AJ Moffat and Associates
Environmental forestry and arboricultural consultants

5 Dudley Terrace, Mill Road
Liss, Hampshire, GU33 7BE, UK

T: 01730 895475
M: 07971 562145

E: andy@ajmoffat.co.uk

TREE SURVEY AND ARBORICULTURAL ASSESSMENT REPORT

36 Heath Drive, London, NW3 7SD

Report by Dr Andrew Moffat
BSc, PhD, DSc, FRGS, MICFor

Prepared on the instructions of Martin Dobson Associates Ltd
for Design Solutions architects

20 July 2013

A report to accompany a Planning Application for development at
36 Heath Drive, London, NW2 7SD

Contents

1. Introduction

1.1. Martin Dobson Associates Ltd were invited to carry out a tree survey at 36 Heath Drive, London, NW3 3SD as part of a submission to the Local Authority seeking planning permission for building development at this site. The purpose of the survey was to identify trees on or adjacent to the site, assess their quality and suitability for retention and anticipate potential conflicts between proposed development and trees proposed to be retained. The survey was carried out according to the recommendations contained in BS5837:2012 *Trees in relation to demolition, design and construction*.

1.2. The tree survey was carried out by Dr A J Moffat, on behalf of Martin Dobson Associates Ltd, on the 5th July 2013. This report was prepared by Dr A J Moffat and has been checked and approved by Dr Martin Dobson of Martin Dobson Associates Ltd.

2. Tree Survey - methodology

2.1. Following the recommendations of BS5837:2012, the tree survey consisted of inspecting each of the substantive trees in the front and rear gardens of the property, and making appropriate measurements of them. As far as was possible, the survey took in trees in adjoining properties that had the potential of being affected by the proposed development. Secondly, the quality of each tree was characterised according to the assessment criteria given in BS5837:2012 and the Root Protection Area needed for each tree was calculated. Finally, a preliminary assessment was made of the likely consequences arising from construction works on the site, and measures needed to be implemented to protect the trees identified as remaining after the proposed development is completed. The main data gathered in the tree survey are given in Annex 1.

3. General description of property, garden and its trees

3.1. The property is a prestigious and substantial town house in a sought after area of north-west London.

3.2. The rear garden is laid down to lawn with shrub borders and mature ornamental shrubs and generally small trees forming the borders of the property. In addition, the garden is fenced to a height of 2.4 metres along the western boundary, and is screened to the east by a high Leyland cypress hedge. None of the trees in the rear garden is visible from the public highway at the front of the property and thus they have very limited public amenity value. Two large conifers within the boundary of 35 Heath Drive occur in close proximity to the planned new development in the north-east corner of 36 Heath Drive.

3.3. The front garden consists of a set of two walled raised beds adjoining the property on either side of the main entrance with mature ornamental shrubs, together with a walled raised bed containing three pruned/reduced Lawson's Cypress trees at the entrance to the property boundary, and another walled bed with a large Bay tree at its western extent. The remainder of the property space in front of the house consists of driveway covered by tarmac.

3.4. The architect's site survey drawing appended at Annex 2 shows the positions of the trees surveyed and gives a reasonable indication of the comparative branch spreads of those trees. The identification of each tree is given in Annex 2. The drawing has been colour coded as follows:

A	trees (high quality, minimum 40 years useful life)	LIGHT GREEN
B	trees (moderate quality, minimum 20 years useful life)	MID BLUE
C	trees (low quality, minimum 10 years useful life)	GREY
R	trees (unsuitable for retention)	DARK RED

3.5. In summary, none of the trees within the boundary of 36 Heath Drive are considered to be of high quality of their own right, though trees T12 and T13 are good looking specimens of small trees capable of being replaced if necessary. Most trees are of low quality and have little or no especial redeeming features though together the garden is no doubt an attractive one. Pollarded trees (T4, T6, T8, T9, T16, T17 and T18) are considered unattractive, but provide screening and cannot reasonably be considered unsuitable for retention.

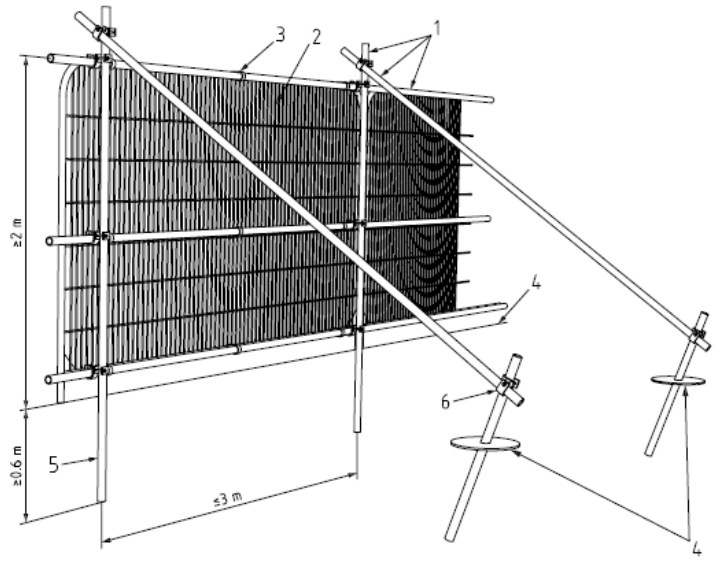
3.6. The proposal involves extending the footprint of the building to cover a relatively small area of the existing rear garden.

4. Tree retentions and tree protection areas

4.1. The Plans identify the intention to retain all but two (T1, T2) of the substantive trees identified in the tree survey. Hence the main issue regarding the development is associated with how excavation and construction materials, machinery and ancillary works (e.g. temporary buildings) interact with above and below ground parts of the trees to be retained.

4.2. It is important that tree root zones be protected from excavation, trafficking by machinery or burial from excavation spoil, construction materials etc. The radial distances in metres from the trunks of individual trees within which the ground should be protected from construction activities, together with root protection areas, are given in Annex 3. These distances/areas have been calculated on the basis of the criteria set out in BS5837:2012. The British Standard recommends that for multi-stemmed trees the diameter of the root collar just above ground level should be used as a basis for calculating the protection zone, but otherwise measurements on a single stem should be made at 1.5 m above ground level. Annex 4 shows the size of the root protection areas for the trees surveyed.

4.3. Tree root protection areas should be protected by the erection of fencing constructed as shown in Figure 1. Given the close proximity of the trees in the rear garden and their intimate association with the other features, the protective fencing should be erected following the position marked in Annex 5.



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 1. Required form of protection to designated tree root protection zones (from BS5837:2012)

4.4. The pollarded poplar trees pose the greatest constraint for operations by virtue of their comparatively large stem diameters. Depending on whether the constrained working area demanded by the presence of the poplars is considered sufficient or not, it may be necessary to seek permission for the removal of these trees. Their removal would be justified on the grounds that they have been severely pruned and are therefore susceptible to fungal infection and cannot be permitted to regain their previous size. There is an argument that it may be better to remove them and replant with a more suitable and sustainable species appropriate to the setting.

4.5. It is also necessary to protect tree trunks, major branches and canopy from inadvertent damage from plant and machinery. For the most part, the fencing erected to protect tree roots will also help to keep potentially damaging plant and machinery from sensitive above ground tree structures, though particular attention will need to be taken in respect of trees T12 and T13 throughout the building process.

4.6. Trees T10, T14, T15 and T19 are situated outside the property boundary. These have been included in the tree survey but they are not considered to materially affect the proposed development. Tree T10 is of small comparative size and its estimated root zone is well away from the proposed development. Trees T14 and T15 are closest to the development but it is judged that their root systems will already be restricted from extending into rear garden of 36 Heath Drive by virtue of the brick wall (and its footings) located along the site boundary. Tree T19 is located in a raised bed, but undoubtedly has some of its root zone below driveway and pavement areas in and outside the site boundary of 36 Heath Drive. It is not intended that these will be affected by the proposed development.

4.7. Trees T16, T17, T18 and T19 are situated in, or adjoining the front garden, in brick walled raised beds. Although the root protection zones for these trees extend beyond the perimeter of these walled beds, it is considered that the walls should provide satisfactory protection to both above and below ground components of these trees. Although tree roots probably extend beyond the boundary of these walled beds, they are located under the tarmac drive which will serve to protect them from damage.

5. Arboricultural Method Statement

5.1. The sequence of events on site is described below and methods to avoid damage to the tree roots are detailed.

5.2. The trees scheduled for removal (T1, T2) will be felled first and removed from site following the guidance of BS3998: 2010 *Tree works - recommendations*. The stumps may be ground out using a stump grinder or, if left in situ may be treated with Vitax SBK Brushwood and Tree Stump Killer or Roundup Tree Stump and Root Killer according to manufacturers specifications.

5.3. Before developmental work commences, protective fencing will be erected in both the front and rear gardens according to the locations marked out in Annex 5. Fencing will follow the BS5837:2012 specification (Figure 1). No access will be allowed behind this fence line, nor any soil and building materials deposited within the protected zone.

5.4. High visibility all weather notices will be attached to the barrier with the words ‘Construction exclusion zone. No access’. A sign will be erected to barriers in both front and rear gardens; in the latter, two notices will be used, one on each of the fences which give protection to trees on the south-eastern and north-western flanks.

5.5. Building work will commence according to authorized planning permission. During the operational phase of the development, the fencing will not be removed unless with the express written consent of the Council. The fencing should be repaired and replaced immediately if damaged accidentally.

5.6. The ground in areas adjoining the Root Protection Zones should be maintained at current (baseline) levels as far as possible. Following the completion of building works on site, soil reinstatement should take place in order to return ground levels to baseline.

5.7. Fencing can be removed as a final action on site.

6. Conclusions

6.1. A survey of trees in the garden of and adjacent to 36 Heath Drive has been carried out. Nineteen trees were surveyed. Of the nineteen trees surveyed six are considered to be moderate value B grade trees and the remainder are low value C grade trees. Of these, two C grade trees are proposed to be removed.

6.2. Methods for ensuring the protection of the trees to be retained have been described, which includes the erection of standard protective fencing.

6.3. If the Arboricultural Method Statement is followed precisely, it is judged that the proposed development poses no threat to the retained trees, or to the current landscape values of the site.

Dr A J Moffat
BSc, PhD, DSc, FRGS, MICFor
20 July 2013

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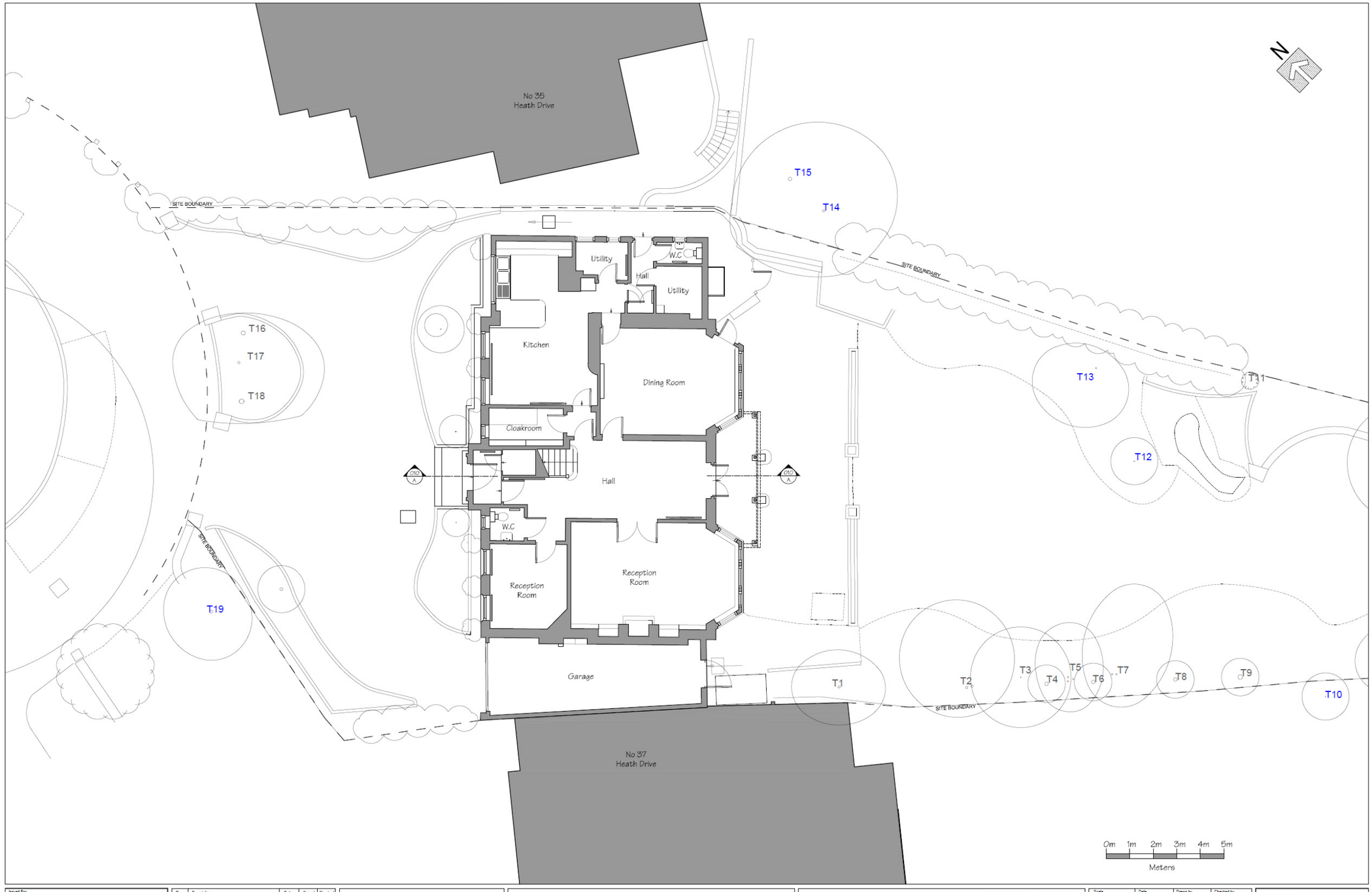
Annex 1. Results of tree survey.

Tree No.	Species	Height (m)	Trunk diameter (mm)	Age	Physiological condition	Structural condition	Useful life (y)	BS5837 Grade	Notes
T1	Viburnum sp.	5.3	170	mid	good	good	20	C	
T2	Laurel	5.2	280*	mature	good	good	20	C	8 stems
T3	Holly	4.7	130	young	good	good	40	C	
T4	Poplar	7.2	350	mid	good	good	10 to 20	C	
T5	Laurel	5.5	205*	mature	good	good	20	C	6 stems
T6	Poplar	6.2	320	mid	good	good	10 to 20	C	
T7	Laurel	5.3	164*	mature	good	good	20	C	5 stems
T8	Poplar	5	350	mid	good	good	10 to 20	C	
T9	Poplar	5.3	490	mid	good	good	10 to 20	C	
T10	Cypress sp.	5	120**	young	good	good	40	B	
T11	Birch	7	50	young	good	good	40	C	
T12	Cypress sp.	4.2	170	young	good	good	40	B	
T13	Willow sp.	4.2	150	young	good	good	20	B	
T14	Redwood	17.4	600**	mid	good	good	40	B	
T15	Redwood	21	600**	mid	good	good	40	B	
T16	Cypress	5.8	380	mid	good	good	10	C	
T17	Cypress	5.8	360	mid	good	good	10	C	
T18	Cypress	5.8	450	mid	good	good	10	C	
T19	Bay	10.8	340	mature	good	good	20	B	

* multistemmed
** estimated

Annex 2. Location of trees. For tree identification, see Annex 1.



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Rev.	Description	Date	Signed	Checked

Drawing Scale = 1:100 @ A2
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Scale	Date	Drawn by	Checked by
1:100 @ A2	04.04.2012	DS	DS

Drawing Title
Ground Floor Plan As Existing

Project
36 Heath Drive
London NW3 7SD

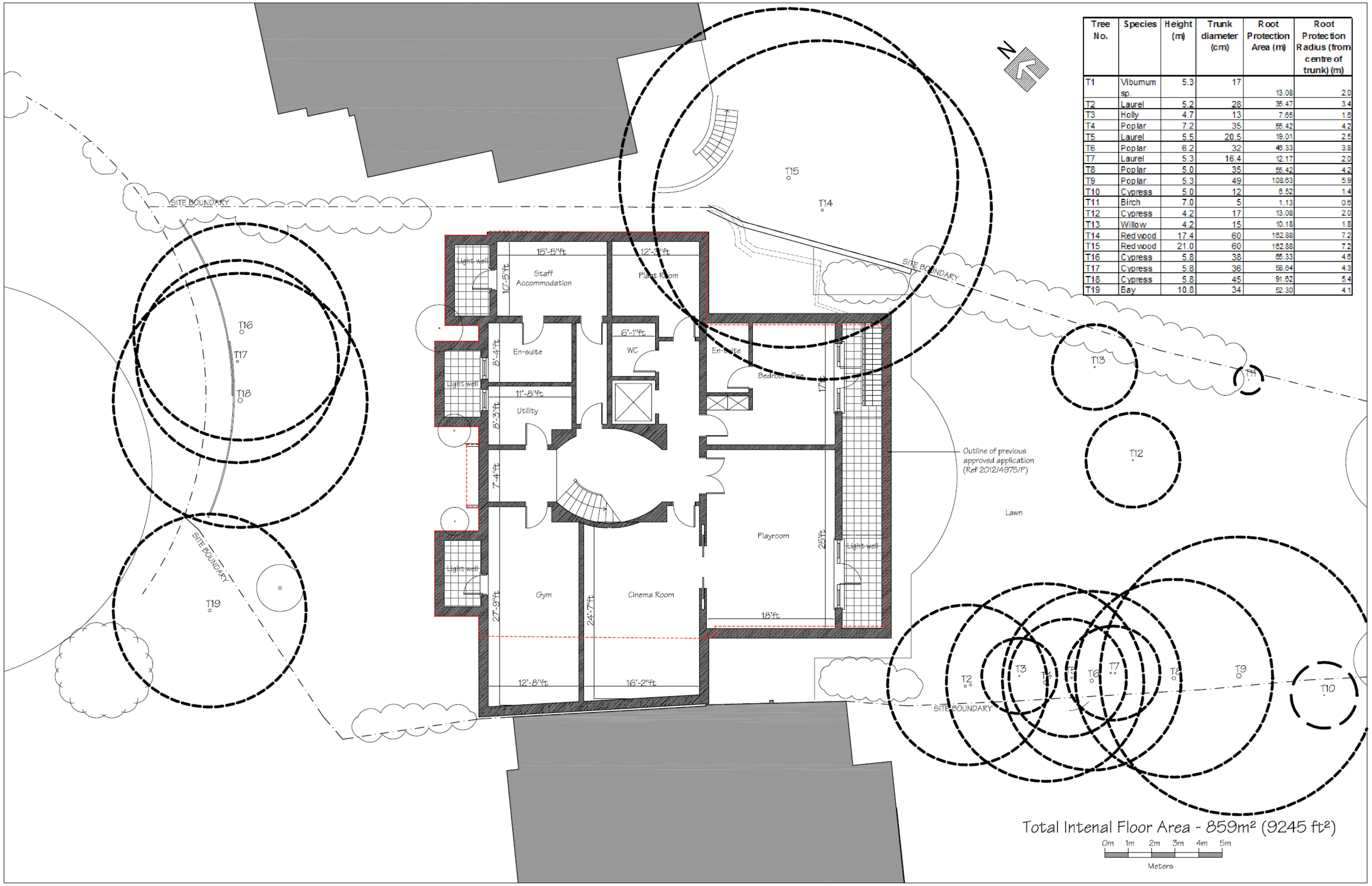
DS design solutions
Studio 18, Liddell Road
London NW6 2EW
Phone 020 7624 6680
Fax 020 7624 6681
www.DesignSolutionsUK.com

Project no.	Drawing no.	Revision
2012/0265	002	00

Annex 3. Root Protection Areas

Tree No.	Species	Height (m)	Trunk diameter (mm)	Root Protection Area (m)	Root Protection Radius (from centre of trunk) (m)
T1	Viburnum sp.	5.3	170	13.1	2.0
T2	Laurel	5.2	280	35.5	3.4
T3	Holly	4.7	130	7.6	1.6
T4	Poplar	7.2	350	55.4	4.2
T5	Laurel	5.5	205	19.0	2.5
T6	Poplar	6.2	320	46.3	3.8
T7	Laurel	5.3	164	12.2	2.0
T8	Poplar	5.0	350	55.4	4.2
T9	Poplar	5.3	490	108.6	5.9
T10	Cypress	5.0	120	6.5	1.4
T11	Birch	7.0	50	1.1	0.6
T12	Cypress	4.2	170	13.1	2.0
T13	Willow	4.2	150	10.2	1.8
T14	Redwood	17.4	600	162.9	7.2
T15	Redwood	21.0	600	162.9	7.2
T16	Cypress	5.8	380	65.3	4.6
T17	Cypress	5.8	360	58.6	4.3
T18	Cypress	5.8	450	91.6	5.4
T19	Bay	10.8	340	52.3	4.1

Annex 4 Root Protection Areas. Dashed lines indicate individual protection areas.
For tree identification, see Annex 1.



Tree No.	Species	Height (m)	Trunk diameter (cm)	Root Protection Area (m)	Root Protection Radius (from centre of trunk) (m)
T1	Vibumum sp.	5.3	17	13.08	2.0
T2	Laurel	5.2	28	35.47	3.4
T3	Holly	4.7	13	7.65	1.6
T4	Poplar	7.2	35	55.42	4.2
T5	Laurel	5.5	20.5	19.01	2.5
T6	Poplar	6.2	32	46.33	3.8
T7	Laurel	5.3	16.4	12.17	2.0
T8	Poplar	5.0	35	55.42	4.2
T9	Poplar	5.3	49	108.63	5.9
T10	Cypress	5.0	12	6.52	1.4
T11	Birch	7.0	5	1.13	0.6
T12	Cypress	4.2	17	13.08	2.0
T13	Willow	4.2	15	10.18	1.8
T14	Redwood	17.4	60	162.88	7.2
T15	Redwood	21.0	60	162.88	7.2
T16	Cypress	5.8	38	65.33	4.6
T17	Cypress	5.8	36	58.64	4.3
T18	Cypress	5.8	45	91.62	5.4
T19	Bay	10.8	34	52.30	4.1

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Drawing Scale = 1;100 @ A2
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Scale	Date	Drawn by	Checked by
1:100 @ A2	22.02.2013	ME	DS

Drawing Title: Lower Ground Floor Plan As Proposed Tree RPA's

Project: 36 Heath Drive, London NW3 7SD

DS design solutions
Studio 18, Liddell Road
London NW6 2EW
Phone 020 7624 6680
Fax 020 7624 6681
www.DesignSolutionsUK.com

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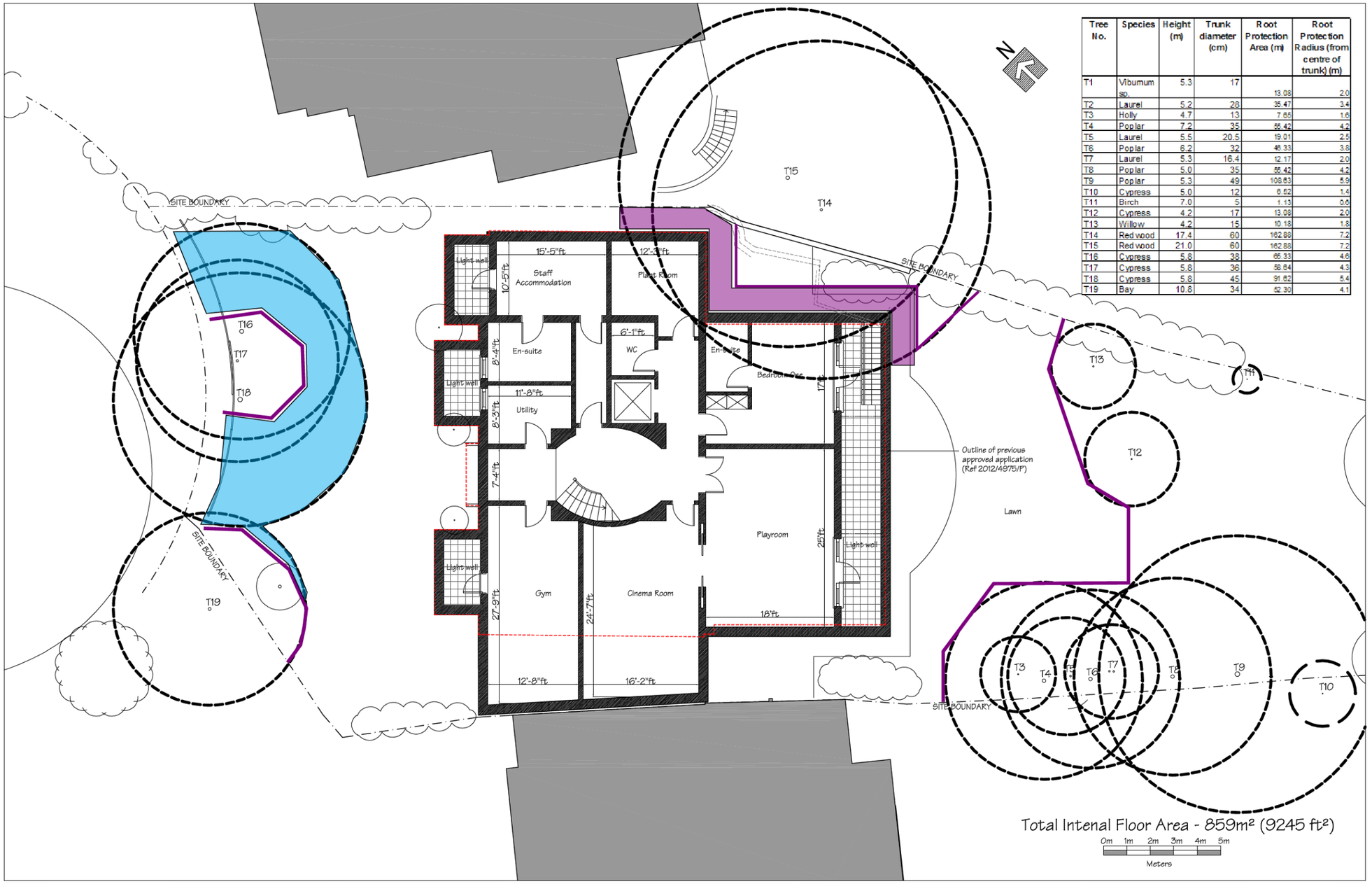
2012/0265	T01	01

Annex 5 Layout of proposed basement showing root protection areas (dashed circles) and the position of protective fencing (purple lines) and ground protection (purple and blue shading). Areas shaded purple will be protected by 200 mm depth of woodchips covered by plywood sheeting. Ground protection in the area shaded blue is provided by existing tarmac surface which will not be removed during the development. For tree identification, see Annex 1.



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T4	Poplar	7.2	35	55.42	4.2
T5	Laurel	5.5	20.5	19.01	2.5
T6	Poplar	6.2	32	46.33	3.8
T7	Laurel	5.3	16.4	12.17	2.0
T8	Poplar	5.0	35	55.42	4.2
T9	Poplar	5.3	49	108.83	5.9
T10	Cypress	5.0	12	6.52	1.4
T11	Birch	7.0	5	1.13	0.6
T12	Cypress	4.2	17	13.08	2.0
T13	Willow	4.2	15	10.18	1.8
T14	Red wood	17.4	60	162.88	7.2
T15	Red wood	21.0	60	162.88	7.2
T16	Cypress	5.8	38	65.33	4.6
T17	Cypress	5.8	36	58.84	4.3
T18	Cypress	5.8	45	91.82	5.4
T19	Bay	10.8	34	52.30	4.1

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