

Arboricultural impact analysis

Trees at and adjacent to

**30a Thurlow Road
London
NW3 5PH**

for

Mr M Davies

Skerratt

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1. Introduction

- 1.1 This report contains an appraisal of 5 trees standing within or immediately adjacent to the property boundary of 30a Thurlow Road, London NW3 5PH in relation to proposed residential development.
- 1.2 The report considers the health and safety of the trees under their current growing conditions and the likely impact of the proposed development, measured against the advice and guidance set out in *BS5837: 2012 Trees in relation to design, demolition and construction – Recommendations*, and recommends mitigation measures where appropriate.
- 1.3 The original site inspection for the survey on which this report is based took place on the afternoon of Tuesday 04 March 2013 in bright sunny conditions. A follow up visit was made on the dry but overcast morning of 19 June 2015 to check and revise the original data where necessary.
- 1.4 The report was commissioned by Square Feet Architects on behalf of the client in an email dated 16 June 2015.
- 1.5 I have been provided with digital copies in pdf format (also dwg format where indicated) of the information submitted with the planning application of which this report forms a part:
 - Square Feet Architects: Drawing No.1023-L-011 – Existing Ground Floor Plan (dwg and pdf)
 - Square Feet Architects: Drawing No.1503-L-001 – Site Plan & Photographs
 - Square Feet Architects: Drawing Nos. 1503-L-011, 012, 013, 014 – Existing Plans, Elevations and Sections
 - Square Feet Architects: Drawing No. 1503-L-021 Rev D – Proposed Basement Plan (dwg and pdf)
 - Square Feet Architects: Drawing No. 1503-L-022 Rev E – Proposed Lower Ground Floor Plan (dwg and pdf)
 - Square Feet Architects: Drawing No. 1503-L-023 – Proposed Upper Ground Floor Plan
 - Square Feet Architects: Drawing No.1503-L-024, 025, 026, 030 – Proposed Roof Plan, Sections and Elevations
- 1.6 The **Tree survey plan** in **Appendix a** of this report is based on Square Feet Architects: Drawing No.1023-L-011 – Existing Ground Floor Plan, with additional on-site measurements
- 1.7 The **Tree constraints plan** also in **Appendix a**, is based on Square Feet Architects: Drawing No.1503-L-021 Rev D – Proposed Basement Plan with the outline of the Lower Ground Floor superimposed where it extends beyond the basement footprint.

2. Background information

2.1 Site layout, boundaries and topography

- 2.1.1 Although the plot on which 30a Thurlow Road stands is level, the general topography slopes downhill towards the east and south.
- 2.1.2 Along its south west facing boundary the roughly rectangular plot is at more or less the same level as an adjacent property (30 Thurlow Road) for most of the length of a rather decrepit brick boundary wall separating the two properties.
- 2.1.3 Ground level in the south western corner of the plot of 30a Thurlow Road , ground level is about 800mm lower than on the opposite side of the wall in 39 Rosslyn Hill. At the other end of the common boundary between these two properties the level difference is reversed and the ground is 500mm higher in 30a Thurlow Road than it is in 39 Rosslyn Hill. The differences in level are contained by an approximately 1500mm high brick boundary/retaining wall in good repair.
- 2.1.4 Along the site's north east facing boundary, the level plot on which the existing dwelling stands drops down steeply beyond a timber garden boundary fence to the rear garden wall of 41 Rosslyn Hill. The steep bank is terraced with retaining walls at the base and mid-slope.
- 2.1.5 A 1500mm high brick wall in good repair runs along the Thurlow Road, boundary of the site. On this boundary, the road and the plot are at the same level as each other.
- 2.1.6 The **Tree survey plan** in **Appendix a** shows the current layout of the site and the locations of the trees referred to in this report.

2.2 Geology and soils

- 2.2.1 According to British Geological Survey (BGS) open-source data, the plot is located on Eocene Claygate Beds, very close to the boundary of an area where the underlying London Clay bedrock surfaces.
- 2.2.2 The Claygate Beds which, together with Bagshot Sands, are the source of Hampstead Heath's distinct character, have a significantly lower clay component than London Clay and subsoils derived from Claygate Beds parent material are likely to be less shrinkable and more permeable than London Clay subsoils
- 2.2.3 No soil sampling was carried out on site

2.3 Planning constraints

2.3.1 30a Thurlow Road is located within the London Borough of Camden Fitzjohns/Netherhall Conservation Area.

2.3.2 According to a pre-planning advice letter from London Borough of Camden dated 28.08.2012, a Cherry (T001) in the garden of 30a Thurlow Road is covered by a Tree Preservation Order.

2.4 The trees

2.4. Detailed descriptions of the 5 trees referred to in this appraisal are listed in the **Tree survey schedule** in **Appendix a**. Their locations are shown on the **Tree survey plan** also in **Appendix a**.

2.5 The proposed development

2.5.1 The proposed development comprises:

- Demolition of an existing dwelling and its replacement with a 3 storey dwelling with basement, lower ground and upper ground floors
- Associated external works

3. Discussion

3.1 General

- 3.1.1 The **Tree constraints plan** in **Appendix a** shows the recommended Root Protection Area (RPA) for each of the 5 trees referred to in this report. Together these trees make up the general context in which the development should be viewed.
- 3.1.2 Where appropriate the configurations of individual RPAs have been adjusted to reflect the influence of below-ground barriers to the lateral spread of roots.
- 3.1.3 In the case of Trees 002 and 003 (Pears) I have used the same RPA configuration as the one on which my 2013 impact analysis for a previous development at 30a Thurlow Road is based. In my view this configuration provides a reasonably coherent view of the likely rooting pattern of these trees given that they both have easily exploitable open ground within the plot in which they stand.
- 3.1.4 With regard to street trees T004 and 005, the RPAs have been drawn symmetrically, a change from the configuration I used in the earlier report referred to immediately above. It is entirely possible that the RPAs as drawn do not reflect the actual distribution of the root systems of either tree, but I do not think that reconfiguration based on assumptions regarding the relative efficiency of the different barriers to the lateral spread of roots (carriageway and pavement of Thurlow Road, roadside boundary wall to 30a Thurlow Road, existing hard surfacing, foundations of existing dwelling) would provide a more meaningful picture.

3.2 Trees to be removed

T001 Cherry

- 3.2.1 This Cherry which, I understand, is covered by a Tree Preservation Order, is just over 3m distant from the north west corner of the existing dwelling and stands within the footprint of the proposed new building.
- 3.2.2 It is clear that the TPO has been made in the interests of conserving the character of the gaps between large buildings that are a characteristic of the Fitzjohns/Netherhall Conservation Area.
- 3.2.3 However T001 has a rather narrow one sided crown and this, together with its very sharp main branch fork detract from its present contribution to public visual amenity and limit its future prospects.
- 3.2.4 Removal and replacement with a semi-mature tree of a species with a smaller ultimate size, a more compact crown shape and more shade tolerance (because of the overshadowing effect of Tree 004) would fully compensate for the loss of the existing tree within 10 years.
- 3.2.5 The replacement tree would also have more future potential than does the existing cherry.

3.2.6 The removal and replacement of this tree is one of the agreed proposals on which an existing planning consent for residential development on this plot is based.

3.3 Trees to be retained

Trees 002 & 003 (Pears)

3.3.1 Trees 002 and 003, two Pear trees in the rear garden of 39 Rosslyn Hill, have been reduced in height within the last 10 years and have re-grown vigorously. It seems likely that this reduction has been carried out at regular intervals over some considerable time.

3.3.2 Bearing in mind that crown reduction tends to reduce overall root activity and taking into account the partial barrier to root growth presented by the boundary/retaining wall combined with the availability of open ground within the plot in which they stand, I consider that the RPA configurations for these 2 trees shown on the **Tree constraints plan** in **Appendix a** are reasonably representative.

3.3.3 In practice, it is entirely possible that roots from both trees will have spread into the footprint of the proposed development but these are unlikely to be of large diameter.

3.3.4 Care will be needed, to ensure that the proposed excavation for the new lower storey does not extend beyond the proposed footprint limits and endanger the stability of the boundary wall.

3.3.5 The development proposal considered in this analysis will not have a significantly greater impact upon these two trees than would the already consented scheme referred to above.

Trees 004 and 005 (Limes)

3.3.6 Limes 004 and 005 are both street trees growing in the pavement of Thurlow Road. In common with the other mature street trees in the same road, both have been severely reduced in height and spread back to their main branch frameworks on a regular cycle of quite short duration (2-3 years?) for some considerable time.

3.3.7 Judging from the appearance of both trees, they were last pruned in 2014. In my 2013 report analysing a now-consented residential proposal for this site, I noted that both trees had been recently reduced at that time too (I estimated 2011/12).

3.3.8 As drawn on the **Tree constraints plan** in **Appendix a**, the degree of overlap between the RPA of T004 and the proposed development footprint is about 17m² or 9% of the total of 181m².

- 3.3.9 In the case of T005, the overlap is about 19m² or 10% of the total of 191m². The overlap includes the footprint of a flight of steps leading down from existing street level to lower ground floor level (hatched in grey on the Tree constraints plan).
- 3.3.10 The maintenance regime of these two trees will be a significant mitigating factor however. Both have been subjected to severe height and spread reduction at frequent, regular intervals.
- 3.3.11 Regular severe crown reduction tends to significantly reduce root activity as, after each pruning, the tree is forced to divert starch reserves to new shoot production at the expense of other priorities and as, over any given time, the crown volume that has to be supplied is likely to be significantly smaller than would be the case if the tree were allowed to grow unchecked.
- 3.3.12 Taking these factors into account it is reasonable in my view to assume that the *BS5837:2012* formula for calculating the RPA overstates the reality in this case.
- 3.3.13 Taking these factors into account, it is my view that the degree of overlap will in practice be significantly less than that calculated using the *BS5837:2012* methodology for a symmetrically configured RPA. In my view the development proposed here can be achieved without significant adverse effects upon either T004 or T005.
- 3.3.14 In making this judgement, I have in mind the many city street trees that successfully grow to full size in locations where there *are* total barriers to lateral root spread along the inside edge of the pavement (buildings with deep basements for example). I have also taken into account the species and current condition of both trees.

4. Conclusions

- 4.1 Taking into account the factors discussed above, the proposed development can, in my opinion, be achieved without significant adverse impacts upon retained trees, provided that unnecessary disruption is eliminated.
- 4.2 It is likely in my view, that the overlap between the proposed development and the RPAs of Trees 004 and 005 will be considerably less than 10% of each one's total area in reality.
- 4.3 The accompanying draft arboricultural method statement (AMS) sets out protection measures and appropriate working practices to minimise disruption to retained trees.

Appendix a

Tree survey schedule

Tree survey plan

Tree constraints plan

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

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

Additional descriptive notes on the tree's shape, local environment and condition.

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

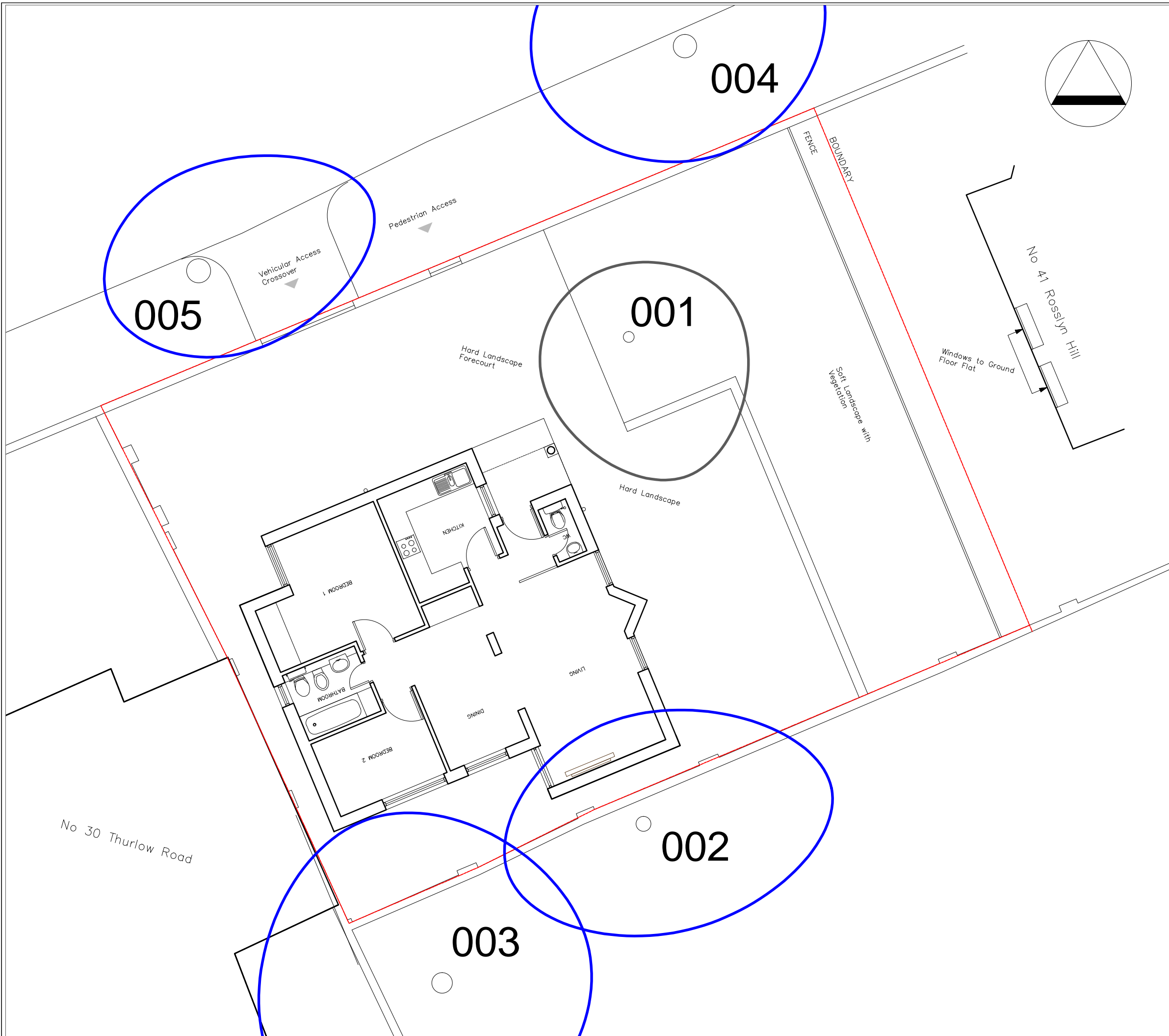
This grading is based on the recommendations set out in BS 5837:2012 *Trees in relation to design, demolition and construction - Recommendations*. The categories are summarised in the standard as follows:

- 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

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	Wild Cherry (<i>Prunus avium</i>)	11.5	290	3	4	4	3	2/2	EM	F	F	Single slightly leaning stem forks at 2m into 2: rather one sided (to N): main branch fork is very sharp but appears to be stable; covered by a TPO	No action required	10-20	C	1
002	Pear (<i>Pyrus communis</i> var.)	12	460	5	4	3	4	2/3	M	G	F	Single upright stem forks at 2m into 2: previously pollarded (cut back to main stem and branches) at 6m: crown rather one sided (to N): an off-site tree standing in a neighbouring garden: ground level at the base of the main stem is 500mm below adjacent ground level within the site	No action required	20-40	B	1
003	Pear (<i>Pyrus communis</i> var.)	11	530	4	4e	5	5	3/3	M	G	G	Single slightly leaning stem: main branch fork at 3m: previously pollarded at 8m: regrown crown quite well balanced crown overall: an off-site tree standing in a neighbouring garden: ground level at the base of the main stem is approximately 800mm above adjacent ground level within the site	No action required	20-40	B	1
004	Lime (<i>Tilia x europaea</i>)	16	630	4	3	4	4	5/6	M	G	F	Single upright stem: main branch fork at 5m: a street tree standing outside the site boundary: in the distant past this tree was pollarded at about 6m and more recently it has been reduced at regular intervals to 15m (most recent remedial works in 2014); new growths are vigorous with normal bud size and frequency: many pruning wounds (all callusing normally): the reduced branch framework is well balanced	No action required	20-40	B	1
005	Lime (<i>Tilia x europaea</i>)	16	650	5	3	3	3	4/6	M	G	F	Single upright stem: main branch fork at 4m: a street tree standing outside the site boundary: in the distant past this tree was pollarded at about 6m and more recently it has been reduced at regular intervals to 15m (most recent remedial works in 2014); new growths are vigorous with normal bud size and frequency: many pruning wounds (all callusing normally): the reduced branch framework is rather one sided to the north	No action required	20-40	B	1



KEY



Trees are coloured on plan to correspond to the Retention Categories specified in: *BS5837:20 12 Trees in relation to design, demolition and construction - Recommendations* as follows:

- Category A - GREEN
- Category B - BLUE
- Category C - GREY
- Category U - RED

REVISION	CHK'D	APP'D	DATE
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Client:
MR M DAVIES

Job Title:
**30A THURLOW ROAD
LONDON
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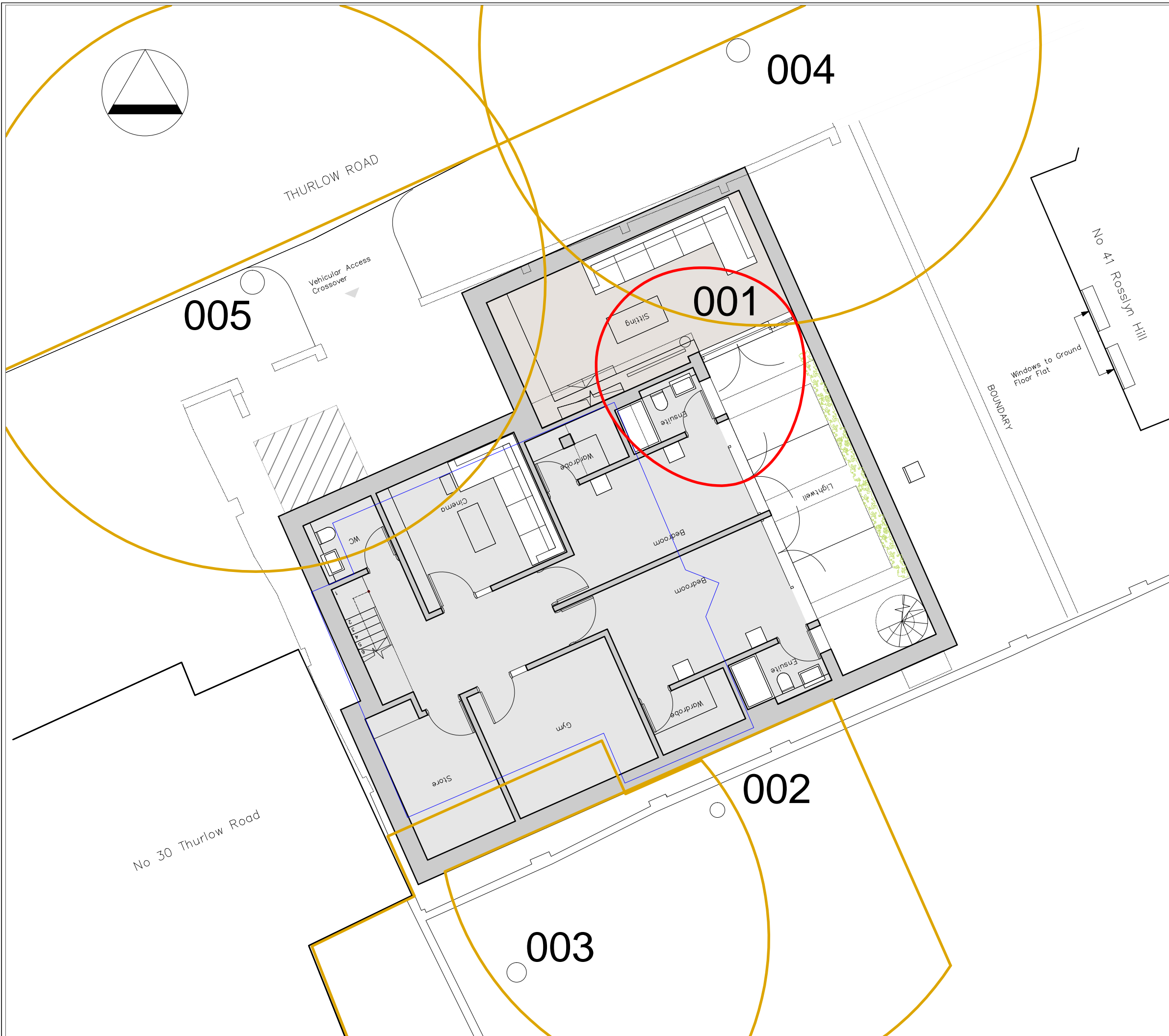
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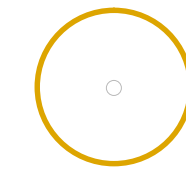
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KEY

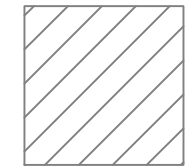


003

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



EXISTING FOOTPRINT



PROPOSED STEPS
TO LOWER GROUND
FLOOR LEVEL

REVISION	CHKD	APPD	DATE
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Client:
MR M DAVIES

Job Title:
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Drawing Title:
TREE CONSTRAINTS PLAN

Drawing Number: 382.02.01	Scale: 1:100 (A3)
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Date: 14.08.15	Drawn by: RS
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