance the approximate area is represented by a polygon, as dictated by this British Standard. In this site an assumption would be that the trees may be able to root under a car park surface and footpath construction, but that a road would provide a barrier to root formation.

2.2.5 Within development sites the British Standard recommends that trees are fenced off to ensure the root protection area is not damaged by construction works. In compliance with the British Standards, protective fencing should be erected at the edge of the root protection area. If access is required within this area, then the ground should be protected. Construction techniques using geo-web and geo-textile, in accordance with BS recommendations might be used to minimize damage to trees and enable working space for demolition or construction within the root protection area of trees.

- 2.2.6 Drainage and service runs need to be identified at this stage to ensure that if new service runs are to be excavated they should be located outside the root protection zone of existing trees.
- 2.2.7 Building foundations can be specifically designed to reduce the impact of a building if there is a minor incursion into the root protection area of a tree.
- 2.2.8 **Other considerations-** In addition, the British Standard takes into account future growth of the crown of the tree, the spatial implications and its effects on light.
- 2.2.9 Existing levels within the root protection areas of trees should be retained.
- 2.2.10 Some tree work might be required to ensure that the crowns of trees are cut back from working space and to provide access for construction vehicles.
- 2.2.11 There are adequate areas within the site to ensure that handling and storage of materials can be accommodated well outside the root protection areas.

2.3 Tree Survey

- 2.3.1 Within the front garden there are two protected purple leaved plum trees, one of which is now dead: the other surveyed as T13, is a multi-stemmed tree of 7 metre in height overhanging the edge of the drive.
- 2.3.2 Other trees along this northern boundary include two holly trees, (T14 and T15) both of which afford screen planting between the properties; the second tree is growing within the adjacent garden close to the garage, and may be damaged on demolition of this building. A further tree along this boundary is a multi-stemmed cherry plum (T12), also rooted within the neighbouring garden with its crown overhanging the drive.
- 2.3.3 Most prominent within the front garden is a mature cherry (T16), a 9 metre tree of 'B3' quality with a 5 metre radius root protection area. It is noted is that cherries typically have surface roots. Two hollies are growing adjacent to the front boundary (T17 and T18) and a young cherry (T19) has recently been planted adjacent to the entrance.
- 2.3.4 Within the rear garden a mature birch tree (T1) 15 metres in height and a row of laurels are present along the western side of the swimming pool- although 9 metres from the house, the swimming pool walls are likely to have provided a root barrier, and resulted in the disfiguration of the root structure.
- 2.3.5 With none of the trees within the rear garden protected by the tree preservation order, the only other significant tree is a mature false acacia (T8) growing on the south western corner of the garden, with a slight leaning trunk and deadwood within its canopy.
- 2.3.6 The line of multi-stemmed laurels (G1) along the rear boundary provides a screen between this and the property along Milton Road. They are 6-8 metres high with branch stubs and deadwood from previous tree surgery; some tree work is recommended to improve their form, by facing back their canopy and removing the deadwood.

2.3.7 Other trees within the garden and along the boundaries provide screen planting. Allowance should be made for replacement screen planting if trees are removed as part of development proposals.

2.3.8 Neighbouring trees surveyed include several trees within the garden of 58 Long Lane; a hawthorn (T4) an immature ash (T6) and a holly (7). On the southern side of the garden a large multi-stemmed Leyland cypress (T11) with a 6 metre radius root protection area growing close to the rear of 62 Long Lane.

2.3.9. Self seed and sapling trees are present within both the front and rear garden and no Japanese knotweed was observed on inspection. Species within the rear garden were mainly false acacia, with some staghorn and birch, with brambles and buddleia within the front garden

2.3.10 The British standard categorization has been reproduced in appendix D of this report. The tree survey has identified the following trees in each category as follows:-

Category	Number of trees	Tag number	Species
A			
B	5 and one group	T1,T8, T14, T16, T17, and T18 and G1	Silver birch False acacia,G1 Laurels, Hollies, cherry
C	14 and one group	T2, T3, T4, T5, T6, T7, T9, T10, T11, T12, T12, T13, T15 , T19 and G2,	Silver birch, Laurel, Hawthorn, Lawson cypress, ash, holly, apple, Leyland cypress, Purple leaved plum, holly and cherry, G2 Sapling ash, laurel, Philadelphus
U			
TOTAL	19 and 2 groups		

3.0 Arboricultural Method Statement

3.1 Issues Considered

This method statement includes details on the following

Pre construction works and site clearance

- Tree protection
- Tree surgery
- Protective fencing
- Methods of ground protection construction during works
- Demolition

Construction works

- Hand dig,
- Hard surfacing within the root protection area
- Location of underground services
- Contingency plans
- Site supervision

Post- Construction works

- Removal of protective barrier etc.
- New surfacing
- Remedial works
- Landscape works

3.2 Arboricultural Impact Assessment

3.2.1 The proposed site layout has been provided by Gillett Macleod Partnership plan reference 17.3124/02B. The impact of these proposals is summarized in the following table:-

Tree number	SPECIES	EFFECT	Tree surgery	Protective barrier	MITIGATION		
					Ground protection	New surfacing	HAND dig
T1, T3, and T4	Birch, Laurel and hawthorn	RPA within footprint of removal of swimming pool within RPA	Tree surgery	X	X	X	X
T9	apple	Close to new development	REMOVE				
T12, T14,	Cherry plum and holly	New hard surfacing within RPA		X	X	X	X

Tree number	SPECIES	EFFECT	Tree surgery	Protective barrier	Mitigation		
					Ground protection	New surfacing	HAND dig
T13	TPO Purple leaved cherry	Within footprint of new parking area	REMOVE				
T15	Holly	Demolition and construction within RPA	Tree surgery	X	X	X	X
T16	Cherry	New hard surfacing and work for new building	Tree surgery	X	X	X	X
T17, T18 and T19	Holly and young cherry	New access and parking bays	REMOVE				

3.2.2 Incursion of the development into the root protection area of trees and impact of overhanging branches within the development footprint are summarized by the following table:-

Tree no	Species	Root protection area	incursion into RPA	% of incursion	Impact
T1	Silver birch	85 sqm	17 sqm	20%	Removal of swimming pool and hard surfacing
T3	Laurel	32 sqm	7 sqm	22%	Removal of swimming pool and hard surfacing
T4	Hawthorn	13 sqm	6 sqm	46%	Removal of swimming pool and hard surfacing
T12	Cherry Plum	114 sqm	16sqm	14%	New parking bays- re-surface existing drive
T14	Holly	35sqm	15sqm	43%	New parking bays- re-surface existing drive
T15	Holly	28 sqm	9	32%	Demolition works and new building
T16	Cherry	76sqm	6sqm	8%	Extension of drive and New hard surfacing

3.2.3 Although the maximum extent of root protection area to be affected by demolition and building works is between 20 and 46%, it is notes that in

removal of the swimming pool new soft landscape areas can be created which will be beneficial to the Silver birch (T1) Laurel (T3) and hawthorn (T4)

3.2.4 Mitigation and details to address the incursion into these trees' root protection areas are outlined as follows:-.

- Protective barrier fencing-
- Ground protection within the area of proposed working space will partly address the impact of the development on the trees
- Hand digging for foundation of paths and hard surfacing
- New hard surfacing

4.0 Method of Operations- Pre Construction

4.1 Setting out

4.1.1 The site can be set out by the contractor in accordance with the Tree Protection Plan from measurements as outlined on the plan. Placing of any site accommodation and storage of materials will be set out with agreement by the arboriculturalist outside the root protection zone of any of the trees. There will not be any bonfires within the vicinity of the trees.

4.1.2 Storage of contaminants and mixing of concrete must be carried out outside the root protection areas of all trees. An indicative area for this usage is marked on the plan (See appendix I). The ground should be protected with heavy duty plastic sheeting, e.g. 1200 gauge DPM, with edges secured and raised to prevent spillage and with a raised lip along the access point.

4.2. Tree Works

4.2.1 As part of the application for planning permission the following tree surgery is outlined. All works will be carried out by a fully insured and competent tree surgeon in accordance with BS3889:2010 "Tree Work". The timing of tree surgery should also be carried out in accordance with the Wildlife and Countryside Act and in view of the nesting season of birds within the sites.

Tag	Tree	Category	Recommendations
T1	Silver Birch	B2	Retain
T2	Silver Birch	C2	Remove for silvicultural thinning part of Application

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Arboricultural Impact Assessment and Method Statement as amended

Tag	Tree	Category	Recommendations
T3	Laurel	C2	Retain at present
T4	Hawthorn	C2	Face back to provide 1.5 metre clearance of crown to new building
T5	Lawson's Cypress	C2	
T6	Ash	C2	Monitor for ash dieback disease
T7	Holly	C2	
T8	Acacia	B2	Remove deadwood within the crown and defective branches
T9	Apple	C2	Remove
T10	Holly	C2	Cut ivy at base, retain as part of screen planting- formative pruning to improve s form
T11	Leyland cypress	C2	
T12	Cherry Plum	C2	Face back along boundary to enable access
T13	Purple leafed Plum TPO 40	C2	Limited prognosis- REMOVE and replace
T14	Holly	B2	Cut Ivy face back to hard surface area to enable demolition and construction works
T15	Holly (neighbours)	C2	Cut Ivy face back to boundary to enable demolition and construction works
T16	Cherry	B2	Cut Ivy. - crown lift to 3 metre remove any deadwood and defective branches- reduce crown to 4 metre radius to ensure that there is no damage s during site works.
T17	Holly	B2	Remove as part of Application
T18	Holly	B2	Remove as part of Application
T19	Cherry	C2	Remove as part of Application or transplant

Tag	Tree	Category	Recommendations
G1	Laurels, Lawson Cypress	B2	Clean out. Reduce crown to manageable dimension of a 2.5 metre spread and height of 5 metres
G2	Sapling Ash, Laurel, Philadelphus	C2	Remove as part of Application

4.2.2 The total number of trees to be removed is as follows

Category	Trees to be removed	Tag number	Species
A			
B	2	T17 and T18	Hollies
C	5	T2, T9, T13, T19 and G2	Silver birch, apple, purple leaved plum, cherry and mixed shrubs of G2
U	1	Dead tree	TPO purple leaved plum
TOTAL	8		

4.3 Protective Fencing/Protective Barrier

Details of the fencing are shown in the appendices to this report and comply with British Standard recommendations. (See appendix D). All weather notices are to be affixed to this fencing with signage "**CONSTRUCTION EXCLUSION ZONE – NO ACCESS**".

4.4 Ground Protection

In the vicinity of the temporary unit working space will mainly be confined to existing hard surfacing. Where additional working space is required for construction within the root protection areas of retained trees, the British Standard specifies the following type of ground protection.

- For pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of woodchip), laid onto a geo-textile membrane;
- For pedestrian-operated plant up to a gross weight of 2 t, proprietary, Inter-linked ground protection boards placed on top of a compression-resistant

Layer (e.g. 150 mm depth of woodchip), laid onto a geo-textile membrane;

- c) For wheeled or tracked construction traffic exceeding 2 t gross weight, an Alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

4.5 Demolition

- a) Prior to demolition the trees and hedges to be retained should be fenced off and ground protection installed within their root protection area.
- b) for the tree close to the building to be demolished this will be 2.4 metre high boarding
- c) For the trees along the drive the crown should be faced back to ensure there is clearance under the canopy to remove building materials
- d) All heavy machinery and demolition vehicles should be positioned within the footprint of the building.
- e) No material should be stored under the tree canopies
- f) All hard surfacing to be removed by hand with care so as not to damage tree roots, and stored outside the tree root protection areas.
- g) If temporary surfacing is required this should be in accordance with ground protection outlined above.

5.0 Methods of Construction for the Development

5.1.1 Hand dig

Hand digging will also be required for all works within root protection areas of trees, including removal of surfacing, trenches, excavation for fence post and for cultivation for soft landscape areas. All hand digging within the root protection areas of trees should be supervised by a competent arboriculturalist.

- 5.1.2 Within root protection areas all excavation should be hand dug. A trench should be hand dug near the trees to ascertain whether roots are present. If roots over 50mm are found these should, where possible, be bridged, and surrounded by sand- roots under this dimension should be cut to a clean cut and surrounded by sand. No roots are to be left exposed but covered with damp sand or hessian. The surface level of the path may need to be adjusted to retain these roots.

- 5.1.3 If on investigation of the hand dug trench there are no roots present mechanical excavation may be possible if a banksman is supervising the excavation to ensure that if roots are unearthed they can be protected and clean cut and surrounded by sand. Hand digging may need to be resumed to complete the excavation.

5.1.4 This would include exploratory excavation by hand for the foundations of the paths and new hard surfacing within the root protection area of the trees.

5.2 Surfacing within the Root Protection Area

Hand digging will also be required for any unavoidable excavation within the RPA of trees.

- a) Minimizing excavation within the root protection area by removing surfacing herbage and laying a geo-textile to stabilize the ground.
- b) Infill any irregularities with 50mm sharp sand
- c) On this lay a geo web, depth to be specified by the supplier to accommodate the proposed weight load.
- d) This will be filled with no fines gravel / stone 20-40mm
- e) Lay final wearing surface on top of this base- for example permeable paving or porous tarmac.
- f) Use timber edging to avoid excessive excavation to facilitate haunching of edging.

5.3 Location of Underground Services

All drainage and below ground services will be designed to avoid tree protection zones. If there is no alternative but to site these within the root protection area of trees, then trenches excavation should be hand dug and comply with 'Hand dug ' as outlined in section 5.1 or the NJUG regulations.

5.4. Contingency Plans

If vehicular access is necessary within the root protection zone of any of the trees, in response to chemical spillage, collision or emergency access, the ground will be protected by geo-textile or boarding as outlined in the British Standard. Spillage and ground contamination will be prevented and preparation of material carried out outside the root protection areas of tree.

5.5 Site Supervision

There will be full supervision on site from the site foreman and tree protection methods will be strictly adhered to. An arboricultural supervision schedule, if required by the local authority, is included in the appendices to this report.

6.0 Post Construction and Landscaping near Trees.

6.1 Removal of fencing and ground protection

On completion of works, protective fencing and the ground protection for temporary working space will be removed.

6.2 Remedial works and soil improvement

6.2.1 Exposed soils are easily compacted resulting in loss of water and gaseous exchange and leading to root deaths. To relieve ground compaction, which may have resulted from the overrun of vehicles or by storage of materials, the clay soils should be broken up to allow air to penetrate and for the soil structure to be restored.

There are various methods to achieve this which are outlined in the appendices to this report.

- Auguring the soil by hand combined with soil improvements
- Pneumatic excavation for example air spade and soil improvements

6.2.2 Within the tree root protection area improve the soil structure by incorporating a compost or mulch within the topsoil, of 75-100mm in depth. This can be spread over the surface and gently forked into the soil. If bark chip is used as mulch NPK fertilizer should be added to counteract the nitrogen depletion of the soil. There are options for additives of microrrhizal fungal which may also improve root function. Ground compaction will be addressed by either lightly forking over the area or by other techniques; for example use of tree spade soil aeration.

6.3 New surfacing

Within the root protection areas the surface overlying the root protection areas of trees will be laid as outlined in section 5.2, on either the existing geo web base or on a new geo web base, with no excavation within these root protection areas.

6.4 New planting and soft landscape

New planting within the root protection areas of trees should be carried out to avoid mechanical cultivation and for plants to be notch planted. Shrub beds are to be mulched, which, in addition to reducing weed growth, will enhance soil conditions round trees. Within grass areas, the height of mower blades are to be set above the level of surface tree roots to avoid damage and soil level raised above surface roots with a sandy composition of topsoil

Elizabeth Greenwood CMLI F.Arbor A.
September 2017 amended January 2018

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- Principles of tree hazard management - David Lonsdale - Forestry Commission Publication ISBN 0-11-753355-6
- The body language of trees - Claus Mattheck and Helge Breloer - Forestry Commission Publication ISBN 0-11-753067-0
- Arboriculture research and Information note 12 'Tree Root Systems'.
- Tree Roots and in the Built Environment John Roberts, Nick Jackson and Mark Smith. DCLG ISBN 13-978-0-11-753620-3
- Manual of Wood Decay Fungi- K. Weber and C. Mattheck - -The Arboricultural Association, ISBN 0- 900978
- Volume 4: NJUG Guidelines For The Planning, Installation And Maintenance Of Utility Apparatus In Proximity To Trees (Issue 2) – Operatives Handbook
- Estimating the age of large and veteran tree in Britain- The Forestry Commission. <http://www.forestry.gov.uk>

Appendix A

Extracts from Tree Preservation Order in respect of land adjoining Milton Road, Pepys Close, Long Lane and Court Road, Ickenham, Uxbridge

DATED

28th May

1964

TREE PRESERVATION ORDER

made by the

MAYOR, ALDERMEN AND BURGESSES
OF THE BOROUGH OF UXBRIDGE

relating to

individual trees, areas of trees and groups
of trees on land adjoining Milton Road,
Pepys Close, Long Lane and Court Road,
Ickenham, Uxbridge, under Section 29 of the
Town and Country Planning Act, 1962.

BOROUGH OF UXBRIDGE

**TREE PRESERVATION ORDER IN RESPECT OF LAND ADJOINING
MILTON ROAD, PEPYS CLOSE, LONG LANE AND COURT ROAD,
ICKENHAM, UXBRIDGE**

THE MAYOR, ALDERMEN AND BURGESSES of the BOROUGH OF UXBRIDGE acting by the Council as the local authority for the said Borough on behalf of the County Council of the Administrative County of Middlesex as Local Planning Authority (in this Order called "the authority") in pursuance of the powers conferred in that behalf by Section 29 of the Town and Country Planning Act, 1962, and subject to the provisions of Section 13 of the Forestry Act, 1951, hereby make the following Order :-

1. In this Order -

"the Act" means the Town and Country Planning Act, 1962; "owner" means the owner in fee simple, either in possession or who has granted a lease or tenancy of which the unexpired portion is less than three years; a lessee (including a sub-lessee) or tenant in possession, the unexpired portion of whose lease or tenancy is three years or more, and a mortgagee in possession; and
"the Minister" means the Minister of Housing and Local Government.

2. Subject to the provisions of this Order and to the exemptions specified in the Second Schedule hereto, no person shall, except with the consent of the authority and in accordance with the conditions, if any, imposed on such consent, cut down, top, lop, or wilfully destroy or cause or permit the cutting down, topping, lopping or wilful destruction of any tree specified in the First Schedule hereto or comprised in a group of trees or in a woodland therein specified, the position of which trees, groups of trees and woodlands is defined in the manner indicated in the said First Schedule on the map annexed hereto a certified copy of which has been signed by the Town Clerk of the Borough of Uxbridge and deposited for inspection at 265, High Street, Uxbridge, which map shall, for the purpose of such definition as aforesaid, prevail where any ambiguity arises between it and the specification in the said First Schedule.
3. An application for consent made under Article 2 of this Order shall be in writing stating the reasons for making the application, and shall by reference if necessary to a plan specify the trees to which the application relates, and the operations for the carrying out of which consent is required.
4. (1) Where an application for consent is made under this Order, the authority may grant such consent either unconditionally, or subject to such conditions (including conditions requiring the replacement of any tree by one or more trees on the site or in the immediate vicinity thereof), as the authority may think fit, or may refuse consent.

(2) The authority shall keep a register of all applications for consent under this Order containing information as to the nature of the application, the decision of the authority thereon, any compensation awarded in consequence of such decision and any directions as to replanting of woodlands; and every such register shall be available for inspection by the public at all reasonable hours.
5. Where the authority refuse consent under this Order or grant such consent subject to conditions they may when refusing or granting consent certify in respect of any trees for which they are so refusing or granting consent that they are satisfied :-
 - (a) that the refusal or condition is in the interests of good forestry; or
 - (b) in the case of trees other than trees comprised in woodlands, that the trees

11. Any question of disputed compensation shall be determined in accordance with the provisions of Section 128 of the Act.
12. Any person contravening the provisions of this Order is guilty of an offence under Section 62 of the Act and liable on summary conviction to a fine not exceeding fifty pounds; and if in the case of a continuing offence the contravention is continued after conviction he is guilty of a further offence thereunder and liable on summary conviction to an additional fine not exceeding forty shillings for every day on which the contravention is so continued.

FIRST SCHEDULE

TREES SPECIFIED INDIVIDUALLY
(uncoloured and encircled in black on the map)

No. on Map	Description	Situation
T.1	Oak	Site of Ray House, Ickenham.
~~T.2~~	~~Oak~~	~~" " "~~
T.3	Oak	" " "
T.4	Silver Birch	Bay House, Ickenham.
T.5	Lime	Heath House, Ickenham.
T.6	Oak	" " "
T.7	Elm	No. 35, Milton Road, Ickenham.
T.8	Purple Leaf Plum	No. 23, " " "
T.9	Black Poplar	No. 25, " " "
T.10	Elm	No. 17, " " "
~~T.11~~	~~Oak~~	~~No. 19, " " "~~
T.12	Rowan	No. 17, " " "
T.13	Purple Leaf Plum	" " " "
T.14	Douglas Fir	No. 6, Pepys Close, Ickenham.
T.15	Macrocarpa Cupressus	" " " "
T.16	Elm	No. 13, Milton Road, Ickenham.
T.17	Macrocarpa Cupressus	" " " "
T.18	Deodar Cedar	" " " "
T.19	Holly	" " " "
T.20	Acer Negundo	" " " "
T.21	Golden Thuya	No. 9, " " "
T.22	Flowering Crab	" " " "
T.23	Golden Thuya	" " " "
T.24	Hawthorn	" " " "
T.25	Purple Leaf Plum	No. 1, Pepys Close, Ickenham.
T.26	Purple Leaf Plum	" " " "
T.27	Flowering Almond	No. 5, Milton Road, Ickenham.
T.28	Oak	No. 3, " " "
T.29	Silver Birch	" " " "
T.30	Silver Birch	" " " "
T.31	Silver Birch	" " " "
T.32	Hawthorn	" " " "
T.33	Rowan	" " " "
T.34	Flowering Almond	No. 1, " " "
T.35	Silver Birch	" " " "
T.36	Silver Birch	No. 58, Long Lane, Ickenham.
T.37	Flowering Crab	" " " "
T.38	Weeping Willow	" " " "
T.39	Purple Leaf Plum	No. 60, " " "
T.40	Purple Leaf Plum	" " " "
T.41	Monterey Pine	" " " "
T.42	Laburnum	" " " "
T.43	Hawthorn	" " " "
T.44	Hawthorn	" " " "

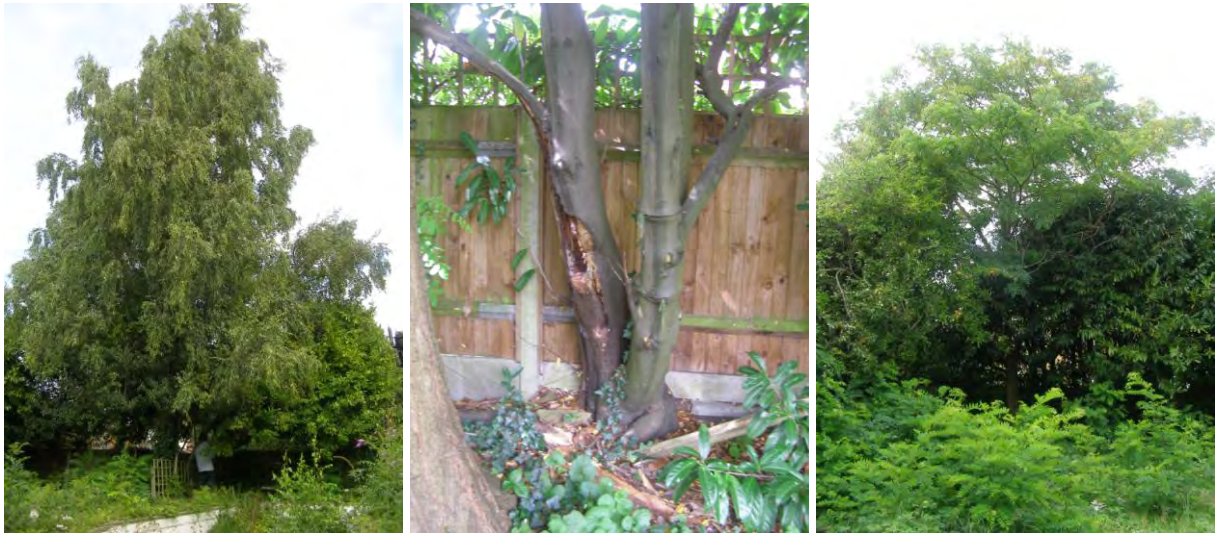
This is a detailed black and white map of a residential area in Uxbridge, showing streets like Long Lane, Pepys Close, and Milton Road, along with numerous numbered plots and buildings. The map is oriented with North at the top. Long Lane runs horizontally across the top. Pepys Close is a narrow street on the left. Milton Road runs vertically on the right. The map shows numerous numbered plots, many of which are labeled with 'G' (e.g., G.1, G.2, G.3, G.4, G.5, G.6, G.7, G.8, G.9, G.10, G.11, G.12, G.13, G.14, G.15, G.16, G.17, G.18, G.19, G.20, G.21, G.22, G.23, G.24, G.25, G.26, G.27, G.28, G.29, G.30, G.31, G.32, G.33, G.34, G.35, G.36, G.37, G.38, G.39, G.40, G.41, G.42, G.43, G.44, G.45, G.46, G.47, G.48, G.49, G.50, G.51, G.52, G.53, G.54, G.55, G.56, G.57, G.58, G.59, G.60, G.61, G.62, G.63, G.64, G.65, G.66, G.67, G.68, G.69, G.70, G.71, G.72, G.73, G.74, G.75, G.76, G.77, G.78, G.79, G.80, G.81, G.82, G.83, G.84, G.85, G.86, G.87, G.88, G.89, G.90, G.91, G.92, G.93, G.94, G.95, G.96, G.97, G.98, G.99, G.100, G.101, G.102, G.103, G.104, G.105, G.106, G.107, G.108, G.109, G.110, G.111, G.112, G.113, G.114, G.115, G.116, G.117, G.118, G.119, G.120, G.121, G.122, G.123, G.124, G.125, G.126, G.127, G.128, G.129, G.130, G.131, G.132, G.133, G.134, G.135, G.136, G.137, G.138, G.139, G.140, G.141, G.142, G.143, G.144, G.145, G.146, G.147, G.148, G.149, G.150, G.151, G.152, G.153, G.154, G.155, G.156, G.157, G.158, G.159, G.160, G.161, G.162, G.163, G.164, G.165, G.166, G.167, G.168, G.169, G.170, G.171, G.172, G.173, G.174, G.175, G.176, G.177, G.178, G.179, G.180, G.181, G.182, G.183, G.184, G.185, G.186, G.187, G.188, G.189, G.190, G.191, G.192, G.193, G.194, G.195, G.196, G.197, G.198, G.199, G.200, G.201, G.202, G.203, G.204, G.205, G.206, G.207, G.208, G.209, G.210, G.211, G.212, G.213, G.214, G.215, G.216, G.217, G.218, G.219, G.220, G.221, G.222, G.223, G.224, G.225, G.226, G.227, G.228, G.229, G.230, G.231, G.232, G.233, G.234, G.235, G.236, G.237, G.238, G.239, G.240, G.241, G.242, G.243, G.244, G.245, G.246, G.247, G.248, G.249, G.250, G.251, G.252, G.253, G.254, G.255, G.256, G.257, G.258, G.259, G.260, G.261, G.262, G.263, G.264, G.265, G.266, G.267, G.268, G.269, G.270, G.271, G.272, G.273, G.274, G.275, G.276, G.277, G.278, G.279, G.280, G.281, G.282, G.283, G.284, G.285, G.286, G.287, G.288, G.289, G.290, G.291, G.292, G.293, G.294, G.295, G.296, G.297, G.298, G.299, G.300, G.301, G.302, G.303, G.304, G.305, G.306, G.307, G.308, G.309, G.310, G.311, G.312, G.313, G.314, G.315, G.316, G.317, G.318, G.319, G.320, G.321, G.322, G.323, G.324, G.325, G.326, G.327, G.328, G.329, G.330, G.331, G.332, G.333, G.334, G.335, G.336, G.337, G.338, G.339, G.340, G.341, G.342, G.343, G.344, G.345, G.346, G.347, G.348, G.349, G.350, G.351, G.352, G.353, G.354, G.355, G.356, G.357, G.358, G.359, G.360, G.361, G.362, G.363, G.364, G.365, G.366, G.367, G.368, G.369, G.370, G.371, G.372, G.373, G.374, G.375, G.376, G.377, G.378, G.379, G.380, G.381, G.382, G.383, G.384, G.385, G.386, G.387, G.388, G.389, G.390, G.391, G.392, G.393, G.394, G.395, G.396, G.397, G.398, G.399, G.400, G.401, G.402, G.403, G.404, G.405, G.406, G.407, G.408, G.409, G.410, G.411, G.412, G.413, G.414, G.415, G.416, G.417, G.418, G.419, G.420, G.421, G.422, G.423, G.424, G.425, G.426, G.427, G.428, G.429, G.430, G.431, G.432, G.433, G.434, G.435, G.436, G.437, G.438, G.439, G.440, G.441, G.442, G.443, G.444, G.445, G.446, G.447, G.448, G.449, G.450, G.451, G.452, G.453, G.454, G.455, G.456, G.457, G.458, G.459, G.460, G.461, G.462, G.463, G.464, G.465, G.466, G.467, G.468, G.469, G.470, G.471, G.472, G.473, G.474, G.475, G.476, G.477, G.478, G.479, G.480, G.481, G.482, G.483, G.484, G.485, G.486, G.487, G.488, G.489, G.490, G.491, G.492, G.493, G.494, G.495, G.496, G.497, G.498, G.499, G.500, G.501, G.502, G.503, G.504, G.505, G.506, G.507, G.508, G.509, G.510, G.511, G.512, G.513, G.514, G.515, G.516, G.517, G.518, G.519, G.520, G.521, G.522, G.523, G.524, G.525, G.526, G.527, G.528, G.529, G.530, G.531, G.532, G.533, G.534, G.535, G.536, G.537, G.538, G.539, G.540, G.541, G.542, G.543, G.544, G.545, G.546, G.547, G.548, G.549, G.550, G.551, G.552, G.553, G.554, G.555, G.556, G.557, G.558, G.559, G.560, G.561, G.562, G.563, G.564, G.565, G.566, G.567, G.568, G.569, G.570, G.571, G.572, G.573, G.574, G.575, G.576, G.577, G.578, G.579, G.580, G.581, G.582, G.583, G.584, G.585, G.586, G.587, G.588, G.589, G.590, G.591, G.592, G.593, G.594, G.595, G.596, G.597, G.598, G.599, G.600, G.601, G.602, G.603, G.604, G.605, G.606, G.607, G.608, G.609, G.610, G.611, G.612, G.613, G.614, G.615, G.616, G.617, G.618, G.619, G.620, G.621, G.622, G.623, G.624, G.625, G.626, G.627, G.628, G.629, G.630, G.631, G.632, G.633, G.634, G.635, G.636, G.637, G.638, G.639, G.640, G.641, G.642, G.643, G.644, G.645, G.646, G.647, G.648, G.649, G.650, G.651, G.652, G.653, G.654, G.655, G.656, G.657, G.658, G.659, G.660, G.661, G.662, G.663, G.664, G.665, G.666, G.667, G.668, G.669, G.670, G.671, G.672, G.673, G.674, G.675, G.676, G.677, G.678

Appendix B

Photographs of the site and trees

60 Long Lane, Ickenham, UXBRIDGE, UB10 8SZ

Arboricultural Impact Assessment and Method Statement as amended



Above- the large birch (T1). **Above centre-** the damaged stem of the laurel (T4). **Above right** the false acacia (T8). **Below left** - the swimming pool. **Below right-** the line of laurels which form the boundary planting. **Bottom** - the self set sapling within the rear garden



60 Long Lane, Ickenham, UXBRIDGE, UB10 8SZ

Arboricultural Impact Assessment and Method Statement as amended



Above left - the cherry (T16). **Above right** - the cherry plum (T12) within the neighbouring garden. **Below** - the line of trees between boundaries with the TPO39 purple leaved plum (T13) and TPO40 dead tree



Appendix C

Tree Survey

60 Long Lane, Ickenham, UXBRIDGE, UB10 8SZ

Arboricultural Impact Assessment and Method Statement as amended

Tag	Tree	Age	Stem Diameter	Stem	Height	Lowest branch	lower crown	Category	North	South	East	West	Structural	Physiological	Comments	Recommendations	life expectancy	RPA
T1	Silver Birch <i>Betula pendula</i>	M	240, 360	2	15	2.5	3	B2	4	3.8	3.3	4.4	Fair	Good	Ivy ascending crown. Tight fork at base; RPA disfigured by presence of swimming pool	Retain	20 to 40	76 sq m
T2	Silver Birch <i>Betula pendula</i>	SM	140	1	7	5	4	C2	3.7	0	4.5	0	Fair	Fair	Leaning to east. Suppressed canopy- Poor form	Remove for silvicultural thinning part of Application	10 to 20	
T3	Laurel <i>Prunus laurocerasus</i>	M	170, 205	2	6	1.5	1.5	C2	3	2.8	3.8	3.3	Fair	Fair	Leaning N.E. Provides screening. Tight forks. Cavity decay.	Retain at present	10 to 20	32 sq m
T4	Hawthorn <i>Crataegus monogyna</i>	SM	120	1	5	2	2	C2	1.5	0	1	0.5	Fair	Fair	Within 58 Long Lane. Suppressed crown. Poor form. Screening. Branch stubs.	Face back to provide 1.5 metre clearance of crown to new building	10 to 20	12.5 sq m
T5	Lawsons Cypress <i>Chamaecyparis lawsonia</i>	M	190	1	8	3	2	C2	2	1.8	0.8	1.6	Fair	Fair	Suppressed crown.		10 to 20	16 sq m
T6	Ash <i>Fraxinus excelsior</i>	M	200	1	13	4	4	C2	4	3	4.5	3.1	Good	Good	Within 58 Long Lane. Touching the fence. Divided 2m.	Monitor for ash dieback disease	10 to 20	18 sq m

60 Long Lane, Ickenham, UXBRIDGE, UB10 8SZ

Arboricultural Impact Assessment and Method Statement as amended

Tag	Tree	Age	Stem Diameter	Stem	Height	Lowest branch	lower crown	Category	North	South	East	West	Structural	Physiological	Comments	Recommendations	life expectancy	RPA
T7	Holly <i>Ilex aquifolium</i>	M	225		7	0	0	C2	2.6	3.8	3	2			Within 58 Long Lane. Divided at 2m.		10 to 20	23 sq m
T8	Acacia <i>Robinia pseudoacacia</i>	M	350	1	13	2.5	2.5	B2	6.5	4.8	7.5	4	Good	Good	Deadwood in crown	Remove deadwood within the crown and defective branches	10 to 20	55 sq m
T9	Apple <i>Malus domestica</i> sp.	OM	150	1	9	0.5	1.8	C2	2.7	3.8	3.3	3.8	Fair / Poor	Fair	Low branch. Deadwood. Decay on stem branch stubs.	Remove	10 to 20	13 sq m
T10	Holly <i>Ilex aquifolium</i>	M	190, 120	2	6.7	3	2	C2	0	1.7	1.5	0	Fair	Fair	Tight Fork. Ivy ascending the crown.	Cut ivy at base, retain as part of screen planting-formative pruning to improve s form	10 to 20	23 sq m
T11	Leyland cypress <i>x curessocyparis leylandii</i>	M	300, 250, 125, 170	5	6	0	0	C2	3	2.5	2	2	Fair	Fair	Within 62 Long Lane -Multi-branched. Variegated foliage. Has been reduced. Near neighbours conservatory.		10 to 20	90 sq m
T12	Cherry Plum <i>Prunus cerasifera</i>	M	300, 300, 100, 200, 150	5	8	0	0	C2	4	4.4	3.5	3.2	Fair	Fair	Within 58 Long Lane. Multi-stemmed tree. Overhanging	Face back along boundary to enable access	10 to 20	113 sq m

60 Long Lane, Ickenham, UXBRIDGE, UB10 8SZ

Arboricultural Impact Assessment and Method Statement as amended

Tag	Tree	Age	Stem Diameter	Stem	Height	Lowest branch	lower crown	Category	North	South	East	West	Structural	Physiological	Comments	Recommendations	life expectancy	RPA
T13	Purple leafed Plum <i>Prunus cerasifera nigra</i>	M	230	1	7	2	2	C2	2.8	1.2	1	2.6	Fair	Fair	Prolific Ivy ascending crown. Low vigour.	Review- cut ivy at base, face back along drive and crown lift to 3.5 metre to enable access and monitor	10 to 20	24 sq m
T14	Holly <i>Ilex aquifolium</i>	M	310	1	8	3	1	B2	2.8	2.3	2.7	3	Good	Good	Ivy ascending the crown	Cut Ivy face back to hard surface area to enable demolition and construction works	10 to 20	44 sq m
T15	Holly <i>Ilex aquifolium</i>)	M	250	1	6.8	0	0	C2	2	3.8	1.5	4	Fair	Fair	Prolific Ivy into crown. Close to next door building.	Within 58 Long Lane.Cut Ivy face back to boundary to enable demolition and construction works	10 to 20	28 sq m
T16	Cherry <i>Prunus sp.</i>	M	410	1	9	3	1	B2	6.2	6	6	6.5	Good	Good	Divided 3m. Ivy to 6m	Cut Ivy.- crown lift to 3 metre remove any deadwood and defective branches- reduce crown to 4 metre radius to ensure that there is no damage s during site works.	10 to 20	76 sq m

60 Long Lane, Ickenham, UXBRIDGE, UB10 8SZ

Arboricultural Impact Assessment and Method Statement as amended

Tag	Tree	Age	Stem Diameter	Stem	Height	Lowest branch	lower crown	Category	North	South	East	West	Structural	Physiological	Comments	Recommendations	life expectancy	RPA
T17	Holly <i>Ilex aquifolium</i>	SM	170	1	6	2.25	0.5	B2	1	1	2	2.7	Good	Good	One sided. Divided at 2.5m. Ivy	Remove as part of Application	10 to 20	13 sq m
T18	Holly <i>Ilex aquifolium</i>	SM	190	1	6	2.5	1	B2	3.8	1	2	3	Good	Good	Ivy	Remove as part of Application	10 to 20	13 sq m
T19	Cherry <i>Prunus sp.</i>	Y	85	1	6	2	1.5	C2	2	1.6	2.6	1.3	Good	Good	Can be transplanted	Remove as part of Application or transplant	10 to 20	13 sq m
G1	11 Laurels, Laurel <i>Prunus laurocerasus</i> & 1 Lawson Cypress Lawson's Cypress <i>Chamaecyparis lawsonia</i>	M	Max 220, 265, 1505	3	6—8	2	1.5	B2	2	2	5	2	Fair	Fair	Screen. Several trees with decay. Faced back on West side. 1 Conifer suppressed.	Clean out. Reduce crown to manageable dimension of a 2.5 metre spread and height of 5 metres	10 to 20	293 sq m
G2	Sapling Ash, Laurel, Philadelphus	M		5	6	0	0	C2	3.4	1.8	2	3.7	Fair	Fair	Screen planting	Remove as part of Application	10 to 20	13 sq m

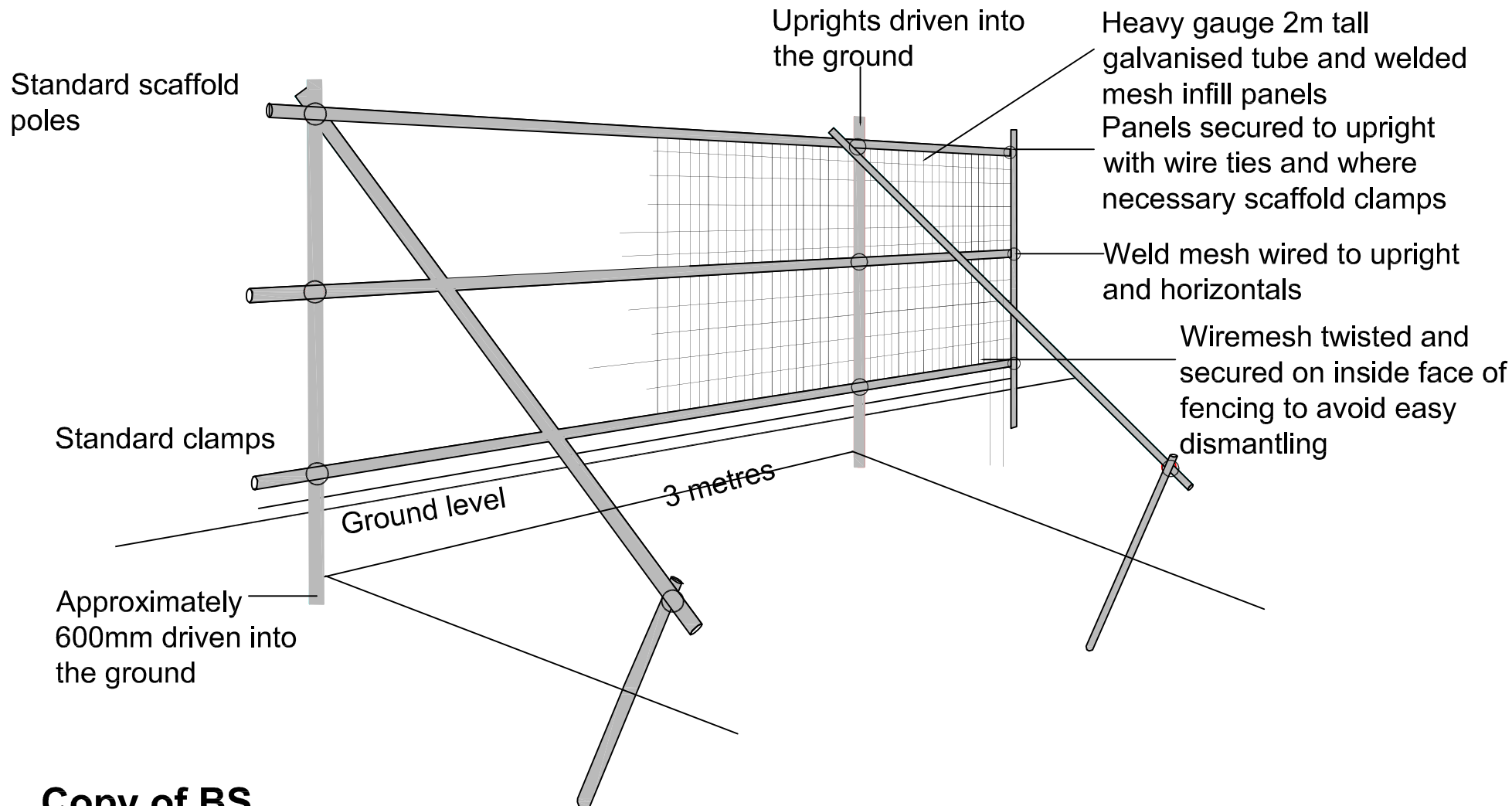
Appendix D

Copy of BS5837:2012 Table 1 “Cascade Chart for Tree Quality Assessment”

TABLE 1		Cascade Chart for Tree Quality Assessment- BS5837:2012 (copies of table1 and 2)			
Category	Criteria			Identification on plan (RAB subject to legibility of the plan)	
Category U					
Those in such a conditions that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	Trees that have a serious, irremediable, structural defect, such a that their early loss is expected due to collapse including those that will become unviable after removal of other category U trees (e.g. Where for whatever reason, the loss of companion shelter cannot be mitigated by pruning.) Trees that are dead or are showing signs of significant, immediate and irreversible overall decline. Trees infected with pathogens of significance to the health and/or so safety p of other trees nearby, or very low quality trees suppressing adjacent trees of better quality NOTE Category U trees can have existing or potential conservation value which might be desirable to			Dark red (RAB 127-000-000)	
Trees to consider for retention					
	1. Mainly arboricultural qualities	2. Mainly landscape qualities	3. Mainly Conservation qualities		
Category A					
Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; those that are essential components of groups or formal or semi formal arboricultural features (e.g. The dominant and/or principal trees within an e avenue	Trees, groups or woodlands or particular visual importance as arboricultural and /or landscape features	Trees, group or woodlands of significant conservation, commemorative or other value (/e.g. Veteran trees or wood pasture)	Light Green (RAB 000-255-000)	
Category B					
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but downgraded because of impaired cons conditions (e.g. Presence of significant though remediable defects, including unsympathetic past management and storm damage) such as that they are unlikely to be suitable for retention beyond 40 years; or trees lacking the special quality necessary to merit category A designation	Tree present in numbers, usually growing in groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collections but situated a so as to make little visual contribution to the wider locality	Trees with materials conservation or other cultural c value	Mid blue (RAB -000-000-255)	
Category C					
Trees of low quality , with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter of below 150mm	Unremarkable trees of limited merit such or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands but without this conferring on them significantly great collective landscape value; and/or tree offering low or only temporary/transient landscape benefits	Trees with no materials conservation or other cultural value	Grey (Rab 091-091-091)	

Appendix E

Protective Barrier/ Fencing

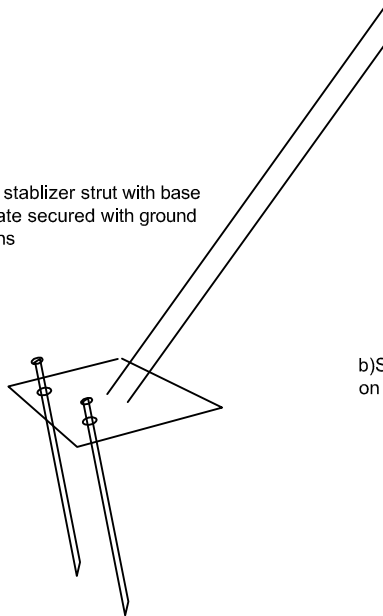


**Copy of BS
5837:2012 Figure 2
Protective barrier**

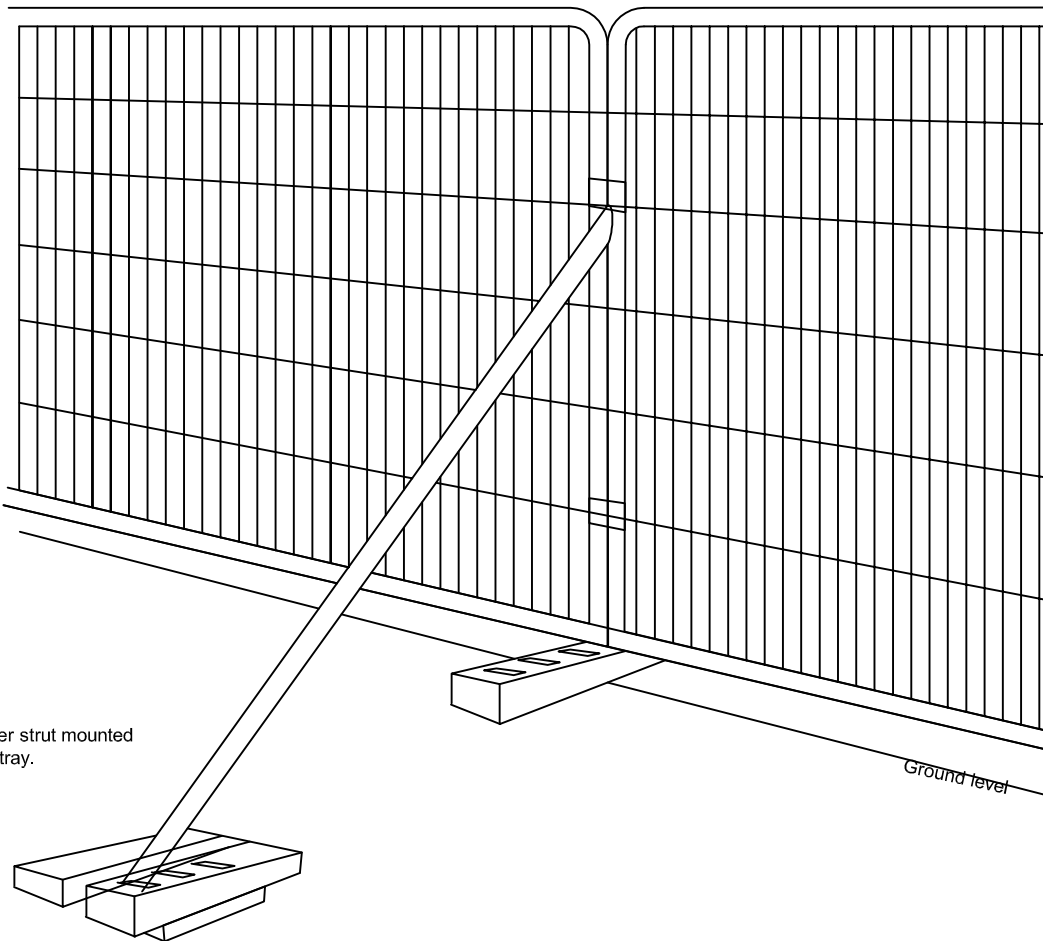
Scheme <i>Copy of BS5837:2012 Tree Protection Details</i>	Date <i>April 2012</i>
Title <i>Protective Barrier</i> Scale <i>A4. Not to scale</i>	Drawn by <i>E.J.G</i> Project no
Elizabeth Greenwood C.M.L.I., F.Arbor.A. 10 Knight Street, Sawbridgeworth, Herts, CM21 9AT. Tel 01279 722381 mobile 07746867402, email ms.ejgreenwod@gmail.com	Drawing number

Copy of BS 5837:2012
Figure 3 Examples of
above ground stabilizing
systems (for Heras type
fencing)
Total height 2.4metres

a) stabilizer strut with base
plate secured with ground
pins



b) Stabilizer strut mounted
on block tray.



Scheme

Copy of BS5837:2012 Tree Protection Details

Title

Protective Barrier -Above Gound Stablization

Scale

A4. Not to scale

Date

April 2012

Drawn by

E.J.G

Project no

Drawing number

Elizabeth Greenwood C.M.L.I., F.Arbor.A.

10 Knight Street, Sawbridgeworth, Herts, CM21 9AT.

Tel 01279 722381 mobile 07746867402, email ms.ejgreenwod@gmail.com

Appendix F

Geo-web details



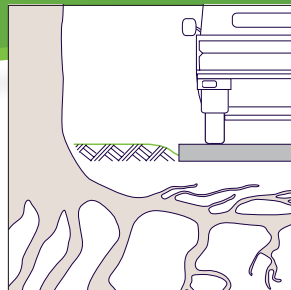
GEOSYSTEMS®



GOWEB®

TREE ROOT PROTECTION (TRP) SYSTEM

Powered by GEOSYSTEMS® technology.



defining **green** in cellular confinement

THE PROBLEM

CONSTRUCTION-RELATED TREE DAMAGE

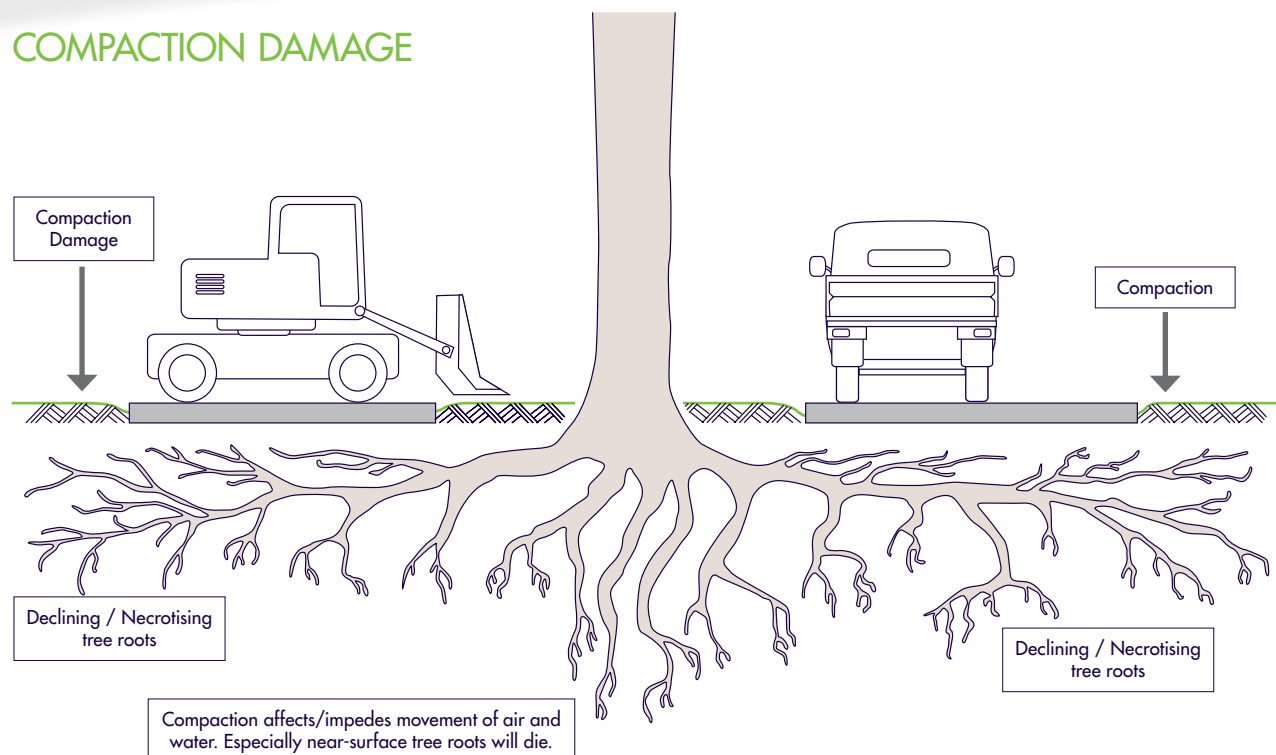
Critical Root Zone/Tree Protection Zone is the minimum area beneath a tree that must remain undisturbed to preserve a sufficient amount of root mass in order to give a tree a chance of survival.

When construction equipment and vehicles intrude a tree's Critical Root Zone, they can cause negative impacts to the soil environment including compaction of the soil, damage to near-surface roots and ultimately endanger the structural integrity of the tree. The majority of a tree's root system is contained within the top three feet of the surface, and construction excavation and compaction can damage or even destroy roots to the point where trees may not survive.

Tree Root Protection (TRP) systems should be eco-friendly as well as comply with local standards and regulations.



COMPACTION DAMAGE



THE GEOWEB® SOLUTION

TREE ROOT PROTECTION (TRP) SYSTEM

Used extensively in civil engineering construction for over 30 years, the GEOWEB® system is a three-dimensional structure that:

- provides strength to confined soils
- distributes loads laterally, not vertically
- reduces point loads
- reduces compaction of the subsoil

Manufactured from high quality, high-strength polyethylene with a textured surface and perforated walls, GEOWEB® cells with selected infill control shearing, lateral and vertical movement, and reduce subbase depth requirements.

The GEOWEB® system is a low impact development (LID) solution with exceptional load-bearing capabilities and environmental benefits. The system has a long history of solving heavy load support problems for roadways, road base support, parking lots, road shoulders, ports, trucking/intermodal terminals and railroads.

COST BENEFITS

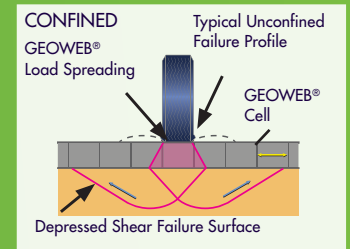
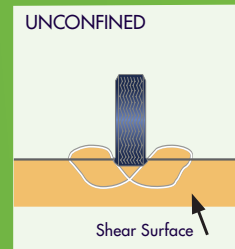
The GEOWEB® TRP system is an economical solution for reducing construction vehicle impact to the tree root zone compared with other methods. Once installed, the system has minimal-to-no visibility.

ENVIRONMENTAL BENEFITS

With permeable infill (topsoil/vegetation, aggregate, sand), perforated GEOWEB® cell walls offer environmental benefits:

- water infiltration
- lateral movement of air and water
- water and nutrient migration
- promotes root development

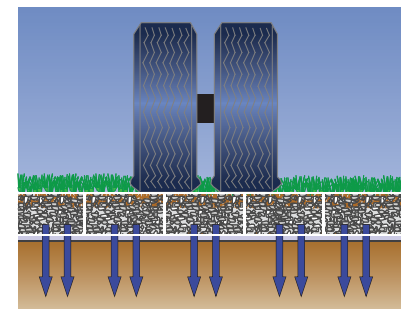
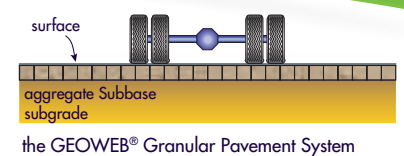
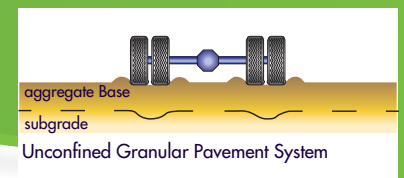
The tree root protection system can be a temporary or permanent solution.



LOAD DISTRIBUTION

By distributing and bridging applied loads, the GEOWEB® TRP system reduces vertical stresses that are typically applied to the underlying soil and root zone.

The GEOWEB® system is ideally suited for tree root protection applications where weak subsoil or no-dig restrictions exist.



GEOWEB®

TRP SYSTEM INSTALLATION

Step 1: Remove the upper grass and soft soils by hand or by machine if acceptable.

Step 2: Install a high-strength woven geotextile allowing adequate drainage as a separation layer between soft subgrade and GEOWEB® infill material.

Step 3: Expand GEOWEB® sections over the area to be protected and use temporary stakes or weights to hold sections open to prevent movement during infilling.

Step 4: Connect adjacent sections using ATRA® Keys. Position the sections so the slots are aligned, insert the key and turn 90 degrees locking the panels together. ATRA® Keys provide a long-term connection that is safer, quicker and stronger than staples or cable ties. In environmentally protected areas, ATRA® Keys can be used without the requirement for diesel-fueled compressors.

Step 5: For permeability, infill the fully connected GEOWEB® system with a well-graded, 25mm – 50mm granular, non-frost-susceptible quarried rock with no fines. Overfill by up to 50mm to allow for compaction.

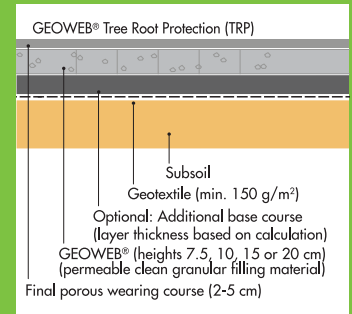
Step 6: Compact the fill material with conventional plant or non-vibratory plant when required. Fill should be maintained above the GEOWEB® system by a minimum of 10mm at all times or a permanent wearing course of blocks, porous asphalt or gravel installed.



DESIGN CONSIDERATIONS

It is important to ensure the correct GEOWEB® cell size and cell depth are specified and installed based on the anticipated pavement loads. These are calculated based on the following criteria:

- traffic type and loading
- frequency of traffic
- subgrade strength (typically CBR, Ev2, Cu or SPT values)
- infill type
- allowable settlement of the pavement



To assist you in determining the correct GEOWEB® solution for your application, Presto GEOSYSTEMS® or their network of distributors/representatives can assist with the calculation for your project. You can be confident that you will receive the most suitable and economical solution for your project.

PRESTO GEOSYSTEMS® COMMITMENT — To provide the highest quality products and solutions.

Presto GEOSYSTEMS® is committed to helping you apply the best solutions for your tree root protection needs. Our solutions-focused approach to solving problems adds value to every project. Rely on the leaders in the industry when you need a solution that is right for your application. Contact Presto GEOSYSTEMS® or our worldwide network of knowledgeable distributors/representatives for assistance.



PRESTO GEOSYSTEMS®

P.O. Box 2399
670 North Perkins Street
Appleton, Wisconsin 54912-2399, USA

P: 920-738-1328

TF: 800-548-3424

F: 920-738-1222

E: info@prestogeo.com

www.prestogeo.com

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Appendix G

Indicative Arboricultural Supervision

Indicative Arboricultural Supervision

item	*Site supervision visit number	Estimated timing	Date of visit
Meet site foremen and discuss works and program. Setting out site and protective fencing, ground protection- site organization, and demolition	Visit 1	<u>Pre construction</u> 1. Carry out tree removal and tree surgery and listed 2. Fence off all trees to be retained prior to demolition and site work 3. Provide and insert ground protection for the duration of construction works 4. Carry out demolition and site clearance	
Setting out building, foundation excavation, trenches	Visit 2	Prior to construction- 5. Set up site working area	
Excavations/ changes of soil levels— and foundation and positioning of pile drivers details- inspect	Visit 3	<u>Construction</u> 6. Carry out construction 7. Had dig for extension of hard surfacing within the RPA of tree, minimize excavation of the foundation by use of Geo-web type construction 8. For new surfacing insert ground protection as above for use of site works	
On completion- removal of tree protection, planting and remedial works- removal	Visit 4	<u>Post completion</u> 9. On completion of works remove protective fencing and ground protection 10. Carry out remedial works as listed prior to landscape works 11. Carry out landscape works	

File 2

Appendix H

Plan 746.17.1 Tree Constraints Plan

Appendix I

Plan 746.17.2A Tree Surgery and Removal Plan

Appendix J

Plan 746.17.3A Tree Protection Plan