Simon Pryce Arboriculture

Report

Client:	**Mr Andrew Dutton-Parrish**
Site:	**17/19 Lyndhurst Terrace, Hampstead, London, NW3 5QA**
Subject:	**Trees in the garden and the effects of proposed building work at no.15.**
Inspection date:	**12 January 2015**
Report date:	**15 January 2015**
Reference:	**15/114**
Author:	**Simon Pryce, B.Sc., F.Arbor.A, C.Biol, MSB, MICFor** **Arboricultural Association Registered Consultant**

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1 Introduction

1.1 This report has been prepared on the instructions of Mr A Dutton-Parrish of 17/19 Lyndhurst Terrace, Hampstead, London, NW3 5QA.

1.2 I have been asked to review the application to build a new house and basement at no.15, the adjacent property, to inspect trees that might be affected and to assess the arboricultural implications of the proposal.

1.3 This report is based on a review of the application documents available on Camden Council's website and an inspection of the trees on the morning of 12 January 2016. The trees were measured, their maturity, health and structural condition assessed and each was assigned to one of the four retention categories [A,B,C,U] specified by BS5837. The individual descriptions and other relevant information are contained in the attached schedule and they are shown on the attached plan, which is based on the one submitted with the application.

1.4 This case is appraised and discussed below and a schedule of comments and recommendations for individual trees and shrubs is appended. Left and right are used as if facing buildings from the front, unless noted otherwise.

2 Background

The site

2.1 Number 15 Lyndhurst Terrace is a modern house built in the 1960s, apparently on a concrete raft foundation. The front garden was raised, with soil from the building work piled against wall with 17 to a depth of about 750mm above the former ground level. That was removed about 2 years ago and the ground reduced to about its former level to provide parking. The original level is shown by a concrete ledge across the front of no.15. The area concerned is outlined green on the attached plan.

2.2 The trees are growing on the garden in front of no.17. This contains some shrubs and small trees and has a circular drive / parking area surfaced with gravel laid over the original concrete. Next to the boundary with no.15 is a brick garage which has a concrete floor with an inspection pit in the centre.

Proposal

2.3 This is shown on the plans with the application on Camden Council's web site, their reference 2015/6278/NEW, and is to demolish the existing house and to build a new one that occupies the full width of the plot. The superstructure of the new house extends forward of the existing one, with a new basement forward of that. These are outlined in blue and red respectively on the attached plan, which is based on the one submitted with the application.

3 Trees

3.1 The most significant tree is a mature horse chestnut in the garden of no.17 about 2.9m from the boundary wall with no.15. The top was reduced significantly about three years ago following approaches from the motor insurers of the then owner of no.15, Camden's reference 2012/1388/T. This has left it with an irregular shape, but the consequent regrowth is giving it a softer and more natural silhouette. It has some cavities in the trunk where branches have been pruned or shed in the past, but there are no signs of major decay or physiological decline.

3.2 The other tree near the boundary is a young Eucryphia growing near the back of the garage. This has grown slowly since being planted about 20 years ago, but that is normal and it is sound and healthy.

3.3 The gardens are in the Fitzjohns Netherhall Conservation Area and Camden's decision allowing the work on the chestnut indicates that it is protected by their tree preservation order (TPO) 21H.

Arboricultural report

3.4 The chestnut is tree T1 in the arboricultural report with the application, prepared by Richard Wassell dated 10 October 2015. He evidently did not enter no.17 to inspect it closely, but it is reasonably visible from no.15 and the end of Lyndhurst Terrace. His estimate of the diameter at 900mm is slightly low, in fact it is 960mm. The tree is described as being in decline so he assigned it to Category U of BS5837:2012 with the comment that, although the proposal involves working within its rooting area, that is unlikely to affect the need to remove it.

3.5 The report includes two trees in the garden to the rear of no.15 and one in the street in front, but not the eucryphia.

4 Discussion

General comments

4.1 The two main functions of tree roots are 1) physical support and 2) the supply of water and nutrients from the soil. Roots will grow wherever conditions are favourable i.e. there is a suitable supply of air and water, so most tend to be in about the upper 600mm of the soil and even shallow excavation or minor level changes can be harmful. Construction near trees can also be harmful in less direct ways, such as soil compaction caused by heavy machinery and spillage of toxic materials such as diesel oil and cement.

4.2 British Standard 5837: 2012, Tree in relation to design, demolition and construction – Recommendations, specifies measures to avoid or minimise damage to trees that are retained on or near construction sites. This recommends that root protection areas [RPAs] are established round retained trees and that no ground work takes place within them unless measures are taken to safeguard the trees. RPAs are normally enclosed by suitable fencing such as weld mesh sections supported by scaffold poles driven into the ground and the applicants' tree report includes illustrations from the standard.

Root protection areas

4.3 The size of the RPA is based on the size of the tree concerned. The starting point is that for a single trunked tree it has an area equivalent to a circle with a radius 12 times the trunk diameter measured at 1.5m above ground. With multiple trunked trees it is based on the diameter of a single trunk that would have the same cross sectional area. The shape can be modified if there is evidence that root spread might be uneven. There are building foundations and other features near the trees, although no.15 is apparently on a raft, which is not likely to impede root spread appreciably. The boundary wall and garage are unlikely to have foundations deep enough to be significant root barriers, the inspection pit will be deeper but its not likely to be a major obstacle. Therefore root spread might not be perfectly uniform but the circular RPAs, as shown on the plan, will be a sufficiently accurate reflection of root spread.

Condition of the chestnut

4.4 The crown reduction has left the chestnut as a single vertical trunk with young shoots growing round the pruning points and some larger low branches growing among small shoots on the lower and middle part of the trunk. There are some occluded pruning cuts on the trunk where lower branches were removed in the past and some cavities which appear to be where branches were shed and the bases tore out from the trunks. However these are being occluded by callus growth from round the edges and there are no obvious signs of major decay. The recent cuts where upper branches were shortened are up to about 250mm across. The faces of the cuts have weathered, but look sound apart from one that has a small hole where there must have been a cavity in the removed limb. Although there is evidently some decay in the upper trunk the recent crown reduction has lessened the tree's weight and wind resistance considerably, so the likelihood of any structural failure has been lessened considerably.

4.5 A small raised planting bed has been built partly round the tree's base, but most of the root buttresses are visible and are sound and healthy looking, with no dead or loose bark, which can be an indication of decay by honey fungus, which has affected other trees in the garden.

4.6 The tree was not in leaf when inspected, but the twig growth is reasonably dense and healthy looking and the new shoots round the pruning cuts are up to about 1m long, indicating that the tree is in fair to good physiological condition. A close inspection did not reveal any signs of bleeding canker

4.7 Although the tree has some evidence of decay in the trunk it has sound looking main roots and the recent reduction has lessened any risk of failure. It does not have the vigour of a younger specimen, but is in fair to good physiological condition with no signs of declining vitality. Following the reduction it is uneven in shape and the cut top detracts from its appearance when it is out of leaf, but the new growth is producing a softer silhouette. Given its size and location it will need regular inspection and maintenance in any event and could develop into a much better looking specimen with a moderate amount of formative pruning as it regrows. It is unlikely that it would be practical to let it develop a full sized natural looking crown, but regularly pruned trees are not out of place in this urban context.

Arboricultural implications of the proposal

4.8 The tree is prominent from the upper end of Lyndhurst Terrace, which is probably why it was made the subject of the TPO. It provides some greenery in the street scene and has some potential to improve with suitable management. In view of these points I consider that it warrants C category, rather than U, so it should be material consideration in any planning matter that might affect it.

4.9 A substantial part of the tree's RPA is under the front garden of no.15 and the boundary wall is unlikely to be deep enough to be a barrier to root growth, so it will have been affected by recent changes there as well as the proposed works. The tree would have been present when the ground level in the front garden was raised by depositing the topsoil. During the 50 or so years that the soil was present was present roots will have grown into it and, as they need air as well as water, they are likely to have proliferated at the expense of the deeper roots. The area concerned is about 53m^2 or about 12.7% of the RPA although, as the area has been resurfaced, it is not possible to tell exactly what the effect on the roots was.

4.10 The tree was not in leaf when inspected but from the appearance of the twig growth it has tolerated the removal of the soil. However the basement footprint takes up about 11% of the RPA. There is some overlap with the former raised garden, so the overall incursion into the RPA is just over 20%. A younger healthier tree might tolerate that but, while this one is in reasonable physiological condition for its age, the cumulative effect of the recent and proposed ground work nearby would carry a high risk of harming it significantly. The loss of small feeding roots at the periphery of the root system would reduce its ability to absorb water and nutrients. Most of the main structural roots are within about 3x the trunk diameter, so with this tree these would be within no.17/19 and the work would be unlikely to affect the tree's stability directly. However damage to slightly roots could lead to the tree being colonised by honey fungus, which could kill it or decay the roots, leading to longer term stability problems. The fungus is present in the gardens and is a virulent form that has already accounted for several tree losses.

4.11 With a basement there is no possibility of using less damaging techniques, such as piled foundations. However much of the area affected is near the outer edge of the tree's RPA and a substantial part of the new house is outside it completely. Therefore a relatively small reduction in the extent of the nearer part of the new house, such as limiting the extent to the north to match the existing one, would reduce the risk to the tree significantly. However the detailed design of that is a matter for others.

4.12 The proposed work is a relatively large scale project for a site like this and will involve major excavation with heavy plant and vehicles to remove spoil. The boundary wall will provide some protection but the tree would be vulnerable to incidental harm from soil compaction or contamination. The applicants' tree report, rightly, refers to protective measures but does not go into any details. Therefore if consent is granted for any building work it should include a condition requiring a detailed tree protection plan and method statement to be submitted and approved before any work starts.

Eucryphia

4.13 This is set far enough back from the boundary not to be unduly vulnerable to direct or indirect effects of the proposed work. It is a healthy example of an interesting and unusual species but is slow growing so, if the chestnut was lost, it would take many years before it grew large enough to compensate for the loss.

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5 Summary and conclusions

5.1 The horse chestnut is a mature specimen and has some decay, but is in reasonable structural and physiological condition. It is not declining and in my view warrants retention category C rather than U.

5.2 The recent reduction has left it looking unnatural, but the regrowth is softening its appearance. It will need regular inspection and maintenance and, with a moderate amount of formative pruning, it could be improved in time. It makes a positive contribution to local amenity and is the subject of a TPO, so should be a material consideration in any planning application that might affect it.

5.3 The recent lowering of the ground level at no.15 will have removed some of its root system, but it appears to have tolerated that. There is some overlap with the footprint of the proposed new house, but the cumulative effect would cause further root damage, with a high risk of the tree being harmed significantly.

5.4 Loss of smaller roots would impair the tree's ability to absorb water and nutrients. The work is not likely to affect its stability directly, but wounded roots would be susceptible to colonisation by honey fungus, which is present here and which would affect it in the longer term.

5.5 With the basement there is no option of using less damaging foundations, but a relatively small reduction of the extent of the new building towards the tree would lessen the risk to it appreciably.

5.6 This is a large scale project that will involve heavy plant and vehicles, so the tree would be susceptible to incidental damage, although it is in the adjacent garden. Therefore if consent is granted it is essential that it includes a condition requiring that a tree protection method statement is prepared and approved before work starts.

5.7 The eucryphia is not unduly vulnerable to damage from the proposal, but is slow growing so, if the chestnut was lost, it would be many years before it grew large enough to compensate for the loss.

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Site: **17/19 Lyndhurst Terrace, Hampstead, London, NW3**

Inspection date: **12 January 2015 by Simon Pryce**

Tree no.	Species	Age / vigour	Ht. m	Spread				Dia. mm	RPA rad m	RPA area m^2	Crwn ht. m	Comments and recommendations	Cat
				N	S	E	W						
The trees' locations are shown on the attached plan, based on the drawing by Richard Mitzman Architects submitted with application ref 2015/5678/P													
1	Horse chestnut *Aesculus hippocastanum*	M/N	10	3	7	7	4	960	11.5	412	4	Mature tree that had the upper crown removed about four years ago. Since then there has been some growth from round the pruning cuts and the branches on the trunk below that are healthy. It has several cavities in the trunk but these do not appear deep or heavily decayed and there is broad callus growth round the edges where the tree is starting to occlude them. The lower trunk and root buttresses are sound looking with no evidence of decay or loose bark. I gather that it is infested with leaf miner moth during the summer, but that does not appear to have affected its vitality. Although there are some structural defects it is in fair physiological health. It will need regular inspection and maintenance, but is not in decline.	C
2	Eucryphia *Eucryphia x nymansensis* 'Nymansensis'	MA/N	7	2	2	2	2	80 50	1.1	4.0	1.4	Healthy young specimen of an unusual species. Capable of growing larger with recorded heights of 15 - 18m but is slow.	B

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Notes

Observations are made from ground level unless stated otherwise.
Trunk diameters are measured in millimetres at 1.5m above ground or at the narrowest point between the root buttresses and branch flare in multiple trunked trees; in such cases this is indicated by [c].
Crown spreads are taken from the trunk centre to the end of the longest live branches in the directions indicated [usually the four cardinal compass points]
Crown height is the clearance under the lowest significant branches.

Tree ages are estimated as below, based on the normal life expectancy of a tree of the species concerned on the site:

Immature.	[IM]	Newly planted or self-set tree.
Young	[Y]	Young tree that is established but has not yet attained the size or form of a fully developed example of its type.
Middle aged	[MA]	Between one third and two thirds of its estimated lifespan.
Mature	[M]	Over two thirds of it's estimated life span.
Over mature	[OM]	Declining and/or approaching the end of it's natural lifespan.
Dying/Dead	[D]	Dead/dying or so badly decayed that it should be removed without delay if a potential threat.

Vigour is assessed on the basis of what is normal for that the species concerned as:

High	[H]
Normal	[N]
Low	[L]
Dead / dying	[D]

Root protection areas [RPAs] - BS5837:2012

For single trunked trees these are calculated as an area equivalent to a circle with a radius 12 times the trunk diameter at 1.5m. For multiple trunked trees it is based on the diameter of a single trunk that would have the same cross sectional area at 1.5m.

Any deviation from a circular plot should take into account the following factors whilst still providing adequate protection for the roots.

- The shape and disposition of the root system when known to be influenced by past or existing site conditions, such as the presence of roads, structures and underground services.
- Topography and drainage.
- The soil type and structure.
- The likely tolerance of the tree to root disturbance based on factors such as species, age and past management.

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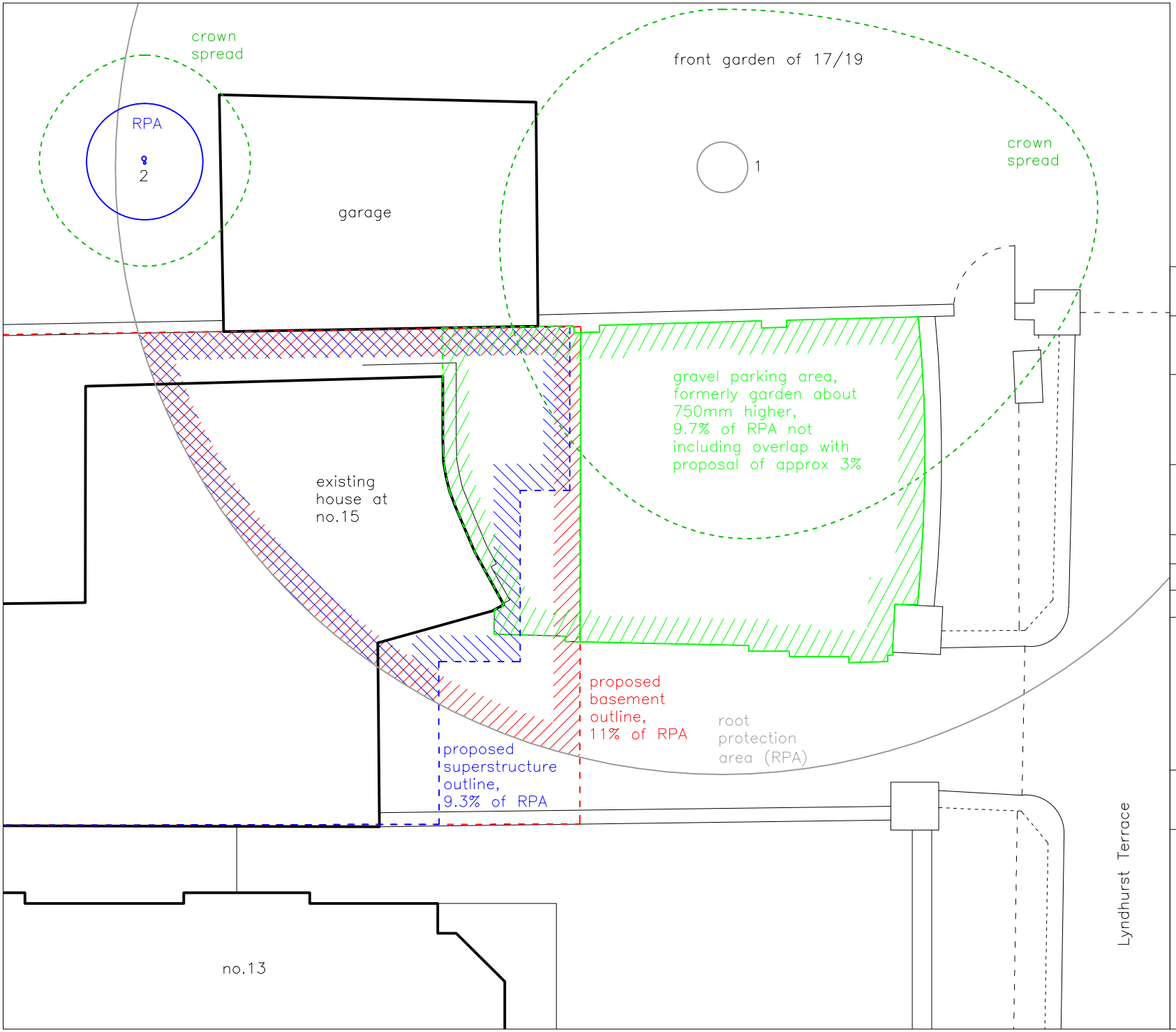
Tree categories – based on BS5837: 2012, Trees in relation to design, demolition and construction - Recommendations

Trees for removal				
Category and definition				**Colour code**
Category U				**Red**
Those 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	• Trees that have a serious, irremediable structural defect, such that their early loss is expected due to collapse in the foreseeable future, including any that will become unviable after the removal of other U category trees. (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning.) • Trees that are dead or showing signs of significant immediate and irreversible decline. • Trees infected with pathogens significant to the health and/or safety of other trees nearby, or very low quality trees suppressing better ones nearby. *NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve.*			
Trees for retention				
Category and definition	**Criteria – sub categories**			**Colour code**
	1 – mainly arboricultural values	**2 – mainly landscape values**	**3 – mainly cultural / conservation values**	
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; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant historical, commemorative or conservation value. (e.g. veteran trees or wood -pasture)	**Green**
Category B				
Trees of moderate quality with an estimated remaining life expectancy at least 20 years.	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation.	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural benefits.	**Blue**
Category C				
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit 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 greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural benefit.	**Grey**



Simon Pryce Arboriculture

Client:
Mr A Dutton-Parrish

Site:
17 & 19 Lyndhurst Gardens,
Hampstead, London, NW3 5QA

Title:
Trees and proposed building work at 15 Lyndhurst Terrace

Date: 12 January 2015

Ref: 15/114 | Rev: a

Scale: 1:100 at A4

CP House,
Otterspool Way,
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WD25 8HP
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Original drawing:
Based on application drawing by Richard Mitzman Architects

Root protection areas [RPAs] are colour coded according to retention category from BS5837:2012, Trees in relation to demolition, design and construction:

A = green
B = blue
C = grey
U = red - dashed - also used to denote dead trees with no RPA

Tree protection fencing = mid blue

Crown spreads = mid green