

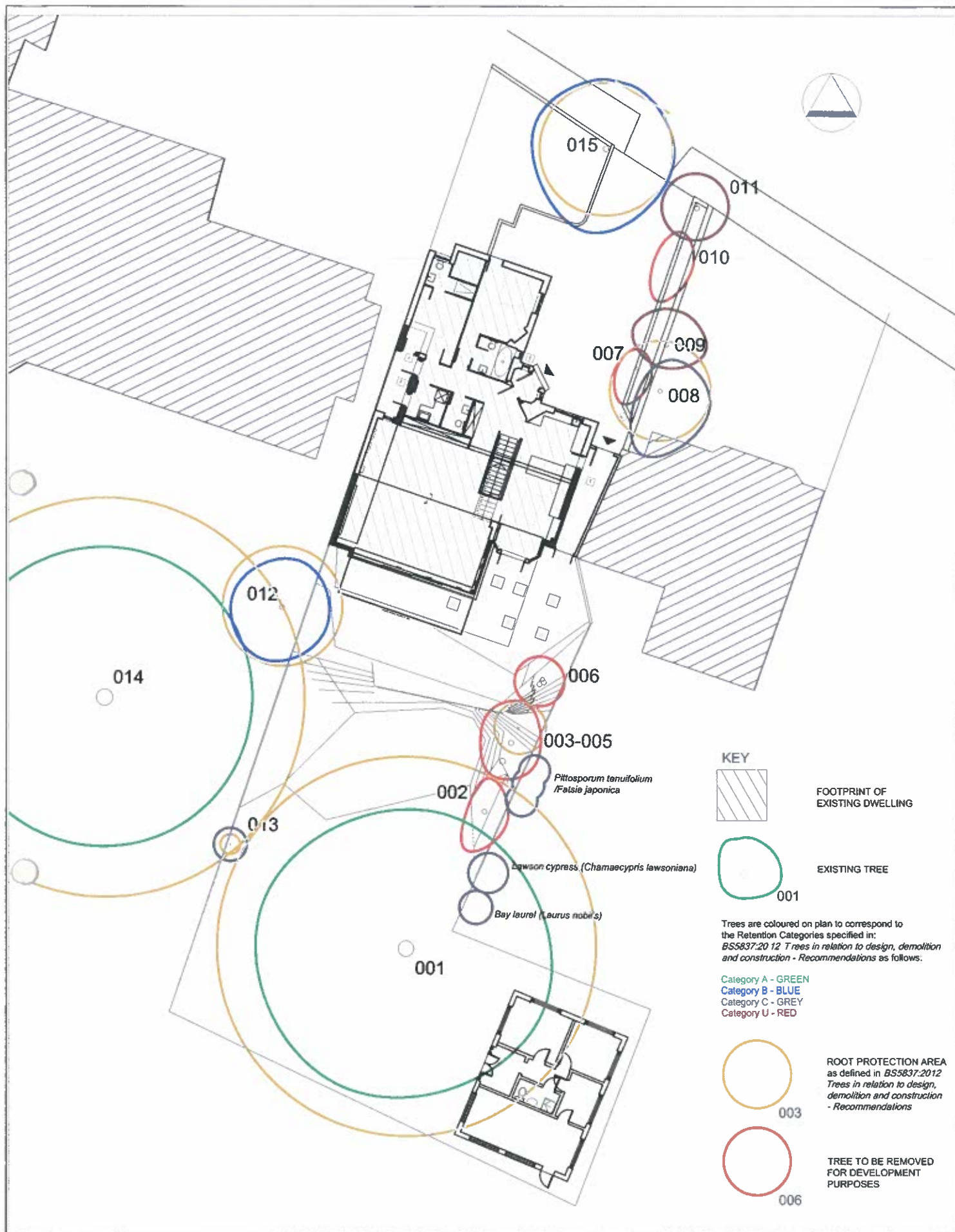
## **Appendix a**

**Tree survey schedule**

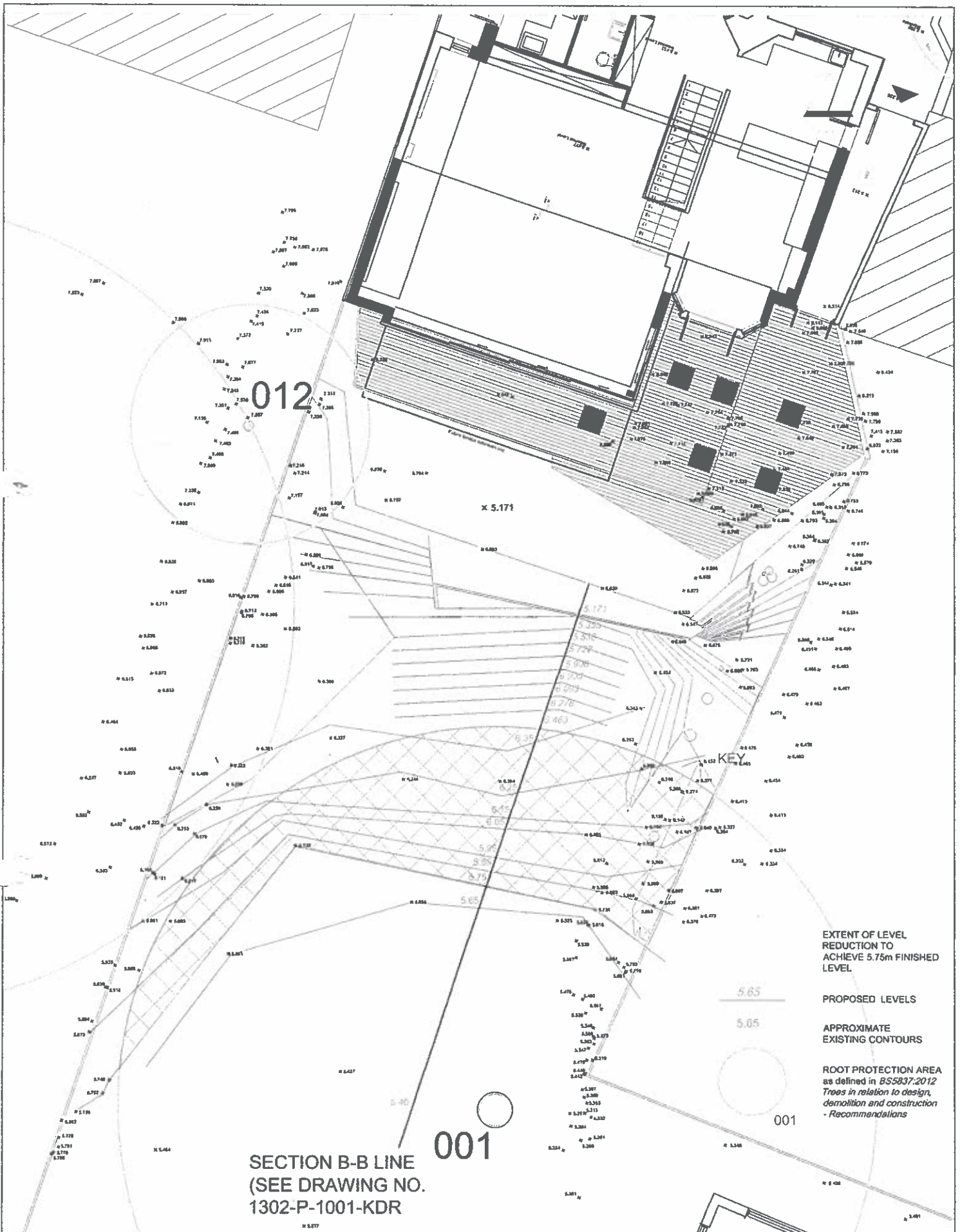
**Tree survey plan**

**Tree constraints plan**

**Tree protection plan**



Client: LHQ SERVICES LTD	Drawing Title: TREE CONSTRAINTS PLAN			<div> <b>Skerratt</b>            arboricultural advice         </div> <div>           158 MALDEN ROAD, LONDON NW5 4BT            01274 566539         </div>
Site Title: 7 KIDDERPORE AVENUE LONDON NW3 7 QY	Date: 29.02.00	Scale: 1:200 (A3)		
	Drawing Number: 05.08.14	Status By: RS		



<p>Client</p> <p>LHQ SERVICES LTD</p>	<p>Drawing Title</p> <p>TREE CONSTRAINTS PLAN: INVESTIGATION OF LIKELY IMPACTS ON T001, 012 and 014</p>	<p>Skerratt arboricultural advice</p>	
<p>Sub Title</p> <p>7 KIDDERPORE AVENUE LONDON NW3 7 QY</p>	<p>Date</p> <p>295.02.01</p> <p>Drawing Number</p> <p>15.08.14</p>	<p>Scale</p> <p>1:100 (A3)</p> <p>Drawn by</p> <p>RS</p>	<p>158 MALDEN ROAD, LONDON NW5 4BT 01274 566539</p>

# KEY



EXISTING TREE

001

Trees are coloured on plan to correspond to the Retention Categories specified in:  
BS5837:2012 Trees in relation to design, demolition and construction - Recommendations as follows:

Category A - GREEN

Category B - BLUE

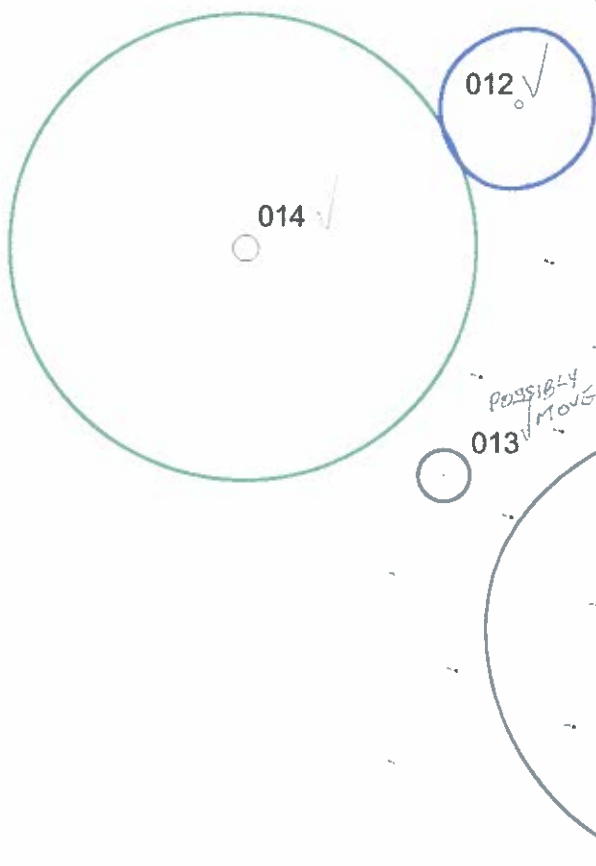
Category C - GREY

Category U - RED



003

ROOT PROTECTION AREA  
as defined in BS5837:2012  
Trees in relation to design,  
demolition and construction  
- Recommendations



Client LHQ SERVICES LTD	Drawing Title TREE SURVEY PLAN			<div> <div>Skerratt</div> <div>arboricultural advice</div> <div>158 MALDEN ROAD, LONDON NW5 4BT</div> <div>01274 566539</div> </div>
Job Title 7 KIDDERPORE AVENUE LONDON NW3 7 QY	Date 29.01.00	Scale 1:200 (A3)		
	Drawing Number 05.08.14	Designer RS		



## 2. Background information

### 2.1 Site layout, boundaries and topography

- 2.1.1 No. 7 is on the south side of Kidderpore Avenue. The existing dwelling, a brick-built, two storey (plus an attic floor) dwelling approximately 100 years old, stands in a large rectangular plot, the longer axis of which runs roughly north east to south west.
- 2.1.2 The large rear garden is fenced with timber panel fencing. At the front of the dwelling the garden is separated from the adjacent property to the east by an approximately 1500mm high brick boundary wall. There is a low brick wall reinforced with a hedge along the front, Kidderpore Avenue, boundary.
- 2.1.3 The front garden slopes very gently downwards from Kidderpore Avenue to the dwelling.
- 2.1.4 At the rear of the house there is an existing external terrace shown on the partial topographic survey of the site at a level of around 8.25, a little below internal floor level (8.48).
- 2.1.5 From the base of the terrace, the rear garden slopes downwards quite steeply. About 12m to the south of the terrace, the angle of slope increases significantly to form a steep narrow bank dropping about 500mm in less than 2000mm horizontal travel. From the foot of this bank to the rear boundary of the garden, the angle of slopes eases considerably. Overall the rear garden drops by about 2000mm between the base of the terrace retaining wall (7.30) and the base of a large Oak tree (T001 in the **Tree survey schedule** in **Appendix a**).
- 2.1.6 The existing site configuration is shown on the **Tree survey plan** in **Appendix a**.

### 2.2 Geology and soils

- 2.2.1 According to the British Geological Survey Sheet 256 (North London) the site is situated close to the boundary between deep Palaeogene London Clay bedrock and that of the Claygate beds, clays, silts and fine sands of similar but more recent age to the London Clay.
- 2.2.2 No soil sampling was carried out on site.

### 2.3 Planning constraints

- 2.3.1 The property is within the London Borough of Camden Redington and Frogna Conservation Area
- 2.3.2 It is not known whether any of the trees referred to in this report are covered by a Tree Preservation Order (TPO).

## **2.4 The trees**

**2.4.1** The **Tree survey schedule** in **Appendix a** describes in detail the 15 trees and shrubs referred to in this report.

## **2.5 The proposed development**

**2.5.1** The main elements of the proposed development are:

- Extension of the existing dwelling at ground floor level
- The construction of a habitable basement level beneath footprint of the existing dwelling/terrace
- Associated landscaping and access improvement works

### 3. Discussion

#### 3.1 General

- 3.1.1 The **Tree constraints plan (Drawing No. in Appendix a)** shows the recommended Root Protection Area (RPA) for each tree, re-configured where appropriate to allow for the effects of known barriers to the spread of roots. Each RPA highlights the primary potential area of conflict between proposed development and retention of existing trees, namely conflicting demands for space at and below ground level
- 3.1.2 Possible secondary constraints, for example physical limits to upward development imposed by existing tree branches and light shading have also been taken into consideration where appropriate.
- 3.1.3 It has been assumed that there will be only limited spread of tree roots below the carriageway of 7 Kidderpore Avenue. The extent of this root spread has been assumed to be 1000mm.

#### 3.2 Trees to be removed

- 3.2.1 **Table 1** below lists trees and shrubs that are to be removed to enable the proposed development.

Tree/ Shrub No.	Species	Comments	Category
002	Laurel ( <i>Prunus laurocerasus</i> )	Low level hedge screen	C
003-005	3 x Western Red Cedar ( <i>Thuja plicata</i> )	Low level hedge screen	C
006	Laurel ( <i>Prunus laurocerasus</i> )	Low level hedge screen	C
007	Pittosporum ( <i>Pittosporum tenuifolium</i> )	Component in a shrub border adjacent to the front drive	C
010	Smoke Bush ( <i>Cotinus coggygria</i> )	Component in a shrub border adjacent to the front drive	C
011	Laburnum ( <i>Laburnum anagyroides</i> )	Dying and diseased	U

**Table 1: Trees to be removed**

##### *Trees/shrubs 002-006*

- 3.2.2 The removal of trees and shrubs 002-006 inclusive will result in some loss of low-level screening between the rear garden of 7 Kidderpore Avenue and the immediately adjacent garden to the east. Groups of vegetation of similar age and stature standing within neighbouring property will be retained however, and will mitigate the loss of T002-006.
- 3.2.3 Appropriate replacement planting could rapidly (within 5-10 years) compensate for the loss of screening.

3.2.4 The vegetation removal is required to allow the remodelling of the contours of the sloping rear garden after the proposed refurbishment and extension of the dwelling has been completed.

3.2.5 The re-modelling will require the construction of a retaining structure along the common boundary with the neighbouring rear garden to the east for part of its length. Care will be required to prevent damage to neighbouring vegetation during construction but it is unlikely that such a structure would cause unacceptable damage to the root systems of adjacent small trees and shrubs, because the root systems of T002-006 will predominantly have occupied the area to be developed and because there is already a change of level between the two gardens.

*Trees/shrubs 007, 010 and 011*

3.2.6 The removal of this vegetation is required to enable access improvements to be made.

3.2.7 The front garden of 7 Kidderpore Avenue is separated from the neighbouring garden to the east by an approximately 1500mm high brick boundary wall. The loss of shrubs 007 and 010 will therefore have a very small impact upon the visual amenities of neighbours. Their removal will be visible from the public highway but, taken in the context of the leafy front gardens of the dwellings in Kidderpore Avenue, the adverse impact will be small.

3.2.8 It will be necessary to remove Laburnum T011 whether or not the development goes ahead as it is diseased and nearly dead.

### 3.3 Trees to be retained

3.3.1 **Table 2** overleaf summarises the impacts upon retained trees.

*Tree 001 (Oak)*

3.3.2 Key tree 001 (Oak) will be affected by the proposed re-modelling of the contours of the rear garden.

3.3.3 This proposed re-contouring is not fully described in the layout plans that were available at time of writing of this analysis.

3.3.4 **Drawing No 294.02.01** in **Appendix b** shows very approximate existing contours extrapolated from spot levels shown on Mobile Cad Surveying Drawing No. 1601-01 - Existing site layout. The steep, narrow bank referred to in 2.1.5 is clearly visible.

3.3.5 This drawing illustrates the central issue as far as successful tree retention is concerned, namely that there will be a 'mound' between finished floor level in the proposed basement (5.171) and the area around the base of T001 (5.40 approximately)



Tree No.	Species	Comments	Category
001	Oak ( <i>Quercus robur</i> )	See detailed analysis	A
012	Pere David's Maple ( <i>Acer davidii</i> )	Approximately 8% (3sqm) of the RPA will be removed by the proposed basement construction: there may be secondary additional impacts as a result of changes in general levels	C
013	Flowering Cherry ( <i>Prunus species</i> )	Need not be affected: if necessary can be moved simply and at low cost	C
014	Horse Chestnut ( <i>Aesculus hippocastanum</i> )	Approximately 4% (20sqm) of the RPA may be affected by changes in general levels as a result of the re-modelling of the rear garden's contours	A
015	Purple Leaved Plum ( <i>Prunus cerasifera</i> 'Atropurpurea')	Existing boundary wall to be re-furbished in current location: existing driveway to be re-surfaced	B

**Table 2: Trees to be retained**

- 3.3.6 Between the southern edge of the footprint of the new basement and the centre of the stem of T001 this 'mound' reaches a maximum existing level of about 6.50.
- 3.3.7 The currently proposed external works involve the flattening of this mound, partly by excavation and partly by raising levels around the base of T001. LHQ Services Drawing No. 1302-P-2002 illustrates the concept, a rise in levels of just under 185mm from the threshold abutting the southern elevation of the proposed basement (5.171) to a single 300mm wide step (5.355) rising a further just under 185mm on its southern edge to a general level of 5.838 for the whole of the remaining garden up to its rear boundary.
- 3.3.8 It is certain that, if this were a detailed proposal rather than a conceptual approach, the amount of cutting and filling involved would cause catastrophic damage to T001 (existing level around 5.40 in the immediate area of the main stem).
- 3.3.9 An increased number of 300mm wide steps has also been added to the drawing and it can be seen that, by this means, it would be possible to reach existing ground level from the proposed basement floor level of 5.171 in between 6 and 7 steps *without entering the RPA of T001*.

- 3.3.10 These additional steps have been added to the drawing as a technical exercise and not in an attempt to offer an alternative design solution. They are however a useful starting point for attempting to quantify the extent of the excavation that would be required within the RPA of T001 if the 'mound' referred to above were to be reduced to any given degree.
- 3.3.11 The drawing shows (crosshatched) the extent of excavation that would be required to achieve a maximum level of 5.75. This would require roughly 3 steps upwards from basement finished floor level instead of the one that is currently proposed and would involve excavation to reduced levels of between zero and 600mm covering 15% of T001's RPA.
- 3.3.12 It should be noted however, that as the excavation is centred on the steep, narrow bank referred to in 2.1.5 above, its depth does not reduce gradually from 600mm to zero but drops steeply on its southern edge - by about 200mm in the final metre - according to the rough existing contours shown on Drawing No 294.02.01.
- 3.3.13 In my opinion a reduction in levels of the extent described above in 3.3.9 to 3.3.13 could be achieved without serious adverse impact on T001, particularly as the southern extent of the excavation would be about 6.5m from the tree's main stem. It should be remembered however, that as the site sits upon London Clay subsoils, it will be necessary to excavate to about 100mm below finished levels to allow a surface layer of topsoil to be replaced.
- 3.3.14 It would be very unwise to undertake any more excavation or raising of levels within this large Oak's RPA if, as all parties intend, it is to be successfully retained as a feature tree.

#### *Tree 012 (Maple)*

- 3.3.15 The proposed basement extension will remove approximately 8% of the RPA of this small tree and subsequent ground modelling may cause secondary disruption.
- 3.3.16 However, in my opinion, disturbance to the extent proposed is unlikely to have a long-term adverse impact on this young tree.

#### *Tree 013 (Cherry)*

- 3.3.17 It would be prudent to lift and replant this small tree before re-modelling of the rear garden takes place. The adverse impact of doing this will be negligible.

*Tree 014 (Horse Chestnut)*

- 3.3.18 Re-contouring of the rear garden may affect up to 5% of the RPA of this large neighbouring tree, at its eastern edge.
- 3.3.19 However, judging from the available information, major changes of level within the tree's RPA will not be essential.

*T015*

- 3.3.19 It is proposed to replace existing hard surfaces within the RPA of this handsome Purple Leaved Plum and to re-build an existing boundary wall upon its present foundations.
- 3.3.20 Provided that this tree is protected from direct physical damage to the stem and branches while works are in progress, there is no reason why it should suffer measurable disruption.

## 4. Conclusions

- 4.1 The construction of the proposed basement floor will have a small direct impact upon T012 (Maple) only. It is considered that the degree of disturbance proposed is unlikely to have a significant adverse impact upon this young tree.
- 4.2 Proposals for the re-modelling of the rear garden contours are still not fully developed but there is no technical reason why external works should have any adverse impact upon the RPAs of key trees 001 (Oak) and 014 (Horse Chestnut).
- 4.3 Reduction of levels within the RPA of T001 may however be required to meet design objectives and, within limits, this can be achieved without significant adverse impact.
- 4.4 Proposed level changes within the RPAs of T001 and 014 should be fully detailed prior to start of works, subject to an **Arboricultural Method Statement (AMS)** and supervised by an arboricultural specialist when they are implemented..
- 4.5 The loss of boundary trees and shrubs T002-006 inclusive will have an adverse impact upon immediate neighbours only, and the loss of screening can be rapidly compensated for with appropriate replanting.
- 4.6 The loss of boundary screen T007 to 010 inclusive will have a limited impact upon public visual amenity but, taken in context, it will not be unacceptable. A planting reservation is to be retained along the eastern boundary of the front garden. Replacement planting in this strip, together with the continuing contribution of neighbouring trees, will mitigate any loss of visual amenity.
- 4.7 T015 (Purple Leaved Plum) may suffer minor disruption in the course of the re-construction of an existing boundary wall (upon existing footings) and the replacement of existing hard surfacing.
- 4.8 It would be preferable if the proposed refurbishment and extension of the dwelling were completed before the external works programme commences, as tree protection requirements will differ significantly between the different stages.
- 4.9 The draft **Tree protection plan** in **Appendix a** sets out the tree protection requirements for the main construction stage.

## **Appendix b**

**Drawing No. 295.02.01  
Investigation of likely impacts  
On T001, 012 and 014**



Tree No.	Species	Height (m)	Diam (mm)	Crown Spread (m)				Crown Height (m)	Age	Physiological Condition	Structural Condition	Comments	Recommendations	Life Expectancy	Retention Category	Retention Sub-category
				N	E	S	W									
001	Pedunculate Oak ( <i>Quercus robur</i> )	17	950	9	9	9	9	4/2	M	G	G	Single very slightly leaning stem: crown open and well balanced overall: minor dead wood: an outstanding specimen	Remove dead wood	40+	A	1
002	Laurel ( <i>Prunus laurocerasus</i> )	3 @ 0.5m	300	2	2	3	1	0/1	M	G	G	Single upright stem forks at .5m: low dense crown has been shaped by regular clipping	Continue current maintenance regime	20-40	C	2
003	Western Red Cedar ( <i>Thuja plicata</i> )	4	360	2	2	1	2	0/0	M	G	G	003 to 004 inclusive make up a dense low level boundary screen: the height is maintained at 4m by regular pruning: the vertical face on the side facing into the rear garden of 7 Kidderpore Avenue has also been clipped regularly: crown dimensions are for the group as a whole	Continue current maintenance regime	40+	C	2
004	Western Red Cedar ( <i>Thuja plicata</i> )	4	330	2	2	1	2	0/0	M	G	G	See 003	Continue current maintenance regime	50+	C	2
005	Variegated Western Red Cedar ( <i>Thuja plicata</i> 'Zebriera')	4	130	2	2	1	2	0/0	M	G	G	See 003	Continue current maintenance regime	40+	C	2
006	Laurel ( <i>Prunus laurocerasus</i> )	4	150/ 250/ 300/ 300	1.5	1.5	1.5	1.5	0/0	M	G	G	4 main stems: the dense low crown has been shaped by regular clipping	Continue current maintenance regime	40+	C	2
007	Philosporum ( <i>Philosporum tenuifolium</i> )	2	200 @ 0.3m	1	1	2.5	1	0/0	M	G	G	Single upright stem forks near ground level: dense branch system has been shaped by regular clipping	Continue current maintenance regime	40+	C	2
008	Purple Leaved Plum ( <i>Prunus cerasifera</i> 'Atropurpurea')	7	250	2	3	4	1	1/2	M	G	F	Single upright stem forks at about 2m: rather one sided crown (to S): stands off-site in an adjacent garden:	No action required	20+	C	1/2
009	Lawson Cypress ( <i>Chamaecyparis lawsoniana</i> )	10	250	2	2	1.5	2	3/3	M	P	P	Single upright stem: crown very much below average: dying: stands off-site in an adjacent garden	Remove	<10	U	1
010	Smoke Bush ( <i>Cotinus coccinea</i> )	4	250 @ gl	1	1	3.5	1	0/0	M	F	F	Single leaning stem: dense branch system has been shaped by regular clipping	Continue current maintenance regime	40+	C	2
011	Laburnum ( <i>Laburnum anagyroides</i> )	5	300/ 300	2	2	2	2	0/2	OM	P	P	Two main stems that fork immediately above ground level: major fungal decay ( <i>Ganoderma applanatum</i> ): almost dead	Remove	0	U	1
012	Peter David's Maple ( <i>Acer davidi</i> )	8	300 est	3	3	3.5	3	1/2	EM	G	F	Single upright stem forks at 2m into 2: ascending rather narrow crown: stands off-site in a neighbouring garden	No action required	20-40	C	1/2
013	Flowering Cherry ( <i>Prunus Yenzan</i> )	3	50	1	1	1	1	0/0	Y	G	G	Single upright stem: well balanced crown: small enough to move easily	No action required	40+	C	1/2

Tree No.	Species	Height (m)	Diam (mm)	Crown Spread (m)				Crown Height (m)	Age	Physiological Condition	Structural Condition	Comments	Recommendations	Life Expectancy	Retention Category	Retention Sub-category
				N	E	S	W									
014	Horse Chestnut ( <i>Aesculus hippocastanum</i> )	23	1000 est	9	9	9	9	4/4	M	G	G	Single upright stem forks at 4m into 2; well balanced crown; early signs of Horse Chestnut Leaf Miner attack at time of inspection; stands off-site in a neighbouring garden	No action required	10-20	A	1
015	Purple Leaved Plum ( <i>Prunus cerasifera</i> 'Atropurpurea')	7	330	4	4	5	4	1/2	M	G	G	Single upright stem forks at 1m into 4; well balanced crown; stands just off-site in a neighbouring garden; prominent in the Kidderpore Avenue street scene	No action required	20-40	B	1

# Explanatory notes

## Recommendations

Preliminary management recommendations under existing conditions

## Life expectancy

An approximate estimate for each tree's anticipated future safe life in the following ranges:

- <10 years
- 10-20 years
- 20-40 years
- 40+ years

## Retention category

This grading is based on the recommendations set out in BS 5837:2012 *Trees in relation to design, demolition and construction - Recommendations*. The categories are summarised in the standard as follows:

- A Trees of high quality with an estimated remaining safe life of at least 40 years
- B Trees of moderate quality with an estimated remaining safe life of at least 20 years
- C Trees of low quality with an estimated remaining safe life of at least 10 years, or young trees with a stem diameter below 150mm
- U Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years

In addition the British Standard requires one or more subcategories to be applied to the main Retention Category. In summary these are as follows:

1. Mainly arboricultural qualities (that is individual aesthetic characteristics)
2. Mainly landscape qualities
3. Mainly cultural values, including conservation

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## Explanatory notes

Age	Y	Young	SM	Semi-mature
	EM	Early mature	M	Mature
	OM	Over-mature		

Where the precise age of a tree is known, it has been recorded in brackets adjacent to the general classification i.e. M(7).

### Condition

#### Physiological condition

Gives a measure of biological vigour and of the presence or absence of disease, insect attack or other debilitating factors.

G	Good
F	Fair
P	Poor

#### Structural condition

Gives a measure of each tree's physical form and mechanical stability.

G	Good
F	Fair
P	Poor

### Comments

See also **discussion** and **conclusions** in the accompanying report.

## Explanatory notes

For general information on any entry in the detailed survey text, refer to the notes below which are organised on a column by column basis.

### Tree number

All trees have been numbered in the survey text to correspond to the location numbers shown on the accompanying Tree survey plan. No trees have been marked on site.

### Species

Common English names have been used wherever possible and Latin names are listed (in brackets in *italics*) in all cases.

### Dimensions

**Height** - are recorded in m.

**Stem diameter** – recorded in mm at breast height (1.5m) wherever possible. Where measurement at 1.5m is not possible, one of the alternative methods set out in *Annex C of BS5837:2012* has been used.

If the diameter has been measured at a different height, this has been recorded, e.g. 60 @ 1m = 60mm diameter at 1m height.

Other abbreviations used:

av - average	est/e - estimated
ms - multi-stemmed	max -- maximum
	gl - ground level

**Crown spread** - radial crown spreads in metres have been recorded at four points on the circumference of the crown (north, east, south and west). The accompanying Tree survey plan shows approximate crown shapes based on these measurements

**Crown height** - the height of the first major branch and the height of the lowest point of the crown are recorded in metres eg 3/3